STORMWATER MANAGEMENT DATA FORM GUIDANCE

A new "Stormwater Management Data" form was developed by DPW for compliance with the reporting requirements of the County's MS4 permit, effective December 1, 2014 for all new grading permit applications. The form is available in Excel format in "Online Forms" on the County Web Page for consultants to use, and replaces the "Stormwater Management Structure and Stream Restoration Summary Sheet" found in Appendix 11.7 of the County's "Stormwater Management Practices and Procedures Manual" that has been required on grading permit plans since the implementation of the 2010 SWM regulations.

The following pages are from Appendix B of the MS4 permit, which includes the necessary information to complete several of the required fields for each facility, specifically MDE BMP Class and MDE BMP TYPE (pg. 36-38), and MDP LAND USE CODE (pg. 38-40). Note that not all of the information in Appendix B is needed to complete the form. The fields on the spreadsheet for STORM_ID and USGS 12-Digit HUC will be completed by DPW.

Appendix B – BMP Data Reporting and Codes

Reporting Requirements: Prior to this guidance, permittees were required to submit databases to MDE that conformed to Attachment A (Annual Report Databases) of their NPDES MS4 permit. More recently, there have been significant changes to both Maryland's stormwater management program (e.g., ESD) and the CBP reporting requirements. Recognizing these changes, MDE is developing a geodatabase to more efficiently collect and organize the information submitted as part of the NPDES MS4 annual reporting. When this geodatabase is complete, MDE will provide a user guide with specific instruction on the reporting and use of the database. Until this geodatabase is implemented, Table B.1 below, *Urban Best Management Practices (BMPs) Associated with GIS Coverage*, should be used to submit this information to MDE.

The BMP database will tabulate a list of all BMPs within a jurisdiction. However, the ESD to the MEP mandate requires numerous ESD practices to be installed throughout a site in order to meet stormwater requirements. In these cases, local jurisdictions may enter the system of ESD practices by specifying the number and type of BMPs used to meet the target rainfall requirements (PE_REQ). This data may be entered in the NUM_BMPS and ESD_MEP fields shown below.

B.1. Urban Best Management Practices (BMPs) Associated with GIS Coverage

Column Name	Data Type	Size	Description
YEAR	NUMBER	4	Annual report year
MDE_STRU_ID	TEXT	8	Unique structure ID[1]
MD_NORTH	NUMBER	8	Maryland grid coordinate (NAD 83 meters) Northing
MD_EAST	NUMBER	8	Maryland grid coordinate (NAD 83 meters) Easting
WATERSHED8DGT	NUMBER	20	Maryland 8-digit hydrologic unit code
WATERSHED12DGT	NUMBER	20	USGS 12-digit hydrologic unit code
STRU_NAMB	TEXT	60	Name of structure
BMP_CLASS	TEXT	1	BMP classification category (see list of BMPs: B, S, or A)
BMP_TYPE	TEXT	4	Type of BMP structure (see list of BMPs: enter code)[2]
NUM_BMPS	NUMBER	4	Number of all BMPs used to meet PE_REQ
ESD_MEP	TEXT	75	Type of all BMPs used to meet PE_REQ
LAND_USB	NUMBER	3	Predominant land use[3]
PERMIT_NO	TEXT	10	Unique permit number
ADDRESS	TEXT	50	Structure address
CITY	TEXT	15	Structure address
STATE	TEXT	2	Structure address
ZIP	NUMBER	10	Structure address
ON_OFF_SITE	TEXT	3	On or offsite structure
CON_PURPOSE	TEXT	4	New development (NEWD), Redevelopment (REDE), or Restoration (REST)
DRAIN_AREA	NUMBER	8	Structure drainage area (acres)[4]
IMP_ACRES	NUMBER	8	Structure impervious drainage area (acres)[4]
TOT_DRAIN	NUMBER	8	Total site area (acres)
PE_REQ	NUMBER	4	P_E required[5]
PE_ADR	NUMBER	4	P_E addressed[5]

IMP_ACRES_REST	NUMBER	4	Equals IMP_ACRES when PE_ADR = 1 inch (for restoration only)
RCN_PRE	NUMBER	2	Runoff curve number (weighted)[7]
RCN_POST	NUMBER	2	Runoff curve number (weighted)[7]
RCN_WOODS	NUMBER	2	Runoff curve number (weighted)[7]
APPR_DATE	DATE/TIME	8	Permit approval date
BUILT_DATE	DATE/TIME	8	As Built completion date
GEN_COMNT	TEXT	60	General comments
ADDITIONAL DATA REQUIREMENTS FOR ALL ALTERNATIVE BMPS			
TN_RED	NUMBER	12	Total load reduced after restoration (lbs)
TP_RED	NUMBER	12	Total load reduced after restoration (lbs)
TSS_RED	NUMBER	12	Total load reduced after restoration (lbs)
TN_LOAD	NUMBER	12	Load before restoration (lbs)
TP_LOAD	NUMBER	12	Load before restoration (lbs)
TSS_LOAD	NUMBER	12	Load before restoration (lbs)
PROJECT_LENGTH	NUMBER	6	For stream restoration, shoreline stabilization, or outfall stab in feet
ACRES_SWEPT	NUMBER	6	Acres swept for street sweeping
TIMES_SWEPT	NUMBER	6	Number of times per year area is swept
ACRES_PLANTED	NUMBER	6	Acres of trees planted on urban impervious (IMPI)
ACRES_PLANTED	NUMBER	6	Acres of trees planted on pervious (PPU)
IMPERV_ACR_REM	NUMBER	6	Impervious acres removed to pervious land (IMPP)
EQ_IMP_ACRES	NUMBER	6	Equivalent impervious acres treated by alternative BMP (see Table 7)
ADDITIONAL DATA REQUIREMENTS FOR STREAM RESTORATION			
NAME_OF_PROJECT	TEXT	25	Name of project
DESCR_OF_PROJECT	TEXT	75	Brief description of project
PERCENT_IMPERV	NUMBER	6	Watershed percent imperviousness
TSS_LOAD	NUMBER	12	Watershed TSS load before restoration (lbs/year)
TN_LOAD	NUMBER	12	Watershed TN load before restoration (lbs/year)
TP_LOAD	NUMBER	12	Watershed TP load before restoration (lbs/year)
PROTOCOL(S) OR INTERIM RATE	TEXT	8	Protocol 1 (P1), Protocol 2 (P2), Protocol 3 (P3); or interim rate (IR)
TSS_RED_P1	NUMBER	10	TSS load reduction (lbs/year) for P1
TN_RED_P1	NUMBER	10	TN load reduction (lbs/year) for P1
TP_RED_P1	NUMBER	10	TP load reduction (lbs/year) for P1
PRELENGTH_LT	NUMBER	10	Left side pre-restoration stream length connected to floodplain where bank height ratio is 1.0 or less
PRELENGTH_RT	NUMBER	10	Right side pre-restoration stream length connected to floodplain where bank height ratio is 1.0 or less
PREWIDTH_LT	NUMBER	10	The left side pre-restoration stream width taken from the thalweg to the edge of connected side of stream, as indicated by bank height ratio of 1.0 or less
PREWIDTH_RT	NUMBER	10	The right side pre-restoration stream width taken from the thalweg to the edge of connected side of stream, as indicated by bank height ratio of 1.0 or less
POSTLENGTH_LT	NUMBER	10	Left side post restoration stream length connected to floodplain where bank height ratio is 1.0 or less
POSTLENGTH_RT	NUMBER	10	Right side post restoration stream length connected to floodplain where bank height ratio is 1.0 or less
POSTWIDTH_LT	NUMBER	10	The left side post restoration stream width taken from the thalweg to the edge of connected side of stream, as indicated by bank height ratio

			of 1.0 or less
POSTWIDTH_RT	NUMBER	10	The right side post restoration stream width taken from the thalweg to the edge of connected side of stream, as indicated by bank height ratio of 1.0 or less
TSS_RED_P2	NUMBER	10	TSS load reduction (lbs/year) for P2
TN_RED_P2	NUMBER	10	TN load reduction (lbs/year) for P2
TP_RED_P2	NUMBER	10	TP load reduction (lbs/year) for P2
UP_DRAIN_AREA	NUMBER	6	Upstream area draining to stream restoration project
FP_WETLAND_AREA	NUMBER	6	Area (acres) of floodplain/wetland connected to stream
RATIO_FP_UPDA	NUMBER	3	Ratio of FP_WETLAND_AREA to UP_DRAIN_AREA
TSS_EFF_P3	NUMBER	10	TSS loading rate reduction efficiency (percent) for P3
TN_EFF_P3	NUMBER	10	TN loading rate reduction efficiency (percent) for P3
TP_EFF_P3	NUMBER	10	TP loading rate reduction efficiency (percent) for P3
TSS_RED_P3	NUMBER	10	TSS load reduction (lbs/year) for P3
TN_RED_P3	NUMBER	10	TN load reduction (lbs/year) for P3
TP_RED_P3	NUMBER	10	TP load reduction (lbs/year) for P3
TSS_RED_IR	NUMBER	10	TSS load reduction (lbs/year) for IR
TN_RED_IR	NUMBER	10	TN load reduction (lbs/year) for IR
TP_RED_IR	NUMBER	10	TP load reduction (lbs/year) for IR
REASON FOR USING INTERIM RATE	TEXT	75	Brief explanation of why interim rate was used in place of protocols
INSPECTION/MAINTENANCE DATA REQUIRED FOR ALL NEW REDEVELOPMENT, RETROFIT, AND ALTERNATIVE BMPS			
BMP_STATUS	TEXT	4	Pass/Fail
LAST_INSP_DATE	DATE/TIME	8	Last inspection date
MAIN_DATE	DATE	8	Last date maintenance was performed
REINSP_STATUS	DATE/TIME	4	Pass/Fail
REINSP_DATA	DATE/TIME	4	Reporting Year
REPORTING YEAR	TEXT	8	Date last change made to this record
GEN_COMNT	TEXT	60	General comments

MDE Approved BMP Classifications

LOOKUP TABLE		
Category	Code	Code Description
Alternative Surfaces (A)		
E	AGRE	Green Roof – Extensive
E	AGRI	Green Roof – Intensive
E	APRP	Permeable Pavements
E	ARTF	Reinforced Turf
Nonstructural Techniques (N)		
E	NDRR	Disconnection of Rooftop Runoff
E	NDNR	Disconnection of Non-Rooftop Runoff
E	NSCA	Sheetflow to Conservation Areas
Micro-Scale Practices (M)		
E	MRWH	Rainwater Harvesting
E	MSGW	Submerged Gravel Wetlands
E	MLS	Landscape Infiltration
E	MIBR	Infiltration Berms
E	MIDW	Dry Wells
E	MMBR	Micro-Bioretention

E	MRNG	Rain Gardens
E	MSWG	Grass Swale
E	MSWW	Wet Swale
E	MSWB	Bio-Swale
E	MENF	Enhanced Filters
Sedimentation (S)		
Ponds (P)		
S	PWED	Extended Detention Structure, Wet
S	PWET	Retention Pond (Wet Pond)
S	PMPS	Multiple Pond System
S	PPKT	Pocket Pond
S	PMED	Micropool Extended Detention Pond
Wetlands (W)		
S	WSHW	Shallow Marsh
S	WEDW	ED – Wetland
S	WPWS	Wet Pond – Wetland
S	WPKT	Pocket Wetland
Infiltration (I)		
S	IBAS	Infiltration Basin
S	ITRN	Infiltration Trench
Filtering Systems (F)		
S	FBIO	Bioretention
S	FSND	Sand Filter
S	FUND	Underground Filter
S	FPER	Perimeter (Sand) Filter
S	FORG	Organic Filter (Peat Filter)
S	FBIO	Bioretention
Open Channels (O)		
S	ODSW	Dry Swale
S	OWSW	Wet Swale
Other Practices (X)		
S	XDPD	Detention Structure (Dry Pond)
S	XDED	Extended Detention Structure, Dry
S	XFLD	Flood Management Area
S	XOGS	Oil Grit Separator
S	XOTH	Other

MDE Approved Alternative BMP Classifications

All BMPs (A)	Code	Code Description
A	MSS	Mechanical Street Sweeping
A	VSS	Regenerative/Vacuum Street Sweeping
A	IMPP	Impervious Surface Elimination (to pervious)
A	IMPF	Impervious Surface Elimination (to forest)
A	FPU	Planting Trees or Forestation on Pervious Urban
A	CBC	Catch Basin Cleaning
A	SDV	Storm Drain Vacuuming
A	STRE	Stream Restoration
A	OUT	Outfall Stabilization
A	SPSC	Regenerative Step Pool Storm Conveyance
A	SHST	Shoreline Management
A	SBPP	Septic Pumping
A	SBPD	Septic Denitrification

A	SEPC	Septic Connections to WWTP

Notes:

1. Use unique structure identification codes listed below
2. For BSD to MEP, enter the most predominant BMP type
3. Use Maryland Office of Planning (MDP) land use codes listed below
4. GIS shapefile required
5. Rainfall target (from Table 5.3, Design Manual pp.5,21-22) used to determine BSD goals and size practices (for new development or redevelopment). If practice is for restoration, then PE_REQ is 1inch.
6. Rainfall addressed (using both BSD techniques and practices, and structural practices) by the BMPs within the drainage area
7. Optional - information should be submitted if available.

Unique Structure Identification Codes: Each stormwater best management structure or water quality improvement project will need a unique identification code. For management of these data statewide it is necessary that these codes also indicate the jurisdiction where they are implemented. Please use the County, City, or State abbreviations listed below as part of each structure's unique identification code.

Jurisdiction	Code
Anne Arundel County	AA
Baltimore City	BC
Baltimore County	BA
Carroll County	CA
Charles County	CH
Frederick County	FR
Harford County	HA
Howard County	HO
Prince George's County	PG
Montgomery County	MO
Maryland State Highway Administration	SHA

MDP Land Use/Land Cover

10 Urban Built-up

- **11 Low Density Residential**—Detached single family/duplex dwelling units, yards, and associated areas. Areas of more than 90 percent single family/duplex dwelling units, with lot sizes less than five acres but at least one-half acres (0.2 dwelling units/acre to 2 dwelling units/acre).
- **12 Medium Density Residential**—Detached single family/duplex, attached single unit row housing, yards, and associated areas. Areas of more than 90 percent single family/duplex units and attached single unit row housing, with lot sizes of less than one-half acre but at least one-eighth acre (2 dwelling units/acre to 8 dwelling units/acre).
- **13 High Density Residential** – Attached single unit row housing, garden apartments, high rise apartments/condominiums, mobile home and trailer parks. Areas of more than 90 percent high density residential units, with more than 8 dwelling units/acre.
- **14 Commercial** – Retail and wholesale services. Areas used primarily for the sale of products and services, including associated yards and parking areas.
- **15 Industrial** – Manufacturing and industrial parks, including associated warehouses, storage yards, research laboratories, and parking areas.

- **16 Institutional** – Elementary and secondary schools, middle schools, junior and senior high schools, public and private colleges and universities, military installations (built-up areas only, including buildings and storage, training, and similar areas) churches and health facilities, correctional facilities, and government offices and facilities that are clearly separable from the surrounding land cover.

- **17 Extractive** – Surface mining operations, including sand and gravel pits, quarries, coal surface mines, and deep coal mines. Status of activity (active vs. abandoned) is not distinguished.

- **18 Open Urban Land** – Urban areas whose use does not require structures, or urban areas where non-conforming uses characterized by open land have become isolated. Included are golf courses, parks, recreation areas (except associated with schools or other institutions), cemeteries, and entrapped agricultural and undeveloped land within urban areas.

- **191 Large Lot Subdivision (Agriculture)** – Residential subdivisions with lot sizes less than 20 acres but at least 5 acres, with a dominant land cover of open fields or pasture.

- **192 Large Lot Subdivision (Forest)** - Residential subdivisions with lot sizes less than 20 acres but at least 5 acres, with a dominant land cover of deciduous, evergreen or mixed forest.

20 Agriculture

- **21 Cropland** – Field and forage crops.

- **22 Pasture** – Land used for pasture, both permanent and rotated: grass.

- **23 Orchards/Vineyards/Horticulture** – Areas of intensively managed commercial bush and tree crops, including areas used for fruit production, vineyards, sod and seed farms, nurseries, and green houses.

- **24 Feeding Operations** – Cattle or hog feeding lots, poultry houses, and holding lots for animals, and commercial fishing areas (including oyster beds).

- **241 Feeding Operations** – Cattle or hog feeding lots, poultry houses, and holding lots for animals.

- **242 Agricultural Building** – Breeding and training facilities, storage facilities, built-up areas associated with a farmstead, small farm ponds, and commercial fishing areas.

- **25 Row and Garden Crops** – Intensively managed truck and vegetable farms and associated areas.

40 Forest

- **41 Deciduous Forest** – Forested areas in which the trees characteristically lose their leaves at the end of the growing season. Included are such species as oak, hickory, aspen, sycamore, birch, yellow poplar, elm, maple, and cypress.

- **42 Evergreen Forest** - Forested areas in which the trees are characterized by persistent foliage throughout the year. Included are such species as white pine, pond pine, hemlock, southern white cedar, and red pine.

- **43 Mixed Forest** – Forested areas in which neither deciduous or evergreen species dominate, but in which there is a combination of both types.

- **44 Brush** – Areas that do not produce timber or other wood products but may have cut-over timber stands, abandoned agriculture fields, or pasture. These areas are characterized by vegetation types such as sumac, vines, rose, brambles, and tree seedlings.

50 Water – Rivers, waterways, reservoirs, ponds, bays, estuaries, and ocean.

60 Wetlands – Forested and non-forested wetlands, including tidal flats, tidal and non-tidal marshes, and upland swamps and wet areas.

70 Barren Land

- 71 Beaches – Extensive shoreline areas of sand and gravel accumulation, with no vegetative cover or other land use.
- 72 Bare Exposed Rock – Areas of bedrock exposure, scarps, and other natural accumulations of rock without vegetative cover.
- 73 Bare Ground – Areas of exposed ground caused naturally, by construction, or other cultural processes.

80 Transportation - Transportation features include major highways, light rail or metro stations and large "Park N Ride" lots, generally over ten acres in size. Major highways were defined a those appearing on the State Highway maps as Controlled Access Highways or Primary Highways.