

# OHIO DEPARTMENT OF TRANSPORTATION STORM WATER MANAGEMENT PROGRAM

## MS4 STORM WATER OUTFALL INVENTORY MANUAL



**AUGUST 4, 2005**

**MS4 STORM WATER OUTFALL INVENTORY MANUAL**  
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## LIST OF ACRONYMS

BTRS: Base Highway Transportation Referencing System

CMP: Corrugated Metal Pipe

CPP: Corrugated Plastic Pipe

GPS: Global Positioning System

CSV: Comma Separated Value

GIS: Geographic Information System

GUI: Graphical User Interface

HSTS: Home Sewage Treatment System

MOT: Maintenance of Traffic

MS4: Municipal Separate Storm Sewer System

NPDES: National Pollutant Discharge Elimination System

NRCS: Natural Resource Conservation Service

NLFID: Network Linear Feature Identification

NOAA: National Oceanic and Atmospheric Administration

ODOT: Ohio Department of Transportation

OEPA: Ohio Environmental Protection Agency

OES: Office of Environmental Services

PDA: Personal Data Assistant

PVC: Poly Vinyl Chloride

QA/QC: Quality Assurance/Quality Control

RCP: Reinforced Concrete Pipe *or* Rock Channel Protection

ROW: Right of Way

SLD: Straight Line Diagram

SWMP: Storm Water Management Plan (or Program)

TMDL: Total Maximum Daily Load

USGS: United States Geological Survey

VCP: Vitrified Clay Pipe

# 1.0 INTRODUCTION

## 1.1 OBJECTIVE OF MANUAL

The Ohio Department of Transportation (ODOT) has developed this manual to provide an understanding of the processes necessary to conduct its municipal separate storm sewer system (MS4) outfall inventory and comply with the requirements of permit number OHQ000001, Authorization for Small MS4s to Discharge Storm Water Under the National Pollutant Discharge Elimination System (NPDES), which is administered by the Ohio Environmental Protection Agency (OEPA).

## 1.2 ODOT'S STORM WATER MANAGEMENT PLAN

To obtain coverage under NPDES Permit OHQ000001, known as the MS4 permit, ODOT developed and submitted a Storm Water Management Plan (SWMP) to OEPA. ODOT was granted permit coverage by OEPA in 2003. The permit required ODOT to incorporate six elements into its SWMP:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Construction Site Run-off Controls
- Post-Construction Run-off Controls
- Pollution Prevention and Good Housekeeping.

The MS4 outfall inventory is part of the illicit discharge detection and elimination element. The inventory is a critical part of ODOT's efforts to reduce the discharge of pollutants from its MS4. ODOT's SWMP can be obtained at:

<http://www.dot.state.oh.us/stormwater>

## 1.3 MS4 PERMIT REQUIREMENTS

NPDES Permit OHQ000001 authorizes storm water discharges from ODOT's MS4 to surface waters of the State. Requirements for the ODOT MS4 outfall inventory can be found in Section 3.2.3 of the permit. Section 3.2.3.1.2 of the permit requires ODOT to "develop a storm sewer map showing the location of **all** outfalls and the names and location of all receiving waters". The permit can be obtained at:  
[http://www.epa.state.oh.us/dsw/permits/GP\\_OHQ00001\\_s.pdf](http://www.epa.state.oh.us/dsw/permits/GP_OHQ00001_s.pdf)

**Note:** Permit requirements were used to structure the approach for conducting the outfall inventory as described in this manual. However, ODOT has included some elements that are not permit requirements. Individuals contracted by ODOT shall not attempt to interpret permit requirements for use in conducting this inventory without first contacting staff of ODOT's Office of Environmental Services.

## 1.4 WHAT TO INVENTORY: OUTFALLS

To achieve consistency in data collection, it is essential that all individuals involved in this inventory clearly understand the items being inventoried: outfalls. A glossary is provided in Appendix A for further explanation of terms used in this manual.

**For the purposes of this inventory, an “outfall” means the point at which any discernible, confined, and discrete conveyance of ODOT’s storm sewer system discharges to surface waters of the State.**

All outfalls that are inventoried will satisfy the above definition of an outfall. The most appropriate outfall type will be assigned to each outfall from the following choices:

- **Ditch Outfall:** An outfall located at the end point of an open drainage feature, which is most commonly a ditch, but can also include a trench, trough, channel, or other similar feature.
- **Pipe Outfall:** An outfall located at the end point of a closed drainage feature, such as a pipe, culvert, or similar manufactured structure.

Appendix B includes examples of outfalls, non-outfalls, and other inventory challenges. For suspect or indeterminate outfalls, please contact ODOT’s Office of Environmental Services for further guidance.

### 1.4.1 WHAT NOT TO INVENTORY

If an item does not satisfy the definition Section 1.4, then no outfall exists and the item shall not be inventoried. Examples of items that shall **not** be inventoried include:

- Discharges from a bridge or a collection system serving a bridge. ODOT has an inventory of its bridges that will be used to extract data for use in this inventory. ODOT’s bridge inventory defined a bridge as: any structure, including supports, of 10 feet or more clear span or 10 feet or more (clear opening) in diameter on, above, or below a highway. The span of all bridges, except culverts regarded as bridges, was measured along the centerline of the highway. The culvert span(s) was measured normal to the axis of the culvert. Multiple cell culverts, under a fill, with a distance of 10 feet or more between extreme ends of openings, measured normal to the axis of the culvert, including multiple pipes where the clear distance between openings is less than half of the diameter of the smaller opening were regarded as a bridge and included the bridge inventory. Any structure that does not satisfy the definitions and descriptions above was not included in ODOT’s bridge inventory, so outfalls involving such structures shall be included in the MS4 outfall inventory described in this manual.
- Discharges from a conveyance that is connecting segments of the same stream or other surface waters of the State and is used to convey surface waters of the State, such as a cross culvert under a road.
- Discharges from ODOT’s storm sewer system which leave ODOT right of way before entering surface waters of the State.
- Discharges from ODOT’s storm sewer system to another storm sewer system component, such as a catch basin, pipe, ditch, channel, culvert, or conduit.
- Discharges from ODOT’s storm sewer system to an open conveyance connecting two storm sewer systems.

- Storm water runoff that enters surface waters of the State from diffuse sources or sources other than a discernible, confined, and discrete conveyance of ODOT's storm sewer system.
- Discharges from pavement subsurface drainage features, such as pipe underdrains, prefabricated edge drains, and aggregate drains.

#### 1.4.2 OUTFALL DATA TO COLLECT

A predetermined amount of data is collected for each outfall in the office and field. Sections 2.0 and 3.0 of this manual provide details on data collection in this inventory. Data to be collected for each outfall includes:

- Location information
- Outfall attributes
- Dry weather visual field screening

#### 1.5 WHERE TO INVENTORY: ODOT'S MS4 REGULATED AREA

ODOT's MS4 regulated area contains approximately 1,930 miles of roadway and 92 ODOT facilities that are part of this inventory (Table 1). Appendix C contains a state map showing ODOT districts with contact information.

**Table 1. Summary of ODOT's MS4 Regulated Area by ODOT District.**

ODOT District	Road Mileage				Number of Facilities				
	Interstates	US Routes	State Routes	Total	Offices	Garages	Outposts	Rest Areas	Total
1	15.15	0.00	25.41	40.56	1	3	2	0	6
2	53.60	20.55	43.32	117.47	1	1	1	0	3
3	32.54	38.24	123.38	194.16	1	4	2	3	10
4	121.06	45.15	186.46	352.67	1	5	7	1	14
5	10.54	8.40	37.96	56.90	0	3	2	0	5
6	118.93	32.80	60.89	212.62	2	5	3	0	10
7	81.49	20.46	56.33	158.28	1	7	3	0	11
8	151.31	71.94	174.35	397.60	1	5	6	2	14
9	0.00	19.13	30.33	49.46	0	1	1	0	2
10	3.35	1.56	9.64	14.55	1	1	0	1	3
11	11.02	21.65	35.74	68.41	0	1	3	1	5
12	137.10	37.20	93.95	268.25	1	2	4	2	9
<b>Total</b>	<b>736.09</b>	<b>317.08</b>	<b>877.76</b>	<b>1930.93</b>	<b>10</b>	<b>38</b>	<b>34</b>	<b>10</b>	<b>92</b>

**Note:** These figures include mileage and facilities in ODOT normalized urban areas and Appendix 7 cities. This table replaces Appendix 1 of ODOT's SWMP.

The regulated area established by NPDES Permit OHQ000001 is an "urbanized area" as determined by the 2000 Decennial Census by the Bureau of the Census. However, **the geographical extent of ODOT's MS4 outfall inventory is not determined by Census Bureau urbanized areas alone.**

For project funding and management purposes, ODOT uses its functional classification system to designate areas as "urbanized" and already has mechanisms in place to produce and routinely update mapping of these areas. These areas, known in ODOT as "normalized urban areas", shall be used to define ODOT's MS4 regulated area for the "Appendix 6" metropolitan areas from the MS4 permit. Table 2 is a list of the Appendix 6

metropolitan areas. All Appendix 6 jurisdictions in ODOT’s MS4 regulated area can be found on the MS4 area base maps.

**Table 2. “Appendix 6” Metropolitan Areas in ODOT’s MS4 Regulated Area.**

Akron	Lima	St. Clairsville (Wheeling, WV)
Canton	Lorain-Elyria	Sandusky
Cincinnati	Mansfield	Springfield
Cleveland	Marietta/Belpre (Parkersburg, WV)	Steubenville
Columbus	Middletown	Toledo
Dayton	Newark	Youngstown/Warren
Ironton/South Pt (Huntington, WV)		

ODOT recognizes it will inventory additional areas that are not required by the permit through the use of its normalized urban areas. For Appendix 6 metropolitan areas, ODOT’s MS4 regulated area using normalized urban areas consists of:

- All urbanized areas as determined by the Census Bureau **and**
- Additional areas based on local growth patterns and potential development **and**
- “Smoothing” of urbanized area boundary lines to reduce the amount of roads on the urban fringe where roads contain a mix of small urbanized and non-urbanized segments. Typically, these small, non-urbanized segments were designated as urbanized.

The “Appendix 7” cities from the MS4 permit, which became subject to regulation in 2005, are also included in ODOT’s MS4 regulated area (Table 3). However, the limit of the MS4 regulated area for Appendix 7 cities is the municipal boundary.

**Note:** ODOT is not responsible for US and State routes within municipal boundaries, so Interstates are the only roadways to be inventoried for Appendix 7 cities.

**Table 3. “Appendix 7” Cities in ODOT’s MS4 Regulated Area\*.**

Ashland	Cambridge	Dover	Marion	Sidney
Ashtabula	Circleville	Findlay	Marysville	Urbana
Bellefontaine	Defiance	Greenville	New Philadelphia	Wilmington
Bowling Green	Delaware	Lancaster	Piqua	Zanesville
Bucyrus				

**\*This list is limited to those Appendix 7 cities that contain an ODOT roadway (Interstate) or facility.**

ODOT MS4 area base maps are available in Appendix D and at: [http://www.dot.state.oh.us/oes/ms4\\_datasets.htm](http://www.dot.state.oh.us/oes/ms4_datasets.htm). Contact ODOT’s Office of Environmental Services for information concerning the ODOT MS4 area base mapping, including MS4 area GIS coverages. A detailed breakdown of ODOT’s MS4 regulated area can be found in Appendix E.

All ODOT roads and facilities to be inventoried are distinguished on the ODOT MS4 area base maps. The maps reflect items which are ODOT's responsibility and include:

For Appendix 6 jurisdictions in normalized urban areas:

- All Interstate Highways
- US and State Highways within villages and unincorporated areas
- All ODOT facilities

For Appendix 7 cities:

- All Interstate Highways
- All ODOT facilities

## **1.6 THREE STEP PROCESS**

The end product of the ODOT MS4 outfall inventory will be a complete database populated with the required information for all outfalls in the ODOT MS4 regulated area. This manual describes three primary steps that will lead to a complete database. A summary of each step is explained below. More details on each step are provided in Sections 2.0 through 4.0.

Step 1: Office Research and Data Collection (see Section 2.0). Data collection is initiated with a review of ODOT's MS4 regulated area and identification of potential outfall locations using water resource mapping, including NRCS soil surveys and USGS topographic maps. A review of construction plans and straight line diagrams will be conducted for areas with identified potential outfalls. Basic location and watershed information is obtained. The information collected in this step is intended to streamline field work and provide a basis for further data collection.

Step 2: Field Data Collection (see Section 3.0). Field work involves using the information collected in Step 1 to visit identified potential outfall locations while also searching for any additional outfalls. Potential outfall locations are assessed using the process described in Section 1.4. For every outfall, additional location information, including GPS coordinates is collected along with outfall attributes. A dry weather visual field screening is also required for each outfall and it may be performed at the same time as other data collection efforts as long as certain parameters are satisfied. Data collected in the field will be verified for completeness.

Step 3: Database Population (see Section 4.0). Data collected in the office and field is prepared for entry into ODOT's MS4 Outfall Inventory Database. Randomly selected data is verified for completeness. Data is imported into ODOT's MS4 Outfall Inventory Database. The complete and verified imported data is reviewed before it is considered to be final. Final data is then submitted to ODOT to populate the database.

### **1.6.1 REQUESTING MODIFICATIONS TO PROCEDURES IN THIS MANUAL**

To achieve consistency in data collection, it is essential that all individuals working on this inventory adhere to the procedures described in this manual. If there is a need to update or modify any procedures in this manual, then the following steps shall be completed:

1. Submit written request describing proposed modification to ODOT's Office of Environmental Services.
2. ODOT will review and respond in a timely manner to limit interruption to inventory production.
3. If the modification is accepted, ODOT will develop manual addendums or guidance to be distributed to all parties performing inventory work.

## 2.0 OFFICE RESEARCH AND DATA COLLECTION

### 2.1 OBJECTIVE OF OFFICE RESEARCH AND DATA COLLECTION

The objective of this step is to initiate data collection for planning and streamlining field work, which will provide a basis for further data collection. Data collection includes identification of potential outfall locations and the acquisition, review of construction information, and obtaining basic location and watershed information.

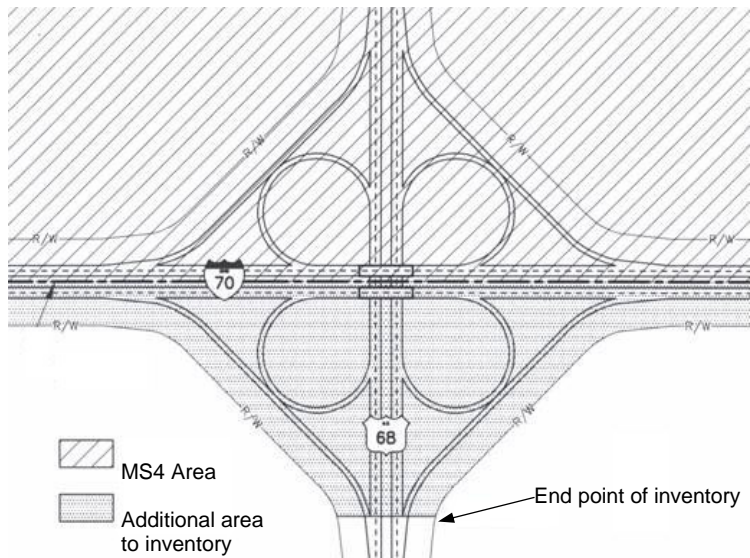
### 2.2 ODOT MS4 AREA BASE MAPPING REVIEW

As discussed in Section 1.5, ODOT has produced mapping of its MS4 regulated area to be used for conducting this inventory. A review of the ODOT MS4 area base maps is performed. All outfalls within ODOT right of way for the regulated ODOT roads and facilities, which are distinguished on the base maps, shall be inventoried.

**ODOT recommends that the majority of initial data collection, office reviews and field inventory scheduling be performed during the winter weather months.**

ODOT bridges over waterways are included on the base maps. As stated in Section 1.4.1, no outfalls from bridges shall be part of the inventory process described in this manual. However, bridge locations should be used in combination with the review of water resources mapping described in Section 2.5 to direct field staff to locations where surface waters of the State are present.

Unique features and circumstances involving the boundaries of ODOT's MS4 regulated area present a challenge to achieving consistent data collection statewide. In the case where an urbanized boundary runs along one side of an ODOT roadway, the entire roadway drainage system on both sides of the road should be inventoried within ODOT right-of-way and within ODOT's MS4 regulated area. Interchanges should be inventoried to the end of all ramps (Figure 1). In addition, at ODOT rest areas, drainage features should be inventoried for the entire rest area.



**Figure 1. Expansion of the Inventoried Area Beyond the Limits on the ODOT MS4 Area Base Map.**

## 2.3 ACCESS TO ODOT RIGHT OF WAY

Before any work requiring people or vehicles within ODOT right of way along roadways can begin, an access permit shall be obtained from the Roadway Services Manager at each ODOT district office. Permits require the approval of the District Deputy Director. Acquisition of permits shall be scheduled at least 72 hours before they are needed to accommodate staff schedules and workload. This process should be identified on an overall project schedule, which can be distributed to ODOT personnel for reference. Appendix C contains a state map showing ODOT districts with contact information.

As described in the access permit, all work shall comply with applicable requirements of the Ohio Manual of Uniform Traffic Control Devices and Item 614 (Maintaining Traffic) of the Construction and Material Specifications, latest editions and any additional local requirements. An example permit is located in Appendix F.

Maintenance of traffic (MOT) is not expected to be needed for this inventory. **If suspected that MOT is required to assess or collect data for an outfall, then ODOT's Office of Environmental Services shall be consulted for approval of such action.**

## 2.4 ACCESS TO ODOT FACILITIES

Before any work requiring people or vehicles at ODOT facilities can begin, the Facility Manager at each ODOT district office shall be contacted to inquire about access to specific facilities (see Appendix C). It is suggested that a meeting be scheduled with facility staff to discuss the nature of the work to be performed and to gather drainage information, including a plan review if necessary. Meetings shall be scheduled at least 72 hours before the intended field visit to accommodate staff schedules and workload. This process should be identified on an overall project schedule, which can be distributed to ODOT personnel for reference. Note that some facilities are seasonal and access to these facilities while they are closed may require additional coordination. Also, access to facilities involved in snow and ice control during winter weather may be limited.

## 2.5 WATER RESOURCES MAPPING REVIEW

ODOT strongly recommends that staff conducting this exercise have experience in identifying regulated water resources from mapping. For example, staff must be able to recognize if a small drainage feature has the potential to be a headwater stream considered to be surface waters of the State or "waters of the United States".

Using the MS4 area base maps and water resources mapping, ODOT's regulated area is examined for the documented or potential existence of "surface waters of the State" since an outfall, as defined in Section 1.4, requires the existence of surface waters of the State.

NRCS soil surveys and USGS topographic maps are among the best available resources for the identification of small and large drainage features. At a minimum, both of these resources shall be reviewed for all regulated areas to identify potential locations

of surface waters of the State and outfalls to be inventoried. Be aware that USGS topographic maps do not display the smallest headwater streams. NRCS soil surveys will show most of these smaller streams. However, **mapping shall not be relied upon for determining the existence of surface waters of the State; field verification is required.** The review of water resources mapping should be done in combination with the ODOT MS4 area base maps since these maps identify bridges over waterways that are surface waters of the State (see Section 1.4.1).

Potential outfall locations that are identified using water resources mapping are recorded. These locations will be used to guide staff to outfalls in the field.

For ODOT facilities, if it is highly unlikely that surface waters of the State exist on the property, based on water resources mapping review and discussions with the facility staff, then the facility does not need to be field reviewed.

Other information obtained from water resources mapping for all potential outfall locations shall include:

- Name of the receiving stream
- 11-digit hydrologic unit code (HUC) from USGS

A summary table of all office and field data to be collected, including the required format for data upload, is located in Appendix G.

### **2.5.1 RECOGNIZING “SURFACE WATERS OF THE STATE”**

The linear nature of ODOT’s MS4, the alteration of the landscape from road construction, and the somewhat vague regulatory definition of surface waters of the State may present a challenge to consistently and accurately determining whether an outfall is present since an outfall requires the existence of surface waters of the State. Appendix B includes examples of features that are and are not considered to be surface waters of the State.

The MS4 permit provides the following definition for “surface waters of the State”:

*All streams, lakes, reservoirs, ponds, marshes, wetlands, or other waterways which are situated wholly or partly within the boundaries of the State, except those private waters which do not combine or affect a junction with a surface water. Waters defined as sewerage systems, treatment works, or disposal systems in Section 6111.01 of the ORC are not included.*

For the purposes of this inventory, a surface watercourse shall be considered to be a stream and surface waters of the State if all of the following characteristics are present:

- A defined “channel” which carries water for at least a minimal period of time and has an “ordinary high water mark” (OHWM).
  - A channel is the area between definite banks of a natural or artificial watercourse which confine and conduct continuously or periodically flowing water.
  - An OHWM is that line on the stream bank established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil,

destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Surface waters of the State include all ephemeral, intermittent, and perennial streams as described below.

Perennial Stream - A stream that has flowing water year-round during a typical year. The water table is located above the streambed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Ephemeral Stream - A stream with flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow. An ephemeral stream is not Surface waters of the State unless it has an OHWM and a defined channel.

Intermittent Stream - A stream that has flowing water during certain times of the year, when groundwater provides for stream flow. During dry periods, intermittent streams may not have flowing water. Precipitation is a supplemental source of water for stream flow. An intermittent stream is ordinarily dry for more than three months per year. It is delineated with dashed lines on USGS topographic maps.

Be aware that when roads were originally constructed, sometimes streams and local drainage features were rerouted to build the road. This situation may not be reflected on mapping. Also, the presence of a "captured stream" is important to discern from mapping since these items may appear as a typical roadside ditch in the field. **Most roadside ditches are not surface waters of the State.** However, captured streams are considered to be surface waters of the State, so an outfall discharging to a captured stream shall be inventoried (Figure 2).

Captured streams, roadside ditches and smaller streams may not be displayed on USGS topographic maps and NRCS soil surveys, so a through field reconnaissance is critical to identify all surface waters of the State that are present. **All field staff must be able to recognize surface waters of the State in light of the above information.**

**Captured Stream:** A drainage ditch constructed in an upland area that connects two surface waters of the State and maintains the surface water connection between those two surface waters of the State. A captured stream is generally considered to be a surface water of the State if it continually maintains the connection between the other two (upstream and downstream) surface waters of the State. Captured streams will generally carry water; however, they may be dry during certain times of the year.

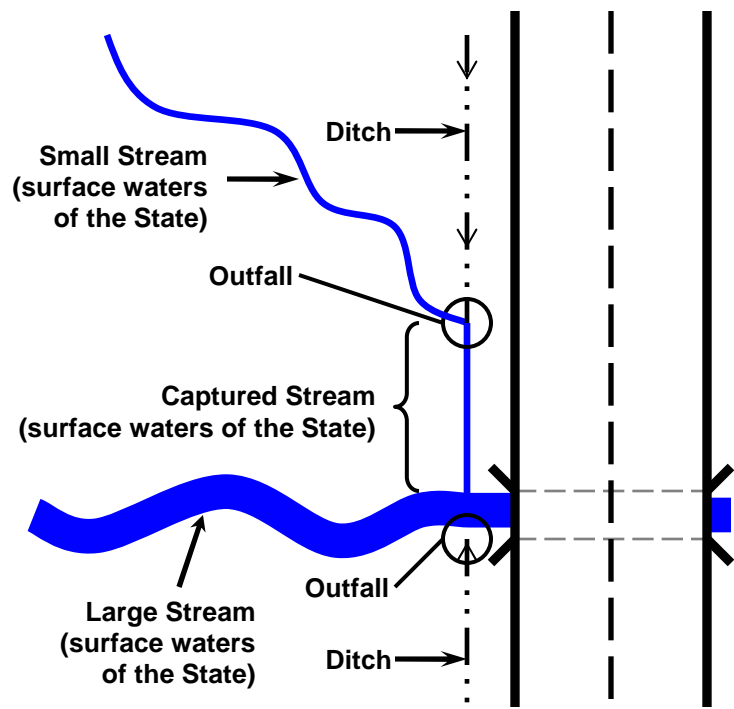


Figure 2. Identification of a Captured Stream and Associated Outfalls.

## 2.6 REVIEW OF CONSTRUCTION PLANS AND STRAIGHT LINE DIAGRAMS

ODOT strongly recommends that construction plan reviews be performed by an experienced engineer or designer familiar with highway drainage design and construction.

A review of ODOT construction plans is conducted for the potential outfall locations identified from the methods in Section 2.5. The goal of this activity is to gather information from ODOT construction contract plans for use by field staff in data collection efforts. Plans can provide essential details for a potential outfall location that often cannot be determined in the field, including underground drainage features that may end at an outfall. **The limits of ODOT right of way shall be determined from construction plans.** Streams, wetlands, and roadside ditches are often indicated on construction plans.

Roadway plans can be obtained through ODOT district offices. For ODOT facilities, staff of the particular facility should be contacted directly. To facilitate plan review, meetings with ODOT staff shall be scheduled at least 72 hours before they are needed to accommodate staff schedules and workload. These meetings should be identified on an overall project schedule, which can be distributed to ODOT personnel for reference.

Information collected from plan reviews shall include:

- Location of potential outfalls
- Type of potential outfalls
- ODOT right of way limits
- Direction of local drainage
- Any other information that may assist field staff in data collection

Plan review for small ODOT facilities may be limited to ODOT right of way limits if all drainage features can be quickly observed by field observations.

In addition to construction plans, another source of roadway information is a straight line diagram (SLD). A straight line diagrams is a two dimensional graphic representation of the physical roadway characteristics of a highway as if it had no turns or curves. Mileage is based on the centerline of the road as measured from the western or southern county line or other true beginning. All routes on the Interstate, US and State Route systems are shown on these diagrams.

SLDs are available in Adobe Acrobat (.PDF) format by accessing the ODOT home page ([www.dot.state.oh.us](http://www.dot.state.oh.us)) and selecting "Straight Line Diagrams" from the drop down menu

## 2.7 MISCELLANEOUS OFFICE DATA COLLECTION

Some other basic location information is collected for all potential outfall locations identified from the methods in Sections 2.5 and 2.6:

- ODOT district (Table 4 and Appendix C)
- County abbreviation (Table 4)
- Municipality name
- ODOT facility address (if applicable)
- Network Linear Feature Identification (NLFID)
  - NLFID is a 14-character code which represents all roadways in Ohio and it used by ODOT's GIS software to identify GIS strings.
  - NLFID follows a standard format. For example, State Route 41 in Clark County would be **SCLASR00041\*\*C** as described below.

**S:** The first character is **always S** which means a road under State jurisdiction.

**CLA:** Characters 2 through 4 correspond to the three letter county code (Table 4) for Clark County

**SR:** Characters 5 and 6 indicates whether the road is an interstate (IR), US Route (US), State Route (SR), or a ramp (RA).

**00041:** Characters 7 through 11 are the route number right justified and 0 filled.

**\*\*:** Characters 12 and 13 are **always \*\*** and they are reserved for special circumstances or design features.

**C:** Character 14 **always C** and it a code reserved for cardinal direction of travel.

- **The NLFID for a ramp is unique.** Besides using RA for characters 5 and 6, a unique five digit number has been assigned to each ramp and this number will appear in characters 7 through 11. The number can be obtained from ODOT MS4 area base mapping for the specific ramp.
- **A facility does not have an NLFID.**

**Table 4. Abbreviations and ODOT Districts for Each County.**

<b>Abrev</b>	<b>County - District</b>	<b>Abrev</b>	<b>County - District</b>	<b>Abrev</b>	<b>County - District</b>	<b>Abrev</b>	<b>County - District</b>
ADA	ADAMS-9	FAI	FAIRFIELD-5	LIC	LICKING-5	POR	PORTAGE-4
ALL	ALLEN-1	FAY	FAYETTE-6	LOG	LOGAN-7	PRE	PREBLE-8
ASD	ASHLAND-3	FRA	FRANKLIN-6	LOR	LORAIN-3	PUT	PUTNAM-1
ATB	ASHTABULA-4	FUL	FULTON-2	LUC	LUCAS-2	RIC	RICHLAND-3
ATH	ATHENS-10	GAL	GALLIA-10	MAD	MADISON-6	ROS	ROSS-9
AUG	AUGLAIZE-7	GEA	GEAUGA-12	MAH	MAHONING-4	SAN	SANDUSKY-2
BEL	BELMONT-11	GRE	GREENE-8	MAR	MARION-6	SCI	SCIOTO-9
BRO	BROWN-9	GUE	GUERNSEY-5	MED	MEDINA-3	SEN	SENECA-2
BUT	BUTLER-8	HAM	HAMILTON-8	MEG	MEIGS-10	SHE	SHELBY-7
CAR	CARROLL-11	HAN	HANCOCK-1	MER	MERCER-7	STA	STARK-4
CHP	CHAMPAIGN-7	HAR	HARDIN-1	MIA	MIAMI-7	SUM	SUMMIT-4
CLA	CLARK-7	HAS	HARRISON-11	MOE	MONROE-10	TRU	TRUMBULL-4
CLE	CLERMONT-8	HEN	HENRY-2	MOT	MONTGOMERY-7	TUS	TUSCARAWAS-11
CLI	CLINTON-8	HIG	HIGHLAND-9	MRG	MORGAN-10	UNI	UNION-6
COL	COLUMBIANA-11	HOC	HOCKING-10	MRW	MORROW-6	VAN	VAN WERT-1
COS	COSHOCTON-5	HOL	HOLMES-11	MUS	MUSKINGUM-5	VIN	VINTON-10
CRA	CRAWFORD-3	HUR	HURON-3	NOB	NOBLE-10	WAR	WARREN-8
CUY	CUYAHOGA-12	JAC	JACKSON-9	OTT	OTTAWA-2	WAS	WASHINGTON-10
DAR	DARKE-7	JEF	JEFFERSON-11	PAU	PAULDING-1	WAY	WAYNE-3
DEF	DEFIANCE-1	KNO	KNOX-5	PER	PERRY-5	WIL	WILLIAMS-2
DEL	DELAWARE-6	LAK	LAKE-12	PIC	PICKAWAY-6	WOO	WOOD-2
ERI	ERIE-3	LAW	LAWRENCE-9	PIK	PIKE-9	WAY	WYANDOT-1

## 3.0 FIELD DATA COLLECTION

### 3.1 OBJECTIVE OF FIELD DATA COLLECTION

The objective of this step is to visit potential outfall locations as identified in Section 2.0 while also searching for additional outfalls. Potential outfall locations are assessed using the process described in Section 1.4. At a confirmed outfall location, the required attributes of the outfall and a GPS coordinate are collected. Data collected in the field is then verified for completeness.

### 3.2 FIELD SAFETY

All individuals working in ODOT right of way shall be cognizant of their personal safety as well as the safety of the traveling public, including the following potential safety issues:

- **Use of personal protective equipment, including a high visibility safety vest at all times.**
- Cold weather (frostbite, hypothermia)
- Hot weather (sunburn, heat stress, exhaustion, and stroke)
- Recognition of poisonous plants, animals, and insects
- Other insects: mosquitoes (West Nile Virus) and ticks (Lyme disease)
- Driver safety and awareness, especially in winter weather
- Hazardous or sharp items along roadsides
- Illicit (non-storm water) discharges into ODOT's storm sewer system, which may contain pathogens
- Water safety: flash floods, drowning
- Maintaining communication with co-workers
- Steep slopes
- Uneven footing

As described in Section 2.3, before any work requiring people or vehicles within ODOT right of way along roadways can begin, a permit shall be obtained from ODOT. Before any work requiring people or vehicles at ODOT facilities can begin, the facility manager at each ODOT district office shall be contacted to inquire about access to specific facilities (Section 2.4). This process will result in safety procedures that shall be strictly followed.

### 3.3 FIELD DATA TO COLLECT

A summary table of all office and field data to be collected, including the required format for data upload, is located in Appendix G. Appendix H contains an example data form, a sketch, and photos.

**For all outfalls, the following location/surveying items will be collected:**

- Latitude WGS1984
- Longitude WGS1984
- Ohio State Plane Coordinate Northing
- Ohio State Plane Coordinate Easting

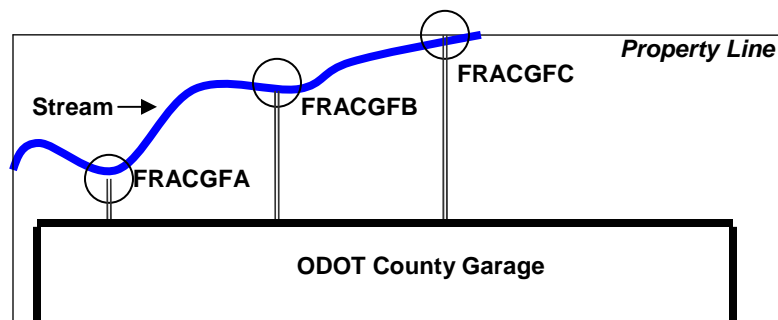
- A unique outfall identifier is assigned to each outfall to link the outfall to other inventory items. The unique outfall identifier is determined differently for roadway and facility outfalls. Examples include “FRA00123L” (roadway) and “FRACGFB” (facility).

For roadway outfalls, the unique outfall identifier consists of three items (see sketch in Appendix H for example):

- 1) The three-letter county abbreviation from Table 4.
- 2) A specific sequential five-digit number. The convention to assign this number will be supplied to contractors by ODOT.
- 3) A one-letter site orientation code. The site orientation code is a means to help determine which side of the road an outfall is located.
  - L – Left side of roadway
  - R – Right side of roadway
  - M – Median of divided roadway
  - Left or right sides of the roadway are determined by the same conventions used for assigning straight line mileage. On those highways designated as west to east routes, face the easterly direction of travel (based on the route number – not a true compass direction) to determine left or right. For those highways designated as south to north, the left or right decision is based on a northbound facing direction.

For facility outfalls, the unique outfall identifier consists of three items (see Figure 3 for example):

- 1) The facility site code, which will be supplied to contractors by ODOT. For example, the site code for the Franklin County Garage is “FRACG”
  - 2) An “F” to represent facility.
  - 3) An alphabetical designation in the sequential order that the outfall would be encountered by walking the property. For example, the second outfall encountered would be “B”.
- Receiving stream name (if not obtained during office research)
  - Network Linear Feature Identification (NLFID) (if not obtained during office research)



**Figure 3. Example Unique Outfall Identifiers for an ODOT Facility with Three Outfalls.**

**For all outfalls, the following outfall attributes will be collected:**

- Date of outfall survey
- Type of outfall as described in Section 1.4
  - Ditch outfall
  - Pipe outfall
- Presence of rock channel protection at the outfall (Yes/No)
- Presence of a significant amount litter deposited at the outfall (Yes/No)
- A site sketch indicating the location of each outfall. Appendix H contains an example sketch. The final format of each sketch will be a JPEG (\*.JPG) image file. A sketch is intended to provide a big picture perspective similar to a construction plan. Multiple outfalls in close proximity should be indicated on one sketch. For example, one sketch should be made for a roadway stream crossing that has four outfalls which discharge into the stream. To show as much information as possible on the sketch, it is preferred that information be written on construction plan sheets.

At a minimum, all sketches shall include:

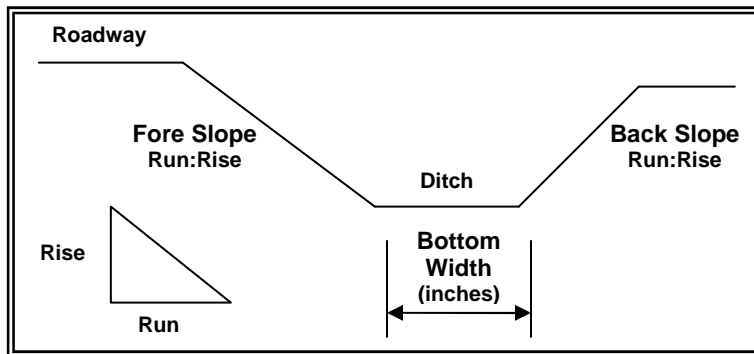
- Location of the outfall(s)
- Arrows indicating the direction of flow for storm water and surface waters of the State
- North arrow
- Location of suspected illicit discharge source(s) (if applicable)
- For roads, indicate the county abbreviation, route, receiving water, and unique outfall identifier(s).
- For ramps, indicate the county abbreviation, the routes that the ramp connects (example: Ramp - IR 70 East to IR 71 South), the receiving water, and the unique outfall identifier(s).
- For facilities, indicate the county abbreviation, name and municipality of the facility, the receiving water, and the unique outfall identifier(s).
- Digital photographs of outfall. Appendix H contains example photos.
  - Format: JPEG (\*.JPG) image files.
  - Contractors shall exercise care in the submission of large photographs, due to image quality, as the storage space on the ODOT server is limited.
  - The number of photos should be kept to a minimum and should not exceed four photographs per outfall.
  - To link the photo to the site, a sign shall be included in photographs as follows.
    - For roads, indicate the county abbreviation, route, receiving water, unique outfall identifier and any other information that helps to link the photo to the site.
    - For ramps, indicate the county abbreviation, the routes that the ramp connects (example: Ramp - IR 70 East to IR 71 South), the receiving water, the unique outfall identifier and any other information that helps to link the photo to the site.
    - For facilities, indicate the county abbreviation, name and municipality of the facility, the receiving water, unique outfall identifier (if applicable) and any other information that helps to link the photo to the site
  - Photographs should attempt to capture the outfall setting instead being a close range shot of the actual outfall. However, close range photographs should be used to document suspected illicit discharges. Capturing the

outfall setting in a photograph while ensuring that the sign is readable may involve adjusting camera resolution, repositioning the sign, or taking additional photographs.

- Miscellaneous outfall comments
  - If the outfall involves a ramp, the routes that the ramp connects shall be described as in the following example: Ramp from IR 70 East to IR 71 South.

**For ditch outfalls only, the following outfall attributes will be collected (Figure 4):**

- Back Slope
- Fore Slope
- Bottom width (inches)



**Figure 4. Attributes of Ditch Outfalls.**

**For pipe outfalls only, the following outfall attributes will be collected:**

- Type of pipe shape
  - Circular
  - Rectangular
  - Elliptical
  - Egg
  - Other
- Height (inches)
- Width (inches)
- Type of pipe material
  - Reinforced Concrete Pipe (RCP) or any concrete pipe
  - Vitrified Clay Pipe (VCP)
  - Corrugated Metal Pipe (CMP)
  - Smooth Walled Poly-Vinyl Chloride Pipe (PVC)
  - Corrugated Plastic High Density Poly-Ethylene Pipe (CPP)
  - Other

**For all outfalls, a dry weather visual field screening will be performed and the following information will be collected:**

- Date of dry weather visual field screening.
- Odor present at outfall
  - None
  - Musty
  - Sewage
  - Solvent
  - Sulfur
  - Oil
  - Gasoline
  - Other
- Color of water at outfall
  - None
  - Yellow
  - Green
  - Brown
  - Gray
  - Other
- Turbidity of water at outfall
  - Clear
  - Cloudy
  - Opaque
- Floatables present at outfall
  - None
  - Oil Sheen
  - Sewage
  - Foam/Bubbles
  - Algae
- Status of potential illicit discharge
  - Low priority. No positive visual observations (odor, color, turbidity, floatables) identified and minimal flow (<10 gpm or <1 gallon every 6 seconds).
  - Medium Priority. One positive visual observation (odor, color, turbidity, floatables) and minimal flow (<10 gpm or <1 gallon every 6 seconds).
  - High Priority. Two positive visual observations identified at an outfall one positive visual observation and/or significant flow (> 10 gpm or >1 gallon every 6 seconds).
  - No Flow Condition.
- Source of potential illicit discharge
  - None (unknown)
  - Home sewage treatment system (HSTS)
  - Industrial
  - Commercial
  - Other
- Additional comments about the potential illicit discharge source

### 3.4 FIELD EQUIPMENT

Equipment or other items required for field data collection include:

- GIS-grade GPS receiver
  - Positional accuracy: 1 meter or less.
- Digital camera
  - Photos must have a minimum resolution of 1280 X 960 or approximately 1.2 mega pixels.
  - Only JPEG (\*.JPG) image files are supported currently. Attempting to use other formats will result in an error.
- Tape measure/folding ruler
- Sign for outfall information in photos
- Safety equipment
- Water resources mapping
- Construction plans and straight line diagrams
- ODOT MS4 Regulated Area base maps
- Road maps
- Mapping of potential outfall locations with office data collection results
- Permit to work in ODOT right of way
- Permission to access ODOT facility

Other items that may be useful for field data collection include:

- Electronic data collector, PDA, or lap-top computer loaded with the outfall data to be collected.

### 3.5 FIELD DATA COLLECTION METHODS

ODOT encourages efficient innovation in field data collection methods as long as data is collected in the format described in this manual so it can be uploaded to the MS4 outfall inventory database. Methods must be tailored to incorporate all of the information required for every outfall during field work:

- Location information
- Outfall attributes, including the dry weather visual field screening (Section 3.5.1)

Essential field data collection items that shall be part of any field work include:

- Review of ODOT MS4 Area Base Maps, road maps, potential outfall locations, construction plans and straight line diagrams, and other office research items.
- **All outfalls shall be assessed as described in Section 1.4.**
- It is imperative field staff be able to recognize “surface waters of the State” and understand issues unique to water resources in ODOT right of way (Section 2.5.1)
- Locate and assess potential outfall locations identified through office research.
  - While locating these outfalls, field staff will also search for other outfalls that were not identified through office research.
  - It should be noted that often multiple outfalls may be present in close proximity to one another with longer outfall-free segments between outfall clusters.
  - It is anticipated that field outfall identification of potential outfalls locations identified through office research should take no longer than approximately

thirty minutes. When field outfalls cannot be located within thirty minutes, the field personnel shall document efforts and contact supervisor for possible follow-up investigation.

- Although not expected, if maintenance of traffic (MOT) is required to assess or collect data for an outfall, then ODOT's Office of Environmental Services shall be consulted for approval of such action.
- Once an item is determined to be an outfall, field data collection can begin. (Data are only collected and submitted for confirmed outfalls.) Refer to Appendix G for a list of data to be collected and the proper data format.
- Field data QA/QC (see Section 3.5.3).

### **3.5.1 DRY WEATHER VISUAL FIELD SCREENING**

The dry weather visual field screening for non-storm water flows is a requirement of the MS4 permit and part of ODOT's plan to identify illicit discharges into its MS4. This screening shall be conducted for every outfall within the following parameters:

- Between April 1 and November 30 (unless approved by ODOT)
- At least 24 hours after any precipitation event at a typical outfall. If the outfall is located below a storm water control feature, such as a detention basin, which is designed to slowly release storm water, then the screening shall be done at least 72 hours after a precipitation event.

The dry weather visual field screening may be performed at the same time as other field work as long as the above parameters are satisfied.

Weather events in the inventory area shall be monitored consistently and thoroughly to document precipitation amounts and occurrences. Weather information can be obtained from the NOAA/National Weather Service at: <http://weather.noaa.gov/index.html>.

### **3.5.2 DATA COLLECTION AT ODOT FACILITIES**

An overview of the inventory process for facilities is provided in Appendix I. Before data collection at an ODOT facility may begin, permission is required to access the facility as described in Section 2.4. A meeting with facility staff is suggested to discuss the nature of the work to be performed and to gather drainage information, including a plan review if necessary. Data collection, documentation, and submission is the same as that for roadways, with the exception of including the facility address and the unique site designation is F1, F2, etc.

### **3.5.3 FIELD DATA QA/QC**

To ensure that data collection and documentation are performed uniformly by multiple field personnel, randomly selected outfalls shall be field reviewed as part of the process. The data set, including the digital photos and site sketch should be field reviewed to ensure that documented measurements and observations are accurate, complete, and were performed in accordance with this manual.

QA/QC efforts shall be initiated in the early stages of the inventory so that corrective actions can be implemented to correct any noted inconsistencies. ODOT recommends that a QA/QC procedure be drafted outlining the communication flow, information flow and identification of responsible party for follow up information, data problem resolution,

and general inventory questions and clarifications. The outline should be simple and indicate contact information, QA/QC hierarchy, and project responsibilities. ODOT reserves the right to field verify outfall locations and data collection.

### **3.6 LIMITING ISSUES**

Weather may restrict the feasibility of conducting some field work. In winter weather, snow and ice may inhibit the ability to locate outfalls or collect data and also create a safety risk for walking or driving. ODOT recommends that the majority of initial data collection, office reviews and field inventory scheduling be performed during the winter weather months. In warm weather, vegetation cover may inhibit the ability to locate outfalls or collect data and wet weather may create safety concerns. As described in Section 3.5.1, the dry weather visual field screening is limited by both seasonal and precipitation events.

Areas which need to be inventoried may be under construction or inaccessible. For areas under construction, inventory activities shall be delayed until construction activities have been completed. Areas that are consistently under construction or inaccessible shall be deferred. The limits of the deferred segments shall be documented in writing and submitted to ODOT's Office of Environmental Services for completion at an appropriate future date.

Some facilities are seasonal and access to these facilities while they are closed may require additional coordination. Also, access to facilities involved in snow and ice control during winter weather may be limited.

## 4.0 DATABASE POPULATION

### 4.1 OBJECTIVE OF DATABASE POPULATION

Data collected in the office and field is prepared for entry into ODOT's MS4 Outfall Inventory Database. Randomly selected data is verified for completeness. Data is imported into ODOT's MS4 Outfall Inventory Database. The complete and verified imported data is reviewed before it is considered to be final. Final data is then submitted to ODOT.

### 4.2 DATA PREPARATION AND UPLOAD

All data is submitted via Internet to the ODOT MS4 Outfall Inventory database, which serves as the central repository for MS4 outfall data. The website provides contractors and ODOT personnel with the convenience of working with the same up-to-date information.

Data submission involves two items:

- Tabular outfall data in a comma-separated-value (CSV) file.
- Digital photographs and sketches as JPEG (\*.JPG) image files.

**Note:** Newly submitted records are the "property" of the contractor until each record has been marked "Reviewed OK". At this point, the record will no longer be editable by the contractor. Therefore, care and discretion must be exercised before marking a record as "Reviewed OK".

Initial entered data is designated "Not Reviewed". The un-reviewed outfall data will be reviewed by experienced personnel to ensure that all data fields have been completed, the data is accurate and consistent based on the digital images, site sketch, and narrative entries are correlated with the appropriate outfall locations. Those records that do not appear correct should be marked as "Problem/Work-in-Progress" and should be further reviewed by the QA/QC Manager for resolution. Complete problem-free or corrected outfall data sets should be designated "Reviewed" and considered finalized. ODOT reserves the right to verify outfall locations and data.

The outfall data summary table in Appendix G lists all the data to be collected and uploaded to the database, including the specific format and Appendix J contains an example import (CSV) file and troubleshooting guide for the database.

#### 4.2.1 THE IMPORT (CSV) FILE

**A sample import file will be supplied to individuals responsible for importing data for this inventory.** The required CSV file for data submission follows standard conventions for comma-separated-value files. The CSV file must be in standard ASCII text format with DOS CRLF line termination. The header line must be the first line in the file. This header line must consist of column names separated by a comma character. Each record must be placed on a new line and the values for the record must follow in order exactly as shown in the header row. Column values should not be enclosed by quotes.

### 4.3 ACCESSING THE MS4 OUTFALL INVENTORY DATABASE

The website is available via a server at the ODOT facility. Users should use Internet Explorer 6.0, Mozilla 1.4, or Firefox 1.0 or newer to access the site. Users will be assigned a username and password combination by ODOT. This information must be entered into the login screen. (See Figure 5)

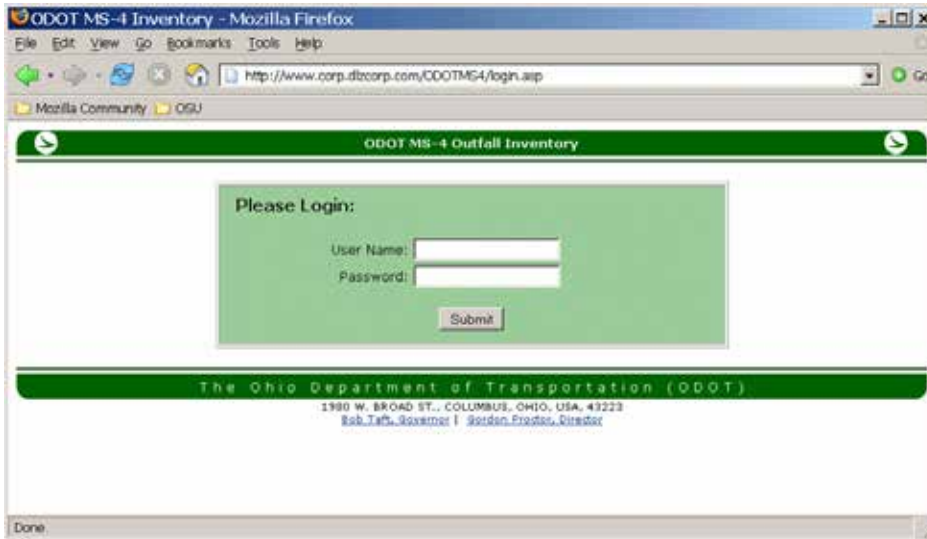


Figure 5. Login Screen.

Once a user is successfully authenticated to the database, the system will redirect the user to the basic query screen (Figure 6). Three menu hyperlinks will appear on the top-left side of the screen (Advanced Query, Import Data, Log Out) showing various system options.

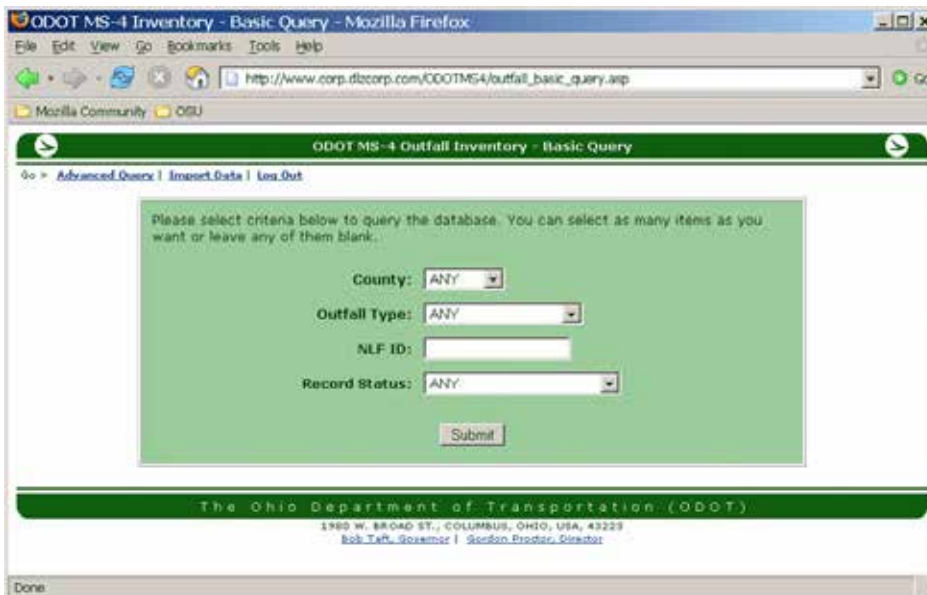


Figure 6. Basic Query Screen

## 4.4 IMPORTING THE CSV FILE

Once the CSV data file is ready for submission, the contractor must log into the ODOT MS4 Outfall Inventory website. The account used to access the website must have the appropriate access privileges in order to import new data. The **Import Data** hyperlink must be clicked to access the data import options screen. (See Figure 7)



Figure 7. Import File Selection.

To select an import data file, the **Browse** button must be clicked. A file locator dialog will appear. (See Figure 8) The user must locate the desired import file. After the file has been selected, the path name will appear in the white box on the screen.



Figure 8. Import File Selection.

Now the user must press the **Import Data** button to start the import process. Once pressing the **Import Data** button, the user's computer will upload the import data file to the ODOT MS4 Outfall Inventory website. The system will process the data file and verify basic data conformity requirements. After this processing is complete, a final confirmation page will appear along with an output of the import data. (See Figure 9) At this point, the user must verify that the data has been interpreted as intended.

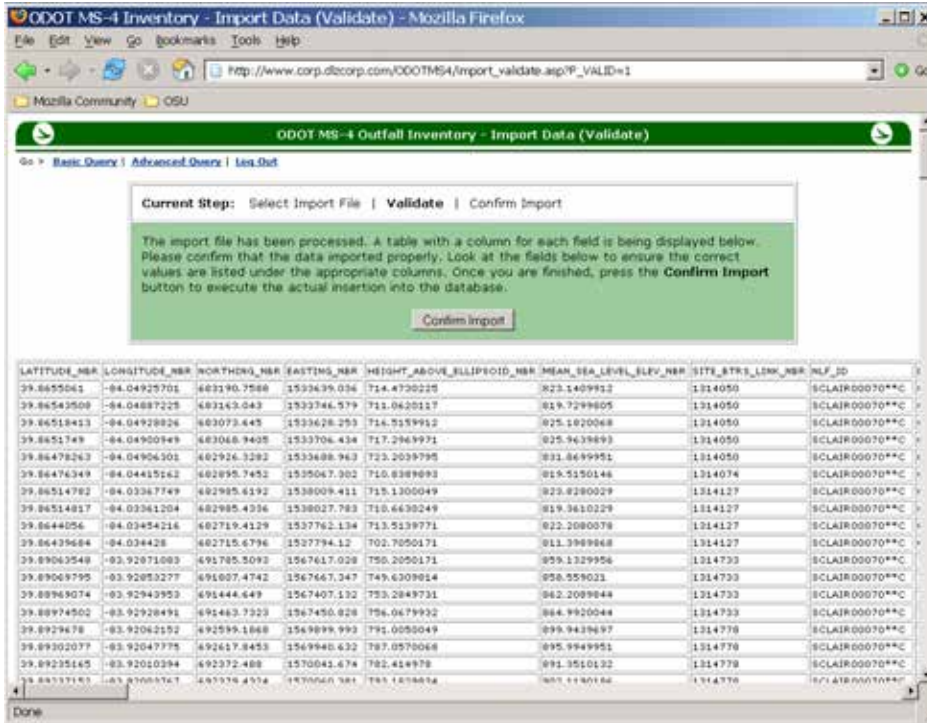


Figure 9. Import Confirmation.

To complete the import process, the **Confirm Import** button must be pressed to actually insert the data into the database. The system will return the user to the main query screen if the import was successful. If there is an error during the import, a message will be displayed to the user.

**Note:** Until the Confirm Import button has been pressed and a confirmation of import success has been displayed, the user should not assume records have been added to the ODOT MS4 Outfall Inventory Database.

#### 4.5 MANAGING IMPORTED DATA

Once data is imported into the system, each record is marked with a contractor tax identification number. Only ODOT users and user accounts that have the same matching tax identification number will be able to modify the imported records.

If an outfall site record in the import CSV file already exists in the database, that particular record will not be imported into the database.

## 4.6 STANDARDIZED QUERIES AND SEARCHES

Upon authentication to the MS4 Outfall Inventory Database, the user will be presented with the basic query screen. (See Figure 6) The basic query form allows the user to query the database by county, outfall type, NLF ID, or record status. In the case of the NLF ID field, free-form text can be entered into the box. The system will attempt to match all records with NLF ID field values that start, end, or contain the entered text.

The basic query screen should suffice for users that simply need to access a record in a particular county or on a particular roadway. For more advanced analysis, the advanced query form is available. Users must click on the “Advanced Query” hyperlink option in top-left of the screen to access the query page. (See Figure 10)

ODOT MS-4 Inventory - Advanced Query - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://www.corp.dlzc.com/ODOTMS4/outfall\_adv\_query\_new.asp

ODOT MS-4 Outfall Inventory - Advanced Query

Go > [Basic Query](#) | [Import Data](#) | [Log Out](#)

Please select criteria below to query the database. You can select as many items as you want or leave any of them blank.

Receiving Stream: ANY

Watershed Code: ANY

District: ANY

County: ANY

Facility Address: [text box]

Municipality: [text box]

NLF ID: [text box]

Site Designation #: [text box]

Outfall Type: ANY

Rock Channel Protection: ANY

Litter Present: ANY

Done

Figure 10. Advanced Query Screen.

The advanced query form differs from the basic version in the number of field options that can be used in a query. In addition to the four fields in the basic query, other fields can be specified in the query criteria. Many of the field options have pre-populated drop-down boxes, simplifying the user’s task. Items such as the Receiving Stream field automatically populate with one of each type of receiving stream found in the database.

Once the Submit button has been pressed, a list of the query results will appear. (Figure 11)

Outfall ID	County	Type	Status
<a href="#">SCLAIR00070**C-0.02-R1</a>	Clark	Regulated MS4	Reviewed
<a href="#">SCLAIR00070**C-0.17-L1</a>	Clark	Ditch	Reviewed
<a href="#">SCLAIR00070**C-0.17-L2</a>	Clark	Ditch	Reviewed
<a href="#">SCLAIR00070**C-0.17-M1</a>	Clark	Ditch	Reviewed
<a href="#">SCLAIR00070**C-0.17-M2</a>	Clark	Pipe	Reviewed
<a href="#">SCLAIR00070**C-0.17-R1</a>	Clark	Ditch	Reviewed
<a href="#">SCLAIR00070**C-0.41-R1</a>	Clark	ROW - Pipe	Reviewed
<a href="#">SCLAIR00070**C-0.94-L1</a>	Clark	Ditch	Reviewed

Figure 11. Query Results Screen (with highlighted row).

The user can select a desired record by clicking on the Outfall ID hyperlink or by simply highlighting the record by moving the cursor on top of the record row. Rows highlight with a yellow background when the cursor is moved on top of the row. Additionally, the result list can be easily sorted by column by clicking on the column hyperlink.

Once a record has been selected, the system will display one of two different screens. If the user has write-access privileges to the record, a record edit form will appear for outfall information. (See Figure 12) Otherwise, a read-only display of the record data will be displayed.

Outfall Record #:	1293
Receiving Stream:	MUD CREEK
Watershed Number:	05080001190
District:	District 7
County:	Clark
Municipality:	BETHEL
Address 1:	
Address 2:	
NLF ID:	SCLAIR00070**C
Ohio SP Northing (Feet):	603190.759
Ohio SP Easting (Feet):	1533639.036
Site Designation #:	1
Date of Survey:	2/8/05 6:20:49 PM
Outfall Type:	Ditch
Rock Channel Protection?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Litter Present at Site?	<input checked="" type="radio"/> Litter <input type="radio"/> No Litter

Figure 12. Outfall Information Edit Form.

## **4.7 MODIFICATION OF DATABASE RECORDS**

In order to modify records in the MS4 Outfall Inventory Database, the user must have the appropriate privileges. In general, contractor accounts will be able to modify records where the Contractor Tax Identification number matches the number associated with the account. Therefore, most Contractors will have the ability to update and modify records that were imported into the system by someone in their organization. The important exception to this concept is that after a record has been marked "Reviewed OK", it is *no longer editable* by the contractor.

### **4.7.1 EDITING RECORD DATA**

A user may update an outfall record by first logging into the MS4 Outfall Inventory website. Using the basic or advance query facilities, a query set can be generated. Once this is complete, a record can be selected from the list. If the user has the appropriate privileges, a record edit form will appear for all outfall information. (See Figure 12) An additional "View All" hyperlink displays the read-only version of the entire outfall record.

The editing form contains a Save Record button that will save the changes of that particular editing form. If a user does not press the Save Record button before leaving a particular editing form the changes will not be saved.

Of special note is the Record Status option near the bottom of the form. Once the Record Status has been set to "Reviewed OK", the record will only be editable by ODOT administrators.

### **4.7.2 ATTACHING AND EDITING DIGITAL PHOTOGRAPHS AND SITE SKETCHES**

The "Outfall Images" editing form (See Figure 13) enables the user to attach digital photographs and site diagram images. To add a digital image or diagram, the user must scroll to the bottom of the page. (See Figure 14) Clicking on the Browse button will display a file locator dialog, allowing the user to select the desired image file. Once the image has been selected, the user should specify the image type "Field Image" or "Site Diagram", and then press Attach Image to upload the file to the database.

Note: Only JPEG (\*.JPG) image files are supported currently. Attempting to use other formats will result in an error.

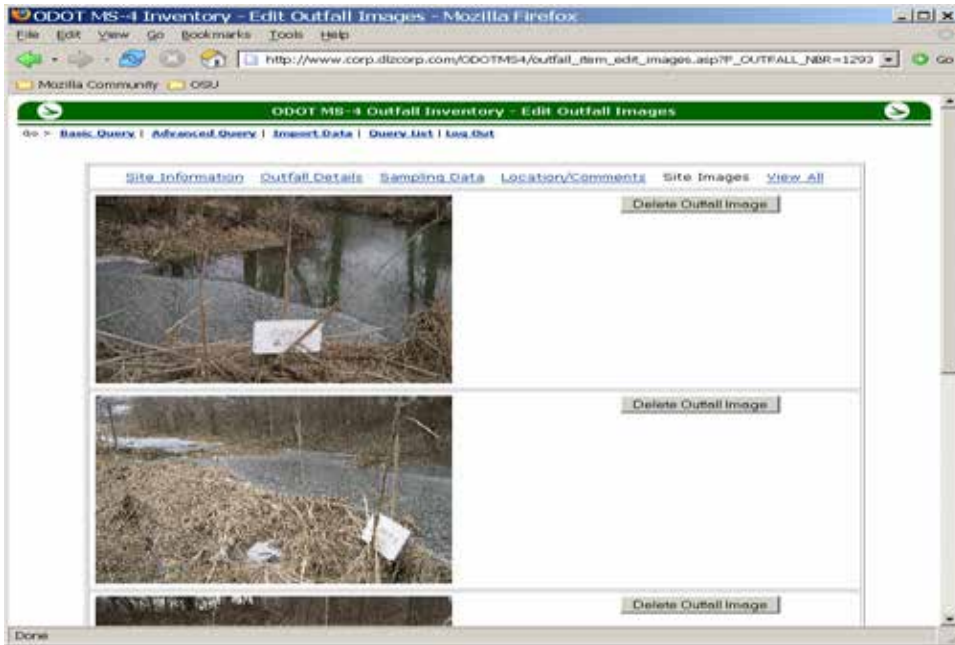


Figure 13. Outfall Images Editing Form.

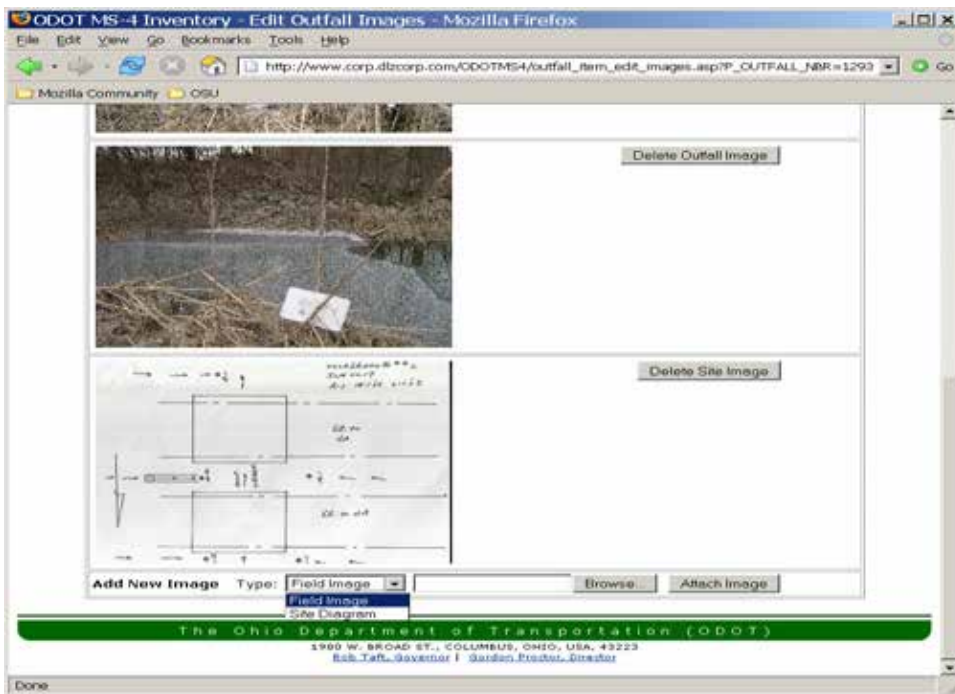


Figure 14. Outfall Images Editing Form (Attaching a New Image).

## 4.8 DATABASE SECURITY CONTROLS

The security of the MS4 Outfall Database is managed by ODOT's Division of Information Technology and Office of Environmental Services. To request new login accounts and access privilege modifications, contact the Office of Environmental Services.

Each login account is authenticated via ODOT's OneLogin authentication system and assigned a security level of 100, 200, 300, or 400 (see Table 5).

**Table 5. Security Levels and Privileges.**

<u>Security Levels</u>	<u>Privileges</u>
100	Read-only access.
200	Write access to records with a contractor tax ID matching the user account.
300	Includes all privileges of 200 plus ability to use the Import functionality.
400	Reserved for ODOT employees. Write access to all records regardless of contractor tax ID.

**APPENDIX A**

**GLOSSARY**

## GLOSSARY

**Note:** *The following contains simplified explanations of some regulatory/statutory definitions and other terms. If further explanation is needed, please contact ODOT's Office of Environmental Services.*

11-digit Hydrologic Unit Code (HUC): A watershed with a typical size of 40,000 to 250,000 acres, each 11-digit HUC is completely contained within one 8-digit HUC. The 11-digit HUC boundaries are delineated by USGS based on 1:24000 scale USGS topographic maps.

Appendix 6 Metropolitan Areas: Refers to Appendix 6 of the preamble for the federal Phase II storm water rules. It is a listing of places that were automatically designated as being regulated by Phase II. This includes all incorporated places and counties that are fully or partially located within an "urbanized area" according to the 1990 Census. An urbanized area is a land area comprising one or more places – central place(s) – and the adjacent densely settled surrounding area – urban fringe – that together have a residential population of at least 50,000 and an overall population density of at least 1,000 people per square mile. It is a calculation used by the Bureau of the Census to determine the geographic boundaries of the most heavily developed and dense urban areas. For ODOT's MS4 storm water outfall inventory, ODOT normalized urban areas (not Census urbanized areas) shall be used to define ODOT's MS4 regulated area for the Appendix 6 metropolitan areas.

Appendix 7 Cities: Refers to Appendix 6 of the preamble for the federal Phase II storm water rules. It is a listing of places that had the potential to be regulated into the Phase II storm water program. In 2005, these cities were informed by Ohio EPA that they were regulated. Appendix 7 is a listing of all incorporated places and counties, located outside of an "urbanized area" according to the Bureau of the Census, that have a population of at least 10,000 and a population density of at least 1,000 people per square mile. For ODOT's MS4 storm water outfall inventory, the limit of the MS4 regulated area for Appendix 7 cities is the municipal boundary. ODOT is not responsible for US and State routes within municipal boundaries, so Interstates are the only roadways to be inventoried for Appendix 7 cities.

Back Slope: The slope of the ground on the backside of the ditch described in a ratio (Run: Rise).

Bridge: ODOT's bridge inventory defined a bridge as: any structure, including supports, of 10 feet or more clear span or 10 feet or more (clear opening) in diameter on, above, or below a highway. The span of all bridges, except culverts regarded as bridges, was measured along the centerline of the highway. The culvert span(s) was measured normal to the axis of the culvert. Multiple cell culverts, under a fill, with a distance of 10 feet or more between extreme ends of openings, measured normal to the axis of the culvert, including multiple pipes where the clear distance between openings is less than half of the diameter of the smaller opening were regarded as a bridge and included the bridge inventory.

Base Highway Transportation Referencing System (BTRS): A system of information where the centerlines of the roadway system in Ohio have been delineated into segments 1/100<sup>th</sup> of mile (52.8 ft) in length. Each of these segments is assigned a number – a BTRS link number. This information has been integrated into ODOT's GIS and it serves as an important referencing tool.

Captured Stream: A drainage ditch constructed in an upland area that connects two surface waters of the State and maintains the surface water connection between those two surface waters of the State. The captured stream is generally considered to be a surface water of the State if it continually maintains the connection between the other two (upstream and downstream) surface waters of the State. Captured streams will generally carry water; however, they may be dry during certain times of the year.

Cardinal Direction of Travel: The cardinal direction of travel is based on roadway names (I-70, east/west or I-71, north/south) and not on the exact position of travel. Roads are oriented in a south to north or a west to east direction.

Ditch Outfall: For the purposes of ODOT's MS4 storm water outfall inventory, an outfall located at the end point of an open drainage feature, which is most commonly a ditch, but can also include a trench, trough, channel, or other similar feature.

Fore Slope: The slope of the ground from the road to the ditch described as a ratio (Run: Rise).

Illicit Discharge: Any discharge to a MS4 that is not entirely composed of storm water, except discharges authorized under an NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from fire fighting activities.

Municipal Separate Storm Sewer System (MS4): A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that are: owned or operated by the federal government, state, municipality, township, county, district, or other public body (created by or pursuant to state or federal law) including special district under state law such as a sewer district, flood control district or drainage districts, or similar entity, or a designated and approved management agency under section 208 of the act that discharges into surface waters of the state and designed or used for collecting or conveying solely storm water, which is not a combined sewer, and which is not a part of a publicly owned treatment works.

Normalized Urban Areas: For project funding and management purposes, ODOT uses its functional classification system to designate areas as "urbanized" and has mechanisms to produce and routinely update mapping of these areas. These areas, known in ODOT as "normalized urban areas", define ODOT's MS4 regulated area for the "Appendix 6" metropolitan areas from the MS4 permit and consist of: 1) All urbanized areas as determined by the Census Bureau; 2) Additional areas based on local growth patterns and potential development; and 3) "Smoothing" of urbanized area boundary lines to reduce the amount of roads on the urban fringe where roads contain a mix of small urbanized and non-urbanized segments. Typically, these small, non-urbanized segments were designated as urbanized.

Network Linear Feature Identification (NLFID): A user designated naming system for a particular item. In this case the item would be a roadway. A 14-digit code has been established to represent all roadways in Ohio.

Outfall: For the purposes of ODOT's MS4 storm water outfall inventory, an "outfall" means the point at which any discernible, confined, and discrete conveyance of ODOT's storm sewer system discharges to surface waters of the State. Two types of outfalls will be inventoried: ditch outfalls and pipe outfalls.

Pipe Outfall: For the purposes of ODOT's MS4 storm water outfall inventory, an outfall located at the end point of a closed drainage feature, such as a pipe, culvert, or similar manufactured structure.

Quality Assurance: The process of assuring the quality of one organization's outcomes.

Quality Control: It encompasses procedures and techniques to verify the quality, accuracy, and consistency of digital products.

Spalling: The appearance of a concrete pipe to break up as if by chipping with a hammer.

Storm Water: Storm water runoff, snow melt runoff, and surface runoff and drainage.

Straight-Line Diagram: A two dimensional graphic representation of the physical roadway characteristics of a highway as if it had no turns or curves.

Straight-Line-Mileage: Mileage based on the centerline of the roadway as measured from the western or southern county line or other true beginning. All routes on the Interstate, U. S. and State Route systems are shown on straight-line diagrams.

Surface Waters of the State: All streams, lakes, reservoirs, ponds, marshes, wetlands, or other waterways which are situated wholly or partly within the boundaries of the State, except those private waters which do not combine or affect a junction with a surface water. Waters defined as sewerage systems, treatment works, or disposal systems in Section 6111.01 of the ORC are not included.

Turbidity: Murkiness or cloudiness of water, indicating the presence of some suspended sediments, dissolved solids, etc. .

Watershed: The area of land where all of the water that is under it or drains off of it goes into the same place

## **APPENDIX B**

### **EXAMPLES OF OUTFALLS, NON-OUTFALLS, AND INVENTORY CHALLENGES**

## OUTFALL EXAMPLES

There are two outfall types: Ditch Outfall  
Pipe Outfall

**Ditch Outfall:** An outfall located at the end point of an open drainage feature, which is most commonly a ditch, but can also include a trench, trough, channel, or other similar feature.



Ditch Outfall



Pipe Outfall



**Pipe Outfall:** An outfall located at the end point of a closed drainage feature, such as a pipe, culvert, or similar manufactured structure.

## EXAMPLES WHERE *NO OUTFALL EXISTS*

The following are examples of features that do not meet the definition of an outfall, so no outfall exists and no data collection is needed.

For the purposes of this inventory, an “outfall” means the point at which any discernible, confined, and discrete conveyance of ODOT’s storm sewer system discharges to surface waters of the State.

Gentle slope with no roadside ditch or other storm water conveyance. No outfall exists since there is not “a discernible, confined, and discrete conveyance of ODOT’s storm sewer system”.



Any storm water conveyance discharging to these landscape features is not an outfall, since these features are not “surface waters of the State”.



These storm water conveyances discharge to another storm water feature or to the boundary of ODOT right of way. However, they do not discharge to surface waters of the State, so no outfall exists.



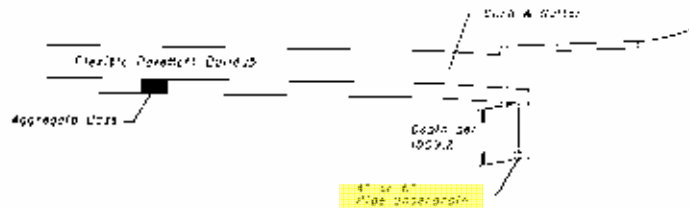
# EXAMPLES WHERE NO OUTFALL EXISTS

## PAVEMENT SUBSURFACE DRAINAGE FEATURES

Subsurface drainage features drain water from below the aggregate base of a roadway, so any discharges shall not be inventoried as storm water outfalls.

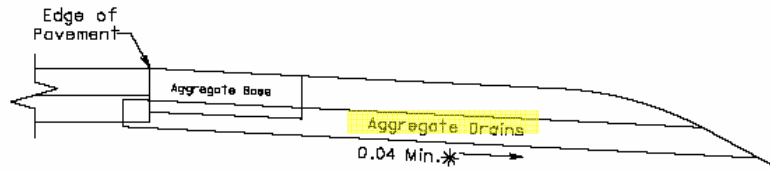
ODOT's Location and Design Manual, Volume 2 – Drainage Design (Section 1009.2) provides three means of draining the pavement subsurface - pipe underdrains, prefabricated edge drains, and aggregate drains. Generally, pipe underdrains are used with paved shoulders and curbed pavements. Prefabricated edge drains are typically used where existing concrete pavement with paved shoulders are to remain. Aggregate drains are used with bituminous surface treated shoulders, aggregate shoulders, and for spot improvements. See the Location and Design Manual, Volume 2 for examples of typical underdrain and edge drain placements. Some examples of subsurface drainage feature designs include:

FIG. 1009.2-1 PAVEMENTS WITH CURB OR CURB AND GUTTER  
SHOULDER WIDTH < 5'

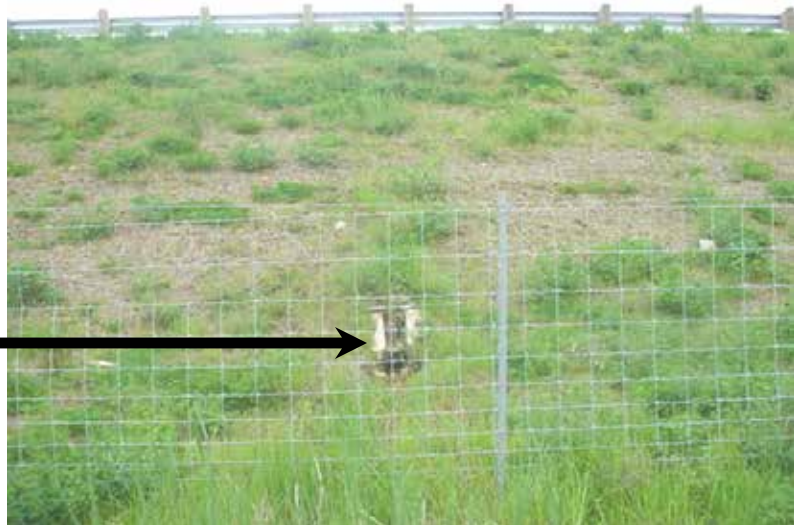


BITUMINOUS SURFACE TREATED  
501 to 1000 B & C Trucks In Design Year ADT

WITH RIGID PAVEMENT



Subsurface drainage outlet  
(not an outfall)



# OUTFALL INVENTORY CHALLENGES

Some outfalls may not be easily located, especially when obscured by vegetation. Construction plan review should help in locating such outfalls.



Recognizing “surface waters of the State” is imperative. These small streams are all surface waters of the State yet they may not appear on water resources mapping.



**APPENDIX C**

**ODOT DISTRICT MAP AND  
CONTACT INFORMATION**

# Ohio Department of Transportation Districts



## District 1

1885 N. McCullough St.  
Lima, OH 45801-0040  
419-222-9055  
fax: 419-222-0438

## District 2

317 East Poe Rd.  
Bowling Green, OH 43402-1330  
419-353-8131  
fax: 419-353-1468

## District 3

906 North Clark St.  
Ashland, OH 44805-1989  
800-276-4188 or 419-281-0513  
fax: 419-281-0874

## District 4

2088 S. Arlington Rd.  
Akron, OH 44306  
800-603-1054 or 330-786-3100  
fax: 330-786-2232

## District 5

9600 Jacksontown Rd., S.E.  
PO Box 306  
Jacksontown, OH 43030  
740-323-4400  
fax: 740-323-3715

## District 6

400 East William St.  
Delaware, OH 43015  
800-372-7714 or 740-363-1251  
fax: 740-369-7437

## District 7

1001 St. Marys Ave.  
SR 29 PO Box 969  
Sidney, OH 45365-0969  
937-492-1141  
fax: 937-497-9734

## District 8

505 South SR 741  
Lebanon, OH 45036-9518  
800-831-2142 or 513-932-3030  
fax: 513-932-7651

## District 9

650 Eastern Ave. PO Box 467  
Chillicothe, OH 45601  
740-773-2691  
fax: 740-775-4889

## District 10

338 Muskingum Dr. PO Box 658  
Marietta, OH 45750  
800-845-0226 or 740-373-0212  
fax: 740-373-7317

## District 11

2201 Reiser Ave.  
New Philadelphia, OH 44663  
330-339-6633  
fax: 330-308-3942

## District 12

5500 Transportation Blvd.  
Garfield Heights, OH 44125-5396  
866-737-8112 or 216-581-2100  
fax: 216-587-1730

## Central Office

1980 W. Broad Street  
Columbus, OH 43223  
614-466-7170  
fax: 614-644-8662

## ODOT Web Site:

<http://www.dot.state.oh.us>

**APPENDIX D**

**ODOT MS4 REGULATED AREA  
MAPPING**

The most recent maps of ODOT's MS4 regulated area can be viewed at:

[http://www.dot.state.oh.us/oes/ms4\\_datasets.htm](http://www.dot.state.oh.us/oes/ms4_datasets.htm)

**APPENDIX E**

**MILEAGE TABLES FOR  
ODOT'S MS4 REGULATED AREA**

**Regulated Facilities and Highway Mileage for District 1, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles	
1	Allen	1	1	1		75	11.25			65	2.42	
										81	5.72	
										115	0.41	
										117	6.73	
										309	7.78	
										501	2.34	
	<b>Allen total</b>	1	1	1	0		11.25		0.00			25.41
	Defiance		1									
	<b>Defiance total</b>	0	1	0	0		0.00		0.00			0.00
	Hancock		1	1			75	3.89				
	<b>Hancock total</b>	0	1	1	0		3.89		0.00			0.00
	Hardin											
	<b>Hardin total</b>	0	0	0	0		0.00		0.00			0.00
	Paulding											
	<b>Paulding total</b>	0	0	0	0		0.00		0.00			0.00
	Putnam											
	<b>Putnam total</b>	0	0	0	0		0.00		0.00			0.00
	Van Wert											
	<b>Van Wert total</b>	0	0	0	0		0.00		0.00			0.00
	Wyandot											
<b>Wyandot total</b>	0	0	0	0		0.00		0.00			0.00	
<b>Total D1</b>		1	3	2	0		15.14		0		25.41	

**Regulated Facilities and Highway Mileage for District 2, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles	
2	<b>Fulton</b>										0.00	
	<b>Fulton total</b>	0	0	0	0		0.00		0.00		0.00	
	<b>Henry</b>											
	<b>Henry total</b>	0	0	0	0		0.00		0.00		0.00	
	<b>Lucas</b>			1			75	11.87	20	13.50	2	8.71
							280	7.92	23	1.22	51	1.36
							475	16.48	24	3.99	64	2.86
											120	1.76
											184	1.18
											295	0.02
	<b>Lucas total</b>	0		1	0	0		36.27		18.73		15.88
	<b>Ottawa</b>										51	2.48
											579	3.02
											795	0.71
	<b>Ottawa total</b>	0		0	0	0		0.00		0.00		6.21
	<b>Sandusky</b>											
	<b>Sandusky total</b>	0		0	0	0		0.00		0.00		0.00
	<b>Seneca</b>											
	<b>Seneca total</b>	0		0	0	0		0.00		0.00		0.00
	<b>Williams</b>											
	<b>Williams total</b>	0		0	0	0		0.00		0.00		0.00
	<b>Wood</b>		1		1		75	9.08	20	1.82	51	3.38
							280	4.35			65	5.84
							475	3.90			199	0.68
											579	0.16
											795	8.22
	<b>Wood total</b>	1		0	1	0		17.33		1.82		18.28
<b>Total D2</b>		1	1	1	0		53.60		20.55		43.32	

**Regulated Facilities and Highway Mileage for District 3, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles
3	Ashland	1	1					42	0.01		
								250	0.01		
	<b>Ashland total</b>	1	1	0	0		0.00		0.02		0.00
	Crawford		1							4	0.00
										19	0.02
										181	0.01
										598	0.01
	<b>Crawford total</b>	0	1	0	0		0.00		0.00		0.05
	Erie		0	1				6	9.29	2	10.22
								250	4.20	4	1.08
										13	0.03
										60	0.84
										101	5.43
										113	0.01
										269	0.55
	<b>Erie total</b>	0	0	1	0		0.00		13.48		18.16
	Huron							224	0.01	61	0.02
								250	0.01	113	0.00
										269	0.04
										598	0.01
	<b>Huron total</b>	0	0	0	0		0.00		0.02		0.06
	Lorain		1	1	1	90	13.88	20	4.85	2	4.82
						480	2.22			10	2.35
										57	7.83
										58	6.67
										82	10.02
										83	6.47
										113	7.64
										252	5.42
										254	2.83
										301	6.32
										511	4.15
	<b>Lorain total</b>	0	1	1	1		16.10		4.85		64.52
	Medina				1	71	4.27	42	1.46	3	0.02
						76	3.68			18	0.02
										57	0.90
										94	1.94
										252	2.88
										261	1.49
										303	3.44
	<b>Medina total</b>	0	0	0	1		7.95		1.46		10.70

**Regulated Facilities and Highway Mileage for District 3, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles
	Richland		1		1	71	8.49	30	9.99	13	2.23
								42	8.50	39	4.20
										61	0.02
										96	0.00
										97	2.46
										98	0.01
										309	4.84
										314	2.22
										430	5.21
										545	0.99
										546	0.55
	<b>Richland total</b>	0	1	0	1		8.49	72	18.49	2548	22.72
	Wayne									21	4.47
										585	2.81
	<b>Wayne total</b>	0	0	0	0		0.00		0.00		7.29
<b>Total D3</b>		1	4	2	3		32.54		38.24		123.38

**Regulated Facilities and Highway Mileage for District 4, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles
4	Ashtabula		1								
	<b>Ashtabula total</b>	0	1	0	0		0.00		0.00		0.00
	<b>Mahoning</b>		1	1		80	3.30	62	3.27	7	1.03
						680	14.94	224	8.21	11	5.30
										45	0.01
										46	3.27
										164	1.58
										170	3.73
										289	0.31
										446	0.38
										616	0.79
										625	0.02
										626	1.26
										630	0.53
	<b>Mahoning total</b>	0	1	1	0		18.25		11.49		18.22
	<b>Portage</b>	1		3		76	6.08	224	3.85	5	8.64
						480	2.17			14	4.30
										43	4.35
										44	0.36
										59	4.52
										88	0.43
										261	2.93
	<b>Portage total</b>	1	0	3	0		8.25		3.85		25.55
	<b>Stark</b>		1	1		77	15.43	30	11.90	21	2.60
								62	7.25	43	9.38
										44	5.26
										93	2.54
										153	2.39
										172	3.53
										236	7.33
										241	8.17
										297	1.40
										619	3.52
										627	4.77
										687	5.55
										800	4.43
	<b>Stark total</b>	0	1	1	0		15.43		19.15		60.86

**Regulated Facilities and Highway Mileage for District 4, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles
	<b>Summit</b>		1		1	76	18.01	224	3.74	8	2.44
						77	30.68			18	2.46
						271	7.32			21	4.31
						277	4.19			82	3.78
						480	8.64			91	1.30
										93	7.62
										162	5.72
										176	0.40
										236	0.34
										241	2.17
										261	0.02
										303	0.22
										532	0.87
										585	0.04
										619	1.46
	<b>Summit total</b>	0	1	0	1		68.84		3.74		33.17
	<b>Trumbull</b>		1	2		80	10.29	62	5.05	5	18.19
								422	1.88	7	2.92
										11	3.91
										45	2.87
										46	4.50
										82	4.31
										169	0.99
										193	3.26
										304	4.55
										305	1.96
										534	0.44
										616	0.17
										711	0.58
	<b>Trumbull total</b>	0	1	2	0		10.29		6.93		48.66
<b>4 Total</b>		<b>1</b>	<b>5</b>	<b>7</b>	<b>1</b>		<b>121.05</b>		<b>45.15</b>		<b>186.46</b>

**Regulated Facilities and Highway Mileage for District 5, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles
5	<b>Coshocton</b>										
	<b>Coshocton total</b>	0	0	0	0		0.00				0.00
	<b>Fairfield</b>		1			70	2.37	33	1.20	37	< 0.01
										188	< 0.01
										204	5.34
										256	1.19
										360	1.73
	<b>Fairfield total</b>	0	1	0	0		2.37		1.20		8.27
	<b>Guernsey</b>		1			70	0.02				
	<b>Guernsey total</b>	0	1	0	0		0.02		0.00		0.00
	<b>Knox</b>								36	0.01	
	<b>Knox total</b>	0	0	0	0		0.00		0.01		0.00
	<b>Licking</b>		1	2		70	5.95	40	7.19	13	3.59
										16	8.38
										37	0.20
										79	9.57
										157	2.53
										310	1.63
										360	0.21
										657	1.95
										661	1.65
	<b>Licking total</b>	0	1	2	0		5.95		7.19		29.69
	<b>Muskingum</b>						70	2.20			
	<b>Muskingum total</b>	0	0	0	0		2.20		0.00		0.00
	<b>Perry</b>										
	<b>Perry total</b>	0	0	0	0		0.00		0.00		0.00
	<b>Total D5</b>		0	3	2	0		10.54		8.39	

**Regulated Facilities and Highway Mileage for District 6, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles	
6	Delaware	1	1			71	4.34	23	4.46	3	2.37	
										257	4.34	
										315	4.11	
										745	2.16	
										750	6.72	
	<b>Delaware total</b>	1	1	0	0		4.34		4.46			19.70
	Franklin	1	1	3		70	24.98	23	3.07	3	2.02	
						71	24.05	33	5.59	16	0.40	
						270	54.99	40	7.30	104	5.76	
						670	10.58	62	11.45	161	5.38	
										256	0.40	
										257	0.04	
										315	2.39	
										317	7.66	
										605	3.16	
										665	4.94	
										674	3.30	
										710	0.64	
	<b>Franklin total</b>	1	1	3	0		114.59		27.40			36.09
	Fayette											
	<b>Fayette total</b>	0	0	0	0		0.00		0.00			0.00
	Madison						70	0.01	40	0.14		
	<b>Madison total</b>	0	0	0	0		0.01		0.14			0.00
	Marion			1								
	<b>Marion total</b>	0	1	0	0		0.00		0.00			0.00
	Morrow											
	<b>Morrow total</b>	0	0	0	0		0.00		0.00			0.00
Pickaway			1					23	0.81	104	< 0.01	
										316	2.76	
										752	2.31	
<b>Pickaway total</b>	0	0	0	0		0.00		0.81			5.07	
Union			1									
<b>Union total</b>	0	1	0	0		0.00		0.00			0.00	
<b>Total D6</b>		2	5	3	0		118.94		32.80		60.87	

**Regulated Facilities and Highway Mileage for District 7, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles
7	Auglaize					75	0.68		0.00		0.00
	<b>Auglaize total</b>	0	0	0	0		0.68		0.00		0.00
	Clark		1			70	11.37	40	7.33	4	2.65
								68	5.52	41	6.69
										72	3.19
										235	2.58
										334	1.50
										369	0.01
	<b>Clark total</b>	0	1	0	0		11.37		12.85		16.62
	Champaign		1				0.00		0.00		0.00
	<b>Champaign total</b>	0	1	0	0		0.00		0.00		0.00
	Darke		1								
	<b>Darke total</b>	0	1	0	0		0.00		0.00		0.00
	Logan	0	1	1	0						
	<b>Logan total</b>	0	1	1	0		0.00		0.00		0.00
	Mercer										
	<b>Mercer total</b>	0	0	0	0		0.00		0.00		0.00
	Miami		1			75	13.14	40	2.00	41	0.35
										48	4.25
										55	0.86
										202	0.90
										571	4.10
										718	2.01
	<b>Miami total</b>	0	1	0	0		13.14		2.00		12.46
	Montgomery		1		0	70	21.46	35	3.38	4	5.13
						75	24.38	40	2.24	48	6.26
						675	7.48			49	2.17
										235	0.04
										725	7.94
										741	4.77
	<b>Montgomery Total</b>	0	1	0	0		53.31		5.62		26.32
	Shelby	1	1			75	2.98				
	<b>Shelby Total</b>	1	1	0	0		2.98		0.00		0.00
<b>Total D7</b>		1	7	3	0		81.49		20.46		56.33

**Regulated Facilities and Highway Mileage for District 8, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles
8	Butler		1	1	2	75	11.24	27	2.04	4	13.56
								42	3.32	63	0.70
								127	5.65	73	1.76
										122	0.10
										126	1.07
										128	0.68
										129	11.99
										503	0.34
										747	8.71
	<b>Butler total</b>	0	1	1	2		11.24		11.01		38.92
	Clermont			1		275	13.88	50	4.53	28	7.12
								52	0.14	32	12.33
										48	4.91
										125	11.01
										126	2.14
										131	5.10
										132	15.52
										222	3.16
										276	0.82
										749	3.14
	<b>Clermont total</b>	0	0	1	0		13.88		4.68		65.25
	Clinton		1								
	<b>Clinton total</b>	0	1	0	0		0.00		0.00		0.00
	Greene		1	1		675	17.66	35	6.86	4	3.02
								42	1.68	235	2.09
								68	0.71	380	0.36
										444	4.80
										725	0.50
										844	0.25
	<b>Greene total</b>	0	1	1			17.66		9.25		11.02
	Hamilton		1	2		71	19.89	22	6.35	4	2.73
						74	19.49	27	6.77	32	6.16
						75	17.21	42	2.15	125	3.76
						275	33.14	50	11.00	126	9.15
						471	0.74	52	4.88	128	0.74
								127	4.79	264	6.98
										747	0.95
	<b>Hamilton total</b>	0	1	2			90.47		35.94		30.47

**Regulated Facilities and Highway Mileage for District 8, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles
	Warren	1	1	1		71	5.86	22	7.12	48	14.00
						75	12.19	42	3.95	63	2.32
										73	4.44
										122	2.24
										123	2.80
										741	2.87
	<b>Warren total</b>	1	1	1	0		18.05		11.07		28.68
<b>Total D8</b>		1	5	6	2		151.30		71.95		174.34

**Regulated Facilities and Highway Mileage for District 9, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles
<b>9</b>	<b>Adams</b>										
	<b>Adams total</b>	0	0	0	0		0.00		0.00		0.00
	<b>Brown</b>										
	<b>Brown total</b>	0	0	0	0		0.00		0.00		0.00
	<b>Highland</b>										
	<b>Highland total</b>	0	0	0	0		0.00		0.00		0.00
	<b>Jackson</b>										
	<b>Jackson total</b>	0	0	0	0		0.00		0.00		0.00
	<b>Lawrence</b>		1	1				52	19.13	7	19.04
										93	0.92
										141	0.17
										243	6.47
										527	0.57
										607	0.59
										650	0.29
										775	2.29
	<b>Lawrence total</b>	0	1	1	0		0.00		19.13		30.33
	<b>Pike</b>										
	<b>Pike total</b>	0	0	0	0		0.00		0.00		0.00
	<b>Ross</b>										
	<b>Ross total</b>	0	0	0	0		0.00		0.00		0.00
	<b>Scioto</b>										
	<b>Scioto total</b>	0	0	0	0		0.00		0.00		0.00
<b>Total D9</b>		0	1	1	0		0.00		19.13		30.33

**Regulated Facilities and Highway Mileage for District 10, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles
10	Athens										
	<b>Athens total</b>	0	0	0	0		0.00		0.00		0.00
	Gallia										
	<b>Gallia total</b>	0	0	0	0		0.00		0.00		0.00
	Hocking										
	<b>Hocking total</b>	0	0	0	0		0.00		0.00		0.00
	Meigs										
	<b>Meigs total</b>	0	0	0	0		0.00		0.00		0.00
	Monroe										
	<b>Monroe total</b>	0	0	0	0		0.00		0.00		0.00
	Morgan										
	<b>Morgan total</b>	0	0	0	0		0.00		0.00		0.00
	Noble										
	<b>Noble total</b>	0	0	0	0		0.00		0.00		0.00
	Vinton										
	<b>Vinton total</b>	0	0	0	0		0.00		0.00		0.00
	Washington	1	1		1	77	3.35	50	1.56	7	4.37
										60	0.75
										550	2.63
										618	1.17
									676	0.69	
									821	0.02	
	<b>Washington total</b>	1	1	0	1		3.35		1.56		9.64
<b>Total D10</b>		1	1	0	1		3.35		1.56		9.64

**Regulated Facilities and Highway Mileage for District 11, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles	
11	<b>Belmont</b>			1		70	9.93	40	7.38	7	8.22	
						470	0.46	250	2.62	9	0.88	
										147	1.23	
										149	1.72	
										647	0.96	
	<b>Belmont total</b>	0	0	1	0		10.39		10.00		13.01	
	<b>Carroll</b>											
	<b>Carroll total</b>	0	0	0	0		0.00		0.00		0.00	
	<b>Columbiana</b>											
	<b>Columbiana total</b>	0	0	0	0		0.00		0.00		0.00	
	<b>Harrison</b>											
	<b>Harrison total</b>	0	0	0	0		0.00		0.00		0.00	
	<b>Holmes</b>											
	<b>Holmes total</b>	0	0	0	0		0.00		0.00		0.00	
	<b>Jefferson</b>			1	2				22	11.64	7	13.83
											43	1.74
											150	0.55
											151	0.72
											152	2.38
											213	2.02
										646	1.18	
										822	0.31	
<b>Jefferson total</b>	0	1	2	0		0.00		11.64			22.72	
<b>Tuscarawas</b>	0	0	0	1	77	0.62		0.00			0.00	
<b>Tuscarawas total</b>	0	0	0	1		0.62		0.00			0.00	
<b>Total D11</b>		0	1	3	1		11.01		21.65		35.74	

**Regulated Facilities and Highway Mileage for District 12, by County and Route Number.**

District	County	District office	Garage	Outpost	Rest Area	IR Route	IR Miles	US Route	US Miles	SR Route	SR Miles
12	Ashtabula										
	<b>Ashtabula total</b>	0	0	0	0		0.00		0		0.00
	Cuyahoga	1	1	4		71	19.16	6	0.14	3	0.00
						77	16.04	322	2.59	8	3.11
						90	30.22	422	1.02	14	0.37
						271	16.66			17	2.42
						480	29.07			21	0.55
						490	2.55			43	0.35
										82	0.00
										87	3.75
										91	5.07
										94	0.03
										174	3.82
										175	0.71
										176	0.00
										252	0.66
										283	0.40
	<b>Cuyahoga total</b>	1	1	4	0		113.70		3.75		21.26
	Geauga							6	6.08	43	0.90
								322	6.10	44	7.84
								422	6.15	87	6.18
										306	15.48
	<b>Geauga total</b>	0	0	0	0		0.00		18.33		30.40
	Lake		1		2	90	21.65	20	15.12	2	3.89
						271	1.74			44	7.00
										84	13.73
										86	3.57
										91	0.01
										174	0.02
										283	3.20
										307	0.85
										528	3.29
										535	4.78
										608	0.91
										615	1.04
	<b>Lake total</b>	0	1	0	2		23.40		15.12		42.29
<b>Total D3</b>		1	2	4	2		137.10		37.20		93.95

**APPENDIX F**

**EXAMPLE PERMIT TO WORK  
WITHIN ODOT RIGHT OF WAY**

RECEIVED  
 JUN 23 2004  
 DISTRICT OFFICE

MR. 509  
 Permit No.  
 06-0400-04

Office Use Only
County or
Jurisdiction FRA
Rte 670 Log Pt 0000
Acc Cat

**State of Ohio  
 Department of Transportation  
 Permit**

[1] Subject to all terms, conditions, and restrictions printed, written below and on the reverse side hereof, or attached.

Name: **DLZ Ohio Inc.** Address: **6121 Huntley Road, Columbus, OH 43229** Is hereby granted a permit under Section 5515.01 and 5515.02 of Ohio Revised Code, and permission to perform work necessary in the manner described and at the location indicated attached to this permit.

**Traffic Control (see attached sheet)**

**Location: FRA County R 670, I-670 from I-70 to I-71 north and south side of Road.**

[2] This permit shall be in the possession of employees on site at all times who are in charge of the work and shall be shown, upon request, to any employee of the Department of Transportation.

Contact County Manager 10 days before work begins, also contact County Manager when work is completed for final inspection.

[3] No work authorized by this permit shall begin until the permittee has contacted and received instructions from

**County Manager John Dersoon Phone 614.387.2524**

(Authorized ODOT Employee)

NOTE: Any work performed by the permittee may be stopped if this requirement is not met.

[4] Prior to any excavation in the highway right-of-way, the Ohio Utilities Protection Service (OUPS) must be contacted in accordance with ORC Section 3781.25 to 3781.32. OUPS can be reached at 1-800-362-2764.

[5] All work requiring men or vehicles within ODOT right of way shall comply with all applicable requirements of the Ohio Manual of Traffic Control Devices and Item 614 (Maintaining Traffic) of the Construction and Material Specifications, latest editions. Failure to comply with these requirements will be cause for immediate revocation or suspension of the permit until the proper traffic control devices have been provided.

[6] The permittee accepts the conditions, terms, and requirements printed, written on, or attached to this permit and understands that failure to comply fully with those conditions, terms, and requirements or any change in the use of the permit inconsistent with its terms and conditions will be considered a violation and cause for suspension, revocation, or annulment of the permit thereby rendering the permit illegal and subject to appropriate Department action, up to and including removal of the installation at the permittee's expense.

[7] Performance Bond Required? Yes  No  Company:  
 Effective Date Expiration Date Amount \$

[8] This permit shall be void if the work described herein does not comply with the conditions, terms, and requirements applicable to this permit, and if the work is not completed by 12/21/2004

Dated this 21 day of June 2004

District Deputy Director

*Jack R. Marchbanks*

Rev 3/20/00

(See Other Side)

General Provisions Applicable to All Permits  
(Sections 5515.01 and 5515.02 of O.R.C.)

- [1] This permit is not a substitute for satisfying the rights of any other party who may have an interest in the underlying fee.
- [2] The granting of this permit does not convey to the permittee or to the property served any rights, title, or interest in state highway rights-of-way or in the design or operation of the state highway; or in any way abridge the right of the Director of Transportation in his jurisdiction over state highways. If, in the future, it is necessary for improved safety and operation of the state highway or for the benefit of the traveling public, the Director of Transportation may reconstruct, relocate, modify, repair, or remove any permitted connection or any features or fixtures thereof; or redesign the state highway including installing any auxiliary lanes and/or modifying any allowable turning movements. Such changes in the state highway design or operation, necessary for improved safety and operation or for the benefit of the traveling public, shall not require a permit modification since the permit confers no private rights to the permittee over the control of the state highway.
- [3] The District Deputy Director acts for and on behalf of the Director in issuing and carrying out the provisions of all permits. The District Deputy Director has full authority to ensure that all provisions of the permit are met and to reject any materials, design, and workmanship that do not meet applicable Department standards. The District Deputy Director, at his/her discretion, may require a performance bond or certified check as a prerequisite to the issuance of a permit.
- [4] Failure on the part of the permittee to comply fully with the provisions and conditions of the permit will be cause for suspension, revocation, or annulment of the permit thereby rendering the permit illegal and subject to appropriate Departmental action. By accepting the permit, the permittee agrees to comply with all conditions, terms, and restrictions printed or written on or attached to the permit. If the permittee performs any work contrary to the conditions of the permit or to the instructions of the District Deputy Director and, after due notice, fails to correct the problem, the Department of Transportation may, with or without notice, correct such work and the permittee shall reimburse the Department for the costs.
- [5] The permittee shall hold harmless the Department of Transportation, the State of Ohio, and all of its representatives from all suits, actions, or claims of any character, brought on account of any injuries or damages sustained by any person or property in consequences of any neglect or on account of any act or omission as a result of the issuance of the permit.
- [6] All work authorized under the permit shall be performed to the Department's satisfaction, and the entire expense shall be borne by the permittee. No work shall be performed until the permittee has contacted the Department's appointed representative named on the permit and received instructions. The Department's representative may inspect all work covered by the permit, or the Department reserves the right, during the time any or all of the work is being performed, to appoint an inspector over the work who shall represent the interest of the State on the work and any compensation arranged for shall be paid wholly by the permit holder. Work not in compliance shall be halted and the District Deputy Director shall be notified of the cause. The permittee shall be notified of the Department's action and its causes, and given an opportunity to correct the problem.
- [7] Failure to complete all work within the time specified on the permit shall void the permit, thereby making the permit illegal and subject to appropriate Departmental action. The permittee may request an extension in writing from the District Office, explaining why the extension is necessary and when the work is expected to be completed.
- [8] All work infringing on the pavement or shoulders shall comply with applicable standards and requirements regarding traffic control devices. Failure to comply will be cause for revocation or suspension of the permit. Any closure of lanes or shoulders shall be described in terms of location, duration, time of day, etc. Such work shall not begin until all traffic control devices are in place.
- [9] If any grading, sidewalk, or other work allowed by a permit interferes with the drainage of the highway in any way, such catch basins and outlets as necessary shall be constructed to take proper care of said drainage.
- [10] Upon completion of the work, the permittee shall leave the highway clean of all rubbish, excess materials, temporary structures and equipment, and all parts of the highway shall be left in a condition acceptable to the Department. Upon satisfactory completion of the work authorized by the permit, the Department's appointed representative shall complete the Permit Inspection Certificate, Form No. MR 678 certifying that the permittee has complied with the terms of the permit.
- [11] Except as herein authorized, no excavation shall be made or obstacle placed within the limits of the highways so as to interfere with the travel over the road.
- [12] All pole lines are to be built in accordance with Rule 4901:3-1-08 of Ohio Administrative Code promulgated and enforced by the Public Utilities Commission of Ohio.
- [13] The permittee shall comply with the Air Pollution requirements of Rule 3745-17-08 of the Ohio Administrative Code promulgated and enforced by the Ohio Environmental Protection Agency.

**Attached Sheet  
06-0400-04**

Traffic Control as per plans and specifications attached. All disturbed terrain shall be restored to original or better condition. Any disturbed areas shall be seeded per Manual of Construction and Materials Specifications Current Edition ( Item 655) and excess material removed from site. Any damage to underground drainage or other installations shall be repaired by applicant. No trenching within 10 feet from outer edge of pavement. All work requiring men or vehicles on the pavement or shoulders shall comply with all requirements of the Ohio Manual of Uniform Traffic Control Devices. Applicant shall also comply with all applicable provisions on the reverse side of this permit. This is not a substitute for satisfying the rights of any other party that may have an interest in the underlying fee.

**Location:** Franklin County  $\int$  670, I-670 from I-70 to I-71 north and south side of Road.

The permittee shall take any and all appropriate measures to limit soil erosion during and after construction authorized herein. As such he shall be fully accountable to the Ohio EPA, the Soil Conservation Service, and other appropriate agencies for any violation or disregard of the applicable governing standards and regulations related to the protection and conservation of soils that are affected by this permitted work.

**1. No Work Shall Be Performed 6:00 A.M. thru 9:00 A.M. or 3:00 P.M. thru 7:00 P.M. between SR315 & I-71**

**Contact County Manager for final inspection when work is completed.**

MR 505  
App No 395

State of Ohio  
Department of Transportation  
Permit Application  
**PERMIT #**  
See Reverse side for additional requirements

06-0400-04

Office Use Only	
County/ Jurisdiction	<u>FRA</u>
Rte	<u>670</u> LogPt <u>0000</u>
AccCat	

[1] This form must be completed by the property owner or agents working for a utility company (if applicable). Application by contractor is unacceptable.

Name DLZ OHIO INC  
Address 6121 HUNTLEY ROAD City COLUMBUS State OH  
Zip 43229 Phone (614) 888-0040 Other (Fax) E-mail (614) 888-6415

[2] Type of Permit requested:  Commercial (See other side)  Residential  Field  Utility  Drainage  
 Beautification (See other side)  Spraying, trimming, tree removal  Other

[3] Briefly describe work to be performed. (Attach plans and see Instructions.)  
"TEXT" TRAFFIC CONTROL  
SURVEY OF ALL OUTFALLS ALONG I670 FROM ITS INTERSECTION WITH I-70 TO ITS INTERSECTION WITH I-71.

Traffic Plan

CREWS WILL FOLLOW SECTION 66.05 USING SURVEY CREW AHEAD SIGNS (SEC 6F.35)  
SEC 66.05 = "WORK OUTSIDE OF SHOULDER"

[4] Location where work is to be performed. Give sufficient detail to locate the site accurately, such as the distance in miles or feet from a mile post or from some geographical feature such as an intersecting highway.

In FRANKLIN County (along, across) State Route I-670 0 miles or 0 feet  
North East West South of I-70 TOWARD I-71 on the North X East West South side of the road.  
Work to commence on JUNE 23 and will require 30 days to complete  
0000

[5] Does the property owner own or have any interests in any adjacent property?  Yes  No  
If yes, please describe.

[6] Prior to any excavation in the highway right-of-way, the Ohio Utilities Protection Service (OUPS) must be contacted in accordance with ORC Section 3781.25 to 3781.32. OUPS can be reached at 1-800-362-2764.

[7] Open cutting of pavement shall not be permitted unless no reasonable alternate method is available. Written approval of the Ohio Department of Transportation District Office must be obtained.

[8] All work requiring men or vehicles within ODOT right of way shall comply with all applicable requirements of the Ohio Manual of Traffic Control Devices and Item 614 (Maintaining Traffic) of the Construction and Material Specifications, latest editions. Failure to comply with these requirements will be cause for immediate revocation or suspension of the permit until the proper traffic control devices have been provided.

[9] I have received a copy of the policies and regulations pertaining to the permit for which I have applied. If a permit is subsequently issued to me by the Ohio Department of Transportation, I understand that the permit will state the terms and conditions for its use, and I agree to comply with all conditions and regulations stipulated on or attached to the permit. I also understand and agree that failure to comply fully with all conditions and regulations of the permit or any change in the use of the permit inconsistent with its terms and conditions will be considered a violation and cause for suspension, revocation, or annulment of the permit thereby rendering the permit illegal and subject to appropriate Department action, up to and including removal of the installation at the permittee's expense.

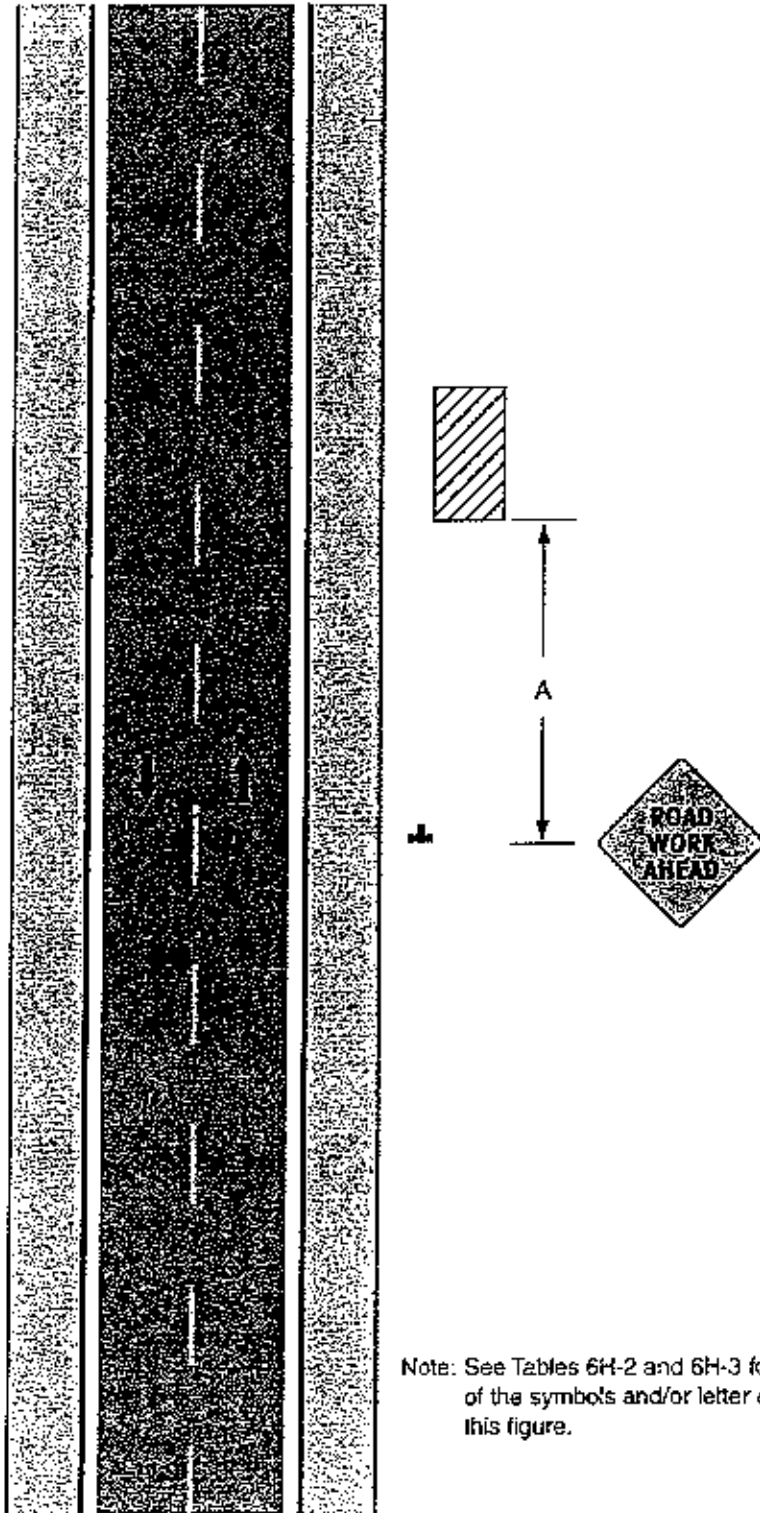
SIGN & PRINT HERE

→ [Signature]  
Signature of Property Owner or Agent for Owner  
Date JUNE 21, 2004  
Day time Phone 614 888-0040

Office use only	
Date Received	<b>RECEIVED</b>
By	
Date Accepted	<u>JUN 18 2004</u>
By	
<b>PERMITS</b>	

6.21.04

**Figure 6H-1. Work Beyond the Shoulder (TA-1)**



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

**Typical Application 1**

**APPENDIX G**

**OUTFALL DATA SUMMARY TABLE**

**OUTFALL DATA SUMMARY TABLE**

Location	Outfall Type	Data Type	Data to be Collected	Format	Data Upload Field Name(s)	QA/QC
Office	All	Location Information	ODOT District number	Integer: 1-12	DISTRICT_NBR	
			ODOT facility address (for outfalls at facilities only)	Example: CLA Outpost, 123 Street, Anywhere, OH 44020. Free Form Text String	ODOT_FAC_ADDRESS1_TXT ODOT_FAC_ADDRESS2_TXT	
			County abbreviation	3-character county abbreviation from Table 1	COUNTY_ABREV3_CD	
			Township or City Name	Free Form Text String	TOWNSHIP_NME	
			11-digit Hydrologic Unit Code (HUC)	11-digit number: 05060001080, etc.	WATERSHED_NBR	
			Name of receiving stream	Free Form Text String. Characters = <100.	RECEIVING_STREAM_NME	
Field	All	Location Information	Network Linear Feature Identification (NLFID). See Section 2.7 for description.	14-character string	NLF_ID	
			Latitude WGS1984	WGS1984. Decimal degrees. XX.XXXXXX	LATITUDE_NBR	
			Longitude WGS1984	WGS1984. Decimal degrees. -XX.XXXXXX	LONGITUDE_NBR	
			Ohio State Plane North	NAD 1983 Ohio South Zone State Plane Coordinates, US Survey Feet	NORTHING_NBR	
			Ohio State Plane East	NAD 1983 Ohio South Zone State Plane Coordinates, US Survey Feet	EASTING_NBR	
		Unique outfall identifier. See Section 3.3 for description.	FRA00123L, FRACGFB, etc. Characters = 9 or less.	OUTFALL_FIELD_ID_NBR		
		Outfall type: ditch or pipe. See Section 1.4 for description.	D: Ditch outfall, P: Pipe outfall. Characters = 1.	OUTFALL_TYPE_CD		
		Presence of rock channel protection	Y: Yes, N: No. Characters = 1	ROCK_CHANNEL_PROTECTION_CD		
		Miscellaneous outfall comments	Free Form Text String	OUTFALL_COMMENTS_TXT		
		Date of outfall survey	MM/DD/YEAR	OUTFALL_SURVEY_DT		
	Outfall Attributes	All	Indicates if litter is present at site	Y: YES, N: NO. Characters = 1	LITTER_PRESENT_IND	
			Site sketch. See Section 3.3 for content.	JPEG (*.JPG) image files only.	N/A – separate upload	
			Digital photograph(s) of outfall. See Section 3.3 for details.	JPEG (*.JPG) image files only. Use format in Section 3.3.	N/A – separate upload	
			Back slope as a ratio (00:00)	Numbers in form: 00:00. Characters = 5.	BACKSLOPE_RATIO_NBR	
			Fore slope as a ratio (00:00)	Numbers in form: 00:00. Characters = 5.	FORESLOPE_RATIO_NBR	
			Bottom width of ditch (inches)	Integer	BOTTOM_WIDTH_NBR	
			Type of pipe shape	1: Circular, 2: Rectangular, 3: Elliptical, 4: Egg, 5: Other. Characters = 1	PIPE_SHAPE_CD	
			Pipe Height (inches)	Integer	PIPE_HEIGHT_NBR	
			Pipe Width (inches)	Integer	PIPE_WIDTH_NBR	
			Type of pipe material	1: RCP, 2: VCP, 3: CMP, 4: PVC, 5: CPP, 6: Other. Characters = 1	PIPE_MATERIAL_CD	

Location	Outfall Type	Data Type	Data to be Collected	Format	Data Upload Field Name(s)	QA/QC
Field	All	Dry Weather Visual Field Screening	Odor present at outfall	NONE: None, MUST: Musty, SEWA: Sewage, SOLV: Solvent, SULF: Sulfur, OIL: Oil, GASO: Gasoline, OTHR: Other. Characters = 4 or less	ODOR_CD	
			Color of water at outfall	NONE: None, YELO: Yellow, GREE: Green, BROW: Brown, GRAY: Gray, OTHR: Other. Characters = 4 or less	COLOR_CD	
			Turbidity of water at outfall	CLEA: Clear, CLOU: Cloudy, OPAQ: Opaque. Characters = 4 or less	TURBIDITY_CD	
			Floatables present at outfall	NONE: None, OIL: Oil Sheen, SEWA: Sewage, FOAM: Foam/Bubbles, ALGE: Algae. Characters = 4 or less	FLOATABLES_CD	
			Date of last known precipitation of >0.10 in.	MM/DD/YEAR	LAST_RAIN_FALL_DT	
			Status of potential illicit discharge: low/medium/high priority or no flow condition. See Section 3.3 for description.	NONE: No flow, LOW: Low priority, MED: Medium priority, HIGH: High priority. Characters = 4 or less	ILLICIT_DISCHARGE_CD	
			Source of potential illicit discharge	NONE: None, HSTS: Home Sewage Treatment System, INDU: Industrial, COMM: Commercial, OTHR: Other. Characters = 4 or less	ILLICIT_SOURCE_CD	
			Additional comments about the potential illicit discharge source	Free Form Text String. Characters = <100.	ILLICIT_SOURCE_OTHER_TXT	

## **APPENDIX H**

### **EXAMPLE DATA FORM, SKETCH, AND PHOTOS**



**OHIO DEPARTMENT OF TRANSPORTATION  
MS4 STORM WATER OUTFALL INVENTORY**



**OFFICE DATA**

**Staff:** Benes

**Name of Receiving Stream:** Brady Creek

**11-Digit HUC:** 5060001220

**County:** FRA

**Municipality:** Prairie Township

**NLFID:** SFRA00040\*\*C

**Facility Address:** N/A

**FIELD DATA**

**Staff:** Newman, Kramer

**Date of Field Survey:** 9/4/2004

**Rock Channel Protection?**  Yes  No

**Outfall Identifier:** FRA00123L

**Litter Present?**  Yes  No

**OH St Plane Northing:** 744000.00

**Latitude:** 39.950729 N

**OH St Plane Easting:** 1815000.00

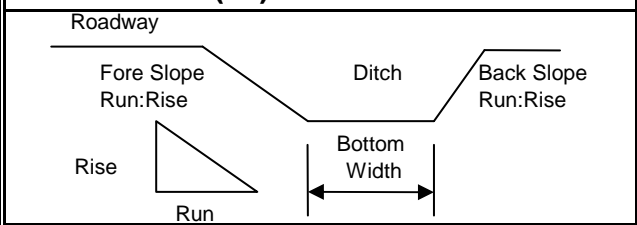
**Longitude (-):** 83.170876 W

**Ditch Outfalls Only**

**Back Slope (00:00):**

**Fore Slope (00:00):**

**Bottom Width (in.):**



**Pipe Outfalls Only**

**Pipe Shape:**  Circular - Rectangular -  
(choose one) Elliptical - Egg - Other

**Pipe Height (in.):** 30

**Pipe Width (in.):** 30

**Pipe Material:**  RCP - VCP - CMP - PVC -  
(choose one) CPP - Other

**Comments. (Provide explanation why "Other" was selected.)**

Photos #8 and #9. Cobble, gravel, and sand present inside pipe (stream substrate).

**DRY WEATHER VISUAL FIELD SCREENING**

**Staff:** Newman, Kramer

**Date of Dry Weather Visual Field Screening:** 9/4/2004

*Make only one choice for each:*

**Odor Present at Outfall:** None - Musty - Sewage - Solvent - Sulfur - Oil - Gasoline - Other

**Floatables Present at Outfall:** None - Oil Sheen - Sewage - Foam/Bubbles - Algae

**Color of Water at Outfall:** None - Yellow - Green - Brown - Gray - Other

**Turbidity of Water at Outfall:** Clear - Cloudy - Opaque

**Status of Potential Illicit Discharge:** No flow - Low priority - Medium priority - High priority

**Source of Potential Illicit Discharge:** None - HSTS - Industrial - Commercial - Other

**Comments regarding dry weather visual field screening and potential illicit discharges. Provide explanation why "Other" was selected.**

Source of potential illicit discharge may be Bob's Car Repair located adjacent to stream along US 40. Very little flow (< 1 gallon every 6 seconds) at outfall.

Bob's  
Car  
Repair

FRA00123L1

30" RCP

← FLOW

FRA00124L2

Ditch

US 40 Westbound

FRA00125M1

12" CPP

FRA00126M2

10" CPP

US 40 Eastbound

30" RCP

BRADY CREEK

FRA00128R2

Ditch

FRA00127R1

### MS4 STORMWATER OUTFALL INVENTORY

LOCATION DESCRIPTION: FRA US 40  
Brady Creek Crossing

DATE: 9/4/04  
CHKD. BY: CK



FRA-US 40  
Brady Creek Crossing  
9/4/04  
FRA00123L



Photo #8



Photo #9

**APPENDIX I**  
**FACILITIES OVERVIEW**

## **ODOT MS4 STORM WATER OUTFALL INVENTORY**

### **FACILITIES OVERVIEW**

1. Review ODOT MS4 area base maps to determine which facilities are subject to the inventory.
2. Review ecological mapping to determine if surface waters of the State may be present on the property and identify potential outfall locations.
3. Contact all regulated facilities to...
  - Inquire about the potential existence of surface waters of the State if none were identified during ecological mapping review.
    - If it is highly unlikely that surface waters of the State exist on the property, based on ecological mapping review and discussions with the facility staff, then the facility does not need to be field reviewed.
  - Obtain permission to access the facility.
  - Schedule data collection.
  - Suggest that a meeting be scheduled with facility staff to discuss the nature of the work to be performed and to gather drainage information, including a plan review if necessary.
4. Data collection, documentation, and submission is the same as that for roadways, with the exception of including the facility address and the unique outfall identifier, which is different than roadway outfalls.

## **APPENDIX J**

### **DATABASE SUPPORT DOCUMENTATION**

## EXAMPLE IMPORT (CSV) FILE

```
LATITUDE_NBR, LONGITUDE_NBR, NORTHING_NBR, EASTING_NBR, HEIGHT_ABOVE_ELLIPSO
ID_NBR, MEAN_SEA_LEVEL_ELEV_NBR, SITE_BTRS_LINK_NBR, NLF_ID, LOGPOINT_COUNTY
_NBR, DISTRICT_NBR, ODOT_FAC_ADDRESS1_TXT, ODOT_FAC_ADDRESS2_TXT, COUNTY_ABR
EV3_CD, TOWNSHIP_NME, COUNTY_SECTION_TXT, OUTFALL_SEQ_NBR, OUTFALL_BTRS_LINK
_NBR, WATERSHED_NBR, WATERSHED_TMDL_IND, TMDL_RO_IND, RECEIVING_STREAM_NME, S
AMPLE_COLLECTED_IND, OUTFALL_TYPE_CD, OUTFALL_TYPE_OTHER_TXT, BACKSLOPE_RAT
IO_NBR, FORESLOPE_RATIO_NBR, BOTTOM_WIDTH_NBR, BASE_FLOW_CD, AVG_DEPTH_FLOW_
_NBR, AVG_DEPTH_SEDIMENT_NBR, STRUCTURAL_STATUS_CD, PIPE_SHAPE_CD, PIPE_SHAPE
_OTHER_TXT, PIPE_HEIGHT_NBR, PIPE_WIDTH_NBR, PIPE_MATERIAL_CD, PIPE_MATERIAL
_OTHER_TXT, ROCK_CHANNEL_PROTECTION_CD, OUTFALL_COMMENTS_TXT, OUTFALL_SURVE
Y_DT, INSPECTION_REQUIRED_IND, MAINTENANCE_REQUIRED_IND, LITTER_PRESENT_IND
, ILLICIT_DISCHARGE_CD, ILLICIT_SOURCE_CD, ILLICIT_SOURCE_OTHER_TXT, ODOR_CD
, COLOR_CD, TURBIDITY_CD, FLOATABLES_CD, LAST_RAIN_FALL_DT, SAMPLE_DT, CONTRAC
TOR_TAX_ID
39.8644001, -
84.05189464, 66666666, 77777777, 4321, 899.1409912, 1314035, SCLAIR99999**C, 0.02
, 7, 123 Facility Address, , CLA, BETHEL, 36, R1, 1314035, 5080001190, Y, Y, RAM
CREEK, N, 4, , 1001, 3006, 4, N, 1, 2, NONE, 4, This is one big
pipe. , 90, 9, 4, "Special Material, see description.", D, Sample Outfall
Record 1, 1/16/2004, Y, Y, Y, ACTV, HSTS, Illicit source description
1, NONE, NONE, CLEA, NONE, 12/1/2004, 1/1/2005, 311268980
39.8655061, -
84.04925701, 683190.7588, 1533639.036, 714.4730225, 823.1409912, 1314050, SCLA
IR99999**C, 0.17, 7, , , CLA, BETHEL, 36, L1, 1314050, 5080001190, , , MUD
CREEK, N, D, , 2007, 3007, 8, N, 0, 0, NONE, , , 0, 0, , , , Sample Outfall Record
2, 1/16/2004, N, N, Y, ACTV, COMM, Illicit source description
2, NONE, NONE, CLEA, NONE, 12/2/2004, 1/2/2005, 311268980
39.86543508, -
84.04887225, 683163.043, 1533746.579, 711.0620117, 819.7299805, 1314050, SCLAI
R99999**C, 0.17, 7, 456 Facility
Address, , CLA, BETHEL, 36, L2, 1314050, 5080001190, , , MUD
CREEK, N, D, , 1003, 1007, 1, N, 0, 0, NONE, , , 0, 0, , , , Sample Outfall Record
3, 1/16/2004, N, N, Y, ACTV, INDU, Illicit source description
3, NONE, NONE, CLEA, NONE, 12/3/2004, 1/3/2005, 311268980
39.86518413, -
84.04928826, 683073.645, 1533628.253, 716.5159912, 825.1820068, 1314050, SCLAI
R99999**C, 0.17, 7, , , CLA, BETHEL, 36, M1, 1314050, 5080001190, , , MUD
CREEK, N, D, , 2002, 2002, 1, N, 0, 0, NONE, , , 0, 0, , , , Sample Outfall Record
4, 1/16/2004, N, N, Y, NONE, NONE, , NONE, NONE, CLEA, NONE, 12/4/2004, 1/4/2005, 3112
68980
39.8651749, -
84.04900949, 683068.9405, 1533706.434, 717.2969971, 825.9639893, 1314050, SCLA
IR99999**C, 0.17, 7, , , CLA, BETHEL, 36, M2, 1314050, 5080001190, , , MUD
CREEK, N, P, , 1001, 1001, 0, N, 0, 0, NONE, 1, , 15, 15, 3, , , Sample Outfall Record
5, 1/16/2004, N, N, Y, NONE, NONE, , NONE, NONE, CLEA, NONE, 12/5/2004, 1/5/2005, 3112
68980
```

## TROUBLESHOOTING GUIDE

### **User cannot login to system.**

- Check that the user has been added to the OFS\_SECURITY table.
- Check that the OneLogin PIN ID is correct in both the OFS\_SECURITY table and the OneLogin System.
- Check that cookies are enabled on the browser.
- Check that the full URL name was typed into the location bar.

### **Attempting to save a record generates an error.**

- Check the user privileges in OFS\_SECURITY to ensure write access is granted.
- The user may have typed in illegal values into the submission form.
- Obvious examples would include typing characters into numerical fields.

### **Attempting to add an image fails with an error.**

- Check that the IIS process has write-access to the images directory.
- Check the user privileges in OFS\_SECURITY to ensure write access is granted.

### **Attempting to import a fails with an error.**

- Check that the IIS process has write-access to the import directory.
- Check the user privileges in OFS\_SECURITY to ensure import access is granted.
- The import file must contain the valid fields listed in Section 4.2.1.