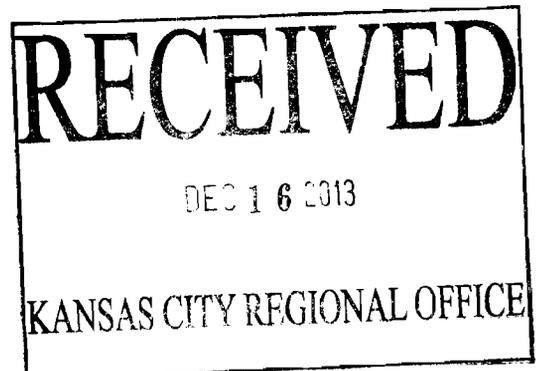
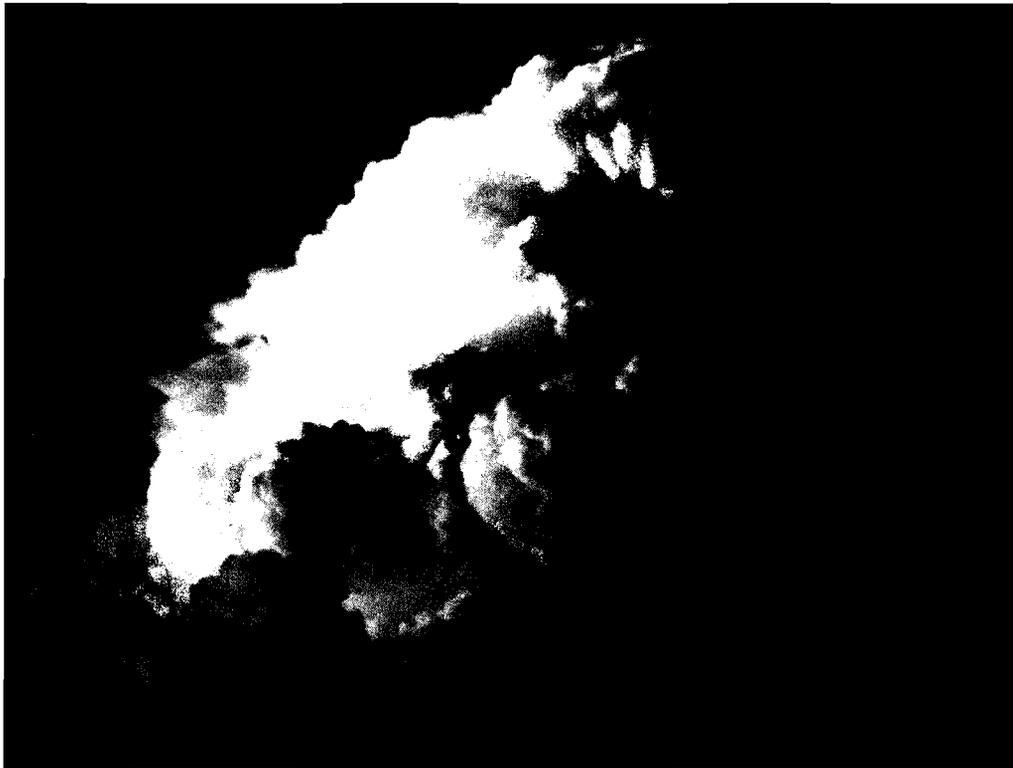


2013 STORMWATER MANAGEMENT PROGRAM

FOR THE

CITY OF LAKE LOTAWANA, MISSOURI
MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)

DECEMBER 11, 2013



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Attachments:

Form K - Application for Individual Small MS4 General Permit
Form M – Application for Storm Water Permit Under the General Permit
USGS MO 7.5 Degree Quadrangle
Watershed and Outfall Location Map

INTRODUCTION

The City of Lake Lotawana has been designated by the Missouri Department of Natural Resources “as a regulated municipal separate storm sewer system (MS4) per state regulation 10CSR 20-6.200 and federal regulation 40 CFR 123”. This will be the 2nd permit cycle with the initial permit issued in 2008 so that now the City will have to prepare an annual report and an application for permit with the State of Missouri for compliance with the MS4 regulations

Under the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) Stormwater Program regulates and permits stormwater discharges from three potential sources: municipal separate storm sewer systems (MS4s), construction activities, and industrial activities. Most stormwater discharges are considered point sources, and operators of these sources may be required to receive an NPDES permit before they can discharge¹. This permitting mechanism is designed to prevent stormwater runoff from washing harmful pollutants into local surface waters such as streams, rivers, lakes or coastal waters.

Missouri is authorized to implement the NPDES Stormwater Program and administer their own stormwater permitting programs. EPA remains the permitting authority in a few states, territories and on most tribal lands.

Operators of regulated small MS4s are required to design their programs to:

- Reduce the discharge of pollutants to the “maximum extent practicable;
- Protect water quality; and
- Satisfy the appropriate water quality requirements of the Clean Water Act.

To comply with this new permit requirement, the City of Lake Lotawana will, through this Stormwater Management Plan and to the maximum extent practicable, preserve, protect, and improve the water resources from polluted stormwater runoff with the following Minimum Control Measures² (MCM):

1. Public Education and Outreach

Distributing educational materials and performing outreach to inform citizens about the impacts polluted stormwater runoff discharges can have on water quality.

2. Public Involvement and Participation

Providing opportunities for citizens to participate in program development and implementation, including effectively publicizing public hearings and encouraging citizen representation.

3. Illicit Discharge Detection and Elimination

Developing and implementing a plan to detect and eliminate illicit discharges to the storm sewer system including the development of a system map and informing the community about hazards associated with illegal discharges and improper disposal of waste.

4. Construction Site Runoff Control

Developing, implementing, and enforcing an erosion and sediment control program for construction activities that disturb 1 or more acres of land.

5. Post-Construction Runoff Control

Developing, implementing, and enforcing a program to address discharges of post-construction stormwater runoff from new development and redevelopment areas using both structural and non-structural Best Management Practices (BMP).

Non-structural BMPs are preventative actions that involve management and source controls such as: policies and ordinances that provide requirements and standards to direct growth to identified areas, protect sensitive areas such as wetlands and riparian areas, maintain and/or increase open space (including a dedicated funding source for open space acquisition), provide buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation; policies or ordinances that encourage infill development in higher density urban areas, and areas with existing infrastructure; education programs for developers and the public about project designs that minimize water quality impacts; and measures such as minimization of percent impervious area after development and minimization of directly connected impervious areas. Structural BMPs include: storage practices such as wet ponds and extended-detention outlet structures; filtration practices such as grassed swales, sand filters and filter strips; and infiltration practices such as infiltration basins and infiltration trenches.³

6. Pollution Prevention and General Housekeeping in Municipal Operations

Developing and implementing a program with the goal of preventing or reducing pollutant runoff from municipal operations. This program must include municipal staff training on pollution prevention measures and techniques (e.g., regular street sweeping, reduction in the use of pesticides or street salt, or frequent catch-basin cleaning).

Information obtained in the assimilation of this document has been obtained from public survey and comments, site visits, city maps, and hydrologic calculations. Initial meetings with staff resulted in a list of potential actions that were then evaluated using methods described herein.

WATERSHED CHARACTERISTICS

The three main watersheds in the City of Lake Lotawana are West Fork Sni-A-Bar Creek, unnamed Tributary to East Branch of Big Creek, and two unnamed Tributaries to West Branch Crawford Creek. As shown in Figure 1, portions of the community north of Highway 50 drains to the lake and West Fork Sni-A-Bar which eventually flows to the Missouri River. The areas of the City south of Highway drain into the South Grand River which eventually discharges into Truman Reservoir.⁴

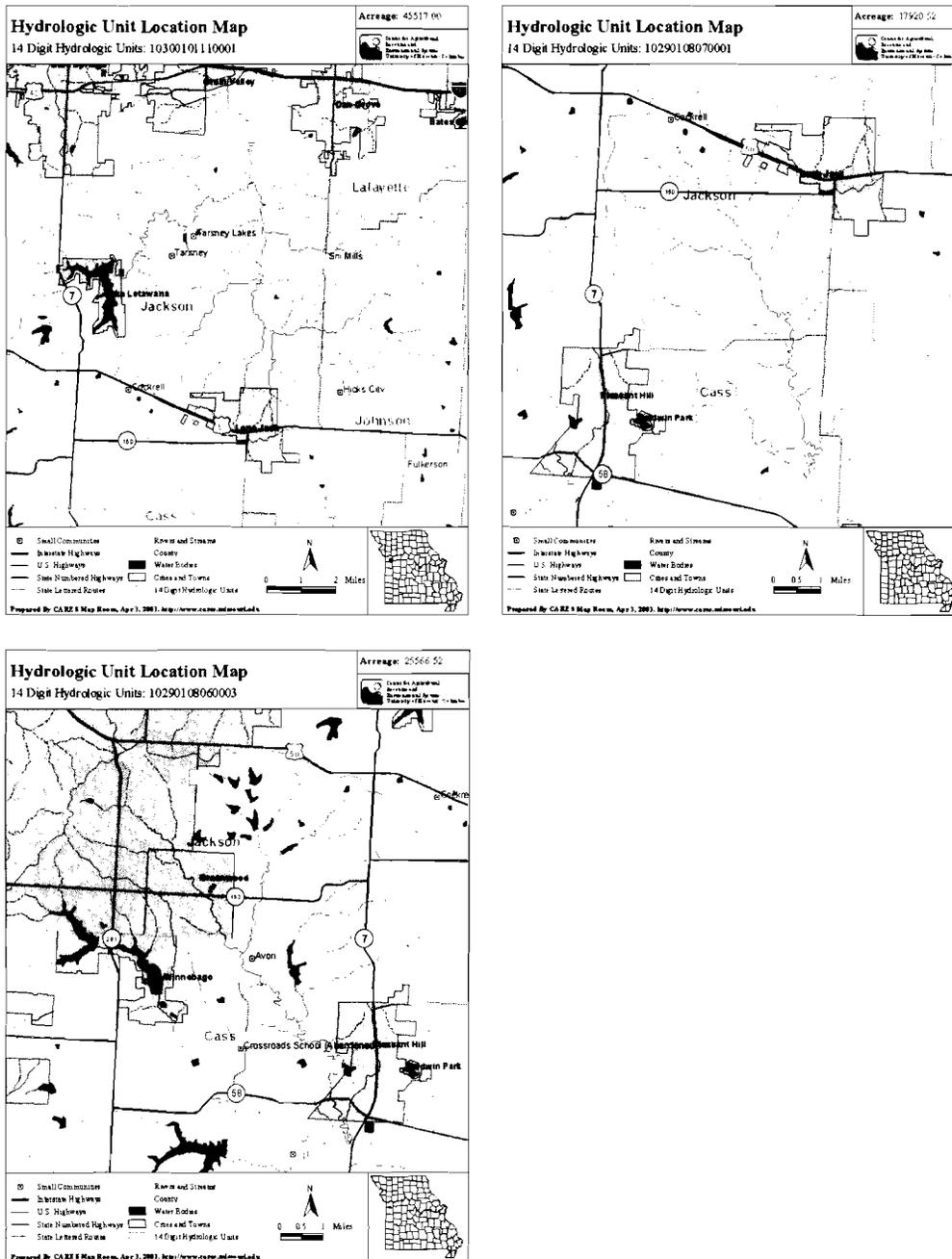


Figure 1

West Fork Sni-A-Bar watershed drains most of the developed part of the City from the Highway 50 divide to the lake and comprises 8,630 acres that flows generally from southwest to northeast. The watershed drains to Lake Lotawana MO20040 then discharges through a concrete chute spillway into the West Fork Sni-A-Bar creek upstream of the City's Waste Water Treatment Plant (WWTP). The West Fork Sni-A-Bar watershed comprises a mix of dense and estate residential, commercial, quarry, and agricultural uses.

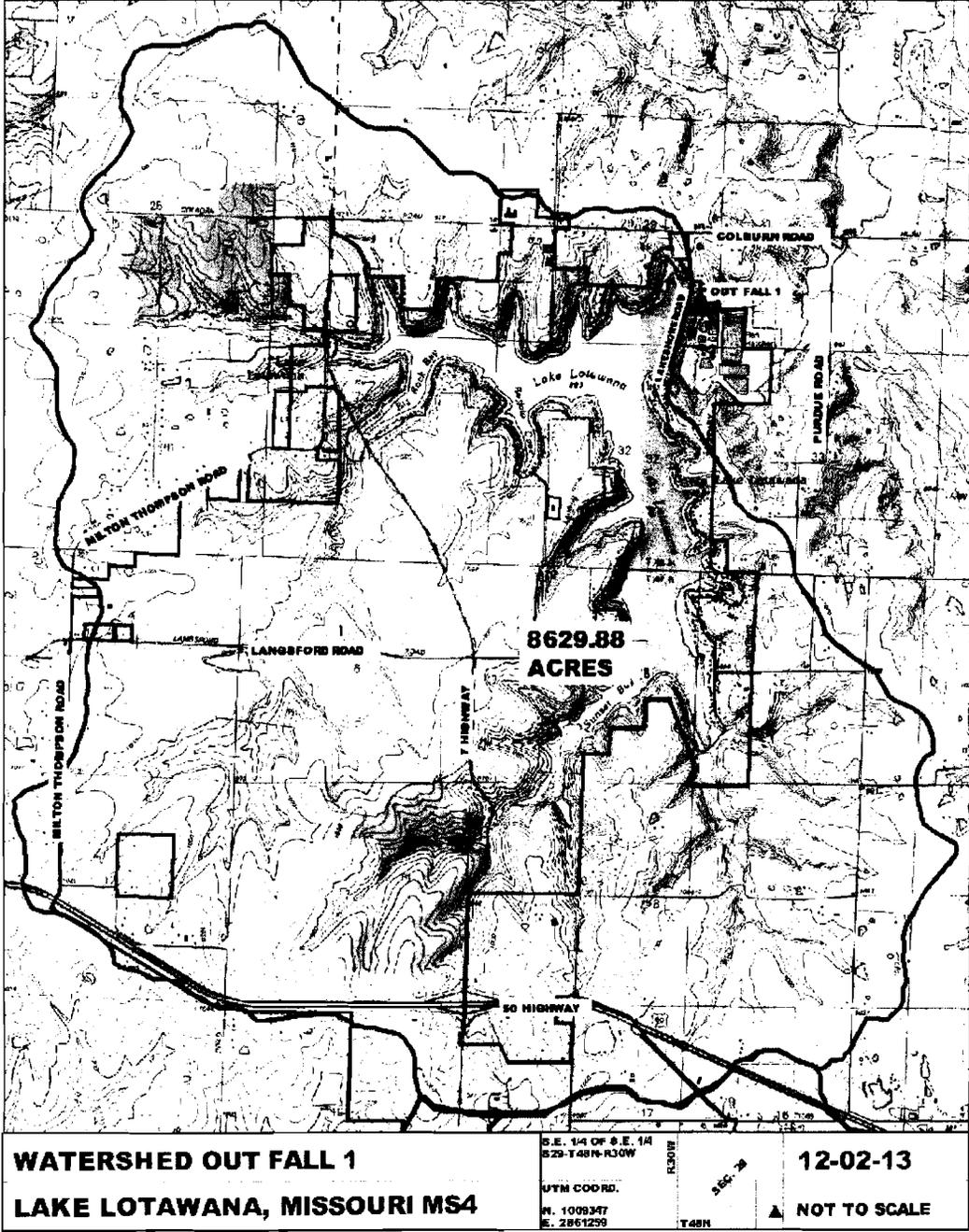


Figure 2

The Tributary to East Branch of Big Creek drains the area generally south of Highway 50 and along Highway 7 with a drainage area of 792 acres. This tributary flows from northeast to southwest into Big Creek. According to City zoning maps, the watershed comprises a mix of planned development, commercial, and large lot estate residential uses.

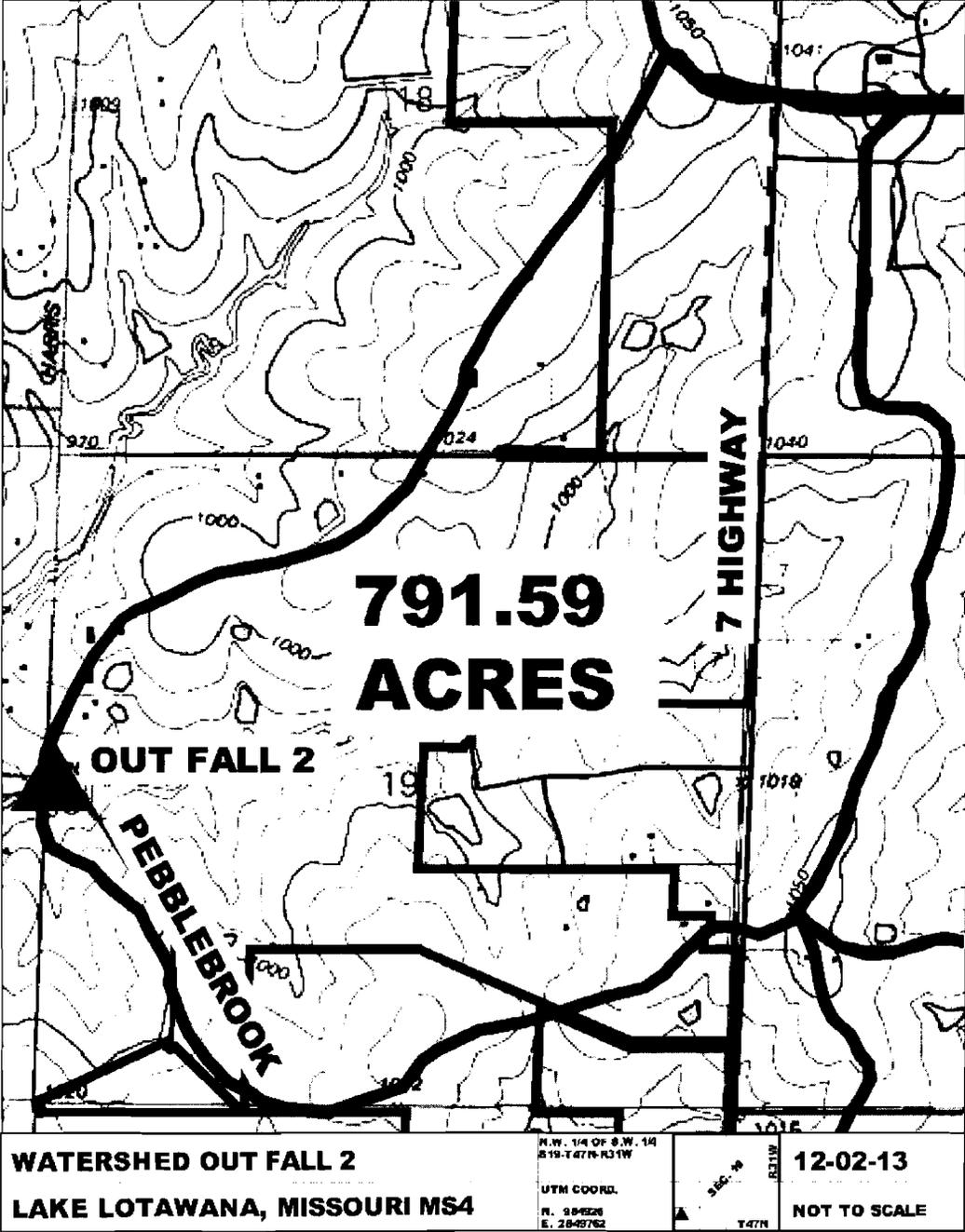


Figure 3

The West Tributary to West Branch Crawford Creek drains the area of the City south of Highway 50 and east of Highway 7 with a drainage area of 331 acres. This tributary flows from northwest to southeast into West Branch is comprised of highway commercial and agricultural land uses

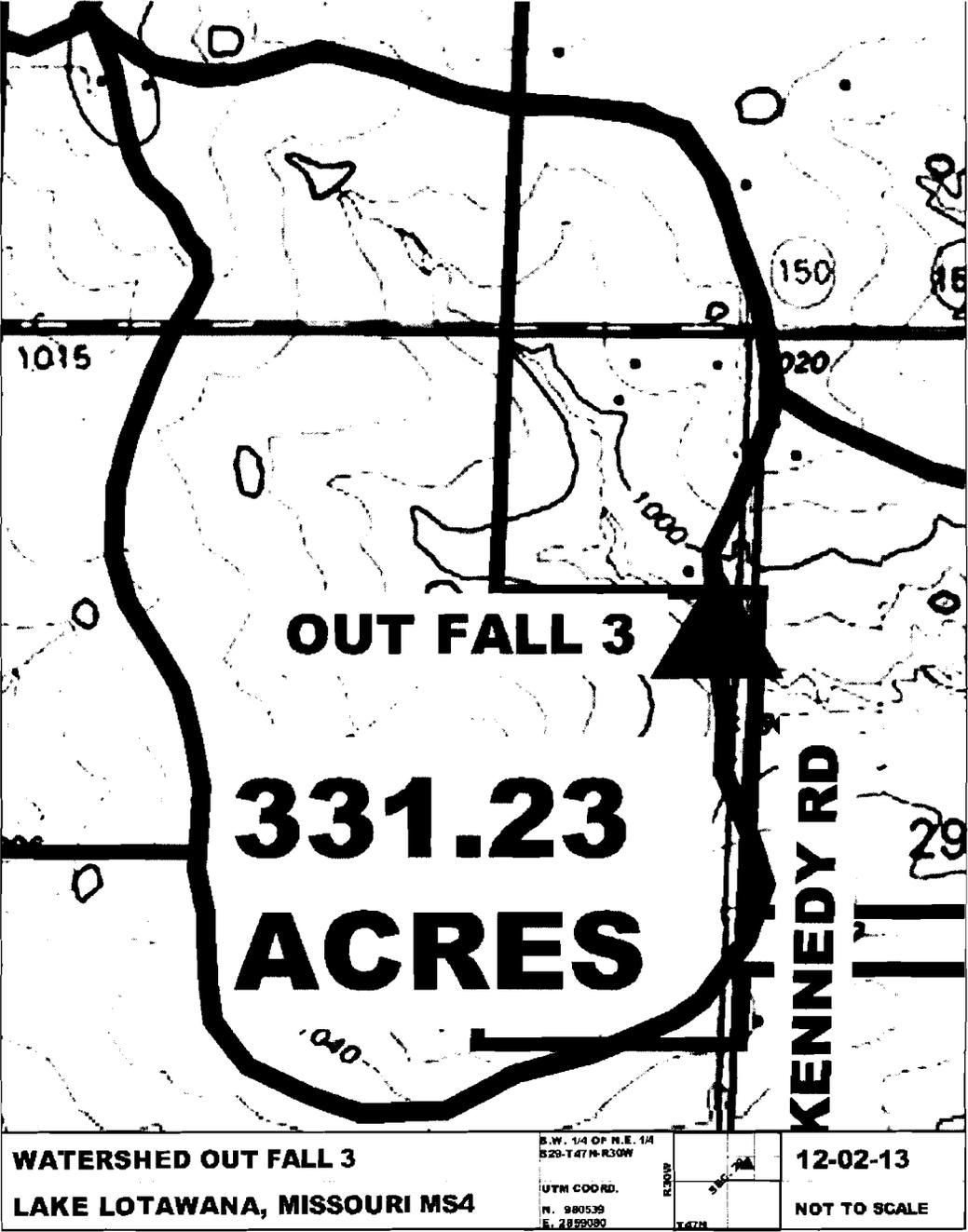


Figure 4

The North Tributary to West Branch Crawford Creek drains the areas of the City south of Highway 50 and to the east of Highway 7 with a drainage area of 2,175 acres. This tributary flows from northwest to southeast into West Branch and is comprised mostly of large lot residential and agricultural uses.

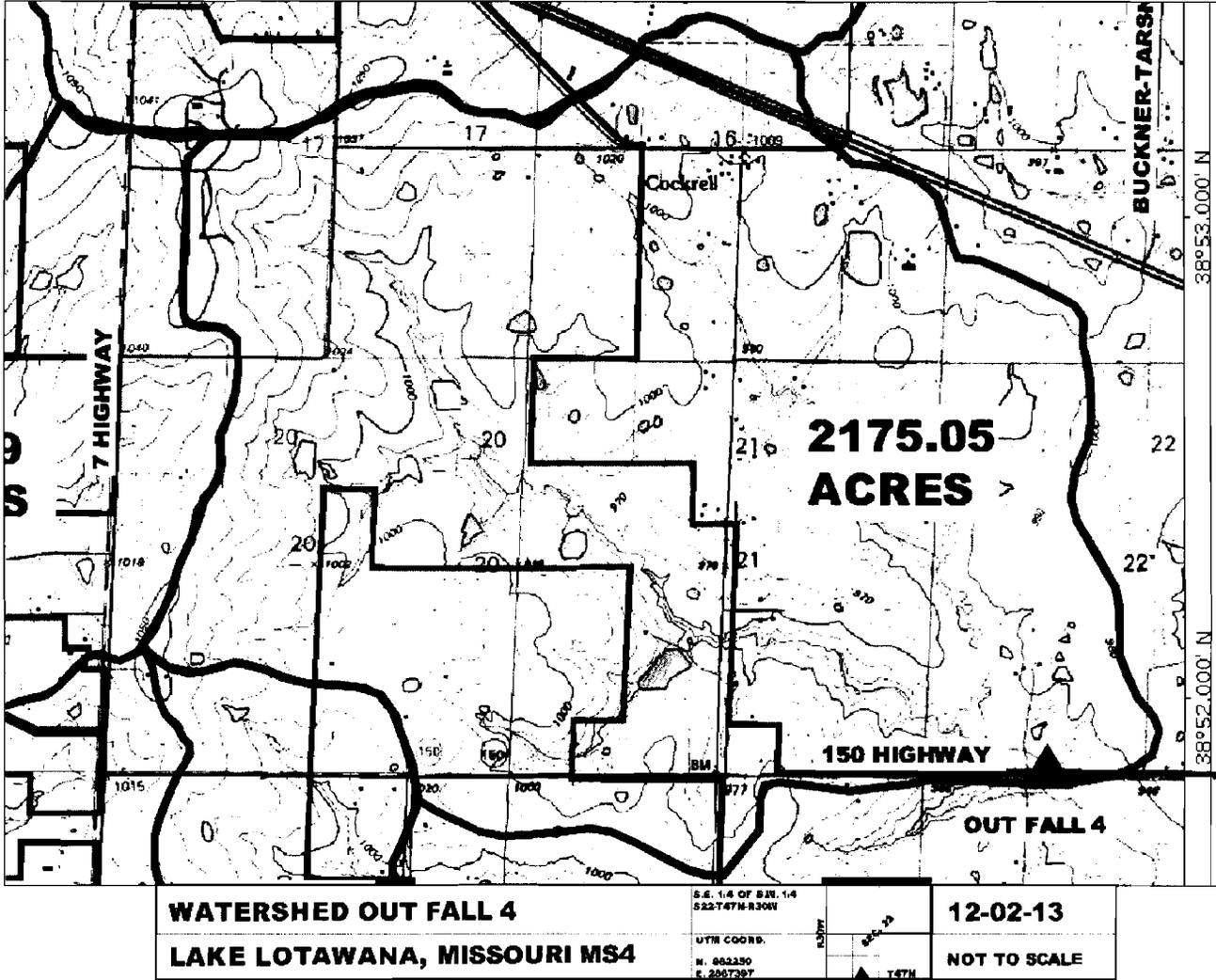


Figure 5

The City of Lake Lotawana is located in southeast Jackson County, Missouri. The topography is typically gently rolling with slight to moderate grade changes. Elevations vary from about 1,050 feet National Vertical Geodetic Datum (NGVD 1929) at the along the watershed divides to an approximate elevation of about 850 feet NGVD in the West Sni-A-Bar Creek floodplain.

Lake Lotawana's soil groups lies within the Snead-Menfro-Oska association north of Highway 50 and the Macksburg-Sharpsburg-Sampsel association generally south of Highway 50. The soils range from moderately deep to deep, poorly to moderately well drained soils formed in loess or upland shale residuum⁵. The slopes range from 2 to 10 percent with generally low strength characteristics. Typically they exhibit a moderate to severe shrink-swell potential. The soils in this association were used mainly for crop and pasture, but now with development, they have undergone some transformations that have resulted in a more compacted, dense characteristic.

Land uses range from agricultural, single family residential, light industrial, business, commercial, and schools with most of these features being found in some degree in all the watersheds.

The nearest 303d impaired stream is the Sni-A-Bar Creek which over 7 miles downstream. The West Fork Sni-A-Bar was delisted from a Section 303d when Total Maximum Daily Loads (TMDL) were established in January 2006. According to the Missouri Department of Natural Resources Water Protection Program report:

“West Fork Sni-a-Bar Creek is on the 2002 303(d) list due to high BOD, which causes low Dissolved Oxygen (DO) and high VSS resulting from discharges from the Lake Lotawana Wastewater Treatment Plant (WWTP). The TMDL priority ranking for West Fork Sni-a-Bar Creek is high. This TMDL was calculated at critical low flow conditions. The beneficial uses of West Fork Sni-a-Bar Creek are impaired for warm water aquatic life because of the effects of BOD and VSS on DO and ultimately aquatic life. DO is essential for most aquatic life and settled solids smother the streambed habitat for aquatic organisms, like invertebrates and fish eggs.”⁶

Both BOD and VSS were identified as adversely impacting the stream the result of the old Lake Lotawana lagoon; however, since then the City has installed, permitted, and operates an upgraded biological, nutrient removal with disinfection WWTP. The operating permit establishes discharge limits from the WWTP to meet the TMDL requirements, and the City regularly samples and tests effluent for these and other parameters. There were no identified sources upstream of the WWTP; in fact, the report noted that during high flow the lake's spillway drop adds beneficial dissolved oxygen to the stream.

STORM WATER OUTFALLS

Lake Lotawana MS4 has identified 4 outfalls:

Outfall ID	Section			Township	Range	UTM Coordinates		Receiving Stream
1	SE1/4	SE1/4	29	48N	30W	1009347 N	2861259 E	West Fork Sni-A-Bar Creek
2	NW1/4	SW1/4	19	47N	31W	984926 N	2849762 E	Tributary to East Branch Big Creek
3	SW1/4	NE1/4	29	47N	30W	980539 N	2859080 E	West Tributary West Branch Crawford Creek
4	SE1/4	SW1/4	22	47N	30W	982250 N	2867397 E	North Tributary West Branch Crawford Creek

The location of all the outfalls are shown on Figure 6 and attached.

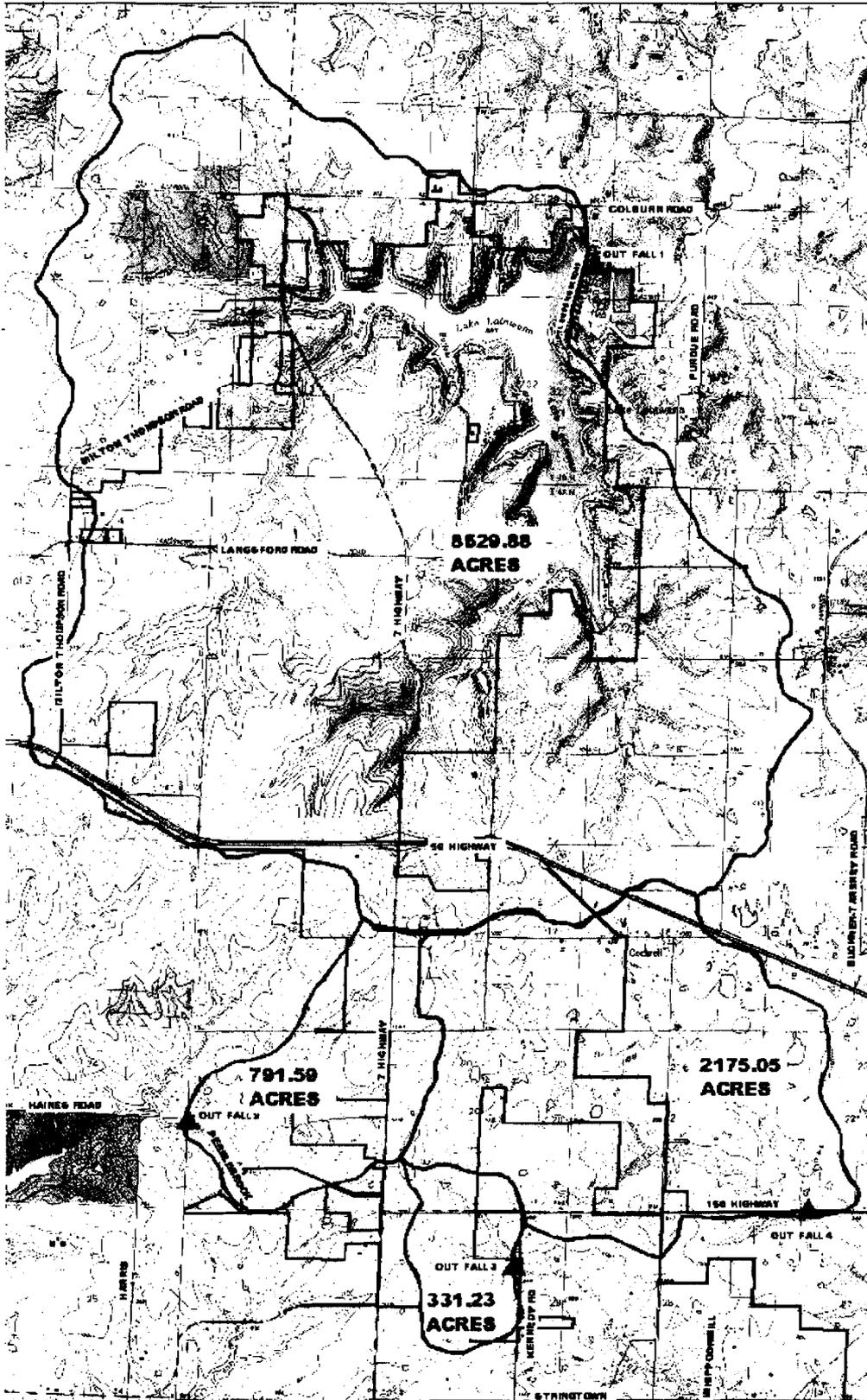


Figure 6

TARGETED POLLUTANTS

Based upon the results of surveys with City staff, public officials, and engineering, the City has identified and rated the following pollutants that may be in the MS4. The ratings are on 1 to 10 scale with a rating of 1 that indicate the pollutant is likely to be encountered and a 10 least likely to be encountered in the City.

POLLUTANT	DESCRIPTION	RATING
Household Hazardous Waste	Solvents, paints, other chemicals that are disposed of in storm inlets, creeks, etc.	13
Nutrients	Fertilizer misuse - Nitrogen, Phosphorus, Potassium	2
Sediment	Suspended solids, silt, erosion, construction runoff	1
Solid and Sanitary Waste	Trash - dumps of domestic and industrial waste, sanitary sewer overflows	7
Pesticides	Should also include herbicides	5
Oil and Grease	Spills, leaking vehicles, waste oil improper disposal	10
Construction Waste	Asphalt, concrete, wood, concrete truck wash, etc.	8
Heavy Metals	Toxic metals	12
Bacteria	Cross contamination, septic tanks, pet and wildlife waste	4
Salinity (Salt)	Snow removal and de-icing chemical runoff	10
Oxygen Depleting Substances	Pollutants that cause a biological oxygen demand - detergents and animal waste	3
Habitat Alterations	Loss of green spaces	9
Floatables	Trash, similar to solid waste - plastic sacks, cups, etc..	6
Temperature	Large impervious area - pavements and roofs cause increased runoff temperature	11

MINIMUM CONTROL MEASURES

Minimum Control Measure 1

PUBLIC EDUCATION AND OUTREACH

The City of Lake Lotawana believes that an informed and knowledgeable public is essential to the success of this stormwater management program and strives to build public support and compliance with the program. To this end the City will implement a public education program to disseminate stormwater quality information for the targeted pollutants identified in the previous section:

For this next permit cycle the City will target City staff, elected officials, public interest groups, builders and developers.

Goal 1: Inform the public on steps they can take to reduce storm water pollutants.

1. City will utilize educational information from the Mid America Regional Council (MARC), State of Missouri, EPA along with others as applicable and available. Per the target pollutants, littering, improper trash/waste disposal, and construction sediment/erosion controls will be the initial priorities.
2. Prepare and distribute information brochures at public meetings and hearings.
3. Display educational materials at community events (City Hall, community center, business expos, and civic fairs).
4. Measurable goals will be the tracking and documentation of number of brochures picked up by the residents and the participation at community events.



Goal 2: Educate public officials and city staff. It is essential that the community's leadership, staff and elected officials, understand the merits and responsibilities of protecting, restoring, and maintaining clean storm water systems.

1. Make available storm water quality training first to department heads and elected officials then later to key staff members.
2. Presentation of stormwater issues at Aldermen meetings.
3. Provide items of interest pertaining to water quality in the local newsletters.
4. Measurable goals will be the tracking and documentation of training events, information presented at meetings, and items listed in newsletters.

Goal 3: Use local media to educate the public on water quality concerns.

1. Use the City web site to notify, educate, and update the public about storm water related activities in the community and around the country.

2. Research and provide local newspapers with water quality initiatives news releases.
3. Measurable goal will be the tracking and documentation of notices made and public responses.

Goal 4: Inform the building and construction industry on water quality initiatives, regulations, and responsibilities.

1. Supply storm water quality handouts along with building permits and make available at a kiosk in the city offices.
2. Measurable goal will be to track and document number of handouts picked up.

Goal 5: Seek opportunities to participate in regional public water quality task forces.

1. Contact existing citizen watershed groups and stream teams and offer to participate in these organizations (West Branch Sni-A-Bar Creek Watershed Consortium).
2. Measurable goals will be the attendance and participation by staff.



MCM 1 - Public Education and Outreach					
Goal	Year 1	Year 2	Year 3	Year 4	Year 5
1	√	√	√	√	√
2	√	√	√	√	√
3		√	√	√	√
4		√	√	√	√
5	√	√	√	√	√

Minimum Control Measure 2

PUBLIC INVOLVEMENT/PARTICIPATION

Because the lake is of primary significance to this community, many of the City of Lake Lotawana's citizens play active parts in the various committees and organizations throughout the community and many others are concerned with the water quality of the lake. This stormwater program will continue to encourage this involvement and participation with the following BMPs:

Goal 1: Offer opportunities and an environment for residents to notify staff and the elected officials of their storm water concerns.

1. Seek public input and encourage public comments at the regularly scheduled Alderman's meetings.
2. Involve citizens in the community development process. Continue the City current public hearings format at official meetings prior to vote on rezoning applications.
3. Establish a point of contact for residents to question or notify the City of stormwater concerns.
4. Measurable goals will be to set aside a line item on each meeting agenda for stormwater concerns and document participation and comments. A City-staff contact at the City will be determined and contact information advertised via brochures, web page, and public meetings.

Goal 2: Create opportunities for the public to actively join in hands-on efforts to promote and improve water quality.

1. Encourage, coordinate, and assist with community clean-ups and volunteer water quality monitoring programs. Since pet waste was a significant pollutant identified by the community, the MS4 will look for interested individuals and groups that will help with litter control along public lands and stream team cleanup.
2. The City currently uses signage to advocate water quality and this BMP will further implement a stencil/labeling program of stormwater facilities. An example is shown in Figure 7.



DUMP NO WASTE



DRAINS TO LAKE

Figure 7

3. Measurable goals for this will be for the City to provide the opportunity and creation of interested stakeholders group and/or the inclusion of this into the official meeting's regular agenda. For the signage and labeling of catch basin the City will utilize schools, scouts, youth groups volunteer opportunities with staff as backup and will track and document the number of facilities labeled.

MCM 2 - Public Involvement/Participation					
Goal	Year 1	Year 2	Year 3	Year 4	Year 5
1	√	√	√	√	√
3	√	√	√	√	√

Minimum Control Measure 3

ILLICIT DISCHARGE DETECTION AND ELIMINATION

Illicit discharges are defined as a measurable flow during dry weather containing pollutants and/or pathogens in or leaving a stormwater conveyance structure 10 CSR 20-6.200. The City of Lake Lotawana recognizes these illicit discharges will adversely impact water quality; thus, propose the following Goals to develop, implement, and enforce a program to detect and eliminate illicit discharges:

Goal 1: Develop a storm sewer system map showing the locations of all outfalls and the names and locations of all waters of the US that receive discharges from these outfalls.

1. Staff will prepare a Geographical Information System (GIS) map of the storm sewers with outfalls benchmarked to the State Plane Coordinate System. It is proposed to complete or update at least 25% of the total system each year until it is completed then revise the mapping annually or as new information comes in.

This lake community presents a somewhat unique situation in regards to the definition and mapping of the MS4. The area around the lake is high density single family residential with limited storm sewers. Most of the stormwater runoff collection and conveyance system is open channels, driveway pipes, and crossroad pipe culverts with the lake being the receiving unit. Yet the lake is not the ultimate destination of runoff in the hydrologic cycle, it is only element in the overall course. West Fork Sni-A-Bar Creek, Sni-A-Bar Creek, then the Missouri River are all downstream of the lake. The lake could be considered a receiving stream; after all, it is by definition "Waters of the United States", but in essence the lake is actually a stormwater management unit privately owned and operated as one component along the path towards the actual receiving stream (West Fork Sni-A-Bar) in the overall MS4. Thus, it is proposed that the lake and the surrounding 1st tier properties be considered like any other drainage collection device and surveyed as a point or node with the ultimate and only outfall as the spillway as identified herein as Outfall 1.

As illustrated in Figure 8, all the properties around the lake contribute runoff directly to the lake; however, 2nd tier homes runoff conveys via overland flow, open channels or privately owned conduits into the lake; although there are very few conduits directly into the lake, most discharge into the yards of the homes immediately around the lake.

Therefore, the mapping of the MS4's secondary channels and pipes will be planned and implemented to trace illicit discharge upstream of the properties immediately around the lake.

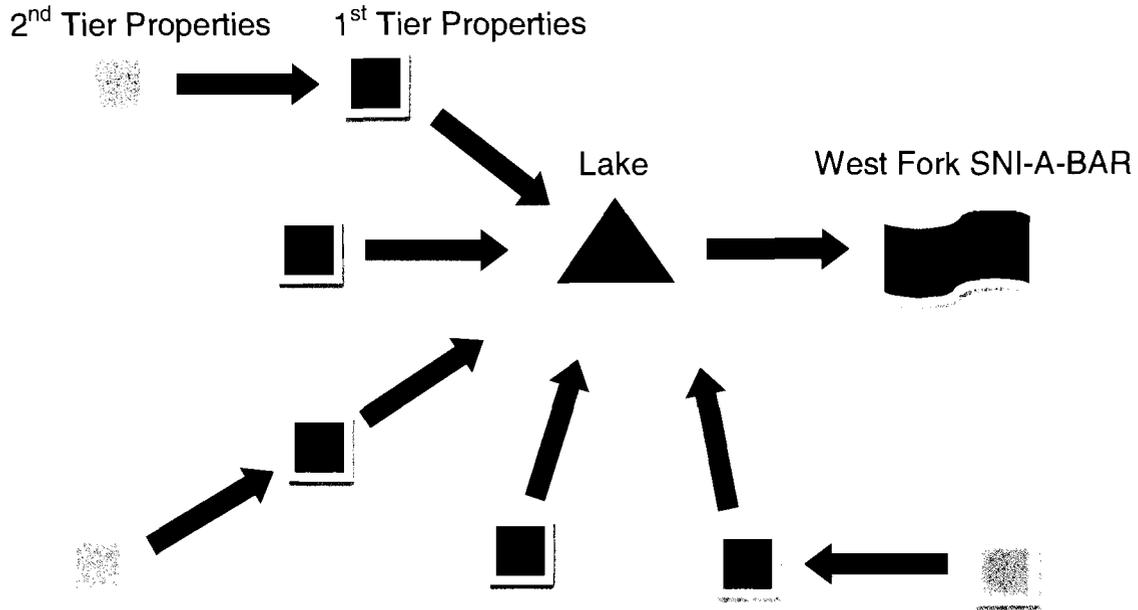
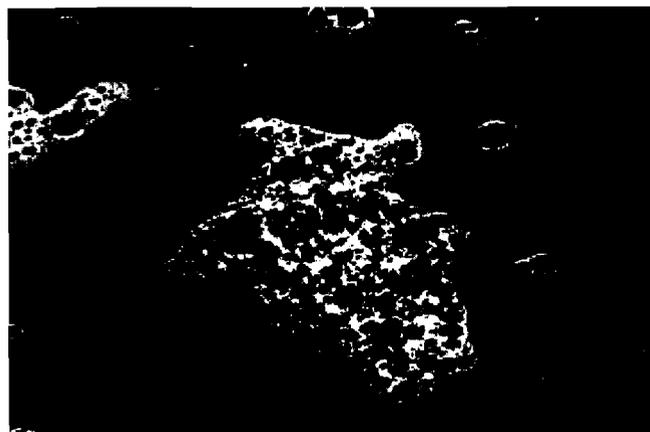


Figure 8

2. Build a GIS map layer that list entities that have a state/federal Spill Prevention and Countermeasures Control Plan (SPCCP) required under the Oil Pollution Act (OPA). Map these entities by watershed and receiving stream. The mapping shall also include an inventory, categorization, and location of all industrial or commercial business that stores Resource Conservation and Recovery Act (RCRA) identified products and/or generates a product waste stream during their business operations process.
3. Develop and maintain a GIS map of any septic systems, sanitary sewer overflows, and/or reported releases, spills, and discharges.
4. Measurable goal the production of the base GIS storm system map, creation of the attributes showing industries, septic systems, sewer overflows, and reported illicit discharges.



Goal 2: Review and modify as necessary existing ordinances related to illicit discharges to the stormwater system.

1. Some of the current City ordinances that address illicit discharge, water quality, and erosion include:
 - SECTION 215.03 ENUMERATION OF NUISANCES
2. The measurable goal for this BMP will be the reviews, updates and submittals of ordinances that regulate illicit discharges for consideration to the governing body.

Goal 3: The City will develop a plan to detect and eliminate illicit discharges into the MS4.

1. Beginning the second year of the program start an annual inspection and cleaning of the public storm conveyance system by staff. Prior to the work a standardized inspection form shall be developed that includes a rating of conditions, content, quality, and actions taken that will then be added as an attribute to the GIS mapping. It is anticipated that at least 25% of the outfalls will be inspected each year.
2. The annual inspections will also monitor for any-on site sewerage disposal failures or illegal connections.
3. Procedures for tracing and removing the source of the illicit discharge that includes mapping, field screening, notification, enforcement, and follow-up.
4. The following non-stormwater discharges are not significant contributors to the MS4:
 - a. Landscape irrigation
 - b. Rising ground water
 - c. Uncontaminated ground water infiltration
 - d. Uncontaminated pumped ground water
 - e. Discharges from potable water sources
 - f. Foundation drains
 - g. Air conditioning condensation
 - h. Springs
 - i. Water from crawl space pumps
 - j. Footing drains
 - k. Lawn watering
 - l. Flows from riparian habitats and wetlands
 - m. Street wash water
 - n. Fire fighting flows from non-hazardous events
 - o. Charity car washes
5. The measurable goals for this endeavor shall be the tracking and documentation of inspections, responses taken, pollution encountered, enforcement actions, removals of sources and how it was accomplished, and the follow-up verification inspection.

Goal 4: Prepare and implement a process to investigate calls from the residents and educate the public of the impacts from polluting the storm drainage system

1. Put in place a procedure for the public to notify the City of suspected illicit discharges. A contact person and phone number will be advertised on the brochures and City web page. Documentation records will include the cause for the notice, specific concern, location of illicit discharge and the response actions taken.
2. Continue to sponsor household hazardous waste disposal programs Advertise and undertake annual city-wide disposal day with City staff working the drop off station and disposing through a licensed waste handler.
3. Measurable goals will include tracking and documentation of the number of calls and the response taken by the City and the volume of household hazardous waste collected.

MCM 3 - Illicit Discharge Detection and Elimination					
Goal	Year 1	Year 2	Year 3	Year 4	Year 5
1	√	√	√	√	√
2		√			
3		√	√	√	√
4	√	√	√	√	√

Minimum Control Measure 4

CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Sediment is listed as the highest on the City's list of targeted pollutants and the primary source of most sediment laden runoff is land disturbing activities. Sediment pollutants adversely affect streams, lakes, and deltas with construction runoff contributing 10 to 20 times more sediment than agricultural lands and 1000 times more than established land uses such as forests. Lake Lotawana's current Code of Ordinances sections 400 already regulate some land disturbance for new and re-developments. Existing ordinance sections include:

- SECTION 405.22 CONSTRUCTION PLANS/CONSTRUCTION OF IMPROVEMENTS
- SECTION 435.1 ADEQUATE PUBLIC FACILITIES REQUIRED + APW + BMP
- SECTION 440.11 EXCAVATION AND SUBSTANTIAL LAND ALTERATION ACTIVITIES

Goal 1 – The City will review its existing ordinances and update as necessary to include entities as defined in the State criteria.



1. Staff will investigate other communities construction site stormwater runoff control ordinances.
2. Ordinance will include reference to adopted BMP guidelines and have enforcement program that will include fines and/or stop work authority.
3. Prepare list of criteria in a permit form application that is in line with State of Missouri land disturbance regulations.

This permit will include a summary application form to be filled out by the owner or his representative that stipulates key aspects of the requirements and their acknowledgement of their responsibilities.

4. Measurable goals will be the update of the existing ordinance and creation of a Land Disturbance permit application form.

Goal 2 – Provide administrative and technical review and oversight of construction activities along with necessary site runoff controls as part of the development review process

1. Investigate various runoff control alternatives such as APWA Section 5600, BMP Design Manual, and/or APWA Erosion Control and Grading specs.
2. Adopt BMP design guidelines for construction
3. Create a plan review checklist that incorporates construction runoff controls
4. Create inspection checklist forms and policy
5. Train both public works inspectors and codes inspectors on erosion control measures.
6. Measurable goals will be the completion and implementation of: construction site runoff control specifications and guidelines, plan review and inspection checklists, training of inspectors, and tracking and documentation of developments performance.

MCM 4 - Construction Site Runoff Controls					
Goal	Year 1	Year 2	Year 3	Year 4	Year 5
1	√	√			
2		√	√	√	√

Minimum Control Measure 5

POST CONSTRUCTION STORMWATER MANAGEMENT

The City has implemented development and redevelopment regulations enforceable through the Municipal Code that addresses environmental impacts due to changes in the land uses. These regulations are intended to improve water quantity and sediment control. Now both structural and non-structural Best Management Practices (BMPs) will be evaluated to address degradation of water quality with ordinances prepared or modified that enforces the implementation to post construction initiatives.

Essentially there are two types of Best Management Practices (BMP) for this MCM

A Non-Structural BMP is policy, planning, and/or ordinances, that regulates development or redevelopment such as:

Low Impact Development

Stream Buffers

Structural BMPs are constructed improvements to reduce the adverse impacts to water quality:

Infiltration BMPs

Vegetative BMPs

Stormwater Retention/Detention BMPs

Proper management of storm water runoff will minimize damage to public and private property, ensure a functional drainage system, reduce the effects of development on land and stream channel erosion, assist in the attainment and maintenance of water quality standards, enhance the local environment associated with the drainage system, reduce local flooding, maintain as nearly as possible the pre-developed runoff characteristics of the site, and facilitate economic development while mitigating associated flooding and drainage impacts.

Goal 1: Assess, deliberate, and determine appropriate code modifications necessary to align the ordinances with the intent of the MCM.

1. Utilizing The Missouri Guide to Green Infrastructure⁷ published by the MDNR in May 2012 identifies "... the processes and tools a community can use to develop sustainable site designs and development plans, land use plans, stormwater management programs, land use ordinances and technical design manuals to help meet social, environmental and financial goals." With this review and whenever possible the City will codify for ordinance practicable selections. Lake Lotawana's current Municipal Code of Ordinances that address these requirement include:

- SECTION 420.1 CLUSTER SUBDIVISIONS
- SECTION 410 ZONING DISTRICTS AND USES
- SECTION 430 FLOODPLAIN MANAGEMENT

2. The KCMO APWA BMP Design Manual that establishes technical performance standards for runoff controls and long term BMPs will be reviewed and evaluated for implementation.
3. Provide training to City community development personnel in non-structural BMP.
4. Encourage, educate, and coordinate a comprehensive development plan that identifies environmentally sensitive areas. Work with the business community, developers, elected officials, and staff to begin implementation of non-structural BMPs such as green designs, stream buffers, low-impact developments, etc.
5. Measurable goals will be the preparation of procedures.



A rain barrel is used to collect rooftop runoff using a gutter/downspout system

Goal 2: Evaluate and consider structural BMPs in both public works and private development's stormwater plans.

The City of Lake Lotawana has adopted the Kansas City American Public Works Association design criteria. This criterion provides uniform procedures for designing and checking the design of storm drainage systems under the rainfall and land characteristics typical of the Kansas City Metropolitan Area⁸. This manual generally focuses on water quantity concerns including: conveyance, flow rates, and construction design parameters of stormwater

systems. For references herein to the APWA water quality design standards and Best Management Practices (BMPs) for the Kansas City Metropolitan area see the “Mid-America Regional Council and American Public Works Association; Manual for Best Management Practices for Stormwater Quality”⁹

1. The City shall investigate and whenever possible codify selected sections of the Missouri Guide to Green Infrastructure and the KCMO APWA BMP Design Manual that plans and guides certain uses of structural BMPs that allows and encourages both public and private property such as rain gardens, riparian protection, bio-swales, permeable pavements/parking lots.
2. Continue to refine the City’s stormwater management plan including comprehensive drainage system evaluation of new developments impacts, coordinated development reviews with all city departments, and alignment of floodplain management with this approach.
3. The measurable goals shall include creating a plan review checklist and post construction inspection checklists, documentation of the implementation of regional watershed-based participation, development plan reviews, and floodplain management that links stream hydraulics impacts with water attributes, and the number of developments that have incorporated these BMPs.

Most of the development part of the City is a lake community developed around the lake with recreation the primary function, Figure 9. This dense development around the lake, meets many of the zoning and open space management of cluster development, a non-structural BMP.



Figure 9

As shown in Figure 10, additional non-structural BMPs already in place in this community are narrow streets, open swale drainages, and the elimination of curb and gutters as a required infrastructure improvement.



Figure 10

Storm drainage improvement projects are by their nature usually in federal and state regulated waters, so to avoid costly mitigation, designs that limit the impacts to the environment should be considered. Given the desire to improve water quality, keep projects within reasonable budgets, and meet homeowners expectations, it becomes important that the City staff, design engineers, and residents discuss alternative BMPs and regulatory limitations at the outset of a project. Reducing environmental impacts by the use of natural materials have been successful in improving water quality, creating sustainable storm water facilities, and obtaining federal and state permits. This means that the old paradigm of constructing concrete channels, piping, and hard armoring of streams is changing to include more environmentally sensitive drainage systems such as native grass-lined channels.

MCM 5 - Post Construction Stormwater Management					
Goal	Year 1	Year 2	Year 3	Year 4	Year 5
1	√	√	√		
2		√	√	√	

Minimum Control Measures 6

POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

Proper management of the City's facilities is essential to ensuring a reduction in the amount of pollution affecting the storm sewer system, and in order to improve water quality the following goals have been determined:

Goal 1: Train City staff in the appropriate manner of storage, handling, use, and disposal of water polluting constituents.

1. Staff training on proper storage, handling, and disposal of chemicals and street applications and utilize both in-house and out of office training opportunities initially for supervisors then with remaining staff.
2. Seek and exploit opportunities to instruct employees on the prudent management of potential pollutants by using the employee newsletter, and supervisors meetings.
3. Measurable goals will include the tracking and documentation of the educational events attendance and number of notices published in employee handouts.

Goal 2: Develop and implement process to reduce the discharge of pollutants from City facilities.

1. Continue the street sweeping and proper disposal of materials.
2. Perform an annual program to clean city-owned stormwater facilities such as catch basins of sediment, floatables (trash), and other debris.
3. Plan for proper disposal of excavation spoil material includes both regulated and non-regulated materials dirt, asphalt, concrete. Process shall be in compliance with local, state, and federal criteria.
4. Measurable goals will be the tracking and documentation of the number of hours or miles the street sweeping was performed and the number of catch basins cleaned including the documentation of the proper disposal of debris.

Goal 3: Monitor, upgrade, and assess City procedures for the storage and use of operational chemical components.

1. Continue the waste oil recycling program.
2. Continue use of salt/sand storage containment including the storage of leaking equipment indoors or within enclosed areas.
3. Evaluate ways to reduce chemical and fertilizer application rates.
4. To measure the success of these initiatives, the City will track and document the waste oil volumes, inspections of the salt and storage containment, results of the fertilizer usage assessments, and the results of the SPCCP examinations.

Goal 4: Investigate, educate, seek enforcement authority and implement best management practices that addresses trash and pet waste. The measureable goal will be the development of an initiative that addresses pet waste and a presentation to the governing board of ordinances that enforce proper disposal.

MCM 6 - Pollution Prevention/Good Housekeeping for Municipal Operations					
Goal	Year 1	Year 2	Year 3	Year 4	Year 5
1	√	√	√	√	√
2	√	√	√	√	√
3	√	√	√	√	√
4		√	√	√	√

RECORD KEEPING AND REPORTING

The City designates the City Administrator the individual responsible for the stormwater management program.

The MDNR General Permit Section 4.4 requires the permittee to do an annual review of the permittee's stormwater management program in conjunction with preparation of the annual report required under section 5.3. The permittee may update the program subject to the following procedures as specified in the permit:

Changes adding (but not subtracting or replacing) components, controls or requirements to the Plan may be made at any time upon written notification to the MDNR.

Changes replacing an ineffective or infeasible BMP specifically identified in the Plan with an alternate BMP may be requested at any time with the following information to be supplied to the MDNR:

1. An analysis of why the BMP is ineffective or infeasible (including cost prohibitive),
2. Expectations on the effectiveness of the replacement BMP, and
3. An analysis of why the replacement BMP is expected to achieve the goals of the BMP to be replaced.

Section 5.1.1 requires the permittee to evaluate program compliance, the appropriateness of identified BMPs, and progress toward achieving identified measurable goals.

Section 5.2 requires the permittee to retain records of all activities requiring record keeping by this Plan.

Section 5.3 requires the permittee to submit annual reports to the MDNR The reports must include:

1. The status of the permittee's compliance with permit conditions, an assessment of the appropriateness of the identified BMPs, progress towards achieving the statutory goal of reducing the discharge of pollutants to the maximum extent practicable and the measurable goals for each of the MCMs;
2. Results of information collected and analyzed, if any, during the reporting period, including monitoring data used to assess the success of the program at reducing the discharge of pollutants to the maximum extent practicable;
3. A summary of the stormwater activities the permittee plans to undertake during the next reporting cycle (including an implementation schedule);
4. Proposed changes to the permittee's Plan, including changes to any BMPs or any identified measurable goals that apply to the program elements.

The Flood Insurance Rate Map (FIRM) is used by surveyors and engineers to plan development in and around regulatory floodplains. Insurance agents use these maps to determine flood zones for rate determinations. Nearly 20,000 communities across the United States and its territories participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage.¹⁰ In exchange, the NFIP makes Federally backed flood insurance available to homeowners, renters, and business owners in these communities. Community participation in the NFIP is voluntary.

Flood insurance is designed to provide an alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. Flood damage is reduced by nearly \$1 billion a year through communities implementing sound floodplain management requirements and property owners purchasing of flood insurance. Additionally, buildings constructed in compliance with NFIP building standards suffer approximately 80 percent less damage annually than those not built in compliance.

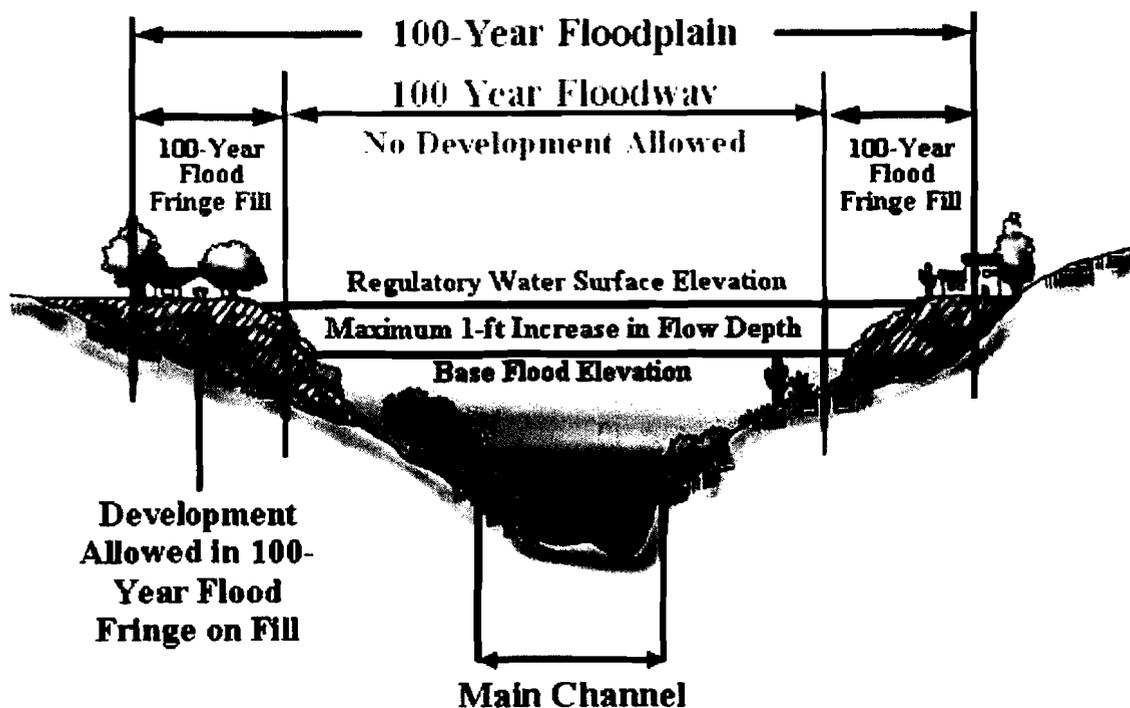


Figure 12

The floodplain is the portion of the stream and adjacent land occupied by storm water runoff. It includes the floodway and the flood fringe. Figure 12 illustrates the relationship of the floodplain and the floodway. Floodplain management is the operation

of a community program of corrective and preventative measures for reducing flood damage. These measures take a variety of forms and generally include requirements for zoning, subdivision or building, and special-purpose floodplain ordinances.

A community's agreement to adopt and enforce floodplain management ordinances, particularly with respect to new construction, is an important element in making flood insurance available to home and business owners. The City of Lake Lotawana effective flood maps are dated on September 29, 2006.

FUNDING OF THE STORMWATER PROGRAM

Lake Lotawana MS4 will be funded through the City's general fund budget. Other funding sources are being sought and the following list contains potential stormwater related grant programs that may provide some assistance. As with all financial assistance programs there are requirements that would need to be met to be eligible; furthermore, there would be competition for the limited funds.

Agricultural Nonpoint Source (AgNPS) Special Area Land Treatment (SALT) Program (Missouri Department of Natural Resources)

American Land Conservation Program (Richard King Mellon Foundation)

Bring Back the Natives (National Fish and Wildlife Foundation)

Challenge Cost-Share Grant Program of the Urban and Community Forestry Program (National Urban and Community Forestry Advisory Council & U.S. Department of Agriculture Forest Service)

Civil Works Projects (Army Corps of Engineers)

Clean Water Section 106 Grants (U.S. Environmental Protection Agency)

Collaborative Problem Solving Grants (U.S. Environmental Protection Agency – Office of Environmental Justice)

Conservation on Private Lands (National Fish and Wildlife Foundation and the Natural Resources Conservation Service)

Conservation Reserve Program (CRP) [US Department of Agriculture Farm Service Agency (FSA)]

Conservation Security Program (CSP) [U.S. Department of Agriculture]

Cooperative Water Program (U.S. Geological Survey)

Educational Foundation of America Environment Grants (Educational Foundation of America)

Environmental Education Grants (U.S. Environmental Protection Agency)

Environmental Quality Incentives Program (EQIP) (US Department of Agriculture)

Farmland Protection Program (U.S. Department of Agriculture)

Five Star Restoration Challenge Grant Program (U.S. Environmental Protection Agency and the National Marine Fisheries Service)

Hazard Mitigation Grant Program (HGMP) (Federal Emergency Management Agency)

Grasslands Reserve Program – GRP (U.S. Department of Agriculture)

National Fish and Wildlife General Matching Grants (National Fish and Wildlife Foundation)

Native Plant Conservation Initiative (National Fish and Wildlife Foundation and the Plant Conservation Alliance)

Nonpoint Source (NPS) Minigrants (Missouri Department of Natural Resources)

Nonpoint Source (NPS) Project Grants (Missouri Department of Natural Resources and U.S. EPA)

North American Wetlands Conservation Act Small Grants (U.S. Fish and Wildlife Service, Division of Bird Habitat Conservation)

North American Wetlands Conservation Act Standard Grants (U.S. Fish and Wildlife Service, Division of Bird Habitat Conservation)

Office of Environmental Justice's Small Grants Program (U.S. Environmental Protection Agency – Office of Environmental Justice)

Outdoor Recreation Grants (National Park Service's Land and Water Conservation Fund and Missouri's Department of Natural Resources' Division of State Parks)

Partners for Fish and Wildlife Program (U.S. Fish and Wildlife Service)

Performance Partnership Grants (U.S. Environmental Protection Agency)

Planning Assistance to States (U.S. Army Corps of Engineers)

Pre-Disaster Hazard Mitigation Program (PDM) [U.S. Department of Homeland Security]

Recreational Trails Program [Missouri's Department of Natural Resources' Division of State Parks and the Federal Highway Administration (TEA-21 and its successor highway program)]

Safe, Accountable, Flexible and Efficient Transportation Equity Act - SAFETEA (U.S. Department of Transportation)

Small Watershed Rehabilitation Program (U.S. Department of Agriculture)

Soil and Water Conservation Assistance (U.S. Department of Agriculture Natural Resources Conservation Service)

State Monitoring, Assessment, and Reporting Program Grants and Cooperative Agreements (U.S. Environmental Protection Agency)

Storm Water Grant and Loan Program (Missouri Department of Natural Resources)

Surveys, Studies, Investigations and Special Purpose Grants (U.S. Environmental Protection Agency)

Transportation Enhancements (Federal Highway Administration and Missouri Department of Transportation)

Water Quality Cooperative Agreement (U.S. Environmental Protection Agency)

Watershed Action Grants (The William Penn Foundation and The Conservation Fund)

Watershed Assistance Grants (River Network and U.S. Environmental Protection Agency)

Watershed Initiative (U.S. Environmental Protection Agency)

Wetlands Program Development Grants (U.S. Environmental Protection Agency)

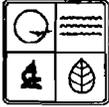
Watershed Protection and Flood Prevention Program (U.S. Department of Agriculture – Natural Resources Conservation Service)

Wetlands Reserve Program (WRP) (US Department of Agriculture)

Wildlife Habitat Incentives Program (U.S. Department of Agriculture Natural Resources Conservation Service)

REFERENCES

- ¹ U.S. Environmental Protection Agency; National Pollutant Discharge Elimination System (NPDES); “Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s)”; epa.gov/npdes/stormwater/munic
- ² U.S. Environmental Protection Agency – Office of Water; “Stormwater Phase II Final Rule” EPA 833-F-00-001; Revised December 2005
- ³ CED Engineering; “Post Construction Storm Water Management – Non Structural BMPs”; Course No. C06-001
- ⁴ United State Geological Survey; 7.5 degree; 2000 scale; “Tarsney Lakes, MO” 1990 Quadrangle, “Lake Jacomo, MO” 1996 Quadrangle, “Strasburg, MO” 1990 Quadrangle, and “Pleasant Hill, MO” 1990 Quadrangle.
- ⁵ United States Department of Agriculture, Soil Conservation Service, “Soil Survey of Jackson County, Missouri”; September, 1984
- ⁶ Missouri Department of Natural Resources Water Protection Program; Total Maximum Daily Load (TMDL) For West Fork Sni-a-Bar Creek Jackson County, Missouri; January 6, 2006
- ⁷ Missouri Department of Natural Resources, “Missouri Guide to Green Infrastructure, Integrating Water Quality into Municipal Stormwater Management” PUB 2446, May, 2012
- ⁸ Kansas City Metropolitan Chapter, American Public Works Association, “Section 5600 Storm Drainage System and Facilities”
- ⁹ Mid-America Regional Council and American Public Works Association, “Manual of Best Management Practices for Stormwater Quality”, September 2003
- ¹⁰ The National Flood Insurance Program; Federal Emergency Management Agency; August 18, 2010; fema.gov/about/programs/nfip



MISSOURI DEPARTMENT OF NATURAL RESOURCES
 WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH
 PO BOX 176, JEFFERSON CITY, MO 65102
FORM K – APPLICATION FOR INDIVIDUAL SMALL MS4 GENERAL PERMIT (FORM M MUST ALSO BE SUBMITTED)

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED	FEE SUBMITTED

THIS IS FOR A STORMWATER ONLY DISCHARGE PERMIT.

1.00
 a. This municipality/area is now operating a separate storm sewer system under Missouri Operating Permit Number (NPDES) MO – _____ or MO-R040084
 b. This is a new permit;

2.00 NAME OF MUNICIPALITY/AREA MS4
 Lake Lotawana Small MS4

2.10 ADDRESS (HEADQUARTERS PHYSICAL LOCATION)	STREET	CITY	STATE	ZIP CODE
	100 Lake Lotawana Drive	Lake Lotawana	MO	64086

3.00 OWNER

NAME City of Lake Lotawana	TELEPHONE NUMBER (816) 578-4215			
ADDRESS	STREET	CITY	STATE	ZIP CODE
	100 Lake Lotawana Drive	Lake Lotawana	MO	64086

4.00 CONTINUING AUTHORITY

NAME City of Lake Lotawana	TELEPHONE NUMBER (816) 578-4215			
ADDRESS	STREET	CITY	STATE	ZIP CODE
	100 Lake Lotawana Drive	Lake Lotawana	MO	64086

5.00 MUNICIPALITY/ AREA CONTACT

NAME Jill Cornett	PHONE (816) 578-4215
	FAX (816) 578-4035
TITLE City Administrator	

6.00 FOR EACH KNOWN STORMWATER OUTLET GIVE LEGAL DESCRIPTION (ATTACH ADDITIONAL SHEETS AS NECESSARY)
 Stormwater Outlet Number _____ ¼ _____ ¼ _____ Sec. _____ T _____ R _____ County SEE ATTACHED
 Lat _____, Long _____

6.10 FOR EACH KNOWN STORMWATER OUTLET LIST THE NAME OF THE RECEIVING WATER

Outlet Number <u>1</u>	Receiving Water <u>West Fork Sni-A-Bar Creek</u>
Outlet Number <u>2</u>	Receiving Water <u>East Branch of Big Creek</u>
Outlet Number <u>3 & 4</u>	Receiving Water <u>West Branch Crawford Creek</u>

7.00 ATTACH A USGS 1" – 2000' SCALE MAP SHOWING THE LOCATION OF THE MUNICIPALITY/AREA IN RELATION TO THE LOCAL ROAD SYSTEM. INDICATE ON THE MAP THE MUNICIPALITY/AREA BOUNDARIES, THE RECEIVING STREAM(S); ALL KNOWN STORMWATER OUTLETS; AND THE MAP SECTION, TOWNSHIP, AND RANGE.

8.00 I CERTIFY THAT I AM FAMILIAR WITH THE INFORMATION CONTAINED IN THE APPLICATION, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF SUCH INFORMATION IS TRUE, COMPLETE AND ACCURATE, AND IF GRANTED THIS PERMIT, I AGREE TO ABIDE BY MISSOURI CLEAN WATER LAW AND ALL RULES, REGULATIONS, ORDERS AND DECISIONS, SUBJECT TO ANY LEGITIMATE APPEAL AVAILABLE TO AN APPLICANT UNDER THE MISSOURI CLEAN WATER LAW OF THE MISSOURI CLEAN WATER COMMISSION.

NAME AND OFFICIAL TITLE (TYPE OR PRINT) Jill Cornett, City Administrator	PHONE (816) 578-4215
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SIGNATURE 	DATE SIGNED 12/13/2013
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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH
PO BOX 176 JEFFERSON CITY, MO 65102

**FORM M – APPLICATION FOR STORM WATER PERMIT (FORM K OR L MUST BE INCLUDED)
UNDER THE GENERAL PERMIT: SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)**

1. NAME OF MUNICIPALITY/AREA(S) TO BE COVERED BY THIS PERMIT City of Lake Lotawana, Missouri
2. PHYSICAL LOCATION OF MUNICIPALITY/AREA(S) (ADDRESS ASSIGNED) 100 Lotawana Drive Lotawana, MO 64086
3. TOTAL AREA OF MUNICIPALITY/AREA (S) ____ ACRES OR <u>11.4</u> SQUARE MILES.
4. A STORM WATER MANAGEMENT PROGRAM (SWMP) MUST BE DEVELOPED FOR THIS MUNICIPALITY/AREA. (THIS PROGRAM MUST BE DEVELOPED IN ACCORDANCE WITH REQUIREMENTS & GUIDELINES SPECIFIED WITHIN THE GENERAL PERMIT FOR STORM WATER DISCHARGES FROM MS4 ACTIVITIES. THE APPLICATION WILL BE CONSIDERED INCOMPLETE IF THE SWMP HAS NOT BEEN DEVELOPED IN ACCORDANCE WITH THE TERMS OF THE GENERAL PERMIT. A COPY OF THE SWMP MUST BE SUBMITTED ALONG WITH THIS APPLICATION.)
5. SUMMARIZE THE MEASURES FROM THE SWMP THAT WILL BE USED FOR PUBLIC EDUCATION AND OUTREACH. (ATTACH ADDITIONAL SHEETS IF NECESSARY) Inform the public on steps they can take to reduce storm water pollutants Educate public officials and city staff. Use the local media to educate the public on water quality concerns Inform the building and construction industry on water quality initiatives, regulations, and responsibilities Seek opportunities to participate in regional public water quality task forces
6. SUMMARIZE THE MEASURES FROM THE SWMP THAT WILL BE USED FOR PUBLIC INVOLVEMENT AND PARTICIPATION. (ATTACH ADDITIONAL SHEETS IF NECESSARY) Offer opportunities and an environment for residents to notify staff and the elected officials of their storm water concerns Develop a plan to introduce, engage, coordinate, define roles and responsibilities, build consensus and teamwork of an interested community group in storm water quality initiatives of the storm water program. Create opportunities for the public to actively join in hands-on efforts
7. SUMMARIZE THE MEASURES FROM THE SWMP THAT WILL BE USED FOR ILLICIT DISCHARGE DETECTION AND ELIMINATION. (ATTACH ADDITIONAL SHEETS IF NECESSARY) Develop a storm sewer system map showing the locations of all outfalls and the names and locations of all waters of the US that receive discharges from these outfalls Review and modify as necessary existing ordinances related to illicit discharges to the stormwater system The City will develop a plan to detect and eliminate illicit discharges into the MS4 Prepare and implement a process to investigate calls from the residents and educate the public of the impacts from polluting.
8. SUMMARIZE THE MEASURES FROM THE SWMP THAT WILL BE USED FOR CONSTRUCTION SITE STORM WATER RUNOFF CONTROL. (ATTACH ADDITIONAL SHEETS IF NECESSARY) The City will review its existing ordinances and update as necessary to include entities as defined in the State criteria Provide administrative and technical review and oversight of construction activities along with necessary site runoff controls as part of the development review process.

9. SUMMARIZE THE MEASURES FROM THE SWMP THAT WILL BE USED FOR POST CONSTRUCTION STORM WATER MANAGEMENT. (ATTACH ADDITIONAL SHEETS IF NECESSARY)

Assess, deliberate, and determine appropriate non-structural BMPs that could satisfy the requirements of post-construction runoff control minimum measures
Evaluate and consider structural BMPs in both public and private development's stormwater plans
Assess existing and update as necessary codes and ordinances that promotes the public welfare by guiding, regulating, and controlling the design, construction, use, and maintenance of any development or other activity that disturbs or breaks the topsoil

10. SUMMARIZE THE MEASURES FROM THE SWMP THAT WILL BE USED FOR POLLUTION PREVENTION AND GOOD HOUSEKEEPING. (ATTACH ADDITIONAL SHEETS IF NECESSARY)

Train City staff in the appropriate manner of storage, handling, use, and disposal of water polluting constituents
Develop and implement process to reduce the discharge of pollutants from City facilities
Monitor, upgrade, and assess City procedures for the storage and use of operational chemical components
Investigate, educate, seek enforcement authority and implement best management practices that addresses trash and pet waste.

11. THE MUNICIPALITY/AREA(S) IS WITHIN 100 FEET OF: (CHECK EACH THAT APPLIES) FOR THOSE IDENTIFIED AS PRESENT, PLEASE IDENTIFY THEIR LOCATION IN AN ATTACHMENT.

- WATER CLASSIFIED IN CSR 20-7.031 WATER QUALITY STANDARD AS A PUBLIC DRINKING WATER SUPPLY LAKE (L1), OUTSTANDING NATIONAL OR STATE RESOURCE WATERS, OR STREAMS DESIGNATED FOR COLD-WATER SPORT FISHERY;
- STREAMS, LAKES, OR RESERVOIRS IDENTIFIED AS CRITICAL HABITAT FOR ENDANGERED SPECIES AS DETERMINED BY THE MISSOURI DEPARTMENT OF CONSERVATION AND/OR THE US FISH AND WILDLIFE SERVICE; OR

12. IS THE DISCHARGE FROM THE MS4 WITHIN 100 FEET OF WATERS CLASSIFIED AS MAJOR RESERVOIRS (L2) OR PERMANENT FLOW STREAMS (P), EXCEPT THE MISSOURI AND MISSISSIPPI RIVERS, OR WITHIN TWO STREAM MILES UPSTREAM OF BIOCRITERIA REFERENCE LOCATIONS AS DEFINED IN 10 CSR 20, CHAPTER 7?

YES NO

IF YES, PLEASE LIST THESE RECEIVING WATERS IN AN ATTACHMENT.

13. IS ANY PART OF THE AREA(S) DEFINED AS WETLAND?

YES NO

NOTE: A CLEAN WATER ACT, SECTION 404 PERMIT MAY BE REQUIRED FOR THE DEVELOPMENT IN WETLAND AREA(S) FROM THE US ARMY CORPS OF ENGINEERS.

14. DOES ANY OF THE STORM WATER DISCHARGE TO A SINKHOLE, LOSING STREAM, OR ANY OTHER TOPOGRAPHICAL FEATURE THAT WOULD BE A DIRECT CONDUIT TO GROUND WATER?

YES NO

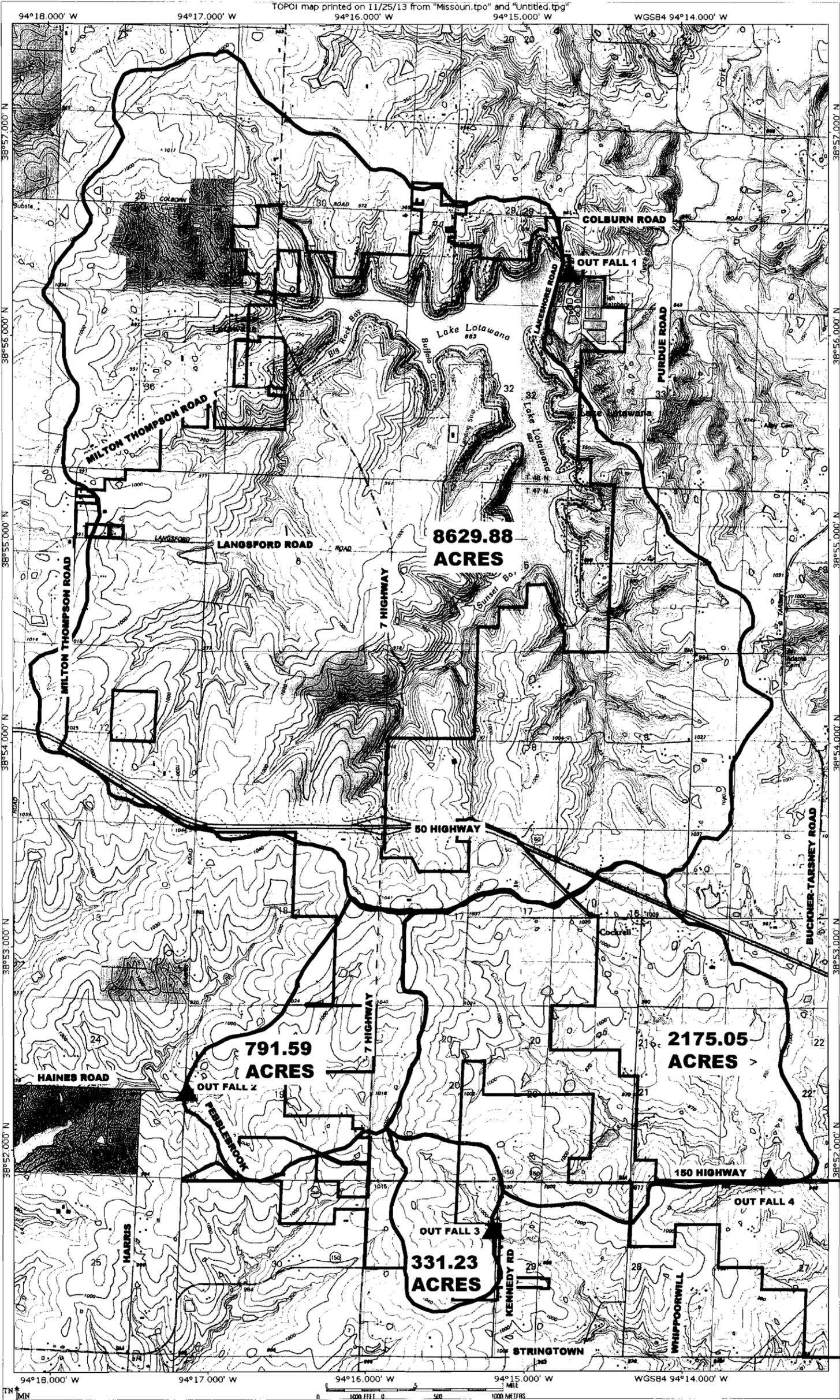
IF YES, PLEASE IDENTIFY THE LOCATION(S) OF THESE GEOLOGIC FEATURES IN AN ATTACHMENT.

15. I CERTIFY THAT I AM FAMILIAR WITH THE INFORMATION CONTAINED IN THIS APPLICATION, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, SUCH INFORMATION IS TRUE, COMPLETE AND ACCURATE, AND IF GRANTED THIS PERMIT, I AGREE TO ABIDE BY MISSOURI CLEAN WATER LAW AND ALL RULES, REGULATIONS, ORDERS AND DECISIONS, SUBJECT TO ANY LEGITIMATE APPEAL AVAILABLE TO AN APPLICANT UNDER THE MISSOURI CLEAL WATER LAW OF THE MISSOURI CLEAN WATER COMMISSION (ATTACH ADDITIONAL PAGES IF ADDITIONAL SIGNATURES ARE REQUIRED FOR A CO-PERMIT).

NAME(S) AND OFFICIAL TITLE(S) Jill Cornett, City Administrator	TELEPHONE NUMBER(S) (816) 578-4215
SIGNATURE(S) 	DATE SIGNED 12/13/2013

WATERSHED / STREET MAP

LAKE LOTAWANA, MISSOURI MS4



▲
OUT FALL
BOUNDARY
STREET

**NOT TO
SCALE**

12-10-13