

# Storm Water Quality Management Plan

Town of Highland, Indiana  
IDEM Permit No. INR040135

March 2023

## Glossary

BMP	Best Management Practices
CWA	Clean Water Act
EPA	United States Environmental Protection Agency
ESU	Equivalent Service Unit
MCM	Minimum Control Measure
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
SWQMP	Storm Water Quality Management Plan
SWPPP	Storm Water Pollution Prevention Plan
NPDES	National Pollutant Discharge Elimination System

## **Introduction**

This document comprises the Storm Water Quality Management Plan (SWQMP) of Town of Highland MS4 (Town), Permit Identification INR040135. It provides a comprehensive strategy to outline and direct the Town’s storm water quality management priorities and activities. This SWQMP has been developed to address the requirements of the MS4 General Permit (INR040000) and regulations adopted the Indiana Department of Environmental Management (IDEM) and the National Pollutant Discharge Elimination System (NPDES), part of the Clean Water Act (CWA).

Since this SWQMP is considered a living document, the Town will at least annually review and update this plan as deemed appropriate and report any modifications to IDEM.

- (A) Highland Municipal Code (HMC) Chapter 12.25: Storm Water Management.
- (B) HMC Chapter 12.30: Watercourse Regulation For Pollution and Illicit Discharges.
- (C) HMC Chapter 15.50: Erosion Control and Watercourse Protection During Site Development.
- (D) HMC Chapter 15.55: Flood Damage Control.

## **I. Site Description**

### **A. Site Location**

The Town of Highland, Indiana (hereafter called “Town”) has a population of 23,984 people and encompasses 6.8 square miles. The Town is located in Northwest Indiana in north central Lake County, Indiana, and is twenty (20) miles southeast of the City of Chicago. It is bordered by Hammond to the north, Griffith to the east, Munster to the west and Schererville to the south. Highland is positioned 41.55 degrees north of the equator and 87.56 degrees west of the prime meridian. The average winter and summer temperatures in Highland are 20.1 degrees Fahrenheit and 72.9 degrees Fahrenheit, respectively.

The Town operates and maintains a municipal separate storm sewer system that consists of 104 miles of pipe, 10 miles of open ditches, eighteen (18) detention basins, and seven (7) storm water pumping stations. The Town's storm sewer system and sanitary sewer system are separate. The Town's potable water is supplied by the City of Hammond and the Town's wastewater is discharged to the Hammond Sanitary District for treatment.

## **B. Municipality Information**

The Town of Highland's MS4 boundary is identical to the Town's corporate boundary shown on the Zoning Map in Appendix A, and can be described more particularly as follows. Beginning at the southeast corner of Section 27, Township 36N, Range 9W of the Second Prime Meridian (intersection of Cline Avenue and 45th Street), thence west along the south line of Section 27 to the southwest corner of Section 27, thence south along the east line of Section 33 to the southeast corner of Section 33, thence west along the south lines of Sections 33 and 32 to the southwest corner of the east half of Section 32, thence north along the west line of the east halves of Sections 32, 29, 20 and 17 to the centerline of the Little Calumet River, thence east along the centerline of the Little Calumet River to the east line of Section 22, thence south along the east line of Sections 22 and 27 to the point of beginning.

## **II. Initial Evaluation of the Highland MS4**

### **A. Structural BMPs**

The Town's separate storm sewer system consists of 104 miles of storm sewer pipe and 10 miles of open ditch with eighteen (18) detention ponds. There are a total of 175 piped outfalls to a total of 4 receiving waters in the Town. There are two (2) piped outfalls by gravity and eight (8) piped outfalls from four (4) storm water pumping stations into the Little Calumet River. There are five (5) piped outfalls by gravity into Hart Ditch. There are 102 piped outfalls by gravity and one (1) piped outfall from one (1) storm water pumping station into the Cady Marsh Ditch. There are fourteen (14) piped outfalls by gravity and two (2) piped outfalls from two (2) separate storm water pumping stations into Spring Ditch. These systems are all functioning satisfactorily and succeed in keeping flooding to a minimum.

Spring Ditch drains into the Cady Marsh Ditch just north of the intersection of Indianapolis Boulevard and Martha Street. The Cady Marsh Ditch drains into Hart Ditch just west of the intersection of Lincoln Street and Parkway Drive. Hart Ditch drains into the Little Calumet River at the northwest corner of Town.

### **B. Non-structural BMPs**

The Town has a street cleaning program in which each street in the Town is swept every six (6) weeks; the quantity of material collected during each day of the

street sweeping cycle is tracked. The Town also has a catch basin maintenance program in which each catch basin is cleaned and inspected on a scheduled basis; the debris is disposed at the Hammond Sanitary District and the quantity of debris disposed is tracked through dump tickets. During the months of April through October, the Town collects and chips branches on a rotating daily basis throughout the entire Town. During the months of October through December and the first two (2) weeks of April, the Town collects leaves on a rotating daily basis throughout the entire Town.

### **III. Compliance Schedule**

Below is the Town of Highland's MS4 compliance schedule under both the previous Rule 13 program and the current General Permit program:

- April 2004 – Submission of SWQMP – Part B: Baseline Characterization and Report
- April 2005 – Public education and outreach program developed and implemented
- April 2005 – Public involvement and participation program developed and implemented
- November 2005 – Construction site plan and ordinance developed and program implemented
- November 2005 – Operation and maintenance plan developed and program implemented
- November 2005 – Illicit discharge plan and ordinance developed, program implemented and all major outfall conveyances mapped
- November 2005 – Post-construction plan and ordinance developed and program implemented
- November 2005 – Operations pollution prevention program developed and implemented
- December 2006 – At least 25% of stormwater conveyance system mapped
- December 2007 – At least 50% of stormwater conveyance system mapped
- December 2008 – At least 75% of stormwater conveyance system mapped
- December 2009 – 100% of stormwater conveyance system mapped

- December 2009 – All known stormwater outfalls with a diameter of 12 inches or greater and open ditches mapped
- October 2010 – Annual report submitted
- October 2012 – Annual report submitted
- October 2015 – Annual report submitted
- January 2017 – Annual report submitted
- February 2020 – Annual report submitted
- March 2023 – Revised SWQMP submitted
- March 2023 – Annual report submitted

#### **IV. MCM Descriptions**

##### **A. Public Education, Outreach, Participation and Involvement MCM**

The Town of Highland will maintain efforts to educate and outreach residents within the Town about storm water quality issues, improvements the Town is performing and programs the Town offers residents to improve water quality. The Town will also maintain efforts to encourage public participation and involvement in activities within the Town that improve storm water quality.

Measurable goals for the Public Education, Outreach, Participation and Involvement MCM include the following:

- Utilize the Town’s monthly newsletter (Gazebo Express), which is distributed with utility bill mailings and posted on the Town’s website [www.highland.in.gov](http://www.highland.in.gov), to provide educational articles about storm water quality and quantity issues and highlight work that the Town and its partners are performing to improve water quality. In addition, utilize the Gazebo Express to provide information and dates for various programs the Town offers residents to drop-off potential storm water pollutants for proper disposal, as well as to provide articles, workshops and ideas on activities residents can participate in to improve water quality and enjoy the benefits.
- Provide informational brochures on storm water quality and quantity reduction (such as sustainable lawn and landscape practices, rain garden manuals, etc.) at public facilities (Highland Town Hall, Lake County Public Library and the Lincoln Community Center) and public events (festivals, parades, etc.).

- Household Hazardous Waste Collection Days – a record of the number of residents participating and quantity of waste collected will be maintained.
- Waste Oil, Electronics Waste, Used Tire and Used Battery Collection – a record of the quantities and types of waste brought to the Public Works Facility by residents and the means of recycling or re-using of the waste will be maintained.
- Prescription Drugs Collection – a record of the quantity of waste prescriptions brought to the Police Department by residents will be maintained.
- Leaf and Branch Collection – a record of the quantities of leaves and branches gathered by residents for collection by Town staff will be maintained.

**B. Illicit Discharge Detection and Elimination (IDDE) MCM**

The Town of Highland will maintain an ordinance that prohibits illicit discharges to the storm sewer system, as well as providing inspection and enforcement procedures. The Town will utilize periodic physical inspections, its stormwater conveyance system map, public education and outreach program, and BMP selection criteria in order to detect and eliminate illicit discharges within its MS4 boundary.

The Town currently has 25% storm drains marked or cast, as repairs or replacement occur the castings are replaced with (dump no waste – drains to waterway) cast into them. The Town has drawings that map and describe the location and size of all the piped stormwater conveyances within its boundary.

The Town will perform documented visual inspections of all retention ponds on an annual basis. The Town will also provide annual training to municipal staff who are inspecting for illicit discharges and keep a record of the training. The Town will also perform documented visual inspections of each of the outfalls within the Town over the five year permit term. Visual documented inspections will include information concerning the location inspected and information concerning the following parameters:

- Odor – unusual smells, such as a chemical, gasoline, or decaying smells
- Color – unusual colors or cloudiness
- Turbidity – cloudiness which could be caused by dry-weather industrial discharges or sanitary wastewater
- Temperature – abnormal water temperatures
- Deposits and Stains – white crystalline powder stains or grayish-black deposits
- Vegetation – significant increases or decreases in vegetation
- Damage to Outfall Structure – suspicious cracking, deterioration, and spalling of concrete

Any visual inspection that reveals a suspect parameter will result in a complete documented investigation. This investigation may result in a sample or samples being taken and tested for the suspected pollutant or pollutants.

Measurable goals for the Illicit Discharge Detection and Elimination (IDDE) MCM include the following:

- Ordinance – An Ordinance will be maintained that contains requirements prohibiting illicit discharges to the storm sewer system, as well as provisions for inspection and enforcement.
- Identifying Illicit Connections – Visual inspections will be conducted in high-risk areas. The on-going characterization plan will also be used to locate and isolate illicit connections. A record of all illicit connections found and illicit connections repaired or replaced will be maintained.
- Illegal Dumping – A record of the number of illegal dumpings reported by citizens and the number of illegal dump clean-ups completed will be maintained.
- Industrial/Business Connections – A map of the location of the industrial facilities and a list of the facility name, address, phone number and type of industrial activity will be maintained.
- Eliminating Failing Septic Systems – The number and location of customer complaints related to septic systems and how the complaints were resolved will be maintained. A list of the known septic systems within the Town will also be maintained.
- Wastewater Connections to the Storm Sewer System – A record of the number of wastewater connections to the storm sewer system reported/ found and eliminated will be maintained. A record of SSO / Property Backups will be maintained in accordance with the Town’s Overflow Emergency Response Plan.

### **C. Construction Site Storm Water Run-off Control MCM**

The Town of Highland will maintain an ordinance that establishes construction site storm water run-off controls, design standards, erosion and sediment control construction plan requirements, and inspection and enforcement procedures for land disturbances of one (1) acre or more. The Highland MS4 Coordinator will review all applicable construction plans within its MS4 boundary.

Measurable goals for the Construction Site Storm Water Run-off Control MCM include the following:

- Ordinance – An Ordinance will be maintained that contains requirements for erosion and sediment control plans for new developments of one (1) acre in size or larger, as well as provisions for inspection and enforcement.
- Complaint Response Program – A record of complaints, including complaint type, complaint received date, complaint contact information, inspection date, and action taken, will be maintained.

- Compliance and Enforcement – A record of the number of construction sites inspected, the number and penalty amount of enforcement actions taken, and the number of stop work orders issued will be maintained.
- MS4 Coordinator Training – The MS4 Coordinator will receive annual training in topics such as appropriate control measures, inspection protocol and enforcement procedures, and will obtain an industry-recognized certification relating to MS4 compliance and enforcement.

#### **D. Post-Construction Storm Water Run-off Control MCM**

The Town of Highland will maintain an ordinance that establishes post-construction storm water run-off controls, design standards, and inspection and enforcement procedures to address discharges of post-construction storm water run-off from existing areas, new development areas, and redevelopment areas within its MS4 boundary.

Where appropriate, the Town may require any combination of storage, infiltration, filtering or vegetative practices to reduce the impact of pollutants in storm water run-off on receiving waters. In addition to the combination of practices, the following requirements will be utilized:

- Any stormwater practice that is a Class V injection well must ensure that the discharge from such practices meets Indiana ground water quality standards as referenced in 327 IAC 2-11.
- As site conditions allow, the rate at which water flows through the MS4 conveyances shall be regulated to reduce outfall scouring and stream bank erosion.
- As site conditions allow, a vegetated filter strip of appropriate width shall be maintained along unvegetated swales and ditches.
- New retail gasoline outlets, new municipal, state, federal, or institutional refueling areas, or outlets and refueling areas that replace their existing tank systems, shall be required by ordinance to design and install appropriate practices to reduce lead, copper, zinc, and polyaromatic hydrocarbons in storm water run-off.

Both public and private owners of BMPs will be required to have a written O&M manual for the on-going inspection and maintenance of the BMP for proper function over time. The minimum inspection/maintenance frequency will be five (5) years.

Measurable goals for the Post-Construction Storm Water Run-off Control MCM include the following:

- Ordinance – An Ordinance will be maintained that contains requirements for practices and procedures intended to improve water quality from post-construction run-off, as well as provisions for inspection and enforcement.



- BMP Inspection and Maintenance – A record of BMP inspection and maintenance activities will be documented. At a minimum, all BMPs will be inspected every 5 (five) years and type of maintenance activities and number of problems identified/remedied will be documented. MS4-owned BMPs will be evaluated by the MS4 Coordinator, whereas private-owned BMPs will be evaluated by the private owner and reported to the MS4 Coordinator.
- Compliance and Enforcement – A record of the number of post-construction measures inspected, and the number and penalty amount of enforcement actions taken will be maintained.
- MS4 Coordinator Training – The MS4 Coordinator will receive annual training in topics such as appropriate control measures, inspection protocol and enforcement procedures, and will obtain an industry-recognized certification relating to MS4 compliance and enforcement.

**E. Municipal Operations Pollution Prevention and Good Housekeeping MCM**

The Town of Highland will maintain a program to prevent or reduce pollutant run-off from municipal operations within its MS4 boundary. As part of the program, a SWPPP will be developed for each MS4-owned facility that may impact the quality of storm water, including, but not limited to, Public Works Facility, Town Hall, Lincoln Community Center, Fire Stations, Police Station, Roadways, Parks and Trails.

Measurable goals for the Municipal Operations Pollution Prevention and Good Housekeeping MCM include the following:

- Illegal Dumping Control – A record of the number of illegal dumping incidents reported by citizens and the number of clean-ups completed will be maintained.
- Materials Management – A record of the storage, use, inspection and maintenance activities associated with potentially polluting materials used/generated at MS4-owned facilities (i.e. fueling stations/tanks, used oil burner, vehicle fluids, hazardous materials) will be maintained.
- Municipal Parking Lot and Street Sweeping – A record of municipal parking lot street sweeping, including locations and amount of debris collected, will be maintained. A record of the dumpster tickets received from the Town’s waste hauler for proper disposal of the collected debris at a regulated landfill will be maintained.
- Catch Basin and Pump Station Wet Well Cleaning – A record of catch basin and pump station wet well cleaning, including locations and amount of debris collected, will be maintained. A record of the dump tickets received from the Hammond Sanitary District for proper disposal of the collected debris at the Hammond Sanitary District WWTP will be maintained.
- Road Salt Storage and Application – A record of the number of storage facilities with type of cover, the number of employees trained in road salt

application and the quantity of salt applied to roadways will be maintained.

- MS4 Employee Training – A record of the dates and topics of pollution prevention / good housekeeping training received by MS4 employees will be maintained. Typical topics include proper disposal of hazardous wastes, vegetative waste handling, fertilizer and pesticide application, and function of implemented BMPs, standard operating procedures and spill prevention.

## **V. Storm Water Quality Master Plan Proposed Budget**

Below is the Town of Highland’s MS4 Proposed Budget:

- Public Education, Outreach, Participation and Involvement – \$10,000
- Illicit Discharge Detection and Elimination – \$45,000
- Construction Site Storm Water Run-off Control – \$55,000
- Post-Construction Storm Water Run-off Control – \$10,000
- Municipal Operations Pollution Prevention and Good Housekeeping – \$300,000
- On-going Water Quality Characterization – \$15,000
- Other – \$140,000

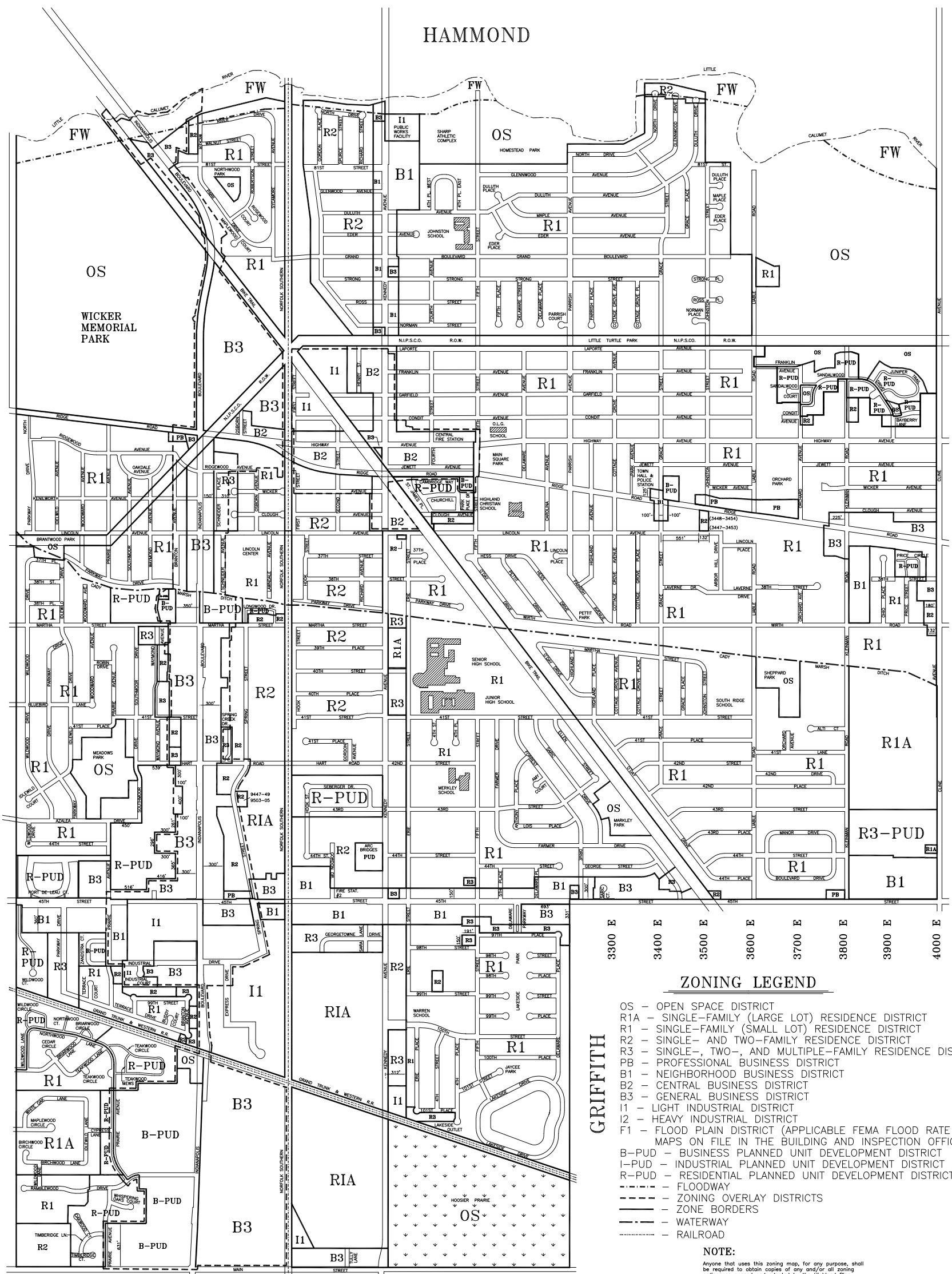
Total Budget of \$575,000, fully funded by user fees.

Appendix A  
Town of Highland Zoning Map

HAMMOND

8000 S  
8100 S  
8200 S  
8300 S  
8400 S  
8500 S  
8600 S  
8700 S  
8800 S  
8900 S  
9000 S  
9100 S  
9200 S  
9300 S  
9400 S  
9500 S  
9600 S  
9700 S  
9800 S  
9900 S  
10000 S  
10100 S  
10200 S  
10300 S  
10400 S  
10500 S

MUNSTER



GRIFFITH

GRIFFITH

3300 E  
3400 E  
3500 E  
3600 E  
3700 E  
3800 E  
3900 E  
4000 E

ZONING LEGEND

- OS - OPEN SPACE DISTRICT
- R1A - SINGLE-FAMILY (LARGE LOT) RESIDENCE DISTRICT
- R1 - SINGLE-FAMILY (SMALL LOT) RESIDENCE DISTRICT
- R2 - SINGLE- AND TWO-FAMILY RESIDENCE DISTRICT
- R3 - SINGLE-, TWO-, AND MULTIPLE-FAMILY RESIDENCE DISTRICT
- PB - PROFESSIONAL BUSINESS DISTRICT
- B1 - NEIGHBORHOOD BUSINESS DISTRICT
- B2 - CENTRAL BUSINESS DISTRICT
- B3 - GENERAL BUSINESS DISTRICT
- I1 - LIGHT INDUSTRIAL DISTRICT
- I2 - HEAVY INDUSTRIAL DISTRICT
- F1 - FLOOD PLAIN DISTRICT (APPLICABLE FEMA FLOOD RATE MAPS ON FILE IN THE BUILDING AND INSPECTION OFFICE)
- B-PUD - BUSINESS PLANNED UNIT DEVELOPMENT DISTRICT
- I-PUD - INDUSTRIAL PLANNED UNIT DEVELOPMENT DISTRICT
- R-PUD - RESIDENTIAL PLANNED UNIT DEVELOPMENT DISTRICT
- - - FLOODWAY
- - - ZONING OVERLAY DISTRICTS
- - - ZONE BORDERS
- - - WATERWAY
- - - RAILROAD

NOTE:

Anyone that uses this zoning map, for any purpose, shall be required to obtain copies of any and/or all zoning ordinances passed and adopted by the Highland Plan Commission and Highland Town Board. This map is an integral part of the zoning ordinance and shall not be used separately or solely, when referring to zoning classifications.

2000 E  
2100 E  
2200 E  
2300 E  
2400 E  
2500 E  
2600 E  
2700 E  
2800 E  
2900 E  
3000 E  
3100 E  
3200 E

SCHERERVILLE

APPROX. 1" = 1600'

SCALE

NOT TO SCALE



REVISED BY: NIES ENGINEERING INC.  
FEBRUARY 8, 2021



ZONING MAP

## Appendix B

Ordinances (Codified as HMC Chapters 12.25, 12.30, 12.50 and 12.55)

**Chapter 12.25**  
**STORM WATER MANAGEMENT** Revised 2/21

Sections:

- 12.25.010 Definitions.**
- 12.25.020 Application of storm water management services and charges.**
- 12.25.030 Storm water management rates and charges.** Revised 2/21
- 12.25.040 Storm water management appeals of ERUs.**
- 12.25.050 Storm water management billing and collection.**
- 12.25.060 Sufficiency of fees and charges.**
- 12.25.070 Compatibility of provisions.**

**12.25.010 Definitions.**

For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning. They shall be complementary to and not contradictory of the definitions set forth in this section.

“Board” means the board of sanitary commissioners of the sanitary district of Highland, Indiana, or any duly authorized officials acting in its behalf.

“Code” shall mean the Highland Municipal Code.

“Council” shall mean the town council of the town of Highland, or any duly authorized officials acting on its behalf.

“County regulated drain” shall mean part of the storm water conveyance system under the jurisdiction of the Lake County drainage board, including certain ditches, tiles and sewers.

“District” means the sanitary district of Highland, acting by and through the board of sanitary commissioners.

“Drain” shall mean any sewer, tile, ditch, stream or other storm water conveyance channel or conduit.

“Equivalent impervious area” shall mean the square foot sum of all land cover types multiplied by the corresponding runoff coefficient for each land cover type, as identified as follows:

<b>Land Cover</b>	<b>Runoff Coefficient</b>
Asphalt and concrete drives, walks and parking	0.90
Rooftops	0.90
Grass, lawns, parks, golf courses and cemeteries	0.20
Unimproved land, wood and agricultural	0.20
Gravel drives and parking	0.65

<b>Land Cover</b>	<b>Runoff Coefficient</b>
Ponds and lakes	0.05

“Equivalent residential unit (ERU)” shall mean a unit value equal to the average amount of equivalent impervious area of a residential property within the town of Highland and established at 5,000 square feet. It is also the basis for calculating the proper assessment of storm water charges to all users for the Highland storm water system.

“HSD” shall mean sanitary district of Highland.

“Impervious area” shall mean the total surface area (asphalt, concrete, stone, etc.) that is contained on a lot or parcel, or within a development tract. Hard surface area shall include, but not be limited to, driveways, parking areas, sidewalks or other paved areas, and all areas under roof.

“Infiltration” shall mean a complex process of allowing storm water runoff to penetrate the ground surface and flow through the upper soil surface.

“May” is permissive.

“Multifamily units,” for the purposes of the storm water management function, shall mean a lot or parcel of land on which is situated a building containing two or more dwelling units or on which two or more buildings each containing multiple dwelling units are situated.

“Nonresidential property,” for the purposes of the storm water management function, shall mean all properties not encompassed within the definition of residential property shall be defined as nonresidential property. Nonresidential property shall include, but not necessarily be limited to:

- (A) Agricultural property;
- (B) Commercial property;
- (C) Industrial property;
- (D) Institutional property;
- (E) Governmental property;
- (F) Churches;
- (G) Schools;
- (H) Federal, state and local government-owned property; and
- (I) Any other property not mentioned herein and not specifically defined as either residential property or vacant residential property.

“Pervious area” shall mean real property that has a runoff coefficient of less than 0.90.

“Private storm water facilities” shall mean various storm water and drainage works not under the control or ownership of the town, county, state and/or federal government which may include inlets, conduits, pipes, pumping stations, manholes, structures, channels, outlets, retention or detention basins, other structural components and equipment designed to transport, move, hold or regulate storm water.

“Public storm water facilities” shall mean the various storm water and drainage works under the control and/or ownership of the town, county, state or federal government which may include inlets, conduits, pipes, pumping stations, manholes, structures, channels, outlets, retention or detention basins, other structural components and equipment designed to transport, move, hold or regulate storm water.

“Rate category,” for the purposes of the storm water management function, shall mean the following equivalent square footage of hard and semi-impervious surfaces (buildings, structures, paved surfaces, etc.) and impervious area of a property times the water runoff coefficient factor for residential and nonresidential user classes as set forth in subsection (3)(a) of this section:

<b>Unit</b>	<b>C x A Factor<sup>(1)</sup></b>	<b>ERU</b>
<b>Residential</b>		
Single-Family Unit		1.00
Multiple-Family Units		
	1 to 4 units (each)	0.75
	5 to 12 units (each)	0.55
	greater than 12 units (each)	0.35
<b>Nonresidential</b>		
Category 1	0 – 5,000 ft <sup>2</sup>	1.00
Category 2	5,001 – 40,000 ft <sup>2</sup>	4.00
Category 3	40,001 – 100,000 ft <sup>2</sup>	12.00
Category 4	Over 100,000 ft <sup>2</sup>	20.00

(1) Composite water runoff coefficient factor times area.

“Replacement costs,” for the purposes of the storm water management function, shall mean the expenditures for obtaining and installing equipment, accessories or appurtenances which are necessary during the useful life of storm water collection facilities to maintain the capacity and performance for which such works were designed and constructed.

“Residential property,” for the purposes of the storm water management function, shall mean real property consisting of a lot or parcel or contiguous lots or parcels of single ownership on which a building or buildings or a mobile home is situated, which structure(s) contains a group of rooms forming habitable dwelling unit or units with facilities that are used or are intended to be used primarily for living, sleeping, cooking and eating.

“Runoff coefficient,” for the purposes of the storm water management function, shall mean the ratio of peak flow from a drainage area (in cubic feet per second) and the product of rainfall intensity (in inches per hour) over a given land area (in acres). A measure of how much storm water runoff is produced in response to the rainfall.

“Sewage works” shall have the same meaning as defined in IC [36-9-1-8](#).

“Shall” is mandatory.



“Storm sewer” shall mean a sewer designed or intended to convey only storm water, surface runoff, street wash waters and drainage, and not intended for sanitary sewage and industrial wastes other than unpolluted cooling water. The portion of a sewer intended to carry storm water or surface drainage only, which begins at the grating or opening where water enters said sewer, through the sewer or any other conduits to the outlet structure where water enters a channel, natural watercourse or combined sewer.

“Storm water” shall mean the chemical compound of hydrogen and oxygen, which is produced from atmospheric clouds as rain, snow, sleet and hail.

“Storm water system” shall mean all constructed facilities, structures and natural watercourses under the ownership, and/or control of the town and/or the HSD, used for collecting and conducting storm water to, through and from drainage areas to the point of final outlet, including, but not limited to, any and all of the following: inlets, conduits and appurtenant features, creeks, channels, catch basins, manholes, ditches, streams, culverts, retention or detention basins and pumping stations, and excluding therefrom any part of the system of drains and watercourses under the jurisdiction of the Lake County drainage board.

“Storm water utility customer/user” shall mean a person, firm, corporation, association, municipality or other political subdivision having an interest as owner in any property which is within the jurisdiction of the department of public sanitation and its sanitary district and receiving services related to storm water and/or watershed management, either temporarily or permanently, from the Highland department of public sanitation, its sanitary district.

“Storm water utility user fee” shall mean a charge imposed on users of the HSD’s public storm water facilities and storm water system.

“Superintendent” shall mean the public works director or a designee acting as the administrative leader of the utility.

“User class,” for the purposes of the storm water management function, shall mean the division of storm water properties between residential and nonresidential.

“Vacant property” shall mean a lot or parcel of real property on which there does not exist a building or structure. [Ord. 1246 § 1, 2004. Code 2000 § 171.70].

**12.25.020 Application of storm water management services and charges.**

(A) Every user shall be charged for the services provided. These charges are established for each user class, as defined, in order that the storm water utility shall recover, from each user and user class, revenue, which is proportional to its measurement of impervious area. These various classes of users of the storm water collection system for purposes of this chapter shall be as follows:

- Class 1. Residential
- Class 2. Nonresidential

(B) For purposes of the storm water management function, the definitions of these user classes shall be:

(1) Residential User Class. Shall include a lot or parcel improved with a structure used primarily for residential purposes, each of which discharge storm water, directly or indirectly, into the storm water system of the town.

(2) Nonresidential User Class. Shall include all other properties that do not meet the definition of “residential user class” and that discharge storm water, directly or indirectly, into the storm water system of the town. [Ord. 1250 § 1, 2004. Code 2000 § 171.71].

**12.25.030 Storm water management rates and charges.** [Revised 2/21](#)

(A) For use of and the service rendered by said storm water utility, user fees shall be collected from users. The storm water management fees shall be charged according to the following schedule.

(B) For the periods identified below and thereafter, the following fees and charges are in effect:

**Storm Water Management Fees Schedule**

(1) For the period beginning February 1, 2021, and continuing thereafter, the following fees and charges are in effect:

	<b>Monthly Fees</b>
<b>Residential</b>	
Single-Family Unit	\$15.22
Multiple-Family Units	
1 to 4 units (each)	\$11.39
5 to 12 units (each)	\$8.34
Greater than 12 units (each)	\$5.30
<b>Nonresidential</b>	
Category 1 (0 – 5,000 sq. ft.)	\$15.22
Category 2 (5,001 – 40,000 sq. ft.)	\$61.03
Category 3 (40,001 – 100,000 sq. ft.)	\$182.51
Category 4 (Over 100,000 sq. ft.)	\$304.16

(C) For the service rendered to the town of Highland, said town shall be subject to the same user fees hereinabove provided. Impervious area located within a public-dedicated or public-owned right-of-way shall not be subject to a user fee.

(D) Federal, State, Town, County and Private Roadways. Streets, roads, highways and bike paths shall be given 100 percent credit as they form an integral part of the storm water system. The surface water control system incorporated in design of roadways are areas engineered to convey all design runoff without street flooding. Primary elements of the drainage system yield community-wide benefits and are installed to service the general public’s interests. [Ord. 1322 § 1, 2006; Ord. 1383 § 1, 2008; amended during 2012 recodification; Ord. 1558 § 1, 2014; Ord. 1725 § 2, 2020. Code 2000 § 171.72].

**12.25.040 Storm water management appeals of ERUs.**

(A) If a storm water utility customer/user determines that the ERU multiple assigned to said user’s real property is incorrect for any reason, said storm water utility customer/user shall have the right to appeal the ERU determination and thus the rate assessed in the following manner:

(1) The storm water utility customer/user shall obtain and complete a petition to appeal storm water rate form (“petition”), which shall be returned to the town of Highland clerk-treasurer with verifiable

documentation supporting the appeal.

(2) The superintendent shall investigate the appeal and, upon review thereof, shall render a written determination to the board and the storm water utility customer/user that either the original ERU determination and assessed rate should be affirmed or the storm water utility user fee should be adjusted in accordance with the petition.

(3) If a petition to appeal is denied, said determination shall be forwarded to the storm water utility customer/user by certified mail, return receipt requested. The storm water utility customer/user shall then have 30 days from the date of receipt of said determination to request a reconsideration by the board. Any additional facts concerning the appeal shall be submitted in writing to the HSD, along with a copy of the original petition and supporting documents, to the board. The superintendent shall submit a written report of the determination in the case, along with any documents used in denying the appeal.

(4) Thereafter, the board shall review all documentation and, if requested in writing by the storm water utility customer/user, conduct a hearing to determine and resolve the appeal. Such hearing will be scheduled by the HSD and the storm water utility customer/user will be notified by certified mail of the date of such hearing, which notice shall be received by the storm water utility customer/user at least seven days prior to the date of such hearing. A written opinion shall be rendered within 45 days after the hearing or submission of documentation if no hearing is conducted. The written opinion of the board shall constitute the final HSD determination. The hearing shall be electronically recorded and if requested by the storm water utility customer/user, a transcript of the hearing shall be provided to the storm water utility customer/user. The storm water utility customer/user will be charged at a cost per page as determined by the board, in accordance with applicable law as amended from time to time.

(B) A storm water utility customer/user aggrieved by the final board determination shall have the right to judicial review of such determination in accordance with applicable Indiana law.

(C) If the superintendent or town engineer recommends the storm water utility user fee be reduced, or reduction is ordered by the director, the board or any court of competent jurisdiction, the storm water utility customer/user shall be credited accordingly for any overpayment made from the date of petition.

(D) Dispute or appeal of an ERU determination or storm water service rate shall not be a valid reason for nonpayment of the originally assessed storm water utility user fee by the storm water utility customer/user. [Ord. 1246 § 1, 2004. Code 2000 § 171.73].

#### **12.25.050 Storm water management billing and collection.**

(A) The user fees for all users shall be prepared and billed monthly, along with the charges for other town utility services rendered to properties located within the town of Highland.

(B) The user fee shall be due on the payment date set out for the utility bill. It shall be a violation of this enactment to fail to pay a storm water service bill when due, which due date shall be the same as that for wastewater services.

(C) As is provided by statute, all rates and charges not paid when due are hereby declared to be delinquent and a penalty of 10 percent of the amount of the rates and charges shall thereupon attach thereto. The time at which such rates or charges shall be paid is hereby fixed at 30 days after the due date of the bill.

(D) Collection. In addition to the penalties and charges provided herein, delinquent user fees may be collected in a civil action along with other delinquent utility charges by the HSD and the HSD shall be permitted to collect its reasonable attorneys' fees and court costs. [Ord. 1246 § 1, 2004. Code 2000 § 171.74].

**12.25.060 Sufficiency of fees and charges.**

The fees set forth in this chapter, together with the taxes levied under IC [36-9-25](#) et seq., must at all times be sufficient to produce revenues sufficient to pay operation, maintenance, and administrative expenses of the sanitary district and sewage works, to pay the principal and interest on bonds of the sanitary district and sewage (storm water/wastewater) works as they become due and payable, and to provide money for the revolving fund authorized. [Ord. 1246 § 1, 2004. Code 2000 § 171.75].

**12.25.070 Compatibility of provisions.**

The provisions of this chapter shall be considered a companion to the rates and charges as well as the associated rules and regulations in effect for the waste water management function of the district. [Ord. 1246 § 1, 2004. Code 2000 § 171.76].

## Chapter 12.30 WATERCOURSE REGULATION FOR POLLUTION AND ILLICIT DISCHARGES

Sections:

- 12.30.010 Purpose and intent.**
- 12.30.020 Definitions.**
- 12.30.030 Applicability.**
- 12.30.040 Responsibility for administration.**
- 12.30.050 Severability.**
- 12.30.060 Ultimate responsibility.**
- 12.30.070 Prohibition of illegal discharges and illicit connections.**
- 12.30.080 Suspension of storm drain system access.**
- 12.30.090 Industrial or construction activity discharges.**
- 12.30.100 Monitoring of discharges and right of access to facilities.**
- 12.30.110 Requirements to prevent, control, and reduce storm water pollutants through use of best management practices.**
- 12.30.120 Watercourse protection.**
- 12.30.130 Notification of spills.**
- 12.30.140 Enforcement and notice.**
- 12.30.150 Appeal notice of violation.**
- 12.30.160 Enforcement measures after appeal.**
- 12.30.170 Abatement of the violation – Violator’s liability.**
- 12.30.180 Legal and equitable relief.**
- 12.30.190 Penalties and fines.**
- 12.30.200 Remedies not exclusive.**

### **12.30.010 Purpose and intent.**

The purpose of this chapter is to provide for the health, safety, and general welfare of the citizens of the town of Highland, Indiana, through the regulation of non-storm water discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This chapter, in accordance with [327 327](#) 15-13 (also called Rule 13), establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system (MS4) in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process. The objectives of this chapter are:

- (A) To regulate the contribution of pollutants to the municipal separate storm sewer system (MS4) by storm water discharges by any user.
- (B) To prohibit illicit connections and discharges to the municipal separate storm sewer system.
- (C) To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this chapter. [Ord. 1344 § 2, 2007. Code 2000 § 171.100].

### **12.30.020 Definitions.**

For the purposes of this chapter, the following shall mean:

“Authorized enforcement agency” means the town of Highland and/or the sanitary district of the town of Highland, its employees, designees or agents.

“Best management practices (BMPs)” means schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to storm water, receiving waters, or storm water conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

“Construction activity” means activities subject to NPDES construction permits. All construction projects of one acre or greater require an NPDES storm water phase II permit. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

“Hazardous materials” means any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

“Illegal discharge” means any direct or indirect non-storm water discharge to the storm drain system, except as exempted in the monitoring of discharges portion (HMC [12.30.100](#)) of this chapter.

“Illicit connections” is defined as either of the following: any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by the town of Highland or any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by the town of Highland.

“Industrial activity” means activities subject to NPDES industrial permits as defined in [40 CFR 122.26](#) (b) (14).

“National Pollutant Discharge Elimination System (NPDES) storm water discharge permit” means a permit issued by EPA (or by a state under authority delegated pursuant to [33 USC 1342\(b\)](#)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

“Non-storm water discharge” means any discharge to the storm drain system that is not composed entirely of storm water.

“Person” means any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting as either the owner or as the owner’s agent.

“Pollutant” means anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; nonhazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordnances, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

“Premises” means any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

“Storm drain system” means publicly owned facilities by which storm water is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and humanmade or altered drainage channels, reservoirs, and other drainage structures.

“Storm water” means any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

“Storm water pollution prevention plan” means a document which describes the best management practices and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to storm water, storm water conveyance systems, and/or receiving waters to the maximum extent practicable.

“Wastewater” means any water or other liquid, other than uncontaminated storm water, discharged from a facility.

“Watercourse” means any natural or improved stream, river, creek, ditch, channel, canal, conduit, gutter, culvert, drain, gully, swale, or wash in which waters flow either continuously or intermittently. [Ord. 1344 § 2, 2007. Code 2000 § 171.101].

#### **12.30.030 Applicability.**

This chapter shall apply to all water entering the storm drain system generated on any developed and undeveloped lands unless explicitly exempted by the authorized enforcement agency. [Ord. 1344 § 2, 2007. Code 2000 § 171.102].

#### **12.30.040 Responsibility for administration.**

The director of public works, on behalf of the authorized enforcement agency, shall administer, implement, and enforce the provisions of this chapter. The director of public works may delegate any authority granted hereunder to persons or entities acting in the beneficial interest of or in the employ of the authorized enforcement agency. [Ord. 1344 § 2, 2007. Code 2000 § 171.103].

#### **12.30.050 Severability.**

The provisions of this chapter are hereby declared severable. If any provision, clause, sentence, or paragraph of this chapter or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this chapter. [Ord. 1344 § 2, 2007. Code 2000 § 171.104].

#### **12.30.060 Ultimate responsibility.**

The standards set forth herein and promulgated pursuant to this chapter are minimum standards; therefore, this chapter does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants. [Ord. 1344 § 2, 2007. Code 2000 § 171.105].

#### **12.30.070 Prohibition of illegal discharges and illicit connections.**

(A) Prohibition of Illegal Discharges. No person shall commence, conduct or continue any illegal discharge to the storm drain system except as follows:

- (1) Discharges listed in [327 327](#) 15-13-14(d) and discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety are hereby exempt from

prohibition under this chapter.

(2) Dye testing is an allowable discharge, but requires a verbal notification to the authorized enforcement agency prior to the time of the test.

(3) The prohibition shall not apply to any non-storm water discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the federal Environmental Protection Agency; provided, that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations; and provided, that written approval has been granted for any discharge to the storm drain system.

(4) The exceptions listed above (subsections (A)(1) through (3) of this section) shall be deemed illegal discharges if (a) the director of public works determines the discharge or flow in question to be a significant source of a pollutant or pollutants to the waters of the United States or to the storm drain system; (b) written notice of such determination has been provided to the discharger; and (c) the discharge continues after the expiration of a reasonable time, as determined by the director of public works, to cease the discharge as provided in the notice.

(B) Prohibition of Illicit Connections. The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited. This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of the connection.

(C) No person shall connect a line conveying sewage to the storm drain system, or allow such a connection to continue. [Ord. 1344 § 2, 2007. Code 2000 § 171.106].

#### **12.30.080 Suspension of storm drain system access.**

(A) Suspension Due to Illicit Discharges in Emergency Situations. The director of public works may, without prior notice, order a person to suspend discharge to the storm drain system when such suspension is necessary to stop an actual or threatened discharge, which presents or may present imminent and substantial danger to the environment, to the health or welfare of persons, or to the storm drain system or waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the authorized enforcement agency may take such steps as deemed necessary to prevent or minimize damage to the storm drain system or waters of the United States, or to minimize danger to persons.

(B) Suspension Due to the Detection of Illicit Discharge. Any person discharging to the storm drain system in violation of this chapter may have their access terminated if such termination would abate or reduce an illicit discharge. The authorized enforcement agency shall notify a violator of the proposed termination of its storm drain system access. The violator may petition the authorized enforcement agency for reconsideration and hearing.

(C) No person shall reinstate storm drain system access to premises terminated pursuant to this section, without the prior approval of the authorized enforcement agency. [Ord. 1344 § 2, 2007. Code 2000 § 171.107].

#### **12.30.090 Industrial or construction activity discharges.**

Any person subject to an industrial or construction activity NPDES storm water discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form



acceptable to the authorized enforcement agency prior to allowing discharges to the storm drain system. [Ord. 1344 § 2, 2007. Code 2000 § 171.108].

### **12.30.100 Monitoring of discharges and right of access to facilities.**

(A) Applicability. This section applies to all facilities that have storm water discharges associated with industrial activity, including construction activity.

(B) The authorized enforcement agency shall be permitted to enter and inspect facilities subject to regulation under subsection (A) of this section as often as may be necessary to determine compliance with this chapter. Entry shall occur during reasonable business hours. Entry shall be with the consent of a rightful occupant of the premises, except where a public safety emergency justifies a warrantless entry. If entry is refused, a warrant may be procured to inspect the premises under the terms of IC [36-7-9-15](#). If a person operating a facility has security measures in place, which require proper identification and clearance before entry into its premises, the person operating the facility shall make the necessary arrangements to allow access to representatives of the authorized enforcement agency.

(C) Facility operators shall allow the authorized enforcement agency ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES permit to discharge storm water, and the performance of any additional duties as defined by state and federal law.

(D) The authorized enforcement agency may set up on any permitted facility such devices as are necessary in the opinion of the authorized enforcement agency to conduct monitoring and/or sampling of the facility's storm water discharge.

(E) The authorized enforcement agency may require the person operating a facility to install monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the person operating the facility at its own expense. All devices used to measure storm water flow and quality shall be calibrated to ensure their accuracy.

(F) Any temporary or permanent obstruction to safe and easy access to the facility to be inspected and/or sampled shall be promptly removed by the person operating the facility at the written or oral request of the authorized enforcement agency and shall not be replaced. The costs of clearing such access shall be borne by the person operating the facility.

(G) A person operating a facility with an NPDES permit to discharge storm water associated with industrial activity shall not unreasonably delay or deny the authorized enforcement agency reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this chapter. [Ord. 1344 § 2, 2007; amended during 2012 recodification. Code 2000 § 171.109].

### **12.30.110 Requirements to prevent, control, and reduce storm water pollutants through use of best management practices.**

The authorized enforcement agency may adopt requirements identifying best management practices for any activity, operation, or facility, which may cause or contribute to pollution or contamination of storm water, the storm drain system, or waters of the U.S. The owner or operator of a commercial or industrial establishment shall provide, at its own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the storm drain system or any watercourse through the use of these BMPs. Further, the authorized enforcement agency may require any person responsible for premises, which are, or may be, the source of an illicit discharge, to implement at said person's expense, additional BMPs to prevent the further discharge of pollutants to the storm drain system. Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of storm water associated with

industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this section. The BMPs shall be part of a storm water pollution prevention plan (SWPPP) as necessary for compliance with requirements of the NPDES permit issued to the town of Highland. [Ord. 1344 § 2, 2007. Code 2000 § 171.110].

#### **12.30.120 Watercourse protection.**

Every person owning premises through which a watercourse passes shall keep and maintain that part of the watercourse within the premises free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner of the premises shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures shall not become a hazard to the use, function, or physical integrity of the watercourse. [Ord. 1344 § 2, 2007. Code 2000 § 171.111].

#### **12.30.130 Notification of spills.**

Notwithstanding any other requirements prescribed by law, as soon as any person operating a facility acquires information regarding any known or suspected release of materials which result or may result in the illegal discharge of pollutants into the storm drain system, said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of a release of hazardous materials, said person shall immediately notify emergency response agencies of the release. In the event of a release of nonhazardous materials, said person shall notify the authorized enforcement agency in person or in writing no later than the next business day. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years. [Ord. 1344 § 2, 2007. Code 2000 § 171.112].

#### **12.30.140 Enforcement and notice.**

(A) Whenever the authorized enforcement agency finds that a person has violated the provisions of this chapter, the authorized enforcement agency may order compliance by written notice of violation to the responsible person.

(B) The notice of violation may order without limitation:

- (1) Performance of monitoring, analyses, and reporting;
- (2) Elimination of illicit connections or discharges;
- (3) Cessation of prohibited discharges, practices, or operations;
- (4) Abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property;
- (5) Payment of a fine which has been reasonably calculated to cover administrative and remediation costs; and
- (6) Implementation of source control or treatment BMPs.

(C) A notice of violation shall set forth a reasonable opportunity of at least 10 days but not more than 60 days within which to complete such remediation or restoration.

(D) The notice of violation shall further advise that, should the violator fail to comply with the provisions contained therein, any ordered activity may be performed by the authorized enforcement agency and the expense thereof shall be charged to the violator.

(E) The expenses of the enforcement agency shall constitute a lien against the property. The lien attaches when notice of the lien is recorded in the office of the county recorder in which the property is located. The lien is superior to all other liens except liens for taxes, in an amount that does not exceed:

(1) Ten thousand dollars for real property that is unimproved or contains one or more occupied or unoccupied single- or double-family dwellings or the appurtenances or additions to those dwellings;  
or

(2) Twenty thousand dollars for all other real property not described in subsection (E)(1) of this section.

(F) The enforcement agency may issue a bill to the owner of the real property for the costs incurred by it in bringing the property into compliance with this chapter, including administrative costs and removal costs.

(G) A bill issued under this section is delinquent if the owner of the real property fails to pay the bill within 30 days after the date of the issuance of the bill.

(H) Whenever the enforcement agency determines it necessary, the officer charged with the collection of fees and penalties for the municipal corporation shall prepare a list of delinquent fees and penalties that are enforceable under this chapter, including:

(1) The name or names of the owner or owners of each lot or parcel of real property on which fees are delinquent;

(2) A description of the premises, as shown on the records of the county auditor; and

(3) The amount of the delinquent fees and the penalty; or an instrument for each lot or parcel of real property on which the fees are delinquent.

(I) The officer shall record a copy of each list or each instrument with the county recorder, who shall charge a fee for recording the list or instrument under the fee schedule established in IC [36-2-7-10](#).

(J) The amount of a lien shall be placed on the tax duplicate by the auditor. The total amount, including any accrued interest, shall be collected in the same manner as delinquent taxes are collected and shall be disbursed to the proper fund of the enforcement agency.

(K) A fee is not enforceable as a lien against a subsequent owner of property unless the lien for the fee was recorded with the county recorder before conveyance to the subsequent owner. If the property is conveyed before the lien is recorded, the enforcement agency shall notify the person who owned the property at the time the fee became payable. The notice must inform the person that payment, including penalty fees for delinquencies, is due not later than 15 days after the date of the notice. If payment is not received within 180 days after the date of the notice, the amount due may be considered a bad debt loss.

(L) The enforcement agency shall release:

(1) Liens filed with the county recorder after the recorded date of conveyance of the property; and

(2) Delinquent fees incurred by the seller;

upon receipt of a written demand from the purchaser or a representative of the title insurance company or the title insurance company's agent that issued a title insurance policy to the purchaser. The demand must state that the delinquent fees were not incurred by the purchaser as a user,

lessee, or previous owner and that the purchaser has not been paid by the seller for the delinquent fees.

(M) The county auditor shall remove the fees, penalties, and service charges that were not recorded before a recorded conveyance to a subsequent owner upon receipt of a copy of the written demand under subsection (H) of this section. [Ord. 1344 § 2, 2007; Ord. 1628 § 6, 2016. Code 2000 § 171.113].

#### **12.30.150 Appeal notice of violation.**

Any person receiving a notice of violation may appeal the notice of violation, in writing, to the authorized enforcement agency. The written appeal must be received by the authorized enforcement agency within seven days from the date of the notice of violation. The authorized enforcement agency shall conduct a hearing within 15 days from the date of receipt of the written appeal at which time the authorized enforcement agency shall reconsider whether a violation exists. The decision of the authorized enforcement agency shall be final. [Ord. 1344 § 2, 2007. Code 2000 § 171.114].

#### **12.30.160 Enforcement measures after appeal.**

(A) The authorized enforcement agency may enter upon any premises and take any and all actions necessary to abate and/or remedy the violation under the following circumstances; provided, that entry shall occur during reasonable business hours. Entry shall be with the consent of a rightful occupant of the premises, except where a public safety emergency justifies a warrantless entry. If entry is refused, a warrant may be procured to inspect the premises under the terms of IC [36-7-9-15](#).

(1) The violator failed to remedy the violation pursuant to the notice of violation and no written appeal was received by the authorized enforcement agency in a timely manner;

(2) A written appeal was received by the authorized enforcement agency in a timely manner and the violator failed to remedy the violation within 30 days following hearing and a determination against the violator by the authorized enforcement agency;

(3) In an emergency which threatens the public health, safety and welfare.

(B) No person shall refuse to allow the authorized enforcement agency to enter upon the premises for the purposes set forth above. [Ord. 1344 § 2, 2007; amended during 2012 recodification. Code 2000 § 171.115].

#### **12.30.170 Abatement of the violation – Violator’s liability.**

(A) A violator shall be liable to the authorized enforcement agency for any expense incurred for an action taken pursuant to this chapter. The authorized enforcement agency shall provide the violator with an itemized calculation of the expense of abatement within a reasonable time following abatement. Within 10 days following receipt of said notice, the property owner may file a written objection to the notice of expense. The authorized enforcement agency shall conduct a hearing within 15 days from the date of receipt of the objection. At the hearing, the authorized enforcement agency shall reconsider calculation of expense.

(B) Expenses determined hereunder shall be enforced and collected pursuant to the provisions of HMC [12.30.140](#) and IC [36-1-6](#). [Ord. 1628 § 7, 2016].

#### **12.30.180 Legal and equitable relief.**

The authorized enforcement agency shall have full power to invoke any authorized legal, equitable or special remedy for the enforcement of this chapter. The authorized enforcement agency is hereby authorized to institute proceedings in the circuit or superior courts of the county for prohibitory or

mandatory injunctive relief to prevent or discontinue any violations hereof. [Ord. 1344 § 2, 2007. Code 2000 § 171.117].

### **12.30.190 Penalties and fines.**

(A) Penalties and fines shall be assessed as follows:

(1) Any person who violates this chapter shall be subject to a fine not to exceed \$100.00. Every day any violation of this chapter shall continue shall constitute a separate offense. The authorized enforcement agency may recover all attorneys' fees, court costs and other expenses associated with enforcement of this chapter;

(2) Any person who violates, disobeys, neglects or refuses to comply with or who resists enforcement of any of the provisions of this chapter shall, upon prosecution, be fined not more than \$2,500 for each offense. Each day that a violation is permitted to exist shall constitute a separate offense.

(B) Any person, entity or organization who shall violate any provisions of HMC [12.15.010](#) through [12.15.150](#) shall be fined in the amount set forth in the designated schedule as a payable offense subject to admission before the violations clerk or ordinance violation bureau in the amount set forth in the admissions clerk payable offenses schedule in HMC [9.85.060](#).

(C) If such persons, entity or organization shall violate any provisions of HMC [12.15.010](#) through [12.15.150](#), and there is a failure to satisfy the civil violation as set forth in Chapter [9.85](#) HMC, then such violations shall be construed as justiciable offenses and shall be subject to a fine of not less than \$25.00 per violation, nor more than \$2,500. Each day of such unlawful activity as is prohibited shall be deemed a separate offense. [Ord. 1502 § 2, 2011. Code 2000 § 171.118].

### **12.30.200 Remedies not exclusive.**

The remedies listed in this chapter are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the authorized enforcement agency to seek cumulative remedies. [Ord. 1344 § 2, 2007. Code 2000 § 171.119].

## Chapter 15.50 EROSION CONTROL AND WATERCOURSE PROTECTION

### DURING SITE DEVELOPMENT

#### Sections:

- 15.50.010 Introduction and purpose.**
- 15.50.020 Definitions.**
- 15.50.030 Application.**
- 15.50.040 Permits.**
- 15.50.050 Review and approval.**
- 15.50.060 Plan, report, and schedule requirements (erosion and sediment control plans, soils engineering report, engineering geology report and work schedule).**
- 15.50.070 Design requirements.**
- 15.50.080 Inspection.**
- 15.50.090 Enforcement.**
- 15.50.100 Project termination.**
- 15.50.110 Separability.**

#### **15.50.010 Introduction and purpose.**

During the construction process, soil is highly vulnerable to erosion by wind and water. Eroded soil endangers water resources by reducing water quality and causing the siltation of aquatic habitat for fish and other desirable species. Eroded soil also necessitates repair of sewers and ditches and the dredging of lakes. In addition, clearing and grading during construction cause the loss of native vegetation necessary for terrestrial and aquatic habitat.

As a result, the purpose of this local regulation is to safeguard persons, protect property, and prevent damage to the environment in the town of Highland. This chapter, in conjunction with [327 327](#) 15-5 (also called Rule 5), will also promote the public welfare by guiding, regulating, and controlling the design, construction, use, and maintenance of any development or other activity that disturbs or breaks the topsoil or results in the movement and/or disturbance of earth on land in the town of Highland. [Ord. 1344 § 1, 2007. Code 2000 § 210.180].

#### **15.50.020 Definitions.**

The following definitions shall apply throughout the chapter unless the context clearly indicates or requires a different meaning:

“Applicant” means any person who submits an application to the town of Highland for a permit pursuant to this chapter.

“Best management practice” means a technique or series of techniques which are proven to be effective in controlling runoff, erosion, and sedimentation.

“Borrow” means earth material acquired from an off-site location for use in grading on a site.

“Certified contractor” means a person who has received training and is licensed by the state of Indiana to inspect and maintain erosion and sediment control practices.

“Clearing” means any activity that removes the vegetative surface cover.

“Director of public works” means the director of public works of the town of Highland and his/her duly authorized designees.

“Drainage way” means any channel that conveys surface runoff throughout the site.

“Erosion and sediment control plan” means a set of plans prepared by or under the direction of a licensed professional engineer indicating the specific measures and sequencing to be used to control sediment and erosion on a development site during and after construction.

“Erosion control” means a measure that prevents erosion.

“Grading” means excavation or fill of material, including the resulting conditions thereof.

“Perimeter control” means a barrier that prevents sediment from leaving a site by filtering sediment-laden runoff or diverting it to a sediment trap or basin.

“Phasing” means clearing a parcel of land in distinct phases, with the stabilization of each phase completed before the clearing of the next.

“Sediment control” means measures that prevent eroded sediment from leaving the site.

“Site” means a parcel of land or a contiguous combination thereof, where grading work is performed as a single unified operation.

“Site development permit” means a permit issued by the municipality for the construction or alteration of ground improvements and structures for the control of erosion, runoff, and grading.

“Stabilization” means the use of practices that prevent exposed soil from eroding.

“Start of construction” means the first land-disturbing activity associated with a development, including land preparation such as clearing, grading, and filling; installation of streets and walkways; excavation for basements, footings, piers, or foundations; erection of temporary forms; and installation of accessory buildings such as garages.

“Watercourse” means any body of water, including but not limited to lakes, ponds, rivers, streams, and bodies of water delineated by the town of Highland.

“Waterway” means a channel that directs surface runoff to a watercourse or to the public storm drain. [Ord. 1344 § 1, 2007. Code 2000 § 210.181].

#### **15.50.030 Application.**

The requirements under this rule apply to all land-disturbing activity on a site which is one or more acres in area, and all activity described in [327 327](#) 15-5-2. The town of Highland maintains the right to inspect sites of less than one acre, and require property owners to correct erosion control deficiencies on their site. Individuals who own lots of less than one acre in area will be required to complete and acquire town approval of their homeowner’s erosion control form before receiving their building permit. [Ord. 1344 § 1, 2007. Code 2000 § 210.182].

#### **15.50.040 Permits.**

(A) No person shall be granted a site development permit for land-disturbing activity that would require the uncovering of one or more acres, without the approval of an applicant-submitted erosion and sediment control plan by the town of Highland, and documented proof of submission of a completed Rule 5 notice of intent (NOI) letter form to the Indiana Department of Environmental Management, and documented proof

of submission or proof of publication to the Indiana Department of Environmental Management. Additionally, while not required to acquire a permit, sites of less than one acre shall still fall under the authority of the town of Highland. The town of Highland maintains the right to inspect sites of less than one acre, and require property owners to correct erosion control deficiencies on their sites.

(B) No site development permit is required for the following activities:

- (1) Any emergency activity that is immediately necessary for the protection of life, property, or natural resources.
- (2) Existing nursery and agricultural operations conducted as a permitted main or accessory use.
- (3) Cemetery graves.

(C) The applicant shall include all information required pursuant to [327 327](#) 15-5-5 on the application.

(D) Each application shall include a statement that any land clearing, construction, or development involving the movement of earth shall be in accordance with the applicant-submitted erosion and sediment control plan and that a town-permitted and -certified contractor shall be on site on all days when construction or grading activity takes place.

(E) The applicant shall be required to file with the town of Highland a faithful performance bond, letter of credit, or other improvement security in an amount deemed sufficient by the town of Highland to cover all costs of improvements, landscaping, maintenance of improvements for such period as specified by the town of Highland and engineering and inspection costs to cover the cost of failure or repair of improvements installed on the site.

(F) Construction projects which are sponsored and/or paid for by the town of Highland shall not be required to acquire permits.

(G) Construction projects which are sponsored and/or paid for by the town of Highland shall be required to comply with the erosion control requirements detailed in this chapter. [Ord. 1344 § 1, 2007. Code 2000 § 210.183].

#### **15.50.050 Review and approval.**

(A) The town of Highland building department shall review each application for a site development permit to determine its conformance with the provisions of this chapter and [327 327](#) 15-5. Within 28 days after receiving an application, the building department shall, in writing:

- (1) Approve the permit application;
- (2) Approve the permit application subject to such reasonable conditions as may be necessary to secure substantially the objectives of this chapter, and issue the permit subject to these conditions; or
- (3) Disapprove the permit application, indicating the reason(s) and procedure for submitting a revised application and/or submission.

(B) Failure of the building department to act on an original or revised application within 28 days of receipt shall authorize the applicant to proceed in accordance with the plans as filed unless such time is extended by agreement between the applicant and building department. Pending preparation and approval of a revised plan, development activities shall be allowed to proceed in accordance with conditions established by the building department. [Ord. 1344 § 1, 2007. Code 2000 § 210.184].



**15.50.060 Plan, report, and schedule requirements (erosion and sediment control plans, soils engineering report, engineering geology report and work schedule).**

(A) The applicant-submitted erosion and sediment control plan shall include all the requirements of [327 327](#) 15-5-6.5.

(B) Modifications to the plan shall be processed and approved or disapproved in the same manner as HMC [15.50.040](#), may be authorized by the Highland building department, by written authorization to the permittee, and shall include:

(1) Major amendments of the applicant-submitted erosion and sediment control plan submitted to the Highland building department.

(2) Field modifications of a minor nature. [Ord. 1555 § 2, 2014].

**15.50.070 Design requirements.**

(A) Grading, erosion control practices, sediment control practices, and waterway crossings shall meet the design criteria set forth in [327 327](#) 15-5, and the most recent version of the town of Highland Municipal Code, and shall be adequate to prevent transportation of sediment from the site to the satisfaction of the town building inspector. Cut and fill slopes shall be no greater than 3:1, except as approved by the building department to meet other community or environmental objectives.

(B) Clearing and grading of natural resources, such as forests and wetlands, shall not be permitted, except when in compliance with the town of Highland Municipal Code. Clearing techniques that retain natural vegetation and drainage patterns, as described in the infrastructure specifications, shall be used to the satisfaction of the building department.

(C) Clearing, except that necessary to establish sediment control devices, shall not begin until all sediment control devices have been installed and have been stabilized.

(D) Erosion control measures shall comply with [327 327](#) 15-5.

(E) Sediment control measures shall comply with [327 327](#) 15-5.

(F) Waterway and watercourse protection measures shall comply with [327 327](#) 15-5.

(G) Construction site access requirements shall include:

(1) A temporary access road provided at all sites.

(2) All other measures required by the town of Highland and [327 327](#) 15-5 in order to ensure that sediment is not tracked onto public streets by construction vehicles or washed into storm drains.

(H) Post-construction control measures in the form of structural and/or non-structural best management practices are required. Post-construction storm water best management practices shall follow Indiana's Storm Water Quality Manual as a guidance document. Plans and specifications for post-construction control measures shall comply with [327 327](#) 15-5-6.5(a)(8).

(I) A soils engineering report, when required by the town building inspector, based upon his/her determination that the condition of the soils is unknown or unclear so that additional information is required to protect against erosion or other hazard, shall be based on adequate and necessary test borings, and shall contain all the information listed below. Recommendations included in the report and approved by the town building inspector shall be incorporated in the grading plans and/or specifications.

- (1) Data regarding the nature, distribution, strength, and erodibility of existing soils.
- (2) If applicable, data regarding the nature, distribution, strength, and erodibility of soil to be placed on the site.
- (3) Conclusions and recommendations for grading procedures.
- (4) Conclusions and recommended designs for interim soil stabilization devices and measures, and for permanent soil stabilization after construction is completed.
- (5) Design criteria for corrective measures when necessary.
- (6) Opinions and recommendations covering the stability of the site.

(J) An engineering geology report; when deemed necessary by the town building inspector, based upon his/her determination that the condition of the soils is unknown or unclear so that additional information is required to protect against erosion or other hazard, shall be provided based on adequate and necessary test borings, giving an adequate description of the geology of the site with conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and giving opinions and recommendations covering the adequacy of sites to be developed by the proposed land-disturbing activity. Recommendations included in the report and approved by the town building inspector shall be incorporated into the grading plans and/or specifications.

(K) A work schedule must be submitted to the town building inspector, and must include the following information:

- (1) Proposed grading schedule.
- (2) Proposed schedule for installation of all erosion and sediment control measures including, but not limited to, the stage of completion of erosion and sediment control devices and vegetative measures.
- (3) Schedule for construction of final improvements, if any.
- (4) Schedule for installation of permanent erosion and sediment control devices. [Ord. 1555 § 2, 2014].

**15.50.080 Inspection.**

(A) The town building inspector or designated agent shall make inspections as hereinafter required and either shall approve that portion of the work completed or shall notify the permittee wherein the work fails to comply with the applicant-submitted erosion and sediment control plan as approved. Plans for grading, stripping, excavating, and filling work bearing the stamp of approval of the town of Highland shall be maintained at the site during the progress of the work. To obtain inspections, the permittee shall notify the Highland building department at least two working days before the following:

- (1) Start of construction.
- (2) Installation of sediment and erosion measures.
- (3) Completion of site clearing.
- (4) Completion of rough grading.
- (5) Completion of final grading.

(6) Close of the construction season.

(7) Completion of final landscaping.

(B) The permittee or his/her agent shall make regular inspections of all control measures in accordance with the inspection schedule outlined on the approved erosion and sediment control plan(s). The purpose of such inspections will be to determine the overall effectiveness of the control plan and the need for additional control measures. All inspections shall be documented in written form and submitted to the building department at the time interval specified in the approved permit.

(C) The town building inspector or its designated agent shall enter the property of the applicant as deemed necessary to make regular inspections to ensure the validity of the applicant-provided reports. [Ord. 1344 § 1, 2007. Code 2000 § 210.187].

#### **15.50.090 Enforcement.**

(A) Stop-Work Order – Revocation of Permit. In the event that any person holding a site development permit pursuant to this chapter violates the terms of the permit or implements site development in such a manner as to materially adversely affect the health, welfare, or safety of persons residing or working in the neighborhood or development site so as to be materially detrimental to the public welfare or injurious to property or improvements in the neighborhood, the building inspector or the director of public works may suspend or revoke the site development permit.

(1) Any person who violates this chapter shall be subject to a fine not to exceed \$100.00. Every day any violation of this chapter shall continue shall constitute a separate offense. The town of Highland may recover all attorneys' fees, court costs and other expenses associated with enforcement of this chapter.

(2) Any person who violates, disobeys, neglects or refuses to comply with or who resists enforcement of any of the provisions of this chapter shall, upon prosecution, be fined not more than \$2,500 for each offense. Each day that a violation is permitted to exist shall constitute a separate offense.

(3) Any person who violates this chapter, in addition to any other penalty or fine authorized herein, shall bear the expense of any necessary remediation or restoration resulting from the violation. [Ord. 1344 § 1, 2007. Code 2000 § 210.188].

#### **15.50.100 Project termination.**

Once the construction activity is completed (by rule language, when final stabilization has occurred), a completed Rule 5 notice of termination (NOT) form must be submitted to the town of Highland for verification. Once verified, the town of Highland will return the NOT form to the project site owner. The project site owner must then submit the NOT form to IDEM. [Ord. 1344 § 1, 2007. Code 2000 § 210.189].

#### **15.50.110 Separability.**

The provisions and sections of this chapter shall be deemed separable, and the invalidity of any portion of this chapter shall not affect the validity of the remainder. [Ord. 1344 § 1, 2007. Code 2000 § 210.190].

## **Chapter 15.55 FLOOD DAMAGE CONTROL**

Sections:

### Article I. General Provisions

**15.55.010 Plat of survey required for issuance of building permit.**

### Article II. Permit to Install Culverts, Fill Ditches, and the Like

**15.55.020 Required.**

**15.55.030 Application and issuance.**

**15.55.040 Bond.**

### Article III. Drainage of Storm Water Runoff

**15.55.050 Policy.**

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**15.55.100 Open watercourse.**

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### Article IV. Flood Hazard Area Regulations

**15.55.130 Statutory authorization, findings of fact, purpose, and objectives.**

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**15.55.150 General provisions.**

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**15.55.170 Provisions for flood hazard reduction.**

**15.55.180 Variance procedures.**

**15.55.190 Severability.**

**Statutory reference:** General drainage powers, see IC [36-1-3-9](#). Municipal home rule, see IC [36-1-3-1](#) et seq.

### **Article I. General Provisions**

**15.55.010 Plat of survey required for issuance of building permit.**

(A) No person shall be issued a building permit by the building inspector within the town of Highland, Indiana (exclusive of building permits issued for interior and exterior remodeling, room additions of less than 900 square feet, satellite dishes, advertising signs and garages), until a plat of survey by a registered land surveyor licensed in the state of Indiana is provided the building inspector.

(B) The plat of survey shall include the following information:

(1) Legal description and description of all property corners;

- (2) The location of all existing improvements on subject site;
- (3) The existing elevations based on M.S.L. datum at all property corners, exterior grades at all existing buildings, and finish floor elevations;
- (4) The location of all adjacent buildings along with their exterior elevations;
- (5) The finished elevations in the case of any and all new construction shall be contained therein;
- (6) The type and elevations of existing road improvements, i.e., driveway culverts, driveway locations, width and edge of pavement, sidewalks and concrete curb and gutters shall be provided therein;
- (7) The location, elevation, and type of storm water pick-up shall be contained therein;
- (8) The direction of all overland storm flow shall be designated on said plat. [Ord. 922, 1986. Code 1983 § 6-1. Code 2000 § 211.01].

## **Article II. Permit to Install Culverts, Fill Ditches, and the Like**

### **15.55.020 Required.**

No person shall install or lay any tile or culvert in any of the open drainage ditches in any street or alley for any purpose whatsoever, or fill in or obstruct the natural flow of water in any of the drainage ditches of the town without first obtaining a written permit from the public works director. [Code 1983 § 6-16; Code 2000 § 211.15].

Penalty, see HMC [1.05.170](#).

### **15.55.030 Application and issuance.**

(A) The permit required by this article shall be issued by the director of public works only upon written application for the same. The application shall show the exact location at which the culvert is to be placed, and shall describe the property or properties to be serviced by the culvert and any driveway to be erected thereupon.

(B) Such a permit shall be issued only upon a showing that the proposed work will comply with all ordinances and with accepted engineering standards. [Code 1983 § 6-17; Code 2000 § 211.16].

### **15.55.040 Bond.**

Any person making application for permit required by this article shall file with his application a sufficient bond approved by the director of public works. The bond shall indemnify, hold harmless and defend the town from any liability of any kind or nature arising out of any loss or injuries to the person or property of any person injured or damaged in any way through the construction work or installation to be covered by the permit. Further, it shall indemnify, hold harmless and defend the town from any liability of any kind or nature arising out of any loss through damages to the municipal sewer pipes, streets or alleys and sidewalks in carrying out the work contemplated by the permit. [Amended during 2012 recodification. Code 1983 § 6-18; Code 2000 § 211.17].

## **Article III. Drainage of Storm Water Runoff**

### **15.55.050 Policy.**

(A) This drainage ordinance, including guidelines and criteria, does not provide solutions to all drainage problems, nor is the engineer restricted to these designs or procedures exclusively. Although the policies as stated will hold true for most development work in this area, the town of Highland realizes that there

may be some exceptions to the policies or the criteria which, on individual projects, could involve special or unusual drainage design problems that should be reviewed prior to completing the drainage plans.

(B) The policy of the town of Highland shall be:

(1) All information necessary will be submitted to the town to determine how the storm water rate of runoff should be controlled within the development prior to its release to downstream properties for all proposed developments.

(2) All storm water drainage facilities within a development shall be designed to have capacity for the total tributary area. Upstream areas draining through the property under development shall be provided conveyance for the 10-year storm flow and shall, in addition, be provided a flood route for greater than 100-year event. Areas within the development shall be provided with storm water conveyance for the 10-year storm flow and shall, in addition, be provided a flood route for greater than 100-year events.

(3) All proposed developments with a runoff rate greater than that which downstream system is, or will be, designed for will be required to control the rate of storm water discharge.

(4) All developments having existing controls located downstream from the site will be required to control the discharge flow rate of storm water to that rate which existed prior to development.

(C) If the decision is made by the town of Highland, through its engineer, to handle storm water runoff by storage, the detention or retention facility shall become a permanent part of the subdivision and shall not be transferred to the town. Ownership of the storage facility shall be common to all subdivision lots. Maintenance of the storage facility shall be the responsibility of all subdivision lots. [Ord. 1555 § 4, 2014].

#### **15.55.060 Design control guidelines.**

(A) The following guidelines provide a uniform design procedure to control the discharge of storm water from areas where proposed changes in land use will result in changes in natural flow pattern, and are necessary to: first, clearly delineate the problem of handling runoff in urban areas; second, to define the responsibility any owner has to control the storm water runoff from his property.

(B) All land developers wishing to develop property in the town of Highland are required to prepare and submit a master drainage plan for the total development area.

(1) Prepare a topographic contour map, with the drainage area delineated with a plan for draining the total upstream tributary watershed through the proposed development.

(2) Prepare a topographic map with at least one-foot contours, with general layout of the proposed inlets and storm sewers for the total development showing all existing drainage structures with size and invert elevations.

(3) Determine the capacity of the downstream open channel, culvert or storm sewer that may be used for an outlet.

(4) Examine the points downstream that may be used as a control to determine the maximum allowable rate of storm water runoff for the design storm. Existing culverts are not necessarily controls.

(5) A routing path will be provided for runoff in the event the drainage facility's capacity is exceeded, and become a part of a grading plan which will be submitted with detail plans.

(6) Examine and show the routing of excess storm water through the site and as it is discharged to off-site lands.

(7) The routing path shall be continuous from one development to the next.

(8) If the decision is made by the town of Highland, through its engineer, to handle storm water runoff by storage and releasing it at a regulated rate to prevent flooding downstream, the storage basin will be located in and become part of the routing path.

(9) Excess storm water will be kept out of proposed habitable structures.

(10) The master drainage plan shall be approved by the engineer prior to initiating detailed engineering designs.

(C) It must be recognized that the master drainage plan does not constitute a detailed working design or plan from which a sewer project can be constructed, nor is such detail necessary to meet the objectives of the preliminary review. [Ord. 1555 § 4, 2014].

#### **15.55.070 Design criteria.**

(A) Storm Water Runoff.

(1) It is the policy of the town of Highland to use the rational method to determine the peak rate of runoff for all design storms for drainage areas of 200 acres or less.

(2) For drainage areas over 200 acres and for determining major storms, the method explained in "Urban Hydrology for Small Watersheds," Technical Release No. 55, may be used to provide peak rates of runoff. T.R. 55 can be obtained from the Soil Conservation Service Engineering Division, U.S. Department of Agriculture, incorporated herein by reference and made a part of this code, with two copies on file in the office of the clerk-treasurer and available for public inspection, pursuant to IC [36-1-5-4](#).

(B) Peak Rate of Runoff. The basic formula for the rational method is  $Q = CiA$  in which:

(1)  $Q$  = Peak rate of runoff in cubic feet per second.

(2)  $C$  = Runoff coefficient, ratio of the maximum rate of runoff to the average rate of rainfall.

(3)  $A$  = The drainage area in acres.

(4)  $i$  = Rainfall intensity in inches per hour for a selected storm frequency and the time of concentration.

(C) Table [15.55.120](#) presents urban runoff coefficients to be used to compute area weighted composite runoff coefficient to be used with the rational method to compute the peak runoff rate.

(D) Rainfall Intensity. Rainfall frequency curves, relation of rainfall intensity versus time, based on the latest published records of the U.S. Weather Bureau for the Chicago area, will be used for all design storms.

(E) Design Storm. The peak discharge to be computed for all storm drainage facilities, used for collecting and transporting storm runoff, is defined in the design criteria for those facilities.

(F) Major Storm. The major storm will be based on a storm with a return period of not less than 100 years. [Ord. 1555 § 4, 2014].

Penalty, see HMC [1.05.170](#).

**15.55.080 Roadway culverts.**

(A) Criteria.

(1) A culvert is designed to carry water from one side of the road to the other. The size and shape of the culvert should be such that it will carry a predetermined design peak discharge without the depth of water at the entrance or the velocity at outlet exceeding allowable limits.

(2) The culvert design procedure recommended for use is Hydraulic Engineering Circular No. 5; this circular can be obtained from the Superintendent of Documents, U.S. Government Printing Office.

(3) Single span culverts, including concrete box or slab top, should always be considered in lieu of multiple cell pipe culverts when they are the only structures that will meet the physical requirements introduced by rigid headwater controls.

(4) The plan for each culvert shall have the drainage area in acres and the estimated runoff or design discharge in cubic feet per second shown.

(5) The culvert inlet flowline elevation should be set such that it will be deep enough to provide an adequate outlet for future storm sewer improvements upstream.

(B) Design Storm Frequency.

(1) Ten-year storm minimum.

(2) Twenty-five-year storm for arterial streets.

(C) Design Flow.

(1) Areas under 200 acres use rational method  $Q = CiA$ .

(2) Areas between 200 and 300 acres transition between rational method and Technical Release 55.

(3) Areas over 300 acres use Technical Release 55.

(D) Runoff Coefficient. Based on Table [15.55.120](#).

(E) Maximum Allowable Headwater.

(1) Eighteen inches below top of curb.

(2) Twelve inches below edge of pavement.

(3) One and two-tenths inch times diameter.

(4) Diameter or rise plus four feet or two times diameter, whichever is lower, in deep ravines.

(F) Manning's "N" Value.

(1) Box culvert: 0.011.

(2) Slab top culvert: 0.03 to 0.05.

(3) Concrete pipe: 0.012.



(4) Corrugated metal: 0.019 to 0.032.

(G) Entrance Loss Coefficient.

(1) Box culvert and slab top culvert: 0.2 to 0.5.

(2) Concrete pipe: 0.2.

(3) Corrugated metal: 0.2 to 0.9.

(H) Minimum Cover. Desirable: 30 inches to pavement subgrade.

(I) Maximum Cover. The structural design criteria for culverts will be the same as that required by the Indiana Department of Highways.

(J) Maximum Allowable Outlet Velocity.

(1) Bar earth channel: six FPS.

(2) Rock protection: 18 FPS.

(3) Stilling basin: over 18 FPS.

(4) The ability of the downstream channel to handle the flow satisfactorily.

(K) End Protection.

(1) Full height headwall with flared wings.

(2) Other special type headwalls must be approved before use. [Ord. 951, 1990; amended during 2012 recodification. Code 1983 §§ 6-51 – 6-61; Code 2000 § 211.33].

Penalty, see HMC [1.05.170](#).

**15.55.090 Storm sewers.**

(A) Criteria. The more important criteria to consider in designing storm sewer systems are listed below:

(1) All storm sewer systems are to be designed using Manning's Equation ( $Q = 1.49/n R^{2/3} S^{1/2} A$ ).

(2) The sewer must be deep enough to receive the flow from all its sources within the watershed.

(3) The size of the sewer must be adequate for flowing full, based on the design storm.

(4) The gradient of the sewer must be sufficient to avoid deposition of solids.

(5) The storm sewer material will be concrete, vitrified clay or PVC. Other approved material may be used for special design.

(6) The main pipe, if over 24 inches, in a sewer system will be required to be separated from all curb inlets, unless a special design is submitted for approval.

(7) The flowline of pipes should be set such that the pipes at manholes have the 0.8 depth point at the same elevation; if the outlet elevation permits, the crown of the outlet pipe may be lower.

(8) The flowline elevations of sewers should be set to avoid using concrete encasement.

(9) Within the limits of existing or proposed rights-of-way, where minimum cover during construction or proposed cover over the outside top of the pipe is 30 inches or less for pipe size six to 27 inches in diameter inclusive, concrete encasement may be required.

(B) Design Storm Frequency. Flowing full for 10-year storm.

(C) Hydraulic Gradient.

(1) Based on five-year storm, shall not exceed window or grate elevation for an inlet or catch basin.

(2) Grade line based on tailwater or 0.8 D at outlet or other critical points within the system.

(D) Design Flow. All design flow will be based on rational method  $Q = CiA$ . Minimum time of concentration:

(1) Curb inlet: 10 minutes.

(2) Ditch C.B.: 10 minutes.

(E) Runoff Coefficient. Based on Table [15.55.120](#), with 0.4 as a minimum.

(F) Manning's "N" Value. All storm sewers shall be based on an "n" of 0.013 or less.

(G) Minimum Cover to Subgrade. Desirable: 30 inches to ground surface or pavement subgrade.

(H) Maximum Cover.

(1) The supporting strength of the conduit, as installed, divided by a suitable factor of safety, must equal or exceed the loads imposed upon it by the weight of earth plus any superimposed loads.

(2) The design procedure recommended for use in structural design of storm sewers in design manual concrete pipe, available from American Concrete Pipe Association.

(I) Velocity in Sewer for Design Flow.

(1) Three FPS minimum.

(2) Fifteen FPS maximum.

(J) Maximum Length Between Access Structures.

(1) Pipes under 36 inches: 400 feet.

(2) Pipes 36 inches and over: 5,000 feet. [Ord. 1555 § 4, 2014].

Penalty, see HMC [1.05.170](#).

### **15.55.100 Open watercourse.**

(A) Criteria.

(1) All open channels (natural or manmade) will be enclosed with a storm sewer when an area is developed. This policy will apply even when the open watercourse is located on a property line.

(2) Exemptions may be made for individual developments which, based on a two-year design storm, would require a pipe 72 inches in diameter or larger.

(3) Exemptions may also be made for areas of heavily wooded ravines with large diameter trees and with depth sufficient to receive the flow from storm sewers without disturbing the natural state. Exemptions may also be made for environmental reasons when there are areas with existing natural scenic drainage courses with depth and grade sufficient to receive flow from storm sewers.

(4) If exemptions are made on any project, it will be with the requirement that complete computations will be made and adequate protection be installed to prevent erosion at time of peak flow. The computations shall also ensure good flow characteristics at times of low flow.

(5) Access to storm drainage ditches and channels shall be by means of maintenance easements. Such maintenance easements shall be not less than 20 feet in width, measured horizontally from the top of the bank, exclusive of the width of the ditch, or channel, and a maintenance easement of this type shall be provided on each side of a flood control or storm drainage ditch channel or similar type facility. Maintenance easements are to be kept free of obstructions.

(6) Request for exemptions must be in writing at the time of submitting the master drainage plan.

(B) Design Storm Frequency. Flowing full for 10-year storm.

(C) Design Flow.

(1) Areas under 200 acres use rational method  $Q = CiA$ .

(2) Areas between 200 and 300 acres transition between rational method and Technical Release 55.

(3) Areas over 300 acres use Technical Release 55.

(D) Runoff Coefficient. Based on Table [15.55.120](#).

(E) Allowable Velocities – New Ditches.

(1) Five FPS with sod or jute mat lining.

(2) Over five FPS special lining.

(F) Allowable Velocities – Existing Channels. Ability of the channel to handle the flow satisfactorily.

(G) Manning's "N" Value.

(1) Sod or jute mat lining: 0.05.

(2) Paved lining: 0.015.

(3) Rock protection: 0.08.

(4) Existing lining: 0.025 to 0.20.

(H) Minimum Slope.

(1) Desirable for new channels: 0.40 percent.

(2) Absolute: 0.10 percent with a minimum velocity of two FPS based on a two-year storm.

(I) Side Slopes. Desirable: 4:1. [Ord. 951, 1990. Code 1983 §§ 6-84 – 6-92; Code 2000 § 211.35].

Penalty, see HMC [1.05.170](#).

#### **15.55.110 Routing path.**

(A) The routing path or the major drainage system is that part of the storm drainage system which carries the runoff which exceeds the capacity of the designed drainage facilities.

The major drainage system shall have the capacity to carry runoff from a storm with a return period of not less than 100 years without causing significant threat to property or public safety.

(B) It is not economically feasible to size a storm sewer system to collect and convey more than the design storm runoff. However, runoff which exceeds the capacity of the storm sewer system must have a route to follow. Essentially, the complete drainage system of an urban area contains two separate drainage elements. While the storm sewers belong to the design system, surface drainageways must be provided for the major flow from more intense storms.

(C) The intent of planning for the major drainage element is to ensure storm water runoff, which exceeds the capacity of the design drainage system, has a route to follow which will not cause a major loss of property or any loss of life. Street rights-of-way are a common choice for conveying major drainage flows.

(D) The major storm runoff is routed through the drainage system to determine if the combined capacity of the routing path and storm sewer system is sufficient to maintain surface flows within permissible limits. The capacity of the conduit at any given point is assumed to be the same for the major storm as for the initial design storm for preliminary design purposes. If the major storm runoff exceeds the combined capacity of the street and storm sewer drainage system, revision in the major drainageway crosses the street.

(E) Where the street is designated as the major drainageway, the depth of flow shall not exceed 12 inches at gutter line for local and collector streets and shall not exceed six inches' depth at crown for arterial streets. The same maximum depth criteria will apply where a major drainageway crosses the street.

(F) Routing of the major storm at culvert locations shall be at low areas or sags of vertical curves of streets. Elevations for the design of the street shall be such as to permit the major storm to flow across the street and to prevent damage to any existing or proposed building structure.

(G) Where a major drainageway is located outside a street right-of-way, easements will be provided and a grading plan will be submitted with a detailed engineering plan submission. The grading plan will include elevations along the routing path and other elevations necessary to show the major storm is contained within the planned area. The grading plan shall be submitted and filed with the engineer. [Ord. 1555 § 4, 2014].

#### **15.55.120 Detention or retention.**

(A) Urban and Suburban Areas. In developed and developing urban and suburban areas, several means for controlling storm water runoff could be resorted to. This usually involves storing runoff on or below the ground surface. The following types of storage facilities may be considered for detention: parking lots, underground tanks and surface basins or ponds.

(B) Parking Lot Storage. Parking lot storage using shallow ponding (six inches maximum) designed to flood specifically graded areas of the parking lot may be used. Controlled release features must be incorporated into the surface drainage system of the parking lot. This method is intended to control the runoff directly from the parking area, and is usually not appropriate for storing large runoff volumes.

(C) Tank Storage. Tank storage in an underground tank or chamber, either prefabricated or constructed in place, with a special controlled release feature will be considered for detention.

(D) Surface Basins or Ponds, Wet Ponds or Retention Basin. Wet ponds are permanent ponds where additional storage capacity is provided above the normal water level and special features for controlled release are included. Because of large land requirements, and the necessity of maintaining a permanent pool of water, wet ponds have a broader application for in-stream control where large watershed areas are involved compared to their use as on-site facilities for small urban areas.

(E) Dry Basins or Detention Basin. Dry basins are surface storage areas created by constructing a typical excavated or embankment basin. There is no normal pool level and a specific controlled release feature is included to control the rate of discharge. The detention flow control structure is usually a multi-stage device, and the retention flow control structure is usually a single-stage device.

(F) Design Criteria.

(1) Design Frequency. 100-year storm: based on Chart No. 1.

(2) Design Flow.

(a) Areas under 200 acres use rational method ( $Q = CiA$ ).

(b) Areas between 200 and 300 acres transition between rational method and Technical Release No. 55.

(c) Areas over 300 acres use Technical Release No. 55.

(3) Runoff Coefficient. Based on Table [15.55.120](#).

(4) Release Rates.

(a) The release rate for all developments shall not exceed 0.2 cfs/acre during the 100-year design storm event, except for developments with final plat areas of less than 1.0 acre, the release rate shall not exceed 0.25 cfs/acre during the 100-year design storm.

(b) The surface of a detention area should be constructed with sufficient slopes (minimum of one-half percent) to drain property so that all of the runoff is removed following a storm.

(c) A ditch, or ditches, shall be paved and constructed from the pipe, or pipes outletting into the basin, to the outlet structure.

(d) Seeding and other erosion control methods will be used to protect all slopes: sod, jute matting, rock protection or concrete.

(e) Side slopes for a retention facility shall be 4:1 maximum below permanent storage and 6:1 maximum above permanent storage.

(5) Time of Concentration. Based on Chart No. 2.

(6) Debris Control. Debris-control structures may be required in the detention methods and should be considered as an essential part of design.

(7) Emergency Spillway. An emergency spillway shall be provided for flows in excess of the design storm.

Urban Runoff Coefficients	
Type of Surface	Runoff Coefficient "C"
Hard Surfaces	
Asphalt	0.82
Concrete	0.85
Roof	0.85
Lawns (Sandy)	
Flat (0 – 2% Slope)	0.07
Rolling (2 – 7% Slope)	0.12
Steep (Greater than 7% Slope)	0.17
Lawns (Clay)	
Flat (0 – 2% Slope)	0.16
Rolling (2 – 7% Slope)	0.21
Steep (Greater than 7% Slope)	0.30

Source: HERPICC Stormwater Drainage Manual, July 1995.

[Ord. 1555 § 4, 2014].

Penalty, see HMC [1.05.170](#).

#### Article IV. Flood Hazard Area Regulations

##### 15.55.130 Statutory authorization, findings of fact, purpose, and objectives.

(A) Statutory Authorization. The Indiana Legislature has in IC [36-7-4](#) granted the power to local government units to control land use within their jurisdictions. Therefore, the town council of the town of Highland does hereby adopt the following floodplain management regulations:

(B) Findings of Fact.

(1) The flood hazard areas of the town of Highland are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.

(2) These flood losses are caused by the cumulative effect of obstructions in floodplains causing increases in flood heights and velocities, and by the occupancy in flood hazard areas by uses vulnerable to floods or hazardous to other lands which are inadequately elevated, inadequately floodproofed, or otherwise unprotected from flood damages.

(C) Statement of Purpose. It is the purpose of this article to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions

designed to:

- (1) Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, which result in damaging increases in erosion or in flood heights or velocities.
- (2) Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction.
- (3) Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of floodwaters.
- (4) Control filling, grading, dredging, and other development which may increase erosion or flood damage.
- (5) Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.
- (6) Make federal flood insurance available for structures and their contents in the town by fulfilling the requirements of the National Flood Insurance Program.

(D) Objectives. The objectives of this article are:

- (1) To protect human life and health.
- (2) To minimize expenditure of public money for costly flood control projects.
- (3) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public.
- (4) To minimize prolonged business interruptions.
- (5) To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone, and sewer lines, streets, and bridges located in floodplains.
- (6) To help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize flood blight areas. [Ord. 1612 § 2, 2016].

#### **15.55.140 Definitions.**

Unless specifically defined below, words or phrases used in this article shall be interpreted so as to give them the meaning they have in common usage and to give this article its most reasonable application.

(A) "A zone" means portions of the SFHA in which the principal source of flooding is runoff from rainfall, snowmelt, or a combination of both. In A zones, floodwaters may move slowly or rapidly, but waves are usually not a significant threat to buildings. These areas are labeled as Zone A, Zone AE, Zones A1-A30, Zone AO, Zone AH, Zone AR and Zone A99 on a FIRM. The definitions are presented below:

- (1) "Zone A" means areas subject to inundation by the one percent annual chance flood event. Because detailed hydraulic analyses have not been performed, no base flood elevation or depths are shown.
- (2) "Zones AE and A1-A30" means areas subject to inundation by the one percent annual chance flood event determined by detailed methods. Base flood elevations are shown within these zones. (Zone AE is on new and revised maps in place of Zones A1-A30.)

(3) "Zone AO" means areas subject to inundation by one percent annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown within this zone.

(4) "Zone AH" means areas subject to inundation by one percent annual chance shallow flooding (usually areas of ponding) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown within this zone.

(5) "Zone AR" means areas that result from the decertification of a previously accredited flood protection system that is determined to be in the process of being restored to provide base flood protection.

(6) "Zone A99" means areas subject to inundation by the one percent annual chance flood event, but which will ultimately be protected upon completion of an under-construction federal flood protection system. These are areas of special flood hazard where enough progress has been made on the construction of a protection system, such as dikes, dams, and levees, to consider it complete for insurance rating purposes. Zone A99 may only be used when the flood protection system has reached specified statutory progress toward completion. No base flood elevations or depths are shown.

(B) "Accessory structure (appurtenant structure)" means a structure with a floor area 400 square feet or less that is located on the same parcel of property as the principal structure and the use of which is incidental to the use of the principal structure. Accessory structures should constitute a minimal initial investment, may not be used for human habitation, and be designed to have minimal flood damage potential. Examples of accessory structures are detached garages, carports, storage sheds, pole barns, and hay sheds.

(C) "Addition (to an existing structure)" means any walled and roofed expansion to the perimeter of a structure in which the addition is connected by a common load-bearing wall other than a firewall. Any walled and roofed addition, which is connected by a firewall or is separated by independent perimeter load-bearing walls, is new construction.

(D) "Appeal" means a request for a review of the floodplain administrator's interpretation of any provision of this article.

(E) "Area of shallow flooding" means a designated AO or AH zone on the community's flood insurance rate map (FIRM) with base flood depths from one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

(F) "Base flood" means the flood having a one percent chance of being equaled or exceeded in any given year.

(G) "Base flood elevation (BFE)" means the elevation of the one percent annual chance flood.

(H) "Basement" means that portion of a structure having its floor subgrade (below ground level) on all sides.

(I) "Boundary river" means the part of the Ohio River that forms the boundary between Kentucky and Indiana.

(J) "Boundary river floodway" means the floodway of a boundary river.



(K) Building. See “Structure.”

(L) “Community” means a political entity that has the authority to adopt and enforce floodplain ordinances for the area under its jurisdiction.

(M) “Community rating system (CRS)” means a program developed by the Federal Insurance Administration to provide incentives for those communities in the regular program that have gone beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding.

(N) “Critical facility” means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to, schools, nursing homes, hospitals, police, fire, and emergency response installations, installations which produce, use or store hazardous materials or hazardous waste.

(O) “D Zone” means unstudied areas where flood hazards are undetermined, but flooding is possible. Flood insurance is available in participating communities but is not required by regulation in this zone.

(P) “Development” means any manmade change to improved or unimproved real estate including but not limited to:

- (1) Construction, reconstruction, or placement of a structure or any addition to a structure;
- (2) Installing a manufactured home on a site, preparing a site for a manufactured home or installing a recreational vehicle on a site for more than 180 days;
- (3) Installing utilities, erection of walls and fences, construction of roads, or similar projects;
- (4) Construction of flood control structures such as levees, dikes, dams, channel improvements, etc.;
- (5) Mining, dredging, filling, grading, excavation, or drilling operations;
- (6) Construction and/or reconstruction of bridges or culverts;
- (7) Storage of materials; or
- (8) Any other activity that might change the direction, height, or velocity of flood or surface waters.

“Development” does not include activities such as the maintenance of existing structures and facilities such as painting; reroofing; resurfacing roads; or gardening, plowing, and similar agricultural practices that do not involve filling, grading, excavation, or the construction of permanent structures.

(Q) “Elevated structure” means a nonbasement structure built to have the lowest floor elevated above the ground level by means of fill, solid foundation perimeter walls, filled stem wall foundations (also called chain walls), pilings, or columns (posts and piers).

(R) “Elevation certificate” is a certified statement that verifies a structure’s elevation information.

(S) “Emergency program” means the first phase under which a community participates in the NFIP. It is intended to provide a first layer amount of insurance at subsidized rates on all insurable structures in that community before the effective date of the initial FIRM.

(T) “Existing manufactured home park or subdivision” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading

or the pouring of concrete pads) is completed before the effective date of the community's first floodplain ordinance.

(U) "Expansion to an existing manufactured home park or subdivision" means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

(V) "FEMA" means the Federal Emergency Management Agency.

(W) "Flood" means a general and temporary condition of partial or complete inundation of normally dry land areas from the overflow, the unusual and rapid accumulation, or the runoff of surface waters from any source.

(X) "Flood boundary and floodway map (FBFM)" means an official map on which the Federal Emergency Management Agency (FEMA) or Federal Insurance Administration (FIA) has delineated the areas of flood hazards and regulatory floodway.

(Y) "Flood insurance rate map (FIRM)" means an official map of a community, on which FEMA has delineated both the areas of special flood hazard and the risk premium zones applicable to the community.

(Z) "Flood insurance study (FIS)" is the official hydraulic and hydrologic report provided by FEMA. The report contains flood profiles, as well as the FIRM, FBFM (where applicable), and the water surface elevation of the base flood.

(AA) "Flood prone area" means any land area acknowledged by a community as being susceptible to inundation by water from any source. (See "Flood.")

(BB) "Flood protection grade (FPG)" is the elevation of the regulatory flood plus two feet at any given location in the SFHA. (See "Freeboard.")

(CC) "Floodplain" means the channel proper and the areas adjoining any wetland, lake, or watercourse which have been or hereafter may be covered by the regulatory flood. The floodplain includes both the floodway and the fringe districts.

(DD) "Floodplain management" means the operation of an overall program of corrective and preventive measures for reducing flood damage and preserving and enhancing, where possible, natural resources in the floodplain, including but not limited to emergency preparedness plans, flood control works, floodplain management regulations, and open space plans.

(EE) "Floodplain management regulations" means this article and other zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances, and other applications of police power which control development in flood prone areas. This term describes federal, state, or local regulations in any combination thereof, which provide standards for preventing and reducing flood loss and damage. Floodplain management regulations are also referred to as floodplain regulations, floodplain ordinance, flood damage prevention ordinance, and floodplain management requirements.

(FF) "Floodproofing (dry floodproofing)" is a method of protecting a structure that ensures that the structure, together with attendant utilities and sanitary facilities, is watertight to the floodproofed design elevation with walls that are substantially impermeable to the passage of water. All structural components of these walls are capable of resisting hydrostatic and hydrodynamic flood forces, including the effects of buoyancy, and anticipated debris impact forces.

(GG) "Floodproofing certificate" is a form used to certify compliance for nonresidential structures as an alternative to elevating structures to or above the FPG. This certification must be by a registered professional engineer or architect.

(HH) "Floodway" is the channel of a river or stream and those portions of the floodplains adjoining the channel which are reasonably required to efficiently carry and discharge the peak flood flow of the regulatory flood of any river or stream.

(II) "Freeboard" means a factor of safety, usually expressed in feet above the BFE, which is applied for the purposes of floodplain management. It is used to compensate for the many unknown factors that could contribute to flood heights greater than those calculated for the base flood.

(JJ) "Fringe" is those portions of the floodplain lying outside the floodway.

(KK) "Hardship" (as related to variances of this article) means the exceptional hardship that would result from a failure to grant the requested variance. The town of Highland board of zoning appeals requires that the variance is exceptional, unusual, and peculiar to the property involved. Mere economic or financial hardship alone is not exceptional. Inconvenience, aesthetic considerations, physical handicaps, personal preferences, or the disapproval of one's neighbors likewise cannot, as a rule, qualify as an exceptional hardship. All of these problems can be resolved through other means without granting a variance, even if the alternative is more expensive, or requires the property owner to build elsewhere or put the parcel to a different use than originally intended.

(LL) "Highest adjacent grade" means the highest natural elevation of the ground surface, prior to the start of construction, next to the proposed walls of a structure.

(MM) "Historic structures" means any structures individually listed on the National Register of Historic Places or the Indiana State Register of Historic Sites and Structures.

(NN) "Letter of final determination (LFD)" means a letter issued by FEMA during the mapping update process which establishes final elevations and provides the new flood map and flood study to the community. The LFD initiates the six-month adoption period. The community must adopt or amend its floodplain management regulations during this six-month period unless the community has previously incorporated an automatic adoption clause.

(OO) "Letter of map change (LOMC)" is a general term used to refer to the several types of revisions and amendments to FEMA maps that can be accomplished by letter. They include letter of map amendment (LOMA), letter of map revision (LOMR), and letter of map revision based on fill (LOMR-F). The definitions are presented below:

(1) "Letter of map amendment (LOMA)" means an amendment by letter to the currently effective FEMA map that establishes that a property is not located in a SFHA through the submittal of property specific elevation data. A LOMA is only issued by FEMA.

(2) "Letter of map revision (LOMR)" means an official revision to the currently effective FEMA map. It is issued by FEMA and changes flood zones, delineations, and elevations.

(3) "Letter of map revision based on fill (LOMR-F)" means an official revision by letter to an effective NFIP map. A LOMR-F provides FEMA's determination concerning whether a structure or parcel has been elevated on fill above the BFE and excluded from the SFHA.

(PP) "Lowest adjacent grade" means the lowest elevation, after completion of construction, of the ground, sidewalk, patio, deck support, or basement entryway immediately next to the structure.

(QQ) "Lowest floor" means the lowest elevation described among the following:

(1) The top of the lowest level of the structure.

(2) The top of the basement floor.

(3) The top of the garage floor, if the garage is the lowest level of the structure.

(4) The top of the first floor of a structure elevated on pilings or pillars.

(5) The top of the floor level of any enclosure, other than a basement, below an elevated structure where the walls of the enclosure provide any resistance to the flow of floodwaters unless:

(a) The walls are designed to automatically equalize the hydrostatic flood forces on the walls by allowing for the entry and exit of floodwaters by providing a minimum of two openings (in addition to doorways and windows) in a minimum of two exterior walls; if a structure has more than one enclosed area, each shall have openings on exterior walls;

(b) The total net area of all openings shall be at least one square inch for every one square foot of enclosed area; the bottom of all such openings shall be no higher than one foot above the exterior grade or the interior grade immediately beneath each opening, whichever is higher; and

(c) Such enclosed space shall be usable solely for the parking of vehicles and building access.

(RR) "Manufactured home" means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include a "recreational vehicle."

(SS) "Manufactured home park or subdivision" means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

(TT) "Market value" means the building value, excluding the land (as agreed to between a willing buyer and seller), as established by what the local real estate market will bear. Market value can be established by independent certified appraisal, replacement cost depreciated by age of building (actual cash value), or adjusted assessed values.

(UU) "Mitigation" means sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. The purpose of mitigation is twofold: to protect people and structures, and to minimize the cost of disaster response and recovery.

(VV) "National Flood Insurance Program (NFIP)" is the federal program that makes flood insurance available to owners of property in participating communities nationwide through the cooperative efforts of the federal government and the private insurance industry.

(WW) "National Geodetic Vertical Datum (NGVD) of 1929" as corrected in 1929 is a vertical control used as a reference for establishing varying elevations within the floodplain.

(XX) "New construction" means any structure for which the "start of construction" commenced after the effective date of the community's first floodplain ordinance.

(YY) "New manufactured home park or subdivision" means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of the community's first floodplain ordinance.

(ZZ) "Non-boundary river floodway" means the floodway of any river or stream other than a boundary river.

(AAA) "North American Vertical Datum of 1988 (NAVD 88)" as adopted in 1993 is a vertical control datum used as a reference for establishing varying elevations within the floodplain.

(BBB) "Obstruction" includes, but is not limited to, any dam, wall, wharf, embankment, levee, dike, pile, abutment, protection, excavation, canalization, bridge, conduit, culvert, building, wire, fence, rock, gravel, refuse, fill, structure, vegetation, or other material in, along, across or projecting into any watercourse which may alter, impede, retard or change the direction and/or velocity of the flow of water; or due to its location, its propensity to snare or collect debris carried by the flow of water, or its likelihood of being carried downstream.

(CCC) "One percent annual chance flood" is the flood that has a one percent chance of being equaled or exceeded in any given year. Any flood zone that begins with the letter A is subject to the one percent annual chance flood. See "Regulatory flood."

(DDD) "Physical map revision (PMR)" is an official republication of a community's FEMA map to effect changes to base (one percent annual chance) flood elevations, floodplain boundary delineations, regulatory floodways, and planimetric features. These changes typically occur as a result of structural works or improvements, annexations resulting in additional flood hazard areas, or correction to base flood elevations or SFHAs.

(EEE) "Public safety and nuisance" means anything which is injurious to the safety or health of an entire community, neighborhood or any considerable number of persons, or unlawfully obstructs the free passage or use, in the customary manner, of any navigable lake, or river, bay, stream, canal, or basin.

(FFF) "Recreational vehicle" means a vehicle which is (1) built on a single chassis; (2) 400 square feet or less when measured at the largest horizontal projections; (3) designed to be self-propelled or permanently towable by a light duty truck; and (4) designed primarily not for use as a permanent dwelling, but as quarters for recreational camping, travel, or seasonal use.

(GGG) "Regular program" means the phase of the community's participation in the NFIP where more comprehensive floodplain management requirements are imposed and higher amounts of insurance are available based upon risk zones and elevations determined in a FIS.

(HHH) "Regulatory flood" means the flood having a one percent chance of being equaled or exceeded in any given year, as calculated by a method and procedure that is acceptable to and approved by the Indiana Department of Natural Resources and the Federal Emergency Management Agency. The regulatory flood elevation at any location is as defined in HMC [15.55.150\(B\)](#). The "regulatory flood" is also known by the term "base flood," "one percent annual chance flood," and "100-year flood."

(III) "Section 1316" is that section of the National Flood Insurance Act of 1968, as amended, which states that no new flood insurance coverage shall be provided for any property that the administrator finds has been declared by a duly constituted state or local zoning authority or other authorized public body to be in

violation of state or local laws, regulations, or ordinances that intended to discourage or otherwise restrict land development or occupancy in flood prone areas.

(JJJ) "Special flood hazard area (SFHA)" means those lands within the jurisdiction of the town subject to inundation by the regulatory flood. The SFHAs of the town of Highland are generally identified as such on the Lake County, Indiana and Incorporated Areas Flood Insurance Rate Map dated January 18, 2012, as well as any future updates, amendments, or revisions, prepared by the Federal Emergency Management Agency with the most recent date. (These areas are shown on a FIRM as Zone A, AE, A1-A30, AH, AR, A99, or AO.)

(KKK) "Start of construction" includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, or improvement was within 180 days of the permit date. The "actual start" means either the first placement of permanent construction of a structure on a site, such as the pouring of a slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, foundations, or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the "actual start of construction" means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

(LLL) "Structure" means a structure that is principally above ground and is enclosed by walls and a roof. The term includes a gas or liquid storage tank, a manufactured home, or a prefabricated building. The term also includes recreational vehicles to be installed on a site for more than 180 days.

(MMM) "Substantial damage" means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

(NNN) "Substantial improvement" means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures that have incurred "substantial damage" regardless of the actual repair work performed. The term does not include improvements of structures to correct existing violations of state or local health, sanitary, or safety code requirements.

(OOO) "Suspension" means the removal of a participating community from the NFIP because the community has not enacted and/or enforced the proper floodplain management regulations required for participation in the NFIP.

(PPP) "Variance" is a grant of relief from the requirements of this article, which permits construction in a manner otherwise prohibited by this article where specific enforcement would result in unnecessary hardship.

(QQQ) "Violation" means the failure of a structure or other development to be fully compliant with this article. A structure or other development without the elevation, other certification, or other evidence of compliance required in this article is presumed to be in violation until such time as that documentation is provided.

(RRR) "Watercourse" means a lake, river, creek, stream, wash, channel or other topographic feature on or over which waters flow at least periodically. "Watercourse" includes specifically designated areas in which substantial flood damage may occur.

(SSS) "X zone" means the area where the flood hazard is less than that in the SFHA. Shaded X zones shown on recent FIRMs (B zones on older FIRMs) designate areas subject to inundation by the flood with a 0.2 percent chance of being equaled or exceeded (the 500-year flood). Unshaded X zones (C zones on older FIRMs) designate areas where the annual exceedance probability of flooding is less than 0.2 percent.

(TTT) "Zone" means a geographical area shown on a FIRM that reflects the severity or type of flooding in the area.

(UUU) Zone A. See definition for "A zone."

(VVV) "Zones B, C, and X" means areas identified in the community as areas of moderate or minimal hazard from the principal source of flood in the area. However, buildings in these zones could be flooded by severe, concentrated rainfall coupled with inadequate local drainage systems. Flood insurance is available in participating communities but is not required by regulation in these zones. (Zone X is used on new and revised maps in place of Zones B and C.) [Ord. 1612 § 2, 2016].

#### **15.55.150 General provisions.**

(A) Lands to Which This Article Applies. This article shall apply to all SFHAs and known flood prone areas within the jurisdiction of the town.

(B) Basis for Establishing Regulatory Flood Data. This article's protection standard is the regulatory flood. The best available regulatory flood data is listed below.

(1) The regulatory flood elevation, floodway, and fringe limits for the studied SFHAs within the jurisdiction of the town of Highland shall be as delineated on the one percent annual chance flood profiles in the Flood Insurance Study of Lake County, Indiana and Incorporated Areas dated January 18, 2012, and the corresponding flood insurance rate map dated January 18, 2012, as well as any future updates, amendments, or revisions, prepared by the Federal Emergency Management Agency with the most recent date.

(2) The regulatory flood elevation, floodway, and fringe limits for each of the SFHAs within the jurisdiction of the town of Highland, delineated as an "A zone" on the Lake County, Indiana and Incorporated Areas Flood Insurance Rate Map dated January 18, 2012, as well as any future updates, amendments, or revisions, prepared by the Federal Emergency Management Agency with the most recent date, shall be according to the best data available as provided by the Indiana Department of Natural Resources; provided the upstream drainage area from the subject site is greater than one square mile. Whenever a party disagrees with the best available data, the party needs to replace existing data with better data that meets current engineering standards. To be considered, this data must be submitted to the Indiana Department of Natural Resources for review and subsequently approved.

(3) In the absence of a published FEMA map, or absence of identification on a FEMA map, the regulatory flood elevation, floodway, and fringe limits of any watercourse in the community's known flood prone areas shall be according to the best data available as provided by the Indiana Department of Natural Resources; provided the upstream drainage area from the subject site is greater than one square mile.

(4) Upon issuance of a letter of final determination (LFD), any more restrictive data in the new (not yet effective) mapping/study shall be utilized for permitting and construction (development) purposes, replacing all previously effective less restrictive flood hazard data provided by FEMA.

(C) Establishment of Floodplain Development Permit. A floodplain development permit shall be required in conformance with the provisions of this article prior to the commencement of any development activities in areas of special flood hazard.

(D) Compliance. No structure shall hereafter be located, extended, converted or structurally altered within the SFHA without full compliance with the terms of this article and other applicable regulations. No land or stream within the SFHA shall hereafter be altered without full compliance with the terms of this article and other applicable regulations.

(E) Abrogation and Greater Restrictions. This article is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this article and another conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

(F) Discrepancy between Mapped Floodplain and Actual Ground Elevations.

(1) In cases where there is a discrepancy between the mapped floodplain (SFHA) on the FIRM and the actual ground elevations, the elevation provided on the profiles shall govern.

(2) If the elevation of the site in question is below the base flood elevation, that site shall be included in the SFHA and regulated accordingly.

(3) If the elevation (natural grade) of the site in question is above the base flood elevation and not located within the floodway, that site shall be considered outside the SFHA and the floodplain regulations will not be applied. The property owner shall be advised to apply for a LOMA.

(G) Interpretation. In the interpretation and application of this article all provisions shall be:

(1) Considered as minimum requirements.

(2) Liberally construed in favor of the governing body.

(3) Deemed neither to limit nor repeal any other powers granted under state statutes.

(H) Warning and Disclaimer of Liability. The degree of flood protection required by this article is considered reasonable for regulatory purposes and is based on available information derived from engineering and scientific methods of study. Larger floods can and will occur on rare occasions. Therefore, this article does not create any liability on the part of the town of Highland, the Indiana Department of Natural Resources, or the state of Indiana for any flood damage that results from reliance on this article or any administrative decision made lawfully thereunder.

(I) Penalties for Violation. Failure to obtain a floodplain development permit in the SFHA or failure to comply with the requirements of a floodplain development permit or conditions of a variance shall be deemed to be a violation of this article. All violations shall be considered a common nuisance and be treated as such in accordance with the provisions of the zoning code for the town of Highland. All violations shall be punishable by a fine not exceeding \$250.00.

(1) A separate offense shall be deemed to occur for each day the violation continues to exist.



(2) The town of Highland town council shall inform the owner that any such violation is considered a willful act to increase flood damages and therefore may cause coverage by a standard flood insurance policy to be suspended.

(3) Nothing herein shall prevent the town from taking such other lawful action to prevent or remedy any violations. All costs connected therewith shall accrue to the person or persons responsible. [Ord. 1612 § 2, 2016].

#### **15.55.160 Administration.**

(A) Designation of Administrator. The town of Highland town council hereby appoints the building commissioner to administer and implement the provisions of this article and is herein referred to as the floodplain administrator.

(B) Permit Procedures. Application for a floodplain development permit shall be made to the floodplain administrator on forms furnished by him or her prior to any development activities, and may include, but not be limited to, the following: plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, earthen fill, storage of materials or equipment, drainage facilities, and the location of the foregoing. Specifically the following information is required:

(1) Application Stage.

(a) A description of the proposed development.

(b) Location of the proposed development sufficient to accurately locate property and structure(s) in relation to existing roads and streams.

(c) A legal description of the property site.

(d) A site development plan showing existing and proposed development locations and existing and proposed land grades.

(e) Elevation of the top of the planned lowest floor (including basement) of all proposed buildings. Elevation should be in NAVD 88 or NGVD.

(f) Elevation (in NAVD 88 or NGVD) to which any nonresidential structure will be floodproofed.

(g) Description of the extent to which any watercourse will be altered or relocated as a result of proposed development. A hydrologic and hydraulic engineering study is required and any watercourse changes submitted to DNR for approval and then to FEMA as a letter of map revision. (See subsection (C)(6) of this section for additional information.)

(2) Finished Construction. Upon completion of construction, an elevation certification which depicts the "as-built" lowest floor elevation is required to be submitted to the floodplain administrator. If the project includes a floodproofing measure, floodproofing certification is required to be submitted by the applicant to the floodplain administrator.

(C) Duties and Responsibilities of the Floodplain Administrator. The floodplain administrator and/or designated staff is hereby authorized and directed to enforce the provisions of this article. The administrator is further authorized to render interpretations of this article which are consistent with its spirit and purpose.

Duties and responsibilities of the floodplain administrator shall include, but are not limited to:

(1) Review all floodplain development permits to assure that the permit requirements of this article have been satisfied.

(2) Inspect and inventory damaged structures in the SFHA and complete substantial damage determinations.

(3) Ensure that construction authorization has been granted by the Indiana Department of Natural Resources for all development projects subject to HMC [15.55.170](#)(E) and (G)(1), and maintain a record of such authorization (either copy of actual permit/authorization or floodplain analysis/regulatory assessment).

(4) Ensure that all necessary federal or state permits have been received prior to issuance of the local floodplain development permit. Copies of such permits/authorizations are to be maintained on file with the floodplain development permit.

(5) Maintain and track permit records involving additions and improvements to residences located in the floodway.

(6) Notify adjacent communities and the State Floodplain Coordinator prior to any alteration or relocation of a watercourse, and submit copies of such notifications to FEMA.

(7) Maintain for public inspection and furnish upon request local permit documents, damaged structure inventories, substantial damage determinations, regulatory flood data, SFHA maps, letters of map change (LOMC), copies of DNR permits, letters of authorization, and floodplain analysis and regulatory assessments (letters of recommendation), federal permit documents, and "as-built" elevation and floodproofing data for all buildings constructed subject to this article.

(8) Utilize and enforce all letters of map change (LOMC) or physical map revisions (PMR) issued by FEMA for the currently effective SFHA maps of the community.

(9) Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.

(10) Review certified plans and specifications for compliance.

(11) Verify and record the actual elevation of the lowest floor (including basement) of all new or substantially improved structures, in accordance with subsection (B) of this section.

(12) Verify and record the actual elevation to which any new or substantially improved structures have been floodproofed in accordance with subsection (B) of this section. [Ord. 1612 § 2, 2016].

**15.55.170 Provisions for flood hazard reduction.**

(A) General Standards. In all SFHAs and known flood prone areas the following provisions are required:

(1) New construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.

(2) Manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state requirements for resisting wind forces.

(3) New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage below the FPG.

(4) New construction and substantial improvements shall be constructed by methods and practices that minimize flood damage.

(5) Electrical, heating, ventilation, plumbing, air conditioning equipment, utility meters, and other service facilities shall be located at/above the FPG or designed so as to prevent water from entering or accumulating within the components below the FPG. Water and sewer pipes, electrical and telephone lines, submersible pumps, and other waterproofed service facilities may be located below the FPG.

(6) New and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.

(7) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.

(8) On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.

(9) Any alteration, repair, reconstruction or improvements to a structure that is in compliance with the provisions of this article shall meet the requirements of "new construction" as contained in this article.

(B) Specific Standards. In all SFHAs, the following provisions are required:

(1) In addition to the requirements of subsection (A) of this section all structures to be located in the SFHA shall be protected from flood damage below the FPG. This building protection requirement applies to the following situations:

(a) Construction or placement of any structure having a floor area greater than 400 square feet.

(b) Addition or improvement made to any existing structure where the cost of the addition or improvement equals or exceeds 50 percent of the value of the existing structure (excluding the value of the land).

(c) Reconstruction or repairs made to a damaged structure where the costs of restoring the structure to its before damaged condition equals or exceeds 50 percent of the market value of the structure (excluding the value of the land) before damage occurred.

(d) Installing a travel trailer or recreational vehicle on a site for more than 180 days.

(e) Installing a manufactured home on a new site or a new manufactured home on an existing site. This article does not apply to returning the existing manufactured home to the same site it lawfully occupied before it was removed to avoid flood damage.

(2) Residential Structures. New construction or substantial improvement of any residential structure (or manufactured home) shall have the lowest floor, including basement, at or above the FPG (two feet above the base flood elevation). Should solid foundation perimeter walls be used to elevate a structure, openings sufficient to facilitate the unimpeded movements of floodwaters shall be provided in accordance with the standards of subsection (B)(4) of this section.

(3) Nonresidential Structures. New construction or substantial improvement of any commercial, industrial, or nonresidential structure (or manufactured home) shall either have the lowest floor, including basement, elevated to or above the FPG (two feet above the base flood elevation) or be floodproofed to or above the FPG. Should solid foundation perimeter walls be used to elevate a structure, openings sufficient to facilitate the unimpeded movements of floodwaters shall be provided in accordance with the standards of subsection (B)(4) of this section. Structures located in all "A zones" may be floodproofed in lieu of being elevated if done in accordance with the following:

(a) A registered professional engineer or architect shall certify that the structure has been designed so that below the FPG, the structure and attendant utility facilities are watertight and capable of resisting the effects of the regulatory flood. The structure design shall take into account flood velocities, duration, rate of rise, hydrostatic pressures, and impacts from debris or ice. Such certification shall be provided to the floodplain administrator as set forth in HMC [15.55.160\(C\)\(12\)](#).

(b) Floodproofing measures shall be operable without human intervention and without an outside source of electricity.

(4) Elevated Structures. New construction or substantial improvements of elevated structures shall have the lowest floor at or above the FPG.

Elevated structures with fully enclosed areas formed by foundation and other exterior walls below the flood protection grade shall be designed to preclude finished living space and designed to allow for the entry and exit of floodwaters to automatically equalize hydrostatic flood forces on exterior walls. Designs must meet the following minimum criteria:

(a) Provide a minimum of two openings located in a minimum of two exterior walls (having a total net area of not less than one square inch for every one square foot of enclosed area).

(b) The bottom of all openings shall be no more than one foot above the exterior grade or the interior grade immediately beneath each opening, whichever is higher.

(c) Openings may be equipped with screens, louvers, valves or other coverings or devices provided they permit the automatic flow of floodwaters in both directions.

(d) Access to the enclosed area shall be the minimum necessary to allow for parking for vehicles (garage door) or limited storage of maintenance equipment used in connection with the premises (standard exterior door) or entry to the living area (stairway or elevator).

(e) The interior portion of such enclosed area shall not be partitioned or finished into separate rooms.

(f) The interior grade of such enclosed area shall be at an elevation at or higher than the exterior grade.

(5) Structures Constructed on Fill. A residential or nonresidential structure may be constructed on a permanent land fill in accordance with the following:

(a) The fill shall be placed in layers no greater than one foot deep before compacting to 95 percent of the maximum density obtainable with either the standard or modified Proctor test method. The results of the test showing compliance shall be retained in the permit file.

(b) The fill shall extend 10 feet beyond the foundation of the structure before sloping below the BFE.

(c) The fill shall be protected against erosion and scour during flooding by vegetative cover, riprap, or bulkheading. If vegetative cover is used, the slopes shall be no steeper than three horizontal to one vertical.

(d) The fill shall not adversely affect the flow of surface drainage from or onto neighboring properties.

(e) The top of the lowest floor including basements shall be at or above the FPG.

(6) Standards for Manufactured Homes and Recreational Vehicles. Manufactured homes and recreational vehicles to be installed or substantially improved on a site for more than 180 days must meet one of the following requirements:

(a) These requirements apply to all manufactured homes to be placed on a site outside a manufactured home park or subdivision; in a new manufactured home park or subdivision; in an expansion to an existing manufactured home park or subdivision; or in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as a result of a flood:

1. The manufactured home shall be elevated on a permanent foundation such that the lowest floor shall be at or above the FPG and securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

2. Fully enclosed areas formed by foundation and other exterior walls below the FPG shall be designed to preclude finished living space and designed to allow for the entry and exit of floodwaters to automatically equalize hydrostatic flood forces on exterior walls as required for elevated structures in subsection (B)(4) of this section.

(b) These requirements apply to all manufactured homes to be placed on a site in an existing manufactured home park or subdivision that has not been substantially damaged by a flood:

1. The manufactured home shall be elevated so that the lowest floor of the manufactured home chassis is supported by reinforced piers or other foundation elevations that are no less than 36 inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

2. Fully enclosed areas formed by foundation and other exterior walls below the FPG shall be designed to preclude finished living space and designed to allow for the entry and exit of floodwaters to automatically equalize hydrostatic flood forces on exterior walls as required for elevated structures in subsection (B)(4) of this section.

(c) Recreational vehicles placed on a site shall either:

1. Be on site for less than 180 days;

2. Be fully licensed and ready for highway use (defined as being on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions); or

3. Meet the requirements for "manufactured homes" as stated earlier in this section.

(7) Accessory Structures. Relief to the elevation or dry floodproofing standards may be granted for accessory structures. Such structures must meet the following standards:

- (a) Shall not be used for human habitation.
- (b) Shall be constructed of flood resistant materials.
- (c) Shall be constructed and placed on the lot to offer the minimum resistance to the flow of floodwaters.
- (d) Shall be firmly anchored to prevent flotation.
- (e) Service facilities such as electrical and heating equipment shall be elevated or floodproofed to or above the FPG.
- (f) Shall be designed to allow for the entry and exit of floodwaters to automatically equalize hydrostatic flood forces on exterior walls as required for elevated structures in subsection (B)(4) of this section.

(8) Above Ground Gas or Liquid Storage Tanks. All above ground gas or liquid storage tanks shall be anchored to prevent flotation or lateral movement.

(C) Standards for Subdivision Proposals.

- (1) All subdivision proposals shall be consistent with the need to minimize flood damage.
- (2) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.
- (3) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards.
- (4) Base flood elevation data shall be provided for subdivision proposals and other proposed development (including manufactured home parks and subdivisions), which is greater than the lesser of 50 lots or five acres.

(D) Critical Facility. Construction of new critical facilities shall be, to the extent possible, located outside the limits of the SFHA. Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated to or above the FPG at the site. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the FPG shall be provided to all critical facilities to the extent possible.

(E) Standards for Identified Floodways. Located within SFHAs, established in HMC [15.55.150\(B\)](#), are areas designated as floodways. The floodway is an extremely hazardous area due to the velocity of floodwaters, which carry debris, potential projectiles, and have erosion potential. If the site is in an identified floodway, the floodplain administrator shall require the applicant to forward the application, along with all pertinent plans and specifications, to the Indiana Department of Natural Resources and apply for a permit for construction in a floodway. Under the provisions of IC [14-28-1](#) a permit for construction in a floodway from the Indiana Department of Natural Resources is required prior to the issuance of a local building permit for any excavation, deposit, construction, or obstruction activity located in the floodway. This includes land preparation activities such as filling, grading, clearing and paving, etc., undertaken before the actual start of construction of the structure. However, it does exclude nonsubstantial

additions/improvements to existing (lawful) residences in a non-boundary river floodway. (IC [14-28-1-26](#) allows construction of a nonsubstantial addition/improvement to a residence in a non-boundary river floodway without obtaining a permit for construction in the floodway from the Indiana Department of Natural Resources. Please note that if fill is needed to elevate an addition above the existing grade, prior approval for the fill is required from the Indiana Department of Natural Resources.)

No action shall be taken by the floodplain administrator until a permit or letter of authorization (when applicable) has been issued by the Indiana Department of Natural Resources granting approval for construction in the floodway. Once a permit for construction in a floodway or letter of authorization has been issued by the Indiana Department of Natural Resources, the floodplain administrator may issue the local floodplain development permit, provided the provisions contained in this section have been met. The floodplain development permit cannot be less restrictive than the permit for construction in a floodway issued by the Indiana Department of Natural Resources. However, a community's more restrictive regulations (if any) shall take precedence.

No development shall be allowed which, acting alone or in combination with existing or future development, will adversely affect the efficiency of, or unduly restrict the capacity of, the floodway. This adverse effect is defined as an increase in the elevation of the regulatory flood of at least fifteen-hundredths of a foot as determined by comparing the regulatory flood elevation under the project condition to that under the natural or prefloodway condition as proven with hydraulic analyses.

For all projects involving channel modifications or fill (including levees) the town shall submit the data and request that the Federal Emergency Management Agency revise the regulatory flood data per mapping standard regulations found at [44 CFR 65.12](#).

(F) Standards for Identified Fringe. If the site is located in an identified fringe, then the floodplain administrator may issue the local floodplain development permit provided the provisions contained in this section have been met. The key provision is that the top of the lowest floor of any new or substantially improved structure shall be at or above the FPG.

(G) Standards for SFHAs without Established Base Flood Elevation and/or Floodways/Fringes.

(1) Drainage area upstream of the site is greater than one square mile:

If the site is in an identified floodplain where the limits of the floodway and fringe have not yet been determined, and the drainage area upstream of the site is greater than one square mile, the floodplain administrator shall require the applicant to forward the application, along with all pertinent plans and specifications, to the Indiana Department of Natural Resources for review and comment.

No action shall be taken by the floodplain administrator until either a permit for construction in a floodway (including letters of authorization) or a floodplain analysis/regulatory assessment citing the one percent annual chance flood elevation and the recommended flood protection grade has been received from the Indiana Department of Natural Resources.

Once the floodplain administrator has received the proper permit for construction in a floodway (including letters of authorization) or floodplain analysis/regulatory assessment approving the proposed development, a floodplain development permit may be issued provided the conditions of the floodplain development permit are not less restrictive than the conditions received from the Indiana Department of Natural Resources and the provisions contained in this section have been met.

(2) Drainage area upstream of the site is less than one square mile:

If the site is in an identified floodplain where the limits of the floodway and fringe have not yet been determined and the drainage area upstream of the site is less than one square mile, the floodplain administrator shall require the applicant to provide an engineering analysis showing the limits of the floodplain and one percent annual chance flood elevation for the site.

Upon receipt, the floodplain administrator may issue the local floodplain development permit, provided the provisions contained in this section have been met.

(3) The total cumulative effect of the proposed development, when combined with all other existing and anticipated development, shall not increase the regulatory flood more than fourteen-hundredths of one foot and shall not increase flood damages or potential flood damages.

(H) Standards for Flood Prone Areas. All development in known flood prone areas not identified on FEMA maps, or where no FEMA published map is available, shall meet applicable standards as required per this section. [Ord. 1612 § 2, 2016].

#### **15.55.180 Variance procedures.**

(A) Designation of Variance and Appeals Board. The town of Highland board of zoning appeals shall hear and decide appeals and requests for variances from requirements of this article.

(B) Duties of Variance and Appeals Board. The board shall hear and decide appeals when it is alleged an error in any requirement, decision, or determination is made by the floodplain administrator in the enforcement or administration of this article. Any person aggrieved by the decision of the board may appeal such decision to the Lake County circuit or superior court.

(C) Variance Procedures. In passing upon such applications, the board shall consider all technical evaluations, all relevant factors, all standards specified in other sections of this article, and:

(1) The danger of life and property due to flooding or erosion damage.

(2) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner.

(3) The importance of the services provided by the proposed facility to the community.

(4) The necessity of the facility to a waterfront location, where applicable.

(5) The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage.

(6) The compatibility of the proposed use with existing and anticipated development.

(7) The relationship of the proposed use to the comprehensive plan and floodplain management program for that area.

(8) The safety of access to the property in times of flood for ordinary and emergency vehicles.

(9) The expected height, velocity, duration, rate of rise, and sediment of transport of the floodwaters at the site.

(10) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water



systems, and streets and bridges.

(D) Conditions for Variances.

(1) Variances shall only be issued when there is:

(a) A showing of good and sufficient cause.

(b) A determination that failure to grant the variance would result in exceptional hardship.

(c) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud or victimization of the public, or conflict with existing laws or ordinances.

(2) No variance for a residential use within a floodway subject to HMC [15.55.170\(E\)](#) or (G)(1) may be granted.

(3) Any variance granted in a floodway subject to HMC [15.55.170\(E\)](#) or (G)(1) will require a permit from the Indiana Department of Natural Resources.

(4) Variances to the provisions for flood hazard reduction of HMC [15.55.170\(B\)](#) may be granted only when a new structure is to be located on a lot of one-half acre or less in size, contiguous to and surrounded by lots with existing structures constructed below the flood protection grade.

(5) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

(6) Variances may be granted for the reconstruction or restoration of any structure individually listed on the National Register of Historic Places or the Indiana State Register of Historic Sites and Structures.

(7) Any applicant to whom a variance is granted shall be given written notice specifying the difference between the flood protection grade and the elevation to which the lowest floor is to be built and stating that the cost of the flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation (see subsection (E) of this section).

(8) The floodplain administrator shall maintain the records of appeal actions and report any variances to the Federal Emergency Management Agency or the Indiana Department of Natural Resources upon request (see subsection (E) of this section).

(E) Variance Notification. Any applicant to whom a variance is granted that allows the lowest floor of a structure to be built below the flood protection grade shall be given written notice over the signature of a community official that:

(1) The issuance of a variance to construct a structure below the flood protection grade will result in increased premium rates for flood insurance up to amounts as high as \$25.00 for \$100.00 of insurance coverage; and

(2) Such construction below the flood protection grade increases risks to life and property.

The floodplain administrator shall maintain a record of all variance actions, including justification for their issuance.

(F) Historic Structure. Variances may be issued for the repair or rehabilitation of “historic structures” upon a determination that the proposed repair or rehabilitation will not preclude the structure’s continued designation as an “historic structure” and the variance is the minimum to preserve the historic character and design of the structure.

(G) Special Conditions. Upon the consideration of the factors listed in this section, and the purposes of this article, the town of Highland board of zoning appeals may attach such conditions to the granting of variances as it deems necessary to further the purposes of this article. [Ord. 1612 § 2, 2016].

**15.55.190 Severability.**

If any section, clause, sentence, or phrase of this chapter is held to be invalid or unconstitutional by any court of competent jurisdiction, then said holding shall in no way affect the validity of the remaining portions of this chapter. [Ord. 1612 § 2, 2016].

# Appendix C

## Storm Sewer Outfall Inventory

# TOWN OF HIGHLAND

## BOARD OF SANITARY COMMISSIONERS

### STORM SEWER OUTFALL SURVEY

TOWN COUNCIL

BERNIE ZEMEN, PRESIDENT  
 KONNIE KUIPER, VICE PRESIDENT  
 MARK HERAK  
 BRIAN NOVAK  
 DAN VASSAR

CLERK TREASURER

MICHAEL GRIFFIN

PUBLIC WORKS DIRECTOR

JOHN BACH

TOWN COUNCIL ATTORNEY

RHETT TAUBER

HIGHLAND BOARD OF SANITARY COMMISSIONERS

DAVID JONES, PRESIDENT  
 REX BURTON, VICE PRESIDENT  
 JEANNE MOSELEY, SECRETARY  
 DONAL W. DOWNEY  
 JOSEPH FRALEY



LOCATION MAP

NOT TO SCALE

INDEX OF SHEETS

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2. LITTLE CALUMET RIVER
3. HART DITCH
4. CADY MARSH DITCH – SECTION 1
5. CADY MARSH DITCH – SECTION 2
6. CADY MARSH DITCH – SECTION 3
7. CADY MARSH DITCH – SECTION 4
8. SPRING DITCH – SECTION 1
9. SPRING DITCH – SECTION 2
10. SPRING DITCH – SECTION 3
11. SPRING DITCH – SECTION 4



"DON'T DIG BLIND"  
 CALL TWO WORKING DAYS  
 BEFORE YOU DIG

WITHIN INDIANA  
 1-800-382-5544

FROM OUTSIDE INDIANA  
 1-800-428-5200

MARATHON PIPELINE CO.  
 SUSAN DAILY: 219-924-8577 ext. 228

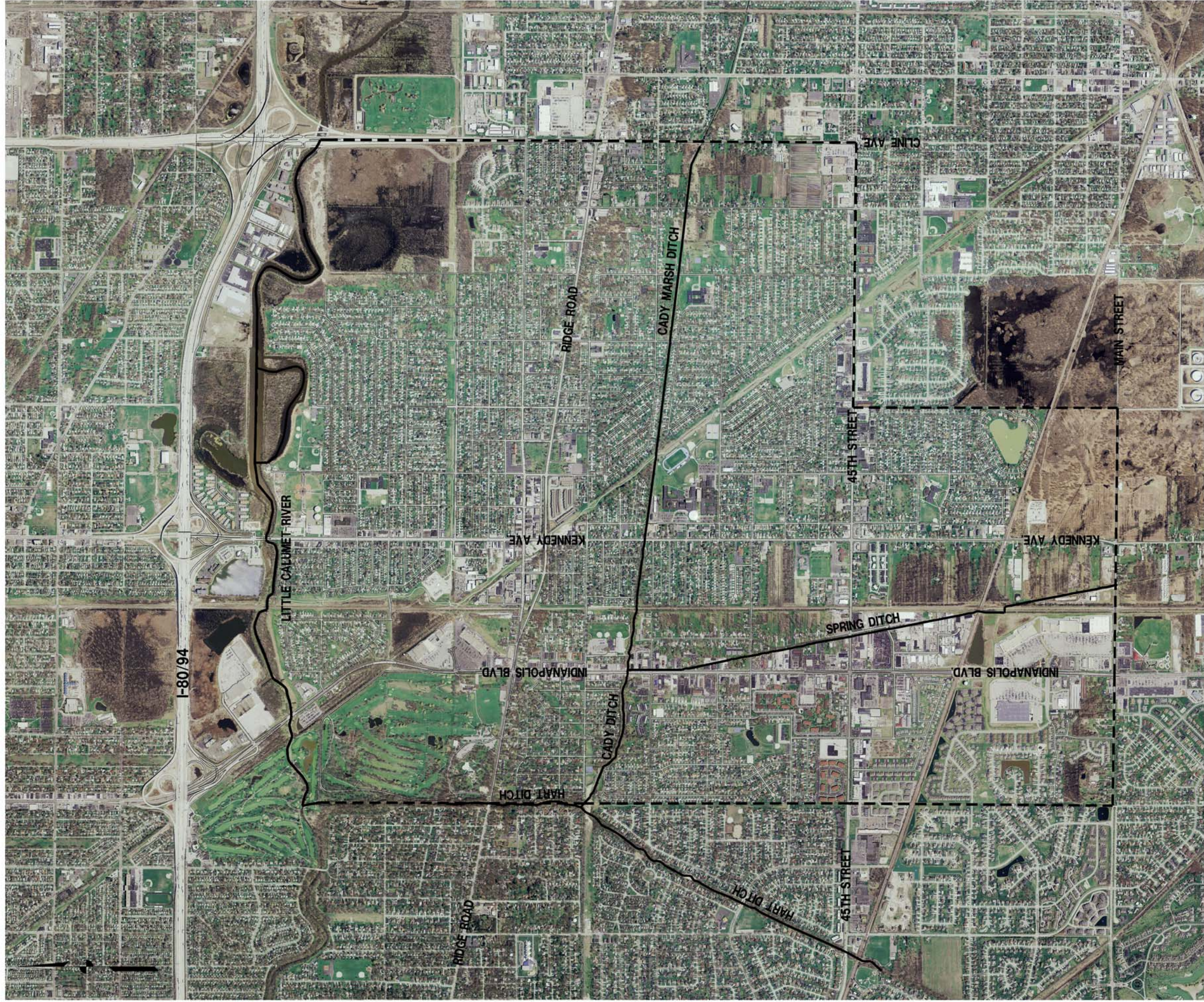
EXPLORER PIPELINE CO.  
 PATRICK NWAKOBY: 800-364-0720 ext. 5172

BP AMOCO  
 JEFFREY PAYNE: 219-736-5866 ext. 328

PLANS PREPARED BY:

**NIES** **engineering, inc.**  
 2421 173<sup>rd</sup> Street, Hammond, Indiana. 46323  
 Phone: (219) 844 8680 Fax: (219) 844 7754  
 e-mail: mail@niesengineering.com  
 Your Vision • Our Focus

X:\Projects\HIGHLAND\SANCOM\07-56\Draws\VC\_07-56.DWG



MAP LEGEND

TOWN BOUNDARY - - - - -

Designed: T/JH  
 Drawn: GMP  
 Checked: T/JH

SHEET

1

OF 11

Customer: TOWN OF HIGHLAND SANITARY BOARD  
 Project Name: FIELD SURVEY OF STORM SEWER OUTFALLS  
 Project Number: 07-515  
 Date & Time: 07/08/08 - 09:49

Drawing Title: TOWN OF HIGHLAND SANITARY BOARD  
 Sub Title: FIELD SURVEY OF STORM SEWER OUTFALLS

Drawing Title: HIGHLAND DITCH LOCATION MAP  
 Sub Title: STORM SEWER OUTFALLS  
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 Horizontal Scale: N.T.S.  
 Vertical Scale: N.T.S.



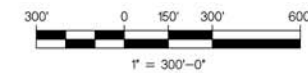
**engineering, inc.**  
 2421 179<sup>th</sup> Street, Hammond, Indiana, 46323  
 Phone: (219) 844 8680 Fax: (219) 844 7754  
 Your Vision • Our Focus



LITTLE CALUMET RIVER  
STORM SEWER OUTFALLS

LEGEND

- # OUTFALL IDENTIFICATION NUMBER
- DITCH APPROXIMATE CENTER LINE



Designed: T/JH  
 Drawn: GMP  
 Checked: T/JH

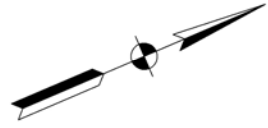
SHEET  
 2  
 OF 11

Customer: TOWN OF HIGHLAND SANITARY BOARD  
 Project Name: FIELD SURVEY OF STORM SEWER OUTFALLS  
 Project Number: 07-515  
 Date & Time: 07/06/08 - 08:49

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 Sub Title: STORM SEWER OUTFALLS  
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 Horizontal Scale: 1" = 300'  
 Vertical Scale: 1" = 300'



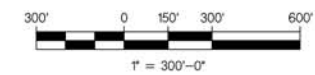
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HART DITCH  
STORM SEWER OUTFALLS

NOTE:

- 1. SEE SHEET #2 FOR LEGEND



Designed: T/JH  
Drawn: GMP  
Checked: T/JH

SHEET  
**3**  
OF 11

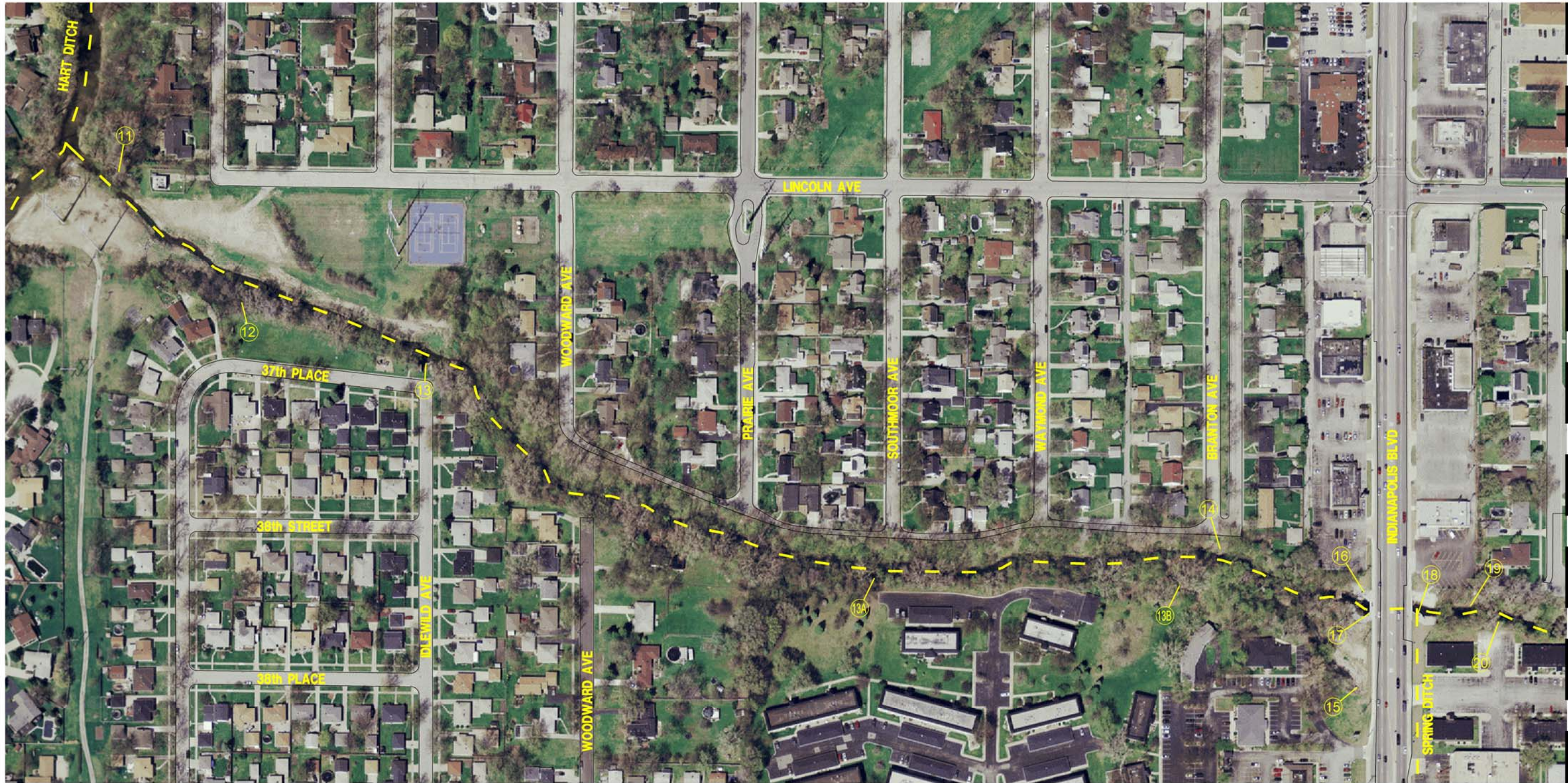
Customer: TOWN OF HIGHLAND SANITARY BOARD  
Project Name: FIELD SURVEY OF STORM SEWER OUTFALLS  
Project Number: 07-515  
Date & Time: 07/06/08 - 08-49

Drawing Title: HART DITCH  
Sub Title: STORM SEWER OUTFALLS

Drawing Filename: X:\Project\HIGHLAND\ANODMM\07-515\DWG\07-515.DWG  
Horizontal Scale: 1" = 300'  
Vertical Scale: 1" = 300'



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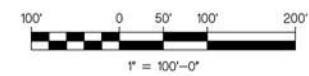


**MATCH SH# 5**

CADY MARSH DITCH  
SECTION 1  
STORM SEWER OUTFALLS

NOTE:

- 1. SEE SHEET #2 FOR LEGEND



DESIGNED: T/JH  
DRAWN: GMP  
CHECKED: T/JH  
SHEET  
**4**  
OF 11

Customer: TOWN OF HIGHLAND SANITARY BOARD  
Project Name: FIELD SURVEY OF STORM SEWER OUTFALLS  
Project Number: 07-515  
Date & Time: 07/06/08 - 08:49

Drawing Title: CADY MARSH DITCH - SECTION 1  
Sub Title: STORM SEWER OUTFALLS  
Drawing Filename: X:\Project\HIGHLAND\ANODMM\07-515\DWG\07-515.DWG  
Horizontal Scale: 1" = 100'  
Vertical Scale:

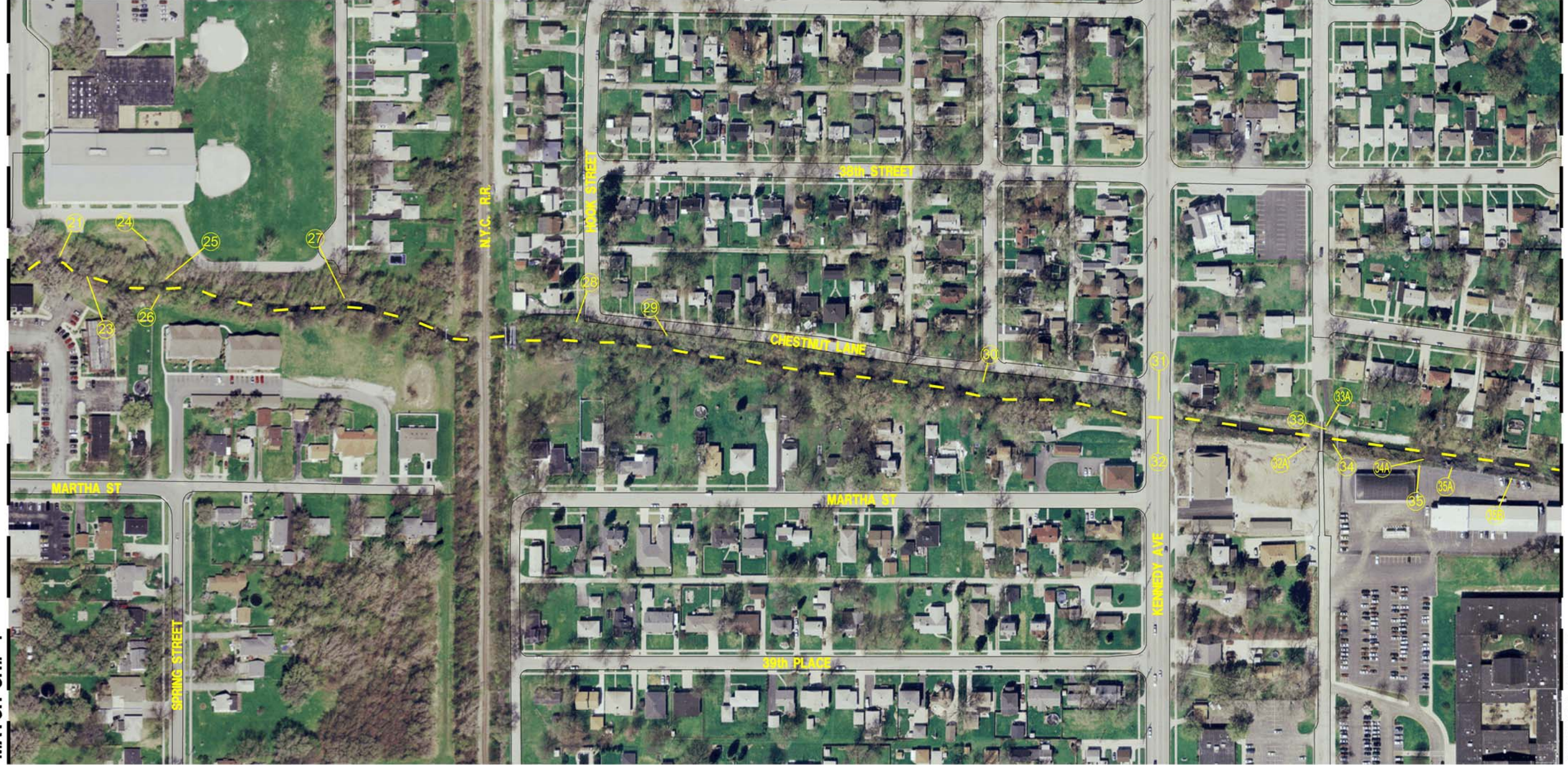


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MATCH SH# 4

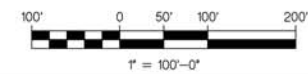


MATCH SH# 6

CADY MARSH DITCH  
SECTION 2  
STORM SEWER OUTFALLS

NOTE:

1. SEE SHEET #2 FOR LEGEND



Designed: T/JH  
Drawn: GMP  
Checked: T/JH

SHEET  
**5**  
OF 11

Customer: TOWN OF HIGHLAND SANITARY BOARD  
Project Name: FIELD SURVEY OF STORM SEWER OUTFALLS  
Project Number: 07-515  
Date & Time: 07/06/08 - 08:49

Drawing Title: CADY MARSH DITCH - SECTION 2  
Sub Title: STORM SEWER OUTFALLS  
Drawing Filename: X:\Project\HIGHLAND\ANOD\MM7-515\Drawn\07-515.DWG  
Horizontal Scale: 1" = 100'  
Vertical Scale:



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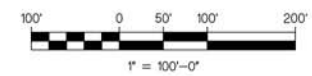
MATCH SH# 5



CADY MARSH DITCH  
SECTION 3  
STORM SEWER OUTFALLS

NOTE:

1. SEE SHEET #2 FOR LEGEND



Designed: T/JH  
Drawn: GMP  
Checked: T/JH

SHEET  
6

OF 11

Customer: TOWN OF HIGHLAND SANITARY BOARD  
Project Name: FIELD SURVEY OF STORM SEWER OUTFALLS  
Project Number: 07-515  
Date & Time: 07/06/08 - 08:49

Drawing Title: CADY MARSH DITCH - SECTION 3  
Sub Title: STORM SEWER OUTFALLS  
Drawing Filename: X:\Project\HIGHLAND\SDMM\07-515\Drawn\07-515.DWG  
Horizontal Scale: 1" = 100'  
Vertical Scale:



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MATCH SH# 6



MATCH LINE "A"

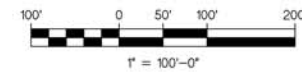
MATCH LINE "A"



CADY MARSH DITCH  
SECTION 4  
STORM SEWER OUTFALLS

NOTE:

1. SEE SHEET #2 FOR LEGEND



Designed: T/JH  
Drawn: GMP  
Checked: T/JH

SHEET  
**7**  
OF 11

Customer: TOWN OF HIGHLAND SANITARY BOARD

Project Name: FIELD SURVEY OF STORM SEWER OUTFALLS

Project Number: 07-515

Date & Time: 07/06/08 - 08:49

Drawing Title: CADY MARSH DITCH - SECTION 4

Sub Title: STORM SEWER OUTFALLS

Drawing Filename: X:\Project\HIGHLAND\ANODMMP\07-515\DWG\07-515.DWG

Horizontal Scale: 1" = 100'

Vertical Scale:



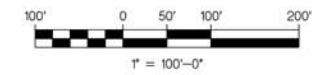
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SPRING DITCH  
SECTION 1  
STORM SEWER OUTFALLS

NOTE:

1. SEE SHEET #2 FOR LEGEND




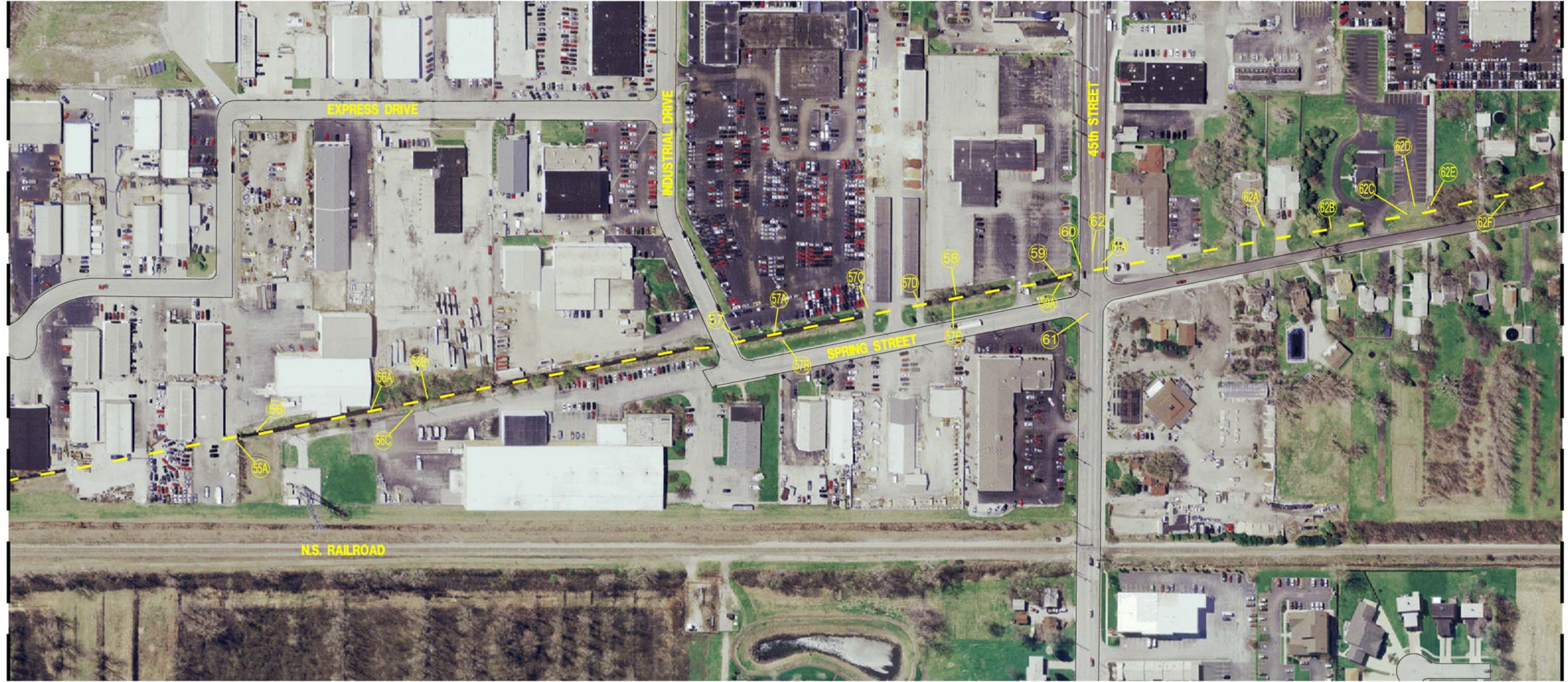
**MATCH SH# 9**

Designed: T/JH  
 Drawn: GMP  
 Checked: T/JH  
 SHEET  
**8**  
 OF 11

Customer: TOWN OF HIGHLAND SANITARY BOARD  
 Project Name: FIELD SURVEY OF STORM SEWER OUTFALLS  
 Project Number: 07-515  
 Date & Time: 07/06/08 - 08:49

Drawing Title: SPRING DITCH - SECTION 1  
 Sub Title: STORM SEWER OUTFALLS  
 Drawing Filename: X:\Project\HIGHLAND\SDMM\07-515\DrawK\07-515.DWG  
 Horizontal Scale: 1" = 100'  
 Vertical Scale:

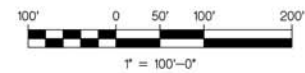
  
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SPRING DITCH  
SECTION 2  
STORM SEWER OUTFALLS

NOTE:

1. SEE SHEET #2 FOR LEGEND



MATCH SH# 8

MATCH SH# 10

Designed: T/JH  
 Drawn: GMP  
 Checked: T/JH

SHEET  
**9**  
 OF 11

Customer: TOWN OF HIGHLAND SANITARY BOARD  
 Project Name: FIELD SURVEY OF STORM SEWER OUTFALLS  
 Project Number: 07-515  
 Date & Time: 07/06/08 - 08:49

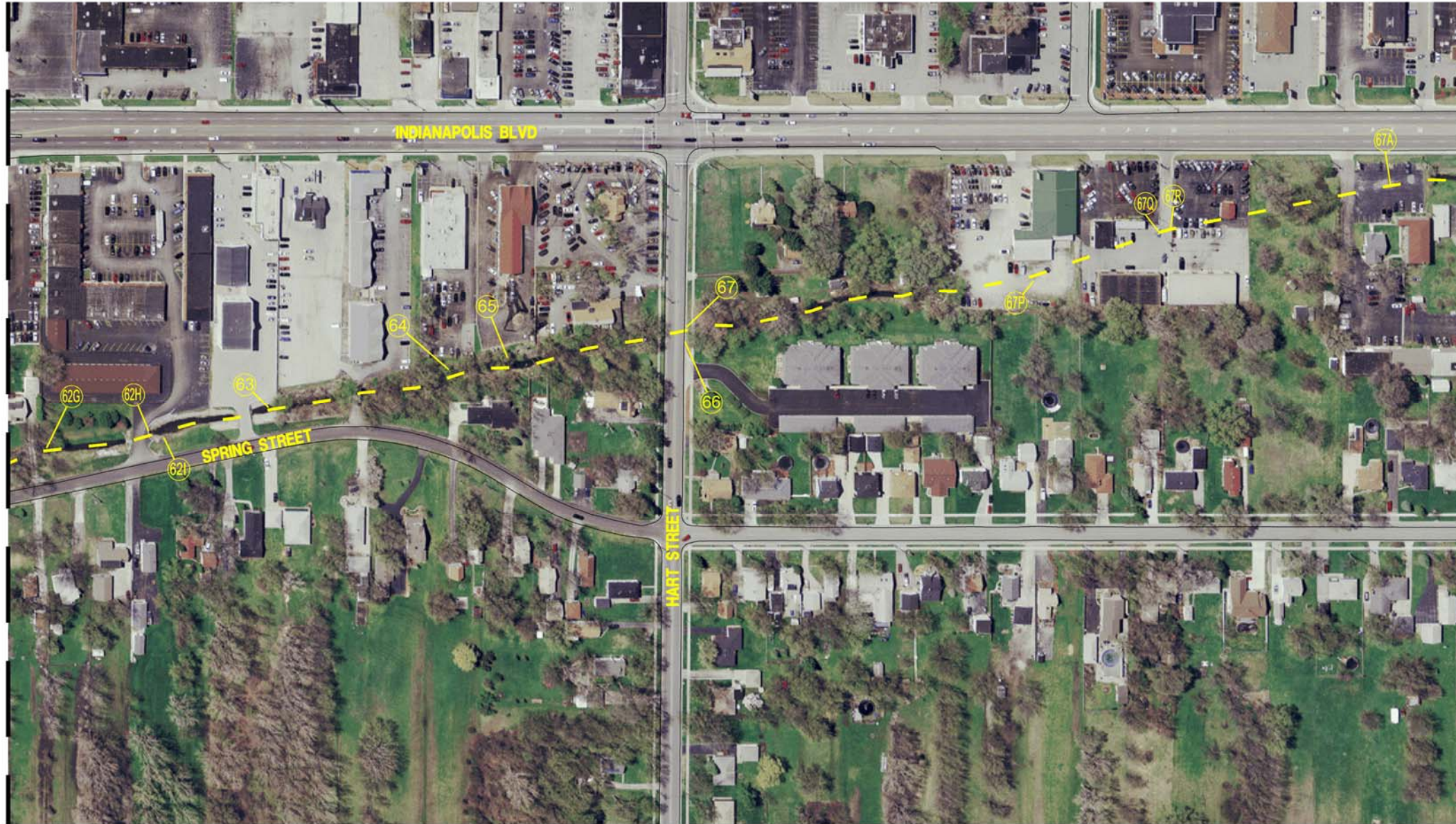
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 Sub Title: STORM SEWER OUTFALLS  
 Drawing Filename: X:\Project\HIGHLAND\ANOD\MMP7-515\Drawn\07-515.DWG  
 Horizontal Scale: 1" = 100'  
 Vertical Scale:



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MATCH SH# 9

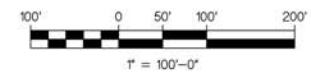


MATCH SH# 11

SPRING DITCH  
SECTION 3  
STORM SEWER OUTFALLS

NOTE:

1. SEE SHEET #2 FOR LEGEND



Designed: T/JH  
Drawn: GMP  
Checked: T/JH

SHEET  
**10**  
OF 11

Customer: TOWN OF HIGHLAND SANITARY BOARD  
Project Name: FIELD SURVEY OF STORM SEWER OUTFALLS  
Project Number: 07-515  
Date & Time: 07/06/08 - 08-49

Drawing Title: SPRING DITCH - SECTION 3  
Sub Title: STORM SEWER OUTFALLS  
Drawing Filename: X:\Project\HIGHLAND\SDMM\07-515\Draw\07-515.DWG  
Horizontal Scale: 1" = 100'  
Vertical Scale: 1" = 10'

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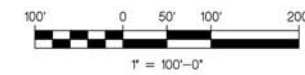
MATCH SH# 10



SPRING DITCH  
SECTION 4  
STORM SEWER OUTFALLS

NOTE:

1. SEE SHEET #2 FOR LEGEND



Designed: T/JH  
Drawn: GMP  
Checked: T/JH

SHEET  
**11**  
OF 11

Customer: TOWN OF HIGHLAND SANITARY BOARD  
Project Name: FIELD SURVEY OF STORM SEWER OUTFALLS  
Project Number: 07-515  
Date & Time: 07/08/08 - 08-49

Drawing Title: SPRING DITCH - SECTION 4  
Sub Title: STORM SEWER OUTFALLS  
Drawing Filename: X:\Project\HIGHLAND\ANODM\07-515\DrawK\_07-515.DWG  
Horizontal Scale: 1" = 100'  
Vertical Scale: 1" = 100'

Outfall_ID	Receiving_Water	X-Coordinate	Y-Coordinate	Elevation	Elevation_Description	Pipe_Diameter	Outfall_Pipe_Material
1	Little Calumet River	2845270.33	2302233.06	590.66	Invert Elevation of Outfall Pipe	48	STEEL
1A	Little Calumet River	2845674.83	2302189.43	598.185	Invert Elevation of Outfall Pipe	6	CMP
2	Little Calumet River	2845947.98	2302179.08	590.35	Invert Elevation of Outfall Pipe	24	D.I.
3	Little Calumet River	2846420.66	2302408.84	591.55	Invert Elevation of Outfall Pipe	48	D.I.
4	Little Calumet River	2850707	2302773.05	591.03	Invert Elevation of Outfall Pipe	60	RCP
5	Little Calumet River	2850717.01	2302713.94	588.34	Invert Elevation of Outfall Pipe	84"x120"	CONC
6	Little Calumet River	2852873.01	2302151.86	600.54	Invert Elevation of Outfall Pipe	24	D.I.
6A	Little Calumet River	2852875.59	2302158.18	600.55	Invert Elevation of Outfall Pipe	24	D.I.
6B	Little Calumet River	2852878.04	2302164.52	600.59	Invert Elevation of Outfall Pipe	12	D.I.
7	Little Calumet River	2852880.28	2302169.88	600.56	Invert Elevation of Outfall Pipe	12	D.I.
8	Hart Ditch	2840870.83	2290963.82	598.33	Invert Elevation of Outfall Pipe	12	CONC
8A	Hart Ditch	2840966.76	2291132.15	598.83	Invert Elevation of Outfall Pipe	48	CONC
8B	Hart Ditch	2840989.19	2291217.2	597.46	Invert Elevation of Outfall Pipe	54	CONC
10	Hart Ditch	2843973.81	2298343.1	603.89	Invert Elevation of Outfall Pipe	30	RCP
10B	Hart Ditch	2843946.05	2298261.08	595.99	Invert Elevation of Outfall Pipe	12	HDPE
11	Cady Marsh Ditch	2843964.01	2296435.59	594.78	Invert Elevation of Outfall Pipe	56	RCP
12	Cady Marsh Ditch	2844214.63	2296170.7	598.81	Invert Elevation of Outfall Pipe	18	CMP
13	Cady Marsh Ditch	2844589.43	2296046.43	594.51	Invert Elevation of Outfall Pipe	72	CONC
13A	Cady Marsh Ditch	2845501.74	2295569.86	600.81	Invert Elevation of Outfall Pipe	18	RCP
13B	Cady Marsh Ditch	2295525.83	2846091.59	603.53	Invert Elevation of Outfall Pipe	24	CMP
14	Cady Marsh Ditch	2846204.89	2295669.12	606.03	Invert Elevation of Outfall Pipe	24	CMP
15	Cady Marsh Ditch	2846483.95	2295388.28	599.29	Invert Elevation of Outfall Pipe	84	CMP
16	Cady Marsh Ditch	2846497.66	2295581.32	603.98	Invert Elevation of Outfall Pipe	36	CMP
17	Cady Marsh Ditch	2846508.62	2295538.23	602.76	Invert Elevation of Outfall Pipe	12	CONC



18	Cady Marsh Ditch	2846607.49	2295537.53	598.62	Invert Elevation of Outfall Pipe	118"x94"	CONC
19	Cady Marsh Ditch	2846714.71	2295583.2	602.8	Invert Elevation of Outfall Pipe	12	CONC/ STEEL
20	Cady Marsh Ditch	2846771.87	2295488.34	606.96	Invert Elevation of Outfall Pipe	10	PVC
21	Cady Marsh Ditch	2846976.2	2295531.49	613.52	Invert Elevation of Outfall Pipe	16	PVC
23	Cady Marsh Ditch	2846985.18	2295404.89	604.5	Invert Elevation of Outfall Pipe	15	CONC
24	Cady Marsh Ditch	2847152.78	2295563.47	603.69	Invert Elevation of Outfall Pipe	18	PVC
25	Cady Marsh Ditch	2847191.2	2295554.93	606.29	Invert Elevation of Outfall Pipe	12	PVC
26	Cady Marsh Ditch	2847178.04	2295454.12	600.79	Invert Elevation of Outfall Pipe	30	CONC
27	Cady Marsh Ditch	2847548.88	2295537.31	605	Invert Elevation of Outfall Pipe	18	PVC
28	Cady Marsh Ditch	2848024.25	2295398.75	608.3	Invert Elevation of Outfall Pipe	8	CLAY
29	Cady Marsh Ditch	2848208.49	2295371.17	609.9	Invert Elevation of Outfall Pipe	10	PVC
30	Cady Marsh Ditch	2848849.2	2295276.31	608.31	Invert Elevation of Outfall Pipe	12	PVC
31	Cady Marsh Ditch	2849235.6	2295233.26	607.17	Invert Elevation of Outfall Pipe	27	CONC
32	Cady Marsh Ditch	2849235.68	2295202.29	603.2	Invert Elevation of Outfall Pipe	122"x75"	CMP
32A	Cady Marsh Ditch	2849504.04	2295146.09	605.95	Invert Elevation of Outfall Pipe	36	HDPE
33	Cady Marsh Ditch	2849545.81	2295181.1	606.61	Invert Elevation of Outfall Pipe	15	PVC
33A	Cady Marsh Ditch	2849546.26	2295188.34	610.99	Invert Elevation of Outfall Pipe	6	PVC
34	Cady Marsh Ditch	2849559.66	2295151.32	603.57	Invert Elevation of Outfall Pipe	24	CMP
34A	Cady Marsh Ditch	2849743.86	2295120.46	609.6172	Invert Elevation of Outfall Pipe	24	CMP
35	Cady Marsh Ditch	2849795.83	2295108.47	605.6	Invert Elevation of Outfall Pipe	24	STEEL/ CONC
35A	Cady Marsh Ditch	2849861.37	2295103.99	608.93	Invert Elevation of Outfall Pipe	4	PVC
35B	Cady Marsh Ditch	2849982.88	2295082.47	608.28	Invert Elevation of Outfall Pipe	4	PVC
35C	Cady Marsh Ditch	2850157.08	2295061.05	608.3	Invert Elevation of Outfall Pipe	4	PVC
35D	Cady Marsh Ditch	2850246.78	2295052.82	608.84	Invert Elevation of Outfall Pipe	4	PVC
36	Cady Marsh Ditch	2850298.23	2295075.64	607.18	Invert Elevation of Outfall Pipe	12	CMP

37	Cady Marsh Ditch	2850513.2	2295009.18	601.62	Invert Elevation of Outfall Pipe	66	CONC
38	Cady Marsh Ditch	2850532.03	2295001.22	601.66	Invert Elevation of Outfall Pipe	66	CONC
38A	Cady Marsh Ditch	2850869.7	2294956.52	605.39	Invert Elevation of Outfall Pipe	30	RCP
38B	Cady Marsh Ditch	2850947.3	2294956.28	609.11	Invert Elevation of Outfall Pipe	24	CMP
39	Cady Marsh Ditch	2851113.91	2294964.11	603.33	Invert Elevation of Outfall Pipe	15	PVC
39A	Cady Marsh Ditch	2851293.08	2294919.59	604.62	Invert Elevation of Outfall Pipe	4	CLAY
40	Cady Marsh Ditch	2851491.98	2294921.23	606.45	Invert Elevation of Outfall Pipe	18	CLAY
40A	Cady Marsh Ditch	2851575.99	2294879.49	606.43	Invert Elevation of Outfall Pipe	4	CLAY
40B	Cady Marsh Ditch	2851598.41	2294879.59	604.93	Invert Elevation of Outfall Pipe	4	CLAY
40C	Cady Marsh Ditch	2851658.68	2294866.57	607	Invert Elevation of Outfall Pipe	4	CLAY
40D	Cady Marsh Ditch	2851721.03	2294893.05	608.58	Invert Elevation of Outfall Pipe	1.5	PVC
40E	Cady Marsh Ditch	2851770.77	2294859.36	605.97	Invert Elevation of Outfall Pipe	4	PVC
40F	Cady Marsh Ditch	2851787.38	2294849.09	606	Invert Elevation of Outfall Pipe	4	CLAY
41	Cady Marsh Ditch	2851908.11	2294864.73	604.87	Invert Elevation of Outfall Pipe	18	CMP
41A	Cady Marsh Ditch	2851937.15	2294858.79	608.3	Invert Elevation of Outfall Pipe	4	PVC
41B	Cady Marsh Ditch	2851951.81	2294850.79	603.01	Invert Elevation of Outfall Pipe	1	PVC
41C	Cady Marsh Ditch	2851931.73	2294834.79	608.15	Invert Elevation of Outfall Pipe	2	PVC
41D	Cady Marsh Ditch	2851948.05	2294832.92	608.04	Invert Elevation of Outfall Pipe	4	PVC
41E	Cady Marsh Ditch	2851995.63	2294816.67	620.34	Invert Elevation of Outfall Pipe	4	PVC
42	Cady Marsh Ditch	2852090.17	2294818.63	604.32	Invert Elevation of Outfall Pipe	24	RCP
42A	Cady Marsh Ditch	2852140.88	2294837.99	607.9	Invert Elevation of Outfall Pipe	6	CLAY
42B	Cady Marsh Ditch	2852178.89	2294829.06	604.7	Invert Elevation of Outfall Pipe	1.5	PVC
42D	Cady Marsh Ditch	2852202.44	2294808.42	603.14	Invert Elevation of Outfall Pipe	4	HDPE
42E	Cady Marsh Ditch	2852213.78	2294797.48	610.46	Invert Elevation of Outfall Pipe	4	HDPE
42F	Cady Marsh Ditch	2852223.16	2294800.64	608.66	Invert Elevation of Outfall Pipe	4	HDPE

42G	Cady Marsh Ditch	2852262.11	2294801.46	603.17	Invert Elevation of Outfall Pipe	6	PVC
42H	Cady Marsh Ditch	2852397.8	2294783.08	605.82	Invert Elevation of Outfall Pipe	6	PVC
43	Cady Marsh Ditch	2852518.56	2294786.76	604.13	Invert Elevation of Outfall Pipe	30	RCP
43A	Cady Marsh Ditch	2852537.56	2294758.63	606.02	Invert Elevation of Outfall Pipe	6	CLAY
43B	Cady Marsh Ditch	2852594.68	2294752.58	605.21	Invert Elevation of Outfall Pipe	4	HDPE
43C	Cady Marsh Ditch	2852613.3	2294749.64	608.41	Invert Elevation of Outfall Pipe	1.5	STEEL
43D	Cady Marsh Ditch	2852635.12	2294748.26	608.88	Invert Elevation of Outfall Pipe	2	PVC
43E	Cady Marsh Ditch	2852676.35	2294751.67	605.01	Invert Elevation of Outfall Pipe	1.5	PVC
43F	Cady Marsh Ditch	2852790.33	2294735.85	606.03	Invert Elevation of Outfall Pipe	4	PVC
43G	Cady Marsh Ditch	2852985.68	2294713.55	604.4	Invert Elevation of Outfall Pipe	4	CLAY
43H	Cady Marsh Ditch	2853089.46	2294728.91	610.3	Invert Elevation of Outfall Pipe	4	HDPE
43I	Cady Marsh Ditch	2853114.85	2294727.57	608.68	Invert Elevation of Outfall Pipe	4	HDPE
44	Cady Marsh Ditch	2853144.32	2294686.47	602.86	Invert Elevation of Outfall Pipe	36	RCP
44A	Cady Marsh Ditch	2853141.36	2294683.74	609.08	Invert Elevation of Outfall Pipe	12	D.I.
45A	Cady Marsh Ditch	2853284.72	2294669.45	609.43	Invert Elevation of Outfall Pipe	4	HDPE
45B	Cady Marsh Ditch	2853338.9	2294665.97	606.26	Invert Elevation of Outfall Pipe	4	PVC
45D	Cady Marsh Ditch	2853566.55	2294635.34	606.41	Invert Elevation of Outfall Pipe	4	CLAY
45E	Cady Marsh Ditch	2853631.36	2294628.54	605.46	Invert Elevation of Outfall Pipe	4	PVC
45F	Cady Marsh Ditch	2853632.67	2294627.02	607.87	Invert Elevation of Outfall Pipe	2	PVC
45G	Cady Marsh Ditch	2853699.5	2294619.38	607.24	Invert Elevation of Outfall Pipe	12	CLAY
45H	Cady Marsh Ditch	2853834.59	2294631.08	606.51	Invert Elevation of Outfall Pipe	2	PVC
45I	Cady Marsh Ditch	2854044.68	2294598.92	606.45	Invert Elevation of Outfall Pipe	4	PVC
46	Cady Marsh Ditch	2854077.7	2294572.92	604.24	Invert Elevation of Outfall Pipe	12	CLAY
47	Cady Marsh Ditch	2854473.63	2294524.67	604.34	Invert Elevation of Outfall Pipe	12	CONC
48	Cady Marsh Ditch	2854486.99	2294543.25	602.56	Invert Elevation of Outfall Pipe	36	RCP

48A	Cady Marsh Ditch	2854468.2	2294554.03	607.49	Invert Elevation of Outfall Pipe	4	PVC
48B	Cady Marsh Ditch	2854544.41	2294524.39	606.33	Invert Elevation of Outfall Pipe	24	CMP
48C	Cady Marsh Ditch	2854549.77	2294535.99	605.9	Invert Elevation of Outfall Pipe	24	CMP
49	Cady Marsh Ditch	2854485.98	2294529.07	603	Invert Elevation of Outfall Pipe	52	CMP
49A	Cady Marsh Ditch	2854565.39	2294539.71	609.65	Invert Elevation of Outfall Pipe	4	PVC
49B	Cady Marsh Ditch	2854592.02	2294537.02	609.74	Invert Elevation of Outfall Pipe	4	PVC
50	Cady Marsh Ditch	2855173.03	2294467.26	605.14	Invert Elevation of Outfall Pipe	18	PVC
50A	Cady Marsh Ditch	2855172.55	2294444.84	606.24	Invert Elevation of Outfall Pipe	12	CMP
50B	Cady Marsh Ditch	2855588.33	2294391.75	606.7	Invert Elevation of Outfall Pipe	4	PVC
50C	Cady Marsh Ditch	2855759.27	2294372.57	609.05	Invert Elevation of Outfall Pipe	6	PVC
50D	Cady Marsh Ditch	2855753.54	2294402.44	607.93	Invert Elevation of Outfall Pipe	4	HDPE
50E	Cady Marsh Ditch	2855769.15	2294401.06	607.79	Invert Elevation of Outfall Pipe	4	HDPE
51	Cady Marsh Ditch	2855822.64	2294391.11	606.05	Invert Elevation of Outfall Pipe	24	CMP
51A	Cady Marsh Ditch	2855823.77	2294373.69	605.51	Invert Elevation of Outfall Pipe	24	CMP
52	Cady Marsh Ditch	2855878.03	2294383.35	604.19	Invert Elevation of Outfall Pipe	27	RCP
52A	Cady Marsh Ditch	2855878.86	2294366.98	605.65	Invert Elevation of Outfall Pipe	24	CMP
52B	Cady Marsh Ditch	2855938.85	2294353.26	607.76	Invert Elevation of Outfall Pipe	4	PVC
52C	Cady Marsh Ditch	2855945.24	2294350.08	607.9	Invert Elevation of Outfall Pipe	6	CLAY
53	Cady Marsh Ditch	2856527.54	2294308.42	604.68	Invert Elevation of Outfall Pipe	24	CMP
54	Spring Ditch	2847747.5	2288048.57	613.64	Invert Elevation of Outfall Pipe	24	RCP
54A	Spring Ditch	2847745.9	2288442.51	613.45	Invert Elevation of Outfall Pipe	18	D.I.
54B	Spring Ditch	2847764.44	2288546.19	612.44	Invert Elevation of Outfall Pipe	18	RCP
54C	Spring Ditch	2847810.08	2288526.28	612.67	Invert Elevation of Outfall Pipe	24	D.I.
54D	Spring Ditch	2848303.15	2285817.96	614.09	Invert Elevation of Outfall Pipe	18	CMP
54E	Spring Ditch	2848283.5	2285829.49	615.14	Invert Elevation of Outfall Pipe	15	RCP

54F	Spring Ditch	2848238.43	2286070.24	614.4	Invert Elevation of Outfall Pipe	18	RCP
54G	Spring Ditch	2848255.12	2286072.86	615.21	Invert Elevation of Outfall Pipe	24	RCP
54H	Spring Ditch	2848023.61	2287301.92	615.3	Invert Elevation of Outfall Pipe	18	CMP
54I	Spring Ditch	2287489.51	2847981.14	615.99	Invert Elevation of Outfall Pipe	8	STEEL
54J	Spring Ditch	2847951.37	2287664.9	614.6	Invert Elevation of Outfall Pipe	8	STEEL
54K	Spring Ditch	2847935.77	2287847.57	614.72	Invert Elevation of Outfall Pipe	10	STEEL
55	Spring Ditch	2847706.95	2288819.64	611.27	Invert Elevation of Outfall Pipe	12	PVC
55A	Spring Ditch	2847617.81	2289356.35	610.79	Invert Elevation of Outfall Pipe	66	RCP
56	Spring Ditch	2847599.13	2289395.75	611.67	Invert Elevation of Outfall Pipe	12	PVC
56A	Spring Ditch	2847554.45	2289627.85	611.78	Invert Elevation of Outfall Pipe	12	CMP
56B	Spring Ditch	2847532.21	2289742.46	610.04	Invert Elevation of Outfall Pipe	12	CLAY
56C	Spring Ditch	2847554.49	2289711.6	611.98	Invert Elevation of Outfall Pipe	8	CLAY
57	Spring Ditch	2847409.12	2290369.99	608.81	Invert Elevation of Outfall Pipe	18	RCP
57A	Spring Ditch	2847399.67	2290444.84	610.33	Invert Elevation of Outfall Pipe	8	PVC
57B	Spring Ditch	2847412.02	2290461.64	610.44	Invert Elevation of Outfall Pipe	12	D.I.
57C	Spring Ditch	2847347.33	2290634.72	610.74	Invert Elevation of Outfall Pipe	12	CMP
57D	Spring Ditch	2847334.39	2290736.6	610.57	Invert Elevation of Outfall Pipe	12	CMP
57E	Spring Ditch	2847340.48	2290805.84	609.39	Invert Elevation of Outfall Pipe	18	PVC
58	Spring Ditch	2847319.97	2290811.98	610.06	Invert Elevation of Outfall Pipe	12	PVC
59	Spring Ditch	2847282.63	2291018.58	610.32	Invert Elevation of Outfall Pipe	12	PVC
59A	Spring Ditch	2847296.07	2291024.11	608.7	Invert Elevation of Outfall Pipe	12	PVC
60	Spring Ditch	2847262.52	2291067.36	615.83	Rim Elevation of Manhole Adjacent to Spring Ditch		
61	Spring Ditch	2847357.27	2291082.32	615.71	Rim Elevation of Manhole Adjacent to Spring Ditch		
61A	Spring Ditch	2847256.81	2291109.18	609.18	Invert Elevation of Outfall Pipe	24	RCP
62	Spring Ditch	2847231.82	2291089.42	615.9	Rim Elevation of Manhole Adjacent to Spring Ditch		

62A	Spring Ditch	2847182.08	2291437.14	610.8	Invert Elevation of Outfall Pipe	8	PVC
62B	Spring Ditch	2847187.31	2291573.35	614.24	Rim Elevation of Inlet Directly Over Spring Ditch		
62C	Spring Ditch	2847157.96	2291727.98	614.2181	Rim Elevation of Inlet Directly Over Spring Ditch		
62D	Spring Ditch	2847090.78	2291732.6	612.74	Rim Elevation of Inlet Directly Over Spring Ditch		
62E	Spring Ditch	2847139.21	2291774.91	609.43	Invert Elevation of Outfall Pipe	8	PVC
62F	Spring Ditch	2847130.53	2291925.42	610.03	Invert Elevation of Outfall Pipe	12	CMP
62G	Spring Ditch	2847074.69	2292051.47	609.77	Invert Elevation of Outfall Pipe	8	PVC
62H	Spring Ditch	2847047.3	2292219.19	609.18	Invert Elevation of Outfall Pipe	10	CMP
62I	Spring Ditch	2847057.72	2292244.01	608.5	Invert Elevation of Outfall Pipe	8	STEEL
63	Spring Ditch	2847008.39	2292415.81	607.67	Invert Elevation of Outfall Pipe	12	PVC
64	Spring Ditch	2846946.06	2292711.14	609.29	Invert Elevation of Outfall Pipe	12	RCP
65	Spring Ditch	2846926.64	2292807.75	610.16	Invert Elevation of Outfall Pipe	12	PVC
66	Spring Ditch	2846912.82	2293098.54	607.34	Invert Elevation of Outfall Pipe	18	CONC
67	Spring Ditch	2846738.7	2293101.12	608.53	Invert Elevation of Outfall Pipe	12	CLAY
67A	Spring Ditch	2846644.15	2294256.49	610.69	Rim Elevation of Inlet Directly Over Spring Ditch		
67B	Spring Ditch	2846606.32	2294497.96	604.45	Invert Elevation of Outfall Pipe	30	RCP
67C	Spring Ditch	2846611.36	2294499.93	607.89	Invert Elevation of Outfall Pipe	4	PVC
67D	Spring Ditch	2846610.71	2294575.03	604.75	Invert Elevation of Outfall Pipe	12	PVC
67E	Spring Ditch	2846604.63	2294614.61	607.37	Invert Elevation of Outfall Pipe	12	RCP
67F	Spring Ditch	2846611.06	2294645.31	607.26	Invert Elevation of Outfall Pipe	6	PVC
67G	Spring Ditch	2846610.88	2294827.87	605.8	Invert Elevation of Outfall Pipe	12	PVC
67H	Spring Ditch	2846602	2294940.91	604.65	Invert Elevation of Outfall Pipe	12	RCP
67I	Spring Ditch	2846611.46	2294997.67	605.97	Invert Elevation of Outfall Pipe	8	PVC
67J	Spring Ditch	2846611.58	2295027.93	604.48	Invert Elevation of Outfall Pipe	10	PVC
67K	Spring Ditch	2846602.8	2295180.24	603.52	Invert Elevation of Outfall Pipe	12	RCP

67L	Spring Ditch	2846612.26	2295235.87	605.47	Invert Elevation of Outfall Pipe	12	PVC
67M	Spring Ditch	2846602.86	2295360.61	603.8	Invert Elevation of Outfall Pipe	12	RCP
67N	Spring Ditch	2846611.19	2295372.47	605.48	Invert Elevation of Outfall Pipe	12	PVC
67O	Spring Ditch	2846602.7	2295533.55	600.93	Invert Elevation of Outfall Pipe	12	RCP
67P	Spring Ditch	2846800.67	2293670.58	608.76	Invert Elevation of Outfall Pipe	8	CLAY
67Q	Spring Ditch	2846720.85	2293876.71	611.11	Rim Elevation of Inlet Directly Over Spring Ditch		
67R	Spring Ditch	2846715.97	2293895.71	611.07	Rim Elevation of Inlet Directly Over Spring Ditch		

# Catch Basin Inspection Form

<b>Outfall / Catch Basin ID:</b>				<b>Inspector:</b>	
<b>Weather:</b> Clear	Overcast	Raining		<b>Date:</b>	<b>Time:</b>
<b>Type:</b> Initial	Site Visit	Return		<b>Duration:</b>	

## Visual Screening (Circle the appropriate answer)

<b>Overall Condition:</b>	Excellent	Good	Fair	Poor	N/A	Plugged	Open
<b>Flow Condition:</b>	Inhibited	N/A	<b>Flow Observed:</b>		Yes	No	
<b>Structural Condition:</b>	Corrosion	Cracking	Normal	N/A			
<b>Water Level:</b>	Dry	Low	Normal	High	Very High		
<b>Vegetation Present:</b>	Yes	No	% Native:	% Exotic:			
<b>Debris Present:</b>	Yes	No	<b>Debris Depth:</b> _____				
<b>Estimated Volume:</b>	%Paper _____	%Sediments _____	%Plastic _____	%Other _____			
<b>Method of Removal:</b>	Hand Crew	Vacuum Truck	Other				

**Inspection Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Flow Characterization Data Sheet Field Parameters (Circle the appropriate answer)

Color	Biological	Floatables	Odor
Clear or N/A	None / N/A	None	None / N/A
Red	Other (name)	Oil / Sheen	Chlorine
Yellow / Brown / Green		Garbage / Trash	Fuel / Fishy / Musty
Gray / Dark		Sewage / Milt	Sewage / Sulfur
Tannin / White		Other	Sour Milk
Miscellaneous	Sedimentation	Stains	Turbidity
Not Applicable	None / N/A	None	Clear or N/A
Other	Slight 1 -3 "	Not Applicable	Slightly Turbid
	Moderate 3 – 6 "	Other	Moderately Turbid
	Excessive 6 – 12 "		Very Turbid
	Oily Sewage		Suspended Solids

<b>Inspection Result:</b>	Pass	Fail	In Compliance	Out of Compliance	Unknown
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# Appendix D

## Overflow Emergency Response Plan



# OVERFLOW EMERGENCY RESPONSE PLAN

October 2011  
*Revised December 2021*

Prepared by:



2421 173<sup>rd</sup> Street, Hammond, Indiana 46323  
Phone: (219) 844-8680 Fax: (219) 844-7754

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## EXHIBITS

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- EXHIBIT D – RESOURCES TO ESTIMATE SSO VOLUME

## ***LIST OF ABBREVIATIONS***

CCTV	Closed Circuit Television
County	Lake County Indiana Health Department
GAL	Gallons
GPM	Gallons Per Minute
HSD	Highland Sanitary District
IDEM	Indiana Department of Environmental Management
MGD	Million Gallons Per Day
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
OERP	Overflow Emergency Response Plan
SSO	Sanitary Sewer Overflow
Town	Town of Highland, Indiana
USEPA	U.S. Environmental Protection Agency

## ***Highland Sanitary District***

### ***Overflow Emergency Response Plan***

#### **I. AUTHORITY**

This Overflow Emergency Response Plan (OERP) addresses the requirements of paragraphs 25 and 26 of the USEPA Amended Order for Compliance, Docket No. V-W-11-AO-07, dated August 10, 2011.

#### **II. GENERAL**

##### **A. Introduction**

The Highland Sanitary District (HSD) operates and manages a separate sanitary sewer collection system and conveys sanitary wastewater to the Hammond Sanitary District (Hammond) for treatment from the North 5<sup>th</sup> Street Sanitary Sewer Lift Station and the 81<sup>st</sup> Street Sanitary Sewer Lift Station. The current contractual limit (rate) with Hammond is 7.5 MGD. The total pumping capacity is 15.7 MGD. However, because HSD regularly needs to send Hammond more than the 7.5 MGD contracted amount, HSD and Hammond have agreed to make improvements to their sewer systems to allow HSD to send additional flow to Hammond for treatment. Once Hammond and HSD have made the necessary improvements to their sewer systems, HSD will be sending Hammond a maximum peak flow of 25 MGD from the North 5<sup>th</sup> Street Lift Station and a maximum peak flow of 7.2 MGD from the 81<sup>st</sup> Street Lift Station for a total of 32.2 MGD.

Studies have determined that inflow/infiltration within the sanitary sewer collection system, from both private and public sources, is the major contributing factor to sanitary sewer system surcharging.

##### **B. Definitions**

“Sanitary Sewer Overflow” or “SSO” means an overflow, spill, release, or diversion of wastewater from a sanitary sewer system, including interceptor sewers. An SSO includes an overflow of wastewater, including a wastewater

backup in a building (other than a backup caused solely by a blockage or other malfunction in a privately owned sewer or building lateral), even if that overflow does not reach waters of the United States.

“Property Backup” means wastewater backups into buildings that are caused by blockages or flow conditions in a sanitary sewer other than a privately owned sewer or building lateral. Property Backup does not include the backup caused by a blockage or other malfunction in the privately owned sewer or building lateral sewer.

“Person-in-Charge” or “PIC” means the senior Public Works Department staff member on duty during regular operating hours or the person on call during off duty hours.

“Private Lateral Sewage Discharges” means sewage discharges that are caused by blockages or other problems within a privately-owned sewer or building lateral.

### **C. Goals and Objectives**

The primary goal of the Overflow Emergency Response Plan (OERP) is to create an action plan which defines procedures for managing SSO’s to protect public health and the environment, and to comply with regulatory requirements relating to SSO’s. Specific objectives with respect to responding to SSO’s are:

- Eliminate preventable SSO’s.
- Respond quickly to minimize impact, duration and volume of the SSO.
- Provide accurate estimates to the volume of the SSO.
- Ensure corrective action is taken in a timely manner.
- Notify the proper regulatory agencies and the public, in a timely manner, of any SSO.
- Identify and implement measures to prevent the occurrence of preventable and chronic SSO’s.
- Document and define procedures to address SSO prevention and response.
- Provide uniform, clear, and consistent policies and procedures for Town Staff to reference and follow in the event of an SSO.

### **III. OVERFLOW RESPONSE PROCEDURE**

The Overflow Response Procedure provides a strategy for the HSD to mobilize labor, materials, tools and equipment to correct, repair or mitigate any condition which may cause or contribute to an unpermitted discharge. The plan considers a wide range of potential system failures that could create an overflow to surface waters, land or buildings.

#### **A. Receipt of Information Regarding an SSO**

Confirmed or suspected SSOs may be reported by Town employees or by others (e.g., business owners, residents, plumbers, etc.) by calling the Highland Public Works Department at (219) 972-5083. The Public Works Dispatch Clerk is primarily responsible for receiving phone calls regarding possible sewer overflows during regular business hours (i.e., Monday through Friday from 7:00 am to 4:00 pm) and is responsible for notifying the Person-In-Charge (PIC) to respond to any given field situation. After regular business hours, the phone message system directs callers to either leave a voicemail message or to hang up and call 911 to report an emergency. If the caller leaves a voicemail message, the Dispatch Clerk logs the voicemail message and notifies the PIC on the following business day. If the caller calls 911, the 911 Dispatcher notifies the on-call PIC immediately. The 911 Dispatcher uses the on-call list provided by the Public Works Director on a monthly (or more frequent, as needed) basis. On-call staff are required to keep cell phones on and respond promptly.

The PIC is then responsible as a primary responder to notify the regulatory agencies, activate and monitor the Spill Response Crew and ensure that a report for the spill is prepared.

1. The Public Works Dispatch Clerk or 911 Dispatcher obtains all relevant information available regarding the overflow, including:
  - Time and date call was received;
  - Caller's name and phone number;
  - Specific location of overflow and where it flowed (e.g., water body, storm sewer, grassy area, private property);
  - Description of problem causing the overflow;
  - Time possible overflow was noticed by the caller;



- Observations of the caller (e.g., odor, duration, back or front of property); and
- Other relevant information that will enable the responding investigator and crews, if required, to quickly locate, assess and stop the overflow.

The Public Works Dispatch Clerk or 911 Dispatcher records initial information on the Sanitary Sewer System Incident Report (Exhibit A) and notifies the PIC.

2. Sanitary pump station failures are monitored and received by the Operator on Duty through the Highland Sanitary District's Supervisory Control and Data Acquisition (SCADA) system. The Operator on Duty immediately conveys all information regarding alarms to the PIC to initiate the investigation.
3. Sewer overflows detected by any Town personnel in the course of their normal duties are reported immediately to the Public Works Dispatch Clerk (during business hours) or the 911 Dispatcher (after hours).

The Spill Response Crew Supervisor completes the Sanitary Sewer System Incident Report (Exhibit A) within 24 hours of the sewer overflow confirmation. The PIC is responsible for reviewing, updating and signing the report. The complete report will be forwarded to the Sanitary District Superintendent and placed in the Spill Response Binder.

If the overflow affects any surface water, the PIC shall report to the Lake County Health Department within one hour of becoming aware of the discharge.

If the overflow results in an observed fish kill, the PIC shall report to the IDEM Emergency Response Spill Line within one hour of becoming aware of the fish kill.

All spills shall be reported to IDEM in accordance with 327 IAC 2-6.1.

## **B. Dispatch of Appropriate Crews to Site of Sewer Overflow**

Failure of any element within the wastewater collection system that threatens to cause or causes an SSO triggers an immediate response to isolate and

correct the problem. Crews and equipment are available to respond to any SSO location. Crews shall dispatch to any site of a reported SSO immediately. Also, additional maintenance personnel shall be “on-call” in the event extra crews are needed.

### **1. Dispatching Spill Response Crew**

- When the PIC receives notification of a potential sewer overflow outlined in Section A of the Overflow Response Procedure, the Spill Response Crew is dispatched, comprised of at least a two-person crew utilizing both the Vacuum Truck and Water/Sewer Utility Truck (Truck 10). The Vacuum Truck is equipped to jet/clean sewer lines and collect wastewater/debris. Truck 10 is equipped with a generator; hydraulically operated sewage pump with hose; air compressor with tools; confined space tripod system; shovels, brooms and various hand tools; repair supplies; work lights; traffic control devices; personal protective equipment (PPE); and other appropriate resources as required.
- PIC notifies the appropriate manager or supervisor by cell phone, pager or public works radio regarding the sewer overflow and field crew locations.

### **2. Crew Instructions and Work Orders**

- Spill Response Crew shall be dispatched by cell phone, pager or public works radio and receive instructions from their supervisors regarding appropriate crews, materials, supplies, and equipment needed.
- PIC verifies that the entire message has been received and acknowledged by the crews who were dispatched. All standard communications procedures shall be followed. All employees being dispatched to the site of an SSO shall proceed immediately to the site of the overflow. Any delays or conflicts in assignments shall be immediately reported to the supervisor for resolution.
- In all cases the Spill Response Crew reports their findings, including possible damage to private and public property, to the PIC immediately upon making their investigation. If the PIC has not received findings from the field crew within one hour, the PIC contacts the response crew to determine the status of the investigation.

### **3. Additional Resources**

- The PIC receives and conveys to appropriate parties, requests for additional personnel, material, supplies, and equipment from crews working at the site of the sewer overflow.

### **4. Preliminary Assessment of Damage to Private and Public Property**

- The focus is to resolve the problem. The Spill Response Crew shall use discretion in assisting the property owner/occupant as reasonably as they can. They must be aware that the HSD could face increased liability for any further damages inflicted to private property during such assistance unless authorized by the PIC. The Spill Response Crew shall take appropriate still photographs of the area involved or impacted by the SSO or Property Backup in order to thoroughly document the nature and extent of impacts and shall forward available photographs to the PIC for filing with the Sanitary Sewer System Incident Report (Exhibit A). The final report and any attachments thereto shall be scanned and filed electronically as a backup to the paper record.
- In cases involving private property accidents, including bodily injury of a private citizen, sewer back-ups, or substantial private property damage, contact the Sanitary District Superintendent who will be responsible for notifying the Town's Insurance carrier.

### **5. Field Supervision and Inspection**

- The PIC visits the site of the overflow, if possible, to ensure that provisions of this OERP and other directives are met.
- The PIC is responsible for confirming that the Sanitary Sewer System Incident Report (Exhibit A) is provided for reporting within the specified time.

### **6. Coordination with Hazardous Material Response**

- Upon arrival at the scene of a sewer overflow, should a suspicious substance (e.g., oil sheen, foamy residue) be found on the ground surface, or should a suspicious odor (e.g., gasoline) not common to the sewer system be detected, the Spill Response Crew shall immediately contact the PIC for guidance before taking further action.

- Should the PIC determine the need to alert the hazardous material team, he shall notify the Fire Department and the response crew shall await the arrival of the Fire Department Chief to take over the scene. **Remember that any vehicle engine, portable pump or open flame (e.g., cigarette lighter) can provide the ignition for an explosion or fire, should flammable fluids or vapors be present. Keep a safe distance and observe caution until assistance arrives. Keeping the public away from the hazard is the first priority.**
- Only when the Fire Chief determines it is safe and appropriate for the Spill Response Crew to proceed, can they then proceed under the OERP with the containment, clean-up activities and correction.

### C. Overflow Correction, Containment, Mitigation and Clean-Up

Sewer Overflows of various volumes occur from time to time in spite of concerted prevention efforts. Spills may result from blocked sewers, pipe failures, mechanical malfunctions or other natural or man-made causes. This section describes specific actions to be performed by the crews during an SSO. The objectives of these actions are:

- To protect public health, environment and property from sewage overflows by correcting the condition causing the overflow and restoring surrounding area back to normal as soon as possible;
- To establish perimeters and control zones with appropriate traffic cones and barricades, vehicles or use of natural topography (e.g., hills, berms) to secure the area and protect the public;
- To establish containment of the spill to limit any release of sewage to surface waters and/or the environment;
- To promptly notify the Sanitary District Superintendent of preliminary overflow information and potential impacts;
- To provide spill cleanup whenever possible; and
- To minimize the Highland Sanitary District's exposure to any regulatory agency penalties and fines.

Under most circumstances, the Town's Public Works Department can handle all response actions with its own maintenance forces. Public Works personnel have the skills and experience to respond rapidly and in the most appropriate manner. An important issue with respect to an emergency response is to ensure that the temporary actions necessary to divert flows and repair the problem do not produce a problem elsewhere in the system. For

example, when a large sewer main is blocked and the crews divert the flow to a smaller sewer pipe downstream of the blockage, they should observe the flows to ensure that the blockage does not recur downstream. The sewer conveyance system should be returned to the normal operation as soon as the blockage is removed.

## **1. Property Backup and SSO Procedures**

Whenever there is a report of a Property Backup or SSO, the Spill response crew shall use the following procedures:

### **a. Responsibilities of Spill Response Crew Upon Arrival**

It is the responsibility of the first personnel who arrive at the site of a sewer overflow to mitigate the impact of the overflow to public health and safety to the extent possible. Should the overflow not be the responsibility of the HSD but there is imminent danger to public health, public or private property, or to the quality of waters of the U.S., then prudent emergency action shall be taken until the responsible party assumes responsibility and provides actions. Upon arrival at an SSO, the response crew should do the following:

- Determine the cause of the overflow, e.g. sewer line blockage, pump station mechanical or electrical failure, sewer line break, etc.;
- Identify and request, if necessary, assistance or additional resources to correct the overflow or to assist in the determine of its cause;
- Determine if private property is impacted. If yes, refer to Chapter III – Section B – Part 4;
- Take immediate steps to stop the overflow, e.g. relieve pipeline blockage, manually operate pump station controls, repair pipe, etc. Extraordinary steps may be considered where overflows from private property threaten public health and safety (e.g., an overflow running off of private property into the public right-of-way);
- Request additional personnel, materials, supplies, or equipment that will expedite and minimize the impact of the overflow.

b. Initial Measures for Containment

Spill Response Crew shall initiate measures to contain the overflowing sewage and recover, where possible, sewage which has already been discharged, minimizing impact to public health or the environment.

- Determine the immediate destination of the overflow, e.g. storm drain, street curb gutter, body of water, creek bed, etc.;
- Investigate the extent of the spill, check storm drain maps and determine how far downstream the SSO traveled and whether it reached surface waters;
- Identify and request the necessary materials and equipment to contain or isolate the overflow, if not readily available; and
- Take immediate steps to contain the overflow, e.g., block or bag storm drains, recover through vacuum truck, divert into downstream sanitary manhole, etc.

c. Additional Measures Under Potentially Prolonged Overflow Conditions

In the event of a prolonged sewer line blockage or a sewer line collapse, set up a portable by-pass pumping operation around the obstruction that discharges (whenever possible) into a downstream portion of the sanitary sewer system.

- Take appropriate measures to determine the proper size and number of pumps required to effectively handle the sewage flow.
- Implement continuous or periodic monitoring of the by-pass pumping operation as required.
- Report all such conditions in accordance with the CD and state and federal law.

d. Cleanup

Sewer overflow sites are to be thoroughly cleaned after an overflow. No readily identified residue (e.g., sewage solids, papers, rags, plastics, rubber products) is to remain.

- Whenever possible, digital photos shall be taken of the area before and after the cleanup.

- The overflow site is to be secured to prevent contact by members of the public until the site has been thoroughly cleaned. If posting is required, it shall be undertaken as described in Section IV.
- Where practical, any ponding wastewater and sewage-related debris is to be collected by vacuum truck until pumped dry in order to minimize human exposure.
- Following initial collection, the area is to be thoroughly flushed and cleaned of remaining residue, and resulting wash-down water shall be recovered by vacuum truck for proper disposal.
- Where the area is inaccessible to vacuum truck, solids and debris are to be collected (e.g. swept, raked or picked-up, and transported for proper disposal).
- Where appropriate, the hard surface area of the overflow site shall be disinfected and deodorized. However, chlorine bleach shall not be used if the area is near or discharges into a body of water that may contain fish or other aquatic life or if the area drains to storm sewers.
- Document the impacts of the SSO/Property Backup to private or public property (consider the use of photographs or video, where appropriate).

e. Submit Report.

At the conclusion of the SSO event, the PIC shall ensure that the Spill Response Crew Supervisor submits a Sanitary Sewer System Incident Report (Exhibit A) to the Sanitary District Superintendent within 24 hours following the SSO event.

#### **IV. PUBLIC ADVISORY PROCEDURE**

This section describes the actions the HSD takes, in cooperation with the Lake County Health Department, to limit public access to areas potentially impacted by unpermitted discharges of pollutants to surface water bodies from the wastewater collection system.

##### **A. Temporary Signage**

The HSD will coordinate with Lake County Health Department to determine when to post notices of polluted surface water bodies or ground surfaces that result from uncontrolled wastewater discharges from its facilities. The

postings do not necessarily prohibit use of recreational areas, unless posted otherwise, but provide a warning of potential public health risks due to sewage contamination.

Creeks, streams, and other Public Access locations that have been contaminated as a result of an SSO should be posted at visible access locations until the risk of contamination has subsided to acceptable background levels.

The warning signs, once posted, should be checked every day to ensure that they are still in place. "Closed" signs shall be posted at the outfall and a minimum of 100 feet upstream and 100 feet downstream of the discharge. If there is a large volume of sewage, more signs must be posted downstream.

Signs must remain posted for 72 hours following the end of an SSO event, or longer if required by the Lake County Health Department.

The Sanitary District Superintendent shall determine if posting of a confirmed overflow is undertaken. See Exhibit B – Sample Warning Signs.

## **B. Other Public Notification**

Should the posting of surface water bodies or ground surfaces subjected to a sewer overflow be deemed necessary by Lake County Health Department, the Sanitary District Superintendent shall determine the need for further public notification through the use of pre-scripted notices made available to the printed or electronic news media for immediate publication or airing, or by other measures (e.g., front door hangers).

## **V. REGULATORY NOTIFICATION PROCEDURE**

This section establishes procedures which the HSD follows to provide formal notice to regulatory agencies in the event of SSO's.

### **A. Immediate Notification to Lake County for SSO**

Immediately (within one hour) contact the Lake County Health Department at (219) 755-3655 and advise that the Highland Sanitary District is experiencing an SSO, giving the location, receiving water, and estimated volume of SSO.



## **B. Notification if Fish Kill or Acute Injury to Fish or Wildlife is Observed**

Immediately (within one hour of observing a fish kill or acute injury to fish or wildlife) contact the IDEM, Emergency Response Spill Line at (888) 233-7745, and advise that the Highland Sanitary District is experiencing an SSO that may have resulted in an observed fish kill or acute injury to fish or wildlife. Provide the location, receiving water and estimated volume of SSO.

## **C. At Conclusion of SSO**

PIC shall insure that written reports, as required in Section III. C., are submitted to the Sanitary District Superintendent within 24 hours following the SSO.

## **D. Written Report to IDEM Within 5 Calendar Days.**

Within five (5) calendar days, the Sanitary District Superintendent or designee shall file a written report to the IDEM, by facsimile at 1-317-232-8637 or by email at [wwreports@IDEM.IN.gov](mailto:wwreports@IDEM.IN.gov), with a copy to the USEPA, Region 5. The report shall be on forms (Exhibit C) provided by the IDEM and include the following:

- Location of the SSO;
- The receiving water, if any;
- Estimated volume of the SSO (See Exhibit D);
- Description of the sewer component from which the release occurred;
- Estimated date and time when the overflow began and stopped or will be stopped;
- Caused or suspected cause of the overflow;
- Steps to be taken to reduce, eliminate, and prevent reoccurrence of the overflow and schedule of major milestones for those steps;
- Steps taken or planned to mitigate the impact(s) of the overflow and a schedule of milestones for those steps.

## **VI. DISTRIBUTION AND MAINTENANCE OF OERP**

### **A. Availability of OERP**

Copies of the OERP shall be held at the Highland Public Works Facility in the office of the Public Works Director. Copies of the OERP shall also be kept in

the vehicles routinely used to respond to SSO events (Vacuum Truck and Truck 10), and be distributed to the following:

- Operations Director
- Utilities Supervisor
- Facilities Supervisor
- Street/Sanitation Supervisor
- Fleet Supervisor

## **B. Training**

Training on the implementation of the OERP shall be provided annually to all employees of the Highland Sanitary District and to any Public Works employee that may become incidentally involved in responding to overflows.

## **C. Review and Update**

The OERP shall be reviewed annually and amended as appropriate.

## **D. Regulatory Contact Information**

Indiana Department of Environmental Management  
Office of Water Quality  
Water Enforcement Section  
Phone: (800) 451-6027 ext. 28670  
FAX: (317) 232-8637  
Email: [wwreports@idem.in.gov](mailto:wwreports@idem.in.gov)  
Emergency Spill Response Line: (800) 233-7745

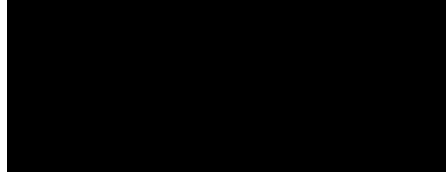
United States Environmental Protection Agency  
Water Enforcement and Compliance Assurance Branch (WC-15J)  
77 West Jackson Boulevard  
Chicago, Illinois 60404-3590  
Attn: Keith Middleton  
Phone: (312) 886-6465  
Email: [middleton.keith@epa.gov](mailto:middleton.keith@epa.gov)

Lake County Health Department  
Phone: (219) 755-3655

## E. Town Staff Contact Information

- Public Works Director/Sanitary District Superintendent

Mark Knesek

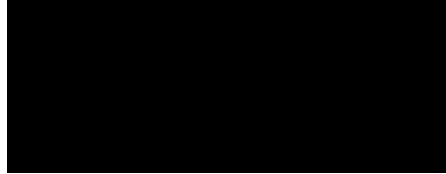


Business Phone: (219) 972-5069

Email: mknesek@highland.in.gov

- Operations Director

Tim Gembala

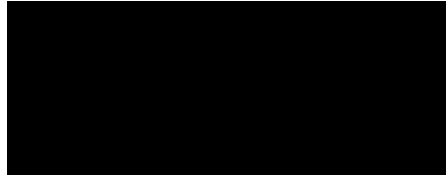


Business Phone: (219) 972-5083

Email: tgemala@highland.in.gov

- Utilities Supervisor

Aaron Krestel

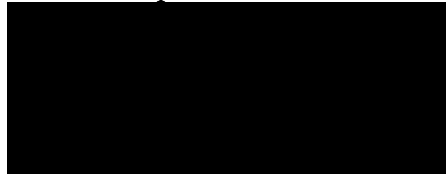


Business Phone: (219) 972-5083

Email: akrestel@highland.in.gov

- Facilities Supervisor

Michael Pipta

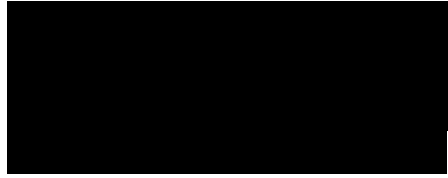


Business Phone: (219) 972-5083

Email: mpipta@highland.in.gov

- Street/Sanitation Supervisor

Brian Bell



Business Phone: (219) 972-5083

Email: bbell@highland.in.gov

- Fleet Supervisor

John Mouratides



Business Phone: (219) 972-5083

Email: jmouratides@highland.in.gov

- Public Works Dispatch Clerk (Working Hours 7AM to 4PM, Mon.-Fri.)

Public Works Facility

8001 Kennedy Ave

Highland, Indiana 46322

Business Phone: (219) 972-5083 *(Non-Working Hours Phone Message Directs Callers to Call 911 to Report an Emergency)*

- 911 Dispatcher (Non-Working Hours and Holidays)

Lake County 911 Call Center

Phone or Text: 911

- Fire Department Chief

Chief Bill Timmer


2901 Highway Ave.

Highland, Indiana 46322

Business Phone: (219) 923-9876



- Fire Department Operations Chief

Michael Pipta  
2901 Highway Ave.  
Highland, Indiana 46322  
Business Phone: (219) 923-9876  


**EXHIBIT A**

**SANITARY SEWER SYSTEM INCIDENT REPORT**

- SANITARY SEWER OVERFLOW (SSO)**                       **PROPERTY BACKUP**
- Preliminary Report               Final Report               Revised Final Report

1. Date and Time Call Received:  
Date: \_\_\_\_\_ / \_\_\_\_\_ / 20                      Time: \_\_\_\_\_ : \_\_\_\_\_ AM / PM
  
2. Caller Information:  
Name: \_\_\_\_\_  
Phone: \_\_\_\_\_
  
3. Specific Location of SSO or Property Backup (Address/Landmark): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
4. Description of Problem Causing SSO or Property Backup: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
5. Time SSO or Property Backup Noticed by Caller: \_\_\_\_\_
  
6. Observations of the Caller (odor, duration, back or front of property): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
7. Other Relevant Information From Caller (anything that could help Spill Response Crew to quickly locate, assess and stop the SSO or Property Backup): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
8. Oral Reporting of SSO Within 1 Hour:
  - a. SSO Not Involving Fish Kill , but Discharged to Surface Waters
    - Lake County Health Department                      (219) 755-3655  
Date: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_                      Time: \_\_\_\_\_
  - b. SSO Involving Observed Fish Kill
    - Lake County Health Department                      (219) 755-3655  
Date: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_                      Time: \_\_\_\_\_
    - IDEM Emergency Response Spill Line                      (888) 233-7745  
Date: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_                      Time: \_\_\_\_\_

9. Best Estimate of Time of SSO or Property Backup Incident:
- a. Start Time: \_\_\_\_\_ Date \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- b. End Time: \_\_\_\_\_ Date \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
10. General Information About SSO or Property Backup at This Location:
- a. Estimated Volume of SSO or Property Backup: \_\_\_\_\_ GAL (See Exhibit E)
- b. Method of Estimated Volume: \_\_\_\_\_
- c. Were Digital Photos Taken?  Yes  No
- d. Corrective Measures Taken:
- No Action
  - Removed Blockage
  - Repaired Pump Station
  - Spill Contained
  - Spill Cleaned Up
  - Other: \_\_\_\_\_
- e. Cause of SSO or Property Backup (Select all That Apply)
- Excessive Infiltration/Inflow – Rainfall Event
  - Excessive Infiltration/Inflow – Snowmelt Event
  - High Ground Water
  - Pump/Lift Station Failure
  - Public Sewer System Blockage or Collapse
  - Private Sewer Lateral Blockage or Collapse
  - Other: \_\_\_\_\_
- f. Additional Comment: \_\_\_\_\_
- g. Recommended Follow-up Action: \_\_\_\_\_
11. Investigated by: \_\_\_\_\_

**Exhibit B**

**WARNING!**

**RAW SEWAGE SPILL**

**AREA CLOSED**

**Please Keep Children and Pets  
Out of Area**

**Town of Highland, Public Works Office**

**(219) 972-5083**



Exhibit B

# KEEP OUT



## WARNING!

# CONTAMINATED WATER

Lake County Health Department

and

Town of Highland

## Exhibit C

Reset Form



### BYPASS / OVERFLOW INCIDENT REPORT

State Form 48373 (R8 / 2-19)  
 Indiana Department of Environmental Management  
 Office of Water Quality

Follow-up to Bypass report  
 previously sent on: \_\_\_\_\_

**INSTRUCTIONS:** Complete all parts of this form and e-mail signed copies to [wwreports@idem.IN.gov](mailto:wwreports@idem.IN.gov). Submittal of this report will satisfy the Office of Water Quality (OWQ) telephone and written bypass/overflow reporting requirements of your NPDES permit. Please use and the second page of this form as necessary to identify separate locations caused by the same event. If you have any questions while filling out this form, please call (317) 232-6770.

To report a spill or if the release is resulting in a fish kill or other severe environmental damage, immediately report the release to the Emergency Response Section spill response line at: (317) 233-7745 or toll free within Indiana at (888) 233-7745.

GENERAL INFORMATION					
(1) Facility Name (Organization)	(2) Mailing Address (reporting organization)		(3) County	(4) NPDES Permit	
RELEASE INFORMATION (Location 1)					
(5) Outfall Number	(6) Date (mm/dd/yy) and Time Release Began	(7) Date (mm/dd/yy) and Time Release Stopped	(8) Location of Release (streets address or Manhole, Lift Station, Force Main etc.)	(9) Latitude (Deg Min Sec)	(9) Longitude (Deg Min Sec)
	<input type="checkbox"/> AM <input type="checkbox"/> PM	<input type="checkbox"/> AM <input type="checkbox"/> PM			
(10) Amount of Flow Released (Always provide a volume.) Check one: <input type="checkbox"/> Estimated <input type="checkbox"/> Actual			(11) WWTP Flow During Release Gallons MGD	(12) WWTP Peak Design Flow Rate MGD	
(13) Overflow Type (Select one.) <input type="checkbox"/> Sanitary Sewer Overflow <input type="checkbox"/> Treatment Bypass (at wastewater plant) <input type="checkbox"/> Prohibited Combined Sewer Overflow <input type="checkbox"/> Dry Weather Combined Sewer Overflow <input type="checkbox"/> Combined Sewer System Release			(14) Describe any damage to aquatic life or receiving stream:		
(15) Reason for Bypass / Overflow (Select one or more.) <input type="checkbox"/> Construction Related <input type="checkbox"/> Power Failure <input type="checkbox"/> Equipment Failure <input type="checkbox"/> Unknown <input type="checkbox"/> Exceeded Max Capacity <input type="checkbox"/> Precipitation Inches					
(16) System Component(s) (Select one or more.) <input type="checkbox"/> Manhole <input type="checkbox"/> House Lateral <input type="checkbox"/> Pipe Failure <input type="checkbox"/> Pump Station Failure <input type="checkbox"/> Treatment Bypassed <input type="checkbox"/> Other <input type="checkbox"/> Influent Structure <input type="checkbox"/> Air Relief Valve <input type="checkbox"/> Sewer Clean Out  Describe Other: (in the box below)		(17) Additional Description of the Bypass / Overflow Event:		(18) Description of the Area Impacted (Check all that apply.) <input type="checkbox"/> Affected Private Property <input type="checkbox"/> Basement Backup <input type="checkbox"/> Occurred at Treatment Plant <input type="checkbox"/> Reached Public Land <input type="checkbox"/> Reached Receiving Water  Name of Receiving Water Impacted:	
(19) Additional organizations notified by facility, if necessary (Select one or more.) <input type="checkbox"/> IDEM Emergency Response <input type="checkbox"/> Health Department <input type="checkbox"/> DNR Fish and Wildlife <input type="checkbox"/> Local Emergency Management <input type="checkbox"/> Other:					
(20) Actions Taken to Prevent, Minimize, or Mitigate Damage including Clean-up and Treatment of Affected Area (Select one or more of the following, then add a written description.) <input type="checkbox"/> Removed Blockage <input type="checkbox"/> Repaired Pipe <input type="checkbox"/> Repaired Pump Station <input type="checkbox"/> Other <input type="checkbox"/> Lime <input type="checkbox"/> Clean-Up Debris					
(21) Resolution: Actions Taken or Planned to Prevent Recurrence					
(22)					
CERTIFICATION AND SIGNATURE					
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (The area below is for a handwritten signature or an electronic substitute. Scan the completed form to PDF and e-mail to <a href="mailto:wwReports@idem.IN.gov">wwReports@idem.IN.gov</a> )					
SIGNATURE: _____			DATE (month, day, year): _____		
Individual Making Report (printed)	Telephone Number	Contact E-mail	Date (month, day, year) / Time IDEM Notified	<input type="checkbox"/> AM <input type="checkbox"/> PM	

Exhibit D

(Resources to Estimate SSO Volume)

**TABLE 'A'**  
**ESTIMATED SSO FLOW OUT OF M/H WITH COVER IN PLACE**

24" COVER				36" COVER			
Height of spout above M/H rim H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible	Height of spout above M/H rim H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD			in gpm	in MGD	
1/4	1	0.001		1/4	1	0.002	
1/2	3	0.004		1/2	4	0.006	
3/4	6	0.008		3/4	8	0.012	
1	9	0.013		1	13	0.019	
1 1/4	12	0.018		1 1/4	18	0.026	
1 1/2	16	0.024		1 1/2	24	0.035	
1 3/4	21	0.030		1 3/4	31	0.044	
2	25	0.037		2	37	0.054	
2 1/4	31	0.045		2 1/4	45	0.065	
2 1/2	38	0.054		2 1/2	55	0.079	
2 3/4	45	0.065		2 3/4	66	0.095	
3	54	0.077		3	78	0.113	
3 1/4	64	0.092		3 1/4	93	0.134	
3 1/2	75	0.107		3 1/2	109	0.157	
3 3/4	87	0.125		3 3/4	127	0.183	
4	100	0.145		4	147	0.211	
4 1/4	115	0.166		4 1/4	169	0.243	
4 1/2	131	0.189		4 1/2	192	0.276	
4 3/4	148	0.214		4 3/4	217	0.312	6"
5	166	0.240		5	243	0.350	
5 1/4	185	0.266		5 1/4	270	0.389	
5 1/2	204	0.294		5 1/2	299	0.430	
5 3/4	224	0.322	6"	5 3/4	327	0.471	
6	244	0.352		6	357	0.514	
6 1/4	265	0.382		6 1/4	387	0.558	8"
6 1/2	286	0.412		6 1/2	419	0.603	
6 3/4	308	0.444		6 3/4	451	0.649	
7	331	0.476		7	483	0.696	
7 1/4	354	0.509		7 1/4	517	0.744	
7 1/2	377	0.543		7 1/2	551	0.794	
7 3/4	401	0.578	8"	7 3/4	587	0.845	10"
8	426	0.613		8	622	0.896	
8 1/4	451	0.649		8 1/4	659	0.949	
8 1/2	476	0.686		8 1/2	697	1.003	
8 3/4	502	0.723		8 3/4	734	1.057	
9	529	0.761		9	773	1.113	

**Disclaimer:**

This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

## Exhibit D

### (Resources to Estimate SSO Volume)

The formula used to develop Table A measures the maximum height of the water coming out of the maintenance hole above the rim. The formula was taken from hydraulics and its application by A.H. Gibson (Constable & Co. Limited).

#### Example Overflow Estimation:

The maintenance hole cover is unseated and slightly elevated on a 24" casting. The maximum height of the discharge above the rim is 5 ¼ inches. According to Table A, these conditions would yield an SSO of 185 gallons per minute.



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

Exhibit D

(Resources to Estimate SSO Volume)

**TABLE 'B'**  
**ESTIMATED SSO FLOW OUT OF M/H WITH COVER REMOVED**

24" FRAME				36" FRAME			
Water Height above M/H frame H in inches	SSO FLOW Q		Min. Sewer size in which these flows are possible	Water Height above M/H frame H in inches	SSO FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD			in gpm	in MGD	
1/8	28	0.04		1/8	49	0.07	
1/4	62	0.09		1/4	111	0.16	
3/8	111	0.16		3/8	187	0.27	6"
1/2	160	0.23		1/2	271	0.39	
5/8	215	0.31	6"	5/8	361	0.52	8"
3/4	354	0.51	8"	3/4	458	0.66	
7/8	569	0.82	10"	7/8	556	0.8	10"
1	799	1.15	12"	1	660	0.95	12"
1 1/8	1,035	1.49		1 1/8	1,035	1.49	
1 1/4	1,340	1.93	15"	1 1/4	1,486	2.14	15"
1 3/8	1,660	2.39		1 3/8	1,951	2.81	
1 1/2	1,986	2.86		1 1/2	2,424	3.49	18"
1 5/8	2,396	3.45	18"	1 5/8	2,903	4.18	
1 3/4	2,799	4.03		1 3/4	3,382	4.87	
1 7/8	3,132	4.51		1 7/8	3,917	5.64	21"
2	3,444	4.96	21"	2	4,458	6.42	
2 1/8	3,750	5.4		2 1/8	5,000	7.2	24"
2 1/4	3,986	5.74		2 1/4	5,556	8	
2 3/8	4,215	6.07		2 3/8	6,118	8.81	
2 1/2	4,437	6.39		2 1/2	6,764	9.74	
2 5/8	4,569	6.58	24"	2 5/8	7,403	10.66	
2 3/4	4,687	6.75		2 3/4	7,972	11.48	30"
2 7/8	4,799	6.91		2 7/8	8,521	12.27	
3	4,910	7.07		3	9,062	13.05	
				3 1/8	9,604	13.83	
				3 1/4	10,139	14.6	
				3 3/8	10,625	15.3	36"
				3 1/2	11,097	15.98	
				3 5/8	11,569	16.66	
				3 3/4	12,035	17.33	
				3 7/8	12,486	17.98	
				4	12,861	18.52	
				4 1/8	13,076	18.83	
				4 1/4	13,285	19.13	
				4 3/8	13,486	19.42	

**Disclaimer:**

This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

## Exhibit D

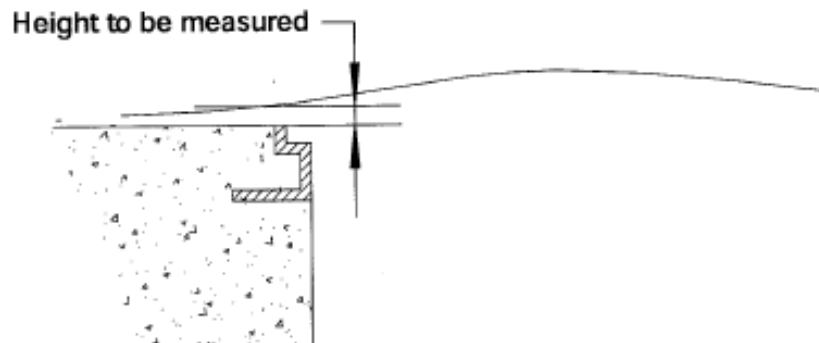
### (Resources to Estimate SSO Volume)

The formula used to develop Table B for estimating SSO's out of maintenance holes without covers is based on discharge over curved weir -- bell mouth spillways for 2" to 12" diameter pipes. The formula was taken from hydraulics and its application by A.H. Gibson (Constable & Co. Limited).

#### Example Overflow Estimation:

The maintenance hole cover is off and the flow coming out of a 36" frame maintenance hole at one inch (1") height will be approximately 660 gallons per minute.

#### FLOW OUT OF M/H WITH COVER REMOVED (TABLE "B")



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

Exhibit D

(Resources to Estimate SSO Volume)

**TABLE 'C'**  
**ESTIMATED SSO FLOW OUT OF M/H PICK HOLE**

Height of spout above M/H cover H in inches	SSO FLOW Q in gpm	Height of spout above M/H cover H in inches	SSO FLOW Q in gpm
1/8	1.0	5 1/8	6.2
1/4	1.4	5 1/4	6.3
3/8	1.7	5 3/8	6.3
1/2	1.9	5 1/2	6.4
5/8	2.2	5 5/8	6.5
3/4	2.4	5 3/4	6.6
7/8	2.6	5 7/8	6.6
1	2.7	6	6.7
1 1/8	2.9	6 1/8	6.8
1 1/4	3.1	6 1/4	6.8
1 3/8	3.2	6 3/8	6.9
1 1/2	3.4	6 1/2	7.0
1 5/8	3.5	6 5/8	7.0
1 3/4	3.6	6 3/4	7.1
1 7/8	3.7	6 7/8	7.2
2	3.9	7	7.2
2 1/8	4.0	7 1/8	7.3
2 1/4	4.1	7 1/4	7.4
2 3/8	4.2	7 3/8	7.4
2 1/2	4.3	7 1/2	7.5
2 5/8	4.4	7 5/8	7.6
2 3/4	4.5	7 3/4	7.6
2 7/8	4.6	7 7/8	7.7
3	4.7	8	7.7
3 1/8	4.8	8 1/8	7.8
3 1/4	4.9	8 1/4	7.9
3 3/8	5.0	8 3/8	7.9
3 1/2	5.1	8 1/2	8.0
3 5/8	5.2	8 5/8	8.0
3 3/4	5.3	8 3/4	8.1
3 7/8	5.4	8 7/8	8.1
4	5.5	9	8.2
4 1/8	5.6	9 1/8	8.3
4 1/4	5.6	9 1/4	8.3
4 3/8	5.7	9 3/8	8.4
4 1/2	5.8	9 1/2	8.4
4 5/8	5.9	9 5/8	8.5
4 3/4	6.0	9 3/4	8.5
4 7/8	6.0	9 7/8	8.6
5	6.1	10	8.7

Unrestrained  
M/H cover will  
start to lift

Note: This chart is based on a 7/8 inch diameter pick hole

**Disclaimer:** This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

## Exhibit D

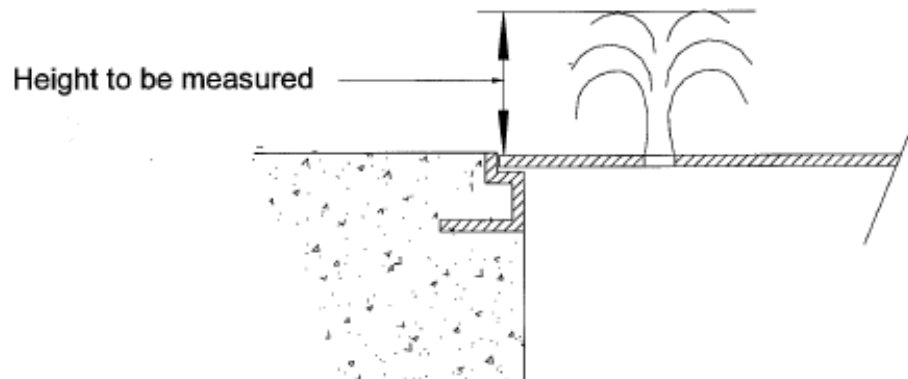
### (Resources to Estimate SSO Volume)

The formula used to develop Table C is  $Q=CcVA$ , where Q is equal to the quantity of the flow in gallons per minute, Cc is equal to the coefficient of contraction (.63), V is equal to the velocity of the overflow, and A is equal to the area of the pick hole.<sup>9</sup> If all units are in feet, the quantity will be calculated in cubic feet per second, which when multiplied by 448.8 will give the answer in gallons per minute. (One cubic foot per second is equal to 448.8 gallons per minute, hence this conversion method).

#### Example Overflow Estimation:

The maintenance hole cover is in place and the height of water coming out of the pick hole seven-eighths of an inch in diameter (7/8") is 3 inches (3"). This will produce an SSO flow of approximately 4.7 gallons per minute.

### FLOW OUT OF VENT OR PICK HOLE (TABLE "C")




This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

<sup>9</sup> Velocity for the purposes of this formula is calculated by using the formula  $h = v^2 / 2G$ , where h is equal to the height of the overflow, v is equal to velocity, and G is equal to the acceleration of gravity.





### Exhibit D


### (Resources to Estimate SSO Volume)


 **City of San Diego  
Metropolitan Wastewater Department**


**reference sheet for estimating sewer spills  
from Overflowing Sewer Manholes**  
*All estimates are calculated in gallons per minute (gpm)*


 5 gpm


 100 gpm


 225 gpm


 25 gpm


 150 gpm

 275 gpm

 50 gpm

 200 gpm

 275 gpm

 **Wastewater Collection Division  
(619) 654-4160**

rev. 499

All photos were taken during a demonstration using metered water from a hydrant in cooperation with the City of San Diego's Water Department.

# Appendix E

SWPPP for Highland Public Works / Park Dept. Facility

# **STORMWATER POLLUTION PREVENTION PLAN**

**Highland Public Works / Parks Dept. Facility  
8001 Kennedy Ave.  
Highland, Indiana**

Original: February 2023

Revision: Date

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***Appendices***

Appendix A – Site Maps

Appendix B – Emergency Contacts

Appendix C – List of Significant Spills and Leaks

Appendix D – Training Attendance Form and Training Documentation

Appendix E – Facility Inspection Forms

## 1.0 MS4 FACILITY DESCRIPTION AND CONTACT INFORMATION

### 1.1 Introduction

This Stormwater Pollution Prevention Plan (SWPPP) was developed to document the MS4's good housekeeping and pollution prevention practices at MS4-owned facilities that have operations or activities that may impact stormwater. The goal of this SWPPP is to make employees aware of how their jobs impact stormwater and surface water. This SWPPP is a resource on how to prevent or respond to those situations where stormwater will contact or has contacted potential pollutant sources during daily facility operations.

### 1.2 Facility Information

Name of Facility: Town of Highland Public Works / Parks Dept.

Address: 8001 Kennedy Ave. Highland, Indiana

County: lake

MS4 Permit Number: INR040135

MS4 Permittee Name: Town of Highland (Mark Knesek)

Receiving Water(s): Cady Ditch, Hart Ditch, Spring Ditch Little Calumet River

### 1.3 Contact Information/Responsible Parties

The following personnel are responsible for activities at the facility.

Primary Contact: Mark Knesek (Public Works Director)

Phone: 219-972-5069 24-Hour Phone: 219-689-6664

Secondary Contact: John Mouratides

Phone: 219-972-5083 24-Hour Phone: 219-730-7841

MS4 SWPPP Contact: Tim Gembala

Phone: 219-972-5083 24-Hour Phone: 219-781-4464

### 1.4 SWPPP Team

The SWPPP Team is responsible for assisting the Mayor, County Commissioners, or other responsible city/town official in developing and revising the facility's SWPPP, implementing and maintaining control measures and best management practices (BMPs), and taking corrective actions where required. The SWPPP Team may consist of the Mayor, MS4 Coordinator, Department Superintendents, and key Department

personnel familiar with operations at the facility. Responsibilities may include, but are not limited to: overall management and implementation of the SWPPP, revising the SWPPP, approving BMPs changes, managing budget for stormwater, information gathering for reports, conducting inspections, documenting staff activities, and training. The following staff members comprise the facility's SWPPP Team and identifies their individual responsibilities.

**Table 1: SWPPP Team**

Name	Responsibility
All Employees	<p>Each employee at this facility has an important role in preventing, detecting, and eliminating pollutants from entering this facility's stormwater drainage system. The following list contains the general employee responsibilities:</p> <ul style="list-style-type: none"> <li>• Know the location of this SWPPP.</li> <li>• Know where each storm drain, trench drain, etc. discharges to (Note: it will either be sanitary or storm).</li> <li>• Responding to, cleaning up, documenting, and reporting spills, leaks, and other discharges.</li> </ul>

**1.5 Activities at the Facility**

Below is a general description of the activities that occur at the facility that have the potential to impact stormwater.

**Table 2: Facility Activities**

Check All That Apply	Activity Description
<input checked="" type="checkbox"/>	Catch basin cleanings and street sweepings dewatering and solids management
<input checked="" type="checkbox"/>	Chemical handling
<input type="checkbox"/>	Composting
<input checked="" type="checkbox"/>	Equipment cleaning
<input checked="" type="checkbox"/>	Fleet parking/impound lot
<input checked="" type="checkbox"/>	Fueling
<input checked="" type="checkbox"/>	Household hazardous waste collection
<input checked="" type="checkbox"/>	Maintenance of stormwater management infrastructure (e.g., detention basins, bioretention areas, oil-water separators)
<input checked="" type="checkbox"/>	Pesticide, herbicide & fertilizer storage/usage
<input checked="" type="checkbox"/>	Salt storage/loading/mixing

**Table 2: Facility Activities**

Check All That Apply	Activity Description
<input checked="" type="checkbox"/>	Snow disposal
<input checked="" type="checkbox"/>	Stockpiling (sand, dirt, ditch cleanings, mulch, unwashed aggregates)
<input checked="" type="checkbox"/>	Storage areas for equipment, or scrap/spare materials
<input checked="" type="checkbox"/>	Used oil and other hazardous waste management
<input checked="" type="checkbox"/>	Vehicle maintenance (e.g. mechanical repairs, body work, oil changes, etc.)
<input checked="" type="checkbox"/>	Vehicle washing
<input checked="" type="checkbox"/>	Waste disposal/recycling
<input checked="" type="checkbox"/>	Yard waste/leaf collection
<input checked="" type="checkbox"/>	Electronic waste recycling
<input checked="" type="checkbox"/>	tire recycling
<input checked="" type="checkbox"/>	battery recycling
<input type="checkbox"/>	Other:

### 1.6 Site Map

Site Maps for the Department are included in Appendix A. The maps can be developed through Geographical Information Systems (GIS) or Google Map. The Maps show the areas of potential stormwater impacts from activities identified in Section 2.1, storm sewers/conveyances, buildings, paved/grass areas and surface flow direction.

## 2.0 POTENTIAL POLLUTANT SOURCES

### 2.1 Activities Exposed to Stormwater

This section describes the areas at the Department where industrial materials or activities are exposed to stormwater or from which allowable non-stormwater discharges are released. Non-stormwater discharges may include discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, or sanitary wastes, and are typically the result of unauthorized connections of sanitary or process wastewater drains to storm sewers. The activities present are selected with the corresponding potential pollutants.

**Table 3: Potential Pollutants Sources**

Activity Description	Potential Pollutants
<input checked="" type="checkbox"/> Catch basin cleanings and street sweepings dewatering and solids management	Sediment, fuels, oils and other potential pollutants



**Table 3: Potential Pollutants Sources**

Activity Description		Potential Pollutants
<input checked="" type="checkbox"/>	Chemical handling	Residuals from various chemical spills
<input type="checkbox"/>	Composting	Debris and organic pollutants
<input checked="" type="checkbox"/>	Equipment cleaning	Oils, fuels, soaps/detergents
<input checked="" type="checkbox"/>	Fleet parking/impound lot	Oils, fuels
<input checked="" type="checkbox"/>	Fueling	Fuels
<input checked="" type="checkbox"/>	Household hazardous waste collection	Debris, fuels, oils and other liquids collected
<input checked="" type="checkbox"/>	Maintenance of stormwater management infrastructure (e.g., detention basins, bioretention areas, oil-water separators)	Sediment, fuels, oils and other potential pollutants
<input checked="" type="checkbox"/>	Pesticide, herbicide & fertilizer storage/usage	Excess chemicals, expired chemicals
<input checked="" type="checkbox"/>	Salt storage/loading/mixing	Salt-water mixture, sand
<input checked="" type="checkbox"/>	Snow disposal	Litter, salt, sand
<input checked="" type="checkbox"/>	Stockpiling (sand, dirt, ditch cleanings, mulch, unwashed aggregates)	Sediment and pollutant run-off
<input checked="" type="checkbox"/>	Storage areas for equipment, or scrap/spare materials	Residual oils or fuels, debris
<input checked="" type="checkbox"/>	Used oil and other hazardous waste management	Residuals from waste handling (oils, non-hazardous and hazardous)
<input checked="" type="checkbox"/>	Vehicle maintenance (mechanical repairs, body work, oil changes, etc.)	Oils, fuels
<input checked="" type="checkbox"/>	Vehicle washing	Oils, fuels, soaps/detergents
<input checked="" type="checkbox"/>	Waste disposal/recycling	Debris, litter
<input checked="" type="checkbox"/>	Yard waste/leaf collection	Debris and organic pollutants
<input type="checkbox"/>	Other:	
<input type="checkbox"/>	Other:	
<input type="checkbox"/>	Other:	
<input type="checkbox"/>	Other:	

## 2.2 Material Inventory

This section describes the significant chemicals and materials stored and used at the facility. Chemicals should be stored inside and not exposed to stormwater. Specific chemical information can be reviewed on the Safety Data Sheets (SDSs).

**Table 4: Material Inventory**

Chemical/Material	Location(s)	Average Amount/Quantity
<input type="checkbox"/> Antifreeze	Inside shop	55 gal
<input type="checkbox"/> Windshield wash fluid	Inside shop	55 gal
<input type="checkbox"/> Def fluid	Inside shop	200 gal
<input type="checkbox"/> Diesel fuel tank(s)	Under fuel island	6385 gal
<input type="checkbox"/> Mosquito abatement	(Allpro Evoluer 4-4uly) inside shop	60 gal

**Table 4: Material Inventory**

	<b>Chemical/Material</b>	<b>Location(s)</b>	<b>Average Amount/ Quantity</b>
<input type="checkbox"/>	Gasoline drum(s)		
<input type="checkbox"/>	Gasoline small container(s)		
<input checked="" type="checkbox"/>	Gasoline tank(s)	Under fuel island	Total 10674 gals
<input checked="" type="checkbox"/>	Hazardous waste	Used: oil in shop	Used oil 500 gal
<input type="checkbox"/>	First Ayd Degreaser	In shop	55 gals
<input checked="" type="checkbox"/>	Maintenance oil drum(s)		
<input type="checkbox"/>	Maintenance oil small container(s)	Under vehicle flat pan	20 gals
<input type="checkbox"/>	Maintenance oil tank(s)	Under vehicle oil change barrel in shop	30 gals
<input type="checkbox"/>	Paint cans and aerosols		
<input type="checkbox"/>	Parts washer solvent	In shop (Sherwin Williams naptha)	30 gals
<input type="checkbox"/>	Pesticides		
<input type="checkbox"/>	Salt		
<input type="checkbox"/>	Sand	Outside storage	400 yds
<input checked="" type="checkbox"/>	Simple green	In vehicle storage	55 gals
<input type="checkbox"/>	Used antifreeze	In shop	55 gals
<input checked="" type="checkbox"/>	#248 grease	In shop oil room	120 lbs.
<input checked="" type="checkbox"/>	Gear lube 80w-90	In shop oil room	30 gals
<input checked="" type="checkbox"/>	Schaeffers heat transfer oil	In shop oil room	55 gals
<input checked="" type="checkbox"/>	Titan 5w30 oil	In shop oil room	55 gals
<input checked="" type="checkbox"/>	Parts master synthetic 5w30 oil	In shop oil room	55 gals
<input checked="" type="checkbox"/>	Herculine motor oil 5w20	In shop oil room	55 gals
<input checked="" type="checkbox"/>	Warren oil 15w40	In shop oil room	250 gals
<input checked="" type="checkbox"/>	Warren oil A/w46 hydraulic fluid	In shop oil room	250 gals

### 2.3 Best Management Practices

This section describes the best management practices selected by the Department to reduce sources of stormwater pollution (Note that the \* indicates an advanced BMP).

**Table 5: Best Management Practices**

Activity Description	Best Management Practice to be Implemented	
<input checked="" type="checkbox"/> Catch basin cleanings and street sweepings dewatering and solids management	<input type="checkbox"/>	
	<input type="checkbox"/>	Debris –materials must be dumped at Hammond Sanitary District
	<input type="checkbox"/>	
	<input type="checkbox"/>	
	<input type="checkbox"/> *	
<input checked="" type="checkbox"/> Chemical handling, used oil and other waste management	<input checked="" type="checkbox"/>	Identify chemical storage areas, secondary containment, and/or spill equipment provided.
	<input checked="" type="checkbox"/>	Implement storage measures to prevent a spill or leak from exiting the building or entering a storm conveyance (secondary containment, spill equipment, etc.)
	<input checked="" type="checkbox"/>	Inspect chemical storage areas, containment systems, and spill equipment for issues or concerns.
	<input checked="" type="checkbox"/>	Provide enough spill materials to cleanup a spill.
	<input checked="" type="checkbox"/>	Secondary containment is to be provided for containers/tanks storing oils or petroleum products in accordance with the Fire Prevention Code and the Water Quality Standards (327 IAC 2-10).
	<input checked="" type="checkbox"/> *	Verify that containers are appropriately labeled with the contents.
	<input checked="" type="checkbox"/> *	Verify monthly that spill control and cleanup materials are located near material storage, unloading, and use areas.
	<input checked="" type="checkbox"/> *	Replace or upgrade single-walled tanks with double-walled tanks that are equipped with leak detection gauges and liquid level devices.
	<input checked="" type="checkbox"/> *	Provide secondary containment for chemical containers 55 gallons and greater.
	<input checked="" type="checkbox"/> *	Provide a form of secondary containment for chemical containers five gallons and greater.
	<input type="checkbox"/> *	Seal or disconnect all floor drains within garages and maintenance areas.
	<input checked="" type="checkbox"/> *	Connect floor drains to a collection system or oil/water separator and the sanitary sewer and not the storm sewer.
	<input checked="" type="checkbox"/> *	Ensure sufficient aisle space to provide access for inspections and to improve the ease of material transport.
	<input checked="" type="checkbox"/> *	Store materials away from high-traffic areas to reduce the likelihood of accidents that might cause spills or damage to drums, bags, or containers.
<input checked="" type="checkbox"/> *	Only store on-site the amount of material or product needed to complete a job. Schedule more frequent deliveries of materials and products to reduce the amount stored on-site at an MS4 owned facility.	
<input type="checkbox"/> Composting	<input type="checkbox"/>	Prevent runoff from composting areas from contacting stormwater.
	<input type="checkbox"/>	Develop containment areas for composting locations so runoff is properly contained and treated.

**Table 5: Best Management Practices**

Activity Description	Best Management Practice to be Implemented	
	<input type="checkbox"/>	Follow the Indiana Code 13-20-10-8 for requirements for composting facilities
<input type="checkbox"/> Erosion and sediment control	<input checked="" type="checkbox"/>	For those construction activities operated by the MS4 operator or MS4 municipalities within the MS4 area, construction plans must be submitted to the local SWCD, IDEM, or other entity designated by the Department for review and approval. If the MS4 operator does not receive either a notice of deficiency or an approval within thirty-five (35) days of the submittal, the plan will be considered adequate.
	<input checked="" type="checkbox"/>	MS4-operated project construction plans must include a traffic phasing plan for those projects that have the potential to alter vehicular traffic routes.
Erosion and sediment control (continued)	<input checked="" type="checkbox"/>	MS4-operated project stormwater pollution prevention plan must address the following areas outside of rights-of-way: (1) Utility relocation areas. (2) Material hauling and transportation routes/roads. (3) Borrow pits. (4) Temporary staging and material stockpile areas. (5) Temporary disposal areas for waste materials.
	<input checked="" type="checkbox"/> *	Create a SWPPP or equivalent for all MS4 owned and operated projects
	<input checked="" type="checkbox"/> *	Include a discussion about erosion and sediment control measures at each project pre-construction meeting
<input checked="" type="checkbox"/> Fueling	<input checked="" type="checkbox"/>	Create and maintain written documents or procedures for fueling activities.
	<input checked="" type="checkbox"/>	Include area(s) on Site Map.
	<input checked="" type="checkbox"/>	Provide enough spill materials to cleanup a spill.
	<input checked="" type="checkbox"/>	Inspect area(s) routinely to ensure BMPs are implemented.
	<input type="checkbox"/>	Outdoor aboveground storage tanks are required to have secondary containment.
	<input checked="" type="checkbox"/> *	Implement fueling practices: fuel in designated and covered areas; avoid topping off tanks/containers; provide fuel pump barriers; and use hoses with over-flow protection.
	<input type="checkbox"/> *	Prevent run-on of stormwater into fueling areas using diversion dikes, berms, curbing, surface grading, or other measures.
	<input checked="" type="checkbox"/> *	Use catch basin inserts to prevent discharge into storm drains/
	<input checked="" type="checkbox"/> *	Use drip pans, drain boards, and drying racks to direct drips back to a fluid holding tank for reuse or proper disposal.
<input type="checkbox"/> Salt storage/ loading/mixing	<input checked="" type="checkbox"/>	Cover or reduce the potential for stormwater contacting deicing salt or sand storage piles (i.e. enclosed building, storage shed or tarp).
	<input checked="" type="checkbox"/>	Provide containment of any accidental losses of concentrated solutions, salts and other polluting materials (i.e. sweep back or collect salt that has escaped the covered area).
	<input type="checkbox"/> *	Provide an area with secondary containment and impervious surface for storage of chemical deicing containers.
	<input type="checkbox"/> *	Segregate stormwater runoff from salt piles to use as a base for salt brine. Use brine to accelerate the melting of ice.
	<input checked="" type="checkbox"/> *	Implement alternate deicing chemicals, such as, beet juice, brine or other materials.
	<input checked="" type="checkbox"/> *	Annually calibrate the salt spreaders.

**Table 5: Best Management Practices**

Activity Description	Best Management Practice to be Implemented	
	<input checked="" type="checkbox"/> *	Inform salt applicators of sensitive areas, such as public water supplies, lakes, and ponds. Consider de-icing alternatives in sensitive areas.
	<input checked="" type="checkbox"/> *	Do not store salt in sensitive areas (i.e. zone of influence of water supply wells, significant recharge areas, lakes and wetlands) or within the 100-year floodplain to reduce water contamination.
<input checked="" type="checkbox"/> Snow disposal	<input checked="" type="checkbox"/>	Designated snow disposal areas have been established that have minimal potential for pollutant run-off impacts on MS4 area receiving waters.
	<input checked="" type="checkbox"/> *	Direct snow piles to detention basins or grass areas for infiltration so that the soil and other debris attached to the snow can settle out before the water is discharged to surface waters.
	<input checked="" type="checkbox"/> *	After the snow melts, collect litter to prevent it from entering the stormwater system
Snow Disposal (continued)	<input checked="" type="checkbox"/> *	When storing snow in landscaped areas, plant with native and adapted species tolerant of snow storage and salt (perennials that die back annually and shrubs/trees that can bend with weight, but not break).
	<input type="checkbox"/> *	Employ concave landscaped areas rather than mounded landscapes for snow storage.
	<input checked="" type="checkbox"/> *	Locate snow storage areas to maximize solar exposure and away from primary roadways to the greatest extent feasible.
<input checked="" type="checkbox"/> Storage areas for equipment, or scrap/spare materials	<input checked="" type="checkbox"/>	Use dumpsters in good condition that do not have structural damage that would release pollutants to storm water. The lid(s) must be in good shape and keep water out of the dumpster, otherwise the dumpster is to be replaced.
	<input type="checkbox"/>	
	<input type="checkbox"/>	
	<input type="checkbox"/> *	
<input checked="" type="checkbox"/> Stockpiling (sand, dirt, ditch cleanings, mulch, unwashed aggregates)	<input checked="" type="checkbox"/>	Temporary material stockpiles need to have perimeter protection measures installed to prevent runoff from contacting stormwater.
	<input checked="" type="checkbox"/>	Permanent material stockpiles need to be placed in a contained area that prevents runoff from contacting stormwater.
	<input type="checkbox"/>	If indicated from inspections, implement erosion and sediment control measures for soil stockpiles.
	<input checked="" type="checkbox"/> *	Place permanent material stockpiles under cover.
<input checked="" type="checkbox"/> Maintenance of stormwater management infrastructure	<input checked="" type="checkbox"/>	Implement a maintenance schedule. Including steps to follow when cleaning up unanticipated spills and/or in between the scheduled maintenance schedule.
	<input type="checkbox"/>	
	<input type="checkbox"/>	
	<input type="checkbox"/> *	
<input checked="" type="checkbox"/> Pesticide, herbicide & fertilizer storage/usage	<input checked="" type="checkbox"/>	Restricted chemicals are not to be applied without a license.
	<input checked="" type="checkbox"/>	Identify restricted pesticides, herbicides, fertilizer, etc. used at municipal facilities; the licensed applicators or contractors; and locations of application.
	<input checked="" type="checkbox"/>	Implement appropriate secondary containment for restricted pesticides as identified in 355 IAC 5-2 if the stored amount exceeds 55-gallons.

**Table 5: Best Management Practices**

Activity Description	Best Management Practice to be Implemented	
		Otherwise, follow recommended storage practices as described on the container label (i.e. containment, heating/cooling conditions).
	<input type="checkbox"/>	Implement stormwater general training for chemical application contractors, employees, golf course ground crews, etc. Content should include: stormwater basics, litter collection, proper storage of chemicals, spill notification, and waste disposal.
	<input checked="" type="checkbox"/> *	Store pesticides in drums or smaller containers and store indoors to prevent contact with stormwater.
	<input type="checkbox"/> *	Store restricted chemicals in a secured/locked area.
	<input type="checkbox"/> *	Restrict application of herbicides in drainage ditches to promote natural vegetation that filters stormwater.
<input checked="" type="checkbox"/> Vehicle and equipment washing	<input checked="" type="checkbox"/>	Include area(s) on Site Map.
	<input checked="" type="checkbox"/>	Inspect area(s) routinely to ensure BMPs are implemented.
	<input checked="" type="checkbox"/>	Establish a designated wash/rinse area on-site or at an offsite location.
	<input checked="" type="checkbox"/>	Establish if vehicles/equipment will be washed or rinsed in each established area.
	<input checked="" type="checkbox"/> *	Perform all cleaning operations indoors or under cover when possible.
	<input type="checkbox"/> *	Install covered wash racks that discharge wash water to the sanitary sewer, or contract the services of commercial car washes
	<input checked="" type="checkbox"/> *	Route washing area drains to oil/water separators or the sanitary sewer.
	<input checked="" type="checkbox"/> *	Avoid detergents whenever possible. If detergents are necessary, a phosphate-free, non-toxic, biodegradable soap is recommended. Detergents should be avoided if an oil/water separator is used for pretreatment prior to discharge to the sanitary sewer.
<input checked="" type="checkbox"/> Vehicle maintenance (mechanical repairs, body work, oil changes, etc.)	<input checked="" type="checkbox"/>	Create and maintain written documents or procedures for vehicle maintenance activities.
	<input checked="" type="checkbox"/>	Include area(s) on Site Map.
	<input checked="" type="checkbox"/>	Provide enough spill materials to cleanup a spill.
	<input checked="" type="checkbox"/>	Inspect area(s) routinely to ensure BMPs are implemented.
	<input checked="" type="checkbox"/>	Post a sign to remind employees of the acceptable liquids to be poured down sinks, floor drains, storm inlets or other storm drains or sewer connections.
	<input checked="" type="checkbox"/>	Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers per state and federal requirements.
	<input checked="" type="checkbox"/> *	Use drip pans under leaking vehicles and equipment.
<input checked="" type="checkbox"/> Waste disposal & recycling	<input checked="" type="checkbox"/>	Identify wastes generated and complete a waste determination. Wastes could include: street sweeping debris, catch basin debris, vehicle wash waters, used oil, used absorbent, used antifreeze, used oil filters, waste fuels, parts washer liquids, flammable liquids, waste aerosol cans, empty drum/containers, used tires, scrap metal, trash, general recyclables, electronic waste (computers, phones, televisions, etc.), universal waste (bulbs, batteries, mercury containing devices and pesticides), polychlorinated biphenyls (PCB) transformers and waste, and other hazardous wastes.
	<input checked="" type="checkbox"/>	Determine proper waste disposal methods or recycling options. Used oils and electronic/universal waste should be recycled. Collected vegetation

**Table 5: Best Management Practices**

Activity Description	Best Management Practice to be Implemented
	<p>(leaves, limbs, etc.) cannot be placed in a landfill. Dispose of wastes according to state and federal regulations.</p> <p><input checked="" type="checkbox"/> Determine appropriate waste storage practices, especially, if waste is stored outdoors (i.e. dumpsters, stockpiles, tanks). Dumpster lids are to be closed at the end of each work day or before a rain event.</p> <p><input checked="" type="checkbox"/> Label all waste containers.</p> <p><input type="checkbox"/> Prevent runoff from composting areas from contacting stormwater. Develop containment areas for composting locations so runoff is properly contained and treated.</p> <p><input checked="" type="checkbox"/>* If applicable, compile a list of all chemicals present at a facility and obtain a Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS) for each one (OSHA requirement).</p>
Waste disposal & recycling (continued)	<p><input checked="" type="checkbox"/>* Label containers with the name of the waste (e.g. used oil).</p> <p><input checked="" type="checkbox"/>* Make special note on the material inventory (Section 2.2) of hazardous chemicals that require special handling, storage, or disposal.</p> <p><input type="checkbox"/>* Replace toxic chemicals with less toxic or environmentally friendly chemicals.</p>
<input type="checkbox"/> Waste, garbage and floatable debris	<p><input checked="" type="checkbox"/> Collect litter and debris from the facility daily.</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/>*</p>
<input type="checkbox"/> Yard waste/leaf collection	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/>*</p>
<input type="checkbox"/> General good housekeeping & pollution prevention	<p><input checked="" type="checkbox"/> Decrease pollutants to the storm sewer system by sweeping municipally-owned paved areas.</p> <p><input checked="" type="checkbox"/> Decrease erosion and sedimentation potential through the stabilization of ditches and shoulders that have been damaged or eroded</p> <p><input checked="" type="checkbox"/> Routinely inspect facility storm water inlets for debris and clean as needed. If needed, provide inlet protection.</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/>*</p> <p><input type="checkbox"/>*</p> <p><input type="checkbox"/>*</p>
<input type="checkbox"/> Other:	<input type="checkbox"/>
<input type="checkbox"/> Other:	<input type="checkbox"/>
<input type="checkbox"/> Other:	<input type="checkbox"/>

Note: \* Advanced BMP.

## 2.4 Spills and Leaks

Employees are trained in proper materials handling, spill prevention, and cleanup techniques of materials used on the site. Spill recovery must be an immediate response after a spill and thorough to prevent material from contaminating stormwater runoff. For quick recovery, spill equipment is stored at the Department. Equipment includes sorbent materials and appropriate containers that can be sealed and are properly labeled for flammable/hazardous waste disposal. Safety Data Sheets (SDSs) are available at the Department for reference. The table below identifies locations where spill equipment is stored.

**Table 6: Spill Equipment Locations**

General Location	Description/Type
Oil storage room in shop	Absorbent pads, boom, oil dry, 55 gal top pads
In weldshop storage room	Boom,gloves
Gas pumps (public works)	
Police station gas pumps	

Department employees should implement the below best management practices during street and road repairs to prevent spills:

- Recycle or reuse broken or milled pavement
- Contain and cleanup spills that happened during street repair work
- Properly dispose of all wastes. Handle concrete washout as a waste.
- Schedule painting, striping, marking and asphalt and concrete cutting or repair activities for dry weather. Do not conduct these activities during or immediately after a rainfall.
- Protect nearby (within 25 feet) storm drain inlets from maintenance work (e.g. preparing the surface for an asphalt cap, chip sealing, concrete breaking or saw cutting). Place covers, sand bags, filter fabric or plastic around or over inlets to protect them from entry of wastes, dusts, overspray or slurry.
- Sweep up wastes after all field operations and dispose of the wastes appropriately. Do not sweep or hose down wastes into storm drains.
- When saw cutting concrete, use the minimum amount of water and set up appropriate barriers to collect the concrete slurry. Let the waste slurry dry and then sweep it up before leaving the location. Alternately, a small wet vacuum may be used to pick up the waste slurry immediately after cutting is complete.
- Store maintenance supplies including cement bags, sealants and tars under cover (such as a tarp) and away from drainage areas. Secure or cover open cement bags to prevent the wind from spreading cement dust and to prevent the bags from being ruined due to exposure to rain.



- When working on bridges, transport paint and materials to and from the job site in containers with secure lids and tied down to the transport vehicle. Do not transfer or load paint over water.
- Capture waste, scraps, rust or paint from any sandblasting or painting projects. It may be necessary to suspend nets or tarps below the bridge to catch falling debris. If sanding, use a vacuum bag attachment.
- Do not spray herbicides on roadways or along curbs. Use a heat lance or manual methods to control weeds.

## 2.5 Immediate Response Measures for Employees

Upon discovery of a spill, facility employees are trained to contact appropriate personnel and to attempt to contain and recover the material. Any spill, discharge or release with the potential to contaminate stormwater must be immediately reported to the Superintendent. Additional emergency contact numbers are provided in Table 7 and Appendix B.

Superintendent: Mark Knesek  
Phone Number: 219-972-5069 or 911

## 2.6 Minor Spill Response Procedures

Department personnel are trained and equipped to cleanup an incidental or minor spill. An incidental spill is a release of a chemical which does not pose a significant safety or health hazard to employees, nor does it have the potential to become an emergency within a short time frame. Since the personnel work in the areas where a spill could potentially occur, it is likely, that most spills will be noticed immediately.

For minor spills, various absorbent materials (including granular absorbent, spill booms, absorbent pads, etc.) are available; never use water to cleanup a spill. Proper personal protective equipment (PPE) must be used at all times when cleaning up any type of spill. Personnel should place the granular absorbent around the spill to prevent the spread of the chemical/substance and absorb the spill. Metal shovels cannot be used when cleaning up a gasoline or diesel fuel spill. The use of a metal shovel could cause a spark and ignite the flammable chemical and vapors. If at any time the spill becomes a hazard to the employees, the Superintendent will cease cleanup operations and contact outside assistance.

## 2.7 Medium Spill Response Procedures

The Superintendent will determine on a case-by-case basis if personnel are trained and equipped to cleanup medium spills or if outside assistance is necessary. Proper personal protective equipment (PPE) must be used at all times when cleaning up any type of spill. Detailed procedures for cleanup of a medium spill (5 to 55-gallons of material) located within a contained area or building are:

- Prevent the chemical/substance from entering the stormwater system or any floor drains.

- Apply absorbent to soak up the spilled chemical/substance. Spread the absorbent over and around the edges of the spill area; never use water to cleanup a spill.
- Sweep, shovel up or otherwise collect the absorbent material, depositing the material in a bucket or drum.
- Apply a second layer of absorbent and use a stiff broom to cleanup spill residue traces. Sweep up the material.

## **2.8 Spills Outside of a Containment Area or Building**

Should an oil, fuel or hazardous material release not be contained, a temporary barrier will be constructed using soil or other spill control material available. Sorbent material is maintained on site to be used for constructing a temporary barrier if needed. The temporary barrier would be designed to prevent the material from entering the stormwater system and to hold the material until outside assistance arrives. Proper personal protective equipment (PPE) must be used at all times when cleaning up any type of spill.

## **2.9 Spill Reporting**

Spills will be reported according to the Indiana Spill Rule as part of the Indiana Administrative Code (IAC) Water Quality Standards (327 IAC 2-6.1) by the Superintendent. The Superintendent will contact the appropriate MS4 and Town/City/County personnel prior to contacting Indiana Department of Environmental Management (IDEM). The rule states that the following spills from a facility must be reported to the IDEM Emergency Response Section (24-hour phone number 1-888-233-7745):

- Spills that damage the waters of the state
- Spills from a facility in a designated Wellhead Protection Area that leave a hard surface area
- Spills that damage waters of the state and that are located within 100 yards of a private drinking water well; a high quality, exceptional use, Salmonid fishery water source; or any water that is a fish and wildlife area or recreational waters
- Spills to surface waters that are:
  - A hazardous substance (HS) or extremely hazardous substance (EHS) greater than 100 pounds or the reportable quantity
  - A petroleum product of such a quantity to cause a sheen upon the waters
  - An objectionable substance
- Spills to soil beyond that facility boundary that are:
  - A HS or EHS greater than 100 pounds or the reportable quantity
  - A petroleum product greater than 55-gallons
  - An objectionable substance
- Spills to soil within the facility boundary that are:
  - A HS or EHS that exceeds the reportable quantity
  - A petroleum product greater than 1,000 gallons
  - An objectionable substance

The Superintendent will record all spill information on the List of Significant Spills and Leaks form located in Appendix C. In the event the Superintendent is required to report a spill, emergency contact information is below.

**Table 7: Spill Reporting Requirements**

Incident Type	Notification Requirements	Timeframe For Notification	Telephone Number
Spill or leak inside building with no potential for contact with stormwater.	Supervisor – Name John Mouratides	Immediate	Number 219-972-5083
Any spill, discharge or release with the potential to contaminate stormwater.	Supervisor – Name Fire Department	Immediate Immediate	Number 911
Spills that have already entered the storm drain system, combined sewer system and/or surface waters.	Supervisor – Name Fire Department	Immediate Immediate	Number 911
	County Emergency Management	Within 2-hours of discovery	Number
	IDEM Emergency Response	Within 2-hours of discovery	1-888-233-7745
	National Response Center	As soon as practical	1-800-424-8802
	Potentially Impacted Utility Departments	As soon as practical	Number 219-454-8219

**2.10 Collection and Communication of Spill Information**

Once the spill is contained, a spill report must be kept on file. The Superintendent is responsible for collecting the spill information and reporting discharges to agencies as appropriate. Spill information will be documented in the List of Significant Spills and Leaks form included in Appendix B. Provide the following information when reporting a spill:

- Exact address, location and phone number of the facility,
- Date and time of the discharge,
- Estimates of the quantity discharged,
- Source of the discharge,
- Affected media (water, land, air),
- Cause of the discharge,
- Any damages or injuries caused by the discharge,

- Actions used to stop, remove and mitigate the effects of the discharge,
- Whether an evacuation is needed, and
- The names of other organizations contacted.

## 2.11 Disposal

If possible, vacuum or pump any spilled materials to a drum or container. Oil may be sent for recycling and other materials may be still used. Once the spill is cleaned up, properly dispose of used materials and replace spill equipment as needed. Contact a disposal company for absorbent materials with gasoline, diesel fuels or antifreeze.

## 3.0 STORMWATER CONTROL

This section describes the practices implemented to prevent polluted stormwater run-off from the site.

**Table 8: Stormwater Controls**

Check All That Apply	Control Description
<input checked="" type="checkbox"/>	Locate, identify, and map BMP structure systems, owned and operated by the MS4, including pipes, dry wells, under drains, linings, fill/rip-rap, and outfalls.
<input checked="" type="checkbox"/>	Create and maintain written documents that describe the frequency of inspection, data collection requirements for maintenance of BMP structures and conveyance systems at the facility.
<input checked="" type="checkbox"/>	Maintain spill equipment near chemical storage areas.
<input checked="" type="checkbox"/>	Litter collection and general housekeeping
<input checked="" type="checkbox"/>	Stormwater runoff is controlled using:
<input type="checkbox"/>	1. Aqua Swirl
<input type="checkbox"/>	2. Bioretention Area
<input type="checkbox"/>	3. Cisterns
<input checked="" type="checkbox"/>	4. Curbs, berms and other such stormwater control structures
<input type="checkbox"/>	5. Green Roofs
<input type="checkbox"/>	6. Infiltration Trenches
<input type="checkbox"/>	7. Oil-Water Separator
<input type="checkbox"/>	8. Permeable Pavements
<input type="checkbox"/>	9. Rain Gardens
<input type="checkbox"/>	10. Retention/detention pond
<input type="checkbox"/>	11. Swales or Vegetative buffer strips
<input type="checkbox"/>	12. Other:
<input type="checkbox"/>	Other:
<input type="checkbox"/>	Other:
<input type="checkbox"/>	Other:
<input checked="" type="checkbox"/>	Inspect, document and repair outfalls at the facility from erosion and scouring.
<input type="checkbox"/>	The following have been implemented:
<input type="checkbox"/>	1. Energy Dissipation devices
<input type="checkbox"/>	2.
<input type="checkbox"/>	3.
<input type="checkbox"/>	4.

## 4.0 IMPLEMENTATION

### 4.1 Employee Training

Employee training is essential to ensure all employees with stormwater responsibilities are familiar with the requirements of the SWPPP and how to implement the varied BMPs and Standard Operating Procedures (SOPs) described in this SWPPP. Trainings may focus on this facility’s activities, spill response and cleanup, material storage and handling, facility BMPs and SOPs, and other topics as needed.

Training will be offered at a minimum once annually to all employees with stormwater responsibilities with additional training sessions added as needed. New employees will receive introductory training within six months of being hired.

During each employee training session, a Training Attendance Form is to be completed and added to Appendix D where a sample form is located. Records of training materials need to be maintained also. Training is provided on the following activities at least annually for facility personnel:

**Table 9: Training Topics**

Check All That Apply	Activity Description
<input checked="" type="checkbox"/>	Catch basin cleanings and street sweepings dewatering and solids management
<input checked="" type="checkbox"/>	Chemical handling
<input checked="" type="checkbox"/>	Fueling
<input checked="" type="checkbox"/>	Litter collection and general good housekeeping
<input checked="" type="checkbox"/>	Maintenance of stormwater management infrastructure and BMPs (e.g. detention basins, bioretention areas, oil-water separators)
<input checked="" type="checkbox"/>	Pesticide, herbicide & fertilizer storage/usage
<input checked="" type="checkbox"/>	Salt storage/loading/mixing and snow disposal
<input checked="" type="checkbox"/>	Stockpiling (sand, dirt, ditch cleanings, mulch, unwashed aggregates)
<input checked="" type="checkbox"/>	Storage areas for equipment, or scrap/spare materials
<input checked="" type="checkbox"/>	Used oil and other hazardous waste management; other waste disposal/recycling
<input checked="" type="checkbox"/>	Vehicle and equipment maintenance and washing
<input checked="" type="checkbox"/>	Yard waste/leaf collection and composting
<input type="checkbox"/>	Other:
<input type="checkbox"/>	Other:
<input type="checkbox"/>	Other:

### 4.2 Licenses

Identify personnel appropriately licensed with the Office of the Indiana State Chemist (OISC) to apply restricted chemicals. Only licensed personnel may apply restricted chemicals. Departments that apply chemicals may include: Highway or Street, Parks, Water & Sanitary, Health, Sherriff or Police, and Surveyor. Pesticides shall be used, applied, handled, stored, mixed, loaded, transported, and disposed of via OISC guidance requirements.

- Restricted chemicals are not applied at this facility nor applied by Department employees.

- Restricted chemicals are applied at this facility or within the MS4 boundaries by a contractor.  
Contractor: \_\_\_\_\_
- Restricted chemicals are applied at this facility and/or within the MS4 boundaries by licensed Department employees.  
Licensed personnel: John Mouratides 219-972-5083  
Mosquito abatement (Allpro Evoluer 4-4ulv)

## 5.0 EVALUATION

### 5.1 Inspections

Routine inspections are completed to ensure best management practices are consistently implemented at the facility. The Superintendent or designated personnel complete the inspections and maintain the documentation for a period of at least five years. Facility inspections will be completed:

- Monthly
- Quarterly
- Annually
- Other: \_\_\_\_\_

The Facility Inspection Form is included in Appendix E. Completed inspections may be kept with the plan or under other document control methods.

### 5.2 Plan Revisions

Plan revisions should be made whenever new construction is performed, and when any activities or maintenance procedures are changed. Modifications to BMPs may be required to address changes in the facility. The facility Manager/Superintendent and/or MS4 Coordinator should amend the plan annually or whenever there are changes in design, construction, operation and maintenance procedures, or anything else that has bearing on the SWPPP.

### 5.3 Record Keeping

Each facility maintains a copy of its SWPPP on-site along with updated and accurate records, including inspections. Records of spills are also required to be kept and should include the information listed in Appendix B and Section 2.10 of this plan.

## **Appendix A**

### **Site Maps**

## **Appendix B**

### **Emergency Contacts**



## EMERGENCY CONTACTS

Contact	Telephone Number
Primary Contact - Department Superintendent Name Mark knesek	Office:219-972-5069 Cell: 219-689-6664
Alternate Contact – John Mouratides Name	Office:219-972-5069 Cell:219-730-7841
MS4 CoordinatorTim Gembala Name	Office:219-972-5083 Cell:219-781-4464
City/Town/County Responsible Official - Title Name	Office: Cell:
Emergency/Fire/Ambulance/Police/HazMat Response	911
Lake County Emergency Management Agency	219-755-3549
Indiana Department of Environmental Management – Emergency Response (if the spill has reached a waterway)	1-888-233-7745
U.S. EPA Region V Spill Reporting (if more than 1,000 gallons has reached a waterway or if 42 gallons in each of 2 discharges has reached a waterway in any 12-month period)	312-353-2318
National Response Center (may be contacted for any spill)	1-800-424-8802
Indiana State Police (for a transportation incident)	1-800-382-9097

Resources	Telephone Number
Chemical Referral-Chemical Manufacturers Association	1-800-262-8200
Substance Identification-American Chemical Society	1-800-848-6538
Hotline, U.S. Dept. of Transportation	202-366-4488
Railroad Contact	

Clean-Up Contractors	Telephone Number
Heritage Enviromental (Available 24-hours a day)	1-800-487-7455
Enviroserve (Available 24-hours a day)	1-800-488-0910
Clean Harbors (Available 24-hours a day)	1-800-645-8265
Summit Environmental Services – Indianapolis (Available 24-hours a day)	1-877-421-1744
SET Enviromental (Available 24-hours a day)	1-877-437-7455

## **Appendix C**

### **List of Significant Spills and Leaks**

MS4 Name  
MS4 Program

Stormwater Pollution Prevention Plan (SWPPP)  
Department Name

### LIST OF SIGNIFICANT SPILLS AND LEAKS

Directions: Record below all significant spills and leaks of toxic or hazardous pollutants that have occurred at the Department in the past three years. Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities (RQ). Note: This spill summary must be updated within 90 days of a significant spill.

Date	Location	Description				Response Procedure		Preventive Measures Taken
		Type of material	Quantity (Gal)	Source (if known)	Reason	Amount of material recovered	Material no longer exposed to stormwater (True/False)	

Original: September 2017  
Revision:

MS4 Name  
MS4 Program

Stormwater Pollution Prevention Plan (SWPPP)  
Department Name

## **Appendix D**

### **Training Attendance Form and Training Documentation**



MS4 Name  
MS4 Program

Stormwater Pollution Prevention Plan (SWPPP)  
Department Name

## **Appendix E**

### **Facility Inspection Forms**