Chapter 4

Minimum Control Measure: Item 3

Illicit Discharge Detection and Elimination

A. MS4 Permit Requirements

4.3 **MCM 3. Illicit Discharge Detection and Elimination** The MS4 Operator shall develop, implement, and enforce a program to detect and eliminate illicit discharges (as defined in 10 CSR 20-6.200 at 40 CFR 122.26(b)(2)) into the regulated MS4.

The illicit discharge detection and elimination program shall at minimum, include the following:

4.3.A A current storm sewer system map that shall be updated as needed to include features which are added, removed, or changed. This map may be paper or electronic.
This storm sewer map, must show at a minimum:

1. The location of all MS4 outfalls. The map shall be detailed enough that the outfalls can be accurately located. Completed
2. The names and locations of all receiving waters of the state that receive discharges from the MS4 outfalls. Completed
3. The boundary of the regulated MS4 area. Completed
4. The map shall be readily available & used by field staff as needed. *See Addendum MCM #3-8 City of Nixa Stormwater Map.*
5. The map and any accompanying necessary information shall be made available to the Department upon request.

4.3.B The MS4 Operator must record the sources of information used for the map and track, at minimum:

☒ A numbering or naming system of all outfalls; **Assigned In house.**
☒ Dates that the outfall locations were verified/ or last field survey; **11-23-20**
☒ For newly added outfalls, the date that it was added to the storm sewer system. **09-14-21**

4.3.C The MS4 shall effectively prohibit non-stormwater discharges into the permittee's storm sewer system and implement appropriate enforcement procedures and actions.

This prohibition shall be through ordinance or other regulatory mechanism, to the extent allowable under state or local law. This may be accomplished by more than one ordinance or mechanism. This may be done through a "nuisance code" however it must be certain that non-stormwater discharges are covered in this code. Such non-stormwater discharges may include, but are not limited to:

* Litter
* Household hazardous waste
* Leaves
* Soaps & detergents
* Illegal dumping
* Vehicle fluids
* Grass clippings
* Pet waste
* Sewage

See Addendum MCM #3-1 Land Disturbance, Illicit Discharge & Erosion Control Ordinance.

See Addendum MCM #3-2 Section 14 Nuisance Ordinance.

See addendum MCM #3-4 Section 22-109 Illegal Placement of Sewer Ordinance.

See Addendum MCM #3-10 2012 International Plumbing Code 301.3 Connections to Drainage System.

4.3.D A dry weather field screening strategy.

1. The MS4 Operator shall conduct (or have conducted on their behalf) outfall field assessments. The screening shall be conducted during dry weather conditions (a minimum of 72 hours after the last precipitation event) to check for the presence of a discharge.

Total % of all outfalls to be screened during the permit cycle (minimum of 60% for existing permittees): ____ **100%** _____

	Amount (% or #) per year of permit cycle	Any specific priority areas included:
Permit year 1:	**20%**	

Permit year 2:	**20%**	
Permit year 3:	**20%**	
Permit year 4:	**20%**	
Permit year 5:	**20%**	

2. Dry weather screening shall include a checklist or other tracking device to; ensure a complete inspection of each outfall, enhance consistency, and to track the field screening. When discharge is present, the checklist or tracking device shall note the following general observations and physical characteristics at a minimum:

* Date and time;
* Weather conditions and temperature (air & water);
* Color of discharge;
* Estimate of flow rate (this may be done as a narrative);
* Odor;
* Surface scum, floatable or oil sheen present;
* Deposits or stains;
* Turbidity;
* Stream impact including vegetation, fish, wildlife; and
* Length of impacted stream.
* Notes of an obvious sources of flow (such as lawn irrigation, etc.)

See Addendum MCM #3-3 Illicit Discharge Detection and Elimination Plan (pages 67 – 85).

See Addendum MCM #3-15 Sample OEWRI Lab Testing Results.

See Addendum MCM #3-7 Sample Illicit Discharge Outfall Inspection Report.

4.3.E The MS4 Operator shall maintain diagnostic monitoring procedures to detect and investigate unknown non-stormwater flows as part of the dry weather screening program.

These procedures are for possible illicit discharges, and may be collected, and analyzed by a contracted lab, or similar agreement with another entity who is equipped and experienced in sample collect and analysis.

1. This diagnostic monitoring shall include sampling unknown discharge from MS4 outfalls that are found to be flowing or ponding more than 72 hours after the last precipitation event and considered to be an illicit discharge.

2. The samples shall be analyzed for relevant parameters to determine if a pollutant is involved.
    a) Relevant parameters will need to be determined on a case by case basis depending on the nature of the discharge and what the potential sources may be.
    b) The MS4 Operator shall have the ability to sample for and analyze the samples. This may be done through a contract lab or similar agreement.
    c) Possible parameters sampled for and analyzed when deemed applicable include but are not limited to:
        * pH;
        * Oil and grease;
        * *E.Coli* or fecal coliform;
        * Surfactants or fluorescence concentration;
        * Specific conductivity;
        * Ammonia;
        * Chlorine;
        * Dissolved oxygen; and
        * Fluoride/ hardness.

See Addendum MCM #3-3 Illicit Discharge Detection and Elimination Plan pages 42 – 60.

4.3.F The MS4 Operator shall maintain procedures for tracing the source of an illicit discharge.

If initial screening indicates that a dry weather discharge contains pollutants, or if an illicit discharge is suspected from another reporting method, the source shall be traced.

These procedures shall include mechanisms to locate and follow stormwater infrastructure. A variety of investigative tools may be used as appropriate for each situation, such as, but not limited to;

* Visually following the flow;
* Storm sewer system sampling;
* Full storm sewer map;
* Closed circuit television;
* Smoke or dye tracing; and
* Tunnel entry.

See Addendum MCM #3-3 Illicit Discharge Detection and Elimination Plan pages 42 – 60.

Ensure the following is either listed above or in a separate document:

1. Description of dry weather field screening strategy to detect and address non-stormwater discharges, including discharges from illegal dumping and spills, to the permittee's system.

See Addendum MCM #3-3 Illicit Discharge Detection and Elimination Plan pages 42 – 60.

2. Description of how the discharge is evaluated and the possible parameters tested.

See Addendum MCM #3-3 Illicit Discharge Detection and Elimination Plan pages 67 – 85.

3. If contracted to another entity, the contact information.

Ozarks Environmental and Water Resources Institute (OEWRI) Missouri State University, 901 S. National Ave. Springfield Mo. 65807. Info2missouristate.edu. 417-836-5000

See Addendum MCM #3-15 Sample OEWRI Lab Testing Results.

4.3.G The MS4 Operator shall maintain procedures for removing the source of the discharge. After locating the source, the pollutant and source must be removed. While the exact procedure will depend on the source and the circumstances, The MS4 Operator must maintain necessary contacts with appropriate entities that may be needed for these procedures. This information shall be available to the responsible staff.

The MS4 Operator is encouraged to work with the source of the illicit discharge to remedy the situation. Possible remedies shall include:

1. Implement source control or treatment BMPs to prevent reoccurrence of the violation;
2. Remediation or restoration of affected property.

See Addendum MCM #3-3 Illicit Discharge Detection and Elimination Plan pages 42 – 60.

4.3.H In order to prevent further illicit discharge, the MS4 Operator shall identify priority areas such as, but not limited to:

* Areas with evidence of ongoing illicit discharges;
* Past history of illicit discharges;
* Land use leading to storm sewer/ proximity of potential pollutant sources;
* Areas of higher population density;
* Neighborhoods with onsite sewage systems;
* Areas with known litter or dumping issues;
* Large or increased number of citizen complaints; and
* Industrial areas

See Addendum MCM #3-3 Illicit Discharge Detection and Elimination Plan page 47.

Annually, the MS4 Operators shall evaluate this priority area list and update as necessary to reflect changing priorities.

	Priority area(s)
Permit year 1:	Priority Area #1 the Industrial Area, Priority Area #2 Commercial area #1, Priority Area #3 Commercial area #2, Priority Area #4 Old Town Residential
Permit year 2:	Priority Area #1 the Industrial Area, Priority Area #2 Commercial area #1, Priority Area #3 Commercial area #2, Priority Area #4 Old Town Residential
Permit year 3:	Priority Area #1 the Industrial Area, Priority Area #2 Commercial area #1, Priority Area #3 Commercial area #2, Priority Area #4 Old Town Residential
Permit year 4:	Priority Area #1 the Industrial Area, Priority Area #2 Commercial area #1, Priority Area #3 Commercial area #2, Priority Area #4 Old Town Residential

Permit year 5:	Priority Area #1 the Industrial Area, Priority Area #2 Commercial area #1, Priority Area #3 Commercial area #2, Priority Area #4 Old Town Residential

4.3.I The MS4 Operator shall maintain written procedures for implementing the IDDE Program, including those components described within this section, to ensure program continuity and consistency.

1. This shall include a description of this dry weather field screening strategy and implementation schedule to detect and address non-stormwater discharges, including discharges from illegal dumping and spills, to the permittee's system.
2. This shall include a description of how the discharge is evaluated and the possible parameters that are tested.
3. If contracted to another entity, the contact information shall be listed.

See Addendum MCM #3-3 Illicit Discharge Detection and Elimination Plan.

4.3.J The MS4 Operator must conduct investigations in response to field screening discoveries, spills, or in response to complaints from the public, municipal staff, or adjacent MS4s. The investigation must work to determine the source of the connection, the nature and volume of discharge through the connection, and the party responsible for the connection.

Responses shall meet the following investigation timelines:
1. Immediately respond to all illicit discharges, including spills, which are determined to constitute a threat to human health, welfare, or the environment.
2. Investigate (or refer to the appropriate agency with the authority to act) within five (5) days, on average, any complaints, reports or monitoring information that indicates a potential illicit discharge which does not constitute a threat to human health, welfare or the environment.
3. If illicit connections or illicit discharges are observed related to, discharging to, or discharging from, an adjacent MS4 Operator's municipal storm sewer system, the MS4 Operator must notify the other MS4's Operator within 24 hours of discovery or as soon as practicable.

Once a Stormwater violation/illicit discharge issue has been discovered by Inspection discovery or, in some way brought to our attention: the procedures are the same. We make initial contact, point out the violation, explain why it's a violation and a verbal warning against creating the opportunity for this violation to reoccur. The responsible

person is asked to have the violation abated within 3 calendar days. If the violation abatement has not occurred within those initial 3 days, they are given A written warning to have it abated within another 3 days or they will receive a citation. If abatement of the violation has still not happened within those 3 days, a citation is issued, and depending on the overall circumstances, a citation may be issued for each day the violation is still unabated. Once the responsible person appears in court on the citation(s), along with a fine, city staff will request of the judge, to order the abatement of the violation or, order the responsible person to reimburse the city for cost of the cleanup if the city is forced to use city staff, equipment, and other resources to abate the violation.

See Addendum MCM #3-3 Illicit Discharge Detection and Elimination Plan pages 67 – 85.

Operator must notify the other (adjacent) MS4' operators within 24 hours of discovery or as soon as practicable.

Adjacent MS4	Contact person(s)	Phone number/ email
City of Ozark Missouri	Tim Auctung	417-582-2407
Christian County	Josh Bird	417-581-7242

4.3.K The MS4 Operator shall have procedures for appropriate enforcement, this may include fines, the ability to collect cleanup and abatement costs, and actions to ensure that the permittee's illicit discharge ordinance (or other regulatory mechanism) is being implemented.

1. The MS4 Operator shall maintain a written description of the enforcement procedure. This shall include a copy of or link to the ordinance and/or other regulatory mechanism that the MS4 Operator will use to enforce the prohibition of illicit discharges into the MS4.

Once a Stormwater violation/illicit discharge issue has been discovered by Inspection discovery or, in some way brought to our attention: the procedures are the same. We make initial contact, point out the violation, explain why it's a violation and a verbal warning against creating the opportunity for this violation to reoccur. The responsible person is asked to have the violation abated within 3 calendar days. If the violation abatement has not occurred within those initial 3 days, they are given A written warning to have it abated within another 3 days or they will receive a citation. If abatement of the violation has still not

happened within those 3 days, a citation is issued, and depending on the overall circumstances, a citation may be issued for each day the violation is still unabated. Once the responsible person appears in court on the citation(s), along with a fine, city staff will request of the judge, to order the abatement of the violation or, order the responsible person to reimburse the city for cost of the cleanup if the city is forced to use city staff, equipment, and other resources to abate the violation.

See Addendum MCM #3-1 Land Disturbance, Illicit Discharge & Erosion Control Ordinance.

4.3.L The MS4 Operator shall maintain a database, or other centralized system, to track dry weather field screenings, spills, incidents, and investigations.

1. Tracking mechanisms shall be used for incidents, investigations, enforcement and follow up. This data shall be used to continuously evaluate the effectiveness of the IDDE program. This data shall be reviewed to determine if there is a new priority area.

The MS4 Operator shall record annually at a minimum:

a) Number of outfalls screened;
b) Number of complaints received and investigated; and
c) Number of illicit discharges removed.

2. The MS4 Operator shall document all investigations to track at a minimum:

a) The date(s) the illicit discharge was observed and investigated;
b) Summary of procedures used to investigate the illicit discharge;
c) The outcome of the investigation including sample results and findings;
d) Any follow-up of the investigation including cleanup, enforcement actions, visits to confirm the illicit discharges have been removed; and
e) The date the investigation or issue was closed or resolved.

See Illicit Discharge Report and Tracking Form Sheet 1.

See Illicit Discharge Report and Tracking Form Sheet 2.

See Addendum MCM #3-7 Sample Illicit Discharge Outfall Inspection Report and List of Outfalls.

Tracking of all dry weather field screenings, spills, incidents, and investigations are maintained in the digital data base. Our goal to eventually invest in Stormwater Management Plan software. To assist with tracking and reporting on MS4 Inspections, Maintenance, Plans and Goals. An efficient stormwater management tool is essential to improve the way we maintain stormwater assets in our community and comply with Missouri MS4 Permit requirements.

4.3.M The MS4 Operator shall inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste, this may work with part 4.1 and part 4.6 of this permit (MCM #1 and MCM #6).

The city of Nixa utilizes daily Facebook, Instagram, nextdoor app, city wide utility newsletter (e-mail), city wide employee newsletter (e-mail). With these networking and outreach tools, the city can reach thousands of people at once, like city staff, residents of Nixa, business owners, etc. The notifications are in reference to everything from street closures, water service interruptions, electrical service interruptions, Strem Team river cleanup activities and a host of other topics like "the hazards associated with illegal discharges and improper disposal of waste". Every utility customer in the City limits of Nixa is on the city wide utility newsletter email list. Currently, that's just over 9000 utility customers.

4.3.N All MS4 Operators shall review their IDDE Program, at minimum, annually and update implementation procedures as necessary.

4.3.O Existing permittees: Shall evaluate their current program to ensure that it is in compliance with this permit.

1. Any revisions to the ordinance or regulatory mechanism shall be complete in the first year of the permit cycle.
2. Maintain an updated map with the items listed above. Items not included in the current map must be added within the first 2 years of the permit cycle.

4.3.P Newly regulated permittees: Shall develop an IDDE Program. Newly regulated permittees shall describe the IDDE program in their Stormwater Management Plan. The MS4 Operator shall have the program fully implemented within five (5) years of permit issuance.

1. If the MS4 Operator needs to develop the regulatory mechanism, the ordinance or regulatory mechanism must be adopted within the first 3 years of permit coverage.
2. Develop or update a map in accordance with Section 4.3.A of this Permit. The MS4 Operator must develop or update a map with the items listed above. All outfalls shall be dry weather field screened within the first five (5) years of permit issuance.

4.3.Q The MS4 Operator must develop and implement or maintain a training program for all municipal field staff, who, as part of their normal job responsibilities, may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system.

This shall include staff who may handle materials which may become an illicit discharge. This shall include discharges through spills, improper disposal, mismanagement, improper vehicle or equipment washing or rinsing. This training may be conducted with resources online and may be focused for what topics are relevant to their position.

1. Each staff shall take this training at minimum within one year of a new employee being hired.
2. The applicable staff may include the following; (unless the MS4 Operator does not have the listed department under their jurisdiction). Additional staff or departments shall be included if appropriate;
    * Fleet maintenance staff;
    * Staff at facilities with fuel, chemicals, washing of vehicles or equipment;
    * Road maintenance staff;
    * Road salt/de-icing staff;
    * Parks, swimming pool, or golf course staff who encounter spills, equipment washing, fuel, chemicals, etc.;
    * Fire Department; and Police Department.
3. The training dates, topics and the attendance shall be recorded.
4. Reviews of the training effectiveness shall be considered after municipal site inspections or after an incident occurs. If a certain department or facility did not perform the way they were trained, or if an issue arises that was not handled properly, the MS4 Operator should consider if the training is enough or is ineffective. The MS4 Operator shall consider ways to survey or test staff to see if the training is effective.

STAFF & DEPARTMENT	DATE	TOPIC(S)	TRAINING PROVIDER/ METHOD
TBD	**TBD**	**TBD**	**TBD**

Since the annual training date(s), exact topics and Trainer/Provider(s) for the entire permit cycle have not been determined at this time, that information will be included when preparing the annual MS4 Stormwater Management Program Report(s) for submittal to the Department.

See Addendum MCM #3-13 After The Storm Training Presentation and EPA Material, sample of past training presentations.

Reviews of the training effectiveness shall be considered after municipal site inspections or after an illicit discharge incident occurs. If a certain department or facility did not perform the way they were trained, or if an issue arises that was not handled properly, the MS4 Operator should consider if the training is enough or is ineffective. The MS4 Operator shall consider ways to survey or test staff to see if the training is effective.

Since the date(s) for the annual review of Training material have yet to be determined, that information will be included when preparing the annual MS4 Stormwater Management Program Report(s) for submittal to the Department.

4.3.R Using adaptive management the MS4 Operator shall review their IDDE Program, at minimum, annually and update implementation procedures as necessary. This data shall be used to continuously evaluate the effectiveness of each BMP and the implementation of each BMP. Any additional BMPs shall be acknowledged in the annual report.

Annual review of MCM 3			
Year being reviewed	Date of review	Reviewer(s)	Were changes made and noted?
2021	**TBD**	**TBD**	**TBD**
2022	**TBD**	**TBD**	**TBD**
2023	**TBD**	**TBD**	**TBD**
2024	**TBD**	**TBD**	**TBD**
2025	**TBD**	**TBD**	**TBD**

Since the annual review date(s) for MCM 3 have yet to be determined, that information will be included when preparing the annual MS4 Stormwater Management Program Report for submittal to the Department.

List any additional programmatic BMPs and when they were added to the Stormwater Management Program. (Examples of programmatic BMPs include; mapping of entire storm sewer system, adopting a standard operating procedure for dry weather screening.)

If/when additional programmatic BMPs are add to the Stormwater Management Plan that information will be included be included when preparing the annual MS4 Stormwater Management Program Report(s) for submittal to the Department.

B. Identification and Mapping of Stormwater System

The City of Nixa has developed a Geographic Information System (GIS). This system includes all public infrastructure the City maintains. As part of the system building, the Street Department numbers all inlets, recording the size, location and piping coming into and out of the storm inlets. Through the GIS system, the City utilizes a Global Positioning System (GPS) to provide coordinates for exact locations of the storm sewer system. The City will continue to update this mapping system annually as needed.

As defined by the National Pollutant Discharge Elimination System (NPDES):

Outfall means a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States.

The City of Nixa has taken this definition one step further to include all points where stormwater leaves our MS4 jurisdiction (discharged) and is deposited on to another MS4 jurisdiction be it a pipe, concrete ditch or open ditch line. All 53 outfall locations discharge onto the Christian County Missouri MS4 jurisdiction.

The City has developed a program to inspect all outfalls (as defined above). These outfall sites are inspected/monitored on a regular basis. The number of illicit discharges detected, and the number of illicit discharges eliminated will be documented, as well as the number of dye or smoke tests conducted.

C. Illicit Discharge Prohibition Enforcement Mechanism

Illicit discharges are defined as a measurable flow during dry weather containing pollutants and/or pathogens in or leaving a stormwater conveyance structure. A measurable flow into or out from a stormwater conveyance structure containing no pollutants and/or pathogens is simply a discharge.

Illicit discharges can result in untreated discharges that contribute high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving water bodies.
Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic life, wildlife, and human health.

A stormwater conveyance structure is defined as pipes, junction boxes, inlet boxes, basins and open channels used to transport stormwater.

The City of Nixa has adopted building codes as provided for in Missouri State Statues. Nixa currently has the 2012 International Family of Codes adopted. These codes include (among others) the International Building Code, the International Plumbing code and the International One and Two Family residential dwelling codes. These regulations provide requirements for discharges and connections which are prohibited from being discharged to the storm sewer system or to surface waters as well as enforcement and penalty provisions for violations.

In addition to the 2012 International Family of Codes, the City also has adopted local codes pertaining to proper disposal of wastes. Chapter 14 of the City of Nixa code of Ordinances – Nuisnances: defines and prohibits conditions considered to be a nuisance, some of which can have a negative impact on the quality of stromwater runoff. *See addendum MCM #3-2, copy of Code of ordinances; Chapter 14 – Nuisances; addendum MCM #3-10 copy portions of the 2012 International Plumbing Code as adopted by the City.*

Chapter 22 of the City of Nixa Code of ordinances provides regulations making it unlawful to “discharge untreated sewage into any natural outlet within the City.” “It is also unlawful for any person to place, deposit or permit to be deposited in any unsanitary manner on public or private property any human or animal excrement, garbage or other objectionable waste.” *See addendum MCM #3-4, copy of portions of Code of Ordinances: Chapter 22 – Utilities; Section 22-109 Illegal Placement of Sewage; Section 22-110 Discharging Untreated Sewage in Natural Outlets; Section 22-344 Solid Waste Storage; and Section 22-348 Prohibited Practices.*

These referenced sections above strictly prohibit illegal sewage discharges as does section 121 “Discharge Prohibitions” of the City of Nixa Stormwater

Ordinance. *See addendum MCM #3-1, copy of Land Disturbance, Illicit Discharge & Erosion Control Ordinance.*

D. Illicit Discharge Detection and Elimination

Public employees, as well as area Commercial/Industrial businesses and the general public need to be educated about the harmful effects of illicit discharge though handouts and informational meetings. The City will continue to develop formal inspection procedures and protocol with training for staff inspectors. The training efforts will be provided to educate City inspectors and other closely associated personnel in the proper detection of illicit discharges and protocols for reporting, tracking, and eliminating illicit discharges.

A program to monitor and inspect City of Nixa owned and operated public facilities, outfalls, construction site projects and commercial/industrial properties for any type of illicit discharge (including dumping and spills) has been implemented.

This inspection program consists of documenting any specific complaints received, documenting inspections and/or findings, documenting number of illicit discharges detected and documenting number of illicit discharges eliminated.

These inspections are completed on the following locations:

* 40 Construction sites projects
* 46 City owned and operated public facilities
* 745 Commercial/Industrial properties
* 52 Outfall locations,

Inspections shall be completed using the corresponding Excel inspection sheet in the appropriate Excel inspection data base for each inspection category listed above. *See addendum MCM #3-5 example of City owned and operated facilities site inspection form and list of facilities; addendum MCM #3-6 example of Commercial/Industrial site inspection form and list of all sites inspected; and addendum MCM #3-7 example of Outfall site inspection form and data base spread sheet.*

E. Identifying Priority Areas

The City of Nixa staff have identified priority areas that are considered to be most likely sources of illicit discharges. The following guidelines are considered while identifying priority areas for the City:

• **Commercial/Industrial areas.** These areas have been found in some communities' IDDE programs to (**a**) have significant numbers of illicit connections

and/or (**b**) have discharges with a high potential to affect water quality (Tuomari, 1999 and Pitt et al., 1993).

Because a substantial amount of the City's commercial properties are relatively new and have been developed under the City's stringent design requirements, it is not likely that illicit connections are present. However, the City will continue to inspect at least 20% of these commercial business once annually and document for follow up any suspicious connections or discharges. These Commercial properties are generally (but not entirely) located within the: Mt. Vernon St. (Hwy 14) corridor, Massey Blvd. (US 160) corridor, Aldersgate Drive., and on Main St. from South St. north to Tracker Rd.

See Addendum MCM #3-3 Illicit Discharge Detection And Elimination Plan, page 47 for this map.

Industrial areas are very limited within the corporate limits of Nixa, however, these areas were mostly developed over 20 years ago and likely were constructed prior to the Planning and Zoning and Building Code requirements the City now has. This priority area lies generally (but not entirely) from Mt. Vernon St. (MO Hwy 14) north to Tracker Road, and from Massey Blvd. (US Hwy 160) west to Gregg Road. As the City expands and/or reassigns existing areas to the designation of Commercial/Industrial zoning, these areas will then be evaluated as to whether or not they are to be added to the list of priority areas.
Also, areas (regardless of their zoning designation) with a history of enforcement actions may be added to the list of priority areas.

See Addendum MCM #3-3 Illicit Discharge Detection And Elimination Plan, page 47 for this map.

• **Older areas of the City.** Older developments predate more stringent construction codes regarding illegal connections and likely have deteriorating sanitary sewer and/or storm sewer infrastructure that can lead to infiltration problems. This area of priority lies generally (but not entirely) from South St. north to Northview Road; and from Massey Blvd (US 160) east to Market St.

• **Areas where there have been repeated complaints.** Areas where illegal dumping or apparently contaminated discharges have been reported have been and will continue to be priority targets.

See Addendum MCM #3-3 Illicit Discharge Detection And Elimination Plan, page 47 for this map.

F. Program BMPs

#1. Stormwater System and Outfall Map

Description: This Stromwater - Outfall map contains the elements required within this MCM which are; location of all outfalls, the names and locations of all waters of the United States that receive discharges from those outfalls. This map also reflects the entire City of Nixa Stormwater system including basins & outlet weir structures, inlet boxes, trickle channels (types, sizes and locations), pipes (type, size and location), etc.

See Addendum MCM #3-8 copy of Stormwater System/Outfall Map.

This map has been developed entirely with boots on the ground or stream. Every attribute and field data point, whether it is an inlet box, concrete trickle channel, basin and weir structure, pipe, etc., has been collected using our Trimble Geo7X, with a Zepher 2 external antenna. Details for every attribute (size of pipe or box, type of material constructed of, etc.) is also collected in the field and input into the Trimble.

Then, the GPS pathfinder transfers this information to an ESRI shapefile that we then add to the stormwater - outfall mapping system. All newly installed stormwater data that is unable to be seen from the surface (underground) is obtained from as built and manually mapped into the GIS system.

Measurable Goals: As new stormwater infrastructure is installed and/or upgraded and as additional outfalls are discovered, the City will continue to add this information and update the Stormwater - Outfall Map system. The City will continue to utilize Trimble GPS unit described above to gather the GPS points. This GPS information along with a set of construction plans are then turned over to the City's Mapping Tech so as to update the maps. The City will annually post an updated version of the Stormwater-Outfall Map on the City's website. This Stormwater mapping is all maintained by the City's GIS Technician.

Rational for BMP: Permit Requirement.

Parties Key to Implementation: MS4 Coordinator, Asst. Public Works inspector, GIS Tech.

#2. Pressure Washing and Impervious Surface Cleaning Program.

Description: The City has developed a Pressure Washing and Impervious Surface Cleaning policy to be distributed to all commercial and Industrial facilities within the City. This policy outlines the Do's and Don'ts of pressure cleaning structures, equipment and parking lots. This policy is in final draft development and has not been implemented.

See Addendum MCM #3-14 "Best Management Practices for Pressure Washing and Impervious Surface Cleaning."

Measurable Goal: In 2022 the city will complete the final draft and implement the policy by notification of these effected target groups mentioned above. Our goal is to not only stop the activity of discharging contaminated wash water into the City's stormwater system, but to also educate these entities so they fully understand why they should discontinue this practice. The city will record and track the number and locations of violations that are discovered or reported.

The city will use this information annually (2022 – 2026) to evaluate the effectiveness of this BMP. Furthermore, by recording and tracking the number and locations of all pressure washing violations, the city will be able to use that information to either add a particular area to, or remove from, the priority list.

Rational for BMP: Historically business owners have pressure washed or hosed off their structures, equipment, and parking lots with no consideration as to where that contaminated wash water discharge goes or what effect it has on the environment.

This policy clarifies to these business owners/operators why they have to discontinue releasing contaminated runoff into the City's stormwater system. Additionally, this policy also outlines some appropriate BMP's for properly collecting/containing the wash water and how to properly dispose of it.

Parties Key to Implementation: MS4 Coordinator, Public Works Staff trained to spot illicit discharges, Information Officer.

#3. IDDE Onsite Annual Inspections of: Commercial and Industrial Properties, City Owned Public Facilities and Stormwater Outfalls.

Description: Inspections of Commercial & Industrial properties, City owned & operated public facilities and Stormwater Outfalls. These inspections are completed specifically for the discovery of any Illicit Discharge including any onsite sewage discharge that might be present.

Measurable Goal: In past years the City has actually inspected all: 46 City owned public facilities, 730+ Commercial and Industrial properties and all 52 Outfall locations annually, though our Measurable Goals were to inspect half in each category. Now that the MS4 permit requirements have gotten so involved, our actual likely obtainable goal will be to inspect the 50% of each category yearly throughout this permit cycle. Priority areas will be inspected more frequently as to ensure that any illicit discharges are discovered as early as possible. The City will record and track the number of discharges found and eliminated annually to evaluate the effectiveness of this BMP.

See addendum MCM #3-5 example of City owned and operated facilities site inspection form and list of facilities.

See addendum MCM #3-6 example of Commercial/Industrial site inspection form and list of sites inspected.

See addendum MCM #3-7 example of Outfall site inspection form and list of all sites inspected.

Rational for BMP: These boots on the ground inspections of the facilities listed above are what accomplishes what the city considers to be the ultimate Measurable Goal, to discover and eliminate stormwater pollutants.

Parties Key to Implementation: MS4 Coordinator, Asst. Public Works Inspector, other trained stormwater inspectors (Public Works Staff).

#4. Stormwater Sample Monitoring

Description: The City has entered into contractual agreement with OEWRI (Ozarks Environmental and Water Resource Institute) to collect stream samples, monitor and run laboratory analysis on first flush samples from 3 of the City's outfalls. These three outfall sample sites have permanently installed sample collection equipment so samples are collected and annualized year round, no less than once every quarter.

See addendum MCM #3-15 a copy of OEWRI stormwater sample testing and lab analysis reports.

Measurable Goal: To use the analytical data revived from OEWRI on each sample that have been processed to determine benchmarks or limits, and figure out what they are and to be familiar with those numbers.

At the end of each contract cycle the City takes bids from a number of qualified Lab Service organization so as to continue this stormwater sample analyses program.

Rational for BMP: Permit Requirement.

Parties Key to Implementation: OEWRI

G. Chapter Summery Table

BMP ID #	BMP	Activity	Measurable Goal	Due Date	Responsible Party
1	Stormwater-Outfall Map	Continue to utilize the GPS technology to accumulate all new data	Continue to update the Stormwater-Outfall mapping system	Years 2021 - 2026	MS4 Coordinator, Asst. Public Works Inspector, GIS Tech.
2	Pressure washing and impervious surface cleaning Program	Complete and implement	Reduce the amount of contaminated wash water being discharged to stormwater system Record and track pressure washing violations to evaluate effectiveness	Years 2022 - 2026 Years 2022 - 2026	MS4 Coordinator, Asst. Public Works Inspector, Train City staff inspectors
3	IDDE onsite inspections of: Commercial and Industrial properties, City owned public facilities and Stormwater outfalls	Inspect each facility, noting conditions found, actions needed/taken	Inspect 50% of facilities in each category Record and track discharges discovered and eliminated to evaluated effectiveness	Years 2021 - 2026 Years 2021 - 2026	MS4 Coordinator, Asst. Public Works Inspector

4	Stormwater Sample Monitoring			Years 2022 - 2026	Public Works

PART IV- LAND DISTURBANCE, ILLICIT DISCHARGE & EROSION CONTROL

Section 110 Purpose, Goals and Objectives

A. PURPOSE: The purpose of this section is to protect the health, safety and general welfare of the citizens of Nixa and protect the Waters of the City and Waters of the State through the regulation to the maximum extent practicable of non-storm water discharges to the storm drainage system as required by federal and state law. This section establishes uniform requirements for land disturbance activities in order to control 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.

B. GOALS AND OBJECTIVES: The goal of the regulation is to effectively minimize erosion and discharge of sediment by application of Best Management Practices (BMP's).
This goal can be attained by meeting the following objectives:

1. Stabilize disturbed areas as soon as possible by re-establishing sod, other forms of landscaping, and completing proposed structures, pavements and storm drainage systems.

2. To regulate the contribution of pollutants to the MS4 by storm water discharges by any user.

3. To prohibit illicit connections and discharges to the MS4.

4. To establish legal authority to carry out all inspection, surveillance, monitoring, and enforcement procedures necessary to ensure compliance with this ordinance.

Section 111 DEFINITIONS

For the purposes of this section, the following words shall have the definitions hereinafter set forth:
"Accepted" or "Acceptance" means a determination by the Director or designee that the documents under review meets the minimum applicable standards.

Authorized Enforcement Agency: City of Nixa.

Best Management Practices (BMPs): Schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices 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.

Clean Water Act: The federal Water Pollution Control Act (33 U.S.C. δ 1251 et seq.), and any subsequent amendments thereto.

Construction Activity: Activities subject to NPDES Construction Permits. These include construction projects resulting in land disturbance of one acre or more. Such activities include but are not limited to clearing and grubbing, grading, excavating and demolition.

Director: Means the Director of Public Works of the City of Nixa, Missouri, or the Director's authorized representative.

Discharge: means any substance disposed, deposited, spilled, poured, injected, seeped, leached, pumped, dumped, leaked, or placed by any means such that it can reasonably be expected to enter, intentionally or unintentionally, into the Waters of the City or Waters of the State, or on any area draining directly or indirectly into the MS4.

Erosion: The wearing away of land due to the action of gravity, wind, water or other mechanical forces.

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

Illegal Discharge: Any direct or indirect non-storm water discharge to the storm drain system, except as exempted in Section 25-116 of this ordinance.

Illicit Connections: An illicit connection is defined as either of the following:

- Any drain or conveyance, whether on the surface or subsurface that allows an illegal discharge to enter the storm drain system including but not limited to any conveyances that allow any non-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 an authorized enforcement agency or,

- Any drain or conveyance connected from a commercial or industrial land use to the storm drain system that has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

Land Disturbance Permit: The document issued by Public Works approving the SWPPP and sediment erosion control plan thus authorizing land disturbance activity in accordance with the SWPPP.

Land Disturbance: Any activity that exposes soil including clearing, grubbing, grading, excavating, filling and other related activities.

MS4: Municipal Separate Storm Sewer System.

Municipal Separate Storm Sewer System (MS4): The system of conveyances (including sidewalks, roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, berms, stream beds, open fields, parking lots, impervious surfaces used for parking, man-made channels, or storm drains) owned and operated by the City of Nixa and designed or used for collecting or conveying storm water, and that is not used for collecting or conveying sewage.

National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Permit: A permit issued by EPA (or by the State of Missouri under authority delegated pursuant to 33 USC δ 1342 (b)) that authorizes the discharge of pollutants to the waters of the United States, whether the permit is applicable on an individual, group or general area-wide basis.

Non-Storm Water Discharge: Any discharge to the storm drain system that is not composed entirely of storm water.

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

Premises: Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

Responsible party: The property owner or person authorized to act on the property owner's behalf; or any person allowing, causing or contributing to a violation of the Code.

Sediment: Mineral or organic matter generated as a result of erosion.

Sediment & Erosion Control Plan: A written plan (including drawings or other graphic representations) that is designed to minimize the accelerated erosion and sediment runoff at a site during construction activities.

Storm Drainage System: 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 human-made or altered drainage channels, reservoirs, and other drainage structures.

Storm Water: Any surface or shallow subsurface flow, runoff, or drainage consisting entirely of water from rainstorm or frozen precipitation events.

Storm Water Pollution Prevention Plan (SWPPP): A plan developed by a qualified professional engineer or person certified in erosion and sediment control to establish controls to limit erosion and transport of sediment and other pollutants from the site. The plan shall include BMPs in accordance with the City's Technical Specifications, Land Development Code and City code of ordinances.

SWPPP: Storm Water Pollution Prevention Plan.

Wastewater: Any water or other liquid, other than uncontaminated storm water, discharged from a facility.

Watercourse: Any body of water, including, but not limited to lakes, ponds, rivers, streams, and bodies of water which are delineated by the City of Nixa.

Water Quality Standards: The standards, required under the Clean Water Act, which Missouri has adopted to control and remedy water pollution (10 CSR 20-7.031). Water quality standards have three parts: water used classifications, water quality criteria, and an antidegradation policy.

Waters of the City: Any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, sinkholes, springs, wetlands, wells and channels, and other bodies of surface or subsurface waters, natural or artificial, lying within the boundaries of the City of Nixa, Missouri.

Waters of the State: Any water, surface or underground, lying within the boundaries of the City of Nixa, Missouri over which the Missouri Department of Natural Resources has authority with respect to Clean Water Law.

Section 112 SCOPE AND AUTHORITY

This section shall apply to all water entering the storm drain system generated on any developed and undeveloped lands unless specifically exempted. The provisions in this section shall be administered and enforced by the Director. The Director shall have the authority to develop and implement procedures, forms, policies, design and construction standards and interpretations for administering the provisions of this section.

Section 113 COMPATIBILITY WITH OTHER REGULATIONS

This ordinance is not intended to modify or repeal any other ordinance, rule, regulation, or other provision of law. The requirements of this ordinance are in addition to the requirements of any other ordinance, rule, regulation, or other provision of law, and where any provision of this ordinance imposes restrictions different from those imposed by any other ordinance, rule, regulation, or other provision of law, whichever provision is more restrictive or imposes higher protective standards of human health or environment shall control.

Section 114 EROSION AND SEDIMENT CONTROL

The Responsible Party shall control site erosion and the release of sediment and other pollutants resulting from land disturbance activities to the Maximum Extent Practicable (MEP) utilizing Best Management Practices (BMPs). The Responsible Party shall ensure that BMPs are designed, constructed and maintained during land disturbance activities.

Section 115 PERMIT REQUIRED

A. PERMIT REQUIRED: A Land Disturbance Permit is required for all land disturbance activity affecting one (1) acre or greater, cumulatively, throughout the duration of the development. The Responsible Party shall obtain a Land Disturbance Permit from the Public Works Director prior to commencing land disturbance activity. A Land Disturbance Permit is not generally required for land disturbance activity of less than one (1) acre, cumulatively, throughout the duration of the development. However, a Land Disturbance Permit may be required if the Director determines that there is significant potential for deposition of sediment that is in violation of this section or the land disturbance activity is within close proximity to valuable resource waters.

Regardless of land disturbance size, a Land Disturbance Permit is required if the land disturbance is located twenty-five feet (25') or less from the boundary of a spring, rim of a sinkhole, cave entrance, wetland, watercourse, stream buffer or one hundred (100) year FEMA identified floodplain.

The Director shall provide written notice of the need for a permit to the Responsible Party or person conducting the land disturbance activities. The Responsible Party shall obtain a Land Disturbance Prmit from the Public Works Department prior to commencing or resuming land disturbance activity.

B. PERMIT PROCEDURES: The following items must be received prior to issuance of a Land Disturbance Permit:

1. An approved grading, SWPPP, and sediment and erosion control plan.

2. A performance bond or other security.

3. A copy of the General Operating Permit

The submittal and approval procedure is as follows: Subdivisions, Commercial and Other Sites; The sediment and erosion control plan shall be submitted for review along with the plans for the proposed improvements: and Land Disturbance permit for subdivisions will be issued by the Director after approval of the plans for the subdivision improvements.

In addition, 10 CSR 20-6.200 requires land disturbance activities of one acre or more to obtain a Missouri State Operating Permit to discharge stormwater. The permit requires Best Management Practices sufficient to control runoff and sedimentation to protect waters of the state. Land disturbance permits may only be obtained by means of the Department of Natural Resources ePermitting system available online at www.dnr.mo.gov/env/wpp/wpermit/help.htm. See www.dnr.mo.gov/env/wpp/wtormwater/sw-land-disturb-permits.htm for more information.

C. PLAN REQUIREMENTS: Plans must be prepared by and bear the seal of an engineer registered to practice in the State of Missouri.
Plan requirements are set forth in the Stormwater Planning and Design Section (page 123) and in this Section.

Plans will not be required in the following cases:

1. Grading associated solely with a single family residence and which is exempt from the permit requirement except as provided in Section 25-115

2. Grading or filling of less than 1 acre if located outside of allowable building areas and not located within 25 feet of a spring, sinkhole, wetland, or watercourse.
In these instances, a Land Disturbance permit can be issued following an inspection of the site by a representative of the Planning Department if it does not reveal any conditions which would warrant preparation of a detailed plan in the opinion of the Planning Department.

D. SECURITY REQUIREMENTS: Upon approval of the Land Disturbance Permit and prior to issuance of a Land Disturbance Permit, the Public Works Department shall require the developer to post a security in the form of a cash bond, cash or equivalent approved by the Director of Finance of not less than 150% of the value of all work to be done under the grading plan and SWPPP.

For land disturbance permits which do not include the construction of public improvements related to subdividing land under the jurisdiction of the Subdivision Regulations, chapter 23 of the Nixa City code, or construction of permanent building or structures, under jurisdiction of the Land Development Code, chapter 23, (i.e. where only grading work is included, such as a borrow pit or pond) the only type of security which will be accepted will be a cash bond.

If the bond, letter or credit or other security document is placed in default, or the insurance is terminated or not maintained at a satisfactory level, then no further permits or approvals, including building permits, shall be issued for the developer's property located in the development for which the security was given, until the improvements are completed to the satisfaction of the City. Any portion of the deposit not expended or retained by the City hereunder shall be refunded when the land disturbance is completed and the soil and drainage conditions are stabilized to the satisfaction of the City.

Section 116 Work Exempt from Permit

A Land Disturbance Permit shall not be required in the following instances, provided that no change in drainage patterns or sedimentation onto adjacent properties will occur:

1. Grading of land for farming;

2. Nurseries;

3. Gardening or similar agricultural or horticultural use; and

4. Grading activities in quarries and permitted sanitary landfills.

No Land Disturbance Permit is required for the following activities, provided they are less than one

(1) acre of cumulative land disturbance, are not located within twenty-five feet (25') of the boundary of a spring, rim of a sinkhole, cave entrance, wetland, watercourse, stream buffer or one hundred (100) year FEMA identified floodplain and do not cause a violation of the Missouri Clean Water

Law or Water Quality Standards:

1. Grading and repair of existing roads or driveways;

2. Cleaning and routine maintenance of roadside ditches or utilities;

3. Utility construction where the width of the disturbed area for trench excavation and backfill is twenty feet (20') or less;

4. Emergency construction required to repair or replace roads, utilities, or other items affecting the general safety and wellbeing of the public; and

5. Land disturbance for single family residences not part of an overall subdivision plan.

For emergency construction activities which would otherwise be required to obtain a permit and for which remedial construction will take more than fourteen (14) calendar days, application for the Land Disturbance Permit must be made within three (3) calendar days from the start of construction.

Section 117 General Design Guidelines.

The following items must be considered in preparing a sediment and erosion control plan.

A. TEMPORARY vs. PERMANENT CONTROLS: The greatest potential for soil erosion occurs during construction. Temporary controls are those which are provided for the purpose of controlling erosion and containing sediment until construction is completed.
Temporary controls include straw or hay bale dikes, silt fences, erosion control blankets etc., which are not needed after the area is stabilized.

Permanent controls consist of riprap, concrete trickle channels, detention basins, etc., which will remain in place through the life of the development. It is possible for the same facility to serve both a temporary and permanent purpose. The difference between temporary and permanent erosion control should be clearly recognized in preparing a sediment and erosion control plan.

B. SHEET FLOW vs. CONCENTRATED FLOW: In areas where runoff occurs primarily as sheet flow, containment of sediment is relatively simple. In these areas straw or hay bales, silt fences and vegetative filter areas can be very effective.

Where concentrations of flow occur, containment of sediment becomes more difficult as the rate and volume of flow increases. In these areas more sophisticated controls such as sedimentation basins must be provided.

C. SLOPE: Control of erosion becomes progressively more difficult as the slope of the ground increases. Areas with steeply sloping topography, and cut and fill slopes must be given special consideration.

D. SOILS AND GEOLOGIC SETTING:
Area soils and the geologic setting must be considered in preparing the plan and any special considerations deemed necessary for a particular site provided.

E. ENVIRONMENTALLY SENSITIVE AREAS: Where construction occurs within the vicinity of permanent streams, springs, sinkholes, lakes or wetland, special attention must be given to preventing discharge of sediment.

Section 118 Design Standards and Criteria.

A. GRADING:

1. Maximum Grades: Cut or fill slopes shall not exceed 3:1; 4:1 slopes are preferred where possible.

2. Maximum Height: Cut or fill slopes shall not exceed 15 feet in vertical height unless a horizontal bench area at least 5 feet in width is provided for each 15 feet in vertical height.

3. Minimum Slope: Slope in grassed areas shall not be less than 1 percent.

4. Construction Specifications: Construction for streets must comply with specifications set forth by the City of Nixa Planning Department.

For all other areas, construction specifications stating requirements for stripping, materials, subgrade compaction, placement of fills, moisture and density control, preparation and maintenance of subgrade must be included or referenced on the plans, or accompanying specifications submitted.

5. Spoil Areas: Broken concrete, asphalt and other spoil materials may not be buried in fills within proposed building or pavement areas. Outside of proposed building and pavement areas, broken concrete or stone may be buried in fills, provided it is covered by a minimum of 2 feet of earth. Burying of other materials in fills is prohibited.

6. Stockpile Access: Location of proposed stockpile areas shall be outlined on the plans, and specifications for proper drainage included.

7. Borrow Areas: The proposed limits of temporary borrow areas shall be outlined in the plans and a proposed operating plan described on the grading plan. Temporary slopes in borrow areas may exceed the maximums set forth above. At the time that borrows operations are completed, the area shall be graded in accordance with the criteria set forth above, and reseeded.

B. SEDIMENT CONTAINMENT:

1. Existing Vegetative Filter Area: Existing vegetative filter areas may be used where:

• Unconcentrated sheet flow occurs;

• An area of existing vegetation a minimum of 25 feet in width can be maintained between the area to be graded and a property line, watercourse, sinkhole, spring, wetland or classified lake;

• Existing ground slope is no greater than 5:1 (20 percent);

• The existing vegetative growth is of sufficient density and in sufficiently good condition to provide for filtration of sediment.

2. Containment areas constructed of hay or straw bales, or silt fence may be provided in areas where:

• Unconcentrated sheet flow occurs;

•An area of existing vegetation, a minimum of 25 feet in width cannot be maintained between the area to be graded and a property line, watercourse, sinkhole, spring, wetland or classified lake;

•Existing ground slope is no greater than 5:1 (20 percent);

•Concentration flow from an area no greater than 1 acre occurs and a minimum volume of 100 cubic feet per acre is contained behind the dike.

•Either cereal grain straw or hay may be used for bale dikes.

• Silt fence may be used in lieu of hay or straw bales.

• Straw/hay bake dikes and silt fences are temporary practices.

3. Temporary Containment Berms: Temporary containment berms may be provided for areas where concentrated flow from areas greater than 1 acre and less than 5 acres occurs. Temporary containment berms must contain a volume of 1000 cubic feet per acre of drainage area. Temporary containment berms and accumulated sediment may be completely removed after the tributary area is stabilized, and must be removed prior to final acceptance and release of escrow.

4. Sedimentation Basin: Sediment basins shall be provided for all areas where concentrated flow occurs from an area of 5 or more acres. Sediment basins shall be designed to detain the runoff from 1 inch of rainfall, for a period of at least 24 hours. Runoff shall be calculated using the methods contained in Chapter 2 of TR-55 (Reference 11), using the recommended curve number for newly graded areas from Table 2-2a.

Note: For construction sites in Nixa, an average value of runoff volume from 1 inch of rainfall is approximately 1000 cubic feet per acre, using a curve number of 90, as indicative of a Type B & C soils. This value may be used in sizing sediment basins or the runoff volume determined using the values from Figure 2-1 of TR-55.

a. Sediment basins shall be provided with: an outflow structure consisting of:

•A flow restriction device which provides for the required detention time,

•An outfall pipe sized to carry the maximum estimated outflow rate,

• protective structures at the pipe outlet to prevent crushing or damage of the end of the pipe,

•Protective structures to prevent blockage of the pipe with debris,

• Erosion protection at the pipe outlet.

b. An overflow spillway capable of discharging the peak flow rate for the annual 4% annual probability (25-year) storm while maintaining a minimum freeboard of 1 foot. Overflow spillways may be sodded where the depth of flow at the crest is limited to no greater than 6" and outlet channel velocities do not exceed 5 feet per second for the minor (5- year) storm. Overflow spillways not meeting these restrictions must be constructed of riprap, concrete or other approved, non-erodible material.

C. EROSION PROTECTION:

1. Seeding and Mulching: (Also see “Seeding” in this Chapter)

a. Permanent Seeding: Permanent seeding fertilizer and mulch shall be applied at the rate set forth in Drawing G-1 or according to other specifications which are approved with the Grading Permit. Permanent seeding seasons are from March 1 to May 15, and August 15 to October 15.

b. Mulching: Where slopes are less than 4:1, cereal grain mulch is required at the rate of 100 pounds per 1000 square feet (4500 pounds per acre). Cereal grain mulch shall meet the requirements of Section 802 of the State Specifications (Reference 17) for Type 1 mulch.

Where slopes are 4:1 or greater Type 3 mulch ("hydromulch") meeting the requirements of Section 802 of the State Specifications (Reference 17) shall be used.

c. Temporary Seeding: Whenever grading operations are suspended for more than 30 calendar days between permanent grass or seeding periods all disturbed areas must be reseeded with temporary cover according to Drawing G-1. Temporary seeding season runs from May 15 to November 15.

d. Overseeding: During the winter season (November 15 to March 1) temporary seed and mulch shall be placed on all completed areas or areas where grading is suspended for more than 30 days. During this period seed, mulch and soil amendments shall be applied at the following rates:
Lime: 100% of specified quantity.* Fertilizer: 75% of specified quantity. Seed: 50% of specified quantity. Mulch: 100% of specified quantity. * Per Drawing G-1

e. Maintenance: Seeded areas must be maintained for one year following seeding.

2. Cut and Fill Slopes: Cut and fill slopes shall be protected from erosion by construction of straw bale dikes, silt fences, diversion berms, or swales along the top of the slope. Where drainage must be carried down the slopes, pipe drains, concrete flumes, riprap chutes, or other impervious areas must be provided. Suitable erosion control measures such as riprap stilling basins, must be provided at the bottom of the slope.

Diversions shall be maintained until permanent growth is firmly established on the slopes.

3. Channels and Swales: Permanent channels and swales shall be provided with a stabilized invert consisting of one of the following materials:

a. Sod: Where the average velocity of flow is 5 feet per second or less and there is no base flow, the channel shall be lined with sod.
The remainder of the channel slopes shall be seeded and mulched as provided above.

b. Erosion Control Blanket: Commercial erosion control blankets may be used in lieu of sod provided that samples are submitted and approved by the City Planner. The guaranteed maintenance period shall be one year.

c. Non-erosive lining: In grass channels where base flow occurs, a non-erosive low- flow channel of riprap or concrete must be provided. Low flow channels shall have a minimum capacity of 5 cubic feet per second. Other suitable non-erosive materials may be specified with approval of the City Planner.

For channels which have an average velocity of 5 feet per second or greater a non- erosive lining of riprap concrete or other approved material must be provided.

4. Storm Sewer and Culvert Outlets: Erosion protection shall be provided at storm sewer and culvert outlets. Minimum erosion protection shall consist of a concrete toe wall and non-erosive lining.

Flared end sections and headwalls are not required, but may be provided at the discretion of the designer to meet grading or aesthetic requirements. The required length of non- erosive lining will not be decreased where flared end sections or headwalls are provided unless calculations and data to support the decrease in length are submitted and approved.
Non-erosive lining shall consist of riprap, unless otherwise specified and approved. Field stone, gabions, or Riprap shall extend to the point at which average channel velocity for the peak flow rate from the minor (5-year) storm has decreased to 5 feet per second maximum

The length of riprap to be provided shall be as follows:

Average outlet velocity less than 5 feet per second: L = 3 times the pipe diameter or culvert width.

Average outlet velocity less than 5-10 feet per second: L = 5 times the pipe diameter or culvert width.

Average outlet velocity greater than 10 feet per second: Use MHTD standard energy dissipater headwall (Reference 17) or approved equal.

5. Curb Openings: Where drainage flows from paved areas to grass areas through curb openings erosion protection shall be provided.

6. Ditch Checks and Drop Structures: In grass channels, grades and velocities may be controlled by use of ditch checks and drop structures.
Riprap ditch checks may be required in natural channels where average velocity for the peak flow rate from the minor storm exceeds 5 feet per second for post-development conditions.

7. Spillways: Erosion protection must be provided at spillways and outlet structures for detention ponds. Erosion protection shall extend to the point where flow has stabilized and average velocity in the outlet channel is 5 feet per second or less.

D. TEMPORARY VEHICLE TRACKING PAD: A minimum of one temporary vehicle tracking pad is required at each site. Additional tracking pad's may be provided if approved. The location of each tracking pad shall be shown on the plan. Only tracking pads designated on the sediment and erosion control plan may be used. Barricades shall be maintained if necessary to prevent access at other points until construction is complete.

Temporary Vehicle Tracking Pad's shall be constructed of crushed limestone meeting the following specifications.

• Temporary vehicle tracking pad's shall be a minimum of 25 feet wide and 50 feet long.

•Minimum thickness of crushed limestone surface shall be 2" to 4" inch diameter rock (rocks 6" and larger shall be avoided because they can become lodged between dual tires on trucks) is to be used, with a minimum thickness of 12 inches. Additional 2 inch lifts of crushed limestone shall be added at the discretion of the City if the surface of the initial drive deteriorates or becomes to muddy to be effective.

E. CLEANING STREETS: Streets both interior and adjacent to the site shall be completely cleaned of sediment at the end of construction and prior to release of security.

F. DUST CONTROL: The contractor will be required to use water trucks to water haul roads and construction areas to minimize dust leaving the site when conditions warrant.
G. SEQUENCING AND SCHEDULING: Costs of sediment and erosion control can be minimized if proper consideration is given to sequencing and scheduling construction.

Any special sequencing and scheduling considerations should be noted in the grading plan.
A detailed schedule must be received from the contractor at the Pre-Construction Conference.

Section 119: INSPECTION

A. By submitting a Land Disturbance permit the applicant consents to inspections of the proposed development site and all work in progress. The Director shall be allowed to enter the property of the responsible party as deemed necessary to make regular inspections.

B. A copy of the Land Disturbance permit and SWPPP must be available on site for inspection by the Director.

C. The Director shall make inspections as hereinafter required in Subsection D and shall either approve that portion of the work completed or shall notify the Responsible Party wherein the work fails to comply with the plan as approved.

D. In order to obtain required inspections, the responsible party shall notify the Director at least two (2) working days **before** the following required inspections:

1. Initial erosion and sediment control measures placement.

2. Site Clearing.

3. Rough Grading.

4. Removal or substantial modification of any erosion and sediment control measure or practice.

5. Final landscaping.

E. The Responsible Party shall provide a qualified inspector to conduct inspections on a weekly basis or within forty-eight (48) hours of a half inch (1/2") or greater rain event. The log of such inspections shall be maintained on site and available for review by the City upon request. Prior to final acceptance of the project a copy of the inspection log must be provided to the Director for permanent record.

F. The purpose of inspections will be to determine the overall effectiveness of the SWPPP plan and shall be used to identify the need for additional control measures. The need for changes to the plan as identified by the inspections shall be provided to the Responsible Party in writing.

G. In the event work does not conform to the permit or conditions of approval or to the approved plan or to any instruction of the Director, notice to comply shall be given to the Responsible Party in writing. After a notice to comply is given, the Responsible Party shall be required to make the orrections within the time period determined by the Director.

If an imminent hazard exists, the Director shall require that the corrective work begin immediately.

Section 120 ENFORCEMENT AND PENALTIES

A. Stop-Work Order; Revocation of Permit

1. In the event that the Responsible Party holding a Land Disturbance Permit pursuant to this ordinance violates the terms of the permit, or implements site development in such a manner as to materially adversely affect the health, safety, welfare, or safety of persons residing or working in the neighborhood or development site, the Director may suspend or revoke the Land Disturbance Permit and issue a stop-work order.

2. For the purpose of this ordinance, a stop work order is validly posted by posting a copy of the stop work order on the site of the land disturbance activity in reasonable proximity to a location where the land disturbance activity is taking place. A copy of the order, in the case of work for which there is a permit, shall be mailed to the address listed by the Responsible Party on the permit. In the case of work for which there is no permit, a copy of the order shall be mailed to the person listed as the owner of the property on the tax records of Christian County Missouri.

3. No person is permitted to continue or permit the continuance of work in an area covered by a stop work order, except work required to correct deficiencies with respect to an erosion or sediment control measure and as authorized by the Director.

4. Forty-eight (48) hours after posting a stop work order, the Director, if the conditions specified in the stop work order to resume work have not been satisfied, may issue a notice to the Responsible Party that the City of Nixa will perform work necessary to comply with this regulation. The City of Nixa may go on the land and commence work after forty-eight (48) hours from issuing the notice of intent. The costs incurred by the City of Nixa to perform this work shall be charged against the performance security.

B. Violation and Penalties

1. No Responsible Party, owner, or land user shall construct, enlarge, alter, repair, or maintain any grading, excavation, or fill, or cause the same to be done, contrary to or in violation of the terms of this ordinance.

2. Any Responsible Party, owner or land user violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof, shall be fined not more than one thousand dollars ($500.00) for each offense, and each day during which any violation of any of the provisions of this ordinance is committed, continued or permitted, shall constitute a separate offense.

3. Any waiver of a violation of this ordinance by the Director shall not be deemed or construed by the Responsible Party to constitute a waiver of any prior or succeeding violation of this ordinance.

4. The City Attorney may seek any appropriate remedy to cause the removal of such sediment including, but not limited to, an injunction, revocation proceedings or any and all permits, licenses, and termination of utility services.

Section 121 DISCHARGE PROHIBITIONS

A. Prohibition of Illegal Discharges: No person shall throw, drain, or otherwise discharge, cause, or allow others under its control to throw, drain, or otherwise discharge into the MS4 any pollutants or waters containing any pollutants, other than storm water.
The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

1. The following discharges are exempt from discharge prohibitions established by this ordinance: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl spaces pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water.

2. Discharges or flow from firefighting, and other discharges specified in writing by the City of Nixa as being necessary to protect public health and safety.

3. Discharges associated with dye testing, however this activity requires a verbal notification to the City of Nixa Public Works Director prior to the time of the test.

4. 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 United States Environmental Protection Agency (EPA), 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.

B. Prohibition of Illicit Connections:

1. The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.

2. This prohibition expressly includes, without limitation, illicit connections made I the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

3. A person is considered to be in violation of this ordinance if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.

4. Improper connections in violation of this ordinance must be disconnected and redirected, if necessary, to an approved onsite wastewater management system or the sanitary sewer system upon approval of the City of Nixa.

5. Any drain or conveyance that has not been documented in plans, maps or equivalent, and which may be connected to the storm sewer system, shall be located by the owner or occupant of that property upon receipt of written notice of violation from the City of Nixa Public Works Director requiring that such locating be completed.

Such notice will specify a reasonable time period within which the location of the drain or conveyance is to be determined, that the drain or conveyance be identified as storm sewer, sanitary sewer or other, and that the outfall location or point of connection to the storm sewer system, sanitary sewer system or other discharge point be identified. Results of these investigations are to be documented and provided to the City of Nixa Public Works Director.

Sections 122 thru 124 Reserved

CITY OF NIXA CODE OF ORDINANCES

Chapter 14 - NUISANCES

ARTICLE I. - IN GENERAL

Secs. 14-1—14-18. - Reserved.

ARTICLE II. - GENERAL NUISANCE ABATEMENT PROCEDURE

Sec. 14-19. - Definitions.
The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Abandoned, in addition to those definitions contained in applicable state statutes, state codes, other ordinances adopted by the city or as contained in binding case law decisions, refers to any item which has ceased to be used for its designed and intended purpose. The following factors, among others, will be considered in determining whether or not an item has been abandoned:

(1) Present operability and functional utility;

(2) The date of last effective use:

(3) The condition of disrepair or damage;

(4) The last time an effort was made to repair or rehabilitate the item;

(5) The status of registration or licensing of the item.

Abate means to repair, replace, remove, destroy or otherwise remedy the condition in question by such means and in such a manner and to such an extent as the code compliance official in his judgment shall determine is necessary in the interest of the general health, safety and welfare of the community.

Code compliance official means the city official or employee as may be designated in writing by the city administrator to enforce property or premises maintenance and other city code violations as authorized herein.

Dismantled means that from which essential equipment, parts or contents have been removed or stripped and the outward appearance verifies the removal.

Graffiti means defacement, damage or destruction by the presence of paint or ink, chalk, dye or other similar substances; or by carving, etching or other engraving.

Inoperable means incapable of functioning or producing activity for mechanical reasons or other reasons.

Junk vehicle means any vehicle which does not properly display license plates or stickers indicating current registration and has any one or more of the following characteristics:

(1) Lacks engine, wheel, tire, properly installed battery or other structural parts which render the vehicle inoperable for use as designed by the manufacturer;

(2) Has a missing windshield or missing windows;

(3) Has a missing door, bumper, hood, driver's seat or other similar structural piece;

(4) Has become or has the potential to become the breeding ground or habitat of rats, mice, snakes, mosquitoes or other vermin;

(5) Has junk, garbage or refuse stored therein; or paper, cardboard, wood or other combustible materials stored therein; or is used as a storage facility for solid waste or other hazardous materials; or is used for the storage of gasoline, propane or diesel fuel at any location on or about the vehicle other than in the vehicle's gas or fuel tank;

(6) Has become a potential source of contamination of the soil from petroleum products or other toxic liquids being discharged or leaking from the vehicle.

Lien holder means any person or entity who has a recorded interest in real property, including mortgagee, beneficiary under a deed of trust or holder of other recorded liens or claims of interest in real property.

Nuisance means, in addition to the conditions described within this chapter, any unlawful act or the failure to perform a duty, or permitting any condition or thing to be or exist on property owned or occupied in which such act, omission, condition or thing:

(1) Injures or endangers the health, safety or welfare of others; and/or

(2) Unlawfully interferes with the use of, obstructs or tends to obstruct or renders dangerous any property, path, sidewalk, stream, ditch or drainage.

Occupant means any person or persons holding and exercising temporary or terminable tenancy rights with respect to a residence, building or property including renters, lessees and/or other persons residing temporarily on the subject property.

Owner means the registered owner of a vehicle; the person to whom property tax is assessed on real or personal property as shown on the last equalized assessment roll of the county.

Parts means any mechanical, structural, body or decorative part of any vehicle, machinery or trailer.

Property means any land, lot, parcel or portion of land whether improved or unimproved, occupied or unoccupied, including any alley, sidewalk, parkway or public easement abutting such land, lot, parcel or portion of land.

Vehicle means any self-propelled vehicle not operating exclusively on tracks except for farm tractors. The term "vehicle" shall include, but is not limited to, an automobile, truck, van, sports utility vehicle, motorcycle, motorized scooter or dirt-bike.

(Prior Code, § 13-4; Ord. No. 1693, 7-2011)

Sec. 14-20. - Statutory authorization.

The city council in recognition of its duty to provide for the health, safety and well-being of the citizens of the city affirms the need to suppress all nuisances which are or may be injurious to the health and welfare of the inhabitants of the city, or prejudicial to the morals thereof, that such nuisances may be suppressed by ordinances, and the expenses for abating these nuisances may be assessed against the owner or occupant of the property and against the property on which said nuisance is committed and a special tax bill may be issued against said property for said expenses. Therefore, the city council of the city, ordains as provided in this article.

Sec. 14-21. - Declarations and purposes.

(a) The city council does hereby find and declare that it is necessary to provide for the abatement of conditions which are detrimental to property values and community appearance, an obstruction to or interference with the comfort and enjoyment of adjacent property or premises, or hazardous or injurious to the health, safety or welfare of the general public in such ways that constitute a public nuisance and to establish community standards to safeguard health and public welfare in keeping with the character of the city by allowing for the maintenance of exterior property for each of the following purposes:

(1) To safeguard the health, safety and welfare of the citizens of the city by maintaining exterior property in good and appropriate condition;

(2) To promote a sound and attractive community appearance; and

(3) To enhance the economic value of the community, and each area in it, through the regulation of the maintenance and conditions of property.

(b) Accordingly, the city council declares that the purposes of this article are to:

(1) Reduce the threat to health, safety, welfare, appearance and economic value to the decline in property condition by lawfully delineating the circumstances under which such conditions are considered unlawful and/or abated; and

(2) Further declare that abatement of such condition is in the best interest of the health, safety and welfare of the residents of the city, as maximum use and enjoyment of property or premises in proximity to one another depends upon maintenance of those properties at or above the established minimum standards as defined within this chapter.

Sec. 14-22. - Exceptions.

(a) The provisions of this article do not regulate or place limitations on any properly zoned junkyard, salvage dealer or waste tire facility holding valid licenses and/or other necessary federal, state or municipal permits.

(b) The provisions of this article do not prohibit the proper storage of idle but operable recreational vehicles, boats or lawn mowing equipment.

(c) The provisions of this article do not prohibit the orderly storage of firewood.

(d) The provisions of this article are not intended to regulate or place limitations on any residential or commercial building project for which a valid building permit has been issued by the city. This exception shall be limited to the site for which any such permit was issued and this exception shall not apply if continuous and substantial progress toward completion of the building project is not being made.

Sec. 14-23. - Administration and enforcement.

The mayor and city council hereby assign the duties of administering this article as follows:

(1) The code compliance official within the planning and development department (or within such other department designated for enforcement by the city administrator) shall have the duty, responsibility and authority to enforce this article in any manner authorized by this Code or by any other law, including but not limited to issuance of citations, civil actions and abatement activity regulation.

(2) The records divisions of the city police department and utility department will provide the planning and development department officials identifying information, when available, of the location and identifying descriptions of violators to assist the reporting, citation completion and service process.

(3) For the purposes of inspections and/or enforcement of the provisions of this chapter, code compliance officials, planning and development department officials or his designees shall be authorized and permitted to enter upon the property of another without being considered trespassers.

(4) All inspections and enforcement actions, unless expressly stated to the contrary, shall be under the direction of the code compliance official who may appoint or designate other public officers or employees to perform duties as may be necessary to enforce the provisions of this article including, but not limited to, abatement activity, work orders, vegetation removal, mowing, etc.

Sec. 14-24. - Certain conditions or actions declared nuisances; listing deemed nonexclusive.

The maintaining, using, placing, depositing, leaving or permitting to be or remain on any public or private property of any of the following items, conditions or actions are hereby declared to be and constitute a public nuisance and a violation of this chapter; provided, however, this enumeration shall not be deemed or construed to be exclusive, limiting or restrictive:

(1) No property owner shall be permitted to allow weeds, grass, brush, briars, and other rank vegetation to grow in excess of 12 inches in height, exclusive of ornamental shrubs or flowers, vegetable crops, fruit trees, berry bushes, cover crops and domestic grains or other cultivated crops.

A violation unabated for a period greater than seven days will warrant the issuance of a summons to the property owner. The property owner shall be responsible for all abatement costs. Owners of undeveloped land shall maintain their property so that weeds shall not exceed a height of 18 inches.

(2) Accumulation of rubbish, trash, refuse, junk and other abandoned materials, metals, lumber or items offensive to the senses or a risk to health, safety and/or welfare.

(3) Any condition which provides harborage for rats, mice, snakes and other vermin.

(4) Allowing or permitting vegetation, grass or weeds to grow outside or extend beyond the boundaries of any lot or property to a length greater than six inches, to a height greater than 12 inches or encroach upon any sidewalk more than four inches.

(5) Conditions contributing to or causing rank or noxious odors and stenches, as well as the conditions, substances or other causes which give rise to the emission or generation of such odors and stenches.

(6) The pollution of any public well or cistern, stream, lake, canal or body of water by sewage or industrial wastes.

(7) Abandoning, discarding or knowingly permitting to remain on premises or property, in a place accessible to children, any abandoned or discarded icebox, refrigerator or other airtight or semi-airtight container which has a capacity of 1½ cubic feet or more and which has a door or lid equipped with hinge, latch or other fastening device capable of securing such door or lid, without rendering such equipment harmless to human life by removing such hinges, latches or other hardware which may cause a person to be confined therein. No part of this subsection shall apply to any icebox, refrigerator or other airtight or semi-airtight container located in that part of a building occupied by a dealer, warehouseman or repairman of such products.

(8) All furniture, machinery, discarded containers or any other appliance, article, item or equipment designed for use inside a dwelling unit if stored, placed or set upon the ground or on any open porch, in any attached carport or freestanding carport, or in any garage or shed that is without doors to conceal such articles.

(9) To permit, cause, keep, maintain or allow a fence or partitioning containing barbed wire, razor wire, electric wire or razor ribbon fencing in any residential or commercially zoned district.

(10) Dismantled, non-licensed, inoperable or junk vehicles as defined herein.

(11) Bricks, shingles, building materials, salvage materials including, but not limited to, auto parts, scrap metal, tires and any other trade materials stored, deposited, dumped discarded and/or abandoned on any section of property.

(12) Buildings, structures or other surfaces upon which graffiti exists.

(13) Any flammable material which may endanger public safety.

(14) All substances or things, which cause an odor disagreeable to the surrounding neighborhood.

(15) Ashes, slop, filth, excrement, stones, straw, soot, rubbish, manure, offal, stagnant water, decaying animal matter, decaying fruit or vegetable matter, wrecks or parts of worn-out vehicles or machinery, scrap iron or other metals, cans, bottles, broken glass, discarded wearing apparel, dead animals or any other offensive or disagreeable substances or thing, dilapidated buildings or building materials which may be offensive to the sight or smell or a menace to health, safety, peace or comfort, or which may be or become harborers or breeding places for mosquitoes, ants, flies, rats, mice or other vermin, animals or insects, or which may provide shelter, food or protection for rodents, whether left or deposited upon private premises or vacant lots or upon any public property.

(16) All mud, dirt, rocks or debris from construction sites, fields or pastures which fall on city streets from the loads, tires or bodies of vehicles driven from said sites onto city streets. Developers and contractors are required to provide the city with a route plan for construction traffic in and out of new subdivisions and development sites. Failure to do so will be a violation of this Code.

(17) Any vehicle operable or not, parked off street in a residential district in a space not complying with the definition of "parking space" in the zoning ordinance of the city. In addition to the vehicle capacity of a residence including garage space and driveway space, one accessory space may be designated. This space must be constructed out of three-fourths-inch base rock, asphalt or concrete. If constructed of base rock, it must be bordered with landscaping timbers. Vehicles parked to the rear of the front elevation of the house must be covered with an appropriate cover or behind a privacy fence at least six feet tall. This includes storage of boats, campers, trailers, and all other accessory vehicles. Any vehicle not parked according to these guidelines will be considered in violation of the nuisance code.

Sec. 14-25. - Nuisances prohibited.

(a) It is unlawful for any owner or occupant having control of any lot or land or any part thereof in the city to cause, permit or maintain any nuisance on any such lot or land or contribute to the creation or maintenance of any nuisance as defined within this chapter; and it is further unlawful for any person or his agent, servant, representative or employee to cause or maintain a nuisance on the property of another, with or without permission.

(b) Any person who shall cause, create or maintain a nuisance or contribute to any nuisance as defined within this chapter shall be guilty of violating the provisions hereof and shall be liable for all costs and expenses attendant upon the removal and/or correction of such a nuisance in addition to any penalties provided. Each day that a nuisance is maintained can be the basis of a separate offense.

Sec. 14-26. - Nuisance abatement.

(a) Summary abatement of nuisances.

(1) Procedure. Whenever a complaint is made to the code compliance official or upon discovery of the existence of a nuisance, as defined in this chapter, the code official shall promptly cause to be inspected the property on which it is alleged that such nuisance exists. Upon discovery of a nuisance, the code compliance official may order the owner or other person creating, keeping, maintaining, or permitting the same to abate it. Should the code official find that a public nuisance exists, and the public health, welfare or safety may be in immediate danger, then summary abatement procedures shall be implemented and the inspecting official or department may cause the nuisance to be removed or abated. Summary abatement costs shall be certified by the city clerk and assigned to the annual real estate tax bills for the property.

(2) Notice. When summary abatement is authorized, notice to the owner, agent, or occupant of the property is not required. Following summary abatement, the code compliance official shall cause to be posted on the property liable for the abatement a notice describing the action taken to abate the nuisance.

(b) Abatement of nuisances in other cases.

(1) Procedure. Whenever a complaint is made to the code compliance official or upon discovery of a nuisance that does not pose an immediate danger to the public health, welfare or safety, the code compliance official shall submit a written report of the property on which the nuisance exists to the city administrator or his designee. If the code compliance official declares the existence of a nuisance, but the nature thereof is not such as to require the summary abatement of such nuisance, then the city administrator, or his designee, may order the abatement of the nuisance after notice and a hearing pursuant to sections 14-27 and 14-28.

(2) Abatement by owner. Within ten days after service of the notice to abate the nuisance, the owner or individual in possession of the affected property shall remove and abate such nuisance or show that actions for abating the nuisance have been commenced. Such showing shall be made by filing a written statement or other proof of such actions with the code compliance official.

(c) Abatement by city. If the city administrator or his designee, after a hearing in compliance with this section, finds that the nuisance or dangerous condition exists, the chief of police or the code compliance official shall have authority to enter upon the property and abate the nuisance found thereon. In abating such nuisance, the chief of police or code compliance official may go to whatever extent may be necessary to complete the abatement of the nuisance. If it is practicable to salvage any material derived in the aforesaid abatement, the chief of police or code compliance official may sell the salvage material at private or public sale and shall keep an accounting of the proceeds thereof.

(d) Proceeds from sale of private property. The proceeds, if any, obtained from the sale of any material salvaged as a result of an abatement of public nuisance by the code compliance official or chief of police shall be deposited into the general fund of the city and any deficit between the amount so received and the cost of the abatement shall be filed with the city clerk. The city clerk shall certify said costs and submit a special tax bill to the assessor so that the costs can be added to the annual real estate tax bill for the property. Should the proceeds of the sale of the salvaged material exceed the cost of abatement, the surplus, if any, shall be paid to the owner of the property from which the public nuisance was abated when a proper claim to the excess is established.

(e) Authorized action. In abating a public nuisance, the code compliance official or chief of police may call upon any of the city departments or divisions for whatever assistance shall be deemed necessary or may by private contract cause the abatement of the public nuisance.

(f) Statement of costs. The city is hereby empowered to charge and collect all costs of any abatement which is performed by the city, including administrative expenses, which shall be determined by the code compliance official, chief of police, planning and development department officials or his designees and/or municipal court. Said costs shall be reported to the city administrator or his designee in an itemized document titled "certificate of cost" showing the costs of abatement, administrative expenses and any outstanding penalties. Said costs shall be assessed and billed to the owner, occupant or entity having control of the property upon which the violation exists along with a notice advising that a special tax bill shall be issued and that the costs of the abatement will be added to the annual real estate taxes assessed against the property if the costs are not paid within 30 days. The person or entity causing, maintaining, or permitting the nuisance shall be personally liable to the city for the cost of such abatement.

(g) Appeal of cost statements. The property owner, occupants, or entities having control of the property may object to the assessment discussed in subsection (f) of this section. Such objections must be made in writing with 20 days from the date of mailing of the notice discussed in subsection (f) of this section. If no objections are received within the 20-day period, the city clerk is to proceed with the procedures set forth in subsection (h) of this section.

If an objection is received, the city clerk shall refer the matter to the city administrator, or his designee, for administrative review. After administrative review, the city administrator, or his designee, shall make a written determination that the amount of the charges shall be canceled, reduced or remain the same.

The city administrator, or his designee, may reduce or cancel the proposed assessment if it is determined that: no notice of order to remove the nuisance was provided; or the work performed for abating the nuisance was not in compliance with this chapter; or the computation of charges was not in compliance with this chapter. A copy of this determination shall be furnished to the person making the objections together with a notice of the person's right to appeal. The decision of the city administrator, or his designee, may be appealed pursuant to the provisions of RSMo ch. 536 by any person aggrieved, provided such appeal is filed within 30 days after the date of personal service or mailing of the city administrator's or his designee's decision.

(h) Special tax bills and liens upon property. In the event the person or persons billed fails to pay within the 30-day period set forth in this section, the city administrator, or his designee, shall certify the amount thereof to the city clerk. The city clerk shall take any and all steps necessary for a special tax bill to be issued and/or for the costs of the abatement to be added to the annual real estate taxes assessed against the property. The cost of the abatement as determined by the city administrator, or his designee, shall be certified to the city clerk not sooner than 30 days after issuance of the city administrator's, or his designee's written findings, if not sooner paid. The special tax bill, if issued, shall be deemed a personal debt against the property owners and shall be a lien on the property until paid. If the special tax bill is added to the annual real estate bill for the property and is not paid, the real estate taxes shall be considered delinquent and the collection thereof shall be governed by the laws applicable to delinquent real estate taxes. Such special tax bills, if not paid when due, shall bear interest at the rate of eight percent per annum.

(i) Claim of lack of notice. If, after a lien has been entered, there is a written request of the owner who alleges that the owner did not receive notice of the proposed assessment, the city clerk shall refer the matter for review pursuant to subsection (g) of this section. The lien may be canceled or reduced by the city administrator, or his designee, in administrative review, if it is determined that the owner did not receive notice of the proposed assessment, did not previously have knowledge of the lien or of the nuisance abatement work constituting the basis of the lien and could not, in the exercise of reasonable care or diligence, have had such knowledge, and, in addition, that the circumstances are such that a reduction or cancellation of the charges would have been appropriate had the matter been reviewed pursuant to this section prior to assessment. Upon receipt of a certification from the city administrator, or his designee, pursuant to subsection (g) of this section, the city clerk shall cancel or reduce the lien if required by determination of the city administrator. Even if the lien is reduced or eliminated under this section, the individuals, firms, corporation, or other owners of the property at the time at which the notice was served shall be personally liable for the amount of assessment including all interest, civil penalties and other charges.

Sec. 14-27. - Notice.

(a) Upon verification of a reported nuisance violation within the city, the code compliance official shall provide a written notice to correct or abate. If the violation is on private property, proof that a person occupies the property, or that a person has possession or right to possession of the property, shall constitute prima facie evidence for the purposes of this article that such person has caused, maintained, or permitted the violation and such person shall be responsible for its abatement. If the property is vacant, evidence as to the record title owner from the county recorder's office shall be prima facie evidence for the purpose of this article that the owner has caused, maintained or permitted the violation, and such person shall be responsible for its abatement. The following methods of service of the written notice to abate shall be deemed adequate:

> *(1) By personal service upon the owner or occupant of the property upon which the nuisance exists or upon the person or persons or other responsible party causing or maintaining the violation;*
>
> *(2) By sending the notice by certified mail to the last known address of the owner, occupant or person causing or maintaining the nuisance;*
>
> *(3) By publishing the notice once a week for two consecutive weeks in a newspaper of general circulation in the city, or by posting the notice in a conspicuous place on the property or building whereupon the nuisance exists.*

(b) In addition to the notice requirements of this chapter, the notice to abate a nuisance issued under the provisions of this article shall contain:

> *(1) The street address or legal description of the property;*
>
> *(2) A description of the condition or conditions alleged to constitute a nuisance;*
>
> *(3) That a hearing is scheduled with the hearing officer on a date not sooner than ten days after the date of service by any of the methods stated in subsection (a) of this section;*

(4) That proof of the commencement of such abatement actions must be submitted to the code compliance official not later than three working days before the date scheduled for the hearing to determine whether the nuisance or dangerous condition will be held; and

(5) That the hearing may be held without the presence of any owner, lien holder, occupant or representative.

Sec. 14-28. - Hearing and appeal.

(a) Procedure. The owners, lien holders and occupants of the property who have been served with notice pursuant to section 14-27, and who do not submit sufficient proof of the commencement of the such abatement to the code compliance official not later than three working days before the date before the scheduled hearing, may appear in person or by representative at the hearing with the hearing official scheduled on a date not sooner than ten days after the date of service of the notice as provided in section 14-27. Said hearing will be conducted by a hearing officer appointed by the mayor.

(b) Hearing. The hearing officer shall conduct a full and adequate hearing upon the question of whether a public nuisance in fact exists. The hearing officer may amend or modify the notice to extend the time for compliance with the notice by the owner by such date as the hearing officer may determine.

(c) Evidence. The owners, lien holders, occupants of the property, or their representative or agents shall be given the opportunity to present evidence to the hearing officer in the course of the hearing.

(d) Order. Should the evidence support a finding that the condition constitutes a nuisance, the hearing officer shall issue an order making specific findings of fact, based on competent and substantial evidence, which shows that the condition constitutes a public nuisance and that it should be removed, repaired or otherwise abated by the city.

(e) Additional time. The hearing officer, upon written application by the owner at any time within the period after the notice has been served, but before the scheduled hearing, may grant additional time for the owner to effect the abatement of the nuisance, provided that such extension is limited to a specific time period.

(f) Costs. The costs of performance of the abatement performed by the city in accordance with the hearing officer's order shall be certified and billed in accordance with section 14-26(f). If the bill is not paid within 30 days, the city clerk is to follow the procedures set-forth in 14-26(h) regarding special tax bills and liens against real estate.
(g) Appeal procedures. If, upon a hearing, the hearing officer determines that a violation exists, proper notice was given, and there has been a failure to abate the nuisance, the hearing officer shall make an order directing the chief of police or the code compliance official to have the nuisance abated or removed. The decision of the hearing officer that a nuisance exists and is to be abated may be appealed pursuant to the provisions of RSMo ch. 536, by any person aggrieved, provided such appeal is filed within 30 days after the date of personal service or mailing of the hearing officer's decision.

(h) Finality of judgment. If the judgment is not appealed to the circuit court within 30 days as set forth in subsection (g) of this section, then the judgment will be declared final per RSMo ch. 536.
(Prior Code, § 13-10; Ord. No. 1693, 7-2011)

Sec. 14-29. - Other remedies.

The procedures set forth in this article shall be in addition to any other remedies that may exist under law for the abatement of public nuisance, and this article shall not prevent the city from prosecuting violations of this chapter, a conviction of which shall be punishable pursuant to section 1-9, or proceeding in a civil cause of action for abatement of nuisances created by the accumulation of unsightly, dangerous or noxious personal property within the borders of the city. Upon the successful prosecution of such civil cause of action, the city may be awarded by the court reasonable attorney's fees, litigation expenses, expert fees, and court costs incurred in such action.

Illicit Discharge Detection and Elimination (IDDE) Plan

Acronyms

BMP – Best Management Practice

CWA – Clean Water Act

EPA – Environmental Protection Agency

GIS – Geographic Information System

GPS – Global Positioning System

IDDE – Illicit Discharge Detection and Elimination

JRBP – James River Basin Partnership

MCM – Minimum Control Measure

MEP – Maximum Extent Practicable

MS4 – Municipal Separate Storm Sewer System

NPDES – National Pollutant Discharge Elimination System

NOV – Notice of Violation

SIC – Standard Industrial Classification

SWMP – Stormwater Management Plan

SWPPP – Stormwater Pollution Prevention Plan

The City – City of Nixa, Missouri

TMDL – Total Maximum Daily Load

CHAPTER 1: INTRODUCTION

The Federal Clean Water Act (CWA) is the cornerstone of surface water quality protection in the United States. Though the CWA does not deal directly with groundwater or with water quantity issues, the statute employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters so that they can support the protection of watersheds. To further reduce the adverse effects of stormwater runoff, the U.S. Environmental Protection Agency (EPA) instituted its Stormwater Phase II Final Rule on December 8, 1999.

Phase II Stormwater Program Administration: As authorized by the CWA, the National Pollutant Discharge Elimination System (NPDES) Permit Program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The Phase II Stormwater Program is part of the EPA's NPDES program, which in Missouri is delegated to the Missouri Department of Natural Recourses (MDNR) to administer. Under this authority, MDNR has issued Phase 1 and Phase II NPDES permits regulating the discharge of stormwater. The City is under the regulations of the MS4 NPDES Phase II Municipal Stormwater Permit issued on Janurarary 15, 2017 which will remain in effect until September 30, 2021.

Phase II Stormwater Program Regulations: The City of Nixa's Municipal Separate Storm Sewer System (MS4) is a system that discharges stormwater runoff to surface water, or waters of the State or United States. Phase II regulates discharges from small MS4s located in "urbanized areas" (as delineated by the Census Bureau in the most recent census). Phase II also regulates construction activities that disturb one (1) or more acres of land.

The Role of Illicit Discharges Detection and Elimination (IDDE) in Phase II Stormwater: To comply with the regulation of the NPDES Phase II permit, the City must, within their StormWater Management Plan (SWMP) develop, implement, and enforce an IDDE program that is designed to reduce the discharge of pollutants to the maximum extent practicable;

To protect water quality, and satisfy the applicable water quality requirements of the NPDES/MS4 General Operating Permit.

The EPA's Stormwater Phase II Final Rule states that this SWMP must include the following six Minimum Control Measures (MCMs):

- Public education and outreach on stormwater impacts,
- Public involvement and participation,
- **Illicit Discharge Detection and Elimination (IDDE),**
- Construction site stormwater runoff control,
- Post-construction stormwater management in new development and redevelopment, and
- Pollution prevention and good housekeeping for municipal operations.

Phase II Stormwater Education: As reflected above, the City, through the successful implementation of the six minimum control measures, has and will continue to provide stormwater education, including IDDE, to City employees, residents, civic groups, owner/operator of Commercial/Industrial facilities as well as the general public.

CHAPTER 2: IDDE PROGRAM OUTLINE

2.1 IMPORTANT TERMINOLOGY

Storm Drain:

A "Storm Drain" System or storm sewer system is designed to drain excess rain and ground water from impervious surfaces such as paved streets, parking lots, driveways and roofs. Normally consists of pipes, junction boxes, inlet boxes, basins, ditches, and open channels used to transport stormwater. The terminology "Storm Sewer" which has been in general use for many years, appears to gradually be changing to "Storm Drain" to help differentiate between sanitary sewers and storm sewers. Throughout the rest of this document the term "Storm Drain" will be utilized in place of "Storm Sewer". From a regulatory standpoint, "Major" storm drains are defined as enclosed storm drain pipes with a diameter of 36 inches, or greater or open channels that drain more than 50 acres. For industrial land uses, major drains are defined as enclosed storm drain pipes 12 inches or greater in diameter and open channels that drain more than two acres. "Minor" storm drains are smaller than these thresholds. Both major and minor storm drains can be a source of illicit discharges, and both merit investigation.

Stormwater:

"Stormwater" is water that originates during precipitation events and snow/ice melt. Stormwater can soak into the soil (infiltrate), be held on the surface and evaporate, or runoff and end up (un-treated) in nearby streams, rivers, or other water bodies.

Surface Water:

"Surface water" is water that collects on the surface of the ground, the top layer of a body of water.

Watershed:

A "Watershed" is an area or ridge of land that separates waters flowing to different rivers, basins, or other body of water.

Waters of the State:

"Waters of the State" refers to all rivers, streams, lakes, and other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state which are not entirely confined and located completely upon lands owned, leased, or otherwise controlled by a single person or by two or more persons jointly or as tenants in common and includes waters of the United States lying within the state. (Section 644.016) http://www.moga.missouri.gov/statutes/C600-699/6440000016.HTM

Waters of the United States:

The definition of "waters of the United States" currently in effect is the definition promulgated in 1986/1988, implemented consistent with subsequent Supreme Court decisions and guidance documents. The 2015 revised regulatory definition of "waters of the United States" has been stayed by the U.S. Court of Appeals for the Sixth Circuit. In response to this stay, EPA, Department of Army, and the Army Corps of Engineers resumed nationwide use of the agencies' prior regulations defining the term "waters of the United States." On February 28, 2017, the President of the United States issued an Executive Order directing EPA and Department of the Army to review and rescind or revise the 2015 Rule.

Illicit Discharge:

1. The term "illicit discharge" is defined in the MDNR Phase II Stormwater regulations as "any discharge to a municipal separate storm sewer system (MS4) that is not composed entirely of stormwater, except discharges resulting from fire-fighting activities."

2. Each illicit discharge has a unique frequency, composition and mode of entry in the storm drain system.

3. Illicit discharges are frequently caused when the sanitary sewage system interacts with the storm drain system. A variety of monitoring techniques may be used to locate and eliminate illegal sewage connections. These techniques are intended to trace sewage flows from the stream or outfall, back up the pipes or conveyances to reach the problem connection, discharge or dumping.

4. Illicit discharges of other pollutants are produced from specific source areas and operations known as "generating sites." Knowledge about these generating sites can be helpful to locate and prevent non-sewage illicit discharges.

Depending on the regulatory status of specific generating sites, education, enforcement and other pollution prevention techniques can be used to manage this class of illicit discharges.

Discharge Flow Types:

Dry weather discharges are composed of one or more possible flow types.

1. *Sewage and septic flows* are produced from sewer pipes and septic systems.

2. *Washwater* f*lows* are generated from a wide variety of activities and operations. Examples include discharges of gray water (laundry) from homes, commercial carwash wastewater, fleet washing, commercial laundry wastewater, and floor washing to shop drains.

3. *Liquid wastes* refers to a wide variety of flows, such as oil, paint, and process water (radiator flushing water, plating bath wastewater, etc.) that enter the storm drain system.

4. *Tap water flows* are derived from leaks and losses that occur during the distribution of drinking water in the water supply system.

5. *Landscape irrigation flows* occur when excess potable water used for residential or commercial irrigation ends up in the storm drain system.

6. *Groundwater and spring water flows* occur when the local water table rises above the bottom elevation of the storm drain (known as the invert) and enters the storm drain either through cracks and joints, or where open channels or pipes associated with the MS4 may intercept seeps and springs.

Discharge Categories:

Illicit Discharges can be separated into three (3) categories based on frequency of discharge:

1. *Transitory Illicit Discharge:* These are typically a one-time event. They can result from spills, dumping, and line breaks. These types of discharges are often the most difficult to investigate and trace back to the source. Methods for reducing this type of discharge are to educate the public on stormwater regulations and illicit discharges; establishment of a "hotline" telephone number for the public to call if any discharges are observed; and education of the community's investigative responses to sources of illicit discharge.

2. *Intermittent Illicit Discharge:* These are typically discharges that occur occasionally. They can occur several hours per day, week or over the course of a year. They can happen as the result of line breaks or cross connections.

3. *Continuous Illicit Discharge:* These direct connections into the MS4 can be from sanitary sewers, cross connections, infrastructure problems with a sanitary sewer system, or malfunctioning household sewage treatment systems. This type of discharge is the easiest to find, investigate, trace and eliminate from the MS4. These types of discharges also tend to have the greatest impact because of the constant pollutant loading into a water body.

Mode of Entry:

Illicit discharges can be further classified based on how they enter the storm drain system. The mode of entry can either be direct or indirect.

1. "*Direct entry*" means that the discharge is directly connected to the storm drain pipe through a sewage pipe, shop drain, or other kind of pipe. Direct entry usually produces discharges that are continuous or intermittent. Direct entry usually occurs when two different kinds of "plumbing" are improperly connected.

   a. Sewage cross-connections: A sewer pipe that is improperly connected to the storm drain system produces a continuous discharge of raw sewage to the storm drain pipe. Sewage cross-connections can occur in catchments where combined sewers or septic systems are converted to a separate sewer system, and a few pipes get "crossed."

   b. Straight pipe: This term refers to relatively small diameter pipes that intentionally bypass the sanitary connection or septic drain fields, producing a direct discharge into open channels or streams.

   c. Industrial and commercial cross-connections: These occur when a drain pipe is improperly connected to the storm drain system producing a discharge of wash water, process water or other inappropriate flows into the storm drain pipe, i.e. a floor shop drain that is illicitly connected to the storm drain system. Older industrial areas tend to have a high potential for illicit cross-connections.

2. "Indirect entry" means that flows generated outside the storm drain system enter through storm drain inlets or by infiltrating through the joints of the pipe. Generally, indirect modes of entry produce intermittent or transitory discharges, with the exception of groundwater seepage.

The five main modes of indirect entry for discharges include:

a. Groundwater seepage into the storm drain pipe: Seepage frequently occurs in storm drains after long periods of above average rainfall. Seepage discharges can be either continuous or intermittent, depending on the depth of the water table and the season. Groundwater seepage usually consists of relatively clean water that is not an illicit discharge by itself, but can mask other illicit discharges. If storm drains are located close to sanitary sewers, groundwater seepage may intermingle with diluted sewage.

b. Spills that enter the storm drain system at an inlet: These transitory discharges occur when a spill travels across an impervious surface and enters a storm drain inlet. Spills can occur at many industrial, commercial and transport-related sites. A very common example is an oil or gas spill from an accident that then travels across the road into the storm drain system.

c. Dumping a liquid into a storm drain inlet: This type of transitory discharge is created when liquid wastes such as oil, grease, paint, solvents, and various automotive fluids are dumped into the storm drain. Liquid dumping occurs intermittently at sites that improperly dispose of rinse water and wash water during maintenance and cleanup operations. A common example is cleaning deep fryers in the parking lot of fast food operations.

d. Outdoor washing activities that create flow to a storm drain inlet: Outdoor washing may or may not be an illicit discharge, depending on the nature of the generating site that that produces the wash water. For example, hosing off individual sidewalks and driveways may not generate significant flows or pollutant loads. On the other hand, routine washing of fueling areas, outdoor storage areas, and parking lots (power washing), and construction equipment cleanouts may result in unacceptable pollutant loads.

e. Non-target irrigation from landscaping or lawns that reaches the storm drain system: Irrigation can produce intermittent discharges from over-watering or misdirected sprinklers that send tap water over impervious areas.

In some instances, non-target irrigation can produce unacceptable loads of nutrients, organic matter or pesticides. The most common example is a discharge from commercial landscaping areas adjacent to parking lots connected to the storm drain system.

2.2 LAND USE AND POTENTIAL GENERATING SITES (Table 2.2)

Land use can predict the potential for indirect discharges, which are often intermittent or transitory. Many indirect discharges can be identified and prevented using the concept of "generating sites," which are sites where common operations can generate indirect discharges in a community. Both research and program experience indicate that a small subset of generating sites within a broader land use category can produce most of the indirect discharges. Consequently, the density of potential generating sites within a sub-watershed may be a good indicator of the severity of local illicit discharge problems. Some common generating sites within major land use categories are listed in Table 2.2, and described below.

1. Residential Generating Sites: Failing septic systems have historically been the most common residential discharge reported. In addition, residential discharges frequently contained oil, irrigation overflows, swimming pool discharges, and car washing. Many indirect discharges are caused by common residential behaviors and may not be classified as "illicit" even though they can contribute to water quality problems.

2. Commercial Generating Sites: Illicit discharges from commercial sites typical include operations such as outdoor washing; disposal of food wastes; car fueling, repair, and washing; parking lot power washing; and poor dumpster management. It is important to note that not all businesses within a generating category actually produce illicit discharges; generally, only a relatively small fraction do.

Consequently, on-site inspections of individual businesses are needed to confirm whether a property is actually a generating site.

3. Industrial Generating Sites: Industrial sites produce a wide range of flows that can cause illicit discharges. The most common continuous discharges are operations involving the disposal of rinse water, process water, wash water and contaminated, noncontact cooling water. Spills and leaks, ruptured pipes, and leaking underground storage tanks are also a source of indirect discharges.

Industries are classified according to hundreds of different Standard Industrial Classification (SIC) codes. The SIC coding system also includes commercial, institutional and municipal operations. Many industries are required to have storm water pollution prevention and spill response plans under EPA's Industrial Storm Water NPDES Permit Program. *See Figures 2.2 and 2.2.1 copy of list of the industries covered by the NPDES MS4 Stromwater Permit Program within the City.*

4. Institutional Generating Sites: Institutions such as hospitals, corporate campuses, colleges, churches, and cemeteries can be generating sites if routine maintenance practices/operations create discharges from parking lots and other areas. Many large institutional sites have their own areas for fleet maintenance, fueling, outdoor storage, and loading/unloading that can produce indirect discharges.

5. Municipal Generating Sites: Municipal generating sites include operations that handle solid waste, water, wastewater, street and storm drain maintenance, fleet washing, and yard waste disposal. Transport-related areas such as streets and highways, and parking lots can also generate indirect discharges from spills, accidents and dumping.

Table 2.2: Land Uses, Generating Sites Activities That Produce Indirect Discharges		
Land Uses	**Generating Sites**	**Activity That Produces Discharge**
Residential	• Apartments • Multi-Family • Single Family Dwelling	• Car Washing • Driveway Cleaning • Dumps/Spills Equipment Washing (Lawn mowers) • Lawn/landscaping Watering • Septic System Maintenance • Swimming Pool Discharges • Improper Plumbing - Prohibited Discharge
Commercial	• Camp Grounds/RV Parks • Car Dealerships • Car Washes • Commercial Laundrt/Dry Cleaning • Gas Stations/Auto Repair Shops • Home Improvement Stores • Restaurants • Public Swimming Pools	• Building/Parking Lot Maintenance (Power Washing) • Dumps/Spills (automotive fluids) • Landscapeing/Grounds Care • Outdoor Storage of Liquids (use fry oil) • Vehicle Fueling • Vehicle Maintenance/Repair • Vehicle Washing • Pressure Washing of Greasy Equipment and Grease Traps
Industrial	• Auto/Metal re-cyclers • Construction vehicle washing • Distribution centers • Food processing • Trash dumpsters • Marinas (boat and motor repair) • Metal plating operations • Paper and wood products • Petroleum and LPG storage • Printing • Food grade additives (Vinegar)	• All outdoor activities • Processing or rinse water • Loading and unloading area wash downs • Outdoor material storage (liquids/chemicals)
Institutional	• Cemeteries • Churches • Corporate Campus • Major medical facilities • School	• Building Maintenance (pressure washing) • Dumping/Spills • Landscaping/Grounds Care • Parking Lot Maintenance (pressure washing) • Vehicle Washing
Municipal	• Office Facilities (City Hall, Utility Billing, • Parks Department and Police Department. • Public Works Campuses, Infrastructure maintenance: • Water Department - Well sites and distribution system. • Waste Water - Sanitary sewer collection system including lift station sites. • Electric Department - transmission and distribution system including sub-station sites. • Streets: • Stormwater:	• Building Maintenance (pressure washing) • Dumping/Spills • Landscaping/Grounds Care • Outdoor Liquid Storage • Parking Lot Maintenance (pressure washing) • Road Maintenance • Vehicle Fueling • Vehicle Maintenance /Repair • Vehicle Washing • Outdoor Liquid Storage • Outdoor storage of electrical system components (transformers).

SOURCE: Modified from NPDES Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection.

Figure 2.2

Facility Name	Facility ID	Date Issue	Date Expire	REG	REC Stream	M P 92	TRMT	City Name	County Name	FLOW	FAC CODE
ALL STORE MINI STORAGE	MOR109L95	9/23/2005	3/7/2007	SWR	TR FINLEY R		STO R	Nixa	Christian		SIAND
ALLIED BUS SALES INC	MOR80C334	11/1/2002	10/03/2007	SWR	TRIB JAMES R		STO R	Nixa	Christian		PASS
BASS PRO SHOPS FAB DEPT	MOR203161	5/13/2004	3/4/2009	SWR	TRIB JAMES R		STO R	Nixa	Christian		METAL
BENTWATER COMMERCIAL	MOR109R12	4/19/2006	3/7/2007	SWR	SINKHOLE		STO R	Nixa	Christian		SIAND
BENTWATER SUBDIVISION	MOR109263	04/19/2002	03/07/2007	SWR	TRIB JAMES R		STO R	Nixa	Christian		SIAND
BLUEBIRD HILLS PHASE 1	MOR109Y41	04/06/2007	03/07/2012	SWR	TRIB JAMES R		STO R	Nixa	Christian		SIAND
CARNAHAN CORNERS	MOR109R63	05/22/2006	03/07/2007	SWR	AVIN SINK		STO R	Nixa	Christian		SIAND
CARRIAGE CROSSING SUB PH2	MOR105541	6/30/2003	02/07/2007	SWR	TR SPROUT SPR		STO R	Nixa	Christian		SIAND
CASEY GENERAL STORE #2619	MOR109M19	9/26/2005	03/07/2007	SWR	UN TR JAMES R		STO R	Nixa	Christian		SIAND
CASEY'S GENERAL STORE	MOR109M76	10/28/2005	03/07/2007	SWR	UN TR JAMES R		STO R	Nixa	Christian		SIAND
CC -- BUSINESS PARK	MOR109J60	8/5/2006	3/7/2007	SWR	UN TR JAMES R		STO R	Nixa	Christian		SIAND
CC BUSINESS PARK	MOR109A79	07/03/2007	03/07/2012	SWR	TRIB JAMES R		STO R	Nixa	Christian		SIAND
CEDAR HEIGHTS SUBDIVISION	MOR109319	03/30/2007	03/07/2012	SWR	TRIB JAMES R		STO R	Nixa	Christian		SIAND
CHANDLER PLACE	MOR109B79	02/09/2004	03/07/2007	SWR	TRIB SPOUT SPR		STO R	Nixa	Christian		SIAND
CITY OF NIXA - CITY HALL	**MOR109R74**	**05/22/2006**	**3/7/2007**	**SWR**	**SINKHOLE**		**STO R**	**Nixa**	**Christian**		**SLAND**
COPPER LEAF	MOR109H67	02/03/2004	03/07/2007	SWR	TRIB SPOUT SPR		STO R	Nixa	Christian		SIAND
COPPERLEAF APARTMENTS	MOR109109	03/28/2005	03/07/2007	SWR	TRIB SINKHOLE		STO R	Nixa	Christian		SIAND
DAISY FALLS	MOR109B49	01/14/2004	03/07/2007	SWR	TRIB SPRING BR		STO R	Nixa	Christian		SIAND
DAISY FALLS PHASE TWO	MOR109U32	9/1/2006	03/07/2007	SWR	SPOUT SPRING H		STO R	Nixa	Christian		SIAND
DALLAS TRAILS	MOR109191	03/27/2007	3/7/2012	SWR	TRIB SPOUT SPR		STO R	Nixa	Christian		SIAND
DIVERSIFIED PLASTICS CORP	MOR2310017	10/12/2005	09/22/2010	SWR	SPOUT CR FINLE		STO R	Nixa	Christian		SIAND
DOGWOOD ESTATES	MOR109N34	12/02/2005	03/07/2007	SWR	UN TRIB JAMES		STO R	Nixa	Christian		SIAND
EAGLEWOOD APARTMENTS	MOR103270	5/3/2002	02/07/2007	SWR	TRIB JAMES R		STO R	Nixa	Christian		SIAND
ELITE STORAGE	MOR109V93	4/26/2007	03/07/2012	SWR	SINKHOLE		STO R	Nixa	Christian		SIAND
FAIR HAVEN ESTATES SUBDIV	MOR103587	04/19/2002	02/07/2007	SWR	TRIB JAMES R		STO R	Nixa	Christian		SIAND
FAIR HAVEN ESTATES/IV	MOR109M61	10/27/2005	03/07/2007	SWR	UN TR JAMES R		STO R	Nixa	Christian		SIAND
FLEISCHMANN'S VINEGAR CO	MO041483	10/19/2006	10/18/2011	SWR	TRIB FINLEY CR		COL W	Nixa	Christian	0.394	INDUS.
GARDEN ADVENTURES NURSERY	MOR109V45	11/09/2006	03/07/2007	SWR	TRIB JAMES RIV		STO R	Nixa	Christian		SIAND
GLEN OAKS ESTATES	MOR103189	4/19/2002	02/07/2007	SWR	JAMES RV		STO R	Nixa	Christian		SIAND
GREAT SOUTHERN SUBD	MOR109353	02/19/2003	03/07/2007	SWR	TRIB JAMES RIV		STO R	Nixa	Christian		SIAND
HIGHWAY CC BUSINESS PARK	MOR109T85	8/22/2006	03/07/2007	SWR	SINKHOLE		STO R	Nixa	Christian		SIAND
HMI FIREPLACE SHOPS	MOR109T19	07/31/2006	03/07/2007	SWR	AVEN SINK HOLE		STO R	Nixa	Christian		SIAND
JACK'S PLACE	MOR109D21	07/01/2004	03/07/2007	SWR	TRIB FINLEY CR		STO R	Nixa	Christian		SIAND
JACK'S PLACE 1ST ADDITION	MOR109E96	9/20/2004	03/07/2007	SWR	TRIB FINLEY CR			Nixa	Christian		SIAND
KEDGPETH ESTATES 4TH ADDI	MOR109924	04/21/2003	03/07/2007	SWR	TRIB FINLEY CR		STO R	Nixa	Christian		SIAND
KIDS INVESTMENST, LLC	MOR109T96	08/22/2006	03/07/2007	SWR	TRIB JAMES RIV		STO R	Nixa	Christian		SIAND
LOT 2 CASEY'S ADDITION	MOR109V27	10/02/2006	3/7/2007	SWR	TRIB JAMES RIV		STO R	Nixa	Christian		SIAND
MAPLEWOOD HILLS	MOR109598	12/13/2002	03/07/2007	SWR	TRIB FINLEY RI		STO R	Nixa	Christian		SIAND
NEW OFFICE BUILDING WAREH	MOR109P57	02/15/2006	03/07/2007	SWR	JAMES RIVER		STO R	Nixa	Christian		SIAND
NIXA INDUSTRIAL PK-4TH AD	MOR109235	08/23/2002	03/07/2007	SWR	TRIB JAMES R		STO R	Nixa	Christian		SIAND
NIXA K-4 ELEMENTARY SCHOO	MOR109R92	03/30/2007	03/07/2012	SWR	UN TRIB JAMES		STO R	Nixa	Christian		SIAND
NIXA NW GRAVITY SEWER	MOR109W03	09/29/2006	03/07/2007	SWR	TRIB JAMES RIV		STO R	Nixa	Christian		SIAND
NIXA WWTF	**MO0028037**	**06/25/2004**	**6/24/2009**	**SWR**	**FINLEY CR**	**YY $**	**SET B**	**Nixa**	**Christian**	**1.846**	**POTW**
NIXA, CITY OF SMALL MS4	**MOR040067**	**5/18/2007**	**3/9/2008**	**SWR**	**TRIB JAMES RIV**		**STO R**	**Nixa**	**Christian**		**MS4**
OFFICE / WAREHOUSE	MOR109V46	11/9/2006	3/7/2007	SWR	TRIB JAMES RIV		STO R	Nixa	Christian		SIAND
OZARK SUPPLY LINE -NATURA	MOR109T41	03/30/2007	03/07/2012	SWR	UN TR JAMES R		STO R	Nixa	Christian		SIAND

Figure 2.2.1

PARK HILL PLACE	MOR109A83	10/27/2003	03/07/2007	SWR	TRIB FINLEY CR		STOR	Nixa	Christian			SLAND
PARKMORE HEIGHTS #4	MOR103729	12/30/1999	01/02/2002	SWR	TRIB JAMES RIV		STOR	Nixa	Christian			CONST.
PEOPLE'S BANK	MOR109930	4/25/2003	3/7/2007	SWR	TRIB JAMES RIV		STOR	Nixa	Christian			SLAND
PROGRESSIVE PROPERTIES	MOR109W12	11/27/2006	03/07/2007	SWR	TRIB JAMES RIV		STOR	Nixa	Christian			SLAND
RADER SUBDIVISION	MOR109349	03/27/2007	3/7/2012	SWR	TRIB SPOUT SPR		STOR	Nixa	Christian		VARIES	SLAND
RETAIL CENTER SHELL	MOR109T81	08/16/2006	03/07/2007	SWR	UN R AVIN SINK		STOR	Nixa	Christian			SLAND
RICHMOND PHASE I & II	MOR109S02	04/09/2007	3/7/2012	SWR	TRIB SPOUT SPR		STOR	Nixa	Christian			SLAND
ROLLING HILLS SUBDIVISION	MOR104636	03/22/2002	02/07/2007	SWR	TRIB TO JAMES		STOR	Nixa	Christian			SLAND
SACKETT PARK SUBDIVISION	MOR109C97	06/22/2004	03/07/2007	SWR	TRIB AVIN SINK		STOR	Nixa	Christian			SLAND
SOUTH HAVEN EST 2ND ADDIT	MOR109882	03/18/2003	3/7/2007	SWR	TR MCCAFFERTY		STOR	Nixa	Christian			SLAND
SOUTHERNWOOD APARTMENTS	MOR109F31	10/08/2004	03/07/2007	SWR	TRIB JAMES RIV		STOR	Nixa	Christian			APART
SPRING MANOR - PHASE 5	MOR109G13	11/17/2004	03/07/2007	SWR	TRIB FINLEY CR		STOR	Nixa	Christian			SLAND
SPRINGFIELD ALUMINUM CO.	MOR203228	5/13/2004	3/4/2009	SWR	UNNAMED TRIB		STOR	Nixa	Christian			METAL
SPRINGFIELD SUPPLY	MOR109P25	02/02/2006	3/7/2007	SWR	FINLEY CR		STOR	Nixa	Christian			SLAND
SPRINGS SUBDIVISION	MOR109772	09/20/2002	03/07/2007	SWR	TRIB FINLEY CR		STOR	Nixa	Christian			SLAND
ST. JOHN'S - NIXA CLINIC	MOR109A79	10/10/2003	03/07/2007	SWR	TRIB TO UNNAME		STOR	Nixa	Christian			SLAND
STINEROCK HILL PHASE 1	MOR109AP0	07/26/2007	03/07/2012	SWR	TRIB SPOUT SPR		STOR	Nixa	Christian			SLAND
STINEROCK HILL REGIONAL W	MOR109U11	08/23/2006	03/07/2007	SWR	SPROUT SPRNG		STOR	Nixa	Christian			SLAND
SUNRISE CANYON	MOR109Y38	04/12/2007	3/7/2012	SWR	TRIB FINELY RI		STOR	Nixa	Christian			SLAND
THE COLUMNS AT CENTURY PA	MOR109G89	3/11/2005	03/07/2007	SWR	TRIB SPOUT SPR		STOR	Nixa	Christian			SLAND
THE COLUMNS AT CENTURY PA	MOR109S15	06/14/2006	03/07/2007	SWR	UN TRIB FINALE		STOR	Nixa	Christian			SLAND
THE PINES	MOR109U08	05/14/2007	03/07/2012	SWR	TRIB SPOUT SPR		STOR	Nixa	Christian			SLAND
THE TERRACES AT COPPER LE	MOR109U69	5/31/2007	03/07/2012	SWR	UN TR JAMES R		STOR	Nixa	Christian			SLAND
TIFFANY HIGHLANDS	MOR109102	03/27/2007	3/7/2012	SWR	TRIB SPOUT SPR		STOR	Nixa	Christian			SLAND
TIM WILSON WAREHOUSE	MOR109U04	08/30/2006	02/07/2007	SWR	UN TR AVIN SIN		STOR	Nixa	Christian			SLAND
VILLAGE AT WICKLOW	MOR109B09	11/13/2003	3/7/2007	SWR	TRIB TO JAMES		STOR	Nixa	Christian			SLAND
WALNUT CREEK MANOR	MOR109Y73	4/26/2007	03/07/2012	SWR	TRIB FINLEY CK		STOR	Nixa	Christian			SLAND
WASSON PLACE	MOR109101	03/21/2007	3/7/2012	SWR	TRIB JAMES RIV		STOR	Nixa	Christian			SLAND
WELLINGTON PARK	MOR103732	09/06/2002	02/07/2007	SWR	TRIB JAMES RIV		STOR	Nixa	Christian			SLAND
WOODFIELD SUBDIVISION	MOR109A04	08/22/2003	03/07/2007	SWR	TRIB FINLEY CR		STOR	Nixa	Christian			SLAND
14 PARK PLACE PH III	MOR109K04	07/05/2005	03/07/2007	SWR	UN TR FINLEY C		STOR	Nixa	Christian			SLAND
14 PARK PLACE PHASE IV	MOR109Q17	03/03/2006	3/7/2007	SWR	UN TRIB FINLEY		STOR	Nixa	Christian			SLAND

2.3 FINDING, FIXING, AND PREVENTING ILLICIT DISCHARGES.

The purpose of an IDDE program is to find, fix and prevent illicit discharges, and a series of techniques exist to meet these objectives. The remainder of the manual describes the major tools used to build a local IDDE program, but they are briefly introduced below:

1. Locate Problem Areas: Priority areas need to be identified for detailed screening of the system based on the likelihood of illicit connections (e.g., areas with older sanitary sewer lines). Methods that can locate problem areas include: visual screening; water sampling from manholes and outfalls during dry weather; the use of infrared and thermal photography, cross-training field staff to detect illicit discharges, and public complaints.

Monitoring can sometimes pick up other types of illicit discharge that occur on a continuous or intermittent basis (e.g., wash water and liquid wastes). Monitoring techniques are classified into three major groups:

- Outfall Reconnaissance / Inventory
- Indicator Monitoring at Storm Water Outfalls and In-stream
- Tracking Discharges to their Source

2. Find the Source: Once a problem area or discharge is found, additional efforts usually are necessary to determine the source of the problem. Methods that can find the source of the illicit discharge include: dye-testing buildings in problem areas; dye- or smoke-testing buildings; tracing the discharge upstream in the storm sewer; employing a certification program that shows that buildings have been checked for illicit connections; implementing an inspection program of existing septic systems; and using video to inspect the storm sewers.

3. *Remove/Correct Illicit Connections*: Once the source is the offending discharger is identified, that party will be notified and directed to correct the problem. Attempts to educated the offender and work with them to resolve the problem a thorough and timely manner will be the first step, before taking legal action.

Once all amicable avenues have been exhausted and the situation has still not been resolved, then the next step would be to take legal action i.e. citation for ordinance violation.

4. Preventing Illicit Discharges: The old adage "an ounce of prevention is worth a pound of cure" certainly applies to illicit discharges. Transitory discharges from generating sites can be minimized through pollution prevention practices and well-executed spill management and response plans. *See addendum MCM #6-3 copy of the City's Spill Prevention and General Response program.*

5. Document Actions Taken: All actions taken under the plan should be documented. This illustrates that progress is being made to eliminate illicit connections and discharges. Documented actions will be included in annual reports and include information such as: the number of outfalls screened; any complaints received and corrected; the number of discharges and quantities of flow eliminated; and the number of dye or smoke tests conducted.

2.4 NON-STORMWATER DISCHARGES:

According to the MDNR Phase II Stormwater regulations, an IDDE program needs only address the following categories of non-stormwater discharges **if** the operator of a small MS4 (i.e., City of Nixa) identifies them as significant contributors of pollutants to the MS4 (**which the City of Nixa does not**):

- Water line flushing
- Landscape irrigation
- Diverted stream flows
- Rising groundwater
- Uncontaminated groundwater Infiltration
- Street sweeper wash water
- Foundation drains
- Flows from riparian habitats and wetlands
- Air conditioning condensation
- Irrigation return flow
- Springs
- Water from sump pumps (crawl space)
- Footing drains
- Dechlorinated swimming pool discharges
- Individual residential car washing
- Lawn watering
- Uncontaminated pumped groundwater

CHAPTER 3: MUNICIPAL STORM DRAIN SYSTEM MAPPING

3.1 CURRENT PROGRAM

The City currently has the following stormwater-related information in the GIS database:

* Storm Drain System
* Catch basins and manholes
* Ditches/Trickle Channels
* Streams (watercourses)
* Outfalls
* Inlet/Outlet pipes

In 2012, the City of Nixa's Public Works Inspector, along with City's GIS Technician, began the development of a stormwater GIS System to address the MS4 Phase II mapping requirements. This GPS/GIS system is maintained and updated by the GIS Technician. The City has work diligently over the past 5 years to create the data base and map. The City will continue to update this data base and map as new features are expanded, added and constructed.

3.2 MAPPING

Field Data Collection

1. A map of all structural BMPs owned, operated, or maintained by the City. Global Positioning System (GPS) is used to obtain the coordinates (longitude and latitude) and other specific individual identifying information for every aspect of the storm drain system including; inlet/outlet pipes (size and material) basins (area), trickle channels (length and width, material), inlet boxes (curb, area and grated), etc., to compile and update this map. *See addendum MCM #3-8 A copy of the City's Entire MS4 Storm Drain System map, also denoting outfalls, sinkholes and receiving waters; Figure 3.2 copy of the same map.*

2. For pipe outfalls 24-inch-diameter pipes and watercourse outfalls, a map with the following attributes for each outfall, tributary conveyances (type, material, and size where known), associated drainage areas and land use.

Although most of the watercourses and pipes have a cross-sectional area less than a 24-inch-diameter pipe, the City has elected to map the entire storm drain system and all known features.

As-Built Data Collection

1. As-built drawings provide location as well as feature information in a concise manner. Currently, the City of Nixa requires that as-builts be submitted for all new developments, including drainage infrastructure. Electronic information is submitted to the City's GIS Department, which is used to update the storm drain GIS System. This allows the City to maintain a mapping system that contains an accurate, current, and reliable source of information for the entire storm drain system, even underground features.

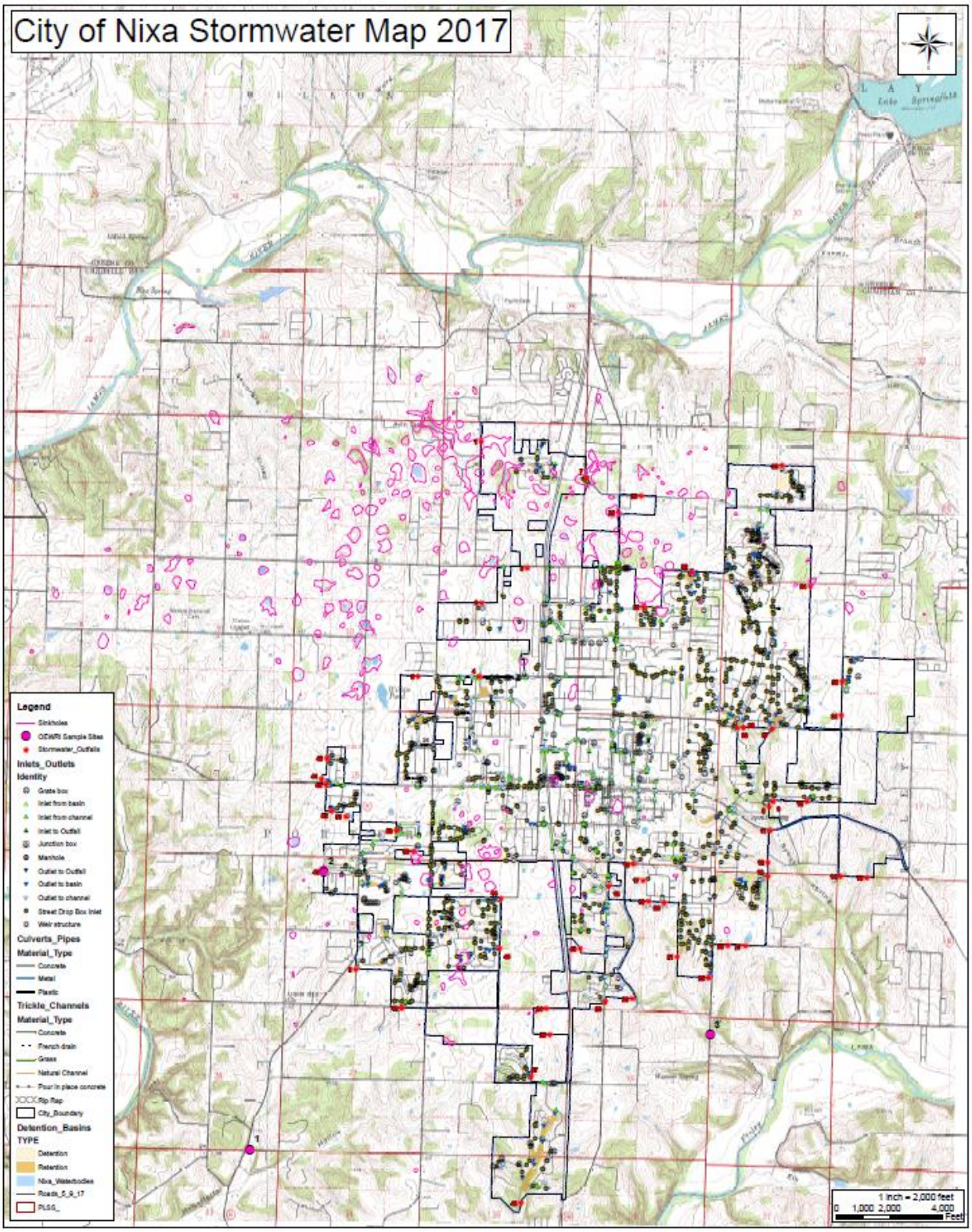
3.3 OUTFALL(s)

The paragraph below is an excerpt from EPA's Stormwater Phase II Final Rule (USEPA, 1999): The term *"outfall"* is defined in 40 CFR 122.26(b)(9) as *"a point source at the point where a municipal separate storm sewer discharges to waters of the United States."* The City of Nixa has taken this definition one step further to include all points where the stormwater leaves our MS4 jurisdiction and is deposited on to another MS4 jurisdiction be it a pipe, concrete ditch, detention/retention basin or open natural ditch line.

The term "Municipal Separate Storm Sewer" is defined at 40 CFR 122.26(b)(8) as "a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains)."

Following the logic of these definitions, a "ditch" may be part of the municipal separate storm sewer system, and at the point where the ditch discharges to waters of the United States (State), it is an outfall. As with any determination about jurisdictional provisions of the CWA, however, final decisions require case-specific evaluations of fact.

Figure 3.2


City of Nixa Stormwater Map 2017
Legend
Sinkholes
OEWRI Sample Sites
Stormwater_Outfalls
Inlets_Outlets
Identity
Grate box
Inlet from basin
Inlet from channel
Inlet to Outfall
Junction box
Manhole
Outlet to Outfall
Outlet to basin
Outlet to channel
Street Drop Box Inlet
Weir structure
Culverts_Pipes
Material_Type
Concrete
Metal
Plastic
Trickle_Channels
Material_Type
Concrete
French drain
Grass
Natural Channel
Pour in place concrete
Rip Rap
City_Boundary
Detention_Basins
TYPE
Detention
Retention
Nixa_Waterbodies
Roads_5_9_17
PLSS_
1 inch = 2,000 feet
0 1,000 2,000 4,000
Feet

CHAPTER 4 – PROHIBITING ILLICIT DISCHARGES

ILLICIT DISCHARGE ORDINANCE

4.1 CURRENT ORDINANCE

Section 121 of the City's Land Disturbance, Illicit Discharge and Erosion Control ordinance prohibits illicit discharges. *See addendum MCM #3-1 copy of the Land Disturbance, Illicit Discharge and Erosion Control ordinance.*

4.2 RECOMMENDATIONs

As the MDNR's guidance specifies, a municipal ordinance or other regulatory mechanism created to comply with Phase II regulations must include a *prohibition* of illicit discharges and an enforcement mechanism. It is essential for the City to establish legal authority to inspect properties suspected of releasing contaminated discharges into the MS4. This authority was established when the stormwater ordinance was adopted in 2009. However, it may be necessary to draft and implement a standalone IDDE ordinance to fully address every aspect of this IDDE manual.

The City of Nixa has taken into account the legal authority granted to it under state law (as a home-rule municipality), the Phase II Permit requirements in the State of Missouri, the enforcement methods the City deems appropriate, and any other locality-specific considerations. Consequently, the City is able to prohibit illicit discharges to our MS4, as well as enforce the elimination and mitigation of any illicit discharges that may occur, through the following legal regulatory mechanism:

Section 121 DISCHARGE PROHIBITIONS of the City's Land Disturbance, Illicit Discharge & Erosion Control ordinance.

Each day a violation of this Chapter continues shall constitute a separate offense. The City's Public Works Inspectors are authorized according to the Stormwater ordinance to inspect and examine any public or private property in the City for the purpose of ascertaining the nature and existence of any stormwater pollutant.

4.3 PROHIBITED MS4 DISCHARGES

The following are considered to be illicit (illegal) discharges to the City of Nixa's MS4 (this list is not considered all inclusive):

Sanitary wastewater sources such as:

- Sanitary wastewater (usually untreated) from improper sewerage connections, exfiltration or leakage;
- Effluent from improperly operating or improperly designed septic tanks; and
- Overflows of sanitary sewer systems (e.g., manholes).

Automobile maintenance and operation sources such as:

- Untreated (e.g., not captured through a well maintained oil/water separator) commercial car wash wastewaters;
- Untreated radiator flushing wastewaters;
- Untreated engine degreasing wastes;
- Improper oil, gasoline, and other automotive fluids disposal;
- Leaky underground storage tanks; and
- Untreated leaking of oils, gasoline and other automotive fluids for automobiles.

Landscape irrigation sources such as:

- Direct spraying of fertilizers, pesticides or herbicides onto impervious surfaces; and
- Over-application of fertilizers, pesticides or herbicides onto landscaping.

Other sources such as:

- Laundry wastes;
- Metal plating baths;
- Dewatering of construction sites;
- Washing of concrete ready-mix trucks;
- Contaminated sump pump discharges;
- Improper disposal of household toxic wastes;
- Spills from roadway and other accidents;
- Chemicals, hazardous materials, garbage, and sanitary sludge landfills and disposal sites;
- Commercial use of soaps and detergents; use in cleaning pavement, vehicles and equipment;
- Sediment from lack of or improper maintenance of erosion and sedimentation controls;
- Latex/oil-based paints & solvents;
- Trash and debris: littering and dumping, household or construction waste; and
- Restaurant grease: Improper disposal or spillage.

CHAPTER 5 – PREVENTING ILLICIT DISCHARGES

5.1 PURPOSE

This program component identifies key behaviors of neighborhoods, generating sites, and municipal operations that produce intermittent and transitory discharges. These key "discharge behaviors" are then targeted for improved pollution prevention practices that can prevent or reduce the risk of discharge. The City may then apply a wide range of education and enforcement tools to promote the desired pollution prevention practices.

The intent is to identify the major behaviors that generate intermittent and transitory discharges, once that occurs, specific discharge behaviors and generating sites will be targeted for education and enforcement efforts.

5.2 DESIRED RESULTS AND OR OUTCOME(S)

The desired outcome is a mix of prevention programs that target the most common intermittent and transitory discharges in the community. The City will develop targeted pollution prevention programs for three sectors of the community:

- *Neighborhood Discharges.* The pollution prevention practices related to discharge prevention in residential neighborhoods include storm drain stenciling, lawn care, septic system maintenance, vehicle fluid changing, car washing, household hazardous waste disposal and swimming pool draining. *See MCM #2 Public Involvement and Participation for additional information.*

- *Generating Sites.* This group of pollution prevention practices can reduce spills and transitory discharges generated during common business operations. Practices include business outreach, spill prevention and response plans, employee training and site inspections.

• *Municipal Housekeeping.* This group of pollution prevention practices is performed during municipal operations, such as sewer and storm drain maintenance, plumbing code revision, and provision of household hazardous waste and used oil collection services. *See MCM #6 Pollution Prevention/Good Housekeeping for Municipal Operations for additional Information.*

5.3 OVERVIEW OF PREVENTING ILLICIT DISCHARGES

Intermittent and transitory discharges are difficult to detect through outfall screening or indicator monitoring. The best way to manage these discharges is likely to promote pollution prevention practices in the community that prevent them from occurring. This discharge prevention message is will be tied to the storm water education programs required under the City's SWMP as:

- Public Education and Outreach
- Public Participation/Involvement
- Municipal Pollution Prevention/Good Housekeeping

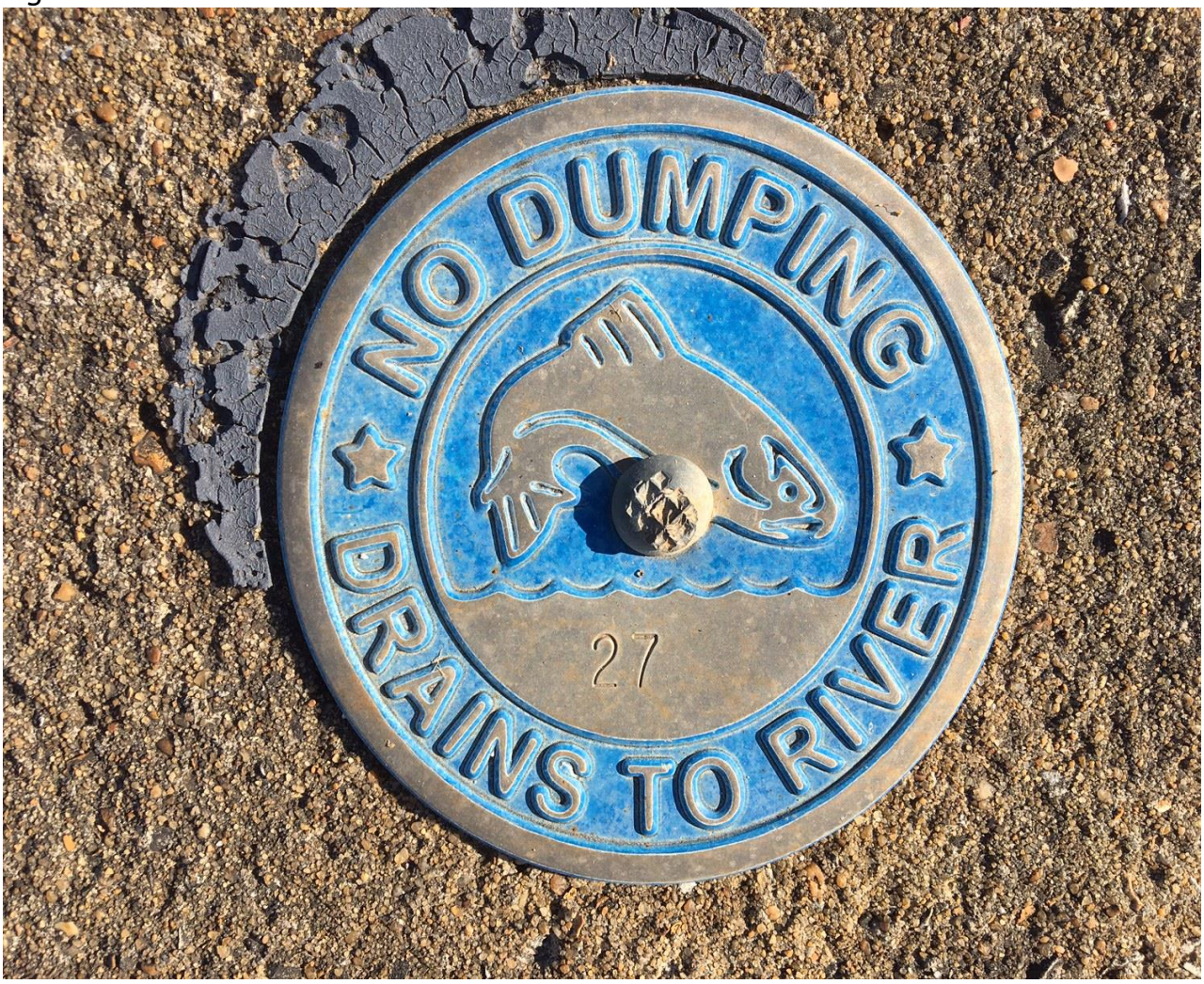
5.4 PREVENTING ILLICIT DISCHARGES FROM NEIGHBORHOODS

Many common neighborhood behaviors can cause transitory discharges that are seldom defined or regulated as illicit discharges by most communities. Individually, these behaviors cause relatively small discharges, but collectively, they can produce significant pollutant loads. The City will use outreach and education to promote pollution prevention practices. Some of the more effective practices to influence these behaviors are described in this section:

- Storm drain stenciling
- Septic system maintenance
- Vehicle fluid changing
- Car washing
- Household hazardous waste storage and disposal
- Swimming pool draining

Storm Drain Stenciling: Storm drain stenciling and/or medallion application sends a clear message to keep trash and debris, leaf litter, and pollutants out of the storm drain system, and may deter illegal dumping and discharges. Stenciling may increase watershed awareness and neighborhood stewardship and can be used in any neighborhood with enclosed storm drains. Stenciling is an excellent way to involve the public, and just a few trained volunteers can systematically stencil all the storm drains within a neighborhood in a short time. Volunteers can be recruited from scouting, community service, and watershed organizations, or from high schools and neighborhood associations. (Figure 5.4.1) *See MCM #2 Public Involvement and Participation for additional information.*

Figure 5.4.1



Septic System Maintenance: Though there are not many septic systems left in the City, it only takes one to fail to have a large impact on our storm drain system. Failing septic systems can be a major source of bacteria, nitrogen, and phosphorus. According to U.S. EPA (2002), more than half of all existing septic systems are more than 30 years old, which is well past their design life. The same study estimates that about 10% of all septic systems are not functioning properly at any given time. Septic systems are a classic case of out of sight and out of mind. Many owners take their septic systems for granted, until they back up or break out on the surface of their lawn. Subsurface failures, which are the most common, go unnoticed. In addition, inspections, pump outs, and repairs can be costly, so many homeowners tend to put off the expense until there is a real problem. (Figure 5.4.2)

Lastly, many septic system owners are not aware of the link between septic systems and water quality. The City can employ a few tools to improve septic system maintenance. These may include:

- Media campaigns and conventional outreach materials to increase awareness about septic system maintenance and water quality (e.g., billboards, radio, newspapers, brochures, bill inserts, and newsletters)
- Mandatory inspections
- Performance certification upon property transfer

Figure 5.4.2

Vehicle Fluid Changing: Dumping of automotive fluids into storm drains can cause major water quality problems, since only a few quarts of oil or a few gallons of antifreeze can severely degrade a small stream. Dumping delivers hydrocarbons, oil and grease, metals, xylene and other pollutants to streams, which can be toxic during dry-weather conditions when existing flow cannot dilute these discharges.

The major culprit has been the backyard mechanic who changes his or her own automotive fluids (Figure 5.4.3). The City will utilize a range of tools to prevent illegal dumping of car fluids, including:

- Outreach materials distributed at auto parts store and service stations
- Community oil recycling centers
- Directories of used oil collection stations
- Free or discounted oil disposal containers
- Pollution hotlines
- Fines and other enforcement actions

Figure 5.4.3

Car Washing: Car washing is a common neighborhood behavior that can produce transitory discharges of sediment, nutrients and other pollutants to the curb, and ultimately the storm drain. (Figure 5.4.4) The City may utilize many innovative outreach tools to promote environmentally safe car washing, including:

- Media campaigns
- Brochures promoting nozzles with shut off valves
- Storm drain plug and wet-vac provisions for charity car wash events
- Utility bill inserts promoting environmentally safe car washing products
- Discounted tickets for use at commercial car washes

Figure 5.4.4

Household Hazardous Waste Storage and Disposal: The average garage contains a lot of products that are classified as hazardous wastes, including paints, stains, solvents, used motor oil, pesticides and cleaning products. While some household hazardous waste (HHW) are on occasion dumped into storm drains, most enters the storm drain system as a result of outdoor rinsing and cleanup. Improper disposal of HHW can result in acute toxicity to downstream aquatic life. The desired neighborhood behavior is to participate in HHW collection days, and to use appropriate pollution prevention techniques when conducting rinsing, cleaning and fueling operations. *See addendum MCM #2-6 a copy of brochure on where and how to dispose of HHW.*

Convenience and awareness appear to be the critical factors in getting residents to participate in household hazardous waste collection programs. The City may utilize a variety of techniques to promote and expand HHW collection, including:

- Mass media campaigns to educate residents about proper outdoor cleaning/rinsing techniques
- Conventional outreach materials notifying residents about HHW and collection days
- More frequent HHW collection days
- Providing curbside disposal options for some HHW
- Establishing permanent collection facilities at solid waste facilities
- Providing mobile HHW pickup
- Waiving disposal fees at landfills

Swimming Pool Draining: Routine and end-of-season maintenance tasks for aboveground or in-ground pools can cause the discharge of chlorinated water or filter back flush water into the storm drain system or the stream. The ideal practice is to discharge chlorinated pool water into the sanitary sewer system, or hold it until chlorine and temperature levels are acceptable to permit spreading it over a suitable pervious surface.

Most pool owners understand that regular maintenance is essential to keep pools safe and clean, and they may be more receptive to changing discharge behaviors with proper education. Effective outreach methods that the City may use includes:

- Conventional outreach techniques on proper discharge (pamphlets, utility bill inserts, posters)

- Educational information at the retail outlets selling pool chemicals

- Changes in local plumbing codes to require discharge to sanitary sewer systems

5.5 PREVENTING ILLICIT DISCHARGES FROM GENERATING SITES

Many indirect discharges can be identified and prevented using the concept of generating sites, which are a small subset of commercial, industrial, institutional, municipal and transport-related operations that have the greatest risk of generating indirect discharges. The City has become intimately familiar with these types of generating sites, particularly those regulated by industrial NPDES storm water permits.

Some of the more common operations that generate spills and transitory discharges are profiled in Table 5.5. The City considers all non-stormwater discharges from generating sites to be illicit, and will take a more regulatory approach. Consequently, pollution prevention practices are more prescriptive, and are frequently incorporated into a pollution prevention plan for a facility or operation. The City may utilize a broad array of tools to promote effective pollution prevention practices at generating sites including:

- Business outreach and education

- Spill prevention and response planning

- Employee training

- Site inspections

Spill Prevention and Response: A spill prevention and response plan is useful for any potential generating site, and is mandatory for any operation that uses, generates, produces, or transports hazardous materials, petroleum products or fertilizers. In addition, all industrial sites regulated by individual or group NPDES stormwater permits must have an updated spill prevention and response plan on its premises. *See addendum MCM #6-3 a "DRAFT" copy of the City's Spill Prevention and General Response Plan.*

Spill prevention and response plans describe the operational procedures to reduce the risks of spills and accidental discharge and ensure that proper controls are in place in the event they do occur. Spill prevention plans standardize everyday procedures and rely on employee training to reduce potential liability, fines and costs associated with clean up. Planning begins with an analysis of how pollutants are handled at the site and how they interact with storm water. The City will incorporate, within the annual site inspection criteria, requirements of a spill prevention plan at all facilities (commercial/industrial) within the City limits having an active NDPES MS4 Stormwater permit. Spill prevention and response plans have five major components:

1. A site map and evaluation of past spills and leaks
2. An inventory of materials at the site
3. Identification of potential spill areas
4. A list of required spill response equipment
5. Employee training

These spill prevention and response plans should clearly contain the following aspects:

- Identify potential spill sites and their drainage points
- Specify material handling procedures
- Describe spill response procedures
- Ensure that adequate spill clean-up equipment is available

Employee Training: Effective and repeated employee training on the pollution prevention plan is essential to maintain pollution prevention practices at generating sites, particularly at generating sites where the work force turns over frequently. The City will explore the idea of providing basic Stormwater pollution prevention training on site to help fray the cost of this training to the business'. This training may be offered for employees or supervisors that are scheduled for down times of the year, or coincide with regular employee safety meetings. *See MCM #6, BMP #2 City of Nixa Employee Stormwwater Operation & Maintenance (O & M) Plan Committee for additional information.*

Site Inspections: Regular inspections of generating sites are a key tool to foster pollution prevention and reduce the risk of illicit discharges. The City possess authority to, and conducts inspections of non-regulated sites that connect to the municipal storm drain system. *See MCM #3, BMP #5 IDDE Onsite Annual Inspections of: Commercial and Industrial Properties, City Owned Public Facilities and Stormwater Outfalls for additional information.*

These are used to assess the site and educate owners/operators about recommended pollution prevention practices. Site inspections are staff intensive and therefore as stated in the SWMP 50 % are completed each year of the permit cycle. An industrial NPDES stormwater permit is an extremely important compliance tool at many generating sites. NPDES permits require operators to prepare a pollution prevention plan for the site and implement the practices specified in the plan.

Inspections are an important tool to improve compliance at generating sites subject to industrial NPDES permits. Inspectors should frequently observe site operations to ensure that the right mix of pollution prevention practices is routinely employed. The City will continue to inspect all 740+ commercial/industrial sites within the City limits that discharge to our storm drain system, and refer any violations for subsequent local, state or federal enforcement as appropriate.

Table 5.5: Common Discharges Produced at Generating Sites	
Generating Site	**Activity Generating the Discharge**
Vehicle Operations (Maintenance, Repair, Fueling, Washing, Storage)	* Improper disposal of fluids down shop and storm drains * Spilled fuel, leaks and drips from older/wrecked vehicles * Hosing of outdoor work areas * Wash water from cleaning * Spills
Outdoor Materials (Loading/unloading, Outdoor storage)	* Liquid spills at loading areas * Hosing/washing of loading areas into shop or storm drains * Leaks and spills of liquids stored outdoors
Waste Management (Spill prevention and response, Dumpster management)	* Spills and leaks of liquids * Dumping into storm drain * Leaking dumpsters
Facility Maintenance (Building repairs, Remodeling and maintenance, Parking lot maintenance)	* Discharges from power washing and steam cleaning * Rinse water and wash water water discharges during cleanup * Runoff from degreasing and re-surfacing
Lawn and Landscaping (Turf management, landscaping/Grounds care)	* Non-target irrigation * Improper rinsing of feertilizer/pesticide applications
Unique Hotspot Operations (Pools, Golf courses, Marinas, Construction, Restaurants, Hobby farms)	* Discharges of chlorine water from pools * Dumping of seweage and grease

5.6 PREVENTING ILLICIT DISCHARGES FROM MUNICIPAL OPERATIONS

Many municipal operations and services have the potential to create or reduce illicit discharges. The City will review all municipal operations and services to make sure good housekeeping is practiced. *See addendum MCM #6-1 a "DRAFT" copy of the City's Municipal Operation and Maintenance Plan.*

Routine Sanitary Sewer and Storm Drain Maintenance: Failure to regularly inspect and maintain local sewer and storm drain infrastructure can cause illicit discharges to receiving waters. Within the storm drain system, maintenance should focus on frequent cleaning to keep trash, debris and illegally dumped material from entering the storm drain system. In the sanitary sewer network, maintenance should focus on finding damaged infrastructure that allows sewage discharges from the sanitary sewer. In-stream monitoring, historical data reviews of past complaints, or aging sewer infrastructure can often be used to identify likely problem areas.

Plumbing Code Revisions: The City has established the legal authority to prohibit illicit connections to the storm drain system. If the City moves forward with the adoption and implementation of a standalone illicit discharge ordinance, thorough review all of the plumbing codes, will be necessary to prevent any mis-interpretation that might create cross connections to the storm drain system.

Household Hazardous Waste Collection Services: Households generate a lot of hazardous wastes, and communities need to educate residents about proper household hazardous waste (HHW) handling and disposal, and provide convenient options for pick up and disposal. The City will research the feasibility of developing innovative ways to deal with HHW including:

- A permanent facility that accepts HHW year-round and can serve as a central location for HHW exchange and recycling

- Mobile collection at temporary facilities. On designated special collection days, mobile units can move through communities accepting HHW and take the form of curbside pickup or central collection locations. *See addendum MCM #2-6 a copy of brochure on where and how to dispose of HHW.*

• Some local businesses may act as drop off centers for certain products. Some local garages, for example, may accept used motor oil for recycling Overall, the costs for implementing HHW collection programs can be high. Factors such as frequency of the collection, size of community, environmental awareness, level of staff training, and level of outreach all contribute to the overall cost.

Used Motor Oil Collection Services: Used motor oil collection has been a common municipal service for many years, and this is another option for the City to encourage cleaner stormwater by seeking increased participation. Typical outreach approaches may include:

• Conventional outreach materials provided at points of sale (e.g., auto parts store, service stations)

• Multilingual outreach materials

• Directories of used oil collection stations

• Free or discounted oil disposal containers

5.7 BUDGETING AND SCOPING POLLUTION PREVENTION

Budget and/or Staff Resources Required: The budget and staff resources needed for prevention programs can be considerable, and should be coordinated with other storm water education, public involvement and municipal housekeeping initiatives required under NPDES Phase II MS4 permits. Special emphasis should be placed on cross-training staff, partnering with local watershed groups, and pooling educational resources with other communities.

CHAPTER 6: DETECTION AND ELIMINATION OF ILLICIT DISCHARGES

6.1 CURRENT RESOURCES

The City currently has two staff members that are assigned to enforce MS4 regulations as part of their daily duties. However, this is only one of the many duties assigned to them and they are not able to work on MS4 regulations full time. A large portion of this IDDE Program will focused on the training of other City staff to assist with identifying and eliminating illicit discharges.

Though the City does not currently have a "HOTLINE" number per say, however, the public is able to find emergency numbers on the City's website at www.nixa.com.

The Public Works Inspector or Asst. Public Works Inspector will respond to all reports regarding spills and illicit discharges. Any call received that is a report of major spill or associated with a hazardous chemical, the Nixa Fire Protection District will then be notified.

The Public Works Inspectors inspect all new storm drain system construction to ensure that no cross-connections or illegal connections are installed during that phase of development.

The City's Street Department staff maintains and repairs all storm drain facilities that the City is responsible for, as needed. By making timely repairs to the existing storm drain system, the likelihood of contaminants entering it from the surrounding ground or nearby sanitary sewer pipes is greatly reduced. *See addendum MCM #6-1 a copy of the City's Municipal Operations and Maintenance Plan.*

6.2 PROACTIVE INVESTIGATION

6.2.1 Prioritization Procedures:

The City is required to proactively conduct field assessments to check for illicit discharges and illegal connections to the City's storm drain system and receiving waterbodies.

The first step of this proactive work is to prioritize those areas most likely to contain illicit discharges ("hot spots") based on an analysis of Land Use and other specific information (see Figure 6.2.1 City zoning map, and Figure 6.2.1.1 City's Storm drain priority map). Based on previous work, the following types of areas are more likely to generate polluted discharges than others (Center for Watershed Protection & Pitt, 2004):

1. Locations where there have been repeated problems in the past. This could include areas with water quality data or where repeated complaints have been filed.

2. Older areas of a community typically have a higher percentage of illegal connections. Also, deteriorating sewer pipes can allow wastewater exfiltration out of the sanitary lines and into the surrounding environment.

3. Commercial and industrial areas tend to have a higher percentage of illicit discharges.

4. Areas with large and/or many storage vessels of hazardous solids or liquids. (see land use table below table 6.2.1)

Another consideration for the City of Nixa is the proximity of the higher risk land uses (commercial/industrial) to receiving waters. These areas will have a short flow path and greater chance of adversely affecting a larger aquatic system in the event of an illicit discharge or spill.

Figure 6.2.1: City of Nixa Zoning Map

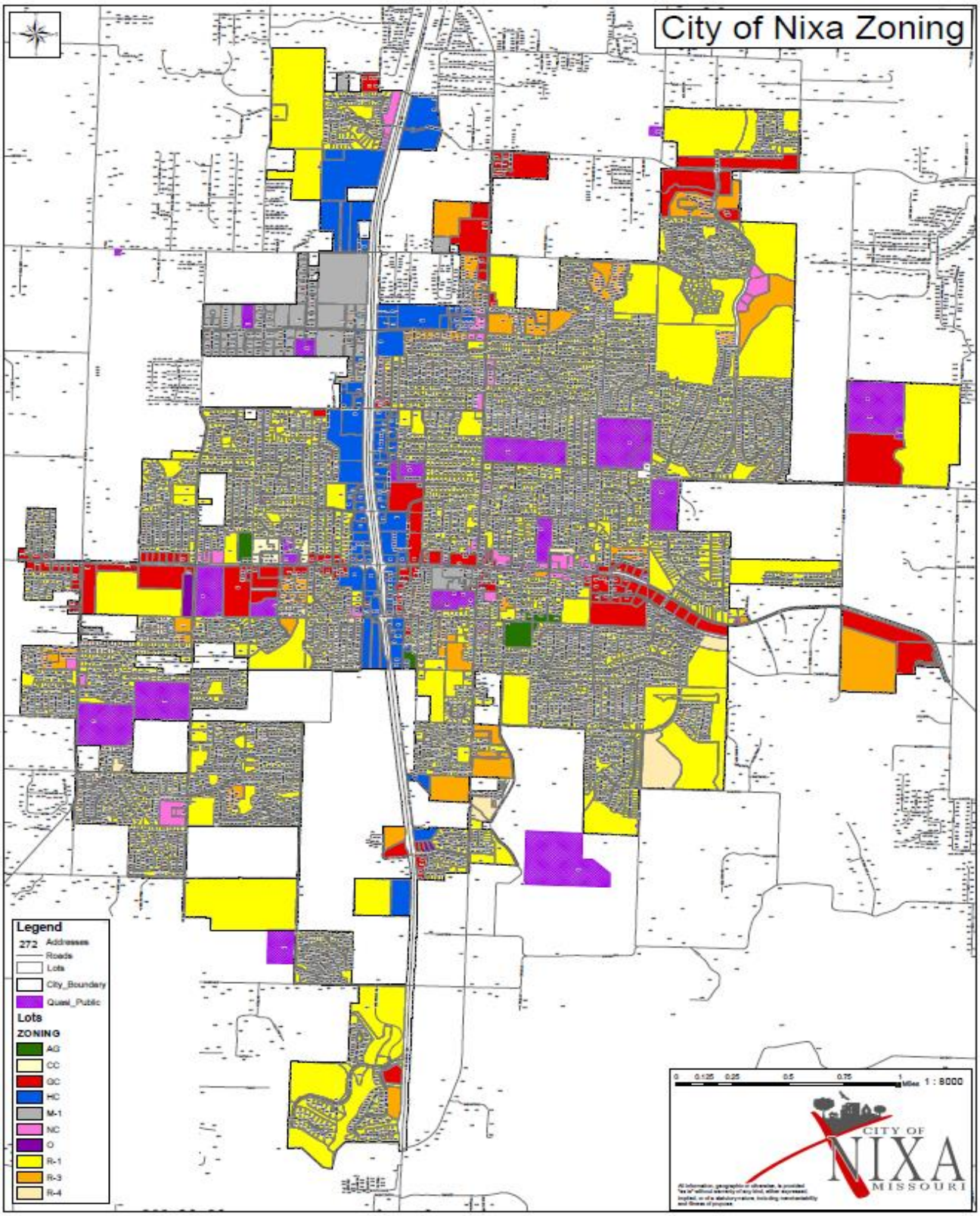


Table 6.2.1: Land Uses, Generating Sites Activities That Produce Indirect Discharges		
Land Uses	**Generating Sites**	**Activity That Produces Discharge**
Residential	• Apartments • Multi-Family • Single Family Dwelling	• Car Washing • Driveway Cleaning • Dumps/Spills Equipment Washing (Lawn mowers) • Lawn/landscaping Watering • Septic System Maintenance • Swimming Pool Discharges • Improper Plumbing - Prohibited Discharge
Commercial	• Camp Grounds/RV Parks • Car Dealerships • Car Washes • Commercial Laundrt/Dry Cleaning • Gas Stations/Auto Repair Shops • Home Improvement Stores • Restaurants • Public Swimming Pools	• Building/Parking Lot Maintenance (Power Washing) • Dumps/Spills (automotive fluids) • Landscapeing/Grounds Care • Outdoor Storage of Liquids (use fry oil) • Vehicle Fueling • Vehicle Maintenance/Repair • Vehicle Washing • Pressure Washing of Greasy Equipment and Grease Traps
Industrial	• Auto/Metal re-cyclers • Construction vehicle washing • Distribution centers • Food processing • Trash dumpsters • Marinas (boat and motor repair) • Metal plating operations • Paper and wood products • Petroleum and LPG storage • Printing • Food grade additives (Vinegar)	• All outdoor activities • Processing or rinse water • Loading and unloading area wash downs • Outdoor material storage (liquids/chemicals)
Institutional	• Cemeteries • Churches • Corporate Campus • Major medical facilities • School	• Building Maintenance (pressure washing) • Dumping/Spills • Landscaping/Grounds Care • Parking Lot Maintenance (pressure washing) • Vehicle Washing
Municipal	• Office Facilities (City Hall, Utility Billing, • Parks Department and Police Department. • Public Works Campuses, Infrastructure maintenance: • Water Department - Well sites and distribution system. • Waste Water - Sanitary sewer collection system including lift station sites. • Electric Department - transmission and distribution system including sub-station sites. • Streets: • Stormwater:	• Building Maintenance (pressure washing) • Dumping/Spills • Landscaping/Grounds Care • Outdoor Liquid Storage • Parking Lot Maintenance (pressure washing) • Road Maintenance • Vehicle Fueling • Vehicle Maintenance /Repair • Vehicle Washing • Outdoor Liquid Storage • Outdoor storage of electrical system components (transformers).

SOURCE: Modified from NPDES Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection.

6.2.1.1 City of Nixa Priority Areas Identified:

Using the guidelines provided above, the City of Nixa staff identified the following priority areas within the City's Phase II Permit boundaries:

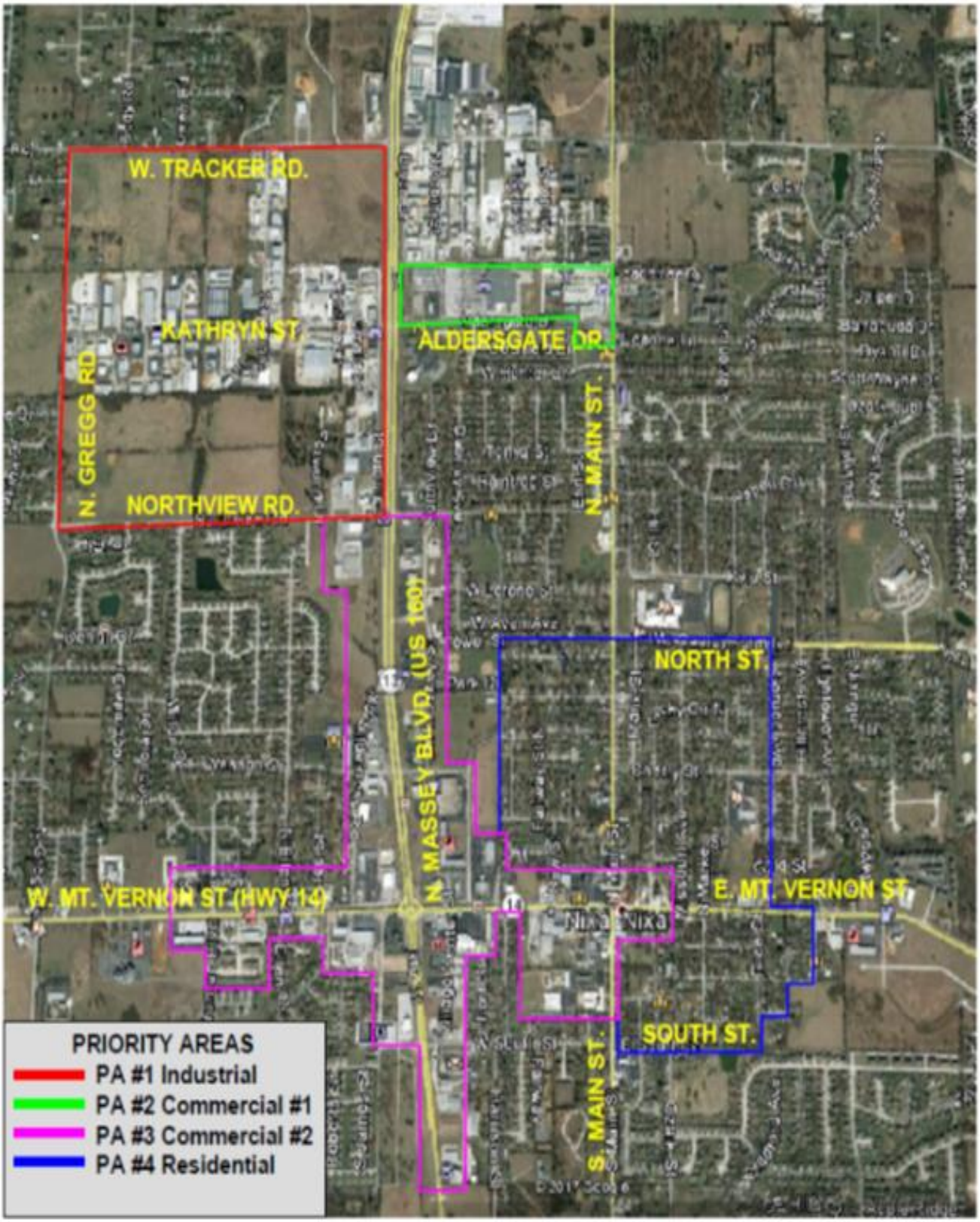
• **Priority Area #1:** Industrial-Manufacturing priority area generally lies between Tracker Rd. and North View Rd.; between N. Gregg Rd. and N. Massey Blvd. (US Hwy 160).

• **Priority Area #2:** Commercial priority area #1 is generally lies between Aldersgate Dr., and the North City limits (north of Wal-Mart); between Massey Blvd. (US 160) and N. Main St.

• **Priority Area #3** Commercial priority area #2 generally lies along the west and east sides of Massey Blvd. (US 160) between Wasson Rd. and South St.; and along the north and south sides of Mt. Vernon St. (Hwy 14) between Center Circle and Water St.

• **Priority Area #4** Residential priority area is generally lies between North St. and South St.; and between Fort St. and Spruce St. (see aerial view of priority areas below)

Figure 6.2.1.1.: City of Nixa Storm Drain Priority Map



The City has and will continue to conduct qualitative assessments of City's surface waters by walking the streams to identify additional areas of concern. This activity can also be used to ground-truth (information provided by direct observation) the outfall map, determine the accessibility of the streams for future monitoring, and provide a photographic record of existing conditions.

The City has entered into contractual agreement with OEWRI (Ozarks Environmental and Water Resource Institute) to collect stream samples, monitor and run laboratory analysis on first flush samples from 3 of the City's outfalls. These three outfall sample sites have permanently installed sample collection equipment so samples are collected and annualized year round, no less than once every quarter (see Figure 6.2.1.2 a copy of OEWRI Outfall Sample Sites map).

During each "dry weather" inspection, it is expected that field personnel will collect data on the physical conditions at the outfall as well as water samples for lab analysis, if present.

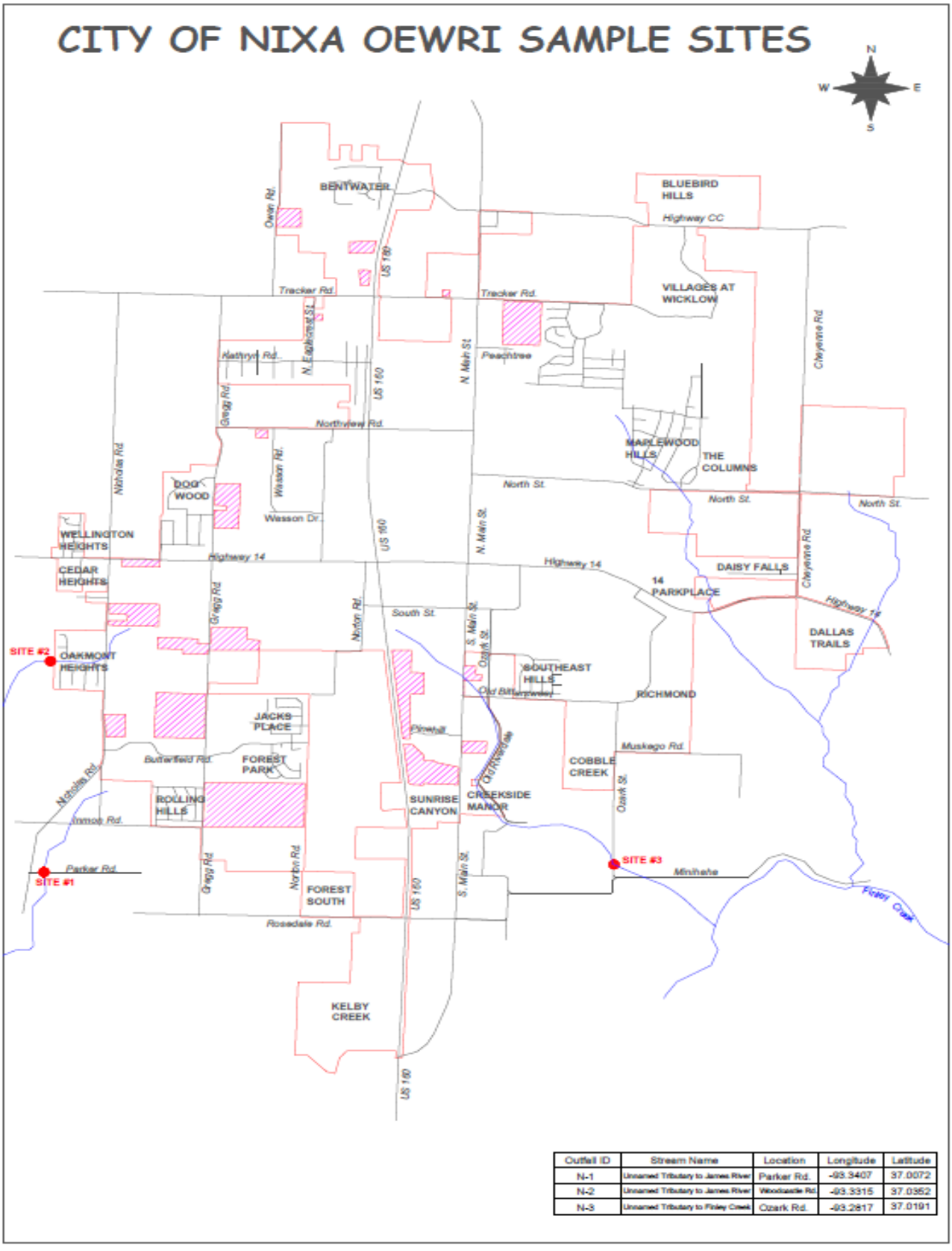
A GIS-based map will be amended to reflect any potential hot spots and prioritized water bodies. It is expected that as a result of internal training of staff and public outreach efforts required by the NPDES permit, the City will develop a better understanding of the causes and locations of illicit discharges.

The GIS data base and map are and will continue to be regularly updated to reflect reports from staff and the public as well as information learned by the on-going field assessment work as the City's IDDE program progresses.

Data sampling goals include conventional parameters, nutrients, biological parameters (bacteria and macroinvertebrates), dissolved metals, herbicides, pesticides, and sediment (metals and hydrocarbons). This information provides useful information, assessing the efficacy of stromwater improvements, and looking for trends and/or localized water quality concerns.

The City plans to continue monitoring these locations for compliance with the NPDES permit. For future monitoring and assessment under this program the City plans to work with OEWRI to ensure the monitoring procedures and documentation meets the requirements of the permit.

Figure 6.2.1.2 OEWRI Sample Sites



6.2.2 General Field Assessment Procedure:

The following general recommendations apply to the dry weather field inspection and water sampling work.

1. Notify the public during field work campaigns. Public notices and informational mailers can improve the success of the program by educating the citizenry.

2. Develop training and protocols to keep workers safe during field work.

3. Make good use of the mapping information that has been developed by the City.

4. Fill out a standard field inspection form (Figure 6.2.2)

Figure 6.2.2

CITY OF NIXA STORMWATER ILLICIT DISCHARGE FIELD INSPECTION REPORT				
GENERAL INFORMATION:				Pg.1
Latitude			Object ID #	
Longitude			Date Of Inspection:	
INSPECTOR'S INFORMATION:				
Inspector's Name:		Inspector's Signature:		
Inspector's Title:				
Inspector's Contact Information:				
Inspector's Qualifications:				
TYPE OF INSPECTION:				
Regular annual, Pre-storm, During storm, Post storm				
WEATHER INFORMATION:				
Date of most recent storm event:			Approximate Duration (Hrs):	
Approximate precipitation amount (Inches):				
Weather at time of inspection: Clear Cloudy Rain Sleet Snow				
Are there any discharges at this time in danger of leaving the site?			YES	NO
If YES, describe:				
Comments, Observations, Actions Taken, Corrective Actions Needed:				

Comments, Observations, Actions Taken, Corrective Actions Needed Pg.2

6.2.3 Physical Parameters:

During dry weather field inspections, a variety of physical parameters will be recorded at each site to assess conditions. At flowing outfalls this includes flow, odor, color, turbidity, and presence or absence of floatables. The information that is obtained from the physical characteristics observed are indicators and cannot be fully relied upon by themselves.

A qualitative observation of flow (none, trickle, moderate, or substantial) should be made. Flow rates can be estimated by one of the following simple methods:

1. Record the time required for the full flow to fill container of a known volume.

2. Multiply cross-sectional flow area by flow velocity. For most instances, flow area is based on an estimate of mean depth and width. Flow velocity is based on the time of travel for an object floating near the surface over a known length.

Odor is described by one of the following terms sewage, rancid/sour, petroleum/gas, sulfide, or other. The severity of the odor should also be recorded in the field.

Color can be a description of color type and intensity. It is also a quantitative measurement expressed in cobalt-platinum units (APHA, 1998). Turbidity can be a qualitative descriptor (clear, slight cloudiness, cloudy, or opaque). Alternatively, it can be measured in the field or in the office with a hand held turbidity-meter. It is recommended that the City use a single make and model of meter to reduce the differences in readings associated solely with equipment readings.

Floatables are the best physical indicator. The most common floatables are sewage, suds, and oil sheens. Floatables do not include trash. The observation of sewage at an outfall location indicates that there is a severe problem with that MS4 and should be looked at as to where the source for the sewage is emanating from. Suds can indicate a variety of things. Some suds are naturally formed by the movement of the water.

If the suds are located at a water drop off and break up quickly, this may only be water turbulence related. If the suds have a fragrant odor, this can indicate the presence of laundry water or wash water in the waterbody. Oil sheens need to be looked at to try and determine the source of the oil sheen. Some oil sheens are common and occur naturally by instream processes. This occurs when an iron bacterium forms a sheet-like film. This can be determined by looking at the sheen and seeing if it cracks when disturbed. Synthetic oil sheens, on the other hand, will swirl when disturbed. If this occurs, then the sheen is from an oil source.

There may be physical indicators of illicit discharges even if no flow is present. These include: outfall damage, deposits/stains, abnormal vegetation, poor quality of pooled water, benthic (occurring at the bottom of a body of water growth) in pipe. During a dry weather inspection, observed flows are considered non-stormwater related.

The flow may or may not be the result of an illicit discharge. Also, the absence of a flow does not indicate the absence of an illicit discharge since these discharges can be intermittent or transitory. It is important to observe carefully during the dry weather inspection to determine if an intermittent or transitory pollution problem has occurred.

6.2.4 Water Quality Sampling and Testing:

During dry weather inspections physical clues indicating a pollution problem often are not observable. Therefore, water quality sampling and testing will be an essential part of the City's IDDE program. Some parameters can be directly measured in the field whereas others require laboratory analysis. The following table lists the parameters to be sampled as well as optional parameters to be sampled to isolate an illicit discharge.

The table also provides the analytical method and benchmark concentration that typically indicate when there is a problem. Note that these benchmark concentrations are based on samples collected from storm drains nationally. Therefore, benchmark concentrations would be lower for samples drawn from watercourses since the natural base flows would likely dilute any pollutants in water discharged from a contributing storm drainage system.

Table 6.2.4 Water Quality Test Parameters and Uses

Water Quality Test Parameters and Uses		
Water Quality Test	**Use of Water Quality Test**	**Comments**
Conductivity	Used as an indicator of dissolved solids	-Pitt et al. 1993 suggested parameter; EPA Phase II regulations recommended parameter- Typically measured in the field with a probe
Bacteria (fecal coliform, E. coli and/or enterococci)	Used to indicate the presence of sanitary wasterwater	Minnesota Pollution Control Agency
Ammonia	High levels can be an indicator of the presence of sanitary wastewater	-Pitt et al. 1993 suggested parameter; EPA Phase II regulations recommended parameter
Surfactants	Can indicate the presence of detergent (laundry, car wash)	-Pitt et al. 1993 suggested parameter; EPA Phase II regulations recommended parameter
pH	Extreme pH values (low or high) may indicate commercial or industrial flows; not useful in determining the presences of sanitary wastewater (which, like uncontaminated base flow, tends to have a neutral pH, close to 7)	-Pitt et al. 1993 suggested parameter; -Measured in the field with a thermometer or probe
Temperature	Sanitary wastewater and industrial cooling water can substantially influence outfall discharge temperature. This measurement is most useful during cold weather	-Pitt et al. 1993 suggested parameter; EPA Phase II regulations recommended parameter- Typically measured in the field or lab with a probe
Hardness	Used to distinguish between neutral and treated waters	
Total Chlorine	Used to indicate inflow from potable water sources; not a good indicator of sanitary wastewater because chlorine will not exist in a "free" state in water for long	-Pitt et al. 1993 suggested parameter;
Flouride	Used to indicate potable water sources; in areas where water supplies are fluoridated.	-Pitt et al. 1993 suggested parameter;
Potassium	High levels may indicate the presence of sanitary wastewater	-Pitt et al. 1993 suggested parameter;
Optical Brighteners (Florescence)	Used to indicate presence of laundry detergents, which often contain fabric whiteners, which cause substantial fluorescence	-Pitt et al. 1993 suggested parameter;
Dissolved Oxygen	Low DO can indicate high levels of Phosphorus which in turn can indicate sewage wastewater	Minnesota Pollution Control Agency
Phosphorus	High phosphorus can indicate sewage and/or possible illegal gray water connections	Minnesota Pollution Control Agency

Source: Table Modified from Illicit Discharge Detection and Elimination Manual: A Handbook for Municipalities, New England Interstate Water Pollution Control Commission

6.2.5 Immediate Response Procedures:

The field crew should be prepared to take immediate action in the event of encountering one of the following situations:

* Individuals actively in the process of introducing possible illegal substances or materials to the storm drain system

* Very strong chemical odor emanating from storm drain system

*Presence of fumes or smoke emanating from storm drain system

* Visible significant stream of a controlled chemical or petroleum product flowing in storm system or downstream waters

* Large chemical plume in stream or downstream of an outfall

*Any condition that poses or could pose an immediate threat to property, human health or safety, or aquatic life.

The crew should take the following steps if one of the above situations is encountered:

1. Ensure crew safety and the public by instructing people to stay clear of the area.

2. Call 911 to report active illegal dumping or potential fire or significant chemical incident.

3. Call the City's MS4 Coordinator 417-725-2353 to report a possible illegal discharge.

4. The following offices must all be called if an unauthorized discharge of oil or hazardous material spill has occurred:

a. The National Response Center at 1-800-424-8802;

b. Missouri department of natural resources Spill report (573) 634-2436;

c. 911

5. If a spill is encountered the following information should be recorded if possible:

a. Where is the spill?
b. What spilled?
c. How much spilled?
d. How concentrated is the spilled material?
e. Who spilled the material?
f. Is anyone cleaning up the spill?
g. Are there resource damages (e.g. dead fish or oiled birds)?
h. Who is reporting the spill?
i. Your contact information!

6. If possible isolate or contain visible chemical pollution in the effected waterbody with any materials that are accessible. For small discharges earth dams, absorbent pads, and containers may be useful to contain part of the illicit discharge.

7. Take detailed notes and photos/video for subsequent investigation by City or other agencies.

At a minimum, follow-up work includes contacting the Missouri Department of Natural Resources to determine if any additional reporting or investigative actions are necessary. (573) 634-2436)

For incidents not determined to be emergencies, the City will investigate or refer to the appropriate agency any complaints, reports, or monitoring information that indicates a potential illicit discharge, spill, or illegal dumping.

6.2.6 Isolating Illicit Discharges (Source Tracing):

In situations where outfall screening identifies an illicit discharge several methods can be used to trace to the source of the illicit discharge.

Tracing techniques include visual inspections of drainage structures and lines, dye testing, damming lines to isolate areas, video inspection, indicator monitoring, smoke testing, and optical brightener monitoring traps. Other more elaborate approaches include using remote sensing tools to identify soil moisture, water temperature, and vegetation anomalies associated with failing septic systems and tracking illegal dumping activities. The most common approach for the City will likely rely upon visual inspections of the catch basins, outfalls and the storm drain system as a whole.

Several resources exist to assist in evaluating the likely source of an illicit discharge. Generally, the sources are wash water, sanitary sewer or septage, potable water leak, animal contamination, illegal dumping, or industrial discharge.

6.3 INVESTIGATION and RESPONSE PROCEDURES

Once an illicit discharge or illegal connection has been located, details about the discharge connection should be documented. Photographs and video will be helpful to record the location and nature of an illicit connection. City staff should determine the name and contact information of property owner.

The response by the City will vary greatly depending on the type, location, frequency, severity, and source of illicit discharge. In general, the City will have several options available to address a specific discharge. In most cases where the violator is identified it is expected that they will voluntarily comply with any action required by the City to eliminate the potential for further illicit discharges.

When the violation is the result on an illegal connection from a building, the property owner should respond once they are made aware of the connection, the environmental consequences, the applicable regulations, and the recommended remedy.

The City will prepare a letter to be sent to the property owner for any illicit discharge or illegal connection. Depending on the circumstances the letter will describe the findings of the investigation, the required remedy, the required deadline for compliance, technical resources, and the enforcement actions, fines, and legal actions that could ensue for non-compliance. The letter should also describe the relevant ordinances, codes and laws. The letter should specify who the property owner should contact for additional information and to notify the City when the required remedy has been completed.

The City will conduct a follow-up inspection following notification that the required remedy has been completed. Should the owner not remedy the discharge, the City may proceed to abate the violation as a public nuisance as well as to seek equitable payment to make this remedy.

See addendum IDDE 6.3 a copy of the City's Nuisance Ordinance and Abatement procedures.

Chapter 7: PUBLIC EDUCATION

7.1 PUBLIC INFORMATION

As part of the City's public outreach program, outreach material in digital and print forms will be made available to citizens. The education campaign will also rely upon the City's website (http://www.nixa.com), brochures, print ads, and/or fact sheets to make citizens aware of stormwater, water pollution, and inform them of the City's hotline for reporting on possible illegal dumping, connections, or discharges. *See MCM #1 for additional information.*

Chapter 8: REPORTING and RECORDKEEPING

8.1 REPORTING *(Spills, Inspections, and Public Comment/Feedback)*

Tracking and documentation is backbone of the IDDE program. Spills reported to the complaint hotline will be recorded on an "Illicit Discharge Hotline Incident Tracking Sheet" (Figure 8.1). Field personnel who discover or are involved in a spill will contact the complaint hotline to ensure that proper documentation of the incident is maintained.

8.2 RECORDKEEPING

The information generated from the water quality monitoring activities will be provided as data documents and records. These documents and records will consist of:

- All water quality lab analysis results shall be stored as a PDF document accessible to all appropriate staff.

- Computer database for all water quality chemical sampling results;

- Field Log books for equipment to be stored in the Public Works Inspector's office accessible to all staff.

The MS4 program coordinator will be responsible for assessing the completed forms filled out by the field staff once the work is completed to ensure that the documents accurately reflect the completed work. All paper documents will be kept in appropriate files in the Public Works Inspector's office. Staff will have access to these files at all times. When appropriate the information from these forms will be entered into the Stormwater Management Plan database. The water quality results on these forms will be published annually in a stormwater quality program summary for the work performed that calendar year.

The City's goal is to utilize a Stormwater Management Program Software package that has the ability to generate reports and to provide all pertinent information on a given monitoring location (lab analysis results, location, GPS coordinates, photos, maps, investigation information, correspondence information, city, and watershed). Once this software is implemented, all staff that will be utilizing this program will be appropriately trained. The MS4 program coordinator and the Public Works Director will have administration access to making changes to the database. This will allow for the integrity of the information to remain viable. *See SWMP Chapter 9 Record Keeping.*

CHAPTER 9: STAFF TRAINING

9.1 TRAINING LEAD

Training will start with those staff that will be directly involved with the implementation of this IDDE program. This training, at least initially will be done by the Public Works Inspector/MS4 Coordinator. He will manage and assign training as described below and shown in the Training Summary Table below.

9.2 DETAILED TRAINING

Detailed training will be assigned to those individuals specifically involved in the immediate response procedures, source tracking of potential illicit discharges and sampling.

9.3 GENERAL TRAINING

General training will consist of printed material distributed to staff through their supervisors and as provided in the yearly training sessions. DVD, print or webcast material may be distributed if the need arises as the program develops. Preliminary training activities and identification of those to receive training are listed in the following table. IDDE Program training will occur once annually during years 2 -5 (2018-2021) of the current permit cycle. *See MCM #6 for additional information on staff IDDE training.*

CHAPTER 10: REFERENCES

The following references were used to prepare this plan and contain supplemental information that has been helpful to City staff in the development of this IDDE program.

10.1 IDDE PROGRAM INFORMATION

The Center for Watershed Protection and Robert Pitt. Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments. October 2004. U.S Environmental Protection Agency. Washington, D.C.

Website for download:
http://www.cwp.org/Resource_Library/Controlling_Runoff_and_Discharges/idde.htm

Cuyahoga County Board of Health. Illicit Discharge Detection and Elimination Manual: A Guidance Manual for Municipalities in the State of Ohio. July 2006. Parma, Ohio.

Website for download:
http://www.ccbh.net/ccbh/export/sites/default/CCBH/pdf/stormwater/IDDE_Manual_July_2006_2.pdf

New England Interstate Water Pollution Control Commission. Illicit Discharge Detection and Elimination: A Handbook for Municipalities. January 2003. Lowell, Massachusetts

Website for download: www.neiwpcc.org

San Diego Stormwater Committees Jurisdictional Urban Runoff Management Program (URMP). Illicit Connection / Illicit Discharge (IC/ID) Detection and Elimination Model Program Guidance. November 13, 2001.

Website for download (sponsored by Project Clean Water):
http://www.projectcleanwater.org/pdf/Model%20Program%20ICID.pdf

10.2 WEBSITES FOR DOWNLOADING OUTREACH MATERIALS:

North Central Texas Council of Governments:
http://www.nctcog.org/envir/SEEclean/stormwater/pubs/brochures.asp

U.S. Environmental Protection Agency's Office of Water:
http://www.epa.gov/owow/nps/toolbox/

CHAPTER 11: APPENDICIES

Appendix A: Dry Weather Monitoring Sampling

11.1 Dry Weather Monitoring Field Equipment Checklist

The field equipment listed below are key to conduct dry weather monitoring.

· Clipboard, pens, pencils, Sharpie or other waterproof pens
· MS4 maps
· Digital camera/IPhone
· Field notebook
· Latex gloves
· Protective eyeglasses or goggles
· Rubber boots
· Cooler and ice
· Paper towels
· Tape for securing cooler
· Sample bottles with preservatives
· Polypropylene bucket with rope, or sampling rod to collect samples from larger bodies of water
· Portable field test kits, colorimeters, or spectrophotometer and all reagents for these meters.
· Multi-parameter or individual probes to measure temperature, electrical conductivity, and pH
· Extra batteries for all meters
· Flow measurement equipment (required equipment will depend on method used)
    - Measuring tape for measuring stream width
    - Folding scale for measuring stream depth
    - Current meter or wristwatch
· De-ionized or ultra-pure water in squeeze bottles for rinsing, dilutions, etc. (depending on methods used)
· Thermometer for measuring air temperature (optional)
· Waste disposal bottles

11.2. Sampling Procedures and Submission

Dry weather monitoring typically involves the collection of grab samples only. The following procedures apply:

1. Use appropriate containers. See 40 CFR Part 136 for container types. Laboratories routinely provide pre-cleaned sample bottles with preservatives already added.

    a. Rinse the container with the sample at least twice. Do not rinse pre-cleaned, preserved containers, as the preservative will be lost.

    b. Use the proper preservatives. Use only analytical or higher grade reagents for preserving samples. Store samples in an ice chest at 40˚ F until custody is transferred to the analytical laboratory directly or via staff courier.

    c. Avoid contaminating the sample. Wear latex gloves.

2. If practical, collect the sample at about 60% of the stream depth (from the surface) in an area of maximum turbulence (except when sampling for volatile organics). Avoid stagnant pools near the edge of flowing streams unless sampling stagnant pools. Enter the channel downstream of the sampling location and move upstream, disturbing as little of the bottom material as possible.

3. Record all qualitative observations and field testing results on the field data sheet. Estimate the flow rate as described on the back of the field data sheet. Also note any changes to standard procedures (for whatever reason), and describe any unusual or noteworthy conditions or results in detail.

4. Dispose of all spent reagents, reacted samples, and rinse solutions in the appropriate waste containers. Upon returning to the office or laboratory, decant these wastes into the sanitary sewer system of the office or laboratory unless otherwise instructed by the Wastewater Superintendent.

Be sure to clean all equipment (recheck calibration if any results were questionable), and restock reagents (if necessary).

5. If filtering samples in the field for dissolved trace metals analysis, do not preserve with HNO3 until after the sample is filtered. If field personnel are submitting unfiltered samples for dissolved trace metals analysis those samples should not be preserved with HNO3.

6. Samples collected for laboratory analysis should be submitted to the laboratory as soon as possible after collection. Complete the following tasks:

a. Fill out the chain-of custody form making sure that all sample bottles are correctly labeled

b. Carefully pack the sample bottles in the cooler

c. Transport the samples to the laboratory

d. Complete the chain-of-custody form Automatic sampling methods may be useful during some source identification or enforcement investigations. Investigators should refer to the manufacturer's instructions for operating automatic sampling equipment.

11.3. Equipment Maintenance

In order to ensure the quality of field results, maintenance of equipment must be given a high priority. All equipment must be cleaned and serviced at the end of a field shift.

1. All water quality meters must be calibrated in the laboratory or office before field use. Calibration solutions should remain uncontaminated and not be used after their expiration dates.

2. Field meters and cameras must be in proper working order. Make sure that batteries have sufficient voltage to power the equipment for the entire field trip. Recharge or replace them as necessary.

Keep extra batteries in the instrument case. Probes should be inspected, cleaned and reconditioned regularly.

3. Clean and rinse all other sampling equipment after returning from the field. Store clean equipment in original manufactures storage bags or cases.

4. Glassware used in the field (e.g. graduated cylinders for sample dilutions, test kit flasks and/ or beakers) should be cleaned immediately after usage. Use laboratory detergent, a brush, and hot tap water or 10% Analytical Grade HCl. Rinse three to four times with deionized water and wipe the outside of the glassware dry with a white paper towel. Dry in an inverted position. Store the dry glassware in the cabinets with stoppers intact (volumetric flasks) or in an inverted position (beakers).

11.4. Quality Control/ Quality Assurance

QA samples can be in the form of replicates, spikes, field blanks, method blanks, or synthetic samples. Dry weather monitoring programs can use these various types of QA/ QC samples to assess the accuracy and precision of the field and laboratory analyses performed for their dry weather monitoring programs.

1. Replicate samples can be collected periodically and submitted to the analytical laboratory to assess the accuracy of the field analyses for nitrate, ammonia, phosphate, electrical conductivity, pH, and turbidity.

2. Replicate samples are used to assess laboratory or field precision. They should be collected in the field in one container and split into two samples for analysis.

3. Spiked samples can be prepared in the field or the permittee's contract laboratory/ office. A field sample is spiked with known amounts of analytes (a substance or chemical constituent that is undergoing analysis) and the total volume of this fraction is adjusted to a specific volume (usually 1 liter) using a portion of the original sample as makeup water. *Make sure that the volume of the added spike is small compared to the volume of the sample to which it is added.*

4. Blank samples must be prepared with deionized or ultrapure water (resistivity greater than 17 mega ohms). A trip blank is prepared by filling a sample container in the laboratory/ office and transporting it on a routine monitoring assignment, preserving it in the field (noting the station location), and submitting it with a normal batch of samples. Method or equipment blanks are prepared using the same methods used to collect, process, or contain samples before submittal to the laboratory. An example of an equipment blank would be pouring deionized water into a sample container to test the cleanliness of the container.

5. Synthetic samples can be prepared using aliquots of commercially prepared standards or from EPA quality assurance ampules. Deionized water should be used as makeup water and analytical grade NaCl should be used to adjust the electrical conductivity of the QA sample into the range of the environmental samples.

11.5. Health and Safety

Dry weather water sampling may occur when the sampling environment and discharges create hazardous conditions. Use safety precautions at all times when conducting dry weather monitoring.

Safety Guidelines

· Keep a first aid kit with field equipment.
· Watch out for traffic along the access road when sampling or making observations.
· Do NOT remain in open areas or stand under trees if lightning is occurring in the vicinity.
· Watch your step; the ground may be wet and slippery, steep, or unstable. Do not attempt to climb down unsafe slopes.
· Always wear clean latex rubber gloves when sampling.
· Protect eyes and skin against contact with acids and other preservatives.

· Use common sense when deciding whether to sample during adverse weather conditions. *This program is intended to assess dry weather*

conditions. Do not sample during dangerous conditions such as high winds, lightning storms, or flooding conditions that might be unsafe.
· Do not enter channels during periods of high flow. The general rule of thumb is: If the product of the water depth in feet and the velocity in feet per second is greater than 10, or the level is above your waist, don't go in.
· Do not enter confined spaces for any reason.
· Follow all analytical procedures as prescribed in the equipment manuals. Heed all warnings and precautionary statements.
· Be familiar with Safety Data Sheets for all chemicals used in the field and when calibrating instruments. Know the health hazards and emergency medical treatments, and follow proper disposal instructions.

Safety Equipment

The following safety equipment is recommended for use during dry weather sampling:

· First aid kit
· Safety glasses
· Latex gloves
· Rubber boots
· Safety rope

Appendix B: Table 1 Summery of Laboratory Sampling and Analysis Requirements

Table 1: Summary of laboratory Sampling and Analysis Requirements					
Physical and Inorganic Non-Metals	**Analytical Meathod**	**Container**	**Volume (mL)**	**Preservative (Always @ 40° C)**	**Holding Time**
TDS	SM 2540C	P	100		7 d
TSS	SM 2540D	P	100		7 d
TURBIDITY	SM 2130B	P	100		48 h
ALKALINE AND HARDNESS	SM 2320B	P	100		14 d
pH	EPA 150.1	P	10		FIELD
CONDUCTIVITY	SM 2510B	P	20		28 d
TEMPERATURE		N/A			FIELD
PHOSPHOROUS, total	SM 4500PE	P	100	H_2SO_4	28 d
PHOSPHOROUS, dissolved/reactive	SM 4500PE	P	100	H_2SO_4	48 h
NITRATE	SM 4500 NO3 E	P	100		48 h
NITRATE	SM 4500 NO2 B	P	100		48 h
TKN	EPA 351.1	P	200		28 d
AMMONIA	SM 4500 NH3 D	P	500	H_2SO_4	28 d
BOD	EPA 405.1	P	1000		48 h
COD	EPA 410.4	P	10	H_2SO_4	28 d
CHLORINE, RESIDUAL	SM 4500 C1 G	N/A			FIELD
ORGANICS					
*Petroleum, hydrocarbons, total (d+g)	EPA 8015	G+2V	250+40 (2)	HCl	14 d
Oil and Grease	EPA 413.1	G	500	HCl	14 d
Diazinon	EPA 8140	G	1000		7 d
Chlorpyrifos	EPA 8140	G	1000		7 d
Methylene Blue Substance (MBAS)	SM 5540 C	P	250		48 h
Organochlorine Pesticides & PCBs	EPA 8081, 8082	G	1000		7 d
*Volatile Organic Compounds	EPA 8260	2V	40 (2)	HCl	14 d
Semi-Volatile Organic Compounds	EPA 8270	G	1000		7 d
Metals / Toxics					
Antimony	EPA 6010	P			
Arsenic	EPA 6020	P			
Cadmium	EPA 6010	P			
Chromium	EPA 6010	P			
Copper	EPA 6010	P			
Lead	EPA 6010	P	500	HNO_3	6 m
Nickel	EPA 6010	P			
Zink	EPA 6010	P			
Thallium	EPA 7470	P			
Silver	EPA 6020	P			
Mercury	EPA 6010	P			28 d
Cyanide	SM 4500 CN C	P	500	NaOH	14 d
Phenols (from SVOCs)	EPA 8270	G	1000		7 d
Bacteriological (including dilutions)					
Coliform, total	SM 9221	P (sterile)	125	$Na_2S_2O_3$	6 h
Coliform, fecal	SM 9221	P (sterile)	125	$Na_2S_2O_3$	6 h
Coliform, E Coli		P (sterile)	125	$Na_2S_2O_3$	6 h
Enterococcus	SM 9230	P (sterile)	125	$Na_2S_2O_3$	6 h
Streptococcus	SM 9230	P (sterile)	125	$Na_2S_2O_3$	6 h

* ZHS (Zero Head Space required) V=VOA / G=Amber / P=Plastic

Appendix C: Outfall Reconnaissance Inventory/Sample Collection Field Sheet Pg. 1

OUTFALL RECONNAISSANCE INVENTORY/SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Sub-watershed		Outfall ID:	
Today's date:		Time:	
Investigator(s)		Form completed by:	
Temperature (°F)	Rainfall (in): Last 24 hours_____Last 48 hours:_____		
Latitude:	Longitude:	GPS unit:	GPS LMK#:
Camera or Iphone:		Photo #s:	

Land Use in Drainage Area (check all that apply):

☐ Industrial ☐ Open Space

☐ Urban Residential ☐ Institutional

☐ Suburban Residential Other:_____

☐ Commercial known Industries:_____

Notes (e.g., origin of outfall, if known)

Section 2: Outfall Description

Location	Material	Shape		Dimensions (in)	Submerged
☐ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other_____	☐ Circular ☐ Elliptical ☐ Box ☐ Other____	☐ Single ☐ Double ☐ Triple ☐ Other____	Diameter: _____	In Water: ☐ No ☐ Partially ☐ Fully With sediment: ☐ No ☐ Partially ☐ Fully
☐ Open Drainage	☐ Concrete ☐ Earthen ☐ Rip Rap ☐ Other_____	☐ Trapezoid ☐ Parabolic ☐ Other_____		Depth:____ Top Width:____ Bottom Width:____	
☐ In Stream					
Flow Present	☐ Yes ☐ No If No, skip to section 5				
Flow Description (if present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

Field Data for flowing Outfalls				
Parameter		Result	Unit	Equipment
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow Depth		In	Tape Measure
	Flow Width	____' ____"	Ft, In	Tape Measure
	Measured Length	____' ____"	Ft, In	Tape Measure
	Time of Travel		Sec	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/probe
Ammonia			mg/L	Test strip

Appendix C: Outfall Reconnaissance Inventory/Sample Collection Field Sheet Pg. 2

OUTFALL RECONNAISSANCE INVENTORY FIELD SHEET

Section 4: Physical Indicators for Flowing Outfalls Only

Are any physical indicators present in the flow? ☐ Yes ☐ No (if No, skip to Section 5)

INDICATOR	CHECK IF PRESENT	DESCRIPTION				RELATIVE SEVERITY (1-3)		
Odor	☐	☐ Sewage ☐ Sulfide	☐ Rancid/Sour ☐ Other	☐ Petroleum/gas	☐ 1 - Faint	☐ 2 - Easily detected	☐ 3 - Noticeable from a distance	
Color	☐	☐ Clear ☐ Green	☐ Brown ☐ Orange	☐ Gray ☐ Red	☐ Yellow ☐ Other	☐ 1 - Faint colors in sample bottle	☐ 2 - Clearly visible in sample bottle	☐ 3 - Clearly visible in the outfall flow
Turbidity	☐	See Severity				☐ 1 - Slight cloudiness	☐ 2 - Cloudy	☐ 3 - Opaque
Floatables - Does Not Include Trash	☐	☐ Sewage (toilet paper, etc.) ☐ Petroleum (Oil sheen)		☐ Suds ☐ Other		☐ 1 - Few /slight, origin not obvious	☐ 2 - Some indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some origin clear (e.g., obvious oil sheen, suds or floatable sanitary material)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐ Yes ☐ No (if No, skip to Section 6)

INDICATOR	Check IF PRESENT	DESCRIPTION			COMMENTS
Outfall Damage	☐	☐ Spalling, Cracking or Chipping	☐ Peeling Paint	☐ Corrosion	
Deposits/Stains	☐	☐ Oily	☐ Flow Line	☐ Paint ☐ Other	
Abnormal Vegetation	☐	☐ Excessive	☐ Inhibited		
Poor Pool Quality	☐	☐ Odors ☐ Suds	☐ Colors ☐ Excessive Algae	☐ Floatables ☐ Oil Sheen ☐ Other	
Pipe Benthic Growth	☐	☐ Brown	☐ Orange	☐ Green ☐ Other	

Section 6: Overall Outfall Characterization

☐ Unlikely ☐ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a Severity of 3) ☐ Obvious

Section 7: Data Collection

1. Sample for the Lab?	☐ Yes	☐ No			
2. If yes, collected from:	☐ Flow	☐ Pool			
3. Intermittent flow trap set?	☐ Yes	☐ No	If Yes, type:	☐ OBM	☐ Caulk Dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)? Use separate sheet to explain.

Appendix D: Methods of Flow Measurements

Methods of Flow Measurement

Calculating the Area (a) of the Cross Section of a Circular Pipe Flowing Partially Full

D = Depth of water
d = diameter of the pipe
a = area of water in partially filled pipe
Ta = Tabulated Value
Then a = Ta*d2

D/d	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0013	0.0037	0.0069	0.0105	0.0147	0.0192	0.0242	0.0294	0.0350
0.1	0.0409	0.0470	0.0534	0.0600	0.0668	0.0739	0.0817	0.0885	0.0951	0.1039
0.2	0.1118	0.1199	0.1281	0.1365	0.1440	0.1535	0.1623	0.1711	0.1800	0.1890
0.3	0.1982	0.2074	0.2187	0.2280	0.2355	0.2450	0.2540	0.2642	0.2780	0.2836
0.4	0.2934	0.3032	0.3130	0.3220	0.3328	0.3428	0.3527	0.3627	0.3727	0.3827
0.5	0.3980	0.4030	0.4130	0.4230	0.4330	0.4430	0.4520	0.4620	0.4720	0.4820
0.6	0.4920	0.5020	0.5120	0.5210	0.5310	0.5400	0.5500	0.5590	0.5690	0.5780
0.7	0.5870	0.5960	0.6050	0.6140	0.6230	0.6320	0.6400	0.6490	0.6570	0.6660
0.8	0.6740	0.6810	0.6890	0.6970	0.7040	0.7120	0.7190	0.7250	0.7320	0.7360
0.9	0.7450	0.7500	0.7560	0.7610	0.7660	0.7710	0.7750	0.7790	0.7820	0.7840

AREA x VELOCITY

(CREEK/CHANNEL METHOD)

a. Measure the width, depth, and velocity of the water.

b. Convert each value to a common unit (i.e. all measurements converted to cm, ft, or in.).

c. Multiply the width * depth * velocity to determine flow.

d. Multiply the flow by 0.8 for creek measurements –or– 0.9 for concrete channel measurements to account for channel roughness.

e. The results if measured in

- Ft = Ft^3/sec
- cm = cm^3/sec (mL/sec)
- in = in^3/sec

f. Convert to desired value.

TIME REQUIRED TO FILL A KNOWN VOLUME

(FILL A BOTTLE METHOD)

1. Determine volume/capacity of the sample bottle.
2. Measure time required to fill the bottle.
3. Flow will be determined by initial volume units:
   - mL/s
   - oz/s
4. Convert to desired value.

AREA x VELOCITY

(PARTIALLY FILLED PIPE)

a. All measurement must be converted to a common unit before calculation (ft, in, or cm).

b. Let D = water depth.

c. Let d = *inside* pipe diameter

d. Calculate D/d.

e. Find the tabulated (Ta) value on the partially filled pipe formula chart above using the D/d value. (i.e. if D/d = 0.263 then Ta = .1623).

f. Find the area using the formula $a = Ta*d^2$.

g. Multiply area (a) by the water velocity.

h. Convert to desired value.

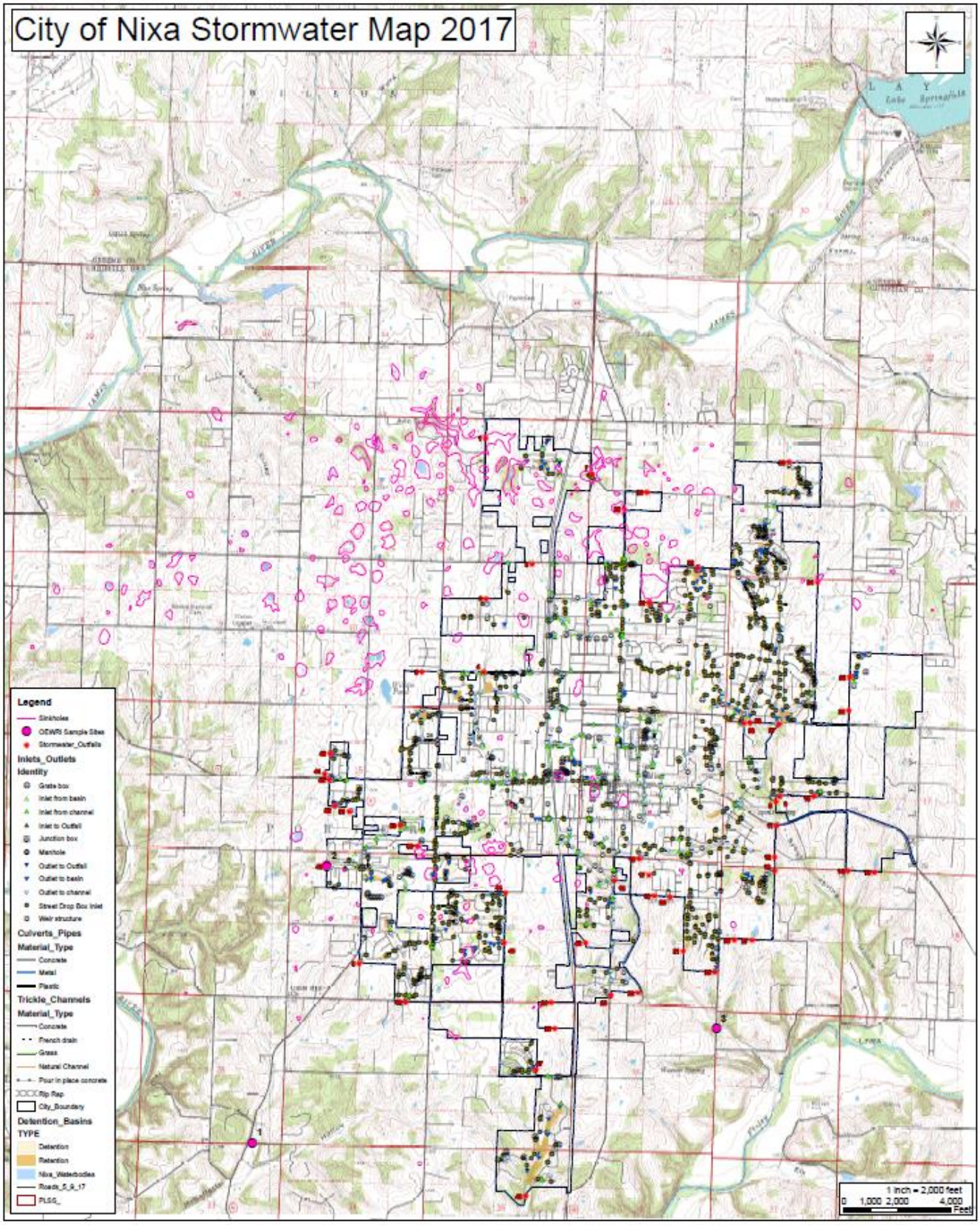
Appendix E: Illicit Discharge Hotline Incident Tracking Sheet Pg. 1

Illicit Discharge Hotline Incident Tracking Sheet				
Incident ID:				
Responder Information *(for hotline incidents only)*				
Call taken by:			Call date:	
Call time:				
Reporter Information				
Incident time:			Incident date:	
			Precipitation (inches) in past 24-48 hrs:	
Caller contact information (*optional*):				
Incident Location *(complete one or more below)*				
Latitude and longitude:				
Stream address or outfall #:				
Closest street address:				
Nearby landmark:				
Primary Location Description	**Secondary Location Description:**			
☐ Stream corridor *(In or adjacent to stream)*	☐ Outfall	☐ In-stream flow	☐ Along banks	
☐ Upland area *(Land not adjacent to stream)*	☐ Near storm drain	☐ Near other water source (storm water pond, wetland, etc.):		
Narrative description of location:				
Upland Problem Indicator Description				
☐ Dumping	☐ Oil/solvents/chemicals	☐ Sewage		
☐ Wash water, suds, etc.	☐ Other: _____			
Stream Corridor Problem Indicator Description				
Odor	☐ None	☐ Sewage	☐ Rancid/Sour	☐ Petroleum (gas)
	☐ Sulfide (rotten eggs); natural gas	☐ Other: Describe in "Narrative" section		
Appearance	☐ "Normal"	☐ Oil sheen	☐ Cloudy	☐ Suds
	☐ Other: Describe in "Narrative" section			
Floatables	☐ None:	☐ Sewage (toilet paper, etc)	☐ Algae	☐ Dead fish
	☐ Other: Describe in "Narrative" section			
Narrative description of problem indicators:				
Suspected Violator (name, personal or vehicle description, license plate #, etc.):				

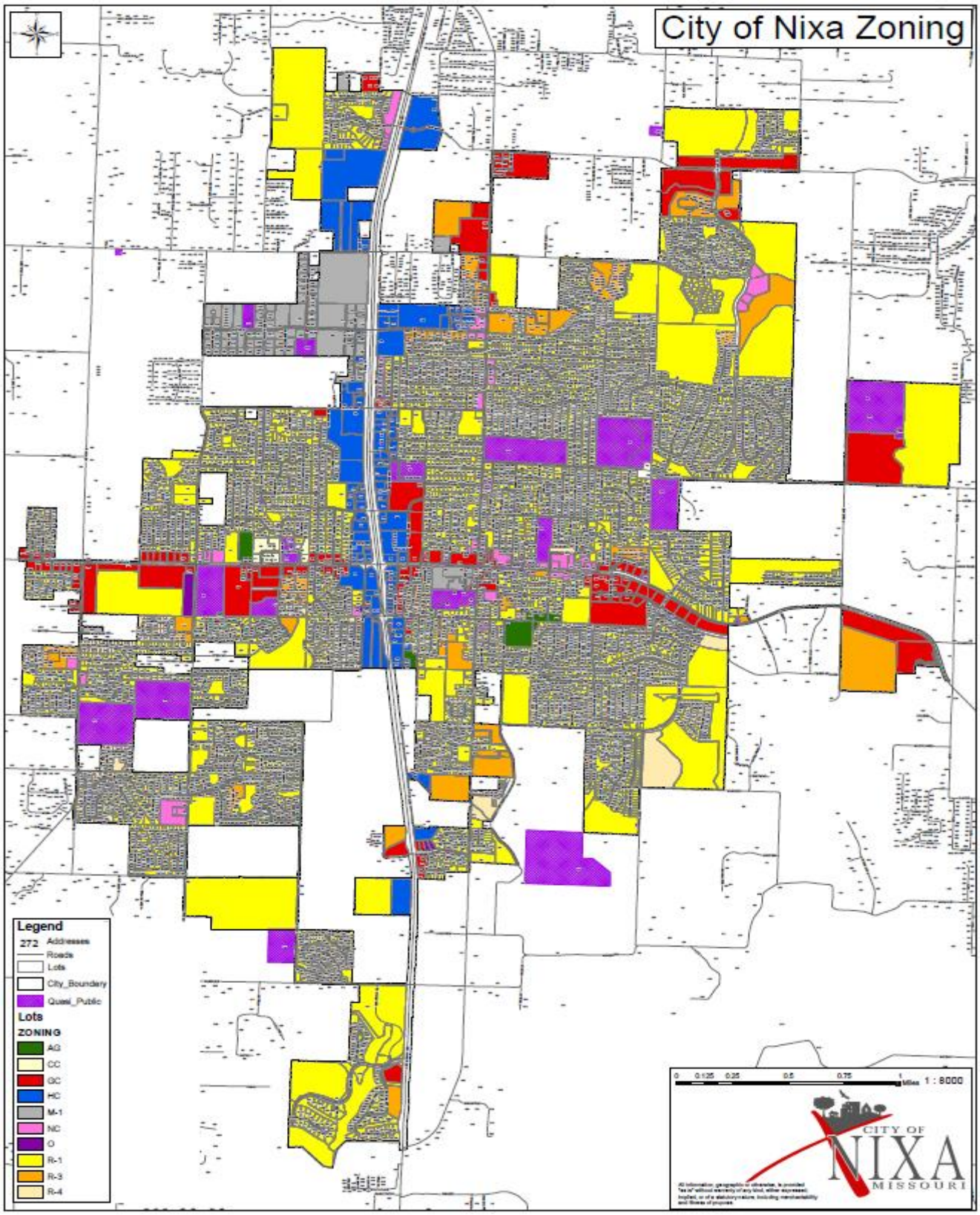
Appendix E: Illicit Discharge Hotline Incident Tracking Sheet Pg. 1

Investigation Notes	
Initial investigation date:	Investigators:
☐ No investigation made	Reason:
☐ Referred to different department/agency:	Department/Agency:
☐ Investigated: No action necessary	
☐ Investigated: Requires action	Description of actions:
Hours between call and investigation:	
Notification and Enforcement Actions (if any):	
Date case closed:	
Notes:	

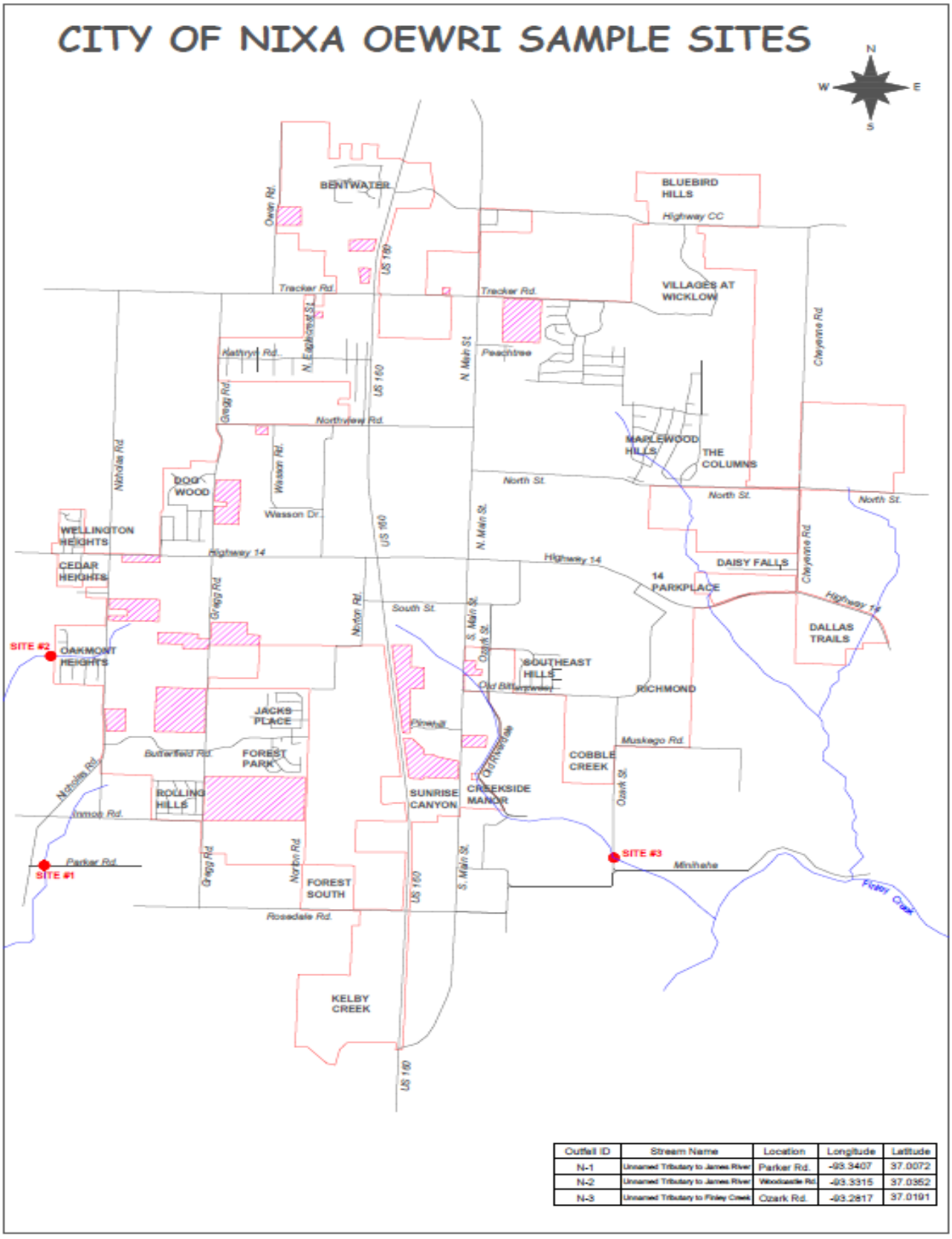
Appendix F: City Stormwater System Map



Appendix G: City Land Use/Zoning Map

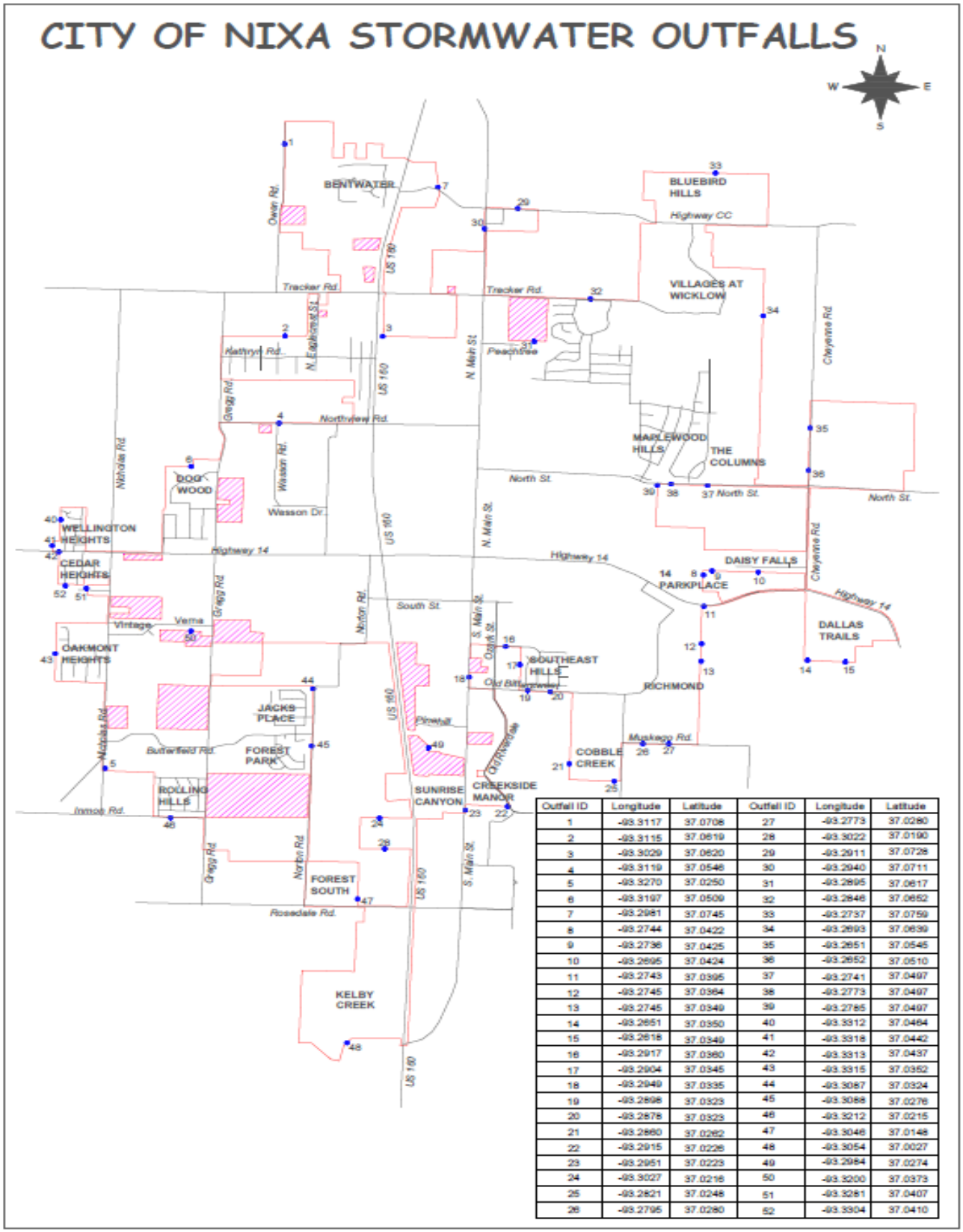


Appendix H: Map of OEWRI Outfall Sample Sites



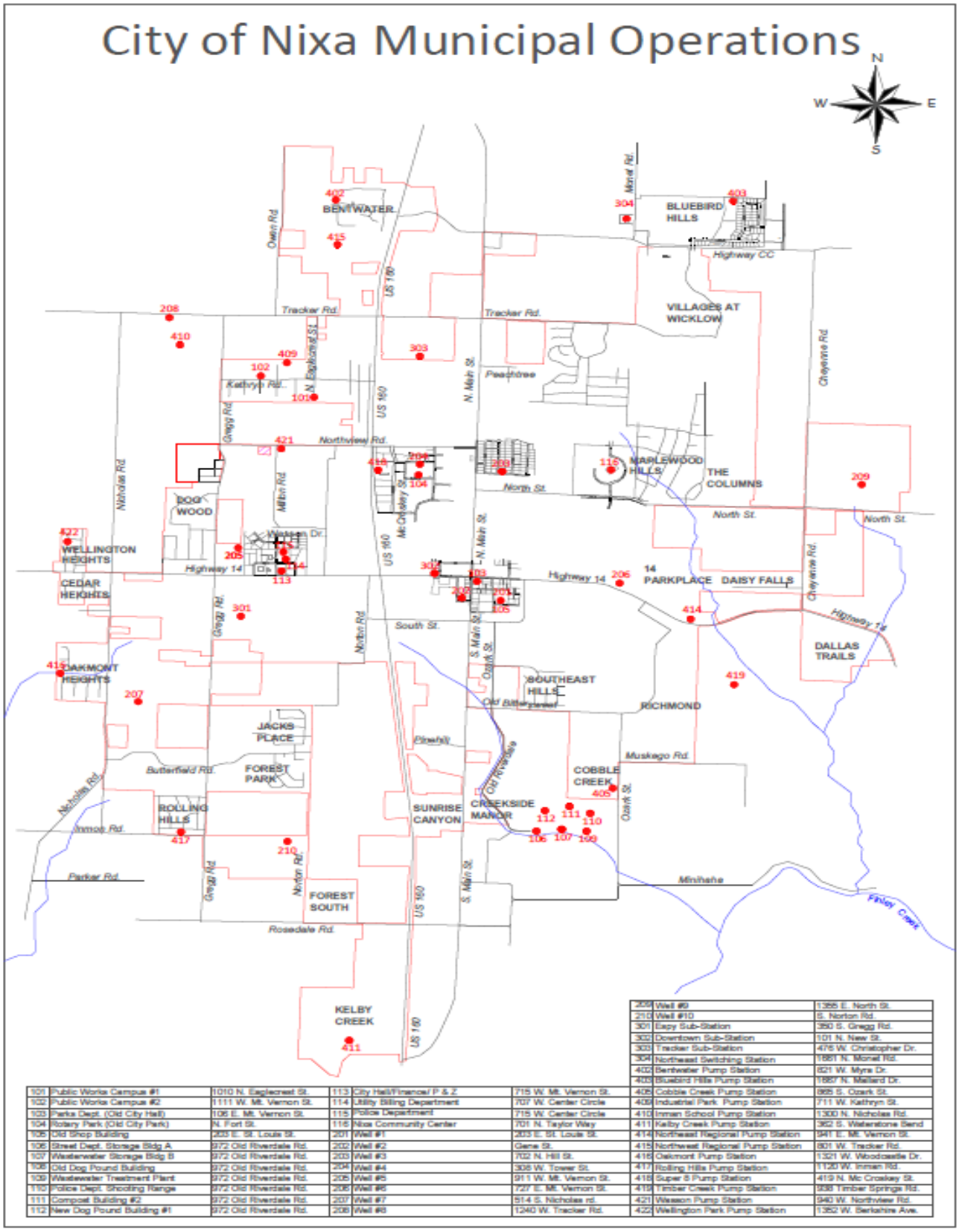
Outfall ID	Stream Name	Location	Longitude	Latitude
N-1	Unnamed Tributary to James River	Parker Rd.	-93.3407	37.0072
N-2	Unnamed Tributary to James River	Woodcastle Rd.	-93.3315	37.0352
N-3	Unnamed Tributary to Finley Creek	Ozark Rd.	-93.2817	37.0191

Appendix I: Map of City of Nixa Outfall Sites



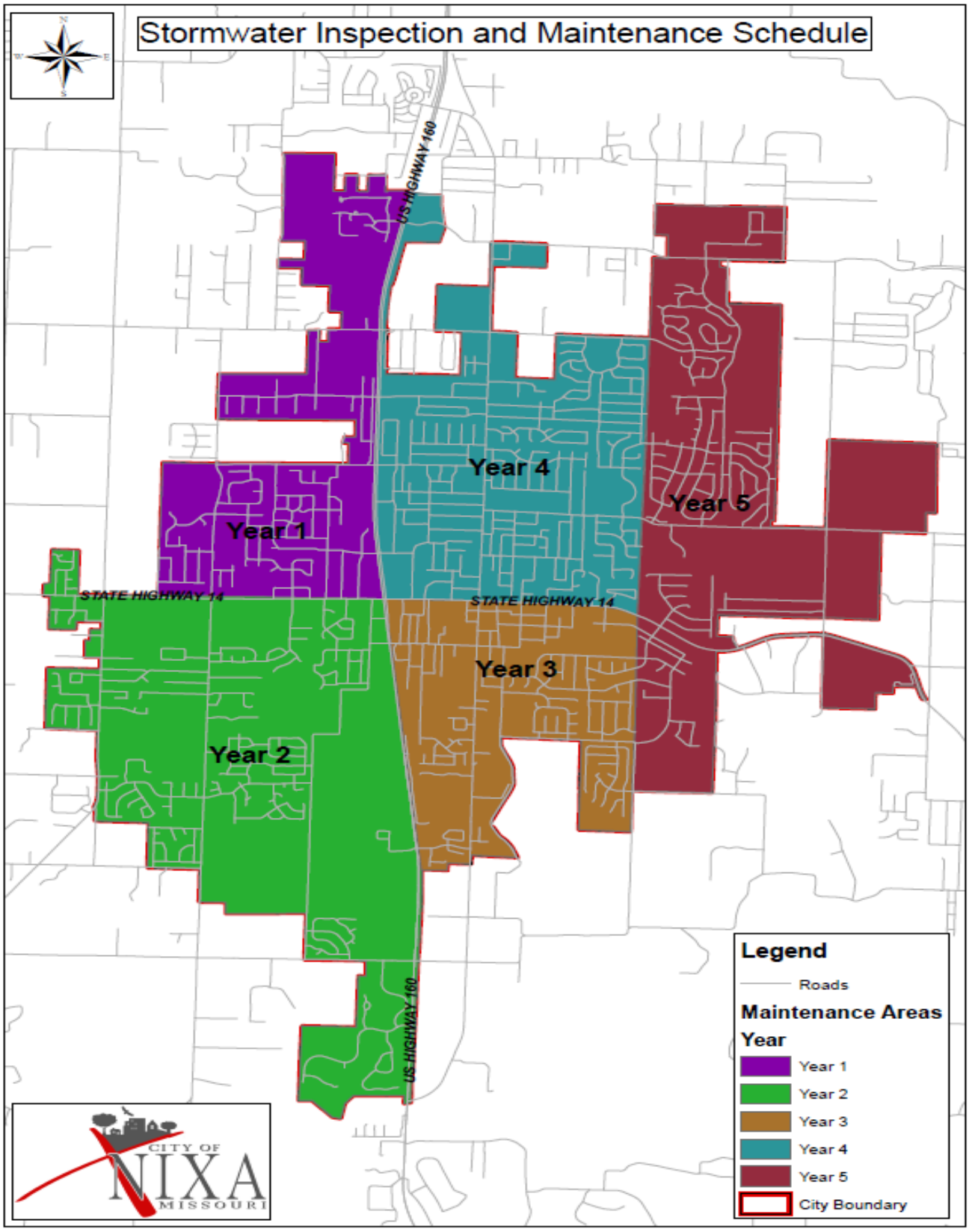
Outfall ID	Longitude	Latitude	Outfall ID	Longitude	Latitude
1	-93.3117	37.0708	27	-93.2773	37.0280
2	-93.3115	37.0619	28	-93.3022	37.0190
3	-93.3029	37.0620	29	-93.2911	37.0728
4	-93.3119	37.0546	30	-93.2940	37.0711
5	-93.3270	37.0250	31	-93.2895	37.0617
6	-93.3197	37.0509	32	-93.2846	37.0652
7	-93.2981	37.0745	33	-93.2737	37.0759
8	-93.2744	37.0422	34	-93.2693	37.0639
9	-93.2736	37.0425	35	-93.2651	37.0545
10	-93.2695	37.0424	36	-93.2652	37.0510
11	-93.2743	37.0395	37	-93.2741	37.0497
12	-93.2745	37.0364	38	-93.2773	37.0497
13	-93.2745	37.0349	39	-93.2785	37.0497
14	-93.2651	37.0350	40	-93.3312	37.0464
15	-93.2618	37.0349	41	-93.3318	37.0442
16	-93.2917	37.0360	42	-93.3313	37.0437
17	-93.2904	37.0345	43	-93.3315	37.0352
18	-93.2949	37.0335	44	-93.3087	37.0324
19	-93.2898	37.0323	45	-93.3088	37.0276
20	-93.2878	37.0323	46	-93.3212	37.0215
21	-93.2860	37.0262	47	-93.3046	37.0148
22	-93.2915	37.0226	48	-93.3054	37.0027
23	-93.2951	37.0223	49	-93.2984	37.0274
24	-93.3027	37.0216	50	-93.3200	37.0373
25	-93.2821	37.0248	51	-93.3281	37.0407
26	-93.2795	37.0280	52	-93.3304	37.0410

Appendix J: Map of City of Nixa Municipal Operations



101	Public Works Campus #1	1010 N. Eaglecrest St.	113	City Hall/Financial P & Z	715 W. Mt. Vernon St.	209	Well #9	1355 E. North St.
102	Public Works Campus #2	1111 W. Mt. Vernon St.	114	Utility Billing Department	707 W. Center Circle	210	Well #10	S. Norton Rd.
103	Parks Dept. (Old City Hall)	106 E. Mt. Vernon St.	115	Police Department	715 W. Center Circle	301	Expy Sub-Station	350 S. Gregg Rd.
104	Rotary Park (Old City Park)	N. Fort St.	116	Nixa Community Center	701 N. Taylor Way	302	Downtown Sub-Station	101 N. Nixa St.
105	Old Shop Building	203 E. St. Louis St.	201	Well #1	203 E. St. Louis St.	303	Tracker Sub-Station	475 W. Christopher Dr.
106	Street Dept. Storage Bldg A	972 Old Riverdale Rd.	202	Well #2	Gene St.	304	Northeast Switching Station	1881 N. Monet Rd.
107	Wastewater Storage Bldg B	972 Old Riverdale Rd.	203	Well #3	702 N. Hill St.	402	Bentwater Pump Station	821 W. Myra Dr.
108	Old Dog Pound Building	972 Old Riverdale Rd.	204	Well #4	306 W. Tower St.	403	Bluebird Hills Pump Station	1887 N. Mallard Dr.
109	Wastewater Treatment Plant	972 Old Riverdale Rd.	205	Well #5	911 W. Mt. Vernon St.	405	Cobble Creek Pump Station	995 S. Ozark St.
110	Police Dept. Shooting Range	972 Old Riverdale Rd.	206	Well #6	727 E. Mt. Vernon St.	406	Industrial Park Pump Station	711 W. Kathryn St.
111	Compost Building #2	972 Old Riverdale Rd.	207	Well #7	514 S. Nicholas rd.	410	Inman School Pump Station	1300 N. Nicholas Rd.
112	New Dog Pound Building #1	972 Old Riverdale Rd.	208	Well #8	1240 W. Tracker Rd.	411	Kelby Creek Pump Station	362 S. Waterstone Bend
						414	Northeast Regional Pump Station	941 E. Mt. Vernon St.
						415	Northwest Regional Pump Station	801 W. Tracker Rd.
						416	Oakmont Pump Station	1321 W. Woodcastle Dr.
						417	Rolling Hills Pump Station	1120 W. Inmon Rd.
						418	Super 8 Pump Station	419 N. Mc Croskey St.
						419	Timber Creek Pump Station	938 Timber Springs Rd.
						421	Wilkeson Pump Station	940 W. Northview Rd.
						422	Wellington Park Pump Station	1352 W. Berkshire Ave.

Appendix K: Map of City of Nixa Stormwater Inspection and Maintenance Schedule



Appendix L: Map of City of Nixa Stormwater Priority Areas

CHAPTER 12: EVALUATION OF THE IDDE PROGRAM

12.1 INTRODUCTION

The MoDNR recommends that the IDDE Manual include procedures for program Evaluation and Assessment. Program evaluation is the time to step back, look at what has been done, determine what worked and what didn't, and make adjustments to planned future actions as appropriate in the City.

12.2 EVALUATION STRATEGY

Evaluation procedures will include documentation of actions taken to locate and eliminate illicit discharges. Such documentation will include numbers of outfalls screened, complaints taken and investigated feet of storm drain system, videotaped (if any), numbers of discharges eliminated, and number of dye or smoke tests conducted (if any). Note that this component of the IDDE Manual fits in with the overall Phase II requirements for identifying measurable goals for each BMP and reporting on progress toward achieving those goals.

Annual and/or bi-annual reports are necessary during the permit cycle to help determine the impact of these actions and an important part of the overall process. Assessment of what worked and what didn't, will provide the information needed to make these adjustments to the City's IDDE Program.

Some steps for assessing the effectiveness of the City's IDDE strategies may include:

- Evaluate the number of possible illicit discharges that were detected using different detection methods, to help determine which detection methods are most effective.

- Evaluate the number of discharges and/or quantity of discharges eliminated using different possible enforcement and compliance measures.

- Program evaluation will also include procedures for considering efficiency and feasibility.

Some questions to answer may include:

- How much staff time and expense did it take to achieve a given result?

- Were practical difficulties encountered with this approach? What were they, and how much of a problem did they present?

These types of questions will greatly help in determining what procedures the City will use for program evaluation and assessment. These procedures will be most helpful in providing the information needed to move forward with the IDDE Program will be decided as the Program further develops.

ADDENDUM MCM #3-4

- **Sec. 22-109. - Illegal placement of sewage.**

It shall be unlawful for any person to place, deposit or permit to be deposited in any unsanitary manner on public or private property within the city, or in any area under the jurisdiction of said city, any human or animal excrement, garbage or other objectionable waste.

(Prior Code, § 17-2; Ord. No. 1747, § 17-2, 8-8-2012)

- **Sec. 22-110. - Discharging untreated sewage in natural outlets.**

It shall be unlawful to discharge into any natural outlet within the city or in any area under the jurisdiction of said city any sewage or other polluted waters, except where suitable treatment has been provided in accordance with subsequent provisions of this chapter.

- **Sec. 22-344. - Solid waste storage.**

(a)

The occupant of every dwelling unit shall use a solid waste container provide by the city's approved waste disposal contractor; and all institutional, commercial or business, industrial or agricultural establishment producing solid waste within the corporate limits of the city, shall provide sufficient and adequate containers for the storage of all solid waste.

(b)

The occupant of every dwelling unit and of every institutional, commercial, industrial, agricultural or business establishment shall place all solid waste to be collected in proper solid waste containers, except as otherwise provided herein, and shall maintain such solid waste containers and the area surrounding them in a clean, neat and sanitary condition at all times.

(c)

Residential solid waste shall be stored in containers provided by the city's approved solid waste disposal contractor. Containers shall be leak-proof, waterproof, and fitted with a fly-tight lid and shall be properly covered at all times except when depositing waste therein or removing the contents thereof. The containers shall have handles, bails or other suitable lifting devices or features.

(d)

Commercial solid waste shall be stored in solid waste containers as approved by the director. The containers shall be waterproof, leak-proof and shall be covered at all times except when depositing waste therein or

removing the contents thereof; and shall meet all requirements as set forth by section 22-347, rules and regulations.

(e)

Following the direction of city council, federal or state declaration of natural disaster(s) (tornado, ice storm, snow or the like) tree limps can be placed at the curb of city removal.

(f)

Solid waste containers not in compliance with this article are prohibited.

(Prior Code, § 9-2; Ord. No. 1621, 11-2009; Ord. No. 1793, 8-19-2013)

- **Sec. 22-348. - Prohibited practices.**

It shall be unlawful for any person to:

(1)

Deposit solid waste in any solid waste container other than his own, without the written consent of the owner of such container and/or, with the intent of avoiding payment of the service charge hereinafter provided for solid waste collection and disposal;

(2)

Interfere in any manner with solid waste collection equipment, or with solid waste collectors in the lawful performance of their duties as such, whether such equipment or collectors shall be those of the city, or those of a solid waste collection agency operating under contract with the city;

(3)

Burn solid waste unless an approved incinerator is provided or unless a variance has been obtained from the appropriate air pollution control agency;

(4)

Dispose of solid waste at any facility or location which is not approved by the city and the state department of natural resources;

(5)

Engage in the business of collection, transporting, processing or disposing of solid waste within the corporate limits of the city without a permit from the city, or operate under an expired permit, or operate after a permit has been suspended or revoked.

(Prior Code, § 9-6; Ord. No. 1621, 11-2009)

ADDENDUM MCM #3-5

CITY OF NIXA MUNICIPAL OPERATIONS STORMWATER INSPECTION REPORT			
GENERAL INFORMATION:			Pg.1
Facility Name:	PUBLIC WORKS CAMPUS #1	Data Base #	101
Physical Address:	1010 N. EAGLECREST ST.	Date Of Inspection:	11/10/16
INSPECTOR'S INFORMATION:			
Inspector's Name: Danny Newell		Inspector's Signiture: D. S. NEWELL	
Inspector's Title: Public Works Inspector			
Inspector's Contact Information: 417-725-2353 / PO Box 395, Nixa, Mo. 65714			
Inspector's Qualifications: CISEC #329			
TYPE OF INSPECTION:			
Regular annual, Pre-storm, During storm, Post storm			
WEATHER INFORMATION:			
Date of most recent storm event: 11/07/16		Approximate Duration (Hrs):	
Approximate precipitation amount (Inches): 0.25			
Weather at time of inspection: Clear Cloudy Rain Sleet Snow			
Are there any discharges at this time in danger of leaving the site?		YES	NO
If YES, describe:			

Comments, Observations, Actions Taken, Corrective Actions Needed:
There are no obvious signs of illicit discharges at this time. No trash or debris that could
that could be considered a stormwater pollutant. However, there are a few 55 gallon
drums of Flourosilicic acid being stord out doors. There are 2 large containers of salt
brine and one large calcium cloride container on site however they all appear to be
empty at this time. The main storage lot contains electric department equipment,
utility poles, single and three phase transformers, concrete vaults and pads.

ROW #	2016-2017 MS4 CITY OF NIXA MUNICIPAL OPERATIONS LIST		Date Inspected	Date Notified	Date of Compliance
	FACILITIES	ADDRESS			
101	PUBLIC WORKS CAMPUS #1	1010 N. EAGLECREST ST.			
102	PUBLIC WORKS CAMPUS #2	1111 W. KATHRYN ST.			
103	PARKS DEPT. (OLD CITY HALL) "REMOVED"	106 E. MT. VERNON ST.			
104	ROTARY PARK (OLD CITY PARK)	N. FORT ST.			
105	OLD SHOP BUILDING	203 E. ST. LOUIS ST.			
106	STREET DEPARTMENT STORAGE BUILDING "A"	972 S. OLD RIVERDALE RD.			
107	WASTE WATER STORAGE BUILDING "B"	972 S. OLD RIVERDALE RD.			
108	OLD DOG POUND BUILDING "C" "REMOVED"	972 S. OLD RIVERDALE RD.			
109	WASTE WATER TREATMENT FACILITY	972 S. OLD RIVERDALE RD.			
110	POLICE DEPARTMENT SHOOTING RANGE	972 S. OLD RIVERDALE RD.			
111	COMPOST BUILDING #2	972 S. OLD RIVERDALE RD.			
112	NEW DOG POUND BUILDING #1	972 S. OLD RIVERDALE RD.			
113	CITY HALL/FINANCE/P&Z	715 W. MT. VERNON ST.			
114	UTILITY BILLING DEPARTMENT	707 W. CENTER CIRCLE			
115	POLICE DEPARTMENT	715 W. CENTER CIRCLE			
116	NIXA COMMUNITY CENTER (PARKS DEPT.)	701 N. TAYLOR WAY			

ROW #	2016-2017 MS4 CITY OF NIXA MUNICIPAL OPERATIONS LIST		Date Inspected	Date Notified	Date of Compliance
	WELL & TOWER SITES	ADDRESS			
201	WELL #1	203 E. ST. LOUIS ST.			
202	WELL #2	GENE ST. *			
203	WELL #3	702 N. HILL ST.			
204	WELL #4	308 W. TOWER ST.			
205	WELL #5	911 W. MT. VERNON ST.			
206	WELL #6	727 E. MT. VERNON ST.			
207	WELL #7	514 S. NICHOLAS RD. (HIGH SCHOOL)			
208	WELL #8	1240 W. TRACKER RD.			
209	WELL #9	1355 E. NORTH ST. (HIGH POINTE)			
210	WELL #10	S. NORTON RD.			

* *This well is no longer in use as a City well, it contains MoDNR monitoring equipment.*

ROW #	2016-2017 MS4 CITY OF NIXA MUNICIPAL OPERATIONS LIST		Date Inspected	Date Notified	Date of Compliance
	ELECTRICAL SUB-STATIONS	ADDRESS			
301	ESPY SUB-STATION	350 S. GREGG RD.	06/20/17	n/a	06/20/17
302	DOWNTOWN SUB-STATION	101 N. NEW ST.	06/20/17	n/a	06/20/17
303	TRACKER SUB-STATION	476 W. CHRISTOPHER DR.	06/28/17	n/a	06/28/17
304	NORTHEAST SWITCHING STATION	1661 N. MONET RD.	06/28/17	n/a	06/28/17

ROW #	2016-2017 MS4 CITY OF NIXA MUNICIPAL OPERATIONS LIST		Date Inspected	Date Notified	Date of Compliance
	SEWAGE PUMP STATIONS	ADDRESS			
401	A & J PRINTING (REMOVED)	1113 N. KENNETH ST.			
402	BENTWATER	821 W. MYRA DR.			
403	BLUEBIRD HILLS	1667 N. MALLARD DR.			
404	CITY CENTER SOUTH (REMOVED)	716 W. MT. VERNON ST.			
405	COBBLE CREEK	865 S. OZARK ST.			
406	THOMAS SCHOOL (REMOVED 4/14)	105 N. RICE ST.			
407	FAIRFIELD ESTATES (REMOVED)	401 N. MARIE ST.			
408	FOREST SOUTH (BYPASSED/OFF LI	409 S. WHITE ASH ST.			
409	INDUSTRIAL PARK	711 W. KATHRYN ST.			
410	INMAN SCHOOL	1300 N. NICHOLAS RD.			
411	KELBY CREEK	362 S. WATERSTONE BEND			
412	KELTNER (REMOVED)	113 ASPEN DR.			
413	MAPLEDALE (REMOVED 12/11)	935 N. MAIN ST.			
414	NORTH EAST REGIONAL	941 E. MT. VERNON			
415	NORTH WEST REGIONAL	801 W. TRACKER RD.			
416	OAKMONT	1321 W. WOODCASTLE DR.			
417	ROLLING HILLS	1120 W. INMAN RD.			
418	SUPER 8 MOTEL	419 N. MC CROSKEY ST.			
419	TIMBER CREEK	938 TIMBER SPRINGS RD.			
420	***WASSON (REMOVED)	411 N. MILTON DR.			
421	WASSON	940 W. NORTHVIEW RD.			
422	WELLINGTON PARK	1352 W. BERKSHIRE AVE.			
423	WICKLOW (REMOVED)	1577 N. MAPLES RD.			
424	RAINTREE (REMOVED)	913 DABNEY ST.			
425	GREENBRIAR (REMOVED)	N. FLORA ST.			
426	SPRINGMANOR (REMOVED)	390 NIANGUA DR.			
427	COMMUNITY CENTER (REMOVED)	701 N. TAYLOR WAY			

ADDENDUM MCM #3-6

CITY OF NIXA STORMWATER ILLICIT DISCHARGE SITE INSPECTION REPORT			
GENERAL INFORMATION:			Pg.1
Facility Name:	CLAYMAN PLASTERING SYST	Data Base #	001
Physical Address:	1020 N. EAGLECREST ST.	Date Of Inspection:	03/28/17
INSPECTOR'S INFORMATION:			
Inspector's Name: Danny Newell		Inspector's Signiture: D. S. NEWELL	
Inspector's Title: Public Works Inspector			
Inspector's Contact Information: 417-725-2353 / PO Box 395, Nixa, Mo. 65714			
Inspector's Qualifications: CISEC #329			
TYPE OF INSPECTION:			
Regular, Pre-storm, During storm, Post storm			
WEATHER INFORMATION:			
Date of most recent storm event: 03/27/17		Approximate Duration (Hrs):	UNK
Approximate precipitation amount (Inches): 1.02			
Weather at time of inspection: Clear Cloudy Rain Sleet Snow			
Are there any discharges at this time in danger of leaving the site?		YES	NO
If YES, describe:			
Comments, Observations, Actions Taken, Corrective Actions Needed:			
There are no obvious signs of discharges at this time. There does not appear to be any			
trash debris, or other substances that could be considered a stormwater pollutant.			

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
001	CLAYMAN PLASTERING SYSTE	1020 N. EAGLECREST ST.				
002	JOEY'S SELF STORAGE	703 W. KATHRYN ST.				
003	DMS EQUIPMENT SERVICES	713 W. KATHRYN ST.				
004	DMS EQUIPMENT SERVICES	715 W. KATHRYN ST.				
005	VACANT	717 W. KATHRYN ST.				
006	TIMBERLAND BUILDING SOLU	719 W. KATHRYN ST.				
007	CHRISTIAN COUNTY CUSTOM	721 W. KATHRYN ST.				
008	ABM BUILDING VALUE	723 W. KATHRYN ST.				
009	D & E PLUMBING	1110 & 1112 N. FALCONCREST CT.				
010	GEM	1123 N. FALCONCREST CT.				
011	MID-WEST TRANSIT EQUIPMA	1119 A N. FALCONCREST CT.				
012	TRS CYCLE	1117 A N. FALCONCREST CT.				
013	TIMOTHY BERG	1115 A. N. FALCONCREST CT.				
014	MID-WEST TRANSIT EQUIPMA	1113 A N. FALCONCREST CT.				
015	MID-WEST TRANSIT EQUIPMA	1111 A N. FALCONCREST CT.				
016	AM HERITAGE CPT, INC	1097 N. FALCONCREST CT.				
017	NTA	1095 N. FALCONCREST CT.				
018	ANDERSON FLOORING	1103 N. FALCONCREST CT.				
019	SINKITS LLC	1091 N. FALCONCREST CT.				
020	PAINTLESS DENTLESS	1089 N. FALCONCREST CT.				
021	PAINTLESS DENTLESS	1087 N. FALCONCREST CT.				
022	FURMAN PROPERTIES	1109 N. FALCINCREST CT.				
023	DENT MAGIC TOOLS	1107 N. FALCONCREST CT.				
024	DENT MAGIC TOOLS	1105 N. FALCONCREST CT.				
025	ANDERSON FLOORING	1103 N. FALCONCREST CT.				
026	SINKITS MS LLC	1101 N. FALCONCREST CT.				
027	FURMAN PROPERTIES	1099 N. FALCONCREST CT.				
028	MID-WEST TRANSIT EQUIPMA	1111 B N. FALCONCREST CT.				
029	MID-WEST TRANSIT EQUIPMA	1113 B N. FALCONCREST CT.				
030	LAEL STUCCO SUPPLY INC	1115 B. N. FALCONCREST CT.				
031	DENNIS TOMLIN	1117 B N. FALCONCREST CT.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
032	MID-WEST TRANSIT EQUIPMA	1119 B N. FALCONCREST CT.				
033	CITY OF NIXA	1111 W. KATHRYN ST.				
034	FIRST AMERICA FLEET SALES	1131 W. KATHRYN ST.				
035	JAYHAWK FIRE SPRINKLER IN	1133 W. KATHRYN ST.				
036	JAYHAWK FIRE SPRINKLER IN	1135 W. KATHRYN ST.				
037	VACANT	1137 W. KATHRYN ST.				
038	AMACING PLAY LLC	1075 W. KATHRYN ST. Ste. 1				
039	JOS-NOE MEDICAL INC.	1075 W. KATHRYN ST. Ste. 2				
040	JOS-NOE MEDICAL INC.	1075 W. KATHRYN ST. Ste. 3				
041	THE HOCKEY CHECK REPUBL	1075 W. KATHRYN ST. Ste. 4				
042	LEDPOINT	1075 W. KATHRYN ST. Ste. 5				
043	SERIOUSLY CLEAN LTD.	1075 W. KATHRYN ST. Ste. 6				
044	SERIOUSLY CLEAN LTD.	1075 W. KATHRYN ST. Ste. 7				
045	SERIOUSLY CLEAN LTD.	1075 W. KATHRYN ST. Ste. 8				
046	VACANT	1075 W. KATHRYN ST. Ste. 9				
047	VACANT	1075 W. KATHRYN ST. Ste. 10				
048	VACANT	1075 W. KATHRYN ST. Ste. 11				
049	VACANT	1075 W. KATHRYN ST. Ste. 12				
050	VACANT	1075 W. KATHRYN ST. Ste. 13				
051	VACANT	1075 W. KATHRYN ST. Ste. 14				
052	VACANT	1075 W. KATHRYN ST. Ste. 15				
053	VACANT	1075 W. KATHRYN ST. Ste. 16				
054	INNOVATIVE MOTORS LLC	1083 W. KATHRYN ST. Ste. 1				
055	ALLIED BUS CO.	1083 W. KATHRYN ST. Ste. 2				
056	TOTAL HIGHSPEED	1091 W. KATHRYN Ste. 1				
057	TOTAL HIGHSPEED	1091 W. KATHRYN Ste. 2				
058	TOTAL HIGHSPEED	1091 W. KATHRYN Ste. 3				
059	TOTAL HIGHSPEED	1091 W. KATHRYN Ste. 4				
060	CLUB NET RESULTS	1020 N. HAWKS PERCH AVE.				
061	HALLOWEEN BOUTIQUE	1009 N. HAWKS PERCH AVE. Ste. 3				
062	MISSOURI STORM SHELTERS	1009 N. HAWKS PERCH AVE. Ste. 2				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
063	THE DOLL MAKER	1009 N. HAWKS PERCH AVE. Ste. 1				
064	417 SUNDIAL	1084 W. KATHRYN ST.				
064.1	VACANT	1007 N RED HAWK CT.				
064.2	GREG FAULCONCER- LANDLO	1009 N. REDHAWK CT.				
065	DIRT ZERO	1001 N. RED HAWK CT.				
065.1	EOFF & ASSOC.	1002 N. RED HAWK CT.				
066	EPI CONSTRUCTION	1010 N. RED HAWK CT.				
067	GRAYSTONE GRAPHICS	1052 W. KATHRYN ST.				
068	SOUTHWESTERN INSULATION	1040 W. KATHRYN ST.				
069	4 STATE INDUSTRIAL SUPPLY	1001 N. RAVENS NEST AVE.				
070	D & D STAINLESS	1002 N. RAVENS NEST AVE.				
071	EAGLECREST AUTOMOTIVE	1010 N. RAVENS NEST AVE.				
072	CENTRAL TURF & IRRIGATION	1000 W. KATHRYN ST.				
073	B & B COUNTERTOP DESIGN	736 W. KATHRYN ST.				
074	B & B COUNTERTOP DESIGN	734 W. KATHRYN ST.				
075	REAL WELLNESS	732 W. KATHRYN ST.				
076	RAYS POOLS	730 W. KATHRYN ST.				
077	JR'S KNIVES	728 W. KATHRYN ST.				
078	MEL'S MOTORS	726 W. KATHRYN ST.				
079	AMERICAN LAWN AND LANDS	1009 N. FALCONCREST CT.				
080	CUSH	1003 N. FALCONCREST CT.				
081	CUSH	1001 N. FALCONCREST CT.				
082	CUSH	1002 N. FALCONCREST CT.				
083	CUSH	1010 N. FALCONCREST CT.				
084	VACANT	724 W. KATHRYN ST.				
085	NIXA SMALL ENG.	722 W. KATHRYN ST.				
086	TOPS BY TIM	720 W. KATHRYN ST.				
087	LARSON HTG. & AIR	714 & 716 W. KATHRYN ST.				
088	MONARCH MANUFACT.	710 W. KATHRYN ST.				
089	PERFORMANCE BOILER	1009 N. BITTERSWEET CT.				
089.1	QUEEN CITY GAS LPG	1001 N. BITTERSWEET CT.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
090	SAGE ELECTRICAL LLC	1002 N. BITTERSWEET CT.				
091	SAGE ELECTRICAL LLC	1004 N. BITTERSWEET CT.				
092	SAGE ELECTRICAL LLC	1008 N. BITTERSWEET CT.				
093	AMPLE INDUSTRIES	1101 N. EAGLECREST ST.				
094	HARDY KRUGER	1102 N. EAGLECREST ST.				
095	HARDY KRUGER	1104 N. EAGLECREST ST.				
096	JORDON ESSENTIALS	1106 N. EAGLECREST ST.				
097	LILY CHEMICALS	1112 N. EAGLECREST ST.				
098	SINGULARITY-GYMNASTICS	1202 A. N. EAGLECREST ST.				
099	SINGULARITY-GYMNASTICS	1202 B. N. EAGLECREST ST.				
100	VACANT	1206 N. EAGLECREST ST.				
101	MAVERICK ELECTRIC LLC	1208 A N. EAGLECREST ST.				
102	JAMES RIVER MECHANICAL	1208 B N. EAGLECREST ST.				
103	CHILTON'S	1208 C N. EAGLECREST ST.				
104	CHANCEY LLC	1208 D N. EAGLECREST ST.				
105	EXPRESS ROOFING	1208 E N. EAGLECREST ST.				
106	EMS AUTO REPAIR	1302 N. EAGLECREST ST.				
107	REAMS SPRINKLER SUPPLY	1210 N. EAGLECREST ST.				
108	OUTDOOR HOME	882 W. TRACKER RD.				
109	VACANT	1223 N. EAGLECREST ST.				
110	VACANT	1221 N. EAGLECREST ST.				
111	FERRELL GAS	1219 N. EAGLECREST ST.				
112	WINPUBLISHING	1211 N. EAGLECREST ST.				
113	LAKE CITY CRAFT CO.	1209 N. EAGLECREST ST.				
114	CBS CABINETS	1207 N. EAGLECREST ST.				
115	FOXWOOD TRADERS	1205 N. EAGLECREST ST.				
116	NORTON POWER SYSTEMS	1203 B N. EAGLECREST ST.				
117	NORTON POWER SYSTEMS	1203 A N. EAGLECREST ST.				
118	BLACK WIDOW BOW	1201 N. EAGLECREST ST.				
119	ANYTHING SMALL ENGINE	611 W. KATHRYN ST.				
120	GUN-TEC (G-TEC)	609 W. KATHRYN ST.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
121	OFF ROAD KUSTOMS	607 W. KATHRYN ST.				
122	OFF ROAD KUSTOMS	605 W. KATHRYN ST.				
123	OFF ROAD KUSTOMS	603 W. KATHRYN ST.				
124	HARDEE'S OF SW MO.	610 W. KATHRYN ST.				
125	HARDEE'S OF SW MO.	608 W. KATHRYN ST.				
126	GUTTER COVER	606 W. KATHRYN ST.				
127	GUTTER COVER PROFESSIONA	604 W. KATHRYN ST.				
128	HARRIS AUTO GROUP	602 W. KATHRYN ST.				
129	SPRINGFIELD MARINE	1093 N. CYNTHIA ST.				
130	BASS PRO FAB SHOPS	517 W. KATHRYN ST.				
131	LEAST OF THESE, INC.	511 W. KATHRYN ST.				
132	OUTDOOR WONDERS	1010 N. CYNTHIA DR.				
133	STEVE'S AUTO	504 W. KATHRYN ST				
134	0ZARK PACKING INC.	1005 N. GERALD DR.				
135	CLOUD NINE MATTRESS	909 N. GERALD DR.				
136	ARE LEE AUTO	907 N. GERALD DR.				
137	VACANT	905 N. GERALD DR.				
138	FIRELIGHT CHIMNEY SERVICI	903 N. GERALD DR.				
139	CHRISTIAN COUNTY CUSTOMS	827 N. GERALD DR.				
140	CROSSFIT	825 C. N. GERALD DR.				
141	CROSSFIT	825 B. N. GERALD DR.				
142	CROSSFIT	825 E. N. GERALD DR.				
143	HARTER HOUSE	815 N. KENNETH ST.				
144	HIGHER VISION CHURCH	825 A N. GERALD ST.				
145	AMERICAN CAT FANCIERS	825 G N. GERALD ST.				
146	A-1 CUSTOM MUFFLER	903 N. KENNETH ST.				
147	VACANT	907 N. KENNETH ST.				
148	CHARLES REES	911 N. KENNETH ST.				
149	HANDYMAN RENTALS	1001 N. KENNETH ST.				
150	T3 WELDING & MANUFACTUR	1007 N. KENNETH ST.				
151	BARBER SHOP	1009 A. N. KENNETH ST.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
152	GRAYSTONE GRAPHICS	1009 B N. KENNETH ST.				
153	BIG AL'S SUBS	1009 C N. KENNETH ST.				
154	THE WILD FORK	1013 N. KENNETH ST.				
155	SPA PLACE INC.	1011 N. KENNETH ST.				
156	MID-WEST TRANSIT EQUIPMA	1101 N. KENNETH ST.				
157	JIMMY LYNN EAKINS TRUST	1109 N. KENNETH ST.				
158	A&J PRINTING	1111 N. KENNETH ST.				
159	SPS STERILIZATION INC	1110 N. GERALD DR.				
160	ALDERSGATE CHURCH	460 W. ALDERSGATE DR.				
161	WENDY'S (SAM HAMRA)	441 W. ALDERSGATE DR.				
162	MURPHY USA	1106 N. MASSEY BLVD.				
163	MURNEY ASSOCIATES	485 W. ALDERSGATE DR.				
164	H&R BLOCK	479 W. ALDERSGATE DR.				
165	VACANT	469 W. ALDERSGATE DR.				
166	CATO'S	467 W. ALDERSGATE DR.				
167	PATRICK'S	461 W. ALDERSGATE DR.				
168	PATRICK'S	459 W. ALDERSGATE DR.				
169	TOP NAILS	457 W. ALDERSGATE DR.				
170	HALO HAIR STUDIO	453 W. ALDERSGATE DR.				
171	CRICKET WIRELESS	451 W. ALDERSGATE DR.				
172	SALLY BEAUTY SUPPLY	449 W. ALDERSGATE DR.				
173	SUN TAN CITY	445 W. ALDERSGATE DR.				
174	WAL-MART	1102 N. MASSEY BLVD.				
175	GENTLE CARE VET	125 W. ALSERSGATE DR.				
176	SATOP	119 W. ALDERSGATE DR. STE. 5				
177	SATOP	119 W. ALDERSGATE DR. STE. 4				
178	AMERICAN FAM. INS.	119 W. ALDERSGATE DR. STE. 3				
179	KATHY'S BOUTIQUE	119 W. ALDERSGATE DR. STE. 2				
180	NIXA BARBER & STYLE	119 W. ALDERSGATE DR. STE. 1				
181	MODERN WOODMEN FINANCI	107 W. ALDERSGATE DR. STE. 13				
182	MODERN WOODMEN FINANCI	107 W. ALDERSGATE DR. STE. 12				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
183	VACANT	107 W. ALDERSGATE DR. STE. 11				
184	ABC CASH ADVANCE	107 W. ALDERSGATE DR. STE. 10				
185	EDWARD JONES	107 W. ALDERSGATE DR. STE. 9				
186	NIXA WRESTLING CLUB	107 W. ALDERSGATE DR. STE. 8				
187	OSBORNE FINAN. GROUP	107 W. ALDERSGATE DR. STE. 7				
188	STUDIO FITNESS/ART ZONE	107 W. ALDERSGATE DR. STE. 6				
189	STUDIO FITNESS/ART ZONE	107 W. ALDERSGATE DR. STE. 5				
190	PICCOLO ITALIAN REST.	107 W. ALDERSGATE DR. STE. 1				
191	PICCOLO ITALIAN REST.	107 W. ALDERSGATE DR. STE. 2				
192	RICE & ROLL	107 W. ALDERSGATE DR. STE. 3				
193	RICE & ROLL	107 W. ALDERSGATE DR. STE. 4				
194	FARR CHIROPRACTIC	106 W. SHERMAN WAY STE. 1				
195	FARR CHIROPRACTIC	106 W. SHERMAN WAY STE. 2				
196	SWEET REPEATS	106 W. SHERMAN WAY STE. 3				
197	SWEET BOUTIQUE	106 W. SHERMAN WAY STE. 4				
198	TOTAL HIGH SPEED COMMUN	106 W. SHERMAN WAY STE. 5				
199	NIXA CHAMBER OF COMMERC	106 W. SHERMAN WAY STE. 6				
200	NEWAMERICAN FUNDING	116 W. SHERMAN WAY STE. 1				
201	CLIMASTORE 24	116 W. SHERMAN WAY STE. 2				
202	CLIMASTORE 24	116 W. SHERMAN WAY STE. 3				
203	CLIMASTORE 24	116 W. SHERMAN WAY STE. 4				
204	CLIMASTORE 24	116 W. SHERMAN WAY STE. 5				
205	CLIMASTORE 24	116 W. SHERMAN WAY STE. 6				
206	CLIMASTORE 24	116 W. SHERMAN WAY STE. 7				
207	CLIMASTORE 24	116 W. SHERMAN WAY STE. 8				
208	CULINARY CONSULTING	116 W. SHERMAN WAY STE. 9				
209	VACANT	116 W. SHERMAN WAY STE. 10				
210	VACANT	116 W. SHERMAN WAY STE. 11				
211	EAGLE PRIDE AUTOMOTIVE	1220 N. EAGLE PRIDE WAY				
212	HEARTLAND MOTOR FREIGHT	129 W. SHERMAN WAY STE. 104				
213	WEALTHCORE ADVISORS	129 W. SHERMAN WAY STE. 103				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
214	STRAIN INSURANCE GROUP	129 W. SHERMAN WAY STE. 102				
215	SUNSHINE REALTORS	129 W. SHERMAN WAY STE. 101				
216	VACANT	123 W. SHERMAN WAY STE. 104				
217	VACANT	123 W. SHERMAN WAY STE. 103				
218	VACANT	123 W. SHERMAN WAY STE. 102				
219	VACANT	123 W. SHERMAN WAY STE. 101				
220	B & B INSULATION	117 W. SHERMAN WAY STE. 7				
221	B & B INSULATION	117 W. SHERMAN WAY STE. 6				
222	VACANT	117 W. SHERMAN WAY STE. 5				
223	ABUNDANT BLESSINGS	117 W. SHERMAN WAY STE. 4				
224	KROMATIK	117 W. SHERMAN WAY STE. 3				
225	KROMATIK	117 W. SHERMAN WAY STE. 2				
226	KROMATIK	117 W. SHERMAN WAY STE. 1				
227	MEDTRAN DIRECT	105 W. SHERMAN WAY STE. 110				
228	MEDTRAN DIRECT	105 W. SHERMAN WAY STE. 109				
229	MEDTRAN DIRECT	105 W. SHERMAN WAY STE. 108				
230	MEDTRAN DIRECT	105 W. SHERMAN WAY STE. 107				
231	BAIR'S	105 W. SHERMAN WAT STE. 106				
232	BAIR'S	105 W. SHERMAN WAT STE. 105				
233	BAIR'S	105 W. SHERMAN WAT STE. 104				
234	BAIR'S	105 W. SHERMAN WAY STE. 103				
235	MAIN ST. SALON	105 W. SHERMAN WAY STE. 102				
236	MAIN ST. SALON	105 W. SHERMAN WAY STE. 101				
237	NIXA NURSING & REHAB	1100 N. MAIN ST.				
238	TERRACES AT COPPERLEAF	300 E. PEACH TREE DR.				
239	VILLAS AT COPPERLEAF	305 E. PEACH TREE DR.				
240	GREAT SOUTHERN BANK	1391 N. MAIN ST.				
241	SOUTHERNWOOD APRTS.	226 & 228 W. TRACKER RD.				
242	SOUTHERNWOOD APRTS.	236 & 234 W. TRACKER RD.				
243	SOUTHERNWOOD APRTS.	232 W. TRACKER RD.				
244	SOUTHERNWOOD APRTS.	230 W. TRACKER RD.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
245	APARTMENT COMPLEX	1212 N. VIOLA ST. (CHANDLER)				
246	GREENBRIAR APARTMENTS	1208 & 1206 N. VIOLA ST.				
247	GREENBRIAR APARTMENTS	1204 & 1202 N. VIOLA ST.				
248	AUTO SPA CAR WASH	126 W. ALDERSGATE DR.				
249	CASEY'S GENERAL SRORE	1015 N. MAIN ST.				
250	NIXA GENERAL BAPTIST	1011 N. MAIN ST.				
251	HUNTER RIDGE APT. COMPLE	109 - 131 & 133-155 W. DEERFIELD DR.				
252	HUNTER RIDGE APT. COMPLE	201 - 223 W. DEERFIELD DR.				
253	HUNTER RIDGE APT. COMPLE	225 - 247 W. DEERFIELD DR.				
254	PHEASANT RUN APT. COMPLE	249 - 271 W. DEERFIELD DR.				
255	PHEASANT RUN APT. COMPLE	273 - 298 W. DEERFIELD DR.				
256	PHEASANT RUN APT. COMPLE	301 - 323 W. DEERFIELD DR.				
257	PHEASANT RUN APT. COMPLE	325 - 339 W. DEERFIELD DR.				
258	PHEASANT RUN APT. COMPLE	1039 - 1053 & 1015 - 1029 N. PHEASANT RUN				
259	VACANT	916 N. MAIN ST. STE 1				
260	VACANT	916 N. MAIN ST. STE 2				
261	WIRELESS 4 LESS	916 N. MAIN ST. STE 3				
262	WIRELESS 4 LESS	916 N. MAIN ST. STE 4				
263	WIRELESS 4 LESS	916 N. MAIN ST. STE 5				
264	ARABELLA CO.	916 N. MAIN ST. STE 6				
265	NIXA HAIR STUDIO	916 N. MAIN ST. STE 7				
266	VACANT	916 N. MAIN ST. STE 8				
267						
268	TEL-A-RENT	904 N. MAIN ST. STE 5				
269	LITTLE CAESAR'S	904 N. MAIN ST. STE 4				
270	VACANT	904 N. MAIN ST. STE 3				
271	AMERICAN STRUCTURAL INC	904 N. MAIN ST. STE 2				
272	MUSICIAN FACTORY	904 N. MAIN ST. STE 1				
273	BRADFORD COURT ASST. LIVI	902 N. MAIN ST.				
274	ANYTIME FITNESS	833 N. MAIN ST.				
275	ANYTIME FITNESS	831 N. MAIN ST.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
276	ANYTIME FITNESS	829 N. MAIN ST.				
277	ANYTIME FITNESS	827 N. MAIN ST.				
278	ANYTIME FITNESS	825 N. MAIN ST.				
279	ANYTIME FITNESS	823 N. MAIN ST.				
280	WISH I MAY	821 N. MAIN ST.				
281	SEVEN HILL VETERINARY	819 N. MAIN ST.				
282	HAIR FX SALON	817 N. MAIN ST.				
283	LAW OFFICES OF WESLEY SAN	815 N. MAIN ST.				
284	THE WELL SPA	813 N. MAIN ST.				
285	IRON MOUNTAIN CHIROPRAC	811 N. MAIN ST.				
286	LITTLE UPTOWN KIDS	809 N. MAIN ST.				
287	COYOTES GRILLE	807 N. MAIN ST.				
288	COYOTES GRILLE	805 N. MAIN ST.				
289	EMPIRE DISTRICT ELECTRIC S	114 W. NORTHVIEW RD.				
290	NFPD STA. 1	711 N. MAIN ST.				
291	JOE FLOOD INSURANCE	504 N. MAIN ST.				
292	CAR WASH (VACANT)	502 N. MAIN ST.				
293	TODAY'S DONUTS	420 N. MAIN ST.				
294	NIXA JUNIOR HIGH SCHOOL	205 E. NORTH ST.				
295	CENTURY ELEMENTARY SCHO	732 E. NORTH ST.				
296	HIGH POINTE ELEMENTARY S	900 N. CHEYENNE RD.				
297	SUMMIT ELEMENTARY SCHO	900 N. CHEYENNE RD.				
298	JOHN THOMAS ELEMENTARY	312 N. MARKET ST.				
299	ACE MINI STORAGE	411 E. MT. VERNON ST.				
300	SYMBIONT SERVICES	501 E. MT. VERNON ST.				
301	VIETTI COLLISION	601 E. MT. VERNON ST.				
301.1	DOLLAR GENERAL	104 S. RIDGECREST				
302	SPRINGVALLEY CONDOS	643 SPRINGVALLEY CIRCLE				
303	KUM-N-GO CONVENIENCE	102 S. RIDGECREST AVE.				
304	STATE FARM INS.	103 S. RIDGECREST AVE. STE. 5				
305	VACANT	103 S. RIDGECREST AVE. STE. 4				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
306	VACANT	103 S. RIDGECREST AVE. STE. 3				
307	NIXA FAMILY DENTAL	103 S. RIDGECREST AVE. STE. 2				
308	NIXA FAMILY DENTAL	103 S. RIDGECREST AVE. STE. 1				
309	CRUISIN' USA	105 S. RIDGECREST AVE. STE. 1				
310	FAMILY PHARMACY	105 S. RIDGECREST AVE. STE. 2				
311	FAMILY PHARMACY	105 S. RIDGECREST AVE. STE. 3				
312	OCH SPECIALTY CARE	105 S. RIDGECREST AVE. STE. 4				
313	OCH SPECIALTY CARE	105 S. RIDGECREST AVE. STE. 5				
314	OCH URGENT CARE	105 S. RIDGECREST AVE. STE. 6				
315	OCH URGENT CARE	105 S. RIDGECREST AVE. STE. 7				
316	OCH URGENT CARE	105 S. RIDGECREST AVE. STE. 8				
317	OCH FAMILY CARE	105 S. RIDGECREST AVE. STE. 9				
318	OCH FAMILY CARE	105 S. RIDGECREST AVE. STE. 10				
319	OCH FAMILY CARE	105 S. RIDGECREST AVE. STE. 11				
320	OCH FAMILY CARE	105 S. RIDGECREST AVE. STE. 12				
321	OCH PRIMARY CARE	105 S. RIDGECREST AVE. STE. 13				
322	OCH PRIMARY CARE	105 S. RIDGECREST AVE. STE. 14				
323	OCH PRIMARY CARE	105 S. RIDGECREST AVE. STE. 15				
324	OCH PRIMARY CARE	105 S. RIDGECREST AVE. STE. 16				
325	OCH THERAPY SERVICES	105 S. RIDGECREST AVE. STE. 17				
326	HEWITT - MESSENGER	602 E. MT. VERNON ST.				
327	EASTSIDE STORAGE	600 E. MT. VERNON ST.				
328	CALVARY BAPTIST CHURCH	206 S. SMALLEY ST.				
329	HARRIS LAW	504 E. MT. VERNON ST.				
330	PINE TREE APARTMENTS	101 S. RICE ST.				
331	D & D FEED (AND OUT BUILDI	203 E. MT. VERNON ST.				
332	NIXA MONUMENT	111 E. MT. VERNON ST.				
333	VACANT	109 E. MT. VERNON ST.				
334	TECH CENTRAL	107 E. MT. VERNON ST.				
335	MONGOLIAN GRILL	103 E. MT. VERNON ST.				
336	MOXIE FLOWERS	104 E. MT. VERNON ST.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
337	ELITE PETITE PET	108 E. MT. VERNON ST.				
338	ROCCO'S PIZZA	112 E. MT. VERNON ST.				
339	L & R SPECIALTIES	202 E. MT. VERNON ST.				
340	ROCCO'S PIZZA	105 S. WATER ST.				
341	AT&T SERVICES	111 WATER ST.				
342	HESTERBERG CONSTRUCTION	307 WATER ST.				
343	NIXA SENIOR HOUSING	308 WATER ST.				
344	FIRST PRESBYTERIAN CHURC	203 E. SOUTH ST.				
345	HAPPY DAYS	402 S. MAIN ST.				
346	NIXA SENIOR CENTER	404 S. MAIN ST.				
347	VACANT	408 S. MAIN ST.				
348	VACANT	410 S. MAIN ST.				
349	VACANT	412 S. MAIN ST.				
350	MAIN ST. AUTO	414 S. MAIN ST.				
351	FAUGHT ADMINISTRATION / E	301 S. MAIN ST.				
352	DAY CARE	208 S. MAIN ST.				
353	VACANT	211 S. MAIN ST.				
354	ONE SOURCE INS.	204 S. MAIN ST.				
355	ONE LIFE SALON	202 S. MAIN ST.				
356	ONE LIFE SALON	200 S. MAIN ST.				
357	INNOVATIVE SOUND	120 S. MAIN ST.				
358	IDEA ARCHITECTS	112 S. MAIN ST.				
359	IDEA ARCHITECTS	110 S. MAIN ST.				
360	PROFESSIONAL ACCCOUNTIN	106 S. MAIN ST.				
361	LADY BUG FLORAL	123 S. MAIN ST.				
362	JAG ENGINEERING	121 S. MAIN ST.				
363	JAG ENGINEERING	119 S. MAIN ST.				
364	JAG ENGINEERING	117 S. MAIN ST.				
365	VIP HAIR STUDIO	115 S. MAIN ST.				
366	DOWNTOWN GYPSY	111 S. MAIN ST.				
367	VACANT	109 S. MAIN ST.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
368	CROSSROADS AUCTION	107 S. MAIN ST.				
369	VACANT	105 S. MAIN ST.				
370	VACANT	101 S. MAIN ST.				
371	HENRY'S TOWING	106 1/2 N. MAIN ST.				
372	AFFORDABLE BRAKE & MUFF	106 N. MAIN ST.				
373	HENRY'S TOWING	108 N. MAIN ST.				
374	ULRICH SOFTWARE	204 N. MAIN ST.				
375	HAIR REVIEW	208 N. MAIN ST.				
376	HAIR COTTAGE	210 N. MAIN ST.				
377	FAST TAX	302 N. MAIN ST.				
378	NIXA CHURCH OF CHRIST	313 N. MAIN ST.				
379	COX PARAMEDICS	301 N. MAIN ST.				
380	LOWLANDER KNIT WEAR	205 N. MAIN ST.				
381	RAMSEY BUILDING CO.	201 N. MAIN ST.				
382	ASSEMBLY OF GOD	109 N. MAIN ST.				
383	ASSEMBLY OF GOD	113 W. MT. VERNON ST.				
384	NIXA DENTAL	106 STATE ST.				
385	DIVERSIFIED PLASTICS	120 W. MT. VERNON ST.				
386	NIXA HARDWARE & SEED	112 GENE ST.				
387	FLEISCHMANN'S VINEGAR	209 GENE ST.				
388	ACCURATE PLASTICS	202 W. MT. VERNON ST.				
389	AUTO ZONE	104 N. FORT ST.				
390	LOLAS	110 N. FORT ST.				
391	SOUTHERN BANK OPERATION	208 MCCROSKEY ST.				
392	SOUTHERN BANK	305 W. MT. VERNON ST.				
393	O'REILLY AUTOMOTIVE	250 W. MT. VERNON ST.				
394	O'REILLY AUTOMOTIVE	254 W. MT. VERNON ST.				
395	O'REILLY AUTOMOTIVE	256 W. MT. VERNON ST.				
396	O'REILLY AUTOMOTIVE	258 W. MT. VERNON ST.				
397	O'REILLY AUTOMOTIVE	260 W. MT. VERNON ST.				
398	M & J NIXA GOLD & COIN	264 W. MT. VERNON ST.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
399	M & J NIXA GOLD & COIN	266 W. MT. VERNON ST.				
400	M & J NIXA GOLD & COIN	268 W. MT. VERNON ST.				
401	VACANT	270 W. MT. VERNON ST.				
402	VACANT	107 N. FORT ST.				
403	VACANT	109 N. FORT ST.				
404	VACANT	272 W. MT. VERNON ST.				
405	VACANT	274 W. MT. VERNON ST.				
406	VACANT	276 W. MT. VERNON ST.				
407	SALON 14	300 E W. MT. VERNON ST.				
408	QUICK LOANS	300 F W. MT. VERNON ST.				
409	GAME WORLD	300 G W. MT. VERNON ST.				
410	BARBER SHOP	302 W. MT. VERNON ST.				
411	THE BRIDGE CHURCH	304 W. MT. VERNON ST.				
412	THE BRIDGE CHURCH	308 W. MT. VERNON ST.				
413	BLU CURRENT CREDIT UNION	310 W. MT. VERNON ST.				
414	SIGNAL FOOD STORE	402 A W. MT. VERNON ST.				
415	THE UPS STORE	402 B W. MT. VERNON ST.				
416	AT&T RETAILER	402 C. W. MT. VERNON ST.				
417	AT&T RETAILER	402 D W. MT. VERNON ST.				
418	LIPSCOMB MOTOR'S	105 VILLAGE CENTER				
419	NIXA FAMILY EYE CARE	107 VILLAGE CENTER				
420	MASSENGALE GROUP	201 VILLAGE CENTER				
421	HAYMES INSURANCE	205 VILLAGE CENTER				
422	ONE ACCORD CHURCH	209 VILLAGE CENTER				
423	HEARTLAND ANIMAL CLINIC	213 VILLAGE CENTER				
424	CONOCO @ YOUR CONVENIEN	229 VILLAGE CENTER				
425	THE ATTIC	404 S. MASSEY BLVD.				
426	OZARK'S HYDROGRAPHICS	407 SUITE 8 LEE ST.				
427	OZARK'S HYDROGRAPHICS	407 SUITE 7 LEE ST.				
428	OZARK'S HYDROGRAPHICS	407 SUITE 6 LEE ST.				
429	OZARK'S HYDROGRAPHICS	407 SUITE 5 LEE ST.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
430	OZARK'S HYDROGRAPHICS	407 SUITE 4 LEE ST.				
431	SPRINGFIELD SUPPLY	408 LEE ST.				
432	BALLIE DIESEL	417 S. PATRICIA ST.				
433	SAFFARI OFFROAD	422 S. PATRICIA ST.				
434	NIXA RADIATOR (BAILLE)	426 S. PATRICIA ST.				
435	EUGENIA DAKE	424 S. PATRICIA ST.				
436	NIXA YOU STORE	320 ART HILL ST.				
437	OACAC HEAD START	406 S. PATRICIA ST.				
438	NIXA VACUUM SALES	404 S. PATRICIA ST.				
439	DOGGIE STYLES DOG GROOMI	308 W. SOUTH ST.				
440	NIXA POST OFFICE	404 W. SOUTH ST.				
441	VACANT	240 S. VILLAGE CENTER ST.				
442	VACANT	238 S. VILLAGE CENTER ST.				
443	HAIR WYNDERS SALON	236 S. VILLAGE CENTER ST.				
444	VACANT	234 S. VILLAGE CENTER ST.				
445	PREFERRED TITLE OF MO.	232 S. VILLAGE CENTER ST.				
446	TOWER LOAN	218 B S. VILLAGE CENTER				
447	GREAT AMERICAN TITLE CO. (	218 A S. VILLAGE CENTER				
448	GREAT AMERICAN TITLE CO. (	216 B S. VILLAGE CENTER				
449	GREAT AMERICAN TITLE CO. T	216 A S. VILLAGE CENTER				
450	NIXA COUNSELING CENTER	214 B S. VILLAGE CENTER				
451	NIXA LICENSE BUREAU	214 A S. VILLAGE CENTER				
452	A & D GROUP LLC	212 B S. VILLAGE CENTER				
453	A & D GROUP LLC	212 A S. VILLAGE CENTER				
454	OLD BOOK BAPTIST CHURCH	210 S. VILLAGE CENTER				
455	VACANT	208 S. VILLAGE CENTER				
456	JENKINS LLC	204 S. VILLAGE CENTER				
457	APARTMENT FOUR-PLEX	216 S. PATRICIA ST.				
458	APARTMENT FOUR-PLEX	202 S. PATRICIA ST.				
459	APARTMENT FOUR-PLEX	201 S. FORT ST.				
460	APARTMENT FOUR-PLEX	203 S. FORT ST.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
461	APARTMENT FOUR-PLEX	205 S. FORT ST.				
462	APARTMENT FOUR-PLEX	207 S. FORT ST.				
463	APARTMENT FOUR-PLEX	209 S. FORT ST.				
464	APARTMENT FOUR-PLEX	211 S. FORT ST.				
465	APARTMENT FOUR-PLEX	213 S. FORT ST.				
466	APARTMENT FOUR-PLEX	215 S. FORT ST.				
467	STONE MEADOWS APTS.	404 A S. FAIRWAY AVE.				
468	STONE MEADOWS APTS.	406 B S. FAIRWAY AVE.				
469	STONE MEADOWS APTS.	408 C S. FAIRWAY AVE.				
469.1	STONE MEADOWS APTS. OFFI	410 S. FAIRWAY AVE.				
470	STONE MEADOWS APTS.	410 D S. FAIRWAY AVE.				
471	STONE MEADOWS APTS.	412 E S. FAIRWAY AVE.				
472	COTTAGE COVE APTS.	409 S. THOMPSON ST.				
473	COTTAGE COVE APTS.	411 S. THOMPSON ST.				
474	COTTAGE COVE APTS.	413 S. THOMPSON ST.				
475	COTTAGE COVE APTS.	412 S. THOMPSON ST.				
476	COTTAGE COVE APTS.	410 S. THOMPSON ST.				
477	COTTAGE COVE APTS.	408 S. THOMPSON ST.				
478	APARTMENT FOUR-PLEX	216 - 222 FORT ST.				
479	APARTMENT SEVEN-PLEX	214 S. FORT ST.				
480	APARTMENT SEVEN-PLEX	212 S. FORT ST.				
481	APARTMENT SEVEN-PLEX	210 S. FORT ST.				
482	APARTMENT FOUR-PLEX	208 S. FORT ST.				
483	APARTMENT SEVEN-PLEX	206 S. FORT ST.				
484	APARTMENT SIX-PLEX	202 S. FORT ST.				
485	WALGREENS	106 N. MASSEY BLVD.				
486	MCDONALDS	401. W. MT. VERNON ST.				
487	VACANT	202 N. MASSEY BLVD.				
488	PEIRANO & ASSOC.	204 N. MASSEY BLVD.				
489	REFUGE CHURCH	206 N. MASSEY BLVD.				
490	REFUGE CHURCH	208 N. MASSEY BLVD.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
491	VACANT	210 N. MASSEY BLVD.				
492	VACANT	212 N. MASSEY BLVD.				
493	VACANT	214 N. MASSEY BLVD.				
494	OZARK CASH ADVANCE	216 N. MASSEY BLVD.				
495	REFUGE CHURCH	218 N. MASSEY BLVD.				
496	REFUGE CHURCH	220 N. MASSEY BLVD.				
497	HALLMARK	222 N. MASSEY BLVD.				
498	HALLMARK	302 N. MASSEY BLVD.				
499	HALLMARK	304 N. MASSEY BLVD.				
500	HALLMARK	306 N. MASSEY BLVD.				
501	DISCOUNT SMOKES & LIQ.	308 N. MASSEY BLVD.				
502	DISCOUNT SMOKES & LIQ.	310 N. MASSEY BLVD.				
503	YI's KOREAN RESTAURANT	312 N. MASSEY BLVD.				
504	YI's KOREAN RESTAURANT	314 N. MASSEY BLVD.				
505	VACANT	316 N. MASSEY BLVD.				
506	VERIZON WIRELESS	318 N. MASSEY BLVD.				
507	ENVY SALON	320 N. MASSEY BLVD.				
508	BOMBAY TAN COMPANY	322 N. MASSEY BLVD.				
509	CARDINAL COMPUTER	324 N. MASSEY BLVD.				
510	CALIFORNIA NAILS	326 N. MASSEY BLVD.				
511	ARTISAN JEWELERS	328 N. MASSEY BLVD.				
512	SUBWAY	330 N. MASSEY BLVD.				
513	ONEMAIN FINANCIAL	332 N. MASSEY BLVD.				
514	GREAT CLIPS	334 N. MASSEY BLVD.				
515	SOUTHWESTERN HEARING	336 N. MASSEY BLVD.				
516	TELCOMM C. U.	338 N. MASSEY BLVD.				
517	TELCOMM C. U.	340 N. MASSEY BLVD.				
518	EL PUENTE RESTAURANT	400 N. MASSEY BLVD.				
519	PRICE CUTTER (R.P.C.S. INC.)	400 N. MASSEY BLVD.				
520	KUM-N-GO	402 N. MASSEY BLVD.				
521	EMPIRE OZARK FOOD BROKEI	501 N. FORT ST.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
522	OZARK BANK	411 W. WASSON RD.				
523	COX MEDICAL	411 N. MCCROSKEY ST.				
524	VISION CLINIC	413 N. MCCROSKEY ST. SUITE 1				
525	ASCENT PRIMARY CARE	413 N. MCCROSKEY ST. SUITE 2				
526	VACANT	413 N. MCCROSKEY ST. SUITE 3				
527	VACANT	413 N. MCCROSKEY ST. SUITE 4				
528	MAC DENTAL	413 N. MCCROSKEY ST. SUITE 5				
529	SUPER 8 MOTEL	418 N. MASSEY BLVD.				
530	AMERICAN LEGION VFW	501 N. MCCROSKEY ST.				
531	WHOLESALE AUTO	420 N. MASSEY BLVD.				
532	DENTAL CARE OF NIXA	600 MCCROSKEY ST.				
533	COBBLESTONE VETERINARY	604 N. MCCROSKEY				
534	LITTLE CAESARS	714 MCCROSKEY ST.				
535	BUD & WALTS	701 MCCROSKEY ST. STE. 1				
536	POLISH ME NAILS & SPA	701 MCCROSKEY ST. STE. 2				
537	VACANT	701 MCCROSKEY ST. STE. 3				
538	STARLIGHTER'S DANCE	701 MCCROSKEY ST. STE. 4				
539	AGELESS YOGA	701 MCCROSKEY ST. STE. 5				
540	VERIZON WIRELESS	701 MCCROSKEY ST. STE. 6				
541	VACANT	701 MCCROSKEY ST. STE. 7				
542	MCALISTER'S	703 MCCROSKEY ST. STE. 1				
543	HIP CHICK BOUTIQUE	703 MCCROSKEY ST. STE. 2				
544	HIP CHICK BOUTIQUE	703 MCCROSKEY ST. STE. 3				
545	THE BANK OF MO.	703 MCCROSKEY ST. STE. 4				
546	EL CHARO	703 MCCROSKEY ST. STE. 5				
547	EL CHARO	703 MCCROSKEY ST. STE. 6				
548	EL CHARO	703 MCCROSKEY ST. STE. 7				
549	VOGUE DRY CLEANERS	703 MCCROSKEY ST. STE. 8				
550	5 SPICE	711 N. MC CROSKEY ST.				
551	ARBY'S (US BEEF CORP)	713 N. MC CROSKEY ST.				
552	VACANT	715 N. MC CROSKEY ST.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
553	NIXA CHRISTIAN CHURCH	400 NORTHVIEW RD.				
554	NIXA CHURCH OF NAZARENE	306 NORTHVIEW RD.				
555	SHELTER INSURANCE	409 NORTHVIEW RD. UNIT 1				
556	BOOK MARK	409 NORTHVIEW RD. UNIT 2				
557	STORAGE UNITS	409 NORTHVIEW RD.				
558	DOMINOS	411 A NORTHVIEW RD.				
559	LAUNDRY	411 B NORTHVIEW RD.				
560	LAUNDRY	411 C NORTHVIEW RD.				
561	VACANT	411 D NORTHVIEW RD.				
562	KIDS CLOSET/LOCK SMITH	411 E NORTHVIEW RD.				
563	AMERICAN FAMILY INSUR.	411 F NORTHVIEW RD.				
564	T-MOBILE	411 G NORTHVIEW RD.				
565	CASHEW INN	411 H NORTHVIEW RD.				
566	ARVEST BANK	505 NORTHVIEW RD.				
567	TRACTOR SUPPLY CO.	525 NORTHVIEW RD.				
568	MEEKS LUMBER	735 N. MASSEY BLVD.				
569	BRAUM'S	407 N. MASSEY BLVD.				
570	APPLEBEE'S	412 OLD WILDERNESS RD.				
571	CARRIAGE HOUSE CARWASH	418 OLD WILDERNESS RD.				
572	JBC TIRE & SERVICE (GOODYE	413 OLD WILDERNESS RD.				
573	JUNKIN	407 OLD WILDERNESS RD.				
574	FIRST BAPTIST CHURCH	601 WASSON RD.				
575	CASEY'S	315 N. MASSEY BLVD.				
575.1	ALDI	310 N. OLD WILDERNESS RD.				
576	DICKEY'S BBQ	111 N. MASSEY BLVD.				
577	DICKEY'S BBQ	113 N. MASSEY BLVD.				
578	VACANT	115 N. MASSEY BLVD.				
579	VACANT	117 N. MASSEY BLVD.				
580	GAMMA HEALTHCARE	119 N. MASSEY BLVD.				
581	FRESENIUS MEDICAL CARE	121 N. MASSEY BLVD.				
582	FRESENIUS MEDICAL CARE	123 N. MASSEY BLVD.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
583	HINODE	125 N. MASSEY BLVD.				
584	HINODE	127 N. MASSEY BLVD.				
585	HINODE	129 N. MASSEY BLVD.				
586	SHERWIN-WILLIAMS PAINT	505 B. W. MT. VERNON ST.				
586.1	VACANT	505 A. W. MT. VERNON ST.				
587	CVS PHARMACY	501 W. MT. VERNON ST.				
588	TACO BELL	507 W. MT. VERNON ST.				
589	SHANGHI BUFFET	531 W. MT. VERNON ST.				
590	FAMILY MEDICAL CLINIC	103 N. OLD WILDERNESS RD.				
591	SONIC DRIVE INN	605 W. MT. VERNON ST.				
592	VACANT	611 A2 W. MT. VERNON ST.				
593	ADVANCED MASSAGE	611 A W. MT. VERNON ST.				
594	SIGNS IN 24 HOURS	611 B W. MT. VERNON ST.				
595	CHIROPRACTIC	612 C W. MT. VERNON ST.				
596	FARM BUREAU INS.	612 D W. MT. VERNON ST.				
597	TATTOO COMPANY	611 E W. MT. VERNON ST.				
598	WILD HAIR SALON	611 F W. MT. VERNON ST.				
599	RAPID ROBERTS	615 W. MT. VERNON ST.				
600	SIMMONS BANK	701 W. MT. VERNON ST.				
601	GUARANTY BANK	709 W. MT. VERNON ST.				
602	GREAT SOUTHERN BANK	717 W. MT. VERNON ST.				
603	ADAMS FUNERAL HOME	109 N. TRUMAN BLVD.				
604	VACANT	729 W. CENTER CIRCLE STE. 101				
605	VACANT	729 W. CENTER CIRCLE STE. 102				
606	EDWARD JONES	729 W. CENTER CIRCLE STE. 103				
607	CAPSTONE DENTISTRY	729 W. CENTER CIRCLE STE. 104				
608	AUSTIN ORTHODONTICS	733 W. CENTER CIRCLE				
609	CHRISTIAN ASSOCIATES THRI	741 W. CENTER CIRCLE				
610	DL MEDIA	720 W. MT. VERNON ST.				
611	DL MEDIA	722 W. MT. VERNON ST.				
612	DL MEDIA	724 W. MT. VERNON ST.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
613	DL MEDIA	726 W. MT. VERNON ST.				
614	DL MEDIA	728 W. MT. VERNON ST.				
615	DL MEDIA	730 W. MT. VERNON ST.				
616	SHAFFER & HINES	731A W. MT. VERNON ST.				
617	SHAFFER & HINES	731 W. MT. VERNON ST.				
618	VACANT	729 W. MT. VERNON ST.				
619	PENMAC	727 W. MT. VERNON ST.				
620	NIXA SMILES	725 W. MT. VERNON ST.				
621	NIXA SMILES	723 W. MT. VERNON ST.				
622	REDEEMER LUTHERN CHURC	911 W. MT. VERNON ST.				
623	VACANT	1105 W. MT. VERNON ST.				
624	CHIROPRACTOR, DR. GREENW	1361 W. MT. VERNON ST.				
625	DAISY'S PRESCHOOL	1375 W. MT. VERNON ST.				
625.1	DAISY'S PRESCHOOL	1375 W. MT. VERNON ST.				
626	S.C.O.R.E. SCHOOL	1398 W. MT. VERNON ST.				
627	EXTREME EXTERIORS	1376 W. MT. VERNON ST.				
628	DOLLAR GENERAL	1342 W. MT. VERNON ST.				
629	CASEY'S C-STORE	1306 W. MT. VERNON ST.				
630	CASEY'S CARWASH	1306 W. MT. VERNON ST.				
631	TWISTED SPUR BOUTIQUE	141 S. NICHOLAS RD. STE. 1				
632	LUKKA SALON	141 S. NICHOLAS RD. STE. 2				
633	VACANT	141 S. NICHOLAS RD. STE. 3				
634	LOADED GUN PAWN	141 S. NICHOLAS RD. STE. 4				
635	NFPD HEADQUARTERS	301 S. NICHOLAS RD.				
636	CRAFTY CALICO CUPBOARD	1330 W. SCHATZ LN.				
637	VACANT	1320 W. SCHATZ LN.				
638	VACANT	1314 W. SCHATZ LN.				
639	ALTERNATIVES?)	1308 W. SCHATZ LN.				
640	EAGLEWOOD APARTMENTS	1301 - 1331 W. EAGLEWOOD BUILDING 1				
641	EAGLEWOOD APARTMENTS	1333 - 1363 W. EAGLEWOOD BUILDING 3				
642	EAGLEWOOD APARTMENTS	1365 - 1395 W. EAGLEWOOD BUILDING 5				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
643	EAGLEWOOD APARTMENTS	1397 - 1427 W. EAGLEWOOD BUILDING 6				
644	EAGLEWOOD APARTMENTS	1429 - 1459 W. EAGLEWOOD BUILDING 7				
645	EAGLEWOOD APARTMENTS	1398 - 1428 W. EAGLEWOOD BUILDING 8				
646	EAGLEWOOD APARTMENTS	1366 - 1396 W. EAGLEWOOD BUILDING 9				
647	EAGLEWOOD APARTMENTS	1334 - 1364 W. EAGLEWOOD BUILDING 4				
648	EAGLEWOOD APARTMENTS	1302 - 1332 W. EAGLEWOOD BUILDING 2				
649	NIXA SENIOR HIGH SCHOOL	514 S. NICHOLAS RD.				
650	EASTSIDE STORAGE	1265 WESTSIDE DR.				
650.1	CALVARY BIBLE CHURCH	130 S. NICHOLAS RD.				
651	CASEY'S C-STORE	1110 W. MT. VERNON				
652	LIFE ENHANCEMENT VILLAGI	1111 W. CARE AVE.				
653	CROWHAVEN APARTMENTS	1080-1112 W. CARE AVE.				
654	HELEN MATHEWS SCHOOL	605 S. GREGG RD.				
655	CAREER OPPORTUNITY CENT	605 S. GREGG RD.				
656	ASHMONT MINI-STORAGE	851 A - D S. GREGG RD.				
657	ST. FRANCIS OF ASSISI CATHO	844 S. GREGG RD.				
658	LIFE ENHANCEMENT VILLAGI	732 S. GREGG RD.				
659	ESPY ELEMENTARY	220 S. GREGG RD.				
660	MERCY ST. JOHN'S CLINIC	940 W. MT. VERNON ST.				
661	MACPHERSON LAW	912 W. MT. VERNON ST.				
662	MACPHERSON LAW	914 W. MT. VERNON ST.				
663	ROLLINGS & ASSOCIATES	916 W. MT. VERNON ST.				
664	NIXA VAPOR	918 W. MT. VERNON ST.				
665	VACANT	920 W. MT. VERNON ST.				
66x	DOGGIE SPA OF AMERICA	922 W. MT. VERNON ST.				
667	DOGGIE SPA OF AMERICA	924 W. MT. VERNON ST.				
668	VACANT	928 W. MT. VERNON ST.				
669	OLD MISSOURI MUTUAL	902 W. MT. VERNON ST.				
670	VACANT	830 W. MT. VERNON ST. STE. 13				
671	VACANT	830 W. MT. VERNON ST. STE. 12				
672	CAROL JONES REALTORS	830 W. MT. VERNON ST. STE. 11				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
673	VACANT	830 W. MT. VERNON ST. STE. 10				
674	GENPRO	830 W. MT. VERNON ST. STE. 9				
675	VACANT	830 W. MT. VERNON ST. STE. 8				
676	SNAP FITNESS	830 W. MT. VERNON ST. STE. 7				
677	VACANT	830 W. MT. VERNON ST. STE. 6				
678	VACANT	830 W. MT. VERNON ST. STE. 5				
679	VACANT	830 W. MT. VERNON ST. STE. 4				
680	VACANT	830 W. MT. VERNON ST. STE. 3				
681	BROWN DERBY	830 W. MT. VERNON ST. STE. 2				
682	BROWN DERBY	830 W. MT. VERNON ST. STE. 1				
683	NIXA PLACE APTS.	733 - 747 BRETT CIR. BLDG. E				
684	NIXA PLACE APTS.	717 - 731 BRETT CIR. BLDG. C				
685	NIXA PLACE APTS.	701 - 715 BRETT CIR. BLDG. A				
686	ASHWORTH INVESTMENTS LL	702 - 716 BRETT CIR.				
687	NIXA PLACE APTS.	718 - 732 BRETT CIR. BLDG. D				
688	ASHWORTH INVESTMENTS LL	734 - 748 BRETT CIR.				
689	ABBEY ORCHARD APTS.	302 - 324 S. TRUMAN BLVD. BLDG. G				
690	ABBEY ORCHARD APTS.	326 - 348 S. TRUMAN BLVD. BLDG. F				
691	ABBEY ORCHARD APTS.	350 - 396 S. TRUMAN BLVD. BLDG. E				
692	ABBEY ORCHARD APTS.	252 - 282 S. TRUMAN BLVD. BLDG. D				
693	ABBEY ORCHARD APTS.	168 - 198 S. TRUMAN BLVD. BLDG. C				
694	ABBEY ORCHARD APTS.	OFFICE				
695	ABBEY ORCHARD APTS.	226 - 250 S. TRUMAN BLVD. BLDG. B				
696	ABBEY ORCHARD APTS.	202 - 224 S. TRUMAN BLVD. BLDG. A				
697	ABBEY ORCHARD APTS.	200 S. TRUMAN BLVD.				
698	BEAR STATE BANK	716 W. MT. VERNON ST.				
699	EAGLE'S DONUTS	710 W. MT. VERNON ST.				
700	MICHELLE DAVIS DENTAL	708 W. MT. VERNON ST.				
701	WORLD FINANCE	706 W. MT. VERNON ST.				
702	BEAU SOLEIL	704 W. MT. VERNON ST.				
703	HANA GRILL	702 W. MT. VERNON ST.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
704	NIXA ANIMAL HOSPITAL	700 W. MT. VERNON ST.				
705	VACANT	696 W. MT. VERNON ST.				
706	MAILBOX IT	694 W. MT. VERNON ST.				
707	GORGEOUS NAILS	692 W. MT. VERNON ST.				
708	VACANT	690 W. MT. VERNON ST.				
709	BUCKINGHAM'S BAR BQ	606 W. MT. VERNON ST.				
710	VACANT LOT	604 W. MT. VERNON ST.				
711	VACANT	566 W. MT. VERNON ST.				
712	LA FIESTA	562 W. MT. VERNON ST.				
713	M.A.P.S.	560 W. MT. VERNON ST.				
714	EDWARD JONES	558 W. MT. VERNON ST.				
715	ARTISTIC HAIR SALON	556 W. MT. VERNON ST.				
716	SITTIN' PRETTY PET GROOMIN	554 W. MT. VERNON ST.				
717	PAPA MURPHY'S	552 W. MT. VERNON ST.				
717.1	PAPA MURPHY'S	550-C W. MT. VERNON ST.				
718	NIXA HARDWARE FIREPLACE	550-B W. MT. VERNON ST.				
719	TONY'S PLACE	550-A W. MT. VERNON ST.				
720	NIXA HARDWARE	510 W. MT. VERNON ST.				
721	CENTRAL BANK	502 W. MT. VERNON ST.				
722	FARMERS INSURANCE	307 S. WEST ST. STE. 100				
723	LIFE EXPRESSIONS	307 S. WEST ST. STE. 200				
723.1	CHIROPRACTIC	307 S. WEST ST. STE. 300				
724	FAMILY MEDIATIONS SERVICI	307 S. WEST ST. STE. 400				
725	NIXA BOAT AND RV STORAGE	307 S. WEST ST. STE. 500				
725.1	EMPIRE REALTORS	307 S. WEST ST. STE. 600				
725.2	EMPIRE REALTORS	307 S. WEST ST. STE. 700				
725.3	VACANT	307 S. WEST ST. STE. 800				
726	NIXA CLEANERS	302 S. WEST ST.				
727	NEW BEGINNINGS WED. CHAI	423 W. SOUTH ST.				
728	NIXA MEETING EVENT CNTR.	421 W. SOUTH ST.				
729	SPORT BOAT USA	411 W. SOUTH ST.				

SITE ID	MS4 INDUSTRIAL & COMMERCIAL IDDE FIELD WORK SHEET		DATE OF INSPECTION	DATE OF NOTIFICATION	DATE OF RESPONSE	DATE OF COMPLIANCE
	NAME	ADDRESS				
730	VACANT	202 S. WEST ST. STE. 1				
731	VACANT	202 S. WEST ST. STE. 2				
731.1	FIDELITY	202 S. WEST ST. STE. 3				
731.2	HEALTHCARE	202 S. WEST ST. STE. 4				
732	INMAN ELEMENTARY SCHOOI	1300 N. NICHOLAS RD.				
733	CROSSROADS DESIGN	824 ENTERPRISE				
734	CROSSROADS DESIGN	822 ENTERPRISE				
735	RV STORAGE	782 ENTERPRISE				
736	ED HINES COMPANY	772 ENTERPRISE				
737	LIBERTY CONSTRUCTION	768 ENTERPRISE				
738	VACANT	760 ENTERPRISE				
739	MODERN MOTORCARS	750 ENTERPRISE				
740	GATEKEEPER	1563 N. MAIN ST. SUITE A				
741	GATEKEEPER	1563 N. MAIN ST. SUITE B				
742	VACANT	1563 N. MAIN ST. SUITE C				
743	STATEFARM	1563 N. MAIN ST. SUITE D				
744	SOUTHERN BANK	1564 N. MAIN ST.				
745	OAKLAND OIL	311 W. TRACKER RD.				

ADDENDUM MCM #3-7

CITY OF NIXA STORMWATER ILLICIT DISCHARGE OUTFALL INSPECTION REPORT			
GENERAL INFORMATION:			Pg.1
X - COORD	-93.3117	Object ID #	01
Y - COORD	37-0780	Date Of Inspection:	06/16/17
INSPECTOR'S INFORMATION:			
Inspector's Name: Danny Newell		Inspector's Signature: D. S. NEWELL	
Inspector's Title: Public Works Inspector			
Inspector's Contact Information: 417-725-2353 / PO Box 395, Nixa, Mo. 65714			
Inspector's Qualifications: CISEC #329			
TYPE OF INSPECTION:			
Regular annual, Pre-storm, During storm, Post storm			
WEATHER INFORMATION:			
Date of most recent storm event: 06/14/17		Approximate Duration (Hrs):	
Approximate precipitation amount (Inches): 0.5			
Weather at time of inspection: Clear Cloudy Rain Sleet Snow			
Are there any discharges at this time in danger of leaving the site?		YES	NO
If YES, describe:			
Comments, Observations, Actions Taken, Corrective Actions Needed:			
There are no obvious signs of illicit discharges at this time. No trash or debris that could be considered a stormwater pollutant.			

OBJECTID	SHAPE *	Outfall ID	X_COORD	Y_COORD	Lat	Long	1/4 Sec	1/4 Sec	Sec	Twn	Rng	Rec_Stream
1	Point	1	-93.31171	37.07804	37° 1' 45" N	93° 18' 41" W	NE	NW	2	27	22	-named tributary of James River
2	Point	2	-93.31147	37.06192	37° 3' 41" N	93° 18' 38" W	NE	NW	2	27	22	-named tributary of James River
3	Point	3	-93.30287	37.06197	37° 3' 55" N	93° 18' 23" W	NW	NE	2	27	22	-named tributary of James River
4	Point	4	-93.31193	37.05464	37° 3' 16" N	93° 18' 42" W	NE	SW	2	27	22	-named tributary of James River
51	Point	5	-93.32726	37.02538	37° 1' 33" N	93° 19' 37" W	NE	SW	22	27	22	-named tributary of James River
6	Point	6	-93.31969	37.05095	37° 3' 3" N	93° 19' 11" W	NE	SE	10	27	22	-named tributary of James River
7	Point	7	-93.29812	37.07449	37° 41' 26" N	93° 17' 53" W	SW	NW	1	27	22	-named tributary of James River
8	Point	8	-93.27439	37.04217	37° 2' 32" N	93° 16' 28" W	NE	SW	18	27	21	-named tributary of Finley Creek
56	Point	9	-93.274	37.042	37° 2' 32" N	93° 16' 26" W	SE	NW	18	27	21	-named tributary of Finley Creek
10	Point	10	-93.26952	37.04242	37° 2' 31" N	93° 16' 7" W	SW	NE	18	27	21	-named tributary of Finley Creek
11	Point	11	-93.27431	37.03955	37° 2' 22" N	93° 16' 23" W	NE	SW	18	27	21	-named tributary of Finley Creek
12	Point	12	-93.27448	37.03638	37° 2' 11" N	93° 16' 33" W	SE	SW	18	27	21	-named tributary of Finley Creek
13	Point	13	-93.2745	37.03492	37° 2' 4" N	93° 16' 33" W	NE	NW	19	27	21	-named tributary of Finley Creek
14	Point	14	-93.26513	37.03501	37° 2' 6" N	93° 16' 33" W	SW	SW	17	27	21	-named tributary of Finley Creek
15	Point	15	-93.26176	37.03493	37° 2' 4" N	93° 15' 43" W	SW	SW	17	27	21	-named tributary of Finley Creek
16	Point	16	-93.29173	37.03603	37° 2' 9" N	93° 17' 30" W	NE	NW	24	27	22	-named tributary of Finley Creek
17	Point	17	-93.29044	37.03449	37° 2' 4" N	93° 17' 26" W	NE	NE	24	27	22	-named tributary of Finley Creek
18	Point	18	-93.29493	37.03345	37° 2' 2" N	93° 17' 41" W	NE	NW	24	27	22	-named tributary of Finley Creek
19	Point	19	-93.28976	37.03234	37° 1' 56" N	93° 17' 23" W	NW	NE	24	27	22	-named tributary of Finley Creek
20	Point	20	-93.28778	37.03227	37° 1' 56" N	93° 17' 15" W	NW	NE	24	27	22	-named tributary of Finley Creek
21	Point	21	-93.28601	37.02623	37° 1' 40" N	93° 17' 7" W	NE	SE	24	27	22	-named tributary of Finley Creek
22	Point	22	-93.29147	37.0226	37° 1' 19" N	93° 17' 27" W	SE	SW	24	27	22	-named tributary of Finley Creek
23	Point	23	-93.29514	37.02231	37° 1' 21" N	93° 17' 43" W	SE	SW	24	27	22	-named tributary of Finley Creek
24	Point	24	-93.30275	37.0216	37° 1' 15" N	93° 18' 18" W	SE	SE	23	27	22	-named tributary of Finley Creek
25	Point	25	-93.28207	37.02478	37° 1' 30" N	93° 16' 55" W	NE	SE	24	27	22	-named tributary of Finley Creek
26	Point	26	-93.27955	37.02798	37° 1' 40" N	93° 16' 47" W	NW	SW	19	27	21	-named tributary of Finley Creek
27	Point	27	-93.27729	37.02795	37° 1' 40" N	93° 16' 41" W	NW	SW	19	27	21	-named tributary of Finley Creek
28	Point	28	-93.30225	37.01901	37° 1' 6" N	93° 18' 14" W	NE	NE	26	27	22	-named tributary of Finley Creek
29	Point	29	-93.2911	37.07276	37° 4' 21" N	93° 17' 27" W	SE	NW	1	27	22	-named tributary of James River
30	Point	30	-93.29399	37.07108	37° 4' 16" N	93° 17' 38" W	NW	SW	1	27	22	-named tributary of James River
31	Point	31	-93.28947	37.06165	37° 3' 55" N	93° 17' 11" W	NE	NW	12	27	22	-named tributary of James River
32	Point	32	-93.28462	37.06522	37° 3' 3" N	93° 19' 11" W	SE	SE	1	27	22	-named tributary of James River

OBJECTII	SHAPE *	Outfall ID	X_COORD	Y_COORD	Lat	Long	1/4 Sec	1/4 Sec	Sec	Twn	Rng	Rec_Stream
33	Point	33	-93.27367	37.07586	37° 4' 31" N	93° 16' 22" W	NE	NW	6	27	21	-named tributary of James River
34	Point	34	-93.26932	37.06392	37° 3' 51" N	93° 16' 7" W	NW	NE	7	27	21	-named tributary of James River
35	Point	35	-93.26513	37.05452	37° 3' 26" N	93° 15' 54" W	NE	SE	7	27	21	-named tributary of Finley Creek
36	Point	36	-93.2652	37.05099	37° 3' 8" N	93° 15' 55" W	SE	SE	7	27	21	-named tributary of Finley Creek
37	Point	37	-93.27407	37.04966	37° 2' 59" N	93° 16' 25" W	NE	NW	18	27	21	-named tributary of Finley Creek
38	Point	38	-93.27728	37.04974	37° 2' 59" N	93° 16' 38" W	NW	NW	18	27	21	-named tributary of Finley Creek
39	Point	39	-93.2785	37.04965	37° 2' 59" N	93° 16' 41" W	NW	NW	18	27	21	-named tributary of Finley Creek
40	Point	40	-93.33116	37.04639	37° 2' 47" N	93° 19' 53" W	SW	NW	15	27	22	-named tributary of James River
41	Point	41	-93.33184	37.04419	37° 2' 38" N	93° 19' 51" W	SW	NW	15	27	22	-named tributary of James River
42	Point	42	-93.33127	37.0437	37° 2' 36" N	93° 19' 51" W	SW	NW	15	27	22	-named tributary of James River
43	Point	43	-93.3315	37.0352	37° 2' 5" N	93° 19' 55" W	NW	NW	22	27	22	-named tributary of James River
44	Point	44	-93.30872	37.03237	37° 1' 56" N	93° 18' 31" W	SW	NE	23	27	22	-named tributary of Finley Creek
45	Point	45	-93.3088	37.0276	37° 1' 38" N	93° 18' 31" W	NW	SE	23	27	22	-named tributary of Finley Creek
46	Point	46	-93.32118	37.02151	37° 1' 17" N	93° 19' 15" W	NE	NE	27	27	22	-named tributary of Finley Creek
47	Point	47	-93.30462	37.01476	37° 0' 53" N	93° 18' 15" W	SW	NE	2	27	22	-named tributary of Finley Creek
48	Point	48	-93.30543	37.00274	37° 0' 11" N	93° 18' 19" W	SW	NE	35	27	22	-named tributary of Finley Creek
52	Point	49	-93.29846	37.02764	37° 1' 37" N	93° 17' 47" W	NW	SW	24	27	22	-named tributary of Finley Creek
57	Point	50	-93.32	37.037	37° 2' 13" N	93° 19' 13" W	SE	SE	15	27	22	-named tributary of James River
53	Point	51	-93.32867	37.04058	37° 2' 26" N	93° 19' 42" W	NE	SW	15	27	22	-named tributary of James River
58	Point	52	-93.331	37.041	37° 2' 29" N	93° 19' 50" W	NE	SW	15	27	22	-named tributary of James River
54	Point	53	-93.32217	37.03918	37° 2' 20" N	93° 19' 18" W	SW	SE	15	27	22	-named tributary of James River

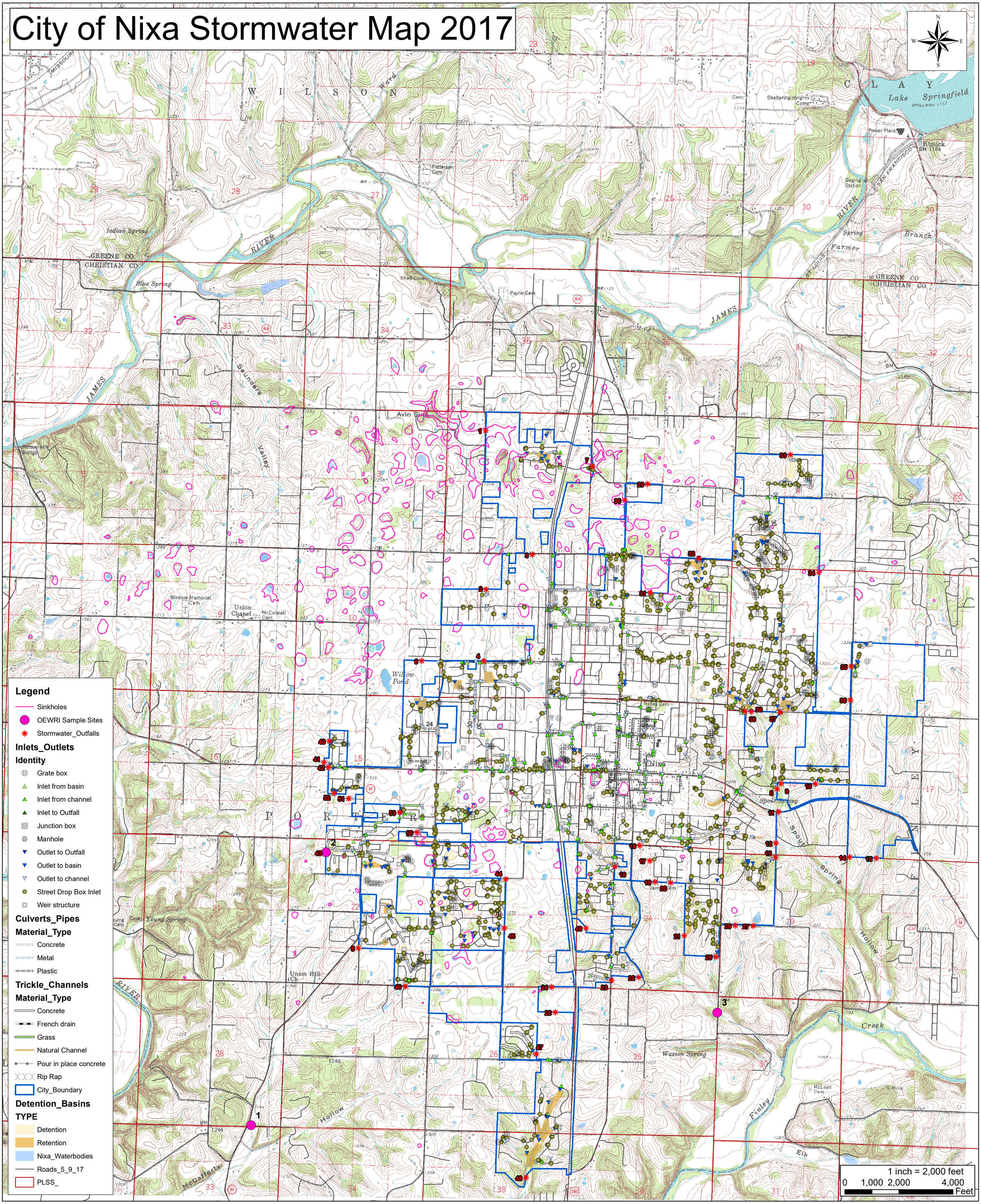
Total area (acres) of detenti 146

Total surface shots of Manholes, Inlets, Outlets, Junction boxes, Weir Structures 2427

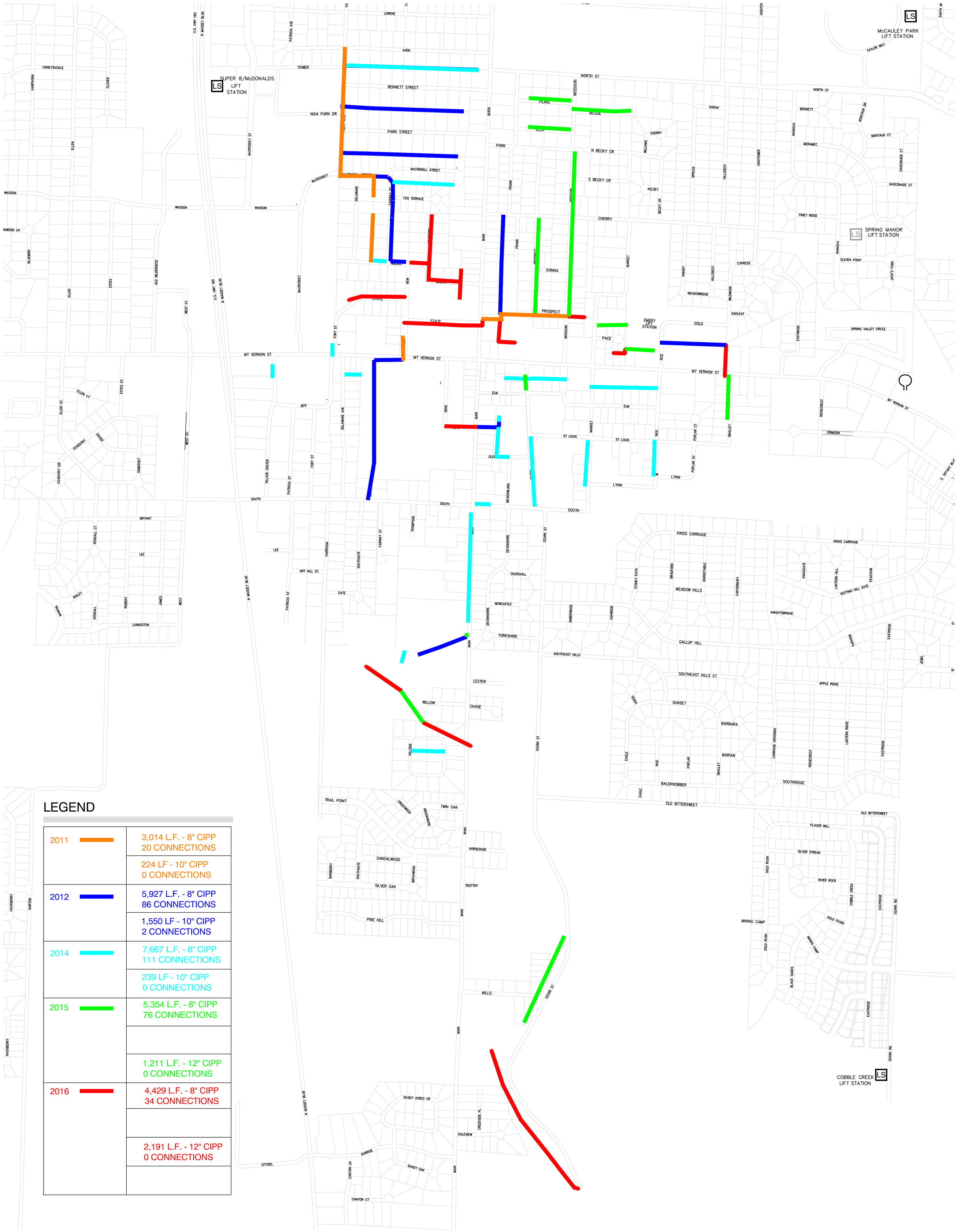
Total miles of culverts and pipes (metal, concrete or plastic) 16.4

Total miles of trickle channels (concretrte, grass lined, other) 11.6

City of Nixa Stormwater Map 2017



WASTEWATER COLLECTION SYSTEM IMPROVEMENTS FOR THE CITY OF NIXA, MISSOURI



LEGEND

2011		3,014 L.F. - 8" CIPP 20 CONNECTIONS
		224 LF - 10" CIPP 0 CONNECTIONS
2012		5,927 L.F. - 8" CIPP 86 CONNECTIONS
		1,550 LF - 10" CIPP 2 CONNECTIONS
2014		7,667 L.F. - 8" CIPP 111 CONNECTIONS
		239 LF - 10" CIPP 0 CONNECTIONS
2015		5,354 L.F. - 8" CIPP 76 CONNECTIONS
		1,211 L.F. - 12" CIPP 0 CONNECTIONS
2016		4,429 L.F. - 8" CIPP 34 CONNECTIONS
		2,191 L.F. - 12" CIPP 0 CONNECTIONS

SHEET 1 OF 1

JOB NO. 162008

REVISIONS

DESIGN BY GWS
DRAWN BY GSM
CHK'D BY GWS
DATE JAN. 2016
SCALE AS SHOWN

CIPP SUMMARY

SHAFFER & HINES INC.
CONSULTING ENGINEERS - REGISTERED LAND SURVEYORS
P.O. Box 493, Nixa, Missouri, 65714
Tel: (417) 725-4663 - Fax: (417) 725-5230
Email: chines@shafferhines.com
SHAFFER & HINES, INC.
CERTIFICATE OF AUTHORITY
LICENSE NO. 001665

STATE OF MISSOURI
GARY WAYNE SHAFFER
NUMBER E-20886
REGISTERED PROFESSIONAL ENGINEER
GARY WAYNE SHAFFER E-20886

WASTEWATER COLLECTION SYSTEM IMPROVEMENTS FOR THE CITY OF NIXA

ADDENDUM MCM #3-10

2012 IPC

301.3 Connections to drainage system.

All plumbing fixtures, drains, appurtenances and appliances used to receive or discharge liquid wastes or sewage shall be directly connected to the sanitary drainage system of the building or premises, in accordance with the requirements of this code.

Exceptions: Bathtubs, showers, lavatories, clothes washer, and laundry trays shall not be required to discharge to the sanitary drainage system where such fixtures discharge to an approved gray water system for flushing of water-closet and urinals.

Note: Each day the violation continues shall be deemed a separate offence.

701.4 Sewage treatment. Sewage or other waste from a plumbing system that is deleterious to surface or subsurface waters shall not be discharged into the ground or into any waterway unless it has first been rendered innocuous through subjection to an approved form of treatment.

Note: Each day the violation continues shall be deemed a separate offence.

ADDENDUM MCM #3-11

MUNICIPAL STORMWATER POLLUTION PREVENTION

Danny Newell, CISEC, ACI

THE CLEAN WATER ACT

- The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but this Act was reorganized and expanded in 1972 at which time the "Clean Water Act" became it's official name.

THE CLEAN WATER ACT

- Under the CWA, the Environmental Protection Agency (EPA) has implemented pollution control programs such as setting wastewater standards for the industry. They have also set water quality standards for all contaminants in surface water.

- The CWA is the primary federal law in the United States governing water pollution.

THE CLEAN WATER ACT

- The Act established the goals of eliminating releases to water of high amounts of toxic substances, eliminating additional water pollution by 1983, and ensuring that surface waters would meet standards necessary for human sports and recreation by 1985.

- Congress chose to define the waters covered by the Act broadly. Although the Act prohibits discharges into "navigable waters" the Act defines "navigable waters" as "the waters of the United States" and makes it clear that the term "navigable" is of limited importance.

POINT SOURCES

- The 1972 Act introduced a permit system for regulating point sources of pollution. Point sources include:

- Industrial facilities (including manufacturing, mining, oil and gas extraction, and service industries).

- Municipal governments and other government facilities (such as military bases).

- Some agricultural facilities, (such as animal feed lots).

POINT SOURCES

- Point sources may not discharge pollutants to surface waters without a permit from the National Pollution Discharge Elimination System (NPDES).

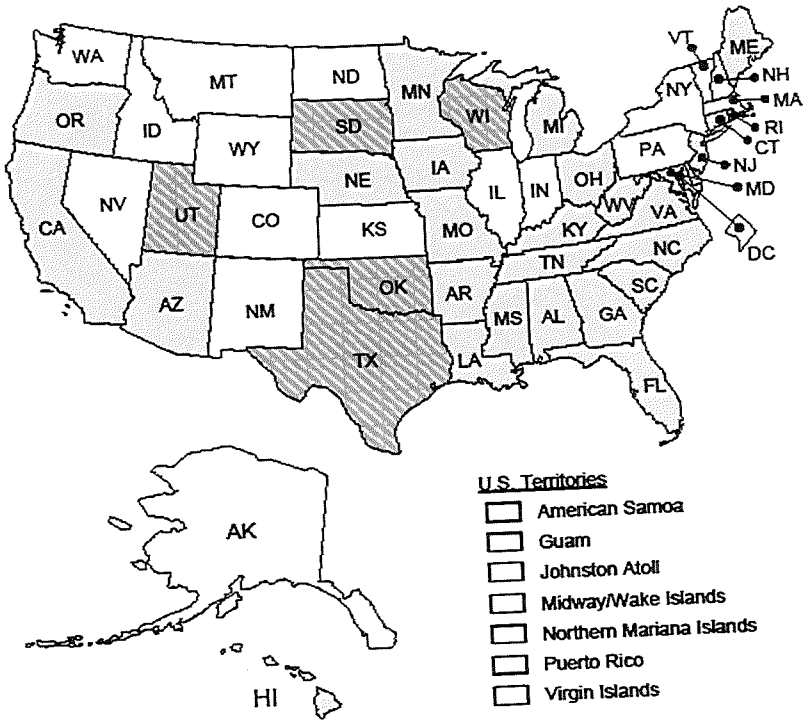
- This system is managed by the EPA in partnership with the state environmental agencies.

- Within this permit system the Municipal Separate Storm Sewer System (MS4) was developed as the result of amendments to the Act in 1987.

States that regulate MS4 facilities

- The EPA has authorized 45 states (Missouri included) to issue permits, through the Department of Natural Resources directly to the discharging MS4 facility and to regulate the MS4 program.

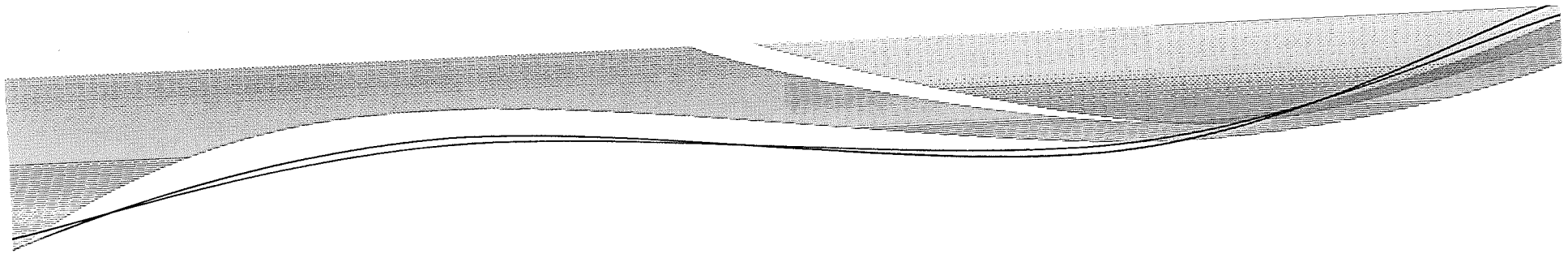
State NPDES Program Authority



NON-POINT SOURCES

- Congress exempted some water pollution sources from the point source definition in the 1972 CWA.

- These sources were therefore considered to be non-point sources that were not subject to the permit program.



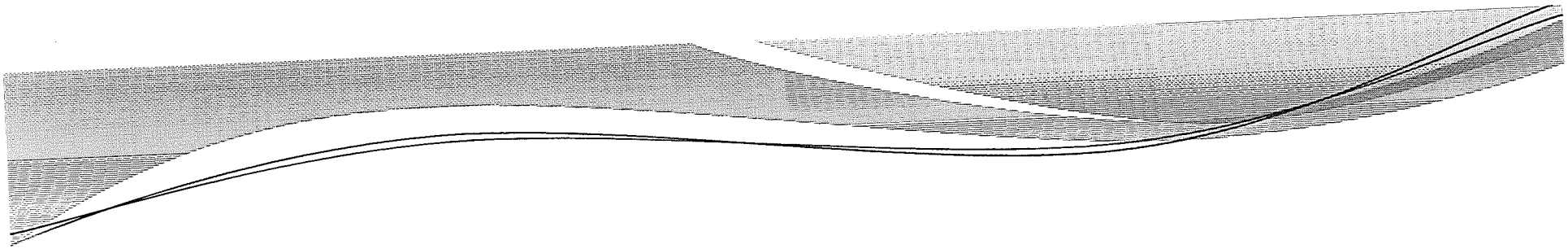
- Agricultural storm water discharges and irrigation return flows were specifically exempted from the permit requirements.

- Congress, however, provided support for research programs through the U.S. Department of Agriculture to improve runoff management practices on farms.

- Storm water runoff from industrial sources, municipal storm drains, and other sources were not specifically addressed in the 1972 CWA.

- EPA declined to include urban and industrial storm water discharges in the NPDES permit program and consequently were sued by an environmental group.

- The courts ruled that these storm water discharges must be covered by the permit program.



- In the Water Quality Act of 1987, Congress responded to the storm water problem by requiring that the industrial storm water discharges and the Municipal Separate Storm Sewer Systems obtain NPDES permits by specific deadlines.

- This permit program has been implemented in phases. Phase I & Phase II.

- Phase I included the Large MS4's (systems that are located in an incorporated place or county with a population of 250,000 or more) and;

- Medium MS4's (systems that are located in an incorporated place or county with a population of 100,000 to 249,999).

- The Phase I MS4's became regulated in 1990.
- There are 3 Phase I communities in Missouri: Springfield, K.C., and Independence.
- The Metropolitan St. Louis Sewer District successfully petitioned on behalf of the City of St. Louis to be regulated under Phase II.

- Phase II includes small MS4's (systems that are located in an incorporated place or county with a population of 10,000 or more) which of course, is where the City of Nixa falls.

- Phase II MS4's became regulated in March 2003, and required the small MS4's to have a storm water management program in place by March 10, 2008.

- Within these same permit regulations, the City of Nixa (being a regulated small MS4), is required to also develop Pollution Prevention Good Housekeeping procedures for our Municipal Operations and develop an Environmental Awareness, Annual Employee Training Program.

- There are 152 small MS4 programs in the state of Missouri.

- Having said all of that sets the stage for how we arrived at the training video that we are going to see today entitled: Storm Watch, Municipal Storm Water Pollution Prevention.

- This video is designed to show employees how to spot an Illicit Discharge within our own Municipal Operations and around town.

- An Illicit Discharge as defined is: a storm drain that has measurable flow during dry weather containing pollutants and/or pathogens (a bacterium or virus). A measurable flow without pollutants is simply a discharge.

- The other side of this two headed coin is Sediment and Erosion control, on which the video touches briefly, however, that's another day, another meeting, and another video.

STORM SEWER, NO DUMPING, DRAINS TO RIVER!

Storm Watch

Municipal Storm Water POLLUTION PREVENTION

Employee Quiz

Name _____

Dept. _____ Date _____

The following questions all have multiple choice answers. Please check the best answer for each question.

1. If a piece of equipment has to be washed or steam cleaned outdoors, how should this be done?

   a. on a fully contained impervious pad
   b. over bare dirt so it will be absorbed
   c. over a storm drain inlet
   d. in or next to a drainage ditch

2. When using an outdoor solid waste receptacle, which of the following are required?

   a. leave lids or covers closed while not in use
   b. move the receptacle indoors
   c. locate the receptacle on bare ground?
   d. all of the above

3. Which of the following materials or operations outdoors can cause storm water pollution?

   a. a spill or leak of diesel fuel
   b. an open container of paint
   c. a metal grinding operation
   d. a broken hydraulic line
   e. all of the above

4. Which of the following are **not** considered Good Housekeeping practices?

   a. sweeping up outdoor work areas
   b. keeping unused containers closed and sealed
   c. protecting materials from exposure to the weather
   d. secondary containment structures

5. If materials are stored outdoors, they may be temporarily covered with a waterproof tarp under what circumstances?

   a. the tarp is regularly checked for tears or loosening
   b. the tarp is at least twice as large as the material being covered
   c. the material is stored as far as possible from vehicle traffic
   d. the material is in open containers

6. Under what conditions is it OK to hose down a spill into a storm drain or ditch?

   a. if the material is non-hazardous
   b. if it is raining
   c. if your supervisor approves it
   d. if it is done immediately after the spill
   e. none of the above

7. If a lawn mower has to be greased outdoors, which of the following would help protect storm water?

   a. perform the operation during dry weather
   b. spread a drop cloth underneath the equipment
   c. wear safety glasses and rubber gloves
   d. all of the above

8. If a dump truck has a leaking hydraulic line, what should be done?

   a. drain it immediately or move indoors
   b. notify the storm water coordinator
   c. put a water-proof tarp over it temporarily
   d. lock and tag it out

9. Even if you cannot immediately clean up a spill due to the hazards involved, which of the following must be done to help protect storm water?

   a. notify the emergency coordinator or storm water coordinator
   b. evacuate the facility
   c. shut down all operations
   d. locate the applicable MSDS for the spilled material

10. What are the practices that protect storm water called?

    a. EPAs
    b. MSDSs
    c. SOPs
    d. BMPs

11. A spill or leak should be cleaned up promptly because....

    a. absorbents work better on fresh spills
    b. spills can be spread by wind or vehicle traffic
    c. it is usually more convenient to do the clean-up quickly
    d. the spill will evaporate if not cleaned up quickly

12. Under what conditions can tools or equipment be cleaned over a storm drain inlet or in a drainage ditch?

    a. during dry weather
    b. if your supervisor approves it
    c. after consulting the Storm Water Pollution Prevention Plan
    d. if the tool or equipment are cleaned with water only: no detergents or solvents
    e. none of the above

13. Under what conditions should accumulated rainwater be drained from a secondary containment structure?

    a. the rain water is clean and uncontaminated
    b. during dry weather only
    c. it is less than half full
    d. all of the above

14. If a vehicle had a ruptured hydraulic hose and was leaking fluid, which of the following would be most appropriate?

    a. cover it with a tarp
    b. move it indoors
    c. wash it down with soapy water
    d. none of the above

15. If a fertilizer spreader caused some fertilizer to fall on a paved area, what would be the best way to deal with it?

    a. hose it into the storm drain
    b. notify the EPA
    c. sweep or blow it back onto a vegetated area
    d. ignore it

Storm Watch — Municipal Storm Water POLLUTION PREVENTION

Acknowledgment of Training

Signature(s) below are acknowledgment that on (date) _____,

these individuals participated in a training session at the (location name) _____,

(address) _____,

given by (print trainer's name) _____,

(print trainer's title) _____.

This training session presented information on Municipal Stormwater Pollution Prevention. During this session, I viewed the visual multimedia program:

❑ **Storm Watch: Municipal Stormwater Pollution Prevention**

My signature below affirms that I was given adequate time to ask questions about my particular job activities and how I can best conduct these activities in compliance with the applicable regulations.

PRINT NAME HERE	SIGNATURE HERE

Reduce Storm Water Pollution and Save Our Precious Resource!

Storm water pollution is undoubtedly a serious cause of concern. But very few of us realize that we contribute to this kind of pollution. There are several factors, such as tipping of litter, chemical pollution, and natural pollution that lead to storm water pollution. It is the duty of each one of us to take measures to keep our waters free from pollution.

Prevention of storm water pollution can be kicked off right from your garage. The most common of all pollutants that pollute storm water is oil spills and oil leaks. It is vital that you check your car or bike, machinery and other oil run equipment for leaks or oil spills often.

Also ensure that you avoid the use of harmful chemicals or detergents for cleaning up oil spill from your garage. Instead use environmentally friendly oil spill cleaners to remove oil spills from the driveway. Oil Gone Easy Home & Driveway S-200, an eco-friendly biodegradable product will help you with this tiring task of oil spill cleanup. Used oil or fluids can be recycled. So avoid dumping into trash or in the storm water drain.

When it comes to your lawn and garden, you have to be careful with the amount of pesticides and fertilizers that you use. Recycling your yard waste and avoiding over watering your plants can help reduce storm water pollution to some extent.

While you begin with your home repair, it is better that you take care of the disposal of the construction residual. There are possibilities of spills and leakages of liquids and oils on the

construction site. Making sure that the oil spills are cleaned up immediately is essential.

Storm water pollution by driveway oil spills and domestic fuel tank spills are increasingly high, thus efficient oil spill cleaner should always be at hand. Oil Gone Easy Home & Driveway S-200 is the perfect and safe solution to prevent the disastrous consequences of oil spills.

ADDENDUM MCM # 3-12

One & Two Family Residential Construction Sediment & Erosion Control Guidelines

Danny Newell, CISEC, ACI

Best Management Practices:

- Also known as BMP's, these include but are not limited to; temporary vehicle tracking pads, silt fence, soxx material, seeding, erosion control blankets, construction phasing or any other devise or procedure that helps reduce erosion and sediment loss.

INSTALLATION SEQUENCING:

- Grass buffer strips
- Inlet protection
- Perimeter control
- Grading & Excavating
- Stockpiles
- Maintenance
- Final grading
- Seeding or sod

Permit holders responsibilities:

- Obtain & comply with NPDES Land Disturbance Permit
- Ensure BMP's are in place & maintained in an effective condition.
- Provide periodic inspection as outlined in the permit.

Maintenance requirements:

- Maintain the grass buffer strip.
- Maintain perimeter control in an effective condition and remove accumulated sediment from installed BMP's once it has reached 1/3 the height of the device.
- Maintain inlet (curb or area) protection in an effective condition and remove sediment when it accumulates.

Inspections city:

- Sediment and erosion control inspections will be done in conjunction with routine building inspections.
- First inspection will occur during the footing inspection.
- At all subsequent building inspections, the BMP's will be subject to inspection
- Final inspection, entire site must be stabilized.

CONSTRUCTION BMP's

- Boulevard vegetation
- Perimeter control
- Inlet protection
- Miscellaneous items

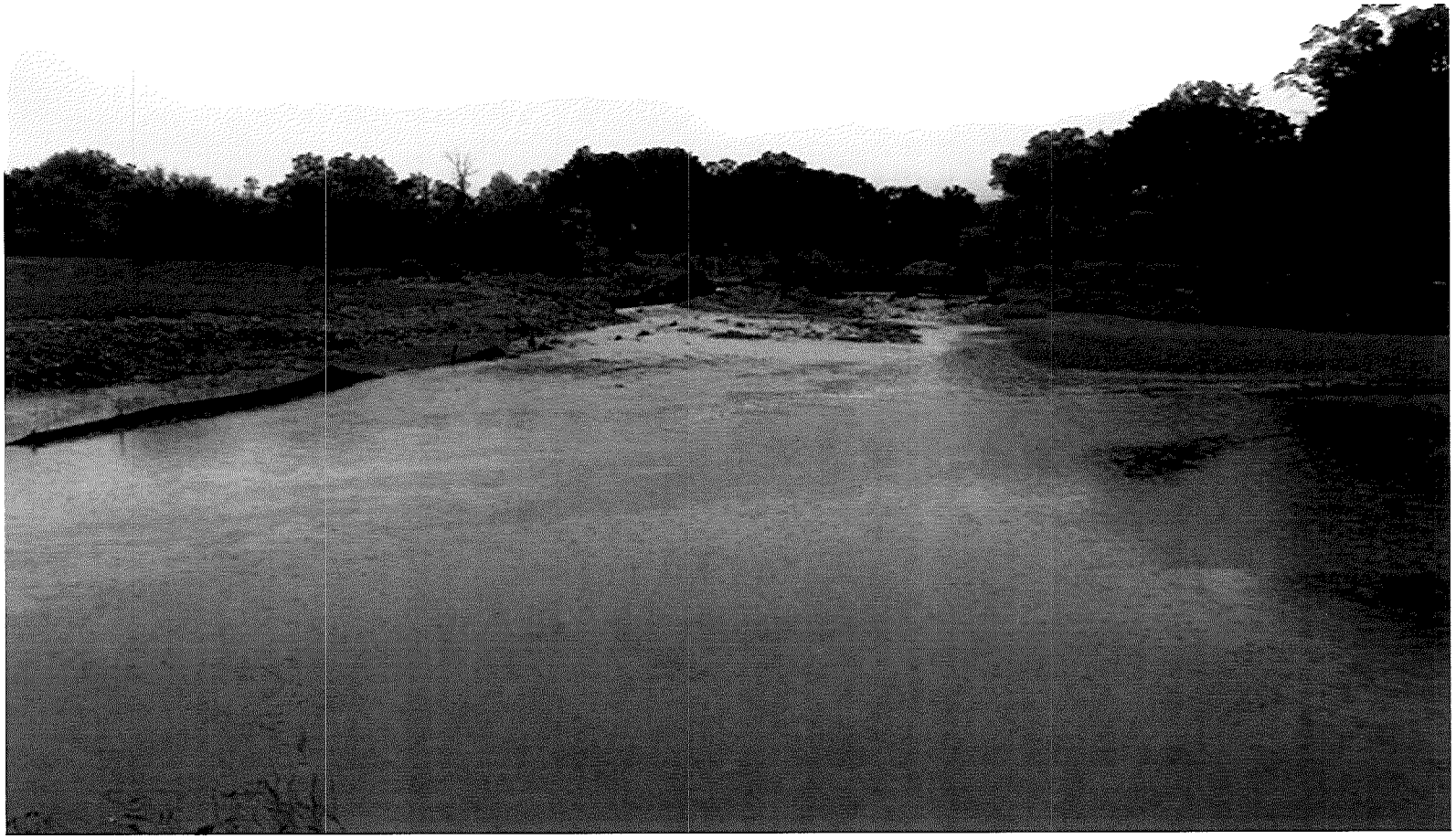
ADDENDUM MCM 3-13

AFTER THE STORM

City of Nixa

01/31/12

FLOODING!*



FLOODING!

FLOODING!*

STORMWATER*

- As important as flooding issues are, it's only a portion of the Stormwater story.

- "Rest of the story", I/I and Stormwater pollution.

INFLOW & INFILTRATION (I/I)*

- *Inflow:*

- *Infiltration:*

INFLOW & INFILTRATION

- The average daily flow through the WWTP for the last 5 years is 1,334,000 gpd (24 hrs).
- On occasion we have received between 4 & 8,000,000 gallons due to I/I.
- 13" rainfall event in September 2010, we received 11,000,000 gallons due to I/I.
- The maximum capacity of our sewer treatment facility is 11,000,000 gpd.

Recent Improvements*

- ARRA "American Recovery and Reinvestment Act"
- Missouri Street and New Street.
- CIPP (Cure In Place Pipe)
- Ongoing routine maintenance and repair.

Cure In Place Pipe*

Cure In Place Pipe*

Cure In Place Pipe*

Projected Improvements 2012*

- CIPP
- New sewer video equipment to help indentify these areas of INI.
- On going routine maintenance and repair.

THE CLEAN WATER ACT*

- 1948 The Federal Water Pollution Control Act (FWPCA)
- 1972 The Clean Water Act (CWA)
- The National Pollution Discharge Elimination System, (NPDES)

MS4*

- Municipal Separate Storm Sewer System (MS4).
- This MS4 permit program was implemented in 2 phases.
- Phase I (medium and large)
- Phase II (small)

MS4

- Is a conveyance or system of conveyances, that:
- ARE: Used to collect and/or convey stormwater;
- ARE: Owned by an incorporated public entity that discharges storwmwater to waters of the U.S.;
- ARE Not: a combined sewer; and not part of a publicly owned treatment facility (sewage treatment plant).

MS4 Permit Requirements:

"The permittee shall develop, implement, and enforce a stormwater management program (SWMP) designed to reduce the discharge of pollutants from the permittee's regulated small MS4 to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the Missouri Clean Water Law."

MS4 Permit Requirements:*

"The SWMP should include best management practices; control techniques and systems, design and engineering methods; and such other provisions as the permitting authority determines appropriate for the control of such pollutants."

Stormwater System Mapping*

- Mapping of our entire stormwater system
- OUTFALLS: The City of Nixa currently has 51 discharge outfalls

SAMPLES*

OEWRI "Ozarks Environmental and Water Resources Institute"

6 Minimum Control Measures*

1: Public education and outreach on stormwater impacts;

2: Public involvement/participation;

3: Illicit discharge detection and elimination;

4: Construction site stormwater runoff control;

5: Post construction stormwater management in new development and redevelopment;

6: Pollution prevention/good housekeeping for municipal operations.

Monitoring, Recordkeeping, and Reporting

MONITORIING: "The permittee shall evaluate program compliance, the appropriateness of identified best management practices, and progress toward achieving measurable goals."

Monitoring, Recordkeeping, and Reporting*

RECORDKEEPING: "The permittee shall retain records of all activities requiring recordkeeping by the SWMP including monitoring instrumentation, copies of all reports required by the permit, discharge monitoring reports, NPDES permit, ordinances," etc., etc., etc.

Monitoring, Recordkeeping, and Reporting*

REPORTING: "The permittee shall submit annual reports, using the annual report form provided by the department (DNR), to the director by July 28 of each year of the permit term."

Inspections

- Commercial/Industrial Illicit Discharge Detection and Elimination, 731.

Inspections

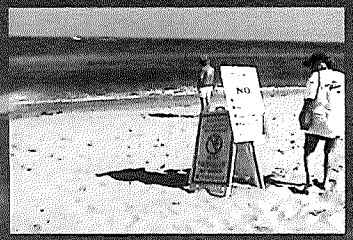
- Commercial/Industrial Illicit Discharge Detection and Elimination, 731.
- Construction site stormwater runoff control, 35.

Inspections

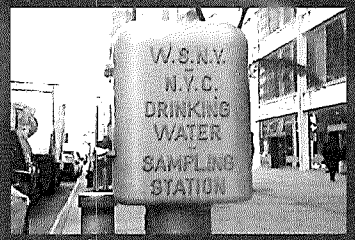
- Commercial/Industrial Illicit Discharge Detection and Elimination, 731.
- Construction site stormwater runoff control, 35.
- Pollution prevention/good housekeeping for municipal operations, 52.

After the Storm: Co-produced by EPA and The Weather Channel

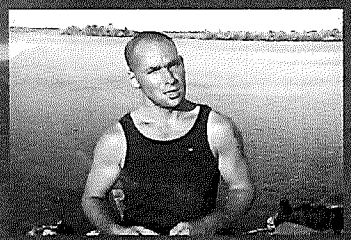
All across America people live, work and play in watersheds, without knowing it. As this DVD shows, protecting the nation's water resources will take the awareness and effort of individual citizens. Three case studies focus on the interconnections between water supply, water quality and the economic vitality and quality of life in our communities.



Santa Monica Bay, California



New York City



Gulf of Mexico

Watershed protection approaches

This DVD is intended for educational and communication purposes in classrooms, at conferences, etc. It may be aired on cable or other TV stations. Stations may air all or a portion of the program. If a portion of the program is aired, please ensure that you include in your broadcast that the program was co-produced by EPA and The Weather Channel. For additional copies of this DVD call the National Service Center for Environmental Publications at (800) 490-9198, or e-mail nscep@bps-lmit.com.

United States Environmental Protection Agency
Office of Water (4503T)
1200 Pennsylvania Ave., NW
Washington, DC 20460
EPA 841-C-06-001
December 2006
Run Time: 22 minutes
Includes closed captions

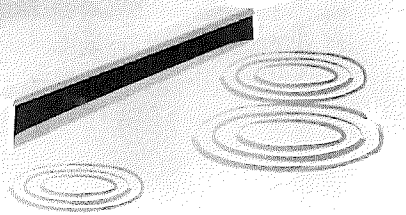
The program was co-produced by the United States Environmental Protection Agency and The Weather Channel, and was broadcast on The Weather Channel in 2004. For more information, please visit www.epa.gov/weatherchannel or send questions to EPA at: weatherchannel@epa.gov.

The material in this program has been subject to Agency technical and policy review, and has been approved by the Agency. The views expressed by individuals in the program, however, are their own, and do not necessarily reflect those of the U.S. Environmental Protection Agency. Mention of trade names, products, or services does not convey official EPA approval, endorsement, or recommendation.

After the Storm: Co-produced by EPA and The Weather Channel

CC

After the Storm



WHEN IT RAINS

For more information contact:

or visit
www.epa.gov/npdes/stormwater
www.epa.gov/nps

EPA United States Environmental Protection Agency

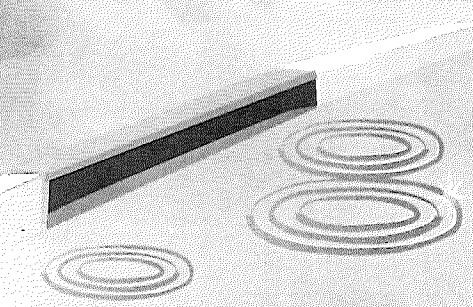
EPA 833-B-03-002

January 2003

THE YEAR OF CLEAN WATER

Internet Address (URL) • HTTP://www.epa.gov
Recycled/Recyclable • Printed With Vegetable Oil Based Inks on 100% Postconsumer,

After the Storm



A Citizen's Guide to Understanding Stormwater

WHEN IT RAINS

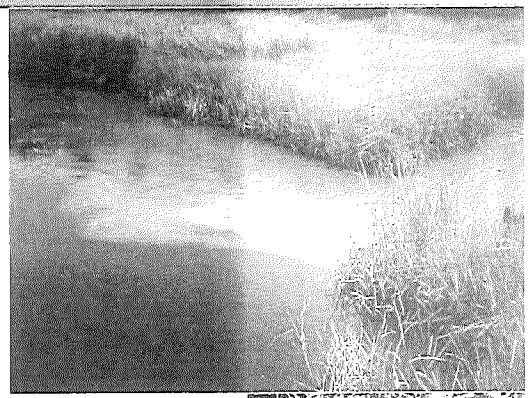
What is stormwater runoff?

Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

Why is stormwater runoff a problem?

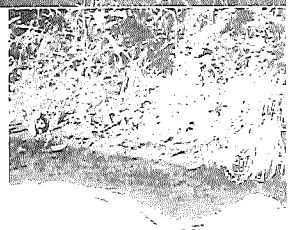
Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

The effects of pollution

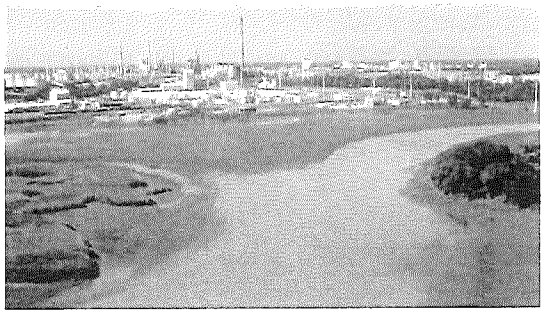


Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.



- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

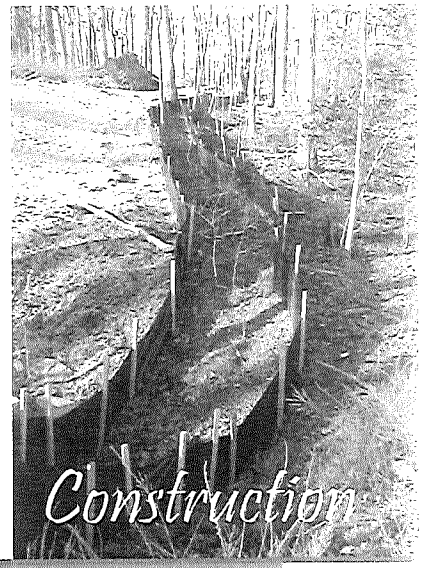


Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

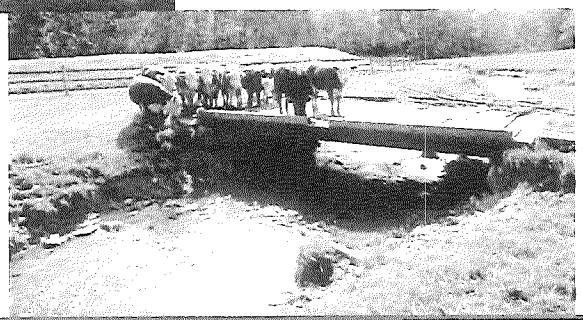
- Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.



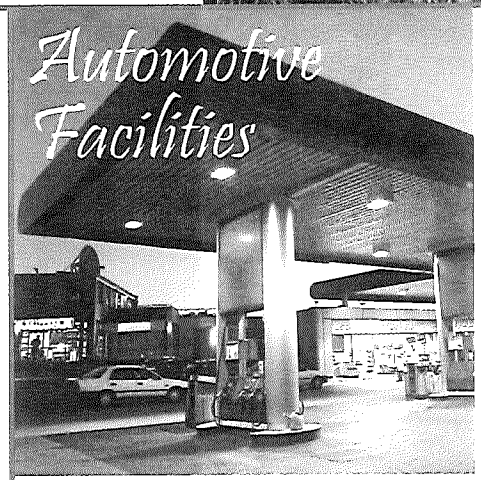
Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.



- Keep livestock away from streambanks and provide them a water source away from waterbodies.
- Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.
- Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.

Improperly managed logging operations can result in erosion and sedimentation.

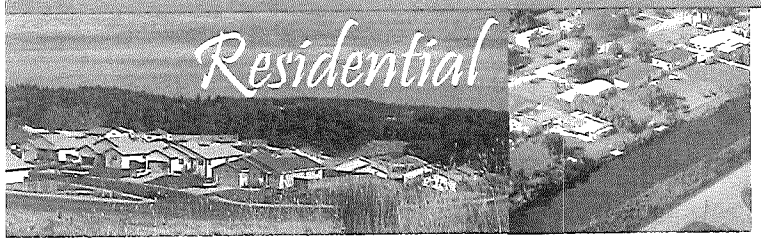
- Conduct preharvest planning to prevent erosion and lower costs.
- Use logging methods and equipment that minimize soil disturbance.
- Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- Construct stream crossings so that they minimize erosion and physical changes to streams.
- Expedite revegetation of cleared areas.



Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- Clean up spills immediately and properly dispose of cleanup materials.
- Provide cover over fueling stations and design or retrofit facilities for spill containment.
- Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- Install and maintain oil/water separators.

Stormwater Pollution Solutions



Residential

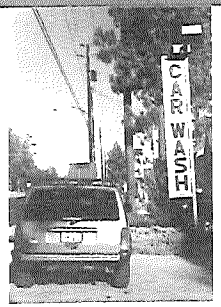
Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

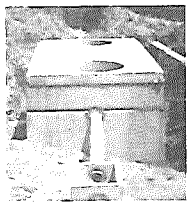
Auto care



Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

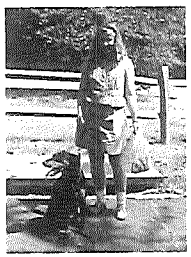
Septic systems



Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

Pet waste



Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

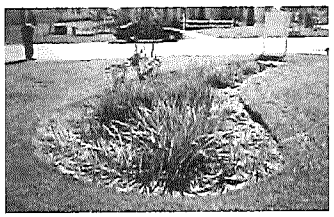
Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

Residential landscaping

Permeable Pavement—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

Rain Barrels—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

Rain Gardens and Grassy Swales—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.



Vegetated Filter Strips—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

WORLD WIDE WEB

- http://www.dnr.mo.gov/env/wpp/stormwater/sw-local-gov-programs.htm

- http://cfpub.epa.gov.npdes/

- *Google: NPDES, MS4.*

2017

Best Management Practices for Pressure Washing and Impervious Surface Cleaning

As a valued member of the Nixa community, we know you are vested in protecting the quality of life that your customers, residents, visitors and others expect and which keeps our economy strong. When water flows off residential, commercial and industrial yards, properties, or pavement, it flows directly into the stormwater conveyance system including drains, inlets, ditches and catch basins.

Many mistakenly believe this water gets **"cleaned"** or treated somehow before reaching our waterways. The sanitary sewer system and the stormwater conveyance system are completely separate systems; they are **not** connected. Sanitary sewer effluent does get treated, but water that flows into a storm drain goes **untreated** directly into our rivers, creeks, streams and even our drinking water source.

It is a violation of City of Nixa code, the State of Missouri Department of Natural Resources regulations and the United States Environmental Protection Agency regulations to discharge pollutants into any stormwater conveyance system or any receiving water of the state. As a responsible business within our community, we trust that you will help us prevent the discharge of harmful pollutants into the City of Nixa's stormwater conveyance system and ultimately protect the water ways that make our region enjoyable for all.

This document describes requirements for the disposal of waste and wastewater generated by the use of pressure washing equipment (mobile or otherwise) when generated within the City of Nixa. It also presents information on practical methods, known as Best Management Practices (BMPs) which may be used to protect the environment and to comply with regulatory requirements.

These requirements and BMPs apply to anyone within the City of Nixa who generates wastewater from pressure washing including; contractors that provide a pressure washing service to others; businesses that use pressure washing equipment as part of their operations or maintenance (such as cleaning heavy equipment or parking lots); and homeowners that either rent or purchase a low cost unit.

2017

CITY OF NIXA MISSOURI

What is Pressure Washing?

Pressure washing uses mechanical equipment to create a high pressure stream of water, typically ejected from a hand-held wand or nozzle. Depending on the application, pressure washing may be conducted with or without heated water or added cleaners.

Pressure washing is used to clean many things, including:

- Trucks
- Automobile fleets
- Parking lots
- Building exteriors
- Sidewalks
- Drive-thru lanes
- Heavy equipment
- Roofs
- Restaurant equipment and hood filters
- Graffiti
- Fences
- Decks, etc.

As you perform your daily activities, we ask that you, your employees and/or contractors be proactive. It is easier to prevent pollution than to try to clean it up once it has occurred. If you think there is a potential to create pollution, follow the 3C's as a general guideline:

Contain: Contain your work area by preventing water and potential pollutants from leaving your work site and reaching the stormwater conveyance system. The area around your trash dumpster should be free of accumulated trash and debris. The trash dumpster itself should be free of leaks, if it is not, contact your trash service provider and request a hole free, leak free dumpster.

Control: Better manage your work area by keeping equipment, tools and supplies organized and properly contained. Use dry cleaning methods first. Sweep up debris with a broom or use a mop to clean hard surfaces.

Capture: Clean up your work area and properly dispose of contaminated water, pollutants and debris. Use a broom, mop, or vacuum to capture any residue or pollutants that have the potential to be discharged.

2017

CITY OF NIXA MISSOURI

Regulations: To improve the quality of water we fish and swim in, not to mention drink, the City of Nixa is subject to Municipal Separate Storm Sewer System (MS4) Permit regulations mandated by MoDNR and the EPA.

The MS4 Permit requires the City of Nixa to implement elements such as a Storm Water Ordinance to reduce pollutants in stormwater runoff (directly caused by rainfall) and to effectively prohibit non-stormwater discharges. The discharge of wastewater from pressure washing, to the storm drainage system or surface waters is prohibited by this ordinance (see link to ordinance below)

Pressure Washing as Part of the Solution: Pressure washing (or Cosmetic Cleaning as it is sometimes referred to) is an activity that can help improve the quality of our waters when done properly. By cleaning surfaces (e.g. equipment, parking lots, sidewalks, buildings, etc.), collecting the wastes (water and/or debris), and properly disposing of it, there is less chance of pollutants ending up in our waterways during a heavy rain fall event.

Disposal Requirements and Prohibitions: Proper disposal of pressure washing wastewater, in compliance with environmental regulations, depends on the nature of the pollutants in it. It is the responsibility of the generator to determine the proper collection and disposal method for wastewater created by pressure washing.

Storm Drains: Discharging pressure washing wastewater into any natural body of water or any storm drainage system, which includes street curb inlets, roadside ditches, gutters, and drainage channels, within the City of Nixa is **prohibited** by Federal, State, and local laws.

Evaporation: Pressure washing wastewater that contains visible debris or residue, soap, detergent or other cleaning agents, or excessive amounts of any pollutant, may not be left on paved surfaces to evaporate, because the residue will eventually be discharged to the storm drain.

Land Disposal: Wastewater may be collected and discharged or directed onto vegetated yard areas when the wastewater does not; create a nuisance, flow into a storm drain or does not contain waste or contaminants (i.e. solvents, cleaners, oils, metals, etc.). Such discharges must soak into the ground and may not flow into the storm drain. The property owner's permission must be obtained prior to discharging or diverting wastewater to vegetated areas. **Note:** Repeated discharges to landscaped areas may result in an accumulation of contaminants, thus damaging vegetation and increasing contaminant levels in the soil.

Sanitary Sewer: Disposal of pressure washing wastewater to the sanitary sewer collection system within the city limits of Nixa is strictly prohibited.

CITY OF NIXA MISSOURI

BMP-1 Planning: Determine where you are going to discharge wastewater before starting, what collection method you will be using and how you intend to properly dispose of the wastewater generated from each cleaning activity. Identify where all storm drains are situated at the wash site.

BMP-2 Surface Pre-Cleaning: Consider using dry methods for surface pre-cleaning, such as using absorbents on small oil spots and sweeping up trash/debris/dirt before wet washing. Pre-cleaning is an activity that may reduce costs and simplify the wastewater disposal process. When using dry pre-cleaning methods, be sure to pick up pre-cleaning debris as soon as possible, so the materials do not have a chance to enter the storm drains.

BMP-3 Pressure Washing: Minimize the amount of water used during pressure washing activities, thus reducing the volume of wastewater that needs to be properly disposed. Avoid using cleaning products that contain hazardous substances (e.g. hydrofluoric acid, muriatic acid, sodium hydroxide, bleach, etc.) that can turn wastewater into hazardous waste. Acidic, caustic, and detergent cleaners may damage paved or coated surfaces.

BMP-4 Wash Water Containment & Collection: Minimize and dispose of waste properly and recycle whenever possible. Collect wash water in permanent or temporary capture facility. Decide what is the best method of collection (e.g., berms, storm drain cover mats, containment pools, vacuums/pumps, vacuum boom, inflatable pipe plug, etc.). Locate property high and low spots to determine where wash water can be pooled for collection. Do not leave areas of wash water on paved surfaces for evaporation. Sweep up any visible solids and sediments remaining after all the wash water has been collected.

Note: Inflatable pipe plugs should only be used in storm drains on private property. They are not authorized to be used in public storm drain inlets or pipes within the City of Nixa.

BMP-5 Cleaners: Avoid using solvent-based cleaners (especially chlorinated solvent cleaners).

Wastewater Disposal: The following activities within the City of Nixa require capture of wash water from pressure washing activities:

• **Transportation related cleaning -** washing fleet vehicle exteriors, mobile auto detailing, and rinsing of automobiles, recreational vehicles (RV), and boats at retail dealerships.

• **Surface related cleaning** - sidewalks, plazas, driveways, parking lots, service stations, building exteriors and walls.

• **Food service related cleaning -** restaurant parking lots, trash dumpster areas, restaurant floor mats, exhaust filters, grease filters or food trucks.

• **Engine/equipment degreasing –** any activity involving pressure washing of heavy equipment (bull dozer, wheel or track loader, dump trucks, etc.).

WASTEWATER TREATMENT: If you are considering using a wastewater recycling or pretreatment unit (e.g. oil/water separator), make sure you understand the waste streams that are generated. Identify proper disposal methods for these wastes, and consider disposal costs before starting a job. Consider contracting with a company that can provide appropriate treatment and disposal of your wastes. In some cases, you may be able to reduce the liability that comes with the generation and disposal of hazardous waste.

2017

Power washing of any Hazardous Waste Material is strictly prohibited: What is Hazardous Waste?

Hazardous waste is any waste that because of its quantity or characteristics may pose a threat to human health or the environment. Waste that exhibits specific characteristics of ignitability, corrosivity, reactivity (tendency to explode), toxicity or is listed as hazardous waste in state or federal regulations must be managed as hazardous waste.

Hazardous wastes can be liquids, sludge, solids or gases. They can be wastes from manufacturing processes or discarded commercial products. Many household wastes may also be hazardous. Certain chemicals like pesticides, cleaning agents, old paint and solvents, pharmaceuticals, fertilizer and other yard chemicals and even items like fluorescent light bulbs may pose a threat to human health and the environment if not disposed of properly.

Hazardous waste listings and definitions are located in section 40 CFR 261, Subparts C and D. incorporated and modified by 10 *CSR 25-4. See links below.*

Hazardous waste generator is defined in 40 CFR 260.10 “as any person by site, whose act or process produces a hazardous waste identified or listed in 40 CFR 261 or whose act first causes a hazardous waste to become subject to regulation.”

It is important to remember that if hazardous waste is improperly managed then the Missouri Department of Natural Resources has the authority to enforce the hazardous waste laws and regulations on any party involved in hazardous waste generation.

Disposal Options:

Businesses generating hazardous waste should contract with a licensed disposal contractor for proper removal and disposal options.

FOR MORE INFORMATION

City of Nixa Public Works Department, Danny Newell, Public Works Inspector-MS4 Coordinator at dnewell@nixa.com or (417) 725-2353; Nate Miller, Asst. Public Works Inspector, at nmiller@nixa.com or (417) 725-2353.

www.nixa.com, click “Code of Ordinances” tab, click on Technical Specification, scroll down to Part IV, Section 110 (PG 166) Land Disturbance, Illicit Discharge & Erosion Control.

Missouri Department of Natural Recourses

Power Washers of North America (PWNA) www.pwna.org

CITY OF NIXA MISSOURI

"Small Business Guide to Managing Hazardous Waste"
https://www.epa.gov/hwgenerators/managing-your-hazardous-waste-guide-small-businesses

Electronic Code of State Regulations:
http://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c25-4.pdf

Electronic Code of Federal Regulations section 40 CFR 260: *http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr260_main_02.tpl*

Electronic Code of Federal Regulations section 40 CFR 261: *http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr261_main_02.tpl*

Special thanks to the Cities of San Diego California and Lawrence Kansas for letting the City of Nixa use information published by them and their cooperation in Stormwater protection.

Storm Drain Cover/Mat

Street Curb Inlet Cover

Vacuum Boom

Storm Drain Boom

Containment Pool

Disclaimer: The information presented in this document is intended for guidance purposes only and is not to be considered all-inclusive. The information provided may be of value as an educational or reference tool. However, we do not endorse any product that may be noted in this document. Please note that laws and regulations are subject to change. It is recommended that the applicable codes, ordinances and statutes be reviewed to verify which requirements pertain to your business. Although the material contained in this document will be routinely updated, it may not reflect recent changes in the various laws and regulations.

MISSOURI STATE UNIVERSITY

Ozarks Environmental and Water Resources Institute

Marc Owen
phone: 836-3197
email: mowen@missouristate.edu

To: Brian Bingle
City of Nixa, MO
MOR040067
RE: MS4 Sampling

Laboratory Testing Results

Total Phosphorus (mg/l)
First Flush

Sample ID	Collection	Received	Analysis	Analyst	TP conc	OEWRI SOP	QC Check	QA/QC Mng	Detection Limit (mg/l)	Laboratory Reagent Blank (mg/l)	Replicate (%)	Laboratory Spike (%)
(code)	(date)	(date)	(date)	(initials)	(mg/l)	(code)	(date)	(initials)	(≤0.005 mg/l)	(≤0.005 mg/l preferred)	(±20% required)	(100 ±20% required)
N-2	1/17/2017	1/17/2017	2/8/2017	MLH/KR	0.125	3010R02	2/13/2017	MLH	0.003	0.001	1.3	101.2

Verification of Quality Control:

Megan Hente — Signature — 2/16/17 Date

Final check and approved for release by:

Marc R. Owen — Signature — 2-16-17 Date

MISSOURI STATE UNIVERSITY

Ozarks Environmental and Water Resources Institute

Marc Owen
phone: 836-3197
email: mowen@missouristate.edu

To: Brian Bingle
City of Nixa, MO
MOR040067
RE: MS4 Sampling

Laboratory Testing Results
Total Nitrogen (mg/l)
First Flush

Sample ID	Collection	Received	Analysis	Analyst	TN conc	OEWRI SOP	QC Check	QA/QC Mng	Detection Limit (mg/l)	Laboratory Reagent Blank (mg/l)	Replicate (%)	Laboratory Spike (%)
(code)	(date)	(date)	(date)	(initials)	(mg/l)	(code)	(date)	(initials)	(≤0.1 mg/l)	(≤0.1 mg/l preferred)	(±20% required)	(100 ±20% required)
N-2	1/17/2017	1/17/2017	2/8/2017	MLH/KR	0.62	3020R02	2/13/2017	MLH	0.04	0.02	3.1	96.8

Verification of Quality Control:

Megan Hente — Signature — 2/16/17 — Date

Final check and approved for release by:

Marc R. Owen — Signature — 2-16-17 — Date

MISSOURI STATE UNIVERSITY

Ozarks Environmental and Water Resources Institute

Marc Owen
phone: 836-3197
email: mowen@missouristate.edu

To: Brian Bingle
City of Nixa, MO
MOR040067
RE: MS4 Sampling

Laboratory Testing Results
Total Nitrogen (mg/l)

Sample ID	Collection	Received	Analysis	Analyst	TN conc	OEWRI SOP	QC Check	QA/QC Mng	Detection Limit (mg/l)	Laboratory Reagent Blank (mg/l)	Replicate (%)	Laboratory Spike (%)
(code)	(date)	(date)	(date)	(initials)	(mg/l)	(code)	(date)	(initials)	(≤0.1 mg/l)	(≤0.1 mg/l preferred)	(±20% required)	(100 ±20% required)
N-3	4/17/2017	4/17/2017	5/11/2017	MLH/KR	1.88	3020R02	5/15/2017	MLH/KR	0.04	0.03	1.7	95.2
N-1	4/29/2017	4/29/2017	5/11/2017	MLH/KR	1.37	3020R02	5/15/2017	MLH/KR	0.04	0.03	1.7	95.2
N-1	5/2/2017	5/2/2017	5/11/2017	MLH/KR	1.59	3020R02	5/15/2017	MLH/KR	0.04	0.03	1.7	95.2
N-3	5/4/2017	5/4/2017	5/11/2017	MLH/KR	0.97	3020R02	5/15/2017	MLH/KR	0.04	0.03	1.7	95.2
N-1	5/4/2017	5/4/2017	5/11/2017	MLH/KR	1.73	3020R02	5/15/2017	MLH/KR	0.04	0.03	1.7	95.2

Verification of Quality Control:

Megan Hente — Signature — 5/16/17 Date

Final check and approved for release by:

Marc R. Owen — Signature — 5-16-17 Date

MISSOURI STATE UNIVERSITY

OEWRI

Ozarks Environmental and Water Resources Institute

Marc Owen
phone: 836-3197
email: mowen@missouristate.edu

To: Brian Bingle
City of Nixa, MO
MOR040067
RE: MS4 Sampling

Laboratory Testing Results
Total Phosphorus (mg/l)
First Flush

Sample ID	Collection	Received	Analysis	Analyst	TP conc	OEWRI SOP	QC Check	QA/QC Mng	Detection Limit (mg/l)	Laboratory Reagent Blank (mg/l)	Replicate (%)	Laboratory Spike (%)
(code)	(date)	(date)	(date)	(initials)	(mg/l)	(code)	(date)	(initials)	(≤0.005 mg/l)	(≤0.005 mg/l preferred)	(±20% required)	(100 ±20% required)
N-3	4/17/2017	4/17/2017	5/11/2017	MKH/KR	0.523	3010R02	5/15/2017	MLH/KR	0.002	0.001	2.2	102.8
N-1	4/29/2017	4/29/2017	5/11/2017	MKH/KR	0.172	3010R02	5/15/2017	MLH/KR	0.002	0.001	2.2	102.8
N-1	5/2/2017	5/2/2017	5/11/2017	MKH/KR	0.032	3010R02	5/15/2017	MLH/KR	0.002	0.001	2.2	102.8
N-3	5/4/2017	5/4/2017	5/11/2017	MKH/KR	0.112	3010R02	5/15/2017	MLH/KR	0.002	0.001	2.2	102.8
N-1	5/4/2017	5/4/2017	5/11/2017	MKH/KR	0.032	3010R02	5/15/2017	MLH/KR	0.002	0.001	2.2	102.8

Verification of Quality Control:

Megan Hente — Signature — 5/16/17 Date

Final check and approved for release by:

Marc R. Owen — Signature — 5-16-17 Date

MISSOURI STATE UNIVERSITY

Ozarks Environmental and Water Resources Institute

Marc Owen
phone: 836-3197
email: mowen@missouristate.edu

To: Brian Bingle
City of Nixa, MO
MOR040067
RE: MS4 Sampling

Laboratory Testing Results
Total Nitrogen (mg/l)

Sample ID	Collection	Received	Analysis	Analyst	TN conc	OEWRI SOP	QC Check	QA/QC Mng	Detection Limit (mg/l)	Laboratory Reagent Blank (mg/l)	Replicate (%)	Laboratory Spike (%)
(code)	(date)	(date)	(date)	(initials)	(mg/l)	(code)	(date)	(initials)	(≤0.1 mg/l)	(≤0.1 mg/l preferred)	(±20% required)	(100 ±20% required)
N-2	3/25/2017	3/25/2017	4/17/2017	MLH/KR	0.27	3020R02	4/25/2017	MLH	0.05	0.02	4.9	93.0
N-3	3/25/2017	3/25/2017	4/17/2017	MLH/KR	0.74	3020R02	4/25/2017	MLH	0.05	0.02	4.9	93.0

Verification of Quality Control:

Megan Hente — Signature — 5-1-17 — Date

Final check and approved for release by:

Marc R. Owen — Signature — 5-2-17 — Date

MISSOURI STATE UNIVERSITY

Ozarks Environmental and Water Resources Institute

Marc Owen
phone: 836-3197
email: mowen@missouristate.edu

To: Brian Bingle
City of Nixa, MO
MOR040067
RE: MS4 Sampling

Laboratory Testing Results

Total Phosphorus (mg/l)
First Flush

Sample ID	Collection	Received	Analysis	Analyst	TP conc	OEWRI SOP	QC Check	QA/QC Mng	Detection Limit (mg/l)	Laboratory Reagent Blank (mg/l)	Replicate (%)	Laboratory Spike (%)
(code)	(date)	(date)	(date)	(initials)	(mg/l)	(code)	(date)	(initials)	(≤0.005 mg/l)	(≤0.005 mg/l preferred)	(±20% required)	(100 ±20% required)
N-2	3/25/2017	3/25/2017	4/17/2017	MKH/KR	0.771	3010R02	4/25/2017	MLH/KR	0.003	0.001	1.8	93.5
N-3	3/25/2017	3/25/2017	4/17/2017	MKH/KR	0.775	3010R02	4/25/2017	MLH/KR	0.003	0.001	1.8	93.5

Verification of Quality Control:

Megan Hente Signature 5-2-17 Date

Final check and approved for release by:

Marc R. Owen Signature 5-2-17 Date

0

CITY OF NIXA ILLICIT DISCHARGE REPORT & TRACKING SHEET

SHEET 1

Complainant CONFIDENTIALITY: Every effort will be made to keep the complainants identity confidential within the limits of existing laws.

☐ **Received by Phone**	**Printed Name:**	**Phone #:**
☐ **Received by Mail**	**Signature:**	**Date:**
☐ **In person**	**Physical Address:**	
☐ **Anonymous**	**Mailing Address:**	

Incident ID:	**Precipitation (inches) in past 24 - 48 hrs._____**

Responder Information

Information taken by:	**Date Received:**	**Time Received:**

Reporter Information

Incident Date:	**Incident Time:**

Incident location: (complete one or more below)

Latitude (if possible): N/A	Longitude (if possible): N/A
Stream name or Outfall #: N/A	
Closest street address or intersection: 123 N. Massey Blvd.	

Primary Location Description	Secondary Location Description		
☐ Stream Corridor (if in or adjacent to a stream)	☐ Outfall	☐ In stream flow	☐ Along banks
☐ Up Land (not in or adjacent to a stream)	☐ Storm drain	☐ Near other water source (stormwater basin pond, wetland, etc.)	

Description of location: Storm drain curb inlet box behind the small strip center where this business is located.

Problem Indicators Present

☐ Dumping	☐ Oils, solvents, chemicals	☐ Sewage		
☐ Wash water, suds, etc.	☐			
Odor	☐ None	☐ Sewage	☐ Rancid/sour	☐ Petroleum (gas)
	☐ Sulfide (rotten eggs, natural gas	☐ Other: describe in "Narrative" section		
Appearance	☐ Normal	☐ Oily sheen	☐ Cloudy	☐ Suds
	☐ Other: Describe below*			
Floatables	☐ None	☐ Sewage (toilet paper, etc.)	☐ Algae	☐ Dead fish
	☐ Other: Describe below*			

***In Depth Description of Problem Indicators:**

Suspect Violator (name, personal or vehicle description, license plate #, etc.)

CITY OF NIXA ILLICIT DISCHARGE REPORT & TRACKING SHEET	
SHEET 2	
Incident Date:	**Incident Number:**
Investigation Made: Yes ☐ No ☐ **By:**	**If No, why:**
☐ **Referred to other Department/Agency**	**Department/Agency:**
NOTES / ACTIONS TAKEN	