

SECTION 3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION

This minimum control measure is critical to the success of the stormwater management program as it will identify and reduce untreated discharges that contribute high levels of pollutants, including heavy metals, toxic materials, oil and grease, solvents, nutrients, viruses and bacteria to receiving waterbodies. Pollutant levels from these illicit discharges have been shown to be high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human health.

3.1 REQUIREMENTS

Department Wide

- 3.1.1 Implementation of an ordinance or other regulatory mechanism (Department policy, guidelines or procedures) to effectively prohibit non-stormwater discharges.
- 3.1.2 Inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste.
- 3.1.3 By the end of the third year of the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems, expand the map detailed below in Section 3.1.4. to identify on such map all outfalls of 15” or greater where such outfalls are located anywhere on department property.

Urbanized Areas

- 3.1.4 By the end of the second year of the general permit, develop a map or series of maps at a minimum scale of 1”=2000’ and maximum scale of 1”=100’ showing all stormwater discharges from a pipe or conduit with a diameter of 15” or greater (or equivalent cross-sectional area) owned or operated by the department. For each discharge the following information shall be included:
 - a. Type, material, and size of conveyance, outfall or channelized flow (e.g. 24” concrete pipe).
 - b. The name and Surface Water Quality Classification of the immediate surface waterbody (if available) or wetland to which the stormwater runoff discharges within 500’.
 - c. If the outfall does not discharge directly to a named waterbody, the name of the nearest named waterbody to which the outfall eventually discharges.
 - d. The name of the watershed in which the discharge is located.

- 3.1.5 By the end of the fourth year of the general permit, extend the map detailed in Section 3.1.4. to identify on the map all outfalls 12” or greater that are located within an urbanized area.
- 3.1.6 Develop, implement and enforce a program to detect and eliminate existing illicit discharges, as defined in 40CFR 122.26(b)(2).
- 3.1.7 Develop and implement a plan to detect and address future non-stormwater discharges, including illegal dumping.

Appropriate BMP’s and measurable goals for this minimum control measure must be determined. This must include the persons(s) or position(s) responsible and implementation dates for each BMP.

3.2 BEST MANAGEMENT PRACTICES

The following BMP’s will be utilized in the implementation of the program to address the minimum control measure for Illicit Discharge Detection and Elimination.

3.2.1 Department Policy Regarding Non-Stormwater Discharges

The department does not allow non-stormwater discharges into storm sewer systems owned and maintained by the department. Department policy and guidelines requires action by the Attorney General for discharges of this type that are discovered. Upon identifying a non-stormwater discharge, the source of the discharge shall be determined and if found to be beyond or outside the department’s system, the MS4 will be notified along with the Attorney General. If the non-stormwater discharge is from a department facility, the source location shall be confirmed and corrective actions taken to eliminate the non-stormwater discharge. The department will continue to prohibit these discharges and will use all available resources for its enforcement.

Training will be provided to department personnel regarding the hazards associated with illegal discharges and improper disposal of wastes.

3.2.2 Storm Sewer System Map(s)

A storm sewer system map(s) will be developed, showing the location of all outfalls greater than or equal to 15” in diameter and the names and locations of all waters of the United States that receive discharges from those outfalls. The map will include, but not be limited to, all state owned facilities (including buildings, highways, roadways, railways and commuter lots) within urbanized areas and all limited access expressways within the state. The map(s) scale will be a minimum of 1”=2000’ and a maximum of 1”=100’ and will include the following information at a minimum:

- Type, material and size of conveyance

- Type of discharge (i.e. outfall or channelized)
- Name and Surface Water Quality Classification of immediate surface waterbody or wetland discharged into, or name of nearest named waterbody downstream
- Name of drainage basin discharge is located in, as per June 1982 Atlas of the Public Water Supply Source and Drainage Basins of Connecticut

The map(s) will be developed using three main components, base mapping, existing data records and field surveys. The department will obtain aerial photogrammetry (Year 2000), to establish a base map on which the storm sewer information will be overlaid. All existing information for drainage systems and outfall locations will be collected from state, regional and local government including, but not be limited to:

- Digital and Non-Digital existing surveys
- As-Built plans
- Construction plans
- ROW maps
- Major Traffic Generators
- Town mapping
- MDC mapping
- Video Log

Field surveys will be performed by the Districts and Central Surveys, using GPS (mapping grade), to verify existing structure locations and locate missing structures. Due to the size of the department's storm drainage facilities and the extent of the mapping needed, the map will be completed within eight years. It will take an extended period of time to complete this statewide map covering the urbanized areas. The mapping will be completed one district at a time (4 phases), starting with District 2. The remaining districts will be completed as follows: District 4, then District 1 and finishing with District 3. This phased approach will allow for any unforeseen problems to be worked out in the initial district to be mapped.

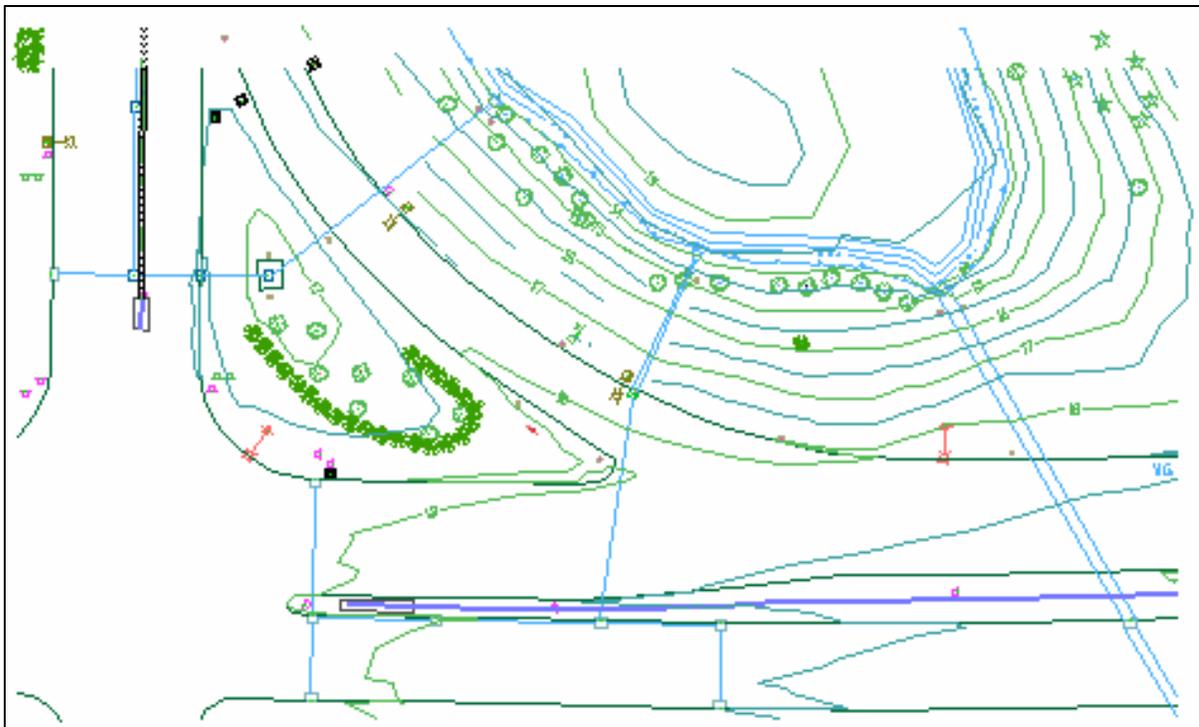
The department will establish a system (database) to manage all of the information associated with the map(s). The database will utilize a Geographical Information System (GIS) to build and query the information, which will be accessible to all offices of the department. The database will include but not limited to the following information associated with outfalls:

- | | |
|-------------|--------------------------|
| • ID number | • Direction |
| • Town | • Associated structures |
| • Size | • Associated waterbodies |
| • Shape | receiving stormwater |
| • Elevation | discharges |
| • Flow | |

The storm sewer map is a component of the program that will require continuous maintenance after its initial development. The department will allocate the necessary personnel and materials needed to keep the map up to date with the latest storm sewer system configurations and information.

The benefits associated with this BMP include providing awareness of the intake and discharge areas of the department's systems. This information will be helpful in determining the extent of dry weather flows, potential sources and the particular waterbodies that these flows may be affecting. The map will also be useful in identifying the responsible parties associated with specific illicit discharges.

Example of Storm Sewer System Mapping. 1"=40' topographic mapping showing contours, storm sewer system and outfalls.



The measurable goals, target dates and responsible position associated with this BMP are detailed in the following table.

Table 3.1 Storm Sewer System Map BMP Measurable Goals and Implementation Dates

Target Date	Activity	Position Responsible
Year 1	Acquire initial 25% of base mapping (Aerial Photogramtry.) Perform initial 10% of Field Data Collection Purchase workstation and software	Bureau Chief Arthur W. Gruhn
Year 2	Acquire 25% of base mapping (Aerial Photogramtry.) Perform 22% of Field Data Collection Modify and maintain database (GIS)	Bureau Chief Arthur W. Gruhn
Year 3	Acquire 25% of base mapping (Aerial Photogramtry.) Perform 22% of Field Data Collection Modify and maintain database (GIS)	Bureau Chief Arthur W. Gruhn
Year 4	Acquire final 25% of base mapping (Aerial Photogramtry.) Perform 23% of Field Data Collection Modify and maintain database (GIS)	Bureau Chief Arthur W. Gruhn
Year 5	Perform final 23% of Field Data Collection Modify and maintain database (GIS)	Bureau Chief Arthur W. Gruhn
Year 6	Continue compiling GIS information / preparing map(s)	Bureau Chief Arthur W. Gruhn
Year 7	Continue compiling GIS information / preparing map(s)	Bureau Chief Arthur W. Gruhn
Year 8	Complete initial layout of storm sewer system map	Bureau Chief Arthur W. Gruhn

3.2.3 Illicit Discharge Detection and Elimination Program

A program will be developed and implemented to detect, locate and eliminate illicit discharges (to the maximum extent practicable) into the department’s storm sewer systems. The plan will utilize sampling/monitoring techniques, personnel and equipment, along with the storm sewer map (section 3.2.2) for locating sources of illicit discharge.

Stormwater monitoring shall be conducted by the department annually starting in the second year of the program. Samples shall be collected from discharges resulting from a storm event that is greater than 0.1 inch in magnitude and that occurs at least 72 hours after any previous storm event of 0.1 inch or greater. Runoff events resulting from snow or ice melt cannot be used to meet the minimum annual monitoring requirements. Grab samples shall be used for all monitoring. Grab samples shall be collected during the first (6) hours of a storm event discharge. A field sample of ph, turbidity and conductivity will be taken at the site.

The following information shall be collected for the storm events monitored:

- Date
- Air Temperature
- Time of the start of the discharge
- Time of sampling
- Magnitude (in inches) of the storm event sampled
- Duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event

Unless otherwise specified, all pollutant parameters shall be tested according to methods prescribed in Title 40, CFR, Part 136 (1990). Testing of these parameters shall be performed at certified state laboratories. The parameters to be tested at each discharge point shall include:

- pH(SU) (Taken with field equipment)
- Hardness (mg/l)
- Conductivity (umhos) (Taken with field equipment)
- Oil and grease (mg/l)
- Chemical Oxygen Demand (mg/l)
- Turbidity (ntu) (Taken with field equipment)
- Total Suspended Solids (mg/l)
- Total Phosphorous (mg/l)
- Ammonia (mg/l)
- Total Kjeldahl Nitrogen (mg/l)
- Nitrate plus Nitrite Nitrogen (mg/l)
- E. coli (col/100ml)
- In addition to this list of parameters, uncontaminated rainfall pH shall be measured at the time the runoff sample is taken (Taken with field equipment).

The department will sample/monitor sixteen (16) different outfalls annually. Each of the four (4) districts will test four (4) outfalls per year. The districts are defined in maps contained in the appendix of this document. Outfalls will be selected for monitoring based upon road type and average daily traffic (ADT) grouping associated with a particular outfalls drainage area. One test will be performed for each of the following four (4) ADT groups per district:

- 0 to 30,000
- 30,000 to 60,000
- 60,000 to 100,000
- over 100,000

A state-wide map showing the “Average Daily Traffic Zones” for various classifications of roadways can be found in the appendix of this report.

The sampling based upon ADT classification will allow for different types of roadways and levels of traffic to be accounted for. This will ensure that all classifications of

roadways will be sampled / monitored from arterials with 30,000 and under ADT of traffic to interstate roadways with over a 100,000 of ADT. Levels of pollution in stormwater runoff typically increase with increased volumes of traffic.

Facilities with lease operations (rest areas with fuel or food, commuter parking lots, ect.) would be eligible for testing if they fall within one of the ADT groups scheduled for testing.



Typical storm sewer system outfalls.

For multi-facility locations and locations where state owned property is leased and/or operated by public or private entities (abutting MS4), the department and the MS4 would be co-permittees. The department would be responsible for its system up to the tie in or connection point, while the MS4 would be responsible from the connection point upstream. If an illicit discharge is identified within a state-owned system, the department will be responsible for determining whether the sources origin is located within its system. If the illicit discharge is determined to be from a point beyond the department's system, the MS4 will be notified as well as a copy of the notification also being sent to the Attorney General.

The department's facilities that are currently covered under the General Permit for the Discharge of Stormwater Associated with Industrial Activity will remain under that permit, and therefore will not be subject to the requirements of this permit or covered under this stormwater management program. These facilities will be covered and operated under their respective Stormwater Pollution Prevention Plans. The following list contains the types of facilities and transportation structures covered under the general permit for the Discharge of Stormwater from Small Municipal Storm Sewer Systems.

Facilities

- Rest Area
- Rest Area & Service Station “Gas” (Rest Area Only)
- Rest Area & Service Station “Gas & Restaurant” (Rest Area Only)
- Commuter Parking Lots (within U.A.’s and along Interstates)

Roadways

- Interstate Routes
- U.S. Routes (within U.A.’s)
- State Routes (within U.A.’s)

Railways

- Active rail lines owned and maintained by CTDOT or Metro North

Several lists describing the individual facilities, roadways and railways are located in the appendix.

Documentation, including annual reports, will be performed, and will include information such as: the number of outfalls tested, complaints received and addressed, and the number of illicit discharges and quantities of flow eliminated. Refer to Section 7 “Additional Requirements” for specific details regarding annual reports to CTDEP.

The benefits associated with these BMP’s include the identification and elimination of point sources of pollutant discharges and establishing a working database of information that will be useful in locating problematic areas.

Photograph of a typical illicit stormwater discharge.



The measurable goals, target dates and responsible position associated with this BMP are detailed in the following table.

**Table 3.2 Detection and Elimination Program
BMP Measurable Goals and Implementation Dates**

Target Date	Activity	Position Responsible
Year 1	Purchase monitoring equipment Personnel training Select outfalls to be tested in Year 2	Bureau Chief Arthur W. Gruhn
Year 2	Begin outfall monitoring 4 Outfalls tested (4 per District 2 ; 1 per ADT Type)	Bureau Chief Arthur W. Gruhn
Year 3	8 Outfalls tested (4 per District 2 & 4 ; 1 per ADT Type)	Bureau Chief Arthur W. Gruhn
Year 4	12 Outfalls tested (4 per District 1, 2 & 4 ; 1 per ADT Type)	Bureau Chief Arthur W. Gruhn
Year 5	16 Outfalls tested (4 per District 1,2 ,3 & 4 ; 1 per ADT Type)	Bureau Chief Arthur W. Gruhn

3.2.4 Future Illicit Discharge Detection and Elimination

The department will continue to monitor its stormwater discharges in an effort to detect and address future non-stormwater discharges and will coordinate with MS4’s, municipalities and other state agencies in identifying illegal dumping.