MISSISSIPPI

Handbook for

Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Areas

Volume 3
Appendices:
Developing Plans & Designing Best Management Practices





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of Environmental Quality
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Appendices: Developing Plans & Designing Best Management Practices

Appendices

Appendix A
Erosion and Stormwater Runoff Calculations

Introduction

This appendix provides guidance for determining erosion potential and stormwater runoff calculations of peak flow, runoff volume, storage volume, hydraulic performance of outlet device, stage-storage-discharge, and channel geometry. Some of these calculations are also discussed within the text of Volume 1 and Volume 2, so the specific BMP profiles should also be reviewed when determining erosion and stormwater runoff calculations.

Erosion Calculations

Estimated Reduction for Disturbed Site Planning

SHORTCUT Method to evaluating relative changes

For the purposes of planning erosion and sediment control practices for disturbed sites, USLE or any of its forms will provide good qualitative evaluations of the results of practice application. For purposes of planning and evaluating SWPPPs for erosion and sediment control, qualitative evaluations are sufficient; absolute quantified values are not needed (unless having to meet specific TMDLs).

Basic Equation and Computation

The basic equation for USLE and RUSLE is

$$A = R\ K\ L\ S\ C\ P \qquad \text{(eq. 1)}$$

where: A = Average annual soil loss in tons per acre per year
R = Rainfall/runoff erosivity
K = Soil erodibility
LS = Hillslope length and steepness
C = Cover-management
P = Support practice

For qualitative evaluative purposes, a specific A is not required. Since R and K will essentially remain constant on a site, equation 1 reduces to

$$Eff = 1 - LS\ C\ P \qquad \text{(eq. 2)}$$

where: Eff = relative erosion control efficiency
LS = Hillslope length and steepness
C = Cover-management
P = Support practice

Equation 2 can be used to evaluate a site Eff before disturbance, during disturbance and after restabilization. A disturbed site will be allowed to produce some additional erosion and sediment, but restricted to a controlled amount (e.g. 10 to 15% increase over pre-disturbance condition). Therefore, the allowed Eff is:

$$Eff_{REQD} = 0.87 * Eff_{PRE}$$

where: Eff_{REQD} = relative efficiency required during disturbance
Eff_{PRE} = relative efficiency pre-disturbance
0.87 = allowed erosion and sediment increase during disturbance
(e.g. 15% above predisturbance condition 100/115 = 0.87)

Therefore, the Eff during disturbance must be greater than the Eff required (e.g., 0.87*$\mathbf{Eff_{PRE}}$)

$\mathbf{Eff_{DIST}} > \mathbf{Eff_{REQD}}$, where $\mathbf{Eff_{REQD}} = 0.87 * \mathbf{Eff_{PRE}}$

Pre-disturbance evaluation

The site is broken down into sub-units that conform to planned disturbance (e.g., building pads, roads, cut/fill areas, etc.) and allow for erosion estimation and planning on a manageable basis. Location, topography, soil, ground cover and condition, and supporting practices are evaluated for the site, and appropriate RUSLE values are determined for the preexisting site (by subunits, weighted by area).

The management goal may now be set at some level of this value (e.g. 115% of predisturbance erosion). This goal will be met by erosion control measures (C and P factors) including seeding, mulching, sodding, terracing, diversions, silt barriers, etc. Slope steepness and length may change due to site grading and therefore must be evaluated. While RUSLE calculates soil erosion, not sediment delivery (RUSLE2 evaluates sediment delivery), supporting practices within sub-units can be evaluated with P factors. Certainly, controlling the "C" factor on a site is the most critical and manageable condition to controlling soil erosion (no source, no sediment delivery).

The goal is to always KEEP THE SOIL IN PLACE.

If accelerated erosion cannot be prevented, then measures to keep it on site (e.g. sediment traps) become critical and must also be evaluated for sediment-trapping efficiency. Typically, it is more costly to install and maintain sediment-trapping practices than it is to prevent erosion in the first place by managing cover (C).

Disturbance evaluation

The site is broken down into sub-units that conform to disturbance (e.g., building pads, roads, cut/fill areas, etc.). Grading, soil removal/excavation, ground cover and condition, and supporting practices are evaluated for the site, and appropriate RUSLE values are determined for the disturbed site (by subunits, weighted by area). Weighting can also be done over time (C = 1.0 for 30 days, C = 0.10 for 60 days, the C for 90-day disturbance period is C = 0.40).

The evaluated erosion is compared to the management goal (e.g. 115% of predisturbance erosion).

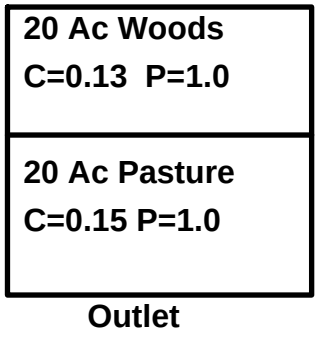
Practices are applied (e.g., mulching, sodding, terracing, diversions, silt barriers, etc.), and the calculation is redone until the applied BMPs achieve the erosion performance goal. If erosion control alone is not sufficient, sediment delivery control and removal must be provided and evaluated for trapping efficiency to demonstrate that the performance goal is met.

Proper installation and maintenance of BMPs is critical to ensure the plan performs as designed.

Use of USLE/RUSLE to Evaluate Site performance

$Eff_{DIST} > Eff_{REQD}$, where $Eff_{REQD} = 0.87 * Eff_{PRE}$

Example of performance-based Sediment and Erosion Control Evaluation
(Efficiency of disturbed site will be allowed to be 115% above pre-disturbance conditions)
Example assumes that LS is constant for the pre-disturbance and disturbance condition (LS = 1); only C&P evaluated.



Before Development

Eff_{PRE} **=1 - C P**

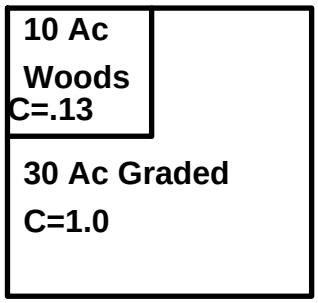
= 1- (1.0 *(0.13*20+0.15*20)/40 *1.0)

= 0.86

Eff_{REQD} **= 0.87*EFF_{PRE}**

= 0.87*0.86

= 0.75



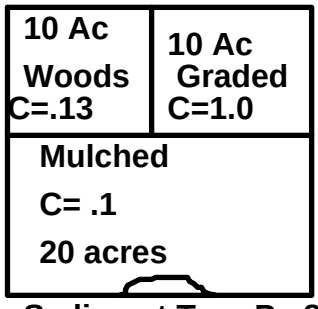
Construction w/o BMPs

Eff_{DIST} **= 1- C P**

= 1-[(0.13*10+1.0*30)/40 *1.0]

= 0.218 << 0.75

This is greater than the allowable 0.161



Construction w/ BMPs, mulch and sediment trap

Eff_{DIST}**= 1- C P**

= 1-[((0.13*10)+(1.0*10)+(20*0.1))/40)*0.8]

= 0.73 < 0.75

Construction w/ BMPs Add Silt Fence in graded area, enlarge sediment trap

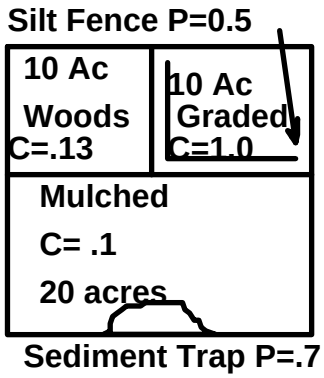
Eff_{DIST}**= LS C P**

= 1-[((0.13*10)+(1.0*10)*0.5+(20*0.1))/40)*0.7]

=

Eff_{DIST} **= 0.85 > 0.75**

$Eff_{DIST} > Eff_{REQD}$ **, plan is sufficient**



Examples of possible comparative values of C and P factors

Treatment	C-factor	P-factor	
Bare Soil	1.00	1.00	
Sediment Trap	1.00	0.10-0.90	
Silt Fence	1.00	0.50	LS reduced in some cases
Pavement	0.01	1.00	
Erosion Blankets	0.10-0.30	1.00	
Terraces	1.00	0.10-0.18	LS reduced in some cases
Buffer Strips	1.00	0.60-0.80	LS reduced in some cases

The following tables are from:

Guidelines for the Use of the Revised Universal Soil Loss Equation (RUSLE) Version 1.06 on Mined Lands, Construction Sites, and Reclaimed Lands
Terrence J. Toy and George R. Foster, Co-editors
Joe R. Galetovic, Publishing Editor
August 1998

The tables are shown for example purposes only. Actual values (C and P) for particular sites and BMPS should be evaluated using the RUSLE (Version 1.06) computer program (available at link below).

http://www.techtransfer.osmre.gov/NTTMainSite/Library/hbmanual/rusle.htm

Table A-1. C factor values for mulch under disturbed-land conditions

Type of Mulch	Gradient (%)	Placed Topsoil	Subsoil	Stripped Topsoil
Straw, 2 tons/acre, 91% cover at placement, 84% cover at 3 months				
	1	0.10	0.10	0.09
	6	0.07	0.08	0.06
	15	0.06	0.08	0.04
	30	0.07	0.10	0.04
	50	0.08	0.11	0.03
Straw, 1 ton/acre. 69% cover at placement, 50% cover at 3 months				
	1	0.24	0.24	0.23
	6	0.18	0.20	0.16
	15	0.18	0.20	0.14
	30	0.18	0.24	0.12
	50	0.20	0.26	0.12
Straw, ½ ton/acre, 36% cover				
	1	0.35	0.35	0.34
	6	0.29	0.31	0.26
	15	0.28	0.32	0.23
	30	0.29	0.35	0.22
	50	0.30	0.38	0.21
Straw, 2 ton s/acre, 20% rock fragment on soil before placement of mulch				
	1	0.09	0.09	0.09
	6	0.06	0.07	0.05
	15	0.06	0.08	0.04
	30	0.06	0.09	0.03
	50	0.07	0.10	0.03
Straw, 1/2 tons/acre, 20 % rock fragment on soil before placement of mulch				
	1	0.24	0.24	0.23
	6	0.18	0.20	0.16
	15	0.18	0.20	0.14
	30	0.18	0.24	0.12
	50	0.20	0.26	0.12
Gravel, 135 tons/acre, 90% cover				
	1	0.08	0.08	0.08
	6	0.05	0.05	0.05
	15	0.04	0.04	0.04
	30	0.03	0.03	0.03
	50	0.03	0.03	0.03

Table A-2. C values for bare soil at construction site

Condition	Practice	Factor
Fill		
	Packed, smooth	1
	Freshly disked	0.95
	Rough (Offset disk)	0.85
Cut		
	Below root zone	0.45
	Scalped surface (some roots remain from sod)	0.15
	Scalped surface (some roots remain from weeds)	0.42

Table A-3. C values for various types of vegetation cover

Type	Production Level (lb/acre)	C-value
Sod (bluegrass)	4000	0.001
Bromegrass	4000	0.002
Weeds		
	2000	0.01
	1000	0.04
	500	0.11
Oats (first four months)	5000 lb/acre at maturity	0.27
	2500 lb/acre at maturity	0.44
Oats (annual)	5000 lb/acre at maturity	0.17

Table A-4. P values for contour furrowing on a 300-ft hillslope with a 10% gradient at Lexington, Kentucky, and hydrologic soil group D (very high runoff potential).

Ridge Height (inches)	About 50% Cover	Nearly Bare Soil
Very low (0.5-2)	1.00	1.00
Moderate (3-4)	0.70	0.95
Very high (>6)	0.41	0.89

Table A-5. P values for contour furrowing on a 300-ft hillslope with a 10% gradient at Denver, Colorado, and hydrologic soil group B (moderate runoff potential).

Ridge Height (inches)	About 50% Cover	Nearly Bare Soil
Very low (0.5-2)	0.66	0.66
Moderate (3-4)	0.42	0.42
Very high (>6)	0.35	0.35

Table A-6. Sediment-delivery ratios for graded terraces on a sandy loam soil with a hillslope length of 300 ft and a 10% gradient at Lexington, Kentucky.

Soil Loss on Inter-Terrace Interval (tons/acre/year)			
	6 t/ac/yr	15 t/ac/yr	28 t/ac/yr
Terrace Grade (%)		SDR	
0.1	0.20	0.12	0.10
0.2	0.32	0.18	0.13
0.5	0.78	0.36	0.23
0.75	1.00	0.53	0.32
1.0	1.00	0.71	0.42
1.5	1.00	1.00	0.62
2.0	1.00	1.00	0.83
2.5	1.00	1.00	1.00
3.0	1.00	1.00	1.00

Table A-7. Sediment-delivery ratios for graded terraces as a function of soil textures, which determines sediment characteristics based on a hillslope length of 300 ft and a 10% gradient at Lexington, Kentucky. Soil loss on the inter-terrace interval is 6 tons/acre/year.

	Terrace Grade (%)	
	0.1	0.5
Soil Texture	SDR	
Sand	0.14	0.77
Sandy loam	0.20	0.78
Silt loam	0.32	0.82
Silt	0.43	0.85
Clay	0.25	0.80

Table A-8. Width of pond used to compute P values for sediment-control barriers. Values are given as a percent of hillslope length above the barrier. The width used in RUSLE is the width of the barrier strip, plus the width of the pond obtained from this table.

	Effective width of barrier as a percent of hillslope length			
Hillslope gradient (%)	**Close-growing grasses**	**Straw bales, gravel, filter barriers**	**Stiff-grass hedges**	**Silt fences and berms**
<5	**5**	**8**	**12**	**15**
5-10	**3**	**5**	**8**	**10**
10-15	**2**	**3**	**4**	**5**

Table A-9. Some typical P values for barriers constructed on a silt loam soil at Lexington, Kentucky.

	Structure Type			
Gradient %	**Shortgrass Strip**	**Gravel Bag**	**Stiff Grass Hedge**	**Silt Fence**
<5	0.37	0.21	0.11	0.08
5-10	0.55	0.37	0.21	0.15
10-15	0.67	0.55	0.45	0.37

Table A-10. Sediment-delivery ratios for sediment basins that are well designed, constructed, and maintained with full sediment-storage capacity.

Soil texture	**Sediment delivery ratio**
Sand	0.01
Loamy sand	0.02
Sandy loam	0.03
Loam	0.05
Silt loam	0.06
Silt	0.07
Sandy clay loam	0.06
Clay loam	0.08
Clay loam	0.08
Silty clay loam	0.09
Sandy clay	0.10
Silty clay	0.12
Clay	0.14

As an approximation, the second basin can be assumed to trap only about 10 percent of the sediment from the first basin and that part of the sediment from the intervening area as determined by the sediment-delivery ratio for the soil type of that intervening area.

Table A-11. Effect of concave hillslope segments, sediment-control barriers, and basin sequences on the effectiveness of sediment basins.

Soil texture on upslope area producing sediment series	SDR of concave hillslope or barrier	SDR for sediment basin	SDR of 2nd sediment basin in series
Silt loam	0.10	0.47	0.84
	0.50	0.11	0.75
High clay	0.10	0.90	0.90
	0.50	0.33	0.90
High sand	0.10	0.29	0.86
	0.50	0.06	0.84

Note: The values computed by RUSLE for sediment basins assume that the basins are well designed, constructed, and maintained.

Table A-12. Erosion and Sediment Control BMPS, Installed Costs and Effectiveness		
BMP	**Unit Cost Installed**	**Estimated Relative Erosion/Sediment Control Effectiveness (not a C or P factor)**
Erosion Control		
Fertilizer	$450-550 per acre	N/A
Seeding	$870-2170 per acre	50% (after germination)
Stolonizing	$2200 per acre + cost of stolons	90%
Hydraulic Mulching	$900-1200 per acre	50-60%
Compost Application	$900-1200 per acre	40-50%
Straw Mulching	$1800-2100 per acre	90-95%
Soil Binders		
Plant Material-based (Short-term)	$700-900 per acre	80-85%
Plant Material-based (Long-term)	$1200-1500 per acre	60-65%
Polymeric Emulsion Blends	$700-1500 per acre	30-70%
Petroleum Resin-Based	$1200-1500 per acre	25-20%
Cementitious Binder Based	$800-1200 per acre	80-85%
Bonded Fiber Matrices	$5000-6000 per acre	90-95%
Rolled Erosion Control Products		
Biodegradable		
Jute	$6000-7000 per acre	65-70%
Curled Wood Fiber	$8000-10500 per acre	85-90%
Straw	$8000-10500 per acre	85-90%
Wood Fiber	$8000-10500 per acre	85-90%
Coconut Fiber	$13000-14000 per acre	90-95%
Coconut Fiber Net	$30000-33,000 per acre	85-90%
Straw Coconut	$1000--12000 per acre	90-95%
Non-Biodegradable		
Plastic Netting	$2000-2200 per acre	<50%
Plastic Mesh	$3000-3500 per acre	75-80%
Synthetic Fiber w/Netting	$34000-40000 per acre	90-95%
Bonded Synthetic Fibers	$45000-55000 per acre	90-95%
Combination Synthetic and Bidegradable Fibers	$30000-36000 per acre	85-90%
Sediment Control		
Silt Fence	$1.50-2.00 per linear foot	Unknown
Fiber Rolls	$1.50-2.00 per linear foot	58%

Adapted from Table 8-2, IECA, How to Select, Install and Inspect Construction Site Erosion and Sediment Control BMPs for NPDES Storm Water Permit Compliance workbook.
Source: Erosion Control Pilot Study report, USR Greiner Woodward Clyde, June 2000, Table 4-1.

Stormwater Calculations

Stormwater Management Objectives

The objective of BMPs is to minimize the adverse effects of development by mimicking, as closely as possible, the runoff characteristics of the site in its undeveloped state. These characteristics include:

- Moderation of runoff peak flows and volumes to minimize downstream erosion and damage to in-stream aquatic habitat.
- Removal of pollutants such as sediment, nutrients, pathological bacteria and heavy metals.
- Infiltration of rainfall to replenish the water table and provide stable base flow to streams.

The preferred stormwater management approach is to preserve the natural storage, infiltration, and pollutant-treatment functions of each drainage area where practical and, where not practical, to construct BMPs that mimic those natural functions as closely as possible.

Stormwater calculations are required to analyze a proposed new development for its impacts on peak flows and volumes. Table A-13 summarizes the stormwater calculations methods that will be presented in this chapter.

Table A-13
Summary of Stormwater Calculations

Calculation of:	Allowable Methods
Peak Flow	Rational Method
Runoff Volume	Simple Method Discrete SCS Curve Number Method
Storage Volume	Stage-Storage Table
Hydraulic Performance of the Outlet Device	Weir Equations Orifice Equation
Stage-Storage-Discharge	Chainsaw Routing Others: HEC-HMS, WinTR-55, SWIMM
Channel Geometry	Manning Equation

Note: Designers may adopt different calculation methods, but the method chosen must provide equivalent or greater protection than the methods presented here.

Peak Flow Calculations

Peak flow calculations provide assistance in determining attenuation rate comparisons for pre- and post-development flow rates. These calculations are used to compute flow rates from the watershed when designing BMPs such as grassed swales, filter strips, and restored riparian buffers.

A common method that is used to determine peak runoff rate is the Rational Method. The Rational equation is given as:

$$Q = C * I * A$$

Where:
- Q = Estimated design discharge (cfs)
- C = Composite runoff coefficient (unitless) for the watershed
- I = Rainfall intensity (in/hr) for the designated design storm in the geographic region of interest
- A = Watershed area (ac)

The composite runoff coefficient reflects the surface characteristics of the contributing watershed. The range of runoff coefficient values varies from 0–1.0, with higher values corresponding to greater runoff rate potential. The runoff coefficient is determined by estimating the area of different land uses within each drainage area. Table A-14 presents values of runoff coefficients for various pervious and impervious surfaces. The Rational Method is most applicable to drainage areas approximately 20 acres or less.

Table A-14

Rational runoff coefficients (ASCE, 1975; Viessman and Lewis, 1996; and Malcom, 1999)

Description of Surface	Rational Runoff Coefficients, C
Unimproved Areas	0.35
Asphalt	0.95
Concrete	0.95
Brick	0.85
Roofs, inclined	1.00
Roofs, flat	0.90
Lawns, sandy soil, flat (<2%)	0.10
Lawns, sandy soil, average (2-7%)	0.15
Lawns, sandy soil, steep (>7%)	0.20
Lawns, heavy soil, flat (<2%)	0.15
Lawns, heavy soil, average (2-5%)	0.20
Lawns, heavy soil, steep (>7%)	0.30
Wooded areas	0.15

The appropriate value for ***I***, precipitation intensity in inches per hour, can be obtained from the NOAA Web site at: http://hdsc.nws.noaa.gov/hdsc/pfds/. This Web site provides precipitation intensity information.

The requirements of the applicable stormwater program will determine the appropriate values for ARI and storm duration. If the design is for a level spreader that is receiving runoff directly from the drainage area, the value for ***I*** should simply be one inch per hour (more information on level spreader design in Chapter 4 of Volume 1).

Runoff Volume

Some stormwater programs have a volume control requirement—that is, capturing the first 1 or 1.5 inches of stormwater and retaining it for 2 to 5 days. There are two primary methods that can be used to determine the volume of runoff from a given design storm: the Simple Method and the discrete SCS Curve Number Method. Both of these methods are intended for use at the scale of a single drainage area. Stormwater BMPs shall be designed to treat a volume that is at least as large as the volume calculated using the Simple Method. If the SCS Method yields a greater volume, then it can also be used.

Simple Method

The Simple Method uses a minimal amount of information such as watershed drainage area, impervious area, and design storm depth to estimate the volume of runoff. The Simple Method was developed by measuring the runoff from many watersheds with known impervious areas and curve-fitting a relationship between percent imperviousness and the fraction of rainfall converted to runoff (the runoff coefficient). This relationship is presented below:

$$R_V = 0.05 + 0.9 * I_A$$

Where: R_V = Runoff coefficient [storm runoff (in)/storm rainfall (in)], unitless

I_A = Impervious fraction [impervious portion of drainage area (ac)/ drainage area (ac)], unitless

Once the runoff coefficient is determined, the volume of runoff that must be controlled is given by the equation below:

$$V = 3630 * R_D * R_v * A$$

Where: V = Volume of runoff that must be controlled for the design storm (ft^3)

R_D = Design storm rainfall depth (in) *(Typically, 1.0" or 1.5")*

A = Watershed area (ac)

Discrete SCS Curve Number Method

The SCS method (U.S. Soil Conservation Service, 1985; 1986) is an alternative method for calculating the volume of stormwater runoff that is generated from a given amount of rainfall.

It may only be used when the site design is a Low Impact Development (LID). **http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17541.wba**

The SCS runoff equation is given below:

$$Q = \frac{(P - 0.2S)^{\wedge}}{P + 0.8S}$$ **Q* =**

Where: Q^* = Runoff depth (in)

P = Rainfall depth (in)
S = Potential maximum retention after rainfall begins (in)

Note: Equation applies only when P > 0.25

S is related to the soil and surface characteristics of the drainage area through the curve number (CN) by the following equation:

$$S = \frac{1000}{CN} - 10$$

Where: CN is the curve number, unitless.

The curve number, CN, describes the characteristics of the drainage area that determine the amount of runoff generated by a given storm: hydrologic soil group and ground cover. Soils are classified into four hydrologic soil groups (A, B, C, and D) based on their minimum infiltration rate, with A having the highest infiltration potential and D having the lowest. The four soil groups are summarized in Table A-15.

The required treatment volume is determined by multiplying the runoff depth (Q*) by the drainage area.

Table A-15

Four Hydrologic Soil Groups as Defined by the U.S. SCS (1986)

Group A	A soils have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sand or gravel and have a high rate of water transmission (greater than 0.30 in/hr). The textures of these soils are typically sand, loamy sand, or sandy loam.
Group B	B soils have moderate infiltration rates when thoroughly wetted and consist chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission (0.15-0.30 in/hr). The textures of these soils are typically silt loam or loam.
Group C	C soils have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine texture. These soils have a low rate of water transmission (0.05-0.15 in/hr). The texture of these soils is typically sandy clay loam.
Group D	D soils have high runoff potential. They have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very low rate of water transmission (0-0.05 in/hr). The textures of these soils are typically clay loam, silty clay loam, sandy clay, silty clay, or clay.

Soils information for previously undisturbed sites can be obtained from a soil survey if one has been published for the county by the Natural Resource Conservation Service. This information is available from the online Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app/). The texture may be determined by soil analysis or from the local soil survey.

The type of ground cover at a given site greatly affects the volume of runoff. Undisturbed natural areas, such as woods and brush, have high infiltration potentials whereas impervious surfaces, such as parking lots and roofs, will not infiltrate runoff at all. The ground surface can vary extensively, particularly in urban areas, and Table A-16 lists appropriate curve numbers for most urban land use types according to hydrologic soil group. Land use maps, site plans, and field reconnaissance are all effective methods for determining the ground cover.

Table A-16

Runoff curve numbers in urban areas for the SCS method (U.S. SCS, 1986)

Cover Description	**Curve Numbers for Hydrologic Soil Group**			
Fully developed urban areas	A	B	C	D
Open Space (lawns, parks, golf courses, etc.)				
Poor condition (< 50% grass cover)	68	79	86	89
Fair condition (50% to 75% grass cover)	49	69	79	84
Good condition (> 75% grass cover)	39	61	74	80
Impervious areas:				
Paved parking lots, roofs, driveways, etc.	98	98	98	98
Streets and roads:				
Paved; curbs and storm sewers	98	98	98	98
Paved; open ditches	83	89	98	98
Gravel	76	85	89	91
Dirt	72	82	85	88
Developing urban areas				
Newly graded areas	77	86	91	94
Pasture (< 50% ground cover or heavily grazed)	68	79	86	89
Pasture (50% to 75% ground cover or not heavily grazed)	49	69	79	84
Pasture (>75% ground cover or lightly grazed)	39	61	74	80
Meadow – continuous grass, protected from grazing and generally mowed for hay	30	58	71	78
Brush (< 50% ground cover)	48	67	77	83
Brush (50% to 75% ground cover)	35	56	70	77
Brush (>75% ground cover)	30	48	65	73
Woods (Forest litter, small trees, and brush destroyed by heavy grazing or regular burning)	45	66	77	83
Woods (Woods are grazed but not burned, and some forest litter covers the soil)	36	60	73	79
Woods (Woods are protected from grazing, and litter and brush adequately cover the soil)	30	55	70	77

Most drainage areas include a combination of land uses. The SCS Curve Number Model should be applied separately: once for areas where impervious cover is directly connected to surface water via a swale or pipe, and a second time for the remainder of the site. The runoff volumes computed from each of these computations should be added to determine the runoff volume for the entire site.

For the portion of the site that is ***not*** directly connected impervious surface, a composite curve number can be determined to apply in the SCS Curve Number Model. The composite curve number must be area-weighted based on the distribution of land uses at the site. Runoff from impervious areas that is allowed to flow over pervious areas has the potential to infiltrate into the soil (for example, where roof downspouts are diffused over a lawn). Disconnected impervious areas produce less runoff than impervious areas that are directly connected to a storm drainage system.

Table A-17

How to apply the SCS Curve Number Method

Step 1.	Divide the drainage area into land uses and assign an appropriate CN to each one (see Table A-16).
Step 2.	Compute Q* for any impervious surfaces that are directly linked to surface waters via a swale or pipe. Find the runoff volume from the directly connected impervious surfaces by multiplying Q* times the area of the directly connected impervious surfaces.
Step 3.	Composite a curve number for the remainder of the site by using a weighted average. If the composite CN is equal to or below 64, assume that there is no runoff resulting from either the 1 or 1½ inch storm. If the composite CN is above 64, compute Q* for this area. Find the runoff volume from the remainder of the site by multiplying Q* times the area of the remainder of the site.
Step 4.	Find the runoff volume from the whole site by adding the results of Step 2 and Step 3.

Storage Volume

Volume control is typically provided through detention structures with volume above the water operating level and below the required freeboard. Some BMPs do not have the capability to provide this volume control due to their design, and others can include storage volume within the media of the BMP. Each individual BMP chapter discusses the specific calculations for meeting the volume control requirements. However, since many of the BMPs use storage volume in a detention structure, this section will discuss an acceptable method of calculating that volume.

Storage volume within a detention structure shall be calculated using a stage-storage method. A table shall be provided showing incremental elevations of the BMP with square footage values at the listed elevations. The elevation increments shall be no more than 1 foot. Columns can then be produced showing the incremental volume and cumulative volume of storage provided. See Table A-18 below for an example of a storage volume calculation. This method can be used for basin shapes as simple as a rectangle or as intricate as a curved, landscape designed wetland feature. It can also be used to calculate sediment storage volume and operating volume within BMPs.

Table A-18

Stage-Storage Volume Calculation Table Example

Elevation	Surface Area (sf)	Incremental Volume (cf)	Cumulative Volume (cf)
less than 725	operating volume	0	0
725	10,000	0	0
726	13,000	11,500	11,500
727	16,500	14,750	26,250
728	21,500	19,000	45,250
729	26,000	23,750	69,000
over 729	freeboard	0	69,000

Hydraulic Performance of the Outlet Device

To successfully design a stormwater treatment system, it is crucial to analyze the way in which the outlet devices release stormwater outflow. Typically, these devices can be considered as either weirs or orifices. A weir is a dam placed horizontally along a stream or channel to raise its level or divert its flow. Some uses for weirs are in the design of stormwater BMPs are:

- Check dams in channels,
- Flow splitter devices,
- Flow into a pipe before it is completely submerged, and
- Level spreaders.

An orifice is simply a hole. In the design of stormwater BMPs, orifices are used to drain a BMP that is detaining stormwater for volume control and pollutant removal. It is important to determine the size of an orifice correctly so that the appropriate drawdown rate can be provided.

Weir Equations

Three kinds of weirs are typically used: sharp-crested, broad-crested, and v-notch. For sharp-crested and broad-crested weirs, the basic equation is:

$$Q = C_W L H^{1.5}$$

Where: Q = Discharge (cfs)

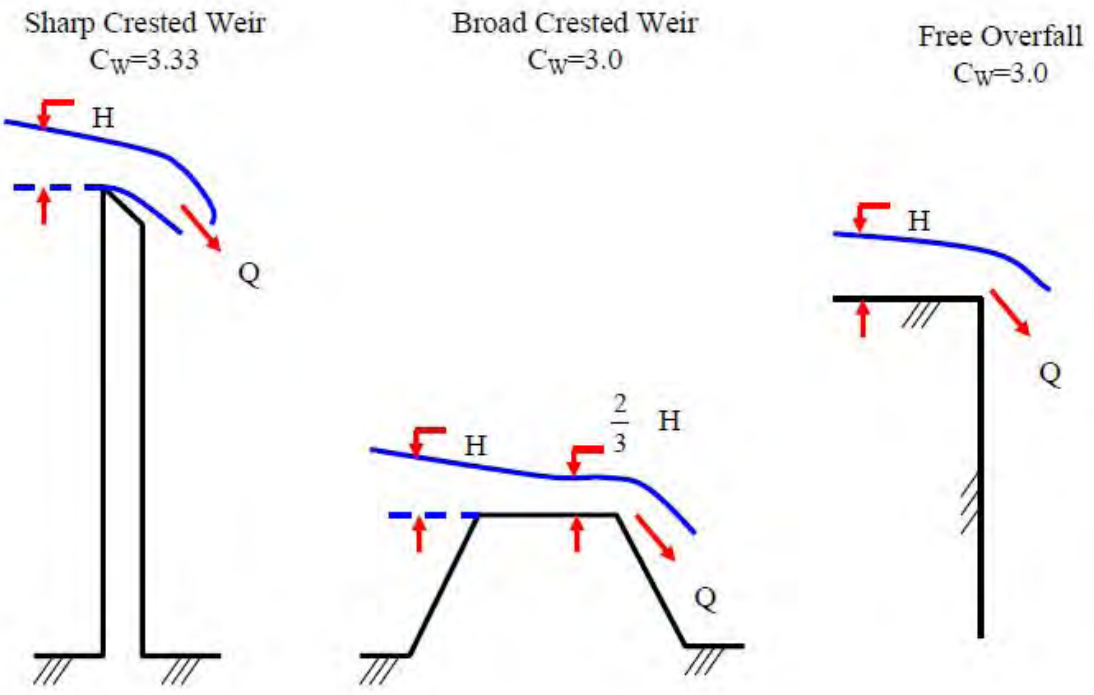
C_W = Coefficient of discharge (dimensionless) – see below

L = Length of weir (ft), measured along the crest

H = Driving head (ft), measured vertically from the crest of the weir to the water surface at a point far enough upstream to be essentially level

Figure A-1

Schematic sections through weirs (Malcom 1989)

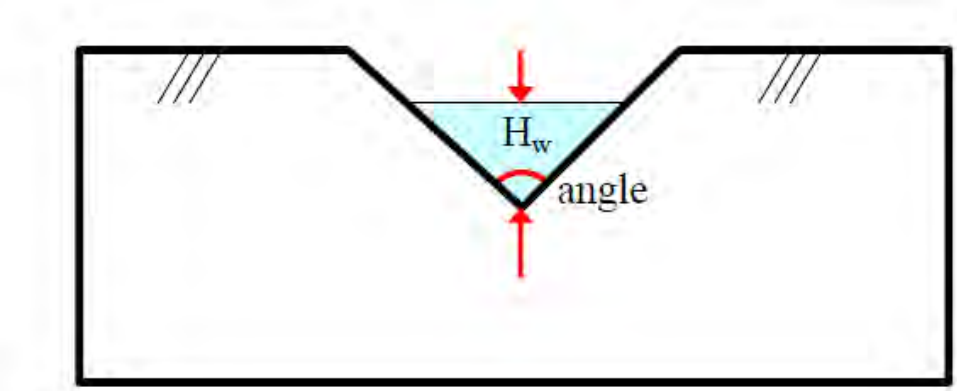


For v-notch weirs, the basic equation is:

$$Q = C_v H_w^{5/2}$$

Where:
- Q = Discharge (cfs)
- C_v = Weir flow coefficient for V-notch weirs
  - 2.50 for 90 degrees
  - 1.44 for 60 degrees
  - 1.03 for 45 degrees
- H_w = Difference between pool elevation and notch (ft)

Figure A-2



Orifice Equation

The basic equation for orifices is:

$$Q = C_D A\sqrt{2gH_o}$$

Where:
- Q = Discharge (cfs)
- C_D = Coefficient of discharge (dimensionless) – see Table A-19
- A = Cross-sectional area of flow at the orifice entrance (sq ft)
- g = Acceleration of gravity (32.2 ft/sec^2)
- H_O = Driving head (ft), measured from the centroid of the orifice area to the water surface – **Note: Usually, use $H_o/3$ to compute drawdown through an orifice to reflect the fact that head is decreasing as the drawdown occurs.**

Figure A-3

Schematic section through an orifice

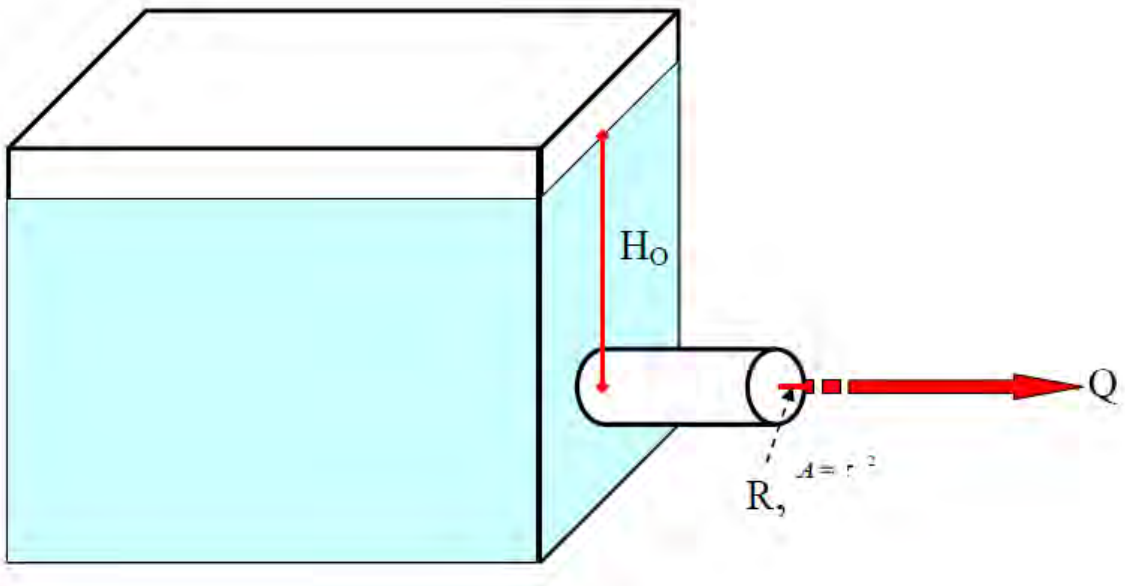


Table A-19

Values of Coefficient of Discharge, C_D (Malcom, 1989)

Entrance Condition	**C_D**
Typical default value	0.60
Square-edged entrance	0.59
Concrete pipe, grooved end	0.65
Corrugated metal pipe, mitered to slope	0.52
Corrugated metal pipe, projecting from fill	1.00

Stage-Storage-Discharge Model

Creating a stage-storage-discharge model is crucial for stormwater BMPs that involve detention of stormwater, particularly stormwater wetlands and wet detention basins. These BMPs provide volume control for the specified storm (for example, the 1- or 1½-inch storm) in a temporary pool that is above the permanent pool.

(Please note that some BMPs do not have the capability to provide this volume control due to their design, and others can include storage volume within the media of the BMP. Each BMP section will discuss the specific calculations for meeting the volume control requirements.)

Chainsaw Routing

The Chainsaw Routing method is appropriate for the routine design of small systems. Three sets of source data are needed to apply the Chainsaw Routing method:

- The inflow hydrograph,
- The size and shape of the storage basin, and
- The hydraulics of the outlet device.

The application of the Chainsaw Routing method is described in detail in *Elements of Urban Stormwater Design* (Malcom, 1989).

Other Models

Other models may be used to assist in determining stage-storage-discharge through a detention BMP. These models include:

- HEC-HMS, developed by the U.S. Army Corps of Engineers, provides a variety of options for simulating precipitation-runoff processes. This model can simulate unit hydrograph and hydrologic routing options. The latest version also has capabilities for continuous soil moisture accounting and reservoir routing operations. http://www.hec.usace.army.mil/software/hec-hms/download.html
- WinTR-55, develop by the NRCS, can be used to analyze the hydrology of small watersheds. A final version (including programs, sample data, and documentation) is now complete. http://www.wcc.nrcs.usda.gov/hydro/hydro-tools-models-wintr55.html
- SWIMM, developed by the EPA, can be used to analyze stormwater quantity and quality associated with runoff from urban areas. Both single-event and continuous simulation can be performed on catchments having storm sewers, or combined sewers and natural drainage, for prediction of flows, stages and pollutant concentrations. http://www.epa.gov/ceampubl/swmm.htm

Channel Geometry

The Manning Equation is the model of choice for determining the cross section for a trapezoidal stormwater channel. It is applicable where (Malcom 1989):

- Stormwater is flowing under the influences of gravity, and
- Flow is steady – it does not vary with time (Although discharge does vary during the passage of a flood wave, it is essentially steady during the time around the peak, the time of interest in channel design.)

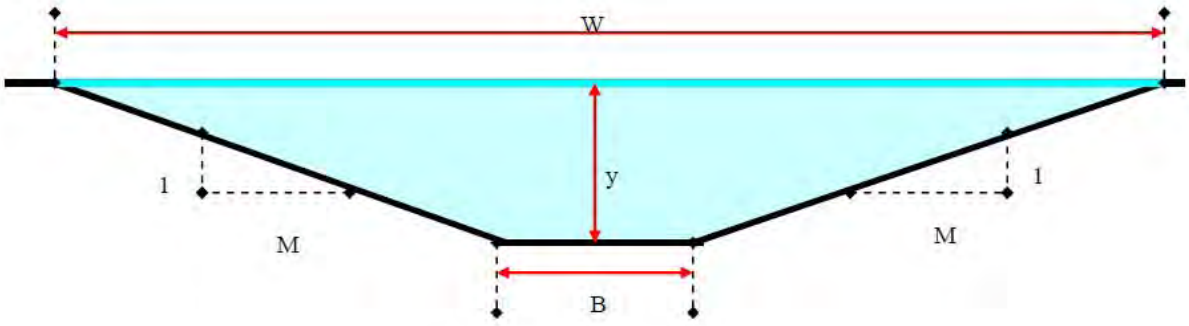
The Manning Equation can be stated as:

$$Q = \frac{1.489}{n} A R^{0.667} S^{0.5}$$

Where:

- Q = Peak discharge to the channel (cfs)
- n = Manning roughness coefficient (dimensionless)
- A = Cross-sectional area of flow (sq ft), the area through which flow takes place *(see below)*
- R = Hydraulic radius (ft), found by dividing cross-sectional area, A (sq ft), by wetted perimeter, P (ft) *(see below)*
- S = Longitudinal slope of the invert of the channel (ft fall/ft run).

Figure A-4
Diagram of a trapezoidal channel*



* M is governed by channel side slope requirements, which are typically 3:1 (M = 3) unless otherwise specified in this manual.

The Manning roughness coefficient is an experimentally determined value that is a function of the nature of the channel lining.

Table A-20

Rational runoff coefficients (adopted from Munson, et al., 1990 and Chow et al., 1988)

Channel lining	Manning roughness coefficient, n
Asphalt	0.016
Concrete, finished	0.012
Concrete, unfinished	0.014
Grass	0.035
Gravel bottom with riprap sides	0.033
Weeds	0.040

The cross-sectional area of flow, A, can be determined by the following equation:

$$A = By + My^2$$

The wetted perimeter, P, is the distance along the cross section against which the water is flowing. It does not include the free water surface. P can be determined by the following equation:

$$P = B + 2y\,(1 + M^2)^{0.5}$$

The hydraulic radius, R, can be determined by the following equation:

$$R = \frac{A}{P}$$

For the three equations above, the variables have the following meanings (also refer to Figure A-4):

A = Cross-sectional area of flow (sq ft)
B = Bottom width of the channel (ft)
M = Side slope ratio (ft horizontal/ft vertical)
(determined by channel side slope requirements)
P = Wetted perimeter (ft)
R = Hydraulic radius (ft)
y = Depth of flow (ft)

Short Cut Floodrouting Method

To use the short cut floodrouting method, the designer must obtain information about the proposed floodwater impoundment site.

1. Hazard - A determination must be made about the possibility of road or building damage or personal injury from an overtopping or embankment failure. The short cut method is applicable only when none of the above hazards are present or could be present in the foreseeable future.

2. Permits - Structure sites in urban areas or those with embankments greater than 8 feet will require a construction permit from the Department of Environmental Quality - Office of Land and Water.

3. Flow Data - Structure design should be able to control a minimum 10-year, 24-hour storm on the watershed area unless a larger storm is needed for outlet erosion control or for other reasons. The peak inflow rate, qi, can be determined using EFM2 procedures, found at the end of this chapter, or other acceptable method. The peak inflow rate calculations must consider future development in the watershed.

   The stormwater release peak outflow rate, qo, may be chosen (set pipe size, concrete or vegetative spillway width) or calculated knowing qi, volume of runoff (Vr), and volume of storage available. Many times, the downstream channel capacity will determine the release rate to avoid out-of-bank flooding.

4. Floodwater Storage - The pool area of the proposed structure must be surveyed to determine how much storage volume is available for floodwater impoundment. Upstream property lines must be located to identify any storage limit. This value can be calculated knowing Vr, qi, and qo.

   An approximate storage volume can be calculated using the maximum pool depth, D, and pool surface area, A, in the formula: Volume = 0.4 D × A. This should not be used for final design calculations.

5. Short Cut Floodrouting – [http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17549.wba] The short cut floodrouting method is based on average storage and routing effects of the structure using two ratios:

   qo/qi : peak outflow to peak inflow
   Vs/Vr : volume of storage available to volume of runoff

   The following graph (Figure A-5) has been developed to show the relationship of these ratios. The upper curve for storm types II and III applies to Mississippi.

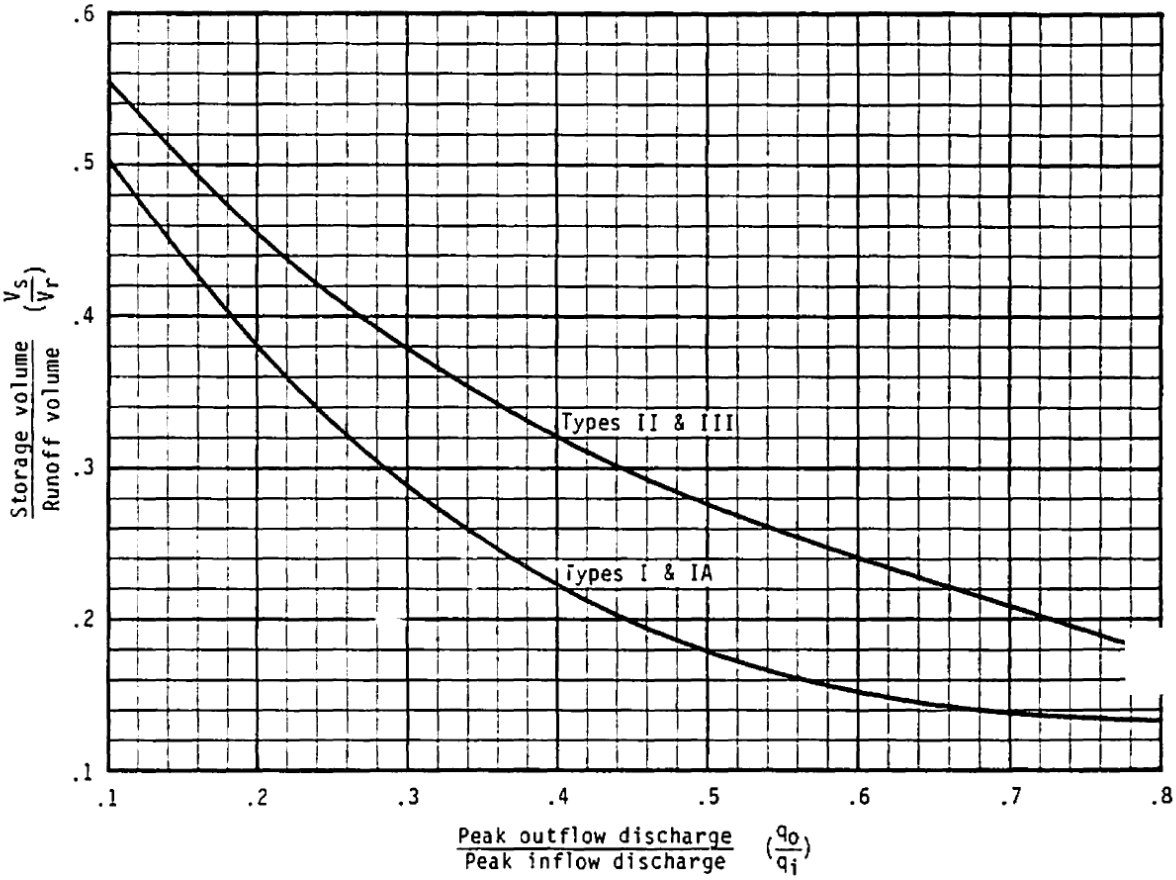


Figure A-5. Approximate detention basin routing for rainfall Types II and III.

The most common desired values, or unknowns, are Vs (Volume of stormwater storage) or q_O (Peak outflow).

To find Vs (in acre-feet) knowing the other three ratio values, compute the qo/qi value. Enter bottom of graph at that value, move up to the Type II and III line intersect, and then move horizontally to the left reading the Vs/Vr value. Vs = (Value) × Vr

To find q_O (in cfs) knowing the other three ratio values, compute the Vs/Vr value. Enter the left side of graph at that value, move horizontally to the Type II and III line intersect, and then move down to the bottom reading the qo/qi value. qo = (Value) × qi.

Notice that the qo/qi ratio is valid between 0.1 and 0.8 while the Vs/Vr ratio is valid between 0.1 and 0.6. An engineer experienced in floodrouting should provide designs for ratios outside these ranges.

Sample Problem 4:

A development is being planned in a 75-acre watershed that outlets into an existing concrete-lined channel designed for present conditions. If the channel capacity is exceeded, damages will be substantial. The watershed is in the Type II storm distribution region. The present channel capacity, 180 cfs, was established by computing discharge for the 25-year-frequency storm by the Graphical Peak Discharge method.

The developed-condition peak discharge (qi) computed by the same method is 360 cfs, and runoff (Q) is 3.4 inches. Since outflow must be held to 180 cfs, a detention basin having that maximum outflow discharge (qo) will be built at the watershed outlet.

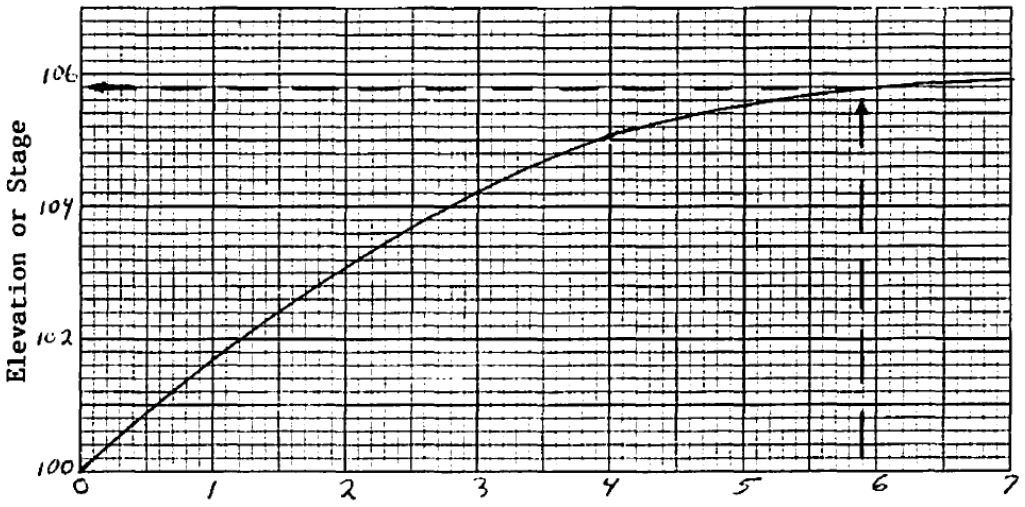
How much storage (Vs) will be required to meet the maximum outflow discharge (qo) of 180 cfs, and what will be the approximate dimensions of a rectangular weir outflow structure? Use worksheet 4 to estimate required storage and maximum storage elevation.

Worksheet 4: Detention basin storage computation

Project Leisure Dr. By RLL Date 5-12-93

Location Anywhere, MS Checked PI Date 5-13-93

Circle one: Present (Developed) Weir outflow structure



1. Data:
   Drainage area.....A_m = 75 acre
   Rainfall distribution
   Type II, III = II

	1st stage	2nd stage
2. Frequency.....yr	25	
3. Peak inflow discharge, $q_p = q_i$.....cfs (From worksheet 3)	360	
4. Peak outflow discharge, q_o.....cfs 1/	180	
5. Compute q_o/q_i.	.50	
6. V_s/V_r ratio... (Use q_o/q_i with figure 6-2)	0.28	
7. Runoff volume, V_r.....ac-ft (V_r = Q x 12 x Am)	21.2	
8. Storage volume, V_s.....ac-ft ($V_s = V_r$ x Ratio Vs/Vr)	5.9	
9. Storage elev. (From plot)	105.8	

1/ 2nd stage q_o includes 1st stage q_o.

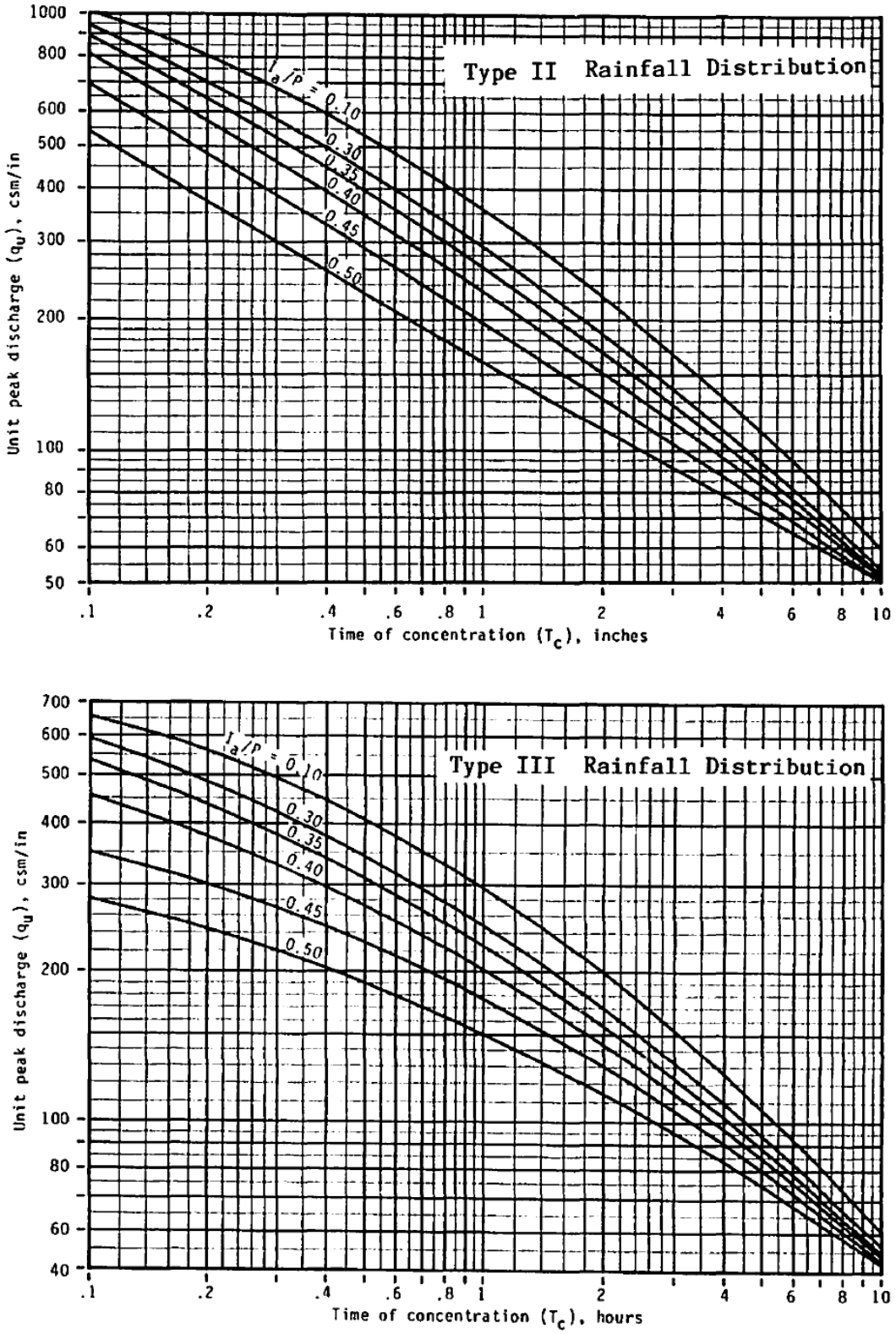


Figure A-6. Unit peak discharge (qu).

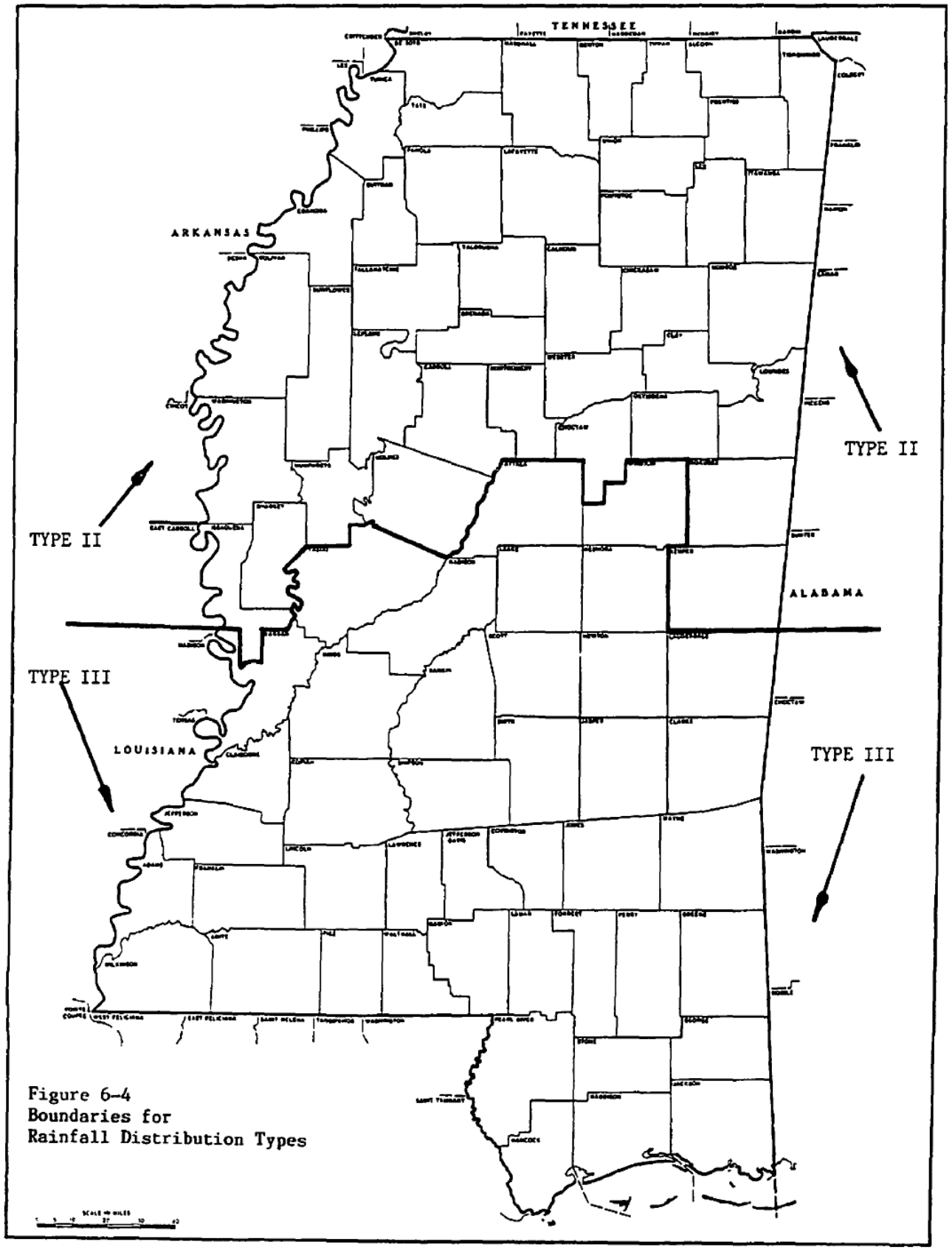


Figure A-7. Boundaries for rainfall distribution types

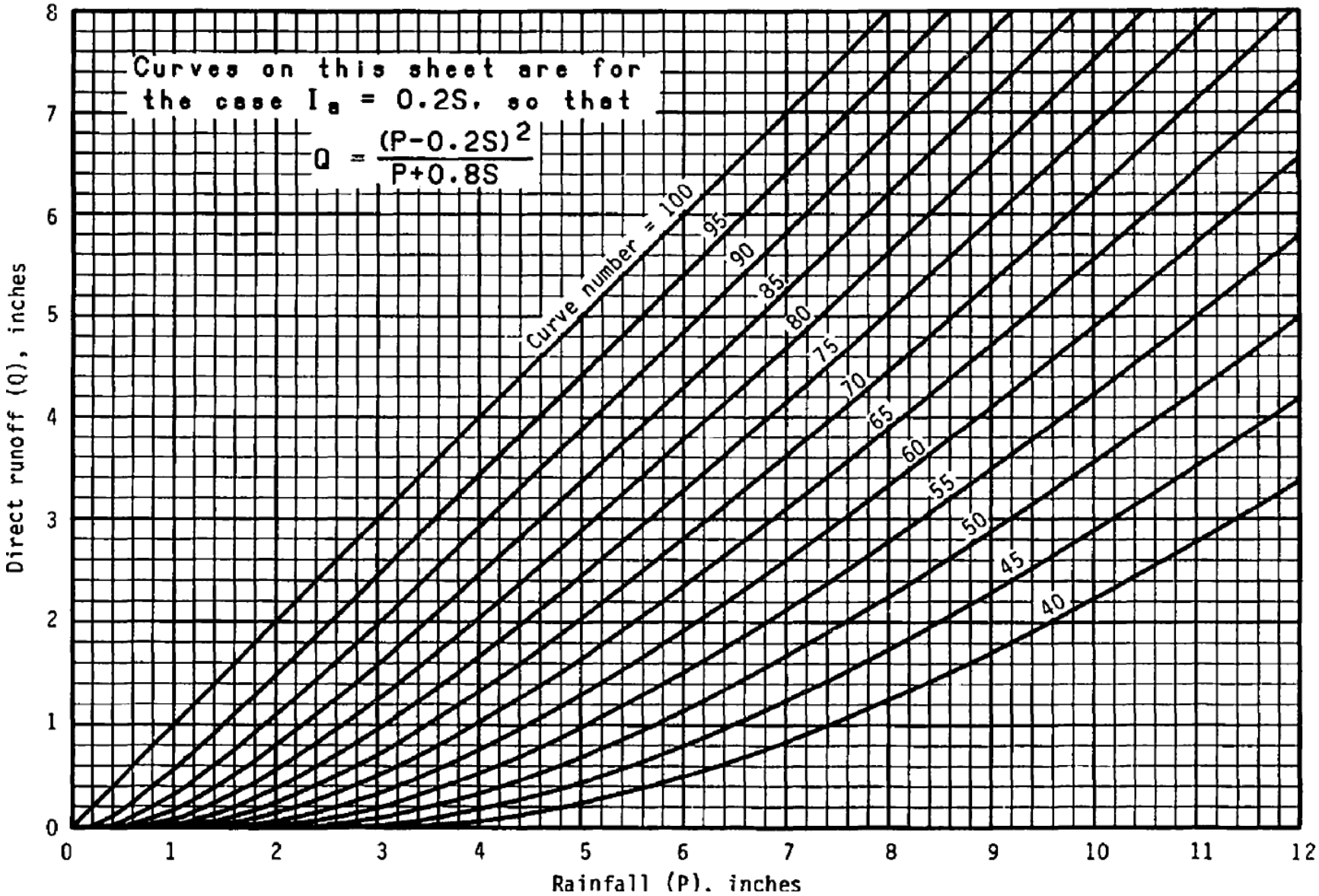


Figure A-8. Solution for runoff equation

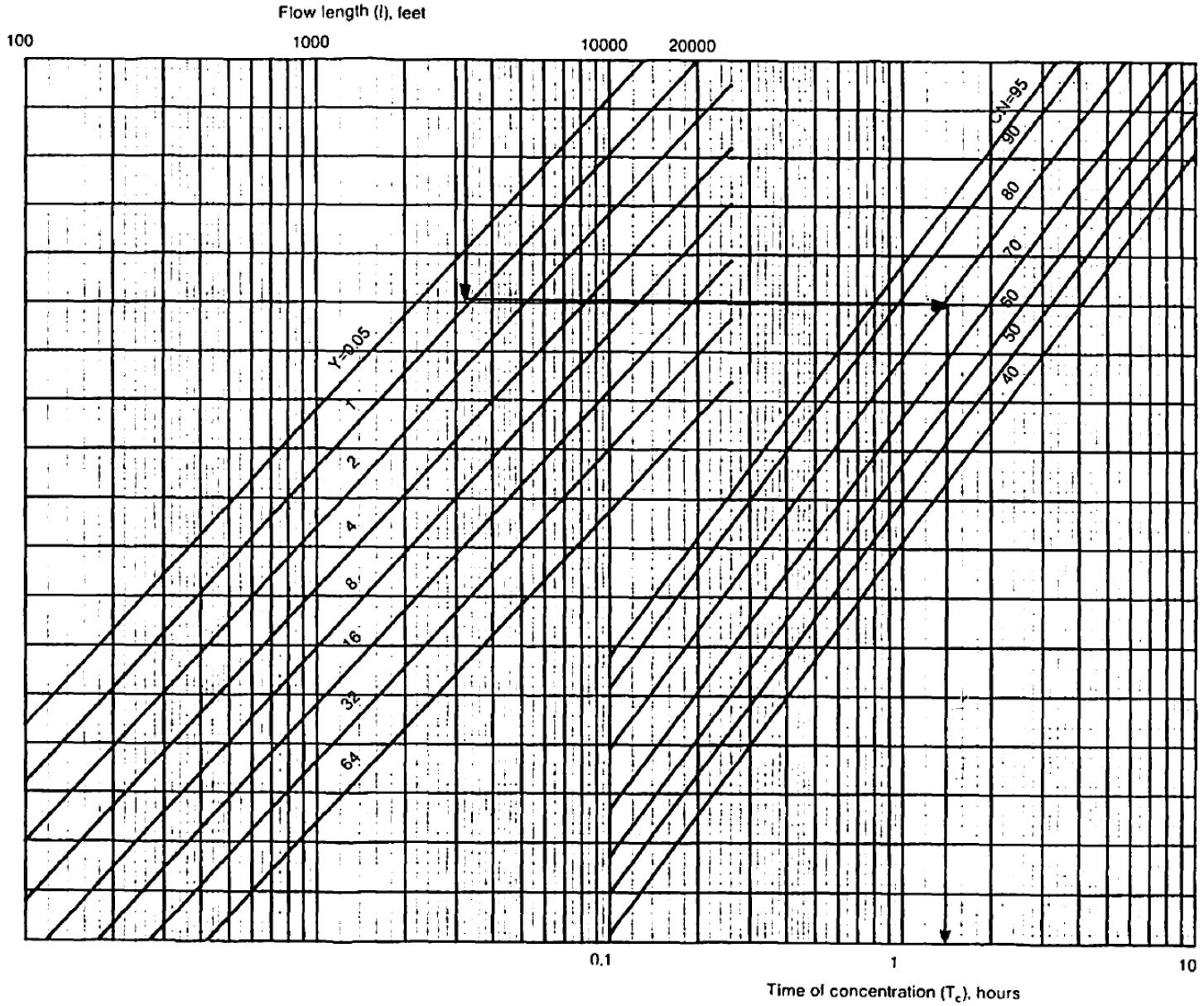


Figure A-9 . Time of concentration (T_c) nomograph

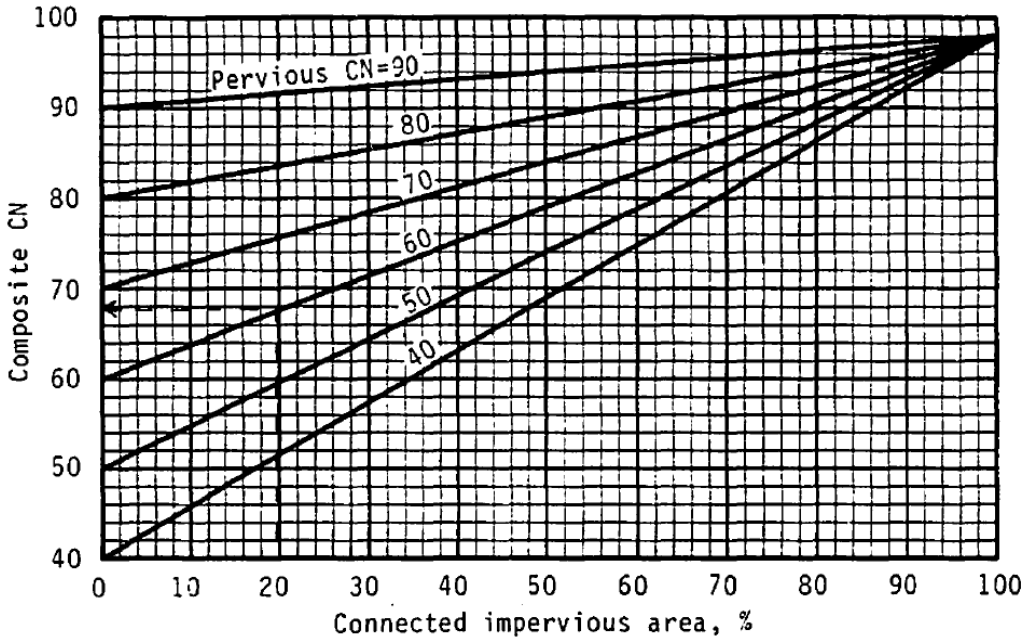


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Figure A-10. Composite CN with connected impervious area

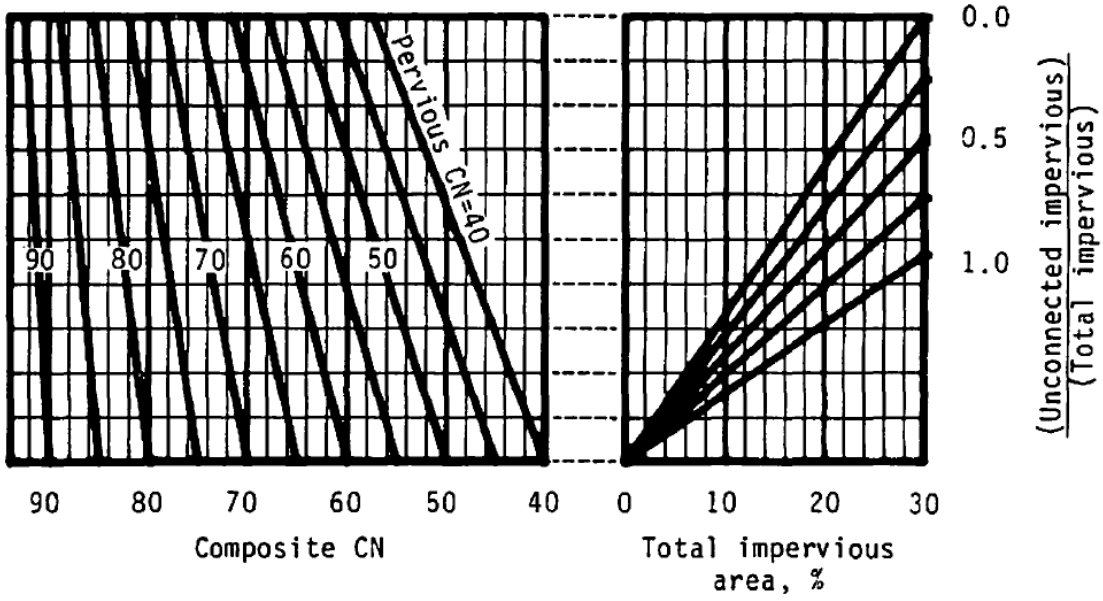

Figure A-11. Composite CN with unconnected impervious areas and total impervious area less than 30%

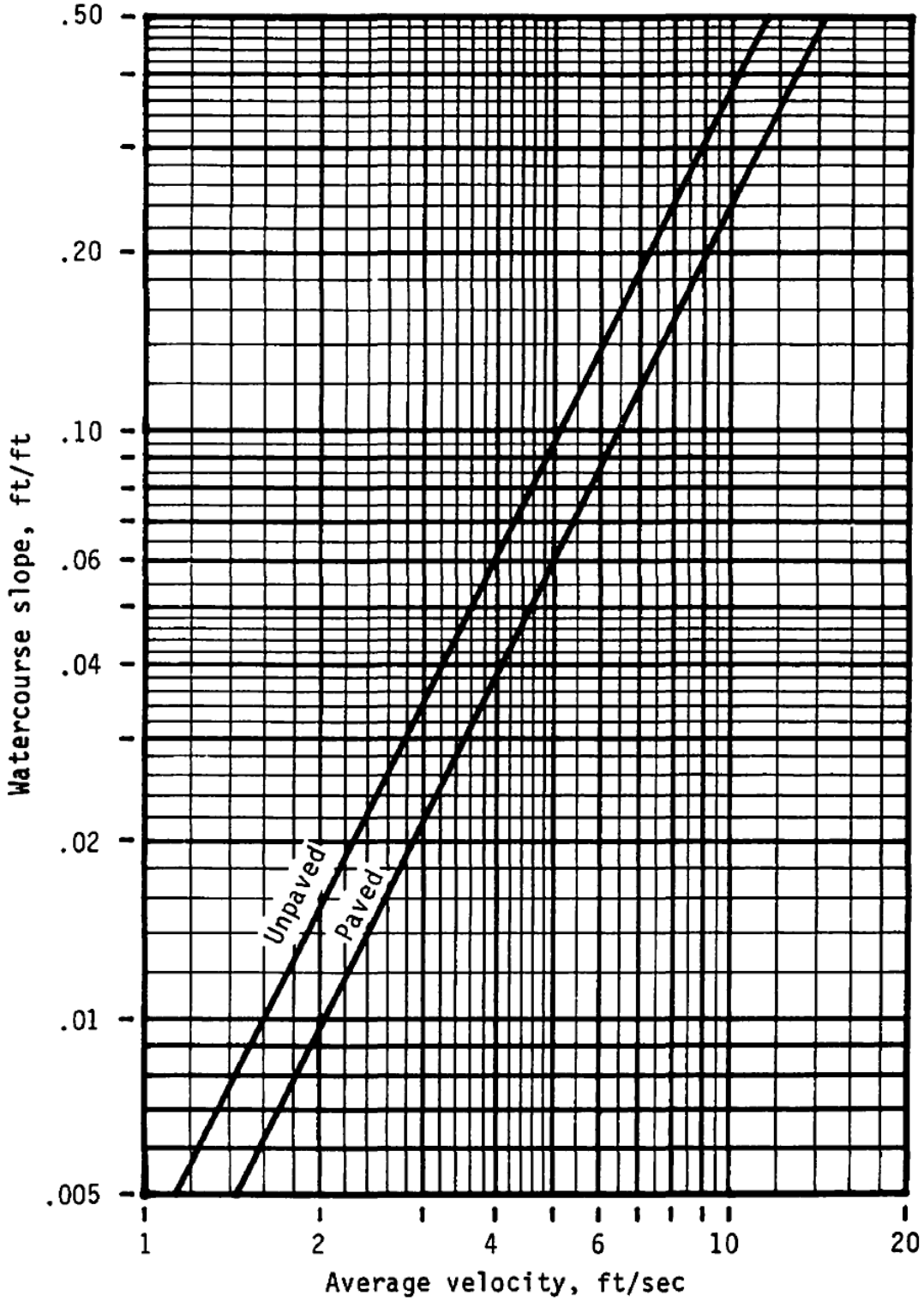

Figure A-12. Average velocities for estimating travel time for shallow concentrated flow

Table A-21. Rainfall frequency values (estimated precipitation for 24-hour period expressed in inches)

County	Storm Frequency						
	1 yr.	2 yr.	5 yr.	10 yr.	25 yr.	50 yr.	100 yr.
ADAMS	4.0	4.8	6.3	7.0	8.4	9.1	10.3
ALCORN	3.3	3.9	4.8	5.6	6.5	7.1	7.7
AMITE	4.2	4.8	6.4	7.4	8.6	9.4	10.6
ATTALA	3.7	4.3	5.4	6.3	7.2	8.1	8.8
BENTON	3.4	4.0	4.9	5.7	6.6	7.2	7.8
BOLIVAR	3.6	4.3	5.3	6.2	7.0	7.8	8.6
CALHOUN	3.5	4.1	5.2	5.9	6.9	7.6	8.3
CARROLL	3.6	4.2	5.3	6.2	7.1	6.2	8.6
CHICKASAW	3.5	4.1	5.1	5.9	6.8	7.6	8.3
CHOCTAW	3.6	4.2	5.3	6.2	7.0	7.9	8.6
CLAIBORNE	3.9	4.6	6.0	6.9	7.8	8.8	9.6
CLARKE	3.9	4.7	6.0	6.9	7.9	8.9	9.8
CLAY	3.5	4.1	5.2	6.0	6.9	7.7	8.4
COAHOMA	3.5	4.2	5.2	6.0	6.9	7.7	8.4
COPIAH	3.9	4.6	6.0	6.9	7.9	8.8	9.7
COVINGTON	4.0	4.7	6.2	7.1	8.2	9.2	10.2
DESOTO	4.0	4.1	5.0	5.8	6.7	7.2	8.1
FORREST	4.2	4.9	6.5	7.7	8.8	10.0	11.2
FRANKLIN	4.0	4.8	6.3	7.0	8.3	9.0	10.1
GEORGE	4.4	5.4	7.3	8.5	9.7	11.1	12.3
GREENE	4.2	4.9	6.7	7.8	8.9	10.4	11.5
GRENADA	3.6	4.2	5.2	6.0	6.9	7.7	8.5
HANCOCK	4.7	5.8	7.5	8.7	10.5	11.4	12.5
HARRISON	4.7	5.8	7.5	8.8	10.5	11.4	12.6
HINDS	3.9	4.4	5.8	6.7	7.7	8.6	9.4
HOLMES	3.7	4.3	5.4	6.3	7.2	8.1	8.8
HUMPHREYS	3.7	4.4	5.4	6.4	7.3	8.2	8.8
ISSAQUENA	3.8	4.3	5.6	6.6	7.5	8.4	9.1
ITAWAMBA	3.4	3.9	5.1	5.8	6.6	7.3	8.0
JACKSON	4.7	5.9	7.7	9.0	10.5	11.5	13.0
JASPER	3.9	4.6	6.0	6.8	7.9	8.8	9.7
JEFFERSON	4.0	4.7	6.1	7.0	8.0	8.9	9.9
JEFF DAVIS	4.0	4.6	6.2	7.0	8.2	9.0	10.0
JONES	4.0	4.8	6.2	7.2	8.2	9.3	10.5
KEMPER	3.7	4.4	5.6	6.5	7.4	8.2	9.0
LAFAYETTE	3.5	4.1	5.1	5.8	6.8	7.4	8.2
LAMAR	4.2	4.9	6.5	7.6	8.6	9.8	11.0
LAUDERDALE	3.8	4.6	5.7	6.7	7.6	8.5	9.4
LAWRENCE	4.0	4.6	6.2	7.0	8.2	9.0	10.0
LEAKE	3.8	4.3	5.5	6.5	7.4	8.3	9.0
LEE	3.4	4.0	5.0	5.8	6.7	7.4	8.1
LEFLORE	3.6	4.3	5.3	6.2	7.1	7.9	8.6
LINCOLN	4.0	4.7	6.2	7.0	8.2	9.0	10.0
LOWNDES	3.6	4.2	5.3	6.1	7.0	7.8	8.5

Table A-21. Rainfall frequency values (cont.).

	Storm Frequency						
County	1 yr.	2 yr.	5 yr.	10 yr.	25 yr.	50 yr.	100 yr.
MADISON	3.8	4.4	5.6	6.5	7.5	8.4	9.1
MARION	4.2	4.8	6.4	7.4	8.8	9.6	10.8
MARSHALL	3.4	4.0	5.0	5.7	6.7	7.2	7.9
MONROE	3.5	4.1	5.1	5.9	6.8	7.5	8.3
MONTGOMERY	3.6	4.2	5.3	6.2	7.0	7.8	8.6
NESHOBA	3.8	4.4	5.5	6.5	7.4	8.2	9.0
NEWTON	3.8	4.5	5.7	6.7	7.6	8.5	9.3
NOXUBEE	3.6	4.3	5.4	6.3	7.2	8.0	8.8
OKTIBBEHA	3.6	4.2	5.3	6.1	7.0	7.8	8.6
PANOLA	3.5	4.1	5.1	5.9	6.8	7.5	8.2
PEARL RIVER	4.4	5.0	7.0	8.2	9.4	10.5	11.7
PERRY	4.2	4.9	6.6	7.8	8.8	10.1	11.4
PIKE	4.2	4.8	6.4	7.4	8.5	9.5	10.6
PONTOTOC	3.5	4.0	5.1	5.8	6.8	7.4	8.1
PRENTISS	3.3	3.9	4.9	5.6	6.6	7.3	7.8
QUITMAN	3.5	4.2	5.2	6.0	6.9	7.6	8.3
RANKIN	3.9	4.4	5.8	6.7	7.7	8.6	9.4
SCOTT	3.8	4.5	5.7	6.6	7.6	8.5	9.3
SHARKEY	3.8	4.4	5.5	6.5	7.4	8.3	9.0
SIMPSON	3.9	4.5	6.0	6.9	7.8	8.8	9.7
SMITH	3.9	4.6	5.9	6.8	7.8	8.8	9.7
STONE	4.4	5.3	7.2	8.3	9.6	10.9	12.1
SUNFLOWER	3.6	4.3	5.3	6.2	7.1	7.9	8.7
TALLAHATCHIE	3.6	4.2	5.2	6.0	6.9	7.7	8.4
TATE	3.4	4.1	5.1	5.8	6.7	7.3	8.1
TIPPAH	3.4	4.0	4.9	5.6	6.6	7.2	7.8
TISHOMINGO	3.3	3.9	4.8	5.6	6.5	7.0	7.7
TUNICA	3.5	4.1	5.1	5.9	6.8	7.4	8.2
UNION	3.4	4.0	5.0	5.7	6.7	7.3	8.0
WALTHALL	4.2	4.8	6.4	7.4	8.6	9.6	10.8
WARREN	3.9	4.5	5.8	6.7	7.7	8.6	9.3
WASHINGTON	3.7	4.4	5.4	6.4	7.3	8.1	8.9
WAYNE	4.0	4.8	6.3	7.3	8.4	9.5	10.5
WEBSTER	3.6	4.2	5.2	6.1	7.0	7.7	8.5
WILKINSON	4.2	4.9	6.5	7.4	8.7	9.5	10.8
WINSTON	3.7	4.3	5.4	6.3	7.2	8.0	8.8
YALOBUSHA	3.5	4.1	5.2	6.0	6.9	7.6	8.4
YAZOO	3.8	4.4	5.5	6.5	7.4	8.3	9.0

Table A-22. Runoff depth for selected CN values and rainfall amounts.[1/]

Rainfall	Runoff (Q) for curve number of—											
	40	45	50	55	60	65	70	75	80	85	90	95
	inches											
1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.08	0.17	0.32	0.56
1.2	.00	.00	.00	.00	.00	.00	.03	.07	.15	.27	.46	.74
1.4	.00	.00	.00	.00	.00	.02	.06	.13	.24	.39	.61	.92
1.6	.00	.00	.00	.00	.01	.05	.11	.20	.34	.52	.76	1.11
1.8	.00	.00	.00	.00	.03	.09	.17	.29	.44	.65	.93	1.29
2.0	.00	.00	.00	.02	.06	.14	.24	.38	.56	.80	1.09	1.48
2.5	.00	.00	.02	.08	.17	.30	.46	.65	.89	1.18	1.53	1.96
3.0	.00	.02	.09	.19	.33	.51	.71	.96	1.25	1.59	1.98	2.45
3.5	.02	.08	.20	.35	.53	.75	1.01	1.30	1.64	2.02	2.45	2.94
4.0	.06	.18	.33	.53	.76	1.03	1.33	1.67	2.04	2.46	2.92	3.43
4.5	.14	.30	.50	.74	1.02	1.33	1.67	2.05	2.46	2.91	3.40	3.92
5.0	.24	.44	.69	.98	1.30	1.65	2.04	2.45	2.89	3.37	3.88	4.42
6.0	.50	.80	1.14	1.52	1.92	2.35	2.81	3.28	3.78	4.30	4.85	5.41
7.0	.84	1.24	1.68	2.12	2.60	3.10	3.62	4.15	4.69	5.25	5.82	6.41
8.0	1.25	1.74	2.25	2.78	3.33	3.89	4.46	5.04	5.63	6.21	6.81	7.40
9.0	1.71	2.29	2.88	3.49	4.10	4.72	5.33	5.95	6.57	7.18	7.79	8.40
10.0	2.23	2.89	3.56	4.23	4.90	5.56	6.22	6.88	7.52	8.16	8.78	9.40
11.0	2.78	3.52	4.26	5.00	5.72	6.43	7.13	7.81	8.48	9.13	9.77	10.39
12.0	3.38	4.19	5.00	5.79	6.56	7.32	8.05	8.76	9.45	10.11	10.76	11.39
13.0	4.00	4.89	5.76	6.61	7.42	8.21	8.98	9.71	10.42	11.10	11.76	12.39
14.0	4.65	5.62	6.55	7.44	8.30	9.12	9.91	10.67	11.39	12.08	12.75	13.39
15.0	5.33	6.36	7.35	8.29	9.19	10.04	10.85	11.63	12.37	13.07	13.74	14.39

1/ Interpolate the values shown to obtain runoff depths for CN or rainfall amounts not shown.

Table A-23. Hydrologic groups for soils in Mississippi

SOIL NAME	HYDGRP	SOIL NAME	HYDGRP	SOIL NAME	HYDGRP	SOIL NAME	HYDGRP
Adaton	D	Croatan	D	Leverett	C	Quitman	C
Adler	C	Daleville	D	Lexington	B	Riedtown	C
Alaga	A	Darco	A	Linker	B	Riverwash	D
Alligator	D	Deerford	D	Longview	C	Robinsonville	B
Amagon	D	Demopolis	C	Loring	C	Rock Outcrop	D
Angie	D	Demopolis, Cobbly	D	Lorman	D	Roseblcom	D
Annemaine	C	Dorovan	D	Louin	D	Rosella	D
Ariel	C	Dubbs	B	Lucedale	B	Ruston	B
Arkabutla	C	Dubbs, Flooded	C	Lucy	A	Saffell	B
Arundel	C	Dulac	C	Luverne	C	Saucier	C
Askew	C	Dundee	C	Maben	C	Savannah	C
Atmore	B/D	Escambia	C	Malbis	B	Sessum	D
Atwood	B	Eustis	A	Mantachie	C	Sharkey	D
Basin	C	Eutaw	D	Marietta	C	Shubuta	C
Bassfield	B	Falaya	D	Mashulaville	B/D	Sliell	C
Baxterville	B	Falkner	C	Mathiston	C	Smithdale	B
Beauregard	C	Forestdale	D	Mayhew	D	Smithton	B
Belden	C	Freest	C	McLaurin	B	St. Lucie	A
Berndale	B	Freestone	C	McRaven	C	Steens	C
Beulah	B	Frizzell	C	Memphis	B	Stough	C
Bibb	D	Frost	D	Mhoon	D	Sulfaquepts	D
Bigbee	A	Gillsburg	C	Moorevllle	C	Sumter	C
Binnsville	D	Grenada	C	Morganfield	B	Susquehanna	D
Bohicket	D	Griffith	D	Myatt	D	Swamp	D
Bonn	D	Gullied Land, Sandy	B	Nahunta	C	Sweatman	C
Bosket	B	Gullied Land, Clayey	D	Natchez	B	Talla	C
Boswell	D	Guyton	D	Neshoba	C	Tallapoosa	C
Bowdre	C	Handsboro	D	Newellton	D	Tensas	D
Brandon	B	Harleston	C	Nugent	A	Tippah	C
Brewton	C	Heidel	B	Oaklimeter	C	Tippo	C
Brooksville	D	Henry	D	Ochlocknee	B	Trebloc	D
Bruin	B	Houlka	D	Ocilla	C	Troup	A
Bruno	A	Houston	D	Okolona	D	Tunica	D
Bude	C	Hyde	B/D	Oktibbeha	D	Tuscumbia	D
Byram	C	Iuka	C	Ora	C	Tutwiler	B
Cadeville	D	Izagora	C	Osier	A/D	Udorthents	C
Cahaba	B	Jena	B	Ozan	D	Una	D
Caledonia	B	Johnston	D	Paden	C	Urban Land	
Calhoun	D	Kinston	B/D	Pamlico	D	Urbo	D
Calloway	C	Kipling	D	Pelahatchie	C	Vaiden	D
Cascilla	B	Kirkville	C	Peoria	D	Vaiden Calcareous	D
Catalpa	C	Kisatchie	D	Petal	C	Velda	B
Chenneby	C	Kolin	C	Pheba	C	Verdun	D
Chewacla	C	Lakeland	A	Pikeville	B	Vicksburg	B
Coastal Beaches	D	Latonia	B	Pits	B	Vimville	D
Collins	C	Lauderdale	D	Plummer	B/D	Wanilla	C
Columbus	C	Lax	C	Poarch	B	Waverly	B/D
Commerce	C	Leaf	D	Ponzer	B	Wehadkee	D
Convent	C	Leeper	D	Pooleville	C	Wilcox	D
Crevasse	A	Lenoir	D	Prentiss	C	Williamsville	C
		Leven	B	Providence	C		

NOTE: Two hydrologic soil groups such as B/D indicate the drained/undrained situation.

Table A-24A. Runoff curve numbers for cultivated agricultural lands

Cover description			Curve numbers for hydrologic soil group—			
Cover type	Treatment[2]	Hydrologic condition[3]	A	B	C	D
Fallow	Bare soil	—	77	86	91	94
	Crop residue cover (CR)	Poor	76	85	90	93
		Good	74	83	88	90
Row crops	Straight row	Poor	72	81	88	91
		Good	67	78	85	89
	Straight row + CR	Poor	71	80	87	90
		Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
		Good	65	75	82	86
	Contoured + CR	Poor	69	78	83	87
		Good	64	74	81	85
	Contoured & terraced (C&T)	Poor	66	74	80	82
		Good	62	71	78	81
	Contoured & terraced + CR	Poor	65	73	79	81
		Good	61	70	77	80
Small grain	Straight row	Poor	65	76	84	88
		Good	63	75	83	87
	Straight row + CR	Poor	64	75	83	86
		Good	60	72	80	84
	Contoured	Poor	63	74	82	85
		Good	61	73	81	84
	Contoured + CR	Poor	62	73	81	84
		Good	60	72	80	83
	Contoured & terraced	Poor	61	72	79	82
		Good	59	70	78	81
	Contoured & terraced + CR	Poor	60	71	78	81
		Good	58	69	77	80
Close-seeded or broadcast legumes or rotation meadow	Straight row	Poor	66	77	85	89
		Good	58	72	81	85
	Contoured	Poor	64	75	83	85
		Good	55	69	78	83
	Contoured & terraced	Poor	63	73	80	83
		Good	51	67	76	80

[1] Average runoff condition.
[2] *Crop residue cover (CR)* applies only if residue is on at least 5% of the surface throughout the year.
[3] Hydrologic condition is based on combination of factors that affect infiltration and runoff, including (a) density and canopy of vegetative areas, (b) amount of year-round cover, (c) amount of grass or close-seeded legumes in rotations, (d) percent of residue cover on the land surface (good ≥ 20%), and (e) degree of surface roughness.
Poor: Factors impair infiltration and tend to increase runoff.
Good: Factors encourage average and better than average infiltration and tend to decrease runoff.

Table A-24B. Runoff curve numbers for other agricultural lands[1/]

Cover description		Curve numbers for hydrologic soil group—			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range—continuous forage for grazing.[2]	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element.[3]	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30[4]	48	65	73
Woods-grass combination (orchard or tree farm).[5]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods[6]	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30[4]	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

[1] Average runoff condition.
[2] *Poor:* <50% ground cover or heavily grazed with no mulch.
Fair: 50% to 75% ground cover and not heavily grazed.
Good: >75% ground cover and lightly or only occasionally grazed.
[3] *Poor:* <50% ground cover.
Fair: 50 to 75% ground cover.
Good: >75% ground cover.
[4] Actual curve number is less than 30; use CN = 30 for runoff computations.
[5] CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.
[6] *Poor:* Forest, litter, small trees, and brush have been destroyed by heavy grazing or regular burning.
Fair: Woods are grazed but not burned, and some forest litter covers the soil.
Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

Table A-24C. Runoff curve numbers for urban areas.[1/]

Cover description		Curve numbers for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.)[3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only)[4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)[5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 6-6A and 6B					

[1]Average runoff condition, and $I_a = 0.2S$.
[2]The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: Impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 6-2 or 6-3.
[3]CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.
[4]Composite CN's for natural desert landscaping should be computed using figures 6-2 or 6-3 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.
[5]Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 6-2 or 6-3, based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table A-25. I_a values for runoff curve numbers

Curve Number	I_a (in)	Curve Number	I_a (in)
40	3.000	68	0.941
41	2.878	69	0.899
42	2.762	70	0.857
43	2.651	71	0.817
44	2.545	72	0.778
45	2.444	73	0.740
46	2.348	74	0.703
47	2.255	75	0.667
47	2.167	76	0.632
49	2.082	77	0.597
50	2.000	78	0.564
51	1.922	79	0.532
52	1.846	80	0.500
53	1.774	81	0.469
54	1.704	82	0.439
55	1.636	83	0.410
56	1.571	84	0.381
57	1.509	85	0.353
58	1.448	86	0.326
59	1.390	87	0.299
60	1.333	88	0.273
61	1.279	89	0.247
62	1.226	90	0.222
63	1.175	91	0.198
64	1.125	92	0.174
65	1.077	93	0.151
66	1.030	94	0.128
67	0.985	95	0.105

Appendix B
State Regulations, Permits and Applications

State Regulations

The following appendix contains the State of Mississippi General Permits for the following activities: Small Municipal Separate Storm Sewer System (MS4), Small Construction (for land disturbing activities of one (1) to less than five (5) acres), and Large Construction (for land disturbing activities of 5 or more acres). This appendix is provided for easy access to State regulations related to stormwater. It should be used as a reference when planning activities that may require regulation by the Mississippi Department of Environmental Quality.

Applications

A copy of the Large Construction Forms package is provided as a part of this appendix for reference when planning a construction project. The Large Construction Forms package includes:

Large Construction Notice of Intent (NOI)
Prime Contractor Certification
Registration Form for Residential Lot Coverage
Inspection and Certification Form
Major Modification Form
Request for Transfer of Permit, General Permit Coverage, and/or Name Change
Inspection Suspension Form
Notice of Termination (NOT) of Coverage

** Note: The information provided in this appendix is for reference only. It is the responsibility of the operator to ensure that he is providing the correct information to the appropriate agencies. The first step of any potential project should be contacting state agencies for the latest regulation information. See Appendix J for Local Agency contact information.

STATE OF MISSISSIPPI

SMALL MUNICIPAL SEPARATE

STORM SEWER SYSTEM (MS4) GENERAL PERMIT

FOR CITIES, COUNTIES AND OTHER DESIGNATED ENTITIES

THIS CERTIFIES THAT

MS4s ISSUED A CERTIFICATE OF COVERAGE UNDER THIS PERMIT ARE GRANTED PERMISSION TO DISCHARGE STORM WATER FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS INTO STATE WATERS

in accordance with effluent limitations, inspection requirements and other conditions set forth in herein. This permit is issued in accordance with the provisions of the Mississippi Water Pollution Control Law (Section 49-17-1 et seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder, and under authority granted pursuant to Section 402(b) of the Federal Water Pollution Control Act.

Mississippi Environmental Quality Permit Board

Authorized Signature

Mississippi Department of Environmental Quality

Issued: January 5, 2009

Permit No. MSRMS4

Expires: December 31, 2013

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ACT1 (MS4) Introduction:

Narrative Requirements:

Condition No.	Condition
T-1	Subject to regulation and compliance with the conditions set forth, this Small Municipal Separate Storm Sewer System (MS4) General Permit (this permit) authorizes storm water discharges and allowable non-storm water discharges outlined in ACT2, T-4 of this permit. This permit replaces the previous Small Municipal Separate Storm Sewer System (MS4) General Permit that expired on November 30, 2007. [WPC-1]

ACT2 (MS4) Permit Applicability and Coverage:

Narrative Requirements:

Condition No.	Condition
T-1	PERMIT AREA: The permit covers the State of Mississippi. [WPC-1]
T-2	ELIGIBILITY: COVERED AREAS AND DISCHARGES: (1) The permitting of selected storm sewer systems is required as a result of the U.S. Environmental Protection Agency's Phase II Storm Water Rule. This permit authorizes discharges of storm water from small Municipal Separate Storm Sewer Systems (MS4s), as defined in 40 CFR 122.26(b)(16). MS4s are authorized to discharge under the terms and conditions of this general permit that: - Operate a small MS4 within the State of Mississippi, and - Are located fully or partially within an urbanized area as determined by the latest census by the Bureau of Census and pursuant to 40 CFR 122.32, or - Are designated by the Mississippi Commission on Environmental Quality (Commission) pursuant to 40 CFR 122.32(a)(2), 122.32(b), or 123.35(b)(3) or (4). (2) For the Mississippi Department of Transportation (MDOT), at a minimum, permit coverage must be obtained for the entire counties (including cities within) of: DeSoto, Forrest, Hancock, Harrison, Hinds, Jackson, Lamar, Madison and Rankin and any other county containing an urbanized area as determined by the latest census conducted by the U.S. Census Bureau. (3) The discharges of storm water commingled with discharges authorized by and in compliance with separate NPDES permits are authorized under this permit. [WPC-1]
T-3	(4) A MS4 is eligible for coverage under this permit for discharges of pollutants of concern to water bodies for which there is a total maximum daily load (TMDL) established or approved by EPA if measures and controls are incorporated that are consistent with the assumptions and requirements of such TMDL. To be eligible for coverage under this permit, the facility must incorporate in the SWPPP and/or effluent limitation any conditions applicable to any discharge(s) necessary for consistency with the assumptions and requirements of such TMDL. If, after coverage issuance, a specific waste load allocation is established that would apply to the facility's discharge, the facility must implement steps necessary to meet that allocation. [WPC-1]

ACT2 (continued):

Narrative Requirements:

Condition No.	Condition
T-4	(5) This permit authorizes the following non-storm water discharges provided: (1) they do not cause or contribute to a violation of water quality standards, (2) the Executive Director of the Mississippi Department of Environmental Quality (MDEQ) has determined these sources entering the MS4 are not a substantial cause or contributor of pollutants entering the MS4 that may violate applicable state or federal laws, regulations, or criteria, (3) the regulated entity has determined these sources entering the MS4 are not a substantial contributor of pollutants entering the MS4 that may violate applicable state or federal laws, regulations, or criteria, and (4) the regulated entity is implementing the Storm Water Management Program as set forth in ACT5 of this permit: - Water line flushing - Landscape irrigation - Diverted stream flows - Rising ground waters - Uncontaminated ground water infiltration (infiltration is defined as water other than wastewater that enters a storm sewer system, including sewer service connections and foundation drains, from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow.) - Uncontaminated pumped ground water - Discharges from potable water sources - Foundation drains - Air conditioning condensate and coil wash water with no additives - Irrigation water - Springs - Water from crawl space pumps - Footing drains - Lawn watering runoff - Water from individual residential car washing - Flows from riparian habitats and wetlands - Dechlorinated swimming pool discharges - Street wash water - Discharges or flows from fire fighting activities - Fire hydrant flushings - External building wash downs which do not use detergents. [WPC-1]

ACT2 (continued):

Narrative Requirements:

Condition No.	Condition
T-5	THIS PERMIT DOES NOT AUTHORIZE: (1) Storm water discharges that are mixed with non-storm water unless such non-storm water discharges are in compliance with a separate NPDES permit. (2) Storm water discharges that are mixed with non-storm water discharges and that are determined to be a substantial contributor of pollutants to waters of the United States. (3) Storm water discharges associated with industrial activity as defined in 40 CFR 122.26(b)(14)(i) - (ix) and (xi). (4) Storm water discharges associated with construction activity as defined in 40 CFR 122.26(b)(14)(x) or 40 CFR 122.26(b)(15). (5) Discharges or discharge-related activities that are likely to jeopardize the continued existence of any species that is listed as endangered or threatened under the Endangered Species Act (ESA) or result in the adverse modification or destruction of habitat that is designated as critical under the ESA. Coverage under this permit is available only if the regulated entity's storm water discharges, allowable non-storm water discharges, and discharge-related activities are not likely to jeopardize the continued existence of any species that is listed as endangered or threatened ("listed") under the ESA or result in the adverse modification or destruction of habitat that is designated as critical under the ESA ("critical habitat"). Submission of a signed NOI will be deemed to constitute the regulated entity's certification of eligibility. [WPC-1]
T-6	(6) Implementation of a Storm Water Management Program (SWMP) which directly and adversely affect properties listed or eligible for listing in the National Register of Historic Places, unless the regulated entity is in compliance with requirements of the National Historic Preservation Act and has coordinated any necessary activities to avoid or minimize such direct and adverse impacts with the appropriate State Historic Preservation Officer. Submission of a signed NOI will be deemed to constitute the regulated entity's certification of eligibility. (7) Storm water discharges, which result in violation of State Water Quality Standards. If a discharge authorized under this permit is later determined to cause or have the reasonable potential to cause or contribute to the violation of an applicable water quality standard, MDEQ will notify the regulated entity of such water quality violation(s) in writing and will provide the public information used by MDEQ to make this determination. The regulated entity must take all necessary actions required by their SWMP to ensure future discharges do not cause or contribute to the violation of a water quality standard and document these actions in the SWMP. If such violations remain or re-occur, then additional measures such as the addition of BMPs or the requirement to obtain an individual permit may be required by the Permit Board. Compliance with this requirement does not preclude any enforcement activity as provided by the Clean Water Act for the underlying violation. [WPC-1]

ACT3 (MS4) Obtaining Coverage:

Submittal/Action Requirements:

Condition No.	Condition
S-1	OBTAINING AUTHORIZATION: (1) The regulated entity must submit a MS4 Notice of Intent (MS4 NOI) and a Storm Water Management Program (SWMP) in accordance with the requirements of ACT4 of this permit. MS4 NOI packages in 3-ring binders will not be accepted due to limited filing space. (2) Upon review of the MS4 NOI and attachments, the staff may require additional information, deny coverage, or require an alternate permit. Staff decisions may be brought before the Mississippi Environmental Quality Permit Board (Permit Board) for review and reconsideration at a regularly scheduled meeting. (3) A regulated entity is authorized to discharge storm water from its MS4 under the terms and conditions of this permit, only upon receipt of written notification of approval of coverage by the Permit Board. Discharge of storm water by a regulated entity without written notification of coverage or issuance of an individual NPDES Storm Water Permit by the Permit Board is a violation of State law. (4) In the event that a regulated entity submits an MS4 NOI in a timely manner and substantially complies with the requirements of the general permit, including development of the Storm Water Management Program, the discharges occurring between the submission of the MS4 NOI and the issuance of notification of coverage shall be considered in compliance with this permit. [WPC-1]
S-2	REQUIRING AN INDIVIDUAL PERMIT OR ALTERNATIVE GENERAL PERMIT: (1) The Permit Board may require the regulated entity to apply for and obtain an individual NPDES permit instead of coverage under this permit. Any interested person may petition the Permit Board to take action under this paragraph in accordance with Section 49-17-29 of the Mississippi Code. The Permit Board may require the regulated entity to apply for an individual NPDES permit only after they have been notified in writing. This notice shall include reasons for this decision, an application form and a filing deadline. The Permit Board may grant additional time upon request. If the regulated entity fails to submit a requested application in a timely manner, coverage under this permit is automatically terminated at the end of the day specified for application submittal. (2) The regulated entity may request to be excluded from permit coverage by applying for an individual permit. The regulated entity shall submit an individual application in accordance with 40 CFR 122.33 (2) (i - iii). (3) Coverage under this permit is automatically terminated on the issuance or coverage date of the respective alternate individual NPDES permit. When an alternate individual NPDES permit is denied, coverage under this permit continues unless terminated on the date of such denial by the Permit Board. [WPC-1]

ACT3 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-3	HOW TO REQUEST SUBSEQUENT RE-COVERAGE UNDER A REISSUED PERMIT: The submittal of the fourth Annual Report (due no later than January 28, 2013) shall be deemed to be a notification of the MS4's intent to be covered by the subsequently issued MS4 General Permit, provided the Annual Report is signed by a principal executive officer or ranking elected official according to ACT9, T-5 of this permit. Upon reissuance of the general permit, MDEQ will send recoverage packages to each MS4 with instructions on how to continue coverage under the reissued permit. If reissuance of this permit does not occur before its expiration date and the coverage recipient has submitted a timely and complete final Annual Report, continued coverage under this permit will be allowed until the effective date of the reissued general permit coverage. [WPC-1]

ACT4 (MS4) Small Municipal Separate Storm Sewer System Notice of Intent (MS4 NOI):

Submittal/Action Requirements:

Condition No.	Condition
S-1	MS4 NOI SUBMITTAL: A regulated entity desiring coverage for storm water discharges under this general permit shall submit a MS4 NOI form for initial coverage and a request for recoverage for subsequent coverage. For regulated entities that have been designated by the Commission pursuant to 40 CFR 122.32(a)(2), the regulated entity is required to submit an MS4 NOI and storm water management plan within 180 days of designation by the Commission. For regulated entities covered by a previous Small Municipal Separate Storm Sewer System (MS4) General Permit, re-coverage must be made in accordance with the requirements of the reissued permit. [WPC-1]
S-2	CONTENTS OF THE MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) NOTICE OF INTENT (NOI): The MS4 NOI shall be signed in accordance with ACT9, T-5 of this permit and shall include the following information: 1. The name of the regulated entity, mailing address, and telephone number specifying the contact person. 2. An indication of whether the regulated entity is a Federal, State, County, Municipal, or other public entity. 3. The urbanized area where your MS4 is located; the name of your organization, and county(ies) where your MS4 is located. 4. The name of the major (named on a USGS Quad Map) receiving water(s). 5. A list of receiving waters that are on the latest State of Mississippi 303(d) list of impaired waters. 6. If relying on another governmental entity regulated under the storm water regulations (40 CFR 122.26 & 122.32) to satisfy one or more of the regulated entity's permit obligations, the identity of that entity or entities and the element(s) they will be implementing must be submitted. If the entity that the permitted MS4 operator is relying on to carry out the requirements of the minimum control measure fails to meet the permit requirements, it is the regulated entity's responsibility to assure compliance. 7. As an attachment to the MS4 NOI, a Storm Water Management Program (SWMP) must be submitted that includes the minimum requirements of as outlined in ACT5 of this permit. [WPC-1]

ACT4 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-3	JOINT MUNICIPAL SEPARATE STORM SEWER SYSTEM NOTICE OF INTENT (MS4 NOI): A regulated entity may, pursuant to the Mississippi Storm Water Management District Act, Miss. Code Ann. Section 51-39-1 et. Seq., or under other applicable authority, partner with another regulated entity to develop and/or implement a SWMP. However, each regulated entity remains responsible for the implementation of the SWMP in their MS4. Each regulated entity must complete the joint MS4 NOI form. The SWMP must clearly describe which regulated entity will be implementing each control measure. [WPC-1]

Narrative Requirements:

Condition No.	Condition
T-1	WHERE TO OBTAIN THE MS4 NOI AND/OR RE-COVERAGE FORMS: MS4 NOI forms are contained in the MS4 Forms Package or may be obtained from the MDEQ at the address shown below or by calling 601/961-5171. MS4 NOI forms, as well as the general permit, may also be found on the MDEQ web site at www.deq.state.ms.us. [WPC-1]
T-2	WHERE TO SUBMIT THE MUNICIPAL SEPARATE STORM SEWER SYSTEM NOTICE OF INTENT (MS4 NOI) AND/OR RE-COVERAGE FORM: Complete and appropriately signed forms must be submitted to: Chief, Environmental Permits Division MS Dept of Environmental Quality, Office of Pollution Control P.O. Box 2261 Jackson, Mississippi 39225. [WPC-1]
T-3	FAILURE TO NOTIFY: Failure to submit a MS4 NOI in accordance with State and Federal Law and Regulations, or as required by this general permit and discharges of storm water from regulated MS4s to waters of the State without coverage under this permit or an individual NPDES permit are violations of State law. [WPC-1]

ACT5 (MS4) Storm Water Management Program (SWMP) Development and Content:

Submittal/Action Requirements:

Condition No.	Condition
S-1	SWMP DEVELOPMENT AND SUBMITTAL: The regulated entity must develop, implement, and enforce a Storm Water Management Program (SWMP) designed to reduce the discharge of pollutants from its Municipal Separate Storm Sewer System (MS4) to the maximum extent practicable (MEP) to protect water quality and to satisfy applicable water quality requirements of the Clean Water Act. The SWMP is not required to address discharges into the regulated MS4 that occur outside the jurisdiction (or boundary) of the regulated entity. The SWMP should include management practices; control techniques and system design, and engineering methods; and such other provisions necessary for the control of pollutants to satisfy the applicable water quality requirements of the Clean Water Act. A regulated entity's SWMP must include the six minimum control measures described below. The SWMP, at a minimum, must be implemented for the entire urbanized area, or if designated separately by the MDEQ Executive Director, the entire designated area. The plan must identify: (1) Best Management Practices (BMPs) that the regulated entity or partner regulated entity will implement for each of the storm water minimum control measures. (2) Measurable goals for each of the BMPs including, as appropriate, the years in which the regulated entity will undertake required actions, including interim milestones and the frequency of the action. (3) Responsible persons for implementing or coordinating the BMPs for the SWMP. [WPC-1]
S-2	(4) In addition to the requirements listed above, the regulated entity must: - Provide a rationale for how and why the regulated entity selected each of the BMPs and measurable goals for the SWMP - Develop and fully implement the regulated entity's program within five years from coverage issuance - Implement BMPs and set measurable goals that are targeted to addressing existing water quality problems and preventing new water quality problems. [WPC-1]

ACT5 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-3	SIX MINIMUM CONTROL MEASURES: (1) PUBLIC EDUCATION AND OUTREACH ON STORM WATER IMPACTS: The regulated entity shall develop a program for educating the public on issues impacting stormwater. The program shall, at a minimum, include the following components. (A) Implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff. (B) Define appropriate BMPs for this minimum control measure and measurable goals for each BMP. [WPC-1]
S-4	(C) Document the decision process for the development of a storm water public education and outreach program. The regulated entity's rationale statement must address both the overall public education program and the individual BMPs, measurable goals, and responsible persons for this program. The rationale statement must include the following information, at a minimum: (i) How the regulated entity plans to inform individuals and households about the steps they can take to reduce storm water pollution such as proper septic system maintenance, proper use and disposal of landscape and garden chemicals including fertilizers and pesticides, protecting and restoring riparian vegetation and properly disposing of used motor oil or household hazardous waste. (ii) How the regulated entity plans to inform individuals and groups on how to become involved in the storm water program (with activities such as storm drain stenciling/marking, adopt-a-stream, and liter clean-up projects). (iii) Who are the target audiences for the education program who are likely to have significant storm water impacts (including commercial, industrial and institutional entities) and why those target audiences were selected. (iv) What are the target pollutant sources the public education program is designed to address. (v) What is the regulated entity's outreach strategy, including the mechanisms (e.g., printed brochures, newspapers, media, workshops, etc.) the regulated entity will use to reach target audiences, and how many people the regulated entity expects to reach by the outreach strategy over the permit term. [WPC-1]

ACT5 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-5	(vi) How the regulated entity will evaluate the success of this minimum measure, including how the measurable goals for each of the BMPs were selected. (vii) Responsibility for overall management and implementation of the storm water public education and outreach program and, if different, who is responsible for each of the BMPs identified for this program. [WPC-1]
S-6	(2) PUBLIC INVOLVEMENT/PARTICIPATION: The regulated entity shall develop a program for public involvement and participation that contains the following elements. (A) At a minimum, notify the public of opportunities to provide input to the process of implementing a SWMP by complying with local public notice requirements.
	(B) Define appropriate BMPs for this minimum control measure and measurable goals for each BMP. [WPC-1]
S-7	(C) Document the decision process for the development of a storm water public involvement/participation program. The regulated entity's rationale statement must address both the overall public involvement/participation program and the individual BMPs, measurable goals, and responsible persons for this program. The rationale statement must include the following information, at a minimum: (i) How the regulated entity has and will continue to involve the public in the development and submittal of the MS4 NOI and SWMP. (ii) What is the plan to involve the public in the development and implementation of this program. (iii) Who are the target audiences for the public involvement program, including a description of the types of ethnic and economic groups engaged. The regulated entity is encouraged to actively involve all potentially affected stakeholder groups, including commercial and industrial businesses, trade associations, environmental groups, homeowners associations, and educational organizations, among others. [WPC-1]

ACT5 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-8	(iv) What are the types of public involvement activities included in the program. Where appropriate, consider the following types of pubic involvement activities: (a) Citizen representatives on a storm water management panel (b) Public hearings (c) Working with citizen volunteers willing to educate others about the program (d) Volunteer monitoring or stream/beach clean-up activities (v) How the regulated entity will evaluate the success of this minimum measure, including how the measurable goals for each of the BMPs were selected. (vi) Responsibility for the overall management and implementation of the storm water public involvement/participation program and, if different, who is responsible for each of the BMPs identified for this program. [WPC-1]
S-9	(3) ILLICIT DISCHARGE DETECTION AND ELIMINATION: The regulated entity shall develop a program to detect and eliminate illicit discharges, which contains the following components. (A) Develop, implement and enforce a program to detect and eliminate illicit discharges (as defined in 40CFR 122.26(b)(2)) into the regulated entity's small MS4. (B) Develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls. (C) To the extent allowable under State or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-storm water discharges into the regulated entity's storm sewer system and implement appropriate enforcement procedures and actions. Existing ordinances addressing illicit discharges shall be submitted to MDEQ for compliance review with the SWMP. Draft ordinances shall be submitted to MDEQ for review 30 days before proposed adoption. (D) Develop and implement a plan to detect and address illicit discharges, including illegal dumping, to the regulated entity's system. (E) Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste. [WPC-1]

ACT5 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-10	(F) Address the non-storm water discharges or flows identified in ACT2, T-4 of this permit only if the regulated entity or MDEQ identify them as significant contributors of pollutants to the regulated entity's small MS4. The regulated entity may also develop a list of other similar occasional incidental non-storm water discharges (e.g. non-commercial or charity car washes, etc.) that will not be addressed as illicit discharges. These non-storm water discharges must not be reasonably expected (based on available information) to be significant sources of pollutants to the MS4. If a list of incidental non-storm water discharges is developed the regulated entity must: (i) Document in your plan any local controls or conditions placed on the discharges. (ii) Include a provision prohibiting any individual non-storm water discharge that is determined to be contributing significant amounts of pollutants to the MS4. (G) Define appropriate BMPs for this minimum control measure and measurable goals for each BMP. [WPC-1]
S-11	(H) Document the decision process for the development of a storm water illicit discharge detection and elimination program. The regulated entity's rationale statement must address both the overall illicit discharge detection and elimination program and the individual BMPs, measurable goals, and responsible persons for this program. The rationale statement must include the following information, at a minimum: (i) The plan to detect and address illicit discharges to the regulated entity's system, including discharges from illegal dumping and spills. This plan must include dry weather field screening for non-storm water flows. This plan must also address on-site sewage disposal systems that flow into the regulated entity's storm drainage system. This description must address the following, at a minimum: (a) Procedures for locating priority areas which include areas with higher likelihood of illicit connections (e.g., areas with older sanitary sewer lines) (b) Procedures for tracing/locating the source of an illicit discharge, including the use of MDEQ's Complaint Tracking System (c) Procedures for removing the source of the illicit discharge (d) Procedures for program evaluation and assessment. [WPC-1]

ACT5 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-12	(ii) How the regulated entity plans to inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste. Include in the regulated entity's description how this plan will coordinate with the regulated entity's public education minimum measure and the regulated entity's pollution prevention/good housekeeping minimum measure programs. Illicit discharge education actions may include storm drain marking, a program to promote, publicize, and facilitate public reporting of illicit connections or discharges, and distribution of outreach materials. (iii) How the regulated entity will evaluate the success of this minimum measure, including how the measurable goals for each of the BMPs were selected. (iv) Responsibility for overall management and implementation of the storm water illicit discharge detection and elimination program and, if different, who is responsible for each of the BMPs identified for this program. [WPC-1]
S-13	(4) CONSTRUCTION SITE STORM WATER RUNOFF CONTROL: The regulated entity shall develop a program to control storm water runoff from construction sites, which contains the following elements. (A) Develop, implement, and enforce a program to reduce pollutants in any storm water runoff to the small MS4 from construction activities that result in a land disturbance of greater than or equal to one (1) acre. Reduction of storm water discharges from construction activity disturbing less than one (1) acre must be included in your program if that construction activity is part of a larger common plan of development or sale that would disturb one (1) acre or more. The program must include the development and implementation of, at a minimum: (i) An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State or local law. Existing ordinances addressing construction site storm water runoff shall be submitted to MDEQ for compliance review with the SWMP. Draft ordinances shall be submitted to MDEQ for review 30 days before proposed adoption. [WPC-1]

ACT5 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-14	(ii) Requirements for construction site operators to provide the regulated entity a copy of their Storm Water Pollution Prevention Plan and proof of issuance of applicable MDEQ approvals/permits prior to the issuance of local construction approvals/permits. Examples of MDEQ approvals/permits include: - Small Construction General Permit coverage for land disturbances one (1) acre to less than five (5) acres (less than one acre if part of a larger common plan of development or sale) - Large Construction General Permit coverage for land disturbances five (5) acres and greater (or less if part of a larger common plan of development or sale) - Registration Form for Residential Lot Coverage and Large Construction General Permit coverage number for residential lots in subdivision covered under a Large Construction General Permit. (iii) Requirements for construction site operators to provide the regulated entity a copy of the proper permits or approvals from the Army Corps of Engineers if waters of the United States are being filled, rerouted or dammed. [WPC-1]
S-15	(iv) Requirements for construction site operators to implement appropriate erosion and sediment control best management practices, including verification that operators have received training in proper installation of said controls. (v) Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality. (vi) Procedures for site plan review which incorporate consideration of potential water quality impacts. (vii) Procedures for receipt and consideration of information submitted by the public. (viii) Procedures for site inspection and enforcement of control measures. (ix) Procedures to ensure implementation of required post-construction controls (see ACT5, S-15). [WPC-1]

ACT5 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-16	(B) Define appropriate BMPs for this minimum control measure and measurable goals for each BMP. (C) Document the decision process for the development of a construction site storm water control program. The regulated entity's rationale statement must address the overall construction site storm water control program, the individual BMPs, measurable goals, and responsible persons for this program. The rationale statement must include the following information, at a minimum: (i) The procedures for site plan review, including the review of pre-construction site plans, which incorporate consideration of potential water quality impacts and consistency with local sediment and erosion control requirements. (ii) The procedures for receipt and consideration of information submitted by the public. Consider coordinating this requirement with the regulated entity's public education program. [WPC-1]
S-17	(iii) The procedures for site inspection and enforcement of control measures, including how the regulated entity will prioritize sites for inspection based on the nature of the construction activity, topography, soil characteristics, and receiving water quality. Some examples of sanctions to ensure compliance include non-monetary penalties, fines, bonding requirements and/or permit denials for non-compliance. (iv) The procedures to provide appropriate educational training measures for construction site operators. (v) How the regulated entity will evaluate the success of this minimum measure, including how the measurable goals for each of the BMPs were selected. (vi) Responsibility for overall management and implementation of the construction site storm water control program and, if different, who is responsible for each of the BMPs identified for this program. [WPC-1]

ACT5 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-18	(5) POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT: The regulated entity shall develop a program to address post-construction storm water management in new development and redevelopment, including the following elements. (A) Develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one (1) acre, including projects less than one (1) acre that are part of a larger common plan of development or sale, that discharge into the regulated entity's small MS4. The program must ensure that controls are in place that would prevent or minimize water quality impacts. (B) Develop and implement strategies, which include a combination of structural and/or non-structural best management practices (BMPs), appropriate for the regulated entity. (C) Use an ordinance or other regulatory mechanism to address post construction runoff from new development and redevelopment projects to the extent allowable under State or local law. The ordinance or regulatory mechanism shall not limit the post-construction minimum measure to a single type of best management practice. Existing ordinances addressing post construction storm water management shall be submitted to MDEQ for compliance review with the SWMP. Draft ordinances shall be submitted to MDEQ for review 30 days before proposed adoption. [WPC-1]
S-19	(D) Ensure adequate long term operation and maintenance of BMPs. The MS4 shall require a maintenance agreement and provide verification of maintenance provisions for post-construction management practices. These agreements shall allow the MS4, or its designee, to conduct inspections of the management practices and also account for transfer of responsibility in leases and/or deed transfers. Verification shall include one or more of the following as applicable: (i) The developer's signed statement accepting responsibility for maintenance until the maintenance responsibility is legally transferred to another party; and/or (ii) Written conditions in the sales or lease agreement that require the recipient to assume responsibility for maintenance; and/or (iii) Written conditions in project conditions, covenants and restrictions for residential properties assigning maintenance responsibilities to a home owners' association, or other appropriate group, for maintenance of structural and treatment control management practices; and/or (iv) Any other legally enforceable agreement that assigns permanent responsibility for maintenance of structural or treatment control management practices. (E) Define appropriate BMPs for this minimum control measure and measurable goals for each BMP. [WPC-1]

ACT5 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-20	(F) Document the decision process for the development of a post-construction storm water management program. The regulated entity's rationale statement must address the overall post-construction storm water management program, the individual BMPs, measurable goals, and responsible persons for this program. The rationale statement must include the following information, at a minimum: (i) The regulated entity's program to address storm water runoff from new development and redevelopment projects. Include in this description any specific priority areas for this program. (ii) How the regulated entity's program will be specifically tailored for the regulated entity, minimize water quality impacts, and attempt to maintain pre-development runoff conditions. (iii) Any non-structural BMPs in the program, including, as appropriate: (a) Policies and ordinances that provide requirements and standards to direct growth to identified areas, protect sensitive areas such as wetlands and riparian areas, maintain and/or increase open space (including a dedicated funding source for open space acquisition), provide buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation and encourage infill development in higher density urban areas, and areas with existing storm sewer infrastructure. (b) Education programs for developers and the public about project designs that minimize water quality impacts. (c) Measures such as minimization of the percentage of impervious area after development, and minimization of directly connected impervious areas. [WPC-1]

ACT5 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-21	(iv) Any structural BMPs in the program, including, as appropriate: (a) Storage practices such as wet ponds and extended detention outlet structures. (b) Filtration practices such as grassed swales, bioretention cells, sand filters and filter strips. (c) Infiltration practices such as infiltration basins, infiltration trenches and pervious concrete. (v) Ensure the appropriate implementation of the structural BMPs by considering some or all of the following: (a) Pre-construction review of BMP design (b) Inspections during construction to verify BMPs are built and properly designed (c) Post-construction inspection and maintenance of BMPs (d) Penalty provisions for non-compliance (vi) How the regulated entity will evaluate the success of this minimum measure, including how the measurable goals for each of the BMPs were selected. (vii) Responsibility for overall management and implementation of the regulated entity's post-construction storm water management program and, if different, who is responsible for each of the BMPs identified for this program. [WPC-1]

ACT5 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-22	(6) POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS The regulated entity shall develop a pollution prevention/good housekeeping program with the following components. (A) Develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from the regulated entity's operations. (B) Using training materials that are available from EPA, the State, or other organizations, the regulated entity's program must include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance. (C) Define appropriate BMPs for this minimum control measure and measurable goals for each BMP. [WPC-1]
S-23	(D) Document the decision process for the development of a pollution prevention/good housekeeping program for municipal operations. The regulated entity's rationale statement must address the overall pollution prevention/good housekeeping program, the individual BMPs, measurable goals, and responsible persons for this program. The rationale statement must include the following information, at a minimum: (i) The regulated entity's program must specifically list the municipal operations that are impacted by this operation and maintenance program. The regulated entity must also include a list of industrial facilities that the regulated entity owns or operates which are covered by General Storm Water Permits or have individual NPDES Storm Water Permits. Include the facility's coverage number and/or permit number. (ii) Any employee training program the regulated entity will use to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance. Describe any existing, available materials the regulated entity plans to use. Describe how this training program will be coordinated with the outreach programs developed for the public information minimum measure and the illicit discharge minimum measure. [WPC-1]

ACT5 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-24	(iii) The regulated entity's program description must specifically address the following areas: (a) Maintenance activities, maintenance schedules, and long-term inspection procedures for controls to reduce floatables (including froth, oil and floating solids) and other pollutants to the MS4. (b) Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations and waste transfer stations. (c) Procedures for the proper disposal of waste removed from the MS4 and regulated entity's operations, including dredge spoil, accumulated sediments, floatables, and other debris. (d) Procedures to ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices or practices. (iv) How the regulated entity will evaluate the success of this minimum measure, including how the measurable goals for each of the BMPs were selected. (v) Responsibility for overall management and implementation of the pollution prevention/good housekeeping program and, if different, who is responsible for each of the BMPs identified for this program. [WPC-1]

ACT6 (MS4) Storm Water Management Program (SWMP) Implementation Requirements:

Submittal/Action Requirements:

Condition No.	Condition
S-1	REVIEWING AND UPDATING STORM WATER MANAGEMENT PROGRAMS: (1) Storm Water Management Program Review: The regulated entity must conduct an annual review of their Storm Water Management Program in conjunction with preparation of the annual report required under ACT7, S-2 of this permit. (2) Storm Water Management Program Update: The regulated entity may change their Storm Water Management Program during the life of the permit in accordance with the following procedures: (A) Changes adding (but not subtracting or replacing) components, control measures, or requirements to the Storm Water Management Program may be made at any time upon written notification to MDEQ. These changes must be documented in the annual report. (B) Changes subtracting or replacing ineffective or impracticable components, control measures, or requirements, specifically identified in the Storm Water Management Program, with alternate components, controls, or requirements may be requested at any time. Unless denied by the Permit Board, changes proposed in accordance with the criteria below shall be deemed approved and may be implemented 60 days from submittal of the request. If request is denied, the Permit Board, or MDEQ acting on behalf of the Permit Board, will respond in writing. The regulated entity's modification requests must include the following: (i) An analysis of why the components, control measures, goals, or requirements are ineffective or impracticable (including cost analyses) (ii) Expectations on the effectiveness of replacement components, control measures, goals, or requirements. (iii) An analysis of why the replacement components, control measures, goals, or requirements are expected to achieve the goals of the components, controls, or requirements to be replaced. (C) Change requests or notifications must be made in writing and signed in accordance with ACT9, T-5 of this permit. [WPC-1]

ACT6 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-2	(3) Storm Water Management Program Updates Required by MDEQ: (A) The Permit Board shall require Storm Water Management Program updates as part of the re-coverage process for subsequently issued MS4 General Permits. These updates may include, but not be limited to, best management practices, measurable goals, policies, procedures, programs, ordinances, strategies, etc. (B) The Permit Board may require changes to the Storm Water Management Program as needed to: (i) Meet the conditions of this permit. (ii) Address impacts on receiving water quality caused, or contributed to, by discharges from the MS4. (iii) Include additional control measures when a Total Maximum Daily Load (TMDL) has been specified for a receiving waterbody, when a Watershed Management Plan has been adopted for a watershed or if a coverage recipient's SWMP proves to be inadequate in reducing pollutants in storm water runoff. (iv) Include more stringent requirements necessary to comply with new Federal statutory or regulatory requirements. (v) Include such other conditions necessary to comply with the requirements of the Clean Water Act. (C) Changes requested by the Permit Board must be made in writing, set forth the time schedule for the regulated entity to develop the changes, and offer the regulated entity the opportunity to propose alternative program changes to meet the objective of the requested modification. All changes required by the Permit Board will be made in accordance with 40 CFR 124.5, 40 CFR 122.62, or as appropriate 40 CFR 122.63. (4) Transfer of Operational Authority, or Responsibility for Storm Water Management Program Implementation: The regulated entity must implement the Storm Water Management Program on all new areas added to the regulated entity's portion of the municipal separate storm sewer system (or for which the regulated entity becomes responsible for implementation of storm water quality controls) as expeditiously as practicable, but not later than one year from addition of the new areas. Implementation may be accomplished in a phased manner to allow additional time for controls that cannot be implemented immediately. [WPC-1]

ACT6 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-3	(A) Within 90 days of a transfer of operational authority, or responsibility for storm water management program implementation, the regulated entity must have a plan for implementing the regulated entity's Storm Water Management Program on all affected areas. The plan may include schedules for implementation. Information on all new annexed areas and any resulting updates required to the Storm Water Management Program must be included in the annual report. Only those portions of the Storm Water Management Programs specifically required as permit conditions shall be subject to the modification requirements of 40 CFR 124.5. Addition of components, controls, or requirements by the regulated entity(s) and replacement of an ineffective or infeasible BMP implementing a required component of the Storm Water Management Program with an alternate BMP expected to achieve the goals of the original BMP shall be considered minor changes to the Storm Water Management Program and not modifications to the permit. [WPC-1]
S-4	SHARING MINIMUM MEASURE RESPONSIBILITY: (1) Implementation of one or more of the minimum measures may be shared with another entity, or the other entity may fully take over the measure. A regulated entity may rely on another entity only if: (A) The other entity, in fact, implements the control measure. (B) The particular control measure, or component of that measure, is at least as stringent as the corresponding permit requirement. (C) The other entity agrees to implement the control measure on the regulated entity's behalf and accepts this obligation in writing. This obligation must be maintained as part of the description of the regulated entity's storm water management program. If the other entity fails to implement the control measure on the regulated entity's behalf, then the regulated entity remains liable for any discharges due to that failure to implement. (2) In the case of the construction minimum measure, MDEQ may agree to assume responsibility, if petitioned by the regulated entity, for the portion of the minimum measure that addresses construction activities five (5) acres and greater (residential subdivisions are specifically excluded). If MDEQ agrees to assume responsibility, the regulated entity is not required to include that portion of the minimum control measure in the SWMP, nor required to address large construction in the annual report. The MS4 General Permit Forms Package contains a petition form for this purpose. (3) Programs that meet or exceed the provisions of this minimum measure and the provisions of Mississippi's construction general permit requirements may, at the request of the regulated entity and at the discretion of MDEQ, be designated as a qualifying local program. Construction sites that meet the requirements of the qualifying local program may be deemed to also satisfy Mississippi's construction general permit requirements. [WPC-1]

ACT6 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-5	FAILURE TO IMPLEMENT STORM WATER MANAGEMENT PROGRAM (SWMP): Any permit noncompliance constitutes a violation of the Mississippi Water Pollution Control Law and is grounds for enforcement action against the MS4. In addition, failure by the MS4 to initiate appropriate enforcement actions as defined in the SWMP may be the basis for State determination that the MS4 has failed to take timely enforcement action. In instances where the State determines that the MS4 has not initiated timely and appropriate enforcement action, the State may proceed with any or all enforcement options against the discharger and MS4 under the Clean Water Act. [WPC-1]

ACT7 (MS4) Monitoring, Reporting and Recordkeeping Requirements:

Submittal/Action Requirements:

Condition No.	Condition
S-1	MONITORING: The coverage recipient must evaluate program compliance, the appropriateness of their identified best management practices, and progress towards achieving their identified measurable goals. Although water quality sampling and analysis may be used by a regulated entity, it is not a requirement of this permit. [WPC-1]
S-2	ANNUAL REPORTS: The coverage recipient must prepare and submit to MDEQ an annual report. The objective of the annual report is to summarize the progress made in implementing the conditions of the permit and elements of the storm water management plan. The submittal of the fourth Annual Report shall be deemed to be a notification of the MS4's intent to be covered by the subsequently issued MS4 General Permit. The annual report shall be in the approved MDEQ format. A template of the approved MDEQ annual report format may be obtained from MDEQ at the address shown below or by calling 601/961-5171. The annual report template, general permit and forms package may also be found on the MDEQ web site at www.deq.state.ms.us. Annual reports in 3-ring binders will not be accepted due to limited filing space. These annual reports must include, at a minimum: (1) The status of compliance with permit conditions, an assessment of the appropriateness of the coverage recipient's identified BMPs and progress towards achieving the coverage recipient's identified measurable goals for each of the minimum control measures. (2) Results of information collected and analyzed, including monitoring data, if any, during the reporting period. (3) A summary of the storm water activities planned during the next reporting cycle. (4) Proposed changes to the storm water management program, including changes to any BMPs or any identified measurable goals that apply to the program elements. (5) Changes in any identified measurable goals that apply to the program elements. (6) Notice that you are relying on another government entity to satisfy some of your permit obligations (if applicable). [WPC-1]

ACT7 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-3	(7) The number of small construction projects receiving approval from the MS4. Small construction projects are land disturbance activities of equal to or greater than one (1) acre and less than five (5) acres or are part of a larger common plan of development or sale with a planned disturbance of equal to or greater than one (1) acre and less than five (5) acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of the facility (i.e. an existing ditch, channel, or other similar storm water conveyance, as well as routine grading of existing dirt roads, asphalt overlays of existing roads, and similar maintenance activities). (8) The number of large construction projects receiving approval from the MS4. Large construction projects are land disturbance activities of equal to or greater than five (5) acres or are part of a larger common plan of development or sale with a planned disturbance of equal to or greater than five (5) acres. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of a ditch, channel, or other similar storm water conveyance. Large construction activity does not include the routine grading of existing dirt roads, asphalt overlays of existing roads, and similar maintenance activities. (9) The number and type of inspections conducted and enforcement actions taken. (10) The number of illicit discharges detected and the number of illicit discharges eliminated. (11) The number, type (i.e., detention basin, manufactured system, etc.) and location of post-construction management practices installed at new development and redevelopment projects. [WPC-1]
S-4	(12) Documentation that all control measures being planned or implemented that may address Wasteload Allocation (WLA) provisions of a TMDL, if it is found that a MS4 must implement specific WLA provisions of a TMDL. Also, include a schedule of implementation for all planned controls. (13) Certification that the MS4 NOI and SWMP are up to date. The annual report shall be certified according to ACT9, T-5 and T-6 of this permit. [WPC-1]

ACT7 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-5	WHERE TO SEND REPORTS: The annual reports required in Part ACT7, S-2 of this permit are to be submitted annually postmarked no later than the 28th day of January. The first submission may be for less than a 12-month period. Reports shall be submitted to the MDEQ at the following address: Chief, Environmental Compliance and Enforcement Division Office of Pollution Control, Dept of Environmental Quality P.O. Box 2261 Jackson, Mississippi 39225. [WPC-1]
S-6	RECORDS RETENTION: All records, reports and information resulting from activities required by this permit shall be retained for a period of at least three years from the date of the coverage recipient's MS4 NOI, inspection or report. The coverage recipient must make records required by this permit, including the regulated entity's SWMP, available to the public at reasonable times during regular business hours. (The regulated entity may assess a reasonable charge for copying. The coverage recipient may require a member of the public to provide advance notice, not to exceed two working days.). [WPC-1]
S-7	NONCOMPLIANCE REPORTING: (1) Anticipated Noncompliance. The regulated entity shall give at least 10 days advance notice, if possible, before any planned noncompliance with permit requirements. (2) Unanticipated Noncompliance. The regulated entity shall notify the MDEQ orally within 24 hours from the time he or she becomes aware of unanticipated noncompliance. A written notice shall be provided to the MDEQ within 5 working days of the time he or she becomes aware of the circumstances. The written report shall describe the cause, the exact dates and times, steps taken or planned to reduce, eliminate, or prevent reoccurrence of the noncompliance and, if the noncompliance has not ceased, the anticipated time for correction. [WPC-1]

ACT8 (MS4) Storm Water Quality Requirements:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1		LIMITATION REQUIREMENTS: Storm water shall be free from: (1) Debris, oil, scum, and other floating materials other than in trace amounts (2) Eroded soils and other materials that will settle to form objectionable deposits in receiving waters (3) Suspended solids, turbidity and color at levels inconsistent with the receiving waters (4) Substances in concentrations that would cause violation of State Water Quality Criteria in the receiving waters. [WPC-1]

ACT9 (MS4) Standard Requirements Applicable to All Water Permits:

Narrative Requirements:

Condition No.	Condition
T-1	DUTY TO COMPLY: Any permit noncompliance constitutes a violation of the Mississippi Water Pollution Control Law and is grounds for enforcement action or coverage termination and requiring reapplication in accordance with ACT3, S-2 of this permit. [WPC-1]
T-2	CONTINUATION OF AN EXPIRED GENERAL PERMIT: All general permits and coverages issued by the Permit Board shall remain in full force and effect until the Permit Board makes a final determination regarding any reissuance, modification, or revocation of the permits and coverages. [WPC-1]
T-3	DUTY TO MITIGATE: The regulated entity shall take all reasonable steps to minimize or prevent any discharge in violation of this permit that is likely to adversely affect human health or the environment. [WPC-1]
T-4	DUTY TO PROVIDE INFORMATION: The regulated entity shall furnish to the MDEQ, within a reasonable time, any information which the MDEQ may request to determine compliance with this permit. [WPC-1]
T-5	SIGNATORY REQUIREMENTS: All Notice of Intent forms, reports, certifications, or information submitted to the permitting authority, or that this permit requires be maintained by you shall be signed and certified as follows: (1) The MS4 NOI(s) and SWMP(s) submitted to the MDEQ shall be signed by a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA). (2) All reports required by this permit, and other information requested by the Permit Board shall be signed by a person described above or a duly authorized representative (see T-6 below). [WPC-1]

ACT9 (continued):

Narrative Requirements:

Condition No.	Condition
T-6	DULY AUTHORIZED REPRESENTATIVE: A person is a duly authorized to sign submissions to the MDEQ only if: (1) The authorization is made in writing by a person described in T-5 above, and submitted to the MDEQ. (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated activity, such as manager, operator, superintendent or one having overall environmental responsibility (a duly authorized representative may be a named individual or any individual occupying a named position). [WPC-1]
T-7	CHANGES TO AUTHORIZATION: If an authorization is no longer accurate because a different individual or position has permit responsibility, a new authorization satisfying the above requirements must be submitted to the MDEQ prior to or together with any reports, information or applications signed by the representative. [WPC-1]
T-8	CERTIFICATION: Any person signing documents under this section shall make the following certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. [WPC-1]
T-9	OIL AND HAZARDOUS SUBSTANCE LIABILITY: Nothing in this permit shall relieve the regulated entity from responsibilities, liabilities, or penalties under Section 311 of the Clean Water Act (CWA). [WPC-1]

ACT9 (continued):

Narrative Requirements:

Condition No.	Condition
T-10	PROPERTY RIGHTS: The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. [WPC-1]
T-11	SEVERABILITY: The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby. [WPC-1]
T-12	PROPER OPERATION AND MAINTENANCE: The regulated entity shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the regulated entity to achieve compliance with the conditions of this permit including the storm water pollution prevention plan. Proper operation and maintenance includes adequate laboratory controls with appropriate quality assurance procedures and requires the operation of backup or auxiliary facilities when necessary to achieve compliance with permit conditions. [WPC-1]
T-13	BYPASS PROHIBITION: Bypass (see 40 CFR 122.41(m)) is prohibited and enforcement action may be taken against a regulated entity for a bypass, unless: (1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This conditions is not satisfied if the regulated entity should, in the exercise of reasonable engineering judgement, have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and (3) The regulated entity submitted notices per ACT7, S-7 of this permit. [WPC-1]

ACT9 (continued):

Narrative Requirements:

Condition No.	Condition
T-14	UPSET CONDITIONS: An upset (see 40 CFR 122.41(n)) constitutes an affirmative defense to an action brought for noncompliance with technology-based permit limitations if a regulated entity shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence, that: (1) An upset occurred and the regulated entity can identify the specific cause(s) of the upset, (2) The permitted facility was at the time being properly operated, (3) The regulated entity submitted notices per ACT7, S-7 of this permit). The regulated entity took remedial measures as required under ACT9, T-3 of this permit. In any enforcement proceeding, the regulated entity has the burden of proof that an upset occurred. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. [WPC-1]
T-15	INSPECTION AND ENTRY: The regulated entity shall allow MDEQ or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to (1) Enter upon the regulated entity's premises where a regulated activity is located or conducted or where records must be kept under the conditions of this permit; (2) Have access to and copy at reasonable times any records that must be kept under the conditions of this permit; and (3) Inspect at reasonable times any facilities or equipment. [WPC-1]
T-16	PERMIT ACTIONS: This permit may be modified, revoked and reissued, or terminated for cause. A request by the regulated entity for permit or coverage modification, revocation and reissuance, or termination, or a certification of planned changes or anticipated noncompliance does not stay any permit condition. [WPC-1]

ACT9 (continued):

Narrative Requirements:

Condition No.	Condition
T-17	SCIENTIFIC, TECHNICAL AND LEGAL ENVIRONMENTAL ASSISTANCE: Where a discharge authorized under this permit is determined to cause or have the reasonable potential to cause or contribute to the violation of an applicable water quality standard or other requirement of a regulation promulgated by the Commission or any of the minimum control measures set forth in its SWMP and required by this permit (referred to herein as "Environmental Requirement"), MDEQ shall, in writing, notify the regulated entity of the actual or potential violation of the Environmental Requirement. After receiving such notification from MDEQ, the regulated entity may request MDEQ assistance in determining the source of the pollutant discharge to the MS4, which is causing the MS4 to violate or have the potential to violate the Environmental Requirement. Such requests are proper where MDEQ's scientific, technical, or other environmental knowledge may assist the regulated entity in isolating and addressing sources of actual or potential violation of the Environmental Requirement which are not readily discoverable by the regulated entity after completing the procedures required by the regulated entity's SWMP. When a regulated entity requests MDEQ assistance, MDEQ will provide to the regulated entity available public information relevant to MDEQ's notification. The Commission shall retain jurisdiction and responsibility to enforce compliance with all applicable Commission regulations and the permit. The regulated entity shall retain jurisdiction and responsibility to enforce compliance with its SWMP, local laws, regulations, and ordinances. MDEQ, as appropriate and able, will provide technical assistance to the regulated entity as it pursues judicial or administrative enforcement procedures. However, the implementation of the SWMP remains the responsibility of the regulated entity. [WPC-1]
T-18	REOPENER CLAUSE: If there is evidence indicating potential or realized impacts on water quality due to storm water discharge covered by this permit, the regulated entity may be required to obtain an individual permit or an alternative general permit in accordance with ACT3, S-2 of this permit or the permit may be modified to include different limitations and/or requirements. [WPC-1]
T-19	PERMIT MODIFICATION: Permit modification or revocation will be conducted according to 40 CFR 122.62, 122.63, 122.64 and 124.5. [WPC-1]

ACT10 (MS4) Definitions:

Narrative Requirements:

Condition No.	Condition
T-1	All definitions contained in Section 502 of the Act and 40 CFR 122 shall apply to this permit and are incorporated herein by reference. For convenience, simplified explanations of some regulatory/statutory definitions have been provided, but in the event of a conflict, the definition found in the Statute or Regulation takes precedence. [WPC-1]
T-2	BEST MANAGEMENT PRACTICES (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of State. BMPs also include treatment requirements, operating procedures, and practices to control runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. [WPC-1]
T-3	CODES OF FEDERAL REGULATIONS (CFR) are documents containing all finalized regulations. The contents of 40 CFR are all related to the environmental aspects. [WPC-1]
T-4	COMMISSION means the Mississippi Commission on Environmental Quality. [WPC-1]
T-5	CONTROL MEASURE as used in this permit, refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the State. [WPC-1]
T-6	CLEAN WATER ACT (CWA) means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483 and Pub. L. 97-117, 33 U.S.C. 1251 et.seq. [WPC-1]
T-7	DISCHARGE-RELATED ACTIVITIES include: activities which cause, contribute to, or result in storm water point source pollutant discharges; and measures to control storm water discharges, including the siting, construction and operation of best management practices (BMPs) to control, reduce or prevent storm water pollution. [WPC-1]
T-8	ILLICIT CONNECTION means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer. [WPC-1]
T-9	ILLICIT DISCHARGE means any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and those non-storm water discharges identified in ACT2, T-4 of this permit. [WPC-1]

ACT10 (continued):

Narrative Requirements:

Condition No.	Condition
T-10	LARGER COMMON PLAN OF DEVELOPMENT OR SALE means a contiguous area where multiple separate and distinct construction activities are occurring under one plan. The plan in a common plan of development or sale is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that construction activities may occur on a specific plot. [WPC-1]
T-11	MAJOR RECEIVING WATER(s) are those waters of the State that are named on an United States Geological Quadrangle Map. [WPC-1]
T-12	MAXIMUM EXTENT PRACTICABLE "MEP" is the statutory standard that establishes the level of pollutant reductions that operators of regulated MS4s must achieve. The CWA requires that NPDES permits for discharges from MS4s "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods." Compliance with the conditions of the general permit and the series of steps associated with identification and implementation of the minimum control measures will satisfy the MEP standard. EPA has intentionally not provided a precise definition of MEP to allow maximum flexibility in MS4 permitting. MS4s need the flexibility to optimize reductions in storm water pollutants on a location-by-location basis. EPA envisions that this evaluative process will consider such factors as conditions of receiving waters, specific local concerns, and other aspects included in a comprehensive watershed plan. Other factors may include MS4 size, climate, implementation schedules, current ability to finance the program, beneficial uses of receiving water, hydrology, geology, and capacity to perform operation and maintenance. The pollutant reductions that represent MEP may be different for each small MS4, given the unique local hydrologic and geologic concerns that may exist and the differing possible pollutant control strategies. Therefore, each regulated entity will determine appropriate BMPs to satisfy each of the six minimum control measures through an evaluative process. [WPC-1]
T-13	EPA envisions application of the MEP standard as an iterative process. MEP should continually adapt to current conditions and BMP effectiveness and should strive to attain water quality standards. Successive iterations of the mix of BMPs and measurable goals will be driven by the objective of assuring maintenance of water quality standards. If, after implementing the six minimum control measures there is still water quality impairment associated with discharges from the MS4, after successive permit terms the regulated entity will need to expand or better tailor its BMPs within the scope of the six minimum control measures for each subsequent permit. EPA envisions that this process may take two to three permit terms. [WPC-1]
T-14	MEASURABLE GOALS are a municipality's storm water program goals, which are intended to gauge permit compliance and program effectiveness. [WPC-1]
T-15	MUNICIPALITY refers to a city, town, county, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes. [WPC-1]

ACT10 (continued):

Narrative Requirements:

Condition No.	Condition
T-16	MS4 is an acronym for "Municipal Separate Storm Sewer System" and is used to refer to either a Large, Medium (e.g. "the Jackson MS4"), or Small Municipal Separate Storm Sewer System. The term is used to refer to either the system operated by a single entity or a group of systems within an area that are operated by multiple entities (e.g., the Jackson MS4 includes MS4s operated by the city of Jackson, the Mississippi Department of Transportation (MDOT) - state and interstate highways, their right-of-ways and thoroughfares [including highways, streets, roads, bridges, maintenance facilities, service areas, and rest areas] within the jurisdictional boundary of MDOT, the University Medical Center and others). [WPC-1]
T-17	MUNICIPAL SEPARATE STORM SEWER means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designed or used for collecting or conveying storm water; (iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works (POTW). [WPC-1]
T-18	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) refers to Section 402 of the federal Clean Water Act. [WPC-1]
T-19	NOI is an acronym for "Notice of Intent" to be covered by this permit and is the mechanism used to "register" for coverage under a general permit. [WPC-1]
T-20	PERMIT BOARD means the Mississippi Environmental Quality Permit Board established pursuant to Miss. Code Ann. Section 49-17-28. [WPC-1]
T-21	PHASE II is the second stage of the State and Federal storm water permit regulations. [WPC-1]
T-22	REGULATED ENTITY , as used within this general permit, is a small MS4 within the State of Mississippi and located fully or partially within an urbanized area as determined by the latest Decennial Census pursuant to 40 CFR 122.32, or designated by MDEQ pursuant to 40 CFR 123.35. [WPC-1]
T-23	SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEM refers to all separate storm sewers that are owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States, but is not defined as "large" or "medium" municipal separate storm sewer system (those municipalities with a population of 100,00 or more) . This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings. [WPC-1]

ACT10 (continued):

Narrative Requirements:

Condition No.	Condition
T-24	STORM WATER means rainfall runoff, snowmelt runoff, and surface runoff. [WPC-1]
T-25	STORM WATER MANAGEMENT PROGRAM (SWMP) refers to a comprehensive program to manage the quality of storm water discharged from the municipal separate storm sewer system. [WPC-1]
T-26	TOTAL MAXIMUM DAILY LOAD (TMDL) means the calculated maximum permissible pollutant loading to a waterbody at which water quality standards can be maintained. The sum of wasteload allocations (WLAs) and load allocations (LAs) for any given pollutant. [WPC-1]
T-27	URBANIZED AREA (UA) is a land area comprising one or more places {core and fringe} with urban limits defined by a population density of 1,000 people per square mile and its contiguous census tracks of 500 people per square mile - that together have a residential population of at least 50,000. [WPC-1]

State of Mississippi
Mississippi Department of Environmental Quality (MDEQ)
Office of Pollution Control (OPC)

SMALL CONSTRUCTION GENERAL PERMIT

FOR LAND DISTURBING ACTIVITIES OF ONE (1) TO LESS THAN FIVE (5) ACRES

TO DISCHARGE STORM WATER FROM REGULATED CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

THIS CERTIFIES THAT

FACILITIES OR PROJECTS ISSUED A CERTIFICATE OF PERMIT COVERAGE UNDER THIS PERMIT ARE GRANTED PERMISSION TO DISCHARGE STORM WATER FROM REGULATED CONSTRUCTION ACTIVITIES INTO STATE WATERS

in accordance with effluent limitations, inspection requirements and other conditions set forth in herein. This permit is issued in accordance with the provisions of the Mississippi Water Pollution Control Law (Section 49-17-1 et seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder, and under authority granted pursuant to Section 402(b) of the Federal Water Pollution Control Act.

Mississippi Environmental Quality Permit Board

Authorized Signature

Mississippi Department of Environmental Quality

Issued: January 3, 2008 Permit No. MSR15

Expires: December 31, 2012

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AI35524		

KEY

ACT = Activity

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ACT1 (Small Construction) Introduction:

Narrative Requirements:

Condition No.	Condition
T-1	INTRODUCTION: The Small Construction General Permit (SCGP) authorizes storm water discharges from construction activities disturbing one (1) acre to less than five (5) acres, or less than one acre if part of a "larger common plan of development or sale," where the total acreage is based on cumulative planned disturbance (see Definitions). Construction activities that disturb five acres or greater are regulated under the Large Construction General Permit. Storm water discharges that enter state waters or storm water conveyance systems leading to state waters are subject to regulation and compliance with the conditions set forth in this permit. This permit also authorizes storm water discharges from any other construction activity designated by the Executive Director based on the potential for contribution to an excursion of a water quality standard or for significant contribution of pollutants to state waters. Upon issuance by the Permit Board on Environmental Quality, this permit will replace the previous Small Construction General Permit. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of the facility (for example, existing ditches, channels, or other similar storm water conveyances, as well as routine grading of existing dirt roads, asphalt overlays of existing roads, and other similar maintenance activities). [WPC-1]

ACT2 (Small Construction) Permit Applicability and Coverage:

Narrative Requirements:

Condition No.	Condition
T-1	PERMIT AREA: The Small Construction General Permit covers all areas of the State of Mississippi. [WPC-1]
T-2	COVERED DISCHARGES: (1) Discharges composed entirely of storm water and allowable non-storm water identified in T-4 of this ACT from small construction activities including clearing, grading, excavating and other land disturbing activities equal to or greater than one (1) acre and less than five (5) acres. These discharges are automatically designated as small construction activities under the National Pollutant Discharge Elimination System (NPDES) storm water program and are automatically covered under this permit. Small construction activities disturbing less than one (1) acre are designated if: - The project is part of a larger common plan of development or sale with a cumulative planned disturbance of equal to or greater than one (1) acre and less than five (5) acres (for example, individual or commercial lots that are part of a subdivision or a commercial development that initially impacts less than one (1) acre but will ultimately exceed the one (1) acre threshold, or - The Executive Director of the Mississippi Department of Environmental Quality (MDEQ) designates the construction activity based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the State. [WPC-1]
T-3	(2) A project is eligible for coverage under this general permit for discharges of pollutants of concern to water bodies for which there is a total maximum daily load (TMDL) established or approved by EPA if measures and controls are incorporated that are consistent with the assumptions and requirements of such TMDL. To be eligible for coverage under this general permit, the facility must incorporate any conditions applicable to any discharge(s) necessary for consistency with the assumptions and requirements of such TMDL. If, after coverage issuance, a specific wasteload allocation is established that would apply to the facility's discharge, the facility must implement steps necessary to meet that allocation. [WPC-1]

ACT2 (continued):

Narrative Requirements:

Condition No.	Condition
T-4	ALLOWABLE NON-STORM WATER DISCHARGES: Owner or operators are authorized for the following non-storm water discharges. Except for flows from fire fighting activities, sources of non-storm water below that are combined with storm water discharges associated with construction activity must be identified in the Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge. Discharges from fire-fighting activities Fire hydrant flushings Waters used to wash vehicles where detergents are not used Water used to control dust Potable water sources including water line flushings Routine external building wash down that does not use detergents Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless totally removed) and where detergents are not used Uncontaminated air conditioning or compressor condensate Uncontaminated ground water or spring water Foundation or footing drains where flows are not contaminated with process materials such as solvents Uncontaminated excavation dewatering Landscape irrigation. [WPC-1]

ACT2 (continued):

Narrative Requirements:

Condition No.	Condition
T-5	THIS PERMIT DOES NOT AUTHORIZE: (1) Discharges of hazardous substances or oil resulting from an on-site spill. (2) Discharges that originate from the site after construction activities have been completed and the site has undergone final stabilization. (3) Discharges associated with construction activity that disturb five (5) or more acres or that have been covered under an individual permit in accordance with ACT3, S-2 of this permit. (4) Discharges from construction sites that the Executive Director determines will cause, or have reasonable potential to cause or contribute to, violations of water quality standards. Where such determinations have been made, the Mississippi Environmental Quality Permit Board (Permit Board) may notify the owner or operator that an individual permit application is necessary in accordance with ACT3, S-2 of this permit. However, the Permit Board may authorize coverage under this permit after appropriate controls and implementation procedures, designed to bring the discharges into compliance with water quality standards, have been included in the Storm Water Pollution Prevention Plan. (5) Discharges to impaired receiving waters, unless the SWPPP specifically identifies Best Management Practices (BMPs) which ensure storm water will not cause or contribute to non-attainment of a water quality standard. In cases where the Permit Board becomes aware of potential impairment due to small construction activities, the Permit Board may require the submittal of the SWPPP in order to ascertain whether the selected BMPs are sufficient to comply with requirements of this permit or any other requirements of the Permit Board. The list of impaired receiving waters may be found on the MDEQ web site at www.deq.state.ms.us or by calling 601-961-5171. [WPC-1]
T-6	(6) Discharges that are likely to jeopardize the continued existence of any species that is listed as endangered or threatened under the Environmental Species Act (ESA) or result in the adverse modification or destruction of habitat that is designated under ESA (7) Construction activities that will affect state waters, including wetlands, without obtaining the necessary U.S. Army Corps of Engineers' (COE) individual Section 404 permit or coverage under a COE nationwide or general permit. If a Small Construction Notice of Intent (SCNOI) is requested by the Permit Board, appropriate COE documentation must be included. [WPC-1]

ACT3 (Small Construction) Obtaining Coverage:

Submittal/Action Requirements:

Condition No.	Condition
S-1	HOW TO OBTAIN AUTHORIZATION: (1) If a Small Construction Notice of Intent (SCNOI) has not been requested by the Permit Board (SCNOI not submitted to MDEQ). Owners or operators are authorized to discharge storm water or allowable non-storm water associated with small construction activity under the terms and conditions of this permit upon commencement of small construction land disturbing activities (i.e., Construction may begin after the completion of the SCNOI and the development and implementation of the required Storm Water Pollution Prevention Plan (SWPPP)). (2) If a Small Construction Notice of Intent (SCNOI) has been requested by the Permit Board (SCNOI submitted to MDEQ). Owners or operators are authorized to discharge storm water or allowable non-storm water only after staff review and receipt of written notification of approval of coverage by the Permit Board Staff. [WPC-1]
S-2	REQUIRING AN INDIVIDUAL PERMIT: Upon receipt of a SCNOI, the Permit Board may require an alternate permit. The Permit Board may require any owner or operator of land disturbing activities of equal to or greater than one (1) acre and less than five (5) acres to apply for and obtain an individual NPDES permit. Any interested person may petition the Permit Board to take action under this paragraph. The Permit Board may require any small construction owner or operator to apply for an individual NPDES permit only if the owner or operator has been notified in writing. This notice shall include reasons for this decision, an application form and a filing deadline. The Permit Board may grant additional time upon request. [WPC-1]

ACT4 (Small Construction) Small Construction Notice of Intent:

Submittal/Action Requirements:

Condition No.	Condition
S-1	SMALL CONSTRUCTION NOTICE OF INTENT (SCNOI): Prior to the commencement of small construction activity, the owner or operator must complete a Small Construction Notice of Intent (SCNOI) provided at the end of this permit. The SCNOI and SWPPP described in ACT5 shall be submitted to the Mississippi Department of Environmental Quality (MDEQ) only upon request from MDEQ. However, the SCNOI and SWPPP must be maintained at the permitted site or locally available in case inspector review is necessary. Failure to complete a SCNOI prior to the commencement of construction activity or to submit a SCNOI when requested is a violation of State regulations. The SCNOI shall be retained by the owner or operator as required by ACT8, R-1 of this permit. Attachments to the SCNOI must include: a Storm Water Pollution Prevention Plan (SWPPP) and a U.S. Geological Survey quadrangle map or copy (only if required to be submitted to MDEQ) showing site location. The owner(s) of the property and the operator(s) associated with the regulated construction activity on the property have joint and severable responsibility for compliance with the permit. Not withstanding any permit condition to the contrary, the coverage recipient and any person who causes pollution of waters of the state or places waste in a location where they are likely to cause pollution, shall remain responsible under applicable federal and state laws and regulations, and applicable permits. The SCNOI shall be signed in accordance with the provisions of ACT10, T-4 of this permit. [WPC-1]

Narrative Requirements:

Condition No.	Condition
T-1	WHERE TO SUBMIT THE SMALL CONSTRUCTION NOTICE OF INTENT (SCNOI), IF REQUESTED: If requested, complete and appropriately signed SCNOI forms must be submitted to: Chief, Environmental Permits Division MS Dept of Environmental Quality, Office of Pollution Control P.O. Box 10385 Jackson, Mississippi 39289-0385. [WPC-1]

ACT5 (Small Construction) Storm Water Pollution Prevention Plan (SWPPP) Development and Content:

Submittal/Action Requirements:

Condition No.	Condition
S-1	SWPPP DEVELOPMENT: A SWPPP shall be developed and implemented by the owner or operator of a small construction project. Failure to develop a SWPPP prior to commencement of construction activity or to submit a SWPPP when requested is a violation of State regulations. The SWPPP must include a description of appropriate control measures (i.e., BMPs) that will be implemented as part of the construction activity to control pollutants in storm water discharges. (1) The SWPPP shall be retained at the permitted site or locally available. A copy of the SWPPP must be made available to the MDEQ inspectors for review at the time of an on-site inspection. (2) BMPs shall be in place upon commencement of construction. (3) The Executive Director of MDEQ may notify the owner or operator at any time that the SWPPP does not meet the minimum requirements of this permit. After notification, the owner or operator shall amend the SWPPP, implement the changes and certify in writing to the Executive Director that the requested changes have been made. Unless otherwise provided by the Executive Director, the requested changes shall be made within 15 days. (4) The owner or operator shall amend the SWPPP and implement the changes before there is a change in construction, operation, or maintenance, which may potentially effect the discharge of pollutants to State waters. (5) The owner or operator shall amend the SWPPP and implement the changes if the SWPPP proves to be ineffective in controlling storm water pollutants including, but not limited to, significant sediment leaving the site and non-functioning BMPs. [WPC-1]

ACT5 (continued):

Narrative Requirements:

Condition No.	Condition
T-1	SWPPP CONTENT: Owner or Operator: The SWPPP shall identify the "owner or operator" as defined in ACT11 of this permit. The operator's name, complete mailing address and telephone number(s) shall be identified on the plan. [WPC-1]
T-2	Erosion and Sediment Controls: The owner or operator shall list and describe controls appropriate for the construction activities and the procedures for implementing such controls. Controls shall be designed to retain sediment onsite and should: (1) Divert upslope water around disturbed areas (2) Limit exposure of disturbed areas to the shortest time possible (3) Disturb the smallest area possible (4) Preserve existing vegetation where possible, especially trees (5) Preserve vegetated buffer zones around any creek, drain, lake, pond or wetland (6) Slow rainfall runoff velocities to prevent erosive flows (7) Avoid disturbing sensitive areas such as: - Steep and/or unstable slopes - Land upslope of surface waters - Areas with erodible soils - Existing drainage channels (8) Transport runoff down steep slopes through lined channels or piping (9) Minimize the amount of cut and fill (10) Re-vegetate disturbed areas as soon as possible (11) Implement best management practices to mitigate adverse impacts from storm water runoff (12) Remove sediment from storm water before it leaves the site by allowing runoff to pond in controlled areas to drop out sediment (13) Filter runoff by using natural vegetation, brush barriers, silt fences, hay bales, etc. [WPC-1]

ACT5 (continued):

Narrative Requirements:

Condition No.	Condition
T-3	At a minimum, the controls must be in accordance with the standards set forth in " Planning and Design Manual for the Control of Erosion, Sediment & Stormwater," or other recognized manual of design as appropriate for Mississippi. The planning and design manual can be obtained by calling 601/961-5171 or may be found electronically at Mississippi State's educational web site at http://abe.msstate.edu/csd/p-dm/. In addition, Mississippi's "Storm Water Pollution Prevention Plan (SWPPP) Guidance Manual for Construction Activities" is available by calling 601/961-5171 or on the MDEQ website at www.deq.state.ms.us. The erosion and sediment controls shall address the following minimum components. (1) Vegetative practices shall be designed to preserve existing vegetation where possible and re-vegetate disturbed areas as soon as practicable after grading or construction. Such practices may include surface roughening, temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffer strips, and protection of trees. When a disturbed area will be left undisturbed for 30 days or more, the appropriate temporary or permanent vegetative practices shall be implemented within 7 calendar days. (2) Structural practices shall divert flows from exposed soils, store flows or otherwise limit runoff from exposed areas. Such practices may include, but are not limited to, construction entrance/exit, silt fences, earth dikes, brush barriers, drainage swales, check dams, subsurface drains, pipe slope drains, level spreaders, drain inlet protection, drain outlet protection, detention/retention basins, sediment traps, temporary sediment basins or equivalent sediment controls. [WPC-1]
T-4	(3) Post-construction control measures should be installed to control pollutants in storm water after construction is complete. These controls include, but are not limited to, one or more of the following: on-site infiltration of runoff, flow attenuation using open vegetated swales, exfiltration trenches and natural depressions, constructed wetlands and retention/detention structures. Where needed, velocity dissipation devices shall be placed at detention or retention pond outfalls and along the outfall channel to provide for a non-erosive flow. [WPC-1]
T-5	Non-Storm Water Discharge Management: Except for flows from fire fighting activities, sources of non-storm water listed in ACT2, T-4 of this permit that are combined with storm water discharges associated with construction activity must be identified in the SWPPP. Non-storm water discharges should be eliminated or reduced to the extent feasible. The SWPPP must identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge. [WPC-1]

ACT5 (continued):

Narrative Requirements:

Condition No.	Condition
T-6	Housekeeping Practices: The owner or operator shall describe and list practices appropriate to prevent pollutants from entering storm water from construction sites due to poor housekeeping. The owner or operator shall: (1) Designate areas for equipment maintenance and repair and concrete chute wash off; (2) Provide waste receptacles at convenient locations; (3) Provide regular collection of waste; (4) Provide protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials; (5) Provide adequately maintained sanitary facilities; and (6) Provide secondary containment around on-site fuel tanks. [WPC-1]
T-7	Prepare Scaled Site Map(s): The owner or operator shall prepare a scaled site map showing original and proposed contours (if practicable), drainage patterns, adjacent receiving water bodies, north arrow, all erosion & sediment controls (vegetative and structural), any post-construction control measures, and location of housekeeping practices. If the construction project is linear (see Definitions in ACT11), a scaled site map is not required. However, standard diagrams (e.g., cross sections showing dimensions and labeled components) of erosion and sediment controls to be used must be included in the SWPPP. [WPC-1]
T-8	Implementation Sequence: The owner or operator shall prepare an orderly listing, which coordinates the timing of all major land-disturbing activities together with the necessary erosion and sedimentation control measures planned for the project. [WPC-1]
T-9	Implementation of Controls: The SWPPP shall require the owner or operator, in disturbing an area, to implement controls as needed to prevent erosion and adverse impacts to State waters. [WPC-1]

ACT5 (continued):

Narrative Requirements:

Condition No.	Condition
T-10	Maintenance and Weekly Inspections: The SWPPP shall describe procedures to maintain vegetation, erosion and sediment controls and other protective measures. Procedures shall provide that all erosion controls are inspected weekly for a minimum of four inspections per month (see ACT 6, S-4). [WPC-1]
T-11	EXAMPLE STORM WATER POLLUTION PREVENTION PLANS (SWPPPs): Example SWPPPs are included in the Mississippi Storm Water Pollution Prevention Plan Guidance Manual for Construction Activities. [WPC-1]

ACT6 (Small Construction) Implementation, Inspection and Reporting Requirements:

Submittal/Action Requirements:

Condition No.	Condition
S-1	SWPPP IMPLEMENTATION REQUIREMENTS: The coverage recipient shall: (1) Implement the SWPPP and retain a copy of the SWPPP at the permitted site or locally available. Failure to implement the SWPPP is a violation of permit requirements. A copy of the SWPPP must be made available to the MDEQ inspectors for review at the time of an on-site inspection. (2) Ensure that appropriate Best Management Practices (BMPs) are in place upon commencement of construction. (3) Amend the SWPPP if notified at any time by the Executive Director of the MDEQ that the SWPPP does not meet the minimum requirements. Owner or operator shall certify in writing to the Executive Director that the requested changes have been made. Unless otherwise provided, the requested changes shall be made within 15 days. (4) Amend the SWPPP whenever there is a change in design, construction, operation, or maintenance which may potentially affect the discharge of pollutants to State waters; or the SWPPP proves to be ineffective in controlling storm water pollutants. If the SCNOI was required to be submitted to MDEQ, the amended SWPPP shall be submitted within 30 days of amendment. Proposed expansion to five (5) acres or greater requires the submittal of a Large Construction Notice of Intent (LCNOI). (5) Install needed erosion controls even if they may be located in the way of subsequent activities, such as utility installation, grading or construction. It shall not be an acceptable defense that controls were not installed because subsequent activities would require their replacement or cause their destruction. (6) Install additional and/or alternative erosion and sediment controls when existing controls prove to be ineffective in preventing sediment from leaving the site. (7) Minimize off-site vehicle tracking of sediments. [WPC-1]

ACT6 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-2	SWPPP IMPLEMENTATION REQUIREMENTS (continued): (8) Comply with applicable State or local waste disposal, sanitary sewer or septic system regulations. (9) Maintain all erosion controls. Except for sediment basins, all accumulated sediment shall be removed from structural controls when sediment deposits reach one-third to one-half the height of the control. For sediment basins, accumulated sediment shall be removed when the capacity has been reduced by 50%. All removed sediment deposits shall be properly disposed. Non-functioning controls shall be repaired, replaced or supplemented with functional controls within 24 hours of discovery or as soon as field conditions allow. (10) Implement steps necessary to meet a specific wasteload allocation established subsequent to the beginning of construction. [WPC-1]
S-3	SWPPP COMPLIANCE WITH LOCAL STORM WATER ORDINANCES: (1) In addition to the requirements of this permit, the SWPPP shall be in compliance with all local storm water ordinances. (2) When storm water discharges into a Municipal Separate Storm Sewer System (MS4), the owner or operator must make the SWPPP available to the municipal authority upon request. [WPC-1]
S-4	INSPECTION REQUIREMENTS: Inspection of all erosion controls and other SWPPP requirements shall be performed during permit coverage using a copy of the form provided at the back of this permit. Inspections shall be performed as follows: (1) At least weekly for a minimum of four inspections per month; (2) As often as is necessary to ensure that appropriate erosion and sediment controls have been properly constructed and maintained and to determine if additional or alternative control measures are required. The MDEQ strongly recommends that coverage recipients perform a "walk through" inspection of the construction site before anticipated storm events. [WPC-1]

ACT6 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-5	RELEASE REPORTING: Releases into the environment of hazardous substances, oil, and pollutants or contaminants, which pose a threat to applicable water quality standards or causes a film, sheen or discoloration of State waters, shall be reported to the: - Mississippi Emergency Management Agency (601) 933-6362 or (800) 222-6362; or - National Response Center (800) 424-8802. [WPC-1]
S-6	NONCOMPLIANCE REPORTING: (1) Anticipated Noncompliance. The owner or operator shall give at least 10 days advance notice, if possible, before any planned noncompliance with permit requirements. Giving notice of planned or anticipated noncompliance does not immunize the owner or operator from enforcement for that noncompliance. (2) Unanticipated Noncompliance. The owner or operator shall notify the MDEQ orally within 24 hours from the time he or she becomes aware of unanticipated noncompliance. A written report shall be provided to the MDEQ within 5 working days of the time he or she becomes aware of the circumstances. The report shall describe the cause, the exact dates and times, steps taken or planned to reduce, eliminate, or prevent reoccurrence and, if the noncompliance has not ceased, the anticipated time for correction. [WPC-1]

ACT7 (Small Construction) Limitation Requirements:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1		NON-NUMERIC LIMITATIONS: Storm water discharges shall be free from: (1) Debris, oil, scum, and other floating materials other than in trace amounts (2) Eroded soils and other materials that will settle to form objectionable deposits in receiving waters (3) Suspended solids, turbidity and color at levels inconsistent with the receiving waters (4) Chemicals in concentrations that would cause violation of State Water Quality Criteria in the receiving waters. [WPC-1]

ACT8 (Small Construction) Record Keeping:

Record-Keeping Requirements:

Condition No.	Condition
R-1	RETENTION OF RECORDS: All records, reports and information resulting from activities required by this permit shall be retained by the owner or operator, on-site if practicable, for a period of at least three years from the date construction was completed. [WPC-1]
R-2	DOCUMENTATION OF INSPECTIONS: All inspections required by ACT6, S-4 of this permit must be documented on the Inspection and Certification Form provided at end of this permit. The form must be certified according to the signatory requirements outlined in ACT10, T-4 and T-5 of this permit. Documentation must include the day and time the inspection was performed, who performed the inspection, any deficiencies noted, and corrective action needed. Documentation of all inspections must be kept with the SWPPP. Inspections must continue until such time that planned construction activities have been completed, land disturbing activities have ceased and disturbed areas have been stabilized with no significant erosion occurring. To satisfy this requirement for linear projects, inspections may be conducted at representative locations for portions of the project that have been completed and stabilized. [WPC-1]

ACT9 (Small Construction) Termination of Permit Coverage:

Submittal/Action Requirements:

Condition No.	Condition
S-1	TERMINATION OF PERMIT REQUIREMENTS: (1) If a SCNOI has not been requested by the Permit Board (SCNOI not submitted to MDEQ). Upon successful completion of all permanent erosion and sediment controls, inspections and reporting requirements are no longer required. The owner or operator must record the date of completion of all permanent erosion and sediment controls on the final inspection report. (2) If a SCNOI has been requested by the Permit Board (SCNOI submitted to MDEQ). Upon successful completion of all permanent erosion and sediment controls for a small construction project a written notification of such shall be submitted to the MDEQ. Permit requirements remain in effect until such time the coverage recipient receives written notice of coverage termination from MDEQ. [WPC-1]

ACT10 (Small Construction) Standard Requirements Applicable to All Water Permits:

Narrative Requirements:

Condition No.	Condition
T-1	DUTY TO COMPLY: The coverage recipient must comply with all conditions of this permit. Any permit noncompliance constitutes a violation and is grounds for enforcement action; for coverage termination, revocation and reissuance, or modifications; or denial of a renewal application. [WPC-1]
T-2	DUTY TO MITIGATE: The owner or operator shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which is likely to adversely affect human health or the environment. [WPC-1]
T-3	DUTY TO PROVIDE INFORMATION: The owner or operator shall furnish to the Permit Board, within a reasonable time, any relevant information which the Permit Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The owner or operator shall also furnish to the Permit Board, upon request, copies of records required to be kept by this permit. [WPC-1]

ACT10 (continued):

Narrative Requirements:

Condition No.	Condition
T-4	SIGNATORY REQUIREMENTS: All SCNOIs and Requests for Recoverage shall be signed as follows: (1) For a corporation by a responsible corporate officer. For this permit, a responsible corporate officer means: a) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or b) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures; (2) For a partnership or sole proprietorship by a general partner or the proprietor, respectively; or (3) For a municipal, State, Federal, or other public agency by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: a) the chief executive officer of the agency, or b) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency. [WPC-1]
T-5	DULY AUTHORIZED REPRESENTATIVE: All reports required by this permit, and other information requested by the Permit Board shall be signed by a person described in ACT 10, T-4 above, or by a duly authorized representative of that person. A person is a duly authorized representative when: (1) The authorization is made in writing and submitted to the Permit Board by a person described in ACT 10, T-4 above. (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated activity, such as: manager, operator of a well or well field, superintendent, person of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may be either a specified individual or position). [WPC-1]

ACT10 (continued):

Narrative Requirements:

Condition No.	Condition
T-6	CHANGES IN AUTHORIZATION: If an authorization is no longer accurate because a different individual or position has permit responsibility, a new authorization satisfying the requirements of ACT 10, T-4 and T-5 must be submitted to the Permit Board prior to or together with any reports, information or applications signed by the representative. [WPC-1]
T-7	CERTIFICATION: Any person signing documents under this section shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." [WPC-1]
T-8	OIL AND HAZARDOUS SUBSTANCE LIABILITY: Nothing in this permit shall relieve the owner or operator from responsibilities, liabilities, or penalties under Section 311 of the CWA. [WPC-1]
T-9	PROPERTY RIGHTS: The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. [WPC-1]
T-10	SEVERABILITY: The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby. [WPC-1]

ACT10 (continued):

Narrative Requirements:

Condition No.	Condition
T-11	TRANSFERS: Coverage under this permit is not transferable to any person except after notice to and approval by the Permit Board. The Permit Board may require the coverage recipient to obtain another NPDES permit. Transfer of coverage requests shall be submitted to the Permit Board using the form provided at the end of this permit. [WPC-1]
T-12	PROPER OPERATION AND MAINTENANCE: The owner or operator shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the owner or operator to achieve compliance with the conditions of this permit, including the Storm Water Pollution Prevention Plan. Proper operation and maintenance includes adequate laboratory controls with appropriate quality assurance procedures and requires the operation of backup or auxiliary facilities when necessary to achieve compliance with permit conditions. [WPC-1]
T-13	BYPASS PROHIBITION: Bypass (see 40 CFR 122.41(m)) is prohibited and enforcement action may be taken against an owner or operator for a bypass, unless: a) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the owner or operator should, in the exercise of reasonable engineering judgment, have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and c) The owner or operator submitted notices per ACT 10, T-17 and/or T-18. [WPC-1]
T-14	UPSET CONDITIONS: An upset (see 40 CFR 122.41(n)) constitutes an affirmative defense to an action brought for noncompliance with technology-based permit limitations if a coverage recipient shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence, that: 1) An upset occurred and the coverage recipient can identify the specific cause(s) of the upset, 2) The permitted facility was at the time being properly operated, 3) The coverage recipient submitted notices per ACT 10, T-17 and/or T-18 and 4) The coverage recipient took remedial measures as required under ACT 10, T-2. In any enforcement proceeding, the coverage recipient has the burden of proof that an upset occurred. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. [WPC-1]

ACT10 (continued):

Narrative Requirements:

Condition No.	Condition
T-15	INSPECTION AND ENTRY: The owner or operator shall allow the Permit Board staff or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to: (1) enter upon the owner's or operator's premises where a regulated activity is located or conducted or where records must be kept under the conditions of this permit; (2) have access to and copy at reasonable times any records that must be kept under the conditions of this permit; and (3) inspect at reasonable times any facilities or equipment. [WPC-1]
T-16	PERMIT ACTIONS: This permit may be modified, revoked and reissued, or terminated for cause. A request by the owner or operator for permit or coverage modification, revocation and reissuance, or termination, or a certification of planned changes or anticipated noncompliance does not stay any permit condition. [WPC-1]
T-17	ANTICIPATED NONCOMPLIANCE: The owner or operator shall give at least 10 days advance notice, if possible, before any planned noncompliance with permit requirements. [WPC-1]
T-18	UNANTICIPATED NONCOMPLIANCE: The owner or operator shall notify the MDEQ orally within 24 hours from the time he or she becomes aware of unanticipated noncompliance. A written report shall be provided to the MDEQ within 5 working days of the time he or she becomes aware of the circumstances. The report shall describe the cause, the exact dates and times, steps taken or planned to reduce, eliminate, or prevent reoccurrence and, if the noncompliance has not ceased, the anticipated time for correction. [WPC-1]

ACT10 (continued):

Narrative Requirements:

Condition No.	Condition
T-19	REOPENER CLAUSE: If there is evidence indicating potential or realized impacts on water quality due to discharges covered by this permit, the owner or operator may be required to obtain individual permit or an alternative general permit in accordance with ACT 3, S-2 or the permit may be modified to include different limitations and/or requirements. [WPC-1]
T-20	PERMIT MODIFICATION: Permit modification or revocation will be conducted according to 40 CFR 122.62, 122.63, 122.64 and 124.5. [WPC-1]
T-21	CIVIL AND CRIMINAL LIABILITY: (1) Any person who violates a term, condition or schedule of compliance contained within this permit or the Mississippi Air and Water Pollution Control Law is subject to the actions defined by the Mississippi Air and Water Pollution Control Law. (2) Except as provided in permit conditions on "Bypassing" and "Upsets", nothing in this permit shall be construed to relieve the coverage recipient from civil or criminal penalties for noncompliance. (3) It shall not be the defense of the coverage recipient in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [WPC-1]

ACT11 (Small Construction) Definitions:

Narrative Requirements:

Condition No.	Condition
T-1	BEST MANAGEMENT PRACTICES (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practice to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. [WPC-1]
T-2	CONSTRUCTION ACTIVITY as used in this permit, includes construction activity as defined in 40 CFR part 122.26(b)(14)(x). This includes a disturbance to the land that results in the change in topography, existing soil cover (both vegetative and non-vegetative), or the existing topography that may result in accelerated storm water runoff, leading to soil erosion and movement of sediment into surface waters or drainage systems. Examples of construction activity may include clearing, grading, filling and excavating. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site. [WPC-1]
T-3	CONTROL MEASURE as used in this permit, refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the State. [WPC-1]
T-4	COMMENCEMENT OF CONSTRUCTION ACTIVITIES means the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction-related activities. [WPC-1]
T-5	CLEAN WATER ACT (CWA) refers to the Federal Water Pollution Control Act, 33 U.S.C. section 1251 et seq. [WPC-1]
T-6	DISCHARGE OF STORM WATER ASSOCIATED WITH SMALL CONSTRUCTION ACTIVITY as used in this permit, refers to a discharge of pollutants in storm water runoff from areas where soil disturbing activities (e.g., clearing, grading, or excavation), construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck washout, fueling), or other industrial storm water directly related to the construction process (e.g., concrete) are located. [WPC-1]
T-7	EXECUTIVE DIRECTOR means the Executive Director of the Department of Environmental Quality. [WPC-1]
T-8	FACILITY OR ACTIVITY means any NPDES "point source" or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program. [WPC-1]
T-9	FINAL STABILIZATION means all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of at least 70% for the area has been established or equivalent measures have been employed. [WPC-1]

ACT11 (continued):

Narrative Requirements:

Condition No.	Condition
T-10	LARGE CONSTRUCTION ACTIVITY includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than five (5) acres of land or will disturb less than five (5) acres of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than five (5) acres. Large construction activity is covered by the Large Construction General Permit. [WPC-1]
T-11	LARGER COMMON PLAN OF DEVELOPMENT OR SALE means a contiguous area where multiple separate and distinct construction activities are occurring under one plan. The plan in a common plan of development or sale is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that construction activities may occur on a specific plot. [WPC-1]
T-12	LINEAR PROJECT means a land disturbing activity as conducted by an underground/overhead utility or highway department, including but not limited to any cable line or wire for the transmission of electrical energy; any conveyance pipeline for transportation of gaseous or liquid substance; any cable line or wire for communications; or any other energy resource transmission ROW or utility infrastructure, e.g., roads and highways. Activities include the construction and installation of these utilities within a corridor. Linear project activities also include the construction of access roads, staging areas, and borrow/spoil sites associated with the linear project. [WPC-1]
T-13	NPDES means the National Pollutant Discharge Elimination System, which is a program administered under the authority of the Clean Water Act that prohibits the discharge of pollutants into waters of the United States unless a special permit is issued. [WPC-1]
T-14	OWNER OR OPERATOR for the purpose of this permit and in the context of storm water associated with construction activity, means any party associated with a construction project that meets either of the following two criteria: (1) The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or (2) The party has day to day operational control of those activities at a project which are necessary to ensure compliance with a storm water pollution prevention plan for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions). This definition is provided to inform permittees of MDEQ's interpretation of how the regulatory definitions of "owner or operator" and "facility or activity" are applied to discharges of storm water associated with construction activity. [WPC-1]
T-15	PERMIT BOARD means the Mississippi Environmental Quality Permit Board established pursuant to Miss. Code Ann. 49-17-28. [WPC-1]
T-16	POLLUTANT is defined at 40 CFR 122.2. A partial listing from this definition includes: dredged spoil, solid waste, sewage, garbage, sewage sludge, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, sediment, silt, cellar dirt, and industrial or municipal waste. [WPC-1]

ACT11 (continued):

Narrative Requirements:

Condition No.	Condition
T-17	SMALL CONSTRUCTION ACTIVITY is defined at 40 CFR 122.26(b)(15) and incorporated here by reference. A small construction activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than one (1) acre and less than five (5) acres of land or will disturb less than one (1) acre of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than one (1) acre and less than five (5) acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. [WPC-1]
T-18	STATE WATERS means all waters within the jurisdiction of this State, including all streams, lakes, ponds, wetlands, impounding reservoirs, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, situated wholly or partly within or bordering upon the State, and such coastal waters as are within the jurisdiction of the State, except lakes, ponds, or other surface waters which are wholly landlocked and privately owned, and which are not regulated under the Federal Clean Water Act (33 U.S.C.1251 et seq.). [WPC-1]
T-19	STORM WATER means rainfall runoff, snowmelt runoff, and surface runoff. [WPC-1]
T-20	STORM WATER POLLUTION PREVENTION PLAN (SWPPP) means a plan that includes site map(s), an identification of construction/contractor activities that could cause pollutants in the storm water, and a description of measures or practices to control these pollutants. [WPC-1]
T-21	SUCCESSFUL COMPLETION OF ALL PERMANENT EROSION AND SEDIMENT CONTROLS means when land disturbing construction activities have been completed and disturbed areas have been stabilized with no significant erosion occurring. [WPC-1]
T-22	WPC-1 means the State of Mississippi's Wastewater Regulations for National Pollutant Discharge Elimination System (NPDES) Permits, Underground Injection Control (UIC) Permits, State Permits, Water Quality Based Effluent Limitations and Water Quality Certification. [WPC-1]

Submit only upon request from MDEQ

SMALL CONSTRUCTION NOTICE OF INTENT (SCNOI)

GENERAL NPDES PERMIT MSR15 __ __ __ __ (Number to be assigned by MDEQ if submitted)

Prior to the commencement of small construction activity (see Small Construction General Permit ACT11, T-17), the owner or operator of a small construction project must complete this form and develop a Storm Water Pollution Prevention Plan (SWPPP) as required by ACT5 of Mississippi's Small Construction General Permit. **This SCNOI and SWPPP shall be submitted to the Mississippi Department of Environmental Quality (MDEQ) only upon request from MDEQ; however, the SCNOI and SWPPP must be maintained at the permitted site or locally available in case inspector review is necessary.** Attachments with this SCNOI must include: a USGS quad map or copy showing site location (only if required to be submitted to MDEQ) and a Storm Water Pollution Prevention Plan (SWPPP). All questions must be answered – answer "NA" if the question is not applicable.

PROJECT INFORMATION

OWNER CONTACT PERSON: _____

OWNER COMPANY NAME: _____

OWNER STREET (P.O. BOX): _____

OWNER CITY: _____

STATE: _____ **ZIP:** _____

OWNER PHONE # (INCLUDE AREA CODE): _____

OPERATOR (if different from owner) CONTACT PERSON: _____

OPERATOR COMPANY: _____

OPERATOR STREET (P.O. BOX): _____

OPERATOR CITY: _____

STATE: _____ **ZIP:** _____

OPERATOR PHONE # (INCLUDE AREA CODE): _____

PROJECT NAME: _____

DESCRIPTION OF CONSTRUCTION ACTIVITY: _____

ACREAGE DISTURBED (to be covered by this permit, area must be less than five (5) acres): _____

PHYSICAL SITE ADDRESS (If not available, indicate the nearest named road. For linear projects, indicate the beginning of the project and identify all counties the project traverses.):

STREET: _____

CITY: _____ **COUNTY:** _____ **ZIP:** _____

NEAREST NAMED RECEIVING STREAM: _____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____ _____

Signature[1] **Date Signed**

_____ _____

Printed Name **Title**

[1]**This application shall be signed according to the Small Construction General Permit, ACT10, T-4.**

If requested, please submit this form to:

Chief, Environmental Permits Division
MDEQ, Office of Pollution Control
P.O. Box 2261
Jackson, Mississippi 39225

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INSPECTION AND CERTIFICATION FORM
SMALL CONSTRUCTION GENERAL PERMIT

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 __ __ __ __)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: _____

PROJECT NAME: _____ **STARTUP DATE:** _____

PROJECT STREET ADDRESS: _____

PROJECT CITY: _____ **PROJECT COUNTY:** _____

OPERATOR MAILING ADDRESS: _____

MAILING CITY: _____ **STATE:** _____ **ZIP:** _____

CONTACT PERSON: _____ **CONTACT PHONE NUMBER:** _____

INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
		☐	
		☐	
		☐	
		☐	
		☐	
		☐	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): _____

_____

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): _____

_____

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

_____ _____
Authorized Signature Date

_____ _____
Printed Name Title

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division
MDEQ, Office of Pollution Control
P.O. Box 2261
Jackson, Mississippi 39225

B-78

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Transfer of Small Construction General Permit Coverage and/or Name Change

Instructions: For Ownership Change-Complete all Items on this page (except Item VIII) and reverse side.
For Name Change Only-Complete Items I, II, V, VI, VII, VIII, and reverse side.

Item I.

Facility Name: _____

Location: (Do Not Use P.O. Box)

Street: _____

City: _____ State: MS Zip: _____

County: _____

Telephone: (_____)_____

Item II.

Responsible official after transfer or name change:

Name: _____

Title: _____

Mailing Address:
Street/P.O. Box: _____

City: _____ State: _____ Zip: _____

Telephone (_____)_____

Item III.

Previous Permittee[1]: _____

Mailing Address:

Street/P.O. Box:_____

City: _____ State: _____ Zip: _____

Telephone: (_____)_____

Item IV.

New Permittee[1]: _____

Mailing Address:

Street/P.O. Box:_____

City: _____ State: _____ Zip: _____

Telephone: (_____)_____

Item V.

Industrial Activity SIC Code: _____

Brief Description:

Item VI.

Will Facility Operations Change? Yes ☐ No ☐

If yes, the appropriate applications and permits may required modification prior to change.

Item VII.

Will Facility Name Change? Yes ☐ No ☐

If Yes, Provide New Name for Permit Coverage.

New Name:_____

Item VIII.

Signature for Name Change

Print Name: _____

Authorized Signature[2]: _____

Title: _____ Date: _____

Item IX.

We the undersigned transfer permit coverage MSR15 __ __ __ __ (complete if known)

From:_____

To:_____ Acquisition Date:_____

By signature below, the new permittee certifies that they are aware of the requirements of the Small Construction General Permit and agrees to accept responsibility and liability for permit compliance. The previous permittee by signature below is transferring permit coverage to the new permittee.

_____
Print New Permittee[1] Name

_____
Print Previous Permittee[1] Name

_____
New Authorized Signature[2]

_____
Previous Authorized Signature[2]

_____ _____
Title Date

_____ _____
Title Date

[1]A Permittee is a company or individual that is covered under the general permit.
[2]**Authorized Signature must be owner or operator.**

Item X. Storm Water

(Check One)

☐ The recipient certifies that they have received a copy of the SWPPP from the original owner.

☐ The recipient is developing a new SWPPP.

If other environmental permits are involved please contact MDEQ at 601/961-5171 for the appropriate MDEQ transfer form or see MDEQ's web site at www.deq.state.ms.us

Submit to MDEQ at the following address only if an SCNOI has been submitted. If not submitted, you must keep this form with your records.

Chief, Environmental Permits Division
MDEQ, Office of Pollution Control
P.O. Box 2261
Jackson, Mississippi 39225

State of Mississippi
Mississippi Department of Environmental Quality
Office of Pollution Control

LARGE CONSTRUCTION GENERAL PERMIT

FOR LAND DISTURBING ACTIVITIES OF FIVE (5) OR MORE ACRES

THIS CERTIFIES THAT

PROJECTS ISSUED A CERTIFICATE OF COVERAGE UNDER THIS PERMIT ARE GRANTED PERMISSION TO DISCHARGE STORM WATER FROM REGULATED CONSTRUCTION ACTIVITIES INTO STATE WATERS

in accordance with effluent limitations, inspection requirements and other conditions set forth in herein. This permit is issued in accordance with the provisions of the Mississippi Water Pollution Control Law (Section 49-17-1 et seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder, and under authority granted pursuant to Section 402(b) of the Federal Water Pollution Control Act.

Mississippi Environmental Quality Permit Board

Authorized Signature

Mississippi Department of Environmental Quality

Issued: January 11, 2011

Permit No. MSR10

Expires: December 31, 2015

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Large Construction Storm Water General Permit
Table of Contents

Large Construction Storm Water General Permit
Table of Contents

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ACT1 (LCGP) Introduction:

Narrative Requirements:

Condition No.	Condition
T-1	The Large Construction General Permit (LCGP) authorizes storm water discharges from construction activities five (5) acres or greater or less than five (5) acres if part of a "larger common plan of development or sale" (see Definitions). Storm water discharges that enter waters of the State or storm water conveyance systems leading to waters of the State are subject to regulation and compliance with the conditions set forth in this permit. This permit also authorizes storm water discharges from any other construction activity designated by the Executive Director based on the potential for contribution to an excursion of a water quality standard or for significant contribution of pollutants to waters of the State. This permit replaces the previous Large Construction General Permit that expired on May 31, 2010. [WPC-1]

ACT2 (LCGP) Permit Applicability and Coverage:

Narrative Requirements:

Condition No.	Condition
T-1	PERMIT AREA: The Large Construction General Permit covers all areas of the State of Mississippi. [WPC-1]
T-2	ELIGIBILITY: (1) Discharges composed entirely of storm water and allowable non-storm water discharges (see ACT5, T-14 for additional requirements) from construction activity, including clearing, grading, excavating and other land disturbing activities of five (5) or more acres or less than five (5) acres if part of a "larger common plan of development or sale" (see Definitions). (2) Allowable Non-Storm Water Discharges: (A) Discharges from actual fire-fighting activities (B) Fire hydrant flushing (C) Water used to control dust (D) Potable water sources including uncontaminated water line flushing (E) Routine external building wash down that does not use detergents (F) Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used (G) Uncontaminated air conditioning or compressor condensate (H) Uncontaminated ground water or spring water (I) Foundation or footing drains where flows are not contaminated with process materials such as solvents (J) Uncontaminated excavation dewatering (K) Landscape irrigation (L) Water used to wash vehicles, wheel wash water and other wash waters where detergents are not used. [WPC-1]

ACT2 (continued):

Narrative Requirements:

Condition No.	Condition
T-3	ELIGIBILITY (continued): (3) Prohibited Non-Storm Water Discharges: (A) Wastewater from washout of concrete (unless managed by an appropriate control) (B) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials (C) Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance (D) Soaps or solvents used in vehicle and equipment washing (E) Wastewater from sanitary facilities, including portable toilets (4) A project is eligible for coverage under this general permit for discharges of pollutants of concern to water bodies for which there is a Total Maximum Daily Load (TMDL) established or approved by the Environmental Protection Agency (EPA) if measures and controls are incorporated that are consistent with the assumptions and requirements of such TMDL. To be eligible for coverage under this general permit, the project must incorporate in the Storm Water Pollution Prevention Plan (SWPPP) and/or effluent limitation any conditions applicable to any discharge(s) necessary for consistency with the assumptions and requirements of such TMDL. If, after coverage issuance, a specific wasteload allocation is established that would apply to the project's discharge, the project must implement steps necessary to meet that allocation within six (6) months from the final TMDL approval date. MDEQ's approved TMDL list may be found at the link listed in paragraph (5) below. In addition, MDEQ's Planning & Design Manual for the Control of Erosion, Sediment and Storm Water identifies specific controls that may be used to address consistency with any applicable TMDLs. The manual can be found at: http://www.deq.state.ms.us/MDEQ.nsf/page/epd_epdgeneral. (5) A project is eligible for coverage under this general permit for discharges of storm water to impaired water bodies on MDEQ's 303(d) list, provided best management practices (BMPs) are employed that prohibit further impairment of the designated and/or existing beneficial uses in the receiving water body. To be eligible for coverage under this general permit, the owner/operator must indicate on the LCNOI that the project discharges to a 303(d) listed receiving water and incorporate appropriate BMPs in its SWPPP. MDEQ's 303(d) list of impaired water bodies may be found on MDEQ's website at: http://www.deq.state.ms.us/MDEQ.nsf/page/TWB_Total_Maximum_Daily_Load_Section. [WPC-1]

ACT2 (continued):

Narrative Requirements:

Condition No.	Condition
T-4	THIS PERMIT DOES NOT AUTHORIZE: (1) Discharges which result in violation of State Water Quality Standards. If a discharge authorized under this permit is later determined to cause or have the reasonable potential to cause or contribute to the violation of an applicable water quality standard, MDEQ will notify the regulated entity of such water quality violation(s) in writing and will provide the information used by MDEQ to make this determination. The regulated entity must take all necessary actions required to ensure future discharges do not cause or contribute to the violation of a water quality standard. If such violations remain or re-occur, then additional measures, such as the addition of Best Management Practices (BMPs) or the requirement to obtain an individual permit, may be required by the Permit Board. Compliance with this requirement does not preclude any enforcement activity as provided by the Clean Water Act for the underlying violation. (2) Activities that affect waters of the State, including wetlands, without obtaining the necessary U.S. Army Corps of Engineers (COE) approval. This may include a COE individual Section 404 permit or coverage under a COE nationwide or general permit. Appropriate documentation must be submitted with the Large Construction Notice of Intent (LCNOI). [WPC-1]
T-5	(3) Discharges or discharge-related activities that are likely to jeopardize the continued existence of any species that is listed as endangered or threatened under the Endangered Species Act (ESA) or result in the adverse modification or destruction of habitat that is designated as critical under the ESA. Coverage under this permit is available only if the regulated entity's storm water discharges, allowable non-storm water discharges, and discharge-related activities are not likely to jeopardize the continued existence of any species that is listed as endangered or threatened ("listed") under the ESA or result in the adverse modification or destruction of habitat that is designated as critical under the ESA ("critical habitat"). Submission of a signed LCNOI, or County Utility Authority approval, if applicable, will be deemed to constitute the regulated entity's certification of eligibility. [WPC-1]

ACT3 (LCGP) Obtaining Coverage:

Submittal/Action Requirements:

Condition No.	Condition
S-1	OBTAINING AUTHORIZATION: (1) Owners and/or operators (see Definitions) desiring coverage associated with large construction activity under this permit must submit a Large Construction Notice of Intent (LCNOI) and other required submittals in accordance with the requirements of this permit. For construction activities, the operator is typically the Prime Contractor. However, if the prime contractor does not meet the definition of operator, then the owner must apply. The owner may submit the LCNOI and later, prior to actual construction, the operator may submit the Prime Contractor Certification accepting responsibility for applicable permit conditions. The owner(s) of the property and the operator(s) associated with the regulated construction activity on the property have joint and severable responsibility for compliance with the permit. Not withstanding any permit condition to the contrary, the coverage recipient and any person who causes pollution of waters of the state or places waste in a location where they are likely to cause pollution, shall remain responsible under applicable federal and state laws and regulations, and applicable permits. (2) Upon review of the LCNOI, the MDEQ staff may require additional information (including modification of the SWPPP, which could require the implementation of additional controls), recommend that coverage not be granted and/or that an alternate permit would be more appropriate. The MDEQ staff recommendations may be brought before the Mississippi Environmental Quality Permit Board (Permit Board) for review and consideration at a regularly scheduled meeting or at a special meeting at its discretion. (3) Coverage under this permit will not be granted until all other required MDEQ permits, certifications and approvals are satisfactorily addressed. (4) Owners or operators are authorized to discharge storm water associated with large construction activity under the terms and conditions of this permit only upon receipt of written notification of approval of coverage by the Permit Board staff. Discharge of storm water without written notification of coverage under this permit or issuance of an individual National Pollutant Discharge Elimination System (NPDES) Storm Water Permit is a violation of the Mississippi Air and Water Pollution Control Law 49-17-29(2)(b). [WPC-1]

ACT3 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-2	REQUIRING AN INDIVIDUAL PERMIT OR ALTERNATIVE GENERAL PERMIT: (1) The Permit Board may require any coverage recipient to apply for and obtain either an individual or an alternative general NPDES permit. Any interested person may petition the Permit Board to take action under this paragraph. The Permit Board may require any coverage recipient to apply for an individual NPDES permit only if the owner or operator has been notified in writing. Such notice shall include reasons for this decision, an application form and a filing deadline. The Permit Board may grant additional time at its discretion, upon request. If a coverage recipient fails to submit a requested application in a timely manner, coverage under this permit will automatically terminate at the end of the day specified for application submittal. (2) Any coverage recipient may request to be excluded from permit coverage by applying for an individual permit or coverage under another general permit. The applicant shall submit an individual application (EPA Forms 1 and 2F along with the narrative requirements of 40 CFR 122.26(c)(1)(ii)) or the appropriate Notice of Intent. (3) Coverage under this permit is automatically terminated on the issuance date of the respective alternative individual permit or general permit coverage. When the request for an alternative individual permit or general permit coverage is denied, coverage under this permit continues unless terminated by the Permit Board. [WPC-1]
S-3	HOW TO OBTAIN RECOVERAGE UNDER THE REISSUED PERMIT: If reissuance of this permit does not occur before its expiration date, continued coverage under this permit will be allowed until the effective date of the reissued general permit coverage. Once the Large Construction General Permit is reissued, active coverage recipients will receive a Recoverage Form with a Letter of Instruction. If a coverage recipient wishes to be covered by the reissued Large Construction General Permit, the Recoverage Form must be completed and returned to the MDEQ in accordance with the provisions of the Letter of Instruction. Resubmittal of the Storm Water Pollution Prevention Plan (SWPPP) is not required if the SWPPP is on-site or locally available, current and adequately addresses the sources of pollution at the facility. Some SWPPP's may require amendment to meet the conditions of the reissued general permit (i.e., modification of sediment basin outfall design). [WPC-1]

ACT3 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-4	COMMERCIAL DEVELOPMENT - INDIVIDUAL LOTS OR PARCELS: Individual lots or parcels within a commercial development that are part of the "larger common plan of development or sale" (see Definitions) are regulated regardless of size or owner. If the owner or developer obtains construction permit coverage for a development then sells lots or parcels within that development, permit coverage must continue on those areas under new ownership. The original coverage recipient is responsible for all construction activities until individual lots or parcels within the development are sold to others and the new owner submits a LCNOI and obtains coverage under Mississippi's Large Construction General Permit or applies for an individual permit. [WPC-1]
S-5	RESIDENTIAL SUBDIVISION - INDIVIDUAL LOTS: Individual lots within a residential subdivision that are part of the "larger common plan of development or sale" (see Definitions) are regulated regardless of size or ownership. If the owner or developer obtains construction permit coverage for a residential development, then sells individual lots within that development, permit coverage shall continue on those lots under new ownership. The original coverage recipient may retain responsibility for permit compliance, or the new owner (purchaser) or operator shall satisfy authorization requirements by: (1) Completing and submitting the MDEQ Registration Form (see Large Construction Forms Package) and developing and implementing a sediment and erosion control plan for the specific lot(s), or (2) Completing and submitting for approval from the MDEQ, a LCNOI and required documents, or (3) Applying for an individual storm water permit. The owner or developer (seller) is responsible for providing the new owner or operator (purchaser) with a copy of the MDEQ Registration Form and a copy of the Large Construction General Permit. These documents, as well as the individual application, may be found on MDEQ's website at www.deq.state.ms.us or by calling 601-961-5171. [WPC-1]
S-6	RESIDENTIAL SUBDIVISION - EXPANSIONS: For subsequent phases, expansions and major modifications of subdivision development that are proposed but were not included in the original SWPPP, the coverage recipient shall submit to MDEQ the Major Modification Form (see Large Construction Forms Package). [WPC-1]

ACT3 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-7	RESIDENTIAL SUBDIVISION - NEW PHASES AND NEW OWNER: If an individual, other than the original developer (coverage recipient), proposes construction of a new phase of an existing subdivision and the proposed phase was not included in the initial submittal of the LCNOI, the new owner or operator must apply for separate permit coverage. [WPC-1]
S-8	APPLICABILITY OF REQUIREMENTS FOR INDIVIDUAL LOTS AND PARCELS IN A LARGER COMMON PLAN OF DEVELOPMENT OR SALE: The original coverage recipient remains responsible for compliance with this general permit until a new owner or operator satisfies the requirements of S-4 and S-5 of this ACT. [WPC-1]

ACT4 (LCGP) Large Construction Notice of Intent (LCNOI):

Submittal/Action Requirements:

Condition No.	Condition
S-1	DEADLINES FOR NOTIFICATION: Persons desiring coverage for a storm water discharge associated with construction activity under this general permit must submit a LCNOI Form with the required submittals. The LCNOI should be submitted at least 30 days prior to the commencement of construction activities. Discharge of storm water without written notification of coverage under this permit or issuance of an individual National Pollutant Discharge Elimination System (NPDES) Storm Water Permit is a violation of the Mississippi Air and Water Pollution Control Law 49-17-29(2)(b). [WPC-1]
S-2	REQUIRED SUBMITTALS WITH THE LCNOI: Submittals required with a completed LCNOI include a site-specific SWPPP associated with the construction activities, a United States Geological Survey (USGS) quad map, or photocopy, extending at least 1/2 mile beyond the facility property boundaries with the site location outlined or highlighted. [WPC-1]
S-3	ADDITIONAL SUBMITTALS MAY INCLUDE THE FOLLOWING: (1) Appropriate Section 404 documentation from U.S. Army Corps of Engineers, (2) Appropriate documentation concerning future disposal of sanitary sewage and sewage collection system construction, (3) Appropriate documentation from the MDEQ Office of Land & Water concerning dam construction and low flow requirements, and/or (4) Approval from County Utility Authority in Hancock, Harrison, Jackson, Pearl River and Stone Counties in the form of a signed certification by the official responsible for the wastewater treatment facility that will serve the proposed project. [WPC-1]
S-4	ADDITIONAL NOTIFICATION: The covered owner or operator must notify the Permit Board at least 30 days before any planned changes of ownership or whenever there are any changes in information previously submitted in the LCNOI Form. [WPC-1]

ACT4 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-5	MODIFICATION NOTIFICATION: The coverage recipient must notify the Permit Board at least 30 days before: (1) Any planned changes in project operations that may effect storm water discharges, (2) Any planned changes of ownership, or (3) Any changes in information previously submitted in the LCNOI. [WPC-1]
S-6	MAJOR MODIFICATION NOTIFICATION: (1) The following activities require the submittal of a Major Modification Form. This form can be found in the Large Construction Forms Package, which can be obtained from MDEQ at the address given in T-2 of this ACT or from the MDEQ website at www.deq.state.ms.us. (A) SWPPP details have been developed and are ready for MDEQ review for subsequent phases of an existing, covered project. (B) Footprint identified in the original LCNOI is proposed to be enlarged (a modified SWPPP and an updated USGS topographic map must be submitted with the Major Modification Form). (2) Coverage recipients are authorized to implement the proposed modifications, under the conditions of the General Permit, only upon receipt of written notification of approval by the MDEQ. (3) Proposed changes may require termination of the General Permit coverage and/or application for an individual or alternative general permit. [WPC-1]

ACT4 (continued):

Narrative Requirements:

Condition No.	Condition
T-1	WHERE TO OBTAIN LCNOI FORMS: LCNOI Forms may be obtained from the MDEQ at the address shown below or by calling 601-961-5171. LCNOI Forms, as well as the general permit and guidance manual, may be found on the MDEQ web site at www.deq.state.ms.us. Coverage under this permit will not be granted until all other required MDEQ permits, certifications and approvals are satisfactorily addressed. [WPC-1]
T-2	WHERE TO SUBMIT THE LCNOI: Complete and appropriately signed LCNOI Forms must be submitted to: Chief, Environmental Permits Division Mississippi Department of Environmental Quality Office of Pollution Control P.O. Box 2261 Jackson, Mississippi 39225 For priority or overnight deliveries, the physical address is: 515 East Amite Street Jackson, Mississippi 39201. [WPC-1]
T-3	FAILURE TO NOTIFY: Persons who discharge storm water associated with Large Construction activity to waters of the State without an NPDES permit are in violation of the Mississippi Air and Water Pollution Control Law 49-17-29(2)(b). [WPC-1]

ACT5 (LCGP) Storm Water Pollution Prevention Plan (SWPPP):

Narrative Requirements:

Condition No.	Condition
T-1	SWPPP DEVELOPMENT: A site-specific SWPPP shall be developed requiring the design, installation, implementation and maintenance of effective pollution prevention measures by each owner or operator subject to this permit. A SWPPP shall be prepared in accordance with sound engineering practices and shall identify potential sources of pollution, which may reasonably be expected to affect the quality of storm water discharges associated with construction activity. The SWPPP shall describe and ensure the implementation of specific best management practices for the project site, which will reduce pollutants in storm water discharges and assure compliance with the terms and conditions of this permit. [WPC-1]
T-2	SWPPP CONTENT: Erosion and Sediment Controls and Soil Stabilization Requirements: The SWPPP shall list and describe site-specific controls appropriate for the construction activities as well as the procedures for implementing such controls. Controls shall be designed to retain sediment on-site and to minimize the discharge of pollutants. If any of the below controls cannot be implemented on the project site, the SWPPP must include written justification as to why site-specific constraints and/or costs make the control(s) infeasible. At a minimum, such controls must be designed, installed and maintained to: (1) Control storm water volume and velocity within the site to minimize soil erosion; (2) Control storm water discharges, including both peak flow rates and total storm water volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion; (3) Minimize the amount of soil exposed during construction activity; (4) Minimize the disturbance of steep slopes. [WPC-1]

ACT5 (continued):

Narrative Requirements:

Condition No.	Condition
T-3	SWPPP CONTENT (continued): (5) Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting storm water runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site; (6) Provide and maintain natural buffers around surface waters, direct storm water to vegetated areas to increase sediment removal and maximize storm water infiltration, unless infeasible; and (7) Minimize soil compaction and, unless infeasible, preserve topsoil; (8) Direct storm water to vegetated areas, brush barriers, silt fences, hay bales, etc. to aid in the filtration, infiltration, velocity reduction and diffusion of the discharge; (9) Transport runoff down steep slopes through lined channels or piping; (10) Minimize the amount of cut and fill, and soil compaction; and (11) Minimize off-site vehicle tracking of sediments. [WPC-1]

ACT5 (continued):

Narrative Requirements:

Condition No.	Condition
T-4	The number and type of BMPs included in the SWPPP must reflect the specific conditions of the construction site. An effective SWPPP includes a combination of BMPs that are designed to work together. A combination of BMPs is listed below and must be included as minimum components of a SWPPP. These controls must be in accordance with the design standards set forth in the most current edition of the " Planning and Design Manual for the Control of Erosion, Sediment & Storm Water" or other recognized manual of design. (1) Vegetative Practices shall be designed to preserve existing vegetation where feasible and initiate vegetative stabilization measures after land disturbing activities. Such practices may include, but not limited to, temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffer strips, tree protection and topsoil preservation. Soil stabilization-vegetative stabilization measures must be initiated whenever any clearing, grading, excavating or other land disturbing activities have temporarily or permanently ceased on any portion of the site and will not resume for a period of fourteen (14) days or more. The appropriate temporary or permanent vegetative practices shall be implemented with seven (7) calendar days. Specific BMPs that must be included, unless infeasible (see Definitions) are: (A) Buffer zones (see Definition) shall be maintained between land disturbing activities and perennial water bodies. A minimum 150-foot buffer zone is recommended. (B) Topsoil should be stockpiled and used in areas that will be re-vegetated. When final grade is reached it should be distributed to a minimum depth of 2 inches on 3:1 slopes and 4 inches on flatter slopes. (C) Heavy equipment use in areas to be re-vegetated should be avoided. If compaction cannot be avoided, the top 4 inches of the soil bed should be tilled before re-vegetation. Any necessary fertilizer or other soil amendments should be added during the tilling process. The SWPPP must contain written justification as to why any of these specific controls were not deemed feasible. [WPC-1]

ACT5 (continued):

Narrative Requirements:

Condition No.	Condition
T-5	(2) Structural practices shall divert flows from exposed soils, store flows or otherwise limit runoff from exposed areas. Such practices may include, but are not limited to, construction entrance/exit, silt fences, earth dikes, brush barriers, drainage swales, check dams, subsurface drains, pipe slope drains, level spreaders, drain inlet protection, outlet protection, detention/retention basins, sediment traps, temporary sediment basins or equivalent sediment controls. Specific practices that must be included, unless infeasible, are: (A) For drainage locations (a drainage point at boundary of land disturbing activity) that serve an area with ten (10) or more disturbed acres at one time, a temporary (or permanent) sediment basin providing at least 3600 cubic feet (133 cubic yards) of storage per acre drained shall be provided until final stabilization of the site. Sediment basins must be installed before major site grading and utilize outlet structures that withdraw water from the surface and that are designed for a minimum 2-year, 24-hour storm event. If flocculants are being introduced, sediment basins must be downstream of the point of introduction and include baffles to increase sediment removal efficiency and turbidity reduction. Due to the unique characteristics of linear projects, such as the lack of space within project rights of way and having multiple, distributed discharge points, sedimentation basins are not common practices. Therefore, MDEQ will not require the use of sedimentation basins for linear projects disturbing ten (10) or more acres at one time. Appropriate alternate structural practices, such as sediment traps and check dams, must be included in the SWPPP if sediment basins are deemed infeasible. [WPC-1]
T-6	(B) Steep Slopes (see Definition) that cannot be avoided must have, at a minimum, silt fences or equivalent sediment controls for all down slope boundaries (and for those side slope boundaries deemed appropriate by individual site conditions), unless a sediment basin providing storage for a calculated volume of runoff from a 2-year, 24-hour storm or 3,600 cubic feet of storage per acre drained is provided. (C) Construction entrances/exits shall be installed wherever traffic will be leaving a construction site and moving directly onto a paved public road. (D) Storm Drain Inlets-Inlets that could receive storm water form construction activities shall be protected by surrounding or covering with a filter material until final stabilization has been achieved. [WPC-1]

ACT5 (continued):

Narrative Requirements:

Condition No.	Condition
T-7	(E) Perimeter Controls-Natural areas shall be maintained and supplemented with silt fence and fiber rolls around project perimeter. If not feasible to maintain natural areas, a silt fence or similar controls, such as fiber rolls, are sufficient. (F) Phasing-Schedule or sequence construction activities so as to concentrate work in certain areas so as to minimize the amount of soil that is exposed at one time. The SWPPP must contain written justification as to why any of these specific controls were not deemed feasible. [WPC-1]
T-8	(3) Facilities discharging into impaired receiving waters (i.e., receiving stream segments which are listed on MDEQ's 303(d) List of Impaired Waters or segments for which a Total Daily Maximum Load (TMDL) has been approved) must identify the pollutant of concern(s) for the receiving stream in the SWPPP. If applicable, the SWPPP shall describe how the selected BMPs will ensure that discharges from the site will not cause or contribute to excursions of the water quality standards in the receiving stream. (4) A description of any post-construction control measures. Post-construction control measures should be installed, as necessary, to control pollutants in storm water after construction is complete. These controls include, but are not limited to, one or more of the following: on-site infiltration of runoff, flow attenuation using open vegetated swales, exfiltration trenches and natural depressions, constructed wetlands and retention/detention structures. Where needed, velocity dissipation devices shall be placed at detention or retention pond outfalls and along the outfall channel to provide for a non-erosive flow. (5) Proposed responsible parties (original coverage recipient or new owner or operator) for individual lots or out-parcels that are part of a larger common plan of development or sale. If permit responsibility is retained by the original coverage recipient, a narrative description of sediment and erosion controls for subdivision lots is acceptable. Out-parcels in commercial developments must be included in the scaled site map referenced below. [WPC-1]
T-9	Housekeeping Practices: The owner or operator shall design, install, implement and maintain practices appropriate to prevent pollutants from entering storm water from construction sites because of poor housekeeping. These practices must be listed in the SWPPP and located on the site map. The owner or operator shall designate and report in the SWPPP areas for equipment maintenance and repair and concrete chute wash off; provide waste receptacles and regular collection of waste; provide adequately maintained sanitary facilities; provide protected storage areas for chemicals, paints, solvents, fertilizers, pesticides, herbicides, detergents and other potentially toxic materials; and implement spill and leak prevention practices and response procedures if spills and leaks do occur; minimize the exposure of building materials, building products, construction wastes, trash and landscape materials. These areas and specific potential pollutants shall be addressed in the SWPPP and located on the scaled site map. [WPC-1]

ACT5 (continued):

Narrative Requirements:

Condition No.	Condition
T-10	Flocculant Application: Flocculants, meeting the criteria contained in ACT8 and used in accordance with manufacturer's instructions, may be incorporated as part of an overall storm water management system. If flocculant application is proposed, the SWPPP must list the proposed flocculants to be used, describe the method, frequency and location of introduction, and identify the location of BMPs where flocculated material will settle. [WPC-1]
T-11	Prepare Scaled Site Map(s): The owner or operator shall prepare a scaled site map showing: (1) Boundaries of property and proposed construction activities, noting any phasing of construction activities, (2) Original and proposed contours (if feasible), with steep slopes identified, (3) North arrow, (4) Drainage pattern arrows, (5) Location of sensitive areas, such as wetlands, perennial streams and adjacent receiving water bodies, (6) Location of any storm drain inlets, (7) All erosion and sediment controls (vegetative and structural), (8) Any post-construction control measures, and (9) Location of housekeeping practices. If flocculant application is proposed, the location(s) of the following items shall be marked and labeled on the site map. (1) Flocculant introduction point(s), and (2) BMPs where flocculated material will settle. If the construction project is a linear construction project (e.g., pipeline, highway, etc.), a scaled site map is not required, however standard diagrams (e.g., cross sections showing dimensions and labeled components) of erosion and sediment controls to be used must be submitted. [WPC-1]
T-12	Implementation Sequence: The SWPPP shall outline an implementation sequence (including any phasing of construction activities), which coordinates the timing of all major land-disturbing activities together with the necessary erosion and sedimentation control measures planned for the project. [WPC-1]

ACT5 (continued):

Narrative Requirements:

Condition No.	Condition
T-13	Implementation of Controls: The SWPPP shall require the owner or operator, in disturbing an area, to implement controls as needed to prevent erosion and adverse impacts to waters of the State. [WPC-1]
T-14	Maintenance and Weekly Inspections: The SWPPP shall describe procedures to maintain vegetation, erosion and sediment controls and other protective measures. Procedures shall provide that all controls are inspected weekly for a minimum of four inspections per month in accordance with ACT6, S-4. [WPC-1]
T-15	Non-Storm Water Discharge Management: The SWPPP must identify all allowable sources of non-storm water discharges listed in ACT2, T-2, except for flows from actual fire fighting activities, which are combined with storm water discharges associated with large construction activity. Non-storm water discharges should be eliminated or reduced to the extent feasible. Wash waters must be treated in a sediment basin or alternate control that provides equivalent or better treatment prior to discharge. The SWPPP must identify and ensure the implementation of appropriate Best Management Practices (BMPs) for the non-storm water component of the discharge. The Permit Board staff will review the above discharges on a case by case basis and may require the coverage recipient to apply for and obtain either an individual or an alternative general NPDES permit as provided in ACT3, S-2. [WPC-1]
T-16	Final Stabilization: The SWPPP shall describe procedures to achieve final stabilization (See Definitions) of all disturbed areas of the project site. [WPC-1]

ACT5 (continued):

Narrative Requirements:

Condition No.	Condition
T-17	Example Storm Water Pollution Prevention Plans (SWPPPs): Example SWPPPs are included in the Mississippi Storm Water Pollution Prevention Plan Guidance Manual for Construction Activities as well as the MDEQ Registration Form for Individual Residential Lots The Mississippi Storm Water Pollution Prevention Plan Guidance Manual for Construction Activities is also available online at: http://www.deq.state.ms.us/MDEQ.nsf/pdf/epd_conguidman/$File/ConstructionGM.pdf The MDEQ Registration Form for Individual Residential Lots is in the Large Construction Forms Package, which is available online at: http://www.deq.state.ms.us/MDEQ.nsf/pdf/epd_Large_Construction_Forms_Package/$File/LARGE_CONST_FORMS_PACKAGE.pdf US EPA also lists example SWPPPs on their website at: http://cfpub.epa.gov/npdes/stormwater/swppp.cfm#model. [WPC-1]

ACT6 (LCGP) Implementation and Inspection Requirements:

Submittal/Action Requirements:

Condition No.	Condition
S-1	IMPLEMENTATION REQUIREMENTS: The coverage recipient shall: (1) Implement the site-specific SWPPP and retain a copy of the SWPPP at the permitted site. In cases where there is no office or shelter to maintain documents onsite, the SWPPP can be kept locally available (i.e., able to be produced within an hour of being requested by a state or local inspector). Failure to implement the SWPPP is a violation of permit requirements. A copy of the SWPPP must be made available to state or local inspectors for review at the time of an on-site inspection. (2) Implement the following pre-construction activities: (A) Mark off areas of "disturbance", "no disturbance" and "sensitive areas" (i.e., delineate and clearly flag of mark off areas such as steep slopes, highly erodible soils or other sensitive areas), (B) Preserve native topsoil on the site to the extent feasible, and (C) Limit construction stream crossings to the minimum necessary to provide access for the construction project. (3) Ensure that appropriate Best Management Practices (BMPs) are in place upon commencement of construction. (4) Amend the SWPPP if notified at any time by the Executive Director of the MDEQ that the SWPPP does not meet the minimum requirements. Coverage recipient shall certify in writing to the Executive Director that the requested changes have been made. Unless otherwise provided, the requested changes shall be made within fifteen (15) days. (5) Amend the SWPPP whenever there is a change in design, construction, operation, or maintenance which may potentially affect the discharge of pollutants to waters of the State; or the SWPPP proves to be ineffective in controlling storm water pollutants. The amended SWPPP shall be submitted within thirty (30) days of amendment. Coverage recipients shall submit to MDEQ the Major Modification Form (see Large Construction Forms Package) for subsequent phases, expansions and modifications of subdivision development that are proposed but were not included in the original SWPPP. [WPC-1]

ACT6 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-2	IMPLEMENTATION REQUIREMENTS (continued): (6) Install needed erosion controls even if they may be located in the way of subsequent activities, such as utility installation, grading or construction. It shall not be an acceptable defense that controls were not installed because subsequent activities would require their replacement or cause their destruction. (7) Install additional and/or alternative erosion and sediment controls when existing controls prove to be ineffective in preventing sediment from leaving the site. (8) Comply with applicable State or local waste disposal, sanitary sewer or septic system regulations (9) Erosion and sediment controls shall be maintained at all times. Except for sediment basins, all accumulated sediment shall be removed from structural controls when sediment deposits reach one-third to one-half the height of the control. For sediment basins, accumulated sediment shall be removed when the capacity has been reduced by 50%. All removed sediment deposits shall be properly disposed. Non-functioning controls shall be repaired, replaced or supplemented with functional controls within twenty-four (24) hours of discovery or as soon as field conditions allow. (10) If, after coverage issuance, a specific wasteload allocation is established that would apply to the facility's discharge, the facility must implement steps necessary to meet that allocation. [WPC-1]
S-3	COMPLIANCE WITH LOCAL STORM WATER ORDINANCES: (1) The SWPPP shall be in compliance with all local storm water ordinances. (2) When storm water discharges into an MS4 (municipal separate storm sewer system), the owner or operator shall make the SWPPP available to the local authority and/or allow site access, upon request. [WPC-1]

ACT6 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-4	INSPECTION REQUIREMENTS: Inspection of all receiving streams (if feasible), outfalls, erosion and sediment controls and other SWPPP requirements shall be performed during permit coverage using a copy of the form provided in the Large Construction Forms Package, and inspections shall be performed by qualified personnel (see Definitions): (1) At least weekly for a minimum of four inspections per month; and (2) As often as is necessary to ensure that appropriate erosion and sediment controls have been properly constructed and maintained and to determine if additional or alternative control measures are required. Before conducting the site inspection, the inspector should review Chapter 4, Inspector's Checklist and Troubleshooting Chart found in MDEQ's Field Manual for Erosion and Sediment Control on Construction Sites in Mississippi. MDEQ strongly recommends that coverage recipients perform a "walk through" inspection of the construction site before anticipated storm events to ensure controls are in place and will function properly. [WPC-1]

ACT7 (LCGP) Limitation Requirements:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1		NON-NUMERIC LIMITATION REQUIREMENTS: Storm water discharges shall be free from: (1) Debris, oil, scum, and other floating materials other than in trace amounts, (2) Eroded soils and other materials that will settle to form objectionable deposits in receiving waters, (3) Suspended solids, turbidity and color at levels inconsistent with the receiving waters, (4) Chemicals in concentrations that would cause violation of State Water Quality Criteria in the receiving waters. [WPC-1]

ACT8 (LCGP) Application of Flocculants:

Narrative Requirements:

Condition No.	Condition
T-1	Coverage recipients may need to supplement conventional storm water management systems with flocculants to meet state water quality standards. Flocculants meeting the criteria listed in (1) and (2) below and used in accordance with manufacturer's instructions are approved by this general permit. Any flocculant application, which deviates from the criteria specified below, must receive written approval from MDEQ prior to being implemented. Requests for approval must be in writing and shall describe the deviation, explain the justification for the deviation and provide supporting documentation demonstrating that such deviation will achieve equivalent performance to the criteria listed below. Such requests may be submitted with the LCNOI or under separate cover to the address listed on the LCNOI. (1) Polymer flocculants for treating turbidity in construction site storm water discharges must meet the following minimum criteria. (A) Only anionic Polyacrylamide (PAM) polymer, (B) Polymer shall contain less than 0.05% free acrylamide, (C) Polymer shall be non-toxic to fish and other aquatic organisms, and (D) Polymer shall be selected for site specific soil conditions (i.e., jar test). (2) Systems utilizing polymer flocculants to treat turbidity from construction site storm water discharges must meet the following minimum criteria. (A) Polymer shall be introduced through turbulent mixing into the storm water upstream of sedimentation BMPs, (B) Sedimentation basin shall be constructed in accordance with the criteria specified in ACT5, T-5 (2)(A), (C) Polymer shall be applied in accordance with manufacturer's instructions, and (D) There shall be no discharge of un-dissolved polymer, clumps of polymer and/or unsettled flocculant material. [WPC-1]

ACT9 (LCGP) Optional Monitoring:

Narrative Requirements:

Condition No.	Condition
T-1	Monitoring under this general permit is strictly voluntary, the results of which will not be required to be documented and/or reported. At the time of the issuance of this general permit, the U.S. EPA had temporarily stayed the numeric effluent limit for construction storm water that was prescribed in the December 1, 2009 Effluent Limitation Guidelines and Standards for the Construction and Development Point Source Category Final Rule (ref. Federal Register, Vol. 74, No.229, pages 62996-63058). Accordingly, this general permit does not contain a numeric effluent limit for construction storm water discharges. The optional effluent monitoring provisions of this section are included as guidance to coverage recipients that may be interested in evaluating and optimizing the effectiveness of storm water BMPs in anticipation of a mandatory effluent limit being incorporated in the next general permit re-issuance (scheduled to occur in 2015). The following guidelines were developed based on the above referenced final rule and will likely be the basis of mandatory monitoring requirements of a subsequent general permit re-issuance in the event a final federal numeric effluent limit is promulgated by the expiration date of this general permit. [WPC-1]
T-2	(1) Monitor the turbidity of each storm water discharge from actively disturbed areas of the project site for each work day the discharge occurs. Actively disturbed areas are those portions of the project site that have undergone soil disturbing activities (i.e., clearing, grading, filling, excavating, etc.) and have not been stabilized. (A) Monitoring should be conducted for each point of storm water discharge from the project site. For the purpose of this permit, a discharge point means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, or container from which storm water and/or pollutants are, or may be, discharged. (B) Diffuse storm water, such as non-channelized flow that infiltrates into a vegetated area, and does not then discharge to surface waters, would not generally require monitoring. (2) Due to the unique characteristics of linear projects, portions may have suspended construction activity and have undergone temporary or final stabilization (see Definitions) while other portions of the same project may have active construction activities. Therefore, in recognition of these unique regulatory circumstances only those areas that have active construction activities will require numeric turbidity monitoring. Those areas that have been completed and stabilized will not require turbidity monitoring. [WPC-1]

ACT9 (continued):

Narrative Requirements:

Condition No.	Condition
T-3	(4) Sampling: (A) A minimum of three (3) samples per work day, per discharge, should be used to calculate a daily average turbidity value. Samples should be collected so as to be representative of the nature of the discharge over its duration. For example, (i) Collect first sample within the first hour of discharge or within the first hour of the work day. (ii) Collect second sample in the middle of discharge or the middle of the work day. (iii) Collect last sample at the end of discharge or at the end of the work day. (iv) Continue sampling at the start of the next work day if there continues to be a discharge (until discharge ends or end of the work day). These data should be used to calculate a separate daily average. (B) Monitoring samples should be collected at the nearest accessible point after final treatment, but prior to mixing with the receiving water body. (i) Due to the unique characteristics of linear projects, there may be multiple discharge points spaced over a wide geographic area. Therefore, MDEQ will allow representative discharge sampling. For example, representative sampling at certain discharge locations may be representative of the discharge characteristics of other locations within the same sub-watershed. For multiple outfalls that discharge substantially identical effluents, the owner or operator may sample one (or more) of the outfalls and report that data as representative of the other outfalls. At a minimum at least one discharge point per sub-watershed must be monitored and the same or similar controls must be implemented on the different discharge points. (ii) Representative sampling of non-linear projects may be allowed on a case-by-case basis. [WPC-1]

ACT9 (continued):

Narrative Requirements:

Condition No.	Condition
T-4	(C) Monitoring may be accomplished via portable turbidity meters or fixed automated sampling/meter stations. (i) Monitoring should be based on grab samples for portable meters. (ii) Automated samplers should be programmed to yield a minimum of three (3) representative readings per discharge, per day. (iii) Daily turbidity averages should be the average of all monitoring results collected on the day of discharge for the respective discharge point(s). For example, if there were five (5) turbidity readings in a given day, then the average turbidity for that day would be the average of all five (5) readings. (D) Grab samples should be collected according to the following methodology to ensure that each sample is representative of the flow conditions and other characteristics of the discharge. (i) Collect samples from the horizontal and vertical center of the storm water outfall channel(s) or other sources of concentrated flow. (ii) Avoid stirring the bottom sediments in the storm water channel in which samples are taken by not walking through the areas of storm water flow or disturbing the sediment with the sampling device. (iii) Hold sampling container so that the opening faces the upstream direction of the storm water channel in which samples are taken. (iv) Avoid overfilling sample container. (E) Monitoring should be conducted for any discharge that occurs during the normal working hours of the project site. [WPC-1]

ACT9 (continued):

Narrative Requirements:

Condition No.	Condition
T-5	(5) Turbidity Meters: (A) Turbidity meters should meet the following design criteria: (i) Accuracy within +/- 5% of measurement, (ii) Minimum upper range of 1000 NTU, (iii) Able to be calibrated by operator, and (iv) Operating temperature range be at least 32 to 122 degrees. (B) Turbidity meters should be operated, calibrated and maintained according to the meter manufacturer's instructions. [WPC-1]

ACT10 (LCGP) Record Keeping and Reporting Requirements:

Record-Keeping Requirements:

Condition No.	Condition
R-1	RETENTION OF RECORDS: All records, reports, forms and information resulting from activities required by this permit shall be retained for a period of at least three (3) years from the date that the document(s) was generated. [WPC-1]

Submittal/Action Requirements:

Condition No.	Condition
S-1	SUSPENSION OF WEEKLY INSPECTIONS AND MONTHLY RECORD KEEPING: Coverage recipients under this general permit may suspend weekly inspection and monthly record keeping requirements, if the coverage recipient certifies that: (1) Land disturbing activities have temporarily ceased, (2) No further land disturbing activities are planned for a period of at least six (6) months, (3) Areas that have been disturbed meet the definition of "final stabilization" (see Definitions), with no active erosion, and (4) Vegetative cover has been established. Color photographs representative of the site must be submitted with the Inspection Suspension Form provided in the Large Construction Forms Package. The coverage recipient shall notify the MDEQ once construction activities are resumed and the weekly inspections shall commence immediately and as required in ACT6, S-4. The coverage recipient is still responsible for all permit conditions during the suspension period and nothing in this condition shall limit the rights of the MDEQ to take enforcement or other actions against the coverage recipient. [WPC-1]

ACT10 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-2	The inspections described in ACT6, S-4 must be documented on copies of the Monthly Inspection Report and Certification Form provided in the Large Construction Forms Package and be kept with the SWPPP. Submittals of the MDEQ Registration Form for residential lots are required. It is the responsibility of both the owner or developer (seller) and the new owner or operator (purchaser) to maintain a copy of the MDEQ Registration Form. The new owner or operator must maintain a copy of the MDEQ Registration Form at the site. In cases where there is no office or shelter to maintain documents onsite, the Registration Form can be kept locally available (i.e., able to be produced within an hour of being requested by state or local inspectors. [WPC-1]

ACT11 (LCGP) Termination of Permit Coverage:

Submittal/Action Requirements:

Condition No.	Condition
S-1	Within thirty (30) days of final stabilization (see Definition of Final Stabilization (1)) for a covered project, a completed Request for Termination (RFT) of Coverage form (provided in the Large Construction Forms Package) shall be submitted to the Permit Board. Upon receiving the completed RFT, the MDEQ staff will inspect the site. If no sediment and erosion control problems are identified and adequate permanent controls are established, the owner or operator will receive a termination letter. Coverage is not terminated until notified in writing by MDEQ. Failing to submit a RFT is a violation of permit conditions. The coverage recipient of a "larger common plan of development or sale" must submit a RFT within thirty (30) days after the following conditions are met: (1) Final stabilization (see Definition of Final Stabilization (2)) has been achieved on all portions of the site for which the coverage recipient is responsible, and (2) Other owner(s) or operator(s) have assumed control (by completing a LCNOI or MDEQ Registration Form) over all areas of the site that have not achieved final stabilization. The coverage recipient of a residential "larger common plan of development or sale" must submit a copy of the MDEQ Registration Form for each lot sold with the RFT. Residential lot owners or operators that have completed the MDEQ Registration Forms are not required to submit a RFT, unless specifically requested by the MDEQ staff. The lot permit coverage is considered terminated upon "successful completion of all permanent erosion and sediment controls" (see Definitions). [WPC-1]

ACT12 (LCGP) Standard Requirements Applicable To All Water Permits:

Narrative Requirements:

Condition No.	Condition
T-1	DUTY TO COMPLY: The coverage recipient must comply with all conditions of this permit. Any permit noncompliance constitutes a violation and is grounds for enforcement action; for coverage termination, revocation and reissuance, or modifications; or denial of a renewal application. [WPC-1]
T-2	DUTY TO MITIGATE: The owner or operator shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which is likely to adversely affect human health or the environment. [WPC-1]
T-3	DUTY TO PROVIDE INFORMATION: The owner or operator shall furnish to the Permit Board, within a reasonable time, any information that the Permit Board may request to determine compliance with this permit. [WPC-1]
T-4	PROPERTY RIGHTS: The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. [WPC-1]
T-5	SEVERABILITY: The provisions of this permit are severable. If any provision of this permit, or the application of any provision of this permit to any circumstances, is challenged or held invalid, the validity of the remaining permit provisions and/or portions thereof or their application to other persons or sets of circumstances, shall not be affected thereby. [WPC-1]
T-6	OIL AND HAZARDOUS SUBSTANCE LIABILITY: Nothing in this permit shall relieve the owner or operator from responsibilities, liabilities, or penalties under Section 311 of the CWA (33 U.S.C. Section 1321). [WPC-1]

ACT12 (continued):

Narrative Requirements:

Condition No.	Condition
T-7	SIGNATORY REQUIREMENTS: All LCNOIs and requests for recoverage shall be signed as follows: (1) For a corporation by a responsible corporate officer. For this permit, a responsible corporate officer means: (A) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or (B) The manager of one or more manufacturing, production or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures; Note: MDEQ does not require specific assignments or delegations of authority to responsible corporate officers identified in paragraph (1)(A) above. The Department will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the Permit Board to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under paragraph (1)(B) above rather than to specific individuals. (2) For a partnership or sole proprietorship by a general partner or the proprietor, respectively; or (3) For a municipal, State, Federal, or other public agency by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: (A) The chief executive officer of the agency, or (B) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency. [WPC-1]

ACT12 (continued):

Narrative Requirements:

Condition No.	Condition
T-8	DULY AUTHORIZED REPRESENTATIVE: All SWPPPs, reports required by this permit, certifications and other information requested by the Permit Board shall be signed by a person described in T-8 above, or by a duly authorized representative of that person. A person is a duly authorized representative when: (1) The authorization is made in writing and submitted to the Permit Board by a person described in T-8 above. (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated activity, such as: manager, operator of a well or well field, superintendent, person of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may be either a specified individual or position). [WPC-1]
T-9	CHANGES TO AUTHORIZATION: If an authorization is no longer accurate because a different individual or position has permit responsibility, a new authorization satisfying the requirements of T-8 and T-9 above, must be submitted to the Permit Board prior to or together with any reports, information or applications signed by the representative. [WPC-1]
T-10	CERTIFICATION: Any person signing documents under this section shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." [WPC-1]

ACT12 (continued):

Narrative Requirements:

Condition No.	Condition
T-11	PROPER OPERATION AND MAINTENANCE: The coverage recipient shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the coverage recipient to achieve compliance with the conditions of this permit including the Storm Water Pollution Prevention Plan. Proper operation and maintenance includes adequate laboratory controls with appropriate quality assurance procedures and requires the operation of backup or auxiliary facilities when necessary to achieve compliance with permit conditions. [WPC-1]
T-12	MONITORING AND RECORDS: (1) Monitoring. Samples and measurements shall be representative of the monitored activity and must be conducted according to test procedures approved under 40 CFR Part 136. (2) Retention of Records. The owner or operator shall retain records of all required monitoring information for a period of at least three years from the date of the measurement, report, or application. This information includes all calibration and maintenance records, all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the Notice of Intent to be covered by this permit. This period may be extended by request of the Permit Board or its designee. (3) Record Contents. Records of monitoring information shall include: (A) The date, exact location, and time of sampling or measurements, (B) The initials or names of the individuals who performed the sampling or measurements, (C) The date(s) and time(s) analyses were performed, (D) The initials or names of the individuals who performed the analyses, (E) References and written procedures, when available, for the analytical techniques or methods used, and (F) The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results. [WPC-1]

ACT12 (continued):

Narrative Requirements:

Condition No.	Condition
T-13	BYPASS PROHIBITION: Bypass (see 40 CFR 122.41(m)) is prohibited and enforcement action may be taken against an coverage recipient for a bypass, unless: a) the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime (this condition is not satisfied if the coverage recipient should, in the exercise of reasonable engineering judgment, have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance); and c) The owner or operator submitted notices per T-17 of this ACT. [WPC-1]
T-14	UPSET CONDITIONS: An upset (see 40 CFR 122.41(n)) constitutes an affirmative defense to an action brought for noncompliance with technology-based permit limitations if a coverage recipient shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence, that: (1) An upset occurred and the coverage recipient can identify the specific cause(s) of the upset, (2) The permitted facility was at the time of the upset being properly operated, (3) The coverage recipient submitted notices per T-17 of this ACT, and (4) The coverage recipient took remedial measures as required under T-2 of this ACT. In any enforcement proceeding, the coverage recipient has the burden of proof that an upset occurred. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance is initiated, will be considered a final administrative action subject to judicial review. [WPC-1]

ACT12 (continued):

Narrative Requirements:

Condition No.	Condition
T-15	INSPECTION AND ENTRY: The coverage recipient shall allow the Permit Board staff or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to: (1) Enter upon the owner or operator's premises where a regulated activity is located or conducted or where records must be kept under the conditions of this permit; (2) Have access to and copy at reasonable times any records that must be kept under the conditions of this permit; (3) Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and (4) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location. [WPC-1]
T-16	PERMIT ACTIONS: This permit may be modified, revoked and reissued, or terminated for cause. A request by the coverage recipient for permit or coverage modification, revocation and reissuance, or termination, or a certification of planned changes or anticipated noncompliance does not stay any permit condition. [WPC-1]
T-17	NONCOMPLIANCE REPORTING: (1) Anticipated Noncomplinace. The coverage recipient shall give at least ten (10) days advance notice, if possible, before any planned noncompliance with permit requirements. Giving notice of planned or anticipated noncompliance does not immunize the coverage recipient from enforcement action for that noncompliance. (2) Unanticipated Noncompliance. The coverage recipient shall notify the MDEQ orally within twenty-four (24) hours from the time he or she becomes aware of unanticipated noncompliance, which may endanger health or the environment. A written report shall be provided to the MDEQ within five (5) working days of the time he or she becomes aware of the circumstances leading to the unanticipated noncompliance. The report shall describe the cause, the exact dates and times, steps taken or planned to reduce, eliminate, or prevent reoccurrence and, if the noncompliance has not ceased, the anticipated time for correction. MDEQ may waive the written report on a case-by-case basis, if the oral report is received within 24 hours. [WPC-1]

ACT12 (continued):

Narrative Requirements:

Condition No.	Condition
T-18	REOPENER CLAUSE: If there is evidence indicating potential or realized impacts on water quality due to large construction activities covered by this permit, the coverage recipient may be required to obtain individual permit or an alternative general permit in accordance with ACT3, S-2 or the permit may be modified to include different limitations and/or requirements. [WPC-1]
T-19	PERMIT MODIFICATION: Permit modification or revocation will be conducted according to 40 CFR 122.62, 122.63, 122.64 and 124.5. [WPC-1]
T-20	TRANSFERS: Coverage under this permit is not transferable to any person except after notice to and approval by the Permit Board. The Permit Board may require the coverage recipient to obtain another NPDES permit as stated in ACT3, S-2. Transfer of coverage requests shall be submitted to the Permit Board using the form provided in the Large Construction Forms Package. [WPC-1]
T-21	CONTINUATION OF EXPIRED GENERAL PERMIT: If this permit is not reissued prior to the expiration date, it will be administratively continued and remain in force and effect. Permit coverage will remain until the earliest of: (1) Recoverage under the reissued general permit; (2) Submittal of a Request for Termination and receipt of written concurrence; (3) Issuance of an individual permit for the project's discharge; or (4) A formal permit decision by the Permit Board to not reissue the general permit, at which time the coverage recipient must seek coverage under an alternative general permit or an individual permit. [WPC-1]

ACT12 (continued):

Narrative Requirements:

Condition No.	Condition
T-22	FALSIFYING REPORTS: Any coverage recipient who falsifies any written report required by or in response to a permit condition shall be deemed to have violated a permit condition and shall be subject to the penalties provided for a violation of a permit condition pursuant to Section 49-17-43 of the Mississippi Water Pollution Control Law (Mississippi Code Ann. Sections 49-17-1 et seq.). [WPC-1]
T-23	CIVIL AND CRIMINAL LIABILITY: (1) Any person who violates a term, condition or schedule of compliance contained within this permit or the Mississippi Air and Water Pollution Control Law is subject to the actions defined by the Mississippi Air and Water Pollution Control Law. (2) Except as provided in permit conditions on "Bypassing" and "Upsets", nothing in this permit shall be construed to relieve the coverage recipient from civil or criminal penalties for noncompliance. (3) It shall not be the defense of the coverage recipient in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [WPC-1]

ACT13 (LCGP) Definitions:

Narrative Requirements:

Condition No.	Condition
T-1	BEST MANAGEMENT PRACTICES (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. [WPC-1]
T-2	BUFFER ZONE, as used in this permit, means a strip of dense undisturbed perennial vegetation, either original or reestablished, that borders perennial streams and rivers, ponds and lakes and wetlands. Buffer zones are established for the purposes of slowing water runoff, enhancing water infiltration, and minimizing the risk of any potential nutrients or pollutants from leaving the upland area and reaching surface waters. Buffer zones are most effective when storm water runoff is flowing into and through the buffer zone as shallow sheet flow, rather than in concentrated form such as in channels, gullies, or wet weather conveyances. Therefore, it is critical that the design of any development include management practices, to the maximum extent practical, that will result in storm water runoff flowing into and through the buffer zone as shallow sheet flow. [WPC-1]
T-3	CFR means the Code of Federal Regulations. [WPC-1]
T-4	CLEAN WATER ACT (CWA) refers to the Federal Water Pollution Control Act, 33 U.S.C. section 1251 et seq. [WPC-1]
T-5	COMMENCEMENT OF CONSTRUCTION ACTIVITIES means the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction-related activities. [WPC-1]
T-6	COMMISSION means the Mississippi Commission on Environmental Quality. [WPC-1]
T-7	COMPACTION means the process by which the soil grains are rearranged to decrease void space and bring the grains into closer contact with one another and thereby increase the weight of solid material per cubic foot. [WPC-1]
T-8	CONSTRUCTION ACTIVITY as used in this permit, includes construction activity as defined in 40 CFR part 122.26(b)(14)(x). This includes a disturbance to the land that results in the change in topography, existing soil cover (both vegetative and non-vegetative), or the existing topography that may result in accelerated storm water runoff, leading to soil erosion and movement of sediment into surface waters or drainage systems. Examples of construction activity may include clearing, grading, filling and excavating. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site. [WPC-1]
T-9	CONTROL MEASURE as used in this permit, refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the United States. [WPC-1]

ACT13 (continued):

Narrative Requirements:

Condition No.	Condition
T-10	DAILY DISCHARGE means the "discharge of a pollutant" measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily average" is calculated as the average measurement of the discharge of the pollutant over the day. [WPC-1]
T-11	EXECUTIVE DIRECTOR means the Executive Director of the Department of Environmental Quality. [WPC-1]
T-12	FACILITY or ACTIVITY means any NPDES "point source" or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program. [WPC-1]
T-13	FINAL STABILIZATION means that either: (1) All soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of at least 70% for the area has been established or equivalent measures (i.e., concrete or asphalt paving, rip rap, etc.) have been employed; or (2) For individual lots part of a larger common plan of development or sale in residential or commercial developments, that either: (A) The coverage recipient has completed final stabilization as specified in (1) above, or (B) The coverage recipient has established temporary stabilization before another property owner assumes operational control for the property AND the coverage recipient for the larger common plan of development has provided the appropriate Notice of Intent or Registration form, the appropriate Construction General Permit, and guidance documents to the new property owner and the new owner assumes control by completing the appropriate NOI or Registration Form. [WPC-1]
T-14	GRAB SAMPLE is a sample that is taken from a wastestream on a one-time basis without consideration of the flow rate of the wastestream and without consideration of time. Samples should be collected from the center of the flow channel, where turbulence is at a maximum. [WPC-1]
T-15	INFEASIBLE means there is a site-specific constraint that makes a control technology impossible and/or not reasonable to implement, or that implementing the control would be cost-prohibitive. [WPC-1]

ACT13 (continued):

Narrative Requirements:

Condition No.	Condition
T-16	LARGE CONSTRUCTION ACTIVITY includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than five (5) acres of land or will disturb less than five (5) acres of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than five (5) acres. [WPC-1]
T-17	LARGER COMMON PLAN OF DEVELOPMENT OR SALE means a contiguous area where multiple separate and distinct construction activities are occurring under one plan. The plan in a common plan of development or sale is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.), indicating that construction activities may occur on a specific plot. [WPC-1]
T-18	MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States, (ii) Designed or used for collecting or conveying storm water, (iii) Which is not a combined sewer, and (iv) Which is not part of a Publicly Owned Treatment Works (POTW). [WPC-1]
T-19	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) means the regulations under the Clean Water Act which prohibits discharge of pollutants into waters of the United States unless a special permit is issued. [WPC-1]
T-20	NOI is an acronym for "Notice of Intent" to be covered by this permit and is the mechanism used to apply for coverage under a general permit. [WPC-1]
T-21	NORMAL WORKING HOURS, for the purpose of this permit, means the hours that personnel are typically working at the project site (e.g., daylight hours, Monday through Friday, except recognized holidays). [WPC-1]
T-22	NTUs is an acronym for Nephelometric Turbidity Units, which is the unit of measure for turbidity. [WPC-1]

ACT13 (continued):

Narrative Requirements:

Condition No.	Condition
T-23	OWNER or OPERATOR for the purpose of this permit and in the context of storm water associated with construction activity, means any party associated with a construction project that meets either of the following two criteria: (1) The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or (2) The party has day to day operational control of those activities at a project which are necessary to ensure compliance with a storm water pollution prevention plan for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions). This definition is provided to inform coverage recipients of MDEQ's interpretation of how the regulatory definitions of "owner or operator" and "facility or activity" are applied to discharges of storm water associated with construction activity. [WPC-1]
T-24	PERMIT BOARD means the Mississippi Environmental Quality Permit Board established pursuant to Miss. Code Ann. 49-17-28. [WPC-1]
T-25	POLLUTANT is defined at 40 CFR 122.2. A partial listing from this definition includes: dredged spoil, solid waste, sewage, garbage, sewage sludge, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, sediment, silt, cellar dirt, and industrial or municipal waste. [WPC-1]
T-26	POLYMER FLOCCULANT, for the purpose of this permit, is a chemical that when added to storm water containing small suspended particles (e.g., fine silts and clays) causes the particles to stick together and fall out of suspension, reducing the overall turbidity of the storm water discharge. [WPC-1]
T-27	QUALIFIED PERSONNEL means a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activity. [WPC-1]
T-28	STATE LAW means The Mississippi Air and Water Pollution Control Law, specifically, Miss. Code Ann 49-17-1 through 49-17-43, and any subsequent amendments. [WPC-1]
T-29	STEEP SLOPES, as used in this permit, means slopes or grades steeper than (3:1). [WPC-1]
T-30	STORM WATER means rainfall runoff, snowmelt runoff, and surface runoff. [WPC-1]
T-31	STORM WATER ASSOCIATED WITH CONSTRUCTION ACTIVITY as used in this permit, refers to a discharge of pollutants in storm water from areas where soil disturbing activities (e.g., clearing, grading, or excavation), construction materials or equipment storage or maintenance (e.g., stock piles, borrow area, concrete truck chute wash down, fueling) are located. [WPC-1]

ACT13 (continued):

Narrative Requirements:

Condition No.	Condition
T-32	STORM WATER POLLUTION PREVENTION PLAN (SWPPP) means a plan that includes site map(s), an identification of construction/contractor activities that could cause pollutants in the storm water, and a description of measures or practices to control these pollutants. [WPC-1]
T-33	SUBMITTED means the document is postmarked on or before the applicable deadline, except as otherwise specified. [WPC-1]
T-34	SUCCESSFUL COMPLETION OF ALL PERMANENT EROSION AND SEDIMENT CONTROLS means when land disturbing construction activities have been completed and disturbed areas have been stabilized with no significant erosion occurring. [WPC-1]
T-35	TEMPORARY STABILIZATION means practices such as seeding, mulching and erosion control blankets or mats that are used to stabilize exposed areas in which construction activity has been temporarily suspended. [WPC-1]
T-36	TOPSOIL means the top layer of undisturbed soil, consisting of a high percentage of organic matter, which is conducive to plant growth. [WPC-1]
T-37	TOTAL MAXIMUM DAILY LOAD (TMDL) means the maximum daily amount of a pollutant that can enter a water body so that the water body will meet and continue to meet state water quality standards. [WPC-1]
T-38	TURBIDITY is an expression of the optical property that causes light to be scattered and absorbed rather than transmitted with no change in direction of flux level through the sample caused by suspended and colloidal matter such as clay, silt, finely divided organic and inorganic matter and plankton and other microscopic organisms. [WPC-1]
T-39	TURBIDITY METERS as used in this permit, are hand held or in-line devices used to measure the turbidity level of storm water discharges. [WPC-1]
T-40	UPSET means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the coverage recipient. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. [WPC-1]
T-41	WATERS OF THE STATE means all waters within the jurisdiction of this State, including all streams, lakes, ponds, wetlands, impounding reservoirs, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, situated wholly or partly within or bordering upon the State, and such coastal waters as are within the jurisdiction of the State, except lakes, ponds, or other surface waters which are wholly landlocked and privately owned, and which are not regulated under the Federal Clean Water Act (33 U.S.C.1251 et seq.). [WPC-1]

ACT13 (continued):

Narrative Requirements:

Condition No.	Condition
T-42	WPC-1 means the State of Mississippi's Wastewater Regulations for National Pollutant Discharge Elimination System (NPDES) Permits, Underground Injection Control (UIC) Permits, State Permits, Water Quality Based Effluent Limitations and Water Quality Certifications. [WPC-1]

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ)
Large Construction Storm Water General Permit
NPDES Permit MSR10

LARGE CONSTRUCTION FORMS PACKAGE

These standard forms are used to apply for permit coverage under the Large Construction Storm Water General Permit and for submittals and record keeping required by permit conditions after coverage has been granted. The forms are on our website at www.deq.state.ms.us/MDEQ.nsf/page/epd_epdgeneral. Required information can be completed on screen, printed and signed.

Revised: 12/30/10

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MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

LARGE CONSTRUCTION NOTICE OF INTENT (LCNOI)
FOR COVERAGE UNDER THE LARGE CONSTRUCTION STORM WATER GENERAL NPDES PERMIT MSR10 __ __ __ __
(NUMBER TO BE ASSIGNED BY STATE)

INSTRUCTIONS

The Large Construction Notice of Intent (LCNOI) is for coverage under the Large Construction General Permit for land disturbing activities of five (5) acres or greater; or for land disturbing activities, which are part of a larger common plan of development or sale that are initially less than five (5) acres but will ultimately disturb five (5) or more acres. Applicant must be the owner or operator. For construction activities, the operator is typically the prime contractor. The owner(s) of the property and the prime contractor associated with regulated construction activity on the property have joint and several responsibility for compliance with the Large Construction Storm Water General Permit MSR10.

Completed LCNOIs should be filed at least thirty (30) days prior to the commencement of construction. Discharge of storm water from large construction activities without written notification of coverage is a violation of state law.

Submittals with this LCNOI must include:
- **A site-specific Storm Water Pollution Prevention Plan (SWPPP) developed in accordance with ACT5 of the General Permit**
- **A detailed site-specific scaled drawing showing the property layout and the features outlined in ACT5 of the General Permit**
- **A United States Geological Survey (USGS) quadrangle map or photocopy, extending at least one-half mile beyond the facility property boundaries with the site location and outfalls outlined or highlighted. The name of the quadrangle map must be shown on all copies. Quadrangle maps can be obtained from the MDEQ, Office of Geology at 601-961-5523.**

Additional submittals may include the following, if applicable:
- **Appropriate Section 404 documentation from U.S. Army Corps of Engineers**
- **Appropriate documentation concerning future disposal of sanitary sewage and sewage collection system construction**
- **Appropriate documentation from the MDEQ Office of Land & Water concerning dam construction and low flow requirements**
- **Approval from County Utility Authority in Hancock, Harrison, Jackson, Pearl River and Stone Counties**

All QUESTIONS MUST BE ANSWERED (Answer "NA" if the question is not applicable)

APPLICANT IS THE: ☐ **OWNER** ☐ **PRIME CONTRACTOR** **(Must check one or both)**

OWNER INFORMATION

OWNER CONTACT PERSON: _____

OWNER COMPANY NAME: _____

OWNER STREET OR P.O. BOX: _____

OWNER CITY: _____ **STATE:** _____ **ZIP:** _____

OWNER PHONE # (INCLUDE AREA CODE): _____

PRIME CONTRACTOR INFORMATION

PRIME CONTRACTOR CONTACT PERSON: _____

PRIME CONTRACTOR COMPANY: _____

PRIME CONTRACTOR STREET OR P.O. BOX: _____

PRIME CONTRACTOR CITY: _____ **STATE:** _____ **ZIP:** _____

PRIME CONTRACTOR PHONE # (INCLUDE AREA CODE): _____

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PROJECT INFORMATION

PROJECT NAME: _____

TOTAL ACREAGE THAT WILL BE DISTURBED [1]: _____

IS THIS PART OF A LARGER COMMON PLAN OF DEVELOPMENT? ☐ **YES** ☐ **NO**

IF YES, NAME OF LARGER COMMON PLAN OF DEVELOPMENT: _____

_____ **AND PERMIT COVERAGE NUMBER:** _____

DESCRIPTION OF CONSTRUCTION ACTIVITY: _____

_____

PROPOSED DESCRIPTION OF PROPERTY USE AFTER CONSTRUCTION HAS BEEN COMPLETED (include standard industrial classification code (SIC) if known):

_____

_____ **SIC Code** ___ ___ ___ ___

PHYSICAL SITE ADDRESS (If the physical address is not available indicate the nearest named road. For linear projects, indicate the beginning of the project and identify all counties the project traverses.)

STREET: _____

CITY: _____ **COUNTY:** _____ **ZIP:** _____

LATITUDE : ____ degrees ____ minutes ____ seconds LONGITUDE: ____ degrees ____ minutes ____ seconds

LAT & LONG DATA SOURCE (GPS *(Please GPS Project Entrance/Start Point)* or Map Interpolation): _____

NEAREST NAMED RECEIVING STREAM: _____

IS RECEIVING STREAM ON MISSISSIPPI'S 303(d) LIST OF IMPAIRED WATER BODIES? ☐ **YES** ☐ **NO**
(The 303(d) list of impaired waters and TMDL stream segments may be found on MDEQ's web site: http://www.deq.state.ms.us/MDEQ.nsf/page/TWB_Total_Maximum_Daily_Load_Section)

HAS A TMDL BEEN ESTABLISHED FOR THE RECEIVING STREAM SEGMENT? ☐ **YES** ☐ **NO**

ARE THERE RECREATIONAL STREAMS, PRIVATE/PUBLIC PONDS OR LAKES WITHIN ½ MILE DOWNSTREAM OF PROJECT BOUNDRY THAT MAY BE IMPACTED BY THE CONSTRUCTION ACTIVITY? ☐ **YES** ☐ **NO**

EXISTING DATA DESCRIBING THE SOIL (for linear projects please describe in SWPPP): _____

_____

WILL FLOCCULANTS BE USED TO TREAT TURBIDITY IN STORM WATER? ☐ **YES** ☐ **NO**

IF YES, INDICATE THE TYPE OF FLOCCULANT. ☐ **ANIONIC POLYACRYLIMIDE (PAM)**

☐ **OTHER** _____

IF YES, DOES THE SWPPP DESCRIBE THE METHOD OF INTRODUCTION, THE LOCATION OF INTRODUCTION AND THE LOCATION OF WHERE FLOCCULATED MATERIAL WILL SETTLE? ☐ **YES** ☐ **NO**

[1]Acreage for subdivision development includes areas disturbed by construction of roads, utilities and drainage. Additionally, a housesite of at least 10,000 ft^2 per lot (entire lot, if smaller) shall be included in calculating acreage disturbed.

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DOCUMENTATION OF COMPLIANCE WITH OTHER REGULATIONS/REQUIREMENTS

COVERAGE UNDER THIS PERMIT WILL NOT BE GRANTED UNTIL ALL OTHER REQUIRED MDEQ PERMITS AND APPROVALS ARE SATISFACTORILY ADDRESSED

IS LCNOI FOR A FACILITY THAT WILL REQUIRE OTHER PERMITS? ☐ **YES** ☐ **NO**

IF YES, CHECK ALL THAT APPLY: ☐ **AIR** ☐ **HAZARDOUS WASTE** ☐ **PRETREATMENT**

☐ **WATER STATE OPERATING** ☐ **INDIVIDUAL NPDES** ☐ **OTHER:** _____

IS THE PROJECT REROUTING, FILLING OR CROSSING A WATER CONVEYANCE OF ANY KIND? (If yes, contact the U.S. Army Corps of Engineers' Regulatory Branch for permitting requirements.) ☐ **YES** ☐ **NO**

IF THE PROJECT REQUIRES A CORPS OF ENGINEER SECTION 404 PERMIT, PROVIDE APPROPRIATE DOCUMENTATION THAT:

- **The project has been approved by individual permit, or**
- **The work will be covered by a nationwide permit and NO NOTIFICATION to the Corps is required, or**
- **The work will be covered by a nationwide or general permit and NOTIFICATION to the Corps is required**

IS A LAKE REQUIRING THE CONSTRUCTION OF A DAM BEING PROPOSED? (If yes, provide appropriate approval documentation from MDEQ Office of Land and Water, Dam Safety.) ☐ **YES** ☐ **NO**

IF THE PROJECT IS A SUBDIVISION OR A COMMERCIAL DEVELOPMENT, HOW WILL SANITARY SEWAGE BE DISPOSED? Check one of the following and attach the pertinent documents.

☐ **Existing Municipal or Commercial System. Please attach plans and specifications for the collection system and the associated "Information Regarding Proposed Wastewater Projects" form or approval from County Utility Authority in Hancock, Harrison, Jackson, Pearl River and Stone Counties. If the plans and specifications can not be provided at the time of LCNOI submittal, MDEQ will accept written acknowledgement from official(s) responsible for wastewater collection and treatment that the flows generated from the proposed project can and will be transported and treated properly. The letter must include the estimated flow.**

☐ **Collection and Treatment System will be Constructed. Please attach a copy of the cover of the NPDES discharge permit from MDEQ or indicate the date the application was submitted to MDEQ (Date: _____.)**

☐ **Individual Onsite Wastewater Disposal Systems for Subdivisions Less than 35 Lots. Please attach a copy of the Letter of General Acceptance from the Mississippi State Department of Health or certification from a registered professional engineer that the platted lots should support individual onsite wastewater disposal systems.**

☐ **Individual Onsite Wastewater Disposal Systems for Subdivisions Greater than 35 Lots. A determination of the feasibility of installing a central sewage collection and treatment system must be made by MDEQ. A copy of the response from MDEQ concerning the feasibility study must be attached. If a central collection and wastewater system is not feasible, then please attach a copy of the Letter of General Acceptance from the State Department of Health or certification from a registered professional engineer that the platted lots should support individual onsite wastewater disposal systems.**

INDICATE ANY LOCAL STORM WATER ORDINANCE WITH WHICH THE PROJECT MUST COMPLY:

_____

_____

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I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Applicant[1] (owner or prime contractor)	**Date Signed**
Printed Name[1]	**Title**

[1]This application shall be signed as follows:

- **For a corporation, by a responsible corporate officer.**
- **For a partnership, by a general partner.**
- **For a sole proprietorship, by the proprietor.**
- **For a municipal, state or other public facility, by principal executive officer, mayor, or ranking elected official.**

Please submit the LCNOI form to:

Chief, Environmental Permits Division
MS Department of Environmental Quality, Office of Pollution Control
P.O. Box 2261
Jackson, Mississippi 39225

PRIME CONTRACTOR CERTIFICATION

LARGE CONSTRUCTION GENERAL PERMIT

Coverage No. MSR10 __ __ __ __ County _____

(Fill in your Certificate of Coverage Number and County)

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

By completing and submitting this form to MDEQ, the prime contractor is certifying that (1) they have operational control over the erosion and sediment control specifications (including the ability to make modifications to such specifications) or (2) they have day-to-day operational control of those activities at the site necessary to ensure compliance with the SWPPP and applicable permit conditions.

The owner(s) of the property and the prime contractor associated with regulated construction activity on the property have joint and several responsibility for compliance with the permit. Notwithstanding any permit condition to the contrary, the coverage recipient and any person who causes pollution of waters of the state or places waste in a location where they are likely to cause pollution of any waters of the state shall remain responsible under applicable federal and state laws and regulations and applicable permits.

PRIME CONTRACTOR INFORMATION

PRIME CONTRACTOR CONTACT PERSON: _____PHONE NUMBER: (___)_____

PRIME CONTRACTOR COMPANY: _____

PRIME CONTRACTOR STREET (P.O. BOX): _____

PRIME CONTRACTOR CITY: _____ STATE: _____ ZIP: _____

OWNER INFORMATION

OWNER CONTACT PERSON: _____ PHONE NUMBER: (____)_____

OWNER COMPANY NAME: _____

PROJECT INFORMATION

PROJECT NAME: _____

DESCRIPTION OF CONSTRUCTION ACTIVITY: _____

_____

PHYSICAL SITE ADDRESS (If the physical address is not available indicate the nearest named road. For linear projects, indicate the beginning of the project and identify all counties the project traverses.)

STREET: _____

CITY: _____ COUNTY: _____

I certify that I am the prime contractor for this project and will comply with all the requirements in the above referenced general NPDES permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____ _____

Prime Contractor Signature[1] **Date Signed**

_____ _____

Printed Name[1] **Title**

[1]This application shall be signed as follows:

- **For a corporation, by a responsible corporate officer.**
- **For a partnership, by a general partner.**
- **For a sole proprietorship, by the proprietor.**
- **For a municipal, state or other public facility, by principal executive officer, mayor, or ranking elected official.**

This Prime Contractors Certification form shall be submitted to:

Chief, Environmental Permits Division
MS Department of Environmental Quality, Office of Pollution Control
P.O. Box 2261
Jackson, Mississippi 39225

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Keep a Copy at the Construction Site and Also Submit this Page to:
Chief, Environmental Permits Division
MS Department of Environmental Quality, Office of Pollution Control
P.O. Box 2261
Jackson, Mississippi 39225-2261

Registration Form for Residential Lot Coverage
under Mississippi's Large Construction Storm Water General Permit
INSTRUCTIONS

Coverage recipients for residential subdivision construction that do not retain responsibility for permit compliance for individual lots are to furnish this Registration to buyers of individual lots at the time of purchase. In addition, the attached Requirements for Individual Lots in Residential Subdivisions, the Site Inspection and Certification Form and the Large Construction Storm Water General Permit shall also be given to buyers of individual lots at the time of purchase. This form is providing notification to buyers of lots in residential developments, that being part of a "larger common plan of development or sale," coverage is required under Mississippi's Large Construction Storm Water General Permit. To comply with the permit, **the Registration Form must be submitted to MDEQ** at the address listed above and a Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented to reduce pollutants in storm water discharges during construction activity. **The SWPPP is not required to be submitted to MDEQ**. A copy of the SWPPP and Registration Form must be kept at the construction site or locally available (i.e., able to be produced within an hour of being requested by a state or local inspector). See the following attachments for information on SWPPP development. In addition, **a copy of the completed Registration Form(s) must be retained by the developer and submitted to the MDEQ when requesting termination of permit coverage**. If the buyer or homebuilder sells the lot before a house is built, they must provide this form to the new owner. All questions must be answered. Answer "NA" if the question is not applicable. For further information, contact MDEQ at 601/961-5171 or access our website address: www.deq.state.ms.us/MDEQ.nsf/page/epd_epdgeneral.

ORGINAL COVERAGE RECIPIENT NAME: _____

COMPANY NAME: _____

STREET OR P.O. BOX: _____

CITY: **STATE:** **ZIP:** _____

PHONE # (INCLUDE AREA CODE): _____

BUYER / HOMEBUILDER: _____

COMPANY NAME (IF APPROPRIATE): _____

STREET OR P.O. BOX: _____

CITY: **STATE:** **ZIP:** _____

BUYER PHONE # (INCLUDE AREA CODE): _____

RESIDENTIAL SUBDIVISON NAME: _____

LARGE CONSTRUCTION STORM WATER PERMIT COVERAGE NUMBER: MSR10: ___ ___ ___ ___

LOT NUMBER(s) (attach an additional sheet if necessary): _____ **LOT SIZE(s):** _____

PHYSICAL SITE ADDRESS (IF NOT AVAILABLE INDICATE THE NEAREST NAMED ROAD):

STREET: _____

CITY: _____ **COUNTY:** _____ **ZIP:** _____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the persons or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. As a buyer / homebuilder, I further certify that I have read and understand the terms and conditions of Mississippi's Large Construction Storm Water General Permit and that I am responsible for installing and maintaining the appropriate pollution control measures for the purchased lot(s) identified.

_____ _____
Original Coverage Recipient Signature[1] **Date Signed**

_____ _____
Printed Name **Title**

_____ _____
Buyer / Homebuilder Signature[1] **Date Signed**

_____ _____
Printed Name **Title**

[1]**This application shall be signed according to ACT12, T-7 of the Large Construction General Permit.**

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Revised: 12/30/10

REQUIREMENTS FOR LOTS IN RESIDENTIAL SUBDIVISION WHICH ARE COVERED BY THE LARGE CONSTRUCTION STORM WATER GENERAL PERMIT

As a homebuilder on a lot that is part of a regulated subdivision, you are also regulated under the State's storm water regulations and are required to take steps to keep soil and sediment from leaving the lot. When rain falls on exposed soil it can wash away valuable topsoil. It also carries sediment, nutrients and other pollutants into streets, gutters and ditches, where it then travels to lakes, rivers, streams or wetlands. Polluted runoff can cause excessive growth of aquatic weeds and algae and reduce recreational opportunities such as swimming and fishing. Sediment laden runoff can also destroy fish habitat reducing productive fishing opportunities. In addition, sediment-laden runoff can also clog pipes, ditches, streams and basins resulting in increased flooding and maintenance cost. Therefore, the homebuilder is required to minimize off-site damage from soil erosion, sediment leaving the construction site, and poor "housekeeping" practices. This requirement must be accomplished by developing and implementing a Storm Water Pollution Prevention Plan (SWPPP). Some examples of individual lot SWPPPs are attached for your convenience. Sketch the controls on a copy of your site plan. Narrative notes on the site plan may also be used in addition to the erosion control symbols.

In developing and implementing the SWPPP, controls must be used from each control group (vegetative, structural, housekeeping) to prevent erosion and sediment and other pollutants from leaving the site. Commonly used controls include:

Vegetative Controls

Temporary vegetation includes annual grasses that sprout quickly such as annual rye, browntop millet, oats, and winter wheat. These grow quickly with little care and can protect the soil from rainfall and act as a filter. They will not provide permanent cover. Permanent cover must be established as indicated below. When a disturbed area will be left undisturbed for fourteen (14) days or more, the appropriate temporary or permanent vegetative practices shall be implemented within seven (7) calendar days.

Mulching is the placement of hay grass, woodchips, straw, or synthetic material on the soil to provide temporary cover to protect the soil from rain. Mulching may be the only option during the winter when seeding or sodding is not possible. Mulch must stay in place to be effective. Netting, stakes or chemical binders are used to anchor some types of mulch. Be sure to reinstall washed-out mulch and anchor if necessary until permanent cover is established.

Permanent stabilization is the establishment of a permanent vegetative cover on disturbed areas using either sod, perennial seed, trees or shrubs. When a disturbed area will be left undisturbed for fourteen (14) days or more, the appropriate temporary or permanent vegetative practices shall be implemented within seven (7) calendar days. Silt fences, and other temporary measures must be removed following permanent stabilization.

Vegetative buffer zones are undisturbed or planted vegetated areas that are between construction activities and water bodies.

Structural Controls

Silt fences are temporary sediment barriers made of filter fabric buried at the bottom, stretched, and supported by stakes. The silt fence slows runoff and allows it to puddle or pond, so soil and sediment can settle out before leaving the site. The bottom eight to twelve inches of fence must either be sliced in or buried in a trench about four to six inches deep by four to six inches wide. **Silt fences that are not buried are improperly installed. They have no useful function, are a waste of money, and may result in enforcement action**. Stakes must be on the downstream side of the fence and spaced about 3 feet apart. Silt fence must not be installed across streams, ditches, waterways, or other concentrated flow areas. Place fences on the contour or perpendicular to the slope of the hill so that water and sediment will pond behind the fence. **Turn ends uphill** to prevent water going around the end. Install on the downslope, downhill, downstream, or low side of your lot. Keep the fence/barrier in place until grass is established.

Slope drains are piping or lined channels that carry storm water downslope without erosion. A good example would be a downspout extender. Extenders may be used to protect temporarily stabilized areas from roof runoff. Extenders can direct water from roof gutters to paved or grassed areas. Remove extenders following permanent stabilization.

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Construction entrance/exits are stone stabilized site entrances which reduce sediment tracked onto public roads. Apply gravel or crushed rock to the driveway area and restrict traffic to this one route. Use 3 to 6 inch gravel over a geotextile fabric. At the end of each day sweep or scrape up any soil tracked onto the street. Limit "standard" vehicle access (including workers' vehicles) to only streets and roads, keep vehicles off of future yard areas; limit tracking of mud onto streets by requiring any required vehicles to use designated access drives. Streets are conduits for storm water, it is important to keep mud and sediment off the streets.

Stockpiles of sand or soil should be covered with plastic or tarps at the end of each workday, or surrounded with silt fence or haybales. Do not locate a stockpile near a street, storm drain inlet, or ditch.

Erosion control blankets or mats are machine-produced mats of straw or other fibers held together with netting that provide temporary or permanent stabilization in critical areas, such as slopes or channels, so that vegetation may be established.

Storm Drain Inlets on the lot must be protected by surrounding or covering with a filter material until final stabilization has been achieved.

Additional Controls: The above controls are the more common practices used at small construction sites. There are a number of other controls, techniques and manufactured product available. A few examples include hydro seeding, diversion berms, silt dikes and fiber logs. Even something as simple as a tarp or plastic may provide temporary cover for small exposed areas. You may wish to contact an erosion and sediment control specialist, local building official, or MDEQ for further information. In addition, MDEQ has several guidance manuals that may be of assistance and the internet has abundant guidance on construction BMPs.

Housekeeping Controls: Pollutants that may enter storm water from construction sites because of poor housekeeping include oils, grease, paints, gasoline, solvents, litter, debris, and sanitary waste. Good housekeeping practices include:

- Frequent cleaning of trash and debris, providing waste receptacles at convenient locations and providing regular collection of waste;
- Directing concrete trucks to the subdivision's designated wash-off area(s) or back to the Ready-Mix facility;
- Providing protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials; and
- Providing adequately maintained sanitary facilities.

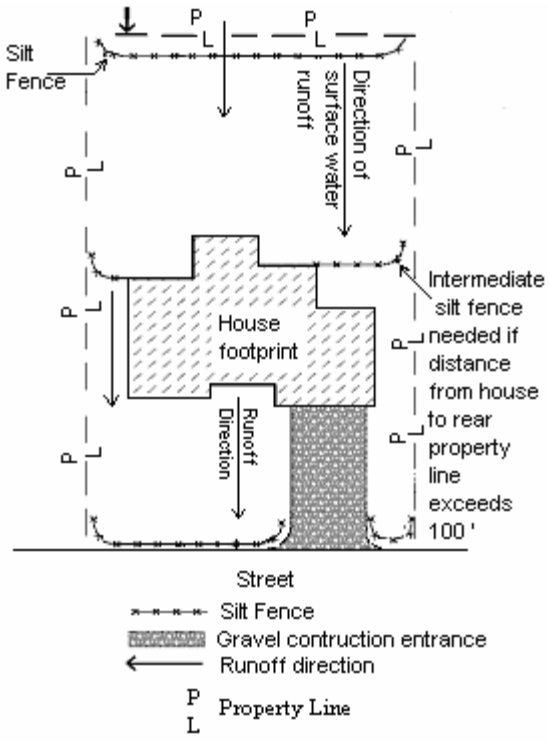
In addition, you should be aware that State air regulations prohibit the open burning of residential solid waste.

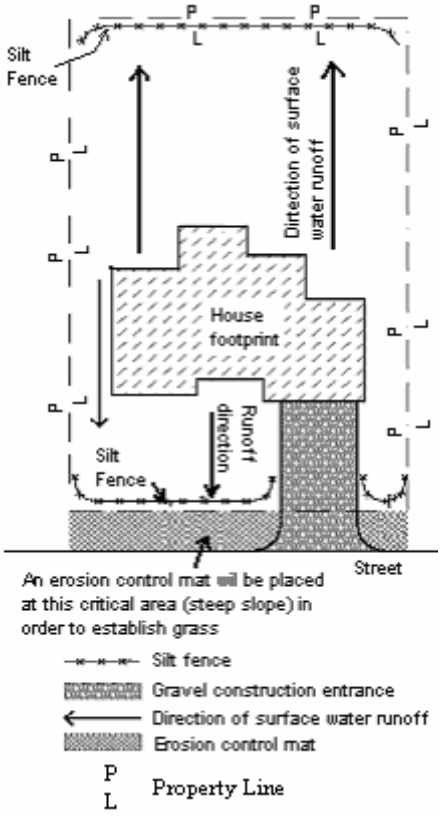
Inspection Requirements. Homebuilders shall inspect all erosion controls as often as is necessary, but no less than weekly, to ensure that appropriate erosion and sediment controls have been properly constructed and maintained to prevent erosion and sediment from leaving the site and determine if additional or alternative control measures are required. The inspection results shall be recorded on the Site Inspection and Certification Form contained in the Large Construction Forms Package. MDEQ strongly recommends that homebuilders perform a "walk through" inspection of the controls before anticipated storm events. It is a responsibility of the homebuilder to install additional and/or alternative erosion and sediment controls when existing controls prove to be ineffective in preventing sediment from leaving the site.

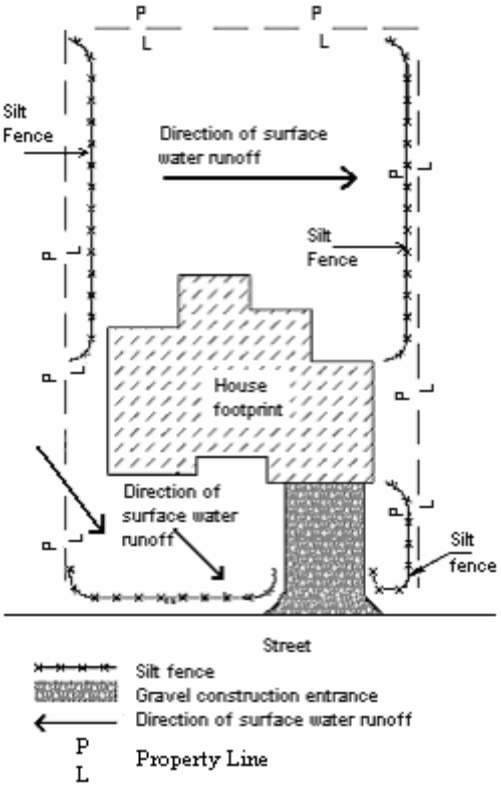
Retention of Records. All records, reports, forms and information resulting from activities required by this permit shall be retained for a period of at least three years from the date of the document origin.

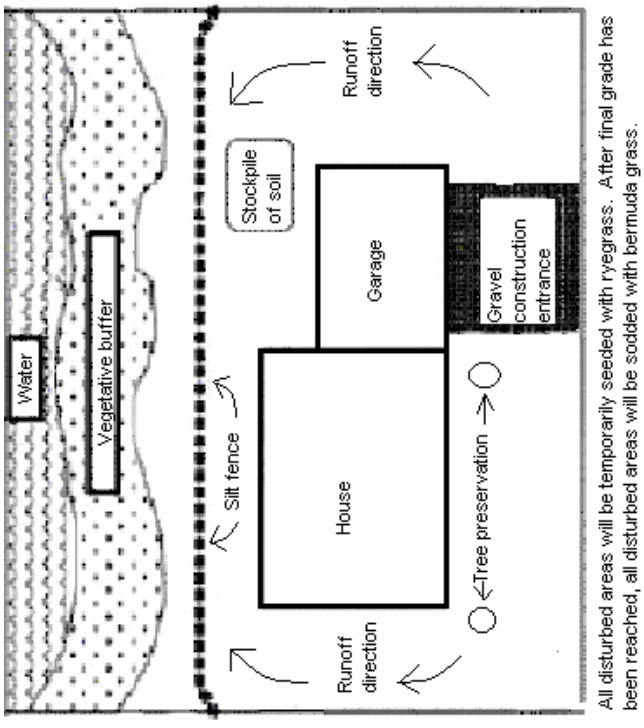
Duty to Comply. Lot owners must comply with the applicable permit conditions. See Activities 3, 5, 6, 7, 10 and 11 in the Large Construction Storm Water General Permit for applicable conditions. Any noncompliance with the applicable permit conditions and aforementioned conditions including sediment leaving the lot constitutes a violation of the Mississippi Water Pollution Control Law and is grounds for enforcement action. It shall not be an acceptable defense that controls were not installed because subsequent activities would require their replacement or cause their destruction.

EXAMPLE INDIVIDUAL LOT EROSION AND SEDIMENT CONTROL PLANS









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Keep a Copy Available at the Permitted Facility or Locally Available
Submit the Inspection Reports Only if Requested by the Mississippi Department of Environmental Quality (MDEQ)

LARGE CONSTRUCTION GENERAL PERMIT
SITE INSPECTION AND CERTIFICATION FORM
COVERAGE NUMBER (MSR10 __ __ __ __)

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

INSTRUCTIONS

Results of construction storm water inspections required by ACT6 of this permit shall be recorded on this report form and kept with the Storm Water Pollution Prevention Plan (SWPPP) in accordance with the inspection documentation provisions of ACT10 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month. The coverage number must be listed at the top of all Inspection and Certification Forms.

COVERAGE RECIPIENT INFORMATION

OWNER/PRIME CONTRATOR NAME: _____

PROJECT NAME: _____

PROJECT STREET ADDRESS: _____

PROJECT CITY: _____ **PROJECT COUNTY:** _____

OWNER/PRIME CONTRACTOR MAILING ADDRESS: _____

MAILING CITY: _____ **STATE:** _____ **ZIP:** _____

CONTACT PERSON: _____ **CONTACT PHONE NUMBER:** (_____)_____

INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
		☐	
		☐	
		☐	
		☐	
		☐	
		☐	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): _____

_____

_____

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): _____

_____

_____

Based upon this inspection, which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan (SWPPP) and sound engineering practices as required by the above referenced permit. I further certify that the LCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

_____ _____
Authorized Signature Date

_____ _____
Printed Name Title

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Revised: 12/16/10

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MAJOR MODIFICATION FORM
FOR LARGE CONSTRUCTION GENERAL PERMIT
Coverage No. MSR10 __ __ __ __ County _____

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

INSTRUCTIONS

Coverage recipients shall notify the Mississippi Department of Environmental Quality at least 30 days in advance of the following activities (check all that apply). This form should be submitted with a modified Storm Water Pollution Prevention Plan (SWPPP), updated USGS topographic map, Corps of Engineers Section 404 documentation and wastewater collection and treatment information, as appropriate.

☐ **SWPPP details have been developed and are ready for MDEQ review for subsequent phases of an existing, covered project.**

☐ **"Footprint" identified in the original LCNOI is proposed to be enlarged.**

This form must be signed by the current coverage recipient under Mississippi's Large Construction General Permit. A different developer of new phases of existing subdivisions must apply for separate permit coverage through the submittal of a new complete LCNOI package. Coverage recipients are authorized to discharge storm water associated with proposed expansions of existing subdivisions or subsequent phases, under the conditions of the General Permit, only upon receipt of written notification of approval by MDEQ. All other modifications, such as changes of erosion and sediment controls used, must be in accordance with ACT6, S-1 (4) and (5) of the General Permit.

ALL INFORMATION MUST BE COMPLETED (indicate "N/A" where not applicable)

COVERAGE RECIPIENT INFORMATION

COVERAGE RECIPIENT CONTACT NAME: _____ TEL # (_____) _____

COMPANY NAME: _____

STREET OR P.O. BOX: _____

CITY: _____ STATE: _____ ZIP: _____

PROJECT INFORMATION

PROJECT NAME: _____

CITY: _____

ADDITIONAL ACREAGE TO BE DISTURBED: _____ TOTAL PROJECT ACREAGE: _____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations**.**

_____ _____
Signature (must be signed by coverage recipient) Date

_____ _____
Printed Name Title

Please submit this form to:

Chief, Environmental Permits Division
MS Department of Environmental Quality, Office of Pollution Control
P.O. Box 2261
Jackson, Mississippi 39225

B-147
Revised: 12/16/10

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Environmental Permits for Industrial Facilities
Request for Transfer of Permit, General Permit Coverage and/or Name Change

Instructions: For Ownership Change-Complete all Items on Page 1 (except Item VIII) and Page 2 (reverse side).
For Name Change Only-Complete Items I, II, V, VI, VII, VIII, and Page 2 (reverse side).
Note-This form should be submitted to MDEQ when a transferal date is finalized but prior to the actual transfer.

Item I.

Facility Name: _____

Location: (Do Not Use P.O. Box)

Street: _____

City: _____ State: MS Zip: _____

County: _____

Telephone: (_____)_____

Item II.

Responsible official after transfer or name change:

Name: _____

Title: _____

Mailing Address:
Street/P.O. Box: _____

City: _____ State: _____ Zip: _____

Telephone (_____)_____

Item III.

Previous Permittee[1]: _____

Mailing Address:

Street/P.O. Box:_____

City: _____ State: _____ Zip: _____

Telephone: (_____)_____

Item IV.

New Permittee[1]: _____

Mailing Address:

Street/P.O. Box:_____

City: _____ State: _____ Zip: _____

Telephone: (_____)_____

Item V.

Industrial Activity SIC Code: _____

Brief Description:

Item VI.

Will Facility Operations Change? Yes _ No _____

If yes, the appropriate applications and permits may require modification prior to change.

Item VII.

Will Facility Name Change? Yes No_

If Yes, Provide New Name for Permit Coverage.

New Name:_____

Item VIII.

Signature for Name Change

Print Name: _____

Authorized Signature[2]: _____

Title: _____ Date: _____

Item IX.

We the undersigned request transfer of permit(s) and/or permit coverage(s) listed on the backside of this form.

From:_____

To:_____ Acquisition Date:_____

By signature below, the recipient certifies that: 1) they are aware of the requirements of the permit(s), 2) the applicant can demonstrate to the Permit Board it has the financial resources and operational expertise and 3) agrees to accept responsibility and liability for the permit(s) listed on the back of this document. By signature below, the previous permittee is requesting that the permit(s) and/or permit coverage(s) be transferred to the recipient. The transfer of the permit(s) or permit coverage(s) will be by written notification from the Office of Pollution Control (OPC). The OPC may require submittal of information regarding financial capability and past compliance history of the recipient.

_____ _____

Print New Permittee[1] Name Print Previous Permittee[1] Name

_____ _____

New Authorized Signature[2] Previous Authorized Signature[2]

_____ _____ _____ _____

Title Date Title Date

[1]A Permittee is a company or individual that has been issued an individual permit or coverage under a general permit.
[2]Authorized Signature must be owner or in the case of a corporation, a corporate officer as defined in Regulations APC-S-2 and WPC-1.

B-149 SEPTEMBER 2000

Mississippi Department of Environmental Quality/Office of Pollution Control
P.O. Box 2261
Jackson, Mississippi 39225
(601) 961-5171

Item X. Storm Water

(Check One)

☐ A Storm Water Pollution Prevention Plan (SWPPP) is not required for the site.

☐ The recipient certifies that they have received a copy of the Office of Pollution Control approved SWPPP from the original owner.

☐ The recipient is submitting a new SWPPP, which is attached to this form.

☐ A copy of the SWPPP cannot be obtained from the original owner.

Item XI. Hazardous Waste ID Number

EPA ID No. ________________________________

(Check One)

☐ An EPA Hazardous Waste ID Number is not required for the site.

☐ The site's EPA ID Number is listed above and a Notification of Regulated Waste Activity Form is attached.

Item XII. Permit(s) and/or Coverage(s) to be Transferred

Permit Type: ____________________________________

Permit/Coverage No.: _____________________________

Permit Issuance Date: _____________________________

Date of General Permit Coverage: ___________________

Permit Expiration Date: ___________________________

Permit Type: ____________________________________

Permit/Coverage No.: _____________________________

Permit Issuance Date: _____________________________

Date of General Permit Coverage: ___________________

Permit Expiration Date: ___________________________

Permit Type: ____________________________________

Permit/Coverage No.: _____________________________

Permit Issuance Date: _____________________________

Date of General Permit Coverage: ___________________

Permit Expiration Date: ___________________________

Permit Type: ____________________________________

Permit/Coverage No.: _____________________________

Permit Issuance Date: _____________________________

Date of General Permit Coverage: ___________________

Permit Expiration Date: ___________________________

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Permit Expiration Date: ___________________________

Permit Type: ____________________________________

Permit/Coverage No.: _____________________________

Permit Issuance Date: _____________________________

Date of General Permit Coverage: ___________________

Permit Expiration Date: ___________________________

OTHER INFORMATION:

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INSPECTION SUSPENSION FORM

UNDER LARGE CONSTRUCTION STORM WATER GENERAL NPDES PERMIT MSR10

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

INSTRUCTIONS

Coverage recipients under Mississippi's Large Construction Storm Water General Permit may temporarily suspend required weekly inspections of erosion and sediment controls and monthly record keeping by submission of this form. Inspections may be suspended only when land disturbing activities have ceased, no further land disturbing activities are planned for a period of at least six (6) months, the site is stable with no active erosion, and vegetative cover has been established (see ACT10, S-1). The coverage recipient is responsible for all permit conditions during the suspension period and nothing in this condition shall limit the rights of MDEQ to take enforcement or other actions against the coverage recipient. Once land disturbing activities resume MDEQ must be notified and all inspections and record keeping required by the permit must also resume. Color photographs, representative of the construction site, must be submitted with this inspection form.

COVERAGE RECIPIENT INFORMATION

COVERAGE RECIPIENT CONTACT PERSON: _____

COMPANY NAME: _____

STREET OR P.O. BOX: _____

CITY: _____ STATE: _____ ZIP: _____

PHONE # (INCLUDE AREA CODE): _____

PROJECT INFORMATION

CONSTRUCTION STORM WATER GENERAL PERMIT COVERAGE NUMBER: MSR10 __ __ __ __

PROJECT NAME: _____

CITY: _____ COUNTY: _____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations**. I further certify that: land disturbing activities have ceased, no further land disturbing activities are planned for a period of at least six (6) months, the site is stable with no active erosion, and vegetative cover has been established**.

_____ _____

Signature (must be signed by coverage recipient) Date Signed

_____ _____

Printed Name Title

Please submit this form to:

Chief, Environmental Permits Division
MS Department of Environmental Quality, Office of Pollution Control
P.O. Box 2261
Jackson, Mississippi 39225

B-151
Revised: 12/21/10

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Request for Termination (RFT) of Coverage

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

LARGE CONSTRUCTION GENERAL PERMIT

Coverage No. MSR10 __ __ __ __ County _____

(Fill in your Certificate of Coverage Number and County)

This form must be submitted within thirty (30) days of achieving final stabilization (see ACT13, T-13 of general permit). Failure to submit this form is a violation of permit conditions.

The signatory of this form must be the owner or operator (prime contractor) who is the current coverage recipient (rather than the project manager or environmental consultant).

(Please Print or Type)

Project Name: _____

Physical Site Street Address (if not available, indicate nearest named road): _____

City: _____ **County:** _____ **Zip:** _____

Coverage Recipient Company Name: _____

Street Address / P.O. Box: _____

City: _____ **State:** _____ **Zip:** _____

Coverage Recipient Contact Name and Position: _____ **Tel. #:** (____)_____

Has another owner(s) or operator(s) assumed control over all areas of the site that have not reached final stabilization?

RESIDENTIAL SUBDIVISIONS:

☐ **YES. A copy of the Registration Form for Residential Lot Coverage for each lot or out parcel that has been sold and a site map, indicating which lots have been sold, are attached.**

☐ **NO. Coverage may not be terminated until all areas have reached final stabilization.**

COMMERCIAL DEVELOPMENT:

☐ **YES. A copy of the site map, indicating which out-parcels have been sold, is attached.**

☐ **NO. Coverage may not be terminated until all areas have reached final stabilization.**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. I understand that by submitting this Request for Termination and receiving written confirmation, I will no longer be authorized to discharge storm water associated with construction activity under this general permit. Discharging pollutants associated with construction activity to waters of the State without proper permit coverage is a violation of state law. I also understand that the submittal of this Request for Termination does not release an owner or operator from liability for any violations of this permit or the Clean Water Act.

_____	_____	_____	_____
Authorized Name (Print)	Telephone	Signature	Date Signed

[1]This application shall be signed according to the General Permit, ACT12, T-7 as follows:

- For a corporation, by a responsible corporate officer.
- For a partnership, by a general partner.
- For a sole proprietorship, by the proprietor.
- For a municipal, state or other public facility, by principal executive officer, mayor, or ranking elected official.

After signing please mail to: Chief, Environmental Permits Division
MS Department of Environmental Quality, Office of Pollution Control
P.O. Box 2261
Jackson, Mississippi 39225

B-153
Revised: 12/21/10

Appendix C
Mississippi One-Call and 811 Color Coding

Utilities Safety – Mississippi One-Call

The Mississippi One-Call service provides information to contractors on the locations of underground utilities. **Utility safety is critical to protect life and prevent property damages!** The following pages provide information on the Mississippi One-Call program and steps to take before you dig. Call 1-800-227-6477.

811 Color Coding

The Mississippi One-Call information also provides the 811 Color Coding marking/flagging standards for electric power lines, gas, oil, petroleum products, communication lines or cables, water lines, storm and sanitary sewers, temporary survey markings and the proposed excavation locations.

Utilities Safety - Mississippi One-Call System, Inc.

What Does It Do?

The excavator should call the MOCC two working days prior to beginning excavation (to satisfy Mississippi law):

1. MOCC will determine from the excavator the location of the excavation.

2. MOCC will notify all MOCS, Inc. members with underground facilities in the quarter section(s) where the excavation is to take place.

3. Members will either mark their facilities in the area of excavation or inform the excavator they have no facilities in the area of excavation.

All messages to and from the MOCC are recorded and maintained for a minimum of 36 months. This is done for the protection of both excavators and operators.

How Much Does It Cost?

MOCC is free to excavators. Underground facility operators pay a membership fee which supports the computerized information center.

Proposed Excavations

Use white marks to show the location, route or boundary of proposed excavation. Surface marks used on roadways should not exceed 1.5" by 18" (40mm by 450mm). The facility color and facility owner identity may be added to white flags or stakes.

Use of Temporary markings

Use color-coded surface marks (i.e. paint or chalk) to indicate the location and route of buried lines. To increase visibility, color-coded vertical markers (i.e. stakes or flags) may supplement surface marks. Marks and markers may indicate the name, initials or logo of the company that owns or operates the line, and width of the facility if greater than 2" (50mm). Multiple lines in common trench may be marked in tandem. If the surface over the buried line is to be removed, supplementary offset markings are used. Offset markings are on a uniform alignment and clearly indicate the actual facility is a specific distance away.

Tolerance zones

Any excavation within a tolerance zone is performed with non-powered hand tools or non-invasive methods until the marked facility is exposed. The width of the tolerance zone is specified in law. The tolerance zone includes the width of the facility plus at least 18" (450mm) measured horizontally from each side of the facility.

Markings/Flagging

RED: Electric power lines and conduits.

YELLOW: Gas, oil, petroleum products and all other hazardous liquid or gaseous materials.

ORANGE: Communication lines or cables, including telephone, telegraph, cable TV, and traffic control lines.

BLUE: Water lines.

GREEN: Storm and sanitary sewers.

PINK: Temporary survey markings.

WHITE (Optional): Proposed excavation area (by excavator).

Appendix D
Erosion and Sediment Control and Stormwater Pollution Prevention Plan Examples

A plan for erosion and sediment control and stormwater management is the document that provides the practices and measures to prevent or reduce erosion on construction sites and minimize the impacts of sediment, turbidity and hydrologic changes off-site. It is the part of a Stormwater Pollution Prevention Plan (SWPPP) that ensures that erosion and sediment control is appropriate for the development activities and planned use of the site. More information on plan components is available in Chapters 3 of both Volume 1 and Volume 2 of this manual.

This appendix provides the following:

- A Checklist for Erosion and Sediment Control Plan Components
- EPA Guidance: Developing Your Stormwater Pollution Prevention Plan
- EPA Guidance: Stormwater Pollution Prevention Plan Template
- EPA Guidance: Sample Stormwater Pollution Prevention Plan (Small Construction)

Checklist for Erosion and Sediment Control Plans

Narrative		
Project Description	Explain the solutions for existing and predicted problems in the narrative (tables and charts may be used to display information in a format that is easier to understand).	
Practices and Measures	Identify the practices and methods which will be used to control erosion on the site, prevent or minimize sediment from leaving the site, and address turbidity and hydrologic changes associated with the proposed project. Sequence and staging of construction activities to minimize disturbance and erosion should be addressed.	
Inspections	Prescribe a schedule for inspections and repair of practices (Recommended inspection schedule of once per week or after rain event totaling 1/2″ in a 24-hour period.)	
Maintenance	Include statement(s) explaining how the project will be maintained during construction until final stabilization. In some instances, maintenance that will be needed after construction should be included.	
Site Plan Map		
Site Plan Label	The label should include the name of owner, name of site or facility, county name, location (township, range and section) name of qualified design professional, and date plan made, and if applicable, date of latest revision.	
Existing Contours	The existing contours of the site should be shown on a map (the scale used for this map should be of sufficient scale for meaningful evaluations). The scale of the site plan may range from 1″ = 100 feet to 1″ = 20 feet. If existing contours cannot be shown, drainage pattern arrows must be included.	
Existing Vegetation	The existing tree lines, grassy areas, or unique vegetation should be shown on a map.	
North Arrow	The direction of north in relation to the site should be shown. The top of all maps should be north, if practical.	

Supporting Data (relevant materials collected and generated during all stages of planning)		
Existing Drainage Patterns	The dividing lines and the direction of flow for the different drainage areas should be shown on a map.	
Final Contours	Planned post-construction contours should be shown on a map.	
Development Features	The outline of buildings, roads, drainage appurtenances, utilities, landscaping features, parking areas, improvements, impervious areas, topographic features, and similar man-made installations should be shown to scale and relative location.	
Limits of Clearing and Grading	Areas which are to be cleared and graded should be outlined on a map.	
Wetlands	The location of wetlands is important and should be shown accurately and preferably on the site map	
Cultural Resources	The locations of cultural resources should be shown accurately on the plan map and construction plans. Their location is essential if these areas are to be avoided or protected during project construction.	
Location of Practices and Legend	The locations of the erosion and sediment control and stormwater management practices used on the site should be shown on a map. A combination of symbols and acronyms are used to identify the practices. A list of the acronyms is included at the end of this chapter under “Legend of Measures for Erosion and Sediment Control and Stormwater Management.”	
Site Location or Vicinity Map (if required by regulatory agency)	Provide a small map locating the site in relation to the surrounding area. A portion of a 7.5-minute series USGS topographic map that covers the project area usually meets this requirement.	
Existing Site Conditions	This material describes the existing topography, vegetation, and drainage.	
Adjacent Areas	This material describes the adjacent and neighboring areas such as streams, lakes, residential areas, roads, etc., which might be affected by the land disturbance.	
Soils	Include a brief description of the soils on the site giving relevant information such as soil names, mapping unit, erodibility, permeability, depth, texture, soil structure, and any other limitations.	

	The boundaries of the different soil types should be shown on a map.	
Critical Areas	Identify and describe areas on the site which have potential serious erosion problems.	
Areas of Special Concern	Include relevant information affecting planning on contaminated soils, new or innovative practices, stream alterations, wetlands and cultural resources. If federal lands or federal funds are involved, a letter from the lead federal agency stating that there would be no adverse effect to cultural resources and allowing the project to proceed as planned or amended will be required; a similar letter from the Mississippi Department of Archives and History may be necessary if cultural resources are present on State and private lands.	
Calculations and Design Data Needed During Planning	Include estimates used to evaluate practices that are chosen based on peak flows, acres of runoff, etc.	

EPA Guidance: Developing Your Stormwater Pollution Prevention Plan

The following document is provided by the EPA as a guide to developing a Stormwater Pollution Prevention Plan for construction sites. This document can be used along with the SWPPP template to develop SWPPPs for both large and small construction sites. Chapters 3 of both Volume 1 and Volume 2 provide additional information on the development of Erosion and Sediment Control Plans and SWPPPs.

Developing Your Stormwater Pollution Prevention Plan

A Guide for Construction Sites

EPA-833-R-06-004
May 2007

Developing Your Stormwater Pollution Prevention Plan

A Guide for Construction Sites

Who?

Construction site operators (generally, the person who has operational control over construction plans and/or the person who has day-to-day supervision and control of activities occurring at the construction site)

Where?

Construction sites required to comply with stormwater discharge requirements

What?

A guide to help you develop a good Stormwater Pollution Prevention Plan (SWPPP)

Why?

Stormwater runoff from construction sites can cause significant harm to our rivers, lakes, and coastal waters

A SWPPP is required (by your construction general permit) and will help you prevent stormwater pollution

A SWPPP is more than just a sediment and erosion control plan.
It describes all the construction site operator's activities to prevent stormwater contamination, control sedimentation and erosion, and comply with the requirements of the Clean Water Act

Purpose of this Guidance Document

This document provides guidance to construction site operators that need to prepare a SWPPP in order to receive NPDES permit coverage for their stormwater discharges. The Clean Water Act provisions, EPA regulations and EPA's Construction General Permit described in this document contain legally binding requirements. This document does not substitute for those provisions, regulations or permit, nor is it a regulation or permit itself. It also does not substitute for requirements under State law or construction general permits issued by States. It does not impose legally-binding requirements on EPA, States, or the regulated community, and may not apply to a particular situation based upon the circumstances. EPA and State decisionmakers retain the discretion to adopt approaches on a case-by-case basis that differ from this guidance where appropriate. Any decisions regarding a particular construction site will be made based on the applicable statutes, regulations and/or permit terms. Therefore, interested parties are free to raise questions and objections about the appropriateness of the application of this guidance to a particular situation, and EPA—or the applicable NPDES permitting authority—will consider whether or not the recommendations or interpretations in the guidance are appropriate in that situation based on the law and regulations.

This guidance document occasionally uses language describing mandatory requirements for construction site operators and those covered by a general permit for stormwater discharges from such sites. This language is generally intended to reflect requirements applicable where EPA is the NPDES permitting authority. Although requirements in jurisdictions where EPA is not the permitting authority may resemble these requirements, the reader should not assume that this guidance accurately describes those requirements. Rather, the reader should consult the applicable regulations and any applicable NPDES permit.

Contents

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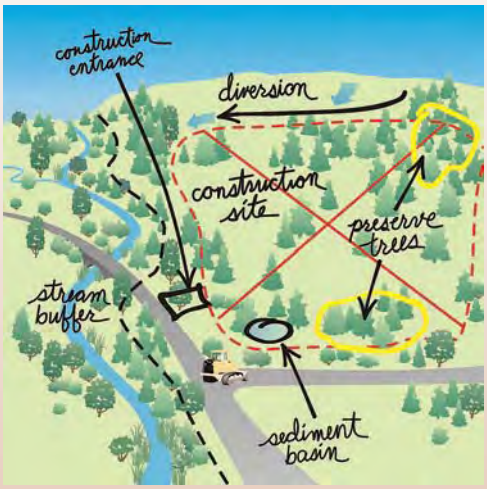
What is a Stormwater Pollution Prevention Plan (SWPPP)?

A SWPPP may be called many things. Your state may use terms like:

- **Construction Best Practices Plan**
- **Sediment and Stormwater Plan**
- **Erosion, Sediment, and Pollution Prevention Plan**
- **Construction Site Best Management Practices Plan**
- **Erosion Control Plan and Best Management Practices**
- **Best Management Practices Plan**
- **Erosion and Sediment Control Plan**

Regardless of the title used in your state, these documents—and the stormwater permits that require them—tend to have many common elements. This guide is intended to help you develop a better SWPPP for your construction site.



Example sketch identifying various points to address in the SWPPP.

How to Use This Guide

- This guide was developed as a helpful reference guide for construction site operators across the country. We have tried to accommodate the wide range of knowledge and experience about stormwater pollution prevention that currently exists among operators—from novice to expert.
  - If you are relatively new to managing stormwater at a construction site, you will probably want to read this entire guide.
  - If you are very experienced and familiar with the requirements in your state, this guide may help you brush up on certain requirements or provide you with ideas to improve your SWPPP. You might want to review the table of contents and skip around. Be sure to take a look at the SWPPP template (Appendix A) to see if you can make improvements in the way you develop and maintain your SWPPP.

- This guide is written in a general format and can be used at most construction sites in any state, territory, or in Indian country. The document assumes that you will obtain discharge authorization under an appropriate National Pollutant Discharge Elimination System (NPDES) construction general permit and use both the permit and this guidance to assist in developing your SWPPP. In this guide, we make some references to the U.S. Environmental Protection Agency's Construction General Permit for illustrative purposes. **You should always consult your applicable NPDES permit for the exact requirements that apply to you**.

- Remember that you are developing your SWPPP for both your use and for review by the regulatory agencies responsible for overseeing your stormwater controls. As such, one of your goals in developing your SWPPP should be to present the information in a way that clearly demonstrates that it meets all the requirements of your NPDES permit.

- You can obtain an electronic copy of this guide (PDF format), the SWPPP template, and inspection form (in Microsoft Word) at **www.epa.gov/npdes/swpppguide**

Chapter 1: **Introduction**

▶ This chapter provides an orientation to this guide and its contents and describes why stormwater controls at construction sites are necessary.

A. Why Should You Use this Guide?

If you are responsible for erosion and sediment control and stormwater management at a permitted construction site, then this guide may be useful to you. This guide is designed to walk you through the steps for developing and implementing an effective stormwater pollution prevention plan (SWPPP). The basic outline of the guide is presented below:

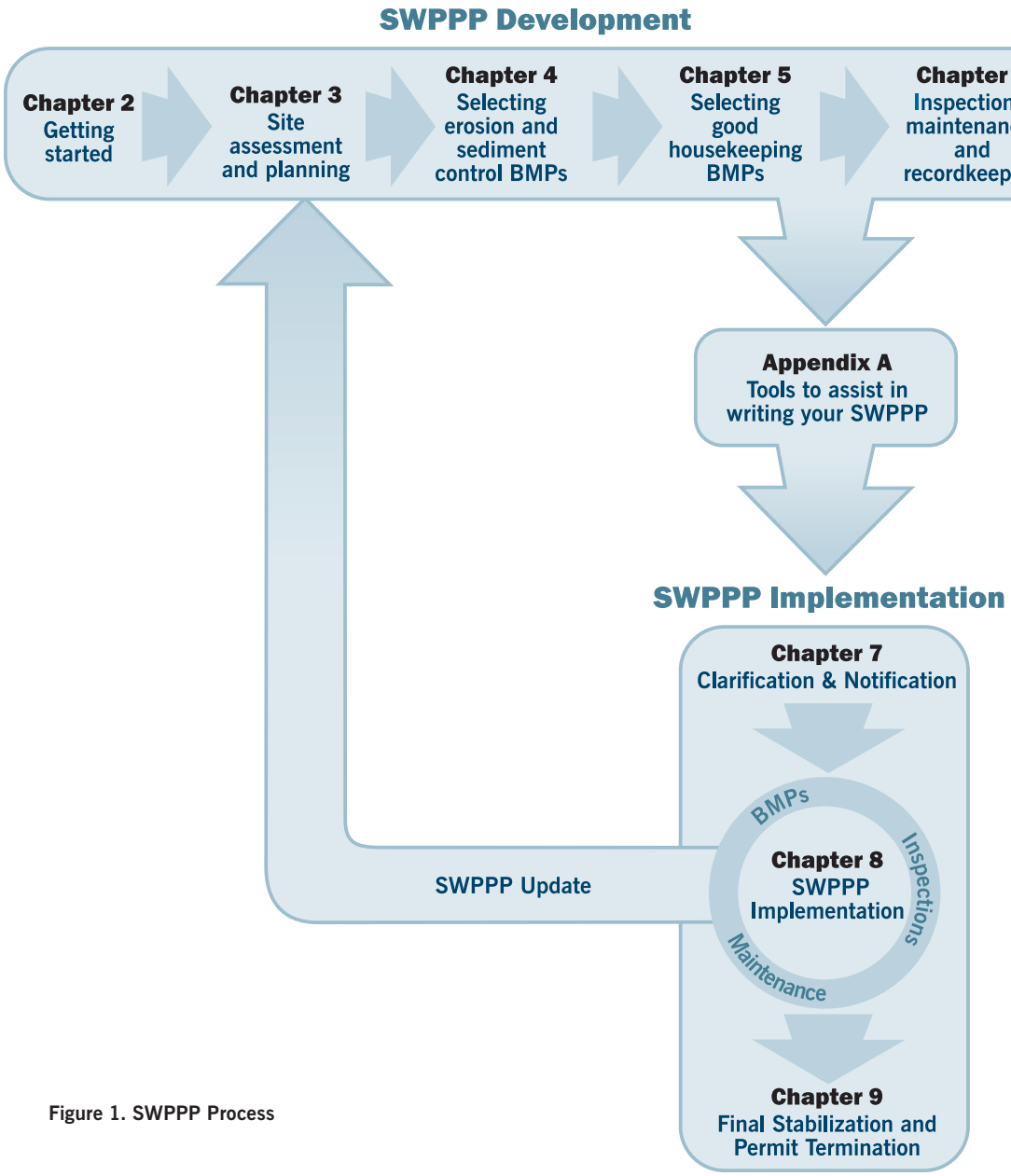


Figure 1. SWPPP Process

Take a Closer Look…

What is a SWPPP?

A SWPPP is a site-specific, written document that:

- Identifies potential sources of stormwater pollution at the construction site
- Describes practices to reduce pollutants in stormwater discharges from the construction site. Reduction of pollutants is often achieved by controlling the volume of stormwater runoff (e.g., taking steps to allow stormwater to infiltrate into the soil).
- Identifies procedures the operator will implement to comply with the terms and conditions of a construction general permit

What does this mean to me?

Failure to implement your SWPPP could result in significant fines from EPA or a state environmental agency. Therefore, it is important that you develop your SWPPP to address the specific conditions at your site, fully implement it, and keep it up-to-date to reflect changes at your site.

B. What Is Stormwater Runoff and What Are Its Impacts?

Stormwater runoff is rain or snowmelt that flows over land and does not percolate into the soil. Stormwater runoff occurs naturally, in small amounts, from almost any type of land surface, especially during larger storm events. Impervious surfaces, such as buildings, homes, roads, sidewalks, and parking lots, can significantly alter the natural hydrology of the land by increasing the volume, velocity, and temperature of runoff and by decreasing its infiltration capacity. Increasing the volume and velocity of stormwater runoff can cause severe stream bank erosion, flooding, and degrade the biological habitat of these streams. Reducing infiltration can lower ground water levels and affect drinking water supplies.

SWPPP Tip!

A SWPPP can have different names

A SWPPP may also be called a *"construction best practices plan," "sediment and stormwater plan," "erosion, sedimentation, and pollution prevention plan,"* or similar term. The SWPPP (or similarly named plan) is generally required to comply with EPA's or the state's stormwater construction general permit.

In addition, as stormwater runoff moves across surfaces, it picks up trash, debris, and pollutants such as sediment, oil and grease, pesticides and other toxics. Changes in ambient water temperature, sediment, and pollutants from stormwater runoff can be detrimental to aquatic life, wildlife, habitat, and human health. Soil exposed by construction activities is especially vulnerable to erosion. Runoff from an unstabilized construction site can result in the loss of approximately 35–45 tons of sediment per acre each year (ASCE and WFF, 1992). Even during a short period of time, construction sites can contribute more sediment to streams than would be deposited naturally over several decades. Excess sediment can cloud the water reducing the amount of sunlight reaching aquatic plants, clog fish gills, smother aquatic habitat and spawning areas, and impede navigation in our waterways.

The primary stormwater pollutant at a construction site is sediment. To control erosion at a construction site, it is important to understand the different types of erosion that can occur. Erosion begins when raindrops break down the soil structure and dislodge soil particles. Runoff carrying the soil particles becomes sheet erosion which eventually forms smaller rills and larger gullies. The best way to stop erosion is to keep the soil in place through vegetation, erosion control blankets, or other methods that prevent the soil from becoming dislodged during rain events.

The erosion process is typically influenced by climate, topography, soils, and vegetative cover. Understanding how these factors influence erosion will help you select and design appropriate controls to minimize erosion from your construction site.

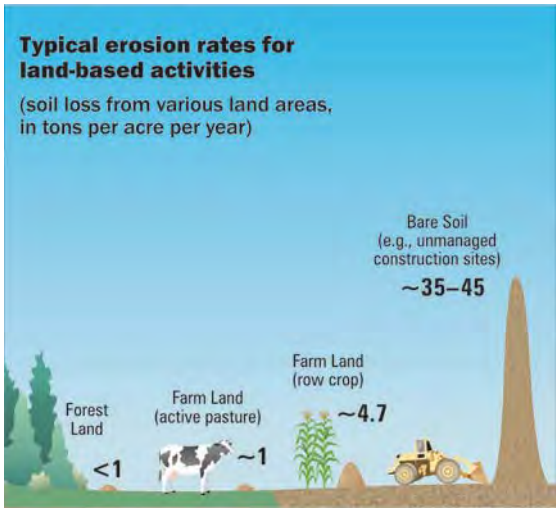


Figure 2. Typical erosion rates from land-based activities. (Dunne, T. and L. Leopold, 1978; NRCS, 2000; NRCS, 2006; ASCE and WEF, 1992)

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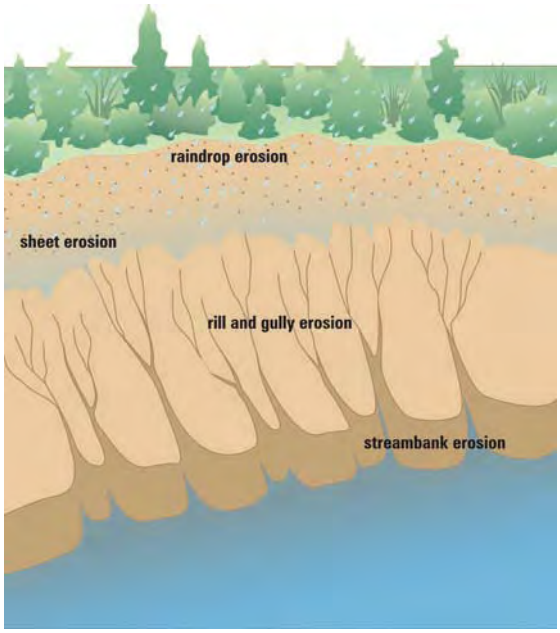

Figure 3. Types of erosion.

Raindrop erosion
Dislodging of soil particles by raindrops

Sheet erosion
The uniform removal of soil without the development of visible water channels

Rill erosion
Soil removal through the formation of concentrated runoff that creates many small channels

Gully erosion
The result of highly concentrated runoff that cuts down into the soil along the line of flow

Streambank erosion
Flowing water that erodes unstable streambanks

Climate. The frequency, intensity, and duration of rainfall are the principal factors influencing erosion from a construction site. Know the weather patterns in your area and, if possible, plan your soil disturbance activities for periods of historically lower rainfall.

Topography. The longer and steeper a slope, the greater the potential there is for erosion from that slope. Use practices such as diversions or fiber rolls to break up long slopes. Consider minimizing soil disturbance activities on steeper slopes.

Soils. Soil type can also impact erosion. Soil texture, structure, organic matter content, compaction, and permeability can all influence erosion rates.

Vegetative cover. Vegetative cover provides a number of critical benefits in preventing erosion—it absorbs the energy of raindrops, slows velocity of runoff, increases infiltration, and helps bind the soil. Soil erosion can be greatly reduced by maximizing vegetative cover at a construction site.

C. How Can Construction Site Operators Prevent Stormwater Pollution?

An effective SWPPP is the key! If sediment and erosion controls and good housekeeping practices are not followed, construction activity can result in the discharge of significant amounts of sediment and other pollutants. The term *Best Management Practices* or BMPs is often used to describe the controls and activities used to prevent stormwater pollution.

SWPPP Tip!

Erosion versus Sedimentation

Erosion is the process by which the land surface is worn away by the action of water or wind. Sedimentation is the movement and settling out of suspension of soil particles. It is usually easier and less expensive to prevent erosion than it is to control sediment from leaving a construction site.

BMPs can be divided into two categories—structural and non-structural BMPs. Structural BMPs include silt fences, sedimentation ponds, erosion control blankets, and temporary or permanent seeding, while non-structural BMPs include picking up trash and debris, sweeping up nearby sidewalks and streets, maintaining equipment, and training site staff on erosion and sediment control practices. In this document, the term "BMPs" is used broadly and includes both structural and non-structural controls and practices.

A SWPPP is more than just a sediment and erosion control plan. Most SWPPPs are written documents that describe the pollution prevention practices and activities that will be implemented on the site. It includes descriptions of the site and of each major phase of the planned activity, the roles and responsibilities of contractors and subcontractors, and the inspection schedules and logs. It is also a place to document changes and modifications to the construction plans and associated stormwater pollution prevention activities.

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Chapter 2: **Getting Started**

▶ **This chapter describes some of the basic things you'll want to determine (Do you need permit coverage? What permit applies to you?), as well as some of the materials and information you may need to develop your SWPPP. Collecting this information before you start will help you develop your SWPPP more efficiently. Keep in mind that you may also need to gather this information and develop your SWPPP before you complete your Notice of Intent (NOI) and file for permit coverage (note that filing an NOI is not discussed until Chapter 7).**

A. What Are the Federal Requirements for Stormwater Runoff from Construction Sites?

The Clean Water Act and associated federal regulations (Title 40 of the *Code of Federal Regulations* [CFR] 123.25(a)(9), 122.26(a), 122.26(b)(14)(x) and 122.26(b)(15)) require nearly all construction site operators engaged in clearing, grading, and excavating activities that **disturb one acre or more, including smaller sites in a larger common plan of development or sale**, to obtain coverage under a National Pollutant Discharge Elimination System (NPDES) permit for their stormwater discharges. Under the NPDES program, the U.S. Environmental Protection Agency (EPA) can authorize states to implement the federal requirements and issue stormwater permits. Today, most states are authorized to implement the NPDES program and issue their own permits for stormwater discharges associated with construction activities.

SWPPP Tip!

Don't forget about "common plans of development or sale"

A *common plan of development or sale* includes larger-scale plans for land development to be carried out by one or more entities. Examples include housing developments and subdivisions, industrial parks, and commercial developments.

EPA has described this term in the fact sheet accompanying its Construction General Permit as including: any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.), or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating construction activities may occur on a specific plot. Each permitting authority may review documentation to determine if common plan requirements apply.

Each state (or EPA, in the case of states that are not authorized) issues one or more NPDES construction general permits. These permits, generally, can be thought of as umbrella permits that cover all stormwater discharges associated with construction activity in a given state for a designated time period, usually 5 years. Operators of individual constructions sites then apply for coverage under this permit. *Before applying for permit coverage, you should read and understand all the provisions of the appropriate construction general permit and develop a SWPPP.* **Because authorized states develop their own NPDES requirements, you should carefully read your state's construction general permit and follow the specific instructions it contains.**

Take a Closer Look…

EPA Permits vs. State-Issued Permits

At the time of publication, EPA was the NPDES permitting authority in Massachusetts, New Hampshire, New Mexico, Idaho, Alaska, the District of Columbia, Puerto Rico, the U.S. territories (except the Virgin Islands), most Indian country lands, and for federal facilities in four states. For an up-to-date list of NPDES permitting authorities, visit **www.epa.gov/npdes/stormwater/construction** or **www.cicacenter.org/swrl.html**

What does this mean to me?

Because EPA and state-issued permits can be different, you should make sure you read and apply for the correct permit. Use the links on either of the web sites listed to the left to determine which agency issues NPDES permits where your construction activity will occur.

Most construction general permits contain similar elements:

- Applicability—describes the geographic area covered and who is eligible to apply
- Authorization—describes the types of stormwater (and non-stormwater) discharges that are covered
- SWPPP requirements—outlines the elements that should to be addressed to prevent the contamination of stormwater runoff leaving the construction site
- Application—includes instructions for obtaining permit coverage, usually by filing an application or Notice of Intent (NOI) form
- Implementation—BMP installation, inspection, and maintenance requirements
- Other requirements—may include additional requirements such as spill prevention
- Standard conditions—list of conditions that are applicable to most NPDES permits
- Termination—lists conditions for terminating permit coverage after construction is complete

What Construction Activities Require NPDES Permit Coverage?

In this document, "*construction*" refers to actions that result in a disturbance of the land, including clearing, grading, excavating, and other similar activities. It also includes "*construction-related activities,*" areas that support the construction project such as stockpiles, borrow areas, concrete truck washouts, fueling areas, material storage areas and equipment storage areas.

Construction activities that do not disturb land, such as interior remodeling, generally do not require NPDES permit coverage.

Are There Situations Where a Permit Is Not Needed?

Generally, permit coverage is not required for activities that are considered routine maintenance, such as landscaping, road maintenance, and maintaining stormwater BMPs. Some states and EPA offer the option of a waiver for small sites (disturbing less than 5 acres) in areas and times of the year with low predicted rainfall. To be eligible for the waiver, you would have to meet the requirements specified in the regulations.

Local Requirements

Operators of construction sites should keep in mind that local governments (cities, towns, counties) often have their own requirements for construction sites (e.g., local permits for grading, sediment and erosion, utilities). **Compliance with local requirements does not mean compliance with federal NPDES requirements or vice versa, unless the authorized state agency or EPA has specifically designated the local program a *qualifying local program*.**

Qualifying Local Programs

In some states, the NPDES permitting agency has identified certain local construction stormwater control programs that have requirements that are equivalent or more protective than the state's requirements. If one of these local stormwater programs has been designated by the permitting agency as a *qualifying local program*, the construction site operator may simply read and follow the local requirements. The permitting agency (state or EPA) might choose to waive the requirement to file a Notice of Intent (NOI) or similar application form for small construction sites operating within the jurisdiction of a qualifying local program. If waived, these sites would be covered under the appropriate construction general permit automatically. Check your construction general permit carefully.

The NPDES permitting authority must identify any qualifying local programs in the construction general permit. Violations of the local requirements are also considered violations of the NPDES requirements and may be enforced accordingly.

SWPPP Tip!

Read Your General Permit!

You should thoroughly read and understand the requirements in your general permit. This includes requirements on eligibility (whether your site qualifies for the general permit), application (how to notify EPA or the state that you'd like to be covered by the general permit), SWPPPs, and termination (stabilizing your site and notifying EPA or the state that your project is complete). By applying for coverage under the general permit, you are telling EPA or your state that you will comply with the permit's requirements, so read your permit carefully!

B. Who Is Required to Get NPDES Permit Coverage?

Construction site *operators* are responsible for obtaining NPDES permit coverage for their stormwater discharges. Each state has its own definition of the term *operator*. Operators may include owners (e.g., developers), general contractors, independent subcontractors, government officials, companies, or corporations. This section reflects EPA's understanding of most NPDES permit requirements for stormwater discharges throughout the country. You should, of course, consult your construction general permit for the requirements that apply to you. In some cases, states have defined the operator as a single entity, usually the land owner or easement holder. In other states, several entities may meet the definition of operator. For instance, the owner may control the project's plans and specifications, and the general contractor may control the site's day-to-day operations. In such cases, both may be defined as operators. If a site has multiple operators, they may cooperate on the development and implementation of a single SWPPP. Operators generally obtain coverage under an NPDES permit, often by filing a form called a Notice of Intent (NOI).

Figure 4. Use signage to help educate construction staff.

EPA's Construction General Permit (which applies only where EPA is the permitting authority—see Chapter 2 Section A) defines operator as any party that:

- Has control over the construction plans and specifications

  and/or

- Has day-to-day operational control of the site, including activities necessary to implement the SWPPP

Regardless of whether or not the operator is a corporation or governmental entity, someone must direct the SWPPP's preparation and implementation and apply for NPDES permit coverage for the stormwater discharges. In most cases, this will be a high-level official, such as a corporate officer, manager or elected official, or a principal executive officer. For specific instructions, refer to the appropriate NPDES stormwater permit.

Multiple Operators

In many instances, there may be more than one party at a site performing tasks related to *operational control* and more than one operator may need to submit an NOI. Depending on the site and the relationship between the parties (e.g., owner, developer, general contractor), there can either be a single party acting as site operator and consequently responsible for obtaining permit coverage, or there can be two or more operators all needing permit coverage. Exactly who is considered an operator is largely controlled by how the *owner* of the project chooses to structure the contracts with the *contractors* hired to design and/or build the project. The following are three general operator scenarios (variations on any of these three are possible, especially as the number of owners and contractors increases):

- *Owner as sole permittee*. The property owner designs the structures for the site, develops and implements the SWPPP, and serves as general contractor (or has an on-site representative with full authority to direct day-to-day operations). The owner may be the only party that needs permit coverage under these circumstances. Everyone else on the site may be considered subcontractors and might not need permit coverage.

- *Contractor as sole permittee*. The property owner hires one company (i.e., a contractor) to design the project and oversee all aspects of the construction project, including preparation and implementation of the SWPPP and compliance with the permit (e.g., a *turnkey* project). Here, the contractor would likely be the only party needing a permit. It is under this scenario that an individual having a personal residence built for his own use (e.g., not those to be sold for profit or used as rental property) would not be considered an operator. However, individual property owners would meet the definition of *operator* and may require permit coverage if they perform general contracting duties for construction of their personal residences.
- *Owner and contractor as co-permittees*. The owner retains control over any changes to site plans, SWPPPs, or stormwater conveyance or control designs; but the contractor is responsible for overseeing actual earth disturbing activities and daily implementation of SWPPP and other permit conditions. In this case, which is the most common scenario, both parties may need to apply for permit coverage.

However, you are probably not an operator and subsequently would not need permit coverage if one of the following is true:

- You are a subcontractor hired by, and under the supervision of, the owner or a general contractor (i.e., if the contractor directs your activities on-site, you probably are not an operator)
- The operator of the site has indicated in the SWPPP that someone other than you (or your subcontractor) is reponsible for your activities as they relate to stormwater quality (i.e., another operator has assumed responsibility for the impacts of your construction activities). This is typically the case for many, if not most, utility service line installations.

In addition, *owner* typically refers to the party that owns the structure being built. Ownership of the land where construction is occurring does not necessarily imply the property owner is an operator (e.g., a landowner whose property is being disturbed by construction of a gas pipeline). Likewise, if the erection of a structure has been contracted for, but possession of the title or lease to the land or structure does not to occur until after construction, the would-be owner may not be considered an operator (e.g., having a house built by a residential homebuilder).

Transferring Ownership

In many residential developments, an overall developer applies for the stormwater permit coverage, conducts grading activities, and installs the basic infrastructure (e.g., utilities, roads). Individual lots are then sold to builders who then construct the houses. Unless the developer is still responsible for stormwater on these individual lots (which is typically not the case), it is likely that the builder will need to apply for NPDES permit coverage for stormwater discharges during home construction.

Subcontractors

It is typically a good idea to include specific contract language requiring subcontractors to implement appropriate stormwater controls. Subcontractors should be trained on appropriate BMPs and requirements in the SWPPP and should not disturb or remove BMPs. Some contractors will include specific penalties in subcontractor agreements to ensure subcontractors do not damage or remove BMPs.

Take a Closer Look...

Erosion Control vs. Sediment Control

When developing a SWPPP, it is important to understand the difference between erosion control and sediment control. Erosion control measures (e.g., mulch, blankets, mats, vegetative cover) protect the soil surface and prevent soil particles from being dislodged and carried away by wind or water. Sediment control measures remove soil particles after they have been dislodged (typically through settling or filtration). It is usually easier and less expensive to prevent erosion than it is to control sedimentation.

What does this mean to me?

You should try to use erosion control BMPs as the primary means of preventing stormwater contamination, and sediment control techniques to capture any soil that does get eroded. Because no one technique is 100 percent effective, a good SWPPP will use both kinds of BMPs in combination for the best results.

C. What Elements Are Required in a SWPPP?

The SWPPP lays out the steps and techniques you will use to reduce pollutants in stormwater runoff leaving your construction site. Therefore, proper development and implementation of your SWPPP is crucial. First and foremost, your SWPPP must be developed and implemented consistent with the requirements of the applicable NPDES stormwater construction permit. The following discussion describes requirements that are contained in most of these permits.

Your SWPPP is used to identify all potential pollution sources that could come into contact with stormwater leaving your site. It describes the BMPs you will use to reduce pollutants in your construction site's stormwater discharges, and it includes written records of your site inspections and the follow-up maintenance that is performed.

Your SWPPP should contain the following elements:

- Cover/title page
- Project and SWPPP contact information
- Site and activity description, including a site map
- Identification of potential pollutant sources
- Description of controls to reduce pollutants
- Maintenance/inspection procedures
- Records of inspections and follow-up maintenance of BMPs
- SWPPP amendments
- SWPPP certification

Chapters 3–6 of this guide describe how to develop a SWPPP—from site evaluation and data collection to selecting appropriate BMPs and assigning maintenance and inspection responsibilities.

D. SWPPP Roles and Responsibilities

The operator has the lead for developing and implementing the SWPPP and commiting resources to implement the BMPs. Stormwater pollution control is typically the job of more than a single person; the SWPPP development process provides a good opportunity to define roles and responsibilities of everyone involved. Roles and responsibilities are to be documented clearly in the SWPPP and subcontractor agreements as necessary. Your SWPPP should describe:

- Who is on the stormwater pollution prevention team?
- Who will install structural stormwater controls?
- Who will supervise and implement good housekeeping programs, such as site cleanup and disposal of trash and debris, hazardous material management and disposal, vehicle and equipment maintenance, and so on?
- Who will conduct routine inspections of the site to ensure all BMPs are being implemented and maintained?
- Who will maintain the BMPs?
- Who is responsible for documenting changes to the SWPPP?
- Who is responsible for communicating changes in the SWPPP to people working on the site?

When you apply for your stormwater permit, the application may ask for a SWPPP contact. This could be the construction site operator, but in many cases it's a staff person (e.g., project superintendent, field manager, construction manager, stormwater compliance officer) at the construction site who is responsible for conducting inspections, ensuring BMPs are installed and maintained, and updating the SWPPP when necessary.

SWPPP Tip!

Erosion Control Certification

Several programs promote the training and certification of individuals in erosion and sediment control. Some states have developed certification programs and require construction sites to have a certified individual on-site at all times. The Soil and Water Conservation Society and the International Erosion Control Association sponsor a national certification program, the Certified Professional in Erosion and Sediment Control (**www.cpesc.org**)

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E. Common SWPPP Objectives

The SWPPP outlines the steps you will take to comply with the terms and conditions of your construction general permit. Keeping the following objectives in mind as you develop your SWPPP will help guide you in addressing your permit requirements and in protecting water quality.

- *Stabilize the site as soon as possible.* Get your site to final grade and either permanently or temporarily stabilize all bare soil areas as soon as possible. Take into consideration germination times for the grasses or other vegetation selected, and provide additional stabilization (mulches, matrices, blankets, soil binders) on erosion-prone areas such as slopes and drainage ways. Also consider seasonal limitations to plant establishment and growth, such as drought or cold temperatures, and make an effort to ensure that areas that are not showing adequate vegetation establishment are reseeded or mulched immediately. Areas needed for future roads, construction, or other purposes should be temporarily stabilized (see your permit for requirements related to areas of the site not currently under active construction). Establishing a vegetated cover on as much of the site as possible will help to minimize erosion and sediment problems. Perimeter controls should remain in place until final stabilization has been achieved.
- *Protect slopes and channels.* Convey concentrated stormwater runoff around the top of slopes and stabilize slopes as soon as possible. This can be accomplished using pipe slope drains or earthen berms that will convey runoff around the exposed slope. Avoid disturbing natural channels and the vegetation along natural channels, if possible.
- *Reduce impervious surfaces and promote infiltration.* Reducing impervious surfaces will ultimately reduce the amount of runoff leaving your site. Also, divert runoff from rooftops and other impervious surfaces to vegetated areas when possible to promote infiltration.
- *Control the perimeter of your site.* Divert stormwater coming on to your site by conveying it safely around, through, or under your site. Avoid allowing run-on to contact disturbed areas of the construction site. For the runoff from the disturbed areas of the site, install BMPs such as silt fences to capture sediment before it leaves your site. Remember—"Divert the clean water, trap the dirty water."
- *Protect receiving waters adjacent to your site.* Erosion and sediment controls are used around the entire site, but operators should consider additional controls on areas that are adjacent to receiving waters or other environmentally sensitive areas. **Remember, the primary purpose of erosion and sediment controls is to protect surface waters.**
- *Follow pollution prevention measures.* Provide proper containers for waste and garbage at your site. Store hazardous materials and chemicals so that they are not exposed to stormwater.
- *Minimize the area and duration of exposed soils.* Clearing only land that will be under construction in the near future, a practice known as construction phasing, can reduce off-site sediment loads by 36 percent for a typical subdivision (Claytor 2000). Additionally, minimizing the duration of soil exposure by stabilizing soils quickly can reduce erosion dramatically.

Take a Closer Look…

Incentives to preserve open space

It should be the goal of every construction project to, where possible, preserve open space and minimize impervious surfaces through practices such as clustering houses. Open space preservation can provide significant water quality and economic benefits to property owners.

What does this mean to me?

From a marketing perspective, studies have shown that lots abutting forested or other open space are initially valued higher than lots with no adjacent open space, and over time their value appreciates more than lots in conventional subdivisions (Arendt 1996). For example, lots in an open space subdivision in Amherst, Massachusetts, experienced a 13 percent greater appreciation in value over a comparable conventional development after 20 years even though the lots in the conventional development were twice as large (Arendt 1996).

Chapter 3: **SWPPP Development—Site Assessment and Planning**

▶ **The first step in developing a SWPPP is assessing the site and identifying measures to protect natural features.**

This chapter describes a number of steps that will help provide a good foundation for your SWPPP, including:

- Assessing current conditions at the site
- Establishing pollution prevention and water quality protection goals for your project
- Developing a framework to help you meet those goals

A. Assess Your Site and Proposed Project

The first step in developing your SWPPP is to evaluate your proposed construction site. Your SWPPP should describe the undeveloped site and identify features of the land that can be incorporated into the final plan and natural resources that should be protected. Understanding the hydrologic and other natural features of your site will help you develop a better SWPPP and, ultimately, to more effectively prevent stormwater pollution.

SWPPP Tip!

A SWPPP is a detailed plan that:

- Identifies potential sources of stormwater pollution
- Describes the practices that will be used to prevent stormwater pollution. These should include: erosion and sediment control practices, good housekeeping practices, conservation techniques, and infiltration practices (where appropriate), and
- Identifies procedures the operator will implement to comply with all requirements in the construction general permit

Visit the Site

The people responsible for site design and drafting the SWPPP should conduct a thorough walk-through of the entire construction site to assess site-specific conditions such as soil types, drainage patterns, existing vegetation, and topography. Avoid copying SWPPPs from other projects to save time or money. Each construction project and SWPPP is unique, and visiting the site is the only way to create a SWPPP that addresses the unique conditions at that site.

Assess Existing Construction Site Conditions

Assess the existing conditions at the construction site, including topography, drainage, and soil type. This assessment, sometimes called *fingerprinting* (see text box on page 11) is the foundation for building your SWPPP and for developing your final site plan. In this assessment, use or create a topographic drawing that:

- Indicates how stormwater currently drains from the site, and identify the location of discharge points or areas
- Identifies slopes and slope lengths. The topographic features of the site are a major factor affecting erosion from the site
- Identifies soil type(s) and any highly erodible soils and the soil's infiltration capacity
- Identifies any past soil contamination at the site
- Identifies natural features, including trees, streams, wetlands, slopes and other features to be protected

Take a Closer Look…

Fingerprinting Your Site

When you evaluate your construction site, you should clearly identify vegetation, trees, and sensitive areas, such as stream buffers, wetlands, highly erodible soils, and steep slopes at your site. You should protect these areas from disturbance. Inventorying a site's natural features is a technique called fingerprinting. Fingerprinting identifies natural features that you can protect from clearing and heavy equipment by signage or physical barriers.

What does this mean to me?

Fingerprinting your site will help ensure that you don't damage natural features such as waterways or wetlands. Conducting construction activity in a waterway or wetland without the proper permits can result in significant penalties.

In most cases, the site designer can compile all this information on a digitized drawing that can then be adapted to show the planned construction activity, the phases of construction, and the final site plan.

Topographic maps are readily available on the Internet (e.g., **www.terraserver.com** or **www.mapquest.com**) or by contacting the U.S. Geological Survey store (**http://store.usgs.gov**). If you need help determining your soil type, contact your local Natural Resource Conservation Service (NRCS) office or extension service office. To find the NRCS office nearest to your site, visit the U.S. Department of Agriculture's Service Center Locator website (**http://offices.sc.egov.usda.gov/locator/app**). Soil information is also available online from NRCS (**http://soils.usda.gov**).

Identify Receiving Waters, Storm Drains, and Other Stormwater Conveyance Systems

Your SWPPP should clearly identify the receiving waters and stormwater systems through which stormwater from your site could flow. Many states require planning for a specific storm event or storm events. These storm events are referred to by their recurrence interval and duration such as 1-year, 6-hour storm or a 100-year, 24-hour storm. These events then translate into a specific rainfall amount depending on average conditions in your area.

If your site's stormwater flows into a municipal storm drain system, you should determine the ultimate destination of that system's discharge. This may be obvious and easy to document. However, in some systems, you may have to consult with the local agency responsible for the storm drain system to determine the waterbody to which you are discharging.

If your site's stormwater runs off to areas not connected to the storm drain system, you should consider your land's topography and then identify the waterbodies that it could reach. Many sites will discharge some stormwater to a storm drain system and some to other areas not connected to the system. If your site's stormwater could potentially reach two or more waterbodies, note that in your SWPPP. Remember, stormwater can travel long distances over roads, parking lots, down slopes, across fields, and through storm sewers and drainage ditches.

Describe Your Construction Project

Your SWPPP should contain a brief description of the construction activity, including:

- Project type or function (for example, low-density residential, shopping mall, highway)
- Project location, including latitude and longitude
- Estimated project start and end dates
- Sequence and timing of activities that will disturb soils at the site
- Size of the project
- Estimated total area expected to be disturbed by excavation, grading, or other construction activities, including dedicated off-site borrow and fill areas
- Percentage of impervious area before and after construction

Construction Site Pollutants										
		Other Pollutants								
Areas of Consideration	Primary Pollutant: Sediment	Nutrients	Heavy metals	pH (acids & bases)	Pesticides & herbicides	Oil & grease	Bacteria & viruses	Trash, debris, solids	Other toxic chemicals
Clearing, grading, excavating, and unstabilized areas	✓							✓	
Paving operations	✓							✓	
Concrete washout and waste			✓	✓				✓	
Structure construction/ painting/cleaning		✓		✓				✓	✓
Demolition and debris disposal	✓							✓	
Dewatering operations	✓	✓							
Drilling and blasting operations	✓			✓				✓	
Material delivery and storage	✓	✓	✓	✓	✓	✓		✓	✓
Material use during building process		✓	✓	✓	✓	✓		✓	✓
Solid waste (trash and debris)								✓	✓
Hazardous waste			✓	✓	✓	✓			✓
Contaminated spills		✓	✓	✓	✓	✓			✓
Sanitary/septic waste		✓		✓			✓		✓
Vehicle/equipment fueling and maintenance						✓			✓
Vehicle/equipment use and storage						✓			✓
Landscaping operations	✓	✓						✓	

- Runoff coefficient[1] before and after construction
- Soil types
- Construction site location and any nearby waters or wetlands
- Describe and identify the location of other potential sources of stormwater contamination, such as asphalt and concrete plants, stucco operations, paint and concrete washout, and such

Identify Pollutants and Pollution Sources

Identify the pollutants and sources that are likely to be found on the site. The principle pollutant of concern, of course, is sediment. There are, however, other pollutants that may be found, usually in substantially smaller amounts, in stormwater runoff from construction sites. These can include nutrients, heavy metals, organic compounds, pesticides, oil and grease, bacteria and viruses, trash and debris, and other chemicals. After identifying the pollutants and sources, be as specific as possible in your SWPPP about the BMPs you will use to address them. The table at the left lists the sources of pollutants at construction sites, including sediment, the primary pollutant and other pollutants that may be present at construction sites.

Figure 5. Make sure storm drain inlets are protected.

[1] The runoff coefficient is the partial amount of the total rainfall which will become runoff. Runoff coefficients generally range from 0.95 (highly impervious) to 0.05 (vegetated surface that generates little runoff). For more information on calculating the runoff coefficient for your site, see Appendix C.

Non-Stormwater Discharges

Most permits will require you to identify any non-stormwater discharges in your SWPPP. Certain non-stormwater discharges may be allowed under the terms and conditions of your permit, however, you should make every effort to eliminate these discharges where possible. You should identify these sources in your SWPPP and identify pollution prevention measures to ensure that pollutants are not introduced to these discharges and carried to nearby waterbodies.

EPA's CGP identifies these allowable non-stormwater discharges: discharges from fire-fighting activities, fire hydrant flushings, waters used to wash vehicles, buildings, and pavements where detergents are not used, water used to control dust, potable water (including uncontaminated water line flushings), uncontaminated air conditioning condensate, uncontaminated ground water or spring water, among others. The permit goes on to say that non-stormwater discharges should be eliminated or reduced to the extent feasible and that the SWPPP should identify and ensure the implementation of appropriate pollution prevention measures for these discharges. More discussion of pollution prevention measures for some of these non-stormwater sources can be found in Chapter 5.

Permanent Stormwater Controls (Post-Construction)

The topic of designing, installing, and maintaining permanent or post-construction stormwater controls, although a requirement, is beyond the scope of this SWPPP guide. A SWPPP compiled in support of coverage under EPA's Construction General Permit, however, needs to include a description of all permanent stormwater controls that will be constructed along with the buildings, roads, parking lots, and other structures. You should incorporate sediment and erosion controls into your SWPPP for areas where permanent stormwater controls, such as wet ponds, swales, and bioretention cells are to be constructed.

Effectively managing stormwater over the long-term—long after the actual construction process is over—is a significant challenge. Many communities (and a few states) have or are developing comprehensive requirements to better manage permanent (or post-construction) stormwater runoff. To be most effective, you should consider integrating your design process for your permanent stormwater controls into your overall design for your site. Planning for your permanent stormwater controls could affect your decisions about site design, location of buildings and other structures, grading, and preserving natural features. By preserving natural drainage patterns, trees, native vegetation, riparian buffers, and wetlands, you might need to construct fewer or smaller structural storm-water controls to cope with runoff from your site. Permanent stormwater controls should be designed with two important goals in mind: (1) reduction of the volume and velocity of runoff, and (2) reduction of the pollutants in the stormwater that does leave your site.

Techniques, such as *Low Impact Development*, Better Site Design, or *Conservation Development*, which emphasize addressing stormwater where it falls, infiltrating it, preserving natural drainage patterns, and

Take a Closer Look…

Specimen Trees and Natural Vegetation

Before a site plan is prepared, identify and clearly mark existing trees and vegetation you want to preserve. Some communities have tree preservation ordinances, and local extension service offices and foresters will often provide free advice on tree and plant preservation. Remember to notify all employees and subcontractors about trees and areas you intend to preserve and mark them clearly.

What does this mean to me?

Large trees and other native vegetation can represent significant value in the long term to property owners and the community at large. Many studies document that the presence of trees on residential and commercial sites provide many benefits including improved aesthetics, habitat for birds and other wildlife, and energy savings (shade) that ultimately enhance the economic value of the site. Trees also provide shade and act as windbreaks, which can reduce energy costs over the long term. By protecting existing trees, you can reduce landscaping costs and improve the appearance of a newly developed property. According to the National Arbor Day Foundation, trees around a home can increase its value by 15 percent or more.

preserving natural vegetation offer the best opportunity to protect nearby rivers, lakes, wetlands, and coastal waters. **Incorporating these ideas and concepts into the design for your project before it is built also offers the opportunity to reduce capital infrastructure and long-term maintenance costs**.

At the neighborhood or even at the watershed scale, *Smart Growth* techniques can help us design neighborhoods that minimize impacts on water quality, reduce air pollution, and improve the general quality of life for residents. **In the *Resources* list in Appendix D, you will find a list of suggestions on this topic, including how to incorporate Smart Growth and Low Impact Development techniques into the design of your site.**

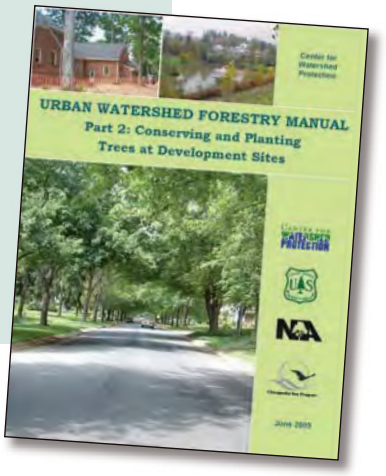
B. Identify Approaches to Protect Natural Resources

Preservation of natural areas, waterbodies, and open space has numerous economic, aesthetic, community, and environmental benefits. Preservation efforts also often increase the value of lots and homes and help to reduce overall expenditures on infrastructure. Specifically, these kinds of conservation efforts can help to significantly reduce the volume and velocity of stormwater runoff and the pollutants that may be carried with it.

SWPPP Tip!

Tree Preservation Resources

For more on tree preservation, contact your local extension service office or forester. Also, American Forests has useful information and tools at their website, **www.americanforests.org/resources/urbanforests**. The Center for Watershed Protection in cooperation with the U.S. Forest Service has developed a series of manuals on urban forestry. Part two, titled Conserving and Planting Trees at Development Sites will be of particular interest. You can find these manuals at **www.cwp.org**



Protect Nearby Waters

Your SWPPP should describe how you will protect and preserve any streams, wetlands, ponds or other waterbodies that are on your property or immediately adjoining it. Riparian areas around headwater streams are especially important to the overall health of the entire river system. Many states and communities have buffer or shoreline protection requirements to preserve sensitive areas around waterbodies.

Many states apply special designations to high-value or high-quality waters. Check with your state water pollution control agency to determine if your project could discharge to *outstanding* or special protection waters (such as wetlands, or salmon and trout streams). You might be subject to additional requirements to protect these waterbodies.

Wetland areas, including bogs, marshes, swamps, and prairie potholes may be found in areas adjacent to rivers, lakes, and coastal waters but may also be found in isolated places far from other surface waters. Many types of wetlands are protected under the Clean Water Act and construction activities in and around these areas may require an additional permit from the Army Corps of Engineers. Construction site operators should make every effort to preserve wetlands and must follow applicable local, state, and federal requirements before disturbing them or the areas around them.

To ensure the protection of natural areas during the construction period, you should use a combination of techniques, including temporary fencing, signage, and educating staff and subcontractors.

Assess Whether Your Project Impacts an Impaired Waterbody

Under the Clean Water Act, states are required to determine if rivers, lakes, and other waters are meeting water quality standards. When a waterbody does not meet water quality standards because of one or more sources of pollution, the state lists the water as impaired. When a water is determined to be impaired, the state or EPA develops a plan for correcting the situation. This plan is called a Total Maximum Daily Load (TMDL). If stormwater from your project could reach an impaired water with or without an approved TMDL (either directly or indirectly through a municipal storm drain system), your permit

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may include additional requirements to ensure that your stormwater discharges do not contribute to that impairment and your stormwater controls are consistent with plans to restore that waterbody. Your SWPPP should describe the specific actions you will take to comply with these permit requirements for impaired waters.

You should determine, before you file for permit coverage, if the receiving waters for your project are impaired and if so, whether a TMDL has been developed for this waterbody. Visit EPA's Enviromapper website (**www.epa.gov/waters/enviromapper**) or contact your state environmental agency for more information.

Assess Whether You Have Endangered Plant or Animal Species in Your Area

The federal Endangered Species Act protects endangered and threatened species and their critical habitat areas. (States and tribes may have their own endangered species laws.) In developing the assessment of your site, you should determine whether listed endangered species are on or near your property. Critical habitat areas are often designated to support the continued existence of listed species. You should also determine whether critical habitat areas have been designated in the vicinity of your project. Contact your local offices of the U.S. Fish and Wildlife Service (FWS), National Marine Fisheries Service (NMFS), or your state or tribal heritage centers. These organizations often maintain lists of federal and state listed endangered and threatened species on their Internet sites. For more information and to locate lists for your state, visit **www.epa.gov/npdes/endangeredspecies**

Additionally, your state's NPDES stormwater permit may specifically require that you address whether the activities and the stormwater discharged by your construction site have the potential to adversely affect threatened or endangered species or the critical habitat areas. You might need to conduct a biological investigation or assessment and document the results of the assessment in your SWPPP. The state may reference federal, state, or tribal endangered species protection laws or regulations.

EPA's Construction General Permit contains detailed procedures to assist construction site operators in determining the likely impact of their projects on any endangered species or critical habitat. Construction site operators in areas covered by EPA's Construction General Permit are required to assess the impact of their activities and associated stormwater discharges on species and habitat in the "project area" which may extend beyond the site's immediate footprint.

Assess Whether You Have Historic Sites that Require Protection

The National Historic Preservation Act, and any state, local and tribal historic preservation laws, apply to construction activities. As with endangered species, some permits may specifically require you to assess the potential impact of your stormwater discharges on historic properties. However, whether or not this is stated as a condition for permit coverage, the National Historic Preservation Act and any applicable state or tribal laws apply to you. Contact your State Historic Preservation Officer (**www.ncshpo.org/stateinfolist/fulllist.htm**) or your Tribal Historic Preservation Officer (**grants.cr.nps.gov/thpo/tribaloffices.cfm**).

C. Develop Site Maps

The final step in the site evaluation process is to document the results of your site assessment and your planned phases of construction activity on a detailed site map or maps. This includes developing site maps showing planned construction activities and stormwater practices for the various major stages of construction, protected areas, natural features, slopes, erodible soils, nearby waterbodies, permanent stormwater controls, and so on. You must keep your SWPPP and your site maps up-to-date to reflect changes at your site during the construction process.

Location Maps

A general location map is helpful to identify nearby, but not adjacent, waterbodies in proximity to other properties. You can use any easily available maps or mapping software to create a location map.

Site Maps

The detailed construction site maps should show the entire site and identify a number of features at the site related to construction activities and stormwater management practices.

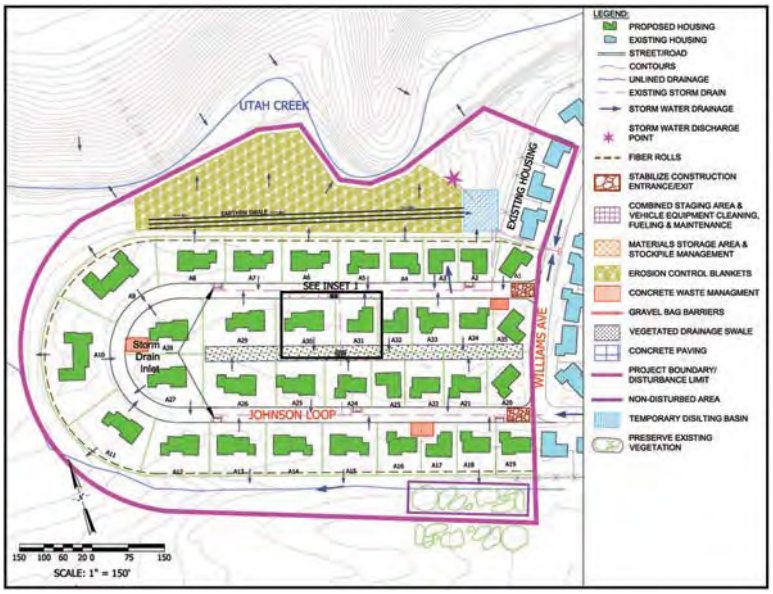

Figure 6. Example site map.

Map of undeveloped or existing site. For many sites, a map of the undeveloped or existing site, noting the features that you identified in Section A of this Chapter, will help you develop your SWPPP and identify current site features that you want to preserve. On this map note current drainage patterns, storm drains, slopes, soil types, waters and other natural features. Also note any existing structures, roads, utilities, and other features.

Map or series of maps for construction plans. Site maps should show the construction activities and stormwater management practices for each major phase of construction (e.g., initial grading, infrastructure, construction, and stabilization). The site maps should legibly identify the following features:

- Stormwater flow and discharges. Indicate flow direction(s) and approximate slopes after grading activities, as well as locations of discharges to surface waters or municipal storm drain systems.
- Areas and features to be protected. Include wetlands, nearby streams, rivers, lakes, and coastal waters, mature trees and natural vegetation, steep slopes, highly erodible soils, etc.
- Disturbed areas. Indicate locations and timing of soil disturbing activities (e.g. grading). Mark clearing limits.
- BMPs. Identify locations of structural and non-structural BMPs identified in the SWPPP, as well as post-construction stormwater BMPs.
- Areas of stabilization. Identify locations where stabilization practices are expected to occur. Mark areas where final stabilization has been accomplished.
- Other areas and roads. Indicate locations of material, waste, borrow, or equipment storage.

You should complete your site maps after reviewing Chapters 4 and 5 and any applicable BMP design manual to select appropriate BMPs for your site.

Use Site Maps to Track Progress

Develop and keep up-to-date site maps showing non-structural BMPs that change frequently in location as the work on a construction site progresses. Your permit requires that you keep your SWPPP up-to-date, so mark up the site map with the location of these BMPs. Indicate the current location of the following:

- Portable toilets
- Material storage areas
- Vehicle and equipment fueling and maintenance areas
- Concrete washouts
- Paint and stucco washouts
- Dumpsters or other trash and debris containers
- Spill kits
- Stockpiles
- Any other non-structural non-stormwater management BMPs
- Any temporarily removed structural BMPs
- Any changes to the structural BMPs

If a marked-up site map is too full to be easily read, you should date and fold it, put it in the SWPPP for documentation, and start a new one. That way, there is a good hard copy record of what has occurred on-site.

Construction sites are dynamic. As conditions change at the construction site, such as the locations of BMPs, your SWPPP must reflect those changes.

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Chapter 4: SWPPP Development—Selecting Erosion and Sediment Control BMPs

▶ **This chapter presents a brief discussion of erosion and sediment control principles and a discussion of some commonly used BMPs.**

This document is not intended as an engineering or design manual on BMPs. The engineer or other qualified person that develops the details of your sediment and erosion control plan should be using the appropriate state or local specifications. The descriptions below provide a kind of checklist of the things to look for and some helpful installation and maintenance hints.

Erosion and sediment controls are the structural and non-structural practices used during the construction process to keep sediment in place (erosion control) and to capture any sediment that is moved by stormwater before it leaves the site (sediment control). Erosion controls—keeping soil where it is—are the heart of any effective SWPPP. Your SWPPP should rely on erosion controls as the primary means of preventing stormwater pollution. Sediment controls provide a necessary second line of defense to properly designed and installed erosion controls.

The suite of BMPs that you include in your SWPPP should reflect the specific conditions at the site. The information that you collected in the previous steps should help you select the appropriate BMPs for your site. An effective SWPPP includes a combination or suite of BMPs that are designed to work together.

Ten Keys to Effective Erosion and Sediment Control (ESC)

The ultimate goal of any SWPPP is to protect rivers, lakes, wetlands, and coastal waters that could be affected by your construction project. The following principles and tips should help you build an effective SWPPP. **Keep in mind that there are many BMP options available to you. We have selected a few common BMPs to help illustrate the principles discussed in this chapter.**

Erosion Control (keeping the dirt in place) and Minimizing the Impact of Construction

1. Minimize disturbed area and protect natural features and soil
2. Phase construction activity
3. Control stormwater flowing onto and through the project
4. Stabilize soils promptly
5. Protect slopes

Sediment Controls (the second line of defense)

6. Protect storm drain inlets
7. Establish perimeter controls
8. Retain sediment on-site and control dewatering practices
9. Establish stabilized construction exits
10. Inspect and maintain controls

Take a Closer Look...

BMPs in Combination

BMPs work much better when they are used in combination. For instance, a silt fence should not be used alone to address a bare slope. An erosion control BMP should be used to stabilize the slope, and the silt fence should serve as the backup BMP.

What does this mean to me?

Wherever possible, rely on erosion controls to keep sediment in place. Back up those erosion controls with sediment controls to ensure that sediment doesn't leave your site. Continually evaluate your BMPs. Are they performing well? Could the addition of a supplemental BMP improve performance? Should you replace a BMP with another one that might work better? Using BMPs in series also gives you some protection in case one BMP should fail.

Erosion Control and Minimizing the Impact of Construction

ESC Principle 1: Minimize disturbed area and protect natural features and soil. As you put together your SWPPP, carefully consider the natural features of the site that you assessed in Chapter 3. By carefully delineating and controlling the area that will be disturbed by grading or construction activities, you can greatly reduce the potential for soil erosion and stormwater pollution problems. Limit disturbed areas to only those necessary for the construction of your project. Natural vegetation is your best and cheapest erosion control BMP.

Figure 7. Protect vegetated buffers by using silt fence or other sediment controls.

Protecting and preserving topsoil is also a good BMP. Removing topsoil exposes underlying layers that are often more prone to erosion and have less infiltration capacity. Keeping topsoil in place preserves the natural structure of the soils and aids the infiltration of stormwater.

ESC Principle 2: Phase construction activity. Another technique for minimizing the duration of exposed soil is phasing. By scheduling or sequencing your construction work and concentrating it in certain areas, you can minimize the amount of soil that is exposed to the elements at any given time. Limiting the area of disturbance to places where construction activities are underway and stabilizing them as quickly as possible can be one of your most effective BMPs.

ESC Principle 3: Control stormwater flowing onto and through your project. Plan for any potential stormwater flows coming onto the project area from upstream locations, and divert (and slow) flows to prevent erosion. Likewise, the volume and velocity of on-site stormwater runoff should be controlled to minimize soil erosion.

Example BMP: Diversion Ditches or Berms

Description: Diversion ditches or berms direct runoff away from unprotected slopes and may also direct sediment-laden runoff to a sediment-trapping structure. A diversion ditch can be located at the upslope side of a construction site to prevent surface runoff from entering the disturbed area. Ditches or berms on slopes need to be designed for erosive velocities. Also, ensure that the diverted water is released through a stable outlet and does not cause downslope or downstream erosion or flooding.

Installation Tips:

- Divert run-on and runoff away from disturbed areas
- Ensure that the diversion is protected from erosion, using vegetation, geotextiles, or other appropriate BMPs
- Divert sediment-laden water to a sediment-trapping structure
- Use practices that encourage infiltration of stormwater runoff wherever possible

Maintenance:

- Inspect diversions and berms, including any outlets, regularly and after each rainfall
- Remove any accumulated sediment

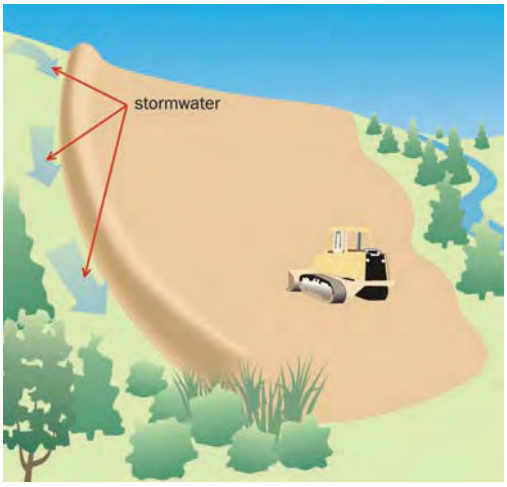

Figure 8. Illustration of a construction berm to divert stormwater away from the disturbed construction area.

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ESC Principle 4: Stabilize soils promptly. Where construction activities have temporarily or permanently ceased, you should stabilize exposed soils to minimize erosion. You should have stabilization measures in place after grading activities have ceased (many permits require stabilization within a specified time frame). You can provide either temporary or permanent cover to protect exposed soils. Temporary measures are necessary when an area of a site is disturbed but where activities in that area are not completed or until permanent BMPs are established. Topsoil stockpiles should also be protected to minimize any erosion from these areas. Temporary-cover BMPs include temporary seeding, mulches, matrices, blankets and mats, and the use of soil binders (there may be additional state and local requirements for the use of chemical-based soil binders). Permanent-cover BMPs include permanent seeding and planting, sodding, channel stabilization, and vegetative buffer strips. Silt fence and other sediment control measures are not stabilization measures.

SWPPP Tip!

Final Stabilization

Once construction activity in an area is completed and the area is stabilized (typically by achieving 70 percent permanent vegetative cover), you can mark this area on your SWPPP and discontinue inspections in that area. By bringing areas of your site to final stabilization, you can reduce your workload associated with maintaining and inspecting BMPs. For more information on final stabilization, see Chapter 9.

Example BMP: Temporary Seeding

Description: Temporarily seeding an area to establish vegetative cover is one of the most effective, and least expensive, methods of reducing erosion. This approach, as a single BMP, might not be appropriate on steep slopes, when vegetation cannot be established quickly enough to control erosion during a storm event, or when additional activities might occur soon in the area.

Installation Tips:

- Seed and mulch area (the mulch provides temporary erosion protection by protecting the soil surface, moderating temperature, and retaining moisture while seeds germinate and grow)
- Water regularly, if needed, to ensure quick growth
- Maintain backup BMPs, such as silt fence or settling ponds

SWPPP Tip!

Wind Control BMPs

In areas where dust control is an issue, your SWPPP should include BMPs for wind-erosion control. These consist of mulching, wet suppression (watering), and other practices.

ESC Principle 5: Protect slopes. Protect all slopes with appropriate erosion controls. Steeper slopes, slopes with highly erodible soils, or long slopes require a more complex combination of controls. Erosion control blankets, bonded fiber matrices, or turf reinforcement mats are very effective options. Silt fence or fiber rolls may also be used to help control erosion on moderate slopes and should be installed on level contours spaced at 10- to 20-foot intervals. You can also use diversion channels and berms to keep stormwater off slopes.

Example BMP: Rolled erosion control products

Description: Erosion control products include mats, geotextiles, and erosion control blankets and products that provide temporary stabilization and help to establish vegetation on disturbed soils. Such products help control erosion and help establish vegetation and are often used on slopes, channels, or stream banks.

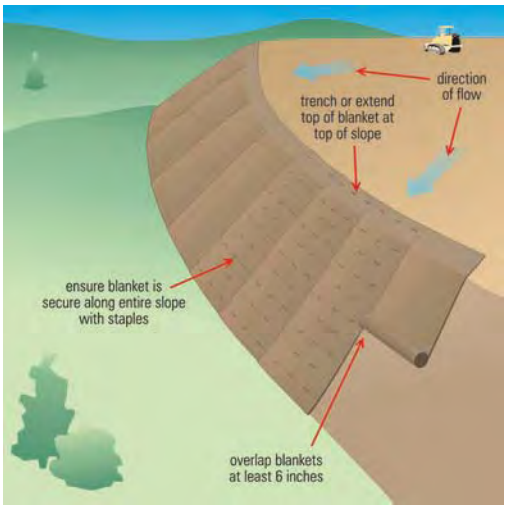

Figure 9. Illustration of erosion control blankets installed on slope.

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Installation Tips:

- Use rolled erosion-control products on slopes steeper than 3 to 1 (horizontal to vertical) and in swales or long channels

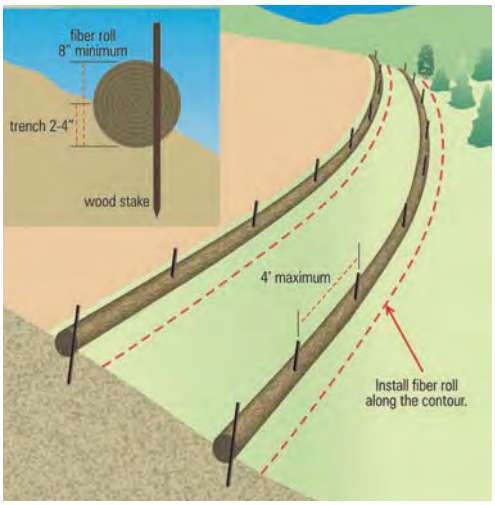

Figure 10. Illustration of a fiber roll installation along a slope.

- Trench the top of the blanket into the ground to prevent runoff from flowing under the blanket
- Overlap the lower end of the top mat over the top of the downslope mat to ensure that runoff stays on top of the blankets and mats
- Staple blankets and mats according to specifications

Maintenance:

- Periodically inspect for signs of erosion or failure
- Repair the blanket or mat if necessary
- Continue inspections until vegetation is established at the level required to qualify as final *stabilization*

ESC Principle 6: Protect storm drain inlets. Protect all inlets that could receive stormwater from the project until final stabilization of the site has been achieved. Install inlet protection before soil-disturbing activities begin. Maintenance throughout the construction process is important. Upon completion of the project, storm drain inlet protection is one of the temporary BMPs that should be removed. Storm drain inlet protection should be used not only for storm drains within the active construction project, but also for storm drains outside the project area that might receive stormwater discharges from the project. If there are storm drains on private property that could receive stormwater runoff from your project, coordinate with the owners of that property to ensure proper inlet protection.

Example BMP: Storm Drain Inlet Protection

Description: Storm drain inlet protection prevents sediment from entering a storm drain by surrounding or covering the inlet with a filtering material. Several types of filters are commonly used for inlet protection: silt fence, rock-filled bags, or block and gravel. The type of filter used depends on the inlet type (for example, curb inlet, drop inlet), slope, and volume of flow. Many different commercial inlet filters are also available. Some commercial inlet filters are placed in front of or on top of an inlet, while others are placed inside the inlet under the grate.

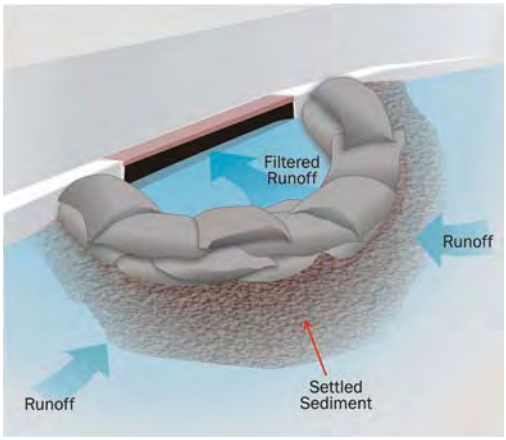

Figure 11. Illustration of a storm drain inlet with rock-filled bags filtering stormwater.

Installation Tips:

- Install inlet protection as soon as storm drain inlets are installed and before land-disturbance activities begin in areas with existing storm drain systems
- Protect all inlets that could receive stormwater from your construction project
- Use in conjunction with other erosion prevention and sediment control BMPs—remember, inlet protection is a secondary BMP!
- Design your inlet protection to handle the volume of water from the area being drained. Ensure that the design is sized appropriately.

Maintenance:

- Inspect inlets frequently and after each rainfall

- Remove accumulated sediment from around the device and check and remove any sediment that might have entered the inlet
- Replace or repair the inlet protection if it becomes damaged
- Sweep streets, sidewalks, and other paved areas regularly

SWPPP Tip!

Storm drain inlet protection should never be used as a primary BMP! Use erosion control techniques such as hydromulching or erosion-control blankets to prevent erosion. Use inlet protection and other sediment control BMPs as a *backup* or last line of defense.

ESC Principle 7: Establish perimeter controls. Maintain natural areas and supplement them with silt fence and fiber rolls around the perimeter of your site to help prevent soil erosion and stop sediment from leaving the site. Install controls on the downslope perimeter of your project (it is often unnecessary to surround the entire site with silt fence). Sediment barriers can be used to protect stream buffers, riparian areas, wetlands, or other waterways. They are effective only in small areas and should not be used in areas of concentrated flow.

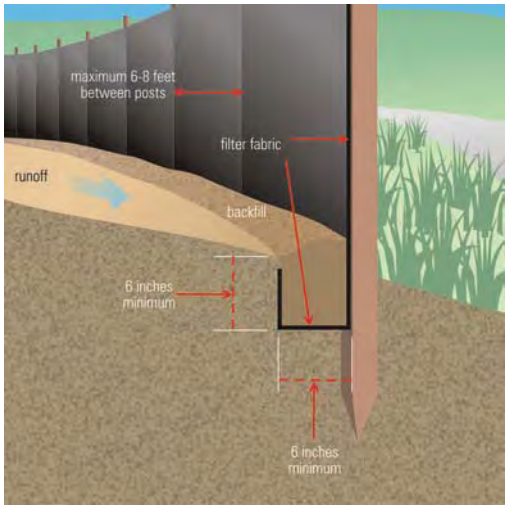

Figure 12. Illustration of proper techniques to use in installing silt fence.

Example BMP: Silt Fence and Fiber Rolls

Description: A silt fence is a temporary sediment barrier consisting of a geotextile attached to supporting posts and trenched into the ground. Silt fencing is intended to retain sediment that has been dislodged by stormwater. It is designed only for runoff from small areas and is not intended to handle flows from large slopes or in areas of concentrated flow. Fiber rolls serve the same purpose and consist of an open mesh tubular sleeve filled with a fibrous material which traps sediment. Fiber rolls are generally staked to the ground.

Installation Tips:

DO:

- Use silt fence or fiber rolls as perimeter controls, particularly at the lower or down slope edge of a disturbed area
- Leave space for maintenance between toe of slope and silt fence or roll
- Trench in the silt fence on the uphill side (6 inches deep by 6 inches wide)
- Install stakes on the downhill side of the fence or roll
- Curve the end of the silt fence or fiber roll up-gradient to help it contain runoff

DON'T:

- Install a silt fence or fiber rolls in ditches, channels, or areas of concentrated flow
- Install it running up and down a slope or hill
- Use silt fencing or fiber rolls alone in areas that drain more than a quarter-acre per 100 feet of fence

Maintenance:

- Remove sediment when it reaches one-third of the height of the fence or one-half the height of the fiber roll
- Replace the silt fence or roll where it is worn, torn, or otherwise damaged
- Retrench or replace any silt fence or roll that is not properly anchored to the ground

ESC Principle 8: Retain sediment on-site and control dewatering practices. Sediment barriers described in ESC Principle 7 can trap sediment from small areas, but when sediment retention from a larger area is required, consider using a temporary sediment trap or sediment basin. These practices detain sediment-laden runoff for a period of time, allowing sediment to settle before the runoff is discharged. Proper design and maintenance are essential to ensure that these practices are effective.

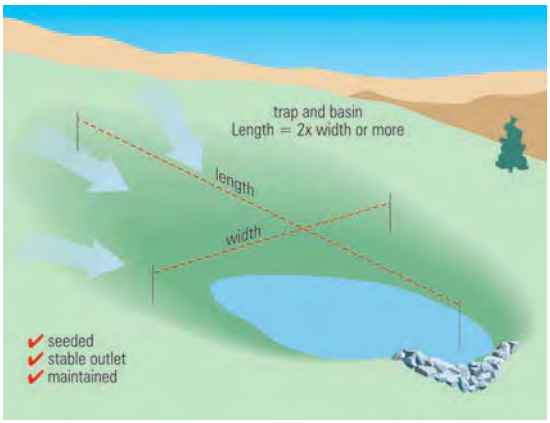

Figure 13. Illustration of a sediment basin.

You should use a sediment basin for common drainage locations that serve an area with 10 or more acres disturbed at any one time. The basin should be designed to provide storage for the volume of runoff from the drainage area for at least a 2-year, 24-hour storm (or 3,600 cubic feet of storage per acre drained, which is enough to contain 1 inch of runoff, if the 2-year, 24-hour calculation has not been performed). Check your permit for exact basin sizing requirements. Sediment basins should be located at low-lying areas of the site and on the down-gradient side of bare soil areas where flows converge. Do not put sediment traps or basins in or immediately adjacent to flowing streams or other waterways.

Where a large sediment basin is not practical, use smaller sediment basins or sediment traps (or both) where feasible. At a minimum, use silt fences, vegetative buffer strips, or equivalent sediment controls for all down-gradient boundaries (and for those side-slope boundaries deemed appropriate for individual site conditions).

Dewatering practices are used to remove ground water or accumulated rain water from excavated areas. Pump muddy water from these areas to a temporary or permanent sedimentation basin or to an area completely enclosed by silt fence in a flat vegetated area where discharges can infiltrate into the ground. Never discharge muddy water into storm drains, streams, lakes, or wetlands unless the sediment has been removed before discharge.

Keep in mind that some states and local jurisdictions require a separate permit for dewatering activities at a site.

ESC Principle 9: Establish stabilized construction exits. Vehicles entering and leaving the site have the potential to track significant amounts of sediment onto streets. Identify and clearly mark one or two locations where vehicles will enter and exit the site and focus stabilizing measures at those locations. Construction entrances are commonly made from large crushed rock. They can be further stabilized using stone pads or concrete. Also, steel wash racks and a hose-down system will remove even more mud and debris from vehicle tires. Divert runoff from wash areas to a sediment trap or basin. No system is perfect, so sweeping the street regularly completes this BMP.

Example BMP: Stabilized Construction Exit

Description: A rock construction exit can reduce the amount of mud transported onto paved roads by vehicles. The construction exit does this by removing mud from vehicle tires before the vehicle enters a public road.

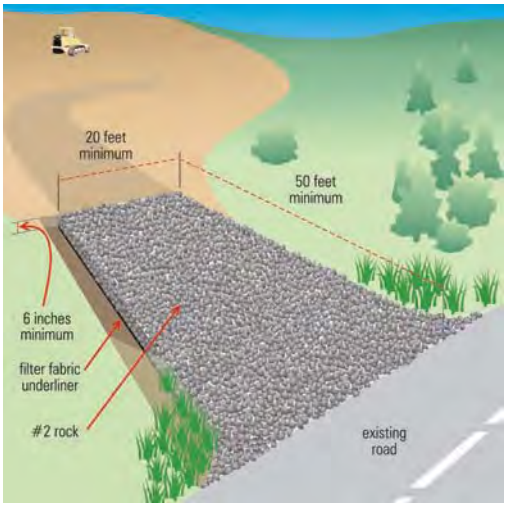

Figure 14. Illustration of a stabilized construction exit.

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You might also want to install a wheel wash when mud is especially difficult to remove or space doesn't allow sufficient tire revolutions (four or five are needed) before exiting the site. Direct wash water to a suitable settling area—do not discharge wash water to a stream or storm drain!

Installation tips:

- Ensure that the exit is at least 50 feet long (generally, the length of two dump trucks) and graded so runoff does not enter the adjacent street
- Place a geotextile fabric under a layer of aggregate at least 6–12 inches thick. The stones or aggregate should be 3–6 inches in diameter
- Train employees and subcontractors to use the designated construction exits. Empower your employees to provide directions to subcontractors and others that are not on the site every day

Maintenance:

- Replenish or replace aggregate if it becomes clogged with sediment
- Sweep the street regularly

ESC Principle 10: Inspect and maintain controls. Inspection and maintenance is just as important as proper planning, design, and installation of controls. Without adequate maintenance, erosion and sediment controls will quickly fail, sometimes after just one rainfall, and cause significant water quality problems and potential violations of the NPDES construction general permit. Your permit likely requires you to maintain your BMPs at all times. To do this effectively, you should establish an inspection and maintenance approach or strategy that includes both regular and spot inspections. Inspecting both prior to predicted storm events and after will help ensure that controls are working effectively. Perform maintenance or corrective action as soon as problems are noted. **Inspection and maintenance of BMPs are addressed in more detail in Chapter 6.**

Other Sediment and Erosion Control Techniques

As mentioned at the beginning of this chapter, there are many other erosion and sediment control techniques that can be used effectively. The BMPs highlighted in this chapter are among those more commonly used and highlight many general erosion and sediment control principles for which other BMPs may be used effectively. Check to see if your state or local government has developed a BMP design manual for detailed information on any BMP you are considering. Appendix D lists several good BMP design manuals. You can also find out more about various BMPs by visiting EPA's Menu of BMPs at **www.epa.gov/npdes/menuofbmps**

The following BMPs are also commonly used at construction sites.

Erosion control measures:

- Surface roughening, trackwalking, scarifying, sheepsfoot rolling, imprinting
- Soil bioengineering techniques (e.g., live staking, fascines, brush wattles)
- Composting
- Sodding

Sediment control and runoff management measures:

- Gravel bag barrier
- Compost berm
- Rock or brush filters
- Baffles or skimmers in sediment basins to increase effectiveness
- Lowering soil levels near streets and sidewalks to prevent runoff
- Level spreaders
- Energy dissipaters
- Check dams

Chapter 5: SWPPP Development—Selecting Good Housekeeping BMPs

> This chapter presents a brief discussion of good housekeeping principles to consider to ensure your construction site does not contaminate stormwater runoff.
>
> As noted in Chapter 3, sediment is the principal pollutant of concern in stormwater discharges from construction sites. But, EPA's CGP and many state construction general permits require that the SWPPP describe good housekeeping measures for other pollutants that might be found on construction sites. This chapter discusses these measures.

Six Key Pollution Prevention Principles for Good Housekeeping

Construction projects generate large amounts of building-related waste, which can end up polluting stormwater runoff if not properly managed. The suite of BMPs that are described in your SWPPP must include pollution prevention (P2) or good housekeeping practices that are designed to prevent contamination of stormwater from a wide range of materials and wastes at your site. The six principles described below are designed to help you identify the pollution prevention practices that should be described in your SWPPP and implemented at your site.

1. Provide for waste management
2. Establish proper building material staging areas
3. Designate paint and concrete washout areas
4. Establish proper equipment/vehicle fueling and maintenance practices
5. Control equipment/vehicle washing and allowable non-stormwater discharges
6. Develop a spill prevention and response plan

P2 Principle 1: Provide for waste management. Design proper management procedures and practices to prevent or reduce the discharge of pollutants to stormwater from solid or liquid wastes that will be generated at your site. Practices such as trash disposal, recycling, proper material handling, and cleanup measures can reduce the potential for stormwater runoff to pick up construction site wastes and discharge them to surface waters.

Figure 15. Illustration showing construction materials with secondary containment and overhead cover to prevent stormwater contamination.

Provide convenient, well-maintained, and properly located toilet facilities. Provide for regular inspections, service, and disposal. Locate toilet facilities away from storm drain inlets and waterways to prevent accidental spills and contamination of stormwater. Treat or dispose of sanitary and septic waste in accordance with state or local regulations.

Proper material use, storage, waste disposal, and training of employees and subcontractors can prevent or reduce the discharge of hazardous and toxic wastes to stormwater. Implement a comprehensive set of waste-management practices for hazardous or toxic materials, such as paints, solvents, petroleum products, pesticides, wood preservatives, acids, roofing tar, and other materials. Practices should include storage, handling, inventory, and cleanup procedures, in case of spills (see the following P2 principles).

Waste Management Checklist

Solid or Construction Waste

- ✓ Designate trash and bulk waste-collection areas on-site
- ✓ Recycle materials whenever possible (e.g., paper, wood, concrete, oil)
- ✓ Segregate and provide proper disposal options for hazardous material wastes
- ✓ Clean up litter and debris from the construction site daily
- ✓ Locate waste-collection areas away from streets, gutters, watercourses, and storm drains. Waste-collection areas (dumpsters, and such) are often best located near construction site entrances to minimize traffic on disturbed soils. Consider secondary containment around waste collection areas to further minimize the likelihood of contaminated discharges.

Sanitary and Septic Waste

- ✓ Provide restroom facilities on-site
- ✓ Maintain clean restroom facilities and empty porta-johns regularly
- ✓ Provide secondary containment pans under porta-johns, where possible
- ✓ Provide tie-downs or stake downs for porta-johns in areas of high winds
- ✓ Educate employees, subcontractors, and suppliers on locations of facilities
- ✓ Do not discharge or bury wastewater at the construction site
- ✓ Inspect facilities for leaks, repair or replace immediately

Hazardous Materials and Wastes

- ✓ Develop and implement employee and subcontractor education, as needed, on hazardous and toxic waste handling, storage, disposal, and cleanup
- ✓ Designate hazardous waste-collection areas on-site
- ✓ Place all hazardous and toxic material wastes in secondary containment
- ✓ Hazardous waste containers should be inspected to ensure that all containers are labeled properly and that no leaks are present

P2 Principle 2: Establish proper building material handling and staging areas.
Your SWPPP should include comprehensive handling and management procedures for building materials, especially those that are hazardous or toxic. Paints, solvents, pesticides, fuels and oils, other hazardous materials or any building materials that have the potential to contaminate stormwater should be stored indoors or under cover whenever possible or in areas with secondary containment. Secondary containment prevents a spill from spreading across the site and include dikes, berms, curbing, or other containment methods. Secondary containment techniques should also ensure the protection of ground water. Designate staging areas for activities such as fueling vehicles, mixing paints, plaster, mortar, and so on. Designated staging areas will help you to monitor the use of materials and to clean up any spills. Training employees and subcontractors is essential to the success of this pollution prevention principle.

SWPPP Tip!

Material Staging Area Measures

Your SWPPP should include procedures for storing materials that can contribute pollutants to stormwater. Consider the following:

- Train employees and subcontractors in proper handling and storage practices
- Designate site areas for storage. Provide storage in accordance with secondary containment regulations and provide cover for hazardous materials when necessary. Ensure that storage containers are regularly inspected for leaks, corrosion, support or foundation failure, or any other signs of deterioration and tested for soundness
- Reuse and recycle construction materials when possible

P2 Principle 3: Designate washout areas.
Concrete contractors should be encouraged, where possible, to use the washout facilities at their own plants or dispatch facilities. If it is necessary to provide for concrete washout areas on-site, designate specific washout areas and design facilities to handle anticipated washout water. Washout areas should also be provided for paint and stucco operations. Because washout areas can be a source of pollutants from leaks or spills,

EPA recommends that you locate them at least 50 yards away from storm drains and watercourses whenever possible.

Several companies rent or sell prefabricated washout containers, and some provide disposal of waste solids and liquids along with the containers. These prefabricated containers are sturdy and provide a more reliable option for preventing leaks and spills of wash water than self-constructed washouts. Alternatively, you can construct your own washout area, either by digging a pit and lining it with 10 mil plastic sheeting or creating an aboveground structure from straw bales or sandbags with a plastic liner. If you create your own structure, you should inspect it daily for leaks or tears in the plastic because these structures are prone to failure.

Regular inspection and maintenance are important for the success of this BMP. Both self-constructed and prefabricated washout containers can fill up quickly when concrete, paint, and stucco work are occurring on large portions of the site. You should also inspect for evidence that contractors are using the washout areas and not dumping materials onto the ground or into drainage facilities. If the washout areas are not being used regularly, consider posting additional signage, relocating the facilities to more convenient locations, or providing training to workers and contractors.

SWPPP Tip!

Washout Area Measures

When concrete, paint, or stucco is part of the construction process, consider these practices which will help prevent contamination of stormwater. Include the locations of these areas and your maintenance and inspection procedures in your SWPPP.

- Do not washout concrete trucks or equipment into storm drains, streets, gutters, uncontained areas, or streams
- Establish washout areas and advertise their locations with signs
- Provide adequate containment for the amount of wash water that will be used
- Inspect washout structures daily to detect leaks or tears and to identify when materials need to be removed
- Dispose of materials properly. The preferred method is to allow the water to evaporate and to recycle the hardened concrete. Full service companies may provide dewatering services and should dispose of wastewater properly. Concrete wash water can be highly polluted. It should not be discharged to any surface water, storm sewer system, or allowed to infiltrate into the ground. It should not be discharged to a sanitary sewer system without first receiving written permission from the system operator

P2 Principle 4: Establish proper equipment/vehicle fueling and maintenance practices. Performing equipment/vehicle fueling and maintenance at an off-site facility is preferred over performing these activities on the site, particularly for road vehicles (e.g., trucks, vans). For grading and excavating equipment, this is usually not possible or desirable. Create an on-site fueling and maintenance area that is clean and dry. The on-site fueling area should have a spill kit, and staff should know how to use it. If possible, conduct vehicle fueling and maintenance activities in a covered area; outdoor vehicle fueling and maintenance is a potentially significant source of stormwater pollution. Significant maintenance on vehicles and equipment should be conducted off-site.

SWPPP Tip!

Equipment/Vehicle Fueling and Maintenance Measures

Consider the following practices to help prevent the discharge of pollutants to stormwater from equipment/vehicle fueling and maintenance. Include the locations of these areas and your inspection and maintenance procedures in your SWPPP.

- Train employees and subcontractors in proper fueling procedures (stay with vehicles during fueling, proper use of pumps, emergency shut-off valves, and such)
- Inspect on-site vehicles and equipment daily for leaks, equipment damage, and other service problems
- Clearly designate vehicle/equipment service areas away from drainage facilities and water-courses to prevent stormwater run-on and runoff
- Use drip pans, drip cloths, or absorbent pads when replacing spent fluids
- Collect all spent fluids, store in appropriate labeled containers in the proper storage areas, and recycle fluids whenever possible

P2 Principle 5: Control equipment/vehicle washing and allowable non-stormwater discharges. Environmentally friendly washing practices can be practiced at every construction site to prevent contamination of surface and ground water from wash water. Procedures and practices include using off-site facilities; washing in designated, contained areas only; eliminating discharges to the storm drain by infiltrating the wash water or routing to the sanitary sewer; and training employees and subcontractors in proper cleaning procedures.

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Take a Closer Look...

Non-Stormwater Runoff

A construction site might have sources of runoff that are not generated by stormwater. These non-stormwater discharges include fire hydrant flushing, vehicle or equipment wash water (no detergents!), water used to control dust, and landscape irrigation.

What does this mean to me?

Take steps to infiltrate these sources of uncontaminated water into the ground. You can also route these sources of water to sediment ponds or detention basins or otherwise treat them with appropriate BMPs.

SWPPP Tip!

Equipment/Vehicle Washing Measures

The following equipment/vehicle washing measures will help prevent stormwater pollution. Include the location of your washing facilities and your inspection and maintenance procedures in your SWPPP.

- Educate employees and subcontractors on proper washing procedures
- Clearly mark the washing areas and inform workers that all washing must occur in this area
- Contain wash water and treat and infiltrate it whenever possible
- Use high-pressure water spray at vehicle washing facilities without any detergents because water can remove most dirt adequately
- Do not conduct any other activities, such as vehicle repairs, in the wash area

P2 Principle 6: Develop a spill prevention and response plan. Most state and EPA construction general permits require the preparation of spill prevention and response plans. Generally, these plans can be included or incorporated into your SWPPP. The plan should clearly identify ways to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and response. The plan should also specify material handling procedures and storage requirements and ensure that clear and concise spill cleanup procedures are provided and posted for areas in which spills may potentially occur. When developing a spill prevention plan, include, at a minimum, the following:

- Note the locations of chemical storage areas, storm drains, tributary drainage areas, surface waterbodies on or near the site, and measures to stop spills from leaving the site
- Specify how to notify appropriate authorities, such as police and fire departments, hospitals, or municipal sewage treatment facilities to request assistance
- Describe the procedures for immediate cleanup of spills and proper disposal
- Identify personnel responsible for implementing the plan in the event of a spill

SWPPP Tip!

Spill Prevention Measures

Additional spill prevention measures that will help prevent spills and leaks include the following:

- Describe and list all types of equipment to be used to adequately clean up the spill
- Provide proper handling and safety procedures for each type of waste
- Establish an education program for employees and subcontractors on the potential hazards to humans and the environment from spills and leaks
- Update the spill prevention plan and clean up materials as changes occur to the types of chemicals stored and used at the facility

Take a Closer Look...

Spill Prevention, Control and Countermeasure (SPCC) Plan

Construction sites may be subject to 40 CFR Part 112 regulations that require the preparation and implementation of a SPCC Plan to prevent oil spills from aboveground and underground storage tanks. Your facility is subject to this rule if you are a nontransportation-related facility that:

- Has a total storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons and
- Could reasonably be expected to discharge oil in quantities that may be harmful to navigable waters of the United States and adjoining shorelines

Furthermore, if your facility is subject to 40 CFR Part 112, your SWPPP should reference the SPCC Plan. To find out more about SPCC Plans, see EPA's website on SPPC at **www.epa.gov/oilspill/spcc.htm**

What does this mean to me?

Reporting Oil Spills

In the event of an oil spill, you should contact the National Response Center toll free at 1-800-424-8802 for assistance, or for more details, visit their website: ***www.nrc.uscg.mil/nrchp.html***

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Chapter 6: **SWPPP Development—Inspections, Maintenance, and Recordkeeping**

▶ **This chapter describes the inspection and maintenance procedures your SWPPP should include, as well as recordkeeping requirements.**

A. Describe Your Plans and Procedures for Inspecting BMPs

Earlier discussions in this manual pointed out that the effectiveness of erosion and sediment control BMPs and good housekeeping and pollution prevention measures depend on consistent and continual inspection and maintenance. This step focuses on developing a plan for BMP inspection and maintenance to ensure that a schedule and procedures are in place.

Inspections

Your responsibility does not stop after BMPs are installed. Your BMPs must be maintained in good working order at all times. Further, your permit requires that you conduct regular inspections and document the findings of those inspections in your SWPPP.

Your construction general permit describes the ***minimum*** frequency of inspections, which is typically weekly or bi-weekly and after each rainfall event exceeding one-half inch. To meet the requirement to maintain all BMPs in good working order, EPA recommends that you develop an inspection schedule that goes beyond these minimums and is customized for your site and the conditions affecting it.

In developing your inspection schedule consider the following:

- Consider using *spot* inspections. You may want to inspect certain parts of your site more frequently or even daily. Target places that need extra attention, such as areas around construction site entrances, check nearby streets for dirt, check inlet protection, and so on.
- Consider using informal inspections. Your permit outlines the minimum requirements for formal inspections that must be documented and included in your SWPPP. You can also add informal inspections that wouldn't require documentation, unless of course, a problem is identified. Always document any problems you find and those that are identified by staff.
- Consider adding inspections *before or even during* rain events. Many permits require inspections of BMPs after rain events. You should consider adding inspections ***before or during*** predicted rain events. Consult a local weather source and initiate inspections before predicted storm events as a way to ensure that controls are operational.
- Train staff and subcontractors. Use your staff and subcontractors to help identify any potential problems with your BMPs. Again, document any issues that are confirmed problems.

SWPPP Tip!

Inspection Guide

The State of Minnesota has developed a *Stormwater Construction Inspection Guide* to assist municipal site inspectors in procedures for conducting a compliance inspection at construction sites. This guide can also be useful for construction operators conducting self-inspections. Available at **www.pca.state.mn.us/water/stormwater/stormwatr-c.html**

EPA recommends that you develop an inspection schedule that meets the needs of your site. You'll probably also want to update and refine this schedule based on your experiences, the findings of your inspections, and the changing conditions at your site.

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SWPPP Tip!

Selecting BMP Inspectors

A BMP inspection is only as good as the inspector. Therefore, it is important to select qualified personnel to conduct BMP inspections. The SWPPP should identify who has the responsibility for conducting inspections. Personnel selected to conduct inspections should be knowledgeable in the principles and practices of erosion and sediment controls, possess the technical skills to assess conditions at the construction site that could impact stormwater quality, and assess the effectiveness of any sediment and erosion control measures selected.

Several states and other organizations offer training that will help prepare inspectors to accurately evaluate BMPs, decide when maintenance is appropriate, or when a different BMP should be substituted. (Several states require that sites be inspected by someone that the state certifies as a qualified inspector.) One national organization offers two certification programs that would be useful for personnel who are developing and implementing SWPPPs and conducting inspections. These certification programs are called: "*Certified Professional in Erosion and Sediment Control (CPESC)*" and "*Certified Professional in Stormwater Quality (CPSWQ)*." You can find more information on these programs at **www.cpesc.org**

Inspection Reports

Complete an inspection report after each inspection. You should retain copies of all inspection reports and keep them with or in your SWPPP. Generally, the following information is required to be included in your inspection report:

- Inspection date
- Inspector information, including the names, titles, and qualifications of personnel conducting the inspection
- Weather information for the period since the last inspection (or for the first inspection since commencement of construction activity) including a best estimate of the beginning of each storm, its duration, approximate amount of rainfall for each storm (in inches), and whether any discharges occurred. You may create a log to record the basic weather information or you may keep copies of weather information from a reliable local source, such as the internet sites of local newspapers, TV stations, local universities, etc.
- Current weather information and a description of any discharges occurring at the time of the inspection
- Descriptions of evidence of previous or ongoing discharges of sediment or other pollutants from the site
- Location(s) of BMPs that need to be maintained
- Location(s) of BMPs that failed to operate as designed or proved inadequate for a location
- Location(s) where additional BMPs are needed but did not exist at the time of inspection
- Corrective action required, including any necessary changes to the SWPPP and implementation dates
- Reference to past corrective actions documenting follow-up actions taken

Consider taking digital photographs during inspections to document BMPs, problems identified, and progress in implementing the SWPPP.

Appendix B includes an example stormwater inspection report. You should use this report, or a similar report, to document your stormwater construction site inspections. Check to see if your state or local authority has developed an inspection checklist for your use. The inspection report is broken up into two main sections—site-specific BMPs and overall site issues. For the site-specific BMPs, you should number the structural and non-structural BMPs in your SWPPP on a copy of your site map (preferably in the order in which you would inspect them on the site). Then as you conduct your inspections, you can verify whether each BMP has been installed and maintained. If a BMP has not been installed or needs maintenance, describe this in the corrective action section and list a date for when the corrective action will be completed and who will be responsible for completing the action. The overall site issues section describes 11 common issues at construction sites you should inspect for. You can customize this form to meet the needs of your particular situation.

Make sure each inspection report is signed and certified consistent with your permit's requirements.

Chapter 8, Section D contains more information on implementing an inspection program. Also, see the suggested inspection report form in Appendix B.

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SWPPP Tip!

Consider More Effective BMPs

During inspections, consider whether the installed BMPs are working effectively. If you find a BMP that is failing or overwhelmed by sediment, you should consider whether it needs to be replaced with a more effective BMP or enhanced by the addition of another, complimentary BMP. Ensure that you record such changes in your SWPPP and on your site map.

B. BMP Maintenance

Implementing a good BMP maintenance program is essential to the success of your SWPPP and to your efforts to protect nearby waterways. You should conduct maintenance of BMPs regularly and whenever an inspection (formal or informal) identifies a problem or potential issue. For instance, trash and debris should be cleaned up, dumpsters should be checked and covered, nearby streets and sidewalks should be swept daily, and so on. Maintenance on erosion and sediment controls should be performed as soon as site conditions allow. Consider the following points when conducting maintenance:

- Follow the designers or manufacturer's recommended maintenance procedures for all BMPs
- Maintenance of BMPs will vary according to the specific area and site conditions
- Remove sediment from BMPs as appropriate and properly dispose of sediment into controlled areas to prevent soil from returning to the BMP during subsequent rain events
- Remove sediment from paved roadways and from around BMPs protecting storm drain inlets
- Ensure that construction support activities, including borrow areas, waste areas, contractor work areas, and material storage areas and dedicated concrete and asphalt batch plants are cleaned and maintained
- Replace damaged BMPs, such as silt fences, that no longer operate effectively

You should keep a record of all maintenance activities, including the date, BMP, location, and maintenance performed in your SWPPP.

C. Recordkeeping

You must keep copies of the SWPPP, inspection records, copies of all reports required by the permit, and records of all data used to complete the NOI to be covered by the permit for a period of at least 3 years from the date that permit coverage expires or is terminated.

Records should include:

- A copy of the SWPPP, with any modifications
- A copy of the NOI and Notice of Termination (NOT) and any stormwater-related correspondence with federal, state, and local regulatory authorities
- Inspection forms, including the date, place, and time of BMP inspections
- Names of inspector(s)
- The date, time, exact location, and a characterization of significant observations, including spills and leaks
- Records of any non-stormwater discharges
- BMP maintenance and corrective actions taken at the site (Corrective Action Log)
- Any documentation and correspondence related to endangered species and historic preservation requirements
- Weather conditions (e.g., temperature, precipitation)
- Date(s) when major land disturbing (e.g. clearing, grading, and excavating) activities occur in an area
- Date(s) when construction activities are either temporarily or permanently ceased in an area
- Date(s) when an area is either temporarily or permanently stabilized

Chapter 7: **Certification and Notification**

▶ **This chapter describes how, after developing your SWPPP, you can obtain permit coverage for your stormwater discharges.**

A. Certification

Signature and Certification

The construction site operator must sign the permit application form, which is often called a *Notice of Intent* or *NOI*. (In some instances, the construction general permit may not require the submission of an NOI or application. Construction activities may be covered automatically.)

All reports, including SWPPPs and inspection reports, generally must be signed by the construction site operator or a duly authorized representative of that person. The authorized representative is typically someone who has direct responsibility for implementing the SWPPP. If the operator chooses to designate an authorized representative, a signed letter or statement to that effect must be included in the SWPPP. Check your permit for exact requirements.

Your SWPPP must include the signature of the construction site operator or authorized representative and the certification statement provided in the general permit. An example of the certification language from EPA's Construction General Permit follows:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

This ensures that the SWPPP was developed and reviewed by a responsible party with the ability to implement the BMPs and other commitments described in the SWPPP.

SWPPP Tip!

Posting a sign at the construction entrance

EPA and many state general permits require that you post a sign or other notice conspicuously near the main entrance of the construction site. EPA's permit requires that the sign contain a copy of the NOI, the location of the SWPPP, and a contact person for viewing the SWPPP.

Copy of Permit Requirements

Most general permits require you to keep a copy of the permit and your NOI with your SWPPP. This allows you to quickly check the permit if a question arises about a permit requirement.

Other State, Tribal, and Local Programs

Include in your SWPPP a description of any other federal, state, tribal, or local requirements for erosion and sediment control and stormwater management that apply to your site. Many local governments also impose erosion and sediment control requirements; your SWPPP should comply with both the general permit and any applicable local requirements.

SWPPP Tip!

Making your SWPPP available

While EPA and most states do not require you to submit a copy of your SWPPP for review, your SWPPP must be available to these and other government agencies for inspection. Your permit may also require you to make your SWPPP available to the public, if requested. If you have the ability, you should consider posting your SWPPP on the Internet and publicizing the URL. Check your permit for exact requirements.

B. Notification

Now that you have developed your SWPPP and before you begin construction, you must begin the process of obtaining permit coverage from your authorized state or EPA. Authorized states and EPA use *general* permits to cover all construction sites. These broadly written general or *umbrella* permits apply to all construction activities in a given state.

Obtaining Coverage Under a General Permit

Important! Before obtaining permit coverage, you should read a copy of the appropriate construction general permit *and* develop your SWPPP.

To obtain coverage under a state or EPA construction general permit, you will typically need to fill out and submit an application form, often called a Notice of Intent or NOI. Submitting this form to the permitting authority indicates your *intent* to be authorized to discharge stormwater under the appropriate general permit for construction activities. Depending on the permit, you may be authorized to discharge immediately or at some later time. In some cases, you are not authorized to discharge until the state has notified you accordingly. EPA's Construction General Permit requires a 7-day waiting period after a complete NOI is received and posted on EPA's website (**www.epa.gov/npdes/noisearch**). The waiting period expires when the permit's status changes from *waiting* to *active*.

Take a Closer Look...

Information on the Application or Notice of Intent (NOI)

The NOI provides the permitting authority with pertinent information about your construction site, such as owner/operator information, site location, estimated project start and completion dates, approximate area to be disturbed, information about your SWPPP, receiving waters, and endangered species review certification. An appropriate person who is authorized to represent your organization must sign and verify that the facts contained in the NOI are true and accurate. For businesses, a certifying official is typically a corporate officer, such as a president, vice president, or manager of operations. For municipalities, it's typically a principal executive officer or ranking elected official. Check your permit for exact signature requirements.

In general, the only information you need to submit to the permitting authority is the NOI. EPA and most authorized state agencies do not require you to submit your SWPPP for approval. However, many local governments review and approve at least the erosion and sediment control component of your SWPPP.

What does this mean to me?

There are significant penalties for failing to obtain authorization to discharge or for submitting inaccurate information. If you are the certifying official, make sure you are authorized to discharge before construction activities begin.

SWPPP Tip!

Deadline for submitting NOIs under EPA's Construction General Permit

For EPA's construction general permit, the fastest and easiest way to obtain permit coverage is to use EPA's electronic permit application system, called "eNOI" at **www.epa.gov/npdes/stormwater/enoi**. Using this approach, you may be authorized to discharge in as little as 7 days after submission of your electronic NOI. If you choose to submit your NOI by mail, EPA recommends that you send it at least one month before you need permit coverage.

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Chapter 8: **SWPPP Implementation**

> **Your SWPPP is your guide to preventing stormwater pollution. However, it is just a plan. Implementing your SWPPP, maintaining your BMPs, and then constantly reevaluating and revising your BMPs and your SWPPP are the keys to protecting your local waterways.**

A. Train Your Staff and Subcontractors

Your site's construction workers and subcontractors might not be familiar with stormwater BMPs, and they might not understand their role in protecting local rivers, lakes and coastal waters. Training your staff and subcontractors in the basics of erosion control, good housekeeping, and pollution prevention is one of the most effective BMPs you can institute at your site.

Basic training should include

- Spill prevention and cleanup measures, including the prohibition of dumping any material into storm drains or waterways
- An understanding of the basic purpose of stormwater BMPs, including what common BMPs are on-site, what they should look like, and how to avoid damaging them
- Potential penalties associated with stormwater noncompliance

Staff directly responsible for implementing the SWPPP should receive comprehensive stormwater training, including

- The location and type of BMPs being implemented
- The installation requirements and water quality purpose for each BMP
- Maintenance procedures for each of the BMPs being implemented
- Spill prevention and cleanup measures
- Inspection and maintenance recordkeeping requirements

You can train staff and subcontractors in several ways: short training sessions (food and refreshments will help increase attendance), posters and displays explaining your site's various BMPs, written agreements with subcontractors to educate their staff members, signs pointing out BMPs and reminders to keep clear of them. Every construction site operator should try to train staff and subcontractors to avoid damaging BMPs. By doing so, operators can avoid the added expense of repairs.

SWPPP Tip!

Train your staff and subcontractors!

Here are a few key things you will want to cover with each person working on your site:

- Use only designated construction site entrances
- Keep equipment away from silt fences, fiber rolls, and other sediment barriers
- Know the locations of disposal areas, and know the proper practices for trash, concrete and paint washout, hazardous chemicals, and so on
- Keep soil, materials, and liquids away from paved areas and storm drain inlets. Never sweep or wash anything into a storm drain
- Know the location and understand the proper use of spill kits
- Know the locations of your site's designated protection areas. Keep equipment away from stream banks, valuable trees and shrubs, and steep slopes. Clearly mark these areas with signs
- Keep equipment off mulched, seeded, or stabilized areas. Post signs on these areas, too
- Know who to contact when problems are identified!

B. Ensure Responsibility—Subcontractor Agreements

At any given site, there might be multiple parties (developer, general contractor, builders, subcontractors) that have roles and responsibilities for carrying out or maintaining stormwater BMPs at a given site. These roles and responsibilities should be documented clearly in the SWPPP (see Chapter 2, Section D). In some cases (state requirements vary), there may be one entity that has developed the SWPPP and filed for permit coverage and, therefore, is designated as the *operator*. When other parties at a site are not officially designated as operators, many operators are incorporating the roles and responsibilities of these *non-operators* in the agreements and contracts they have with these companies and individuals. This contract language should spell out responsibilities implementing and maintaining stormwater BMPs, for training staff, and for correcting damage to stormwater BMPs on the site. Several states have stormwater regulations that hold other parties liable even if they are not identified as the *operator*.

C. Implement Your SWPPP Before Construction Starts

Once you have obtained permit coverage and you are ready to begin construction, it is time to implement your SWPPP. You must implement appropriate parts of your SWPPP before construction activity begins. This generally involves installing storm drain inlet protection, construction entrances, sediment basins, and perimeter silt fences before clearing, grading, and excavating activities begin.

After construction activities begin, your SWPPP should describe when additional erosion and sediment controls will be installed (generally after initial clearing and grading activities are complete). You should also begin BMP inspections once clearing and grading activities begin.

SWPPP Tip!

Take Photographs During Inspections

Taking photographs can help you document areas that need maintenance and can help identify areas where subcontractors might need to conduct maintenance. Photographs can also help provide documentation to EPA or state inspectors that maintenance is being performed.

SWPPP Tip!

Prepare for the rain and snowmelt!

In some areas of the country, construction site operators are required to develop *weather triggered* action plans that describe additional activities the operator will conduct 48 hours before a predicted storm (at least a 50 percent forecasted chance of rain). It is also a good idea to stockpile additional erosion and sediment control BMPs (such as silt fencing, and fiber rolls) at the site for use when necessary.

D. Conduct Inspections and Maintain BMPs

As mentioned earlier (Chapter 6), EPA recommends that you develop an inspection schedule for your site that considers the size, complexity, and other conditions at your site. This should include regularly scheduled inspections and less formal inspections. EPA recommends that you develop a plan that includes inspections before and after anticipated rain events. You might also want to inspect some BMPs during rain events to see if they are actually keeping sediment on site! Conducting inspections during rain events also allows a construction site operator to address minor problems before they turn into major problems.

Temporarily Removed BMPs

BMPs sometimes need to be temporarily removed to conduct work in an area of the site. These temporarily removed BMPs should be noted on the site plan and replaced as soon as possible after the completion of the activity requiring their removal. If a rain is forecast, the BMPs should be replaced as soon as possible before the rain event.

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Recommended Inspection Sequence

You should conduct thorough inspections of your site, making sure to inspect all areas and BMPs. The seven activities listed below are a recommended inspection sequence that will help you conduct a thorough inspection (adapted from MPCA 2004).

1. Plan your inspection

- ☑ Create a checklist to use during the inspection (see Appendix B)
- ☑ Obtain a copy of the site map with BMP locations marked
- ☑ Plan to walk the entire site, including discharge points from the site and any off-site support activities such as concrete batch plants should also be inspected
- ☑ Follow a consistent pattern each time to ensure you inspect all areas (for example, starting at the lowest point and working uphill)

2. Inspect discharge points and downstream, off-site areas

- ☑ Inspect discharge locations to determine whether erosion and sediment control measures are effective
- ☑ Inspect nearby downstream locations, if feasible
- ☑ Walk *down the street* to inspect off-site areas for signs of discharge. This is important in areas with existing curbs and gutters
- ☑ Inspect downslope municipal catch basin inlets to ensure that they are adequately protected

3. Inspect perimeter controls and slopes

- ☑ Inspect perimeter controls such as silt fences to determine if sediment should be removed
- ☑ Check the structural integrity of the BMP to determine if portions of the BMP need to be replaced
- ☑ Inspect slopes and temporary stockpiles to determine if erosion controls are effective

4. Compare BMPs in the site plan with the construction site conditions

- ☑ Determine whether BMPs are in place as required by the site plan
- ☑ Evaluate whether BMPs have been adequately installed and maintained
- ☑ Look for areas where BMPs are needed but are missing and are not in the SWPPP

5. Inspect construction site entrances

- ☑ Inspect the construction exits to determine if there is tracking of sediment from the site onto the street
- ☑ Refresh or replace the rock in designated entrances
- ☑ Look for evidence of additional construction exits being used that are not in the SWPPP or are not stabilized
- ☑ Sweep the street if there is evidence of sediment accumulation

6. Inspect sediment controls

- ☑ Inspect any sediment basins for sediment accumulation
- ☑ Remove sediment when it reduces the capacity of the basin by the specified amount (many permits have specific requirements for sediment basin maintenance. Check the appropriate permit for requirements and include those in your SWPPP)

7. Inspect pollution prevention and good housekeeping practices

- ☑ Inspect trash areas to ensure that waste is properly contained
- ☑ Inspect material storage and staging areas to verify that potential pollutant sources are not exposed to stormwater runoff
- ☑ Verify that concrete, paint, and stucco washouts are being used properly and are correctly sized for the volume of wash water
- ☑ Inspect vehicle/equipment fueling and maintenance areas for signs of stormwater pollutant exposure

Common Compliance Problems During Inspections

The following are problems commonly found at construction sites. As you conduct your inspections, look for these problems on your site (adapted from MPCA 2004).

Problem #1—Not using phased grading or providing temporary or permanent cover (i.e., soil stabilization)

In general, construction sites should phase their grading activities so that only a portion of the site is exposed at any one time. Also, disturbed areas that are not being actively worked should have temporary cover. Areas that are at final grade should receive permanent cover as soon as possible.

Problem #2—No sediment controls on-site

Sediment controls such as silt fences, sediment barriers, sediment traps and basins must be in place before soil-disturbance activities begin. Don't proceed with grading work out-of-phase.

Problem #3—No sediment control for temporary stockpiles

Temporary stockpiles must be seeded, covered, or surrounded by properly installed silt fence. Stockpiles should never be placed on paved surfaces.

Problem #4—No inlet protection

All storm drain inlets that could receive a discharge from the construction site must be protected before construction begins and must be maintained until the site is finally stabilized.

Problem #5—No BMPs to minimize vehicle tracking onto the road

Vehicle exits must use BMPs such as stone pads, concrete or steel wash racks, or equivalent systems to prevent vehicle tracking of sediment.

Problem #6—Improper solid waste or hazardous waste management

Solid waste (including trash and debris) must be disposed of properly, and hazardous materials (including oil, gasoline, and paint) must be properly stored (which includes secondary containment). Properly manage portable sanitary facilities.

Problem #7—Dewatering and other pollutant discharges at the construction site

Construction site dewatering from building footings or other sources should not be discharged without treatment. Turbid water should be filtered or allowed to settle.

Problem #8—Poorly managed washouts (concrete, paint, stucco)

Water from washouts must not enter the storm drain system or a nearby receiving water. Make sure washouts are clearly marked, sized adequately, and frequently maintained.

Problem #9—Inadequate BMP maintenance

BMPs must be frequently inspected and maintained if necessary. Maintenance should occur for BMPs that have reduced capacity to treat stormwater (construction general permits or state design manuals often contain information on when BMPs should be maintained), or BMPs that have been damaged and need to be repaired or replaced (such as storm drain inlet protection that has been damaged by trucks).

Problem #10—Inadequate documentation or training

Failing to develop a SWPPP, keep it up-to-date, or keep it on-site, are permit violations. You should also ensure that SWPPP documentation such as a copy of the NOI, inspection reports and updates to the SWPPP are also kept on-site. Likewise, personnel working on-site must be trained on the basics of stormwater pollution prevention and BMP installation/maintenance.

E. Update and Evaluate Your SWPPP

Like your construction site, your SWPPP is dynamic. It is a document that must be amended to reflect changes occurring at the site. As plans and specifications change, those changes should be reflected in your SWPPP. If you find that a BMP is not working and you decide to replace it with another, you must reflect that change in your SWPPP. Document in your SWPPP transitions from one phase of construction to the next, and make sure you implement new BMPs required for that next phase.

Are Your BMPs Working?

You should evaluate the effectiveness of your BMPs as part of your routine inspection process. An informal analysis of both your inspection's findings and your list of BMP repairs will often reveal an inadequately performing BMP. An inspection immediately after a rain event can indicate whether another approach is needed.

You may decide to remove an existing BMP and replace it with another, or you may add another BMP in that area to lessen the impact of stormwater on the original installation.

When you update your SWPPP, you can simply mark it up, particularly for relatively simple changes and alterations. More significant changes might require a rewriting of portions of the SWPPP. The site map should also be updated as necessary.

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Chapter 9: **Final Stabilization and Permit Termination**

▶ **This chapter describes what you must do to stabilize your construction site and end permit coverage.**

Stabilize Disturbed Areas

As your construction project progresses, you must stabilize areas not under construction. EPA and most states have specific requirements and time frames that must be followed. Generally, it is a wise management practice to stabilize areas as quickly as possible to avoid erosion problems that could overwhelm silt fences, sediment basins, and other sediment control devices.

SWPPP Tip!

Stabilize as soon as practicable

EPA's Construction General Permit states that, "stabilization measures must be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased."

Temporary stabilization can be achieved through a variety of BMPs, including mulching, seeding, erosion control blankets, hydroseeding, and other measures.

Permanent or final stabilization of areas on your site is generally accomplished by installing the final landscape requirements (e.g., trees, grass, gardens, or permanent stormwater controls). Once the site has been stabilized, you can terminate your permit coverage.

Sediment controls, such as silt fence, berms, sediment ponds or traps, alone, are not stabilization measures. You should continue to use these kinds of measures (e.g., silt fence around an area that has been seeded) until full stabilization is achieved.

A. Final Stabilization

When you have completed your construction project or an area within the overall project, you must take steps to permanently and finally stabilize it. Check your permit for the specific requirements you must meet. After a project or an area in the project has been fully stabilized, you should remove temporary sediment and erosion control devices (such as silt fences). You might also be able to stop routine inspections in these stabilized areas. However, in some states such as Colorado, inspections are required every 30 days (after the construction has been completed and the site is stabilized) until permit coverage has been terminated. In general, you should be aware that

Figure 16. Seeding is an effective BMP that can be used to temporarily or permanently stabilize disturbed areas.

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final stabilization often takes time (weeks or even months), especially during times of low rainfall or during the colder months of the year. You should not discontinue routine inspections until you have met the final stabilization requirements in your permit.

EPA and many states define final stabilization as occurring when a uniform, evenly distributed perennial vegetative cover with a density of 70 percent of the native background cover has been established on all unpaved areas and areas not covered by permanent structures. Some states have a higher percentage of vegetative cover required (e.g., New York requires 80 percent). Please review your state's construction general permit for specific requirements.

Native vegetation must be established uniformly over each disturbed area on the site. Stabilizing seven of ten slopes, or leaving an area equivalent to 30 percent of the disturbed area completely unstabilized will not satisfy the *uniform vegetative cover* standard.

The contractor must establish vegetation over the entire disturbed soil area at a minimum density of 70 percent of the native vegetative coverage. For example, if native vegetation covers 50 percent of the undisturbed ground surface (e.g., in an arid or semi-arid area), the contractor must establish 35 percent vegetative coverage uniformly over the entire disturbed soil area ($0.70 \times 0.50 = 0.35$ or 35 percent). Several states require perennial native vegetative cover that is *self-sustaining* and capable of providing *erosion control equivalent to preexisting conditions* to satisfy the 70 percent coverage requirement.

In lieu of vegetative cover, you can apply alternate measures that provide equivalent soil stabilization to the disturbed soil area. Such equivalent measures include blankets, reinforced channel liners, soil cement, fiber matrices, geotextiles, or other erosion-resistant soil covering or treatments. Your construction general permit might allow all or some of these alternate measures for equivalent soil stabilization for final stabilization; check your general permit.

B. Permit Termination

Once construction activity has been completed and disturbed areas are finally stabilized, review your general permit for specific steps to end your coverage under that permit. EPA and many states require you to submit a form, often called a notice of termination (NOT), to end your coverage under that construction general permit. Before terminating permit coverage, make sure you have accomplished the following:

- Remove any construction debris and trash
- Remove temporary BMPs (such as silt fence). Remove any residual sediment as needed. Seed and mulch any small bare spots. BMPs that will decompose, including some fiber rolls and blankets, may be left in place
- Check areas where erosion-control blankets or matting were installed. Cut away and remove all loose, exposed material, especially in areas where walking or mowing will occur. Reseed all bare soil areas
- Ensure that 70 percent of background native vegetation coverage or equivalent stabilization measures have been applied for final soil stabilization of disturbed areas
- Repair any remaining signs of erosion
- Ensure that post-construction BMPs are in place and operational. Provide written maintenance requirements for all post-construction BMPs to the appropriate party
- Check all drainage conveyances and outlets to ensure they were installed correctly and are operational. Inspect inlet areas to ensure complete stabilization and remove any brush or debris that could clog inlets. Ensure banks and ditch bottoms are well vegetated. Reseed bare areas and replace rock that has become dislodged
- Seed and mulch or otherwise stabilize any areas where runoff flows might converge or high velocity flows are expected
- Remove temporary stream crossings. Grade, seed, or re-plant vegetation damaged or removed
- Ensure subcontractors have repaired their work areas before final closeout

You might also be required to file an NOT if you transfer operational control to another

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Take a Closer Look…

Is there a deadline to submit an NOT?

Many states require a Notice of Termination (NOT) or similar form to indicate that the construction phase of a project is completed and that all the terms and conditions have been met. This notification informs the permitting authority that coverage under the construction general permit is no longer needed. If your permitting authority requires such a notification, check to see what conditions must be met in order to submit it and check to see if there is a deadline for submission. EPA's Construction General Permit requires that you submit an NOT when you have met all your permit requirements. The NOT is due no later than 30 days after meeting these requirements.

What does this mean to me?

Check your permit carefully for details and conditions relating to terminating your permit coverage.

party before the project is complete. The new operator would be required to develop and implement a SWPPP and to obtain permit coverage as described above.

EPA and most states allow homebuilders to terminate permit coverage when the property has been transferred to the homeowner with temporary or final stabilization measures in place. If the transfer is made with temporary stabilization measures in place, EPA expects the homeowner to complete the final landscaping. Under these circumstances, EPA and most states do not require homeowners to develop SWPPPs and apply for permit coverage.

C. Record Retention

EPA's regulations specifies that you must retain records and reports required in the permit, including SWPPPs and information used to complete the NOI, for at least 3 years from the termination of coverage or expiration of the permit. You should also keep maintenance and inspection records related to the SWPPP for this same time frame. General permits issued by states may have a longer period for retention.

Figure 17. Make sure inlets, outlets, and slopes are well stabilized before leaving the site and filing your "Notice of Termination" for ending permit coverage.

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Acknowledgements

The graphics used in this guide were developed by Tetra Tech, Inc. for the Kentucky Divison of Water's Erosion and Sediment Control Field Guide.

Appendix A: **SWPPP Template**

An electronic copy of the SWPPP template is available on EPA's web site at:
http://www.epa.gov/npdes/swpppguide

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Appendix B: **Sample Inspection Report**

An electronic copy of the sample inspection report is available on EPA's web site at:
http://www.epa.gov/npdes/swpppguide

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Appendix C: **Calculating the Runoff Coefficient**

The following information is largely taken from EPA's 1992 guidance *Stormwater Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices* (EPA 832-R-92-005).

It is important to estimate your development's impact on runoff after construction is complete. This can be done by estimating the runoff coefficient for pre- and post-construction conditions. The runoff coefficient ("C" value) is the partial amount of the total rainfall which will be come runoff. The runoff coefficient is used in the "rational method" which is:

$$Q = CiA,$$

Where Q = the rate of runoff from an area,
i = rainfall intensity, and
A = the area of the drainage basin.

There are many methods which can be used to estimate the amount of runoff from a construction site. You are not required to use the rationale method to design stormwater conveyances or BMPs. Consult your State/local design guides to determine what methods to use for estimating design flow rates from your development.

The less rainfall that is absorbed (infiltrates) into the ground, evaporates, or is otherwise absorbed on site, the higher the "C" value. For example, the "C" value of a lawn area is 0.2, which means that only 20 percent of the rainfall landing on that area will run off, the rest will be absorbed or evaporate. A paved parking area would have a "C" value of 0.9, which means that 90 percent of the rainfall landing on that area will become runoff. You should calculate the runoff coefficient for conditions before construction and after construction is complete. It is suggested that a runoff coefficient be calculated for each drainage basin on the site. The following is an example of how to calculate the "C" value.

The runoff coefficient or "C" value for a variety of land uses may be found in Table C-1 (NOTE: Consult your State/local design guide, if available, to determine if specific "C" values are specified for your area). The "C" values provide an estimate of anticipated runoff for particular land uses. Most sites have more than one type of land use and therefore more than one "C" value will apply. To have a "C" value that represents your site you will need to calculate a "weighted C value."

Calculating a "Weighted C value"

When a drainage area contains more than one type of surface material with more than one runoff coefficient a "weighted C" must be calculated. This "weighted C" will take into account the amount of runoff from all the various parts of the site. A formula used to determine the "weighted C" is as follows:

$$C = \frac{A_1C_1 + A_2C_2 + \ldots + A_xC_x}{(A_1 + A_2 + \ldots + A_x)}$$

Where A = acres and C = coefficient.

Therefore, if a drainage area has 15 acres (ac.) with 5 paved acres ($C = 0.9$), 5 grassed acres ($C = 0.2$), and 5 acres in natural vegetation ($C = 0.1$), a "weighted C" would be calculated as follows:

$$C = \frac{(5 \text{ ac} \times 0.9) + (5 \text{ ac} \times 0.2) + (5 \text{ ac} \times 0.1)}{(5 \text{ ac} + 5 \text{ ac} + 5 \text{ ac})} = 0.4$$

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Table C-1. Typical "C" Values

Description of Area	Runoff Coefficients
Business	
Downtown Areas	0.70 – 0.95
Neighborhood Areas	0.50 – 0.70
Residential	
Single-family areas	0.30 – 0.50
Multi-units, detached	0.40 – 0.60
Multi-units, attached	0.60 – 0.75
Residential (suburban)	0.25 – 0.40
Apartment dwelling areas	0.50 – 0.70
Industrial	
Light Areas	0.50 – 0.80
Heavy Areas	0.60 – 0.90
Parks, cemeteries	0.10 – 0.25
Playgrounds	0.20 – 0.35
Railroad yard areas	0.20 – 0.40
Unimproved areas	0.10 – 0.30
Streets	
Asphalt	0.70 – 0.95
Concrete	0.80 – 0.95
Brick	0.70 – 0.85
Drives and Walks	0.75 – 0.85
Roofs	0.75 – 0.95
Lawns – course textured soil (greater than 85% sand)	
Slope: Flat, 2%	0.05 – 0.10
Average, 2-7%	0.10 – 0.15
Steep, 7%	0.15 – 0.20
Lawns – fine textured soil (greater than 40% clay)	
Slope: Flat, 2%	0.13 – 0.17
Average, 2-7%	0.18 – 0.22
Steep, 7%	0.25 – 0.35

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Appendix D: **Resources List**

The following are just a few of the many resources available to assist you in developing your SWPPP. The inclusion of these resources does not constitute an endorsement by EPA.

EPA Resources

EPA Stormwater Construction Website
http://www.epa.gov/npdes/stormwater/construction

- EPA's Construction General Permit (**http://www.epa.gov/npdes/stormwater/cgp**)
  EPA's general permit that applies to all construction activity disturbing greater than one acre in the states and territories where EPA is the permitting authority.
- Construction SWPPP Guide, SWPPP Template and inspection form (**www.epa.gov/npdes/swpppguide**)
  A downloadable copy of this guide, the SWPPP template and inspection form.
- Menu of BMPs (**http://www.epa.gov/npdes/stormwater/menuofbmps**)
  Site containing over 40 construction BMP fact sheets. Also contains fact sheets on other stormwater program areas, and case studies organized by program area.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas
http://www.epa.gov/owow/nps/urbanmm/index.html

Managing Your Environmental Responsibilities: A Planning Guide for Construction and Development
http://www.epa.gov/compliance/resources/publications/assistance/sectors/constructmyer/index.html

Expedited Settlement Offer Program for Stormwater (Construction)
http://www.epa.gov/Compliance/resources/policies/civil/cwa/esoprogstormwater.pdf
A supplemental program to ensure consistent EPA enforcement of stormwater requirements at construction sites for relatively minor violations.

Construction Industry Compliance Assistance
http://www.cicacenter.org
Plain language explanations of environmental rules for the construction industry. Links to stormwater permits and technical manuals for all 50 states.

Smart Growth and Low Impact Development Resources

Using Smart Growth Techniques as Stormwater Best Management Practices
http://www.epa.gov/livablecommunities/pdf/sg_stormwater_BMP.pdf

Stormwater Guidelines for Green, Dense Development
http://www.epa.gov/smartgrowth/pdf/Stormwater_Guidelines.pdf

Protecting Water Resources with Smart Growth
http://www.epa.gov/smartgrowth/pdf/waterresources_with_sg.pdf

Parking Spaces / Community Places: Finding the Balance Through Smart Growth Solutions
http://www.epa.gov/smartgrowth/parking.htm

EPA Nonpoint Source Low Impact Development site
http://www.epa.gov/owow/nps/lid/

Better Site Design: A Handbook for Changing Development Rules in Your Community
Available from **http://www.cwp.org**

State BMP/Guidance Manuals

Kentucky Erosion Prevention and Sediment Control Field Guide
http://www.water.ky.gov/permitting/wastewaterpermitting/KPDES/storm/
Easy to read field guide describing erosion and sediment control BMP selection, installation and maintenance.

Minnesota Stormwater Construction Inspection Guide
http://www.pca.state.mn.us/publications/wq-strm2-10.pdf
A manual designed to assist municipal construction inspectors in the procedures for conducting a compliance inspection at construction sites.

California Stormwater Quality Association's Construction Handbook
http://www.cabmphandbooks.org/Construction.asp

Delaware Erosion and Sediment Control Handbook
http://www.dnrec.state.de.us/dnrec2000/Divisions/Soil/Stormwater/StormWater.htm

Western Washington Stormwater Management Manual – Volume II – Construction Stormwater Pollution Prevention
http://www.ecy.wa.gov/programs/wq/stormwater/manual.html

Eastern Washington Stormwater Management Manual
http://www.ecy.wa.gov/biblio/0410076.html
A guidance document addressing stormwater design and management in more arid climates.

Certification Programs

Certified Professional in Erosion and Sediment Control
http://www.cpesc.org

Virginia Erosion and Sediment Control Certification Program
http://www.dcr.virginia.gov/sw/estr&crt2.htm

Florida Stormwater, Erosion and Sedimentation Control Inspector Certification
http://www.dep.state.fl.us/water/nonpoint/erosion.htm

Other Resources

International Erosion Control Association
http://www.ieca.org
A non-profit organization helping members solve the problems caused by erosion and its byproduct—sediment.

Erosion Control Magazine
http://www.erosioncontrol.com
A journal for erosion and sediment control professionals.

Designing for Effective Sediment & Erosion Control on Construction Sites by Jerald S. Fifield, PH.D., CPESC. Available from Forester Press
http://www.foresterpress.com
Book describing proven and practical methods for minimizing erosion and sedimentation on construction sites.

Stormwater Permitting: A Guide for Builders and Developers by National Association of Home Builders (NAHB). Available from NAHB **http://www.nahb.org**

EPA Guidance: Stormwater Pollution Prevention Plan Template

The following document is provided by the EPA as a template for developing a Stormwater Pollution Prevention Plan for construction sites. This document can be used along with the SWPPP guidance to develop SWPPPs for both large and small construction sites. Chapters 3 of both Volume 1 and Volume 2 provide additional information on the development of Erosion and Sediment Control Plans and SWPPPs.

This document is available for download in Word format at
http://www.epa.gov/npdes/pubs/sw_swppp_template_authstates.doc

Appendix A: SWPPP Template – Authorized States

Instructions

To help you develop the narrative section of your construction site SWPPP, the U.S Environmental Protection Agency (EPA) has created this electronic SWPPP template. The template is designed to help guide you through the SWPPP development process and help ensure that your SWPPP addresses all the necessary elements stated in your construction general permit. You should use this template with EPA's guidance on *Developing Your Stormwater Pollution Prevention Plan*. Both are available on EPA's website at www.epa.gov/npdes/swpppguide

This template covers the SWPPP elements that most state construction general permits require, however, **you are strongly encouraged to customize this template. There are two major reasons to customize this template:**

- **To reflect the terms and conditions of your construction general permit; and**
- **To reflect the conditions at your site**

Some states might have their own SWPPP template. If so, use the state-suggested format. In such cases, this document and its template might provide useful background information.

Using the SWPPP Template

Each section of this template includes "instructions" and space for project information. You should read the instructions for each section before you complete that section. This template was developed in Word so that you can easily add tables and additional text. Some sections may require only a brief description while others may require several pages of explanation.

Tips for completing the SWPPP template

- If there is more than one construction operator for your project, consider coordinating development of your SWPPP with the other operators.
- Multiple operators may share the same SWPPP, but make sure that responsibilities are clearly described.
- Modify this SWPPP template so that it addresses the requirements in your construction general permit **and** meets the needs of your project. Consider adding permit citations in the SWPPP when you address a specific permit requirement.

Stormwater Pollution Prevention Plan

for:

Insert Project Name
Insert Project Site Location/Address
Insert City, State, Zip Code
Insert Project Site Telephone Number (if applicable)

Operator(s):

Insert Company or Organization Name
Insert Name
Insert Address
Insert City, State, Zip Code
Insert Telephone Number
Insert Fax/Email

SWPPP Contact(s):

Insert Company or Organization Name
Insert Name
Insert Address
Insert City, State, Zip Code
Insert Telephone Number
Insert Fax/Email

SWPPP Preparation Date:

__ __ / __ __ / __ __ __ __

Estimated Project Dates:

Project Start Date: __ __ / __ __ / __ __ __ __
Project Completion Date: __ __ / __ __ / __ __ __ __

Contents

SECTION 1: SITE EVALUATION, ASSESSMENT, AND PLANNING

1.1 Project/Site Information

Instructions:

- In this section, you can gather some basic site information that will be helpful to you later when you file for permit coverage.
- For more information, see *Developing Your Stormwater Pollution Prevention Plan: A SWPPP Guide for Construction Sites* (also known as the *SWPPP Guide*), Chapter 2
- Detailed information on determining your site's latitude and longitude can be found at www.epa.gov/npdes/stormwater/latlong

Project/Site Name: _____

Project Street/Location: _____

City: _____ State: _____ ZIP Code: _____

County or Similar Subdivision: _____

Latitude/Longitude (Use **one** of three possible formats, and specify method)

Latitude:	Longitude:
1. _ _ º _ _ ' _ _" N (degrees, minutes, seconds)	1. _ _ º _ _ ' _ _" W (degrees, minutes, seconds)
2. _ _ º _ _ . _ _' N (degrees, minutes, decimal)	2. _ _ º _ _ . _ _' W (degrees, minutes, decimal)
3. _ _ . _ _ _ _ º N (decimal)	3. _ _ . _ _ _ _ º W (decimal)

Method for determining latitude/longitude:

☐ USGS topographic map (specify scale: _____) ☐ EPA Web site ☐ GPS

☐ Other (please specify): _____

Is the project located in Indian country? ☐ Yes ☐ No

If yes, name of Reservation, or if not part of a Reservation, indicate "not applicable."_____

_____

Is this project considered a federal facility? ☐ Yes ☐ No

NPDES project or permit tracking number*:_____

**(This is the unique identifying number assigned to your project by your permitting authority after you have applied for coverage under the appropriate National Pollutant Discharge Elimination System (NPDES) construction general permit.)*

1.2 Contact Information/Responsible Parties

Instructions:

- List the operator(s), project managers, stormwater contact(s), and person or organization that prepared the SWPPP. Indicate respective responsibilities, where appropriate.
- Also, list subcontractors expected to work on-site. Notify subcontractors of stormwater requirements applicable to their work.
- See *SWPPP Guide*, Chapter 2.B.

Operator(s):

Insert Company or Organization Name:
Insert Name:
Insert Address:
Insert City, State, Zip Code:
Insert Telephone Number:
Insert Fax/Email:
Insert area of control (if more than one operator at site):
Repeat as necessary

Project Manager(s) or Site Supervisor(s):

Insert Company or Organization Name:
Insert Name:
Insert Address:
Insert City, State, Zip Code:
Insert Telephone Number:
Insert Fax/Email:
Insert area of control (if more than one operator at site) :
Repeat as necessary

SWPPP Contact(s):

Insert Company or Organization Name:
Insert Name:
Insert Address:
Insert City, State, Zip Code:
Insert Telephone Number:
Insert Fax/Email:
Insert area of control (if more than one operator at site) :
Repeat as necessary

This SWPPP was Prepared by:

Insert Company or Organization Name:
Insert Name:
Insert Address:
Insert City, State, Zip Code:
Insert Telephone Number:
Insert Fax/Email:

Subcontractor(s):

Insert Company or Organization Name:
Insert Name:
Insert Address:
Insert City, State, Zip Code:
Insert Telephone Number:
Insert Fax/Email:
Repeat as necessary

Emergency 24-Hour Contact:

Insert Company or Organization Name:
Insert Name:
Insert Telephone Number:

1.3 Nature and Sequence of Construction Activity

Instructions:

- Briefly describe the nature of the construction activity and approximate time frames (one or more paragraphs, depending on the nature and complexity of the project).
- For more information, see *SWPPP Guide*, Chapter 3.A.

Describe the general scope of the work for the project, major phases of construction, etc:

INSERT TEXT HERE

What is the function of the construction activity?

☐ Residential ☐ Commercial ☐ Industrial ☐ Road Construction ☐ Linear Utility
☐ Other (please specify):

Estimated Project Start Date: __ __ / __ __ / __ __ __ __

Estimated Project Completion Date: __ __ / __ __ / __ __ __ __

1.4 Soils, Slopes, Vegetation, and Current Drainage Patterns

Instructions:

- Describe the existing soil conditions at the construction site including soil types, slopes and slope lengths, drainage patterns, and other topographic features that might affect erosion and sediment control.
- Also, note any historic site contamination evident from existing site features and known past usage of the site.
- This information should also be included on your site maps (See *SWPPP Guide*, Chapter 3.C.).
- For more information, see *SWPPP Guide*, Chapter 3.A.

Soil type(s):

Slopes (describe current slopes and note any changes due to grading or fill activities):

Drainage Patterns (describe current drainage patterns and note any changes dues to grading or fill activities):

Vegetation:

Other:

1.5 Construction Site Estimates

Instructions:

- Estimate the area to be disturbed by excavation, grading, or other construction activities, including dedicated off-site borrow and fill areas.
- Calculate the percentage of impervious surface area before and after construction
- Calculate the runoff coefficients before and after construction.
- For more information, see *SWPPP Guide*, Chapter 3.A and Appendix C.

The following are estimates of the construction site.

Total project area:	acres
Construction site area to be disturbed:	acres
Percentage impervious area before construction:	%
Runoff coefficient before construction:	
Percentage impervious area after construction:	%
Runoff coefficient after construction	

1.6 Receiving Waters

Instructions:

- List the waterbody(s) that would receive stormwater from your site, including streams, rivers, lakes, coastal waters, and wetlands. Describe each as clearly as possible, such as *Mill Creek, a tributary to the Potomac River*, and so on.
- Indicate the location of all waters, including wetlands, on the site map.
- Note any stream crossings, if applicable.
- List the storm sewer system or drainage system that stormwater from your site could discharge to and the waterbody(s) that it ultimately discharges to.
- If any of the waterbodies above are impaired and/or subject to Total Maximum Daily Loads (TMDLs), please list the pollutants causing the impairment and any specific requirements in the TMDL(s) that are applicable to construction sites. Your SWPPP should specifically include measures to prevent the discharge of these pollutants.
- For more information, see *SWPPP Guide*, Chapter 3.A and 3.B.
- Also, for more information and a list of TMDL contacts and links by state, visit www.epa.gov/npdes/stormwater/tmdl.

Description of receiving waters:

Description of storm sewer systems:

Description of impaired waters or waters subject to TMDLs:

Other:

1.7 Site Features and Sensitive Areas to be Protected

Instructions:

- Describe unique site features including streams, stream buffers, wetlands, specimen trees, natural vegetation, steep slopes, or highly erodible soils that are to be preserved.
- Describe measures to protect these features.
- Include these features and areas on your site maps.
- For more information, see *SWPPP Guide*, Chapter 3.A and 3.B.

Description of unique features that are to be preserved:

Describe measures to protect these features:

1.8 Potential Sources of Pollution

Instructions:

- Identify and list all potential sources of sediment, which may reasonably be expected to affect the quality of stormwater discharges from the construction site.
- Identify and list all potential sources of pollution, other than sediment, which may reasonably be expected to affect the quality of stormwater discharges from the construction site.
- For more information, see *SWPPP Guide*, Chapter 3.A.

Potential sources of sediment to stormwater runoff:
INSERT TEXT OR TABLE HERE
Potential pollutants and sources, other than sediment, to stormwater runoff:
INSERT TEXT OR USE TABLE BELOW

Trade Name Material	Stormwater Pollutants	Location

1.9 Endangered Species Certification

Instructions:

- Before beginning construction, determine whether endangered or threatened species or their critical habitats are on or near your site.
- Adapt this section as needed for state or tribal endangered species requirements and, if applicable, document any measures deemed necessary to protect endangered or threatened species or their critical habitats.
- For more information on this topic, see *SWPPP Guide*, Chapter 3.B.
- Additional information on Endangered Species Act (ESA) provisions is at www.epa.gov/npdes/stormwater/esa

Are endangered or threatened species and critical habitats on or near the project area?

☐ Yes ☐ No

Describe how this determination was made:

INSERT TEXT HERE

If yes, describe the species and/or critical habitat:

INSERT TEXT HERE

If yes, describe or refer to documentation that determines the likelihood of an impact on identified species and/or habitat and the steps taken to address that impact. (Note, if species are on or near your project site, EPA strongly recommends that the site operator work closely with the appropriate field office of the U.S. Fish and Wildlife Service or National Marine Fisheries Service. For concerns related to state or tribal listing of species, please contact a state or tribal official.)

INSERT TEXT HERE

1.10 Historic Preservation

Instructions:

- Before you begin construction, you should review federal and any applicable state, local, or tribal historic preservation laws and determine if there are historic sites on or near your project. If so, you might need to make adjustments to your construction plans or to your stormwater controls to ensure that these historic sites are not damaged.
- For more information, see *SWPPP Guide*, Chapter 3.B or contact your state or tribal historic preservation officer.

Are there any historic sites on or near the construction site?

☐ Yes ☐ No

Describe how this determination was made:

INSERT TEXT HERE

If yes, describe or refer to documentation that determines the likelihood of an impact on this historic site and the steps taken to address that impact.

INSERT TEXT HERE

1.11 Applicable Federal, Tribal, State or Local Programs

Instructions:

- Note other applicable federal, tribal, state or local soil and erosion control and stormwater management requirements that apply to your construction site.

INSERT TEXT HERE

1.12 Maps

Instructions:

- Attach site maps. For most projects, a series of site maps is recommended. The first should show the undeveloped site and its current features. An additional map or maps should be created to show the developed site or for more complicated sites show the major phases of development.

These maps should include the following:

- Direction(s) of stormwater flow and approximate slopes before and after major grading activities;
- Areas and timing of soil disturbance;
- Areas that will not be disturbed;
- Natural features to be preserved;
- Locations of major structural and non-structural BMPs identified in the SWPPP;
- Locations and timing of stabilization measures;
- Locations of off-site material, waste, borrow, or equipment storage areas;
- Locations of all waters of the United States, including wetlands;
- Locations where stormwater discharges to a surface water;
- Locations of storm drain inlets; and
- Areas where final stabilization has been accomplished.
- For more information, see *SWPPP Guide*, Chapter 3.C.

Include the site maps with the SWPPP.

SECTION 2: EROSION AND SEDIMENT CONTROL BMPS

Instructions:

- Describe the BMPs that will be implemented to control pollutants in stormwater discharges. For each major activity identified, do the following
  - ✓ Clearly describe appropriate control measures.
  - ✓ Describe the general sequence during the construction process in which the measures will be implemented.
  - ✓ Describe the maintenance and inspection procedures that will be used for that specific BMP.
  - ✓ Include protocols, thresholds, and schedules for cleaning, repairing, or replacing damaged or failing BMPs.
  - ✓ Identify staff responsible for maintaining BMPs.
  - ✓ (If your SWPPP is shared by multiple operators, indicate the operator responsible for each BMP.)
- Categorize each BMP under one of the following 10 areas of BMP activity as described below:
  - *2.1 Minimize disturbed area and protect natural features and soil*
  - *2.2 Phase Construction Activity*
  - *2.3 Control Stormwater flowing onto and through the project*
  - *2.4 Stabilize Soils*
  - *2.5 Protect Slopes*
  - *2.6 Protect Storm Drain Inlets*
  - *2.7 Establish Perimeter Controls and Sediment Barriers*
  - *2.8 Retain Sediment On-Site and Control Dewatering Practices*
  - *2.9 Establish Stabilized Construction Exits*
  - *2.10 Any Additional BMPs*
- Note the location of each BMP on your site map(s).
- For any structural BMPs, you should provide design specifications and details and refer to them. Attach them as appendices to the SWPPP or within the text of the SWPPP.
- For more information, see *SWPPP Guide*, Chapter 4.
- Consult your state's design manual or one of those listed in Appendix D of the *SWPPP Guide*.
- For more information or ideas on BMPs, see EPA's National Menu of BMPs http://www.epa.gov/npdes/stormwater/menuofbmps

2.1 Minimize Disturbed Area and Protect Natural Features and Soil

Instructions:

- Describe the areas that will be disturbed with each phase of construction and the methods (e.g., signs, fences) that you will use to protect those areas that should not be disturbed. Describe natural features identified earlier and how each will be protected during construction activity. Also describe how topsoil will be preserved. Include these areas and associated BMPs on your site map(s) also. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 1.)
- Also, see EPA's *Preserving Natural Vegetation BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/perserve_veg

INSERT TEXT or TABLE HERE, include inspection and maintenance schedules as appropriate and staff responsible for maintenance

2.2 Phase Construction Activity

Instructions:

- Describe the intended construction sequencing and timing of major activities, including any opportunities for phasing grading and stabilization activities to minimize the overall amount of disturbed soil that will be subject to potential erosion at one time. Also, describe opportunities for timing grading and stabilization so that all or a majority of the soil disturbance occurs during a time of year with less erosion potential (i.e., during the dry or less windy season). (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 2.) It might be useful to develop a separate, detailed site map for each phase of construction.
- Also, see EPA's *Construction Sequencing BMP Fact Sheet* at http://www.epa.gov/npdes/stormwater/menuofbmps/construction/cons_seq)

- Phase I
  - Describe phase
  - Duration of phase (start date, end date)
  - List BMPs associated with this phase
  - Describe stabilization methods for this phase (describe any temporary stabilization methods that will be used before final stabilization)

- Phase II
  - Describe phase
  - Duration of phase (start date, end date)
  - List BMPs associated with this phase
  - Describe stabilization methods for this phase (describe any temporary stabilization methods that will be used before final stabilization)

Repeat as needed

2.3 Control Stormwater Flowing onto and through the Project

Instructions:

- Describe structural practices (e.g., diversions, berms, ditches, storage basins) including design specifications and details used to divert flows from exposed soils, retain or detain flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 3.)

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

***BMP Description*:**	
***Installation Schedule*:**	
***Maintenance and Inspection*:**	
***Responsible Staff*:**	

Repeat as needed

2.4 Stabilize Soils

Instructions:

- Describe controls (e.g., interim seeding with native vegetation, hydroseeding) to stabilize exposed soils where construction activities have temporarily or permanently ceased. Also describe measures to control dust generation. Avoid using impervious surfaces for stabilization whenever possible. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 4.)
- Also, see EPA's *Seeding BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/seeding

BMP Description:	
☐ ***Permanent***	☐ ***Temporary***
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
☐ ***Permanent***	☐ ***Temporary***
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

2.5 Protect Slopes

Instructions:

- Describe controls (e.g., erosion control blankets, tackifiers) including design specifications and details that will be implemented to protect all slopes. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 5.)
- Also, see EPA's *Geotextiles BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/geotextiles

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

2.6 Protect Storm Drain Inlets

Instructions:

- Describe controls (e.g., inserts, rock-filled bags, or block and gravel) including design specifications and details that will be implemented to protect all inlets receiving stormwater from the project during the entire project. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 6.)
- Also, see EPA's *Storm Drain Inlet Protection BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/storm_drain

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

2.7 Establish Perimeter Controls and Sediment Barriers

Instructions:

- Describe structural practices (e.g., silt fences or fiber rolls) including design specifications and details to filter and trap sediment before it leaves the construction site. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 7.)
- Also see, EPA's *Silt Fence BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/silt_fences, or *Fiber Rolls BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/fiber_rolls

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

2.8 Retain Sediment On-Site

Instructions:

- Describe sediment control practices (e.g., sediment trap or sediment basin), including design specifications and details (volume, dimensions, outlet structure) that will be implemented at the construction site to retain sediments on-site. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 8.)
- Also, see EPA's *Sediment Basin BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/sediment_basins

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

2.9 Establish Stabilized Construction Exits

Instructions:

- Describe location(s) of vehicle entrance(s) and exit(s), procedures to remove accumulated sediment off-site (e.g., vehicle tracking), and stabilization practices (e.g., stone pads or wash racks or both) to minimize off-site vehicle tracking of sediments and discharges to stormwater. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 9.)
- Also, see EPA's *Construction Entrances BMP Fact Shee*t at www.epa.gov/npdes/stormwater/menuofbmps/construction/cons_entrance

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

2.10 Additional BMPs

Instructions:

- Describe additional BMPs that do not fit into the above categories.

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

SECTION 3: GOOD HOUSEKEEPING BMPS

Instructions:

- Describe the key good housekeeping and pollution prevention (P2) BMPs that will be implemented to control pollutants in stormwater.
- Categorize each good housekeeping and pollution prevention (P2) BMP under one of the following seven categories:
  - *3.1 Material Handling and Waste Management*
  - *3.2 Establish Proper Building Material Staging Areas*
  - *3.3 Designate Washout Areas*
  - *3.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices*
  - *3.5 Allowable Non-Stormwater Discharges and Control Equipment/Vehicle Washing*
  - *3.6 Spill Prevention and Control Plan*
  - *3.7 Any Additional BMPs*
- For more information, see *SWPPP Guide*, Chapter 5.
- Consult your state's design manual or resources in Appendix D of the *SWPPP Guide*.
- For more information or ideas on BMPs, see EPA's National Menu of BMPs http://www.epa.gov/npdes/stormwater/menuofbmps

3.1 Material Handling and Waste Management

Instructions:

- Describe measures (e.g., trash disposal, sanitary wastes, recycling, and proper material handling) to prevent the discharge of solid materials to receiving waters, except as authorized by a permit issued under section 404 of the CWA (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 1.)
- Also, see EPA's *General Construction Site Waste Management BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/cons_wasteman

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

3.2 Establish Proper Building Material Staging Areas

Instructions:

- Describe construction materials expected to be stored on-site and procedures for storage of materials to minimize exposure of the materials to stormwater. (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 2.)

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

3.3 Designate Washout Areas

Instructions:

- Describe location(s) and controls to eliminate the potential for discharges from washout areas for concrete mixers, paint, stucco, and so on. (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 3.)
- Also, see EPA's *Concrete Washout BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/concrete_wash

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

3.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

Instructions:

- Describe equipment/vehicle fueling and maintenance practices that will be implemented to control pollutants to stormwater (e.g., secondary containment, drip pans, and spill kits) (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 4.)
- Also, see EPA's *Vehicle Maintenance and Washing Areas BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/vehicile_maintain

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

3.5 Control Equipment/Vehicle Washing

Instructions:

- Describe equipment/vehicle washing practices that will be implemented to control pollutants to stormwater. (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 5.)
- Also, see EPA's *Vehicle Maintenance and Washing Areas BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/vehicile_maintain

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

3.6 Spill Prevention and Control Plan

Instructions:

- Describe the spill prevention and control plan to include ways to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and control. (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 6.)
- Also, see EPA's *Spill Prevention and Control Plan BMP Fact sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/spill_control

INSERT TEXT HERE or REFERENCE ATTACHMENT

3.7 Any Additional BMPs

Instructions:

- Describe any additional BMPs that do not fit into the above categories. Indicate the problem they are intended to address.

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

3.8 Allowable Non-Stormwater Discharge Management

Instructions:

- Identify all allowable sources of non-stormwater discharges that are not identified. The allowable non-stormwater discharges identified might include the following (see your permit for an exact list):
  - ✓ Waters used to wash vehicles where detergents are not used
  - ✓ Water used to control dust
  - ✓ Potable water including uncontaminated water line flushings
  - ✓ Routine external building wash down that does not use detergents
  - ✓ Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used
  - ✓ Uncontaminated air conditioning or compressor condensate
  - ✓ Uncontaminated ground water or spring water
  - ✓ Foundation or footing drains where flows are not contaminated with process materials such as solvents
  - ✓ Uncontaminated excavation dewatering
  - ✓ Landscape irrigation
- Identify measures used to eliminate or reduce these discharges and the BMPs used to prevent them from becoming contaminated.
- For more information, see *SWPPP Guide*, Chapter 3.A.

List allowable non-stormwater discharges and the measures used to eliminate or reduce them and to prevent them from becoming contaminated:

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

SECTION 4: SELECTING POST-CONSTRUCTION BMPs

Instructions:

- Describe all post-construction stormwater management measures that will be installed during the construction process to control pollutants in stormwater discharges after construction operations have been completed. Examples of post-construction BMPs include the following:
  - ✓ Biofilters
  - ✓ Detention/retention devices
  - ✓ Earth dikes, drainage swales, and lined ditches
  - ✓ Infiltration basins
  - ✓ Porous pavement
  - ✓ Other proprietary permanent structural BMPs
  - ✓ Outlet protection/velocity dissipation devices
  - ✓ Slope protection
  - ✓ Vegetated strips and/or swales
- Identify any applicable federal, state, local, or tribal requirements for design or installation.
- Describe how low-impact designs or smart growth considerations have been incorporated into the design.
- For any structural BMPs, you should have design specifications and details and refer to them. Attach them as appendices to the SWPPP or within the text of the SWPPP.
- For more information on this topic, see your state's stormwater manual.
- You might also want to consult one of the references listed in Appendix D of the *SWPPP Guide*.
- Visit the post-construction section of EPA's Menu of BMPs at: www.epa.gov/npes/menuofbmps

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

SECTION 5: INSPECTIONS

5.1 Inspections

Instructions:

- Identify the individual(s) responsible for conducting inspections and describe their qualifications. Reference or attach the inspection form that will be used.
- Describe the frequency that inspections will occur at your site including any correlations to storm frequency and intensity.
- Note that inspection details for particular BMPs should be included in Sections 2 and 3.
- You should also document the repairs and maintenance that you undertake as a result of your inspections. These actions can be documented in the corrective action log described in Part 5.3 below.
- For more on this topic, see *SWPPP Guide*, Chapters 6 and 8.
- Also, see suggested inspection form in Appendix B of the *SWPPP Guide*.

1. ***Inspection Personnel:*** Identify the person(s) who will be responsible for conducting inspections and describe their qualifications:

2. ***Inspection Schedule and Procedures:***

   Describe the inspection schedules and procedures you have developed for your site (include frequency of inspections for each BMP or group of BMPs, indicate when you will inspect, e.g., before/during/and after rain events, spot inspections):

   Describe the general procedures for correcting problems when they are identified. Include responsible staff and time frames for making corrections:

   Attach a copy of the inspection report you will use for your site.
   REFERENCE ATTACHMENT

5.2 Delegation of Authority

Instructions:

- Identify the individual(s) or specifically describe the position where the construction site operator has delegated authority for the purposes of signing inspection reports, certifications, or other information.
- Attach the delegation of authority form that will be used.
- For more on this topic, see *SWPPP Guide*, Chapter 7.

Duly Authorized Representative(s) or Position(s):

Insert Company or Organization Name:
Insert Name:
Insert Position:
Insert Address:
Insert City, State, Zip Code:
Insert Telephone Number:
Insert Fax/Email:

Attach a copy of the signed delegation of authority form in Appendix K.

5.3 Corrective Action Log

Instructions:

- Create here, or as an attachment, a corrective action log. This log should describe repair, replacement, and maintenance of BMPs undertaken as a result of the inspections and maintenance procedures described above. Actions related to the findings of inspections should reference the specific inspection report.
- This log should describe actions taken, date completed, and note the person that completed the work.

Corrective Action Log:
INSERT LOG HERE or REFERENCE ATTACHMENT

SECTION 6: RECORDKEEPING AND TRAINING

6.1 Recordkeeping

Instructions:

- The following is a list of records you should keep at your project site available for inspectors to review:
- Dates of grading, construction activity, and stabilization (which is covered in Sections 2 and 3)
- A copy of the construction general permit (attach)
- The signed and certified NOI form or permit application form (attach)
- A copy of the letter from EPA or/the state notifying you of their receipt of your complete NOI/application (attach)
- Inspection reports (attach)
- Records relating to endangered species and historic preservation (attach)
- Check your permit for additional details
- For more on this subject, see *SWPPP Guide*, Chapter 6.C.

Records will be retained for a minimum period of at least 3 years after the permit is terminated.

Date(s) when major grading activities occur:
INSERT LOG HERE or REFERENCE ATTACHMENT
Date(s) when construction activities temporarily or permanently cease on a portion of the site:
INSERT LOG HERE or REFERENCE ATTACHMENT
Date(s) when an area is either temporarily or permanently stabilized:
INSERT LOG HERE or REFERENCE ATTACHMENT

6.2 Log of Changes to the SWPPP

Instructions:

- Create a log here, or as an attachment, of changes and updates to the SWPPP. You should include additions of new BMPs, replacement of failed BMPs, significant changes in the activities or their timing on the project, changes in personnel, changes in inspection and maintenance procedures, updates to site maps, and so on.

Log of changes and updates to the SWPPP
INSERT LOG HERE or REFERENCE ATTACHMENT

6.3 Training

Instructions:

- Training your staff and subcontractors is an effective BMP. As with the other steps you take to prevent stormwater problems at your site, you should document the training that you conduct for your staff, for those with specific stormwater responsibilities (e.g. installing, inspecting, and maintaining BMPs), and for subcontractors.
- Include dates, number of attendees, subjects covered, and length of training.
- For more on this subject, see *SWPPP Guide*, Chapter 8.

Individual(s) Responsible for Training:
INSERT TEXT or TABLE HERE
Describe Training Conducted:

- General stormwater and BMP awareness training for staff and subcontractors:

- Detailed training for staff and subcontractors with specific stormwater responsibilities:

SECTION 7: FINAL STABILIZATION

Instructions:

- Describe procedures for final stabilization. If you complete major construction activities on part of your site, you can document your final stabilization efforts for that portion of the site. Many permits will allow you to then discontinue inspection activities in these areas (be sure to check your permit for exact requirements). You can amend or add to this section as areas of your project are finally stabilized.
- Update your site plans to indicate areas that have achieved final stabilization.
- Note that dates for areas that have achieved final stabilization should be included in Section 6, Part 6.1 of this SWPPP.
- For more on this topic, see *SWPPP Guide*, Chapter 9.

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

Repeat as needed

SECTION 8: CERTIFICATION AND NOTIFICATION

Instructions:

- The SWPPP should be signed and certified by the construction operator(s). Attach a copy of the NOI and permit authorization letter received from EPA or the state in Appendix D.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____ Title: _____

Signature: _____ Date: _____

Repeat as needed for multiple construction operators at the site

SWPPP APPENDICES

Attach the following documentation to the SWPPP:

Appendix A – General Location Map

Appendix B – Site Maps

Appendix C – Construction General Permit

Appendix D – NOI and Acknowledgement Letter from EPA/State

Appendix E – Inspection Reports

Appendix F – Corrective Action Log (or in Part 5.3)

Appendix G – SWPPP Amendment Log (or in Part 6.2)

Appendix H – Subcontractor Certifications/Agreements

Appendix I – Grading and Stabilization Activities Log (or in Part 6.1)

Appendix J – Training Log

Appendix K – Delegation of Authority

Appendix L – Additional Information (i.e., Endangered Species and Historic Preservation Documentation)

Appendix F – *Sample* Corrective Action Log

Project Name:
SWPPP Contact:

Inspection Date	Inspector Name(s)	Description of BMP Deficiency	Corrective Action Needed (including planned date/responsible person)	Date Action Taken/Responsible person

Appendix G – *Sample* SWPPP Amendment Log

Project Name:
SWPPP Contact:

Amendment No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]

Appendix H – *Sample* Subcontractor Certifications/Agreements

SUBCONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN

Project Number: _____

Project Title: _____

Operator(s): _____

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the BMPs and practices described in the SWPPP.

This certification is hereby signed in reference to the above named project:

Company: _____

Address: _____

Telephone Number: _____

Type of construction service to be provided: _____

_____

_____

Signature: _____

Title: _____

Date: _____

Appendix I – *Sample* Grading and Stabilization Activities Log

Project Name:
SWPPP Contact:

Date Grading Activity Initiated	Description of Grading Activity	Date Grading Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures are Initiated	Description of Stabilization Measure and Location

Appendix J – *Sample* SWPPP Training Log

Stormwater Pollution Prevention Training Log

Project Name:

Project Location:

Instructor's Name(s):

Instructor's Title(s):

Course Location: _____ Date: _____

Course Length (hours): _____

Stormwater Training Topic: *(check as appropriate)*

- ❑ Erosion Control BMPs
- ❑ Sediment Control BMPs
- ❑ Non-Stormwater BMPs
- ❑ Emergency Procedures
- ❑ Good Housekeeping BMPs

Specific Training Objective:_____

_____

Attendee Roster: *(attach additional pages as necessary)*

No.	Name of Attendee	Company
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Appendix K – *Sample* Delegation of Authority Form

Delegation of Authority

I, _____ (name), hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the Construction General Permit, at the _____ construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit.

_____ (name of person or position)
_____ (company)
_____ (address)
_____ (city, state, zip)
_____ (phone)

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in _____ (Reference State Permit), and that the designee above meets the definition of a "duly authorized representative" as set forth in _____ (Reference State Permit).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____

Company: _____

Title: _____

Signature: _____

Date: _____

Stormwater Pollution Prevention Plan Samples

The following documents are provided by the EPA as a sample SWPPPs. The first is a sample SWPPP for a Medium Sized (~20 acres) Residential Development, and the second is a sample SWPPP for a Small Commercial Site of less than 5 acres.

Chapters 3 of both Volume 1 and Volume 2 provide additional information on the development of Erosion and Sediment Control Plans and SWPPPs.

EPA Example Construction SWPPP:

Small Commercial Site (< 5 acres)

Introduction

This example Stormwater Pollution Prevention Plan (SWPPP) was prepared using the U.S. Environmental Protection Agency's (EPA's) guide, *Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Operators* and its accompanying SWPPP template. Both the SWPPP Guide and the SWPPP template are available at http://www.epa.gov/npdes/swpppguide. The instructions and references in this SWPPP refer to the SWPPP template and are left in for illustrative purposes. The SWPPP guide, SWPPP template, and this hypothetical SWPPP example are provided for compliance assistance purposes only; for a complete list of permit requirements, refer to EPA's Construction General Permit at: http://www.epa.gov/npdes/stormwater/cgp.

Use of this example SWPPP

This example SWPPP represents a hypothetical project for the construction of a postal and distribution center on less than 5 acres in New Hampshire. For this example, the SWPPP was prepared in March 2006 with construction beginning in April 2006. To illustrate how an actual SWPPP should be used, this example SWPPP includes marked-up edits to pages and copies of records such as inspection reports. For purposes of this example, this SWPPP was copied on July 20, 2006. Therefore, inspection reports and other records are current as of that date.

This example SWPPP was developed for EPA's 2003 Construction General Permit (CGP), as modified effective January 21, 2005. If you are subject to a different general permit issued by a state or EPA Region, your requirements and SWPPP template might be slightly different.

Disclaimer

This SWPPP is for a hypothetical project. Any similarities to actual construction projects, operators, or places are purely coincidental.

Do not copy this SWPPP for your project! The best management practices and explanatory text in this SWPPP are intended to apply only to this hypothetical site. Each SWPPP must be created on a case-by-case basis to address the unique conditions and issues at a given construction site. Relying on the wording in this hypothetical SWPPP is discouraged and will not necessarily result in compliance with the Construction General Permit.

Stormwater Pollution Prevention Plan

for:

Stormville Postal and Distribution Center
3100 Sixth Avenue
Stormville, NH 03061
(603) 444-3333

Operator(s):

United States Postal Service (USPS)
Russ Braybrooks
1125 Capital Street, NE
Boston, MA 02101
Office Phone: (617) 333-1122
Office Fax: (617) 333-1121

Advanced Construction Contractors (ACC)
Joe Butler
5800 Washington Avenue
Nashua, NH 03064
Office Phone: (603) 444-3210
Office Fax: (603) 444-3211

SWPPP Contact(s):

Martina Davis
Advanced Construction Contractors
5800 Washington Avenue
Nashua, NH 03064
Office Phone: (603) 444-3210
Office Fax: (603) 444-3211

SWPPP Preparation Date:

03/01/2006

Estimated Project Dates:

Start of Construction: 04/05/2006
Completion of Construction: 04/05/2007

Contents

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SECTION 1: SITE EVALUATION, ASSESSMENT, AND PLANNING

1.1 Project/Site Information

Instructions:

- In this section, you can gather some basic site information that will be helpful to you later when you file for permit coverage.
- For more information, see *Developing Your Stormwater Pollution Prevention Plan: A SWPPP Guide for Construction Sites* (also known as the *SWPPP Guide*), Chapter 2
- Detailed information on determining your site's latitude and longitude can be found at www.epa.gov/npdes/stormwater/latlong

Project/Site Name: Stormville Postal and Distribution Center

Project Street/Location: 3100 Sixth Avenue

City: Stormville State: NH ZIP Code: 03061

County or Similar Subdivision: Hillsborough County

Latitude/Longitude (Use **one** of three possible formats, and specify method)

Latitude:	Longitude:
1. _ _ ° _ _ ' _ _ " N (degrees, minutes, seconds)	1. _ _ ° _ _ ' _ _ " W (degrees, minutes, seconds)
2. _ _ ° _ _ . _ _ ' N (degrees, minutes, decimal)	2. _ _ ° _ _ . _ _ ' W (degrees, minutes, decimal)
3. 42.7168 ° N (decimal)	3. 71.4658 ° W (decimal)

Method for determining latitude/longitude:

☐ USGS topographic map (specify scale: _____) ☐ EPA Web site ☒ GPS

☐ Other (please specify): _____

Is the project located in Indian country? ☐ Yes ☒ No

If yes, name of Reservation, or if not part of a Reservation, indicate "not applicable."

Not Applicable

Is this project considered a federal facility? ☒ Yes ☐ No

NPDES project or permit tracking number*: ACC - NHR10BK01; USPS - NHR10BK02

**(This is the unique identifying number assigned to your project by your permitting authority after you have applied for coverage under the appropriate National Pollutant Discharge Elimination System (NPDES) construction general permit.)*

1.2 Contact Information/Responsible Parties

Instructions:

- List the operator(s), project managers, stormwater contact(s), and person or organization that prepared the SWPPP. Indicate respective responsibilities, where appropriate.
- Also, list subcontractors expected to work on-site. Notify subcontractors of stormwater requirements applicable to their work.
- See *SWPPP Guide*, Chapter 2.B and EPA's Construction General Permit (CGP) Part 3, Subparts 3.2, 3.3.A, and 3.4.A.

Operator(s):

OPERATOR	
Contact Information	**Geographic Area of Control***
United States Postal Service (USPS) Russ Braybrooks 1125 Capital Street, NE Boston, MA 02101 Office Phone: (617) 333-1122 Office Fax: (617) 333-1121	The United States Postal Service (USPS) is the principal land owner and contract manger for the project. USPS has contracted Advanced Construction Contractors (ACC) to develop and implement the SWPPP and build the Stormville Postal and Distribution Center. USPS will be responsible for general oversight of the project and will retain operational control over construction plans and specifications, including review of the SWPPP and any amendments, inspection reports, corrective actions and changes to stormwater conveyance or control designs. USPS will participate, when possible, on self-inspections conducted by ACC.
*** See Construction Operator's Cooperative Agreement**	

OPERATOR	
Contact Information	**Geographic Area of Control***
Advanced Construction Contractors (ACC) Joe Butler 5800 Washington Avenue Nashua, NH 03064 Office Phone: (603) 444-3210 Office Fax: (603) 444-3211	ACC has entered into a contract with USPS to develop and implement the SWPPP and perform all construction activities at the site. ACC will implement and maintain the best management practices (BMPs) specified in Sections 2 and 3, conduct inspections (Section 5) and address stormwater over the entire site including all areas disturbed by construction activities, areas used for materials storage, discharge points, and construction exits.
*** See Construction Operator's Cooperative Agreement**	

Construction Operators' Cooperative Agreement

This cooperative agreement describes stormwater responsibilities for the United States Postal Service (USPS) and Advanced Construction Contractors (ACC) regarding the Stormville Postal and Distribution Center project. The operators below agree to abide by the following conditions throughout the duration of the construction project, effective the date of signature.

This project is subject to EPA's NPDES General Permit for Stormwater Discharges from Construction Activities (Construction General Permit or CGP). The goal of this permit is to prevent the discharge of pollutants associated with construction activity from entering the storm drain system or surface waters. ACC has developed a SWPPP for the Stormville Postal and Distribution Center project and the SWPPP has been reviewed by USPS. The SWPPP is available for review at the on-site construction trailer.

USPS Responsibilities:

- USPS will be responsible for general oversight of the project, including review of the SWPPP and any amendments, inspection reports, and corrective actions.
- USPS will participate, when possible, on self-inspections conducted by ACC.
- USPS will participate in biweekly meetings to discuss CGP compliance issues.

ACC Responsibilities:

- ACC will maintain the SWPPP documentation and will conduct and document self-inspections required under Part 3.10 of the CGP on a weekly basis and within 24 hours of the end of a storm event of one-half inch or greater in all areas of the site covered by this SWPPP.
- ACC will provide copies of inspection reports to USPS within 24 hours following each inspection. Incidents of non-compliance will be immediately brought to the attention of Russ Braybrooks, USPS.
- ACC shall be responsible for maintaining compliance with the applicable sections of the SWPPP, including installation of erosion and sediment controls, and all requirements in the CGP. Any BMP changes that would trigger the need for a SWPPP modification shall be promptly communicated to USPS.
- ACC will maintain erosion and sediment control Best Management Practices (BMPs) in all areas of the site under its day-to-day control.
- ACC will provide adequately designated concrete washout areas throughout the construction project and will be responsible for proper disposal of the concrete, mortar or grout collected there.
- ACC will be responsible for maintaining the cleanliness of the streets (Johnson Street and Sixth Avenue) and storm drain inlet protection BMPs throughout the construction project. ACC will conduct street sweeping on a weekly basis and prior to forecasted rain events. ACC will also inspect and replace storm drain inlet protection BMPs as necessary.
- ACC shall not store erodible or hazardous materials on any roadway.
- ACC will hold biweekly meetings to discuss CGP compliance issues.

Construction Operators' Cooperative Agreement

Joint Responsibilities:

- Each operator shall file a Notice of Intent (NOI) to be covered by the Construction General Permit before beginning construction at the project, and permit coverage will be maintained throughout the project.
- Operators shall not file a Notice of Termination (NOT) until all disturbed areas of the site under its day-to-day control have been effectively stabilized with permanent erosion controls that satisfy the final stabilization requirement in the CGP.
- Operators will maintain a clean site. Trash and debris will be picked up and disposed of properly by the end of each day.
- Each operator is responsible for advising employees and subcontractors working on this project of the requirements in the CGP and applicable SWPPP. Particular emphasis should be placed on ensuring that employees and subcontractors do not damage BMPs and do not introduce pollutants into the storm drain system.

The undersigned agree to abide by the terms and conditions of this cooperative agreement as described above.

USPS

Russ Braybrooks	[signature]	D+C Proj. Mgr.	3/12/06
Operator Name	Signature	Title	Date

Advanced Construction Contractors

Joe Butler	[signature]	Owner	3/12/06
Operator Name	Signature	Title	Date

Project Manager(s) or Site Supervisor(s):

Advanced Construction Contractors
Bill Rustler, Project Manager
5800 Washington Avenue
Nashua, NH 03064
Office Phone: (603) 444-3210
Office Fax: (603) 444-3211
Site Phone: (603) 444-3333

Mr. Rustler is responsible for managing day-to-day site operations at the site.

SWPPP Contact(s):

Advanced Construction Contractors
Martina Davis, Stormwater Compliance Officer
5800 Washington Avenue
Nashua, NH 03064
Office Phone: (603) 444-3210
Office Fax: (603) 444-3211
Site Phone: (603) 444-3333

Martina Davis is the primary SWPPP contact and is responsible for site compliance with the SWPPP and EPA's Construction General Permit.

This SWPPP was Prepared by:

Mattock Compliance
Roy Mattock
2588 Paver Avenue, Suite 310
Boston, MA 02101
Office Phone: (617) 222-2221
Office Fax: (617) 222-2222

Mr. Mattock was contracted by ACC to develop this SWPPP.

Emergency 24-Hour Contact:

Advanced Construction Contractors
Martina Davis, Stormwater Compliance Officer
Site Phone: (603) 444-3333
Cellular Phone: (603) 235-2222

SUBCONTRACTOR(S)	
Contact Information	**Area of Control***
Jim Young, Owner JY Street Sweeping, Inc. 345 Liberty Avenue Nashua, NH 03064 (603) 444-0987	JY Street Sweeping has entered into a contract with USPS and ACC to perform street sweeping for Johnson Street and Sixth Avenue.
Bill Ways, Vice President Ways Waste and Sanitary Services 56 Washington Road Nashua, NH 03064 (603) 444-0044	Ways Waste and Sanitary Services have entered into a contract with USPS and ACC to deliver dumpsters and temporary sanitary facilities to the site. They will also be responsible for dumpster and recycling waste pick up and disposal of sanitary wastes from the temporary sanitary facilities.
George Smith, Owner Smith Plumbing Company 234 Dunn Way Nashua, NH 03064 (603) 444-3333	Smith Plumbing Company has entered into a contract with USPS and ACC to install plumbing fixtures for the postal and distribution center.
Bart Thomas, Owner Thomas Electric 6502 Capital Avenue Nashua, NH 03064 (603) 444-0000	Thomas Electric has entered into a contract with USPS and ACC to install electrical components for the postal and distribution center.
Jean Askew, Owner Askew Foundations, LLC 78 Toms Road Nashua, NH 03064 (603) 444-7777	Askew Foundations has entered into a contract with USPS and ACC to construct the foundation for the postal and distribution center.
*** See Appendix H – Subcontractor Certifications/Agreements**	

1.3 Nature and Sequence of Construction Activity

Instructions:

- Briefly describe the nature of the construction activity and approximate time frames (one or more paragraphs, depending on the nature and complexity of the project).
- For more information, see *SWPPP Guide*, Chapter 3.A. and EPA's CGP Part 3, Subparts 3.3.B.1 and 2, and 3.4.A.

Describe the general scope of the work for the project, major phases of construction, etc:

ACC is contracted by the USPS to build an 18,000-square-foot postal and distribution center at 3100 Sixth Avenue, Stormville, Hillsborough County, New Hampshire. ACC is responsible for overall site development and building construction. Soil disturbing activities will include clearing and grubbing; installing stabilized construction exits; installing erosion and sediment controls; grading; installation of the building foundation; excavation for utilities and parking lots; and installation of post-construction controls.

What is the function of the construction activity?

☐ Residential ☒ Commercial ☐ Industrial ☐ Road Construction ☐ Linear Utility
☐ Other (please specify):

Estimated Project Start Date: **04/05/2006**

Estimated Project Completion Date: **04/05/2007**

Table 1. Timeline of Activity: ACC will follow the sequence of activities below for major construction activities and BMP installation.

Estimated timeline of activity	Construction activity and BMP descriptions
04/05/06 – 05/01/06	***Before any site grading activities begin*** 1. Install perimeter silt fences (See Section 2, Part 2.7) 2. Install storm drain inlet protection on Johnson Street and Sixth Avenue (Section 2, Part 2.6) 3. Construct stabilized construction exits (Section 2, Part 2.9) 4. Construct vegetated swale along the north perimeter (Section 2, Part 2.3) 5. Construct sediment trap (Section 2, Part 2.8)
05/01/06 – 05/16/06	***Site grading*** 1. Begin site clearing and grubbing operations 2. Begin overall site grading and topsoil stripping 3. Establish topsoil stockpile (Section 2, Part 2.1) 4. Install silt fences around stockpile and cover stockpiles (Section 2, Part 2.1) 5. Disturbed areas where construction will cease for more than 14 days will be stabilized with erosion controls (Section 2, Part 2.4)
05/16/06 – 07/02/06	***Infrastructure (utilities, parking lot, etc.)*** 1. Construct staging and materials storage area (Section 3, Part 3.2) 2. Install temporary sanitary facilities and dumpsters (Section 3, Part 3.1) 3. Install utilities, sanitary sewers, and water services

07/02/06 – 02/20/07	***Building Construction*** 1. Construct temporary concrete washout area (Section 3, Part 3.3) 2. Begin construction of building foundation and structure 3. Install gutters, curbs, and prepare pavement subgrade 4. Parking lot paved, exterior building constructed (by Sept. 30th) 5. Remove temporary concrete washout area (Section 3, Part 3.3) 6. Implement winter stabilization procedures (Section 2, Part 2.4)
02/20/07 – 04/05/2007	***Final stabilization and landscaping*** 1. Finalize pavement activities 2. Convert sediment trap to a permanent bioretention area 3. Install infiltration trench, porous pavers and tree box filters 4. Remove all temporary control BMPs and stabilize any areas disturbed by there removal with erosion controls 5. Prepare final seeding and landscaping 6. Monitor stabilized areas until final stabilization is reached

1.4 Soils, Slopes, Vegetation, and Current Drainage Patterns

Instructions:

- Describe the existing soil conditions at the construction site including soil types, slopes and slope lengths, drainage patterns, and other topographic features that might affect erosion and sediment control.
- Also, note any historic site contamination evident from existing site features and known past usage of the site.
- This information should also be included on your site maps (See *SWPPP Guide*, Chapter 3.C.).
- For more information, see *SWPPP Guide*, Chapter 3.A and EPA's CGP Part 3, Subpart 3.3.C.

Soil type(s):

According to a review of the USDA Natural Resource Conservation Service soils map for Hillsborough County, New Hampshire, on-site soils consist of Ridgebury, Canton, Udorthents, and Chatfield. These soils are classified as hydrologic groups A, B, and C soils, respectively. The site consists primarily of hydrologic soil group A; therefore, the site has well-drained soils.

Slopes (describe current slopes and note any changes due to grading or fill activities):

The site is a relatively flat site (less than 2 percent slopes) and does not contain any major slopes.

Drainage Patterns (describe current drainage patterns and note any changes due to grading or fill activities):

- Preconstruction stormwater runoff flows northwest over the undeveloped site to Stormville's municipal separate storm sewer system (MS4) on Johnson Street. (See Appendix B – Pre-Construction Site Map)

- Following overlot grading, stormwater runoff will flow to the northwest corner of the site to a temporary sediment trap. Excess stormwater runoff will be diverted to the town's MS4 on Johnson Street through a raised outlet structure in the temporary sediment trap. Runoff from the adjacent property to the north will be captured by the vegetated swale and diverted to the town's MS4. (See Appendix B – Site Map)

Vegetation:

The site supports unvegetated soil areas and blocks of shrubs, grass and other undergrowth.

1.5 Construction Site Estimates

Instructions:

- Estimate the area to be disturbed by excavation, grading, or other construction activities, including dedicated off-site borrow and fill areas.
- Calculate the percentage of impervious surface area before and after construction
- Calculate the runoff coefficients before and after construction.
- For more information, see *SWPPP Guide*, Chapter 3.A and EPA's CGP Part 3, Subpart 3.3.B.

The following are estimates of the construction site:

Total project area:	4.36 acres
Construction site area to be disturbed:	4.36 acres
Percentage impervious area before construction:	5 %
Runoff coefficient before construction:	.0715
Percentage impervious area after construction:	21 %
Runoff coefficient after construction:	.3145

Because this site disturbs less than 5 acres, ACC also calculated the rainfall erosivity factor for the site and period of construction activity. An R factor of 103 was calculated using EPA's *Rainfall Erosivity Factor Calculator*; therefore, this project is not eligible for the rainfall erosivity waiver because the R factor was greater than 5.

1.6 Receiving Waters

Instructions:

- List the waterbody(s) that would receive stormwater from your site, including streams, rivers, lakes, coastal waters, and wetlands. Describe each as clearly as possible, such as *Mill Creek, a tributary to the Potomac River*, and so on.
- Indicate the location of all waters, including wetlands, on the site map. For more information, see EPA's CGP Part 3, Subparts 3.3.B.4 and 3.3.C.6.
- Note any stream crossings, if applicable.
- List the storm sewer system or drainage system that stormwater from your site could discharge to and the waterbody(s) that it ultimately discharges to.
- If any of the waterbodies above are impaired and/or subject to Total Maximum Daily Loads (TMDLs), please list the pollutants causing the impairment and any specific requirements in the TMDL(s) that are applicable to construction sites. Your SWPPP should specifically include measures to prevent the discharge of these pollutants. For more information, see EPA's CGP Part 1, Subpart 1.3.C.5 and Part 3, Subpart 3.14.
- For more information, see *SWPPP Guide*, Chapter 3.A and 3.B.
- Also, for more information and a list of TMDL contacts and links by state, visit www.epa.gov/npdes/stormwater/tmdl.

Description of receiving waters and storm sewer system:

Stormwater runoff, except run-on entering the vegetated swale, will be discharged to a temporary sediment trap during construction without direct discharge to any surface waters. As an emergency overflow, the sediment trap will have a raised outlet structure connected to the town of Stormville's MS4 on Johnson Street. Run-on captured by the vegetated swale will be discharged to the MS4 on Johnson Street through a raised outlet structure.

After construction, stormwater runoff will discharge to the stormwater bioretention area, with an outlet structure connected to the MS4 on Johnson Street. The vegetated swale will remain as a permanent stormwater conveyance following construction.

The town of Stormville's MS4 discharges to Fern Creek, a tributary to the Pine River. The MS4 discharge point is 0.5 mile south of the city. Fern Creek has a reach of 4 miles and flows southeast before entering the Pine River. Fern Creek is designated for the following uses under New Hampshire's Water Quality Standards: Secondary Contact Recreation, Agricultural Water Supply, and Wildlife Habitat.

Description of impaired waters or waters subject to TMDLs:

Mattock Compliance conducted a review of Fern Creek and the Pine River to determine if the above receiving waters were impaired or subject to TMDLs. Mattock Compliance first reviewed the 2006 303(d) list for the state of New Hampshire available at http://www.des.state.nh.us/WMB/swqa/303dList.html (accessed 01/20/06). Mattock Compliance did not identify Fern Creek or the Pine River as impaired waters or subject to TMDLs.

To verify that Fern Creek and the Pine River are not impaired waters or subject to TMDLs, Mattock Compliance contacted Margaret Foss with the New Hampshire Department of Environmental Services. Mattock Compliance described the project location, MS4, and receiving waters during the conversation on 01/20/06 (see Appendix L – Telephone Log #1). Ms. Foss verified during the telephone call that Fern Creek and the Pine River are not impaired waters or subject to TMDLs.

1.7 Site Features and Sensitive Areas to be Protected

Instructions:

- Describe unique site features including streams, stream buffers, wetlands, specimen trees, natural vegetation, steep slopes, or highly erodible soils that are to be preserved.
- Describe measures to protect these features.
- Include these features and areas on your site maps.
- For more information, see *SWPPP Guide*, Chapter 3.A and 3.B.

Description of unique features that are to be preserved:

This site does not contain any unique features or sensitive areas to be preserved.

Describe measures to protect these features:

N/A

1.8 Potential Sources of Pollution

Instructions:

- Identify and list all potential sources of sediment, which may reasonably be expected to affect the quality of stormwater discharges from the construction site.
- Identify and list all potential sources of pollution, other than sediment, which may reasonably be expected to affect the quality of stormwater discharges from the construction site.
- For more information, see *SWPPP Guide*, Chapter 3.A and EPA's CGP Part 3, Subpart 3.1.B.

Potential sources of sediment to stormwater runoff:

- Clearing and grubbing operations
- Grading and site excavation operations
- Vehicle tracking
- Topsoil stripping and stockpiling

- Landscaping operations

Potential pollutants and sources, other than sediment, to stormwater runoff:

- Combined Staging Area—small fueling activities, minor equipment maintenance, sanitary facilities, and hazardous waste storage.
- Materials Storage Area—general building materials, solvents, adhesives, paving materials, paints, aggregates, trash, and so on.
- Construction Activity—paving, curb/gutter installation, concrete pouring/mortar/stucco, and building construction
- Concrete Washout Area

For all potential construction site pollutants, see Table 2 below.

Table 2. Potential construction site pollutants

Material/Chemical	Physical Description	Stormwater Pollutants	Location*
Pesticides (insecticides, fungicides, herbicides, rodenticides)	Various colored to colorless liquid, powder, pellets, or grains	Chlorinated hydrocarbons, organophosphates, carbamates, arsenic	Herbicides used for noxious weed control
Fertilizer	Liquid or solid grains	Nitrogen, phosphorous	Newly seeded areas
Plaster	White granules or powder	Calcium sulphate, calcium carbonate, sulfuric acid	Building construction
Cleaning solvents	Colorless, blue, or yellow-green liquid	Perchloroethylene, methylene chloride, trichloroethylene, petroleum distillates	No equipment cleaning allowed in project limits
Asphalt	Black solid	Oil, petroleum distillates	Streets and roofing
Concrete	White solid/grey liquid	Limestone, sand, pH, chromium	Curb and gutter, building construction
Glue, adhesives	White or yellow liquid	Polymers, epoxies	Building construction
Paints	Various colored liquid	Metal oxides, stoddard solvent, talc, calcium carbonate, arsenic	Building construction
Curing compounds	Creamy white liquid	Naphtha	Curb and gutter
Wood preservatives	Clear amber or dark brown liquid	Stoddard solvent, petroleum distillates, arsenic, copper, chromium	Timber pads and building construction
Hydraulic oil/fluids	Brown oily petroleum hydrocarbon	Mineral oil	Leaks or broken hoses from equipment
Gasoline	Colorless, pale brown or pink petroleum hydrocarbon	Benzene, ethyl benzene, toluene, xylene, MTBE	Secondary containment/staging area
Diesel Fuel	Clear, blue-green to yellow liquid	Petroleum distillate, oil & grease, naphthalene, xylenes	Secondary containment/staging area

Material/Chemical	Physical Description	Stormwater Pollutants	Location*
Kerosene	Pale yellow liquid petroleum hydrocarbon	Coal oil, petroleum distillates	Secondary containment/staging area
Antifreeze/coolant	Clear green/yellow liquid	Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc)	Leaks or broken hoses from equipment
Sanitary toilets	Various colored liquid	Bacteria, parasites, and viruses	Staging area

*(Area where material/chemical is used on-site)

1.9 Endangered Species Certification

Instructions:

- Before beginning construction, determine whether endangered or threatened species or their critical habitats are on or near your site.
- Adapt this section as needed for state or tribal endangered species requirements and, if applicable, document any measures deemed necessary to protect endangered or threatened species or their critical habitats.
- For more information on this topic, see *SWPPP Guide*, Chapter 3.B and EPA's CGP Part 1, Subpart 1.3.C.6 and Appendix C.
- Additional information on Endangered Species Act (ESA) provisions for EPA's Construction General Permit is at www.epa.gov/npdes/stormwater/esa

Are endangered or threatened species and critical habitats on or near the project area?

☐ Yes ☒ No

Describe how this determination was made:

Mattock Compliance conducted a review of any potential endangered or threatened species or their critical habitats on or near the Stormville Postal and Distribution Center in Hillsborough County, New Hampshire. Mattock Compliance first reviewed the Endangered Species Act (ESA) review procedures and endangered species list for New Hampshire at http://cfpub.epa.gov/npdes/stormwater/esa.cfm (accessed on 01/20/06). Mattock Compliance did not identify any endangered or threatened species or critical habitats on or near the project area.

Mattock Compliance also reviewed the endangered or threatened species and critical habitat listings available from the New Hampshire Fish and Game Department at http://www.wildlife.state.nh.us/Wildlife/Nongame/endangered_list.htm (accessed on 01/20/06) and http://www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/critical_habitats_species.htm (accessed on 01/20/06). To verify that there were no endangered or threatened species or critical habitats on or near the project area; Mattock Compliance contacted John Canter of the New Hampshire Fish and Game Department, Wildlife Division on 01/21/06 (see Appendix L – Telephone Log #2). Mattock Compliance described the location of the construction project, and Mr. Canter verified in the telephone call that there were no endangered or threatened

species or critical habitats on or near the project area.

Because no endangered or threatened species or their critical habitats were found during the screening process, Criterion A will be reported on the NOI form.

If yes, describe the species and/or critical habitat:

N/A

If yes, describe or refer to documentation that determines the likelihood of an impact on identified species and/or habitat and the steps taken to address that impact. (Note, if species are on or near your project site, EPA strongly recommends that the site operator work closely with the appropriate field office of the U.S. Fish and Wildlife Service or National Marine Fisheries Service. For concerns related to state or tribal listing of species, please contact a state or tribal official.)

N/A

1.10 Historic Preservation

Instructions:

- Before you begin construction, you should review federal and any applicable state, local, or tribal historic preservation laws and determine if there are historic sites on or near your project. If so, you might need to make adjustments to your construction plans or to your stormwater controls to ensure that these historic sites are not damaged.
- For more information, see *SWPPP Guide*, Chapter 3.B or contact your state or tribal historic preservation officer.

Are there any historic sites on or near the construction site?

☐ Yes ☒ No

Describe how this determination was made:

Mattock Compliance reviewed the New Hampshire State Register of Historic Places available from the New Hampshire Division of Historical Resources at http://www.nh.gov/nhdhr/barnstatereg.html (accessed on 01/24/06) and the National Register Information System available from the National Park Service at http://www.nr.nps.gov/ (accessed on 1/24/06) to determine if any historic sites are on or near the Stormville Postal and Distribution Center in Hillsborough County, New Hampshire. No historic sites were identified from the review.

To verify that there were no historic sites on or near the project area, Mattock Compliance contacted James Mcconaha, State Historic Preservation Officer, of the New Hampshire Division of Historical Resources on 01/25/06 (See Appendix L – Telephone Log #3). Mattock Compliance described the location of the project, and Mr. Mcconaha verified in the telephone call that there were no historic sites on or near the project area.

If yes, describe or refer to documentation that determines the likelihood of an impact on this historic site and the steps taken to address that impact.

N/A

1.11 Applicable Federal, Tribal, State or Local Programs

Instructions:

– Note other applicable federal, tribal, state or local soil and erosion control and stormwater management requirements that apply to the construction site. See EPA's CGP Part 3.9.

- An Alteration of Terrain Application has been submitted to New Hampshire DES (see Appendix D). To complete this application, ACC reviewed the EPA fact sheet *Storm Water Permit Basics: New Hampshire Digging Needs a Federal Permit*, which is also included in Appendix D.
- The SWPPP complies with Stormville's erosion and sediment control requirements, including the requirement that sediment traps be designed for a minimum of 1,800 cubic feet of storage per acre of drainage area [REG 24.56].
- The SWPPP also complies with erosion and sediment control requirement that vegetated swales must have a minimum length of 100 feet, be vegetated with water-tolerant, erosion-resistant grasses, and be at least 2 feet above the seasonal high water table and bedrock [REG 25.40 (b)(1-6)].

1.12 Maps

Instructions:

- Attach site maps. For most projects, a series of site maps is recommended. The first should show the undeveloped site and its current features. An additional map or maps should be created to show the developed site or for more complicated sites show the major phases of development.

These maps should include the following:

- Direction(s) of stormwater flow and approximate slopes before and after major grading activities;
- Areas and timing of soil disturbance;
- Areas that will not be disturbed;
- Natural features to be preserved;
- Locations of major structural and non-structural BMPs identified in the SWPPP;
- Locations and timing of stabilization measures;
- Locations of off-site material, waste, borrow, or equipment storage areas;
- Locations of all waters, including wetlands;
- Locations where stormwater discharges to a surface water;
- Locations of storm drain inlets; and
- Areas where final stabilization has been accomplished.
- For more information, see SWPPP Guide, Chapter 3.C and EPA's CGP Part 3, Subparts 3.1.B.1 and 3.3.C.

See Appendix B – Site Maps

SECTION 2: EROSION AND SEDIMENT CONTROL BMPS

Instructions:

- Describe the BMPs that will be implemented to control pollutants in stormwater discharges. For each major activity identified, do the following
  - ✓ Clearly describe appropriate control measures.
  - ✓ Describe the general sequence during the construction process in which the measures will be implemented.
  - ✓ Describe the maintenance and inspection procedures that will be used for that specific BMP.
  - ✓ Include protocols, thresholds, and schedules for cleaning, repairing, or replacing damaged or failing BMPs.
  - ✓ Identify staff responsible for maintaining BMPs.
  - ✓ (If your SWPPP is shared by multiple operators, indicate the operator responsible for each BMP.)
- Categorize each BMP under one of the following 10 areas of BMP activity as described below:
  - *2.1 Minimize disturbed area and protect natural features and soil*
  - *2.2 Phase Construction Activity*
  - *2.3 Control Stormwater flowing onto and through the project*
  - *2.4 Stabilize Soils*
  - *2.5 Protect Slopes*
  - *2.6 Protect Storm Drain Inlets*
  - *2.7 Establish Perimeter Controls and Sediment Barriers*
  - *2.8 Retain Sediment On-Site and Control Dewatering Practices*
  - *2.9 Establish Stabilized Construction Exits*
  - *2.10 Any Additional BMPs*
- Note the location of each BMP on your site map(s).
- For any structural BMPs, you should provide design specifications and details and refer to them. Attach them as appendices to the SWPPP or within the text of the SWPPP.
- For more information, see *SWPPP Guide*, Chapter 4 and EPA's CGP Part 3, Subparts 3.3.B.2 and 3.4.A-D, and Part 4, Subpart 4.5.
- Consult your state's design manual or one of those listed in Appendix D of the *SWPPP Guide*.
- For more information or ideas on BMPs, see EPA's National Menu of BMPs http://www.epa.gov/npdes/stormwater/menuofbmps

AMENDMENT # 5 7/18/06 MD

2.1 Minimize Disturbed Area and Protect Natural Features and Soil

Topsoil

BMP Description: Topsoil stripped from the immediate construction area will be stockpiled as identified on the site map (See Appendix B). The stockpile will be in an area that will not interfere with construction phases and at least 15 feet away from areas of concentrated flows or pavement. The slopes of the stockpile will not exceed 2:1 to prevent erosion. A silt fence will be installed around the perimeter of the stockpile, in accordance with the design specifications in Section 2, Part 2.7. The stockpile will be temporarily stabilized with erosion controls as described in Section 2, Part 2.4.	
Installation Schedule:	Topsoil stockpiles will be established during grading activities. Temporary stabilization will be applied immediately after the slopes of the stockpile have been graded and construction equipment transverses the slopes.
Maintenance and Inspection:	The area will be inspected weekly for erosion and immediately after storm events. Areas on or around the stockpile that have eroded will be stabilized immediately with erosion controls. Maintenance and inspection procedures for the silt fence are described in Section 2, Part 2.7.
Responsible Staff:	ACC

2.1 Minimize Disturbed Area and Protect Natural Features and Soil

Instructions:

- Describe the areas that will be disturbed with each phase of construction and the methods (e.g., signs, fences) that you will use to protect those areas that should not be disturbed. Describe natural features identified earlier and how each will be protected during construction activity. Also describe how topsoil will be preserved. Include these areas and associated BMPs on your site map(s) also. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 1.)
- Also, see EPA's *Preserving Natural Vegetation BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/perserve_veg

Topsoil

AMENDMENT #5 7/15/06 MD

BMP Description: Topsoil stripped from the immediate construction area will be stockpiled as identified on the site map (See Appendix B). The stockpile will be in an area that will not interfere with construction phases and at least 15 feet away from areas of concentrated flows or pavement. The slopes of the stockpile will not exceed 2:1 to prevent erosion. A silt fence will be installed around the perimeter of the stockpile, in accordance with the silt fence design specifications in Section 2, Part 2.7. The stockpile will be covered with a commercially available tarp and secured with sand bags.

Installation Schedule:	Topsoil stockpiles will be established during grading activities. The silt fence, tarp and sand bags will be installed immediately after the stockpile has been established.
Maintenance and Inspection:	The area will be inspected weekly and immediately after storm events to ensure the stockpile is covered and sandbags are in place. The tarp will be inspected for holes or tears and replaced if any holes or tears are found. Maintenance and inspection procedures for the silt fence are described in Section 2, Part 2.7.
Responsible Staff:	ACC

2.2 Phase Construction Activity

Instructions:

- Describe the intended construction sequencing and timing of major activities, including any opportunities for phasing grading and stabilization activities to minimize the overall amount of disturbed soil that will be subject to potential erosion at one time. Also, describe opportunities for timing grading and stabilization so that all or a majority of the soil disturbance occurs during a time of year with less erosion potential (i.e., during the dry or less windy season). (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 2.) It might be useful to develop a separate, detailed site map for each phase of construction.
- Also, see EPA's *Construction Sequencing BMP Fact Sheet* at http://www.epa.gov/npdes/stormwater/menuofbmps/construction/cons_seq)

BMP Description: The proposed site is too small for phased grading to be practical. To minimize erosion during grading activities, grading and site work will be conducted in late April and May after snowmelt and during periods of predicted dry weather. The areas of the site that will remain vegetated after construction will be graded first and stabilized with hydromulch or seeding immediately after grading activities are completed. All other areas of the construction site will be stabilized if site work is not planned for more than 14 days. To minimize potential erosion from the site, only areas necessary to construct the vegetated swale, sediment trap, and construction exits will be disturbed initially. These areas will be cleared, grubbed, and graded and the above measures will be installed. These areas will be stabilized immediately after construction but no later than 14 days after construction ceases. Overall grubbing, clearing, grading will be conducted over a 2-week period in May to limit erosion from the site. Areas graded during this time period will be stabilized with hydromulch immediately after construction but no later than 14 days after construction ceases.

Installation Schedule:	For a timeline of construction activity, see Section 1.3.
Responsible Staff:	ACC

2.3 Control Stormwater Flowing onto and through the Project

Instructions:

- Describe structural practices (e.g., diversions, berms, ditches, storage basins) including design specifications and details used to divert flows from exposed soils, retain or detain flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 3.)

Vegetated Swale

***BMP Description*:** A vegetated swale will be installed along the northern perimeter of the site to capture stormwater run-on from the adjacent property. The swale will convey stormwater to a raised storm drain inlet in the northwest corner of the site. The inlet will be raised 1 foot above the bottom of the swale to allow for infiltration of the run-on. The vegetated swale will have a trapezoidal shape with a slope ratio of 2:1. The bottom of the swale will be at least 2 feet above the seasonal high water table and bedrock. The slopes of the swale will be stabilized with a dense cover of water-tolerant, erosion-resistant grasses, mulch and erosion control blankets immediately after final grade is reached. The vegetated swale will remain as a permanent stormwater structure after construction is complete. For design specifications, see Figure 1.

***Installation Schedule*:**	The vegetated swale will be installed before site grading operations begin at the construction site.
***Maintenance and Inspection*:**	The swale will be inspected for erosion and structural failures weekly and immediately after storm events. Before vegetation has been established in the swale, it will be inspected for erosion and accumulation of debris and sediment. Remove debris, sediment, and repair erosion and embankments immediately.
***Responsible Staff*:**	ACC

Figure 1. Vegetated swale

Design Specifications

1. The swale will have side slopes no steeper than 2:1 and a minimum length of 100 feet, per Stormville's erosion and sediment control requirements [REG 25.40 (b)(1-2)].
2. The slopes of the swale will be stabilized with a dense cover of water-tolerant, erosion-resistant grasses, per Stormville's erosion and sediment control requirements [REG 25.40 (b)(5)].
3. The bottom of the swale will be at least 2 feet above the seasonal high water table and bedrock, per Stormville's erosion and sediment control requirements [REG 25.40 (b)(6)].
4. The swale will have a positive drainage to convey runoff to the storm drain inlet.

2.4 Stabilize Soils

Instructions:

- Describe controls (e.g., interim seeding with native vegetation, hydroseeding) to stabilize exposed soils where construction activities have temporarily or permanently ceased. Also describe measures to control dust generation. Avoid using impervious surfaces for stabilization whenever possible. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 4, EPA's CGP Part 3, Subpart 3.13.D.)
- Also, see EPA's *Seeding BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/seeding

Temporary Stabilization

BMP Description: Hydromulching will provide immediate protection to exposed soils where construction will cease for more than 14 days and over the winter months. Straw mulch and wood fiber will be mixed with a tackifier (amount specified per manufacturer's instructions) and applied uniformly by machine with an application rate of 90–100 pounds (2–3 bales) per 1,000 square feet or 2 tons (100–200 bales) per acre. If the tackifier does not appear effective in anchoring the mulch to the disturbed soil, crimping equipment will be used to provide additional binding to the soil. The mulch will cover 75 to 90 percent of the ground surface. In areas, where hydromulching is inaccessible, straw mulch will be applied by hand with an application rate of 90–100 pounds (2–3 bales) per 1,000 square feet.

Winter stabilization will occur between November 15 and March 15. All disturbed areas are scheduled to be stabilized well before winter; however, if any vegetated areas show signs of erosion, mulch will be applied at the same rate as described above.

☐ ***Permanent***	☒ ***Temporary***
Installation Schedule:	Portions of the site where construction activities will temporarily cease for more than 14 days will be stabilized with mulch. Winter stabilization will occur between November 15th and March 15.
Maintenance and Inspection:	Mulched areas will be inspected weekly and after storm events to check for movement of mulch or erosion. If washout, breakage, or erosion occurs, the surface will be repaired, and new mulch will be applied to the damaged area.
Responsible Staff:	ACC

Permanent Stabilization

BMP Description: Permanent stabilization will be done immediately after the final design grades are achieved but no later than 14 days after construction ceases. Native species of plants will be used to establish vegetative cover on exposed soils. Permanent stabilization will be completed in accordance with the final stabilization procedures in Section 7.

☒ ***Permanent***	☐ ***Temporary***
Installation Schedule:	Portions of the site where construction activities have permanently ceased will be stabilized, as soon as possible but no later than 14 days after construction ceases.
Maintenance and Inspection:	All seeded areas will be inspected weekly during construction activities for failure and after storm events until a dense cover of vegetation has been established. If failure is noticed at the seeded area, the area will be reseeded, fertilized, and mulched immediately. After construction is completed at the site, permanently stabilized areas will be monitored until final stabilization is reached.
Responsible Staff:	ACC

Dust Control

BMP Description: Dust from the site will be controlled by using a mobile pressure-type distributor truck to apply potable water to disturbed areas. The mobile unit will apply water at a rate of 300 gallons per acre and minimized as necessary to prevent runoff and ponding.

Installation Schedule:	Dust control will be implemented as needed once site grading has been initiated and during windy conditions (forecasted or actual wind conditions of 20 mph or greater) while site grading is occurring. Spraying of potable water will be performed no more than three times a day during the months of May–September and

	once per day during the months of October–April or whenever the dryness of the soil warrants it.
Maintenance and Inspection:	At least one mobile unit will be available at all times to distribute potable water to control dust on the project area. Each mobile unit will be equipped with a positive shutoff valve to prevent over watering of the disturbed area. For vehicle and equipment maintenance practices, see Section 3, Part 3.4.
Responsible Staff:	ACC

2.5 Protect Slopes

Instructions:

- Describe controls (e.g., erosion control blankets, tackifiers) including design specifications and details that will be implemented to protect all slopes. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 5.)
- Also, see EPA's *Geotextiles BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/geotextiles

Geotextile Erosion Control Blanket

BMP Description: Geotextile erosion control blankets will be used to provide stabilization for the slopes in the vegetated swale and sediment trap. The blanket will cover the entire area of the graded slope and bottom channel. The bottom and side slopes will be seeded and mulched before the blanket is applied. The blanket will be installed by digging a small trench on the upside of the slope, 12 inches wide by 6 inches deep, and stapling the leading edge of the blanket in the trench. The blanket will be rolled down the slope slowly to maintain soil contact and stapled in 12-inch intervals. If the blanket cannot cover the entire slope, the blankets will be overlapped (minimum of 2 inches) and stapled at the overlapped edge. The erosion control blanket will always be installed according to the manufacturer's instructions and specifications. For design specifications, see Figure 2.

Installation Schedule:	The erosion control blankets will be installed once the vegetated swale and sediment trap have reached final grade.
Maintenance and Inspection:	The erosion control blanket will be inspected weekly and immediately after storm events to determine if cracks, tears, or breaches have formed in the fabric; if so, the blanket will be repaired or replaced immediately. Good contact with the soil must be maintained and erosion should not occur under the blanket. Any areas where the blanket is not in close contact with the ground will be repaired or replaced.
Responsible Staff:	ACC

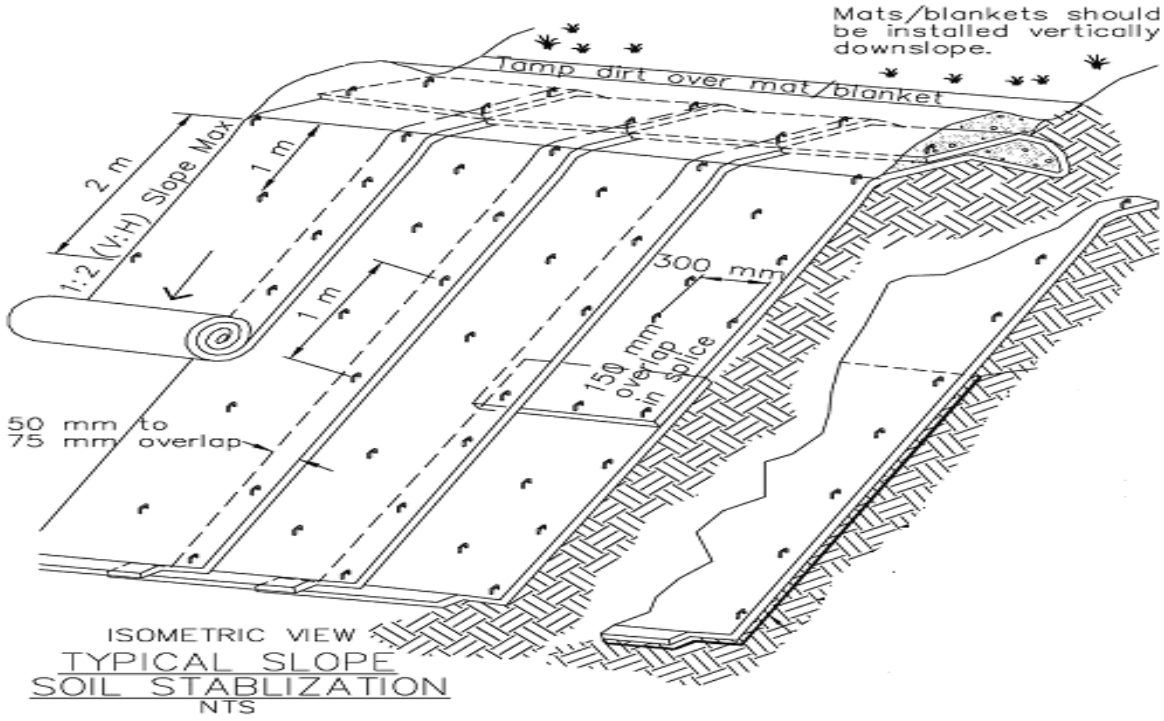

Figure 2. Erosion control blanket

Design Specifications

1. Slope surface will be free of rocks, clods, sticks and grass. The blankets will have good soil contact.
2. Lay blankets loosely and staple to maintain direct contact with the soil. Do not stretch.
3. Install per manufacturer's recommendations.

2.6 Protect Storm Drain Inlets

Instructions:

- Describe controls (e.g., inserts, rock-filled bags, or block and gravel) including design specifications and details that will be implemented to protect all inlets receiving stormwater from the project during the entire project. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 6.)
- Also, see EPA's *Storm Drain Inlet Protection BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/storm_drain

Existing Storm Drain Inlets

BMP Description: Existing storm drain inlets on Johnson Street and Sixth Avenue will be protected from sediment by commercially available catch basin inserts. Commercial devices, such as the catch basin inserts that are installed inside the inlet, will be used because of the large traffic volumes on these roads. These commercial devices were selected over gravel bag or block and gravel filters because of safety concerns. The catch basins will be removed once the construction site has been permanently stabilized.

Installation Schedule:	Inlet catch basins will be installed along Johnson Street and Sixth Avenue before construction activities begin on-site.
Maintenance and Inspection:	The catch basin inserts will be inspected weekly and immediately after storm events. If the basin insert becomes clogged with sediment, the insert will be removed and cleaned or replaced per the manufacturer's recommendations.
Responsible Staff:	ACC

2.7 Establish Perimeter Controls and Sediment Barriers

Instructions:

- Describe structural practices (e.g., silt fences or fiber rolls) including design specifications and details to filter and trap sediment before it leaves the construction site. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 7.)
- Also see, EPA's *Silt Fence BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/silt_fences or *Fiber Rolls BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/fiber_rolls

Silt Fence

BMP Description: Silt fences will be installed along the north and west perimeters of the site and around the topsoil stockpile. Silt fences will be installed by excavating a 12-inch-deep trench along the line of proposed installation. Wooden posts supporting the silt fence will be spaced 4 to 6 feet apart and driven securely into the ground; a minimum of 18 to 20 inches deep. The silt fence will be fastened securely to the wooden posts with wire ties spaced every 24 inches at the top, mid section, and bottom of the wooden post. The bottom edge of the silt fence will extend across the bottom of the trench and the trench will be backfilled and compacted to prevent stormwater and sediment from discharging underneath the silt fence. For design specifications, see Figure 3.

Installation Schedule:	The silt fences will be installed before construction begins at the site and around topsoil stockpiles once they have been established.

Maintenance and Inspection:	Silt fences will be inspected weekly and immediately after storm events to ensure it is intact and that there are no gaps where the fence meets the ground or tears along the length of the fence. If gaps or tears are found during the inspection, the fabric will be repaired or replaced immediately. Accumulated sediment will be removed from the fence base if it reaches one-third the height of the silt fence and hauled off-site for disposal at Middletown Landfill. If accumulated sediment is creating noticeable strain on the fabric and the fence might fail from a sudden storm event, the sediment will be removed more frequently. Before the fence is removed from the project area, the sediment will be removed. The anticipated life span of the silt fence is 6 months and will likely need to be replaced after this period.
Responsible Staff:	ACC

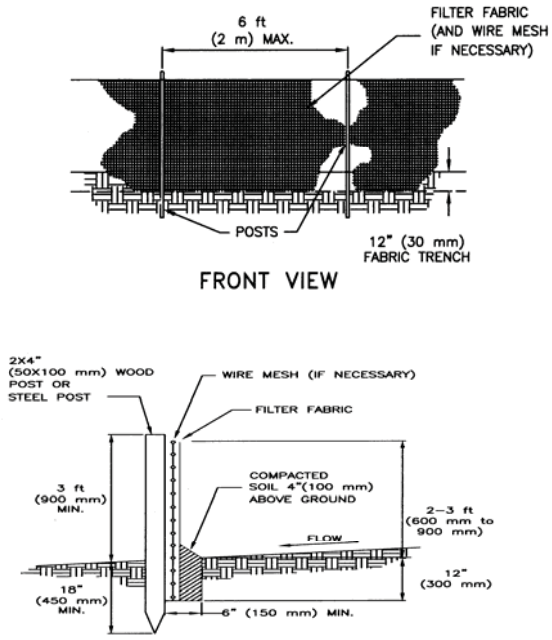

Figure 3. Silt fence

Design Specifications

1. The silt fence will be constructed long enough to extend across the expected flow path.
2. The support posts will be a minimum of 4.5 feet and driven a minimum of 18 to 20 inches in the ground. Posts will be spaced a maximum of 6 feet apart. Fabric will be securely fastened to posts with half-inch staples or 16-gauge wire ties spaced a maximum of 6 inches.
3. A 12-inch trench will be excavated along the uphill side of the silt fence posts. The bottom edge of the fabric will extend across the bottom of the trench. The trench will be backfilled to 4 inches above ground and compacted to bury and secure the bottom of the filter fabric.

2.8 Retain Sediment On-Site

Instructions:

- Describe sediment control practices (e.g., sediment trap or sediment basin), including design specifications and details (volume, dimensions, outlet structure) that will be implemented at the construction site to retain sediments on-site. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 8 or EPA's CGP Part 3.13.E.)
- Also, see EPA's *Sediment Basin BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/sediment_basins

Sediment Trap

BMP Description: A temporary pipe outlet sediment trap will be constructed on the northwest portion of the construction site to remove sediment from stormwater runoff for the site. The trap will be constructed to have a total volume of 7,500 cubic feet. The design volume is based on Stormville's erosion and sediment control requirements (REG 24.56), which requires a minimum of 1,800 cubic feet of storage per acre of drainage area for a sediment trap.

The trap will discharge through a riser outlet with a trash rack. The pipe outlet will be connected to the town's storm sewer system and is designed to discharge only for storms one-half inch or greater. The slopes of the trap will be stabilized with erosion control blankets. Influent to the trap will be supplied from natural drainage of the site. For design specifications, see Figure 4. The sediment trap will be converted to a permanent stormwater bioretention area following construction activities, see Section 4.

Installation Schedule:	The sediment trap will be installed before overlot grading operations commence at the construction site.
Maintenance and Inspection:	The trap will be inspected weekly and after storm events. The trap will be checked for signs of erosion, seepage, and structural damage. The outlet and trash rack will be checked for any damage or obstructions and any damage present will be repaired and obstructions removed. Sediment will be removed and the trap restored to its original dimensions when the sediment has accumulated to one-half the design depth of the trap. The removed sediments will be hauled off-site for disposal at Middletown Landfill.
Responsible Staff:	ACC

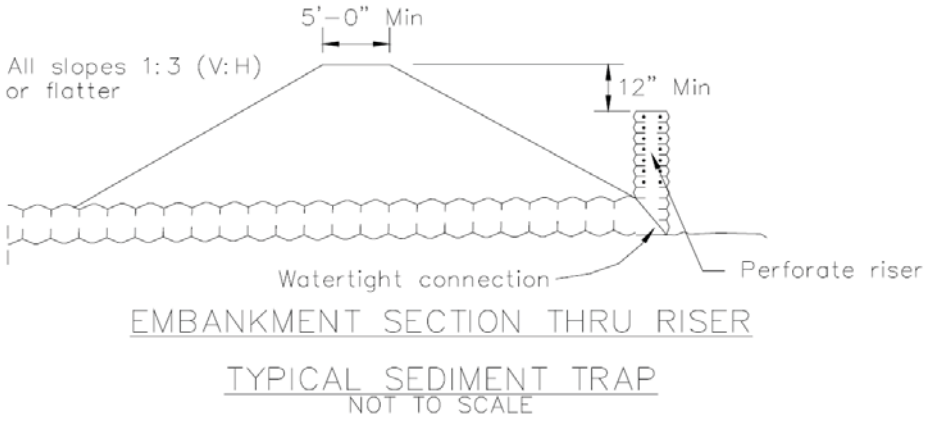

Figure 4. Pipe outlet sediment trap

Design Specifications

1. The area will be cleared, grubbed, and stripped of any vegetation and root mat.
2. The fill material of the embankment will be free any vegetation, root mat, rocks, or oversized stones. The embankment will be compacted by traversing with equipment.
3. Slopes will be stabilized in accordance with Part 2.4 of this section.

2.9 Establish Stabilized Construction Exits

Instructions:

- Describe location(s) of vehicle entrance(s) and exit(s), procedures to remove accumulated sediment off-site (e.g., vehicle tracking), and stabilization practices (e.g., stone pads or wash racks or both) to minimize off-site vehicle tracking of sediments and discharges to stormwater. (For more information, see *SWPPP Guide*, Chapter 4, ESC Principle 9 and EPA's CGP Part 3, Subparts 3.4.G and 3.13.B.)
- Also, see EPA's *Construction Entrances BMP Fact Shee*t at www.epa.gov/npdes/stormwater/menuofbmps/construction/cons_entrance

Stabilized Construction Exits

BMP Description: Anti-tracking pads consisting of stone and corrugated steel panels (*rumble pad)* will be installed at the exits to Sixth Avenue, as identified on the site map, to prevent the off-site transport of sediment by construction vehicles. The anti-tracking pads will be at least 50 feet long, a minimum of 10 feet wide, flared at the end closest to the paved road, and will consist of a 6-inch-thick layer of crushed stone (2 inches in diameter). The crushed stone will be placed over a layer of geotextile filter fabric to reduce the mitigation of sediment from the underlying soil. The *rumble pad* will be placed on top of the stone. Orange-colored plastic mesh fence will be installed along the length of the construction exit to keep construction vehicles and equipment on the anti-tracking pads. For design specifications, see Figure 5.

Installation Schedule:	The stabilized exits will be installed before construction begins on the site. The stone will remain in place until the subgrade of pavement is installed at the site. The anti-tracking pads will be

	placed on the pavement and will remain until all areas of the site have been stabilized.
Maintenance and Inspection:	The exits will be inspected weekly and after storm events or heavy use. The exits will be maintained in a condition that will prevent tracking or flowing of sediment onto Sixth Avenue. This could require adding additional crushed stone to the exit. All sediment tracked, spilled, dropped, or washed onto Sixth Avenue will be swept up immediately and hauled off-site for disposal at Middletown Landfill. Sediment will be swept from the anti-tracking pad at least weekly, or more often if necessary. If excess sediment has clogged the pad, the exit will be topdressed with new crushed stone. Replacement of the entire pad might be necessary when the pad becomes completely filled with sediment. The pad will be reshaped as needed for drainage and runoff control. Broken road pavement as a result of construction activities on roadways immediately adjacent to the project site will be repaired immediately. The stone anti-tracking pad will be removed before the subgrade of pavement is applied to the parking lot. The removed stone and sediment from the pad will be hauled off-site and disposed of at Middletown Landfill.
Responsible Staff:	ACC

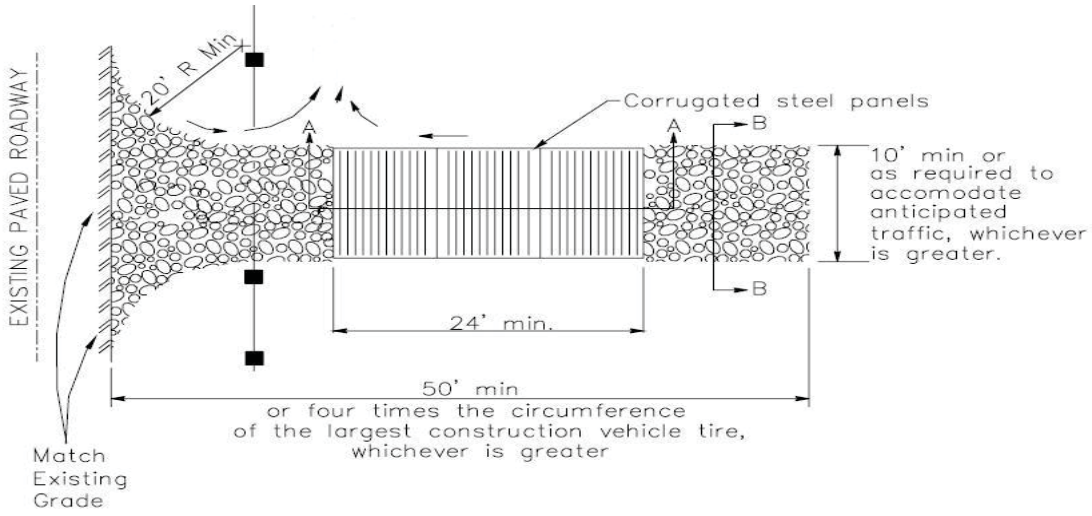

Figure 5. Stabilized construction exit

Design Specifications

1. Stone applied to the pad will be 2-inch stone.
2. The length of the pad will not be less than 50 feet.
3. The thickness of the pad will not be less than 6 inches.
4. The width of pad will be a minimum of 10 feet.
5. Filter fabric will be placed over the entire area before placing the stone.

2.10 Additional BMPs

Instructions:

- Describe additional BMPs that do not fit into the above categories.

Street Sweeping

BMP Description: Super Sweeping will perform street sweeping and vacuuming on Johnson Street and Sixth Avenue. Super Sweeping will use a regenerative air sweeper to remove sediments and other contaminants directly from the paved surfaces.	
Installation Schedule:	Street sweeping will occur weekly and before forecasted storm events on Johnson Street and Sixth Avenue.
Maintenance and Inspection:	All materials collected during street sweeping will be disposed of at an off-site location by the subcontractor.
Responsible Staff:	ACC

Cooperative Agreement and Operator Communication

BMP Description: All construction operators working on the Stormville Postal and Distribution Center project are required to sign the Construction Operator's Cooperative Agreement (see Section 1, Part 1.2) and agree to abide by the conditions of the agreement throughout the duration of the construction project. ACC will attend biweekly meetings with the USPS to discuss any issues related to implementation of this SWPPP and compliance with the Construction General Permit. ACC will maintain the SWPPP documentation and will conduct and document self-inspections in all areas of the site. ACC will provide copies of inspection reports to USPS immediately following each inspection.	
Responsible Staff:	ACC

SECTION 3: GOOD HOUSEKEEPING BMPS

Instructions:

- Describe the key good housekeeping and pollution prevention (P2) measures that will be implemented to control pollutants in stormwater.
- Categorize each good housekeeping and pollution prevention (P2) BMP under one of the following seven categories:
  - *3.1 Material Handling and Waste Management*
  - *3.2 Establish Proper Building Material Staging Areas*
  - *3.3 Designate Washout Areas*
  - *3.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices*
  - *3.5 Allowable Non-Stormwater Discharges and Control Equipment/Vehicle Washing*
  - *3.6 Spill Prevention and Control Plan*
  - *3.7 Any Additional BMPs*
- For more information, see *SWPPP Guide*, Chapter 5 and EPA's CGP Part 3, Subparts 3.4.(F), (G), (H), and (I).
- Consult your state's design manual or resources in Appendix D of the *SWPPP Guide*.
- For more information or ideas on BMPs, see EPA's National Menu of BMPs http://www.epa.gov/npdes/stormwater/menuofbmps

3.1 Material Handling and Waste Management

Instructions:

- Describe measures (e.g., trash disposal, sanitary wastes, recycling, and proper material handling) to prevent the discharge of solid materials to waters, except as authorized by a permit issued under section 404 of the CWA (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 1.)
- Also, see EPA's *General Construction Site Waste Management BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/cons_wasteman

Waste Materials

BMP Description: All waste materials will be collected and disposed of into two metal trash dumpsters in the materials storage area. Dumpsters will have a secure watertight lid, be placed away from stormwater conveyances and drains, and meet all federal, state, and municipal regulations. Only trash and construction debris from the site will be deposited in the dumpster. No construction materials will be buried on-site. All personnel will be instructed, during tailgate training sessions, regarding the correct disposal of trash and construction debris. Notices that state these practices will be posted in the office trailer and the individual who manages day-to-day site operations will be responsible for seeing that these practices are followed.

Installation Schedule:	Trash dumpsters will be installed once the materials storage area has been established.

Maintenance and Inspection:	The dumpsters will be inspected weekly and immediately after storm events. The dumpster will be emptied weekly and taken to Middletown Landfill by Ways Waste and Sanitary Services. If trash and construction debris are exceeding the dumpster's capacity, the dumpsters will be emptied more frequently.
Responsible Staff:	ACC

Hazardous Waste Materials

BMP Description: All hazardous waste materials such as oil filters, petroleum products, paint, and equipment maintenance fluids will be stored in structurally sound and sealed shipping containers, within the hazardous materials storage area. Hazardous waste materials will be stored in appropriate and clearly marked containers and segregated from other non-waste materials. Secondary containment will be provided for all waste materials in the hazardous materials storage area and will consist of commercially available spill pallets. Additionally, all hazardous waste materials will be disposed of in accordance with federal, state, and municipal regulations. Hazardous waste materials will not be disposed of into the on-site dumpsters. All personnel will be instructed, during tailgate training sessions, regarding proper procedures for hazardous waste disposal. Notices that state these procedures will be posted in the office trailer and the individual who manages day-to-day site operations will be responsible for seeing that these procedures are followed.

Installation Schedule:	Shipping containers used to store hazardous waste materials will be installed once the site materials storage area has been installed.
Maintenance and Inspection:	The hazardous waste material storage areas will be inspected weekly and after storm events. The storage areas will be kept clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Material safety data sheets, material inventory, and emergency contact numbers will be maintained in the office trailer.
Responsible Staff:	ACC

Sanitary Waste

BMP Description: Two temporary sanitary facilities (portable toilets) will be provided at the site throughout the construction phase. The toilets will be in the staging area. The portable toilets will be located away from a concentrated flow paths and traffic flow and will have collection pans underneath as secondary containment.

Installation Schedule:	The portable toilets will be brought to the site once the staging area as been established.

Maintenance and Inspection:	All sanitary waste will be collected from the portable facilities a minimum of three times per week by Ways Waste and Sanitary Services. The portable toilets will be inspected weekly for evidence of leaking holding tanks. Toilets with leaking holding tanks will be removed from the site and replaced with new portable toilets.
Responsible Staff:	ACC

Recycling

BMP Description: Wood pallets, cardboard boxes, and other recyclable construction scraps will be disposed of in a designated dumpster for recycling. The dumpster will have a secure watertight lid, be placed away from stormwater conveyances and drains and meet all local and state solid-waste management regulations. Only solid recyclable construction scraps from the site will be deposited in the dumpster. All personnel will be instructed, during tailgate training sessions, regarding the correct procedure for disposal of recyclable construction scraps. Notices that state these procedures will be posted in the office trailer, and the individual who manages day-to-day site operations will be responsible for seeing that these procedures are followed.

Installation Schedule:	Designated recycling dumpsters will be installed once the combined staging area has been established.
Maintenance and Inspection:	The recycling dumpster will be inspected weekly and immediately after storm events. The recycling dumpster will be emptied weekly and taken to an approved recycling center by Ways Waste and Sanitary Services. If recyclable construction wastes are exceeding the dumpster's capacity, the dumpsters will be emptied more frequently.
Responsible Staff:	ACC

3.2 Establish Proper Building Material Staging Areas

Instructions:

- Describe construction materials expected to be stored on-site and procedures for storage of materials to minimize exposure of the materials to stormwater. (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 2 and EPA's CGP Part 3.4.H.)

Materials Storage Area

BMP Description: Construction equipment and maintenance materials will be stored at the combined staging area and materials storage areas. Gravel bag berms will be installed around the perimeter to designate the staging and materials storage area. A watertight shipping container will be used to store hand tools, small parts, and other construction materials.

Nonhazardous building materials such as packaging material (wood, plastic, and glass), and construction scrap material (brick, wood, steel, metal scraps, and pipe cuttings) will be stored in a separate covered storage facility adjacent to the shipping container. All hazardous-waste materials such as oil filters, petroleum products, paint, and equipment maintenance fluids will be stored in structurally sound and sealed containers under cover within the hazardous materials storage area.

Very large items, such as framing materials and stockpiled lumber, will be stored in the open in the materials storage area. Such materials will be elevated on wood blocks to minimize contact with runoff.

Installation Schedule:	The materials storage area will be installed after grading and before any infrastructure is constructed at the site.
Maintenance and Inspection:	The storage area will be inspected weekly and after storm events. The storage area will be kept clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners will be repaired or replaced as needed to maintain proper function.
Responsible Staff:	ACC

3.3 Designate Washout Areas

Instructions:

- Describe location(s) and controls to eliminate the potential for discharges from washout areas for concrete mixers, paint, stucco, and so on. (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 3.)
- Also, see EPA's *Concrete Washout BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/concrete_wash

Concrete Washout AMENDMENT #3 7/11/06 MD CONCRETE WASHOUT MOVED NW OF CURRENT LOCATION

BMP Description: A designated temporary, above-grade concrete washout area will be constructed ~~on the northeast portion of the site,~~ as detailed on the site map. The temporary concrete washout area will be constructed as shown in Figure 5, with a recommended minimum length and minimum width of 10 feet, but with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations. The washout area will be lined with plastic sheeting at least 10 mils thick and free of any holes or tears. Signs will be posted marking the location of the washout area to ensure that concrete equipment operators use the proper facility.

Concrete pours will not be conducted during or before an anticipated storm event. Concrete mixer trucks and chutes will be washed in the designated area or concrete wastes will be properly disposed of off-site. When the temporary washout area is no longer needed for the construction project, the hardened concrete and materials used to construct the area will be removed and

disposed of according to the maintenance section below, and the area will be stabilized. For design specifications, see Figure 5.	
Installation Schedule:	The washout area will be constructed before concrete pours occur at the site.
Maintenance and Inspection:	The washout areas will be inspected daily to ensure that all concrete washing is being discharged into the washout area, no leaks or tears are present, and to identify when concrete wastes need to be removed. The washout areas will be cleaned out once the area is filled to 75 percent of the holding capacity. Once the area's holding capacity has been reached, the concrete wastes will be allowed to harden; the concrete will be broken up, removed, and taken to Middletown Landfill for disposal. The plastic sheeting will be replaced if tears occur during removal of concrete wastes from the washout area.
Responsible Staff:	ACC

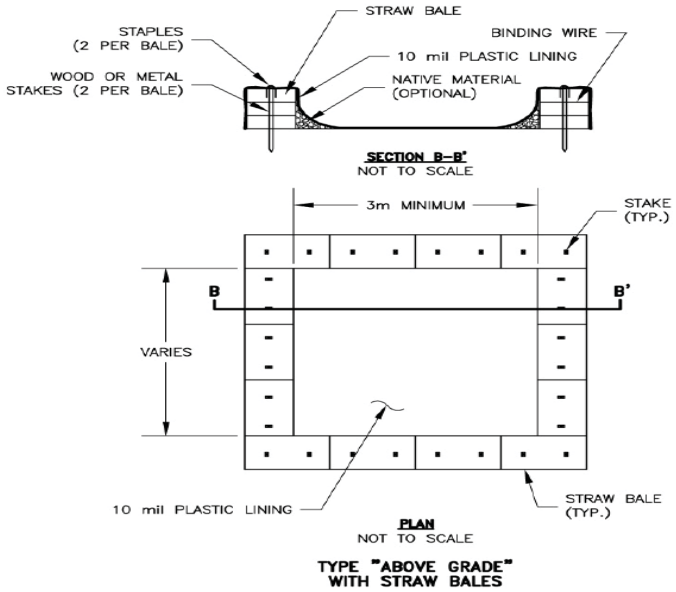

Figure 6. Above grade concrete washout

Design Specifications

1. Temporary concrete washout type *Above Grade* will be constructed as shown above, with a recommended minimum length and minimum width of 10 feet.
2. The washout will be a minimum of 50 feet from storm drain inlets.
3. Plastic lining will be free of holes, tears, or other defects that compromise the impermeability of the material.

3.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

Instructions:

- Describe equipment/vehicle fueling and maintenance practices that will be implemented to control pollutants to stormwater (e.g., secondary containment, drip pans, and spill kits) (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 4.)
- Also, see EPA's *Vehicle Maintenance and Washing Areas BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/vehicile_maintain

Vehicle/Equipment Fueling and Maintenance

BMP Description: Several types of vehicles and equipment will be used on-site throughout the project, including graders, scrapers, excavators, loaders, paving equipment, rollers, trucks and trailers, backhoes, and forklifts. All major equipment/vehicle fueling and maintenance will be performed off-site. A small, 20-gallon pickup bed fuel tank will be kept on-site in the combined staging area. When vehicle fueling must occur on-site, the fueling activity will occur in the staging area. Only minor equipment maintenance will occur on-site. All equipment fluids generated from maintenance activities will be disposed of into designated drums stored on spill pallets in accordance with Part 3.1. Absorbent, spill-cleanup materials and spill kits will be available at the combined staging and materials storage area. Drip pans will be placed under all equipment receiving maintenance and vehicles and equipment parked overnight.

Installation Schedule:	BMPs implemented for equipment and vehicle maintenance and fueling activities will begin at the start of the project.
Maintenance and Inspection:	Inspect equipment/vehicle storage areas and fuel tank weekly and after storm events. Vehicles and equipment will be inspected on each day of use. Leaks will be repaired immediately, or the problem vehicle(s) or equipment will be removed from the project site. Keep ample supply of spill-cleanup materials on-site and immediately clean up spills and dispose of materials properly.
Responsible Staff:	ACC

3.5 Control Equipment/Vehicle Washing

Instructions:

- Describe equipment/vehicle washing practices that will be implemented to control pollutants to stormwater. (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 5.)
- Also, see EPA's *Vehicle Maintenance and Washing Areas BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/vehicile_maintain

BMP Description: All equipment and vehicle washing will be performed off-site.	
Installation Schedule:	N/A
Maintenance and Inspection:	N/A
Responsible Staff:	ACC

3.6 Spill Prevention and Control

Instructions:

- Describe the spill prevention and control procedures to include ways to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and control. (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 6 and EPA's CGP Parts 4.3 and 4.4.)
- Also, see EPA's *Spill Prevention and Control Plan BMP Fact sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/spill_control

Spill Prevention and Control Procedures

BMP Description:

i. Employee Training: All employees will be trained via biweekly tailgate sessions, as detailed in Section 6, Part 6.3.
ii. Vehicle Maintenance: Vehicles and equipment will be maintained off-site. All vehicles and equipment including subcontractor vehicles will be checked for leaking oil and fluids. Vehicles leaking fluids will not be allowed on-site. Drip pans will be placed under all vehicles and equipment that are parked overnight.
iii. Hazardous Material Storage: Hazardous materials will be stored in accordance with Section 3, Part 1 and federal and municipal regulations.
iv. Spill Kits: Spill kits will be within the materials storage area and concrete washout areas.
v. Spills: All spills will be cleaned up immediately upon discovery. Spent absorbent materials and rags will be hauled off-site immediately after the spill is cleaned up for disposal at Middletown Landfill. Spills large enough to discharge to surface water will be reported to the National Response Center at 1-800-424-8802.
vi. Material safety data sheets, a material inventory, and emergency contact information will be maintained at the on-site project trailer.

Installation Schedule:	The spill prevention and control procedures will be implemented once construction begins on-site.
Maintenance and Inspection:	All personnel will be instructed, during tailgate training sessions, regarding the correct procedures for spill prevention and control. Notices that state these practices will be posted in the office trailer, and the individual who manages day-to-day site operations will be responsible for seeing that these procedures are followed.
Responsible Staff:	ACC

3.7 Any Additional BMPs

Instructions:

- Describe any additional BMPs that do not fit into the above categories. Indicate the problem they are intended to address.

BMP Description: No Additional BMPs were identified.

Installation Schedule:	N/A
Maintenance and Inspection:	N/A
Responsible Staff:	ACC

3.8 Allowable Non-Stormwater Discharge Management

Instructions:

- Identify all allowable sources of non-stormwater discharges that are not identified. The allowable non-stormwater discharges identified in Part 1.3.B of EPA's CGP include
  - ✓ Discharges from fire-fighting activities
  - ✓ Fire hydrant flushings
  - ✓ Waters used to wash vehicles where detergents are not used
  - ✓ Water used to control dust in accordance with EPA's CGP, Part 3, Subpart 3.4.G
  - ✓ Potable water including uncontaminated water line flushings
  - ✓ Routine external building wash down that does not use detergents
  - ✓ Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used
  - ✓ Uncontaminated air conditioning or compressor condensate
  - ✓ Uncontaminated ground water or spring water
  - ✓ Foundation or footing drains where flows are not contaminated with process materials such as solvents
  - ✓ Uncontaminated excavation dewatering
  - ✓ Landscape irrigation
- Identify measures used to eliminate or reduce these discharges and the BMPs used to prevent them from becoming contaminated.
- For more information, see *SWPPP Guide*, Chapter 3.A or EPA's CGP Part 1.3.B and 3.5.

List allowable non-stormwater discharges and the measures used to eliminate or reduce them and to prevent them from becoming contaminated:

Any changes in construction activities that produce other allowable non-stormwater discharges will be identified, and the SWPPP will be amended and the appropriate erosion and sediment control will be implemented.

Water Used to Control Dust

BMP Description: Dust control will be implemented as needed once site grading has begun and during windy conditions (forecasted or actual wind conditions of 20 mph or greater) while site grading is occurring. Spraying of potable water at a rate of 300 gallons per acre or less will be performed by a mobile pressure-type distributor truck no more than three times a day during the months of May–September and once per day during the months of October–April or whenever the dryness of the soil warrants it.

Responsible Staff:	ACC

Uncontaminated Excavation Dewatering

BMP Description: Because construction for this site is being conducted during the dry season, dewatering activities are not expected to occur at the project site. If dewatering does occur, the SWPPP will be revised to address the need for appropriate BMPs.

Responsible Staff:	ACC

Landscape Irrigation

BMP Description: Irrigation waters will not be sprayed onto impermeable surfaces such as paved driveways and roads. Waters will be directed onto soil and lawns by using hoses and correctly sized sprinklers with adjustable spray patterns. To avoid discharges of irrigation waters, the sprinklers will have low-flow rates and increased watering time. The irrigated area will be inspected for excess watering and to adjust watering times and schedules.

Responsible Staff:	ACC

SECTION 4: SELECTING POST-CONSTRUCTION BMPs

Instructions:

- Describe all post-construction stormwater management measures that will be installed during the construction process to control pollutants in stormwater discharges after construction operations have been completed. Examples of post-construction BMPs include the following:
  - ✓ Biofilters
  - ✓ Detention/retention devices
  - ✓ Earth dikes, drainage swales, and lined ditches
  - ✓ Infiltration basins
  - ✓ Porous pavement
  - ✓ Other proprietary permanent structural BMPs
  - ✓ Outlet protection/velocity dissipation devices
  - ✓ Slope protection
  - ✓ Vegetated strips and/or swales
- Identify any applicable federal, state, local, or tribal requirements for design or installation.
- Describe how low-impact designs or smart growth considerations have been incorporated into the design.
- For any structural BMPs, you should have design specifications and details and refer to them. Attach them as appendices to the SWPPP or within the text of the SWPPP.
- For more information on this topic, see your state's stormwater manual.
- You might also want to consult one of the references listed in Appendix D of the *SWPPP Guide* and EPA's CGP Part 3, Subparts 3.4.E and 3.9.
- Visit the post-construction section of EPA's Menu of BMPs at: www.epa.gov/npes/menuofbmps

Bioretention Area

BMP Description: During the final stabilization phase of construction, the sediment trap will be converted to a permanent bioretention area. The existing sediment trap will be graded and excavated to a minimum depth of 5 feet. The outlet structure does not need to be modified for this conversion process. An underdrain will be installed and tied into the bottom of the existing outlet structure to completely drain the planting soil to avoid oversaturation. The underdrain will be covered with 8 inches of 1- to 2-inch pea gravel and backfilled with a homogeneous soil mix, consisting of sand (50 percent), topsoil (20–30 percent) and organic leaf compost (20–30 percent). The backfill will extend to a depth of 12 inches below the top of the bioretention area, which allows a ponding depth of approximately 6–8 inches. The bioretention area will be planted with native species of vegetation consisting of small trees, shrubs, and grasses. A 2- to 3-inch layer of wood mulch will be applied after planting stabilize the area and allow vegetation to be established. Two riprap spillways will be constructed, as detailed on the site map, to reduce runoff velocity before entering the bioretention area. Design specifications are omitted from this example SWPPP.

Installation Schedule:	The basin will be converted to a permanent bioretention area during the final stabilization phase of construction.
Maintenance and Inspection:	The bioretention area will be inspected weekly and after storm events during construction. The area will be checked for signs of erosion, seepage, and structural damage. Erosion, seepage, and structural damage will be repaired immediately. The outlet and trash rack will be checked for any damage or obstructions and any damage found will be repaired and obstructions removed. Immediately after the completion of construction, the plant material will be watered for 14 consecutive days unless there is sufficient natural rainfall. The area will be monitored until final stabilization is reached. Following completion of site construction and final stabilization, maintenance and inspection responsibilities (see Appendix L – Post-Construction Maintenance Plan) will be taken over by Russ Braybrooks, USPS.
Responsible Staff:	ACC

Vegetated Swale

BMP Description: The vegetated swale as described in Section 2, Part 2.3 will remain as a permanent stormwater management structure for the site. The swale will convey runoff to an overflow inlet in the northwest corner of the site.

Installation Schedule:	The vegetated swale will be installed before site grading begins.
Maintenance and Inspection:	See Section 2, Part 2.3 for maintenance and inspection procedures for the vegetated swale. Following completion of site construction and final stabilization, maintenance and inspection responsibilities (see Appendix L – Post-Construction Maintenance Plan) will be taken over by Russ Braybrooks, USPS.
Responsible Staff:	ACC

Infiltration Trench

BMP Description: An infiltration trench without a stormwater outlet will be installed in the north parking area to control stormwater runoff from that parking area. The infiltration trench will consist of an excavated, shallow trench backfilled with sand, coarse stone, and pea gravel, and lined with a filter fabric. The trench will be 65 feet long, 5 feet wide, and have a depth of 3 feet. Design specifications are omitted from this example SWPPP.

Installation Schedule:	The infiltration trench will be installed during the final stabilization phase of construction.
Maintenance and Inspection:	The trench will be inspected weekly and after major storm events during construction. The area will be checked for signs of erosion, seepage, and structural damage. Erosion, seepage, and structural damage will be repaired immediately. Following completion of site construction and final stabilization, maintenance and

	inspection responsibilities (see Appendix L – Post-Construction Maintenance Plan) will be taken over by Russ Braybrooks, USPS.
Responsible Staff:	ACC

Porous Pavers

BMP Description: Interlocking concrete paving blocks will installed in the north and south overflow parking areas as detailed on the post-construction site map. The voids in the concrete paving blocks will be filled with soil and seeded to allow vegetation to grow. Design specifications are omitted from this example SWPPP.	
Installation Schedule:	The infiltration trench will be installed during the final stabilization phase of construction.
Maintenance and Inspection:	The porous paver's area will be inspected weekly and after major storm events during construction. Any structural damage found during the inspection will be repaired immediately. After installation of the porous pavers, the plant material will be watered for 14 consecutive days unless there is sufficient natural rainfall. The area will be monitored until vegetation is established. Following completion of site construction and final stabilization, maintenance and inspection responsibilities (see Appendix L – Post-Construction Maintenance Plan) will be taken over by Russ Braybrooks, USPS.
Responsible Staff:	ACC

Tree Box Filter

BMP Description: Tree box filters will installed at the site, as detailed on the site map, to control runoff from portions of the parking area. Runoff will be directed to the tree box, where it will be cleaned by vegetation and soil before infiltrating into the surrounding soil. The filters will consist of a container filled with a soil mixture, mulch layer, perforated under-drain system and vegetation. The filters will be designed and installed according to the manufacturer's specifications. Design specifications are omitted from this example SWPPP.	
Installation Schedule:	The tree box filters will be installed during the final stabilization phase of construction.
Maintenance and Inspection:	Immediately after installation of the tree box filters, the plant material will be watered for 14 consecutive days unless there is sufficient natural rainfall. Following completion of site construction and final stabilization, maintenance and inspection responsibilities (see Appendix L – Post-Construction Maintenance Plan) will be taken over by Russ Braybrooks, USPS.
Responsible Staff:	ACC

SECTION 5: INSPECTIONS

5.1 Inspections

Instructions:

- Identify the individual(s) responsible for conducting inspections and describe their qualifications. Reference or attach the inspection form that will be used.
- Describe the frequency that inspections will occur at your site including any correlations to storm frequency and intensity.
- Note that inspection details for particular BMPs should be included in Sections 2 and 3.
- You should also document the repairs and maintenance that you undertake as a result of your inspections. These actions can be documented in the corrective action log described in Part 5.3 below.
- For more on this topic, see *SWPPP Guide*, Chapters 6 and 8 and EPA's CGP Part 3, Subparts 3.6.A, 3.10 and 3.11.C.
- Also, see suggested inspection form in Appendix B of the *SWPPP Guide*.

1. ***Inspection Personnel:*** Identify the person(s) who will be responsible for conducting inspections and describe their qualifications:

- Ms. Martina Davis is the stormwater compliance officer for ACC and is responsible for site compliance with the SWPPP and EPA's Construction General Permit. Ms. Davis will conduct inspections for all areas of the site disturbed by construction activities, areas used for storage of materials that are exposed to precipitation, discharge points, and construction exits.

  In absence of Ms. Davis, Mark Smith, Associate Compliance Officer for ACC, will conduct inspections.

- *Qualifications:*

  Martina Davis

  1. Ms. Davis has 15 years of experience complying with stormwater regulations and has developed construction SWPPPs for more than 40 different construction projects and conducted inspections for those projects.
  2. Received certification as a Certified Professional in Erosion and Sediment Control (CPESC) in August 2000 (see Appendix L).
  3. Completed the IECA training course *The Best of BMPs: Application, Implementation, and Maintenance* in Reno, Nevada, July 2004 (see Appendix L).
  4. Completed the *University of New Hampshire Stormwater Center: Stormwater Concepts, Regulatory Concepts, Hydrology and Design* training course in Concord, New Hampshire, September 2005.

Mark Smith

1. Mr. Smith has developed construction SWPPPs for 10 different construction projects and conducted inspections for those construction projects.
2. He received certification as a Certified Professional in Erosion and Sediment Control (CPESC) in May 2003.

2. Inspection Schedule and Procedures:

Describe the inspection schedules and procedures you have developed for your site (include frequency of inspections for each BMP or group of BMPs, indicate when you will inspect, e.g., before/during/and after rain events, spot inspections):

- Inspections of the site will be performed once every 7 days and within 24 hours of the end of a storm event of one-half inch or greater. The inspections will verify that all BMPs required in Sections 2 and 3 are implemented, maintained, and effectively minimizing erosion and preventing stormwater contamination from construction materials. For detailed inspection procedures, see Sections 2 and 3.
- All inspections will be coordinated with an inspector from the USPS. A USPS inspector will accompany Ms. Davis, when possible, during inspections.

Describe the general procedures for correcting problems when they are identified. Include responsible staff and time frames for making corrections.

If corrective actions are identified by Ms. Davis during the inspection, she will notify and submit a copy of the inspection report to the project managers, Bill Rustler and Russ Braybrooks. For corrective actions identified, Mr. Rustler will be responsible for initiating the corrective action within 24 hours of the report and completing maintenance as soon as possible or before the next storm event. For any corrective actions requiring a SWPPP amendment or change to a stormwater conveyance or control design, Mr. Rustler will notify Russ Braybrooks, as soon as possible, before initiating the corrective action.

Attach a copy of the inspection report you will use for your site:

For a copy of the inspection report, see Appendix E.

5.2 Delegation of Authority

Instructions:

- Identify the individual(s) or specifically describe the position where the construction site operator has delegated authority for the purposes of signing inspection reports, certifications, or other information.
- Attach a copy of the signed delegation of authority form that will be used.
- For more on this topic, see *SWPPP Guide*, Chapter 7 and Appendix G, Subsection 11 of EPA's CGP.

Duly Authorized Representative(s) or Position(s):

Advanced Construction Contractors
Ms. Martina Davis
Compliance/Inspection Officer
5800 Washington Avenue
Nashua, NH 03064
Office Phone: (603) 444-3210
Office Fax: (603) 444-3211

See Appendix K – Delegation of Authority

5.3 Corrective Action Log

Instructions:

- Create here, or as an attachment, a corrective action log. This log should describe repair, replacement, and maintenance of BMPs undertaken as a result of the inspections and maintenance procedures described above. Actions related to the findings of inspections should reference the specific inspection report.
- This log should describe actions taken, date completed, and note the person that completed the work.

Corrective Action Log:

See Appendix F – Corrective Action Log

SECTION 6: RECORDKEEPING AND TRAINING

6.1 Recordkeeping

Instructions:

- The following is a list of records you should keep at your project site available for inspectors to review:
- Dates of grading, construction activity, and stabilization (which is covered in Sections 2 and 3)
- A copy of the construction general permit (attach)
- The signed and certified NOI form or permit application form (attach)
- A copy of the letter from EPA or/the state notifying you of their receipt of your complete NOI/application (attach)
- Inspection reports (attach)
- Records relating to endangered species and historic preservation (attach)
- Check your permit for additional details
- For more on this subject, see *SWPPP Guide*, Chapter 6.C and EPA's CGP Part 3, Subparts 3.4.C, 3.8, 3.10.G and 3.12.A.

Records will be retained for a minimum period of at least 3 years after the permit is terminated.

Date(s) when major grading activities occur:

See Appendix I – Grading and Stabilization Activities Log

Date(s) when construction activities temporarily or permanently cease on a portion of the site:

See Appendix I – Grading and Stabilization Activities Log

Date(s) when an area is either temporarily or permanently stabilized:

See Appendix I – Grading and Stabilization Activities Log

6.2 Log of Changes to the SWPPP

Instructions:

- Create a log here, or as an attachment, of changes and updates to the SWPPP. You should include additions of new BMPs, replacement of failed BMPs, significant changes in the activities or their timing on the project, changes in personnel, changes in inspection and maintenance procedures, updates to site maps, and so on.

Log of changes and updates to the SWPPP
See Appendix G – SWPPP Amendment Log

6.3 Training

Instructions:

- Training your staff and subcontractors is an effective BMP. As with the other steps you take to prevent stormwater problems at your site, you should document the training that you conduct for your staff, for those with specific stormwater responsibilities (e.g. installing, inspecting, and maintaining BMPs), and for subcontractors.
- Include dates, number of attendees, subjects covered, and length of training.
- For more on this subject, see *SWPPP Guide*, Chapter 8.

Individual(s) Responsible for Training:

Ms. Dorothy Williams

Describe Training Conducted:

- General stormwater and BMP awareness training for staff and subcontractors:

  Ms. Davis will conduct informal training for all staff, including subcontractors, on the site. The training will be conducted primarily via tailgate sessions and will focus on avoiding damage to stormwater BMPs and preventing illicit discharges. The tailgate sessions will be conducted biweekly and will address the following topics: Erosion Control BMPs, Sediment Control BMPs, Non-Stormwater BMPs, Waste Management and Materials Storage BMPs, and Emergency Procedures specific to the construction site. (See Appendix J – SWPPP Training Log)

- Detailed training for staff and subcontractors with specific stormwater responsibilities:

  Ms. Davis will provide formal training to all staff and subcontractors with specific stormwater responsibilities, such as installing and maintaining BMPs. The formal training will cover all design and construction specifications for installing the BMPs and proper procedures for maintaining each BMP. Formal training will occur before any BMPs are installed on the site. (See Appendix J – SWPPP Training Log)

SECTION 7: FINAL STABILIZATION

Instructions:

- Describe procedures for final stabilization. If you complete major construction activities on part of your site, you can document your final stabilization efforts for that portion of the site. Many permits will allow you to then discontinue inspection activities in these areas (be sure to check your permit for exact requirements). You can amend or add to this section as areas of your project are finally stabilized.
- Update your site plans to indicate areas that have achieved final stabilization.
- For more on this topic, see *SWPPP Guide*, Chapter 9 and EPA's CGP Part 3, Subparts 3.11 and 3.13.D, and Part 5, Subpart 5.1.

Permanent Seeding

BMP Description: Permanent seeding will be applied immediately after the final design grades are achieved on portions of the site but no later than 14 days after construction activities have permanently ceased. After the entire site is stabilized, any sediment that has accumulated will be removed and hauled off-site for disposal at Middletown Landfill. Construction debris, trash and temporary BMPs (including silt fences, material storage areas, sanitary toilets, and inlet protection) will also be removed and any areas disturbed during removal will be seeded immediately.

Seedbed Preparation

a. In areas where disturbance results in subsoil being the final grade surface, topsoil will be spread over the finished area at minimum depth of 2 to 6 inches.
b. The seedbed will be free of large clods, rocks, woody debris and other objectionable materials.
c. Fertilizer and lime will be applied to the seedbed according to the manufacturer's recommendations or soil tests (soil tests are omitted from this example SWPPP).
d. The top layer of soil will be loosened to a depth of 3–5 inches by raking, tilling, disking or other suitable means.

Grass Selection/Application

a. Common areas at the site will be stabilized with a mixture of Tall Fescue, Creeping Red Fescue and Redtop at an application rate of 30 pounds per acre or 0.95 pounds per 1,000 square feet. Lawns will be stabilized with a mixture of Kentucky Blue Grass and Creeping Red Fescue at an application rate of 100 pounds per acre or 2.3 pounds per 1,000 square feet.
b. Seed will be applied uniformly by hydroseeding or broadcasting. Where broadcasting is used, the seed will be covered with .25 inch of soil or less, by cultipacking or raking.

Mulching

a. Hydromulch will be applied immediately following seeding at an application rate of 90–100 pounds (2–3 bales) per 1,000 square feet.

Installation Schedule:	Portions of the site where construction activities have permanently ceased will be stabilized, as soon as possible but no later than 14 days after construction ceases.
Maintenance and Inspection:	All seeded areas will be inspected weekly during construction activities for failure and after storm events until a dense cover of vegetation has been established. If failure is noticed at the seeded area, the area will be reseeded, fertilized, and mulched immediately. After construction is completed at the site, permanently stabilized areas will be monitored until final stabilization is reached.
Responsible Staff:	ACC

SECTION 8: CERTIFICATION AND NOTIFICATION

Instructions:

- The SWPPP should be signed and certified by the construction operator(s). Attach a copy of the NOI and permit authorization letter received from EPA or the state in Appendix D.
- For more information, see EPA's CGP Part 3, Subpart 3.12.A-D and Appendix G, Section 11.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: Joe Butler Title: Owner

Signature: Joe Butler Date: 3/12/06

SECTION 8: CERTIFICATION AND NOTIFICATION

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- For more information, see EPA's CGP Part 3, Subpart 3.12.A-D and Appendix G, Section 11.

Project Information:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: Russ Beaubrooks Title: Design + Const. Project Manager

Signature: Russ Beaubrooks Date: 3/12/04

SWPPP APPENDICES

Attach the following documentation to the SWPPP:

Appendix A – General Location Map

Appendix B – Site Maps

Appendix C –Construction General Permit

Appendix D – **NOI and Permit Authorization Letter from EPA/State, Alteration of Terrain Application, and Storm Water Permit Basics: New Hampshire Digging Needs a Federal Permit Fact Sheet**

Appendix E – Inspection Reports

Appendix F – Corrective Action Log

Appendix G – SWPPP Amendment Log

Appendix H – Subcontractor Certifications/Agreements

Appendix I – Grading and Stabilization Activities Log

Appendix J – Training Log

Appendix K – Delegation of Authority

Appendix L – Additional Information

Appendix E
Model Ordinances for Stormwater Management

Model Ordinances for Stormwater Management

The following provides examples of two model ordinances: a Stormwater Management Ordinance (including erosion and sediment control stormwater pollution prevention) and a Post Construction Ordinance, which can be adopted by localities to help prevent stormwater pollution within their jurisdiction. The ordinance examples are provided as a guide. More information on ordinances for stormwater pollution prevention can be found at the EPA Web site:
http://www.epa.gov/owow/NPS/ordinance/mol2.htm

MODEL ORDINANCE FOR STORMWATER MANAGEMENT

Construction / Erosion and Sediment Control

Illicit Discharges

Table of Contents

ARTICLE 1.0 INTRODUCTION

It is the intention of the _____ to protect the health and safety of the citizens and visitors of the County/City/City and to prevent damage to private property and public facilities through the proper design and construction of both on-site and regional stormwater management and/or detention facilities that prevent or adequately reduce increases in peak flow rates of runoff that may otherwise increase the risk of flooding and the associated risk of public endangerment, property damage and erosion. To accomplish this goal, the _____ finds it is necessary to provide stormwater management practices for drainage and control of flood and surface waters within the unincorporated portions of the County/City/City. This is to insure that storm and surface waters may be properly drained and controlled, pollution may be reduced and environment enhanced, and that the health property, safety and welfare of the County/City/City and its inhabitants may be safeguarded and protected.

Stormwater Runoff is a major contributor to degradation and pollution of receiving waters. Discharges into a Stormwater Runoff system may occur because of stormwater runoff, spills, dumping, and/or improper connections to the stormwater system from developments, residential, industrial, commercial, or institutional establishments. Such discharges not only impact waterways individually, but geographically dispersed, small volume discharges can have a cumulative impact on receiving waters, which can adversely affect public health and safety, drinking water supplies, recreation, fish and other aquatic life, property values and other uses of lands and waters. The _____ endorses promulgation of this ordinance to address the impacts of stormwater runoff, spills, improper dumping, and/or illegal connections to the County/City runoff system. This ordinance applies to all unincorporated lands within the County/City.

SECTION A PURPOSE

A. The purpose of this ordinance is to protect the environment, public health, safety, property and general welfare of the citizens of _____, through the regulation of Stormwater Runoff and Illicit Discharges into the County/City Drainage System or any separate storm sewer system, to the maximum extent practicable as required by Federal and State law. This ordinance establishes methods for controlling the introduction of pollutants into the County/City Drainage System in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process.

B. This ordinance is not intended to modify or repeal any other County/City ordinance, rule or regulation. The requirements of this ordinance are in addition to the requirements of any other County/City ordinance, rule or regulation, and where any provision of this ordinance imposes restrictions different from those imposed by any other County/City ordinance, rule or regulation, whichever provision is more restrictive or imposes higher protective standards for human health or the environment shall control.

SECTION B OBJECTIVES

A. The objectives of this ordinance are:
   (1) to regulate or restrict the introduction of pollutants that may potentially enter the County/City Drainage System;
   (2) to prohibit Illegal Connections and Illicit Discharges to any separate storm sewer system;

(3) to identify, define, and regulate erosion, sediment and detention controls related to Stormwater Runoff;
(4) to prevent discharges that may occur as a result of spills, inappropriate dumping or disposal, and/or improper connections to the County/City Drainage System, whether from residential, industrial, commercial or institutional establishments;
(5) to provide the County/City with the means to effectively manage Stormwater Runoff, non-conformance, and Illicit Discharges, and to establish enforcement actions for those persons or entities found to be in noncompliance, or that refuse to allow access to their facilities; and
(6) to establish means to carry out all inspection, surveillance, monitoring and enforcement procedures necessary to ensure compliance with this ordinance.

SECTION C CITATION

This ordinance may be cited as_____, Mississippi Stormwater Ordinance.

ARTICLE 2.0 DEFINITIONS

Accidental Discharge: A discharge prohibited by this ordinance, which occurs by chance, and without planning or thought prior to occurrence.

Authorized Enforcement Agency: _____, Mississippi.

Best Management Practices (BMPs): Schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures and other management practices designed to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating procedures and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

Best Management Practices (BMPs) – Non-Structural: A policy, practice or preventative action that involves operational planning and source controls designed to provide a similar approach to stormwater management.

Best Management Practices (BMPs) – Structural: A physical device designed and constructed or manufactured to trap or filter pollutants from runoff, to reduce runoff velocities, or to minimize or prevent the effects of soil erosion caused by Stormwater Runoff.

Clean Water Act: The Federal Water Pollution Control Act (33 U.S.C., 1251 et seq.), and any subsequent amendments thereto.

Construction Activity: Activities subject to NPDES construction permits. These include construction projects resulting in land disturbances. Such activities include, but are not limited to, clearing and grubbing, grading, excavating and demolition.

County/City Drainage System (CDS): Any County/City maintained or designated roadway, ditch, culvert, channel, or conduit intended to direct water flows.

Facility: A structure, installation, or system that is designed to serve a particular purpose, service, or function.

Hazardous Materials: Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Illegal Connections: Any pipe, open channel, drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the drainage system including but not limited to any conveyances which allow any non-stormwater discharge including sewage, process wastewater, wash water, or any other such discharge, to enter the County/City Drainage System and any connections to the County/City Drainage System from any source, regardless of whether such pipe, open channel, drain, connection, or source had been previously allowed, permitted, or approved by the County/City.

Illicit Discharge: Any direct or indirect discharge into the County/City Drainage System that is not composed entirely of stormwater.

Industrial Activity: Activities subject to NPDES Industrial Permits as defined in 40 CFR, Section 122.26 (b)(14).

National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit: A permit issued by EPA (or by the State under authority delegated pursuant to (33 USC 1342(b)) that authorizes the discharge of Pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

Non-Stormwater Discharge: Any discharge to the County/City Drainage System that is not composed entirely of stormwater.

Person: Any individual, association, organization, partnership, firm, trust, estate, commission, board, public or private institution, utility, cooperative, city, County/City or other political subdivision of the State, any interstate body or other legal entity, joint venture, public or private corporation, or other entity recognized by law and acting as either the owner or as the owner's agent.

Pollutant: Any substance which causes or contributes to pollution. Pollutants may include, but are not limited to paints, varnishes, solvents, petroleum hydrocarbons, automotive fluids, cooking grease, detergents (biodegradable or otherwise), degreasers, cleaning chemicals, non-hazardous liquid and solid wastes, yard wastes, refuse, rubbish, garbage, litter, discarded or abandoned objects, munitions, accumulations that may cause or contribute to pollution, any floatables, pesticides, herbicides, fertilizers, hazardous substances and wastes, sewage, fecal coliform and pathogens, dissolved and particulate metals, animal wastes, wastes and residues that result from constructing a building or structure including concrete/cement (this includes water from washing out cement trucks) and noxious or offensive matter of any kind or any other substance which has been or may be determined to be a pollutant.

Pollution: The contamination or other alteration of any water’s physical, chemical or biological properties by the addition of any substance or condition including but not limited to, a change in temperature, taste, color, turbidity, or odor of such waters, or waters as will or is likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety, welfare, or environment, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life.

Premises: Any parcel of land whether improved or unimproved.

State Waters: Any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and other bodies of surface and subsurface water, natural or artificial, lying within or forming a part of the boundaries of the State, which are not entirely confined and retained completely upon the property of a single person.

Storm Drainage System: Any one (1) or more of various devices used in the collection, treatment or disposition of storm, flood or surface drainage waters, including but not limited to any roads with drainage systems, natural and human-made or altered drainage channels, reservoirs, manmade structures and natural watercourses and/or floodplains for the conveyance of runoff, such as detention or retention areas, berms, swales, improved gutters, pumping stations, pipes, ditches, siphons, catch basins, inlets, and other equipment and appurtenances and all extensions, improvements, remodeling, additions and alterations thereof; and any and all rights or interests in such stormwater facilities.

Stormwater/Stormwater Runoff: Any surface flow, runoff and/or drainage consisting entirely of water from any form of natural precipitation, which is not absorbed, transpired, evaporated or left in surface depressions, and which then flows controlled or uncontrolled into a watercourse or body of water.

Stormwater Pollution Prevention Plan (SWPPP): A document which describes the Best Management Practices (BMPs) and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to stormwater, stormwater conveyance systems and/or receiving waters to the maximum extent practicable.

Structural Stormwater Control: A structural stormwater management facility or device that controls stormwater runoff and changes the characteristics of that runoff, including but not limited to, the quantity and quality, the period of release or the velocity of flow.

Wastewater: Any water or other liquid, other than uncontaminated stormwater, discharged from a facility.

Watercourse: Any stream, river, or drainage channel or drainage easement, that is located in the incorporated/unincorporated portions of_____.

ARTICLE 3.0 APPLICABILITY

This ordinance shall apply to any and all water entering the County/City Drainage System generated on any developed or undeveloped lands throughout all of the unincorporated portions of the County/City unless explicitly exempted by the County/City and the provisions of the State of Mississippi's Phase II Stormwater MS4 General Permit. The standards set forth herein and promulgated pursuant to this ordinance are minimum standards; therefore, this ordinance does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, or unauthorized discharge of Pollutants.

ARTICLE 4.0 RESPONSIBILITY FOR ADMINISTRATION

The County/City Administrator, or designee, shall enforce the provisions of this ordinance.

ARTICLE 5.0 SEVERABILITY

The provisions of this ordinance are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this ordinance, or the application thereof to any person, establishment, or circumstances, shall be held invalid, such invalidity shall not affect the other provisions or application of this ordinance.

ARTICLE 6.0 POLICY

No owner of any parcel of land or property, whether with or without a structure thereupon, shall permit the erosion or escape of soil, sand, gravel, or similar material from said parcel onto any adjoining property, public street or into any drainage channel that receives Stormwater Runoff from said parcel in such quantities as to harm said adjoining property, public street, drainage channel or County/City Drainage System. In the development or use of any site, the owners or occupant shall not construct or conduct any activity so as to cause the discharge of Stormwater in such a manner as to cause erosion or to increase blockage of a channel or the County/City Drainage System. This includes both pre-construction and post-construction.

SECTION A PERMITTING

Stormwater permits and Stormwater Pollution Prevention Plans (SWPPP) are required as follows:

- 0-.9 Acre of land disturbed: No permit or SWPPP required unless the subject property is part of a larger common plan of development or sale.
- 1-5 Acres of land disturbed: Permit required from the County/City. A Notice of Intent (NOI) and SWPPP must be submitted to the County/City Permits Office (See Appendix B and C for examples).
- Above 5 Acres: Permit required from MDEQ. SWPPP must also be submitted to MDEQ.
- All land disturbance activities for commercial construction shall obtain a permit from County/City. Permit applications for commercial land disturbance activities less than five acres shall be submitted to the County/City complete with an NOI and SWPPP.
- For projects greater than 5 acres, the permitted entity is required to submit to the County/City copies of the approved MDEQ permits.
- Permitted shall provide proof of issuance of other applicable permits from the U.S. Army Corps of Engineers if waters of the United States are to be filled, rerouted, or dammed.

ARTICLE 7.0 CONSTRUCTION AND/OR INDUSTRIAL ACTIVITY

Any person subject to an industrial or construction activity National Pollution Discharge Elimination System (NPDES) Stormwater Discharge Permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the County/City prior to the allowing of discharges to the County/City Drainage System. Dumping excess cement and washing out cement trucks are included in this article.

All construction activities regulated through this ordinance including both residential and commercial construction shall include sediment and erosion control measures designed for a 2 year, 24-hour storm frequency. Structural components (post-construction) of a storm drainage system may be designed on the basis of a lesser storm event providing the calculations demonstrate that the 2 year, 24 hour storm event can be accommodated through a combination of design features, such as infiltration and storage. Post-Construction storm drainage design shall be completed in accordance with the requirements of the Mississippi Department of Transportation: “Roadway Design Manual”, particularly Chapter 7.

SECTION A STANDARDS AND REQUIREMENTS FOR EROSION/SEDIMENT CONTROL

(a) Prior to the final approval of the plat of any subdivision, or prior to commencement of construction upon any lot or parcel of land for which a drainage report and construction plan for the installation of stormwater facilities has not been prepared and approved, the owner of

the property being subdivided or upon which construction is being commenced shall, at such owners cost, prepare a detailed drainage report and construction plans for the installation of all Stormwater facilities required for such subdivision or lot, including any off-site facilities required to convey Stormwater to existing drains, channels, streams, detention ponds or to other points, all in conformity with the SWPPP on file.

(b) No final subdivision plat, subdivision construction plan, site plan or building permit shall be approved by the County/City unless the plans for the proposed development include temporary and permanent erosion and sedimentation control measures such that siltation of downstream drainage ways are minimized.

(c) The above requirement shall be accomplished through a combination of the following practices:
    a. installation of structural BMPs before and during construction in order to reduce on-site soil erosion and provide temporary capture of sediment;
    b. temporary and/or permanent revegetation of bare ground in order to stabilize disturbed soil at the earliest practicable date;
    c. construction of on-site Stormwater detention facilities by the landowner or developer in a manner such that detention ponds function as temporary sedimentation basins until permanent revegetation of the subject tract is accomplished;
    d. Control of construction debris, litter and sanitary wastes through appropriate and acceptable means; and
    e. Other measures which may be necessary to control erosion and sedimentation on a site-by-site basis.

SECTION B STANDARDS AND REQUIREMENTS FOR STORMWATER DETENTION

(a) It is prohibited to place fill material or construct impervious cover or construct or place any other structure on a person's property or perform any excavation or grading in a manner that alters the flow of surface water across said property in a manner that damages any adjacent property.
    1. No final subdivision plat, subdivision construction plan, site plan or building permit shall be approved by the County/City unless it can be demonstrated by the owner or developer of such property that the proposed development will not result in damage to any adjacent or downstream property. This will be certified by a professional engineer's submittal of sufficient data and calculations.

(b) The above requirement shall be accomplished through one of the following means:
    1. Design and construction of an on-site Stormwater detention facility, or facilities, by the owner or developer that limits the peak stormwater runoff from the proposed development to the existing peak stormwater runoff from the subject tract.
    2. Construction of, or participation in the construction of, off-site drainage improvements, such as storm inlets, storm sewers, culverts, channel modifications, land filling, and/or other drainage facilities such that the peak stormwater runoff for fully-developed watershed conditions from the watershed area in which the proposed development is located will be sufficiently and safely passed without flooding of adjacent and downstream property and roadways.
    3. Design and construction of the development utilizing engineering data and calculations using limited impervious cover, infiltration of runoff from impervious cover via flow through pervious areas, and/or grass-lined swales or channels such that these measures result in a minimal increase in peak stormwater runoff from the development. A thorough review of the downstream drainage facilities shall be performed to verify that any increase in the peak stormwater runoff does not adversely affect existing structures or properties.

4. All on-site Stormwater detention facilities shall be designed to adequately and safely pass all stormwater inflow, including on-site runoff and runoff from upstream and adjacent properties that have natural and/or existing overland flow toward and onto the subject tract. The on-site Stormwater detention facilities should not impound Stormwater onto or cause backwater to inundate any upstream or adjacent properties in excess of existing conditions.

SECTION C ILLICIT DISCHARGES

(a) It shall be unlawful for any person to allow discharges to the County/City Drainage System that are not composed entirely of Stormwater Runoff, or to contribute to increased nonpoint source pollution and degradation of receiving waters.

(b) It shall be unlawful for any person to throw, deposit, empty, drain, discharge, or to permit to be thrown, deposited, emptied, drained or discharged into any creek, or upon its margins, slopes, banks, or stormwater drainage system within the County/City any garbage, rubbish, refuse, hair, ashes, cinders, fruit, vegetables, paper, rags, any animal carcass or waste, sewerage, excrement, urine, liquid, or semi-liquid waste from any industry, or any noxious substance or liquid.

(c) No Person shall, or allow others under its control to, throw, drain, or otherwise discharge or cause to be discharged into the County/City Drainage System or watercourses any Pollutants or waters containing any Pollutants that cause or contribute to a violation of applicable water quality standards, other than Stormwater. The commencement, conduct or continuance of any Illicit Discharge to the County/City Drainage System is prohibited except as follows:
   1. discharges specified in writing by the County/City as being necessary to protect public health and safety;
   2. water line flushing performed by the County/City or the regional utility authority;
   3. landscape irrigation or lawn watering, diverted stream flows, rising ground water, ground water infiltration to storm drains, uncontaminated pumped ground water, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, non-commercial washing of vehicles, natural riparian habitat or wet-land flows, swimming pools (less than one PPM chlorine), fire fighting activities, and any other water source not containing Pollutants; and
   4. dye testing is an allowable discharge, but requires a verbal notification to the County/City prior to the time of the test.

This prohibition shall not apply to any non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the County/City Drainage System.

SECTION D ILLEGAL CONNECTIONS

The construction, connection, use, maintenance or continued existence of any illegal connection to the County/City Drainage System is prohibited. This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection. The construction, use, maintenance or continued existence of illicit connections to the storm drainage system is prohibited.

(a) A person is considered to be in violation of this ordinance if the person connects a line conveying sewage to the County/City Drainage System, or allows such a connection to continue.
(b) Improper connections in violation of this ordinance must be disconnected and redirected, if necessary, to an approved onsite wastewater management system or the sanitary sewer system upon approval of the County/City.
(c) Any drain or conveyance that has not been documented in plans, maps or equivalent, and which may be connected to the County/City Drainage System, shall be located by the owner or occupant of that property upon receipt of written notice of violation from the County/City requiring that such locating be completed. Such notice will specify a reasonable time period within which the location of the drain or conveyance is to be completed, that the drain or conveyance be identified as storm sewer, sanitary sewer or other, and that the outfall location or point of connection to County/City Drainage System, sanitary sewer system or other discharge point is identified. Results of these investigations are to be documented and provided to the County/City.

ARTICLE 8.0 MONITORING OF DISCHARGES/ACCESS AND INSPECTING PROPERTIES AND FACILITIES

A. Applicability

This section applies to all properties that create stormwater discharges associated with the use of the property.

1. Access to Properties and Facilities
   (a) The County/City Administrator or designee shall be permitted to enter and inspect properties and facilities subject to regulation under this ordinance at reasonable times and as often as may be necessary to determine compliance with this ordinance. If a discharger has security measures in force, which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to representatives of the County/City.
   (b) Property owners and facility operators shall allow the County/City Administrator or designee access to all parts of the premises for the purposes of inspection, sampling, photographing, videotaping, examination and copying of records that must be kept under the conditions of an NPDES permit to discharge stormwater, and the performance of any additional duties as defined by State and Federal law.
   (c) The County/City Administrator or designee shall have the right to set up on any permitted property such devices as are necessary in the opinion of the County/City Administrator or designee to conduct monitoring and/or sampling of the facility's Stormwater discharge.
   (d) The County/City Administrator or designee has the right to require a discharger to install monitoring equipment as necessary, and perform monitoring and make the monitoring data available to the County/City Administrator or designee. The sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure Stormwater flow and quality shall be calibrated to ensure their accuracy.
   (e) Any temporary or permanent obstruction that does not allow safe and easy access to the property to be inspected and/or sampled shall be promptly removed by the owner at the written or oral request of the County/City Administrator or designee and shall not be replaced. The costs of clearing such access shall be borne by the owner.
   (f) Unreasonable delays in allowing the County/City Administrator or designee access to a permitted property is a violation of a Stormwater discharge permit and of this ordinance. A person who is the owner of property with a NPDES permit to discharge Stormwater

associated with industrial activity commits an offense if the person denies the County/City Administrator or designee reasonable access to the permitted property for the purpose of conducting any activity authorized or required by this ordinance.

2. If the County/City Administrator or designee has been refused access to any part of the premises from which Stormwater is discharged, and is able to demonstrate probable cause to believe that there may be a violation of this ordinance, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this ordinance or any order issued hereunder, or to protect the overall public health, safety, environment, and welfare of the community, then the County/City Administrator may seek issuance of an administrative warrant from the County/City Court.

ARTICLE 9.0 REQUIREMENT TO PREVENT, CONTROL, AND REDUCE STORM WATER POLLUTION BY THE USE OF BEST MANAGEMENT PRACTICES (BMPs)

The Board of Supervisors will adopt requirements identifying Best Management Practices for any activity, operation, or facility which may cause or contribute to pollution or contamination of Stormwater, the County/City Drainage System, or waters of the U.S. The owners or operators of commercial or industrial establishments shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the County/City Drainage System through the use of these structural and non-structural BMPs. Further, any person responsible for a parcel, which is, or may be, the source of an Illicit Discharge, may be required to implement, at said person's expense, additional structural and non-structural BMP's to prevent the further discharge of Pollutants to the County/City Drainage System. Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of Stormwater associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this section. These BMP's shall be part of a Stormwater Pollution Prevention Plan (SWPPP) as necessary for compliance with requirements of the NPDES permit.

ARTICLE 10.0 WATERCOURSE OR EASEMENT PROTECTION

Any person owning property through which a Watercourse passes, or such person's lessee, shall keep and maintain that part of the Watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the Watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a Watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the Watercourse.

ARTICLE 11.0 NOTIFICATION OF SPILLS

In the event of a release of Hazardous Materials, emergency response agencies and/or other appropriate agencies shall be immediately notified. Notwithstanding other requirements of law, as soon as any person responsible for a facility, activity, or operation, or responsible for emergency response for a facility, activity, or operation has information of any known or suspected release of Pollutants or non-Stormwater materials from that facility or operations which are resulting or may result in Illicit Discharges or Pollutants discharging into Stormwater, the County/City Drainage System, State waters, or waters of the U.S., said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release so as to minimize the effects of a discharge .

In the event of recognition of such a release of Hazardous Materials said person shall immediately notify the County/City Administrator or designee and emergency response agencies of the occurrence, either in

person, by phone, or facsimile no later than 24 hours after discovery of the occurrence. In the event of a release of non-hazardous materials, said person shall notify the County/City Administrator or designee in person or by phone or facsimile no later than 5:00 P.M. the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the County/City Administrator or designee within three business days of the telephonic notice.

If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years. Said person shall also take immediate steps to ensure no recurrence of the discharge or spill. Failure to provide notification of a release as provided above is a violation of this ordinance.

ARTICLE 12.0 VIOLATIONS

It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this ordinance. Anyone who has violated or continues to violate the provision of this ordinance, may be subject to enforcement actions outlined in this section or may be restrained by injunction or otherwise restricted in a manner provided by law. Whenever the County/City Administrator or designee finds a violation of this ordinance has occurred, the County/City Administrator or designee may order compliance by written notice of violation.

SECTION 1

A. A The notice shall contain:
   (1) the name and address of the alleged violator;
   (2) the address when available or a description of the building, structure or land upon which the violation is occurring, or has occurred;
   (3) a statement specifying the nature of the violation;
   (4) a description of the remedial measures necessary to restore compliance with this ordinance and time schedule for the completion of such remedial action;
   (5) a statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed; and
   (6) a statement that the determination of violation may be appealed to the Board of Supervisors by filing a written notice of appeal with the County/City Administrator, within fifteen (15) days of service of notice of violation.

B. Such notice may require:
   (1) the performance of monitoring, analyses, and reporting;
   (2) the elimination of illicit connections or discharges;
   (3) that violating discharges, practices, or operations shall cease and desist. Depending on severity of the violations, offending person(s) may be given as little as 24 hours to clean up sediments, pollutants, etc., and an additional 24 hours to put stormwater controls in place, otherwise, a stop-work order may be issued;
   (4) the abatement or remediation of Stormwater pollution or contamination hazards and the restoration of any affected property;
   (5) payment of a fine and any costs to cover administrative, remediation, and/or abatement expenses; and
   (6) the implementation of source control, pollution prevention practices, or treatment BMPs.

If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which such remediation or restoration must be completed. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by the County/City or a contractor and the expense thereof shall be charged to the violator.

SECTION 2 VIOLATIONS ENFORCEMENT

In the event a violation constitutes an immediate danger to public health or public safety, the County/City Administrator or designee is authorized to enter upon the subject private property, without giving prior notice, to take any and all measures necessary to abate the violation and/or restore the property. After abatement of the violation, the owner of the property shall be notified of the cost of abatement, including administrative costs. The property owner may file an appeal within 15 days of the receipt of such notice. If the amount due is not paid within a timely manner as determined by the decision of the appropriate authority or by the expiration of the time in which to file an appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment.

ARTICLE 13.0 PENALTIES AND PROSECUTION

SECTION 1

A. CIVIL

In the event the alleged violator fails to take the remedial measures set forth in the notice of violation or otherwise fails to cure the violations described therein within ten days, or such greater period as the County/City Administrator shall deem appropriate, after the County/City has taken one or more of the actions described above, the County/City may seek any legal or equitable remedy available under the law. The County/City may recover all attorneys' fees, court costs, and other expenses associated with enforcement of this ordinance, including sampling and monitoring expenses.

B. CRIMINAL

Violations of this ordinance shall be deemed a misdemeanor. The County/City may issue a citation to the alleged violator requiring such person to appear before the County/City Court to answer charges for such violation. Upon conviction, such person shall be punished by a fine not to exceed $1,000.00 or imprisonment in the County/City jail for 90 days, or both.

C. INJUNCTION

If a person has violated or continues to violate the provisions of this ordinance, the County/City may petition for an injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

D. ALTERNATIVE ACTION

In addition to any other remedy, the County/City may impose upon a violator alternative compensatory action, such as storm drain stenciling, attendance at compliance workshops, creek cleanup, or similar action.

SECTION 2 REMEDIES NOT EXCLUSIVE

The remedies listed in this ordinance are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the County/City to seek cumulative remedies.

SECTION 3 VIOLATIONS DEEMED A PUBLIC NUISANCE

In addition to the enforcement processes and penalties provided herein, any condition caused or permitted to exist in violation of any of the provisions of this ordinance is a threat to public health, safety, and welfare, and environment, is declared and deemed a nuisance, and may be abated by injunctive or other equitable relief provided by law.

SECTION 4 SUSPENSION OF ACCESS TO STORM DRAINAGE SYSTEM(S)

A. Suspension due to Illicit Discharges in Emergency Situations

The County/City may, without prior notice, suspend discharge access to a person when such suspension is necessary to stop an actual or threatened discharge, which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the County/City may take such steps as deemed necessary to prevent or minimize damage to the County/City Drainage System or waters of the United States, or to minimize danger to persons.

B. Suspension due to the Detection of Illicit Discharge

1. A person discharging to the County/City Drainage System in violation of this ordinance may have access thereto terminated if such termination would abate or reduce an Illicit Discharge. The County/City Administrator will notify a violator of the proposed termination of its County/City Drainage System access. The violator may petition the County/City Administrator for a reconsideration and hearing.
2. A person commits an offense if the person reinstates access to premises terminated pursuant to this Section, without the prior approval of the County/City.

ARTICLE 14.0 APPEALS

Any person receiving a notice of violation may appeal the determination within 15 days of issuance of notice to the County/City Administrator. The notice of appeal must be filed with the County/City Administrator. A hearing on the appeal shall be set by the Board of Supervisors with at least ten (10) days notice to the violator.

If the violation has not been corrected pursuant to the requirements set forth in the notice of violation, or, in the event of an unsuccessful appeal, then representatives of the County/City may enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. If entry refused the County/City Administrator may need administrative warrant in County/City Court authorizing such access.

PASSED AND ADOPTED this ____ day of _____, 20__, by the following vote:

APPENDIX A SWPPP DETAILS AND REQUIREMENTS

A. SWPPP Development. A SWPPP shall be developed and implemented by the owner or operator of a small construction project. The SWPPP must include a description of appropriate control measures (i.e., BMPs) that will be implemented as part of the construction activity to control pollutants in storm water discharges.

1. The SWPPP shall be retained at the permitted site or locally available. A copy of the SWPPP must be made available to the MDEQ inspectors for review at the time of an on-site inspection.
2. BMPs shall be in place upon commencement of construction.
3. The Executive Director of MDEQ may notify the owner or operator at any time that the SWPPP does not meet the minimum requirements of this permit. After notification, the owner or operator shall amend the SWPPP, implement the changes and certify in writing to the Executive Director that the requested changes have been made. Unless otherwise provided by the Executive Director, the requested changes shall be made within 15 days.
4. The owner or operator shall amend the SWPPP and implement the changes before there is a change in construction, operation, or maintenance, which may potentially affect the discharge of pollutants to State waters.
5. The owner or operator shall amend the SWPPP and implement the changes if the SWPPP proves to be ineffective in controlling storm water pollutants including, but not limited to, significant sediment leaving the site and non-functioning BMPs.

B. Compliance with Local Storm Water Ordinances.

1. In addition to the requirements of this permit, the SWPPP shall be in compliance with all local storm water ordinances and shall provide a brief description of applicable local erosion and sediment controls and post-construction BMPs.
2. When storm water discharges into a municipal storm sewer system, the owner or operator must make the SWPPP available to the municipal authority upon request.

C. SWPPP Details.

1. **Owner or Operator.** The SWPPP shall identify the "owner or operator" as defined in Part VII. of this permit. The operator's name, complete mailing address and telephone number(s) shall be identified on the plan.
2. **Erosion and Sediment Controls.** The owner or operator shall list and describe controls appropriate for the construction activities and the procedures for implementing such controls. Controls shall be designed to retain sediment onsite and should:
    - Divert upslope water around disturbed areas
    - Limit exposure of disturbed areas to the shortest time possible
    - Disturb the smallest area possible
    - Preserve existing vegetation where possible, especially trees
    - Preserve vegetated buffer zones around any creek, drain, lake, pond or wetland
    - Slow rainfall runoff velocities to prevent erosive flows
    - Avoid disturbing sensitive areas such as:
      - Steep and/or unstable slopes
      - Land upslope of surface waters
      - Areas with erodible soils
      - Existing drainage channels
    - Transport runoff down steep slopes through lined channels or piping
    - Minimize the amount of cut and fill
    - Re-vegetate disturbed areas as soon as possible

- Implement best management practices to mitigate adverse impacts from storm water runoff; and
- Remove sediment from storm water before it leaves the site by allowing runoff to pond in controlled areas to drop out sediment
- Filter runoff by using natural vegetation, brush barriers, silt fences, hay bales, etc.

At a minimum, the controls must be in accordance with the standards set forth in "Planning and Design Manual for the Control of Erosion, Sediment & Stormwater," or other recognized Manual of design as appropriate for Mississippi. The planning and design manual can be obtained by calling 601/961-5171 or may be found electronically at Mississippi State's educational web site at http://abe.msstate.edu/csd/p-dm/. In addition, Mississippi's "Storm Water Pollution Prevention Plan (SWPPP) Guidance Manual for Construction Activities" is available by calling 601/961-5171 or on the MDEQ website at www.deq.state.ms.us. The erosion and sediment controls shall address the following minimum components.

B. **Vegetative practices** shall be designed to preserve existing vegetation where possible and revegetate disturbed areas as soon as practicable after grading or construction. Such practices may include surface roughening, temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffer strips, and protection of trees.

C. **Structural practices** shall divert flows from exposed soils, store flows or otherwise limit runoff from exposed areas. Such practices may include construction entrance/exit, straw bale dikes, silt fences, earth dikes, brush barriers, drainage swales, check dams, subsurface drains, pipe slope drains, level spreaders, drain inlet protection, outlet protection, detention/retention basins, sediment traps, temporary sediment basins or equivalent sediment controls.

D. **Post construction control measures** shall be installed to control pollutants in storm water after construction is complete. These controls include, but are not limited to on-site infiltration of runoff, flow attenuation using open vegetated swales, exfiltration trenches and natural depressions, constructed wetlands and retention/detention structures. Where needed, velocity dissipation devices shall be placed at detention or retention pond outfalls and along the outfall channel to provide a non-erosive flow.

3. **Non-Storm Water Discharges**. Except for flows from fire fighting activities, sources of non-storm water listed in Part I. E. of this permit that are combined with storm water discharges associated with construction activity must be identified in the SWPPP. The SWPPP must identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

4. **Housekeeping Practices.** The owner or operator shall describe and list practices appropriate to prevent pollutants from entering storm water from construction sites due to poor housekeeping. The owner or operator shall:
   - designate areas for equipment maintenance and repair and concrete chute wash off;
   - provide waste receptacles at convenient locations;
   - provide regular collection of waste;
   - provide protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials;
   - provide adequately maintained sanitary facilities; and
   - provide secondary containment around on-site fuel tanks.

Releases into the environment of hazardous substances, oil, and pollutants or contaminants, which pose a threat to applicable water quality standards or causes a film, sheen or discoloration of State waters, shall be reported to the:

- Mississippi Emergency Management Agency (601) 352-9100
- National Response Center 1-800-424-8802

5. **Prepare Scaled Site Map.** The owner or operator shall prepare a scaled site map showing total area of the site, original and proposed contours (if practicable), direction of flow of storm water runoff, adjacent receiving water bodies, north arrow, all erosion & sediment controls (vegetative and structural), post construction control measures as described in Part III. C. 2. of this permit, and an estimate of the pre and post construction runoff coefficients of the site (see runoff coefficients in Part VII.) and the increase in impervious area.

6. **Implementation Sequence.** The owner or operator shall prepare an orderly listing which coordinates the timing of all major land-disturbing activities together with the necessary erosion and sedimentation control measures planned for the project.

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MODEL POST CONSTRUCTION STORMWATER RUNOFF CONTROL

Environmental Protection Agency

This document is available for download in Word Perfect format at
http://www.epa.gov/owow/NPS/ordinance/documents/postcons.wpd

Contents

SECTION 1.GENERAL PROVISIONS

1.1. Findings of Fact

It is hereby determined that:

Land development projects and associated increases in impervious cover alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes, flooding, stream channel erosion, and sediment transport and deposition; This stormwater runoff contributes to increased quantities of water-borne pollutants, and; Stormwater runoff, soil erosion and nonpoint source pollution can be controlled and minimized through the regulation of stormwater runoff from development sites.

Therefore, the (jurisdictional stormwater authority) establishes this set of water quality and quantity policies applicable to all surface waters to provide reasonable guidance for the regulation of stormwater runoff for the purpose of protecting local water resources from degradation. It is determined that the regulation of stormwater runoff discharges from land development projects and other construction activities in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and nonpoint source pollution associated with stormwater runoff is in the public interest and will prevent threats to public health and safety.

1.2. Purpose

The purpose of this ordinance is to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public residing in watersheds within this jurisdiction. This ordinance seeks to meet that purpose through the following objectives:

(1). minimize increases in stormwater runoff from any development in order to reduce flooding, siltation and streambank erosion and maintain the integrity of stream channels;

(2). minimize increases in nonpoint source pollution caused by stormwater runoff from development which would otherwise degrade local water quality

(3). minimize the total annual volume of surface water runoff which flows from any specific site during and following development to not exceed the pre-development hydrologic regime to the maximum extent practicable.

(4). reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management controls and to ensure that these management controls are properly maintained and pose no threat to public safety.

The above list is a general set of objectives to reduce the impact of stormwater on receiving waters. The local stormwater authority may wish to set some more specific objectives, based on priority water quality and habitat problems (e.g., to reduce phosphorus loads being delivered to recreational lakes, to sustain a class X trout fishery)

1.3. Applicability

This ordinance shall be applicable to all major subdivision or site plan applications, unless eligible for an exemption or granted a waiver by the (jurisdictional stormwater authority) under the specifications of Section 4 of this ordinance. The ordinance also applies to land development activities that are smaller than the minimum applicability criteria if such activities are part of a larger common plan of development that meets the following applicability criteria, even though multiple separate and distinct land development activities may take place at different times on different schedules. In addition, all plans must also be reviewed by local environmental protection officials to ensure that established water quality standards will be maintained during and after development of the site and that post construction runoff levels are consistent with any local and regional watershed plans.

The size of the site development to which post-construction stormwater management runoff control applies varies but many communities opt for a size limit of 5000 square feet or more. For sites less than 5000 square feet, local officials may wish to grant an exemption as long as the amount of impervious cover created does not exceed 1000 square feet.

To prevent the adverse impacts of stormwater runoff, the_(jurisdictional stormwater authority) has developed a set of performance standards that must be met at new development sites. These standards apply to any construction activity disturbing or more square feet of land. The following activities may be exempt from these stormwater performance criteria:

1. Any logging and agricultural activity which is consistent with an approved soil conservation plan or a timber management plan prepared or approved by the_(agency), as applicable.

2. Additions or modifications to existing single family structures

3. Developments that do not disturb more than square feet of land, provided they are not part of a larger common development plan;

- Repairs to any stormwater treatment practice deemed necessary by the (jurisdictional stormwater authority).

When a site development plan is submitted that qualifies as a redevelopment project as defined in Section 2 of this ordinance, decisions on permitting and on-site stormwater requirements shall be governed by special stormwater sizing criteria found in the current stormwater design manual. This criterion is dependent on the amount of impervious area created by the redevelopment and its impact on water quality. Final authorization of all redevelopment projects will be determined after a review by the (jurisdictional stormwater authority).

There are a number of decisions to be made by local communities when addressing the issue of redevelopment and stormwater treatment. The first is defining exactly what qualifies as redevelopment. The definition in Section 2 is from the current Maryland Stormwater Management regulations, and uses the square foot size of the project and its land use classification to establish the definition of a redevelopment project. The second decision involves to what level of stormwater management standards redevelopment projects will be held. Providing cost effective stormwater treatment at redevelopment sites is often a difficult task, and these projects may be given reduced criteria to meet to allow for site constraints. The State of Maryland currently requires that proposed redevelopment project designs

include either at least a 20 percent reduction in existing site impervious area, management of at least 20% of the water quality volume, or some combination of both.

1.4. Compatibility with Other Permit and Ordinance Requirements

This ordinance is not intended to interfere with, abrogate, or annul any other ordinance, rule or regulation, stature, or other provision of law. The requirements of this ordinance should be considered minimum requirements, and where any provision of this ordinance imposes restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, whichever provisions are more restrictive or impose higher protective standards for human health or the environment shall be considered to take precedence.

1.5. Severability

If the provisions of any article, section, subsection, paragraph, subdivision or clause of this ordinance shall be judged invalid by a court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any article, section, subsection, paragraph, subdivision or clause of this ordinance.

1.6. Development of a Stormwater Design Manual

The (jurisdictional stormwater authority) may furnish additional policy, criteria and information including specifications and standards, for the proper implementation of the requirements of this ordinance and may provide such information in the form of a Stormwater Design Manual.

This manual will include a list of acceptable stormwater treatment practices, including the specific design criteria for each stormwater practice. The manual may be updated and expanded from time to time, at the discretion of the local review authority, based on improvements in engineering, science, monitoring and local maintenance experience. Stormwater treatment practices that are designed and constructed in accordance with these design and sizing criteria will be presumed to meet the minimum water quality performance standards.

Local communities will need to select the minimum water quality performance standards (e.g., 80% TSS, 40% P) they will require for stormwater treatment practices and place these in their design manual. The 80% removal goal for total suspended solids (TSS) is a management measure developed by EPA as part of the Coastal Zone Act Reauthorization Amendments of 1990. It was selected by EPA for the following factors: (1) removal of 80% is assumed to control heavy metals, phosphorus, and other pollutants; (2) a number of states including DE, FL, TX, MD, and MA require/recommend TSS removal of 80% or greater for new development; and (3) data show that certain structural controls, when properly designed and maintained, can meet this performance level. Further discussion of water quality standards for stormwater management measures can be found in the CZARA Coastal Zone 6217(g) management measures document entitled "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters" (US EPA, 1993).

There are a number of good stormwater design manuals available around the country that communities may wish to refer to in creating their own local manual. One such manual is the new Maryland Department of the Environment 2000 Maryland Stormwater Design

Manual Volumes I & II. This manual contains innovative criteria for stormwater management, and is available online at

www.mde.state.md.us/environment/wma/stormwatermanual/mdswmanual ***.***

Local communities may also wish to consult a new resource available on the Internet called the Stormwater Managers Resource Center (SMRC). This site is dedicated to providing information to stormwater management program managers in Phase II communities to assist in meeting the requirements of the new National Pollutant Discharge Elimination System Phase II regulations. Among the resources available at the website will be a section devoted to supplying guidance on how to build a stormwater manual, including sizing and design criteria. The SMRC website and the manual-builder resources are located at www.stormwatercenter.net.

SECTION 2. DEFINITIONS:

"Accelerated Erosion" means erosion caused by development activities that exceeds the natural processes by which the surface of the land is worn away by the action of water, wind, or chemical action.

"Applicant" means a property owner or agent of a property owner who has filed an application for a stormwater management permit.

"Building" means any structure, either temporary or permanent, having walls and a roof, designed for the shelter of any person, animal, or property, and occupying more than 100 square feet of area.

"Channel" means a natural or artificial watercourse with a definite bed and banks that conducts continuously or periodically flowing water.

"Dedication" means the deliberate appropriation of property by its owner for general public use.

"**Detention**" means the temporary storage of storm runoff in a stormwater management practice with the goals of controlling peak discharge rates and providing gravity settling of pollutants.

"Detention Facility" means a detention basin or alternative structure designed for the purpose of temporary storage of stream flow or surface runoff and gradual release of stored water at controlled rates.

"Developer" means a person who undertakes land disturbance activities.

"Drainage Easement" means a legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes.

"Erosion and Sediment Control Plan" means a plan that is designed to minimize the accelerated erosion and sediment runoff at a site during construction activities.

"Fee in Lieu" means a payment of money in place of meeting all or part of the storm water performance standards required by this ordinance.

"**Hotspot**" means an area where land use or activities generate highly contaminated runoff, with concentrations of pollutants in excess of those typically found in stormwater.

"**Hydrologic Soil Group (HSG)**" means a Natural Resource Conservation Service classification system in which soils are categorized into four runoff potential groups. The groups range from A soils, with high permeability and little runoff production, to D soils, which have low permeability rates and produce much more runoff.

"**Impervious Cover**" means those surfaces that cannot effectively infiltrate rainfall (e.g., building rooftops, pavement, sidewalks, driveways, etc).

"**Industrial Stormwater Permit**" means an National Pollutant Discharge Elimination System permit issued to a commercial industry or group of industries which regulates the pollutant levels associated with industrial stormwater discharges or specifies on-site pollution control strategies.

"**Infiltration**" means the process of percolating stormwater into the subsoil.

"**Infiltration Facility**" means any structure or device designed to infiltrate retained water to the subsurface. These facilities may be above grade or below grade.

"**Jurisdictional Wetland**" means an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

"Land Disturbance Activity" means any activity which changes the volume or peak flow discharge rate of rainfall runoff from the land surface. This may include the grading, digging, cutting, scraping, or excavating of soil, placement of fill materials, paving, construction, substantial removal of vegetation, or any activity which bares soil or rock or involves the diversion or piping of any natural or man-made watercourse.

"Landowner" means the legal or beneficial owner of land, including those holding the right to purchase or lease the land, or any other person holding proprietary rights in the land.

"**Maintenance Agreement**" means a legally recorded document that acts as a property deed restriction, and which provides for long-term maintenance of storm water management practices.

"**Nonpoint Source Pollution"** means pollution from any source other than from any discernible, confined, and discrete conveyances, and shall include, but not be limited to, pollutants from agricultural, silvicultural, mining, construction, subsurface disposal and urban runoff sources.

"Offset Fee" means a monetary compensation paid to a local government for failure to meet pollutant load reduction targets.

"Off-Site Facility" means a stormwater management measure located outside the subject property boundary described in the permit application for land development activity.

"On-Site Facility" means a stormwater management measure located within the subject property boundary described in the permit application for land development activity.

"Recharge" means the replenishment of underground water reserves.

"**Redevelopment**" means any construction, alteration or improvement exceeding square feet in areas where existing land use is high density commercial, industrial, institutional or multi-family residential.

"Stop Work Order" means an order issued which requires that all construction activity on a site be stopped.

"Storm Water Management" means the use of structural or non-structural practices that are designed to reduce storm water runoff pollutant loads, discharge volumes, and/or peak flow discharge rates.

"Storm Water Retrofit" means a stormwater management practice designed for an existing development site that previously had either no stormwater management practice in place or a practice inadequate to meet the stormwater management requirements of the site.

"**Stormwater Runoff**" means flow on the surface of the ground, resulting from precipitation.

"**Stormwater Treatment Practices (STPs)**" means measures, either structural or nonstructural, that are determined to be the most effective, practical means of preventing or reducing point source or nonpoint source pollution inputs to stormwater runoff and water bodies.

"**Water Quality Volume (WQ_v)**" means the storage needed to capture and treat 90% of the average annual stormwater runoff volume. Numerically **(WQ_v)** will vary as a function of long term rainfall statistical data.

"Watercourse" means a permanent or intermittent stream or other body of water, either natural or man-made, which gathers or carries surface water.

SECTION 3. PERMIT PROCEDURES AND REQUIREMENTS

3.1. Permit Required

No land owner or land operator shall receive any of the building, grading or other land development permits required for land disturbance activities without first meeting the requirements of this ordinance prior to commencing the proposed activity.

The intent is to ensure that no activities that disturb the land are issued permits prior to review and approval of the stormwater management plan. Communities may elect to issue a stormwater management permit separate of any other land development permits they require, or, as in this ordinance, to tie the issuing of construction permits to the approval of a final stormwater management plan.

3.2. Application Requirements

Unless specifically excluded by this ordinance, any land owner or operator desiring a permit for a land disturbance activity shall submit to the (jurisdictional stormwater authority) a permit application on a form provided by the (jurisdictional stormwater authority) for that purpose.

Unless otherwise excepted by this ordinance, a permit application must be accompanied by the following in order that the permit application be considered: a stormwater management concept plan; a maintenance agreement; and a non-refundable permit review fee.

The stormwater management plan shall be prepared to meet the requirements of Sec. 5 of this ordinance, the maintenance agreement shall be prepared to meet the requirements of Sec. of this ordinance, and fees shall be those established by the (jurisdictional stormwater authority).

3.3. Application Review Fees

The fee for review of any land development application shall be based on the amount of land to be disturbed at the site, and the fee structure shall be established by the (jurisdictional stormwater authority). All of the monetary contributions shall be credited to an appropriate capital improvements program project, and shall be made prior to the issuance of any building permit for the development.

Local communities can use these review fees to raise funds for staff and resources to further their stormwater management programs.

3.4. Application Procedure

- Applications for land disturbance activity permits must be filed with the (appropriate review agency) on any regular business day.

- A copy of this permit application shall be forwarded to (jurisdictional stormwater authority) for review

- Permit applications shall include the following: two copies of the stormwater management concept plan, two copies of the maintenance agreement, and any required review fees.

- Within business days of the receipt of a complete permit application, including all documents as required by this ordinance, the (jurisdictional stormwater authority) shall inform the applicant whether the application, plan and maintenance agreement are approved or disapproved.

Local officials will need to decide the appropriate time frame for review of an application. This will often be determined by the staff available for permit review and for an inspection of sites undergoing construction.

- If the permit application, stormwater management plan or maintenance agreement are disapproved, the applicant may revise the stormwater management plan or agreement. If additional information is submitted, the (jurisdictional stormwater authority) shall have business days from the date the additional information is received to inform the applicant that the plan and maintenance agreement are either approved or disapproved.

- If the permit application, final stormwater management plan and maintenance agreement are approved by the (jurisdictional stormwater authority), all appropriate land disturbance activity permits shall be issued.

3.5. Permit Duration

Permits issued under this section shall be valid from the date of issuance through the date the (jurisdictional stormwater authority) notifies the permitholder that all stormwater management practices have passed the final inspection required under permit condition.

SECTION 4. WAIVERS TO STORMWATER MANAGEMENT REQUIREMENTS

4.1. Waivers for Providing Stormwater Management

Every applicant shall provide for stormwater management, unless they file a written request to waive this requirement. Requests to waive the stormwater management plan requirements shall be submitted to the (jurisdictional stormwater authority) for approval. The minimum requirements for stormwater management may be waived in whole or in part upon written request of the applicant, provided that at least one of the following conditions applies:

- It can be demonstrated that the proposed development is not likely to impair attainment of the objectives of this ordinance.

2. Alternative minimum requirements for on-site management of stormwater discharges have been established in a stormwater management plan that has been approved by the (jurisdictional stormwater authority) and that is required to be implemented by local ordinance.

- Provisions are made to manage stormwater by an off-site facility. The off-site facility is required to be in place, to be designed and adequately sized to provide a level of stormwater control that is equal to or greater than that which would be afforded by on-site practices and has a legally obligated entity responsible for long-term operation and maintenance of the stormwater practice.

- The (jurisdictional stormwater authority) finds that meeting the minimum on-site management requirements is not feasible due to the natural or existing physical characteristics of a site.
- Non-structural practices are provided that reduce the generation of stormwater from the site, the size and cost of stormwater storage and provide partial removal of many pollutants are to be used at the site. These non-structural practices are explained in detail in the current design manual and the amount of credit available for using such practices shall be determined by the (jurisdictional stormwater authority)

In instances where one of the conditions above applies, the (jurisdictional stormwater authority) may grant a waiver from strict compliance with stormwater management provisions that are not achievable, provided that acceptable mitigation measures are provided. However, to be eligible for a variance, the applicant must demonstrate to the satisfaction of the (jurisdictional stormwater authority) that the immediately downstream waterways will not be subject to:

- Deterioration of existing culverts, bridges, dams, and other structures;
- Deterioration of biological functions or habitat;
- Accelerated streambank or streambed erosion or siltation;
- Increased threat of flood damage to public health, life and property.

Furthermore, where compliance with minimum requirements for stormwater management is waived, the applicant will satisfy the minimum requirements by meeting one of the mitigation measures selected by the jurisdictional stormwater authority. Mitigation measures may include, but are not limited to, the following:

The purchase and donation of privately owned lands, or the grant of an easement to be dedicated for preservation and/or reforestation. These lands should be located adjacent to the stream corridor in order to provide permanent buffer areas to protect water quality and aquatic habitat,

The creation of a stormwater management facility or other drainage improvements on previously developed properties, public or private, that currently lack stormwater management facilities designed and constructed in accordance with the purposes and standards of this ordinance,

Monetary contributions (Fee-in-Lieu) to fund stormwater management related studies including regional wetland delineation studies, stream monitoring studies for water quality and macroinvertebrates, stream flow monitoring, and threatened and endangered species studies.

4.2. Fee in Lieu of Stormwater Management Practices.

Where the (jurisdictional stormwater authority) waives all or part of the minimum stormwater management requirements, or where the waiver is based on the provision of adequate stormwater facilities provided downstream of the proposed development, the applicant shall be required to pay a fee in an amount as determined by the (jurisdictional stormwater authority).

When an applicant obtains a waiver of the required stormwater management, the monetary contribution required shall be in accordance with a fee schedule (unless the developer and the stormwater authority agree on a greater alternate contribution) established by the (jurisdictional stormwater authority), and based on the cubic feet of storage required for stormwater management of the development in question. All of the monetary contributions shall be credited to an appropriate capital improvements program project, and shall be made by the developer prior to the issuance of any building permit for the development.

4.3. Dedication of land

In lieu of a monetary contribution, an applicant may obtain a waiver of the required stormwater management by entering into an agreement with the (jurisdictional stormwater authority) for the granting of an easement or the dedication of land by the applicant, to be used for the construction of an off-site stormwater management facility. The agreement shall be entered into by the applicant and the (jurisdictional stormwater authority) prior to the recording of plats or, if no record plat is required, prior to the issuance of the building permit.

SECTION 5. GENERAL PERFORMANCE CRITERIA FOR STORMWATER MANAGEMENT

Unless judged by the (jurisdictional stormwater authority) to be exempt or granted a waiver, the following performance criteria shall be addressed for stormwater management at all sites:

(A). All site designs shall establish stormwater management practices to control the peak flow rates of stormwater discharge associated with specified design storms and reduce the generation of stormwater. These practices should seek to utilize pervious areas for stormwater treatment and to infiltrate stormwater

runoff from driveways, sidewalks, rooftops, parking lots, and landscaped areas to the maximum extent practical to provide treatment for both water quality and quantity.

There are several sources of climatological references that can be consulted to find the rainfall depths for the appropriate design storm intervals (1, 10, 25, and 100 year). The NOAA National Climatological Data Center has a "Summary of the Day" database that can provide rainfall numbers for most major cities and airports in the country. Another possible source is the Urban Hydrology for Small Watersheds, TR-55 (Technical Release 55) published by the Engineering Division, United States Natural Resource Conservation Service (formerly known as the Soil Conservation Service) United States Department of Agriculture, June 1986.

(B). All stormwater runoff generated from new development shall not discharge untreated stormwater directly into a jurisdictional wetland or local water body without adequate treatment. Where such discharges are proposed, the impact of the proposal on wetland functional values shall be assessed using a method acceptable to the (jurisdictional stormwater authority). In no case shall the impact on functional values be any less than allowed by the Army Corp of Engineers (ACE) or the (Appropriate State Agency) responsible for natural resources.

(C). Annual groundwater recharge rates shall be maintained, by promoting infiltration through the use of structural and non-structural methods. At a minimum, annual recharge from the post development site shall mimic the annual recharge from pre-development site conditions.

Recharge is a relatively new stormwater criterion, and has been implemented so far in the Massachusetts coastal zone and in Maryland. The recharge criteria requires considerable effort to use existing pervious areas for stormwater treatment and infiltration, which means that it must be considered very early in the site design process when basic decisions about layout and vegetative cover are made.

(D). For new development, structural STPs shall be designed to remove % of the average annual post development total suspended solids load (TSS). It is presumed that a STP complies with this performance standard if it is:

- sized to capture the prescribed water quality volume (WQ_v).
- designed according to the specific performance criteria outlined in the local stormwater design manual,
- constructed properly, and
- maintained regularly.

For post construction stormwater runoff, the ability of stormwater management programs to meet federal guidelines under the NPDES regulations will become increasingly important. A local government seeking to manage runoff to achieve water quality standards has a number of options for reaching their goal. The options are listed below, from the most typical standard stormwater quality practice to more advanced program options. Each option has an associated level of effort for the management of stormwater, and the likelihood of realizing water quality treatment goals depends on the option a local government selects. Local governments should assess the option they wish to select in light of new Phase II regulations and the current ability of their stormwater management staff to meet more extensive local/state staff review and inspection requirements.

Option 1. ***Require Stormwater Treatment Practices for Stormwater Quality***

Many current stormwater programs simply require that the developer install stormwater treatment practices, but do not specify a target for specific pollutant reduction performance. These programs simply require that a standard volume of stormwater be treated (e.g., a half-inch of runoff). Many of these programs also have generous waiver and exemption provisions, so that as much as 25% of all new development can avoid criteria for water quality. Typically, these programs have no formal maintenance programs. Unless the target removal goals are very low, these communities cannot expect their current programs to eliminate net additional pollutants associated with future development.

Option 2. ***Institute More Rigorous Design Standards for Stormwater Practices.***

A number of communities have improved their stormwater programs by strengthening their design standards for stormwater practices. This has involved narrowing the list of acceptable practices to those with a proven ability to remove particular pollutants, increasing the volume of runoff that is treated by each practice (e.g., treat first 1" of stormwater runoff), clamping down on waivers and exemptions (or requiring a fee-in-lieu), and requiring design features that reduce maintenance problems.

The advantage of this program option is that compliance can be presumed as long as designers follow the design rules. It does require a good stormwater manual and more extensive local/state staff review and training. It can achieve significant reduction for some pollutants, such as sediment and nutrients. The disadvantage of the program option is that current stormwater technology may not be effective enough for some pollutants (e.g., bacteria), or capable of reducing the net additional load for high levels from future development.

Option 3. ***Require On-Site Load Calculation***

A handful of communities have adopted an approach whereby the design engineer must calculate pre- and post- development loads for a particular pollutant, and then design a system of practices to meet a load reduction target, based on STP removal rates. Phosphorus has been used in most cases, and the load reduction target varies. This option results in more directed design geared more specifically to the pollutant of concern.

The on-site load calculation option has several disadvantages. First, designers often utilize STP math tricks to come into compliance (fudging loads, removal efficiencies, etc). Second, technical data to support the program option are limited to just a few parameters, such as phosphorus, nitrogen and sediment. Third, the removal rates for the stormwater practices seldom account for factors where pollutant load removal is compromised, and tend to be optimistic. Lastly, this program option is very intensive in terms of local review and compliance, and requires more staffing to implement.

Option 4. ***Load Calculation w/ Stormwater Offset Fee to Provide Retrofits on Existing Development***

In this program option, a community requires the on-site load calculation described in Option 3, but is very conservative in the assumptions it allows on loading and removal efficiency. Consequently, designers at most sites cannot fully comply with the load reduction

for the requirement at their site. To fully comply, they must pay an offset fee to the local government which is used to support design and construction of stormwater retrofits at existing development in the watershed. The fee is set at the cost of providing an equivalent amount of pollutant removal elsewhere (dollars/pound).

The advantage of this approach is that it provides a means of financing the stormwater retrofits needed to reduce pollutant loads from existing development. It does require greater local staffing to find, design and build the retrofits which offset the loads from new development. If administered properly, this program option can potentially eliminate the net additional load from new development. Several communities currently provide this option for developers, but it is not clear how much revenue has been collected so far.

(E). To protect stream channels from degradation, a specific channel protection criteria shall be provided as prescribed in the current stormwater manual.

Channel protection is a relatively new criterion, but is increasingly viewed as a critical one due to the mounting evidence that stream channels enlarge in response to watershed development. Studies have found higher bank erosion rates and increased instream sediment loads for urban streams when compared to the 5-20% estimate for the annual sediment budget attributable to bank erosion in rural streams (Walling and Woodward, 1995; Collins et al., 1997). Research also indicates that channel enlargement can begin at a relatively low level of watershed development, as indicated by the amount of impervious cover. One study estimated that channel erosion rates were three to six times higher in a moderately urbanized watershed (14% impervious cover) than in a comparable rural one, with less than 2% impervious cover (Neller, 1988).

The basic methodology to calculate channel enlargement relies on obtaining historical cross-sectional data from past surveys (often obtained from transportation agencies or public works departments that conducted surveys at the time of road construction or improvement projects) and comparing these with current cross-sectional data obtained from field surveys conducted at the time of the study. The approach also utilizes predictive (i.e., empirical) equations to estimate an ultimate channel enlargement ratio once the channel has enlarged sufficiently to be in balance with its hydrological forces.

Basic Options for Stream Channel Protection

As many as five different design criteria have been suggested to protect downstream channels from erosion. It should be clearly noted that none of these criteria have yet been monitored in the field to demonstrate their effectiveness, and most are based on hydrologic or hydraulic modeling of streams. The five options are:

Two year control ***(post development peak discharge rate from two year storm is held to pre development levels). It is very important to note that research studies indicate that this***

criterion does not protect channels from downstream erosion, and may actually exacerbate erosion since banks are exposed to a longer duration of erosive bankfull and sub-bankfull events. (MaCrae, 1993 and 1996, McCuen and Moglen, 1988). In addition, many communities have provided anecdotal evidence that two year control has failed to protect downstream channels from erosion. This evidence suggests that while the magnitude of the peak discharge is unchanged from pre to post development under two year control, the duration of erosive flows sharply increases. As a result, "effective work" on the channel (sensu Wolman et al, 1964) is shifted to smaller runoff events that range from the half year event up to the 1.5 year runoff event (MacRae, 1993). Consequently, the two year control approach is considered ineffective for stream channel protection, although it remains a useful criterion for prevention of overbank flooding.

Two year over-control ***(post development peak discharge rate to 50% or less of predevelopment level). First proposed by McCuen and Moglen (1988), this design approach recognizes the inherent limitations of two year control. The approach emphasizes "overcontrol" of the two year storm. The most common numerical approach is to control the two year post development discharge rate to the one year predevelopment rate, using the 24 hour storm event. Subsequent analysis by Macrae (1996), however, indicates that this design criterion is still not fully capable of protecting the stream channel from erosion. His modeling suggests that "tail-end" of the post development hydrograph is subject to a considerable duration of "effective work."***

24 hour detention of the one year storm event. ***These criteria would result in up to 24 hours of detention for runoff generated by a rainfall depth based on annual rainfall for a region. Smaller storms events would also experience some detention, but probably much less than 24 hours. The premise of these criteria is that runoff would be stored and released in such a gradual manner that critical erosive velocities would seldom be exceeded in downstream channels. The required volume needed for 1 year extended detention is significant; it is roughly equivalent to about 90 to 95% of the required volume needed for ten year peak discharge control. Consequently, the need for two year peak discharge management would be eliminated when the 1 year ED is provided, as long as the ten year peak discharge control is achieved.***

Distributed runoff control (DRC): ***This criterion has been developed by MaCrae (1993) and involves complex field assessments and modeling to determine the hydraulic stress and erosion potential of bank materials. The criteria states that channel erosion is minimized if the alteration in the transverse distribution of erosion potential about a channel parameter is maintained constant with predevelopment values, over the range of available flows, such that the channel is just able to move the dominant particle size of the bed load. This Canadian method holds promise, but has not been tested extensively in the United States and requires significantly greater data collection and modeling then any of the other methods.***

Bankfull capacity/duration criteria: ***This criterion has been advanced by Tapley et al. 1996, and states that the post-development, bankfull flow frequency, duration and depth must be controlled to predevelopment values at a designated control point(s) in the channel. The Rule of thumb for selecting control point(s) is to use a 10: 1 ratio of peak discharge from the one year storm for the developed site to the discharge from the stream for the same frequency storm (Tapley et al. 1996). In theory, these criteria should result in a high level of downstream protection. The practical problem is in defining how the criteria is to be interpreted; whether sub-bankfull events (that typically erode the toe of the streambank)***

should also be considered; and precisely where the "bankfull" should be measured. For example, the channel of many streams has been modified in the past by prior land uses and channelization, and may not represent the "true" channel. In other cases, the stormwater outfall discharges laterally to a stream, and it is therefore difficult to assign which flows the developer is actually responsible for controlling.

Pros and Cons of Channel Protection Sizing Criteria.

If two year control and two year overcontrol are deemed inadequate to fully protect channels from erosion, then only three options remain, each of which has some limitations. For example, both the DRC and bankfull capacity sizing criteria options lack widely accepted or universal design methodologies. In each case, local stream cross-section and/or soil measurements are needed, and considerable contention between the designer and the reviewer can be expected on how and where the analysis should be performed. Given the many operational problems currently associated with either option, and the lack of a tested design methodology at present, the two options probably deserve further study, but are not ready for wide application.

This leaves only one remaining option-- the one-year 24 hour detention criteria. It, too, has some limitations:

- ***results in unacceptably small diameter orifices for sites less than ten acres in size.***
- ***requires a storage volume roughly equivalent to that needed for two year control.***
- ***has not been "tested" by continuous simulation modeling to determine if acceptable detention times can be achieved for smaller storms can be achieved (1.0 to 1.5 inches).***
- ***is only needed in streams that are susceptible to bank erosion.***

Based on the foregoing, it appears that the best option to provide channel protection (Cp_v) is 12 to 24 hour extended detention of the one-year 24 hour storm event. This Cp_v requirement only applies to sites greater than ten acres in size. Local governments may wish to retain the option of employing the DRC or bankfull capacity/duration criteria as an alternative, should their analytical and design requirements become more simplified and refined in the future

There are some basic exemptions to where the channel protection criteria should be applied (small drainage areas, direct discharge to tidal waters or a lake, flat terrain etc), and communities must decide how and when this criteria will be required.

(F). Stormwater discharges to critical areas with sensitive resources (i.e., cold water fisheries, shellfish beds, swimming beaches, recharge areas, water supply reservoirs) may be subject to additional performance criteria, or may need to utilize or restrict certain stormwater management practices.

(G). Certain industrial sites are required to prepare and implement a stormwater pollution prevention plan, and shall file a notice of intent (NOI) under the provisions of the National Pollutant Discharge Elimination System (NPDES) general permit. The stormwater pollution prevention plan requirement applies to both existing and new industrial sites.

Applicants and local communities may wish to consult the Environmental Protection Agency website at http://www.epa.gov/owm/swm/phase2 for more information on Phase II requirements.

(H). Stormwater discharges from land uses or activities with higher potential pollutant loadings, known as "hotspots," may require the use of specific structural STPs and pollution prevention practices.

(I). Prior to design, applicants are required to consult with the (jurisdictional stormwater authority) to determine if they are subject to additional stormwater design requirements.

(J). The calculations for determining peak flows as found in the Stormwater Design Manual shall be used for sizing all stormwater management practices.

SECTION 6. BASIC STORMWATER MANAGEMENT DESIGN CRITERIA

Rather than place specific stormwater design criteria into an ordinance, it is often preferable to fully detail these requirements in a stormwater design manual. This allows specific design information to change over time as new information or techniques become available without requiring the formal process needed to change ordinance language. The ordinance can then require those submitting any development application to consult the current stormwater design manual for the exact design criteria for the stormwater management practices appropriate for their site.

In the Maryland Stormwater Design Manual, for example, there are a set of specified performance criteria for each stormwater management practice, based on six factors:

- ***Site Design Feasibility -***
- ***Conveyance Issues -***
- ***Pretreatment Requirements -***
- ***Treatment/Geometry Conditions***
- ***Environmental/Landscaping Standards***
- ***Maintenance Needs***

Each community will need to decide the specific design and sizing criteria for the stormwater management practices they allow, and select a storm event frequency(1, 2, 10, 100 year) that they believe will meet their stormwater quality and quantity control requirements.

6.1. Minimum Control Requirements

All stormwater management practices will be designed so that the specific storm frequency storage volumes (e.g., recharge, water quality, channel protection, 10 year, 100 year) as identified in the current stormwater design manual are met, unless the (jurisdictional stormwater authority) grants the applicant a waiver or the applicant is exempt from such requirements.

In addition, if hydrologic or topographic conditions warrant greater control than that provided by the minimum control requirements, the (jurisdictional stormwater authority) reserves the right to impose any and all additional requirements deemed necessary to control the volume, timing, and rate of runoff.

6.2 Site Design Feasibility

Stormwater management practices for a site shall be chosen based on the physical conditions of the site. Among the factors that should be considered:

- Topography
- Maximum Drainage Area
- Depth to Water Table
- Soils
- Slopes
- Terrain
- Head
- Location in relation to environmentally sensitive features or ultra-urban areas

Applicants shall consult the Stormwater Design Manual for guidance on the factors that determine site design feasibility when selecting a stormwater management practice.

6.3. Conveyance Issues

All stormwater management practices shall be designed to convey stormwater to allow for the maximum removal of pollutants and reduction in flow velocities. This shall include, but not be limited to:

- Maximizing of flowpaths from inflow points to outflow points
- Protection of inlet and outfall structures
- Elimination of erosive flow velocities
- Providing of underdrain systems, where applicable

The Stormwater Design Manual shall provide detailed guidance on the requirements for conveyance for each of the approved stormwater management practices.

6.4. Pretreatment Requirements

Every stormwater treatment practice shall have an acceptable form of water quality pretreatment, in accordance with the pretreatment requirements found in the current stormwater design manual. Certain stormwater treatment practices, as specified in the Stormwater Design Manual, are prohibited even with pretreatment in the following circumstances:

A. Stormwater is generated from highly contaminated source areas known as "hotspots"

B. Stormwater is carried in a conveyance system that also carries contaminated, non- stormwater discharges

C. Stormwater is being managed in a designated groundwater recharge area

D. Certain geologic conditions exist (e.g., karst) that prohibit the proper pretreatment of stormwater

6.5. Treatment/Geometry Conditions

All stormwater management practices shall be designed to capture and treat stormwater runoff according to the specifications outlined in the Stormwater Design Manual. These specifications will designate the water quantity and quality treatment criteria that apply to an approved stormwater management practice.

6.6. Landscaping Plans Required

All stormwater management practices must have a landscaping plan detailing both the vegetation to be in the practice and how and who will manage and maintain this vegetation. This plan must be prepared by a registered landscape architect or soil conservation district.

6.7. Maintenance Agreements

All stormwater treatment practices shall have an enforceable operation and maintenance agreement to ensure the system functions as designed. This agreement will include any and all maintenance easements required to access and inspect the stormwater treatment practices, and to perform routine maintenance as necessary to ensure proper functioning of the stormwater treatment practice. In addition, a legally binding covenant specifying the parties responsible for the proper maintenance of all stormwater treatment practices shall be secured prior to issuance of any permits for land disturbance activities.

6.8. Non-Structural Stormwater Practices

The use of non-structural stormwater treatment practices is encouraged in order to minimize the reliance on structural practices. Credit in the form of reductions in the amount of stormwater that must be managed can be earned through the use of non-structural practices that reduce the generation of stormwater from the site. These non-structural practices are explained in detail in the current design manual and applicants wishing to obtain credit for use of non-structural practices must ensure that these practices are documented and remain unaltered by subsequent property owners.

SECTION 7. REQUIREMENTS FOR STORMWATER MANAGEMENT PLAN APPROVAL

7.1. Stormwater Management Plan Required for All Developments.

No application for development will be approved unless it includes a stormwater management plan detailing in concept how runoff and associated water quality impacts resulting from the development will be controlled or managed. This plan must be prepared by an individual approved by the (jurisdictional stormwater authority) and must indicate whether stormwater will be managed on-site or off-site and, if on-site, the general location and type of practices.

The stormwater management plan(s) shall be referred for comment to all other interested agencies, and any comments must be addressed in a final stormwater management plan. This final plan must be signed by a licensed professional engineer (PE), who will verify that the design of all stormwater management practices meet the submittal requirements outlined in the Submittal Checklist found in the stormwater design manual. No building, grading, or sediment control permit shall be issued until a satisfactory final stormwater management plan, or a waiver thereof, shall have undergone a review and been approved by

the (jurisdictional stormwater authority) after determining that the plan or waiver is consistent with the requirements of this ordinance.

One way to handle the submittal requirements for both the concept plan and the final design plan is to place Submittal Checklists in the stormwater design manual and require that they are used for submission of any plan. The benefit of this is that changes in submittal requirements can be made as needed without needing to revisit and alter the original ordinance. Attached are three model checklists that local communities may wish to review for ideas on requirements in their own submittal checklist.

7.2. Stormwater Management Concept Plan Requirements

A stormwater management concept plan shall be required with all permit applications and will include sufficient information (e.g., maps, hydrologic calculations, etc) to evaluate the environmental characteristics of the project site, the potential impacts of all proposed development of the site, both present and future, on the water resources, and the effectiveness and acceptability of the measures proposed for managing stormwater generated at the project site. The intent of this conceptual planning process is to determine the type of stormwater management measures necessary for the proposed project, and ensure adequate planning for management of stormwater runoff from future development. To accomplish this goal the following information shall be included in the concept plan:

- A map (or maps) indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural stormwater management and sediment control facilities. The map(s) will also clearly show proposed land use with tabulation of the percentage of surface area to be adapted to various uses; drainage patterns; locations of utilities, roads and easements; the limits of clearing and grading; A written description of the site plan and justification of proposed changes in natural conditions may also be required.

This project description and site plan requirement includes information normally found in an Erosion and Sediment Control plan. For local governments that do not currently have ESC plan requirements or are looking to upgrade their ESC ordinance language, there is a model Erosion and Sediment Control ordinance located at this website.

- Sufficient engineering analysis to show that the proposed stormwater management measures are capable of controlling runoff from the site in compliance with this ordinance and the specifications of the Stormwater Design Manual.
- A written or graphic inventory of the natural resources at the site and surrounding area as it exists prior to the commencement of the project and a description of the watershed and its relation to the project site. This description should include a discussion of soil conditions, forest cover, topography, wetlands, and other native vegetative areas on the site. Particular attention should be paid to environmentally sensitive features that provide particular opportunities or constraints for development.
- A written description of the required maintenance burden for any proposed stormwater management facility.

- The (jurisdictional stormwater authority) may also require a concept plan to consider the maximum development potential of a site under existing zoning, regardless of whether the applicant presently intends to develop the site to its maximum potential.

For development or redevelopment occurring on a previously developed site, an applicant shall be required to include within the stormwater concept plan measures for controlling existing stormwater runoff discharges from the site in accordance with the standards of this Ordinance to the maximum extent practicable.

7.3. Final Stormwater Management Plan Requirements

After review of the stormwater management concept plan, and modifications to that plan as deemed necessary by the (jurisdictional stormwater authority), a final stormwater management plan must be submitted for approval. The final stormwater management plan, in addition to the information from the concept plan, shall include all of the information required in the Final Stormwater Management Plan checklist found in the Stormwater Design Manual. This includes:

1. Contact Information

The name, address, and telephone number of all persons having a legal interest in the property and the tax reference number and parcel number of the property or properties affected.

2. Topographic Base Map

A 1" = 200' topographic base map of the site which extends a minimum of feet beyond the limits of the proposed development and indicates existing surface water drainage including streams, ponds, culverts, ditches, and wetlands; current land use including all existing structures; locations of utilities, roads, and easements; and significant natural and manmade features not otherwise shown.

3. Calculations

Hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in this ordinance. Such calculations shall include (i) description of the design storm frequency, intensity and duration, (ii) time of concentration, (iii) Soil Curve Numbers or runoff coefficients, (iv) peak runoff rates and total runoff volumes for each watershed area, (v) infiltration rates, where applicable, (vi) culvert capacities, (vii) flow velocities, (viii) data on the increase in rate and volume of runoff for the design storms referenced in the Stormwater Design Manual, and (ix) documentation of sources for all computation methods and field test results.

4. Soils Information

If a stormwater management control measure depends on the hydrologic properties of soils (e.g., infiltration basins), then a soils report shall be submitted. The soils report shall be based on on-site boring logs or soil pit profiles. The number and location of required soil borings or soil sits shall be determined based on what is needed to determine the suitability and distribution of soil types present at the location of the control measure.

5. Maintenance and Repair Plan

The design and planning of all stormwater management facilities shall include detailed maintenance and repair procedures to ensure their continued function. These plans will identify the parts or components of a stormwater management facility that need to be maintained and the equipment and skills or training necessary. Provisions for the periodic review and evaluation of the effectiveness of the maintenance program and the need for revisions or additional maintenance procedures shall be included in the plan.

- Landscaping plan

The applicant must present a detailed plan for management of vegetation at the site after construction is finished, including who will be responsible for the maintenance of vegetation at the site and what practices will be employed to ensure that adequate vegetative cover is preserved. This plan must be prepared by a registered landscape architect or by the soil conservation district.

- Maintenance Easements

The applicant must ensure access to all stormwater treatment practices at the site for the purpose of inspection and repair by securing all the maintenance easements needed on a permanent basis. These easements will be recorded with the plan and will remain in effect even with transfer of title to the property.

- Maintenance Agreement

The applicant must execute an easement and an inspection and maintenance agreement binding on all subsequent owners of land served by an on-site stormwater management measure in accordance with the specifications of this ordinance.

- Erosion and Sediment Control Plans for Construction of Stormwater Management Measures

The applicant must prepare an erosion and sediment control plan for all construction activities related to implementing any on-site stormwater management practices.

- Other Environmental Permits

The applicant shall assure that all other applicable environmental permits have been acquired for the site prior to approval of the final stormwater design plan.

7.4. Performance Bond/Security.

The (jurisdictional stormwater authority) may, at its discretion, require the submittal of a performance security or bond prior to issuance of a permit in order to insure that the stormwater practices are installed by the permit holder as required by the approved stormwater management plan. The amount of the installation performance security shall be the total estimated construction cost of the stormwater management practices approved under the permit, plus 25%. The performance security shall contain forfeiture provisions for failure to complete work specified in the stormwater management plan.

The installation performance security shall be released in full only upon submission of "as built plans" and written certification by a registered professional engineer that the stormwater practice has been

installed in accordance with the approved plan and other applicable provisions of this ordinance. The (jurisdictional stormwater authority) will make a final inspection of the stormwater practice to ensure that it is in compliance with the approved plan and the provisions of this ordinance. Provisions for a partial pro-rata release of the performance security based on the completion of various development stages can be done at the discretion of the (jurisdictional stormwater authority).

Some communities elect to also require a maintenance performance security. This bond typically is set at the maintenance costs estimated in the stormwater plan for the period during which the permit holder has maintenance responsibility and is released when the responsibility for practice maintenance is passed on to another party, via an approved maintenance agreement.

SECTION 8. CONSTRUCTION INSPECTION

8.1. Notice of Construction Commencement

The applicant must notify the (jurisdictional stormwater authority) in advance before the commencement of construction. Regular inspections of the stormwater management system construction shall be conducted by the staff of the (jurisdictional stormwater authority) or certified by a professional engineer or their designee who has been approved by the jurisdictional stormwater authority. All inspections shall be documented and written reports prepared that contain the following information:

- The date and location of the inspection;
- Whether construction is in compliance with the approved stormwater management plan
- Variations from the approved construction specifications
- Any violations that exist

If any violations are found, the property owner shall be notified in writing of the nature of the violation and the required corrective actions. No added work shall proceed until any violations are corrected and all work previously completed has received approval by the (jurisdictional stormwater authority).

8.2. As Built Plans

All applicants are required to submit actual "as built" plans for any stormwater management practices located on-site after final construction is completed. The plan must show the final design specifications for all stormwater management facilities and must be certified by a professional engineer. A final inspection by the (jurisdictional stormwater authority) is required before the release of any performance securities can occur.

8.3. Landscaping and Stabilization Requirements

Any area of land from which the natural vegetative cover has been either partially or wholly cleared or removed by development activities shall be revegetated within ten (10) days from the substantial completion of such clearing and construction. The following criteria shall apply to revegetation efforts:

Reseeding must be done with an annual or perennial cover crop accompanied by placement of straw mulch or its equivalent of sufficient coverage to control erosion until such time as the cover crop is established over ninety percent (90%) of the seeded area.

Replanting with native woody and herbaceous vegetation must be accompanied by placement of straw mulch or its equivalent of sufficient coverage to control erosion until the plantings are established and are capable of controlling erosion.

Any area of revegetation must exhibit survival of a minimum of seventy-five percent (75%) of the cover crop throughout the year immediately following revegetation. Revegetation must be repeated in successive years until the minimum seventy-five percent (75%) survival for one (1) year is achieved.

In addition to the above requirements, a landscaping plan must be submitted with the final design describing the vegetative stabilization and management techniques to be used at a site after construction is completed. This plan will explain not only how the site will be stabilized after construction, but who will be responsible for the maintenance of vegetation at the site and what practices will be employed to ensure that adequate vegetative cover is preserved. This plan must be prepared by a registered landscape architect or by the soil conservation district, and must be approved prior to receiving a permit.

SECTION 9. MAINTENANCE AND REPAIR OF STORMWATER FACILITIES

A model operation and maintenance ordinance for stormwater facilities is available at this website. This ordinance goes into greater detail on the elements needed to create an effective stormwater maintenance ordinance. Requirements for inspection are also included in the model.

9.1. Maintenance Easement

Prior to the issuance of any permit that has an stormwater management facility as one of the requirements of the permit, the applicant or owner of the site must execute a maintenance easement agreement that shall be binding on all subsequent owners of land served by the stormwater management facility. The agreement shall provide for access to the facility at reasonable times for periodic inspection by the (jurisdictional stormwater authority), or their contractor or agent, and for regular or special assessments of property owners to ensure that the facility is maintained in proper working condition to meet design standards and any other provisions established by this ordinance. The easement agreement shall be recorded by the (jurisdictional stormwater authority) in the land records.

9.2. Maintenance Covenants

Maintenance of all stormwater management facilities shall be ensured through the creation of a formal maintenance covenant that must be approved by the (jurisdictional stormwater authority) and recorded into the land record prior to final plan approval. As part of the covenant, a schedule shall be developed for when and how often maintenance will occur to ensure proper function of the stormwater management facility. The covenant shall also include plans for periodic inspections to ensure proper performance of the facility between scheduled cleanouts.

The (jurisdictional stormwater authority), in lieu of an maintenance covenant, may accept dedication of any existing or future stormwater management facility for maintenance, provided such facility meets all

the requirements of this chapter and includes adequate and perpetual access and sufficient area, by easement or otherwise, for inspection and regular maintenance.

9.3. Requirements for Maintenance Covenants

All stormwater management facilities must undergo, at the minimum, an annual inspection to document maintenance and repair needs and ensure compliance with the requirements of this ordinance and accomplishment of its purposes. These needs may include; removal of silt, litter and other debris from all catch basins, inlets and drainage pipes, grass cutting and vegetation removal, and necessary replacement of landscape vegetation. Any maintenance needs found must be addressed in a timely manner, as determined by the (jurisdictional stormwater authority), and the inspection and maintenance requirement may be increased as deemed necessary to ensure proper functioning of the stormwater management facility.

9.4. Inspection of Stormwater Facilities

Inspection programs may be established on any reasonable basis, including but not limited to: routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; inspection of drainage basins or areas identified as higher than typical sources of sediment or other contaminants or pollutants; inspections of businesses or industries of a type associated with higher than usual discharges of contaminants or pollutants or with discharges of a type which are more likely than the typical discharge to cause violations of state or federal water or sediment quality standards or the NPDES stormwater permit; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to: reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in drainage control facilities; and evaluating the condition of drainage control facilities and other stormwater treatment practices.

9.5. Right-of-Entry for Inspection

When any new drainage control facility is installed on private property, or when any new connection is made between private property and a public drainage control system, sanitary sewer or combined sewer, the property owner shall grant to the (jurisdictional stormwater authority) the right to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. This includes the right to enter a property when it has a reasonable basis to believe that a violation of this ordinance is occurring or has occurred, and to enter when necessary for abatement of a public nuisance or correction of a violation of this ordinance.

9.6. Records of Installation and Maintenance Activities.

Parties responsible for the operation and maintenance of a stormwater management facility shall make records of the installation and of all maintenance and repairs, and shall retain the records for at least years. These records shall be made available to the (jurisdictional stormwater authority) during inspection of the facility and at other reasonable times upon request.

9.7 Failure to Maintain Practices

If a responsible party fails or refuses to meet the requirements of the maintenance covenant, the (jurisdictional stormwater authority), after reasonable notice, may correct a violation of the design standards or maintenance needs by performing all necessary work to place the facility in proper working condition. In the event that the stormwater management facility becomes a danger to public safety or

public health, the (jurisdictional stormwater authority) shall notify the party responsible for maintenance of the stormwater management facility in writing. Upon receipt of that notice, the responsible person shall have __days to effect maintenance and repair of the facility in an approved manner. After proper notice, the (jurisdictional stormwater authority) may assess the owner(s) of the facility for the cost of repair work and any penalties; and the cost of the work shall be a lien on the property, or prorated against the beneficial users of the property, and may be placed on the tax bill and collected as ordinary taxes by the county.

SECTION 10. ENFORCEMENT AND PENALTIES.

10.1. Violations

Any development activity that is commenced or is conducted contrary to this Ordinance, may be restrained by injunction or otherwise abated in a manner provided by law.

10.2. Notice of Violation.

When the (jurisdictional stormwater authority) determines that an activity is not being carried out in accordance with the requirements of this Ordinance, it shall issue a written notice of violation to the owner of the property. The notice of violation shall contain:

(1) the name and address of the owner or applicant;

(2) the address when available or a description of the building, structure or land upon which the violation is occurring;

(3) a statement specifying the nature of the violation;

(4) a description of the remedial measures necessary to bring the development activity into compliance with this Ordinance and a time schedule for the completion of such remedial action;

(5) a statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed;

(6) a statement that the determination of violation may be appealed to the municipality by filing a written notice of appeal within fifteen (15) days of service of notice of violation.

10.3. Stop Work Orders

Persons receiving a notice of violation will be required to halt all construction activities. This "stop work order" will be in effect until the (jurisdictional stormwater authority) confirms that the development activity is in compliance and the violation has been satisfactorily addressed. Failure to address a notice of violation in a timely manner can result in civil, criminal, or monetary penalties in accordance with the enforcement measures authorized in this ordinance.

10.4. Civil and Criminal Penalties

In addition to or as an alternative to any penalty provided herein or by law, any person who violates the provisions of this Ordinance shall be punished by a fine of not less than Dollars ($xx) or by imprisonment for a period not to exceed (xx) days, or both such fine and imprisonment. Such person shall be guilty of a separate offense for each day during which the violation occurs or continues.

10.4. Restoration of lands

Any violator may be required to restore land to its undisturbed condition. In the event that restoration is not undertaken within a reasonable time after notice, the (jurisdictional stormwater authority) may take necessary corrective action, the cost of which shall become a lien upon the property until paid.

10.5. Holds on Occupation Permits

Occupation permits will not be granted until corrections to all stormwater practices have been made and accepted by the (jurisdictional stormwater authority).

Approved by: _____

Date _____

Appendix F:
Sample Inspection Report

Instructions

This appendix provides information on site inspections. The appendix is designed to provide basic information on inspection procedures and documentation. A sample inspection report has been developed as a helpful tool to aid you in completing your site inspections. This sample inspection report was modified from the EPA SWPPP Inspection Report, Version 1.1, September 17, 2007. You can find the EPA's sample inspection report (formatted in Microsoft Word) at www.epa.gov/npdes/swpppguide. The EPA provides this inspection report in Microsoft Word format to allow you to easily customize it for your use and the conditions at your site. You should also customize this form to help you meet the requirements in your construction general permit related to inspections. **If your permitting authority provides you with an inspection report, please use that form.**

Inspection of Construction Sites

This chapter provides information about inspecting erosion control, sediment control and stormwater management practices during the construction period. It covers inspections using visual procedures that can be evaluated by trained individuals. It does not cover inspections that involve water sampling or testing. It does not cover the installation of the practices or measures that may be used for erosion and sediment control and stormwater management.

The information in this chapter should be considered generic with the recognition that state and local regulations may provide very specific requirements related to inspector credentials, frequency of inspections, report format, submission of reports to permitting authorities, and retention of reports.

Requirements for Inspectors

Inspections should be made by persons who understand how practices are to be properly installed, how they should perform, and how practices should be maintained. Inspectors should have enough knowledge about each practice used to determine if it is effective and whether or not it needs maintenance or repair. Inspectors should know enough about the practices to realize that there may need to be an additional practice or a different practice in a problem area.

Inspectors do not have to understand how a practice is designed, although the more a person knows about a practice the better the person will understand how the practice should be maintained. Inspectors should also know how to read site plans and understand the relationship of the erosion and sediment control practices and other stormwater management activities with the overall plan.

Inspectors need communications skills so they can explain installation and maintenance problems to the contractor or owner and anyone else who “needs to know.” Also, inspectors must provide written reports to appropriate persons for their information or follow-up actions. Actions may include maintenance, repair, or a request for a qualified design professional to assist, or for reporting to meet permit requirements. In summary, both written and verbal communication skills and an understanding of report requirements are essential tools for the inspector.

Local government regulations may require that persons providing inspection services have credentials or training to be designated as an inspector.

How Often Should Inspections be Completed

In general, inspections should be made frequently and after major rain events. Since rainfall triggers inspections on permitted sites, a rain gauge is required.

Practices that can be damaged by construction activities need to be inspected on a regular basis, at least weekly, and in some cases daily, so that the practices will be repaired or maintained and in good condition when a major rain event occurs. During periods of major rain events, practices need inspection daily.

Practices that are not normally affected by construction activities after installation need inspecting after each major rain event and as a minimum on a monthly basis. For vegetative practices, inspections should be made during early growth stages, regardless of rainfall events, to determine if reseeding is needed to ensure an adequate vegetative cover. Newly vegetated areas damaged by rainfall events should be repaired immediately after the area is determined to need repair.

The frequency requirement for inspecting construction sites in Mississippi is stated in the NPDES General Permit for Construction administered by the Mississippi Department of Environmental Quality. Local governments may require inspections more frequently than is required by the State General Permit.

How are Practices Inspected

Visual evaluations are made of practices to determine their condition. Also, discharge points are reviewed to determine if sediment and turbid water are leaving the construction site.

Inspectors must know enough about the practices being inspected to make sound judgments about the need for repairs and maintenance. If there is any doubt about a situation, a more knowledgeable person should be requested to assist in the determination of appropriate actions. A good example of requesting another person for expert guidance is when a permanent seeding appears borderline and there is time to reseed before the recommended planting period ends.

Inspectors and others involved in erosion and sediment control activities must understand that erosion and sediment control plans are dynamic and usually need revising if construction involves more than a large lot and if the construction period extends more than a few weeks. Inspectors should be encouraged to ask for the assistance of design professionals if there are any reservations that a plan needs modifying.

Suggestions for Inspectors

- Study the erosion and sediment control and stormwater management plan. Identify the practices and schedule. Participate in pre-construction and construction conferences whenever possible.

- Review the site and practices with the plan in hand according to a predetermined schedule and the predetermined triggers.

- Determine if the practices planned are installed properly and in the correct sequence.

- Determine if the practices appear in good condition. (Do the practices need maintenance or repair?) This should be an objective comparison of what will be needed when major rain events occur.

- Determine if the system of practices appears to be effective for the construction site by examining discharge points. Evidence of ineffectiveness may be muddy or turbid water leaving the site or sediment deposits in the

- Determine if practices are effective during or immediately following a rain event. This is the best time to determine the effectiveness of the system and, particularly, to determine if turbid water is leaving the site.

- Determine if the site is managed to prevent a problem with debris, trash, petroleum products and chemicals. (Are Housekeeping and Spill Prevention practices used or needed?)

- Document relevant site information with photography.

- Complete or draft the appropriate inspection documents while on the site.

Discharge points should be examined objectively to determine if sediment deposits exist at adjacent off-site areas. Deposition of sediment indicates that erosion and sediment control may not be effective. An absence of deposits at discharge points (just below the outfall), where there is an opportunity for sedimentation to occur, is a good indicator of an effective system. On the other hand, lack of sediment deposits at a point with high flow velocities will be less meaningful.

Inspections should be documented in a written report, log, and/or checklist. Whatever format is used to document the inspection, the report should contain the site name, the date and time of inspection, the inspector and any other persons involved in the inspection, dates when key activities occurred (for example, grading the site and installing practices), comments or ratings concerning the success or failure of the practices, what corrective action(s) may be needed, what repairs or maintenance was done since the last inspection, and verbal communications with the contractor or owner that took place during the inspection. In addition, other items may be required by the permit holder or contractor.

Photography can be used very effectively to document the findings during an inspection and becomes important in the future as site conditions change and the practice(s) is no longer used or issues arise over the impacts of the site. Developing a comprehensive file of photographs that supports inspections is a sound business!

A range of formats are used for documenting inspections. An example inspection report form is provided in this appendix. It is important to recognize that local and state regulations may require a specific inspection form, and this must be completed in addition to other formats that are used.

Usually, there is a permit requirement that a responsible person (representing the permit holder) signs an inspection report, to acknowledge that they have been informed and understand what is needed to meet requirements for erosion and sediment control and stormwater management at a specific construction site.

Using the Inspection Report

For ease of use, you should take a copy of your site plan and number all of the stormwater BMPs and areas of your site that will be inspected. A brief description of the BMP or area should then be listed in the site-specific section of the inspection report. For example, specific structural BMPs such as construction site entrances, sediment ponds, or specific areas with silt fence (e.g., silt fence along Main Street; silt fence along slope in NW corner, etc.) should be numbered and listed. You should also number specific non-structural BMPs or areas that will be inspected (such as trash areas, material storage areas, temporary sanitary waste areas, etc.).

You can complete the items in the "General Information" section that will remain constant, such as the project name, NPDES tracking number, and inspector (if you use only one inspector). Print out multiple copies of this inspection report to use during your inspections.

When conducting the inspection, walk the site by following your site map and numbered BMPs/areas for inspection. Also note whether the overall site issues have been addressed. Note any required corrective actions and the date and responsible person for the correction in the Corrective Action Log.

Stormwater Construction Site Inspection Report

General Information			
Project Name			
NPDES Tracking No.		**Location**	
Date of Inspection		**Start/End Time**	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Inspector's Qualifications			
Describe present phase of construction			
Type of Inspection: ❑ Regular ❑ Pre-storm event ❑ During storm event ❑ Post-storm event			
Weather Information			
Has there been a storm event since the last inspection? ❑Yes ❑No **If yes, provide:** Storm Start Date & Time: Storm Duration (hrs): Approximate Amount of Precipitation (in):			
Weather at time of this inspection? ❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds ❑ Other: Temperature:			
Have any discharges occurred since the last inspection? ❑Yes ❑No **If yes, describe:**			
Are there any discharges at the time of inspection? ❑Yes ❑No **If yes, describe:**			

<Continued on next page>

Site-specific BMPs

- *Number the structural and non-structural BMPs identified in your SWPPP on your site map and list them below (add as many BMPs as necessary). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required BMPs at your site.*
- *Describe corrective actions initiated, date completed, and note the person that completed the work in the Corrective Action Log.*

	BMP	**BMP Installed?**	**BMP Maintenance Required?**	**Corrective Action Needed and Notes**
1		❑Yes ❑No	❑Yes ❑No	
2		❑Yes ❑No	❑Yes ❑No	
3		❑Yes ❑No	❑Yes ❑No	
4		❑Yes ❑No	❑Yes ❑No	
5		❑Yes ❑No	❑Yes ❑No	
6		❑Yes ❑No	❑Yes ❑No	
7		❑Yes ❑No	❑Yes ❑No	
8		❑Yes ❑No	❑Yes ❑No	
9		❑Yes ❑No	❑Yes ❑No	
10		❑Yes ❑No	❑Yes ❑No	
11		❑Yes ❑No	❑Yes ❑No	
12		❑Yes ❑No	❑Yes ❑No	
13		❑Yes ❑No	❑Yes ❑No	
14		❑Yes ❑No	❑Yes ❑No	
15		❑Yes ❑No	❑Yes ❑No	
16		❑Yes ❑No	❑Yes ❑No	
17		❑Yes ❑No	❑Yes ❑No	
18		❑Yes ❑No	❑Yes ❑No	
19		❑Yes ❑No	❑Yes ❑No	
20		❑Yes ❑No	❑Yes ❑No	

<Continued on next page>

Overall Site Issues

Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.

BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
Are all slopes and disturbed areas not actively being worked properly stabilized?	❑Yes ❑No	❑Yes ❑No	
Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	❑Yes ❑No	❑Yes ❑No	
Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	❑Yes ❑No	❑Yes ❑No	
Are discharge points and receiving waters free of any sediment deposits?	❑Yes ❑No	❑Yes ❑No	
Are storm drain inlets properly protected?	❑Yes ❑No	❑Yes ❑No	
Is the construction exit preventing sediment from being tracked into the street?	❑Yes ❑No	❑Yes ❑No	
Is trash/litter from work areas collected and placed in covered dumpsters?	❑Yes ❑No	❑Yes ❑No	
Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	❑Yes ❑No	❑Yes ❑No	
Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	❑Yes ❑No	❑Yes ❑No	
Are materials that are potential stormwater contaminants stored inside or under cover?	❑Yes ❑No	❑Yes ❑No	
Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	❑Yes ❑No	❑Yes ❑No	
(Other)	❑Yes ❑No	❑Yes ❑No	

<Continued on next page>

Non-Compliance

Describe any incidents of non-compliance not described above:

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print name and title: _____

Signature:_____ Date:_____

Appendix G
Mississippi Department of Transportation

Vegetation Schedule

Vegetation Schedule

The following pages include temporary and permanent vegetation schedule recommendations from the Mississippi Department of Transportation. A district map is included for reference with the Vegetation Schedules.

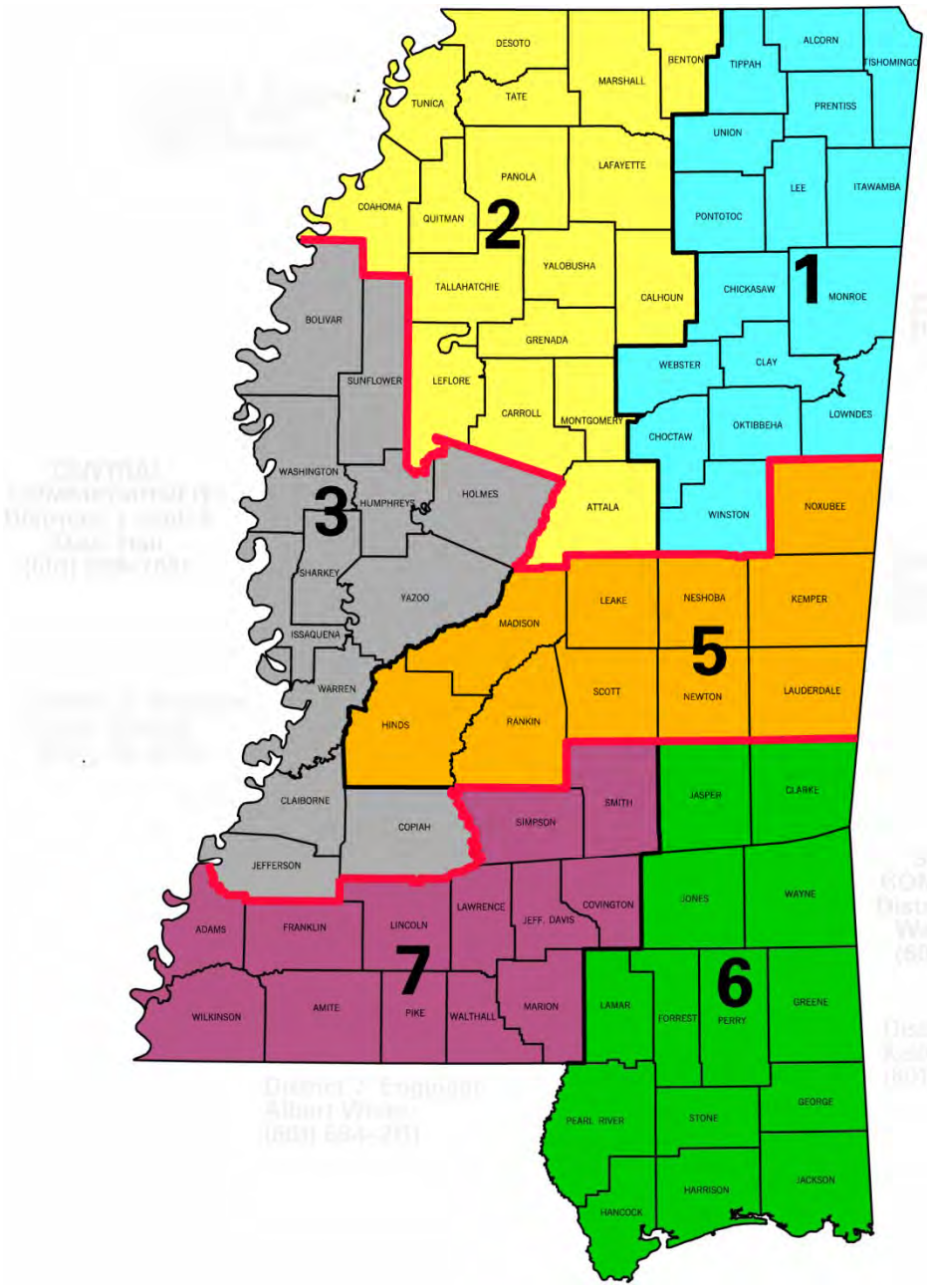

Figure 1: MDOT Districts

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING THE VEGETATION SCHEDULE

TOPSOIL - THE NEED FOR TOPSOIL IS DETERMINED FROM THE ORIGINAL SOIL PROFILE BORINGS OR FIELD INSPECTION. IF NOT NEEDED TOPSOIL WILL NOT APPEAR ON SCHEDULE. IF EXTREMELY ACID SOILS ARE ENCOUNTERED 8" THICK TOPSOIL IS NORMALLY REQUIRED. IF THROUGHOUT THE LENGTH OF THE PROJECT THE SLOPES INDICATE A NEED FOR TOPSOIL THEN YOU COULD ESTIMATE A CERTAIN PERCENT OF THE TOTAL ACREAGE TO BE SEEDED WILL NEED TOPSOIL INSTEAD OF STATION LIMITS AS INDICATED BELOW.

AGRICULTURAL LIMESTONE - NOTE ⑥ BELOW WOULD ONLY BE REQUIRED ON PROJECTS WITHIN EXTREMELY ACID OR ALKALINE SOIL AREAS OR RREGIONS.

SERICEA LESPEDEZA - THIS ITEM ⑥ REQUIRED ONLY ON PROJECTS WITH DEEP CUT AND FILL SLOPE (MINIMUM 15' DEPTH).

VEGETATION SCHEDULE

	EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
			SPRING & SUMMER		FALL & WINTER		
	PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
	211-B001	TOPSOIL FOR SLOPE TREATMENT (LVM)	4" THICK	MARCH 1 TO SEPTEMBER 1	4" THICK	SEPTEMBER 1 TO MARCH 1	TOPSOIL REQUIRED ON SLOPE AREAS (SANDY) AT APPROXIMATE STATION LIMITS LISTED BELOW OR AS DIRECTED BY THE ENGINEER.
	907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
⑥	907-225-B001	AGRICULTURAL LIMESTONE	3 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	3 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
	907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
①	213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
②	907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
②	907-225-A001	SEEDING (BAHIAGRASS)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS.
②	907-225-A001	SEEDING (TALL FESCUE)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS.
⑥	907-225-A001	SEEDING (SERICEA LESPEDEZA)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEE NOTE ⑥ BELOW.
③	907-225-A001	SEEDING (CRIMSON CLOVER)			20 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
	215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
	216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
	219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED IN THE PLANTING AND ESTABLISHING SOLID SOD.
④	220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
		TEMPORARY EROSION CONTROL ITEMS					
	907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
	907-226-A001	COMINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMEBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

⑥ SOW, IN ADDITION TO OTHER SPECIFIED SEEDS, ON HIGH FILL AND BACKSLOPE AREAS SELECTED BY ENGINEERS DURING CONSTRUCTION. PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

⑥ THE ACTUAL RATE/ACRE TO BE DETERMINED BY SOIL TEST DURING CONSTRUCTION.

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

BY | REVISION | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 1 OR 2

VEGETATION SCHEDULE

RURAL - GRADE & DRAIN AND/OR BRIDGES, EXCLUDING MS DELTA

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT NO. :

COUNTY :

WORKING NUMBER

FILENAME: RWD.CEL

DESIGN TEAM_____CHECKED_____DATE_____

SHEET NUMBER

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING THE VEGETATION SCHEDULE

TOPSOIL - THE NEED FOR TOPSOIL IS DETERMINED FROM THE ORIGINAL SOIL PROFILE BORINGS OR FIELD INSPECTION. IF NOT NEEDED TOPSOIL WILL NOT APPEAR ON SCHEDULE. IF EXTREMELY ACID SOILS ARE ENCOUNTERED 8" THICK TOPSOIL IS NORMALLY REQUIRED. IF THERE ARE ONLY A FEW CUT SECTIONS INDICATING A NEED FOR TOPSOIL YOU MAY WANT TO LIST STATION LIMITS INSTEAD OF A PERCENT OF THE ACREAGE TO BE SEEDED TO OBTAIN AN ESTIMATED PROPOSAL QUANTITY.

AGRICULTURAL LIMESTONE - NOTE ⑦ BELOW WOULD ONLY BE REQUIRED ON PROJECTS WITHIN EXTREMELY ACID SOIL AREAS.

SERICEA LESPEDEZA - THIS ITEM ⑧ REQUIRED ONLY ON PROJECTS WITH DEEP CUT AND FILL SLOPE (MINIMUM 15' DEPTH).

VEGETATION SCHEDULE

EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
		SPRING & SUMMER		FALL & WINTER		
PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
⑥ 211-B001	TOPSOIL FOR SLOPE TREATMENT (LVM)	4" THICK	MARCH 1 TO SEPTEMBER 1	4" THICK	SEPTEMBER 1 TO MARCH 1	TOPSOIL REQUIRED ON SLOPE AREAS (SANDY) SELECTED BY THE ENGINEER DURING CONSTRUCTION
907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
⑦ 907-225-B001	AGRICULTURAL LIMESTONE	3 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	3 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
① 213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
② 907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
② ⑤ 907-225-A001	SEEDING (BAHIAGRASS)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS.
② 907-225-A001	SEEDING (TALL FESCUE)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
⑧ 907-225-A001	SEEDING (SERICEA LESPEDEZA)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEE NOTE ⑧ BELOW.
③ 907-225-A001	SEEDING (CRIMSON CLOVER)	———	———	20 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED IN THE PLANTING AND ESTABLISHING SOLID SOD.
⑥ 220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
	TEMPORARY EROSION CONTROL ITEMS					
907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
907-226-A001	COMINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMEBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

⑥ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

⑤ THIS ITEM TO BE OMITTED ON AREAS WITHIN 30' FROM EDGE OF PAVEMENT.

⑥ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE SEEDED MAY REQUIRE TOPSOIL.

⑦ THE ACTUAL RATE/ACRE TO BE DETERMINED BY SOIL TEST DURING CONSTRUCTION.

⑧ SOW, IN ADDITION TO OTHER SPECIFIED SEEDS, ON HIGH FILL AND BACKSLOPE AREAS SELECTED BY ENGINEERS DURING CONSTRUCTION. PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

G-4

BY | REVISION | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
DISTRICT 1 OR 2
VEGETATION SCHEDULE
RURAL - GRADE & DRAIN AND PAVING EXCLUDING MS DELTA
PROJECT NO. :
COUNTY :
FILENAME: RWD.CEL
DESIGN TEAM _____ CHECKED _____ DATE _____

PRELIMINARY
NOT FOR CONSTRUCTION

WORKING NUMBER

SHEET NUMBER

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING THE VEGETATION SCHEDULE

AGRICULTURAL LIMESTONE - 3 TONS/ACRE RATE REQUIRED FOR BRIDGE REPLACEMENT PROJECTS.

VEGETATION SCHEDULE

	EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
			SPRING & SUMMER		FALL & WINTER		
	PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
	907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
	907-225-B001	AGRICULTURAL LIMESTONE	2 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
	907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
①	213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
②	907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
②	907-225-A001	SEEDING (TALL FESCUE)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS.
③	907-225-A001	SEEDING (CRIMSON CLOVER)			20 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
	215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
	216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
	219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED IN THE PLANTING AND ESTABLISHING SOLID SOD.
④	220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
		TEMPORARY EROSION CONTROL ITEMS					
	907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
	907-226-A001	COMINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMEBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG_DSN

BY | REVISION | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 1 OR 2

VEGETATION SCHEDULE

RURAL-PAVING, GUARDRAIL OR BRIDGE REPLACEMENT, EXCLUDING MS DELTA

PROJECT NO. :

COUNTY :

FILENAME: RWD.CEL

DESIGN TEAM _____ CHECKED _____ DATE _____

PRELIMINARY NOT FOR CONSTRUCTION

WORKING NUMBER

SHEET NUMBER

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING THE VEGETATION SCHEDULE

TOPSOIL - THE NEED FOR TOPSOIL IS DETERMINED FROM THE ORIGINAL SOIL PROFILE BORINGS OR FIELD INSPECTION. IF NOT NEEDED TOPSOIL WILL NOT APPEAR ON THE SCHEDULE. IF EXTREMELY ACID SOILS ARE ENCOUNTERED 8" THICK TOPSOIL IS NORMALLY REQUIRED. PROPOSAL QUANTITIES (EST.) ARE DETERMINED USING A PERCENTAGE OF THE TOTAL ACREAGE OR WITHIN CERTAIN STATION LIMITS.

AGRICULTURAL LIMESTONE - THE 3 TON/ACRE RATE LISTED BELOW IS FOR URBAN GRADE, DRAIN AND BRIDGE PROJECTS; ALL OTHER PROJECTS REQUIRE 2 TON/ACRE.

VEGETATION SCHEDULE

EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
		SPRING & SUMMER		FALL & WINTER		
PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
⑦ 211-B001	TOPSOIL FOR SLOPE TREATMENT (LVM)	4" THICK	MARCH 1 TO SEPTEMBER 1	4" THICK	SEPTEMBER 1 TO MARCH 1	TOPSOIL REQUIRED ON SLOPES DETERMINED BY THE ENGINEER DURING CONSTRUCTION.
907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
907-225-B001	AGRICULTURAL LIMESTONE	3 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	3 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
① 213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
② 907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
② ⑤ 907-225-A001	SEEDING (TALL FESCUE)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS.
③ ⑤ 907-225-A001	SEEDING (CRIMSON CLOVER)			20 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
⑥ 215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED IN THE PLANTING AND ESTABLISHING SOLID SOD.
④ 220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
	TEMPORARY EROSION CONTROL ITEMS					
907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
907-226-A001	COMINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMEBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

⑤ THIS ITEM TO BE OMITTED ON AREAS SELECTED BY THE ENGINEER.

⑥ BAHIAGRASS WILL NOT BE PERMITTED AS A MULCH MATERIAL.

⑦ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 75% OF THE ACREAGE SEEDED MAY REQUIRE TOPSOIL.

⑧ SOW, IN ADDITION TO OTHER SPECIFIED SEEDS, ON HIGH FILL AND BACKSLOPE AREAS SELECTED BY ENGINEERS DURING CONSTRUCTION. PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

G-6

BY | REVISION | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 1 OR 2

VEGETATION SCHEDULE

URBAN - ALL TYPES, EXCLUDING MS DELTA

PROJECT NO. :

COUNTY :

PRELIMINARY NOT FOR CONSTRUCTION

WORKING NUMBER

FILENAME: RWD.CEL

DESIGN TEAM _____ CHECKED _____ DATE _____

SHEET NUMBER

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING SCHEDULE

AGRICULTURAL LIMESTONE - THE 3 TON/ACRE RATE LISTED BELOW IS FOR GRADE AND DRAIN PROJECTS. ALL OTHER TYPE PROJECTS WILL BE AT THE RATE OF 2 TONS/ACRE.

VEGETATION SCHEDULE

	EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
			SPRING & SUMMER		FALL & WINTER		
	PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
	907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
	907-225-B001	AGRICULTURAL LIMESTONE	3 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	3 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
	907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
①	213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
②	907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
②	907-225-A001	SEEDING (TALL FESCUE)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS.
	215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
	216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
	219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED ON THE PLANTING AND ESTABLISHING SOLID SOD.
④	220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
		TEMPORARY EROSION CONTROL ITEMS					
	907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
	907-226-A001	COMINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMEBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 2

VEGETATION SCHEDULE

ALL TYPE PROJECTS - MS DELTA

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT NO. :
COUNTY :

WORKING NUMBER

REVISION BY

DATE FILENAME: RWD.CEL

DESIGN TEAM _____ CHECKED _____ DATE _____

SHEET NUMBER

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING SCHEDULE

DETOURS - THE INFORMATION SHOWN BELOW SHOULD BE INCLUDED ON THE VEGETATION SCHEDULE FOR ALL TYPE PROJECTS IN DISTRICTS 1 AND 2 WHERE TEMPORARY VEGETATION IS REQUIRED FOR DETOURS.

VEGETATION SCHEDULE

EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
		SPRING & SUMMER		FALL & WINTER		
PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
907-225-B001	AGRICULTURAL LIMESTONE	TONS/ACRE	MARCH 1 TO SEPTEMBER 1	TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
① 213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
② 907-225-A001	SEEDING	LBS./ACRE	MARCH 1 TO SEPTEMBER 1	LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
907-225-A001	SEEDING			LBS./ACRE		SEED REQUIRED ON DISTURBED AREAS.
215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED ON THE PLANTING AND ESTABLISHING SOLID SOD.
④ 220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
	TEMPORARY EROSION CONTROL ITEMS					
907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
907-226-A001	COMINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMEBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

TEMPORARY EROSION CONTROL ITEMS REQUIRED FOR DETOURS

ITEM	RATE
STANDARD GROUND PREPARATION	———
COMBINATION FERTILIZER (13-13-13)	500 LBS/ACRE
SEEDING (BERMUDAGRASS)	10 LBS/ACRE
SEEDING (TALL FESCUE)	20 LBS/ACRE
VEGETATIVE MATERIAL FOR MULCH	2 TONS/ACRE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 1 OR 2

VEGETATION SCHEDULE
TEMPORARY EROSION CONTROL ITEMS FOR DETOURS - ALL TYPE PROJECTS

PROJECT NO. :
COUNTY :

PRELIMINARY
NOT FOR CONSTRUCTION

WORKING NUMBER

SHEET NUMBER

REVISION | BY | DATE

FILENAME: RWD.CEL

DESIGN TEAM _____ CHECKED _____ DATE _____

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING THE VEGETATION SCHEDULE

TOPSOIL - THE NEED FOR TOPSOIL IS DETERMINED FROM THE ORIGINAL SOIL PROFILE BORINGS OR FIELD INSPECTION. IF NOT NEEDED TOPSOIL WILL NOT APPEAR ON SCHEDULE. IF EXTREMELY ACID SOILS ARE ENCOUNTERED 8" THICK TOPSOIL IS NORMALLY REQUIRED. IF THERE ARE ONLY A FEW CUT SECTIONS INDICATING A NEED FOR TOPSOIL YOU MAY WANT TO LIST STATION LIMITS INSTEAD OF A PERCENT OF THE ACREAGE TO BE SEEDED TO OBTAIN AN ESTIMATED PROPOSAL QUANTITY.

AGRICULTURAL LIMESTONE - NOTE ⑥ BELOW WOULD ONLY BE REQUIRED ON PROJECTS WITHIN EXTREMELY ACID SOIL AREAS.

SERICEA LESPEDEZA - THIS ITEM ⑤ REQUIRED ONLY ON PROJECTS WITH DEEP CUT AND FILL SLOPE (MINIMUM 15' DEPTH).

VEGETATION SCHEDULE

	EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
			SPRING & SUMMER		FALL & WINTER		
	PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
	211-B001	TOPSOIL FOR SLOPE TREATMENT (LVM)	4" THICK	MARCH 1 TO SEPTEMBER 1	4" THICK	SEPTEMBER 1 TO MARCH 1	TOPSOIL REQUIRED ON SLOPE AREAS (SANDY) AT APPROXIMATE STATION LIMITS LISTED BELOW OR AS DIRECTED BY THE ENGINEER.
	907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
⑥	907-225-B001	AGRICULTURAL LIMESTONE	3 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	3 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
	907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
①	213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
②	907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
②	907-225-A001	SEEDING (BAHIAGRASS)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS.
③	907-225-A001	SEEDING (TALL FESCUE)			20 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
⑤	907-225-A001	SEEDING (SERICEA LESPEDEZA)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEE NOTE ⑤ BELOW.
③	907-225-A001	SEEDING (CRIMSON CLOVER)			20 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
	215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
	216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
	219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED IN THE PLANTING AND ESTABLISHING SOLID SOD.
④	220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
		TEMPORARY EROSION CONTROL ITEMS					
	907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
	907-226-A001	COMBINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

⑤ SOW, IN ADDITION TO OTHER SPECIFIED SEEDS, ON HIGH FILL AND BACKSLOPE AREAS SELECTED BY ENGINEERS DURING CONSTRUCTION. PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

⑥ THE ACTUAL RATE/ACRE TO BE DETERMINED BY SOIL TEST DURING CONSTRUCTION.

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

BY	REVISION	DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 3 OR 5

VEGETATION SCHEDULE

RURAL - GRADE & DRAIN AND/OR BRIDGES, EXCLUDING MS DELTA

PROJECT NO. :

COUNTY :

PRELIMINARY NOT FOR CONSTRUCTION

WORKING NUMBER

FILENAME: RWD.CEL

DESIGN TEAM_____CHECKED_____DATE_____

SHEET NUMBER

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING THE VEGETATION SCHEDULE

TOPSOIL - THE NEED FOR TOPSOIL IS DETERMINED FROM THE ORIGINAL SOIL PROFILE BORINGS OR FIELD INSPECTION. IF NOT NEEDED TOPSOIL WILL NOT APPEAR ON SCHEDULE. IF EXTREMELY ACID SOILS ARE ENCOUNTERED 8" THICK TOPSOIL IS NORMALLY REQUIRED. IF THERE ARE ONLY A FEW CUT SECTIONS INDICATING A NEED FOR TOPSOIL YOU MAY WANT TO LIST STATION LIMITS INSTEAD OF A PERCENT OF THE ACREAGE TO BE SEEDED TO OBTAIN AN ESTIMATED PROPOSAL QUANTITY.

AGRICULTURAL LIMESTONE - NOTE ⑦ BELOW WOULD ONLY BE REQUIRED ON PROJECTS WITHIN EXTREMELY ACID SOIL AREAS.

SERICEA LESPEDEZA - THIS ITEM ⑧ REQUIRED ONLY ON PROJECTS WITH DEEP CUT AND FILL SLOPE (MINIMUM 15' DEPTH).

VEGETATION SCHEDULE

	EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
			SPRING & SUMMER		FALL & WINTER		
	PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
⑥	211-B001	TOPSOIL FOR SLOPE TREATMENT (LVM)	4" THICK	MARCH 1 TO SEPTEMBER 1	4" THICK	SEPTEMBER 1 TO MARCH 1	TOPSOIL REQUIRED ON SLOPE AREAS (SANDY) SELECTED BY THE ENGINEER DURING CONSTRUCTION.
	907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
⑦	907-225-B001	AGRICULTURAL LIMESTONE	3 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	3 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
	907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
①	213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
②	907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
②	907-225-A001	SEEDING (BAHIAGRASS)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS.
③	907-225-A001	SEEDING (TALL FESCUE)			20 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
⑧	907-225-A001	SEEDING (SERICEA LESPEDEZA)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEE NOTE ⑧ BELOW.
③	907-225-A001	SEEDING (CRIMSON CLOVER)			20 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
	215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
	216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
	219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED ON THE PLANTING AND ESTABLISHING SOLID SOD.
④	220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
		TEMPORARY EROSION CONTROL ITEMS					
	907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
	907-226-A001	COMINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMEBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

⑤ THIS ITEM TO BE OMITTED ON AREAS WITHIN 30' FROM EDGE OF PAVEMENT

⑥ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE SEEDED MAY REQUIRE TOPSOIL.

⑦ THE ACTUAL RATE/ACRE TO BE DETERMINED BY SOIL TEST DURING CONSTRUCTION.

⑧ SOW, IN ADDITION TO OTHER SPECIFIED SEEDS, ON HIGH FILL AND BACKSLOPE AREAS SELECTED BY ENGINEERS DURING CONSTRUCTION. PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

BY | REVISION | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 3 OR 5
VEGETATION SCHEDULE
RURAL-GRADE, DRAIN AND PAVING
EXCLUDING MS DELTA

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT NO. :
COUNTY :

WORKING NUMBER

FILENAME: RWD.CEL

DESIGN TEAM _____ CHECKED _____ DATE _____

SHEET NUMBER

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING THE VEGETATION SCHEDULE

AGRICULTURAL LIMESTONE - 3 TONS/ACRE RATE REQUIRED FOR BRIDGE REPLACEMENT PROJECTS.

VEGETATION SCHEDULE

EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
		SPRING & SUMMER		FALL & WINTER		
PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
907-225-B001	AGRICULTURAL LIMESTONE	2 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
① 213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
② 907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
③ 907-225-A001	SEEDING (TALL FESCUE)			20 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
③ 907-225-A001	SEEDING (CRIMSON CLOVER)			20 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED IN THE PLANTING AND ESTABLISHING SOLID SOD.
④ 220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
	TEMPORARY EROSION CONTROL ITEMS					
907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
907-226-A001	COMINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMEBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

BY | REVISION | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 3 OR 5

VEGETATION SCHEDULE

RURAL-PAVING, GUARDRAIL OR BRIDGE REPLACEMENT, EXCLUDING MS DELTA

PROJECT NO. :

COUNTY :

PRELIMINARY NOT FOR CONSTRUCTION

WORKING NUMBER

FILENAME: RWD.CEL

DESIGN TEAM_____CHECKED_____DATE_____

SHEET NUMBER

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING THE VEGETATION SCHEDULE

TOPSOIL - THE NEED FOR TOPSOIL IS DETERMINED FROM THE ORIGINAL SOIL PROFILE BORINGS OR FIELD INSPECTION. IF NOT NEEDED TOPSOIL WILL NOT APPEAR ON THE SCHEDULE. IF EXTREMELY ACID SOILS ARE ENCOUNTERED 8" THICK TOPSOIL IS NORMALLY REQUIRED. PROPOSAL QUANTITIES (EST.) ARE DETERMINED USING A PERCENTAGE OF THE TOTAL ACREAGE OR WITHIN CERTAIN STATION LIMITS.

AGRICULTURAL LIMESTONE - THE 3 TON/ACRE RATE LISTED BELOW IS FOR URBAN GRADE, DRAIN AND BRIDGE PROJECTS; ALL OTHER PROJECTS REQUIRE 2 TON/ACRE.

VEGETATION SCHEDULE

EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
		SPRING & SUMMER		FALL & WINTER		
PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
⑦ 211-B001	TOPSOIL FOR SLOPE TREATMENT (LVM)	4" THICK	MARCH 1 TO SEPTEMBER 1	4" THICK	SEPTEMBER 1 TO MARCH 1	TOPSOIL REQUIRED ON SLOPES DETERMINED BY THE ENGINEER DURING CONSTRUCTION.
907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
907-225-B001	AGRICULTURAL LIMESTONE	3 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	3 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
① 213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
② 907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
③ ⑤ 907-225-A001	SEEDING (TALL FESCUE)			20 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
③ ⑤ 907-225-A001	SEEDING (CRIMSON CLOVER)			20 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
⑥ 215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED IN THE PLANTING AND ESTABLISHING SOLID SOD.
④ 220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
	TEMPORARY EROSION CONTROL ITEMS					
907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
907-226-A001	COMBINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

⑤ THIS ITEM TO BE OMITTED ON AREAS SELECTED BY THE ENGINEER.

⑥ BAHIAGRASS WILL NOT BE PERMITTED AS A MULCH MATERIAL.

⑦ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 75% OF THE ACREAGE SEEDED MAY REQUIRE TOPSOIL.

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

BY | REVISION | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 3 OR 5

VEGETATION SCHEDULE

URBAN - ALL TYPES, EXCLUDING MS DELTA

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT NO. :

COUNTY :

WORKING NUMBER

FILENAME: RWD.CEL

DESIGN TEAM _____ CHECKED _____ DATE _____

SHEET NUMBER

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING SCHEDULE

AGRICULTURAL LIMESTONE - THE 3 TON/ACRE RATE LISTED BELOW IS FOR GRADE AND DRAIN PROJECTS. ALL OTHER TYPE PROJECTS WILL BE AT THE RATE OF 2 TONS/ACRE.

VEGETATION SCHEDULE

EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
		SPRING & SUMMER		FALL & WINTER		
PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
907-225-B001	AGRICULTURAL LIMESTONE	3 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	3 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
① 213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
② 907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
③ 907-225-A001	SEEDING (TALL FESCUE)			25 LBS./ACRE	AUGUST 1 TO APRIL 1	SEED REQUIRED ON DISTURBED AREAS.
215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED ON THE PLANTING AND ESTABLISHING SOLID SOD.
④ 220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
	TEMPORARY EROSION CONTROL ITEMS					
907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
907-226-A001	COMBINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

BY | REVISION | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 3

VEGETATION SCHEDULE

ALL TYPE PROJECTS - MS DELTA

PROJECT NO. :

COUNTY :

PRELIMINARY
NOT FOR
CONSTRUCTION

WORKING NUMBER

FILENAME: RWD.CEL

DESIGN TEAM _____ CHECKED _____ DATE _____

SHEET NUMBER

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR USE OF THIS SHEET

THE INFORMATION SHOWN IN THE VEGETATION SCHEDULE BELOW IS FOR EXEMPLARY PURPOSE ONLY. WHEN TEMPORARY VEGETATION IS REQUIRED FOR DETOURS, THE DETOUR PORTION OF THIS SHEET SHOULD BE REFERENCED TO YOUR APPROPRIATE SHEET.

VEGETATION SCHEDULE

EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
		SPRING & SUMMER		FALL & WINTER		
PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
907-225-B001	AGRICULTURAL LIMESTONE	TONS/ACRE	MARCH 1 TO SEPTEMBER 1	TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
① 213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
②	SEEDING	LBS./ACRE	MARCH 1 TO SEPTEMBER 1	LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
907-225-A001	SEEDING			LBS./ACRE		SEED REQUIRED ON DISTURBED AREAS.
215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED ON THE PLANTING AND ESTABLISHING SOLID SOD.
④ 220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
	TEMPORARY EROSION CONTROL ITEMS					
907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
907-226-A001	COMBINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

TEMPORARY EROSION CONTROL ITEMS REQUIRED FOR DETOURS

ITEM	RATE	SEASONAL LIMITATIONS
STANDARD GROUND PREPARATION	———	———
COMBINATION FERTILIZER (13-13-13)	500 LBS/ACRE	———
SEEDING (BERMUDAGRASS)	10 LBS/ACRE	———
SEEDING (TALL FESCUE)	20 LBS/ACRE	AUGUST 1 TO APRIL 1
VEGETATIVE MATERIAL FOR MULCH	2 TONS/ACRE	———

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

BY | REVISION | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 3 OR 5

VEGETATION SCHEDULE

TEMPORARY EROSION CONTROL ITEMS FOR DETOURS - ALL TYPE PROJECTS

PROJECT NO. :
COUNTY :

PRELIMINARY NOT FOR CONSTRUCTION

WORKING NUMBER

SHEET NUMBER

FILENAME: RWD.CEL

DESIGN TEAM _____ CHECKED _____ DATE _____

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING THE VEGETATION SCHEDULE

TOPSOIL - THE NEED FOR TOPSOIL IS DETERMINED FROM THE ORIGINAL SOIL PROFILE BORINGS OR FIELD INSPECTION. IF NOT NEEDED TOPSOIL WILL NOT APPEAR ON SCHEDULE. IF EXTREMELY ACID SOILS ARE ENCOUNTERED 8" THICK TOPSOIL IS NORMALLY REQUIRED. IF THERE ARE ONLY A FEW CUT SECTIONS INDICATING A NEED FOR TOPSOIL YOU MAY WANT TO LIST STATION LIMITS INSTEAD OF A PERCENT OF THE ACREAGE TO BE SEEDED TO OBTAIN AN ESTIMATED PROPOSAL QUANTITY.

SERICEA LESPEDEZA - THIS ITEM ⑤ REQUIRED ONLY ON PROJECTS WITH DEEP CUT AND FILL SLOPE (MINIMUM 15' DEPTH).

VEGETATION SCHEDULE

	EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
			SPRING & SUMMER		FALL & WINTER		
	PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
	211-B001	TOPSOIL FOR SLOPE TREATMENT (LVM)	4" THICK	MARCH 1 TO SEPTEMBER 1	4" THICK	SEPTEMBER 1 TO MARCH 1	TOPSOIL REQUIRED ON SLOPE AREAS (SANDY) AT APPROXIMATE STATION LIMITS LISTED BELOW OR AS DIRECTED BY THE ENGINEER.
	907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
	907-225-B001	AGRICULTURAL LIMESTONE	3 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	3 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
	907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
①	213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
②	907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
②	907-225-A001	SEEDING (BAHIAGRASS)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS.
③	907-225-A001	SEEDING (TALL FESCUE)			15 LBS./ACRE	AUGUST 15 TO MARCH 15	SEED REQUIRED ON DISTURBED AREAS.
⑤	907-225-A001	SEEDING (SERICEA LESPEDEZA)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEE NOTE ⑤ BELOW.
③	907-225-A001	SEEDING (CRIMSON CLOVER)			20 LBS./ACRE	AUGUST 15 TO MARCH 15	SEED REQUIRED ON DISTURBED AREAS.
	215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
	216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
	219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED IN THE PLANTING AND ESTABLISHING SOLID SOD.
④	220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
		TEMPORARY EROSION CONTROL ITEMS					
	907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
	907-226-A001	COMBINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

⑤ SOW, IN ADDITION TO OTHER SPECIFIED SEEDS, ON HIGH FILL AND BACKSLOPE AREAS SELECTED BY ENGINEERS DURING CONSTRUCTION. PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 6 OR 7

VEGETATION SCHEDULE

RURAL-GRADE & DRAIN, BRIDGE AND/ OR BRIDGE REPLACEMENT PROJECTS

PROJECT NO. :

COUNTY :

REVISION | BY | DATE

FILENAME: RWD.CEL

DESIGN TEAM _____ CHECKED _____ DATE _____

PRELIMINARY NOT FOR CONSTRUCTION

WORKING NUMBER

SHEET NUMBER

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING THE VEGETATION SCHEDULE

TOPSOIL - THE NEED FOR TOPSOIL IS DETERMINED FROM THE ORIGINAL SOIL PROFILE BORINGS OR FIELD INSPECTION. IF NOT NEEDED TOPSOIL WILL NOT APPEAR ON SCHEDULE. IF EXTREMELY ACID SOILS ARE ENCOUNTERED 8" THICK TOPSOIL IS NORMALLY REQUIRED. IF THERE ARE ONLY A FEW CUT SECTIONS INDICATING A NEED FOR TOPSOIL YOU MAY WANT TO LIST STATION LIMITS INSTEAD OF A PERCENT OF THE ACREAGE TO BE SEEDED TO OBTAIN AN ESTIMATED PROPOSAL QUANTITY.

SERICEA LESPEDEZA - THIS ITEM ⑥ REQUIRED ONLY ON PROJECTS WITH DEEP CUT AND FILL SLOPE (MINIMUM 15' DEPTH).

VEGETATION SCHEDULE

EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
		SPRING & SUMMER		FALL & WINTER		
PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
⑤ 211-B001	TOPSOIL FOR SLOPE TREATMENT (LVM)	4" THICK	MARCH 1 TO SEPTEMBER 1	4" THICK	SEPTEMBER 1 TO MARCH 1	TOPSOIL REQUIRED ON SLOPE AREAS (SANDY) AT APPROXIMATE STATION LIMITS LISTED BELOW OR AS DIRECTED BY THE ENGINEER.
907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
907-225-B001	AGRICULTURAL LIMESTONE	3 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	3 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
① 213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
② 907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
② 907-225-A001	SEEDING (BAHIAGRASS)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS.
③ 907-225-A001	SEEDING (TALL FESCUE)			15 LBS./ACRE	AUGUST 15 TO MARCH 15	SEED REQUIRED ON DISTURBED AREAS.
⑥ 907-225-A001	SEEDING (SERICEA LESPEDEZA)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEE NOTE ⑥ BELOW.
③ 907-225-A001	SEEDING (CRIMSON CLOVER)			20 LBS./ACRE	AUGUST 15 TO MARCH 15	SEED REQUIRED ON DISTURBED AREAS.
215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED IN THE PLANTING AND ESTABLISHING SOLID SOD.
④ 220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
	TEMPORARY EROSION CONTROL ITEMS					
907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
907-226-A001	COMBINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

⑤ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE SEEDED MAY REQUIRE TOPSOIL.

⑥ SOW, IN addition TO OTHER SPECIFIED SEEDS, ON HIGH FILL AND BACKSLOPE AREAS SELECTED BY ENGINEERS DURING CONSTRUCTION. PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

G-16

BY | REVISION | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 6 OR 7

VEGETATION SCHEDULE

RURAL - GRADE, DRAIN AND PAVING PROJECTS

PROJECT NO. :
COUNTY :

PRELIMINARY NOT FOR CONSTRUCTION

WORKING NUMBER

FILENAME: RWD.CEL

DESIGN TEAM_____CHECKED_____DATE_____

SHEET NUMBER

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING THE VEGETATION SCHEDULE

DETOURS - THE INFORMATION SHOWN BELOW SHOULD BE INCLUDED ON THE VEGETATION SCHEDULE FOR ALL TYPE PROJECTS IN DISTRICTS 6 AND 7 WHERE TEMPORARY VEGETATION IS REQUIRED DETOURS.

VEGETATION SCHEDULE

	EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
			SPRING & SUMMER		FALL & WINTER		
	PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
	907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
	907-225-B001	AGRICULTURAL LIMESTONE	3 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	3 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
	907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
①	213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1	———	———	SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
②	907-225-A001	SEEDING	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
	907-225-A001	SEEDING			LBS./ACRE		SEED REQUIRED ON DISTURBED AREAS.
	215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
	216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
	219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED IN THE PLANTING AND ESTABLISHING SOLID SOD.
④	220-A001	INSECT PEST CONTROL	PER ACRE	———	PER ACRE	———	SEE SECTION 220.
		TEMPORARY EROSION CONTROL ITEMS					
	907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
	907-226-A001	COMBINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AND ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

TEMPORARY EROSION CONTROL ITEMS REQUIRED FOR DETOURS

ITEM	RATE	SEASONAL LIMITATION
STANDARD GROUND PREPARATION	———	———
COMBINATION FERTILIZER (13-13-13)	500 LBS/ACRE	———
SEEDING (BERMUDAGRASS)	10 LBS/ACRE	———
SEEDING (TALL FESCUE)	20 LBS/ACRE	AUGUST 15 TO MARCH 15
VEGETATIVE MATERIAL FOR MULCH	2 TONS/ACRE	———

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

REVISION	BY	DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 6 OR 7

VEGETATION SCHEDULE

RURAL - PAVING AND/OR GUARDRAIL

PROJECT NO. :

COUNTY :

PRELIMINARY NOT FOR CONSTRUCTION

WORKING NUMBER

SHEET NUMBER

FILENAME: RWD.CEL

DESIGN TEAM _____ CHECKED _____ DATE _____

STATE	PROJECT NO.
MISS.	

VEGETATION SCHEDULE

	EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
			SPRING & SUMMER		FALL & WINTER		
	PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
	907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
	907-225-B001	AGRICULTURAL LIMESTONE	2 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
	907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
①	213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1			SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
②	907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
②	907-225-A001	SEEDING (BAHIAGRASS)	25 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS.
③	907-225-A001	SEEDING (TALL FESCUE)			15 LBS./ACRE	AUGUST 15 TO MARCH 15	SEED REQUIRED ON DISTURBED AREAS.
③	907-225-A001	SEEDING (CRIMSON CLOVER)			20 LBS./ACRE	AUGUST 15 TO MARCH 15	SEED REQUIRED ON DISTURBED AREAS.
	215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
	216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
	219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED IN THE PLANTING AND ESTABLISHING SOLID SOD.
④	220-A001	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220.
		TEMPORARY EROSION CONTROL ITEMS					
	907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
	907-226-A001	COMBINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
	907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 6 OR 7

VEGETATION SCHEDULE

URBAN - ALL TYPES PROJECTS

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT NO.:
COUNTY :

WORKING NUMBER

REVISION BY

DATE

FILENAME: RWD.CEL

DESIGN TEAM _____ CHECKED _____ DATE _____

SHEET NUMBER

PLAN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/20/2010 8:14 AM VEG.DGN

STATE	PROJECT NO.
MISS.	

INSTRUCTIONS FOR COMPLETING THE VEGETATION SCHEDULE

TOPSOIL - THE NEED FOR TOPSOIL IS DETERMINED FROM THE ORIGINAL SOIL PROFILE BORINGS OR FIELD INSPECTION. IF NOT NEEDED TOPSOIL WILL NOT APPEAR ON THE SCHEDULE. IF EXTREMELY ACID SOILS ARE ENCOUNTERED 8" THICK TOPSOIL IS NORMALLY REQUIRED. PROPOSAL QUANTITIES (EST.) ARE DETERMINED USING A PERCENTAGE OF THE TOTAL ACREAGE OR WITHIN CERTAIN STATION LIMITS.

AGRICULTURAL LIMESTONE - THE 3 TON/ACRE RATE LISTED BELOW IS FOR URBAN GRADE, DRAIN AND BRIDGE PROJECTS; ALL OTHER PROJECTS REQUIRE 2 TON/ACRE.

VEGETATION SCHEDULE

EROSION CONTROL ITEMS		SEASONAL APPLICATIONS-DATES & RATES				REQUIREMENTS
		SPRING & SUMMER		FALL & WINTER		
PAY ITEM NO.	ITEMS	RATES	DATES	RATES	DATES	
⑦ 211-B001	TOPSOIL FOR SLOPE TREATMENT (LVM)	4" THICK	MARCH 1 TO SEPTEMBER 1	4" THICK	SEPTEMBER 1 TO MARCH 1	TOPSOIL REQUIRED ON SLOPES DETERMINED BY THE ENGINEER DURING CONSTRUCTION.
907-225-A001	STANDARD GROUND PREPARATION	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ.YD.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE.
907-225-B001	AGRICULTURAL LIMESTONE	3 TONS/ACRE	MARCH 1 TO SEPTEMBER 1	3 TONS/ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
907-225-A001	COMBINATION FERTILIZER (13-13-13)	1000 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING.
① 213-C001	SUPERPHOSPHATE	0.5 TONS/ACRE (EST.)	MARCH 1 TO DECEMBER 1	———	———	SUPERPHOSPHATE (FOR BID ITEM PURPOSES).
② 907-225-A001	SEEDING (BERMUDAGRASS)	20 LBS./ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS./ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED.
③ ⑤ 907-225-A001	SEEDING (TALL FESCUE)	———	———	15 LBS./ACRE	AUGUST 15 TO MARCH 15	SEED REQUIRED ON DISTURBED AREAS.
③ ⑤ 907-225-A001	SEEDING (CRIMSON CLOVER)	———	———	20 LBS./ACRE	AUGUST 15 TO MARCH 15	SEED REQUIRED ON DISTURBED AREAS.
⑥ 215-A001	VEGETATIVE MATERIAL FOR MULCH	2 TONS ACRE (EST.)	MARCH 1 TO SEPTEMBER 1	2 TONS/ACRE (EST.)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICATION (SEE SUBSECTION 215.03.3).
216-A001	SOLID SODDING	PER SQ.YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER.
219-A001	WATERING	20 GALS./S.Y. (EST.)	MARCH 1 TO SEPTEMBER 1	20 GALS. S.Y. (EST.)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED IN THE PLANTING AND ESTABLISHING SOLID SOD.
④ 220-A001	INSECT PEST CONTROL	PER ACRE	———	PER ACRE	———	SEE SECTION 220.
	TEMPORARY EROSION CONTROL ITEMS					
907-226-A001	LIGHT GROUND PREPARATION	PER SQ.YD.		PER SQ.YD.		APPROXIMATELY HALF SQ. YD. STANDARD GROUND PREPARATION
907-226-A001	COMBINATION FERTILIZER (13-13-13)	0.25 TONS/ACRE		0.25 TONS/ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (BROWN TOP MILLET)	20 LBS./ACRE	APRIL 1 TO AUGUST 31	———	———	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (RYE GRASS)	———	———	25 LBS./ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	SEEDING (OATS)	———	———	90 LBS./ACRE	SEPTEMBER 1 TO DECEMBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
907-226-A001	VEGETATIVE MATERIAL FOR MULCH	2 TON /ACRE (EST.)		2 TON /ACRE (EST.)		QUANTITY BASED ON LIGHT GROUND PREPARATION

① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TESTS OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS. PAYMENT FOR ALL FERTILIZERS ACCEPTABLY APPLIED AS AN ADDITIONAL APPLICATION(S) WILL BE MADE IN ACCORDANCE WITH SUPERPHOSPHATE BID ITEM 213-C001.

② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDED.

③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDED.

④ QUANTITY ESTIMATED ON THE BASIS 50% OF THE ACREAGE VEGETATED MAY REQUIRE TREATMENT.

⑤ THIS ITEM TO BE OMITTED ON AREAS SELECTED BY THE ENGINEER.

⑥ BAHIAGRASS WILL NOT BE PERMITTED AS A MULCH MATERIAL.

⑦ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 75% OF THE ACREAGE SEEDED MAY REQUIRE TOPSOIL.

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ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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BY | REVISION | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DISTRICT 6 OR 7

VEGETATION SCHEDULE
TEMPORARY EROSION CONTROL ITEMS FOR DETOURS - ALL TYPE PROJECTS

PROJECT NO. :
COUNTY :

PRELIMINARY NOT FOR CONSTRUCTION

WORKING NUMBER

FILENAME: RWD.CEL

DESIGN TEAM _____ CHECKED _____ DATE _____

SHEET NUMBER

Appendix H
Glossary

Acute: A stimulus severe enough to rapidly induce an effect; in aquatic toxicity tests, an effect observed in 96 hours or less is typically considered acute. When referring to aquatic toxicology or human health, an acute effect is not always measured in terms of lethality.

Antidegradation: Policies which ensure protection of water quality for a particular water body where the water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as outstanding natural resource waters. Antidegradation plans are adopted by each state to minimize adverse effects on water.

Aquifer: An underground area that contains fresh water in sufficient amounts to yield useful quantities to wells and springs.

Artificial Wetlands: Wetlands that are artificially created, often as part of a water treatment facility.

Authorized Program or Authorized State: A state, Territorial, Tribal, or interstate NPDES program which has been approved or authorized by EPA under 40 CFR Part 123.

Average Monthly Discharge Limitations: The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during that month divided by the number of days on which monitoring was performed (except in the case of fecal coliform).

Average Weekly Discharge Limitation: The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Basin: A hydrologic unit consisting of a part of the surface of the Earth covered by a drainage system consisting of a surface stream or body of impounded surface water plus all tributaries.

Berm: An earthen mound used to direct the flow of runoff around or through a structure.

Best Management Practices (BMPs): Activities or structural improvements that help reduce the quantity and improve the quality of storm water runoff. BMPs include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Bioassay: A test used to evaluate the relative potency of a chemical or a mixture of chemicals by comparing its effect on a living organism with the effect of a standard preparation on the same type of organism.

Biochemical Oxygen Demand (BOD): A measurement of the amount of oxygen utilized by the decomposition of organic material, over a specified time period (usually 5 days) in a wastewater sample; it is used as a measurement of the readily decomposable organic content of a wastewater.

Bioretention: A water quality practice that utilizes landscaping and soils to treat urban storm water runoff by collecting it in shallow depressions. It then filters the runoff through a fabricated planting soil media.

Biosolids: Sewage sludge that is used or disposed through land application, surface disposal, incineration, or disposal in a municipal solid waste landfill. Sewage sludge is defined as solid, semi-solid, or liquid untreated residue generated during the treatment of domestic sewage in a treatment facility.

Buffer Strip or Zone: Strips of trees, grass or other erosion resistant vegetation located between a waterway and an area of more intensive land use.

Bypass: The intentional diversion of wastestreams from any portion of a treatment (or pretreatment) facility.

Catch Basin: An entryway to the storm drain system, usually located at street corners.

Centralized Wastewater Treatment System: A managed system consisting of collection sewers and a single treatment plant used to collect and treat wastewater from an entire service area. Traditionally, such a system has been called a publicly owned treatment works (POTW) as defined at 40 CFR 122.2.

Chemical Oxygen Demand (COD): A measure of the oxygen-consuming capacity of inorganic and organic matter present in wastewater. COD is expressed as the amount of oxygen consumed in mg/l. Results do not necessarily correlate to the biochemical oxygen demand (BOD) because the chemical oxidant may react with substances that bacteria do not stabilize.

Chronic: A stimulus that lingers or continues for a relatively long period of time, often one-tenth of the life span or more. Chronic should be considered a relative term depending on the life span of an organism. The measurement of a chronic effect can be reduced growth, reduced reproduction, etc., in addition to lethality.

Code of Federal Regulations (CFR): A codification of the final rules published daily in the Federal Register. Title 40 of the CFR contains the environmental regulations.

Combined Sewer Overflow (CSO): A discharge of untreated wastewater from a combined sewer system at a point prior to the headworks of a publicly owned treatment works. CSOs generally occur during wet weather (rainfall or snowmelt). During periods of wet weather, these systems become overloaded, bypass treatment works, and discharge directly to receiving waters.

Combined Sewer System (CSS): A wastewater collection system which conveys sanitary wastewaters (domestic, commercial and industrial wastewaters) and stormwater through a single pipe to a publicly owned treatment works for treatment prior to discharge to surface waters.

Compliance Schedule: A schedule of remedial measures included in a permit or an enforcement order, including a sequence of interim requirements (for example, actions, operations, or milestone events) that lead to compliance with the CWA and regulations.

Composite Sample: Sample composed of two or more discrete samples. The aggregate sample will reflect the average water quality covering the compositing or sample period.

Conventional Septic System: A wastewater treatment system consisting of a septic tank and a typical trench or bed subsurface wastewater infiltration system.

Criteria: The numeric values and the narrative standards that represent contaminant concentrations that are not to be exceeded in the receiving environmental media (surface water, ground water, sediment) to protect beneficial uses.

Culvert: A short, closed (covered) conduit or pipe that passes storm water runoff under an embankment, usually a roadway.

CWA: The Clean Water Act

Daily Discharge: The discharge of a pollutant measured during any 24-hour period that reasonably represents a calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged during the day. For pollutants with limitations expressed in other units of measurement (e.g., concentration) the daily discharge is calculated as the average measurement of the pollutant throughout the day (40 CFR 122.2).

Daily Maximum Limit: The maximum allowable discharge of pollutant during a calendar day. Where daily maximum limitations are expressed in units of mass, the daily discharge is the total mass discharged over the course of the day. Where daily maximum limitations are expressed in terms of a concentration, the daily discharge is the arithmetic average measurement of the pollutant concentration derived from all measurements taken that day.

Detention Pond: A storm water system that delays the downstream progress of storm water runoff in a controlled manner. This is typically accomplished using temporary storage areas and a metered outlet device. (As opposed to a less common Retention pond)

Dike: An embankment used to confine or control water. Dikes are often built along the banks of a river to prevent overflow; a levee.

Discharge: The volume of water and suspended sediment of surface water that passes a given location within a given period of time. Rivers are usually measured in Cubic Feet per Second (CFS). Storm water discharge can be measured in gallons per minute (GPS).

Drip Guard: A device used to prevent drips of fuel or corrosive or reactive chemicals from contacting other materials or areas.

Ecosystem: An ecological community and its environment interacting and functioning as a unit.

Effluent Limitation: Any restriction imposed by the Director on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into waters of the United States, the waters of the contiguous zone, or the ocean.

Erosion: When land is diminished or worn away due to wind, water or glacial ice. Often the eroded debris (silt or sediment) becomes a pollutant via storm water runoff. Erosion occurs naturally, but can be intensified by land clearing activities such as farming, development, road building and timber harvesting.

Eutrophication: Excessive levels of phosphorous, nitrogen, and nutrients in the water, which leads to a decrease in oxygen levels. Often characterized by excessive growth of algae and aquatic vegetation, which often results in deteriorated water quality and beach closings.

Filter Fabric: A textile of relatively small mesh that is used to allow water to pass through, while keeping sediment out (permeable) or prevent both runoff and sediment from passing through (impermeable).

Filter Strip: A long, narrow portion of vegetation used to retard water flow and collect sediment for the protection of watercourses, reservoirs, or adjacent properties.

Final Stabilization: means that either:

1. All soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of at least 70% for the area has been established or equivalent measures (i.e., concrete or asphalt paving, rip rap, etc.) have been employed; or
2. For individual lots part of a larger common plan of development or sale in residential or commercial developments, that either:
    a) The coverage recipient has completed final stabilization as specified in (1) above, or
    b) The coverage recipient has established temporary stabilization before another property owner assumes operational control for the property AND the coverage recipient for the larger common plan of development has provided the appropriate Notice of Intent or Registration form, the appropriate Construction General Permit, and guidance documents to the new property owner and the new owner assumes control by completing the appropriate NOI or Registration Form.

Flash Flood: A sudden, violent flood after heavy rain.

Flocculant: A substance that causes small particles to aggregate (flocculate).

Flood: A temporary rise in flow or stage of any watercourse or storm water conveyance system that results in storm water runoff exceeding its normal flow boundaries and inundating adjacent, normally dry areas.

Flood Control: The specific regulations and practices that reduce or prevent the damage caused by storm water runoff.

Floodplain: Any land area susceptible to inundation by storm water from any source.

Flow meter: A gauge that shows the speed of water moving through a conveyance.

Four-Zero-One (401) (a) Certification: A requirement of Section 401(a) of the Clean Water Act that all federally issued permits be certified by the state in which the discharge occurs. The state certifies that the proposed permit will comply with state water quality standards and other state requirements.

Free Groundwater: Unconfined groundwater whose upper surface is a free water table.

General Permit: A permit issued under the NPDES program to cover a certain class or category of storm water discharges. These permits reduce the administrative burden of permitting storm water discharges.

Grab Sample: A sample which is taken from a wastestream on a one-time basis without consideration of the flow rate of the wastestream and without consideration of time.

Grading: The cutting and/or filling of the land surface to a desired slope or elevation.

Groundwater: That portion of the water beneath the surface of the Earth that can be collected with wells, tunnels, or drainage galleries, or that flow naturally to the Earth's surface via seeps or springs.

Hazardous Substance: Any substance, other than oil, which, when discharged in any quantities into waters of the U.S., presents an imminent and substantial danger to the public health or welfare, including but not limited to fish, shellfish, wildlife, shorelines and beaches (Section 311 of the CWA); identified by EPA as the pollutants listed under 40 CFR Part 116. Any substance, other than oil, which, when discharged in any quantities into waters of the U.S., presents an imminent and substantial danger to the public health or welfare, including but not limited to fish, shellfish, wildlife, shorelines and beaches (Section 311 of the CWA); identified by EPA as the pollutants listed under 40 CFR Part 116.

Holding Pond: A pond or reservoir, usually made of earth, built to store polluted runoff for a limited time. (Detention Basin)

Illicit Connection: Any discharge to a municipal separate storm sewer that is not composed entirely of storm water, and is not authorized by an NPDES permit, or is not due to fire fighting activates.

Infiltration: The penetration of water through the ground surface into sub-surface soil or the penetration of water from the soil into sewer or other pipes through defective joints, connections, or manhole wells.

Inlet: An entrance into a ditch, storm sewer or other waterway.

Lagoon: A shallow pond where sunlight, bacterial action and oxygen work to purify wastewater.

Large Construction: includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than five (5) acres of land or will disturb less than five (5) acres of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than five (5) acres. Large construction activity is covered by the Large Construction General Permit.

Large Municipal Separate Storm Sewer System (MS4): A storm sewer system located in an area serving a population of 250,000 or more, as determined by the latest U.S. Census. Comprising multiple conveyance systems, including ditches, that transfer storm water from impervious surfaces to streams.

Material Storage Area: On-site location where raw materials, final products, by-products or waste materials are stored.

Medium Municipal Separate Storm Sewer System (MS4): A storm sewer system located in an area serving a population 100,000 or more but less than 250,000, as determined by the latest U.S. Census.

Comprising multiple conveyance systems, including ditches, that transfers storm water from impervious surfaces to streams.

Monitoring Well: A non-pumping well used for drawing water quality samples.

Municipal Sources: POTWs collect domestic sewage from houses, other sanitary wastewater, and wastes from commercial and industrial facilities. POTWs discharge conventional pollutants, and are covered by secondary treatment standards and state water quality standards. POTWs also produce biosolids during the treatment process.

National Pollutant Discharge Elimination System (NPDES): The name of the surface water quality program authorized by Congress as part of the 1987 Clean Water Act. This is EPA's program to control the discharge of pollutants to waters of the United States.

Nonconventional Pollutants: All pollutants that are not included in the list of conventional or toxic pollutants in 40 CFR Part 401. Includes pollutants such as chemical oxygen demand (COD), total organic carbon (TOC), nitrogen, and phosphorus.

Non-Point Source (NPS) Pollutants: Pollutants from many diffuse sources. Rainfall or snowmelt moving over and through the ground causes NPS pollution. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and even our underground sources of drinking water.

Notice of Intent (NOI): An application to notify the permitting authority of a facility's intention to be covered by a general permit; exempts a facility from having to submit an individual or group application.

Nephelometric Turbidity Units (NTUs): the unit of measure for turbidity.

Oil/Grease Traps: Devices that collect oil and grease, removing them from water flows.

Oil Sheen: A thin, glistening layer of oil on the surface of water.

Oil/Water Separator: A device installed (usually at the entrance to a drain) which removes oil and grease from water entering the drain.

Operator/Owner: For the purpose of this manual and in the context of stormwater associated with construction activity, any party associated with a construction project that meets either of the following two criteria:

1. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications

2. The party has day-to-day operational control of those activities at a project which are necessary to ensure compliance with a SWPPP for the site or other permit conditions (e.g., authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

Outfall: The point where wastewater or drainage discharges from a sewer pipe, ditch or other conveyance to a receiving body of water.

Permeability: The characteristic of soil that allows water or air to move through it. Usually described in inches/hours or inches/day.

Permit Issuing Authority (Permitting Authority): The state agency or EPA regional office that issues environmental permits to regulated facilities.

pH: A measure of the hydrogen ion concentration of water or wastewater; expressed as the negative log of the hydrogen ion concentration in mg/l. A pH of 7 is neutral. A pH less than 7 is acidic, and a pH greater than 7 is basic.

Phyto-Filtration: Using plants and trees to filter impurities or excessive levels of nutrient from water.

Plunge Pool: A basin used to slow flowing water. The pool may be protected from erosion by various lining materials.

Point Source Pollutant: Pollutants from a single, identifiable source such as a factory, refinery or place of business.

Pollutant: Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water [40 CFR 122.2].

Pollutant, Conservative: Pollutants that do not readily degrade in the environment, and which are mitigated primarily by natural stream dilution after entering receiving bodies of waters. Included are pollutants such as metals.

Pollutant, Non-Conservative: Pollutants that are mitigated by natural biodegradation or other environmental decay or removal processes in the receiving stream after in-stream mixing and dilution have occurred.

Pollutant Loading: The total quantity of pollutants in storm water runoff. Total Daily Maximum Loading (TMDL) is the limiting of pollutant loading into a body of water, such as a lake or river.

Pretreatment: The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a publicly owned treatment works [40 CFR 403.3(q)].

Primary Treatment: The practice of removing some portion of the suspended solids and organic matter in a wastewater through sedimentation. Common usage of this term also includes preliminary treatment to remove wastewater constituents that may cause maintenance or operational problems in the system (i.e., grit removal, screening for rags and debris, oil and grease removal, etc.).

Publicly Owned Treatment Works (POTW): A treatment works, as defined by Section 212 of the CWA, that is owned by the state or municipality. This definition includes any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes, and other conveyances only if they convey wastewater to a POTW

treatment plant [40 CFR 403.3]. Privately-owned treatment works, Federally-owned treatment works, and other treatment plants not owned by municipalities are not considered POTWs.

Receiving Water: The "Water of the United States" as defined in 40 CFR 122.2 into which the regulated stormwater discharges.

Recharge: Re-supplying of water to the aquifer. Recharge generally comes from snowmelt and storm water runoff.

Residual: The amount of pollutant that remains in the environment after a natural or technological process has taken place, such as the particulates remaining in air after passing through a scrubber.

Retention: A process that halts the downstream progress of storm water runoff. This is typically accomplished using total containment involving the creation of storage areas that use infiltration devices, such as dry wells, to dispose of stored storm water via percolation over a specified period of time. (As opposed to a more common Detention Pond)

Riparian: Of, or pertaining to, rivers/streams and their banks.

Runoff: Drainage or flood discharge that leaves an area as surface flow or as pipeline flow has reached a channel or pipeline by either surface or sub-surface routes.

Sanitary Sewer: A system of underground pipes that carries sanitary waste or process wastewater to a treatment plant.

Sanitary Sewer Overflows (SSO): Untreated or partially treated sewage overflows from a sanitary sewer collection system.

Secondary Containment: Structures, usually dikes or berms, surrounding tanks or other storage containers to catch spilled material.

Secondary Treatment: Technology-based requirements for direct discharging municipal sewage treatment facilities. Standard is based on a combination of physical and biological processes typical for the treatment of pollutants in municipal sewage. Standards are expressed as a minimum level of effluent quality in terms of: BOD 5, suspended solids (SS), and pH (except as provided for special considerations and treatment equivalent to secondary treatment).

Sediment/Silt: Soil, sand and materials washed from land into water, usually after rain. Sediment can destroy fish-nesting areas, clog animal habitats, and cloud water so that sunlight does not reach aquatic plants.

Sediment Trap: A device for removing sediment from water flows, usually installed at points of outflow.

Sedimentation: The process of depositing soil, clay, sand or other sediments that were moved by the flow of water.

Self-Monitoring: Sampling and analyses performed by a facility to determine compliance with a permit or other regulatory requirements.

Small Construction: includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than one (1) acre and less than five (5) acres of land or will disturb less than one (1) acre of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than one (1) acre and less than five (5) acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

Small Municipal Separate Storm Sewer System (MS4): A storm sewer system located in an area serving a population less than 100,000, as determined by the latest U.S. Census. Comprising multiple conveyance systems, including ditches, that transfers storm water from impervious surfaces to streams.

Soil Bioengineering: Involves the use of live and dead woody cuttings and poles or posts collected from native plants to re-vegetate watershed slopes and stream banks. The cuttings, posts, and vegetative systems composed of bundles, layers, and mats of the cuttings and posts provide structure, drains, and vegetative cover to repair eroding and slumping slopes.

Spill Prevention Control and Countermeasures Plan (SPCC): Plans to prevent and respond to spills of hazardous substances as defined in the Clean Water Act.

Storm Drain: A slotted opening leading to an underground pipe or an open ditch carrying surface runoff. These lead directly to streams and do not go through a treatment or processing plant.

Storm Sewer Utility: A means of establishing a dedicated and reliable source of revenue based on user fees, rather than taxes, to help solve storm water management problems. This steady revenue source ensures that funds will be available to support a local storm water management program.

Stormwater: Precipitation from a storm event that flows quickly into streams or accumulates in natural or constructed storage systems. Storm water often includes pollutants and sediment from land surfaces.

Stormwater Discharge-Related Activities: Activities that cause, contribute to, or result in stormwater point source pollutant discharges, including excavation, site development, grading, and other surface disturbance activities; and measures to control stormwater, including the siting, construction, and operation of BMPs to control, reduce, or prevent stormwater pollution.

Stormwater Facilities: Systems such as watercourses, constructed channels, storm drains, culverts, and detention/retention facilities that are used for the conveyance and/or storage of storm water runoff.

Stormwater Management: Functions associated with planning, designing, constructing, maintaining, financing and regulating the facilities (both constructed and natural) that collect, store, control and/or convey storm water.

Stormwater Management Program (SWMP): to a comprehensive program to manage the quality of storm water discharged from the municipal separate storm sewer system.

Stormwater Pollution Prevention Plan (SWPPP): a plan that includes site map(s), an identification of construction/contractor activities that could cause pollutants in the storm water, and a description of measures or practices to control these pollutants.

Stormwater System: The entire assemblage of storm water facilities located within a watershed.

Sump: A pit or tank that catches liquid runoff for drainage or disposal.

Surface Water: Water that remains on the surface of the ground, including rivers, lakes, reservoirs, streams, wetlands, impoundments, seas, estuaries, etc.

Swale: A low lying or depressed, at least seasonally, wet stretch of land. Often lined with grass (grassy swale) and used as a conveyance for storm water.

Total Maximum Daily Load (TMDL): a tool for establishing the allowable loadings of a given pollutant in a surface water resource to meet predetermined water quality standards.

Total Organic Carbon (TOC): Measures the amount of organic carbon in water.

Total Suspended Solids (TSS): A measure of the filterable solids present in a sample, as determined by the method specified in 40 CFR Part 136.

Toxic Pollutant: Pollutants or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring. Toxic pollutants also include those pollutants listed by the Administrator under CWA Section 307(a)(1) or any pollutant listed under Section 405(d) which relates to sludge management.

Underground Storage Tanks (UST's): Storage tanks that have at least 10% of their storage capacity underground.

Urban Runoff: Storm water from urban areas, which tends to contain heavy concentrations of pollutants from vehicles and industry.

Water Quality Criteria: Comprised of numeric and narrative criteria. Numeric criteria are scientifically derived ambient concentrations developed by EPA or states for various pollutants of concern to protect human health and aquatic life. Narrative criteria are statements that describe the desired water quality goal.

Water Quality Standard (WQS): A law or regulation that consists of the beneficial use or uses of a waterbody, the numeric and narrative water quality criteria that are necessary to protect the use or uses of that particular waterbody, and an antidegradation statement.

Waters of the United States: All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide. Waters of the United States include all interstate waters and intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds. [See 40 CFR 122.2 for the complete definition.]

Watercourse: A lake, stream, creek, channel, storm water conveyance system, or other topographic feature, over which storm waters flow at least periodically.

Watershed: That geographical area which drains to a specified point on a water course, usually a confluence of streams or rivers (also known as drainage area, catchment or river basin)\

Wet Weather Flows: Water entering storm drains during rainstorms.

Wetlands: Land with a wet, spongy soil, where the water table is at or above the land surface for at least part of the year. Wetlands are characterized by a prevalence of vegetation that is adapted for life in saturated soil conditions. Examples include swamps, bogs, fens, marshes, and estuaries.

Appendix I
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Appendix J
Local Information

Mississippi Department of Environmental Quality

Mailing Address	Physical Address	Phone Number	Website
PO Box 2261 Jackson, MS 39225	515 East Amite St Jackson, MS 39201	Main switchboard: (601) 961-5171 Toll-Free Number: 1-888-786-0661	http://www.deq.state.ms.us/

Mississippi Department of Transportation

Mailing Address	Physical Address	Phone Number	Website
P.O. Box 1850 Jackson, MS 39215-1850	401 North West St Jackson, MS 39201	(601) 359-7001	http://www.gomdot.com/

USDA-Natural Resource Conservation Service

Mailing Address	Physical Address	Phone Number	Website
100 W. Capitol Street, Suite 1321 Federal Building Jackson, MS 39269	100 W. Capitol St, Suite 1321 Federal Building Jackson, MS 39269	(601) 965-5205 ext. 130	http://www.ms.nrcs.usda.gov/

Mississippi Department of Marine Resources

Mailing Address	Physical Address	Phone Number	Website
1141 Bayview Ave Biloxi, MS 39530	1141 Bayview Ave Biloxi, MS 39530	(228) 374-5000 1-800-374-3449	http://www.dmr.state.ms.us/

Mississippi One Call

Mailing Address	Physical Address	Phone Number	Website
n/a	n/a	811 or 1-800-227-6477	http://www.ms1call.org/

U.S. Army Corps of Engineers – Vicksburg District

Mailing Address	Physical Address	Phone Number	Website
4155 East Clay St Vicksburg, MS 39183	4155 East Clay St Vicksburg, MS 39183	(601) 631-5000	http://www.mvk.usace.army.mil/

U.S. Army Corps of Engineers – Mobile District

Mailing Address	Physical Address	Phone Number	Website
P.O. Box 2288 Mobile, AL 36628-0001	109 St. Joseph St Mobile, AL 36602	(251) 690-2505	http://www.sam.usace.army.mil/

U.S. Army Corps of Engineers – Memphis District

Mailing Address	Physical Address	Phone Number	Website
167 North Main St, Suite B202 Memphis, TN 38103-1894	167 North Main St, Suite B202 Memphis, TN 38103-1894	(901) 544-3005 (800) 317-4156	http://www.mvm.usace.army.mil/

U.S. Army Corps of Engineers – Nashville District

Mailing Address	Physical Address	Phone Number	Website
P.O Box 1070 Nashville, TN 37202-1070	3701 Bell Road Nashville, TN 37214-2660	(615) 369-7500	http://www.lrn.usace.army.mil/