NPDES PHASE II

STORMWATER MANAGEMENT PLAN

FOR PERMIT CYCLE

2013-2018

CREATED:

MAY 2013

Revised: August 2013

BY

Stormwater Management

CITY OF O'FALLON, MISSOURI

APPLICATION
FOR THE GENERAL PERMIT

TO THE STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT
SEPTEMBER 2013

City of O'Fallon, Missouri 2013-2017
Stormwater Management Program Introduction

The City of O'Fallon, Missouri recognizes that stormwater runoff may be polluted and is transported through it's MS4 to local creeks, streams and rivers. We also recognize the land and impervious areas generate and cause pollution in our daily activities. Rain and snow melt, runoff and pick up oil, fertilizers, pesticides, dirt and other pollutants make their way into our storm sewer system and eventually to our local creeks, rivers and lakes.

We are required to submit a five-year Storm Water Management Plan as required under the Clean Water Act. The National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating sources, such as the City's municipal separate storm sewer systems (MS4).

This plan will address the requirements emphasizing the six minimum control measures required and identify specific goals and best management practices associated with these key control measures along with target dates for completion. We will evaluate our effectiveness and assess the progress of each goal and best management practice.

Our plan of action for the next five-year reporting period will address the following six minimum control measures as identified in the permit:

1. Public Education and Outreach on Stormwater Impacts
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Runoff Control
5. Post-Construction Storm Water Management in New Development and Redevelopment
6. Pollution Prevention/Good House Keeping for Municipal Operations

We have seen some success with our previous five years in this program and look forward to continued success in this next reporting cycle.

CITY OF O'FALLON, MISSOURI

NPDES PHASE II STORM WATER MANAGEMENT PLAN

PERMIT NUMBER: MO-R040039

Program Contacts:

Michele Gremminger, CESSWI, CMS4S
Stormwater Management Coordinator
micheleg@ofallon.mo.us

Jay Herigodt
Assistant City Engineer
jherigodt@ofallon.mo.us

Wade Montgomery, P.E.
City Engineer
wmontgomery@ofallon.mo.us

Steve Bender, P.E.
Public Works Director
sbender@ofallon.mo.us

Date: April 23, 2013, Revised August 29, 2013

Executive Summary

The City of O'Fallon, Missouri recognizes that storm water runoff may be polluted and is transported through its municipal separate storm sewer system (MS4) to local creeks, streams and rivers. We also recognize the land and impervious areas generate and cause pollution in our daily activities. Rain and snow melt, runoff and pick up oil, fertilizers, pesticides, dirt and other pollutants make their way into our storm sewer system and eventually to our local creeks, rivers and lakes.

We are required to submit a five-year Storm Water Management Plan (SWMP) per the federal regulations as stated in the Storm water Phase II Final Rule, National Pollutant Discharge Elimination System (NPDES) permit program which controls water pollution by regulating sources, such as the City's separate storm sewer systems (MS4). The rule automatically requires compliance for all MS4s that are located in urbanized areas as defined by the Census Bureau and which are not already permitted under the Phase I program. The City of O'Fallon (City) was automatically designated by the Missouri Department of Natural Resources (MDNR) due to meeting the "urbanized area" criteria.

This SWMP plan will address the requirements emphasizing the six minimum control measures required and identify specific goals and best management practices associated with these key control measures along with target dates for completion. We will evaluate our effectiveness and assess the progress of each goal and best management practice.

Our plan of action for the next five-year reporting period will continue to address the following six minimum control measures as identified in the permit:

1. Public Education and Outreach on Stormwater Impacts
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Runoff Control
5. Post-Construction Storm Water Management in New Development and Redevelopment
6. Pollution Prevention/Good House Keeping for Municipal Operations

We have seen some success with our previous five years in this program and look forward to continued success in this next reporting cycle.

1 Table of Contents

Executive Summary 2
1.0 REGULATORY BACKGROUND 4
2.0 GENERAL DESCRIPTION 4
2.1 Watershed description: 6
2.2 Storm Sewer System 8
2.3 Pollutants of Concern 10
2.4 Target Audiences 11
3.0 Responsible Parties, Administration, Planning and Funding 12
4.0 Minimum Control Measures 12
4.1 Public Education and Outreach (MCM 1) 13
4.2 Public Participation and Involvement (MCM 2) 13
4.3 Illicit Discharge Detection and Elimination (MCM 3) 13
4.4 Construction Site Runoff (MCM4) 14
4.5 Post Construction Site Runoff (MCM 5) 14
4.6 Pollution Prevention/Good Housekeeping for Municipal Operations (MCM 6) 15
4.7 Evaluation, Record Keeping and Reporting of the Program 15
5.0 Missouri Clean Water Commission, Missouri Operating General Permit 16
Appendix A 56
Appendix B 57
Appendix C 58
Appendix D 59
Appendix E 60
Appendix F 61
Appendix G 62
Appendix H 63
Appendix I 64
Appendix J 65
Appendix K 66
Appendix L 73

1.0 REGULATORY BACKGROUND

The federal Phase II rule requires operators of small MS4 to obtain a NPDES Storm water permit. The Phase II Rule is the follow-up of the EPA Phase I NPDES Program, promulgated in 1990 as part of the Clean Water Act. The Missouri Department of Natural Resources (MDNR) is the regulatory agency having the Phase II NPDES oversight authority for the City. The Final General Storm Water Permit (General Permit) was adopted in 2003.

This SWMP will serve as the City's permit, describing actions that include best management practices (BMPs), measurable goals, and timetables for what are defined throughout the six minimum control measures (MCMs). MCMs are storm water program areas that must be addressed by all regulated MS4s to the "maximum extent practicable". The six MCMs required by the General Permit are as follows:

1. Public Education and Outreach
2. Public Participation/Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post Construction Site Runoff Control
6. Pollution Prevention/Good Housekeeping for Municipal Operations

2.0 GENERAL DESCRIPTION

The City is located in the center of St. Charles County with two large interstates passing through. Hwy I-70 travels east/west through the northern portion of the City and Hwy 40/64 travels through the southern end. O'Fallon is nearly thirty (30) square miles in length with a year 2010 Census for the State of Missouri population of approximately 79,329 residents which is a 71% increase from the City's 2000 Census. The City is mostly mixed use which consists mainly of residential and commercial land use with a dwindling population of agricultural use. The City Zoning map is shown on Figure 1. The City's storm drain system consists of 228 miles of pipe with approximately 13,925 storm water structures and 35 box culverts. Sanitary and storm sewer systems are separate throughout City limits.

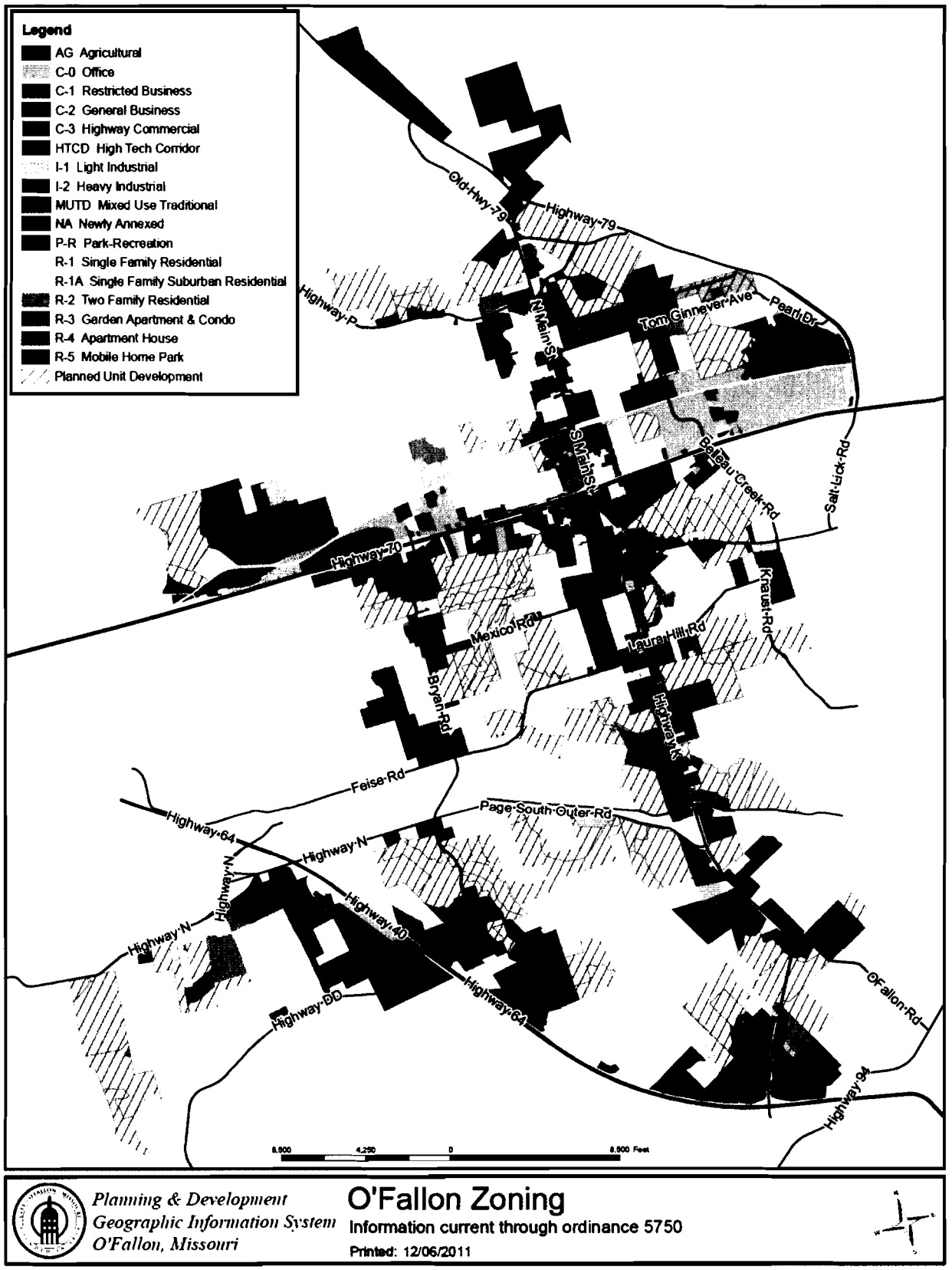

Legend
AG Agricultural
C-0 Office
C-1 Restricted Business
C-2 General Business
C-3 Highway Commercial
HTCD High Tech Corridor
I-1 Light Industrial
I-2 Heavy Industrial
MUTD Mixed Use Traditional
NA Newly Annexed
P-R Park-Recreation
R-1 Single Family Residential
R-1A Single Family Suburban Residential
R-2 Two Family Residential
R-3 Garden Apartment & Condo
R-4 Apartment House
R-5 Mobile Home Park
Planned Unit Development
Old Hwy 79
Highway 79
Highway P
N Main St
Tom Ginnever Ave
Pearl Dr
S Main St
Belleau Creek Rd
Salt Lick Rd
Highway 70
Mexico Rd
Laura Hill Rd
Krause Rd
Bryan Rd
Highway K
Feise Rd
Page South Outer Rd
Highway 64
Highway N
Highway 40
Highway DD
O'Fallon Rd
Highway 94
8,500
4,250
0
8,500 Feet
Planning & Development
Geographic Information System
O'Fallon, Missouri
O'Fallon Zoning
Information current through ordinance 5750
Printed: 12/06/2011

Figure 1

2.1 Watershed description:

The watershed is located in central St. Charles County, MO, and covers about 165 square miles. It contains a variety of land uses and land types, and is typical of watersheds that support a large number of activities, from industrial to open space and from urban to rural. The watershed has experienced environmental degradation due to rapid population growth and economic development, and needs holistic protection and restoration.

There are three large creeks that travel through the City and exit to the Mississippi River. The City uses watershed maps (Figures 2 and 3) as a tool for reference with regards to storm water requirements. Information regarding the three creeks is as follows:

1. Dardenne Creek flows through from the Southwest to Northeast through a mix of residential, commercial and agricultural use and discharges to the Mississippi River after exiting City limits through the City of St. Peters and St. Charles County. Dardenne Creek is currently on the MDNR 303(d) list for impaired waters for decreased dissolved oxygen. There is no current approved TMDL. TMDL Ranking is "scheduled for 2014-2016".The City utilizes a gage station located on Dardenne that is maintained by the USGS. This gage station is maintained through a partnership agreement between the City, USGS, St. Charles County Soil and Water District and City of St. Peters.
2. Belleau Creek flows through the center of City limits from West to Northeast through a mix of residential, commercial and agricultural use. It is a tributary of Dardenne Creek. It is not listed on the MDNR 303(d) list for impaired waters. Belleau does not converge with Dardenne Creek until after it exits City limits.
3. Peruque Creek flows from the Northwest portion to Northeast portion of City limits through a mix of residential, commercial and agricultural use. The headwaters of Peruque Creek within City limits is the discharge point for the Lake St. Louis Dam. Upstream of Lake St. Louis, this creek is also listed on the MDNR 303(d) list of impaired waters for sediment and decreased dissolved oxygen with a TMDL ranking of Medium. Once it leaves City limits, it also discharges to the Mississippi River.

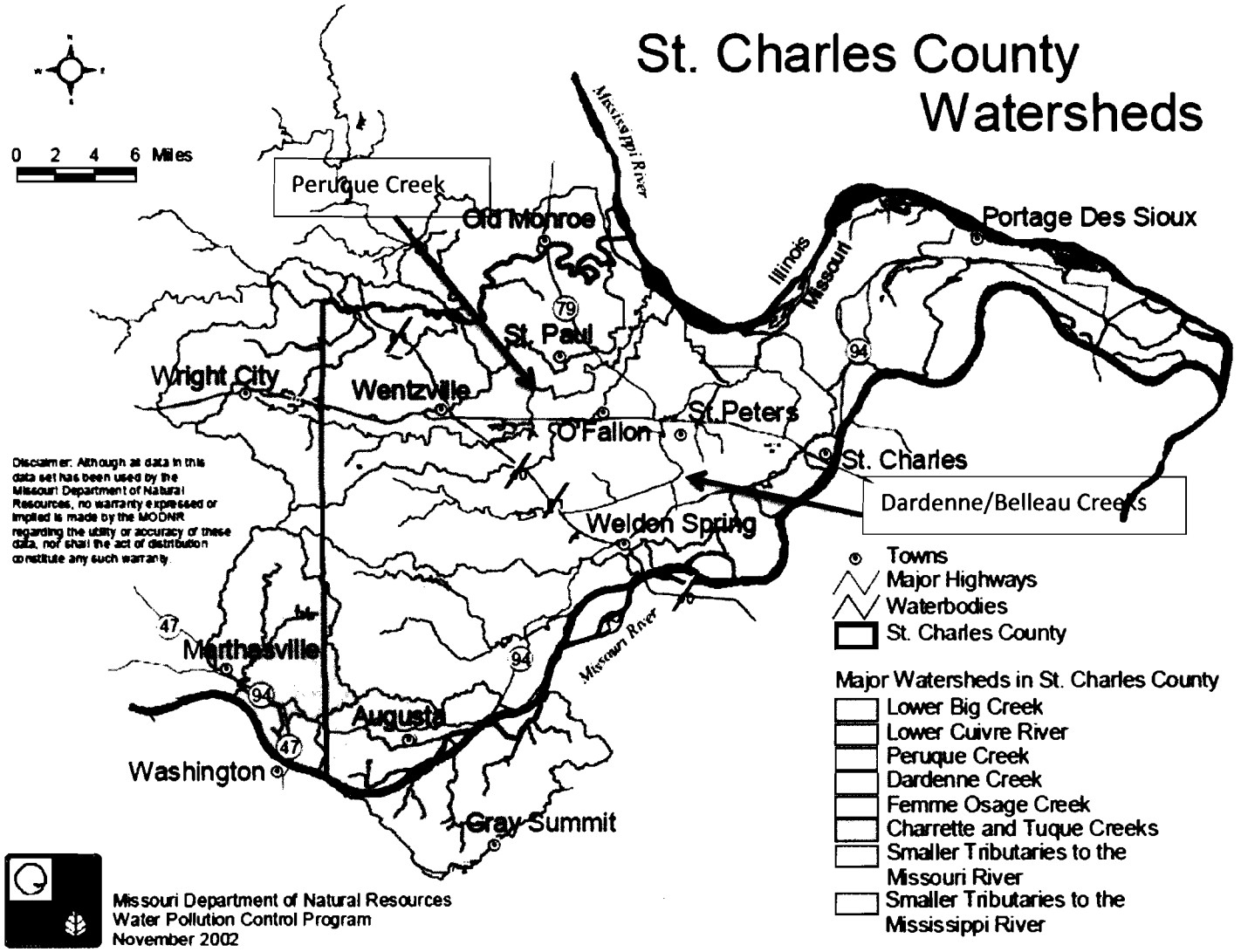

St. Charles County
Watersheds
0 2 4 6 Miles
Peruque Creek
Old Monroe
Mississippi River
Portage Des Sioux
Illinois
Missouri
St. Paul
Wright City
Wentzville
St.Peters
O'Fallon
St. Charles
Dardenne/Belleau Creeks
Weldon Spring
Missouri River
Marthasville
Augusta
Washington
Gray Summit
Disclaimer: Although all data in this data set has been used by the Missouri Department of Natural Resources, no warranty expressed or implied is made by the MDNR regarding the utility or accuracy of these data, nor shall the act of distribution constitute any such warranty.
Towns
Major Highways
Waterbodies
St. Charles County
Major Watersheds in St. Charles County
Lower Big Creek
Lower Cuivre River
Peruque Creek
Dardenne Creek
Femme Osage Creek
Charrette and Tuque Creeks
Smaller Tributaries to the Missouri River
Smaller Tributaries to the Mississippi River
Missouri Department of Natural Resources
Water Pollution Control Program
November 2002

Figure 2

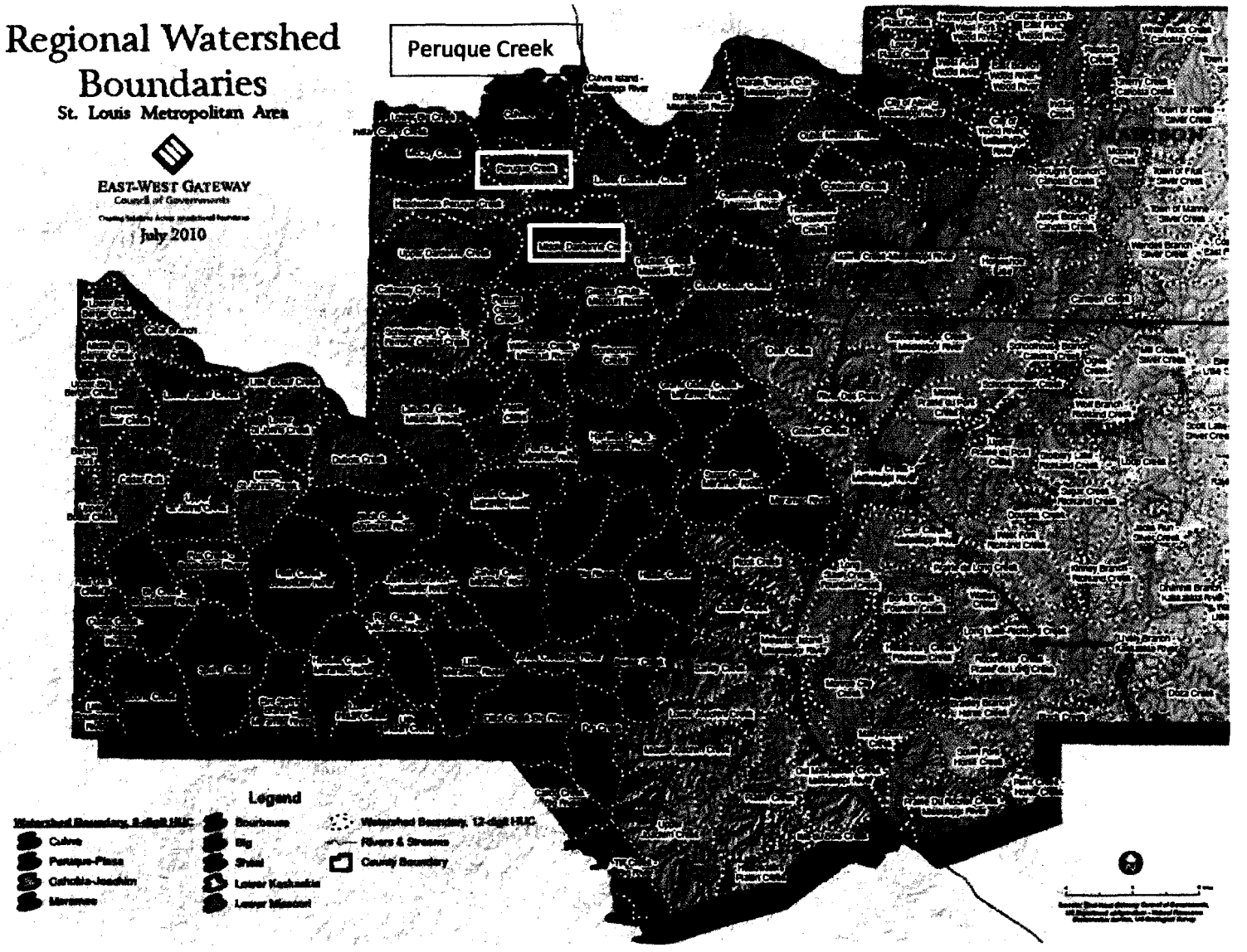


Figure 3

2.2 Storm Sewer System

The City's storm MS4 operates separate from the sanitary sewer system throughout the entire City limits. It consists of approximately 228 miles of storm water pipe materials such as reinforced concrete pipe (RCP), corrugated metal pipe (CMP), high density polyethylene (HDPE) and poly vinyl chloride (PVC) with varying diameters. The City storm sewer map is depicted in Figure 4. Within the system there are many storm water detention (dry) and retention (wet) basins as well as some designated wetland or mitigated areas which help to provide flood protection, decrease velocity and volume as well as cleanse storm water prior to discharging to the local waterways.

Legend
Storm Sewer Lines
Major Streets
O'Fallon City Limits
TOM CRAWFORD AVE
SOUTH MAIN
SALT LICK RD
HIGHWAY 79
LAURA HILL RD
FEISE RD
PAGE SOUTH OUTER RD
HIGHWAY H
HIGHWAY 64
5,000 2,500 0 5,000 Feet
Community Development
Geographic Information Systems
O'Fallon, Missouri
Storm Sewer System
Printed: 06/22/2012

Figure 4

2.3 Pollutants of Concern

Both the Dardenne and Peruque Creeks are listed on the MDNR 303(d) list of impaired waters. Section 303(d) of the federal Clean Water Act requires that states identify water bodies that do not meet water quality standards. Total Maximum Daily Loads (TMDLs) are then developed for each water body on the list, and include identifying sources of pollutants, defining how much of a pollutant a water body can tolerate while still meeting water quality standards, and specifying actions to create solutions.

The Dardenne Creek was listed on the 2010 Clean Water Act Section 303(d) for the following:

Class	Water Body Size	Pollutant	Source	Impaired Use	Other Impaired Use
Permanent Flow	6-15 mi	Low DO	Unknown	Protection of Aquatic Life	Whole Body Contact, Livestock and Wildlife Watering, Secondary Contact Recreation (fish/boat)

MDNR has scheduled a TMDL Development for the following pollutants: 2014 (unknown); 2015 (inorganic sediment); 2016 (low DO). Please refer to ***Appendix L*** for detailed information regarding this TMDL.

The Peruque Creek was listed on the 2010 Clean Water Act Section 303(d) upstream and outside of City limits for the following:

Class	Water Body Size	Pollutant	Source	Impaired Use	Other Impaired Use
Permanent Flow	4-8.5 mi	Inorganic Sediment	Unknown	General Criteria Pertaining to Protection of Aquatic Life	Whole Body Contact, Livestock and Wildlife Watering, Secondary Contact Recreation (fish/boat)

The TMDL priority for sedimentation was listed as "medium". The pollutant is listed as non-volatile suspended solids (NVSS) and pollutant source as urban and rural non-point source runoff. Please refer to ***Appendix L*** for detailed information regarding this TMDL.

Because of the TMDL priority for Peruque Creek and scheduled TMDL for Dardenne Creek and reported growth of 71% between 2000 and 2010 (per data from Census for the State of Missouri) as well as O'Fallon's status as the largest growing community in St. Charles County and listing as "One of the 100 Best Places to Live", the City considers sediment, temperature and nutrients (including nitrogen, phosphorous that ultimately causes depressed oxygen concentrations) to be the main pollutants of concern. In addition to these, the City's SWMP addresses other common non-point source pollutants, including yard waste (increased nutrients), hydrocarbons and other chemicals used by homeowners and businesses throughout the City.

2.4 Target Audiences

The table below identifies examples of common sources of non-point source pollution as well as target audiences and BMP examples to address the pollutants.

Pollutant of Concern	Common Pollutant Source	Target Audience	Example of BMPs
Sediment	• Construction Site • Stream bank Erosion • Lack of proper vegetation • Agricultural	• Construction Contractors/Developers • Homeowners • Farmers	• Erosion/Sediment Control Ordinance requirements • Construction Inspections • Educational Pamphlets
Nutrients	• Fertilizers • Pet Waste • Improper Restaurant Practices • Yard Waste • Illicit Discharges	• Homeowners • Landscape Contractors • Pet Owners • Public Works • Businesses • Contractors/Developers	• Educational Materials • Restaurant Inspections • Street Sweeping • Pet Waste Signs • Sanitary Sewer Inspections • Environmentally friendly structural and non-structural practices
Temperature	• Commercial Parking Lot • Removal of Riparian Habitat • Road pavement	• Owners of property along creek • Public Works • Business Owners	• Riparian Restoration • Creek bank Setback Requirements • Alternative pavement • Environmentally friendly structural and non-structural practices
Hydrocarbons	• Parking lots • Streets • Automotive Facilities • Illicit Discharges	• Automotive Facilities • Public Works • Homeowners	• Street Sweeping • Automotive Facility inspection • Educational Materials • Environmentally friendly structural and non-structural practices
Pesticides/Herbicides	• Residential Use • Commercial Use	• Homeowners • Contractors • Parks Department	• Educational Materials • Environmentally friendly structural and non-structural practices

3.0 Responsible Parties, Administration, Planning and Funding

The Public Works Engineering Department which comprises Stormwater Management (Stormwater Management Coordinator), Plan Review, Floodplain Administrator and Construction Inspection have the main SWMP implantation responsibilities. To achieve tasks and goals of the SWMP, additional activities have been implemented by existing staff or contract personnel. A flow chart with contact information for the other City Departments that also play a role in implementing the SWMP as included in a flowchart with contact information included in Appendix A.

The planning and preparation of the NPDES Phase II program, including the development of SWMP and permit application package is included in the Storm water budget preparations. The Storm Water Management Program is funded via a ½ cent Parks/Stormwater Sales Tax which was passed by vote of the people in 2008. The funds include all aspects to operate a successful Storm Water Management Program which includes salaries, benefits, assets (purchases) and capital improvement projects. All capital improvement projects must meet criteria included in our Stormwater Policy (Appendix B) in order to qualify for funding for improvements.

The Public Works Department, which includes Engineering, Stormwater Management, Stormwater Maintenance, Construction Inspection, Project Management, Streets, Environmental Services and Water/Sewer, will be the key implementers of the SWMP. This department is involved with a majority of the BMPs, development and enforcement of ordinances, MS4 operational activities and construction related BMPs as well as program evaluation and annual report development.

The Stormwater Management Coordinator has been designated as the Storm Water Program leader. Other key personnel involved within the Public Works Department include the Assistant City Engineer, City Engineer and Public Works Director.

The Planning and Building Departments also play an important role in the City's SWMP. Department personnel will continue to enforce existing policies and ordinances for development and redevelopment with in the City as well as construction site runoff and post construction site runoff control enforcement.

The Director of Planning and Development and Director of Building Safety are key personnel involved with these departments. Other personnel include Building Inspectors, Neighborhood Preservation Team and City Planners.

4.0 Minimum Control Measures

The Phase II Rule requires a SWMP to include six MCMs that are expected to achieve significant reductions of pollutants discharged into receiving water bodies. In this section, program goals and BMPs associated with each MCM will be summarized.

4.1 Public Education and Outreach (MCM 1)

The City continues to work towards compliance with its Public Education and Outreach with a public education program which will continue to distribute educational materials and conduct outreach activities. Educational resources are continually reviewed and updated as new information arises and expansion of those resources has occurred. We also publish and maintain a Storm Water Management webpage which includes information to inform the public about storm water education, upcoming events, regulations and ordinances, illicit discharges, report storm water concerns, etc. The website address is http://www.ofallon.mo.us/dept_swm.htm .

Several of the storm water activities listed in the table for goals and outcomes (Appendix C) have been in place since the implementation of our storm water management program in 2002 and will continue to be ongoing as they are a critical piece to the success of the program. We will also continue to look at other methods and utilize new materials to educate the public on the importance of improved water quality throughout the City and beyond.

4.2 Public Participation and Involvement (MCM 2)

The City is complying with permit conditions relating to this MCM by hosting multiple public volunteer events, utilization of the Public Works Commission which is comprised of resident volunteers and staff as our Storm Water Advisory Committee (Public Works Commission) and partnering with other non-profit organizations and government organizations to increase the public awareness and involvement with regard to storm water quality awareness.

Several of the storm water activities listed in the table for goals and outcomes (Appendix C) have been in place since the implementation of our storm water management program in 2002 and will continue to be ongoing as they are a critical piece to the success of the program. We will also continue to look at other opportunities to educate and involve the public to emphasize the importance of improved water quality throughout the City and beyond.

4.3 Illicit Discharge Detection and Elimination (MCM 3)

The City is complying with permit conditions relating to this MCM by utilizing a GIS storm water map which is continuously updated as new development is completed and performing inventory inspections of the detention/retention basins and storm water discharge pipes throughout City limits addressing any concerns that are observed along the way.

A Stormwater Quality Management Illicit Discharge Control ordinance has been in place since 2006 for enforcement regulating illicit discharges of pollutants and illicit connections. We have created documents that are given to residents, subdivisions and general public relating to pool water discharge as well as discharge of other types of pollutants that affect water quality.

Several of the storm water activities listed in the table for goals and outcomes (Appendix C) have been in place since the implementation of our storm water management program in 2002 and will continue to be ongoing as they are a critical piece to the success of the program. We will continue to look at ways

to reduce illicit discharges by emphasizing the importance of pollutant reduction to the residents of O'Fallon and beyond.

4.4 Construction Site Runoff (MCM4)

O'Fallon continues to enforce ordinance and regulatory mechanisms, including fines, and/or civil penalties that provide the ability to regulate storm water runoff from construction sites. The City maintains inspection procedures and maintains these records in an orderly manner. Construction Inspector, Building Inspectors and the Stormwater Management Coordinator will continue to make random and scheduled inspections of construction sites to determine overall compliance of our construction site runoff BMP's, regulations and ordinance enforcement.

Several of the storm water activities listed in the table for goals and outcomes (Appendix C) have been in place since the implementation of our storm water management program in 2002 and will continue to be ongoing as they are a critical piece to the success of the program. We will continue to work with general contractors, builders, developers, landscape companies and general public to emphasize the importance of protecting water quality while performing construction related activities.

4.5 Post Construction Site Runoff (MCM 5)

O'Fallon has regulatory requirements in the form of City Ordinance (Section 405.247) in place to help ensure a reduction of pollutants associated with post construction site storm water runoff and has identified BMPs to help reduce erosion, siltation and volume reduction. We require a maintenance agreement with storm water quality BMPs that are installed with the owner/inspector being required to submit a copy to the City for review. The City also holds escrow on developments which is not released until all requirements set forth by the City has been met. Such funds are not released until a final inspection has been performed to ensure that proper post construction site runoff BMP requirements have been met and proper vegetation is established.

Prior to construction approval, developers must go through our Planning and Zoning process for record plat and construction site approval. We have made it a policy to meet with developers, engineers, property owners, etc. to prior to submittal to discuss the upcoming submittal and all City requirements including escrows and ordinance criteria. These meeting with staff include but are not limited to Economic Development, Planning and Zoning, Engineering (Plan Review) and Building departments. There are multiple checklists and applications that are available at City Hall and on the City's website that must be filled out and submitted with the plans. As part of this process, post construction requirements are also discussed and reviewed prior to approval.

The City's Comprehensive Plan (2008) includes provisions to address post construction site runoff and stormwater quality which have been incorporated in the plan review and approval process. Included in the Comprehensive Plan there are sections titled Green and Utilities which include goals, action Items and implementation Strategies which water quality and contain post construction measures that are consistent with this SWMP. A copy of the Comprehensive Plan is located on the City's Website at http://www.ofallon.mo.us/images/pubs/planning/CompPlan2008.pdf . ***See Appendix M*** for copies of pertinent sections of the Comprehensive Plan.

We have installed several storm water quality BMPs at multiple City owned property locations to promote the use of post construction practices.

Several of the storm water activities listed in the table for goals and outcomes (Appendix C) have been in place since the implementation of our storm water management program in 2002 and will continue to be ongoing as they are a critical piece to the success of the program. We will continue to evaluate our current ordinances and look into developing new ordinances to address post construction site runoff by continuing to work with the development community to emphasize the benefits of such practices.

4.6 Pollution Prevention/Good Housekeeping for Municipal Operations (MCM 6)

O'Fallon continues to comply with permit conditions by developing and implementing programs to reduce and prevent pollutant runoff from municipal operations. We provide internal education to our supervisors and employees to remind them of the importance of storm water quality concerns generated by activities performed. We finalized guidance document in 2011 that was approved and implemented in 2012.

Several of the storm water activities listed in the table for goals and outcomes (Appendix C) have been in place since the implementation of our storm water management program in 2002 and will continue to be ongoing as they are a critical piece to the success of the program. We will continue to educate employees, monitor our practices as a municipality and work together to implement ways to improve how we address pollution prevention.

4.7 Evaluation, Record Keeping and Reporting of the Program

The City in accordance with NPDES Phase II requirements conducts yearly evaluations of program compliance, the appropriateness of identified BMPs and progress toward achieving identified measureable goals and satisfying performance standards. Goals that are completed are removed and those updated and/or removed are reported as necessary with revisions to the SWMP included.

The City retains copies of reports required for this permit and are kept in the office of the Stormwater Management Coordinator. These are public records and as such have been made available to the public upon written request and are available for viewing on the City's Storm Water Management webpage at: http://www.ofallon.mo.us/dept_swm.htm to inform the public on how we are progressing.

5.0 Missouri Clean Water Commission, Missouri Operating General Permit

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo as amended, hereinafter, the Law) and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended, is authorized to discharge from the facility described herein, in accordance with effluent limitations and monitoring requirements as set forth here in:

Facility Description:

<u>All Outfalls</u>

Discharges from Regulated Small Municipal Separate Storm Sewer Systems

This permit authorizes only wastewater, including storm waters, discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

Effective Date: June 13, 2008

Expiration Date: June 12, 2013

The following text is transcribed from the actual permit language. All text not in bold is direct permit language, text in **bold** states the City's necessary response with regard to compliance with the current regulation.

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

GENERAL PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

MO-R04000

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

All Outfalls

Discharges from Regulated Small Municipal Separate Storm Sewer Systems

SIC 9511/NAICS 924110

This permit authorizes only wastewater, including storm waters, discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

June 13, 2008
Effective Date

Doyle Childers, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

June 12, 2013
Expiration Date

Edward Galbraith, Director of Staff, Clean Water Commission

Table of Contents

1. Coverage Under this Permit
    1.1. Permit Area
    1.2. Eligibility
    1.3. Limitations on Coverage
    1.4. Obtaining Authorization
2. Application Requirements
    2.1. Deadlines for Application
    2.2. Additional Designations After the Date of Permit Issuance
    2.3. Submitting a Late application
3. Special Conditions
    3.1. Discharges to Water Quality Impaired Water Bodies
    3.2. Duty to Comply
    3.3. Continuation of the Expired General Permit
    3.4. Need to Halt or Reduce Activity Not a Defense
    3.5. Permit Transfers
    3.6. Procedures for Modification or Revocation
    3.7. Requiring a Site-Specific or an Alternative General Permit
4. Storm Water Management Programs
    4.1. Requirements
    4.2. Minimum Control Measures
    4.3. Sharing Responsibility
    4.4. Reviewing and Updating Storm Water Management Programs
5. Monitoring, Recordkeeping and Reporting
    5.1. Monitoring
    5.2. Recordkeeping
    5.3. Reporting
6. Standard Permit Conditions
7. Definitions

1. Coverage under this Permit

1.1 Permit Area

This permit covers all areas served by a municipal separate storm sewer system (MS4) for which the applicant is identified as the continuing authority.

1.2 Eligibility

1.2.1 This permit authorizes discharges of storm water from regulated small MS4s, as defined in 10 CSR 20-6.200. The permittee, or co-permittee, is authorized to discharge under the terms and conditions of this general permit if the permittee:

1.2.1.1 Owns or operates a regulated small MS4 as defined in CRS 20-6.200; located fully or partially within an urbanized area as determined by the latest Decennial Census by the Bureau of Census or designated for permit authorization by the department pursuant to 10 CSR 20-6.200; and

1.2.1.2 Submits a general permit application in accordance with Section 2 of this permit; and

1.2.1.3 Complies with the terms of this general permit.

1.2.2 The following are types of discharges authorized by this permit:

1.2.2.1 *Storm water discharges.* This permit authorizes storm water discharges to waters of the state from the regulated small MS4s identified in Section 1.2.1, except as excluded in Section 1.3.

1.2.2.2 *Non-storm water discharges.* The permittee is authorized to discharge the following non-storm water sources provided that the permitting authority has not determined these sources to be substantial contributors of pollutants to the permittee's MS4 that require a separate permit:

- Landscape irrigation
- Rising ground waters
- Uncontaminated ground water infiltration (infiltration is defined as water other than wastewater that enters a sewer system, including sewer service connections and foundation drains, from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow.)
- Uncontaminated pumped ground water
- Discharges from potable water sources
- Foundation drains
- Air conditioning condensate
- Springs
- Water from crawl space pumps
- Footing drains
- Lawn watering

- Flows from riparian habitats and wetlands
- Street wash water
- Discharges or flows form emergency firefighting activities
- Individual residential car washing
- Dechlorinated residential swimming pool discharges

1.3 Limitations on Coverage

This permit does not authorize:

1.3.1 Discharges that are mixed with sources of non-storm water unless such non-storm water discharges are:

1.3.1.1 In compliance with a separate NPDES permit; or

1.3.1.2 Determined not to be a substantial contributor of pollutants to waters of the state.

1.3.2 Storm water discharges associated with industrial activities requiring separate NPDEs permits as defined in 10 CRS 20-6.200.

1.3.3 Storm water discharges associated with construction activities requiring separate NPDES permits as defined in 10 CSR 20-6.200.

1.3.4 Storm water discharges currently covered under another permit.

1.3.5 Discharges that are likely to jeopardize the continued existence of any species that are listed as endangered or threatened under the Endangered Species Act (ESA) or result in the adverse modifications or destruction of habitat that is designated as critical under the ESA.

1.3.6 Discharges that violate the National Historic Preservation Act.

1.3.7 Discharges that cause or contribute to a violation of instream water quality standards. The permittee's storm water management program and plan (WSMP) document must include a description of the best management practices (BMPs) that the permittee will use to ensure that violations will not occur. The department may require corrective action or an application for site-specific permit or alternative general permit if an MS4 is determined to cause or create a significant potential for causing an instream exceedance of water quality standards.

1.3.8 Discharges of any pollutant into any water for which a Total Maximum Daily Load (TMDL) has been either established or approved by the EPA unless the permittee's discharge is consistent with that TMDL. This eligibility condition applies at the time the permittee submits an application for coverage. If conditions change after the permittee has permit coverage, the permittee may remain covered by the permit provided the permittee complies with the applicable requirements of Section 3. The permittee shall

incorporate any limitations, conditions and requirements required by the TMDL, including monitoring frequency and reporting required, into the SWMP, document in order to be eligible for permit coverage. For discharges for which the permittee is responsible but are not eligible for coverage under this permit, the permittee shall apply for and receive a site-specific or other applicable general NPDES permit prior to discharging.

1.4 Obtaining Authorization

1.4.1 To be authorized to discharge storm water from regulated small MS4s, the applicant/permittee shall submit an application and a written description of the permittee's SWMP in accordance with the deadlines presented in Section 2 of this permit.

1.4.2 The permittee shall submit the information required in Section 2 on the latest version of the application form (or photocopy thereof). The permittee's application shall be signed and dated by an authorized signatory.

1.4.3 Where the operator changes, or where a new operator is added after submittal of an application under Section2, a new application shall be submitted in accordance with Section 2 prior to the change or addition.

2. Application Requirements

2.1 Deadlines for Application

If the MS4 is regulated pursuant to 10 CSR 20-6.200 then the operator is required to seek coverage under the Small MS4 General Permit or a site-specific MS4 permit as follows:

2.1.1 Existing small MS4 permittees shall submit renewal applications 180 days prior to permit expiration unless an extended due date has been granted by the department. If the MS4 permittee is applying for a site-specific permit, the SWMP plan must be included with the application; and

2.1.2 MS4 operators that become subject to 10 CSR 20-6.200 following the 2010 census shall submit permit applications within 180 days following census publication.

2.2 Additional designations after the date of permit issuance

If the small MS4 is specially designated by the department after the date of permit issuance, then the small MS4 is required to:

2.2.1 Submit application for a site-specific MS4 permit or a small general MS4 permit (whichever applies) and a written description of the permittee's SWMP to the department within 180 days of notice.

2.3 Submitting a Late application

The permittee is not prohibited from submitting an application after the dates provided in Section 2.1. The department reserves the right to take appropriate enforcement actions for any unpermitted discharges.

3. Special Conditions

3.1 Discharges to Water Quality Impaired Waters

3.1.1 If the discharges from the MS4 are upstream from a 303(d) listed (impaired) waterbody, the permittee shall, in consultation with the department:

3.1.1.1 Determine whether storm water discharges from any part of the MS4 significantly contribute pollutants directly or indirectly to a 303(d) listed (i.e., impaired) waterbody. If the permittee has discharges meeting this criteria, the permittee shall comply with Section 3.1.2. If the permittee does not, Section 3.1 does not apply to the permittee.

3.1.1.2 Determine whether a Total Maximum Daily Load (TMDL) has been developed and approved by EPA for the listed waterbody. If there is such a TMDL, the permittee shall comply with both Section 3.1.2 and 3.1.3. If no TMDL has been finalized, section 3.1.3 will apply when the TMDL is finalized and approved by EPA.

3.1.2 *Water Quality Controls for Discharges to Impaired Waterbodies.* The permittee's SWMP document required under Section 4 shall include a description of how the permittee's program will control the discharge of measureable pollutants of concern and ensure the permittee's discharges will not cause or contribute to instream exceedances of the water quality standards. This discussion shall specifically identify measures and BMPs that will collectively control the discharge of the pollutants of concern.

3.1.3 *Consistency with TMDL Allocations.* If a TMDL has been finalized and approved by EPA for any waterbody into which the permittee discharges, the permittee shall:

3.1.3.1 Determine whether the approved TMDL is for a pollutant likely to be found in storm water discharges from the permittee's MS4;

3.1.3.2 Determine whether the TMDL includes a pollutant wasteload allocation (WLA) or other performance requirements specifically for storm water discharge from the permittee's MS4;

3.1.3.3 Determine whether the TMDL addresses a flow regime likely to occur during periods of storm water discharge;

3.1.3.4 After the determinations above have been made and if it is found that the permittee's MS4 shall implement specific WLA provisions of the TMDL, assess whether the WLAs

are being met through implementation of existing storm water control measures or if additional control measures are necessary;

3.1.3.5 Document all control measures currently being implemented or planned to be implemented. The permittee shall also include a schedule of implementation for all planned controls and shall document the calculations or other evidence that shows the WLA will be met;

3.1.3.6 Describe a monitoring program to determine whether the storm water controls are adequate to meet the WLA; and

3.1.3.7 If the evaluation shows that additional or modified controls are necessary, describe the measures to be taken and the schedule for their implementation. The permittee shall continue meeting the requirements of 3.1.3.4 through 3.1.3.7 for this permit durations until the department determines WLAs are being met or that water quality standards are being met.

3.2 Duty to Comply

3.2.1 The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Missouri Clean Water Law and is grounds for enforcement action; permit terminations, revocation and reissuance, or modification; or for denial of a permit renewal.

3.2.2 This permit authorizes only the activities described in this permit. Compliance with this permit may not be considered a shield from compliance with any local ordinance, State Regulation or State Law.

3.3 Continuation of the Expired General Permit

3.3.1 If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with 10 CSR 20-6.010(10) (E) and remain in force and effect. Any permittee who was granted permit coverage prior to the expiration date will automatically remain covered by the continued permit until the earlier of:

3.3.1.1 Reissuance or replacement of this permit, at which time the permittee shall comply with the application conditions of the new permit to maintain to discharge; or

3.3.1.2 Notice of Termination; or

3.3.1.3 Issuance of a site-specific permit for your discharge; or

3.3.1.4 A permit decision by the Director not to reissue this general permit, at which time the permittee shall seek coverage under an alternative general permit or a site-specific permit.

3.4 Need to Halt or Reduce Activity Not an Excuse

Actions by the permittee in an enforcement action to halt or reduce the permitted activity does not excuse compliance with this permit or any provision of the Missouri Clean Water Law.

3.5 Permit Transfers

This permit is not transferable to any other legal entity except after notice to the department. The department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary.

3.6 Procedures for Modification or Revocation

3.6.1 If at any time the Missouri Department of Natural Resources determines that the quality of waters of the state may be better protected by requiring the owner/operator of the permitted site to apply for a site-specific permit, the department may require any person to obtain a site-specific operating permit [10 CSR 20-6.010(13) and 10 CSR 20-6.200(5)].

3.6.2 The department may require the permittee to apply for and obtain a site-specific or different general permit if:

3.6.2.1 The permittee is not in compliance with the conditions of this general permit; or

3.6.2.2 The discharge no longer qualifies for this general permit due to changed site conditions and regulations; or

3.6.2.3 Information becomes available that indicates water quality standards have been or may be violated.

3.6.3 The permittee will be notified in writing of the need to apply for site-specific permit or an alternative general permit. When a site-specific permit or alternative general permit is issued to the authorized permittee, the applicability of this general permit to the permittee will be terminated up on the effective date of the site-specific or alternative general permit, whichever the case may be. The permittee shall submit the appropriate forms to the department to terminate the permit that has been replaced.

3.7 Requiring a Site-Specific Permit or an Alternative General Permit

3.7.1 *Decision by the department.* The department may require any person authorized by this permit to apply for and/or obtain either a site-specific NPDES permit or an alternative NPDES general permit [10 CSR 20-6.200(6)]. Any interested person may petition the department to require a site-specific permit. Where the department requires the permittee to apply for a site-specific NPDES permit, the department will

notify the permittee in writing that a permit application is required. This notification shall include a brief statement of the reasons for this decision, an application form(s), a statement setting a deadline for the permittee to file the application, and a statement that on the effective date of issuance or denial of the site-specific NPDES permit or the alternative general permit, coverage under this general permit shall automatically terminate in accordance with Section 3.6. The department may grant additional time to submit the application upon request of the applicant. If the permittee fails to submit a site-specific NPDES permit application in a timely manner as required by the department under the paragraph, then the applicability of this permit to the permittee is automatically terminated on the day specified by the department for application submittal.

3.7.2 *Request by permittee.* The permittee may apply for a site-specific permit in lieu of coverage under the general permit. In such cases, the permittee shall submit an application for the alternate permit in accordance with the requirements of 10 CSR 20-6.200, with reasons supporting the request. The request may be granted by issuance of any site-specific permit or an alternative general permit.

4. Stormwater Management Programs and Plans

4.1 Requirements

The permittee shall develop, implement, and enforce a storm water management program and plan (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. The SWMP should include best management practices; control techniques and system, design, and engineering methods; and such other provisions as the permitting authority determines appropriate for the control of such pollutants. The permittee's SWMP document shall include the following information for each of the sis minimum control measures described in section 4.2 of this permit:

4.1.1 A description of the best management practices (BMPs) that the permittee will implement for each of the storm water minimum control measures;

Please refer to Appendix C for further details

4.1.2 The measurable goals for each of the BMPs including, as appropriate, the months and years in which the permittee will undertake required actions, including interim milestones and frequency of action;

Please refer to Appendix C for further details

4.1.3 The person primarily responsible for the SWMP, and the person(s) responsible for each minimum control measure if different from the primary responsible person; and

Please refer to Appendix A for further details

4.1.4 The permittee shall implement a program designed to protect water quality in potentially affected waters and ensure that the permitted activities do not a cause a violation of Water Quality Standards:

4.1.4.1 Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria; and

4.1.4.2 The following general water quality shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination of other substances, shall prevent the waters of the state from meeting the following conditions:

4.1.4.2.1 Water shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;

4.1.4.2.2 Water shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;

4.1.4.2.3 Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;

4.1.4.2.4 Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;

4.1.4.2.5 There shall be no significant human health hazard from incidental contact with the water;

4.1.4.2.6 There shall be no acute toxicity to livestock or wildlife watering;

4.1.4.2.7 Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community; and

4.1.4.2.8 Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

4.1.5 For facilities under the control of the permittee good housekeeping practices shall be maintained to keep solid waste from entry to waters of the state to the maximum extent practicable;

4.1.6 All fueling facilities under the control of the permittee shall adhere to applicable federal and state regulations concerning underground storage, above ground storage, and dispensers, including spill prevention, control and counter measures;

4.1.7 Substances regulated by federal law under the Resource Conservation and Recovery Act (RCRA) or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) that are transported, stored, or used for maintenance, cleaning or repair by the permittee shall be managed according to the e provisions of RCRA and CERCLA;

4.1.8 All paint, solvents, petroleum products and petroleum waste products (except fuels) under the control of the permittee shall be stored so that these materials are not exposed to storm water. Sufficient practices of spill prevention, control, and/or management shall be provided to prevent any spills of these pollutants from entering a water of the state. Any contaminated system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater;

4.1.9 In addition to the requirements listed above, the permittee shall document the decision process for each minimum control measure and include rationale statements for each BMP And measure goal defined;

4.1.10 The permittee shall inspect any structures that function to prevent pollution of storm water or to remove pollutants from storm water and the facility in general to ensure that all BMPs are continually implemented an defective, an a monitoring schedule shall be specified in the SWMP document;

4.1.11 The SWMP document shall include interim milestones, measurable goals, an implementation schedule and measures for success; and

4.1.12 The permittee shall develop and fully implement each minimum control measure within five (5) years of receipt of its first MS4 permit. At each reissuance of this MS4 permit, the permittee shall comply with new or revised standards as soon as practicable, but no later than 5 years from the date of reissuance.

4.2 Minimum Control Measures

The six (6) minimum control measures that shall be included in the permittee's SWMP document are:

4.2.1 Public Education and Outreach on Storm Water Impacts

See Appendix C, Table 1-Public Outreach and Education Permit Plan (MCM1)

4.2.1.1 *Permit requirement.* The permittee shall implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and steps the public can take to reduce pollutants in storm water runoff. As part of the SWMP, the public education and outreach program shall include the following information, at a minimum:

4.2.1.1.1 The target pollutant sources the permittee's public education program is designed to address;

The City continues to address non-storm water discharge pollutants throughout our public education program by utilizing storm water articles in the City newsletter, local papers, local cable channel, use of informational door hangers and public events. This will continue through the next reporting cycle and implemented to maximum extent practicable.

4.2.1.1.2 Identification of target audiences for the permittee's education program who are likely to have significant storm water impacts (including commercial, industrial and institutional entities);

There are many audiences that are focused on with regard to our education program. The City works closely with homeowners associations, schools, and general public at our outreach events. Numerous handouts for both commercial and residential population have been created and continue to be distributed and available to the public.

4.2.1.1.3 A plan to inform individuals and households about steps they can take to reduce storm water pollution;

The City will continue to utilize the articles, informational door hangers, City website, local cable channel, newspaper, homeowner's association newsletters, and hold meetings to inform individuals about steps to prevent storm water pollution. The City also works closely with surrounding municipalities to expand the knowledge of storm water pollution

4.2.1.1.4 A plan to inform individuals and groups on how to become involved in the SWMP (with activities such as local stream and lake restoration activities);

The City currently utilizes local newspapers, the City website, Public Works Commission meetings, etc. to notify the public of how to become more involved with the SWMP. We post it on our City website for the general public to see and they can submit comments from there. We will also continue our existing partnership with surrounding municipalities and not for profit organizations to continue to get the word out and participate in pollution prevention/restoration activities.

4.2.1.1.5 The permittee's outreach strategy, including the mechanisms (e.g., printed brochures, newspapers, media, workshops, etc.) to reach target audiences, and how many people expected to be reached over the permit term; and

The City has a have a carousel in the lobby of City hall where we place informational handouts regarding storm water pollutants and storm water BMP information which are monitored and refilled on an as needed basis.

Last year, 14-15 informational door hangers were utilized for localized dumping of pet waste, yard waste and trash and debris. These door hangers are also provided to the Stormwater Maintenance Crew to utilize on an as needed basis in the field when they come across such activities. The City anticipates posting the same amount if not less as residents become more aware of preventing pollution.

The City will continue to conduct at least two educational events each year at local schools, meetings and workshops in which approximately 200 residents are educated on the importance of preventing storm water pollution and use of BMPs. The City will continue to perform two to three events annually for this reporting cycle with an average of 100-300 residents educated annually.

One to three articles will be placed in our City newsletter and local newspapers annually and continue to update our Storm water webpage on the City's website for this for the next reporting cycle.

4.2.1.1.6 A plan to evaluate the success of this minimum control measure.

The City will continue to track and record the number of items distributed and attendees at education events.

4.2.2 Public Involvement/Participation

4.2.2.1 *Permit requirement.* The permittee shall implement a public involvement/participation program that complies with State and local public notice requirements, and involve the public in the development and oversight of the SWMP, policies and procedures. As part of the SWMP document, the public involvement/participation program shall include the following information, at a minimum:

4.2.2.1.1 How the permittee has involved the public in the development and submittal of the application and SWMP document;

The Public Works Commission is made up of ten (volunteer) residents throughout the City as well as City staff. They provide input regarding the Storm water Management Program as well as other divisions throughout Public Works. Goals for the program as well as permit submittal are discussed with them prior to submission to MDNR.

The SWMP and Annual Reports are published on the City's Storm water Management webpage so that residents can view and/or provide feedback.

4.2.2.1.2 The target audiences for the permittee's public involvement program, including a description of the types of ethnic and economic groups engaged. The permittee is encouraged to actively involve all potentially affected stakeholder groups, including commercial and industrial businesses, trade associations, environmental groups, homeowners associations, and educational organizations, among others; and

O'Fallon strives to achieve demographic representation and an increased level of community involvement in plan development and implementation. Advertising and soliciting help from other local organizations will target specific population sectors, including minority and low-income communities; academic institutions; neighborhood and community groups; watershed alliances; and business industry. We will continue to focus on the following audiences:

- ***K-12 Educators***
- ***Subdivision Associations***
- ***Dardenne and Peruque Creek Watershed Alliances***
- ***Construction site builders, contractors, and developers***
- ***Pet owners***
- ***Municipal Supervisors in Streets, Parks, Engineering, etc.***
- ***Garden Clubs***
- ***Property owners near illegal dump sites***
- ***Religious and Minority groups***

4.2.2.1.3 The types of public involvement activities included in the permittee's program. Where appropriate, the permittee must consider the following types of public involvement activities:

See Appendix C, Table 2-Public Participation and Involvement Permit Plan (MCM2)

4.2.2.1.3.1 Citizen Representatives on a storm water management panel;

Please refer to the information provided in 4.2.2.1.1

4.2.2.1.3.2 Public hearings;

Any public hearing for public input may presented at the Public Works Commission, Planning and Zoning Commission or City Council Meetings.

4.2.2.1.3.3 Working with citizen volunteers willing to educate others about the program; and

O'Fallon supports and interacts regularly with a cross-section of citizen volunteers in various organizations (City Volunteer Services Department, Missouri Stream Team,

Greenway Network, Subdivision Association Trustees, etc.) that have developed core groups of informed constituents that are energized in promoting our storm water messages.

4.2.2.1.3.4 Volunteer monitoring or stream/lake clean-up activities

In addition to Mission Clean Stream, and several other planned events, O'Fallon supports Missouri Stream Team, Greenway Network, Inc. and local high school activities within multiple watersheds within the city to perform water quality monitoring and/or cleanup activities.

4.2.2.1.4 The permittee's plans to actively involve the public in the development and implementation of their program; and

Please refer to Appendix C table 2, Public Participation and Involvement Permit Plan (MCM 2) for further details.

This is also explained in 4.2.2.1.1

The City will continue to build on the success of partnerships with resident interest from the previous permit cycle. Partnerships with other governmental entities for involving the public include at a minimum, the cities of St. Peters, St. Charles, Lake St. Louis, Wentzville, St. Charles County, St. Charles County Soil and Water District.

The City will also continue to host annual stream/creek clean up events, storm drain marking events and participate in the City's annual Public Works Day to bring awareness to the prevention of storm water pollution prevention. Some of the events will contain partnerships with not-for-profit groups as well as other governmental agencies.

4.2.2.1.5 The method for evaluating success of this minimum control measure.

Tools to measure project success are already weaved into existing operating procedures. Data from methods used in the previous permit cycle has helped produce cost estimates and anticipated goals for this permit cycle. Quantitatively, employees record measurable indicators of success:

- ***Number of related inquiries and/or complaints***
- ***Tons of illegally-dumped waste collected***
- ***Number of volunteers***
- ***Number of quality surveys received***
- ***Number of storm drains marked***

Qualitative progress will be tracked through observations, stakeholder surveys, public conversations, and applied field analyses.

Please refer to Appendix C table 2, Public Participation and Involvement Permit Plan (MCM 2) for further details.

4.2.3 Illicit Discharge Detection and Elimination

4.2.3.1 *Permit requirement. The permittee* shall develop, implement and enforce a program to detect and eliminate illicit discharges (as defined in 10 CRS 20-6.200) into the permittee's regulated small MS4. As part of the SWMP document, the permittee's illicit discharge detection and elimination program shall include the development and implementation of, at a minimum;

See Appendix C-table 3-Illicit Discharge Detection and Elimination Permit Plan (MCM3)

4.2.3.1.1 A storm sewer map showing the location of all outfalls and the names and locations of all receiving waters of the state that receive discharges from those outfalls. The permittee shall describe sources of information used for the map(s), and how the permittee plans to verify the outfall locations with field surveys. If already complete, the permittee shall describe how the map was developed and how the map will be regularly updated. The permittee shall make the map information available to the department upon request;

Over the last several years, the GIS staff has developed a detailed map of all storm water structures that are on record with the City. This data has been transferred to a digital map accessed through the GIS Department. This map is continually updated as new development and redevelopment occur. We will continue to add old infrastructure that we do not have construction plans for using hand held devices as staff is available. See Appendix J for sample copies

4.2.3.1.2 To the extent allowable under State, or local law, effectively prohibit, through ordinance or other regulatory mechanism, non-storm water discharges into the permittee's storm sewer system and implement appropriate enforcement procedures and actions. The permittee shall identify the mechanism (ordinance or other regulatory mechanism) the permittee will use to effectively prohibit illicit discharges into the MS4. If the permittee needs to develop this mechanism, describe the permittee's plan and implementation schedule. If the permittee's ordinance or regulatory mechanism is already developed, include a copy of the relevant sections with the permittee's program; and

Please refer to Appendix D-Ordinance #5082, Section 405.245, Storm Water Quality Management and Illicit Discharge Control.

The Stormwater Management Division is primarily responsible for the administration of the ordinance and the Neighborhood Preservation team assists as well when deemed necessary.

4.2.3.1.3 A plan and implementation schedule to detect and address non-storm water discharges, including discharges from illegal dumping and spills, to the permittee's system. The permittee's plan shall include dry weather field screening for non-storm water flows and field tests of selected chemical parameters as indicators of discharge sources. The plan shall also address on-site sewage disposal systems that flow into the permittee's storm drainage system. The permittee's description shall address the following, at a minimum;

In 2011, a draft policy/manual for Illicit Discharge Detection and Elimination was completed and is currently under review. Once revisions are completed and the manual approved, then implementation will begin. This manual includes assessing inventory, dry weather field screening, and further addressing potential IDDE.

Please see Appendix C-table 3-Illicit Discharge Detection and Elimination Permit Plan (MCM3)

The Division of Stormwater Management has primary oversight of the IDDE plan. As part of this plan, all storm water related complaints will be directed to the Division of Stormwater Management, as the clearinghouse for tracking and directing complaints to the appropriate departments.

The Division of Environmental Services of St. Charles County operates two drop-off recycling centers and conducts free household chemical collections from April through October. City of O'Fallon residents are encouraged to take their chemical and household collections to these facilities free of charge. The City of O'Fallon Environmental Services Division operates free of charge, a bulk drop off event quarterly for specific items at our transfer station as well as curbside single stream recycling for all residents. These programs provide an outlet for common pollutants such as automotive fluids, appliances, and household chemicals.

4.2.3.1.3.1 Procedures for locating priority areas which include areas with higher likelihood of illicit connections (e.g., areas with older sanitary sewer lines, for example) or ambient sampling to locate impacted reaches;

As part of the mapping of the storm water infrastructure system, the GIS Department has added all locations with private sewer disposal systems in O'Fallon in which the City can verify which properties have not been upgraded or connected to sanitary sewer service over the years and work to bring these properties into compliance

4.4.3.1.3.2 Procedures for tracing the sources of an illicit discharge, including the specific techniques the permittee will use to detect the location of the source;

Please refer to section 4.2.3.1.3

4.2.3.1.3.3 Procedures for removing the source of the illicit discharge

4.2.3.1.3.4 A plan to ensure through appropriate enforcement procedures, including fines, and actions that the permittee's illicit discharge ordinance (or other regulatory mechanism) is implemented;

Please refer to section 4.2.3.1.3

The City Stormwater Management Division utilizes the IDDE ordinance which includes enforcement actions including fines

Please refer to Appendix D-Ordinance #5082, Section 405.245, Storm Water Quality Management and Illicit Discharge Control.

4.2.3.1.3.5 A plan to inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste. The permittee shall describe how this plan will coordinate with their public education minimum measure and the pollution prevention/good housekeeping minimum control measure programs; and

The City plans to continue to inform employees, businesses, and the public about the hazards through a variety of outreach tools.

Public meetings and education through school programs and subdivision meetings will educate residents about storm water issues and permit requirements and provide an opportunity for input regarding possible dumping areas and to determine community needs. In this way, the City might better understand who the target audience is for illegal dumping control while implementing a valuable service for the watershed community.

Please also refer to sections 4.2.2.1.3.4, 4.2.2.1.4-Public Participation (MCM 2) and sections 4.2.1.1.3, 4.2.1.1.5-Public Education (MCM 1).

Residents can also report illicit discharges through the City's website either on the Stormwater Management webpage or use of our Citizen's First WebQA program in which residents record their concerns through a database and the concern is assigned to the designated department to address.

4.2.3.1.3.6 Procedures for program evaluation and assessment of this minimum control measure.

See Appendix C-table 3-Illicit Discharge Detection and Elimination Permit Plan (MCM3)

The Illicit Discharge Detection and Elimination (IDDE) program will be evaluated throughout the permit cycle utilizing MCM 1, 2 and 3 (See Appendix C). We will perform:

- ***Informal and formal residential surveys to assess changes in resident awareness about sources of illicit discharges and methods to reduce non-point source pollution***
- ***The Stormwater Management Coordinator will track trends in internal and public concerns or complaints before and after outreach programs or strategies are conducted.***

4.2.3.1.4 Address the following categories of non-storm water discharges or flows (i.e., illicit discharges) only if the permittee identifies them as significant contributors of pollutants to the permittee's regulated small MS4: landscape irrigation, rising ground waters, uncontaminated ground water infiltration (as defined in 10 CSR 20-6.200), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, springs, water from crawl space pumps, footing drains, lawn watering, flows from riparian habitats and wetlands, and street wash water (discharges or flows from emergency firefighting activities are excluded from the effective prohibition against non-storm water and need only be addressed when they are significant sources of pollutants to waters of the state).

The listed non-storm water discharges are not significant contributors of pollutants and are exempted per our Illicit Discharge Ordinance (See Appendix D).

4.2.3.1.5 The permittee may also develop a list of other similar occasional incidental non-storm water discharges (e.g. non-commercial or charity car washes, etc.) that will not be addressed as illicit discharges. These non-storm water discharges shall not be reasonably expected (based on information available to the permittees) to be significant sources of pollutants to the MS4, because of either the nature of the discharges or conditions the permittee has established for allowing these discharges to the permittee's MS4 (e.g., a charity car wash with appropriate controls on frequency, proximity to sensitive waterbodies, BMPs on the wash water, etc.). The permittee shall document in their SWMP any local controls or conditions placed on the discharges. The permittee shall include a provision prohibiting any individual non-storm water discharge that is determined to be contributing significant amounts of pollutants to the permittee's MS4.

The listed non-storm water discharges are not significant contributors of pollutants and are exempted per our Illicit Discharge Ordinance (See Appendix D).

4.2.3.1.6 The permittee should inventory, inspect, and have enforcement authority for industries and commercial enterprises within their boundary that may contribute pollutants via storm water to the MS4.

The City has begun an inventory and inspection program as per the drafted IDDE manual that will inspect all discharge pipes that discharge to waters of the United States. This will continue throughout the next permit cycle and ongoing after.

Commercial enterprises that are required to apply for an "Industrial Waste Permit" are monitored by the Sanitary Sewer Division as they operate our Public Owned Treatment Works where this discharge flows.

Please refer to Appendix D-Ordinance #5082, Section 405.245 Storm Water Quality Management Illicit Discharge Control.

4.2.4 Construction Site Storm Water Runoff Control

Refer to Appendix C-table Construction Site Runoff Control Permit Plan (MCM 4)

4.2.4.1 *Permit requirement.* The permittee shall develop, implement, and enforce a program to reduce pollutants in any storm water runoff to their regulated small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of storm water discharges from construction activity disturbing less than one acre shall be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. As part of the SWMP, the permittee's construction site storm water runoff control program shall include the development and implementation of, at a minimum:

The City currently has Section 405 for Subdivision and Land Development of the City Code. Provisions of this section dictate the protection of all watercourses within the watershed of the project. The use of erosion and sediment BMP prevent runoff the site into the storm water management system and natural watercourses.

4.2.4.1.1 An ordinance or other regulatory mechanism:

Sections 405.070, 405.240 (Appendix E) of the Subdivision and Land Development and Chapter 520 of the Building and Construction Code provide an enforcement process by utilizing Erosion and Sediment Control Inspections. The ordinances provide for prevention at the plan review stage as well as inspection in the field. All site inspections will continue as prescribed.

4.2.4.1.1.1 To require operators to implement erosion and sediment control BMPs at construction sites;

Contractors are required to follow approved Storm Water Protection Plans (SWPPP's) that have been reviewed by the Missouri Department of Natural Resources and are required to submit sediment and erosion control plans to the City for review and approval prior to construction. This procedure will continue as prescribed.

4.2.1.1.2 To include sanctions to ensure compliance, to the extent allowable under State or local law; and

All City Ordinance Sections relating to Construction Site Runoff Control contain an enforcement section to ensure compliance.

4.2.4.1.1.3 If the permittee needs to develop this mechanism, the permittee shall describe the plan and scheduled implementation. If the permittee's ordinance or regulatory mechanism is already developed, the permittee shall include a copy of the relevant sections with the permittee's SWMP.

Please refer to Appendix E for ordinance sections 405.070, 405.240 and Chapter 520

Refer to Appendix C-table Construction Site Runoff Control Permit Plan (MCM 4)

4.2.4.1.2. Requirements for construction site operators to control construction-site waste that may cause adverse impacts to water quality, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste;

Contractors are instructed to follow all regulations set forth by EPA, DNR and the City of O'Fallon. This procedure will continue as prescribed.

Wash-out areas are currently monitored as part of the Engineering review as part of the Sediment and Erosion Control Plan. Other hazards are continuously looked at for improvement action. This will continue to be reviewed and expanded as necessary upon in the next five years.

4.2.4.1.3 Procedures for the permittee to consider and review all pre-construction site plans for potential water quality impacts.

All site plans are reviewed by the City of O'Fallon Engineering Plan Review staff. This review includes the review of the erosion and sediment controls recommended for the site, the impact of storm water on the onsite as well as its impact off the construction site. Also required is approval from Missouri Department of Natural Resources and any other required agency prior to final approval from the City before grading or construction can begin.

4.2.4.1.4 Procedures for the permittee to receive and consider information submitted by the public, including coordination with the permittee's public education program.

Public concerns are received by the Stormwater Management Coordinator, Construction Inspectors or Building Inspectors. The concerns are inspected as they are received. Determinations of violations are made and then the contractor is given a notice to correct, if necessary. The site is re-inspected to ensure compliance. This procedure will continue as prescribed.

4.2.4.1.5 Procedures for the permittee to inspect sites and enforce control measures, including prioritization of site inspections;

Inspections are performed on every permitted site within the City with scheduled inspections as well as spot inspections. Enforcement is currently handled through the issuance of a stop work order or citation through the municipal court system in O'Fallon.

4.2.4.1.6 A plan to ensure compliance with the permittee's erosion and sediment control regulatory mechanism, including the sanctions and enforcement mechanisms the permittee will use to ensure compliance and procedures for when certain sanctions will be used. Possible sanctions include non-monetary penalties (such as stop work orders), fines, bonding requirements, and/or permit denials for non-compliance; and

Refer to Appendix E for regulatory mechanism, sanctions and enforcement

The Engineering Division measures for compliance include inspections, notice to correct, storm work orders, fines and use of the performance guarantee. Inspections performed by the Inspector provide enforcement of the BMPs employed on each site. If the BMPs are not being followed or the BMPs are not working a notice to correct is issued. If compliance is not met within the allocated time, a Stop Work Order may be issued. Fine not to exceed five hundred dollars ($500.00) per violation per day could be levied by the courts.

4.2.4.1.7 A description of how the permittee will evaluate the success of this minimum control measure.

Refer to Appendix C-table Construction Site Runoff Control Permit Plan (MCM 4)

All inspections are a measurable goal. Identification of deficiencies, correction of deficiencies, and the protection of the site can be tracked by reviewing all inspections performed. Tracking of public concerns will facilitate code compliance of the site. The goals are to make sure that the water quality does not vary during construction activities, contractors are learning the best us of BMPs approved by the City and to keep public concerns to a minimum.

4.2.5 Post-Construction Storm Water Management in New Development and Redevelopment

See Appendix C-Table 5-Post Construction Site Runoff Permit Plan

4.2.5.1 *Permit requirement.* The permittee shall develop, implement, and enforce a program to address the quality of long-term storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the permittee's regulated small MS4. The permittee's program shall ensure that controls are in place that have been designed and implemented to prevent or minimize water quality impacts by reasonably mimicking pre-construction runoff conditions on all affected new development projects and by effectively utilizing water quality strategies and technologies on all affected redevelopment projects, to the maximum extent practicable. The permittee shall assess site characteristics at the beginning of the construction design phase to ensure adequate planning for storm water program compliance. The purpose for this approach is to arrive at designs and practices that provide for most effective water quality treatment through infiltration, flow rates and similar site-design opportunities. As part of the SWMP document, the post-construction runoff control program shall include the following information at a minimum:

The city has looked at many other municipalities post construction ordinances and programs and currently has in place a Post Construction BMP ordinance (Ordinance Section 405.247) that was created in cooperation with the local Home Builders Association. The ordinance addresses impervious area, preserves, protects natural watercourses/riparian buffers and disconnects impervious areas and development requirements to allow more flexibility for low impact development and use of BMP's to manage storm water on site. O'Fallon's Design Criteria is used to regulate design standards for storm water runoff for all development. Currently we also have a tree preservation and Floodplain ordinance.

We have made sure that the most recent City Comprehensive Plan (2008) included post construction site runoff requirements to meet permit requirements and ensure the public that the City is very conscious of water quality throughout the City for both new and re-development.

We have installed a demonstration rain garden at a City Park, porous pavers at City Hall, grassy pavers at our Veteran's Memorial Park extended parking lot, as well as a rain garden at our Street Department to help promote the use of BMP's. Various sites have submitted plans with other forms of BMP's, but no full low impact development or sustainable site has been submitted as of yet. Most installations have been on commercial properties.

We have several Silver ranked LEED facilities in the City that has utilized BMP's as part of their site design, the most recent being Progress West Hospital.

4.2.5.1.1 A strategy to minimize water quality impacts, by reasonably mimicking pre-construction runoff conditions in affected new development and incorporating water quality protection in affected redevelopment projects to the maximum extent practicable, and include a combination of structural and/or non-structural BMPs appropriate for the permittee's community;

- ***Stormwater Quality Best Management Practices (Section 405.247) which requires incoming developments to address post construction site runoff requirements. This ordinance requires both new development and redevelopment follow parameters to meet water quality requirements by addressing the Water Quality Volume. The Water Quality volume is the storage needed to capture and treat the runoff form 90% of the recorded daily rainfall events. In numerical terms, it is equivalent to 1.14 inches of rainfall multiplied by the volumetric runoff coefficient and the site area. This is directly related to the amount of impervious cover created at a site. Both Pre-development and Post-Development site runoff is considered with every submittal. We are currently reviewing revisions to this ordinance to include more defined re-development requirements and should have in place by the end of this next reporting period. Responsibility for this lies with the Engineering Department.***
- ***Natural Watercourse Riparian Buffer – We have included this section in our Stormwater Quality Management and Illicit Discharge Control Requirements Add a New Section 405.247 Stormwater Quality Best Management Practices (See Appendix F). Responsibility for this lies with the Engineering Department.***
- ***Tree Preservation Ordinance – Use current ordinance (requires preservation based on a percentage of existing trees in residential developments). Responsibility for this lies with the Planning Department.***
- ***Parking/Driveway Requirements Commercial Sites – Review parking requirements and consideration the use of porous pavement or pavers for overflow parking in excess of City requirements. Responsibility for this lies with the Planning Department. They meet with the applicant, review submittals and request comment and input from the Engineering Department prior to approving use of these types of alternative pavements.***
- ***Floodplain Ordinance – Use current ordinance (restricts land use in floodplain/floodway). Responsibility for this lies with Flood Plain Manager of the Engineering Department.***
- ***Wastewater Disposal Regulations – Use current ordinances. Responsibility for this lies with the Water/Sewer, Building and Planning Department.***
- ***Detention Facility & Water Quality BMP Inspection – Section 405.240 Storm Water Detention Ordinance (Appendix E) regulates and requires periodic inspection of detention facilities in the City. The Engineering Department has***

begun instituting standards for water quality BMP inspection either by ordinance or policy. Responsibility for this lies with the Engineering and Stormwater Management Department.

- ***Partner with Private/Public Groups – Grants, tax receipts, donations and organizations are available to support clean water initiatives, preserve open space, create greenways, linear parks, and trailways through private and volunteer efforts. The City will continue to advance our partnerships with municipalities and/or non-profits such as: Greenway Network, St. Charles Soil and Water Conservation District, Missouri Department of Conservation and Great Rivers Greenway District, etc. Responsibility for this lies with the Engineering and Stormwater Management Departments.***

4.2.5.1.2 An ordinance or other regulatory mechanism to address post-construction runoff control from new development and redevelopment projects to the extent allowable under State, or local law. If the permittee needs to develop a mechanism, the permittee shall describe the plan and a schedule for implementation. If the permittee's ordinance or regulatory mechanism is already developed, the permittee shall include a copy of the relevant sections with the SWMP document;

Ordinances regulating development standards discussed in 4.2.5.1.1 are found in Section 400 and 405 of the City Code, a Post Construction BMP ordinance has been approved and enacted in early 2008. BMP's are regulated under O'Fallon's "Design Criteria" stated within the City Code and listed on our design "checklists" for residential, commercial and grading. See Appendix F

4.2.5.1.3 A plan to ensure adequate long-term operations and maintenance of selected BMPs, including types of agreements between the permittee and other parties such as the post-development landowners or regional authorities;

The City has enacted a BMP Maintenance Agreement that is currently undergoing revisions for improvement in enforcement. See Appendix F

All infrastructure and structural BMPs are inspected by the Building Department, Construction Inspectors or Water/Sewer Department as they are being constructed. Construction is regulated by St. Charles County's "Standard specifications for Highway Construction" and Metropolitan St. Louis Sewer District's (MSD's) "Standard Construction Specifications for Sewers and Drainage Facilities".

Performance guarantees are required to be established with the City for the cost of the proposed construction as well as grading escrow Section 405.070 (G). See Appendix E

The City maintains all storm sewers dedicated to public use and all drainage ditches, storm sewers culverts and bridges located in public rights-of-way/easements. The

City has a program to provide routine inspection of its storm water facilities. The City will also inspect and inventory our natural watercourse vegetated buffers preserved over the initial permit period.

By the nature of the business of park and land management and maintenance, there is a constant awareness of adverse activity in the watersheds of public property. On-site staff as well as administration and management are all attuned to the identification and notification of problems to the appropriate authorities as the need requires.

As for lands owned and operated by the City of O'Fallon Parks and Recreation, there are regular and routine efforts to not only minimize storm water effects from construction and development, but to take action to remedy pre-existing conditions of moderate to severe erosion. These actions have the effect of not only protecting the watershed and storm water runoff, but also improving the stability of the areas to an improved storm water control situation.

Projects undertaken by the Department of Project Management are very diverse and include, but are not limited to the following:

- ***Major renovation to existing city property and buildings***
- ***Expansion of existing facilities***
- ***New construction of city facilities***
- ***New construction of roads, sanitary, storm sewers and water lines.***

All project development, design and construction is monitored, supervised and administered by the Department of Project Management. Violations are handled the same as for other contractors and developers. If out of compliance, warnings and/or stop work orders can be issued by the inspectors and monetary fines can be issued by our courts.

4.2.5.1.4 Specific priority areas for this program; and

4.2.5.1.5 Any non-structural BMPs in the permittee's program, including, as appropriate:

See Appendix F-BMP Ordinance

4.2.5.1.5.1 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;

Floodplain Ordinance and BMP ordinances (Appendix F) are in place to protect such areas.

The City's Comprehensive Plan, is used as a guide for development and proposes appropriate densities and land uses throughout the City. Responsibility for this lies with Planning Department.

The Parks Department and other City entities and affiliates work to acquire land and maintain open space. Tax funds have been provided to for development of parks/linear parks/trails/open spaces including the "Dardenne Creek Greenway Conceptual Plan." Responsibility for this lies with the Planning Department and Parks & Recreation, Engineering and Stormwater Management Divisions.

Under Section 405 of the Subdivision and Land Development Code, developers are required to abide by and obtain permits from other jurisdictional authorities such as Corps of Engineers (wetland/404 issues), MDNR (water quality 401/land disturbance), local Flood Plain Development Permit (including "no-rise" certification), etc. before city approval of plans, permits, and construction. Responsibility for this lies with Engineering Department.

4.2.5.1.5.2 Policies or ordinances that encourage infill developments in higher density urban areas, and areas with existing storm sewer infrastructure, and redevelopment of Brownsfield sites or grayfields which may include abandoned malls or similar properties;

O'Fallon does not have any ordinances precluding infill development in higher density urban areas and areas with storm sewer infrastructure. Some projects of this type have occurred in 2005-2007 and our current ordinances seem to be adequate to support this type of development. For the most part, the City is still growing and infill development has not been a problem.

The City is also considering a revision to our current storm water detention requirements for improved stormwater management on infill/redevelopment projects.

4.2.5.1.5.3 Education programs for developers and the public about project designs that minimize water quality impacts; and

Refer to Appendix C-Table 1-Public Outreach Permit Plan

O'Fallon participates and partners with other organizations regarding education programs and seminars for developers, contractors, engineers, inspectors, and the general public regarding water quality issues. The Protecting Water Quality manual represents a productive collaboration between St. Charles County and various state/federal partner agencies including NRCS and MDNR. This product is promoted through these partnering agencies as guidance for BMPs.

The City meets with subdivision associations, subdivision trustees to speak and distribute educational material on water quality, erosion, dumping, stream side

maintenance, and detention facility maintenance. The City will continue to hold or partner with annual and special seminars to help educate our citizens and the development community. The City also participates and partners with other organizations, such as St Charles Soil and Water Conservation District and NRCS regarding education programs/seminars for developers, contractors, engineers, inspectors, and the general public regarding water quality issues, including field trips to construction sites. Reference is also made to a document entitled "Protecting Water Quality." This "manual of practice" represents a productive collaboration between St. Charles County and various state/federal partner agencies including NRCS and MDNR.

4.2.5.1.5.4 Other measures such as minimization of the percentage of impervious area after development, use of measures to minimize directly connected impervious areas, site designs that provide for integration of a variety of infiltration practices and source control measures often thought of as good housekeeping, preventative maintenance and spill prevention.

Ordinance Section 400.405 of the Landscaping and Screening regulations, City Code was enacted to establish healthy environmental conditions. Responsibility for this lies with the Planning Department.

The City has also included recommendations and fact sheets on the Stormwater Management Website which reference ways to address increased water quality by integrating a variety of infiltration practices as well as making these handouts available to the public by request as well as a brochure carousel at City Hall.

Our Stormwater Maintenance crew maintains all publicly dedicated storm sewers throughout the City. They conduct a periodic inspection program of all of the storm sewer system. These storm sewer systems are inventoried on the City GIS map.

4.2.5.1.6 Any structural BMPs in the permittee's program, including, as appropriate:

The City Street Department has installed a "Snout" which is a vented hood that can reduce floatable trash and debris, oils and other solids from storm water discharges as a demonstration project in a storm sewer inlet in their parking lot.

The City's Waste Transfer Facility has an oil/grease separator installed at their site.

Storm Water Detention is required and regulated under Section 405.240 of the City's code (Appendix E). Responsibility for this lies with the Engineering Department.

Revisions to the "Design Criteria" regulating detention standards will be reviewed which would require a post-construction hydrology that more emulates a pre-construction hydrology.

Any changes to federal or state regulations will be reviewed for the treatment of runoff in detention facilities. Responsibility for this lies with the Engineering Department.

4.2.5.1.6.1 Practices that provide infiltration, evapotranspiration or re-use such as grassed swales, bioretention cells, cisterns and green roofs; and

Renaud Spirit Center, Recreation Center has a large demonstration rain garden.

Street Department has rain garden which accepts runoff from their parking lot.

Veteran's Memorial has installed grassy pavers with turf for a parking lot extension.

City Hall has Pavestone porous pavers installed in a pedestrian walkway that crosses the drive. These were installed as a demonstration project with materials donated by Pavestone.

Under the Section 405.240(H) City Code, undisturbed drainage easements have been established. Responsibility for this lies with the Planning and Engineering Departments.

Open drainage (grassed, roadside swales) is allowed for developments with a minimum one half (1/2) acres lot sizes (curb, gutter, storm sewers not required) to accomplish filtration/attenuation. Revisions to current zoning and the "Design Criteria" will be examined that would reduce curb and gutter requirements and allow open drainage in cluster/low inpact developments. Responsibility for this lies with the Planning and Engineering Departments.

Currently there is an Environmental Protection Planned Development ordinance (Section 400.170, Appendix G) that has been in place for quite some time that encourages permanent protection of the environmentally sensitive areas of a site while allowing for the site's development by concentrating development away from these environmentally sensitive areas.

We will continue to partner with Parks and Recreation and Private/Public to help preserve open space, create regional stormwater detention/management to help reduce flooding, preserve and enhance riparian buffers, and obtain funding and create projects that will both enhance water quality and provide recreational opportunities.

Storm Sewer Inspection and Maintenance Program will continue to assure that storm sewers are not in disrepair, are cleaned out (removal of debris and pollutants), and that pipe outfalls are non-erosive.

Our current tracking mechanism for storm water concerns will continue. An inventory of the locations of the complaints will be established and a comparison will be tracked regarding the amount of storm water complaints in areas developed prior to water quality regulations versus those developed with water quality BMPs.

Water Quality Standards have been implemented into the "Design Criteria" via the City Code Section 405.247 (Appendix F) allowing the design of grass swales, sand filters, bio-retention cells and vegetative filter strips. Responsibility for this lies with the Planning and Engineering Departments.

4.2.5.1.6.2 Redevelopment practices such as planter boxes, street retrofits, parking-lot infiltration and green roofs.

Redevelopment projects are subject to the BMP Ordinance Section 405.247 (Appendix F).

Veteran's Memorial has installed grassy pavers with turf for a parking lot extension.

The Engineering Department will continue to work with industry professionals to develop design standards for porous pavements. They will continue to work with developers to encourage use of porous type pavements on projects. They will also explore more possible residential uses as more information about this technology becomes available. Responsibility for this lies with the Engineering Department.

4.2.5.1.7 How the permittee will evaluate the success of this minimum control measure.

Section 405.240 (Appendix E) of the Storm Water Detention requires the inspection, maintenance, and repair of storm water detention facilities. It also requires easements of access for the purpose of City Inspection. Inspections are made by City staff on a periodic interval or when a complaint is received. Any required maintenance or repair must be made by the subdivision homeowners association or private property owners. Stormwater Management is responsible for inspections.

The City will continue to evaluate the effectiveness and areas for improvement of current ordinances, evaluating departmental policy to provide increased inspection and evaluation of structural water quality BMPs, particularly where infiltration BMPs are being used in place of storm water detention. We will continue to enforce the BMP Maintenance Agreement which requires maintenance by property owners or subdivision homeowners associations by ordinance. Engineering and Stormwater Management are responsible for inspections.

Stormwater Management and Engineering staff will inspect the condition of existing natural watercourse vegetative buffers preserved under current ordinance and assess their condition and the need to consider an increase the buffer width requirements.

The City has in place a program to inspect publicly owned storm sewer facilities developed a program to provide routine inspection of private storm sewer facilities and storm water outfalls.

4.2.6 Pollution Prevention/Good Housekeeping for Municipal Operations

See Appendix C, Table 6 and Appendix H-Pollution Prevention/Good Housekeeping for Municipal Operations Permit Plan

4.2.6.1 *Permit requirement.* The permittee shall develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. As part of the SWMP, the pollution prevention/good housekeeping program shall include the following information, at a minimum:

The Stormwater Management Department will continue to collaborate with Facilities, Environmental Services, Landscaping, Parks and Recreation, Streets, Water/Sewer and Fleet Maintenance to implement an Operations and Maintenance Program to prevent and/or reduce pollutant runoff from its municipal operations. The program will include but not necessarily be restricted to the following categories:

- ***Building Maintenance***
- ***Landscaping Operations***
- ***Storm Sewer System Maintenance***
- ***Vehicle Maintenance and Operation***
- ***Fuel Storage***
- ***Outdoor Bulk Material***
- ***Land Disturbance and Soil Stabilization***
- ***Roadway Maintenance***
- ***Waste Disposal***

City departments will be responsible for compliance with the City's Operations and Maintenance Program. Please refer to the MCM Responsibility Flow Chart (Appendix A) for a more detailed list.

Employee training shall be held on a regular basis. The training will be held at each facility at least once annually and shall cover topics both on site and throughout the City.

A Pollution Prevention/Good Housekeeping for Municipal Operations Guidance Document (Appendix H) has been completed and implemented. Each department has been issued a copy, and training sessions will begin. This will be completed within this next five year cycle of the permit.

4.2.6.1.1 A list of all municipal operations that are impacted by this operation and maintenance program. The permittee shall also include a list of industrial facilities the permittee owns or operates that are subject to NPDES permits for discharges of storm water associated with industrial activity that ultimately discharge to the permittee's MS4. The permittee shall include the permit number or a copy of the industrial application for each facility;

Fleet Operations, Street Sweeping, Street Maintenance, Landscaping and Mowing Operations, Capital Improvement Projects, Facilities Maintenance, Storm Sewer System Maintenance are just a few of the operations impacted by this program.

The City owns and operates our Public Owned Treatment Works (Water Plant and Wastewater Plant) and Waste Transfer Facility which all have their own independent state/federal permit regulations which are similar with our NPDES permit requirements. (See Appendix I for copies of permits)

City of O'Fallon Regional Waste Transfer Station and Recycling Center Permit No: 0418303

O'Fallon Wastewater Treatment Plant Permit No: MO-0028720

O'Fallon Water Treatment Plant Permit No: MO-0129623

4.2.6.1.2 Maintenance BMPs, maintenance schedules, and long-term inspection procedures for controls to reduce floatables and other pollutants to the permittee's regulated small MS4

Maintenance schedules, inspection procedures and controls are delineated in the SWMPPP documents previously cited for the maintenance facilities. The procedures to accomplish the reduction of floatables and other pollutants from the maintenance activities will be addressed as follows:

A universal SWPPP template will be created for use by all affected facilities. Each facility will be responsible for the completion, implementation and recordkeeping activities for the document. It will be made available at all times for staff and other agencies review. This will be completed by end of 2013.

O'Fallon will continue to operate the current program to inspect a portion of our storm sewer system on an annual basis. This will continue throughout the entire system and be ongoing without an end date.

The City plans to continue to sweep all residential, collector and arterial streets that it maintains on an annual basis. We will continue to operate on a scheduled rotation to cover the entire City and City Facilities.

4.2.6.1.3 Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, and salt/sand storage locations and snow disposal areas the permittee operates;

SWPPP documents, controls and practices for reducing or eliminating the discharge of pollutants can be reviewed in section 4.2.6.1.2 and table 6-pollution prevention/good housekeeping for municipal operations (Appendix C)

The Street Department has a "Snout" installed in an inlet to help to decrease floatables and is checked and/or maintained on a regular basis.

Storage bins are utilized for storage of salt, mulch, sand, soil, etc. Salt storage is covered to prevent unnecessary runoff discharge. If a storage bin is not in place, proper erosion and sediment controls are in place to prevent unnecessary runoff.

Fleet maintenance is performed indoors. All liquids are captured and properly disposed of.

The Waste Transfer Facility picks up trash that has blown on site several times throughout the day. They also have an oil and grease separator installed in their sanitary line which is maintained by our Water/Sewer Department.

The City will continue our Adopt-A-Street Program that is currently in place. More emphasis by our Volunteer Services department to get these groups more active in roadside trash pickup has taken place and continues to be successful. These activities will continue through the next permit cycle and be ongoing from there.

A bioretention swale has been installed in a parking lot addition at Westhoff Park.

4.2.6.1.4 Controls described in Sections 4.1.5 through 4.1.8 of this permit;

4.2.6.1.5 Procedures for the proper disposal of waste removed from the permittee's MS4 area of jurisdiction, including dredged material, accumulated sediments, floatables, and other debris;

All such materials are disposed of via hauling contractor, trash collection to the transfer station, or if allow disposed of at our no longer utilized Waste Water Lagoon site located off of Hoff Rd.

4.2.6.1.6 Procedures to ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices or practices;

All flood management projects that require approval from the Panning & Development Division and must follow guidelines set in the Floodplain ordinance of the City code. All plans are submitted to the Floodplain Manager for review in the Engineering Division to assess the water quality impacts and recommend the necessary water quality protection device(s) or practice(s). See Appendix F for ordinance copy.

4.2.6.1.7 A government employee training program to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance. The permittee shall describe any existing, available materials the permittee plans to use such as those available from EPA, State or other organizations. The permittee shall describe how this training program will be coordinated with the outreach programs developed for the public information minimum measure and illicit discharge minimum measure; and

Please refer to section 4.2.6.1

4.2.6.1.8 How the permittee will evaluate the success of this minimum control measure.

SWPPP will be evaluated annually to ensure that the facilities are being inspected and adjustments made as necessary. As time progresses, we should see documentation of improvements made to each location.

Training materials and attendance logs will be evaluated, tracked and maintained by the Stormwater Management Coordinator.

4.3 Sharing Responsibility

Implementation of one or more of the minimum measures may be shared with another entity, or another entity assumes responsibility for the measure if:

4.3.1 The other entity, in fact, implements the control measure;

4.3.2 The particular control measure, or component of that measure, is at least as stringent as the corresponding permit requirement; and

4.3.3 The other entity agrees to implement the control measure of permittee's behalf. Written acceptance of this obligation is required. This obligation shall be maintained as part of the documented description of the permittee's storm water management program. If the other entity agrees to report on the minimum measure, the permittee shall supply the other entity with the reporting requirements contained Section 5.3 of

this permit. If the other entity fails to implement the control measure on the permittee's behalf, then the permittee remains liable for any discharges due to that failure to implement.

4.4 Reviewing and Updating Storm Water Management Programs and Plans

4.4.1 *Storm Water Management Program and Written Plan (SWMP) Review:* The permittee shall do an annual review of the permittee's SWMP in conjunction with preparation of the annual report under Section 5.3; and

4.4.2 *SWMP Update:* The permittee may change the SWMP during the life of the permit in accordance with the following procedures:

4.4.2.1 Changes adding (but not subtracting or replacing) components, controls, or requirements to the SWMP may be made at any time upon written notification to the department; and

4.4.2.2 Changes replacing an ineffective or unfeasible BMP specifically identified in the SWMP with an alternate BMP may be requested at any time. Unless denied by the department, changes proposed in accordance with the criteria below shall be deemed approved and may be implemented 60 days from submittal of the request. If request is denied, the department will send the permittee a written response giving a reason for the decision. The permittee's modification requests shall include the following:

4.4.2.2.1 An analysis of why the BMP is ineffective or infeasible (including cost prohibitive);

4.4.2.2.2 Expectations of the effectiveness of the replacement BMP; and

4.4.2.2.3 An analysis of why the replacement BMP is expected to achieve the goals of the BMP to be replaced.

4.4.2.3 Change requests or notifications must be made in writing and signed in accordance with Section 6.

4.4.3 *SWMP Updates Required by the Department:* Changes requested by the department must be made in writing, set forth the time schedule for the permittee to develop the changes, and offer the permittee the opportunity to propose alternative program changes to meet the objective of the requested modification. All changes required by the department will be made in accordance with 10 CRS 20-6.200. The department may require changes to the SWMP as needed to:

4.4.3.1 Address impacts on receiving water quality caused or affected by discharges from the Municipal Separate Storm Sewer System;

4.4.3.2 Include more stringent requirements necessary to comply with new federal or state statutory or regulatory requirements; or

4.4.3.3 Include such other conditions deemed necessary by the department to comply with the goals and requirements of the Missouri Clean Water Law.

4.4.4 *Transfer of Ownership, Continuing Authority, or Responsibility for SWMP Implementation:* The permittee shall implement the SWMP on all new areas added to the permittee's portion of the municipal separate storm sewer system (or for which the permittee becomes responsible for implementation of storm water quality controls) as expeditiously as practicable, but not later than one year from addition of new areas. Implementation may be accomplished in a phased manner to allow additional time for controls that cannot be implemented immediately.

4.4.4.1 Within 90 days of a transfer of ownership, continuing authority, or responsibility for SWMP implementation, the permittee shall submit a revised plan, if necessary, for implementing the revised SWMP on all affected areas. The plan shall include revised schedules for implementation. Information on all new annexed areas and any resulting updates required to the SWMP shall be included in the annual report.

4.4.4.2 Only those portions of the SWMP specifically required as permit conditions shall be subject to the modification requirements of 10 CSR 20-6.200. Addition of components, controls, or requirements by the permittee(s) and replacement of an ineffective or infeasible BMP implementing a required component of the SWMP with an alternate BMP expected to achieve the goals of the original BMP shall be considered minor changes to the SWMP and not modifications of the permit.

5. Monitoring, Recordkeeping, and Reporting

5.1 <u>Monitoring</u>

5.1.1 The permittee shall evaluate program compliance, the appropriateness of identified best management practices, and progress toward achieving identified measurable goals. If the permittee discharges to a water for which a TMDL has been approved, the permittee will likely have additional monitoring requirements under Section 3.1.3.6.

5.1.2 When the permittee conducts monitoring at the permittee's regulated small MS4, the permittee is required to comply with the following:

5.1.2.1 *Representative monitoring.* Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity;

5.1.2.2 *Test Procedures.* Monitoring shall be conducted according to test procedures approved under 10 CSR 20-7.015(9) (A).

5.1.3 Records of monitoring information shall include:

5.1.3.1 The date, exact place, and time of sampling or measurements;

5.1.3.2 The name(s) of the individual(s) who performed the sampling or measurements;

5.1.3.3 The date(s) analyses were performed;

5.1.3.4 The names of the individuals who performed the analyses;

5.1.3.5 The analytical techniques or methods used; and

5.1.3.6 The results of such analyses.

5.1.4 *Discharge Monitoring Report.* TMDL monitoring results shall be reported to the department on a Discharge Monitoring Report form (DMR). Monitoring results collected as part of the routine illicit discharge detection and elimination program shall be documented, retained on site and made available upon request by EPA, DNR and the public.

5.2 Recordkeeping

5.2.1 The permittee shall retain records for all activities requiring recordkeeping by the SWMP and monitoring information, including, all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, copies of Discharge Monitoring Reports (DMRs), a copy of the NPDES permit, a copy of all ordinances, policies and formal procedures for all six minimum control measures and records of all data used to complete the application for this permit, for a period of a least three years from the date of the sample, measurement, report or application, or for the term of this permit whichever is longer; and

5.2.2 The permittee shall submit the permittee's records to the department only when specifically asked to do so. The permittee shall retain a written description of the SWMP required by this permit (including a copy of the permit language) at a location accessible to the department. The permittee shall make the permittee's records, including the application and the description of the SWMP, available to the public if requested to do so in writing.

5.3 Reporting

The permittee shall submit annual reports, using the annual report form provided by the department, to the Director by July 28 of each year of the permit term; the report shall include:

5.3.1 The status of the permittee's compliance with permit conditions, an assessment of the appropriateness of the identified best management practices, progress towards achieving the statutory goal of reducing the discharge of pollutants to the MEP, and the measurable goals for each of the minimum control measures;

5.3.2 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 MEP;

5.3.3 A summary of the storm water activities the permittee plans to undertake during the next reporting cycle (including an implementation schedule);

5.3.4 Proposed changes to the permittee's SWMP, including changes to any BMPs or any identified measurable goals that apply to the program elements; and

5.3.5 Notice that the permittee is relying on another government entity to satisfy some of the permittee's permit obligations (if applicable).

6. Standard Permit Conditions:

This permit includes Standard Permit Conditions attached as Part 1 to this permit

7. Definitions:

All definitions contained in 10 CRS 20-6.200 shall apply to this permit and are incorporated herein by reference. For convenience, simplified explanations of some regulatory/statutory definitions have been provided, but in the event of a conflict, the definition found in the regulation takes precedence.

Control Measure: as used in this permit refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the United States.

Director: refers to the Director of Staff, Water Protection Program, and Department of Natural Resources.

Illicit Connection: means any man-made conveyance connecting with an illicit discharge directly to a municipal separate storm sewer.

Illicit Discharge: refers to any discharge to a municipal separate storm sewer that tis not entirely composed of storm water, except discharges authorized under an NPDES permit (other than the NPDEs permit for discharges from the MS4) and discharges resulting from emergency firefighting activities.

Maximum Extent Practicable: refers to the technology-based discharge standard for Municipal Separate Storm Sewer Systems to reduce pollutants in storm water

discharges that was established by CWA § 402(p). A discussion of how it applies to regulated small MS4s is found at 40 CRF 122.34,

MS4: is an acronym for "Municipal Separate Storm Sewer System" and is used to refer to either a Large, Medium, or Small Municipal Separate Storm Sewer System (e.g. "the Springfield MS4).

Permittee: as used in this permit refers to the holder of this general permit.

Site-specific permit: also means individual permit.

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

Storm Water Management Program and Plan (SWMP): refers to a comprehensive documented program and plan to manage the quality of storm water discharged from the municipal separate storm sewer system.

Appendix A

(MCM Responsibility Flow Chart)

City of O'Fallon, Missouri

Stormwater Management Program Organizational Chart

Coordination and Administration of Stormwater Management Program
Steve Bender, P.E. Public Works Director
Jay Herigodt, Assistant City Engineer
Michele Gremminger, CESSWI, CMS4SStormwater Management Coordinator

Public Outreach and Education
MCM #1
- Michele Gremminger, Stormwater Mgmt Coordinator

Public Participation and Involvement
MCM #2
- Michele Gremminger, Stormwater Mgmt Coordinator

Illicit Discharge Detection and Elimination
MCM #3
- Michele Gremminger, Stormwater Mgmt Coordinator
- Jay Herigodt, Assistant City Engineer
- Ken Hammell, Director of Street Division
- Nathan Lacey, Director of Building Safety
- Dan Scherer, Director of Water/Sewer

Construction Site Runoff Control
MCM #4
- Jay Herigodt, Assistant City Engineer
- Michele Gremminger, Stormwater Mgmt Coordinator
- Nathan Lacey, Director of Building Safety
- Wade Montgomery, City Engineer

Post-Construction Site Runoff Control
MCM #5
- Steve Bender, Public Works Director
- Jay Herigodt, Assistant City Engineer
- Michele Gremminger Stormwater Mgmt Coordinator
- David Woods, Director of Planning

Pollution Prevention and Municipal Good Housekeeping
MCM #6
- Steve Bender, Public Works Director
- Wade Montgomery, City Engineer
- Jay Herigodt, Assistant City Engineer
- Michele Gremminger, Stormwater Mgmt Coordinator
- Ken Hammell, Director of Street Division
- Dan Scherer, Director of Water/Sewer Divisition,
- John Griesenauer, Director of Administrative Services
- Jim Wenzara, Director of Environmental Services
- Cindy Springer, Director of Parks and Recreation
- Steve Beckmann, Fleet Manager

Steve Bender, P.E.	*Public Works Director*	*sbender@ofallon.mo.us*	*636.379.5560*
Wade Montgomery, P.E.	*City Engineer*	*wmontgomery@ofallon.mo.us*	*636.379.5567*
Jay Herigodt	*Asst. City Engineer*	*jherigodt@ofallon.mo.us*	*636.379.5416*
Michele Gremminger	*SW Mgmt Coordinator*	*micheleg@ofallon.mo.us*	*636.240.2000*
Nathan Lacey	*Director of Bldg Safety*	*nlacey@ofallon.mo.us*	*636.379.5597*
Dan Scherer	*Director of Water/Sewer*	*dscherer@ofallon.mo.us*	*636.281.2858*
David Woods	*Director of Planning*	*dwoods@ofallon.mo.us*	*636.379.5541*
Ken Hammell	*Director of Streets*	*khammell@ofallon.mo.us*	*636.379.3801*
Jim Wenzara	*Director of Environ. Services*	*jwenzara@ofallon.mo.us*	*636.240.2921*
Cindy Springer	*Director Parks/Recreation*	*cspringer@ofallon.mo.us*	*636.379.5570*
Steve Beckmann	*Fleet Manager*	*sbeckman@ofallon.mo.us*	*636.379.5340*
John Griesenauer	*Director Admin Services*	*jgriesenauer@ofallon.mo.us*	*636.379.5501*

Appendix A

Appendix B

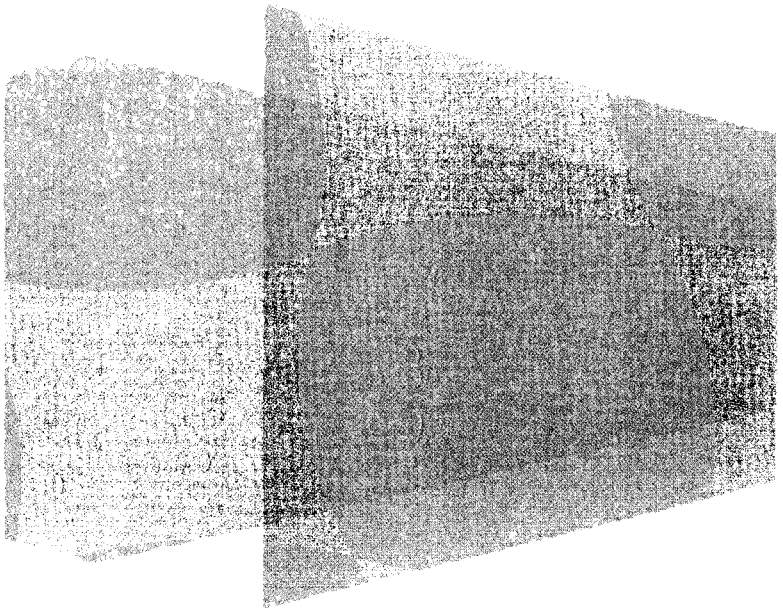
(Stormwater Policy)

100 N. Main St, O'Fallon MO 63366

City of O'Fallon, Missouri

Stormwater Management Policy

Adopted: June, 2011



2011

Revised:

City of O'Fallon, Missouri
Stormwater Management Policy

Table of Contents

PURPOSE 3

HISTORY 3

GENERAL POLICIES 4

PUBLIC VS. PRIVATE RESPONSIBILITY 5

DEFINITIONS 11

LINKS OR HELPFUL INFORMATION 12

APPENDIX A 13

City of O'Fallon
Stormwater Policy

Purpose

The purpose of this policy is to establish procedures for investigating storm water damage and other concerns reported to the City to determine responsibility, public or private, for corrective action.

The process that follows is to define and follow an orderly path of transition from an understanding that stormwater is essentially a private responsibility in which the City intervenes only in emergency situations to one where stormwater is considered a public infrastructure with both public and private responsibility.

History

June 2008 – Ordinance #5337 provides that no more than 3 cubic feet per second (cfs) shall flow in a man-made swale (excluding creeks) during a 15 year design storm event. Flows in excess of this amount need to be piped in a public or private storm sewer.

August 1987 – Prior to June 2008, the threshold of flow requiring a piped system was 4 cfs (Ordinance #1499)

Prior to 1987 – Drainage standards were less stringent and not consistently applied

Due to the different ordinances, each development within the City will have a different level of standards applied depending on when it was approved

Note – Events that exceed a design storm event will have flows that exceed the aforementioned amounts specified.

Missouri Law – Disposing of Surface Water

Modified Common Enemy Rule - The Missouri courts adopted this rule in 1884. Under this doctrine, an upper landowner was required to exercise reasonable care in diverting surface water onto a lower landowner's property. However, the lower landowner was free to take unrestricted action to divert surface water coming on to his property from upstream, provided the action did not obstruct a natural watercourse.

Rule of Reasonable Use - In 1993, the Missouri Supreme Court abandoned the Modified Common Enemy Rule and adopted the Rule of Reasonable Use to determine civil liability in cases involving the diversion or obstruction of surface water, whether by an upper or lower landowner (*Heins Implement Co. v. Mo. Hwy. & Trans. Commission*, 859 S.W.2d 681 [Mo. 1993]). The court ruling stated that

reasonableness of interference of flow of surface waters is a question of fact, to be determined in each case by weighing the gravity of harm to the plaintiff against the utility of the defendant's conduct.

In 1998, the Missouri legislature enacted a provision in Section 644.018 of the Missouri Revised Statutes specifying that in any case involving a flood prone area, if any defendant has obtained and fully complied with a permit from a local subdivision that has met the requirements of and is a participant in the NFIP, and the subdivision has jurisdiction over the area of dispute, then the proper permitting and compliance with all permit conditions shall be conclusive proof that the project meets any reasonable use test.

General Policies

If a property backs up to a storm sewer system, creek or stream, that creek/stream is located in an area owned and maintained by the Home Owners Association (HOA) for the subdivision (see or request Record Plat for clarification) or within private property. Therefore, creek bank stabilizations can be somewhat costly and while the adjacent homeowner or HOA should have had the understanding that creeks do meander and erode, the City has recently created a Stormwater Fund to help with certain projects.

To report a stormwater concern, someone must first contact the Stormwater Group by contacting stormwater@ofallon.mo.us or the street department at 636.379.3808. Based on the concern, a work order will be developed and will be supplied to either the Stormwater Foreman for minor concerns or the Stormwater Coordinator for more complex concerns. In both cases, they will contact the concerned party within one business day to touch base and describe our process and their schedule as to when we can review the concern.

For a minor concern, the foreman will evaluate the situation and if it is something the City is responsible for, the work order will be updated and the concern will be added to our maintenance schedule. If it is deemed a private matter, the foreman will contact the concerned party by phone and mail to discuss/describe the situation and provide assistance, as needed in accordance with the policy below, and the work order will then be closed out. If the concern turns out to be more complex than first anticipated, the foreman will turn the work order over to the coordinator. For more detail, please refer to the written procedures included in Appendix B.

For a more complex or major concern, the coordinator will perform an initial evaluation of the concern and determine if the concern is a matter the City can assist with as described later or if it is a private matter. Similar to the minor concerns, if it is deemed private, the coordinator will contact the concerned party and provide assistance as addressed in the policy and close the work order out with a letter to them. If the concern is deemed something the City will resolve or assist, the coordinator will evaluate the concern in more detail and provide a Category and Priority Rating to the concern.

After a concern has been evaluated and provided a category and rating number, the City will perform a conceptual design of the solution and evaluate the affected residents and the concern will added to the Stormwater priority list. The City will then need signed letters of understanding from the affected property owners prior to performing additional work on this project. A letter of understanding is not

an easement or an agreement, it is merely an agreement between the City and the affected parties that they are willing to work together throughout the process and take a common sense approach on temporary and permanent easements. It is also important to understand that since the project will enhance the affected properties owners, it is not in the City's best interest to pay for necessary easements since the storm improvements are not within City property and the funds can be better utilized for design and construction of this project.

Once the City has received the aforementioned letters of understanding, the stormwater coordinator and plan review group will evaluate the situation further and put together a concept study of the problem as well as several solutions with associated cost estimates. After this is done, the project will be placed within in its particular Category and relevant order based on Priority Rating and will then be budgeted appropriately within the constraints of the yearly budget when funding becomes available.

Public vs. Private Responsibility

Resolution of Drainage Concerns

Pursuant to City Ordinance and state law, the City cannot undertake drainage improvements on private property except where an easement exists or the protection of life or property requires emergency efforts. The City reserves the right to determine when an easement is necessary to install or maintain drainage facilities. The City may require a property owner to sign a release to permit access onto private property to facilitate these projects.

General: Residents, business owners, and developers have drainage concerns regarding their property or adjoining property. Once these concerns are brought to the City's attention, the process by which these are addressed shall follow a specific set of criteria. This section is intended to define those specific criteria for addressing these issues.

Stormwater drainage that relates to the conveyance of surface water, including but not limited to City Owned creeks/streams and storm sewer infrastructure are maintained by the City. The maintenance of these channels may be done by City departments or their contractors as needed for emergency services or as part of a maintenance program.

Localized stormwater drainage relates to the conveyance and storage of stormwater from a subdivision or large group of properties, creek/stream, and storm sewer infrastructure. These facilities are typically owned by the City or are under easement to the City such as storm sewer structures, pipes, inlets, etc.

Site specific drainage relates to the conveyance of stormwater from a single or small group of properties, and storm sewers. These facilities are typically not owned or maintained by the City and are not under easement to the City such as swales, smaller diameter pipes, etc

.

City Assistance

Each stormwater concern will be reviewed and placed in a specific category and then have a specific rating attached to the concern. The four priority levels (PL) are as follows:

PL-1 – Flooding or erosion with potential structural failure of home structures or City infrastructure including perennial streams with stream order number of 2 or higher (this will be explained later)
PL-2 – Drainage areas that should have public sewers that do not
PL-3 – Private concern desiring to participate in a 50/50 program
PL-4 – Public Infrastructure concerns (routine maintenance)

If a project is deemed to be within PL 1 or 2, the project will not be approved for public funding until the applicants provide a signed statement from all adjoining property owners, including their street address, stating that they have approval of the project and agree that they will donate any easements necessary for the completion of the project. However, an exception can be made for properties not being improved by the project where payments can be made to acquire easements. If the project is deemed to be within PL 4, the repairs will take place when the work order can be addressed.

All proposed projects shall meet City of O'Fallon, Army Corp of Engineers and Missouri Department of Natural Resources guidelines.

<u>Creek banks:</u>

The City must be very careful when assisting individual reported lot concerns of creek bank erosion or stabilization. Therefore, the number of lots affected must typically include more than one; however, exceptions may be considered. All creek bank concerns will be evaluated on a case by case basis and must be adjacent to a City maintained creek.

There are three types of streams, Perennial, Intermittent and Ephemeral. They are defined as follows:

- Perennial – A watercourse that flows throughout a majority of the year in a well-defined channel
- Intermittent – Watercourse that flows in a well-defined channel only in direct response to precipitation; such a stream is dry for a large part of the year
- Ephemeral – A channel that carries water only during and immediately following rainstorms. Sometimes referred to as a dry wash. Ephemeral streams flow for less than 20% of the year during normal rainfall conditions

Appendix A is a stream order map of the streams throughout the City. While certain items on that map are being finalized, only Perennial stream order numbers 2 or higher will be addressed with PL 1 repairs. If a stream order number 1 or less is considered for PL 3, it will require a cost sharing between the City and the property owner(s).

PL-1 – City Assistance (Major Project)

(Two of the following must be met)

- A deficiency within a publically accepted storm sewer system or perennial stream
- Has clear potential for loss of life, damage to public infrastructure/property or damage to buildings
- Has had significant erosion on property (ies) within a stream order number of 2 or higher

PL-2 – City Assistance (Minor Project)

(Two of the following must be met)

- Have surface flows that exceed at least 3 cfs as calculated during a design storm event. Other factors will be considered after review of approved design requirements when area was developed
- Has clear potential for damage to public infrastructure/property or damage to certain private auxiliary structures (decks)
- Has had significant erosion on a single property due to a stream order number of 2 or higher

PL-3 – Partial City Assistance

If the creek with a stream order number of 1 or less affects multiple properties or a large stretch of common ground, the City will provide assistance splitting the costs 50/50 with use of the storm water tax fund and/or assistance by the use of a Neighborhood Improvement District (NID), Community Improvement District (CID) or other funding by developer, private group or citizen The affected parties will enter into a NID or CID (or other similar arrangement) that allows the project to be funded initially by the City and then be paid back by members of the district through their tax assessments.

While the City will rate the concern and put it on the list, it would be in the homeowner(s) best interest to take a proactive approach on the matter since this category will farther down the list and years away from funding.

PL-4 – City Assistance (In-house Maintenance Repairs)

Public Assistance Examples:

1. Sinkhole or erosion around the outside of a storm sewer in either back yard or front next to curb
2. Storm sewer is clogged or blocked and will not drain
3. Box culvert under public roadway is blocked with debris (City will only clean 3-feet outside of the box culvert within the creek)
4. Lid missing from structure that needs to be replaced
5. Storm sewer top in disrepair or shifted

Repairs of this level are mostly taken care of with the City's stormwater crew. Residents with concerns for this level should contact the street department at 636.379.3808 to report their concern.

Other

If the creek or creek bank concern does not fit into one of the categories for creek bank assistance stated previously, then it is considered normal property maintenance and the responsibility lies with the property owner. Examples of such reasons could be as follows:

- The creek bank erosion lies completely within the HOA property and has not directly affected multiple properties (single lot)
- The creek bank erosion has directly affected one property; however, it is not within 25-feet of a structure attached to the house
- The HOA or affected property owner has done something to the creek or creek bank to alter the natural flow of the creek
- The creek or creek bank is not being maintained correctly (i.e., dumping of debris into the area, not cleaning debris from creek, altering the creek bank, etc.)

No City Assistance

If your concern does not fit into one of the previous categories for City assistance, it is defined as a private concern that becomes the normal responsibility of owning property; the problem could be due to one of the following:

- Topography has changed due to a patio, swing set, deck, landscaping, pools, etc.
- Privacy fence or other item has blocked the drainage swale which is not in violation of a current City ordinance for Fencing Standards-400.273(c)(1), Nuisance Ordinance 200.020(21), Stormwater Quality Management and Illicit Discharge Control Section 405.245
- Discharge from a sump pump is not directed correctly to a drainage area or creates a semi to constant saturated zone of soil
- Private drainage system or underground gutter runoff not installed correctly or does not direct discharge to the appropriate drainage area
- You have a newly constructed home and the builder has not graded your yard correctly
- Over time, subtle changes in the ground can occur naturally which could create a low spot

The following is list of solutions to prevent or help private stormwater concerns:

- If you plan to change your swale for any reason or make significant yard changes, please contact the City for guidance or permits depending on the amount of changes to be done
- DO NOT block your swale
- Inspect and maintain all private stormwater systems and swales on your property and report any sinkholes above pipes or surrounding the structures to the City
- Install rain gardens or bio-swales to promote subsurface drainage and water cleansing
- Install rain barrel or underground storage systems to hold stormwater for your landscaping
- Reduce the amount of sprinkler use on your lawn

- Maintain private culverts located in front of a residential property that is incorporated with the driveway or in right of way adjacent to a road to prevent siltation and debris from allowing it to operate as intended

Residents can contact the City for review of a private system, but we will not fix matters that are deemed private. The City will provide guidance and potential recommendations; however, we will not direct how to resolve the problem/concern. There may be several causes of the reported site conditions and there may also be multiple remedies; therefore, the City will provide guidance and potential recommendations for addressing a residents concern. This may also include the recommendation for use of other professionals outside of City staff as well. Multiple remedies lead to multiple levels of designs/concepts and thus multiple costs and since the City will not oversee the actual work done, the City cannot take the liability of recommending one process over another.

Private-No City Assistance Examples:

1. Standing water or saturation in yard due to a Lot grading issue
2. Down spouts or sump drainage to swale or drainage area in back yard
3. French or other under drain installation (contact City if connecting to City infrastructure)
4. Culvert pipe and roadside ditch that is located on your property that is blocked or clogged
5. Erosion on a slope located on private property
6. Neighbors choice of landscaping that is causing drainage issue (not located in drainage swale per the plans)

Project Order and Rating for Major Projects

Each project that the City determines to be a public system or private system that the City will help fund will be analyzed and given a priority rating. However, each project will lumped into a category and the higher category will take precedence over the rating number and the categories again are as follows:

PL-1 – Flooding or erosion with potential structural failure of home structures or City infrastructure including perennial streams with stream order number of 2 or higher
PL-2 – Drainage areas that should have public sewers that do not
PL-3 – Private concern desiring to participate in a 50/50 program *1
PL-4 – Public infrastructure concerns *2

*1 – While this can be partially funded by the City, it is in the affected property owner(s) best interest to try and resolve this since it could be years before these projects are funded. Category 3 concerns for that particular year.
*2 – This category is budgeted on a yearly basis as a routine repair and maintenance items while levels 1, 2 and 3 will need to be budgeted on a yearly basis when the funding is available.

Maintenance

Publically Accepted Storm Infrastructure
Currently the City is in a reactive position with respect to stormwater concerns and we are working daily on making repairs. It is the City's goal to be able to obtain a more proactive approach and review storm systems on a continual and orderly basis which will help prevent smaller problems becoming larger. If you have a stormwater concern, please contact us at stormwater@ofallon.mo.us or 636.379.3808

Creeks (Order 2 and higher)
Since most of these stream lie completely within a property, it is typically the responsibility of the property owner(s) to clean their portion of the stream. However, due to the amount of water and debris possibly coming from upstream, the City has a volunteer program that assists the property owners that have a stream within their property. Two to three times a year, the City participates in a clean stream program, for more information or to have your area considered, please contact us at stormwater@ofallon.mo.us. If a log or debris jam has dammed up a portion of the creek within common ground or private property, it is the adjacent property owner's responsibility to resolve the blockage. However, since the debris may have come from upstream, the City can assist to an extent; if needed, please contact us to see how we can help with the concern.

Creeks (Order 1 and lower)
Since these types of creeks do not have water running through them continuously throughout the year, the maintenance of these systems will be up to the individual property owner(s)

Completed Projects
Whether it is completely financed by the City or partially, it is in the adjacent property owner(s) best interest to keep the new project maintained. If the City installs new infrastructure, it will be similar to above and it will maintained as needed by the City for the infrastructure only. The surrounding ground and landscaping are private property and to be maintained by the property owner.

Definitions

Best Management Practices (BMP'S): Schedule 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. BMP's 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.

cfs (Cubic Feet per Second): Stormwater flow rate measured in cubic feet per second

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

Designed Storm Event: All developments shall provide storm water detention calculations for the two (2) year (3.1 inches), fifteen (15) year (4.60 inches), twenty-five (25) year (5.40 inches) and one hundred (100) year (6.20 inches), 20 minute storm. These are considered the design storm events. Storm water systems and swales are design for 15-year 20-minute storm.

Excavating: Any man-made cavity or depression in the earth's surface, including its sides, walls or faces; formed by earth removal and producing unsupported earth conditions by reasons of the excavation.

Fill/Filling: The depositing or dumping of earthen material on or into the ground resulting in the raising of the grade at that location.

Flooding: A temporary rise of the water level, as in a creek/stream or lake, resulting in its spilling over and out of its natural or man-made system onto land that is normally dry. Floods are usually caused by excessive runoff from precipitation or snowmelt, or storm surges.

Flood Plain: That area of land adjoining the channel of a river, stream, watercourse, lake or similar body of water which has a 1% chance to be inundated by a flood in any given year as determined by FEMA.

Grading Plan: The development plan that must be reviewed and approved by the City Engineer prior to the grading of fifty (50) or more cubic yards of any site within the City.

Private Storm System: System put into place/installed by resident/builder or more than one resident on private property to convey or collect stormwater and convey to the public stormwater system. Examples of such are extensions of commercial or private property systems that conveys to a public system such as gutters, sump pumps, installation of under drain pipe system, certain roadside ditches, basins and commercial infrastructure.

Public Storm System: Owned by a state, city, town, village, or other public entity that discharges to waters of the U.S.; Designed or used to collect or convey stormwater (including storm drains, pipes, ditches, etc.); Not a combined sewer; and Not part of a Publicly Owned Treatment Works (sewage treatment plant).

Rain Garden: A landscaping feature that is planted with native perennial plants and is used to manage stormwater runoff from impervious surfaces such as roofs, sidewalks, and parking lots.

Swale: A low, flat depression to drain storm water runoff.

Watercourse: A natural or artificial channel through which water flows.

Links or Helpful Information

Low Impact Development:

Municipal Guide:

http://www.lowimpactdevelopment.org/lid%20articles/Municipal_LID.pdf

Builder Guide:

http://www.lowimpactdevelopment.org/lid%20articles/Builder_LID.pdf

Landscaping for water quality:

Water Efficient Landscape Guide:

http://www.epa.gov/npdes/pubs/waterefficiency.pdf

Non-Point Source Pollution Landscaping Video:

http://www.epa.gov/owow_keep/NPS/lid/video.html

Native Landscaping Guide:

http://www.shawnature.org/nativeland/NativeLandscapingManual/

Rain Garden Brochures and Information:

Brochure:

http://raingardens.org/docs/rain_garden_brochure_greatlakes.pdf

Informational website:

http://www.raingardennetwork.com/

http://showmeraingardens.com/

Rain Barrel Information

Rain barrel Guide:

http://www.rainbarrelguide.com/

Government Links:

Missouri Department of Natural Resources:

http://www.dnr.mo.gov/env/wpp/wp-index.html

EPA NPDES Program:

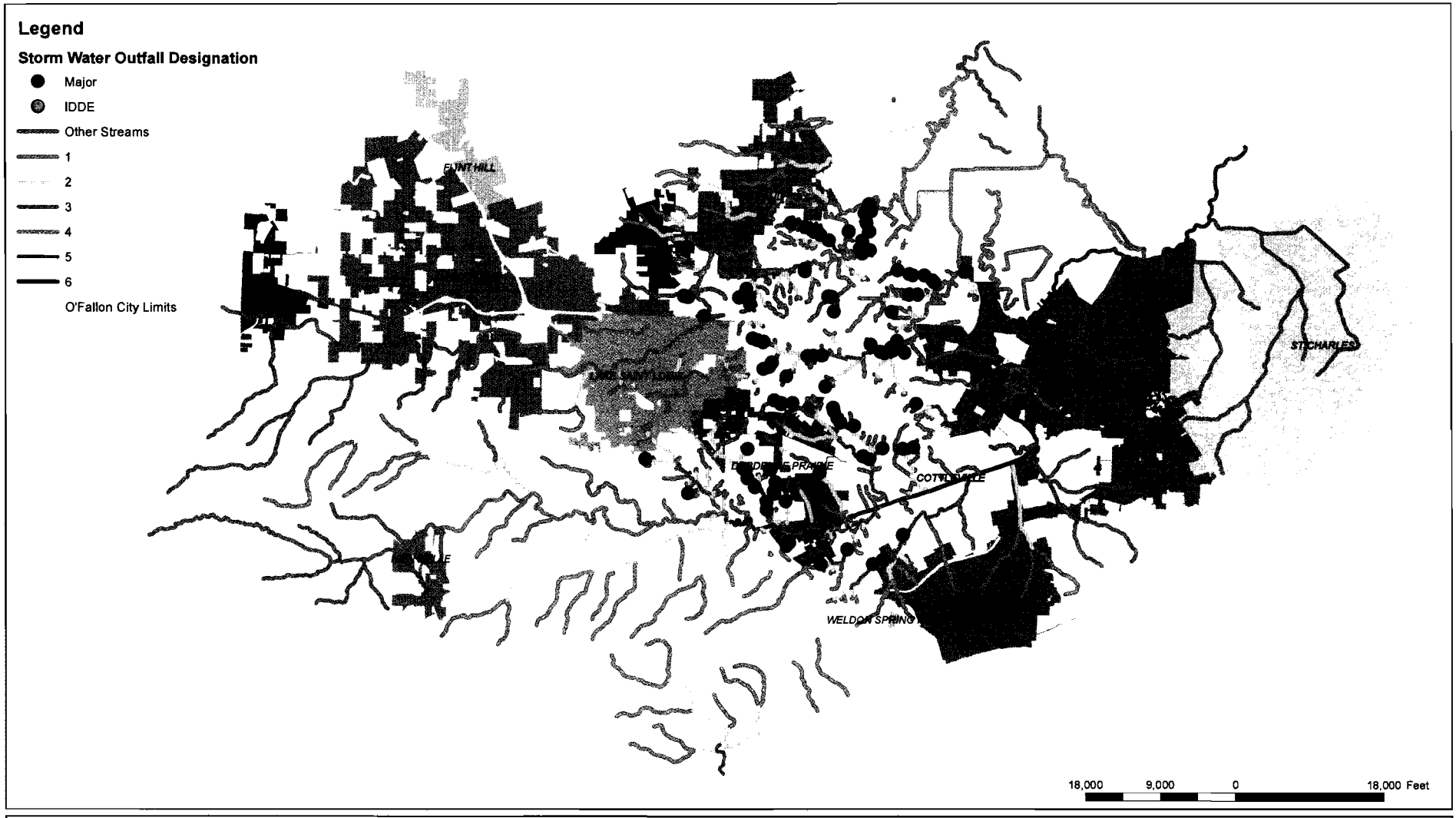
http://cfpub.epa.gov/npdes/home.cfm?program_id=6

Brochure for Non Point Source Pollutants:

http://www.epa.gov/npdes/pubs/solution_to_pollution.pdf

Appendix A

Stream Order Map Example



Planning & Development
Geographic Information Systems
O'Fallon, Missouri

Stream Order Map

Includes O'Fallon and Surrounding Communities

Printed: 01/10/2013

Appendix C

(Six MCM Goal and Outcomes Tables)

Table 1 - MCM 1(Public Education and Outreach) Permit Plan

Public Information Via Hard Copy and Internet Media	Stormwater Management-Stormwater Mgmt Coordinator Public Relations-Public Relations Director Communications-Communications Director	Provide printed materials such as brochures, fact sheets, etc. to build awareness of Stormwater and Water Quality locally via hard copy and internet media	1) Stormwater Management Plan 2) Water Quality 3) Stormwater Mgmt Regulations and Permitting 4) Illicit Discharge Detection and Elimination	1) General Public and Employees 2) General Public 3) General Public, Staff, Developers/Builders 4) General Public and Staff 5) General Public	1) Continue creation and distribution of printed materials for distribution 2) Provide articles for newspapers, publications, local cable channel 3) Provide information and links on our City website page	1) Ongoing 2) Ongoing 3) Ongoing	100%
Public Education	Stormwater Management- Stormwater Mgmt Coordinator	Environmental Education sessions to inform public about the importance of pollution prevention and its effects	1) Water Quality /Groundwater Recharge 2) Illicit Discharges 3) Litter 4) Yard Waste	Providing stormwater education at schools, community meetings, subdivision meetings, public events	1) K-12 education sessions and activities 2) Subdivision Meetings 3) Community Meetings	Ongoing-minimum twice annually	100%
Rain Garden/Rain Barrel/Native Landscaping Workshop	Stormwater Management-Stormwater Mgmt Coordinator Public Relations-Public Relations Director	Increase awareness of stormwater benefit from installation of rain garden, rain barrel or native landscape	1) Stormwater Benefits 2) Ease of installation and attractive aesthetics	General public as well as contractors, builders and developers	1) Meet with other municipalities for partnership opportunities 2) Plan Workshop Details 3) Publicize event via coordination with Public Relations 4) Hold event and evaluate feedback	Ongoing-minimum one time per year at Public Works Day	100%
Educational Signage for Native landscape and Rain Gardens	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Parks Department - Parks and Recreation Director	Installation of educational signage at various native landscape and rain gardens throughout the City limits	Educate public on benefits of installing rain gardens or utilizing native landscape	General Public	1) Concept design for signage 2) investigate grant opportunities for use 3) Request funds for purchase and installation	year end, 2014 pending fund approval	10%

Table 2 - MCM 2(Public Participation and Involvement) Permit

Stormwater Advisory Committee	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Public Works-Public Works Director Public Works-City Engineer	Build and maintain public participation and involvement as well as raise citizen awareness for water quality	Maintain awareness and get input for water quality, regulations and permit activities or changes, as well as program updates and stormwater improvement	General Public, Businesses, Contractors and Developers	Team Members: *Public Works Director *City Engineer *Asst City Engineer *Stormwater Mgmt Coordinator *Recording Secretary *Street Dept Director *Councilman *10 Commission Members *Water/Sewer Director	1) Regular Public Works Commission Meetings to discuss stormwater program, regulation changes, policy and capital improvement projects	1) Ongoing	100%	
Public Participation Volunteer Events	Stormwater Management-Stormwater Mgmt Coordinator Volunteer Services-Volunteer Services Manager	Increase public awareness to improve water quality and prevent illicit Discharges	Increase public awareness to improve water quality and prevent illicit Discharges	General Public and Businesses	Team Members: *Stormwater Mgmt Coordinator *Volunteer Services Department	1)Continue SWAC (Storm Water Awareness Campaign) by coordinating Storm Drain Marking events with other volunteer events throughout calendar year as done in the past 2) Engineering Dept will make sure markers/pre cast requirements in place prior to escrow release 3) Meet with other municipalities for partnership opportunities 4)Plan workshop details 5) Publicize events via coordination with Public Relations 6) Hold event and evaluate feedback	1)Ongoing-minimum once annually based on volunteer participation 2) Engineering to continue as in past 3-6) Ongoing-minimum once annually	1-100% 2-100% 3-85% 4-10%	
Rain Garden Demonstration Project	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Public Relations-Public Relations Director	Installation of a demonstration rain garden either at residence or city owned property	Educate public on stormwater quality benefits of installing rain gardens or utilizing native landscape	General Public	Team Members: *Stormwater Mgmt Coordinator *Assistant City Engineer *Volunteer Services Manager *Public Relations Director *Partnership-outside organization *Property owner *Citizen Volunteers	1) Citizen donate area for project or choose city owned parcel 2) investigate grant opportunities for use 3) Request funds for purchase and installation 4) Procure materials 5) Publicize event and encourage volunteer participation whether subdivision or general public 6) visit site annually to evaluate success of plantings and record results by photographic record	1)Begin funding request late 2013 for fiscal year 2014 2) implement installation of at least one rain garden within 5 year permit cycle pending funding approval		**Consider public site close to Brendan's Playground for optimal visibility

Rain Barrel Program	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer	Installation of rain barrels by citizens as a means of stormwater quality and quantity benefits	Educate public on stormwater quality benefits of installing rain barrel	General Public	Team Members: *Stormwater Mgmt Coordinator *Assistant City Engineer *Potential partnership-outside organization *Public Relations Director *Citizen Volunteers	1) Investigate other municipalities rain barrel programs to implement program efficiently 2) Request funds for purchase and installation 3) Investigate partnerships and or grant funding to assist with the program 4) Purchase rain barrels and or procure materials to assemble kits 5) Publicize event and encourage volunteer participation for installation 6) Evaluate success of project by photographic	1)Funds requested in 2012 2)Implementation to begin 2013-14 and continue as ongoing annually	1-100% requested	
Riparian Corridor Restoration	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Floodplain Administrator Volunteer Services-Volunteer Services Manager	Installation of trees, shrubs and native plants to restore riparian corridor along a local stream to prevent flooding, improve water quality and assist in prevention of creek bank erosion	Educate public on stormwater quality and flood prevention benefits by re-establishing a riparian corridor	General Public	Team Members: *Stormwater Mgmt Coordinator *Assistant City Engineer *Volunteer Services Manager *Public Relations Director *Partnership-outside organization *Property owner *Citizen Volunteers	1) Investigate other municipalities rain barrel programs to implement program efficiently 2) Request funds for purchase and installation 3) Investigate partnerships and or grant funding to assist with the program 5) Purchase rain barrels and or procure materials to assemble kits 4) Publicize event and encourage volunteer participation whether subdivision or general public 5) visit site annually to evaluate success of plantings and record results by photographic record	1) Mid to late 2014 develop plan of action to implement project 2) 2015 implement project 3) Continue as ongoing annually to semi annually after initial project		

Table 3 - MCM 3(Illicit Discharge Detection and Elimination-IDDE) Permit Plan

Storm Sewer System Mapping	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Planning-GIS Director	Develop and maintain storm system inventory that locates outfalls including detention/retention basins, pipes, ditches, flood control facilities and post construction best management practices	1) Scan all subdivision records on file so that it can be entered onto the existing map system 2) Continue to update the existing map as new development and redevelopment occurs 3) Implement a stream, outfall, discharge pipe, detention/retention inventory and incorporate it in the GIS Mapping system	1) Ongoing 2) Ongoing 3) Implemented in late 2011 and will continue as ongoing through 2013-2017 permit cycle	1-90% 2-90% 3-60%		
Private Sewer Treatment Systems (Septic)	Stormwater Management- Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Sanitary Sewer Dept-Water/Sewer Director St. Charles County Health Department Planning-GIS Director	Develop and maintain a list of address and parcel ID's as available of all private sewer treatment systems and develop a map of on-site sewage disposal systems within the City	1)Perform records search and obtain a list of on-site sewage disposal systems from Board of Health (St Charles Co) 2) Map the location of all known home sewage treatment systems connected to the City's MS4 3) Continue to update the map and list of systems as information becomes available 4) Identify and clean up deteriorating systems (St Charles Co assistance)	1) 2013 2) Late2013 2) 2014 and ongoing from there			
IDDE Manual and Screen Outfalls	Stormwater Management- Stormwater Mgmt Coordinator Engineering-Assistant City Engineer	Implement manual procedures that were completed in 2012 to decrease illicit discharges by visual screening of outfalls and discharge pipes throughout City limits	1) Screening has begun in late 2011 and will continue through 2014 for existing development 2) Add new development and make any changes for re-development 3)Implement inspection protocol/schedule	1) Began late 2011 and will continue through 2014 2) Late 2014 and ongoing from there 3) Late 2014 and ongoing from there	1-60%		
Pet Waste Stations	Stormwater Management-Stormwater Mgmt Coordinator Parks and Recreation-Parks and Recreation Director/Superintendent Public Relations-Public Relations Director	Continue installation of Pet Waste stations to prevent Pet Waste dumping and improve water quality	1) Obtain continued funding to purchase 4 stations per budget year 2) Obtain continued funding to maintain existing pet waste stations 3)Continue to install and maintain at local parks 4) Begin procurement and installation to pedestrian trails	Ongoing	1-100% 2-100% 3-80%	**Consider public site close to Brendan's Playground for optimal visibility	

Municipal Recycling Program	Public Works-Public Works Director Environmental Services-Environmental Services Director Green Council-Volunteer Members	Continue our single stream recycling program to decrease the amount of waste placed in landfills to improve the quality of the environment	1) Green Council Board-continues to discuss ways to promote and improve recycling efforts and green solutions to increase the health of the environment 2) Environmental Services tracks the amount of recycling that occurs-continue to report information to the public and provide for NPDES reporting	Ongoing	all 100% and ongoing		
Stream Water Quality Monitoring	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Floodplain Administrator Volunteer Services-Volunteer Services Manager	As part of the IDDE Manual/Program implementation, inventory of all discharge pipes and outfalls to the streams are to be visually inspected each year and water quality monitored by testing should a concern for IDDE be present. All inventory along with concerns will be tracked	1) Complete inventory and implement inspection schedule 2) Construction Sites monitored that are adjacent to streams 3) Update Stormwater Website with stream inventory information	1) Inventory has begun as of late 2011 with Stream Order Map in place 2) 2015 initial inspections complete and map added to City Website 3)2015-2016 monitoring program established	1-60%		
Watershed Management Plan	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Floodplain Administrator Public Works-City Engineer	Hire a consultant to evaluate the entire watershed(s) and provide hydraulic information, areas of concern, miles of stream, 303(d) impaired streams, etc. to better manage water quality and quantity in City limits	1) Investigate potential for partnership for project 2) Investigate possible grant availability 3) Acquire/Request budget funds to hire consultant	1)Mid 2015 2) Mid 2015 3) Late 2015 for fiscal year 2017			

Table 4 - MCM 4 (Construction Site Runoff) Permit Plan

Construction Site Inspections	Engineering-Assistant City Engineer Engineering-Sr Construction Inspector Stormwater Management-Stormwater Mgmt Coordinator	Ensure construction sites are inspected to ensure compliance with approved plans and SWPPP	Track the number of construction sites within the City, the number of inspections performed, and the average frequency of inspections.	Ongoing	100%
Site Plan Review Procedures	Engineering-Assistant City Engineer Stormwater Management-Stormwater Mgmt Coordinator	Review the process for pre-construction SWPPP plan review for all residential and commercial projects that disturb one or more acres.	1) Review the existing procedures for site plan review. 2)Track the number of site plans reviewed	Ongoing	100%
Construction Site Water Quality Monitoring	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer	Implement process and procedures for water quality monitoring on sites that are adjacent to streams	1) Develop process 2) Implement procedures	1)Mid-late 2015 2) 2016 and ongoing after	
Enforcement Procedures	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer	Enforce City Regulations	Enforce City ordinances and state/federal regulations for all construction activity that disturbs one or more acres	Ongoing	100%

Table 5 - MCM 5 (Post Construction Site Runoff) Permit Plan

Ordinance or Other Regulatory Mechanism	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer Planning-Planning Director	Adopt/revise ordinance addressing stormwater runoff from new development/redevelopment projects disturbing one or more acres	1) Review/Revise current ordinance(s) to include more detailed information for redevelopment projects 2) Educate development community 3) Evaluate periodically for necessary revisions	Ongoing	1-85% 2-60% 3-85%
Post-Construction Requirements	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer Planning-Planning Director	Adopt/revise ordinance that requires post construction stormwater management per MDNR/EPA general construction permit	1) Adopt/Revise ordinance as needed with emphasis on re-development as the City matures 2) Continue to educate development community regarding approved BMP's 3) Continue to evaluate to review and evaluate BMP alternatives	Ongoing	100%
Site Plan Review Procedures	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer	Adopt/revise policy that requires post construction stormwatermanagement per MDNR/EPA general construction permit	1) Review every site plan for post construction requirements 2) Meet with developers and engineers during design process to encourage the use of non structural BMP's/green infrastructure 3) Report the number of sites/plans reviewed	Ongoing	1-2 100%
Site Inspection Procedures	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Sr Construction Inspector	All post construction (structural and non structural) BMPs will be inspected prior to acceptance of the project by the City to ensure BMPs are installed and functioning properly	1) Develop an inspection schedule for structural and non structural BMPs 2) Report the number of sites inspected, number of inspections performed, and average frequency of inspections	Ongoing	85%
Long-Term O&M Plans/Agreements	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer	All sites will have an O&M plan	1) Adopt requirement for all projects to have an operations and maintenance plan identifying responsibility for private BMP O&M 2) report the number of sites with agreements	1) Completed 2008, under legal review again 2011 2) Ongoing	1-100%

Table 5 - MCM 5 (Post Construction Site Runoff) Permit Plan

Ordinance or Other Regulatory Mechanism	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer Planning-Planning Director	Adopt/revise ordinance addressing stormwater runoff from new development/redevelopment projects disturbing one or more acres	1) Review/Revise current ordinance(s) to include more detailed information for redevelopment projects 2) Educate development community 3) Evaluate periodically for necessary revisions	Ongoing	1-85% 2-60% 3-85%
Post-Construction Requirements	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer Planning-Planning Director	Adopt/revise ordinance that requires post construction stormwater management per MDNR/EPA general construction permit	1) Adopt/Revise ordinance as needed with emphasis on re-development as the City matures 2) Continue to educate development community regarding approved BMP's 3) Continue to evaluate to review and evaluate BMP alternatives	Ongoing	100%
Site Plan Review Procedures	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer	Adopt/revise policy that requires post construction stormwatermanagement per MDNR/EPA general construction permit	1) Review every site plan for post construction requirements 2) Meet with developers and engineers during design process to encourage the use of non structural BMP's/green infrastructure 3) Report the number of sites/plans reviewed	Ongoing	1-2 100%
Site Inspection Procedures	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Sr Construction Inspector	All post construction (structural and non structural) BMPs will be inspected prior to acceptance of the project by the City to ensure BMPs are installed and functioning properly	1) Develop an inspection schedule for structural and non structural BMPs 2) Report the number of sites inspected, number of inspections performed, and average frequency of inspections	Ongoing	85%
Long-Term O&M Plans/Agreements	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer	All sites will have an O&M plan	1) Adopt requirement for all projects to have an operations and maintenance plan identifying responsibility for private BMP O&M 2) report the number of sites with agreements	1) Completed 2008, under legal review again 2011 2) Ongoing	1-100%

Table 6 - MCM 6 (Pollution Prevention/Good Housekeeping for Municipal Operations) Permit Plan

Employee Training	Stormwater Management-Stormwater Mgmt Coordinator Public Works-Public Works Director Public Works-City Engineer Engineering-Assistant City Engineer Street Dept-Street Dept Director Parks and Recreation-Parks Director/Parks Superintendent Water/Sewer-Water/Sewer Director Administrative Services-Facilities Manager Administrative Services-Fleet Maintenance Manager Environmental Services-Environmental Services Director	Train key staff on issues related to MS4 permit in general, possible emphasis on MCM 3 and 6	1) Implement Guidance Manual 2)Conduct in-house training of appropriate staff	Ongoing	100%
MS4 Maintenance	Street Department-Street Dept Director Stormwater Management-Stormwater Management Coordinator	Maintain ongoing schedule for MS4 maintenance	1) Develop schedule for inspecting and cleaning storm infrastructure 2) Summarize maintenance activities in annual report	Ongoing	85%
Road Salt	Street Department-Street Dept Director Stormwater Management-Stormwater Mgmt Coordinator	Properly apply salt in a way that minimizes over-usage	1) Document existing street deicing procedures 2) Document tons of salt used each year 3) Develop procedures for reducing salt use	Ongoing	
Disposal of Wastes	Stormwater Management-Stormwater Mgmt Coordinator Public Works-Public Works Director Public Works-City Engineer Engineering-Assistant City Engineer Street Dept-Street Dept Director Parks and Recreation-Parks Director/Parks Superintendent Water/Sewer-Water/Sewer Director Administrative Services-Facilities Manager Administrative Services-Fleet Maintenance Manager Environmental Services-Environmental Services Director	Properly manage and dispose of wastes	1) Develop procedures for proper waste disposal	Ongoing	
MS4 Funding Mechanism	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer Public Works-Public Works Director Public Works-City Engineer	Evaluate and recommend/revise funding mechanism to support program requirements as required by EPA	1) Investigate different types of funding mechanisms 2) Develop mechanism 3)Present alternative funding mechanism ideas to public and City Council	1) 2014 2) 2015 3) 2017	

Appendix D

(IDDE Ordinance)

BILL NO. 5408 ORDINANCE NO. 5082

AN ORDINANCE AMENDING *TITLE IV: LAND USE, CHAPTER 405: SUBDIVISION AND LAND DEVELOPMENT CODE* OF THE CITY OF O'FALLON, MISSOURI, BY AMENDING *ARTICLE V: DESIGN AND DEVELOPMENT STANDARDS*, BY ADDING *SECTION 405.245: STORM WATER QUALITY MANAGEMENT AND ILLICIT DISCHARGE CONTROL*: PURPOSE - TO ENSURE THE HEALTH, SAFETY, AND GENERAL WELFARE OF THE CITIZENS, AND PROTECT AND ENHANCE THE WATER QUALITY OF WATERCOURSES AND WATER BODIES IN A MANNER PURSUANT TO AND CONSISTENT WITH THE FEDERAL CLEAN WATER ACT (33 U.S.C. § 1251 ET SEQ.), BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES TO THE MAXIMUM EXTENT PRACTICABLE, AND BY PROHIBITING NON-STORM WATER DISCHARGES TO THE STORM DRAIN SYSTEM.

NOW THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF O'FALLON, MISSOURI AS FOLLOWS:

Section 1: That *Title IV: Land Use, Chapter 405: Subdivision and Land Development Code, Article V: Design and Development Standards* shall be amended by adding Section 405.245: Storm Water Quality Management and Illicit Discharge Control, to read as follows:

SECTION 405.245 – STORM WATER QUALITY MANAGEMENT AND ILLICIT DISCHARGE CONTROL

A. Purpose and Intent: The purpose of this Section is to provide for the health, safety, and general welfare of the citizens of the City of O'Fallon through the regulation of non-storm water discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This Section establishes methods for controlling the introduction of pollutants into the *Municipal Separate Storm Sewer System (MS4)* in order to comply with requirements of the *National Pollutant Discharge Elimination System (NPDES)* permit process. The objectives of this Section are:

1. **To regulate the contribution of pollutants to the *Municipal Separate Storm Sewer System (MS4)* by storm water discharges by any user.**
2. **To prohibit Illicit Connections and Illicit Discharges to the *Municipal Separate Storm Sewer System (MS4).***
3. **To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this Section.**

B. Definitions: For the purposes of this Section, the following words shall have the meanings set out herein:

- ***Authorized Enforcement Agency*: Employees or designees of the director of the municipal agency designated to enforce this Section.**
- ***Best Management Practices (BMP's):* Schedules of activities, prohibitions of practices, general good house keeping 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. *BMP's* 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. § 1251 et seq.), and any subsequent amendments thereto.**

- ***Construction Activity:*** **Activities subject to *National Pollutant Discharge Elimination System (NPDES)* Construction Permits issued by MDNR. These include construction projects resulting in land disturbance of one (1) acre or more. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.**

- ***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 subsection 405.245(G)(1) of this Section.**

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

    1. **Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and chlorinated water discharged from swimming pools to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency or;**

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

- ***Industrial Activity:*** **Activities subject to *National Pollutant Discharge Elimination System (NPDES)* Industrial Permits as defined in 40 CFR, Section 122.26 (b)(14).**

- ***Municipal Separate Storm Sewer System (MS4):*** **The system of facilities designed or used for collecting and/or conveying storm water, including, but not limited to, roads with drainage systems, municipal streets, catch basins, curbs, gutters, inlets, ditches, storm drains, swales, sidewalks, and natural or man-made drainage channels, owned and operated by the City and which is not used for the collecting or conveying of sewage.**

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

- ***Non-Storm Water Discharge:*** **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; silt, 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 coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

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

- *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.

- *Stormwater:* Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

- *Storm Water Pollution Prevention Plan:* A document which describes the *Best Management Practices (BMP's)* and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to storm water, storm water conveyance systems, and/or receiving waters to the maximum extent practicable.

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

C. Applicability: This Section shall apply to all water entering the storm drain system generated on any developed and undeveloped lands unless explicitly exempted by an authorized enforcement agency.

D. Responsibility for Administration: The City of O'Fallon shall administer, implement, and enforce the provisions of this Section. Any powers granted or duties imposed upon the City Administrator may be delegated by the City Administrator to persons or entities acting in the beneficial interest of or in the employ of the City.

E. Severability: The provisions of this Section are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this Section or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this Section.

F. Ultimate Responsibility: The standards set forth herein and promulgated pursuant to this Section are minimum standards; therefore this Section does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants.

G. Discharge Prohibitions:

1. Prohibition of Illegal Discharges: No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, 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:

a. **The following discharges are exempt from discharge prohibitions established by this Section: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising ground water, ground water infiltration to storm drains, uncontaminated pumped ground water, foundation or footing drains, sump pumps (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, non-commercial washing of vehicles, natural riparian habitat or wet-land flows, swimming pools (if de-chlorinated - typically less than one PPM chlorine), fire fighting activities, and any other water source not containing pollutants.**

b. **Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety.**

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

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

2. **<u>Prohibition of Illicit Connections:</u>**

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

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

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

H. **<u>Suspension of MS4 Access:</u>**

1. **<u>Suspension Due to Illicit Discharges in Emergency Situations:</u> The City of O'Fallon may, with appropriate notice, suspend *MS4* discharge access to a person in order to prevent an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the *MS4* or waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the authorized enforcement agency may take such steps as deemed necessary to prevent or minimize damage to the *MS4* or waters of the United States, or to minimize danger to persons.**

2. **<u>Suspension Due to the Detection of Illicit Discharge:</u> Any discharge to the *MS4* in violation of this Section may result in termination of MS4 access. If such termination would abate or reduce an illicit discharge, the City shall notify the violator of the proposed termination of its *MS4* access. The violator may petition or request a hearing before the City Council , but must suspend the illicit discharge until after the reconsideration and hearing are held.**

3. A person commits an offense if the person reinstates *MS4* access to premises suspended or terminated pursuant to this Section, without the prior approval of the authorized enforcement agency.

I. Industrial or Construction Activity Discharges: Any person subject to an industrial or construction activity *NPDES Storm Water Discharge Permit* shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the City of O'Fallon prior to the allowing of discharges to the *MS4*.

J. Monitoring of Discharges:

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

2. Access to Facilities and Records:

a. Facility operators shall provide to the City of O'Fallon copies of records that must be kept under the conditions of an *NPDES* permit to discharge storm water.

b. Upon consent of the property owner, the City of O'Fallon may install monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense; however, such equipment shall remain the property of the City of O'Fallon. All devices used to measure storm water flow and quality shall be calibrated to ensure their accuracy. No person shall damage such equipment or alter such equipment so that proper results cannot be obtained.

c. If the City of O'Fallon has been refused access to any part of the premises from which storm water is discharged or if the property owner is not available to give consent to access the premises, the City may, upon demonstrating probable cause to believe that there may be a violation of this Section or a need to inspect and/or sample to verify compliance with this Section or any order issued hereunder, seek issuance of an administrative search warrant from any court of competent jurisdiction.

K. Requirement to Prevent, Control, and Reduce Storm Water Pollutants by the Use of Best Management Practices (BMP's): The City of O'Fallon will adopt requirements identifying *Best Management Practices (BMP's)* for any activity, operation, or facility which may cause or contribute to pollution or contamination of storm water, the storm drain system, or waters of the U.S. The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and non-structural *BMP's*. Further, any person responsible for a property or premise, which is, or may be, the source of an illicit discharge, will be required to implement, at said person's expense, additional structural and non-structural *BMP's* to prevent the further discharge of pollutants to the *Municipal Separate Storm Sewer System (MS4)*. Compliance with all terms and conditions of a valid *NPDES* permit authorizing the discharge of storm water associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this Section. These *BMP's* shall be part of a *Storm Water Pollution Prevention Plan (SWPP)* as necessary for compliance with requirements of the *NPDES* permit.

L. Watercourse Protection: Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall

maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

M. Notification of Spills: Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into storm water, the storm drain system, or waters of the U.S., said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the City in person or by phone or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the City of O'Fallon within three (3) business days of the phone notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three (3) years.

N. Enforcement:

1. Notice of Violation: Whenever the City Administrator finds that a person has violated a prohibition or failed to meet a requirement of this Section, the City Administrator may order compliance by written notice of violation to the responsible person. Such notice and order may require without limitation:

   a. The performance of monitoring, analyses, and reporting;

   b. The elimination of illicit connections or discharges;

   c. That violating discharges, practices, or operations shall cease and desist;

   d. The abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property; and

   e. The implementation of source control or treatment *BMP's*.

The City Administrator may order that such work by completed within a reasonable time from the date of the notice of violation.

2. If the property owner fails to abate the violation and/or restore the affected property within the time prescribed following notice or appeal, the work may be done by the City or a contractor designated by the City Administrator and the expense in accordance with the City's procedures for abatement of a nuisance. The property owner shall be responsible for all costs of such work.

Appeal of Notice of Violation: Any person receiving a *Notice of Violation* may appeal the determination and order of the City Administrator. The notice of appeal must be received within thirty (30) days from the date of the *Notice of Violation*. Hearing on the appeal before the City Council or its designee shall take place within thirty (30) days from the date of receipt of the notice of appeal. Any aggrieved party shall then be entitled to judicial review in accordance with the provisions of the Missouri Administrative Procedures Act.

Injunctive and Other Relief: It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this Section. If a person has violated or continues to violate

the provisions of this Section, the authorized enforcement agency may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation. In addition, the authorized enforcement agency may utilize any remedy, at law or in equity, in order to enforce the provisions of this Ordinance. The City may recover all attorneys' fees, court costs, and other expenses associated with enforcement of this Chapter, including sampling and monitoring expenses.

O. Violations Deemed a Public Nuisance: In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this Section is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

P. Prosecution for Violations: Any person that has violated or continues to violate this Section shall be liable to prosecution to the fullest extent of the law, and, upon conviction, shall be subject to a fine in an amount not to exceed five hundred dollars ($500.00) per charge and/or imprisonment for a period of time not to exceed ninety (90) days per charge.

Q. Remedies Not Exclusive: The remedies listed in this Section are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the City to seek cumulative remedies.

Section 2: It is hereby declared to be the intention of the City Council that each and every part, section and subsection of this Ordinance shall be separate and severable from each and every other part, section and subsection hereof and that the City Council intends to adopt each said part, section and subsection separately and independently of any other part, section and subsection. In the event that any part of this Ordinance shall be determined to be or to have been unlawful or unconstitutional, the remaining parts, sections and subsections shall be and remain in full force and effect.

Section 3: The Chapter, Article, Section, and/or Subsection assignments designated in this Ordinance may be revised and altered in the process of re-codifying or servicing the City's *Municipal Code* upon supplementation of said *Municipal Code* if, in the discretion of the editor, an alternative designation would be more reasonable. In adjusting such designations, the editor may also change other designations and numerical assignment of other Chapters, Articles, Sections, and/or Subsections of the *Municipal Code* to accommodate such changes.

Section 4: This Ordinance shall be in full force and effect from and after its passage and approval by the Mayor.

First Reading: September 28, 2006

Second Reading: October 12, 2006

READ TWO (2) TIMES AND PASSED BY THE CITY COUNCIL OF THE CITY OF O'FALLON, MISSOURI, THIS 12 DAY OF Octpber, 20 06.

Donna Maurer
Presiding Officer

ATTEST:

Pamela L. Smith

CITY CLERK, Pamela L. Smith

APPROVED BY THE MAYOR OF THE CITY OF O'FALLON, MISSOURI, THIS 24th DAY OF October 20 06.

MAYOR, Donna Morrow

ATTEST:

CITY CLERK, Pamela L. Smith

APPROVED AS TO FORM:
Curtis, Heinz, Garrett & O'Keefe, PC
Special Legal Counsel

BY: _____
ATTORNEY

Appendix E

(Ordinance Sections 405.070, 405.240 and Chapter 520)

Compliance with Construction Site Runoff Control

BILL NO. 5579.1 **ORDINANCE NO.** 5242

AN ORDINANCE OF THE CITY OF O'FALLON, MISSOURI, AMENDING SECTIONS 405.070 OF THE MUNICIPAL CODE RELATING TO THE GRADING PLAN AND CONSTRUCTION PLAN PROCESS AND THE REQUIRED SUBMISSIONS AND OTHER REQUIREMENTS REGARDING SUCH PLANS

Whereas, staff has recommended certain amendments with regard to the grading plan and construction plan process; and

Whereas, the provisions contained herein were reviewed and considered by the Planning and Zoning Commission and the Commission held a public hearing and made a recommendation regarding these provisions.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF O'FALLON, MISSOURI, AS FOLLOWS:

Section 1. Section 405.070 of Article III of Chapter 405 of Title IV of the Municipal Code of the City of O'Fallon is hereby amended to read as follows:

TITLE IV LAND USE

CHAPTER 405 SUBDIVISION AND LAND DEVELOPMENT

ARTICLE III PLAT PROCEDURES AND SPECIFICATIONS

SECTION 405.070 GRADING PLAN PROCESS

A. *Scope and Application.* The requirements of this section shall apply to all site plan and construction plan approvals.

B. *Filing Procedures.* Within any unzoned, "R-1" Single-Family Residential District, "R-1A" Single-Family Suburban Residential District, "R-1B" Single-Family Estates Residential District, "R-2" Two-Family Residential District, "R-3" Garden Apartment District, "R-4" Apartment House District, "R-5" Mobile Home Park District, "TGD" Transitional Growth District, "AG" Agricultural District, "P-R" Parks and Recreation District, "MUTDD" Mixed-Use Traditional Development District and Senior Community Overlay District, the owner(s) of real property must have first obtained approval of the applicable site plan, preliminary plat or area plan for a proposed land development project prior to the submitting a grading plan for said proposed land development project. Within the City's "C-O" Office District,

"C-1" Restricted Business District, "C-2" General Business District, "C-3" Highway Commercial District, "SC-1" Shopping Center District, "HTCD" High-Tech Corridor District, "I-1" Light Industrial District and the "I-2" Heavy Industrial District, the owner(s) of real property may submit a grading plan for review by the City Engineer at any time. The developer shall submit five (5) copies of the proposed grading plan and a completed application form to the City Engineer.

C. *Information Required.* The following information is required for all Grading Plan submittals for approval. The required information may be combined for presentation on one or more drawings or maps. The City Engineer may request that the information be presented on drawings or maps in addition to those submitted in the interests of clarity, speed and efficiency in the review process. In all cases the Grading Plan submission should include a grading plan application and all information as required per that application.

1. The Grading Plan shall be of a scale not to be greater than one (1) inch equals twenty (20) feet nor less than one (1) inch equals two hundred (200) feet, and of such accuracy that the City Engineer can readily interpret the Plan, and shall include more than one (1) drawing where required for clarity.

2. The property is identified by lot lines and location, including dimensions, angles and size, correlated with the legal description of said property. The Grading Plan shall be designed and prepared by a qualified land planner, registered professional architect, engineer or land surveyor. It shall also include the name and address of the property owner(s), developer(s), and designer(s).

3. It shall show the scale, north point, boundary dimensions, natural features such as wood lots, streams, rivers, lakes, drains, topography (at least five (5) foot contours intervals; when terrain is irregular or drainage critical, contour interval shall be two (2) foot), and similar features. All topographic data shall directly relate to USGS data.

4. It shall show existing man-made features such as buildings, structures, easements, high tension towers, pipe lines, existing utilities such as water and sewer lines, etc., excavations, bridges, culverts, and drains and shall identify adjacent properties within one hundred (100) yards and their existing uses.

5. Any proposed alterations to the topography or other natural features shall be indicated.

6. All filled places under proposed storm and sanitary sewer lines and/or paved areas shall be compacted to ninety (90%) of maximum density as determined by the Modified AASHTO T-180 Compaction Test or ninety-

five (95%) of maximum density as determined by the Standard Proctor Test AASHTO T-99.

7. All filled places in proposed roads shall be compacted from the bottom of the fill up to ninety (90%) maximum density as determined by the Modified AASHTO T-180 Compaction Test or ninety-five (95%) of maximum density as determined by the Standard Proctor Test AASHTO T-99. All tests shall be verified by a soils engineer concurrent with grading and backfilling operations and supplied to the City in a timely manner.

8. All low places whether on or off site should be graded to allow drainage. This can be accomplished with temporary ditches.

9. The plan shall include the requirements of the City's Tree Preservation Ordinance (Chapter 230), the requirements of the City's Floodplain Ordinance (Chapter 415), and a sediment and erosion control plan per St. Charles County Soil and Water Conservation District's "Protecting Water Quality" manual or other manual or method approved by the City Engineer.

10. The plan shall include recommendations from a registered professional engineer specializing in slope stabilizations for any slopes within the project area that exceed 3:1 and any vegetated drainage system that may be prone to erosion.

11. Grading Plans that are being prepared in conjunction with an approved Preliminary Plat shall include an estimate of the quantity of soil to be removed (spoils) associated with the contemplated improvements. It is noted that these estimated quantities will change based on the actual size of foundations constructed and the type of material excavated.

D. *Erosion and Sediment Control Plan.* The grading plan shall be accompanied by an erosion and sediment control plan developed in accordance with Chapter 520 of the Municipal Code.

E. *Review Procedures.* The City Engineer shall review the grading plan for conformance to standards and specifications set forth in this Chapter and other applicable ordinances. The City Engineer may request modifications in the Grading Plan. The City Engineer shall then confer approval, conditional approval or disapproval of the Grading Plan within forty-five (45) days of filing and shall notify the Director of Planning and Development and Director of Building Safety with written reasons for its action.

F. *Effect of Grading Plan Approval.* Grading Plan approval shall confer upon the developer, for a period of one (1) year from date of approval, the

conditional right that the general terms and conditions under which the approval was granted will not be changed by the City Engineer. This one (1) year period may be extended by the City Engineer if the developer has applied in writing for such an extension and the City Engineer determines a longer period should be granted due to unusual circumstances. If an extension is not granted, the Grading Plan approval is null and void. After approval of the Grading Plan, the developer may proceed with the grading operations upon the final direction of the City Engineer and under the inspection of the Community Development Department. Construction site plan approvals granted under Section 405.100 of this Chapter (which include grading operations and do not already have a separate Grading approval) shall be considered as including a grading plan component and be subject to the terms of this section.

G. *Improvement Installation or Performance Guarantee.* After approval of the Grading Plans by the City, the Owner/Developer must post a financial guarantee of performance as required by this Chapter. The following items if they apply shall be included in the financial guarantee:

1. Grading including permanent drainage swales.
2. Siltation/Erosion control.
3. Temporary storm drainage.
4. Re-vegetation
5. Sediment basin/trap construction.
6. Sediment basin/trap maintenance (dewatering and restoration) including sediment removal from retention basins.

The items above can be lumped into one estimate as long as it is noted that they are included in the total estimate.

H. *Grading Operations.* The following procedures are to be followed on all sites.

1. The erosion and sediment control plans shall be implemented before grading operations begin. It is noted that certain clearing, removals and grading operations may be required in order to establish the erosion and sediment control plan.
2. All erosion and sediment control measures shall be implemented so as to prevent the flow or run-off of mud, silt, dirt, debris and other materials onto streets, sidewalks and other public rights-of-way. Additionally, positive steps shall be exercised to prevent mud, silt, dirt, debris and other

materials from damaging adjacent property and silting up all storm drainage systems whether on or off site. Erosion and sediment control measures shall be designed at a minimum to accommodate flows from a 15 year, 20 minute storm. It is understood that the Missouri Department of Natural Resources (DNR) approves a Storm Water Pollution Prevention Plan (SWPPP). In this plan, certain areas are designed to collect silt and other debris on site. It shall not be construed that the collection of silt and other debris in compliance with the DNR approved SWPPP be a violation of City ordinances. Upon request, copies of the SWPPP shall be provided to the City.

3. Graded areas shall be seeded and mulched (strawed) within fourteen (14) days of stopping land disturbance activities. Unless it can be shown to the City Engineer that weather conditions are not favorable, vegetative growth is to be established within six (6) weeks of stopping grading work on the project. The vegetative growth established shall be sufficient to prevent erosion and the standard shall be as required by EPA and DNR. (70% coverage per sq. ft.)

4. The property owner, his agent, or applicant shall inspect all erosion control and correct any deficiencies within 48 hours of the end of any storm producing more than ½" of rain at the project site.

I. *Enforcement.*

1. Violations; Nuisance. It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this Section. Any failure to adequately correct a deficiency in erosion and sediment control measures within 48 hours after notification by the City shall be a violation of City Ordinances. Any failure to comply with a SWPPP (Missouri Department of Natural Resources approved Storm Water Pollution Prevention Plan) for a site that results in sediment entering streets or the stormwater system shall be considered a violation of City Ordinances. For storms exceeding the design storm (15 year, 20 minutes), any silt or debris leaving the site and affecting public rights-of-ways or stormwater drainage facilities shall be cleaned up within 24 hours after the end of the storm. Any condition caused or permitted to exist in violation of any of the provisions of this Section is a threat to public health, safety, and welfare, and is declared and deemed a nuisance. Any The administration of violations and nuisances shall follow the City's Ordinances related thereto and specifically Chapters 100 (General Provisions) and 220 (Nuisances).

2. Each incident of failure shall be deemed separate violations of City ordinances and each day where violations are not corrected shall be considered separate additional violations.

3. The City shall have the right to issue stop work orders to projects/sites not complying with the requirements of this section.

4. Prosecution for Violations: Any person that has violated or continues to violate this Section shall be liable to prosecution to the fullest extent of the law, and, upon conviction, shall be subject to a fine in an amount of a minimum of two hundred dollars ($200) and not to exceed five hundred dollars ($500.00) per charge and/or imprisonment for a period of time not to exceed ninety (90) days per charge.

First Reading: October 11, 2007

Second Reading: October 25, 2007

Donna Morrow
Presiding Officer

Attest:

Pamela L. Smith
Pamela L. Smith, City Clerk

APPROVED BY THE MAYOR ON THIS 30th DAY OF October, 2007.

Donna Morrow
Donna Morrow, Mayor

Attest:

Pamela L. Smith
Pamela L. Smith, City Clerk

APPROVED AS TO FORM:

Kevin O'Keefe, City Attorney

SECTION [redacted]: STORMWATER DETENTION

A. *Policy.* It is the policy of the City of O'Fallon to protect and promote the public health, safety and general welfare. The criteria for stormwater detention will:

1. Reduce the possibility of damage to public and private property,

2. Reduce the erosion of land and creek channels,

3. Assist in the attainment and maintenance of water quality standards, and

4. Preserve and enhance the environmental quality of the watercourses in the City. This criteria provides uniform procedures for designing and checking the design of storm drainage detention systems.

B. *General Guidelines.*

1. *Applicability.* This Chapter shall apply to all development within the corporate limits of the City of O'Fallon, Missouri. Residential developments having a total area of less than five (5) acres and commercial or industrial developments having a total area of less than one (1) acre may be given a waiver by the City in accordance with Article V of this Chapter subject to the following conditions:

a. The City retains the right to require detention storage in all cases in which the proposed development will generate excess runoff that adversely affects the carrying capacity of the receiving watercourse.

b. Developments less than one (1) acre with less than thirty percent (30%) of the area paved and developments generating less than one (1) cubic foot per second per acre (cfs/acre) increased runoff shall not be required to provide detention storage unless condition in Subsection (B)(1)(a) above is applicable.

c. This Chapter shall apply for all newly platted areas and new developments proposed after August 17, 1987. All developments that have an approved preliminary plan by the Planning and Zoning Commission at the time of the approval of this Chapter will not have to conform to this Chapter.

2. *Affidavit of disclosure of property interest.* The effective acreage for a site is not limited to a fractional part of the total. If a project is developed in phases or small plats, the total acreage of the project site must be considered. At the time the owner of any development submits a preliminary plat or preliminary plan, the owner shall also identify to the City all contiguous property or property in the watershed that he/she has interest in.

3. *Method of evaluation.* The storage capacity and discharge rate shall be based upon the calculated volume and peak flow of the stormwater runoff, respectively. The calculations for sites having an area of one hundred (100) acres or less shall be made using either the Soil Conservation Service Method or the Rational Method. If the site is larger than one hundred (100) acres, then the engineer shall use the Soil Conservation Service Method. If another method is desired to be used, the engineer shall submit a proposed method of evaluation for the calculations for review and approval. The permitted discharge rate of stormwater runoff shall be determined by calculating the rate of runoff for the site's pre- and post-development conditions. The engineer shall determine the most critical storm looking at three (3) different time periods:

a. The time of concentration,

b. A 1-hour storm, and

c. A 24-hour storm.

4. *Detention of differential runoff.* All new developments shall provide a stormwater detention system that insures that the rate of flow of stormwater runoff discharge from the site after development for a 2-year, 15-year and 25-year 20-minute storm, unless given a waiver by the City in accordance with Article V of this Chapter. Data shall be submitted for the 2-, 15-, 25- and 100-year frequency 20-minute storms.

If the proposed or modified development is in the Peruque or Belleau Creek watershed, then detention of the differential runoff shall also be provided for the 100-year 20-minute storm. Data shall be submitted for the 2-, 15-, 25- and 100-year frequency 20-minute storms. The maximum ponding elevation shall be calculated based on a routing of the design storm assuming the low flow outlet is blocked with the water ponded to its maximum elevation. A minimum of one (1) foot of freeboard shall be provided from the top of the basin to the maximum ponding elevation.

5. *Flows from upstream areas.* Flows from upstream areas outside the site should be based upon the assumption that those areas are fully developed under forecast land use patterns. The required storage volume will be based upon the site only, with flows from upstream areas being by-passed or discharged via overflow spillways or other devices for the 100-year storm.

6. *Facilities in floodplains.* If detention storage is provided within a floodplain, only the net increase in storage volume above that which naturally existed on the floodplain shall be credited to the development. No credit will be granted for volumes below the elevation of the base flood at that location unless compensatory storage is also provided. Where encroachments in the existing floodplain fill the valley storage areas, an equal amount of detention volume shall be provided.

7. *Land credit for detention facilities.* The number of units/lots shall be based on the total area of the tract to be developed. All areas to be used as detention facilities shall be included in this total area.

C. *Design Criteria.*

1. *General requirements.* The design shall be accomplished under the direction of a registered professional engineer. The design shall also be based on land use in the tributary area as zoned, actually developed or indicated by an adopted future land use plan, whichever basis produces the greatest runoff.

2. *Other references.* Other agencies have criteria and regulations pertaining to drainage systems which may complement this criteria. When conflicts are encountered, the most rigorous criteria shall govern.

a. *FEMA--Floodplain regulations and implementing ordinances adopted by municipalities.* Drainage systems designed within the limits of the designated 100-year floodplain on the principal stream shall be designed to convey the flood as defined by applicable published floodplain information studies. For areas located in FIRM Zone "A" outside the detailed study, the developer shall prepare studies and calculations establishing the floodplain, elevation and width. These calculations shall be submitted to the reviewing agencies for approval.

b. *Missouri Department of Natural Resources.* Rules and regulations of the Dam and Reservoir Safety Council shall apply to those Missouri structures classified as dams thereunder.

3. *Stormwater runoff.* The design criteria used in determining the amount of runoff shall be the same as set out in Section 405.230 of this Chapter.

4. *Hydraulic considerations for detention storage.*

a. *Principal spillways.* Shall be designed to meet the following requirements:

(1) The principal spillway shall be designed to function without requiring attendance or operation of any kind or requiring use of equipment or tools.

(2) All discharge from the detention facility when inflow is equal to or less than the 100-year inflow shall be via the principal spillway(s).

(3) The design shall allow for discharge of at least eighty percent (80%) of the detention storage volume within twenty-four (24) hours after the peak or center of mass of the inflow has entered the detention basin. On basins less than one hundred (100) acres, this shall not apply.

(4) The design discharge rate via the spillway shall continuously increase with increasing head and shall have hydraulic characteristics similar to weirs, orifices or pipes.

b. *Emergency spillways.* The emergency spillway shall be provided to pass a 100-year storm without damaging any property and, where applicable, designed to DNR Dam Safety Requirements. Overland flow route will be required to be depicted on the plan for emergency spillways.

c. *Outlet works.* Detention storage facilities shall have an outlet works consisting of valves, gates, pipes and other devices as necessary to completely drain the facility in seventy-two (72) hours or less when required for maintenance or inspection on normally wet basins.

d. *Sediment storage.* Public detention facilities shall be designed to provide for five (5) years of sediment accumulation calculated by using Figure 1 in Appendix D. All other detention facilities shall provide storage for two (2) years of sediment accumulation by using Figure 1, except for those using roofs of buildings, paved parking areas or other facilities designed to preclude the deposition or accumulation of sediment. Sediment storage volume shall be in addition to the volume required for temporary storage of stormwater to properly size the detention facility on normally wet basins.

e. *Erosion control.* Principal spillways and outlet works shall be designed to prevent erosion and if necessary equipped with energy dissipating devices to slow the water to normal velocity as called out in Section 405.230(E)(4) of this Chapter. Special measures shall be taken by the developer to not permit sediment from filling the proposed detention basin during all construction of the proposed development unless a design is provided and approved to use the detention basin as a temporary silt basin until such time as the stormwater improvements are completed and the site vegetated.

f. *Public detention facilities.* As a general rule, detention facilities shall be private facilities. When determined that a facility shall be a public facility, the owner shall dedicate the detention facility and easements with the recording of the record plat, except:

(1) When multi-purpose wet facilities are planned or are suitable for use for private aquatic recreation or for aesthetic enhancement of the owner's property.

(2) When multi-purpose dry facilities incorporate surface recreational improvements.

g. *Private detention facilities.* Shall be designed requiring the same criteria as the public detention facilities. The amount of easement shall be equal to the land occupied by the facility, plus a twenty (20) foot wide strip around the perimeter of the highest elevation attained by the design storage volume, plus an access easement

twenty (20) feet in width between the facility and the public street. This easement shall be shown as common ground or be dedicated to the trustees of the subdivision or owner of the residential, commercial or industrial property for the purpose of maintenance of the stormwater detention facility.

(1) A plan for perpetual maintenance and designating responsibility for the maintenance shall be provided for its continuing performance to the standards established by these criteria.

(2) When multi-purpose dry facilities incorporate surface recreational improvements.

h. *Plan requirements.* The plan requirements shall be the same as set out in Section 405.230 of this Chapter with the following additions:

(1) Elevation-area-capacity curves for the storage facility including notation of the storage volumes allocated to runoff and permanent residual water storage for other uses. (Wet basins only)

(2) Inflow hydrograph (detention volumes for rational method) for the 2-, 15-, 25- and 100-year recurrence interval design storms.

(3) Stage-discharge rating curves for each spillway and for combined spillway discharges.

(4) Routing curves for the 2-year and all greater criteria recurrence interval design storms with time plotted as the abscissa and the following plotted as ordinates (this item is not required for the Rational Method):

(a) Cumulative inflow volume.

(b) Cumulative discharge.

(c) Stage elevation.

(5) A ten (10) foot minimum depth for all retention (wet detention) basins shall be required. (Per DNR recommendation for healthy aquatic environment.) This will be required until the five percent (5%) escrow release has been established.

D. *Construction Alternates.*

1. Developer shall build as part of his/her development a detention basin as required by this Section unless the following Subsections apply.

2. If requested by the developer or by the City of O'Fallon, the City at its option, may waive the construction of a detention basin for the development. If the waiver is granted,

the developer shall pay an amount equal to the cost of detention for the site as determined by the unit cost as published and updated by St. Louis County. This money is to be used in a stormwater fund for future City stormwater projects. A contractor's bid may be submitted in lieu of using the published data although the bid must be reviewed and approved by the City Engineer prior to acceptance.

3. Developers of adjacent tracts may combine to build one (1) detention site large enough to meet the requirements of all tracts of land with approval of the City. The basin shall be located in the same drainage basin.

4. On-site detention will be required whenever increased runoff from the proposed development creates a hazard downstream.

E. *Inspection, Maintenance And Acceptance By The City Of O'Fallon.*

1. The City Engineer shall inspect or cause to be inspected all stormwater detention systems constructed within the City of O'Fallon, Missouri. Through such inspections the City Engineer shall ensure that the facilities under construction are being constructed in accordance with the approved plans for such development.

2. Each owner of the property being developed has the responsibility and duty to properly operate and maintain any stormwater management system which has not been accepted for maintenance by the City. The responsibility of maintenance of the system and subdivision projects shall remain with the developer until such time as the stormwater management system escrow for such development has been released at the end of the one (1) year warranty period. Upon release of escrow, the maintenance responsibility shall be vested in the trustees/directors of the subdivision by virtue of a trust indenture or declaration of covenants. Indenture of trusts or declaration of covenants shall clearly indicate resident responsibility for maintenance. All such privately owned maintained systems shall be subject to periodic inspections by the City Engineer or its representative. After an inspection by the City Engineer, he/she determines whether or not the conditions of the privately owned stormwater detention system are safe and correct. Any cost incurred by the City, as a result of the City Engineer's actions, shall be assessed against the owner(s) of the system. Initially, the stormwater funds as set up in Subsection (D)(2) above may be used to pay for any such emergency authorized by the City.

3. Upon acceptance by the City Council, the stormwater detention system may be dedicated to the City for perpetual maintenance. Any such system shall include adequate perpetual access and sufficient area for maintenance by the City personnel and vehicles. (R.O. 2007 §[redacted]; Ord. No. 1499 §§511.0--511.8, 8-17-87; Ord. No. 4743 §§5--6, 11-22-04; Ord. No. 5337 §1, 6-26-08)

CHAPTER 520: EROSION AND STORM WATER RUN-OFF CONTROL

SECTION 520.010: PLAN AND PERMIT REQUIRED

It shall be unlawful for any person or business entity to construct, alter or erect any building or structure where any land is disturbed on any tract within the City limits without an approved Erosion and **Storm Water** Run-Off Control Plan, and permit issued under the provisions of this Chapter, said permit to be included on Building Permit form. (CC 1978 §565.010; Ord. No. 742 §2, 12-8-79)

SECTION 520.020: REMOVING TOPSOIL OR CHANGING CONTOUR OF LAND PROHIBITED

It shall be unlawful for any person or business entity to clear, grade, excavate, fill or remove topsoil from or change the contour of any land in the City (except for gardens, trees and shrubs) without an approved Erosion and **Storm Water** Run-Off Plan and permit issued under the provisions of this Chapter. (CC 1978 §565.020; Ord. No. 742 §3, 12-8-79)

SECTION 520.030: PERMIT APPLICATION

Permit applications for approval of Erosion and **Storm Water** Run-Off Control Plans shall be submitted to and filed with the City Engineer, or his/her designate prior to the time any work subject to this Chapter is begun on land within the City limits. After the City Engineer has reviewed the application and plan, he/she will either approve or deny such permit, stating reasons for denial or conditions of approval as modified. (CC 1978 §565.030; Ord. No. 742 §4, 12-8-79)

SECTION 520.040: DECISIONS OF CITY ENGINEER--HOW DETERMINED

The decision of the City Engineer shall be based on criteria intended to protect residents and property downstream from **water** flows, but is balanced with a realization that landowners have a right to develop their property, therefore approval of such plans should not be interpreted as a bar to claims against developing landowners. (CC 1978 §565.040; Ord. No. 742 §5, 12-8-79)

SECTION 520.050: CORPORATE SURETY BONDS

A Corporate Surety Bond, conditioned upon carrying out each and every part of approved plans for at least the sum estimated to be the full costs of carrying out such plans or a cash escrow, upon the same conditions and in the same amount, shall be furnished the City whenever such costs exceed five hundred dollars ($500.00). The bond or escrow shall be released upon proper completion of all of the requirements of such approved

plans. (CC 1978 §565.050; Ord. No. 742 §6, 12-8-79)

SECTION 520.060: PLANS TO BE UPDATED--WHEN

Any approved Erosion and **Storm Water** Run-Off Control Plan shall become null and void one hundred eighty (180) days after the date of approval and no further work subject to this Chapter shall be allowed unless and until additional or updated plans have been submitted and approved in accordance with the provisions of this Chapter or unless all requirements of the approved control plans have been completed in less than one hundred eighty (180) days in accord with said plans and verified by an on-site inspection by the City Engineer or his/her designate. When no change in conditions has occurred since the date of approval an updated plan shall be approved in accordance with the provisions of this Chapter with no additional requirements. (CC 1978 §565.060; Ord. No. 742 §7, 12-8-79)

SECTION 520.070: PENALTIES

Any person or business entity violating the provisions of this Chapter, either by not obtaining a permit or not complying with its terms, shall be subject to a fine of up to five hundred dollars ($500.00); and each day of such violation shall constitute a separate offense. Further, violations of this Chapter may also be restrained, prohibited or enjoined by appropriate proceedings. (CC 1978 §565.070; Ord. No. 742 §8, 12-8-79)

Copyright © 2003 Sullivan Publications, Inc. All rights reserved.

Appendix F

(Ordinance Section 405.247, Section 415)

BMP Ordinance, Checklists, BMP Maintenance Agreement and Floodplain Ordinance

BILL NO. 5614 **ORDINANCE NO. 5271**

AN ORDINANCE OF THE CITY OF O'FALLON, MISSOURI, AMENDING CHAPTER 405, ARTICLE V OF TITLE IV OF THE MUNICIPAL CODE RELATING TO THE STORMWATER QUALITY MANAGEMENT AND ILLICIT DISCHARGE CONTROL REQUIREMENTS AND ADDING A NEW SECTION 405.247 STORMWATER QUALITY – BEST MANAGEMENT PRACTICES

Whereas, staff has recommended certain amendments with regard to the stormwater quality best management practices; and

Whereas, the provisions contained herein were reviewed and considered by the Planning and Zoning Commission and the Commission held a public hearing and made a recommendation regarding these provisions.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF O'FALLON, MISSOURI, AS FOLLOWS:

Section 1. Section 405.245 of Article V of Chapter 405 of Title IV of the Municipal Code of the City of O'Fallon is hereby amended to add the following:

TITLE IV	**LAND USE**
CHAPTER 405	**SUBDIVISION AND LAND DEVELOPMENT**
ARTICLE V	**DESIGN AND DEVELOPMENT STANDARDS**
SECTION 405.247	**STORMWATER QUALITY – BEST MANAGEMENT PRACTICES**

A. Purpose and Intent: Two consequences of construction and development are increased runoff created by the changed properties of ground surface and the rate of discharge of this increased runoff. These are both of great relevance to storm water. The natural condition of the land before development is in relative balance with the natural capacity of the receiving creeks. Normally the undeveloped conditions provide greater permeability and longer times of concentration. By modification of the ground surface from the irregular, pervious, and vegetation-covered, the areas are changed to more impervious, more quickly drained and, in some cases, denuded of vegetation. It is the policy of the City to protect and promote the public, health, safety and general welfare. The management of storm water will reduce the erosion on land and creek channels, will reduce the possibility of damage to public and private property, and will assist in the

attainment and maintenance of water quality standards, and will preserve the environmental quality of the watercourses in the City.

B. *Requirements – Creekbank Setback:* Development along natural watercourses shall have residential lot lines, commercial or industrial improvements, parking areas and driveways setback a minimum of twenty-five (25) feet from the top of the existing stream bank. This is not meant to prevent access across creeks. Except as otherwise provided herein or as allowed by the City, the section of land between a natural watercourse and lot lines shall be designated as common ground and drainage easement to be maintained by the trustees or homeowners association of the subdivision within all types of residential developments. In lieu of the common ground requirement, the section of land between the natural watercourse and twenty-five (25) feet from the top of bank can be (i) private property with an easement dedicated to the trustees or homeowners association requiring maintenance of the areas as the responsibility of the trustees or homeowners association, (ii) private property subject to a conservation easement in favor of an organization or land trust dedicated to environmental protection or land preservation such as Trailnet, Inc., the Open Space Council for the St. Louis Region or similar organization, (iii) set aside in a stream bank mitigation program approved by the United States Army Corps of Engineers under the provisions of the Clean Water Act. All developments shall maintain a setback minimum of fifty (50) feet from the top of the existing bank to any building structure requiring a construction permit that necessitates excavation or also requires a foundation. Commercial and industrial areas shall have creek areas dedicated as drainage easements. Notwithstanding the foregoing setback requirements, an applicant may obtain a variance to develop within the stream buffer area from the City provided the applicant is able to demonstrate that the water quality and stream morphology will not be adversely affected or adequate mitigation is provided to offset such adverse affects. Mitigation may include, but not be limited to the following: (i) installing additional erosion and sediment control; (ii) if the stream has the potential for lateral movement, installing stream stabilization practices within the stream; (iii) for those sites where vegetation does not exist, establishing vegetation; and/or (iv) additional tree planting.

C. *Post Construction - Water Quality:* In order to preserve the quality of water in natural streams it is important to provide a mechanism to remove contaminants on the site prior to water entering the natural water course. Typically called Post Construction BMPs (Best Management Practices), these methods identify a critical Water Quality Volume that will need to receive a treatment to remove certain contaminants. These improvements whether structural or non-structural will remain in place after the construction is completed. The concepts introduced in the following paragraphs are taken from the Georgia Stormwater Management Manual, Volume 2, August, 2001. Nothing in the following paragraphs shall change or replace any of the City's detention ordinances.

1. *Water Quality Volume (WQv):* The Water Quality Volume (denoted as the **WQv**) is the storage needed to capture and treat the runoff from 90% of the recorded daily rainfall events. In numerical terms, it is equivalent to 1.14 inches of rainfall multiplied by the volumetric runoff coeffeicient (Rv) and site area. The WQv is directly related to the amount of impervious cover created at a site. A minimum WQv of 0.2 inches per acre shall be met at all sites.

   Redevelopment projects can appeal to the Planning and Zoning Commission to reduce or eliminate WQv if it can be shown that there are stormwater enhancements being provided.

2. As a basis for determining water quality treatment volume the following assumptions may be made:

   a. The water quality volume WQv for offsite areas is not required. The following equations are used to determine the storage volume, WQv (in acrefeet of storage):

      WQv = [(P)(Rv)(A)]/12
      P = 1.14 inches of rainfall

      Where: WQv =water quality volume (in acre-feet)
      Rv =0.05 + 0.009 (I) where I is percent impervious cover
      A =area in acres

   b. Measuring Impervious Cover: The measured area of a site plan that does not have vegetative or permeable cover shall be considered total impervious cover.

   c. Multiple Drainage Areas: When a project contains or is divided by multiple drainage areas, the WQv volume shall be addressed for each drainage area.

   d. Offsite Drainage Areas: The WQv shall be based on the impervious cover of the proposed site. Offsite existing impervious areas may be excluded from the calculation of the water quality volume requirements.

   e. BMP Treatment: The final WQv shall be treated by an acceptable BMP(s) from the list presented in this chapter.

   f.. Extended Detention for Water Quality Volume: The water quality requirements can be met by providing a 24-hour draw down of a portion of the water quality volume (WQv) in conjunction with a stormwater pond or wetland system.

D. *Acceptable Urban BMP Options:* This section sets forth five acceptable groups of BMPs that can be used to meet the Water Quality volume criteria (WQv). The design and selection of these BMPs should comply with the Georgia Stormwater Management Manual, as prepared by the State of Georgia.

Where the City's criteria or requirements are more stringent, then they shall govern. Adapting to local Missouri environment and natural conditions should be expected but shall be as approved by the City or a higher authority.

1. The acceptable BMP designs are assigned into six general categories for stormwater quality control (WQv):

   BMP Group 1 -stormwater ponds
   BMP Group 2 -stormwater wetlands
   BMP Group 3 -infiltration practices
   BMP Group 4 -filtering practices
   BMP Group 5 -open channel practices

   See Section 1.3 of the Georgia Stormwater Management Manual for additional BMP options. Section 3 of the Georgia manual has detailed descriptions of each control.

2. To be considered an effective BMP for stand-alone treatment of WQv, a design shall be capable of:

   a. capturing and treating the required water quality volume (WQv)
   b. removing 80% of the TSS

3. A combination of BMPs and/or credits is normally required at most development sites to meet all three stormwater sizing criteria.

   a. *BMP Group 1. Stormwater Ponds*: Practices that have a combination of permanent pool, extended detention or shallow wetland equivalent to the entire WQvs include:

      P-1 micropool extended detention pond
      P-2 wet pond
      P-3 wet extended detention pond
      P-4 multiple pond system
      P-5 pocket pond

   b. *BMP Group 2. Stormwater Wetlands*: Practices that include significant shallow wetland areas to treat urban stormwater but often may also incorporate small permanent pools and/or extended

detention storage to achieve the full WQv include (Modification of existing wetland areas will require a Corps 404 permit):

W-1 shallow wetland
W-2 ED shallow wetland
W-3 pond/wetland system
W-4 pocket wetland

Wetlands shall not be used for control of water quantity (i.e. the flood protection volume).

c. *BMP Group 3. Infiltration Practices:* Practices that capture and temporarily store the WQv before allowing it to infiltrate into the soil over a two day period include:

I-1 infiltration trench
I-2 infiltration basin

Infiltration practices will be allowed on sites where it is proven that infiltration will work. Percolation rates shall be determined for proper use.

d. *BMP Group 4. Filtering Practices:* Practices that capture and temporarily store the WQv and pass it through a filter bed of sand, organic matter, soil or other media are considered to be filtering practices. Filtered runoff may be collected and returned to the conveyance system. Design variants include:

F-1 surface sand filter
F-2 underground sand filter
F-3 perimeter sand filter
F-4 organic filter
F-5 pocket sand filter
F-6 bioretention*
F-7 proprietary filtering system

*may also be used for infiltration

A maintenance agreement and maintenance schedule shall be required.

e. *BMP Group 5. Open Channel Practices:* Vegetated open channels that are explicitly designed to capture and treat the full WQv within the dry or wet cells formed by checkdams or other means include:

1) dry swale
2) wet swale

3) filter strips

Open channel practices shall be designed with the proper plantings. Wet swales shall be designed to drain out over time.

READ TWO (2) TIMES AND PASSED BY THE CITY COUNCIL OF THE CITY OF O'FALLON, MISSOURI, THIS 10th DAY OF January, 2008.

Donna Morrow
Presiding Officer

Attest:

Pamela L. Smith
Pamela L. Smith, City Clerk

APPROVED BY THE MAYOR ON THIS 14th DAY OF January, 2008.

Donna Morrow
Donna Morrow, Mayor

Attest:

Pamela L. Smith
Pamela L. Smith, City Clerk

APPROVED AS TO FORM
Kevin M. O'Keefe
Attorney

City of O'Fallon – Engineering Department
100 North Main Street
O'Fallon, Missouri 63366
www.ofallon.mo.us
636.379.5556

Grading Permit Application

Subject Property Information:

Property Location:

Site Area: Area to be Disturbed

Estimated Grading Quantity: Current Zoning:

Contact Information (Please Type or Print):

Applicant:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

Property Owner:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

Emergency Contact:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

Engineer:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

Any Development within the Floodplain requires a Flood Plain Development Permit.

This Grading Plan Application and Checklist outlines the items typically addressed with the initial submittal of a Grading Plan. This checklist is a guide to the generally required information on a Grading Plan, but may not be inclusive of all the information that may be required to meet City Code. Please refer to Chapter 405-Subdivision and Land Development of The O'Fallon Municipal Code for specific plan requirements.

_____ _____
Applicant Signature Date

_____ _____
Owner's Signature Date

OFFICE USE ONLY

Date of Initial Submittal: _____ Grading Permit No.: _____ Fee Amount: $_____ Date Paid: _____

Amount of Escrow (from approved Cost Estimate): $_____ Date Escrow received: _____

MDNR Land Disturbance Permit required for sites 1 acre and larger: Provided (Y) (N) (N/A), Expiration Date _____

Application (Approved/Denied) by: _____ Date: _____ Permit Expiration Date: _____

Grading Plan Application

Application Fee: Two percent (2%) of the estimated cost of Grading and Sediment Erosion Control reviewed by the Engineering Department due at the time of plan approval. Make payable to the City of O'Fallon.

All developments within the City of O'Fallon with the exception of building foundation excavation, which propose to alter the natural or existing grade, including excavating, grubbing, filling, stockpiling, stripping, quarrying or any combination thereof of fifty (50) cubic yards or more shall submit a *Grading Plan* for review. Staff will conduct a comprehensive review of the applicant's submission and provide a listing of any items that will need to be corrected, modified, or amended in order to meet the City of O'Fallon standards and specifications as outline in Chapter 405: Subdivision and Land Development, of the O'Fallon Municipal Code. The *Grading Plan* will only be approved once all outstanding items have been addressed including the recording of any off-site easements to the satisfaction of the Engineering Division. Approvals that are required by other Municipal, County or State agencies which have jurisdiction in the area shall provide written confirmation of their approvals to the City prior to Final Approval of the *Grading Plan* by the City of O'Fallon.

Filing Procedures: With regard to any real property within the City of O'Fallon, the owner(s) of real property must have first obtained an approval of the applicable site plan, preliminary plat or area plan of a proposed land development project prior to submitting a *Grading Plan* for said proposed land development project. (Ordinance #5270-Section 405.070) The owner/developer shall submit five (5) copies of the proposed grading plan along with a completed application form and checklist signed by both the owner/developer and applicant to the City Engineer.

The application shall be accompanied by the following information:

☐ Provide an Engineers Cost Estimate for the estimated cost of "Grading and Sediment Erosion Control". The Engineers Cost Estimate shall include any structural, material or physical change to the site which include clearing and grubbing, grading quantity in cubic yards including permanent drainage swales, siltation/erosion control, construction of sediment basin(s)/trap(s), permanent and/or temporary storm sewers, vegetation and maintenance cost (sediment removal, repair, dewater, restoration, etc.) associated with all sediment erosion controls. Other items, such as the demolition of any existing structures or buildings, sink hole remediation, existing well or cistern capping, retaining walls outside detention facilities or any other improvements required or deemed necessary with the approved *Grading Plan*.

☐ This cost shall be estimated using the unit cost as published and updated by St. Louis County. The attached schedule of unit prices is to be used when possible. Items not in the schedule will be estimated by the Consulting Engineer and reviewed and approved by the City.

☐ **The developer shall post a financial guarantee of performance (per an approved cost estimate) prior to Grading Plan approval as required by Article 405 of Subdivision Ordinance.**

The following information is required for all *Grading Plan* submittals for approval. The required information may be combined for presentation on one (1) or more drawings or maps. The City Engineer may request that the information be presented on drawings or maps in addition to those submitted in the interest of clarity, speed and efficiency in the review process. In all cases the *Grading Plan* submission should include a signed *Grading Plan Application* and completed checklist with all information as required per that checklist. Below is a listing of items that are to be addressed on all *Grading Plan* submittals to the Engineering Division for review.

The Grading Plan shall confer upon the developer, for a period of one (1) year from the date of approval, the conditional right that the general terms and conditions under which the approval was granted will not be changed by the City Engineer. This one (1) year period may be extended by the City Engineer if the developer has applied in writing for such an extension and the City Engineer determines a longer period should be granted due to unusual circumstances. If an extension is not granted, the grading plan approval is null and void.

Grading Plan Application

CHECKLIST (In the space provided, indicate which Sheet the Item is located)

Sheet # **General Requirements**

- [ ] The Grading Plans shall be submitted on 24"x36" sheets with north arrow and scale per ordinance. The scale shall not be greater than one (1) inch equals twenty (20) feet nor less than one (1) inch equals two hundred (200) feet and of such accuracy that the City Engineer can readily interpret the plan and shall include more than one (1) drawing where required for clarity.

- [ ] The Grading Plan shall be designed and prepared by a qualified land planner, registered professional architect, engineer or land surveyor with each sheet sealed, signed with original signature (not stamped) and dated. It shall include the name and address of the property owner(s), developer(s) and designer(s). (Per MO Econ. Dev. requirement)

- [ ] Plan submittal shall include all grading and sediment erosion control notes, grading plan with existing and proposed contours, drainage area maps showing acreage of existing drainage areas to existing discharge points of the site and proposed drainage areas with acreage to each sediment basin/trap and any pertinent details.

- [ ] Ensure that all improvements not associated with grading are not shown on the plans. Lot lines, lot numbers, right-of-way lines and street names shall be shown. Grading permits will be issued for grading, siltation control and any other improvements necessary to complete the rough grading of the site.

- [ ] Provide a copy of the DNR Land Disturbance permit and a Storm Water Pollution Prevention Plan, if required. It is required for developments 1.00 acre and larger.

- [ ] When required, obtain approval from all responsible agencies including, but not limited to, the appropriate fire protection district, water supply district, sanitary sewer district, MoDOT, the Army Corp of Engineers and/or Missouri Dept. of Natural Resources.

Sheet # **Plan Requirements**

- [ ] Provide a location map of the site on the cover sheet with north indicated.

- [ ] Provide the total area of the site in acres to the nearest tenth of an acre.

- [ ] Provide the total disturbed area of the site in acres to the nearest tenth of an acre.

- [ ] Plans shall indicate a reference benchmark and a site benchmark on USGS datum that is used to tie in the elevation information.

- [ ] Note the appropriate F.I.R.M. panel number and date, flood zone and latest revision date for the property.

- [ ] Provide the City of O'Fallon construction working hours on the plans per City Ordinance 3429 as shown in Section 500.420 of the Municipal Code of the City of O'Fallon as follows:

  Construction work shall only be allowed during the following hours:

  October 1 -- May 31

7:00 A.M. to 7:00 P.M.	Monday—Sunday

  June 1 -- September 30

6:00 A.M. to 8:00 P.M.	Monday—Friday
7:00 A.M. to 8:00 P.M.	Saturday and Sunday

  Construction work to be done outside of these hours requires prior written approval from the City Administrator or City Engineer.

- [ ] List all utility companies serving the development including the City of O'Fallon. The City of O'Fallon utility locates under its maintenance responsibility may include water, sanitary sewer, storm sewer and traffic locates.

- [ ]

Grading Plan Application

List the requirements and conditions of approval from the Planning and Zoning Commission on the cover sheet.

- [ ] Provide the Planning and Development Division file number and approval date in the lower right corner of the cover sheet.

- [ ] Grading plans that are being prepared in conjunction with an approved preliminary plat shall include an estimate of the quantity of soil to be removed (spoils) associated with the contemplated improvements. It shall be noted that these quantities are estimates and will change based on the actual size of sewers and foundations constructed and the type of material excavated.

- [ ] Include a note stating, "No slopes shall be steeper than 3 (horizontal) to 1 (vertical) or as approved by a Geotechnical Engineer." All certifications from a Geotechnical Engineer specializing in slope stabilization for any slopes within the project area that exceed 3:1 and any vegetated drainage system that may be prone to erosion shall be in writing.

- [ ] Include a note stating, "Developer must supply City construction inspectors with soil reports prior to and during site soil testing." Refer to Section 405.210(F) of the Municipal Code of the City of O'Fallon for requirements of the soils report. Be advised that if this information is not provided to the City's Construction Inspector the City will not allow grading or construction activities to proceed on any project site.

- [ ] Include a note stating, "All fill placed under proposed storm and sanitary sewer, proposed roads and/or paved areas shall be compacted to 90% of maximum density as determined by the Modified AASHTO T-180 Compaction Test or 95% of maximum density as determined by the Standard Proctor Test AASHTO T-99. All fill placed in proposed roads shall be compacted from the bottom of the fill up. All tests shall be verified by a soils engineer concurrent with grading and backfilling operations and supplied to the City of O'Fallon in a timely manner." Note that the moisture content of the soil in fill areas is to correspond to the compactive effort as defined by the Standard or Modified Proctor Test. Optimum moisture content shall be determined using the same test that was used for compaction. Soil compaction curves shall be submitted to the City of O'Fallon prior to the placement of fill. Proof rolling may be required to verify soil stability at the discretion of the City of O'Fallon. (Ordinance #5242-Section 405.070)

- [ ] Note that all low places whether on-site or off-site are graded to allow drainage. This can be accomplished with temporary ditches. Any off-site drainage easements will be acquired before grading begins.

- [ ] Note that graded areas shall be seeded and mulched (strawed) within fourteen (14) days of stopping land disturbance activities. Vegetative growth shall be established within six (6) weeks of grading work being stopped or completed in any area. Vegetative growth shall be sufficient to prevent erosion (70% coverage per square foot) as required by MDNR and EPA. (Ordinance #5242-Section 405.070)

- [ ] Include a note stating, "The Permittee shall assume complete responsibility for controlling all siltation and erosion of the project area. The Permittee shall use whatever means necessary to control erosion and siltation including, but not limited to, staked straw bales and/or siltation fabric fences (possible methods of control are detailed in the plan). Control shall commence with the clearing operations and be maintained throughout the project until acceptance of the work by the City of O'Fallon and as necessary by MoDOT. The Permittee's responsibilities shall include all design and implementation as required to prevent erosion and the depositing of silt. The City of O'Fallon and as required by MoDOT may at their option direct the Permittee in his methods as deemed fit to protect property and improvements. Any depositing of silt or mud on new or existing pavement shall be removed immediately. Any depositing of silts or mud in new or existing storm sewers or swales shall be removed after each rain and affected areas cleaned to the satisfaction of the City of O'Fallon and as required by MoDOT."

- [ ] Note that all erosion control systems are inspected and corrected weekly, especially within 48 hours of any rainstorm resulting in one-half inch of rain or more. Any silt or debris leaving the site and affecting public rights-of-ways or storm water drainage facilities shall be cleaned up within 24 hours after the end of the storm.

- [ ]

Grading Plan Application

Note on the plans that clearing limits shall be visibly marked in the field prior to removal of trees.

- [ ] Provide for the requirements of the City's Tree Preservation Ordinance (Chapter 230), such as showing the limits of all trees to remain, providing the total area of trees to be cleared and to remain in acres to the nearest tenth of an acre, providing tree preservation calculations and a landscape plan for any trees that are to be replaced.

- [ ] The property shall be identified by lot lines and location, including dimensions and bearings, correlated with the legal description of said property. Show the scale, north point and boundary dimensions.

- [ ] Ensure that the identity of all natural features such as woodlots, streams, rivers, lakes, drains, topography (at least five-foot contour intervals; when terrain is irregular or drainage critical, contour intervals shall be two (2) foot) and similar features. All topographic data shall directly relate to U.S.G.S. datum.

- [ ] Ensure that all existing manmade features such as buildings, structures, existing entrances on both sides of the street, dams, fences, retaining walls, bridges, culverts, drains, etc., existing utilities such as water mains, sewer lines, high tension towers, power lines, communication lines, pipe lines, etc., excavations, easements, etc. and adjacent properties within three hundred (300) feet with existing uses identified. Areas outside the property boundaries can be shown on the plans or provided separately using aerial photography, U.S.G.S. maps or other sources. The site and pertinent information must be clearly shown on any attached exhibits.

- [ ] Existing and proposed topography shall be shown at two (2) foot contour intervals for plans that scale 1" = 50' or larger. Existing and proposed topography with scales smaller than 1" = 50' may be shown at five (5) foot contour intervals.

- [ ] Provide any construction signage required for any work proposed within the right-of-way.

- [ ] Provide a traffic control plan per MODOT or MUTCD specifications, whichever is most stringent. Any road closures that are proposed must complete a road closure application.

- [ ] Provide the location of and details for all siltation control devices (silt fences and/or sediment basins/traps) per Chapters 405 and 515 of the City of O'Fallon Municipal Code following "St. Charles County Soil and Water Conservation District Erosion and Sediment Control" guidelines.

- [ ] Provide temporary sediment basin(s)/trap(s) and calculations.

- [ ] Provide erosion control in swales with velocities over two (2) feet per second. Refer to "St. Charles County Soil and Water Conservation District Erosion and Sediment Control" guidelines for erosion control requirements in swales with velocities above two (2) feet per second.

Sheet # **Details**

- [ ] Provide a table for the establishment of vegetation which shall include seeding periods and seeding, mulch and fertilizer rates on the site following "St. Charles County Soil and Water Conservation District Erosion and Sediment Control" guidelines.

- [ ] Provide a 20'x 50' temporary truck wash off area (prefer 6"depth – 2" clean rock) for use during construction and include a detail of the rock pad. Add note to plans, "If water is not available, a water truck will be provided."

- [ ] Note that drainage swale locations are shown and provide a typical swale section.

- [ ] Provide detail(s) of all sediment basin(s) and trap(s).

- [ ] Provide detail for all methods of sediment control to be used.

Grading Plan Application

Sheet # **Easements, Right-of-Ways, & Warranty Deeds**

- [ ] Show the recorded book and page for each existing deed, easement and/or right-of-way.
- [ ] Show the location along with book and page or provide a recorded easement document for any proposed off-site grading and/or off-site drainage easements necessary to complete the grading and/or provide adequate and safe storm water drainage for this development.
- [ ] Provide a book and page of any recorded or a signed copy of any proposed cross-access easement required for this development and show the limits on the plan.

Sheet # **Floodplain Requirements (Chapter 415)**

- [ ] Provide a completed Floodplain Development Application from the City of O'Fallon for any work that is proposed within the floodplain limits. A No-Rise certificate signed, sealed and dated by a Missouri Registered Professional Engineer will be required prior to the issuance of a Floodplain Development Permit for any activity within the floodway.
- [ ] Show the proposed and existing floodplain and floodway limits with base flood elevations on the plan.
- [ ] Provide the 25, 50 and 100 year storm high water elevations for creeks within the development that are to remain.
- [ ] Demonstrate compliance with Article 415 of the City Code, specifically compensatory storage for any fill placed in the special flood hazard area.
- [ ] Provide approval from the US Army Corps of Engineers and Missouri Department of Natural Resources where required. If a permit is not required, the developer shall provide documentation from the Corp of Engineers and/or DNR exempting the proposed development from the permit requirements.
- [ ] Provide a list of any lots that will be within the floodplain after the proposed grading. An Elevation Certificate signed, sealed and dated by a Missouri Registered Professional Engineer will be required showing that all structures will have a lowest floor elevation a minimum of one (1) foot above the base flood elevation.
- [ ] Provide a LOMR from FEMA for any land removed from the floodplain. Any cost to the City due to public notification or letters required by FEMA, to be sent by or published by the City will be reimbursed by the developer.

Sheet # **Retaining Walls**

- [ ] Provide a wall on the plan view with the following information:
  - Top of wall and bottom of wall ground elevations.
  - Storm water drainage away from or around wall. Storm water shall not flow over wall.
  - Walls in excess of 6' (30" when supporting a walking surface) shall have a 4' high fence or handrail on top.
  - Existing and proposed grades.
- [ ] Provide a wall profile with the following information:
  - Top of wall and footing elevations.
  - Show the steps in the footing.
  - Location of the geogrid designated on the profile.
  - Existing and proposed grades.
- [ ] Provide a Retaining Wall Detail.
- [ ] Provide shop drawings and calculations for each retaining wall. Retaining wall structural calculations with a 1.5 overturn factor of safety, per IBC code, signed, sealed and dated by a Missouri Registered Professional Engineer.

City of O'Fallon – Engineering Department
100 North Main Street
O'Fallon, Missouri 63366
www.ofallon.mo.us
636.379.5556

Residential Construction Site Plan Application

Subject Property Information:

Property Location:

Name of Proposed Subdivision:

Site Area: Grading Plan Permit # Date

Date of P&Z Approval: Current Zoning:

Contact Information (Please Type or Print):

Applicant:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

Property Owner:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

24 hour Emergency Contact:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

Engineer:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

This *Residential Construction Site Plan Application and Checklist* outlines the items typically addressed with an initial submittal of a *Residential Construction Site Plan.* This checklist is a guide to the generally required information on a *Residential Construction Site Plan*, but may not be inclusive of all the information that may be required to meet City Code. Please refer to Chapter 405: *Subdivision and Land Development Code*, of the O'Fallon *Municipal Code* for specific plan requirements.

_____ _____
Applicant Signature Date

_____ _____
Owner's Signature Date

OFFICE USE ONLY

Date of Initial Submittal: _____ Permit No.: _____ Application Fee Amount: $_____ Date Paid: _____

Escrow Amount (from approved Cost Estimate): $_____ Date Escrow received: _____

MDNR Land Disturbance Permit required for sites 1 acre and larger: Provided (Y) (N) (N/A), Expiration Date _____

Application (Approved/Denied) by: _____ Date: _____ Permit Expiration Date: _____

Application Fee: Two percent (2%) of the approved estimated cost of improvements for the development as reviewed by the Engineering Department and due prior to plan approval.

After approval of the applicable site plan, preliminary plat or area plan and prior to City Council approval of the record plat, construction plans prepared by an engineer for the subdivision of all, or a specified stage, of the tract shall be submitted to the City Engineer. If substantive changes are to be made after approval of the construction plans, the City Engineer shall require revised plans to be submitted for approval.

Staff will conduct a comprehensive review of the applicant's submission of three (3) sets of plans and provide a listing of any items that will need to be corrected, modified, or amended in order to meet the City of O'Fallon standards and specifications as outline in Chapter 405: Subdivision and Land Development, of the O'Fallon Municipal Code. The *Residential Construction Site Plans* will only be approved once all outstanding items have been addressed including the recording of any off-site easements or off-site Right of Way dedications to the satisfaction of the Engineering Department. Approvals that are required by other Municipal, County or State agencies which have jurisdiction in the area shall provide written confirmation of their approvals to the City prior to Final Approval of the Construction Plans by the City of O'Fallon. **In all cases first submittal must include the required sets of Construction Plans along with the *Residential Construction Site Plan Application* with original signatures and a completed checklist or it will be rejected.**

The application shall be accompanied by the following information:

- ☐ Provide an estimated cost of improvements for the development to be approved. "*Improvements*" shall include any structural, material or physical change incident to servicing or furnishing facilities for the site, such as, but not limited to, the removal of trees and other vegetative cover, altering the natural or existing grade, siltation control, sediment basins, revegetation of the site, the installation of streets, curbs and gutters, installation and removal of temporary turnarounds, necessary offsite roadway improvements, traffic signals, traffic control signs, street name signs, street lights, sidewalks and handicap ramps adjacent to common ground areas, multi-purpose trails, any on-site and off-site water mains and appurtenances, proposed lift stations, force mains, access roads, sanitary sewer mains, wyes, manholes and any other necessary items to complete the sanitary system, storm sewer mains, catch inlets, culverts, bridges, outfall structures, detention facilities, lakes, waterways, canals, street trees adjacent to common ground, landscaping within common ground areas and any other improvements required or deemed necessary with the approved *Construction Site Plan*.

- ☐ This cost shall be estimated using the unit cost as published and updated by the City of O'Fallon. The attached schedule of unit prices is to be used when possible. Items not in the schedule will be estimated by the Consulting Engineer and reviewed and approved by the City.

The construction of all subdivision improvements shall be completed within two (2) years of the City Engineer's approval of the construction plans. Time extensions may be granted by the Community Development Department for those developments showing good cause as to why the improvements have not been completed. If construction under the approved construction plan is to continue beyond the two (2) year period, the developer must request an extension of the approved plan and provide for extending the escrow or other surety on the project prior to the expiration of the plan, otherwise work on the project must cease. Any request for an extension under this Section that is denied by City staff can be appealed to the Planning and Zoning Commission. The developer may request a period of construction longer than two (2) years with the initial approval at the Planning and Zoning Commission meeting by providing a suitable explanation for the request. On projects with an extended construction period, suitable escrows must be provided for the extended period. If construction is not actively pursued during the course of the extended period of construction approval (beyond the initial two (2) year period), the City may cancel the extension with thirty (30) days written notice to the developer. Any cancelled extension under this Section may be appealed to the Planning and Zoning Commission.

The following information is required for all *Residential Construction Site Plan* submittals for approval. The required information may be combined for presentation on one (1) or more drawings or maps. The City Engineer may request that the information be presented on drawings or maps in addition to those submitted in the interest of clarity, speed and efficiency in the review process. Below is a listing of items that are to be addressed on all *Residential Construction Site Plan* submittals to the Engineering Division for review.

Residential Construction Site Plan Application

CHECKLIST
(In the space provided, indicate which Sheet the item is located)

General Requirements

☐ The construction plan shall be any scale from 1 inch = 10 feet through 1 inch = 100 feet, so long as the scale is an increment of ten (10) feet and is sufficiently clear in reflecting details of the proposed construction. Construction plans shall be prepared on exhibits twenty-three and one-half (23½) inch by thirty-four and one-half (34½) inch with north arrow and scale indicated. The site plan or title page shall be used as the cover sheet for the construction plan.

☐ The submittal shall include all general notes and specifications, site plan(s), grading plan(s) with existing and proposed contours, water plan(s) and drainage area map(s) showing acreage of existing drainage areas to existing discharge points of the site and proposed drainage areas with acreage to each detention basin(s) and all details necessary for construction. Include profile sheets for streets, storm sewers and sanitary sewers.

☐ Prior to Construction Plan approval, provide copies of approval letters or necessary permits from all responsible reviewing agencies including, but not limited to, the appropriate fire protection district, school district, water supply district, sanitary sewer district, MoDOT, Army Corps of Engineers and/or Missouri Department of Natural Resources.

☐ Prior to Construction Plan approval, provide a recorded copy of all required off-site easements necessary to cover sanitary sewers, storm sewers, water mains, detention facilities or any other utility for this development.

☐ Provide right-of-way warranty deeds required with this development.

☐ Provide a copy of any cross access easements required with this development.

☐ All plans, details and reports shall be sealed, signed with original signature (not stamped) and dated by a Registered Professional Engineer. (Per MO Econ. Dev. Requirement)

General Construction Plan Notes

☐ Provide a location map of the site on the cover sheet with north arrow and scale indicated.

☐ Add notes stating the development phase area, number of proposed lots and building setback information.

☐ Provide the reference benchmark and site benchmark that is used on the Cover Sheet. The benchmarks used to tie in elevation information shall be on U.S.G.S. datum. The site benchmark shall be shown on the plan sheets.

☐ Provide the City of O'Fallon construction working hours to the plans per City Ordinance 3429 as shown in Section 500.420 of the Municipal Code of the City of O'Fallon as follows:

Construction work shall only be allowed during the following hours:

October 1 -- May 31
- 7:00 A.M. to 7:00 P.M. — Monday—Sunday

June 1 -- September 30
- 6:00 A.M. to 8:00 P.M. — Monday—Friday
- 7:00 A.M. to 8:00 P.M. — Saturday and Sunday

Construction work to be done outside of these hours requires prior written approval from the City Administrator or City Engineer.

☐ Provide tree preservation calculations.

☐ Provide a listing of all utility companies and contact information serving the development. The City of O'Fallon shall also be contacted for utility locates under its maintenance responsibility. For water main, sanitary sewer and storm sewer locates, contact 636-281-2858, for traffic locates, contact 636-379-5602. Contact the Engineering Division at 636-379-5556 and the Construction Inspection Division at 636-379-5596.

- [ ] Add the following statement to the general notes: City approval of the construction site plans does not mean that any building can be constructed on the lots without meeting the building setbacks as required by the Zoning Code.

- [ ] Note the appropriate F.I.R.M. panel number, flood zone and latest revision date for the property.

- [ ] Provide a list of all lots that are in the existing floodplain.

- [ ] Provide a note stating, "All proposed utilities and/or utility relocations shall be located underground."

- [ ] List the requirements and conditions of approval from the Planning and Zoning Commission on the cover sheet.

- [ ] Provide the Planning and Development Division file number and the date the plan was approved by the Planning and Zoning Commission in lower right corner of the Cover Sheet.

- [ ] Provide a note stating, "If materials such as trees, organic debris, rubble, foundations and other deleterious material are not to be reused, they shall be removed from the site and disposed of in compliance with all applicable laws and regulations." If the materials listed previously are reused, a letter from a soils engineer must clarify amount, location, depth, etc and be approved with the construction plans. Landfill tickets for such disposal shall be maintained on file by the developer. Burning on site shall be allowed only by permit from the local fire district. If a burn pit is proposed the location and mitigation shall be shown on the grading plan and documented by the soils engineer.

- [ ] Provide a note stating, "No slopes shall exceed 3 (horizontal): 1 (vertical)."

- [ ] Provide a note stating, "All fill placed under proposed storm and sanitary sewers, proposed roads and/or paved areas shall be compacted to 90% of maximum density as determined by the Modified AASHTO T-180 Compaction Test or 95% of maximum density as determined by the Standard Proctor Test AASHTO T-99. All fill placed in proposed roads shall be compacted from the bottom of the fill up. All tests shall be verified by a soils engineer concurrent with grading and backfilling operations." Moisture content of the soil in fill areas is to correspond to the compactive effort as defined by the Standard or Modified Proctor Test. Optimum moisture content shall be determined using the same test that was used for compaction. Soil compaction curves shall be submitted to the City of O'Fallon prior to the placement of fill. Proof rolling may be required to verify soil stability at the discretion of the City of O'Fallon.

- [ ] Provide a note stating, "Developer must supply City construction inspectors with an Engineer's soil reports prior to and during site soil testing." The soils report will be required to contain the following information on soil test curves (Proctor reports) for projects within the City:

  - Maximum dry density.
  - Optimum moisture content.
  - Maximum and minimum allowable moisture content.
  - Curve must be plotted to show density from a minimum of 90% as determined by the "Modified AASHTO T-180 Compaction Test" (A.S.T.M.-D-1157) or from a minimum of 95% as determined by the "Standard Proctor Test AASHTO T-99, Method C" (A.S.T.M.-D-698). Proctor type must be designated on the document.
  - Curve must have at least 5 density points with moisture content and sample locations listed on document.
  - Specific gravity.
  - Natural moisture content.
  - Liquid limit.
  - Plastic limit.

Be advised that if this information is not provided to the City's Construction Inspector the City will not allow grading or construction activities to proceed on any project site.

- [ ] Provide a note stating, "The Permittee shall assume complete responsibility for controlling all siltation and erosion of the project area. The Permittee shall use whatever means necessary to control erosion and siltation including, but not limited to, staked straw bales and/or siltation fabric fences (possible methods of control are detailed in the plan). Control shall commence with the clearing operations and be maintained throughout the project until acceptance of the work by the City of O'Fallon and as necessary by MoDOT. The Permittee's responsibilities include all design and implementation as required to prevent erosion and the depositing of silt. The City of O'Fallon and as required by MoDOT may at their option direct the Permittee in his methods as deemed fit to protect property and improvements. Any depositing of silt or mud on new or existing pavement shall be removed immediately. Any depositing of silts or mud in new or existing storm sewers or swales shall be removed after each rain and affected areas cleaned to the satisfaction of the City of O'Fallon and as required by MoDOT."

- [ ] Provide a note stating, "All erosion control systems are inspected and corrected weekly, especially within 48 hours of any rainstorm resulting in one-half inch of rain or more. Any silt or debris leaving the site and affecting public rights-of-ways or storm water drainage facilities shall be cleaned up within 24 hours after the end of the storm."

- [ ] Provide a note stating, "Any existing wells and/or springs which may exist on the property must be sealed in a manner acceptable to the City of O'Fallon Construction Inspection Department and following Missouri Department of Natural Resources standards and specifications."

- [ ] Provide a note stating, "All paving to be in accordance with St. Charles County standards and specifications except as modified by the City of O'Fallon ordinances."

- [ ] Provide a note stating, "Sidewalks, curb ramps and accessible parking spaces shall be constructed in accordance with currently approved Americans with Disabilities Act Accessibility Guidelines along with the required grades, signage, specifications and construction materials. If any conflict occurs between the above information and the plans, the ADAAG guidelines shall be followed and the contractor, prior to any construction, shall notify the Project Engineer."

- [ ] Provide a note stating, "Driveway locations shall not interfere with the sidewalk handicap ramps or curb inlets."

- [ ] Provide a note stating, "Traffic control is to be per MoDOT or MUTCD whichever is more stringent."

- [ ] Provide a note stating, "All traffic signals, street signs, sign post, backs and bracket arms shall be painted black using Carboline Rustbond Penetrating Sealer SG and Carboline 133 HB paint (or equivalent as approved by the City of O'Fallon and MoDOT).

- [ ] Provide a typical lot exhibit showing easement and setback requirements.

- [ ] Provide a note stating, "All onsite utility easements required for this development will be shown on the Record Plat."

- [ ] Note the estimated sanitary flow in gallons per day on the plan.

- [ ] Provide a note stating, "Connections at all sanitary or storm structures to be made with A-lock joint or equal."

- [ ] Provide a note stating, "Brick shall not be used in the construction of sanitary or storm sewer structures". Pre-cast concrete structures are to be used unless otherwise approved by the City.

- [ ] Provide a note stating, "All concrete pipes will be installed with O-ring rubber type gaskets."

- [ ] Provide a note stating, "HDPE pipe is to be N-12WT or equal and to meet ASTM F1417 water tight field test."

- [ ] Provide the Water Jetting specifications as a note as shown in Section 405.210(D).

- [ ] Provide a note stating, "A 5/8" trash bar shall be centered within the opening(s) of all curb inlets and area inlets."

☐ Provide a note stating, "Rip-rap shown at flared ends will be evaluated in the field by the Engineer, Contractor and City Inspector after installation for effectiveness and field modified, if necessary, to reduce erosion on and off-site."

☐ Provide a marking on the storm sewer inlets. The City will allow the following markers and adhesive procedures only as shown in the table below or an approved equal. 'Peel and stick' adhesive pads will not be allowed.

Manufacturer	Size	Adhesive	Style	Message (Part #)	Website
ACP International	3 7/8"	Epoxy	Crystal Cap	No Dumping Drains To Waterways (SD-W-CC)	www.acpinternational.com
DAS Manufacturing, Inc.	4"	Epoxy	Standard Style	No Dumping Drains To Stream (#SDS)	www.dasmanufacturing.com

☐ Provide a note stating, "All subdivision identification or directional sign(s) must have the locations and sizes approved and permitted separately through the Planning and Development Division."

☐ Provide a note stating, "Any proposed pavilions or playground areas will need a separate permit from the Building Division."

☐ Provide a note stating, "All proposed fencing requires a separate permit from the Planning & Development Division."

Construction Plan Requirements (Site Plan, Grading Plan, Water Plan, Drainage Area Plan)

☐ If the existing road does not have a curb, the new entrance curb shall begin 10' from the edge of existing pavement.

☐ Show the locations of all existing entrances on both sides of the street, within 300 feet of any proposed entrance.

☐ Show the limits of any cross access easements required for this development on the plan.

☐ All street stub-outs over 250' in length will require a temporary turnaround.

☐ Provide any construction signage required for any work proposed within the right-of-way.

☐ Label handicap ramps and types at all intersections.

☐ Show the locations with stationing of all Type "A" joints.

☐ Show the locations of all proposed traffic calming within the development.

☐ Show proposed streetlight locations and approximate location of the conduit system (for the street lights). Pedestals, junction boxes and transformers associated with the street lights can be shown on the as-builts. Streetlights should be located at all intersections and in cul-de-sacs. Placement of street lights shall be on the extension of the property line between the curb and sidewalk a maximum of three hundred (300) feet apart.

☐ Show the proposed traffic control sign layout. Signs designating street names shall be placed on the top of the traffic control signs. Provide a striping plan for cross walks as necessary.

☐ Provide a plan showing the placement of all required trees. This includes street trees and any trees placed within common areas to fulfill the tree preservation requirements.

☐ Show the location of a multi-use trail (when required) on the plans.

☐ Provide pavement striping at any point where the multi-use trail crosses existing or proposed pavement.

- [ ] Provide the location of the temporary construction entrance and parking area.
- [ ] Provide the location of all Subdivision Identification Signs on the plans. All free-standing signs shall be located a minimum of ten (10) feet away from any right-of-way line and/or property line and a minimum of three (3) feet from the back of any curbing or sidewalk. All signs shall abide by the regulations for visibility at corners, including visibility corners from driveways and the street it intersects per Section 400.260 of the *O'Fallon Zoning Code.*
- [ ] Clearly label all walkout lots on the plans.
- [ ] Beginning at the existing pavement, provide a 20' wide x 50' long aggregate wash off area using 2" clean rock, approximately 6" deep for use during construction. If placed at points of ingress or egress, width shall not be less that full width of proposed pavement. Include a detail in the plans. Provide a note to the plans and detail, "If water is not available, a water truck will be provided."
- [ ] If stub streets are planned for future extensions, the pavement for those streets shall be extended as close to the property line as possible to allow for grading and drainage. On-site grading easements shall be provided on the proposed lots adjacent to the stub street right-of-way to allow for future grading in conjunction with the connection of the stub street.
- [ ] Show the location and size of all existing water mains. Provide a water main layout, with size of main, tees, valves, blow-offs, etc. per City of O'Fallon specifications. City water mains shall have 42" minimum cover.
- [ ] Show the location of the nearest existing fire hydrant and any fire hydrants proposed for the development. Fire hydrant spacing shall not exceed 600' or 300' from any proposed building.
- [ ] Show water meter locations for sites within the City of O'Fallon Water District.
- [ ] Show the location of any existing wells, cisterns and/or springs on the property or provide a note that no wells, cisterns and/or springs exist on the property.
- [ ] Show the location of all siltation control devices (silt fences, sediment basins, etc.) following St. Charles County Soil and Water Conservation District Erosion and Sediment Control guidelines.
- [ ] All swales shall be a minimum of two (2) percent. Provide spot elevations of the swale at each property line to show positive drainage. Flow patterns shall be shown on both the grading plan and drainage area map.
- [ ] Use the City's P.I. factors (Section 405.230) for the drainage area calculations.
- [ ] Label all bypass flows on the drainage area map. Bypass flows shall be limited to 0.25 c.f.s. maximum.
- [ ] No more than one (1) c.f.s of storm water (bypass included) may pass through an intersection.
- [ ] All storm sewers, sanitary sewers and/or water mains shall be a minimum of ten (10) feet from the front of any existing or proposed building (front building line).
- [ ] Water mains, storm sewers and sanitary sewers shall run diagonally across side yard lot lines to maximize the typical side yard easement.
- [ ] All storm sewers, sanitary sewers and water mains shall cross the pavement perpendicular to the centerline. Offsets up to 15 degrees may be considered. Pipe runs and connections under street pavement shall be the minimum needed.
- [ ] Provide clean-outs for all sanitary laterals over 100' and for all bends in the laterals.
- [ ]

Provide Drainage structures in swales when surface flow exceeds three (3) cubic feet per second.

- [ ] The discharge point of all flared end sections shall be protected by rip rap or other approved means. Provide calculations showing velocity reductions.
- [ ] Provide a 20' wide access strip to the detention basin.
- [ ] Show the normal water elevation and minimum depth for all proposed lakes.
- [ ] Show the proposed high water elevations for all required storms, including 100 year low flow blocked. Provide a 20' drainage easement surrounding the design high water elevation.
- [ ] Provide emergency storm water relief swales at all low points. The swale shall be sized to carry the 15yr/20min storm with one (1) foot of freeboard to the low sill of the building.
- [ ] Provide an undisturbed drainage easement and creek bank setbacks for any existing creeks that are to remain in the development. (Ordinance #5271–Section 405.247)
- [ ] All developments are required to provide long term post construction BMP's such as; low impact design, source controls and treatment controls that protects water quality and controls run off to the maximum extent practical. (Ordinance 5082-Section 405.245) Indicate on the plans how this site will be in compliance with the Phase II Illicit Storm water discharge guidelines.
- [ ] Provide calculations for all Post Construction Best Management Practices.
- [ ] Provide a maintenance schedule for all Post Construction Best Management Practices.

Profile Requirements

- [ ] The minimum pipe size for sanitary mains shall be 8" with one (1) percent slopes. Sanitary laterals shall be a minimum of 4" with two (2) percent slopes. Sanitary sewer pipe slopes may be reduced per MSD requirements.
- [ ] The minimum requirements for storm sewers shall be 12" pipe diameter and one (1) percent pipe slope or a velocity of three (3) feet per second.
- [ ] No flat based structures are allowed. The flow lines of incoming and outgoing storm sewers and sanitary sewers shall maintain a 0.20' drop through the structure.
- [ ] All storm sewers shall have 36" minimum cover. All sanitary sewers shall have a minimum of 42" cover.
- [ ] All structures and flared end sections shall be concrete. H.D.P.E pipe will not be allowed for detention basin outflows or final pipe run to creek discharge.
- [ ] The flow line of any flared end section draining into a lake shall be at or above the normal water elevation of the lake.
- [ ] When the sanitary main enters a drop structure, 20 feet of ductile iron pipe with granular backfill within the disturbed area below the sanitary main will be required. Drop manholes must be 48" I.D. minimum.
- [ ] Encase with concrete both sanitary and storm sewer at crossing when storm sewer is within 18 inches above sanitary sewer. Add concrete cradle to only RCP storm sewer and encase HDPE storm sewer when it is more than 18 inches above sanitary line. Provide 20 feet of ductile iron pipe where the sanitary main crosses over storm sewer lines.
- [ ] Sanitary mains at creek crossing must be concrete encased ductile iron pipe.
- [ ]

Sanitary manholes built within the 100 year flood plain limits must have lock-type watertight manhole covers.

- [ ] Add rock backfill to all storm and sanitary sewers that lie within the 1:1 shear plane of the road.
- [ ] Concrete cradle or encasement shall be required when pipe slopes exceed twenty (20) percent. Pipe slopes greater than fifty (50) percent will require special approval for the design.
- [ ] Provide anti-seepage collars on the outflow pipes from all lakes.
- [ ] Show the lake depth and normal pool elevation (as necessary) and the design high water elevations of all required storms on the profile sheets.

Detail Requirements

- [ ] Provide a detail of a typical lot resubdivision for any proposed villa units.
- [ ] Provide a vegetative establishment table showing seeding, mulch and fertilizer rates and optimum seeding dates following St. Charles County Soil and Water Conservation District Erosion and Sediment Control guidelines.
- [ ] Provide details for all siltation control devices (silt fences, sediment basins, etc.) following St. Charles County Soil and Water Conservation District Erosion and Sediment Control guidelines.
- [ ] Include an enlarged entrance detail (1"=20') for all proposed intersections with existing streets. This should include spot elevations on both the centerline and edge of the intersecting road, a saw cut line, all necessary dimensions and rounding elevations. Provide a detail of the proposed pavement within the existing right-of-way. Provide sight lines, in plan and profile form, for all proposed streets intersecting with existing streets.
- [ ] The pavement depth and composition of proposed subdivision streets intersecting existing streets within the existing right-of-way shall be in accordance with the Comprehensive plan.
- [ ] Provide typical pavement sections for all types of pavement.
- [ ] Provide a note with the concrete details stating "All non-reinforced concrete shall be 4,000 p.s.i. at 28 days."
- [ ] Provide a note with the asphalt details stating "The asphalt surface shall be compacted to 98% maximum density."
- [ ] Residential streets shall be a minimum of 6" P.C. concrete over 4" rock base on compacted subgrade per ordinance number 4875. This ordinance number shall be placed next to the typical roadway section.
- [ ] Provide typical pavement details, showing jointing and curbing placement and construction.
- [ ] Provide details for all proposed traffic calming within the development.
- [ ] Provide the City of O'Fallon street name identification sign placement detail.
- [ ] Provide a driveway detail showing all construction joints, including 2" expansion joints at the curb and garage ends of the driveway.
- [ ] Provide a concrete sidewalk detail with joint spacing shown.
- [ ] Provide details for handicap ramps that comply with Americans with Disabilities Act Accessibility Guidelines.
- [ ] Truncated Domes for curb ramps located in public right of way shall meet ADA requirements and shall be constructed using red pre cast truncated domes such as those manufactured by Armor Tile or approved equal.

- [ ] Provide a multi-use trail detail (when required) showing a minimum of 3" Type "C" Asphalt over a 4" aggregate base.
- [ ] Provide a temporary turnaround detail when required.
- [ ] Provide a typical yard swale detail and calculations using the 15yr/20min storm frequency.
- [ ] Provide a typical lot detail showing side and rear yard flow patterns. Slopes shall be a minimum of two (2) percent away from the building.
- [ ] Provide details for water main construction, including details for fire hydrants, valves, thrust blocks, etc. All water valve boxes shall be cast iron.
- [ ] Provide details and manufacturing specifications for H.D.P.E pipe.
- [ ] Provide a note on the detail sheets that a 5/8" trash bar shall be centered within the opening(s) of all inlets.
- [ ] Remove any reference to brick construction for manholes or inlets and pre-cast concrete inlet or manhole covers.
- [ ] Provide a detail of all proposed fences.

Additional Information Required

- [ ] Provide hydraulic calculations for all proposed storm sewers and include inlet capacities for each structure. Provide Two (2) foot of free board from the hydraulic grade line to the sill of all Area Inlets, Curb Inlets and Manhole tops.
- [ ] Include on the Hydraulic Sheet(s) and on the Construction Plans a minimum of two (2) pipe runs downstream of the proposed connection(s) to off-site storm sewers and indicate the pipe capacities of the offsite storm sewer system being connected to.
- [ ] All culverts shall meet the City of O'Fallon guidelines. Entrance control shall be checked with a minimum of two (2) feet of freeboard to the shoulder line.

Detention Requirements

- [ ] Provide detention basin calculations for the 2, 15 and 25 year 20 minute storms within the initial phase of development. Maximum ponding elevation shall be calculated using the 100 year low flow blocked. For sites located within the Belleau Creek or the Peruque Creek watersheds, the 100 year, 20 minute storm must be detained. No credit will be given for areas of the detention basin below the base flood elevation.
- [ ] Provide pre-development and post development drainage area maps, including off-site areas, with the detention calculations.
- [ ] The P.I. values and Detention Basin quantity calculations shall match the Drainage Area Plan.
- [ ] Provide a detail and hydraulic calculations for the vegetated swale in the detention basin. The swale shall be designed to hold the 2-year 20 minute storm and have a minimum 1% longitudinal slope and be lined with a permanent erosion control blanket that will allow infiltration of the storm water.
- [ ] All detention basins shall be designed to hold two years of sediment storage without jeopardizing the required detention storage and freeboard. Provide sediment storage calculations in the detention report.
- [ ] Provide a detail and hydraulic calculations for the vegetated swale in the detention basin. The swale shall be designed to hold the 2-year 20 minute storm and have a minimum 1% longitudinal slope and be lined with a permanent erosion control blanket that will allow infiltration of the storm water.

- [ ] Provide the minimum required depth and normal water elevation for all proposed lakes in the Detention Report.
- [ ] Provide three (3) cross sections, tied to the property line, through each detention basin. As-Builts will be required for all cross sections prior to final approval of the detention basin(s). Provide a detail of the outfall structure(s) on the plan and in the detention report.
- [ ] Spillway discharge for wet detention basins shall be designed to safely pass the required storms. A cross section of the spillway shall be shown on the plans with elevations of the required storms.

Floodplain Information

- [ ] Provide a completed Floodplain Development Application from the City of O'Fallon for any work proposed within the floodplain limits. A no-rise certificate signed, sealed and dated by a Missouri Registered Professional Engineer will be required prior the issuance of a Floodplain Development Permit for any activity within the Floodway.
- [ ] Provide a copy of the US Army Corps of Engineers 404 permit and Missouri Department of Natural Resources 401 permit, or provide a letter of no permit required.
- [ ] Demonstrate compliance with Article 415 of the City Code, specifically compensatory storage for any fill placed in the special flood hazard area.
- [ ] Show the proposed and existing floodplain and floodway limits with base flood elevation on the plan.
- [ ] Provide a LOMR from FEMA for any land removed from the floodplain. Any cost to the City due to public notification or letters required by FEMA, to be sent by or published by the City will be reimbursed by the developer.
- [ ] Provide a list of any lots that will be within the floodplain after the proposed grading. An elevation certificate signed, sealed and dated by a Missouri Registered Professional Engineer will be required showing that all structures will have a lowest floor elevation a minimum of one (1) foot above the base flood elevation.

Retaining Walls

- [ ] Provide a wall on the plan view with the following information:
  - Top of wall and bottom of wall ground elevations.
  - Storm water drainage away from or around wall. Storm water shall not flow over wall.
  - Walls in excess of 6' (30" when supporting a walking surface) shall have a 4' high fence or handrail on top.
  - Existing and proposed grades.
- [ ] Provide a wall profile with the following information:
  - Top of wall and footing elevations.
  - Show the steps in the footing.
  - Location of the geogrid designated on the profile.
  - Existing and proposed grades.
- [ ] Provide details of any proposed retaining walls.
- [ ] Provide retaining wall structural calculation with a 1.5 overturn factor of safety, per IBC code, signed, sealed and dated by a Missouri Registered Professional Engineer.

City of O'Fallon – Engineering Department
100 North Main Street
O'Fallon, Missouri 63366
www.ofallon.mo.us
636.379.5556

Commercial Construction Site Plan Application

(Please Type or Print)

Subject Property Information:

Property Location:

Name of Proposed Site:

Site Area: Grading Plan Permit # Date

Date of P&Z Approval: Current Zoning:

Contact Information:

Applicant:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

Property Owner:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

24 hour Emergency Contact:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

Engineer:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

This *Commercial Construction Site Plan Application and Checklist* outlines the items typically addressed with an initial submittal of a *Commercial Construction Site Plan.* This checklist is a guide to the generally required information on a *Commercial Construction Site Plan*, but may not be inclusive of all the information that may be required to meet City Code. Please refer to *Chapter 405: Subdivision and Land Development Code*, of the O'Fallon *Municipal Code* for specific plan requirements.

_____ _____
Applicant Signature Date

_____ _____
Owner's Signature Date

OFFICE USE ONLY

Date of Initial Submittal: _____ Permit No.: _____ Application Fee Amount: $_____ Date Paid: _____

Escrow Amount (from approved Cost Estimate): $_____ Date Escrow received: _____

MDNR Land Disturbance Permit required for sites 1 acre and larger: Provided (Y) (N) (N/A), Expiration Date _____

Application (Approved/Denied) by: _____ Date: _____ Permit Expiration Date: _____

Application Fee: Two percent (2%) of the approved estimated cost of improvements for the development as reviewed by the Engineering Department and due prior to plan approval.

After approval of the applicable site plan, preliminary plat or area plan and prior to City Council approval of the record plat, construction plans prepared by an engineer for the site or subdivision of all, or a specified stage, of the tract shall be submitted to the City Engineer. If substantive changes are to be made after approval of the construction plans, the City Engineer shall require revised plans to be submitted for approval.

Staff will conduct a comprehensive review of the applicant's submission of three (3) sets of plans and provide a listing of any items that will need to be corrected, modified, or amended in order to meet the City of O'Fallon standards and specifications as outline in Chapter 405: Subdivision and Land Development, of the O'Fallon Municipal Code. The *Commercial Construction Site Plans* will only be approved once all outstanding items have been addressed including the recording of any off-site easements or off-site Right of Way dedications to the satisfaction of the Engineering Department. Approvals that are required by other Municipal, County or State agencies which have jurisdiction in the area shall provide written confirmation of their approvals to the City prior to Final Approval of the Construction Plans by the City of O'Fallon. **In all cases first submittal must include the required sets of Construction Plans along with the *Commercial Construction Site Plan Application* with original signatures and a completed checklist or it will be rejected.**

The application shall be accompanied by the following information:

- ☐ Provide an estimated cost of improvements for the development to be approved. "*Improvements*" shall include any structural, material or physical change incident to servicing or furnishing facilities for the site, such as, but not limited to, the removal of trees and other vegetative cover, altering the natural or existing grade, siltation control, sediment basins, revegetation of the site, the installation of streets, curbs and gutters, installation and removal of temporary turnarounds, necessary offsite roadway improvements, traffic signals, traffic control signs, street name signs, street lights, sidewalks and handicap ramps, multi-purpose trails, any on-site and off-site water mains and appurtenances, proposed lift stations, force mains, access roads, sanitary sewer mains, wyes, manholes and any other necessary items to complete the sanitary system, storm sewer mains, catch inlets, culverts, bridges, outfall structures, detention facilities, lakes, waterways, canals, trees and landscaping, parking lot pavement and curbing, wheel stops, trash enclosures and any other improvements required or deemed necessary with the approved *Construction Site Plan*.

- ☐ This cost shall be estimated using the cost estimate calculator as published and updated by the City of O'Fallon. Items not in the cost estimate calculator will be estimated by the Consulting Engineer and reviewed and approved by the City of O'Fallon. The cost estimate calculator can be found at www.ofallon.mo.us/pubs/apps/Engineers_Estimate.xls.

The construction of all site or subdivision improvements shall be completed within two (2) years of the City Engineer's approval of the construction plans. Time extensions may be granted by the Community Development Department for those developments showing good cause as to why the improvements have not been completed. If construction under the approved construction plan is to continue beyond the two (2) year period, the developer must request an extension of the approved plan and provide for extending the escrow or other surety on the project prior to the expiration of the plan, otherwise work on the project must cease. Any request for an extension under this Section that is denied by City staff can be appealed to the Planning and Zoning Commission. The developer may request a period of construction longer than two (2) years with the initial approval at the Planning and Zoning Commission meeting by providing a suitable explanation for the request. On projects with an extended construction period, suitable escrows must be provided for the extended period. If construction is not actively pursued during the course of the extended period of construction approval (beyond the initial two (2) year period), the City may cancel the extension with thirty (30) days written notice to the developer. Any cancelled extension under this Section may be appealed to the Planning and Zoning Commission.

The following information is required for all *Commercial Construction Site Plan* submittals for approval. The required information may be combined for presentation on one (1) or more drawings or maps. The City Engineer may request that the information be presented on drawings or maps in addition to those submitted in the interest of clarity, speed and efficiency in the review process. Below is a listing of items that are to be addressed on all *Commercial Construction Site Plan* submittals to the Engineering Division for review.

Commercial Construction Site Plan Application

CHECKLIST
(In the space provided, indicate which Sheet the item is located)

General Requirements

- [ ] The construction plan shall be any scale from 1 inch = 10 feet through 1 inch = 100 feet, so long as the scale is an increment of ten (10) feet and is sufficiently clear in reflecting details of the proposed construction. Construction plans shall be prepared on exhibits twenty-three and one-half (23½) inch by thirty-four and one-half (34½) inch with north arrow and scale indicated. The site plan or title page shall be used as the cover sheet for the construction plan.
- [ ] The submittal shall include all general notes and specifications, site plan(s), grading plan(s) with existing and proposed contours, water plan(s) and drainage area map(s) showing acreage of existing drainage areas to existing discharge points of the site and proposed drainage areas with acreage to each detention basin(s) and all details necessary for construction. Include profile sheets for streets, storm sewers and sanitary sewers.
- [ ] Prior to Construction Plan approval, provide copies of approval letters or necessary permits from all responsible reviewing agencies including, but not limited to, the appropriate fire protection district, school district, water supply district, sanitary sewer district, MoDOT, Army Corps of Engineers and/or Missouri Department of Natural Resources.
- [ ] Prior to Construction Plan approval, provide a recorded copy of all required off-site easements necessary to cover sanitary sewers, storm sewers, water mains, detention facilities or any other utility for this development.
- [ ] Provide right-of-way warranty deeds required with this development.
- [ ] Provide a copy of any easements required with this development.
- [ ] All plans, details and reports shall be sealed, signed with original signature (not stamped) and dated by a Registered Professional Engineer. (Per MO Econ. Dev. Requirement)

General Construction Plan Notes

- [ ] Provide a location map of the site on the cover sheet with north arrow and scale indicated.
- [ ] Add notes stating the development phase area, number of proposed lots and building setback information.
- [ ] Provide the reference benchmark and site benchmark that is used on the Cover Sheet. The benchmarks used to tie in elevation information shall be on U.S.G.S. datum. The site benchmark shall be shown on the plan sheets.
- [ ] Provide the City of O'Fallon construction working hours to the plans per City Ordinance 3429 as shown in Section 500.420 of the Municipal Code of the City of O'Fallon as follows:

  Construction work shall only be allowed during the following hours:

  October 1 -- May 31
  - 7:00 A.M. to 7:00 P.M. — Monday—Sunday

  June 1 -- September 30
  - 6:00 A.M. to 8:00 P.M. — Monday—Friday
  - 7:00 A.M. to 8:00 P.M. — Saturday and Sunday

  Construction work to be done outside of these hours requires prior written approval from the City Administrator or City Engineer.
- [ ] Provide tree preservation calculations.
- [ ] Provide a listing of all utility companies and contact information serving the development. The City of O'Fallon shall also be contacted for utility locates under its maintenance responsibility. For water main, sanitary sewer and storm sewer locates, contact 636-281-2858, for traffic locates, contact 636-379-5602. Contact the Engineering Division at 636-379-5556 and the Construction Inspection Division at 636-379-5596.
- [ ] Add the following statement to the general notes: City approval of the construction site plans does not mean that any building can be constructed on the lots without meeting the building setbacks as required by the Zoning Code.
- [ ] Note the appropriate F.I.R.M. panel number, flood zone and latest revision date for the property.
- [ ] Provide parking calculations per ordinance requirements.
- [ ]

Provide a note stating, "All proposed utilities and/or utility relocations shall be located underground."

☐ List the requirements and conditions of approval from the Planning and Zoning Commission on the cover sheet.

☐ Provide the Planning and Development Division file number and the date the plan was approved by the Planning and Zoning Commission in lower right corner of the Cover Sheet.

☐ Provide a note stating, "If materials such as trees, organic debris, rubble, foundations and other deleterious material are not to be reused, they shall be removed from the site and disposed of in compliance with all applicable laws and regulations." If the materials listed previously are reused, a letter from a soils engineer must clarify amount, location, depth, etc and be approved with the construction plans. Landfill tickets for such disposal shall be maintained on file by the developer. Burning on site shall be allowed only by permit from the local fire district. If a burn pit is proposed the location and mitigation shall be shown on the grading plan and documented by the soils engineer.

☐ Provide a note stating, "No slopes shall exceed 3 (horizontal): 1 (vertical)."

☐ Provide a note stating, "All fill placed under proposed storm and sanitary sewers, proposed roads and/or paved areas shall be compacted to 90% of maximum density as determined by the Modified AASHTO T-180 Compaction Test or 95% of maximum density as determined by the Standard Proctor Test AASHTO T-99. All fill placed in proposed roads shall be compacted from the bottom of the fill up. All tests shall be verified by a soils engineer concurrent with grading and backfilling operations." Moisture content of the soil in fill areas is to correspond to the compactive effort as defined by the Standard or Modified Proctor Test. Optimum moisture content shall be determined using the same test that was used for compaction. Soil compaction curves shall be submitted to the City of O'Fallon prior to the placement of fill. Proof rolling may be required to verify soil stability at the discretion of the City of O'Fallon.

☐ Provide a note stating, "Developer must supply City construction inspectors with an Engineer's soil reports prior to and during site soil testing." The soils report will be required to contain the following information on soil test curves (Proctor reports) for projects within the City:

- Maximum dry density.
- Optimum moisture content.
- Maximum and minimum allowable moisture content.
- Curve must be plotted to show density from a minimum of 90% as determined by the "Modified AASHTO T-180 Compaction Test" (A.S.T.M.-D-1157) or from a minimum of 95% as determined by the "Standard Proctor Test AASHTO T-99, Method C" (A.S.T.M.-D-698). Proctor type must be designated on the document.
- Curve must have at least 5 density points with moisture content and sample locations listed on document.
- Specific gravity.
- Natural moisture content.
- Liquid limit.
- Plastic limit.

Be advised that if this information is not provided to the City's Construction Inspector the City will not allow grading or construction activities to proceed on any project site.

☐ Provide a note stating, "The Permittee shall assume complete responsibility for controlling all siltation and erosion of the project area. The Permittee shall use whatever means necessary to control erosion and siltation including, but not limited to, staked straw bales and/or siltation fabric fences (possible methods of control are detailed in the plan). Control shall commence with the clearing operations and be maintained throughout the project until acceptance of the work by the City of O'Fallon and as necessary by MoDOT. The Permittee's responsibilities include all design and implementation as required to prevent erosion and the depositing of silt. The City of O'Fallon and as required by MoDOT may at their option direct the Permittee in his methods as deemed fit to protect property and improvements. Any depositing of silt or mud on new or existing pavement shall be removed immediately. Any depositing of silts or mud in new or existing storm sewers or swales shall be removed after each rain and affected areas cleaned to the satisfaction of the City of O'Fallon and as required by MoDOT."

- [ ] Provide a note stating, "All erosion control systems are inspected and corrected weekly, especially within 48 hours of any rainstorm resulting in one-half inch of rain or more. Any silt or debris leaving the site and affecting public rights-of-ways or storm water drainage facilities shall be cleaned up within 24 hours after the end of the storm."
- [ ] Provide a note stating, "Any existing wells and/or springs which may exist on the property must be sealed in a manner acceptable to the City of O'Fallon Construction Inspection Department and following Missouri Department of Natural Resources standards and specifications."
- [ ] Provide a note stating, "All paving to be in accordance with St. Charles County standards and specifications except as modified by the City of O'Fallon ordinances."
- [ ] Provide a note stating, "Sidewalks, curb ramps and accessible parking spaces shall be constructed in accordance with currently approved Americans with Disabilities Act Accessibility Guidelines along with the required grades, signage, specifications and construction materials. If any conflict occurs between the above information and the plans, the ADAAG guidelines shall be followed and the contractor, prior to any construction, shall notify the Project Engineer."
- [ ] Provide a note stating, "All installations and construction shall conform to the approved engineering drawings. However, if the developer chooses to make minor modifications in design and/or specifications during construction, he/she shall make such changes at his/her own risk, without any assurance that the City Engineer will approve the completed installation or construction. It shall be the responsibility of the developer to notify the City Engineer of any changes from the approved drawings. The developer may be required to correct the installed improvements so as to conform to the approved engineering drawings. The developer may request a letter from the Construction Inspection Division regarding any field changes approved by the City inspectors.
- [ ] Provide a note stating, "Traffic control is to be per MoDOT or MUTCD whichever is more stringent."
- [ ] Provide a note stating, "All traffic signals, street signs, sign post, backs and bracket arms shall be painted black using Carboline Rustbond Penetrating Sealer SG and Carboline 133 HB paint (or equivalent as approved by the City of O'Fallon and MoDOT).
- [ ] Note that all sanitary laterals and sanitary mains crossing under pavement must have proper rock backfill and required compaction.
- [ ] Include a note stating that "Lighting values will be reviewed on site prior to the final occupancy inspection."
- [ ] Note the estimated sanitary flow in gallons per day on the plan.
- [ ] Provide a note stating, "Connections at all sanitary or storm structures to be made with A-lock joint or equal."
- [ ] Provide a note stating, "Brick shall not be used in the construction of sanitary or storm sewer structures". Pre-cast concrete structures are to be used unless otherwise approved by the City.
- [ ] Provide a note stating, "All concrete pipes will be installed with O-ring rubber type gaskets."
- [ ] Provide a note stating, "HDPE pipe is to be N-12WT or equal and to meet ASTM F1417 water tight field test."
- [ ] Provide the Water Jetting specifications as a note as shown in Section 405.210(D)(1).
- [ ] Provide a note stating, "Rip-rap shown at flared ends will be evaluated in the field by the Engineer, Contractor and City Inspector after installation for effectiveness and field modified, if necessary, to reduce erosion on and off-site."
- [ ] Provide a marking on the storm sewer inlets. The City will allow the following markers and adhesive procedures only as shown in the table below or an approved equal. 'Peel and stick' adhesive pads will not be allowed.

Manufacturer	Size	Adhesive	Style	Message (Part #)	Website
ACP International	3 7/8"	Epoxy	Crystal Cap	No Dumping Drains To Waterways (SD-W-CC)	www.acpinternational.com
DAS Manufacturing, Inc.	4"	Epoxy	Standard Style	No Dumping Drains To Stream (#SDS)	www.dasmanufacturing.com

- [ ]

Provide a note stating, "A 5/8" trash bar shall be centered within the opening(s) of all curb inlets and area inlets."

- [ ] Provide a note stating, "All identification or directional sign(s) must have the locations and sizes approved and permitted separately through the Planning and Development Division."
- [ ] Include a note stating that "No graded areas are to remain bare for over 14 days without being seeded and mulched."
- [ ] Provide a note stating, "All proposed fencing requires a separate permit from the Planning & Development Division."

Construction Plan Requirements (Site Plan, Grading Plan, Water Plan, Drainage Area Plan)

- [ ] If the existing road does not have a curb, the new entrance curb shall begin 10' from the edge of existing pavement.
- [ ] Show the locations of all existing entrances on both sides of the street, within 300 feet of any proposed entrance.
- [ ] Show the limits of any cross access easements required for this development on the plan.
- [ ] All street stub-outs over 250' in length will require a temporary turnaround.
- [ ] Provide any construction signage required for any work proposed within the right-of-way.
- [ ] Label handicap ramps and types at all intersections.
- [ ] Show the locations with stationing of all Type "A" joints.
- [ ] Show the locations of all proposed traffic calming within the development.
- [ ] Show the proposed traffic control sign layout. Signs designating street names shall be placed on the top of the traffic control signs. Provide a striping plan for cross walks as necessary.
- [ ] Show proposed streetlight locations and approximate location of the conduit system (for the street lights). Pedestals, junction boxes and transformers associated with the street lights can be shown on the as-builts. Streetlights should be located at all intersections and in cul-de-sacs. Placement of street lights shall be on the extension of the property line between the curb and sidewalk a maximum of three hundred (300) feet apart.
- [ ] Show the location of a multi-use trail (when required) on the plans.
- [ ] Provide a plan showing the placement of all required trees. This includes street trees and any trees placed within common areas to fulfill the tree preservation requirements.
- [ ] Provide pavement striping at any point where the multi-use trail crosses existing or proposed pavement.
- [ ] Provide the location of the temporary construction entrance and parking area.
- [ ] Grades for entrances should not exceed 2% at walks and 4% for the street. Typically 2% from the back of curb to the right of way is desired.
- [ ] Indicate how the site will be served by electric.
- [ ] Beginning at the existing pavement, provide a 20' wide x 50' long aggregate wash off area using 2" clean rock, approximately 6" deep for use during construction. If placed at points of ingress or egress, width shall not be less than full width of proposed pavement. Include a detail in the plans. Provide a note to the plans and detail, "If water is not available, a water truck will be provided."
- [ ] Provide site triangle and line of sight easements at all intersections with existing and proposed roads.
- [ ] Provide entrance monument easements, as necessary, at all entrances. The entrance monument easement shall not be located within the sight triangle or line of site easement at intersections.
- [ ] If stub streets are planned for future extensions, the pavement for those streets shall be extended as close to the property line as possible to allow for grading and drainage. On-site grading easements shall be provided on the proposed lots adjacent to the stub street right-of-way to allow for future grading in conjunction with the connection of the stub street.
- [ ] Show the location and size of all existing water mains. Provide a water main layout, with size of main, tees, valves, blow-offs, etc. per City of O'Fallon specifications. City water mains shall have 42" minimum cover.

- [ ] Show the location of the nearest existing fire hydrant and any fire hydrants proposed for the development. Fire hydrant spacing shall not exceed 600' or 300' from any proposed building.
- [ ] Show water meter locations for sites within the City of O'Fallon Water District.
- [ ] Show the location of any existing wells, cisterns and/or springs on the property or provide a note that no wells, cisterns and/or springs exist on the property.
- [ ] Show the location of all siltation control devices (silt fences, sediment basins, etc.) following St. Charles County Soil and Water Conservation District Erosion and Sediment Control guidelines.
- [ ] All swales shall be a minimum of two (2) percent. Provide spot elevations of the swale at each property line to show positive drainage. Flow patterns shall be shown on both the grading plan and drainage area map.
- [ ] Use the City's P.I. factors (Section 405.230) for the drainage area calculations.
- [ ] Label all bypass flows on the drainage area map. Bypass flows shall be limited to 0.25 c.f.s. maximum.
- [ ] No more than one (1) c.f.s of storm water (bypass included) may pass through an intersection.
- [ ] All storm sewers, sanitary sewers and/or water mains shall be a minimum of ten (10) feet from the front of any existing or proposed building (front building line).
- [ ] Water mains, storm sewers and sanitary sewers shall run diagonally across side yard lot lines to maximize the typical side yard easement.
- [ ] All storm sewers, sanitary sewers and water mains shall cross the pavement perpendicular to the centerline. Offsets up to 15 degrees may be considered. Pipe runs and connections under street pavement shall be the minimum needed.
- [ ] Provide clean-outs for all sanitary laterals over 100' and for all bends in the laterals.
- [ ] Provide Drainage structures in swales when surface flow exceeds three (3) cubic feet per second.
- [ ] The discharge point of all flared end sections shall be protected by rip rap or other approved means. Provide calculations showing velocity reductions.
- [ ] Provide a 20' wide access strip to the detention basin.
- [ ] Show the normal water elevation and minimum depth for all proposed lakes.
- [ ] Show the proposed high water elevations for all required storms, including 100 year low flow blocked. Provide a 20' drainage easement surrounding the design high water elevation.
- [ ] Provide emergency storm water relief swales at all low points. The swale shall be sized to carry the 15yr/20min storm with one (1) foot of freeboard to the low sill of the building.
- [ ] Provide an undisturbed drainage easement and creek bank setbacks for any existing creeks that are to remain in the development. (Ordinance #5271--Section 405.247)
- [ ] All developments are required to provide long term post construction BMP's such as; low impact design, source controls and treatment controls that protects water quality and controls run off to the maximum extent practical. (Ordinance 5082-Section 405.245) Indicate on the plans how this site will be in compliance with the Phase II Illicit Storm water discharge guidelines.
- [ ] Provide calculations for all Post Construction Best Management Practices.
- [ ] Provide a maintenance schedule for all Post Construction Best Management Practices.
- [ ] Provide the appropriate number of handicap parking spaces with a minimum of one space being a van accessible space. Handicap parking spaces are to be 9' wide with a 5' or 8' striped loading aisle.
- [ ] Provide an executed copy of the Stormwater BMP Maintenance Agreement.
- [ ] Dimension all parking spaces a minimum of 9' wide and 19' long and the drive aisle a minimum of 25' wide.

Profile Requirements

- [ ] The minimum pipe size for sanitary mains shall be 8" with one (1) percent slopes. Sanitary laterals shall be a minimum of 6" with two (2) percent slopes. Sanitary sewer pipe slopes may be reduced per MSD requirements.
- [ ] The minimum requirements for storm sewers shall be 12" pipe diameter and one (1) percent pipe slope or a velocity of three (3) feet per second.
- [ ] No flat based structures are allowed. The flow lines of incoming and outgoing storm sewers and sanitary sewers shall maintain a 0.20' drop through the structure.
- [ ] All storm sewers shall have 36" minimum cover. All sanitary sewers shall have a minimum of 42" cover.
- [ ] All structures and flared end sections shall be concrete. H.D.P.E pipe will not be allowed for detention basin outflows or final pipe run to creek discharge.
- [ ] The flow line of any flared end section draining into a lake shall be at or above the normal water elevation of the lake.
- [ ] When the sanitary main enters a drop structure, 20 feet of ductile iron pipe with granular backfill within the disturbed area below the sanitary main will be required. Drop manholes must be 48" I.D. minimum.
- [ ] Encase with concrete both sanitary and storm sewer at crossing when storm sewer is within 18 inches above sanitary sewer. Add concrete cradle to only RCP storm sewer and encase HDPE storm sewer when it is more than 18 inches above sanitary line. Provide 20 feet of ductile iron pipe where the sanitary main crosses over storm sewer lines.
- [ ] Sanitary mains at creek crossing must be concrete encased ductile iron pipe.
- [ ] Sanitary manholes built within the 100 year flood plain limits must have lock-type watertight manhole covers.
- [ ] Add rock backfill to all storm and sanitary sewers within 10 ft. of the edge of pavement and that lie within the 1:1 shear plane of the road.
- [ ] Concrete cradle or encasement shall be required when pipe slopes exceed twenty (20) percent. Pipe slopes greater than fifty (50) percent will require special approval for the design.
- [ ] Provide anti-seepage collars on the outflow pipes from all lakes.
- [ ] Show the lake depth and normal pool elevation (as necessary) and the design high water elevations of all required storms on the profile sheets.
- [ ] Label all sanitary and storm profiles as public or private.

Detail Requirements

- [ ] Provide a vegetative establishment table showing seeding, mulch and fertilizer rates and optimum seeding dates following St. Charles County Soil and Water Conservation District Erosion and Sediment Control guidelines.
- [ ] Provide details for all siltation control devices (silt fences, sediment basins, etc.) following St. Charles County Soil and Water Conservation District Erosion and Sediment Control guidelines.
- [ ] Include an enlarged entrance detail for all proposed intersections with existing streets. This should include spot elevations on both the centerline and edge of the intersecting road, a saw cut line, all necessary dimensions and rounding elevations. Provide a detail of the proposed pavement within the existing right-of-way. Provide sight lines, in plan and profile form, for all proposed streets intersecting with existing streets. Note that pavement removal is to be to the nearest joint.
- [ ] The pavement depth and composition of proposed streets intersecting existing streets within the existing right-of-way shall be in accordance with the Comprehensive plan.
- [ ] Provide typical pavement sections for all types of pavement. The minimum allowable asphalt pavement section for parking lots is 3" of Type C asphalt over an 8" rock base. All parking lot drive aisles are to be a minimum of 4" of Type C asphalt over an 8" rock base.
- [ ] Provide a note with the concrete details stating "All non-reinforced concrete shall be 4,000 p.s.i. at 28 days."
- [ ]

Provide a note with the asphalt details stating "The asphalt surface shall be compacted to 98% maximum density."

- [ ] All entrance pavement sections within the right of way shall be a minimum of 7" PCC Pavement on a compacted 4" rock base or are to match the pavement thickness of the adjoining street which ever is greater, unless otherwise approved with the site plan.
- [ ] Provide typical pavement details, showing jointing and curbing placement and construction.
- [ ] Provide details for all proposed traffic calming within the development.
- [ ] Provide the City of O'Fallon street name identification sign placement detail.
- [ ] Provide handicap parking signs with a fine legend of $50-$300 shown.
- [ ] Provide a concrete sidewalk detail with joint spacing shown.
- [ ] Provide details for handicap ramps that comply with Americans with Disabilities Act Accessibility Guidelines.
- [ ] Truncated Domes for curb ramps located in public right of way shall meet ADA requirements and shall be constructed using red pre cast truncated domes such as those manufactured by Armor Tile or approved equal.
- [ ] Provide a multi-use trail detail (when required) showing a minimum of 3" Type "C" Asphalt over a 4" aggregate base.
- [ ] Provide a temporary turnaround detail when required.
- [ ] Provide a flared end section detail noting that cutoff walls are 2' deep upstream and 3' deep downstream.
- [ ] Provide a trench detail for all sanitary sewers, storm sewers and water mains. City sanitary sewers and water mains are required to have 12" of rock over the top of the pipe.
- [ ] Provide details for water main construction, including details for fire hydrants, valves, thrust blocks, etc. All water valve boxes shall be cast iron.
- [ ] Provide details and manufacturing specifications for H.D.P.E pipe.
- [ ] Provide a note on the detail sheets that a 5/8" trash bar shall be centered within the opening(s) of all inlets.
- [ ] Remove any reference to brick construction for manholes or inlets and pre-cast concrete inlet or manhole covers.
- [ ] Provide a detail of all proposed fences.
- [ ] Provide a detail of the trash enclosure. The screening walls around the trash enclosure shall reflect the same level of architectural design as the primary structure.

Additional Information Required

- [ ] Provide hydraulic calculations for all proposed storm sewers and include inlet capacities for each structure. Provide Two (2) foot of free board from the hydraulic grade line to the sill of all Area Inlets, Curb Inlets and Manhole tops.
- [ ] Include on the Hydraulic Sheet(s) and on the Construction Plans a minimum of two (2) pipe runs downstream of the proposed connection(s) to off-site storm sewers and indicate the pipe capacities of the offsite storm sewer system being connected to.
- [ ] All culverts shall meet the City of O'Fallon guidelines. Entrance control shall be checked with a minimum of two (2) feet of freeboard to the shoulder line. (Check inlet and outlet control)

Detention Requirements

- [ ] Provide detention basin calculations for the 2, 15 and 25 year 20 minute storms within the initial phase of development. Maximum ponding elevation shall be calculated using the 100 year low flow blocked. For sites located within the Belleau Creek or the Peruque Creek watersheds, the 100 year, 20 minute storm must be detained. No credit will be given for areas of the detention basin below the base flood elevation.
- [ ] Provide pre-development and post development drainage area maps, including off-site areas, with the detention calculations.
- [ ]

The P.I. values and Detention Basin quantity calculations shall match the Drainage Area Plan.

- [ ] Provide a detail and hydraulic calculations for the vegetated swale in the detention basin. The swale shall be designed to hold the 2-year 20 minute storm and have a minimum 1% longitudinal slope and be lined with a permanent erosion control blanket that will allow infiltration of the storm water.
- [ ] All detention basins shall be designed to hold two years of sediment storage without jeopardizing the required detention storage and freeboard. Provide sediment storage calculations in the detention report.
- [ ] Provide the minimum required depth and normal water elevation for all proposed lakes in the Detention Report.
- [ ] Provide three (3) cross sections, tied to the property line, through each detention basin. As-Builts will be required for all cross sections prior to final approval of the detention basin(s). Provide a detail of the outfall structure(s) on the plan and in the detention report.
- [ ] Spillway discharge for wet detention basins shall be designed to safely pass the required storms. A cross section of the spillway shall be shown on the plans with elevations of the required storms.

Floodplain Information

- [ ] Provide a completed Floodplain Development Application from the City of O'Fallon for any work proposed within the floodplain limits. A no-rise certificate signed, sealed and dated by a Missouri Registered Professional Engineer will be required prior the issuance of a Floodplain Development Permit for any activity within the Floodway.
- [ ] Provide a copy of the US Army Corps of Engineers 404 permit and Missouri Department of Natural Resources 401 permit, or provide a letter of no permit required.
- [ ] Demonstrate compliance with Article 415 of the City Code, specifically compensatory storage for any fill placed in the special flood hazard area.
- [ ] Show the proposed and existing floodplain and floodway limits with base flood elevation on the plan as shown on the effective FIRM.
- [ ] Provide a LOMR from FEMA for any land removed from the floodplain. Any cost to the City due to public notification or letters required by FEMA, to be sent by or published by the City will be reimbursed by the developer.
- [ ] An elevation certificate signed, sealed and dated by a Missouri Registered Professional Engineer will be required showing that all structures will have a lowest floor elevation a minimum of one (1) foot above the base flood elevation.

Retaining Walls

- [ ] Provide a wall on the plan view with the following information:
  - Top of wall and bottom of wall ground elevations.
  - Storm water drainage away from or around wall. Storm water shall not flow over wall.
  - Walls in excess of 6' (30" when supporting a walking surface) shall have a 4' high fence or handrail on top.
  - Existing and proposed grades.
- [ ] Provide a wall profile with the following information:
  - Top of wall and footing elevations.
  - Show the steps in the footing.
  - Location of the geogrid designated on the profile.
  - Existing and proposed grades.
- [ ] Provide details of any proposed retaining walls.
- [ ] Provide retaining wall structural calculation with a 1.5 overturn factor of safety, per IBC code, signed, sealed and dated by a Missouri Registered Professional Engineer.

CITY OF O'FALLON, MISSOURI
FLOOD PLAIN DEVELOPMENT PERMIT/APPLICATION
City Ordinance 1437, 1987 & 2030, 1992 & 3401, 1996, 1998, 4538, 4974

Date _____ Permit Number _____

Name of Applicant _____

Mailing Address _____

Telephone Number _____

1. Permit is for: (Check one)

- ❑ Filling
- ❑ Paving
- ❑ Grading
- ❑ Drilling
- ❑ Building, Fencing
- ❑ Subdivision
- ❑ Excavating
- ❑ Other Development
- ❑ New Construction*
- ❑ Substantial Improvement* (Greater than 50% of Value)
- ❑ Addition to Existing Building*

*Elevation Certification needed

$_____Value of Building before Improvement

$_____Value of Improvement

2. Location of Development _____
3. Indicate the F.I.R.M. panel(s) this site is located within: _____

   Flood Zone: _____ Map Revision Date: _____
4. Is the site within a Floodway area? _____ If yes, certification that the proposed development will cause no increase in the 100-year flood elevation must be provided before approval.
5. Elevation of Flood Plain _____Feet above sea level.
6. Elevation of Development Site _____Feet above sea level.
7. Is proposed use residential? Yes _____ No _____ Other _____
   Elevation or Flood Proofing requirement _____ft.

SUBDIVISION PROPOSALS MUST ATTACH ADDITIONAL INFORMATION:

- ❑ Original site contours showing existing drainage and watercourses, buildings and other development.
- ❑ Plan for grading showing new contours, new drainage, altered watercourses, removal of buildings or other development, roads.
- ❑ Limits of floodway and flood plain as found on the F.I.R.M. panel listed above
- ❑ Locations and lowest floor elevations of proposed buildings.
- ❑ Other site data needed by City or County for elevation (fire hydrants, sanitary sewerage)

OTHER PERMITS REQUIRED?

- ❑ Corps of Engineers (Section 404, Clean Water Act, for dredging, filling, channel changes in/or beside rivers.)
- ❑ State of Missouri (State Highway Curb Cut; DNR, NPDES Permit or Section 401, CWA, Water Quality Certification.)
- ❑ Local Special District (Levee Crossing Permit.)
- ❑ Other:_____

ALL PROVISIONS OF THE CITY OF O'FALLON FLOODPLAIN REGULATION ORDINANCE 4974SHALL BE COMPLIED WITH.

_____ _____
Signature of Applicant or Certified Agent Date

_____ _____
Signature of Authorizing City Official Date

Name _____ Title _____

City of O'Fallon Planning and Development Department

100 North Main Street
O'Fallon, Missouri 63366
www.ofallon.mo.us

For additional information send inquiries to:
E-mail: tcoffman@ofallon.mo.us or call (636) 379-5544

Area Plan Application - Planned Developments

OFFICE USE ONLY

Date of Initial Submittal: _____ Case No.: _____ Application Fee $300.00 Paid: _____

Subject Property Information (Please Type or Print all requested information):

Property Location (Including Address, if applicable): _____

Proposed Use of Property: _____

Current Zoning: _____ Proposed Zoning (If Applicable): _____

Type of Proposed Planned Development: ___Environmental Protection___Redevelopment___Special Exception

Contact Information:

Applicant:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

E-mail: _____

Property Owner:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

E-mail: _____

Contract Purchaser (if applicable):

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

Email: _____

Engineer:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

Email: _____

_____ _____
Applicant Signature Date

_____ _____
Owner Signature Date

Area Plan Application - Planned Developments

This Area Plan Application and Checklist outlines the items typically addressed with an initial submittal of a Area Plan. This checklist is a guide to the generally required information on a Area Plan, but may not be inclusive of all the information that may be required to meet City Code. Please refer to Title IV: Land Use Chapter of the O'Fallon Municipal Code for more specific and detailed requirements.

APPLICATION SUBMITTAL INFORMATION

- ☐ An application fee of $300.00, remitted in full. Fees shall to be paid regardless of Final Plan approval. All documentation submitted as part of this application shall be turned into Staff fully assembled in individual packets that are sorted, collated, and folded. The applicant will be billed for the cost of the Legal Notice advertising the required Public Hearing before the Planning and Zoning Commission, plus a $0.62 mailing fee for the notification of each adjacent property owner within a 300' radius of the subject site.

- ☐ Provide a Legal Description of the site (both a printed copy and an electronic copy).

- ☐ The submittal of the site plan application shall include five (5) folded and collated sets of plans. These plans shall be prepared on sheets that are a maximum of twenty-three and one-half (23½) inch by thirty-four and one-half (34½) inch in size.

- ☐ Within a week and a half of receipt of the application, City Staff will send an email to all parties listed on this application with a report listing comments and issues that need to be addressed in order to meet City standards. You will then be asked to revise the plans and resubmit revised Site Plans. For the 2nd submittal, ten (10) folded and collated sets of plans are required.

- ☐ As part of the revised 2nd submittal, written responses as to how you have addressed each of the comment items shall be provided. If the applicant fails to address all of the noted items on their 2nd submittal, the submission may not be brought before the Planning and Zoning Commission.

- ☐ An electronic *pdf* version of both the initial submittal site plan sheets and the revised 2nd submittal site plans sheets shall be emailed to tcoffman@ofallon.mo.us

- ☐ If the underlying Zoning District is proposed to be Rezoned/Zoned, provide a completed and signed Rezoning application per the requirements of Article XVI of the Zoning Code.

- ☐ Provide a written correspondence which: 1) identifies the type of proposed Planned Development and how it meets the Qualifying Objectives for this type of Planned Development outlined within Section 400.170 of Article V of the Zoning Code, 2) identifies why the proposed development cannot be constructed utilizing the City's conventional Zoning District and/or Subdivision and Land Development Code regulations, 3) includes a comparison table which identifies the exact Zoning District and/or Subdivision and Land Development Code regulations proposed to be modified per the permitted modifications outlined within Section 400.175(B) and 400.175(C) of Article V of the Zoning Code and the corresponding requirements within the underlying Zoning District and/or Subdivision and Land Development Code, 4) identifies any proposed minor variations from the approved Area Plan per the allowances of Section 400.200(E) of Article V of the Zoning Code, and 5) identifies how the proposed Planned Development is in conformance with the City's adopted Comprehensive Plan.

- ☐ Provide a copy of the *Trust Indentures, Covenants*, or *Deed Restrictions* in accordance with Section 405.350 of the *Subdivision and Land Development Code* that address the maintenance of common ground, recreational amenities, storm water detention, private roads and parking lots, and other regulations pertaining to the buildings and structures within the proposed *Planned Development.*

- ☐ For a proposed *Environmental Protection Planned Development*, provide a copy of the Conservation Easement that will permanently protect the environmentally-sensitive areas of the site.

- ☐ Provide letters from the applicable School District (s), Fire Protection District (s), Potable Water District (s), and Sanitary Sewer District (s) that verify that they have the capacity to provide service to the proposed *Planned Development*.

- ☐ Provide a letter from the St. Charles County Planning Department approving the name of the proposed *Planned Development* and all proposed street names.

- ☐ Provide on the plans a comparison table which identifies the exact *Zoning District and/or Subdivision and Land Development Code* regulations proposed to be modified per the permitted modifications outlined within Section 400.175 (B) and 400.175 (C) of Article V of the Zoning Code and the corresponding requirement within the underlying *Zoning District* and/or Subdivision and *Land Development Code*.

- ☐ Provide the total gross land area of the proposed Planned Development in acres. Provide a breakdown of the total gross area by proposed land uses types. Proposed Planned Developments which include residential uses shall provide a breakdown of the number of residential units for each housing type, density calculations, the average lot size, and size of the ten (10) smallest lots.

- ☐ Identify all land areas to be dedicated and reserved for public use and areas to be dedicated as common ground under the control of a Homeowner's Association.

- ☐ Provide Typical Sections and a Lot Data Table for all proposed residential lot sizes and types within the proposed *Planned Development* (including perimeter lots subject to the minimum lot size requirements of Section 400.175 (G) of Article V of the *Zoning Code*). Indicate proposed lots which are susceptible to street creep. Typically, these lots are: 1) at the end of tangent sections, 2) across from "T" intersections, and 3) on the outside of radii regardless of whether they are uphill or downhill from these areas. Indicate proposed lots which will have rear walk-outs.

- ☐ Proposed *Environmental Protection Planned Developments* shall provide a separate *Environmentally-Sensitive Area Protection Plan* that demonstrates compliance with the requirements of Section 400.175 (F) of Article V of the *Zoning Code*.

- ☐ Provide the Traffic Study (if applicable) that was deemed necessary by the Planning and Development Department and was included in the review of the Area Plan for the site of the proposed Planned Development and the surrounding area. If a condition of approval of the Area Plan was to provide a Traffic Study for the site of the proposed Planned Development and the surrounding area as part of the Final Plan application, provide said Traffic Study.

- ☐ A area plan layout designed by qualified land planner, registered professional architect, engineer or land surveyor, with their stamp, signature, and address, that shall contain a complete set of notations and descriptions that supply the City Staff with all relevant site information including but not limited to: Total site area; site coverages; owner/developer; zoning, proposed use, utilities provided, flood plain information; required calculations (parking, landscape, etc); and any additional information needed to demonstrate compliance with all applicable codes, requirements, and restrictions. Multiple drawings may be required for clarity.

- ☐ Provide a North Arrow and a scale on each page of the submittal. The scale shall be: One (1) inch equals 20 feet through One (1) inch equals 200 feet (no greater or less than specified). Indicate on the Plan.

Area Plan Application - Planned Developments

- ☐ A site location map that shows site in relation with the surrounding area.
- ☐ Boundary Dimensions, including; distances and bearings of the subject property, correlated with the legal description of said property.
- ☐ Name and address of property owner and developer.
- ☐ Natural features, such as trees, tree masses, streams, dry river beds, rivers, lakes, ponds, wetlands, floodplains and floodways, drains, topography (at least at Five (5) foot intervals, when terrain is irregular or drainage critical, contours will be at Two (2) foot intervals) and other similar features.
- ☐ Show existing and proposed 100-yr. floodplain and floodway boundaries (where applicable) and include a note stating whether the site is within or outside the 100-yr. floodplain and reference the applicable FIRM map panel number and date. Where the floodplain is proposed to be altered, the application must contain approval from FEMA for the alteration.
- ☐ Delineate wetlands subject to United States Corp of Engineers (COE) regulations. Appropriate documentation of coordination with the COE shall be provided.
- ☐ Existing manmade features, such as buildings, structures, easements, high tension towers, power lines, excavations, bridges, culverts and drains. Also indicate any easements on site that these items may be located within.
- ☐ Identify adjacent properties, their existing uses and zoning, within 100 yards.
- ☐ Location of proposed structures, including fences, signs, etc.
- ☐ Proposed finished floor and grade line elevations
- ☐ Size of proposed main and accessory buildings.
- ☐ All site coverages, building, paving, and green space, shall be shown as a percentage of the total area of the site and shall be listed on the plans.
- ☐ Indicate how storm water detention requirements will be addressed.
- ☐ Note and show setback requirements on the plan.
- ☐ Note and show bufferyards and method(s) of screening on the plan, where required.
- ☐ All HVAC and mechanical units on site shall be properly screened as required by City Code. Rooftop units shall be screened by a parapet wall that extends around the entire perimeter of the building; the parapet shall have a minimum height that is at least as tall as the tallest unit mounted on the roof; ground mounted HVAC and mechanical units shall be screened by fencing, vegetation, or some other means (approved by the Planning and Zoning Commission) that has a minimum height that is at least as tall as the tallest unit being screened.
- ☐ Identify any existing structures to remain on site and what their uses will be.
- ☐ Height of all buildings and structures.
- ☐ Provide colored building elevations of all four sides of the proposed building and indicate the types of building materials. If these are not part of the second submittal this item may not be placed on the agenda for the Planning and Zoning Meeting.

- ☐ Proposed streets, driveways, sidewalks and other vehicular and pedestrian circulation features within and adjacent to the site, include dimensions of circulation features.
- ☐ Label parking spaces required, showing all supporting calculations. In addition, the site plan shall demonstrate, with appropriate labels and markings, that all parking spaces and loading zones, especially those designed for handicapped accessibility, are of sufficient width and depth (including all adjacent lane stripping and ramp access routes) to meet all zoning and ADA requirements.
- ☐ Label Loading/Unloading spaces, showing all supporting calculations. Show the location of service lanes and loading spaces, and provide dimensions.
- ☐ Existing utilities, public and private, such as water, sanitary sewer, storm sewer, electrical, gas, etc. and indicate location and size.
- ☐ Proposed utilities, including location and size.
- ☐ Conceptual approval for utilities outside of City service shall be submitted.
- ☐ Existing and proposed fire hydrants within 300 feet of the property.
- ☐ Lighting detail, including cut sheets, location, height of freestanding poles and method of screening light source to keep from overflow onto adjacent properties and right-of-ways.
- ☐ Chapter 402 of the *Zoning Code* provides the requirements for landscaping and screening on a developing site, using these requirements, construct a detailed landscape plan, with a full legend or key, that shows the location, number, and types, of plant materials required based on linear street frontage, zoning district, parking lot, and bufferyard landscape requirements. Supporting calculations demonstrating compliance with these requirements shall be included on the landscape plans.
- ☐ Article III of Chapter 402 of the *Municipal Code* provides the formula used to determine the number of trees that must be maintained on site to comply with the *Tree Preservation Requirements.* Using this formula, calculate the correct number of trees preserved or the number of replacement trees to be planted in order to meet the City standard, and show these calculations on the plans. In addition, provide a map showing the location of the trees to be removed and the trees to remain and include this with the landscape plan.
- ☐ Proposed alterations to the topography and natural features of the site.
- ☐ Location and type of trash pick-up proposed. Provide a detail of the proposed trash enclosure. The enclosure shall consist of a six-foot high solid wall with a sight proof vinyl gate consistent with the architectural theme of the primary structure on site.
- ☐ Provide one (1) bicycle parking space for every 15 automobile parking spaces, with a minimum of four (4) per building. Bicycle parking shall be located in close proximity to the building entrance in highly visible, well lighted areas. Bicycle parking facilities shall be securely anchored to the ground so that they cannot be easily removed and shall be of sufficient strength to resist vandalism and theft. A detail of the rack shall be provided with the plans.
- ☐ All signage shall be approved through the Planning Division via a separate permitting process.
- ☐ Details for all proposed improvements shall be submitted with the Final Plan.
- ☐ Demonstrate compliance with Article XIII of the *Zoning Code*, Performance Standards.

- ☐ Conformance with the City's adopted *Comprehensive Plan.*

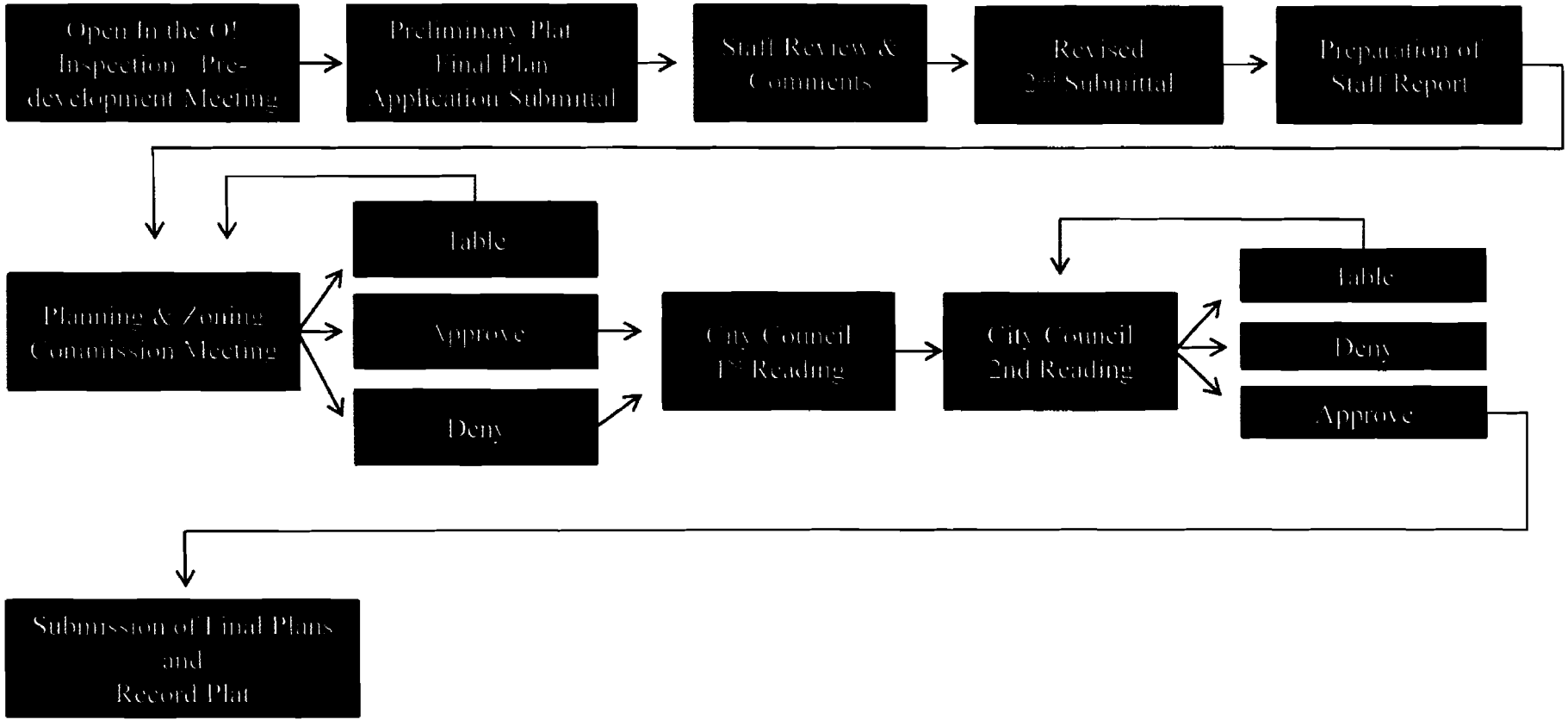
- ☐ A *Material and Color Sample Board* shall be presented by the applicant and/or their authorized or designated representatives(s) during the formal presentation of the *Site Plan* to the Planning and Zoning Commission. The *Material and Color Sample Board* should show all exterior materials, finishes, treatments, and colors (keyed to the *Colored Building Elevations*). For materials such as roof tile, decorative tile and trim, photographs or manufacturer's specification sheet of the material clearly showing the textures, colors, etc., may be presented in place of the actual material samples.

- ☐ Any other information deemed necessary by the Planning and Zoning Commission; or any additional information deemed necessary by the Director of Planning and Development to adequately illustrate the proposed development.

Please Note:

- Prior to approval of the *Planned Unite Development*, a *Final Plan (s)* must be reviewed and approved by City Staff. Outstanding *Municipal Code Requirements* and conditions of approval of the *Revised Area Plan* shall be addressed on *Final Plans (s).* In addition, the appropriate Fire District will need to review and approve the development.
- Prior to construction on any residential lot in the subdivision, a *Display House Plat* must be reviewed and approved by the Planning and Zoning Commission or the *Record Plat* must be approved by the City Council. In addition, the Building Safety Division must review and approve the required Building Permits.
- Any business occupying the site requires approval of a *Business License.*

Area Plan Process



*The applicant or another representative must attend all Planning and Zoning Commission and City Council Meetings.

City of O'Fallon Planning and Development Department

100 North Main Street
O'Fallon, Missouri 63366
www.ofallon.mo.us

For additional information send inquiries to:
E-mail: tcoffman@ofallon.mo.us or call (636) 379-5544

Site Plan Application

OFFICE USE ONLY

Date of Initial Submittal: _____ Case No.: _____ Application Fee $150.00 Paid: _____

Subject Property Information (Please Type or Print all requested information):

Property Location (Including Address, if applicable): _____

Proposed Use of Property: _____

Current Zoning: _____ Proposed Zoning (If Applicable): _____

Contact Information:

Applicant:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

E-mail: _____

Property Owner:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

E-mail: _____

Contract Purchaser (if applicable):

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

Email: _____

Engineer:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

Email: _____

_____ _____
Applicant Signature Date

_____ _____
Owner Signature Date

Site Plan Application

This Site Plan Application and Checklist outlines the items typically addressed with an initial submittal of a Site Plan. This checklist is a guide to the generally required information on a Site Plan, but may not be inclusive of all the information that may be required to meet City Code. Please refer to Title IV: Land Use Chapter of the O'Fallon Municipal Code for more specific and detailed requirements.

APPLICATION SUBMITTAL INFORMATION

- ☐ An application fee of $150.00, remitted in full. Fees shall to be paid regardless of Site Plan approval. All documentation submitted as part of this application shall be turned into Staff fully assembled in individual packets that are sorted, collated, and folded.

- ☐ The submittal of the site plan application shall include five (5) folded and collated sets of plans. These plans shall be prepared on sheets that are a maximum of twenty-three and one-half (23½) inch by thirty-four and one-half (34½) inch in size.

- ☐ Within a week and a half of receipt of the application, City Staff will send an email to all parties listed on this application with a report listing comments and issues that need to be addressed in order to meet City standards. You will then be asked to revise the plans and resubmit revised Site Plans. For the 2nd submittal, ten (10) folded and collated sets of plans are required.

- ☐ As part of the revised 2nd submittal, written responses as to how you have addressed each of the comment items shall be provided. If the applicant fails to address all of the noted items on their 2nd submittal, the submission may not be brought before the Planning and Zoning Commission.

- ☐ An electronic *pdf* version of both the initial submittal site plan sheets and the revised 2nd submittal site plans sheets shall be emailed to tcoffman@ofallon.mo.us

- ☐ A *Site Plan* designed by qualified land planner, registered professional architect, engineer or land surveyor, with their stamp, signature, and address, that shall contain a complete set of notations and descriptions that supply the City Staff with all relevant site information including but not limited to: Total site area; site coverages; owner/developer; zoning, proposed use, utilities provided, flood plain information; required calculations (parking, landscape, etc); and any additional information needed to demonstrate compliance with all applicable codes, requirements, and restrictions. Multiple drawings may be required for clarity.

- ☐ Provide a North Arrow and a scale on each page of the submittal. The scale shall be: One (1) inch equals 20 feet through One (1) inch equals 200 feet (no greater or less than specified). Indicate on the Plan.

- ☐ A site location map that shows site in relation with the surrounding area.

- ☐ Boundary Dimensions, including; distances and bearings of the subject property, correlated with the legal description of said property.

- ☐ Name and address of property owner and developer.

- ☐ Natural features, such as trees, tree masses, streams, dry river beds, rivers, lakes, ponds, wetlands, floodplains and floodways, drains, topography (at least at Five (5) foot intervals, when terrain is irregular or drainage critical, contours will be at Two (2) foot intervals) and other similar features.

- ☐ Show existing and proposed 100-yr. floodplain and floodway boundaries (where applicable) and include a note stating whether the site is within or outside the 100-yr. floodplain and reference the applicable FIRM map panel number and date. Where the floodplain is proposed to be altered, the application must contain approval from FEMA for the alteration.

Site Plan Application

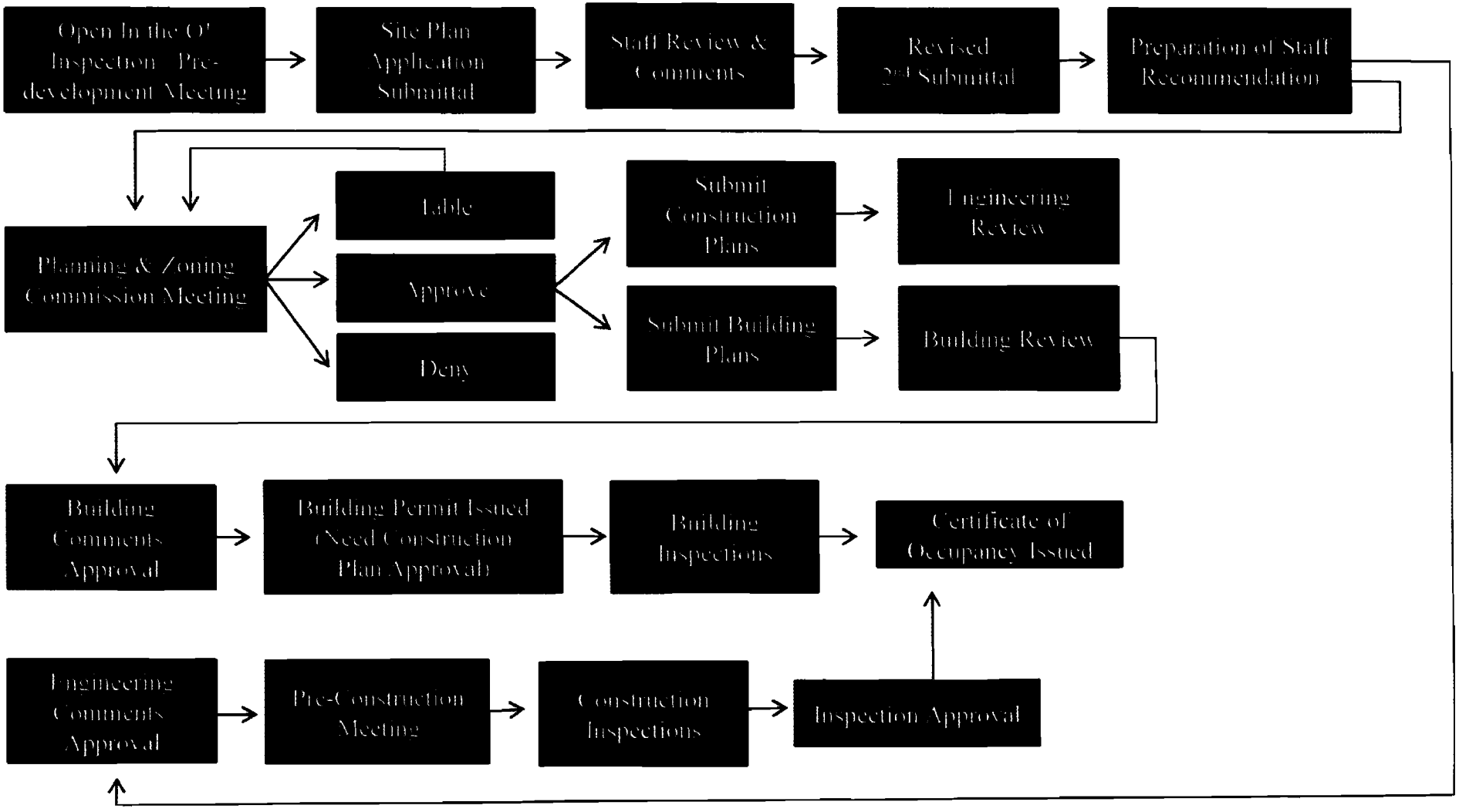
- ☐ Delineate wetlands subject to United States Corp of Engineers (COE) regulations. Appropriate documentation of coordination with the COE shall be provided.
- ☐ Existing manmade features, such as buildings, structures, easements, high tension towers, power lines, excavations, bridges, culverts and drains. Also indicate any easements on site that these items may be located within.
- ☐ Identify adjacent properties, their existing uses and zoning, within 100 yards.
- ☐ Location of proposed structures, including fences, signs, etc.
- ☐ Proposed finished floor and grade line elevations
- ☐ Size of proposed main and accessory buildings.
- ☐ All site coverages, building, paving, and green space, shall be shown as a percentage of the total area of the site and shall be listed on the plans.
- ☐ Indicate how storm water detention requirements will be addressed.
- ☐ Note and show setback requirements on the plan.
- ☐ Note and show bufferyards and method(s) of screening on the plan, where required.
- ☐ All HVAC and mechanical units on site shall be properly screened as required by City Code. Rooftop units shall be screened by a parapet wall that extends around the entire perimeter of the building; the parapet shall have a minimum height that is at least as tall as the tallest unit mounted on the roof; ground mounted HVAC and mechanical units shall be screened by fencing, vegetation, or some other means (approved by the Planning and Zoning Commission) that has a minimum height that is at least as tall as the tallest unit being screened.
- ☐ Identify any existing structures to remain on site and what their uses will be.
- ☐ Height of all buildings and structures.
- ☐ Provide colored building elevations of all four sides of the proposed building and indicate the types of building materials. If these are not part of the second submittal this item may not be placed on the agenda for the Planning and Zoning Meeting.
- ☐ Proposed streets, driveways, sidewalks and other vehicular and pedestrian circulation features within and adjacent to the site, include dimensions of circulation features.
- ☐ Label parking spaces required, showing all supporting calculations. In addition, the site plan shall demonstrate, with appropriate labels and markings, that all parking spaces and loading zones, especially those designed for handicapped accessibility, are of sufficient width and depth (including all adjacent lane stripping and ramp access routes) to meet all zoning and ADA requirements.
- ☐ Label Loading/Unloading spaces, showing all supporting calculations. Show the location of service lanes and loading spaces, and provide dimensions.
- ☐ Existing and proposed utilities, public and private, such as water, sanitary sewer, storm sewer, electrical, gas, etc. and indicate location and size. Conceptual approval for utilities outside of City service shall be submitted.
- ☐ Existing and proposed fire hydrants within 300 feet of the property.

- ☐ Lighting detail, including cut sheets, location, height of freestanding poles and method of screening light source to keep from overflow onto adjacent properties and right-of-ways.
- ☐ Chapter 402 of the *Zoning Code* provides the requirements for landscaping and screening on a developing site, using these requirements, construct a detailed landscape plan, with a full legend or key, that shows the location, number, and types, of plant materials required based on linear street frontage, zoning district, parking lot, and bufferyard landscape requirements. Supporting calculations demonstrating compliance with these requirements shall be included on the landscape plans.
- ☐ Article III of Chapter 402 of the *Municipal Code* provides the formula used to determine the number of trees that must be maintained on site to comply with the *Tree Preservation Requirements.* Using this formula, calculate the correct number of trees preserved or the number of replacement trees to be planted in order to meet the City standard, and show these calculations on the plans. In addition, provide a map showing the location of the trees to be removed and the trees to remain and include this with the landscape plan.
- ☐ Proposed alterations to the topography and natural features of the site.
- ☐ Location and type of trash pick-up proposed. Provide a detail of the proposed trash enclosure. The enclosure shall consist of a six-foot high solid wall with a sight proof vinyl gate consistent with the architectural theme of the primary structure on site.
- ☐ Provide one (1) bicycle parking space for every 15 automobile parking spaces, with a minimum of four (4) per building. Bicycle parking shall be located in close proximity to the building entrance in highly visible, well lighted areas. Bicycle parking facilities shall be securely anchored to the ground so that they cannot be easily removed and shall be of sufficient strength to resist vandalism and theft. A detail of the rack shall be provided with the plans.
- ☐ All signage shall be approved through the Planning Division via a separate permitting process.
- ☐ Details for all proposed improvements shall be submitted with the Site Plan.
- ☐ Demonstrate compliance with Article XIII of the *Zoning Code*, Performance Standards.
- ☐ Conformance with the City's adopted *Comprehensive Plan.*
- ☐ A *Material and Color Sample Board* shall be presented by the applicant and/or their authorized or designated representatives(s) during the formal presentation of the *Site Plan* to the Planning and Zoning Commission. The *Material and Color Sample Board* should show all exterior materials, finishes, treatments, and colors (keyed to the *Colored Building Elevations*). For materials such as roof tile, decorative tile and trim, photographs or manufacturer's specification sheet of the material clearly showing the textures, colors, etc., may be presented in place of the actual material samples.
- ☐ Any other information deemed necessary by the Planning and Zoning Commission; or any additional information deemed necessary by the Director of Planning and Development to adequately illustrate the proposed development.

Please Note:

- Prior to approval of a *Building Permit*, a *Construction Site Plan* must be reviewed and approved by City Staff. Outstanding *Municipal Code Requirements* and conditions of approval of the *Site Plan* shall be addressed on *Construction Site Plans.* In addition, the appropriate Fire District will need to review and approve the development.
- Any business occupying the site requires approval of a *Business License.*

Site Plan Review Process



The applicant or another representative must attend the City Council Meetings

City of O'Fallon Planning and Development Department

100 North Main Street
O'Fallon, Missouri 63366
www.ofallon.mo.us

For additional information send inquiries to:
E-mail: tcoffman@ofallon.mo.us or call (636) 379-5544

Final Plan Application - Planned Developments

OFFICE USE ONLY

Date of Initial Submittal: _____ Case No.: _____ Application Fee $300.00 Paid: _____

Subject Property Information (Please Type or Print all requested information):

Property Location (Including Address, if applicable): _____

Proposed Use of Property: _____

Current Zoning: _____ Proposed Zoning (If Applicable): _____

Type of Proposed Planned Development: ___Environmental Protection___Redevelopment___Special Exception

Contact Information:

Applicant:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

E-mail: _____

Property Owner:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

E-mail: _____

Contract Purchaser (if applicable):

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

Email: _____

Engineer:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

Email: _____

_____ _____
Applicant Signature Date

_____ _____
Owner Signature Date

Final Plan Application - Planned Developments

This Final Plan Application and Checklist outlines the items typically addressed with an initial submittal of a Final Plan. This checklist is a guide to the generally required information on a Final Plan, but may not be inclusive of all the information that may be required to meet City Code. Please refer to Title IV: Land Use Chapter of the O'Fallon Municipal Code for more specific and detailed requirements.

APPLICATION SUBMITTAL INFORMATION

- ☐ An application fee of $300.00, remitted in full. Fees shall to be paid regardless of Final Plan approval. All documentation submitted as part of this application shall be turned into Staff fully assembled in individual packets that are sorted, collated, and folded. The applicant will be billed for the cost of the Legal Notice advertising the required Public Hearings before the Planning and Zoning Commission and City Council, plus a $0.62 mailing fee for the notification of each adjacent property owner within a 300'radius of the subject site.
- ☐
- ☐ Provide a Legal Description of the site (both a printed copy and an electronic copy).
- ☐ The submittal of the site plan application shall include five (5) folded and collated sets of plans. These plans shall be prepared on sheets that are a maximum of twenty-three and one-half (23½) inch by thirty-four and one-half (34½) inch in size.
- ☐ Within a week and a half of receipt of the application, City Staff will send an email to all parties listed on this application with a report listing comments and issues that need to be addressed in order to meet City standards. You will then be asked to revise the plans and resubmit revised Site Plans. For the 2nd submittal, ten (10) folded and collated sets of plans are required.
- ☐ As part of the revised 2nd submittal, written responses as to how you have addressed each of the comment items shall be provided. If the applicant fails to address all of the noted items on their 2nd submittal, the submission may not be brought before the Planning and Zoning Commission for consideration.
- ☐ An electronic *pdf* version of both the initial submittal site plan sheets and the revised 2nd submittal site plans sheets shall be emailed to tcoffman@ofallon.mo.us
- ☐ If the underlying Zoning District is proposed to be Rezoned/Zoned, provide a completed and signed Rezoning application per the requirements of Article XVI of the Zoning Code.
- ☐ Provide a written correspondence which: 1) identifies the type of proposed Planned Development and how it meets the Qualifying Objectives for this type of Planned Development outlined within Section 400.170 of Article V of the Zoning Code, 2) identifies why the proposed development cannot be constructed utilizing the City's conventional Zoning District and/or Subdivision and Land Development Code regulations, 3) includes a comparison table which identifies the exact Zoning District and/or Subdivision and Land Development Code regulations proposed to be modified per the permitted modifications outlined within Section 400.175(B) and 400.175(C) of Article V of the Zoning Code and the corresponding requirements within the underlying Zoning District and/or Subdivision and Land Development Code, 4) identifies any proposed minor variations from the approved Area Plan per the allowances of Section 400.200(E) of Article V of the Zoning Code, and 5) identifies how the proposed Planned Development is in conformance with the City's adopted Comprehensive Plan.
- ☐ Provide a copy of the *Trust Indentures, Covenants*, or *Deed Restrictions* in accordance with Section 405.350 of the *Subdivision and Land Development Code* that address the maintenance of common ground, recreational amenities, storm water detention, private roads and parking lots, and other regulations pertaining to the buildings and structures within the proposed *Planned Development.*

- ☐ For a proposed *Environmental Protection Planned Development*, provide a copy of the Conservation Easement that will permanently protect the environmentally-sensitive areas of the site.

- ☐ Provide letters from the applicable School District (s), Fire Protection District (s), Potable Water District (s), and Sanitary Sewer District (s) that verify that they have the capacity to provide service to the proposed *Planned Development*.

- ☐ Provide a letter from the St. Charles County Planning Department approving the name of the proposed *Planned Development* and all proposed street names.

- ☐ Provide on the plans a comparison table which identifies the exact *Zoning District and/or Subdivision and Land Development Code* regulations proposed to be modified per the permitted modifications outlined within Section 400.175 (B) and 400.175 (C) of Article V of the Zoning Code and the corresponding requirement within the underlying *Zoning District* and/or Subdivision and *Land Development Code*.

- ☐ Provide the total gross land area of the proposed Planned Development in acres. Provide a breakdown of the total gross area by proposed land uses types. Proposed Planned Developments which include residential uses shall provide a breakdown of the number of residential units for each housing type, density calculations, the average lot size, and size of the ten (10) smallest lots.

- ☐ Identify all land areas to be dedicated and reserved for public use and areas to be dedicated as common ground under the control of a Homeowner's Association.

- ☐ Provide Typical Sections and a Lot Data Table for all proposed residential lot sizes and types within the proposed *Planned Development* (including perimeter lots subject to the minimum lot size requirements of Section 400.175 (G) of Article V of the *Zoning Code*). Indicate proposed lots which are susceptible to street creep. Typically, these lots are: 1) at the end of tangent sections, 2) across from "T" intersections, and 3) on the outside of radii regardless of whether they are uphill or downhill from these areas. Indicate proposed lots which will have rear walk-outs.

- ☐ Proposed *Environmental Protection Planned Developments* shall provide a separate *Environmentally-Sensitive Area Protection Plan* that demonstrates compliance with the requirements of Section 400.175 (F) of Article V of the *Zoning Code*.

- ☐ Provide the Traffic Study (if applicable) that was deemed necessary by the Planning and Development Department and was included in the review of the Area Plan for the site of the proposed Planned Development and the surrounding area. If a condition of approval of the Area Plan was to provide a Traffic Study for the site of the proposed Planned Development and the surrounding area as part of the Final Plan application, provide said Traffic Study.

- ☐ A final plan layout designed by qualified land planner, registered professional architect, engineer or land surveyor, with their stamp, signature, and address, that shall contain a complete set of notations and descriptions that supply the City Staff with all relevant site information including but not limited to: Total site area; site coverages; owner/developer; zoning, proposed use, utilities provided, flood plain information; required calculations (parking, landscape, etc); and any additional information needed to demonstrate compliance with all applicable codes, requirements, and restrictions. Multiple drawings may be required for clarity.

- ☐ Provide a North Arrow and a scale on each page of the submittal. The scale shall be: One (1) inch equals 20 feet through One (1) inch equals 200 feet (no greater or less than specified). Indicate on the Plan.

- ☐ A site location map that shows site in relation with the surrounding area.
- ☐ Boundary Dimensions, including; distances and bearings of the subject property, correlated with the legal description of said property.
- ☐ Name and address of property owner and developer.
- ☐ Natural features, such as trees, tree masses, streams, dry river beds, rivers, lakes, ponds, wetlands, floodplains and floodways, drains, topography (at least at Five (5) foot intervals, when terrain is irregular or drainage critical, contours will be at Two (2) foot intervals) and other similar features.
- ☐ Show existing and proposed 100-yr. floodplain and floodway boundaries (where applicable) and include a note stating whether the site is within or outside the 100-yr. floodplain and reference the applicable FIRM map panel number and date. Where the floodplain is proposed to be altered, the application must contain approval from FEMA for the alteration.
- ☐ Delineate wetlands subject to United States Corp of Engineers (COE) regulations. Appropriate documentation of coordination with the COE shall be provided.
- ☐ Existing manmade features, such as buildings, structures, easements, high tension towers, power lines, excavations, bridges, culverts and drains. Also indicate any easements on site that these items may be located within.
- ☐ Identify adjacent properties, their existing uses and zoning, within 100 yards.
- ☐ Location of proposed structures, including fences, signs, etc.
- ☐ Proposed finished floor and grade line elevations
- ☐ Size of proposed main and accessory buildings.
- ☐ All site coverages, building, paving, and green space, shall be shown as a percentage of the total area of the site and shall be listed on the plans.
- ☐ Indicate how storm water detention requirements will be addressed.
- ☐ Note and show setback requirements on the plan.
- ☐ Note and show bufferyards and method(s) of screening on the plan, where required.
- ☐ All HVAC and mechanical units on site shall be properly screened as required by City Code. Rooftop units shall be screened by a parapet wall that extends around the entire perimeter of the building; the parapet shall have a minimum height that is at least as tall as the tallest unit mounted on the roof; ground mounted HVAC and mechanical units shall be screened by fencing, vegetation, or some other means (approved by the Planning and Zoning Commission) that has a minimum height that is at least as tall as the tallest unit being screened.
- ☐ Identify any existing structures to remain on site and what their uses will be.
- ☐ Height of all buildings and structures.
- ☐ Provide colored building elevations of all four sides of the proposed building and indicate the types of building materials. If these are not part of the second submittal this item may not be placed on the agenda for the Planning and Zoning Meeting.

- ☐ Proposed streets, driveways, sidewalks and other vehicular and pedestrian circulation features within and adjacent to the site, include dimensions of circulation features.
- ☐ Label parking spaces required, showing all supporting calculations. In addition, the site plan shall demonstrate, with appropriate labels and markings, that all parking spaces and loading zones, especially those designed for handicapped accessibility, are of sufficient width and depth (including all adjacent lane stripping and ramp access routes) to meet all zoning and ADA requirements.
- ☐ Label Loading/Unloading spaces, showing all supporting calculations. Show the location of service lanes and loading spaces, and provide dimensions.
- ☐ Existing utilities, public and private, such as water, sanitary sewer, storm sewer, electrical, gas, etc. and indicate location and size.
- ☐ Proposed utilities, including location and size.
- ☐ Conceptual approval for utilities outside of City service shall be submitted.
- ☐ Existing and proposed fire hydrants within 300 feet of the property.
- ☐ Lighting detail, including cut sheets, location, height of freestanding poles and method of screening light source to keep from overflow onto adjacent properties and right-of-ways.
- ☐ Chapter 402 of the *Zoning Code* provides the requirements for landscaping and screening on a developing site, using these requirements, construct a detailed landscape plan, with a full legend or key, that shows the location, number, and types, of plant materials required based on linear street frontage, zoning district, parking lot, and bufferyard landscape requirements. Supporting calculations demonstrating compliance with these requirements shall be included on the landscape plans.
- ☐ Article III of Chapter 402 of the *Municipal Code* provides the formula used to determine the number of trees that must be maintained on site to comply with the *Tree Preservation Requirements.* Using this formula, calculate the correct number of trees preserved or the number of replacement trees to be planted in order to meet the City standard, and show these calculations on the plans. In addition, provide a map showing the location of the trees to be removed and the trees to remain and include this with the landscape plan.
- ☐ Proposed alterations to the topography and natural features of the site.
- ☐ Location and type of trash pick-up proposed. Provide a detail of the proposed trash enclosure. The enclosure shall consist of a six-foot high solid wall with a sight proof vinyl gate consistent with the architectural theme of the primary structure on site.
- ☐ Provide one (1) bicycle parking space for every 15 automobile parking spaces, with a minimum of four (4) per building. Bicycle parking shall be located in close proximity to the building entrance in highly visible, well lighted areas. Bicycle parking facilities shall be securely anchored to the ground so that they cannot be easily removed and shall be of sufficient strength to resist vandalism and theft. A detail of the rack shall be provided with the plans.
- ☐ All signage shall be approved through the Planning Division via a separate permitting process.
- ☐ Details for all proposed improvements shall be submitted with the Final Plan.
- ☐ Demonstrate compliance with Article XIII of the *Zoning Code*, Performance Standards.

- ☐ Conformance with the City's adopted *Comprehensive Plan.*

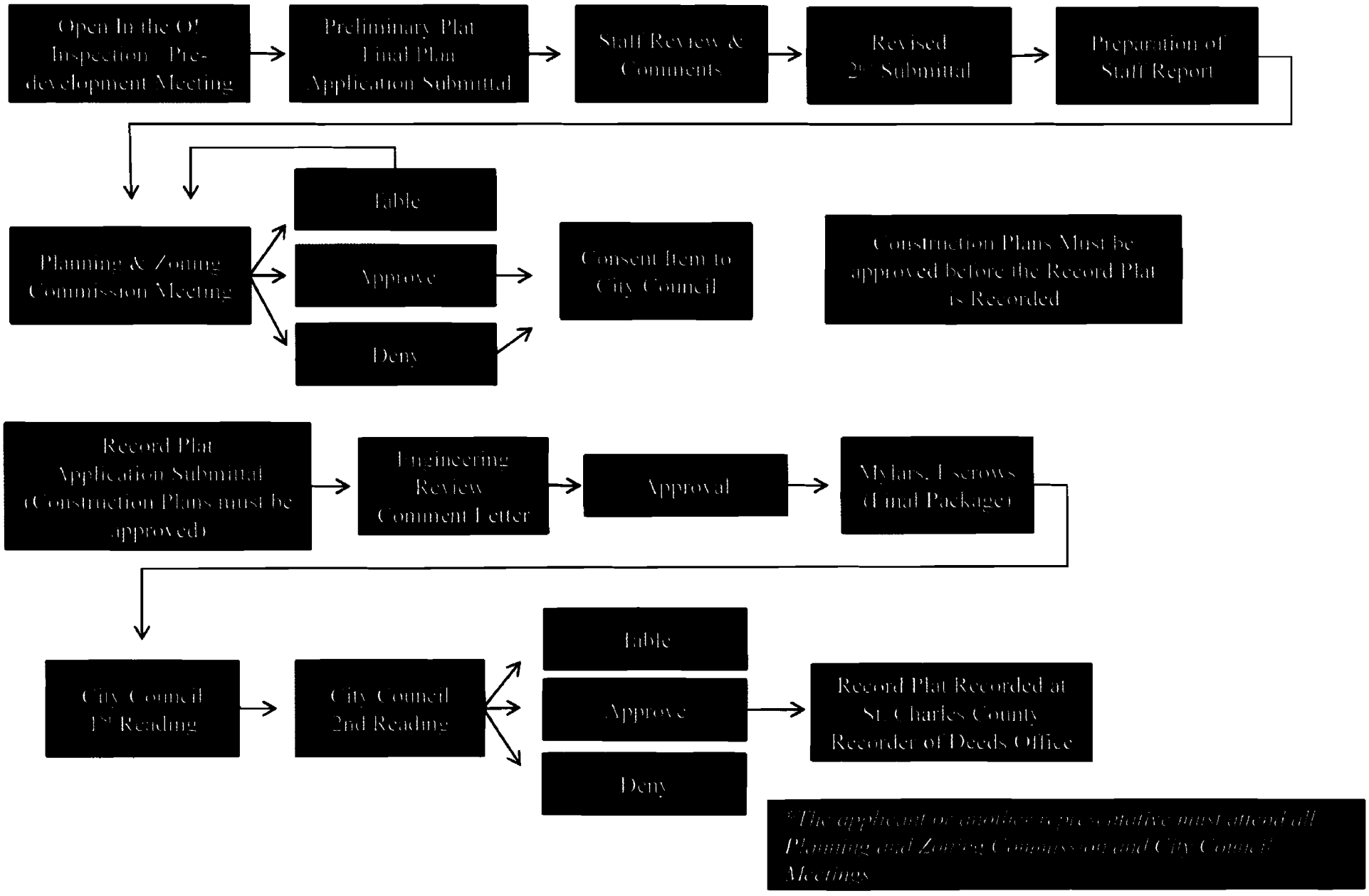
- ☐ A *Material and Color Sample Board* shall be presented by the applicant and/or their authorized or designated representatives(s) during the formal presentation of the *Site Plan* to the Planning and Zoning Commission. The *Material and Color Sample Board* should show all exterior materials, finishes, treatments, and colors (keyed to the *Colored Building Elevations*). For materials such as roof tile, decorative tile and trim, photographs or manufacturer's specification sheet of the material clearly showing the textures, colors, etc., may be presented in place of the actual material samples.

- ☐ Any other information deemed necessary by the Planning and Zoning Commission; or any additional information deemed necessary by the Director of Planning and Development to adequately illustrate the proposed development.

Please Note:

- Outstanding Municipal Code Requirements and conditions of approval of the Final Plan shall be addressed on Construction Site Plans. In addition, the appropriate Fire District will need to review and approve the development, and the Building Safety Division must review and approve the required Building Permits.
- Prior to construction on any residential lot in the subdivision, a Display House Plat must be reviewed and approved by The Planning and Zoning Commission or the Record Plat must be approved by the City Council.
- Any business occupying the site requires approval of a *Business License.*

Preliminary Plat / Final Plan Process



City of O'Fallon Planning and Development Department

100 North Main Street
O'Fallon, Missouri 63366
www.ofallon.mo.us

For additional information send inquiries to:
E-mail: tcoffman@ofallon.mo.us or call (636) 379-5544

Final Plan Application - Planned Unit Developments

OFFICE USE ONLY

Date of Initial Submittal: _____ Case No.: _____ Application Fee $300.00 Paid: _____

Subject Property Information (Please Type or Print all requested information):

Property Location (Including Address, if applicable): _____

Proposed Use of Property: _____

Current Zoning: _____ Proposed Zoning (If Applicable): _____

Type of Proposed P.U.D. (Check all that apply): ___Residential___Commercial___Industrial

Contact Information:

Applicant:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

E-mail: _____

Property Owner:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

E-mail: _____

Contract Purchaser (if applicable):

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

Email: _____

Engineer:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

Email: _____

_____ _____
Applicant Signature Date

_____ _____
Owner Signature Date

Final Plan Application - Planned Developments

This Final Plan Application and Checklist outlines the items typically addressed with an initial submittal of a Final Plan. This checklist is a guide to the generally required information on a Final Plan, but may not be inclusive of all the information that may be required to meet City Code. Please refer to Title IV: Land Use Chapter of the O'Fallon Municipal Code for more specific and detailed requirements.

APPLICATION SUBMITTAL INFORMATION

- ☐ An application fee of $300.00, remitted in full. Fees shall to be paid regardless of Final Plan approval. All documentation submitted as part of this application shall be turned into Staff fully assembled in individual packets that are sorted, collated, and folded. The applicant will be billed for the cost of the Legal Notice advertising the required Public Hearing before the Planning and Zoning Commission, plus a $0.62 mailing fee for the notification of each adjacent property owner within a 300' radius of the subject site.
- ☐ Provide a Legal Description of the site (both a printed copy and an electronic copy).
- ☐ The submittal of the site plan application shall include five (5) folded and collated sets of plans. These plans shall be prepared on sheets that are a maximum of twenty-three and one-half (23½) inch by thirty-four and one-half (34½) inch in size.
- ☐ Within a week and a half of receipt of the application, City Staff will send an email to all parties listed on this application with a report listing comments and issues that need to be addressed in order to meet City standards. You will then be asked to revise the plans and resubmit revised Site Plans. For the 2nd submittal, ten (10) folded and collated sets of plans are required.
- ☐ As part of the revised 2nd submittal, written responses as to how you have addressed each of the comment items shall be provided. If the applicant fails to address all of the noted items on their 2nd submittal, the submission may not be brought before the Planning and Zoning Commission for consideration.
- ☐ An electronic *pdf* version of both the initial submittal site plan sheets and the revised 2nd submittal site plans sheets shall be emailed to tcoffman@ofallon.mo.us
- ☐ Provide a copy of the *Trust Indentures, Covenants*, or *Deed Restrictions* in accordance with Section 405.350 of the *Subdivision and Land Development Code* that address the maintenance of common ground, recreational amenities, storm water detention, private roads and parking lots, and other regulations pertaining to the buildings and structures within the proposed *Planned Unit Development.*
- ☐ Provide letters from the applicable School District (s), Fire Protection District (s), Potable Water District (s), and Sanitary Sewer District (s) that verify that they have the capacity to provide service to the proposed *Planned Unit Development.*
- ☐ Provide a letter from the St. Charles County Planning Department approving the name of the proposed *Planned Unit Development* and all proposed street names.
- ☐ Provide on the plans a comparison table which identifies the exact *Zoning District and/or Subdivision and Land Development Code* regulations proposed to be modified per the permitted modifications of the Zoning Code and the corresponding requirement within the underlying *Zoning District* and/or Subdivision and *Land Development Code.*

Final Plan Application - Planned Developments

- ☐ Provide the total gross land area of the proposed Planned Development in acres. Provide a breakdown of the total gross area by proposed land uses types. Proposed Planned Developments which include residential uses shall provide a breakdown of the number of residential units for each housing type, density calculations, the average lot size, and size of the ten (10) smallest lots.

- ☐ Identify all land areas to be dedicated and reserved for public use and areas to be dedicated as common ground under the control of a Homeowner's Association.

- ☐ Provide Typical Sections and a Lot Data Table for all proposed residential lot sizes and types within the proposed Planned Unit Development (including perimeter lots subject to the minimum lot size requirements of Section 400.175 (G) of Article V of the *Zoning Code*). Indicate proposed lots which are susceptible to street creep. Typically, these lots are: 1) at the end of tangent sections, 2) across from "T" intersections, and 3) on the outside of radii regardless of whether they are uphill or downhill from these areas. Indicate proposed lots which will have rear walk-outs.

- ☐ Provide the Traffic Study (if applicable) that was deemed necessary by the Planning and Development Department and was included in the review of the Area Plan for the site of the proposed Planned Development and the surrounding area. If a condition of approval of the Area Plan was to provide a Traffic Study for the site of the proposed Planned Development and the surrounding area as part of the Final Plan application, provide said Traffic Study.

- ☐ A final plan layout designed by qualified land planner, registered professional architect, engineer or land surveyor, with their stamp, signature, and address, that shall contain a complete set of notations and descriptions that supply the City Staff with all relevant site information including but not limited to: Total site area; site coverages; owner/developer; zoning, proposed use, utilities provided, flood plain information; required calculations (parking, landscape, etc); and any additional information needed to demonstrate compliance with all applicable codes, requirements, and restrictions. Multiple drawings may be required for clarity.

- ☐ Provide a North Arrow and a scale on each page of the submittal. The scale shall be: One (1) inch equals 20 feet through One (1) inch equals 200 feet (no greater or less than specified). Indicate on the Plan.

- ☐ A site location map that shows site in relation with the surrounding area.

- ☐ Boundary Dimensions, including; distances and bearings of the subject property, correlated with the legal description of said property.

- ☐ Name and address of property owner and developer.

- ☐ Natural features, such as trees, tree masses, streams, dry river beds, rivers, lakes, ponds, wetlands, floodplains and floodways, drains, topography (at least at Five (5) foot intervals, when terrain is irregular or drainage critical, contours will be at Two (2) foot intervals) and other similar features.

- ☐ Show existing and proposed 100-yr. floodplain and floodway boundaries (where applicable) and include a note stating whether the site is within or outside the 100-yr. floodplain and reference the applicable FIRM map panel number and date. Where the floodplain is proposed to be altered, the application must contain approval from FEMA for the alteration.

- ☐ Delineate wetlands subject to United States Corp of Engineers (COE) regulations. Appropriate documentation of coordination with the COE shall be provided.

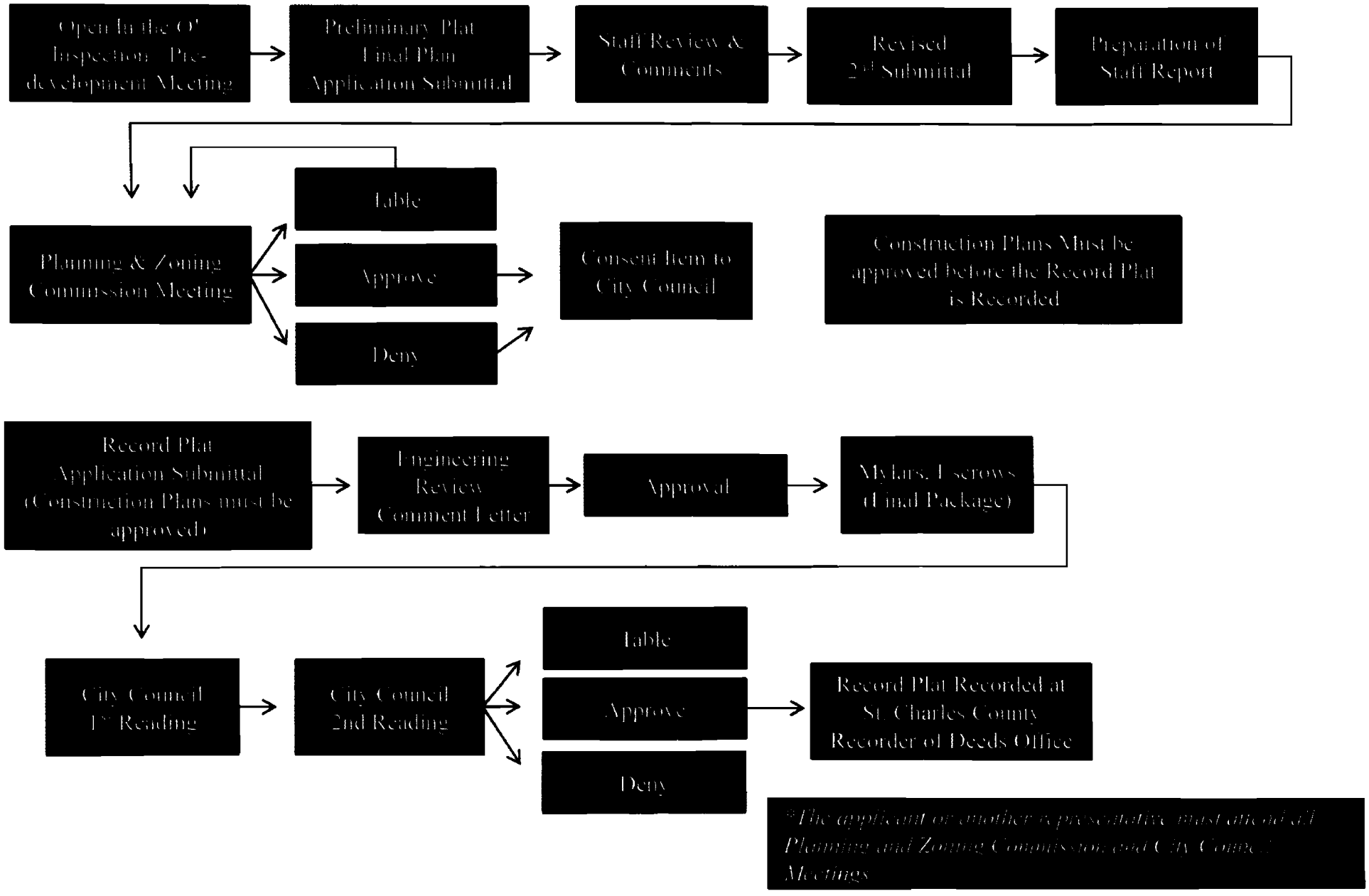
- ☐ Existing manmade features, such as buildings, structures, easements, high tension towers, power lines, excavations, bridges, culverts and drains. Also indicate any easements on site that these items may be located within.
- ☐ Identify adjacent properties, their existing uses and zoning, within 100 yards.
- ☐ Location of proposed structures, including fences, signs, etc.
- ☐ Proposed finished floor and grade line elevations
- ☐ Size of proposed main and accessory buildings.
- ☐ All site coverages, building, paving, and green space, shall be shown as a percentage of the total area of the site and shall be listed on the plans.
- ☐ Indicate how storm water detention requirements will be addressed.
- ☐ Note and show setback requirements on the plan.
- ☐ Note and show bufferyards and method(s) of screening on the plan, where required.
- ☐ All HVAC and mechanical units on site shall be properly screened as required by City Code. Rooftop units shall be screened by a parapet wall that extends around the entire perimeter of the building; the parapet shall have a minimum height that is at least as tall as the tallest unit mounted on the roof; ground mounted HVAC and mechanical units shall be screened by fencing, vegetation, or some other means (approved by the Planning and Zoning Commission) that has a minimum height that is at least as tall as the tallest unit being screened.
- ☐ Identify any existing structures to remain on site and what their uses will be.
- ☐ Height of all buildings and structures.
- ☐ Provide colored building elevations of all four sides of the proposed building and indicate the types of building materials. If these are not part of the second submittal this item may not be placed on the agenda for the Planning and Zoning Meeting.
- ☐ Proposed streets, driveways, sidewalks and other vehicular and pedestrian circulation features within and adjacent to the site, include dimensions of circulation features.
- ☐ Label parking spaces required, showing all supporting calculations. In addition, the site plan shall demonstrate, with appropriate labels and markings, that all parking spaces and loading zones, especially those designed for handicapped accessibility, are of sufficient width and depth (including all adjacent lane stripping and ramp access routes) to meet all zoning and ADA requirements.
- ☐ Label Loading/Unloading spaces, showing all supporting calculations. Show the location of service lanes and loading spaces, and provide dimensions.
- ☐ Existing utilities, public and private, such as water, sanitary sewer, storm sewer, electrical, gas, etc. and indicate location and size.
- ☐ Proposed utilities, including location and size.
- ☐ Conceptual approval for utilities outside of City service shall be submitted.
- ☐ Existing and proposed fire hydrants within 300 feet of the property.

- ☐ Lighting detail, including cut sheets, location, height of freestanding poles and method of screening light source to keep from overflow onto adjacent properties and right-of-ways.
- ☐ Chapter 402 of the *Zoning Code* provides the requirements for landscaping and screening on a developing site, using these requirements, construct a detailed landscape plan, with a full legend or key, that shows the location, number, and types, of plant materials required based on linear street frontage, zoning district, parking lot, and bufferyard landscape requirements. Supporting calculations demonstrating compliance with these requirements shall be included on the landscape plans.
- ☐ Article III of Chapter 402 of the *Municipal Code* provides the formula used to determine the number of trees that must be maintained on site to comply with the *Tree Preservation Requirements.* Using this formula, calculate the correct number of trees preserved or the number of replacement trees to be planted in order to meet the City standard, and show these calculations on the plans. In addition, provide a map showing the location of the trees to be removed and the trees to remain and include this with the landscape plan.
- ☐ Proposed alterations to the topography and natural features of the site.
- ☐ Location and type of trash pick-up proposed. Provide a detail of the proposed trash enclosure. The enclosure shall consist of a six-foot high solid wall with a sight proof vinyl gate consistent with the architectural theme of the primary structure on site.
- ☐ Provide one (1) bicycle parking space for every 15 automobile parking spaces, with a minimum of four (4) per building. Bicycle parking shall be located in close proximity to the building entrance in highly visible, well lighted areas. Bicycle parking facilities shall be securely anchored to the ground so that they cannot be easily removed and shall be of sufficient strength to resist vandalism and theft. A detail of the rack shall be provided with the plans.
- ☐ All signage shall be approved through the Planning Division via a separate permitting process.
- ☐ Details for all proposed improvements shall be submitted with the Final Plan.
- ☐ Demonstrate compliance with Article XIII of the *Zoning Code*, Performance Standards.
- ☐ Conformance with the City's adopted *Comprehensive Plan.*
- ☐ A *Material and Color Sample Board* shall be presented by the applicant and/or their authorized or designated representatives(s) during the formal presentation of the *Site Plan* to the Planning and Zoning Commission. The *Material and Color Sample Board* should show all exterior materials, finishes, treatments, and colors (keyed to the *Colored Building Elevations*). For materials such as roof tile, decorative tile and trim, photographs or manufacturer's specification sheet of the material clearly showing the textures, colors, etc., may be presented in place of the actual material samples.
- ☐ Any other information deemed necessary by the Planning and Zoning Commission; or any additional information deemed necessary by the Director of Planning and Development to adequately illustrate the proposed development.

Please Note:

- Prior to approval of a *Building Permit*, a *Construction Site Plan* must be reviewed and approved by City Staff. Outstanding *Municipal Code Requirements* and conditions of approval of the *Site Plan* shall be addressed on *Construction Site Plans*. In addition, the appropriate Fire District will need to review and approve the development.
- Prior to construction on any residential lot in the subdivision, a Display House Plat must be reviewed and approved by the Planning and Zoning Commission or the Record Plat must be approved by the City Council. In addition, the Building Safety Division must review and approve the required Building Permits.
- Any business occupying the site requires approval of a *Business License*.

Preliminary Plat / Final Plan Process



City of O'Fallon Planning and Development Department
100 North Main Street
O'Fallon, Missouri 63366
www.ofallon.mo.us

For additional information send inquiries to:
E-mail: tcoffman@ofallon.mo.us or call (636) 379-5544

Preliminary Plat Application

OFFICE USE ONLY

Date of Initial Submittal: _____ Case No.: _____ Application Fee $150.00 Paid:_____

Subject Property Information (Please Type or Print all requested information):

Property Location (Including Address, if applicable): _____

Name of the Proposed Subdivision:_____

Proposed Use of Property: _____

Current Zoning: _____ Proposed Zoning (If Applicable): _____

Contact Information:

Applicant:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

E-mail: _____

Property Owner:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

E-mail: _____

Contract Purchaser (if applicable):

Name: _____

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____

Email: _____

Engineer:

Name: _____

Contact Person: _____

Address: _____

City/State/Zip:_____

Phone: _____

Email: _____

_____ _____
Applicant Signature Date

_____ _____
Owner Signature Date

Preliminary Plat Application

This Preliminary Plat Application and Checklist outlines the items typically addressed with an initial submittal of a Preliminary Plat. This checklist is a guide to the generally required information on a Preliminary Plat, but may not be inclusive of all the information that may be required to meet City Code. Please refer to Title IV: Land Use Chapter of the O'Fallon Municipal Code for more specific and detailed requirements.

APPLICATION SUBMITTAL INFORMATION

- ☐ An application fee of $150.00, remitted in full. Fees shall to be paid regardless of *Preliminary Plat* approval. All documentation submitted as part of this application shall be turned into Staff fully assembled in individual packets that are sorted, collated, and folded. The applicant will be billed for the cost of the Legal Notice advertising the required Public Hearing before the Planning and Zoning Commission, plus a $0.62 mailing fee for the notification of each adjacent property owner within a 300' radius of the subject site.

- ☐ The submittal of the site plan application shall include five (5) folded and collated sets of plans. These plans shall be prepared on sheets that are a maximum of twenty-three and one-half (23½) inch by thirty-four and one-half (34½) inch in size.

- ☐ Within a week and a half of receipt of the application, City Staff will send an email to all parties listed on this application with a report listing comments and issues that need to be addressed in order to meet City standards. You will then be asked to revise the plans and resubmit revised Site Plans. For the 2nd submittal, ten (10) folded and collated sets of plans are required.

- ☐ As part of the revised 2nd submittal, written responses as to how you have addressed each of the comment items shall be provided. If the applicant fails to address all of the noted items on their 2nd submittal, the submission may not be brought before the Planning and Zoning Commission for consideration.

- ☐ An electronic *pdf* version of both the initial submittal site plan sheets and the revised 2nd submittal site plans sheets shall be emailed to tcoffman@ofallon.mo.us

- ☐ Provide a Legal Description of the site (both a printed copy and an electronic copy).

- ☐ The Preliminary Plat designed by qualified land planner, registered professional architect, engineer or land surveyor, with their stamp, signature, and address, that shall contain a complete set of notations and descriptions that supply the City Staff with all relevant site information including but not limited to: Total site area; site coverages; owner/developer; zoning, proposed use, utilities provided, floodplain and floodway information; required calculations (parking, landscape, etc); and any additional information needed to demonstrate compliance with all applicable codes, requirements, and restrictions. Multiple drawings may be required for clarity.

- ☐ Name of the proposed subdivision, which shall be original and not a duplicate of any previously recorded subdivision. Provide copy of letter from St. Charles County approving subdivision and/or street names.

- ☐ Provide a North Arrow and a scale on each page of the submittal. The scale shall be: One (1) inch equals 20 feet through One (1) inch equals 200 feet (no greater or less than specified).

- ☐ A site location map that shows site in relation with the surrounding area.

- ☐ Name and address of the property owner, the applicant, and developer (if different from the applicant).

- ☐ Natural features, such as trees, tree masses, streams, dry river beds, rivers, lakes, ponds, wetlands, floodplains and floodways, drains, topography (at least at five foot intervals, when terrain is irregular or drainage critical, contours will be at two foot intervals) and other similar features.

- ☐ Show existing and proposed 100-yr. floodplain and floodway boundaries (where applicable) and include a note stating whether the site is within or outside the 100-yr. floodplain and reference the applicable FIRM map panel number and date. Where the floodplain is proposed to be altered, the application must contain approval from FEMA for the alteration.

- ☐ Delineate wetlands subject to United States Corp of Engineers (COE) regulations. Appropriate documentation of coordination with the COE shall be provided.

- ☐ Existing manmade features, such as buildings, structures, easements, high tension towers, power lines, excavations, bridges, culverts and drains. Also indicate any easements on site that these items may be located within.

- ☐ Within 100 yards of the proposed subdivision, names of adjacent subdivisions, layout of streets (with names), rights of way widths and locations of alleys, easements and public walkways adjacent to or connecting with the tract.

- ☐ Location and size of all existing sanitary sewer, storm sewer and water supply facilities.

- ☐ Indicated lots which are more susceptible to street movement. Typically, those lots at the end of tangent sections, lots across from "T" intersections, and lots on the outside of radii are susceptible to street movement regardless of whether they are uphill or downhill from these areas.

- ☐ Layout and width of right-of-way, surfacing and names of all streets, sidewalks, or public ways proposed for the subdivision.

- ☐ Lot layout, dimensions, setback requirements.

- ☐ All parcels of land to be dedicated or reserved for public use or for use in common by property owners in the subdivision shall be indicated on the Preliminary Plat, along with any conditions of such dedication or reservation.

- ☐ Identification, location and nature of all proposed zoning and uses to be included within the subdivision.

- ☐ Designation of utilities to serve proposed subdivision. The developer will ensure that the staging of the subdivision will include adequate provision for all utilities and streets for adjacent undeveloped properties.

- ☐ Current Zoning status of property included in the Preliminary Plat and of all adjacent properties, regardless of political subdivisions of all such properties.

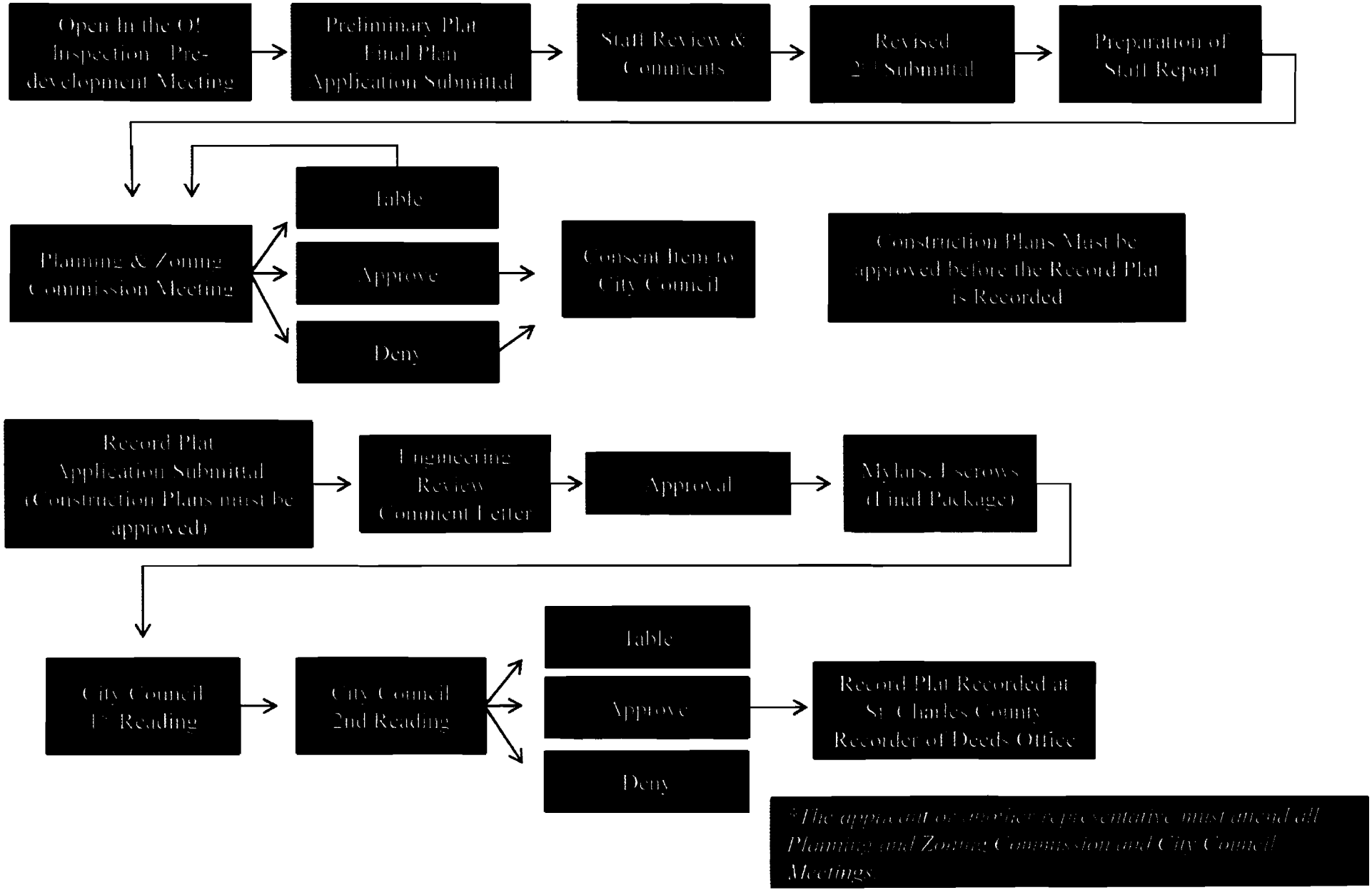
- ☐ Location of proposed structures, including fences, signs, etc.

- ☐ Indicate how storm water detention requirements will be addressed.

Preliminary Plat Application

- ☐ As a part of the submittal, a preliminary copy of the Trust Indentures / Covenants / Deed Restrictions must be provided, in accordance with Section 405.350 of the Subdivision and Land Development Code.
- ☐ Identify any existing structures to remain on site and what their uses will be.
- ☐ Height of all buildings and structures.
- ☐ Proposed residential Preliminary Plats shall include Colored Building Elevations of all the typical, representative housing styles within the proposed development that resemble as closely as possible how they will appear upon completion.
- ☐ Proposed streets, driveways, sidewalks and other vehicular and pedestrian circulation features within and adjacent to the site, include dimensions of circulation features.
- ☐ Existing utilities, public and private, such as water, sanitary sewer, storm sewer, electrical, gas, etc. and indicate location and size.
- ☐ Proposed layout of the public sanitary, storm and water systems that will serve the subdivision.
- ☐ Proposed utilities, including location and size.
- ☐ Existing and proposed fire hydrants within 300 feet of the property.
- ☐ Lighting detail, including cut sheets, location, height of freestanding poles and method of screening light source to keep from overflow onto adjacent properties and right-of-ways.
- ☐ Chapter 402 of the Zoning Code provides the requirements for landscaping and screening on a developing site, using these requirements, construct a detailed landscape plan, with a full legend or key, that shows the location, number, and types, of plant materials required based on linear street frontage, zoning district, parking lot, and bufferyard landscape requirements. Supporting calculations demonstrating compliance with these requirements shall be included on the landscape plans.
- ☐ Article III of Chapter 402 of the Municipal Code provides the formula used to determine the number of trees that must be maintained on site to comply with the Tree Preservation Requirements. Using this formula, calculate the correct number of trees preserved or the number of replacement trees to be planted in order to meet the City standard, and show these calculations on the plans. In addition, provide a map showing the location of the trees to be removed and the trees to remain and include this with the landscape plan.
- ☐ Show topographical information on the plans; identifying proposed alterations to the topography and natural features of the site.
- ☐ Demonstrate compliance with Article XIII of the Zoning Code, Performance Standards.
- ☐ Conformance with the City's adopted Comprehensive Plan.
- ☐ Any other information deemed necessary by the Planning and Zoning Commission; or any additional information deemed necessary by the Director of Planning and Development to adequately illustrate the proposed development.

Preliminary Plat / Final Plan Process



- ☐ Show the location of all proposed freestanding signage. All signage shall be approved through the Planning Division via a separate permitting process.
- ☐ All signage shall be approved through the Planning Division via a separate permitting process.
- ☐ Details for all proposed improvements shall be submitted with the Preliminary Plat.
- ☐ Any other information deemed necessary by the Planning and Zoning Commission; or any additional information deemed necessary by the Director of Planning and Development to adequately illustrate the proposed development.

Please Note:

- Prior to construction on any non- residential lot in the subdivision, a Site Plan must be reviewed and approved by the Planning and Zoning Commission. In addition, the appropriate Fire District will need to review and approve the development, and the Building Safety Division must review and approve the required Building Permits.
- Outstanding Municipal Code Requirements and conditions of approval of the Preliminary Plat shall be addressed on Construction Site Plans.
- Prior to construction on any residential lot in the subdivision, a Display House Plat must be reviewed and approved by the Planning and Zoning Commission or the Record Plat must be approved by the City Council. In addition, the Building Safety Division must review and approve the required Building Permits.
- Prior to approval of a *Building Permit*, a *Construction Site Plan* must be reviewed and approved by
- Any business occupying the site requires approval of a *Business License*.
- Please note if the Preliminary Plat is not concurrently submitted with the Site Plan, building elevations will be required.

City of O'Fallon Planning and Development Department

100 North Main Street
O'Fallon, Missouri 63366
www.ofallon.mo.us

For additional information send inquiries to:
E-mail: tcoffman@ofallon.mo.us or call (636) 379-5544

Variance Application

OFFICE USE ONLY

Date of Initial Submittal: _____ Case No.: _____ Application Fee $100.00 Paid:_____

Subject Property Information (Please Type or Print all requested information):

Property Location (Including Address, if applicable): _____

Proposed Use of Property: _____

Variance Requested:_____

Contact Information:

Applicant:	**Property Owner:**
Name: _____	Name: _____
Contact Person: _____	Contact Person: _____
Address: _____	Address: _____
City/State/Zip: _____	City/State/Zip: _____
Phone: _____	Phone: _____
E-mail: _____	E-mail: _____
Contract Purchaser (if applicable):	**Engineer:**
Name: _____	Name: _____
Contact Person: _____	Contact Person: _____
Address: _____	Address: _____
City/State/Zip: _____	City/State/Zip:_____
Phone: _____	Phone: _____
Email: _____	Email: _____

_____ _____
Applicant Signature Date

_____ _____
Owner Signature Date

Variance Application

This Variance Application and Checklist outlines the items typically addressed with an initial submittal of a Variance. This checklist is a guide to the generally required information on a Variance, but may not be inclusive of all the information that may be required to meet City Code. Please refer to Title IV: Land Use Chapter of the O'Fallon Municipal Code for more specific and detailed requirements.

APPLICATION SUBMITTAL INFORMATION

- ☐ An application fee of $100.00, remitted in full. Fees shall to be paid regardless of Variance decision. All documentation submitted as part of this application shall be turned into Staff fully assembled in individual packets that are sorted, collated, and folded.
- ☐ A statement from the applicant explaining, specifically, what is being requested and why a Variance is necessary.
- ☐ Provide four (4) scaled copies of the plot survey/sketch/site plan and Colored Building Elevations (if applicable) in 11" x 17" showing the lot or lots included in the application, showing the location of all structures, giving all appropriate dimensions, utility easements, and any other information as necessary to fit the actual request. All copies must be folded when submitted. Include a site location map that shows site in relation with the surrounding area.
- ☐ Any other information deemed necessary by City Staff, or by the Board of Adjustment, to adequately illustrate the proposed variance request.
- ☐ An electronic *pdf* version of the plot survey/sketch/site plan and Colored Building Elevations (if applicable) shall be emailed to tcoffman@ofallon.mo.us.
- ☐ In addition to the items listed on the above checklist, the following information must also be provided for sign Variances:
  - ☐ A completed sign permit application, including structural and electrical information.
  - ☐ Four (4) folded colored sketches/drawings of the sign, giving dimensions and copy.
  - ☐ A sketch/drawing of the building and the proposed location of the sign upon the building, if applicable.
  - ☐ A sketch/drawing indicating the mounting details.
  - ☐ All pole signs and ground-mount signs require submittal of footing and foundation details.
  - ☐ All pole signs and very large ground-mounted signs require submittal of wind load/seismic calculations (sealed by a registered engineer). These calculations may be submitted after the variance is voted upon by the Board; however, this will delay the issuance of the permit by 2-5 days.

Variance Application

FINDINGS OF FACT REQUIRED

A request for a *Variance* may be granted, upon a finding of the Board of Adjustment that all of the following conditions have been met.

1. The *Variance* requested arises from such condition which is unique to the property in question and which is not ordinarily found in the same zone or district, and is not created by an action or actions of the property owner or applicant.

2. The granting of the permit for the *Variance* will not adversely affect the rights of adjacent property owners or residents.

3. The strict application of the provisions of the *Zoning Regulations* of which the variance is requested will constitute unnecessary hardship upon the property owner represented in the application.

4. The *Variance* desired will not adversely affect the public health, safety, morals, order convenience, prosperity or general welfare.

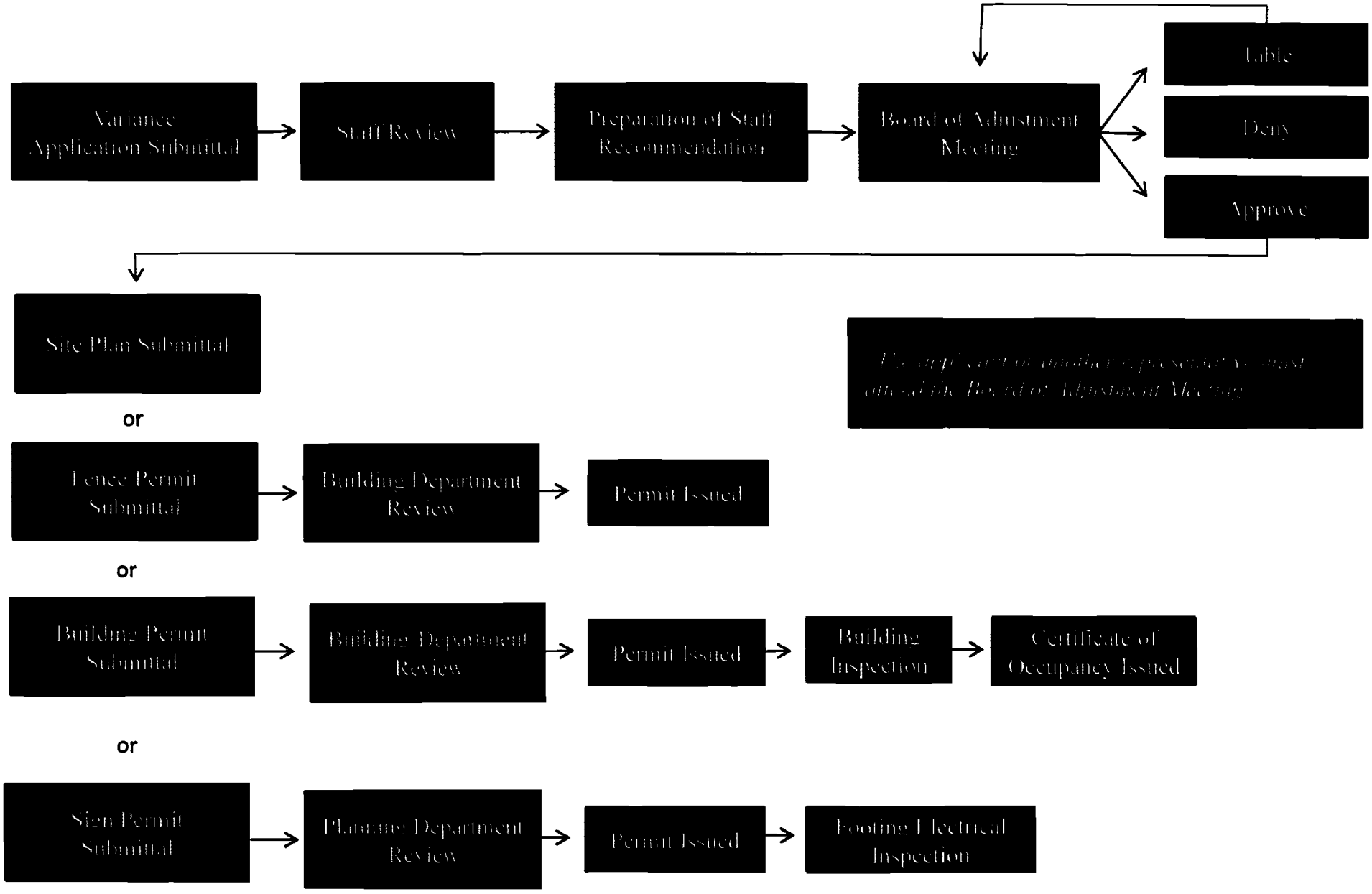
5. The granting of the *Variance* desired will not be opposed to the general spirit and intent of the *Zoning Regulations*.

6. The Board of Adjustment may require additional information when deemed necessary.

Please Note:

- The variance is limited to only the specific request on the application; you may not deviate from the Variance granted.
- Separate permits may be required.

Variance Process



The applicant or another representative must attend the Board of Adjustment Meeting

City of O'Fallon - Engineering Department
100 North Main Street
O'Fallon, Missouri 63366
www.ofallon.mo.us
(636) 379-5556
Fax: (636) 240-5511

Record Plat Application

Subject Property Information:

Name of Subdivision: Plat Number: Number of Lots:

Property Location:

Type of Proposed Use: (Check all that apply) Residential Commercial Industrial Other

Annexation Date: Current Zoning:

Preliminary Plat or Final Plan Approval Date: Construction Plan Approval Date:

Contact Information (Please Type or Print):

Applicant:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

Property Owner:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

Contract Purchaser:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

Engineer:
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

_____ _____
Applicant Signature Date

_____ _____
Owner's Signature Date

OFFICE USE ONLY

Date of Initial Submittal: _____

Escrow Amount (from approved Cost Estimate): _____ Date Escrow received: _____

Application (Approved/Denied) by: _____ Date: _____

City Council approval of the record plat shall be granted to the developer for a period of one (1) year from the date of approval and all existing zoning and/or subdivision regulations shall not change as they apply to the property included in the record plat. No subdivision plat shall be recorded in the office of the Recorder of Deeds for St. Charles County, Missouri, unless and until the City Engineer approves the construction plans and the City Council approves the record plat. No lot in the subdivision plat may transfer in ownership until the construction plan has been approved by the City Engineer and the record plat has been officially recorded in the office of the Recorder of Deeds for St. Charles County. In cases where development is not proposed and a record plat is desired by the property owner, an exemption on the need for an approved construction plan may be given by the City Engineer; however, suitable escrow or other surety may be required to ensure public access to the subdivided lots. If the record plat of a subdivision for which City Council approval has been given has not been recorded in the office of the Recorder of Deeds for St. Charles County within the aforementioned one (1) year period, the Council shall formally request the developer to explain the extenuating circumstances preventing recording of the plat. The Council shall then determine whether provisions of an extension would serve the best interests of the City of O'Fallon. If these findings are negative, then the Council shall formally revoke final approval of the plat and shall so notify the developer and the office of the Recorder of Deeds for St. Charles County. If the construction plan is approved and the plat officially recorded within said time periods, the developer must diligently proceed with the proposed construction (applying for construction and building permits, installing streets, utilities, etc.) of the project. If construction has not begun within two (2) years of recording the plat, the City shall have authority to complete all escrow items. If construction under the approved construction plan is to continue beyond the two (2) year period, the developer must request an extension of the approved plan and provide for extending the escrow or other surety on the project prior to the expiration of the plan, otherwise work on the project must cease.

PROCEDURES FOR RECORD PLATS

The following procedure outlines the steps required to have a *Record Plat* filed. Detailed requirements are listed in the *Subdivision and Land Development Code.*

1. The applicants' initial submittal for review (allow a minimum of ten working days) will consist of the following: (The submission must be complete to start the review process.)
   a. A completed *Record Plat* application/checklist.
   b. Three (3) paper copies of the proposed plat.
   c. A detailed Engineer's Cost Estimate for all required subdivision improvements.
   d. A copy of deed restrictions or covenants for the proposed subdivision.
   e. Copy of off-site easements for review.

2. The applicant will make all corrections as required. If numerous corrections are required, the applicant should resubmit in accordance with Step 1.

3. Once all corrections have been made the applicant will submit the following for *Record Plat* approval
   a. One (1) Mylar original of the Record Plat with all required signatures and certificates.
   b. One (1) Mylar copy of the original *Record Plat.*
   c. One (1) electronic copy of the Record Plat in AutoCAD format.
   d. Four (4) completed escrow agreements with all required signatures and seals.
   e. One (1) 11" x 17" reduced copy of the *Record Plat.*
   f. Copy of filed off-site easements.

4. All items from Step 3 must be submitted by the deadlines published for the City Council. If the applicant is unable to acquire all signatures and seals on the *Record Plat* by the deadlines, and if all other documentation is provided, then the *Record Plat* may be placed on the agenda but must have all required seals and signatures acquired by ten (10) days before the first City Council reading of the *Record Plat.*

5. Applications will not be presented to City Council for approval if they have not been reviewed by City Staff.

6. After approval by the City Council and certification by the City Clerk, the Engineering Department will notify the Developer who will pick up the original Mylar of the *Record Plat* and have the Plat and Deed restrictions filed with the St. Charles County Recorder of Deeds.

CHECKLIST

Prior to City Council review and approval of the *Record Plat*, Staff will conduct a comprehensive review of the applicant's submission and provide a listing of any items that will need to be corrected, modified or amended in order to meet City of O'Fallon standards. The required changes shall be shown on a revised *Record Plat* that will be submitted to Staff for review and approval prior to being brought before the City Council. The following information is a listing of the items to be addressed on all *Record Plats* for review.

General Information:

- [ ] Name and address of the property owner, the applicant and/or the developer (if different from the applicant) shall be provided. The application shall be signed and dated by the property owner and applicant, if different from the property owner.
- [ ] The *Record Plat* shall be designed by a qualified registered professional engineer or land surveyor, complete with their stamp, signature, and address and shall contain a complete set of notations and descriptions that supply the City Staff with all relevant site information needed to demonstrate compliance with all applicable codes, requirements and restrictions.
- [ ] Provide an Engineers cost estimate for the improvements. The City of O'Fallon has created a cost estimate computation sheet which shall be used to calculate escrow cost. The calculator can be found at www.ofallon.mo.us/pubs/apps/Engineers_Estimate.xls. Items not listed will be estimated by the consulting engineer and reviewed and approved by the City of O'Fallon.
- [ ] Provide the name of the proposed subdivision and streets. The names shall be original and not a duplicate of any previously recorded subdivision or street. Provide a copy of the letter from St. Charles County approving the subdivision and/or street names.
- [ ] Provide an abstract of title or other certificate establishing ownership interests and proof that proper parties have signed the plat for all land in the subdivision.
- [ ] Provide recorded documents for all off-site easements that were required by the approved *Construction Plans* or by the governing utility companies.
- [ ] Any other information deemed necessary by the Engineering Division, the Planning and Development Division and/or the Building Safety Division shall be provided as requested to adequately illustrate the proposed development.
- [ ] Prior to construction, the Building Safety Division must review and approve the required *Building Permits*.
- [ ] The property owner, the applicant or their representative is required to appear before the City Council.

Cover Sheet/Script Sheet Information:

- [ ] Provide certification by a Professional Land Surveyor to the effect that the Record Plat represents a survey which has been created and is stamped with original seal, signed with original signature and dated.
- [ ] Provide the month and year in the surveyors' certificate during which the survey was made.
- [ ] Provide language for dedication of all infrastructure and land intended for public use together with lot restrictions signed by all parties who have mortgage or lien interest in the property, including owners.
- [ ] Note the Deed Book and Page of the Storm Water Post Construction Best Management Practice Maintenance Agreement for the site.
- [ ] Provide a Legal Description of the area to be platted.
- [ ] Provide the total acreage of the area to be platted and the number of lots.
- [ ] A general utility easement shall be granted to the City of O'Fallon over all proposed common ground areas.
- [ ] Provide a note on the plat, a paid tax receipt or a notarized letter stating there are no delinquent taxes outstanding on the property.

- [ ] Show the existing and proposed 100-yr. floodplain and floodway boundaries (where applicable) and include a note stating whether the site is within or outside the 100-yr. floodplain and reference the applicable FIRM map panel number and current revision date. Where the floodplain or floodway is proposed to be altered, the application must contain approval from FEMA for the alteration.
- [ ] Indicate which lots are more susceptible to street movement. Typically, those lots at the end of tangent sections, across from "T" intersections, and on the outside of radii are susceptible to street movement regardless of whether they are uphill or downhill from these areas.

Plan Sheet Information:

- [ ] The lot lines within the boundary limits of the proposed subdivision shall be shown with accurate dimensions and bearings, both linear and angular, radii and arcs, necessary for locating the boundaries of the subdivision, blocks, lots, streets, alleys, easements, building lines and of any other areas for public or private use. The linear dimensions are to be expressed in feet and decimals of a foot. All U.S. Survey, Congressional Township, Range and Sections shall be identified.
- [ ] Identify all proposed public and private streets and alleys with their widths and names. Private alleys and streets shall state "Maintained by Property Owners".
- [ ] Show all lot lines with an identification system (lot numbers and street addresses) for all lots within the plat.
- [ ] Provide the lot or parcel areas in square feet on the *Record Plat* or supplemental sheet. The total for each lot should equal or exceed ordinance requirements.
- [ ] Provide the location of all existing and proposed survey monuments, together with their descriptions. This includes lot monumentation that is required by City Ordinance as noted in Section 405.220.
- [ ] Show all adjoining property lines as dashed lines for a minimum distance of one hundred (100) feet. Show all right-of-way lines of adjacent streets and alleys as short dashed lines with their widths and names.
- [ ] Provide the line of departure of one street from another.
- [ ] Provide a North Arrow and a scale on each page of the submittal. The scale shall be: One (1) inch equals twenty (20) feet through One (1) inch equals two hundred (200) feet (no greater or less than specified).
- [ ] Provide a site location map that shows the site in relation to the surrounding area.
- [ ] Show all proposed front, side and rear yard building lines for each lot or provide a typical lot detail.
- [ ] Show the location and dimensions for all easements on each lot. Right-of-ways dedicated for public use, service or utilities, with figures showing their dimensions, and listing uses that are being provided. Typical minimum easements are ten (10) foot for the front yard and/or along public right-of-ways, five (5) foot for the side yard and seven point five (7.5) foot for the rear yard, except ten (10) foot along the boundary perimeter and common ground.
- [ ] Provide site triangle and line of sight easements at all intersections with existing and proposed roads.
- [ ] Provide entrance monument easements, as necessary, at all entrances. The entrance monument easement shall not be located within the sight triangle or line of site easement at intersections.
- [ ] Provide the normal water elevation and required minimum depth for all proposed lakes. Designate the high water elevation in the detention basin(s) and/or lake(s). Provide a drainage easement offset twenty (20) foot from and surrounding the design high water elevation and provide a twenty (20) foot wide access strip from the public right-of-way to the detention basin drainage easement.
- [ ] Provide an undisturbed drainage easement and creek bank setbacks for any existing creeks that are to remain in the development. (Ordinance #5271–Section 405.247)
- [ ] Provide a ten (10) foot wide Drainage easements centered over all permanent swales that exceed one (1) cubic foot per second.

CHAPTER 415: FLOOD HAZARD PREVENTION CODE

ARTICLE I. DEFINITIONS

SECTION 415.010: DEFINITIONS

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

AGENCY: The Federal Emergency Management Agency (FEMA).

APPEAL: A request for a review of the City Administrator or his/her designate's interpretation of any provision of this Chapter or a request for a variance.

APPURTENANT STRUCTURE: A structure that is on the same parcel of property as the principal structure to be insured and the use of which is incidental to the use of the principal structure.

AREA OF SHALLOW FLOODING: A designated AO Zone on a community's Flood Insurance Rate Map (FIRM) with base flood depths from one (1) to three (3) feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate and where velocity flow may be evident.

AREA OF SPECIAL FLOOD HAZARD: The land in the floodplain within a community subject to a one percent (1%) chance or greater of flooding in any given year.

BASE FLOOD: The flood having a one percent (1%) chance of being equalled or exceeded in any given year. Also commonly known as the 100-year flood.

BASEMENT: Any area of the structure having its floor subgrade (below ground level) on all sides.

COMMUNITY: Any State or area or political subdivision thereof which has authority to adopt and enforce floodplain management regulations for the area within its jurisdiction.

COMPENSATORY STORAGE: Providing compensating excavation for each cubic foot of fill, building or any other item that is displacing floodwater.

CONSTRUCTION: The act of adding an addition to an existing building or structure or the erection of a new principal or accessory building or structure on a lot or property or the

addition of walks, driveways or parking lots or the addition of appurtenances to a building or structure.

CRITICAL FEATURE: An integral and readily identifiable part of a flood protection system without which the flood protection provided by the entire system would be compromised.

DEVELOPMENT: Any manmade change to improved or unimproved real estate including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations with the exception of land that is agricultural in use and zoned as agricultural being allow to remove trees, brush or shrubs and moving earthen material not to exceed fifty (50) cubic yards.

ELEVATED BUILDING: For insurance purposes, a non-basement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings or columns.

EXISTING CONSTRUCTION (FOR THE PURPOSES OF DETERMINING RATES): Structures for which the "start of construction" commenced before the effective date of the FIRM or before January 1, 1975. *"Existing construction"* may also be referred to as *"existing structures"*.

EXISTING MANUFACTURED HOME PARK OR SUBDIVISION: A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by the community.

EXPANSION TO AN EXISTING MANUFACTURED HOME PARK OR SUBDIVISION: The preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads).

FEMA: Acronym for Federal Emergency Management Agency.

FIRM: Acronym for Flood Insurance Rate Map.

FLOOD ELEVATION DETERMINATION: A determination by the Administrator of the water surface elevations of the base flood; that is, the flood level that has a one percent (1%) chance of occurrence in any given year.

FLOOD ELEVATION STUDY: An examination, evaluation and determination of flood hazards.

FLOOD FRINGE: That part of the floodplain as defined by the current FIRM that is outside the designated floodway.

FLOOD INSURANCE RATE MAP (FIRM): An official map of a community on which the Flood Insurance Study has delineated the flood hazard boundaries and the zones establishing insurance rates applicable to the community.

FLOOD INSURANCE STUDY: The official report provided by the Federal Emergency Management Agency. The report contains flood profiles as well as the Flood Boundary Floodway Map and the water surface elevation of the base flood.

FLOOD OR FLOODING: A general and temporary condition of partial or complete inundation of normally dry land areas from:

1. The overflow of inland or tidal waters.

2. The unusual and rapid accumulation or runoff of surface waters from any source.

FLOODPLAIN OR FLOOD-PRONE AREA: Any land area susceptible to being inundated by water from any source (see *"FLOODING"*).

FLOODPLAIN MANAGEMENT: The operation of an overall program of corrective and preventive measures for reducing flood damage including, but not limited to, emergency preparedness plans, flood control works and floodplain management regulations.

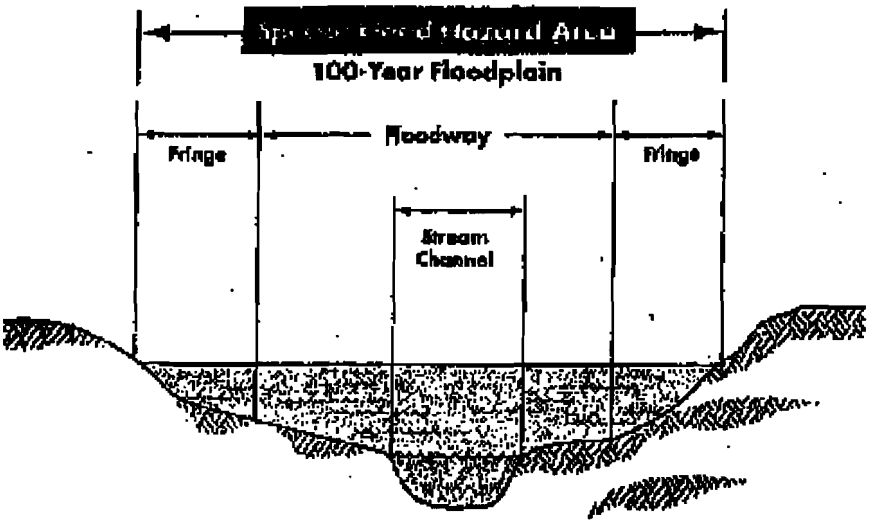
FLOODPLAIN MANAGEMENT REGULATIONS: Zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as floodplain and grading ordinances) and other applications of Police power. The term describes such State or local regulations, in any combination thereof, that provide standards for the purpose of flood damage prevention and reduction.

FLOODPROOFING: Any combination of structural and non-structural additions, changes or adjustments to structures that reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities or structures and their contents.

FLOODWAY ENCROACHMENT LINES: The lines marking the limits of floodways on Federal, State and local floodplain maps.

FLOODWAY FRINGE: That area of the floodplain outside of the floodway that has a one percent (1%) chance of flood occurrence in any one (1) year.

FLOODWAY OR REGULATORY FLOODWAY: The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot.



FREEBOARD: A factor of safety usually expressed in feet above a flood level for purposes of floodplain management. *"Freeboard"* tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions such as wave action, clogged bridge opening and the hydrological effect of urbanization of the watershed.

HIGHEST ADJACENT GRADE: The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

HISTORIC STRUCTURE: Any structure that is:

1. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;

2. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;

3. Individually listed on a State inventory of historic places in States with historic preservation programs which have been approved by the Secretary of the Interior; or

4. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:

   a. By an approved State program as determined by the Secretary of the Interior; or

   b. Directly by the Secretary of the Interior in States without approved programs.

LEVEE: A manmade structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control or divert the flow of water so as to provide protection from temporary flooding.

LEVEE SYSTEM: A flood protection system which consists of a levee or levees and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices.

LOWEST FLOOR: The lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this Chapter.

MANUFACTURED HOME: A structure, transportable in one (1) or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes, the term *"manufactured home"* also includes park trailers, travel trailers and other similar vehicles placed on site for greater than one hundred eighty (180) consecutive days. For insurance purposes, the term *"manufactured home"* does not include park trailers, travel trailers and other similar vehicles.

MANUFACTURED HOME PARK OR SUBDIVISION: A parcel (or contiguous parcels) of land divided into two (2) or more manufactured home lots for rent or sale.

MARKET VALUE OR FAIR MARKET VALUE: An estimate of what is fair, economic, just and equitable value under normal local market conditions.

MEAN SEA LEVEL: For purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or other datum to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

NEW CONSTRUCTION: Structure for which the "start of construction" commenced on or after the effective date of this Chapter.

NEW MANUFACTURED HOME PARK OR SUBDIVISION: A manufactured home park or subdivision for which the construction of facilities for servicing the lot on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by the community.

NFIP: Acronym for the National Flood Insurance Program.

PERSON: Any individual or group of individuals, corporation, partnership, association or any other entity, including Federal, State and local governments and agencies.

PRINCIPALLY ABOVE GROUND: At least fifty-one percent (51%) of the actual cash value of the structure, less land value, is above ground.

PROGRAM DEFICIENCY: A defect in a community's floodplain management regulations or administrative procedures that impairs effective implementation of those floodplain management regulations.

RECREATIONAL VEHICLE: A vehicle which is:

1. Built on a single chassis;

2. Four hundred (400) square feet or less when measured at the largest horizontal projections;

3. Designed to be self-propelled or permanently towable by a light-duty truck; and

4. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel or seasonal use.

REMEDY A VIOLATION: To bring the structure or other development into compliance with State or local floodplain management regulations or, if this is not possible, to reduce the impact of its non-compliance. Ways that impact may be reduced include protecting the structure or other affected development from flood damages, implementing the enforcement provisions of this Chapter or otherwise deterring future similar violations or reducing Federal financial exposure with regard to the structure or other development.

SPECIAL FLOOD HAZARD: An area having special flood hazards and shown on a FIRM as Zones (unnumbered or numbered) A, AO, AE or AH.

START OF CONSTRUCTION (FOR OTHER THAN NEW CONSTRUCTION OR SUBSTANTIAL IMPROVEMENTS UNDER THE COAST BARRIER RESOURCES ACT (Pub. L. 97-348): Includes substantial improvement and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement or other improvement was within one hundred eighty (180) days of the permit date. The *"actual start"* means either placement of permanent construction of a structure on a site, construction of columns or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings such as garages or sheds not occupied as dwelling units or not part of the main structure.

STATE EMERGENCY MANAGEMENT AGENCY: Agency of the State Government or other office designated by the Governor of the State or by State Statute to assist in the implementation of the NFIP in that State, also known as SEMA.

STRUCTURE: A walled or roofed building that is principally above ground, as well as a manufactured home, and a gas or liquid storage tank that is principally above ground.

SUBSTANTIAL DAMAGE: Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed fifty percent (50%) of the market value of the structure before the damage occurred.

SUBSTANTIAL IMPROVEMENT: Any reconstruction, rehabilitation, addition or other improvement of a structure, the cost of which equals or exceeds fifty percent (50%) of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage" regardless of the actual repair work performed. The term does not, however, include either:

1. Any project for improvement of a structure to correct existing violations of State or local health, sanitary or safety code specifications which have been identified by the local Code Enforcement Official and which are the minimum necessary to assure safe living conditions, or

2. Any alteration of a "historic structure" provided that the alteration will not preclude the structure's continued designation as a "historic structure".

VARIANCE: A grant of relief to a person from the requirements of this Chapter which permits construction in a manner otherwise prohibited by this Chapter where specific enforcement would result in unnecessary hardship.

VIOLATION: The failure of a structure or other development to be fully compliant with the community's floodplain management regulations.

WATER SURFACE ELEVATION: The height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929 (or other datum, where specified) of floods of various magnitudes and frequencies in the floodplains of coastal riverine areas.

ZONE A: Areas that are inundated by the 100-year flood where base flood elevation has been determined as defined on the community's Flood Insurance Rate Map.

ZONE AE: Areas that are inundated by the 100-year flood where base flood elevations have been determined as defined on the community's Flood Insurance Rate Map.

ZONE AH: Areas that are inundated by the 100-year flood with flood depths of one (1) to three (3) feet (usually areas of ponding) with base flood elevations determined as defined on the community's Flood Insurance Rate Map.

ZONE AO: Areas that are inundated by the 100-year flood with flood depths of one (1) to three (3) feet (usually areas of sheet flow on sloping terrain) with average depths determined, for areas of alluvial fan flooding velocities also determined, as defined on the community's Flood Insurance Rate Map. (R.O. 2007 §415.010; Ord. No. 4974 §1, 3-30-06)

ESCROW AGREEMENT

This ESCROW AGREEMENT (the "Agreement") is made and entered into this 27th day of APRIL, 2013, by and between the City of O'Fallon, Missouri, a Missouri municipal corporation (hereinafter the "City"), ROCKWOOD HOMES LLC (hereinafter the "Developer") a MISSOURI LIMITED LIABILITY COMPANY ~~corporation~~, and _____ (hereinafter the "Escrow Holder") a _____.

RECITALS

WHEREAS, the Developer has submitted plans, information and specifications to the City for the formation and development of a subdivision / development to be known as WEATHERBY LANDING (the "Development") on certain real property described in Exhibit A (the "Property"), attached hereto and incorporated herein by reference; and

WHEREAS, the Developer is required to construct certain improvements (the "Improvements") in connection with the Development; and

WHEREAS, pursuant to Section 405.110 of the Code of the City of O'Fallon, Missouri, prior to proceeding with the Development, the Developer must deposit with the City Clerk, or an escrow agent agreed upon by the City Administrator and the Developer, a cash amount, certified check, or irrevocable bank letter of credit with the City of O'Fallon as beneficiary, endorsed to the escrow agent (the "Escrow Agent"); and

WHEREAS, pursuant to Section 405.110 of the Code of the City of O'Fallon, Missouri, the escrow amount shall be an amount, estimated by the City Engineer, equal to the estimated cost for completing construction of the Improvements over the anticipated construction period and contingencies, based on an estimating guide acceptable to the City Engineer; and

WHEREAS, the City and the Developer have mutually agreed upon a person or entity to act as the Escrow Agent in connection with this Development.

NOW, THEREFORE, in consideration of the foregoing Recitals and the mutual covenants and promises herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the City, the Developer and the Escrow Agent do hereby covenant and agree as follows:

TERMS AND CONDITIONS

1. **Improvements.** The Developer shall design, construct and install, at the Developer's sole cost and expense, the Improvements listed on Exhibit B, attached hereto and incorporated herein by reference. The Improvements shall be installed, constructed and completed in accordance with the plans approved by the City and pursuant to all applicable state and federal laws, and City ordinances.

2. **Escrow Sum.** To secure the satisfactory installation, construction and completion of the Improvements and the other obligations under this Agreement, the Developer shall deposit with the Escrow Agent cash, a certified check, or an irrevocable bank letter of credit endorsed to the Escrow Agent, in the amount of NINETY-NINE THOUSAND SIX HUNDRED SEVENTY-THREE 00/100 dollars ($ 99,673.00) (the "Escrow Sum"). For the purposes of this Agreement, the Improvements and the Escrow Sum shall be divided into separate categories (the "Improvements Categories") as shown on the attached Exhibit B.

3. **Escrow Account.** The Escrow Sum will be held in escrow by the Escrow Agent in a special escrow account. The City or the Developer may, from time to time, request written verification of the amount in this account from the Escrow Agent. The Escrow Agent will provide said verification within ten (10) days of said request. The escrow account may also be audited during the term of this Agreement at the discretion of the City.

4. **Additional Sums.** If the Escrow Sum herein provided is determined by the City Engineer to be insufficient to complete the Improvements, the Developer will deposit with the Escrow Agent an additional sum in cash, certified check, or an irrevocable bank letter of credit in an amount determined by the City Engineer to be sufficient to complete the Improvements. The additional sum shall be subject to the terms of this Agreement and this Agreement shall be deemed amended to include said additional sum.

5. **Time to Complete Improvements.** Unless otherwise specified herein, the Developer shall complete all of the Improvements within two (2) years of the date of execution of this Agreement. The City may, in its sole discretion, extend the time to complete all or any portion of the Improvements.

6. **Completion of Improvements.** Upon completion of the Improvements, the City shall certify that the Improvements were completed in accordance with the terms of this Agreement and with the applicable ordinances of the City. The City and the Developer agree that the certification of the Improvements shall follow the process detailed in Section 405.120 of the Code of the City of O'Fallon, Missouri.

7. **As-Built Engineering Drawings.** Upon completion of the Improvements, the Developer shall submit to the City Engineer a reproducible copy of "as-built" engineering drawings and three (3) sets of prints of each of the required Improvements that have been completed. Each set of drawings shall be certified by the Developer's engineer.

8. **Events of Default.** The following conditions, occurrences or actions will constitute a default by the Developer:

(a) The Developer's failure to complete all of the Improvements within the time provided herein;

(b) The Developer's failure or refusal to correct the defective construction of any Improvement within any period of time designated or specified for correction;

(c) The Developer's insolvency, the appointment of a receiver for the Developer or the filing of a voluntary or involuntary petition in bankruptcy respecting the Developer; in such event the City may immediately declare a default without prior written notification to the Developer;

(d) Notification to the City, by any lender with a lien on the Property, of a default on an obligation, the City may immediately declare a default without the prior notification to the Developer; or

(e) Initiation of any foreclosure action of any lien or initiation of a mechanics lien procedure against the Property in lieu of foreclosure, the City may immediately declare a default without prior notification to the Developer.

Unless specifically provided for herein, the City may not declare a default until written notice has been sent to the Developer.

9. **Failure to Complete Improvements.** In the event the Developer shall be in default pursuant to Paragraph 8 above or in the event the Developer shall, in any case, fail to complete the Improvements within the period of time required herein, the City shall ensure the satisfactory completion of the Improvements and shall be reimbursed for the costs and expenses incurred by appropriating funds from the Escrow Sum. To ensure the satisfactory completion of the Improvements, the City may complete the Improvements itself or it may contract with a third party for completion. The Developer grants to the City, its successors, assigns, agents, contractors, subcontractors and employees, a nonexclusive right and easement to enter the Property for the purposes of constructing, reconstructing, maintaining and/or repairing such Improvements.

10. **Reduction of Escrow Sum.** The portion of the Escrow Sum held to secure the actual construction, installation and completion of each of the Improvements under each Improvement Category shall be released by the City within thirty (30) days of the completion of said Improvement Category, minus a maximum retention of five percent (5%) which shall be released in accordance with Section 405.120 of the Code of the City of O'Fallon, Missouri and as set forth herein. Any such Improvement Category shall be deemed to be completed upon certification by the City that the Improvements described therein are complete in accordance with the terms of this Agreement and any applicable ordinances of the City, including the filing of all documentation and certifications required by the City in complete and acceptable form. Once the City has determined that an Improvement Category has been completed in a timely and satisfactory manner, as described herein, the City Engineer will provide written authorization to the Escrow Agent to release or disburse the portion of the Escrow Sum relating to the particular Improvement Category.

11. **Release of Escrow Sum.** The Escrow Agent shall only release or disburse the Escrow Sum or any portion thereof upon receipt of and in the amount set forth in a written authorization from the City Engineer addressed to the Escrow Agent, which said authorization may be for the payment of labor and materials of the City in connection with the construction, installation and completion of said Improvements. The release shall be deemed effective when the Escrow Sum or any portion thereof are duly posted with the United States Postal Service or other agreed upon delivery service or upon hand delivery to an authorized person or place as specified by the Developer.

12. **Acceptance of Improvements.** The City's final acceptance, certification and/or approval of any Improvements will not be given or obtained until the Developer presents a document or documents, for the benefit of the City, showing that the Developer owns the Improvements in fee simple and that there are no liens, encumbrances or other restrictions other than those that have been accepted by the City Attorney on the Improvements. Approval, certification and/or acceptance of any Improvements does not constitute a waiver by the City of any rights it may have on account of any defect in or failure of the Improvement that is detected or which occurs after approval, certification and/or acceptance. Approval, certification and/or acceptance shall not constitute acceptance of the Improvements by the City for dedication purposes.

13. **Indemnification.** The Developer expressly agrees to indemnify and hold the City, its officers, employees, agents and assigns harmless from and against all claims, costs and liabilities of every kind and nature, for injury or damage received or sustained, either directly or indirectly, by any person or entity in connection with, or on account of the performance or non-performance of work on the Property or otherwise relating to the Development. The Developer further agrees to aid and defend the City in the event that the City is named as a defendant in an action concerning the performance or non-performance of work pursuant to this Agreement, except where such suit is brought by the Developer against the City.

14. **No Waiver.** No waiver of any provision of this Agreement by the City will be deemed to constitute a waiver of any other provision, nor will it be deemed or constitute a continuing waiver unless expressly provided for by a written amendment to this Agreement signed by the City, the Developer and the Escrow Agent; nor will the waiver of any default under this Agreement be deemed a waiver of any subsequent default or defaults of the same type. The City's failure to exercise any right under this Agreement will not constitute the approval of any wrongful act by the Developer or the acceptance of any Improvement.

15. **Attorney's Fees.** The City shall be entitled to payment by the Developer of costs, including reasonable attorney's fees and expert witness fees, incurred in the enforcement of this Agreement whether that enforcement is in the form of a legal action or otherwise.

16. **Third Party Rights.** This Agreement is not executed for the benefit of materialmen, laborers, or others providing work, services or materials to the Developer and/or the Property or for the benefit of the owners, purchasers or users of the Property. No person or entity who or which is not a party to this Agreement will have any right of action under this Agreement.

17. **Severability.** If any part, term or provision of this Agreement is held by a court or courts of competent jurisdiction to be illegal or otherwise unenforceable, such illegality or unenforceability will not affect the validity of any other part, term or provision and the rights of the parties will be construed as if the part, term or provision was never part of the Agreement.

18. **Principal and Agent.** Nothing contained in this Agreement shall be deemed or construed by the parties hereto or by any third party to create the relationship of principal and agent or of partnership or of joint venture or of any association between the City and the Developer.

19. **Immunity.** Nothing contained in this Agreement constitutes a waiver of the City's sovereign or other immunity under any applicable law.

20. **Governing Law.** This Agreement and the performance thereof shall be governed, interpreted, construed, and regulated by the laws of the State of Missouri. Any litigation concerning this Agreement shall be conducted in the courts located in St. Charles County, Missouri, and the parties hereto agree to the venue and personal jurisdiction of these courts.

21. **Assignment.** This Agreement shall inure to the benefit of and be binding upon the successors in interest and/or the legal representatives of the respective parties hereto. This Agreement shall not be assigned or transferred by the Developer without the written consent of the City being first had and obtained.

22. **Notice.** Any notice or demand made pursuant to this Agreement shall be given by certified mail, return receipt requested, and addressed as shown below:

Developer:

COCKWOOD HOMES, LLC
16091 SWINGLEY RIDGE RD, STE. 300
CHESTERFIELD, MO 63017

Attention: JEREMY ROTH

Escrow Agent:

N/A

Attention: _____

City of O'Fallon, Missouri: The City of O'Fallon
100 N. Main Street
O'Fallon, MO 63366
Attention: City Administrator

Any such notice or demand shall be deemed to have been given or made at the time it is received in the United States Mail by the addressee. The City, the Developer or the Escrow Agent may by written notice to the other parties designate any other address for this purpose.

23. **Ambiguities.** The parties have each had the opportunity to review and negotiate the terms of this Agreement, and any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not apply in the interpretation of this Agreement.

24. **Headings.** The section headings contained herein are intended for convenience and reference only, and are not a part of this Agreement.

25. **Recording.** In the event the City elects to record this Agreement or a memorandum thereof among the land records of St. Charles County, Missouri, the parties hereto agree to execute a memorandum of Agreement, and all costs of recording this Agreement or memorandum thereof shall be paid by the City.

26. **Counterparts.** This Agreement may be executed in any number of counterparts, each of which will be deemed to be an original, but all of which together will constitute one instrument.

27. **Finality.** The parties have read and understand each and every term, condition, and covenant contained in this Agreement and in any document incorporated by reference. This Agreement and any appendices attached hereto constitutes the entire Agreement between the parties and supersedes all prior or contemporaneous negotiations, commitments, representations, writings and/or oral understandings or agreements, except those otherwise referenced in this Agreement. The parties signed this Agreement for the consideration herein expressed. Any addition to, variation or modification of this Agreement shall be void and ineffective unless in writing signed by all the parties.

(THE REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK)

IN WITNESS WHEREOF, the parties have hereunto set their respective hands and seals as of the day and year first above written.

CITY:

"CITY OF O'FALLON, MISSOURI"

By: Tom Cledy

Title: Acting City Administrator

DEVELOPER:

ROCKWOOD HOMES, LLC

"BY: MCBRIDE & SON HOLDINGS, INC.
MANAGING MEMBER

By: Michael D. Gum Treas
MICHAEL D. GUM

Title: TREASURER

CORPORATE SEAL

ESCROW AGENT:

"_____"

By: _____

Title: _____

NOTARY STATEMENT FOR DEVELOPER

State of Missouri

COUNTY of ST. LOUIS

On this 17TH day of APRIL in the year 2013, before me, the undersigned notary public, personally appeared MICHAEL D. APPI, known to me to the person whose name is subscribed to the within instrument and acknowledged that she executed the same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

Notary Donna L. Knese

Print Name DONNA L. KNESE

My Commission Expires 12/6/15

DONNA L. KNESE
My Commission Expires
December 6, 2015
St. Charles County
Commission #11510066

NOTARY STATEMENT FOR ESCROW HOLDER

State of Missouri

of

On this ____ day of ____ in the year ____, before me, the undersigned notary public, personally appeared _____, known to me to the person whose name is subscribed to the within instrument and acknowledged that she executed the same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

Notary_____

Print Name_____

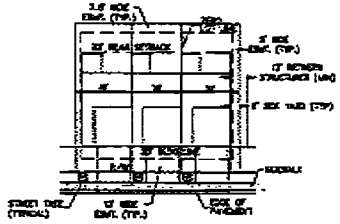
My Commission Expires_____

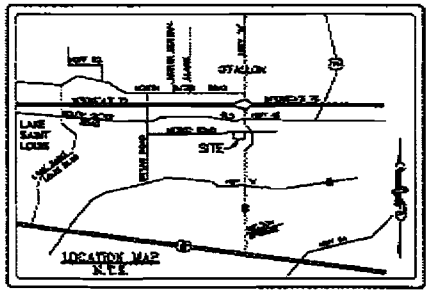
EXHIBIT A

(Legal description of the Property or 11 X 17 of proposed plat)

WEATHERBY LANDING

A TRACT OF LAND BEING ALL OF LOT 2A OF THE RESUBDIVISION OF LOT 2 OF HOME DEPOT ACRES (P.B.43 PGS. 159-160) IN FRACTIONAL SECTION 32 TOWNSHIP 47 NORTH, RANGE 3 EAST OF THE FIFTH PRINCIPLE MERIDIAN CITY OF O'FALLON, ST. CHARLES COUNTY, MISSOURI





Locator Map

THE STERLING CO.
ENGINEERS & SURVEYORS

DRAWN BY		MSD/PB - 1024
CHECKED BY		DATE:
JOB NO.:		PRELIMINARY LAND DEVELOPMENT PLAN

LEGEND

CITY CERTIFICATION

SURVEYOR'S CERTIFICATE

EXHIBIT B

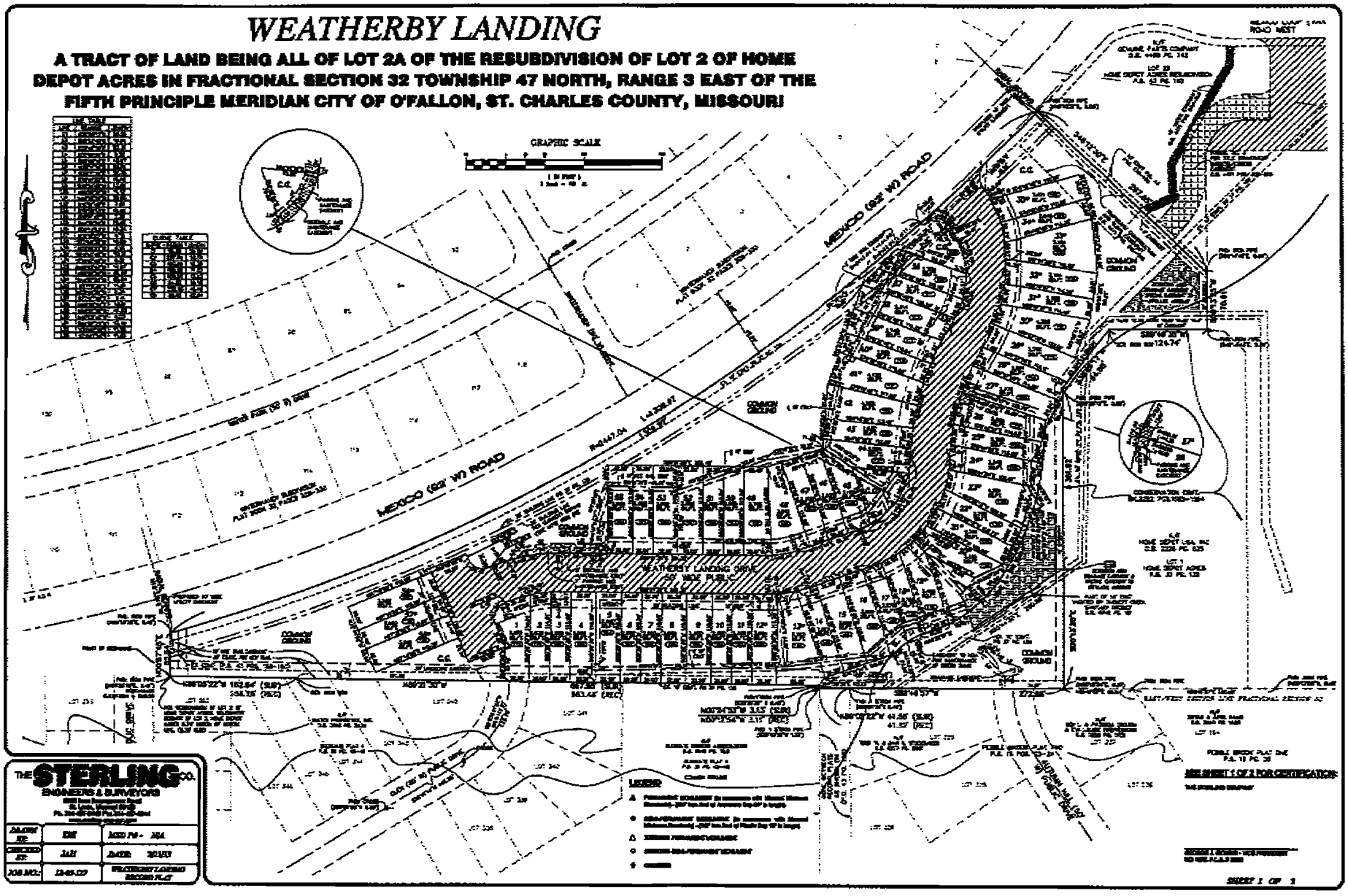
(Designate Separate Improvement Categories and itemize improvements under each Improvement Category)

IMPROVEMENT CATEGORIES

1.	Streets:	$_____
2.	Storm Sewers:	$_____
3.	Sanitary Sewers:	$_____
4.	Water:	$_____
5.	Rough Grading:	$ 99,673.00
6.	Vegetation:	$_____
7.	Sidewalks:	$_____
8.	Street Lights and Name Signs:	$_____
9.	Common Ground Improvements:	$_____
10.	Other Miscellaneous Items:	$_____
	TOTAL:	$ 99,673.00

WEATHERBY LANDING

A TRACT OF LAND BEING ALL OF LOT 2A OF THE RESUBDIVISION OF LOT 2 OF HOME DEPOT ACRES IN FRACTIONAL SECTION 32 TOWNSHIP 47 NORTH, RANGE 3 EAST OF THE FIFTH PRINCIPLE MERIDIAN CITY OF O'FALLON, ST. CHARLES COUNTY, MISSOURI



APPROVED
4/10/13
RC

4/4/2013

Engineers Cost Estimate

WEATHERBY LANDING

4/4/2013

12-05-127

Grading Escrow / Record Plat Escrow / Site Plan Estimate / Commercial Site Escrow

	Unit Description	Unit Price	Unit	Add. Cost	No. of Units		Total
	Rough Grading						
	Erosion Control - Apartments / Condominiums (vegetation)	$311.00	# of Units	$2,480			$0.00
	Erosion Control - Industrial / Commercial.(vegetation)	$1,860.00	# of Acres	$1,550			$0.00
	Ecerion Control - Residential.(vegetation)	$372.00	# of Lots	$1,240	58		$22,816.00
	Grading - Apartments / Condominiums	$189.00	# of Units	$4,635			$0.00
	Grading - Industrial / Commercial.	$1,558.00	# of Acres	$3,720			$0.00
	Grading - Residential	$317.00	# of Lots	$3,110	58		$21,496.00
	Siltation Control - Apartments / Condominiums (silt fence, silt basins, check dams, etc.)	$56.00	# of Units	$2,480			$0.00
	Siltation Control - Industrial / Commercial (silt fence, silt basins, check dams, etc.)	$774.00	# of Acres	$3,110			$0.00
	Siltation Control - Residential (silt fence, silt basins, check dams, etc.)	$158.00	# of Lots	$2,480	58		$11,844.00
O*	Temporary Silt Basin - Outfall Structure	$5,000.00	each				$0.00
O*	Temporary Silt basin - Riser Pipe	$8.00	lin ft		4		$32.00
O*	Clearing	$3,000.00	# of Acres		0.92		$2,760.00
O*	Construction Entrance / Wash Down Pad / Parking	$25.00	sq yd		284		$7,100.00
	Sink Hole Treatment - Capping	$610.00	each				$0.00
	Sinkhole Treatment - Venting.	$3,860.00	each				$0.00
	Sink Hole Treatment	$28,315.00	each				$0.00
	Retaining Wall - Concrete	$912.00	cu yd				$0.00
	Retaining Wall - Large Panel Wall System	$61.50	sq ft				$0.00
	Retaining Wall - Precast Concrete Block Wall (Versa-Lok)	$20.50	sq ft		1650		$33,825.00
							$0.00
							$0.00
					Rough Grading		***$98,879.00***
	Vegetation						
	Seeding - common ground	$0.62	sq yd		7476		$4,634.50
	Sodding - common ground	$8.30	sq yd				$0.00
O*	Swales	$8.30	sq yd				$0.00
							$0.00
							$0.00
					Vegetation		***$4,634.50***
	Sidewalks						
	Common Ground Concrete Walkway - 4" Thick	$4.70	sq ft		1705		$8,013.50
	Concrete Handicap Curb Ramp with Truncated Domes	$1,035.00	each		4		$4,140.00
	Concrete Sidewalk - 4" thick – 4' wide	$4.70	sq ft				$0.00
	Concrete Sidewalk - 4" thick – 5' wide	$4.70	sq ft				$0.00
	Concrete Sidewalk - 4" thick – 6' wide	$4.70	sq ft				$0.00
	Concrete Sidewalk - 6" thick (Residential Entrances)	$4.90	sq ft				$0.00
	Concrete Sidewalk - 7" thick (Commercial Entrances)	$5.10	sq ft				$0.00
O*	Bituminous Concrete Trail - 4' wide - 3" thick over 4" Aggregate Base	$22.00	sq yd				$0.00
O*	Bituminous Concrete Trail - 6' wide - 3" thick over 4" Aggregate Base (Off-site)	$22.00	sq yd		124		$2,728.00
O*	Bituminous Concrete Trail - 8' wide - 3" thick over 4" Aggregate Base	$22.00	sq yd				$0.00
							$0.00
							$0.00
					Sidewalks		***$14,881.50***
	Street Lights and Name Signs						
	Street Name Sign	$246.00	each		1		$246.00
O*	Street Lights - Typical	$750.00	each		6		$4,500.00
O*	Street Lights - Special Order	$1,500.00	each				$0.00
							$0.00
							$0.00
					Street Lights and Name Signs		***$4,746.00***

The Sterling Company
5055 New Baumgartner Rd.
St. Louis, MO 63129

The Sterling Company
Phone: 314.487.0440
Fax: 314.487.8844

100 NORTH MAIN STREET
O'FALLON, MISSOURI 63366
636.240.2000
FACSIMILE 636.978.4144
www.ofallon.mo.us

October 24, 2013

McBride & Son Homes Land Development, Inc.
Attn: Donna L. Knese
16091 Swingley Ridge Road, Suite300
Chesterfield, MO 63017

Phone: (314) 336-0230
Fax: (314) 336-0175

Project: Weatherby Landing
Subject: Stormwater Management and Best Management Practices Facilities Maintenance Agreement

Dear Ms. Knese:

The Stormwater Management and Best Management Practices Facilities Maintenance Agreement for the above mentioned project has been approved by the Planning & Zoning Commission and the City Council for the City of O'Fallon. One (1) original document with all original signatures and certificates has been provided for recording.

Upon receipt of the recorded copy of the document from the St. Charles County Recorder of Deeds office, provide a scanned copy of the entire document in a portable document format (pdf) and e-mail to the address below.

If you have any questions, I can be reached at bcopeland@ofallon.mo.us or (636) 379-5471.

Sincerely,

Robert Copeland
Plan Reviewer

cc via e-mail: Jay Herigodt – Assistant City Engineer
David Woods – Director of Planning & Development
File through AC

STORMWATER MANAGEMENT and BEST MANAGEMENT PRACTICES
FACILITIES MAINTENANCE AGREEMENT

Ordinance # 5271, City Code 405.247
O'Fallon, Missouri

636-240-2000

STORMWATER MANAGEMENT and BEST MANAGEMENT PRACTICES FACILITIES MAINTENANCE AGREEMENT

THIS AGREEMENT, made and entered into this 17th day of APRIL, 2013, by and between ROCKWOOD HOMES, LLC hereinafter called the "Landowner", and the City of O'Fallon, Missouri hereinafter called the "City".

WITNESSETH, that

WHEREAS, the Landowner is the owner of certain real property generally described as WEATHERBY LANDING with a St. Charles County tax Map/Parcel Identification Number of 2-0060-A073-0000-3A and as recorded by deed in the land records of St. Charles County, Missouri, Deed Book 5319 Page 2226, hereinafter called the "Property".

WHEREAS, the Landowner is proceeding to build on, develop or otherwise improve the property; and

WHEREAS, improvements are being made according to Site Plan/Subdivision Plan known as WEATHERBY LANDING, hereinafter called the "Plan", which is expressly made a part hereof, as approved or to be approved by the City.

WHEREAS, the City and the Landowner, its successor and assigns, including any homeowners association, agree that the health, safety, and welfare of the residents of O'Fallon, Missouri require that on-site stormwater management / Best Management Practices (BMP) facilities be constructed and maintained on the Property; and

WHEREAS, the City requires per ordinance #5271 (City Code 405.247) that on-site stormwater management / BMP facilities as shown on the Plan be constructed and adequately maintained by the Landowner, its successors and assigns, including any homeowners and or subdivision association.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. Initial Construction: The on-site stormwater management / BMP facilities shall be constructed by the Landowner, its successors and assigns, in accordance with the plans and specifications identified in the Plan and in accordance with City Ordinance.

2. Maintenance: The Landowner and its successors and assigns, including any homeowners and/or subdivision association, shall, at all times, adequately maintain the on site stormwater management / BMP facilities as approved for that development on the plan. The facilities to be maintained shall include all pipes and channels built to convey stormwater to the facility, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater. Adequate maintenance is herein defined as good working condition so that these facilities are performing functions as designed, so that these facilities do not adversely affect other elements of the overall storm water system and so that these facilities comply with City Ordinance or other applicable law. Stormwater pipes marked on the plans as "private" are to be maintained by landowner. Storm pipes which are designated as "public" are not the responsibility of the landowner; however, landowner shall take no action to cause damage or adversely affect the public systems and, furthermore, landowner shall continue to maintain the "private" facilities so as not to adversely affect the "public" facilities.

3. Annual Inspections: The Landowner, its successors and assigns, shall inspect the stormwater management / BMP facility and submit an inspection report to the City's Stormwater Coordinator annually. The purpose of the inspection is to assure safe and proper functioning of the facilities. The inspection shall cover the entire facilities, berms, outlet structure, retention/detention and pond areas, access roads, etc. Deficiencies shall be noted in the inspection report.

4. City Authorized to Enter Property: The Landowner hereby grants its consent to the City to enter upon the Property, from time to time, and to inspect the stormwater management / BMP facilities whenever the City deems necessary. The purpose of inspection is to follow-up on reported deficiencies, to verify the annual reports submitted by Landowner and/or to respond to citizen concerns or possible nuisance conditions. The City shall provide the Landowner, its successors and assigns, copies of the inspection findings and a directive to commence with the repairs if necessary.

5. Maintenance Schedule: The Landowner, its successors and assigns, will perform the work necessary to keep these facilities in good working order as appropriate. In the event a maintenance schedule for the stormwater management / BMP facilities (including sediment and debris removal) is outlined on the approved plans or as part of this Agreement, the schedule will be followed. In addition to the actions outlined on the maintenance schedule, the Landowner and its successors and assigns shall take further action in order to keep the facilities in good working order; following the maintenance schedule, alone, will not relieve the Landowner of any responsibility to take further actions to ensure proper operation and maintenance of the facilities.

6. Failure to Maintain: In the event the Landowner, its successors and/or assigns, fails to maintain the stormwater management / BMP facilities in good working condition, the City will notify Landowner, its successors and/or assigns, of deficiencies by letter. The Landowner will have ten (10) days from the date of the letter to respond to the City with an adequate plan to make repairs. If adequate repairs are not made by Landowner in a timely manner, Landowner hereby consents and agrees that City may enter upon the Property and take whatever steps necessary to correct deficiencies identified in the inspection report; all costs of such repairs shall be billed to the Landowner, its successors and/or assigns. Landowner, its successors and/or assigns shall pay the bill as required by Section 7 of this Agreement. This provision shall not be construed to allow the City to erect any structure of permanent nature on the land of the Landowner outside of any easement for the stormwater management / BMP facilities. It is expressly understood and agreed that the City is under no obligation to routinely maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the City.

7. Landowner to Reimburse City: In the event the City pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner, its successors and assigns, shall reimburse the City upon demand, within thirty (30) days of receipt thereof for all actual costs incurred by the City hereunder. In the event that the City must pursue any action to collect any delinquent payments, Landowner, its successors and assigns, the City shall be entitled to recover all of its collection costs and attorney fees.

8. Liability and Hold Harmless: This Agreement imposes no liability of any kind whatsoever on the City and the Landowner agrees to hold the City harmless from any liability in the event the stormwater management / BMP facilities fail to operate properly.

9. Recording: This Agreement shall be recorded among the land records of St. Charles County, Missouri by the Landowner and shall constitute a covenant running with the land, and shall be binding on the Landowner, its administrators, executors, assigns, heirs and any other successors in interests, including any homeowners and or subdivision association. This agreement shall be recorded with the record plat of any development that requires such a plat. If the development does not require that a plat be recorded it shall be recorded prior to approval of the construction plans for the development.

WITNESS the following signatures and seals:

LANDOWNER SIGNATURES:

ROCKWOOD HOMES, LLC
BY: McBRIDE & SON HOLDINGS, INC. MANAGING MEMBER
Company/Corporation/Partnership Name (seal)

BY: Michael D. Arri Treas

MICHAEL D. ARRI
(Type Name)

TREASURER
(Type Title)

ROCKWOOD HOMES LLC CORPORATE SEAL

McBRIDE RED HAWK LLC CORPORATE SEAL

STATE OF MISSOURI

COUNTY OF ST. LOUIS

The foregoing Agreement was acknowledged before me this 17th day of APRIL, 2013, by

Donna L. Knese

DONNA L. KNESE
NOTARY PUBLIC

My Commission Expires: 12/6/15

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

DONNA L. KNESE
My Commission Expires
December 6, 2015
St. Charles County
Commission #11510086

CITY SIGNATURES:

Passed by Consent of the City Council for the City of O'Fallon, Missouri, This 25 Day of July, 2013

BY: Bill Hennessy
Mayor, City of O'Fallon

ATTEST:

Pamela L. Clement
City Clerk, City of O'Fallon

Approved as to Form:

City Attorney 7-25-13
Date

This foregoing Agreement was acknowledged before me this 30 day of July, 2013 by

Pamela L. Clement

Pamela L. Clement
NOTARY PUBLIC

My Commission Expires: 5-18-2016

PAMELA L CLEMENT My Commission Expires 5/18/2016 NOTARY PUBLIC NOTARY SEAL Commission # 12412954 St. Charles County STATE OF MISSOURI

MAINTENANCE AND OPERATION PLAN

MAINTENANCE MANUAL

INTRODUCTION

In accordance with City of O'Fallon regulations, The Weatherby Landing Homeowners Association is responsible for inspecting and maintaining the stormwater management facilities (SWMFs) as approved by the City of O'Fallon. Research and experience have demonstrated that regular and thorough maintenance is necessary for Stormwater management facilities to perform effectively and reliably. They have also demonstrated that failure to perform such maintenance can lead to diminished performance, deterioration and failure, in addition to a range of health and safety problems including mosquito breeding, vermin, and the potential for drowning.

This maintenance manual contains specific preventative and corrective maintenance tasks for the SWMFs within this subdivision.

SELECTION OF STORMWATER MANAGER

The Weatherby Landing Homeowners Association shall select a Trustee who will be responsible for SWMF maintenance. This person shall be referred to as the stormwater manager. The stormwater manager must be aware of the purpose of the SWMFs and consequences of facility failure, particularly those failures caused by inadequate maintenance.

STORMWATER MANAGEMENT FACILITIES

There are a total of 2 storm SWMFs within this subdivision.

Water Quality Area A is the main basin located behind lots 20-23. This basin has a sandfilter located in the bottom of it that treats the stormwater for the majority of the subdivision. There are forebays (pretreatment areas) located on both ends of the basin which helps trap coarse materials and other pollutants before entering the sanfilter. The stormwater first passes through the pretreatment areas before entering the sandfilter through a 2' high rock dyke (berm). The sandfilter consists of 3 layers which are 3" of topsoil, 18" of clean washed "concrete" sand and 6" perforated pipe/8" thick gravel underdrain system. The sand layer is wrapped with a filter fabric to help keep the sand from being clogged with sediment. The approximate time it normally takes to drain the runoff volume below the swale bottom is 40 hours.

Water Quality Area B is located behind lots 31 and 32. This facility has an infiltration trench located in the bottom of it that treats the stormwater draining to it from the rear of lots 32-35. The stormwater drains into this facility via sheet flow. The 36" wide infiltration trench consists of 2 layers which are a 6" thick layer of 3" diameter or larger aggregate and a 30" layer of ¾" clean aggregate containing a 4" perforated pipe. The ¾" aggregate is wrapped with a filter fabric to help keep the aggregate from being clogged with sediment. The remainder of the facility is planted with a native seeding blend. The approximate time it normally takes to drain the runoff volume below the filter bed is 24 hours.

PREVENTATIVE MAINTENANCE

The purpose of preventative maintenance is to assure that the SWMFs remain operational and safe at all times, while minimizing the need for emergency and corrective maintenance.

1. Grass Cutting

A regularly scheduled program of mowing and trimming of grass at SWMFs during the growing season will help to maintain a tightly knit turf, and will also help to prevent diseases, pests and the intrusion of weeds. The actual mowing requirements of an area should be tailored to the specific site conditions, grass type, and seasonal variations in the climate. In general, grass should not be allowed to grow more than 1 to 2 inches between cuttings. Allowing the grass to grow more than this amount prior to cutting it may result in damage to the grass' growing points and limit its continued healthy growth.

2. Grass Maintenance

Grassed areas require periodic fertilizing, de-thatching and soil conditioning in order to maintain healthy growth. Additionally, provisions should be made to re-seed and re-establish grass cover in areas damaged by sediment accumulation, storm water flow, or other causes.

3. Removal and Disposal of Trash and Debris

A regularly scheduled program of debris and trash removal form SWMFs will reduce the chance of outlet structures, trash racks and other components becoming clogged and inoperable during storm events. Additionally, removal of trash and debris will prevent possible damage to vegetated areas and eliminate potential mosquito breeding habitats. Disposal of debris and trash must comply with all local, county, state and federal waste flow control regulations. Only suitable disposal and recycling sites should be utilized.

4. Sediment Removal and Disposal

Accumulated sediment should be removed before it threatens the operation or storage volume of a SWMF. Disposal of sediment must comply with all local, county, state, and federal regulations, Only suitable disposal sites should be utilized. The sediment removal program in infiltrations facilities must also include provisions for monitoring the porosity of the sub-base, and replacement or cleansing of the pervious materials as necessary.

5 Elimination of Potential Mosquito Breeding Habitats

The most effective mosquito control program is one that eliminates potential breeding habitats. Almost any stagnant pool of water can be attractive to mosquitoes, and the source of a large mosquito population. Ponded water in areas such as open cans and bottles, debris and sediment accumulations, and areas of ground settlement provide ideal locations for mosquito breeding. A maintenance program dedicated to eliminating potential breeding areas is certainly preferable to controlling the health and nuisance effects of flying mosquitoes.

6. Inspections

Regularly scheduled inspections of the facility should be performed by qualified inspectors. The primary purpose of the inspections is to ascertain the operational condition and safety of the facility, particularly the condition of embankments, outlet structures, and other safety-related aspects. Inspections will also provide information on the effectiveness of regularly scheduled Preventative and Aesthetic Maintenance procedures, and will help to identify where changes in the extent and scheduling of the procedures are warranted. Finally, the facility inspections should also be used to determine the need for and timing of Corrective Maintenance procedures. It should be noted that, in addition to regularly scheduled inspections, an informal inspection should be performed during every visit to a SWMF by maintenance or supervisory personnel.

7 Reporting:

The recording of all maintenance work and inspections provide valuable data on the facility condition. Review of this information will also help to establish more efficient and beneficial maintenance procedures and practices. Along with the written reports, a chain of command for reporting and solving maintenance problems and addressing maintenance needs should be established. From field personnel to the stormwater manager, everyone should be encouraged to report any problems or suggest any changes to the maintenance program.

CORRECTIVE MAINTENANCE

Corrective maintenance is required on an emergency or non-routine basis to correct problems or malfunctions and to restore the intended operation and safe condition of a SWMF.

1. Removal of Debris and Sediment

Sediment, debris and trash which threatens the discharge capacity of a SWMF should be removed immediately and properly disposed of in a timely manner. Equipment and personnel must be available to perform the removal work on short notice. The lack of an available disposal site should not delay the removal of trash, debris, and sediment. Temporary disposal sites should be utilized if necessary.

2. Dam, Embankment, and Slope Repairs

Damage to dams, embankments, and side slopes must be repaired promptly. This damage can be the result of rain or flood events, vandalism, animals, vehicles, or neglect. Typical problems include settlement, scouring, cracking, sloughing, seepage, and rutting. Equipment, materials and personnel must be available to perform these repairs on short notice. The immediacy of the repairs will depend upon the nature of the damage and its effects on the safety and operation of the facility. The analysis of damage and the design and performance of geotechnical repairs should only be undertaken by qualified personnel.

3. Dewatering

It may be necessary to remove ponded water from within a malfunctioning SWMF. This ponding may be the result of a blocked principal outlet (detention facility), inoperable low level outlet (retention facility), loss of infiltration capacity (infiltration facility) or poor bottom drainage. Portable pumps may be necessary to remove the ponded water temporarily until a permanent solution can be implemented.

4. Extermination of Mosquitoes

If neglected, a SWMF can readily become an ideal mosquito breeding area. Extermination of mosquitoes will usually require the services of an expert, such as the local Mosquito Extermination Commission. Proper procedures carried out by trained personnel can control the mosquitoes with a minimum of damage or disturbance to the environment. If mosquito control in a facility becomes necessary, the preventative maintenance program should also be re-evaluated, and more emphasis placed on control of mosquito breeding habitats.

5. Erosion Repair

Vegetative cover or other protective measures are necessary to prevent the loss of soil from the erosive forces of wind and water. Where a re-seeding program has not been effective in maintaining a non–erosive vegetative cover, or other factors have exposed soils to erosion, corrective steps should be initiated to prevent further loss of soil and any subsequent danger to the stability of the facility. Soil loss can be controlled by a variety of materials and methods, including riprap, sod, seeding, and re-grading. The local Soil Conservation District can provide valuable assistance in recommending materials and methodologies to control erosion.

6. Elimination of Trees, Brush, Roots and Animal Burrows

The stability of dams, embankments, and side slopes can be impaired by large roots and animal burrows. Additionally, burrows can present a safety hazard for maintenance personnel. Trees and brush with extensive, woody root systems should be completely removed from dams and embankments to prevent their destabilization and the creation of seepage routes. Roots should also be completely removed to prevent their decomposition within the dam or embankment. Root voids and burrows should be plugged by filling with material similar to the existing material, and capped just below grade with stone, concrete or other material, If plugging of the burrows does not discourage the animals from returning, further measures should be taken to either remove the animal population or to make critical areas of the facility unattractive to them.

7. Snow and Ice Removal

Accumulations of snow and ice can threaten the functioning of a SWMF, particularly at inlets, outlets, and emergency spillways. Providing the equipment, materials and personnel to monitor and remove snow and ice from these critical areas is necessary to assure the continued functioning of the facility during the winter months.

SANDFILTER MAINTENANCE & INSPECTION SCHEDULE

Table 3.2.4-1. Typical Maintenance Activities for Sand Filters
(Source: WMI, 1997; PW, 1997)

Activity	Schedule
• Ensure that contributing area, facility, inlets and outlets are clear of debris. • Ensure that the contributing area is stabilized and mowed, with clippings removed. • Remove trash and debris. • Check to ensure that the filter surface is not clogging (also check after moderate and major storms). • Ensure that activities in the drainage area minimize oil/grease and sediment entry to the system. • If permanent water level is present (perimeter sand filter), ensure that the chamber does not leak, and normal pool level is retained.	Monthly
• Check to see that the filter bed is clean of sediment, and the sediment chamber is not more than 50% full or 6 inches, whichever is less, of sediment. Remove sediment as necessary. • Make sure that there is no evidence of deterioration, spalling or cracking of concrete. • Inspect grates (perimeter sand filter). • Inspect inlets, outlets and overflow spillway to ensure good condition and no evidence of erosion. • Repair or replace any damaged structural parts. • Stabilize any eroded areas. • Ensure that flow is not bypassing the facility. • Ensure that no noticeable odors are detected outside the facility.	Annually
• If filter bed is clogged or partially clogged, manual manipulation of the surface layer of sand may be required. Remove the top few inches of sand, roto-till or otherwise cultivate the surface, and replace media with sand meeting the design specifications. • Replace any filter fabric that has become clogged.	As needed

Additional Maintenance Considerations and Requirements

- A record should be kept of the dewatering time for a sand filter to determine if maintenance is necessary.
- When the filtering capacity of the sand filter facility diminishes substantially (i.e., when water ponds on the surface of the filter bed for more than 48 hours), then the top layers of the filter media (topsoil and 2 to 3 inches of sand) will need to be removed and replaced. This will typically need to be done every 3 to 5 years for low sediment applications, more often for areas of high sediment yield or high oil and grease.
- Removed sediment and media may usually be disposed of in a landfill.

⚠ Regular inspection and maintenance is critical to the effective operation of sand filter facilities as designed. Maintenance responsibility for a sand filter system should be vested with a responsible authority by means of a legally binding and enforceable maintenance agreement that is executed as a condition of plan approval.

INFILTRATION TRENCH MAINTENANCE & INSPECTION SCHEDULE

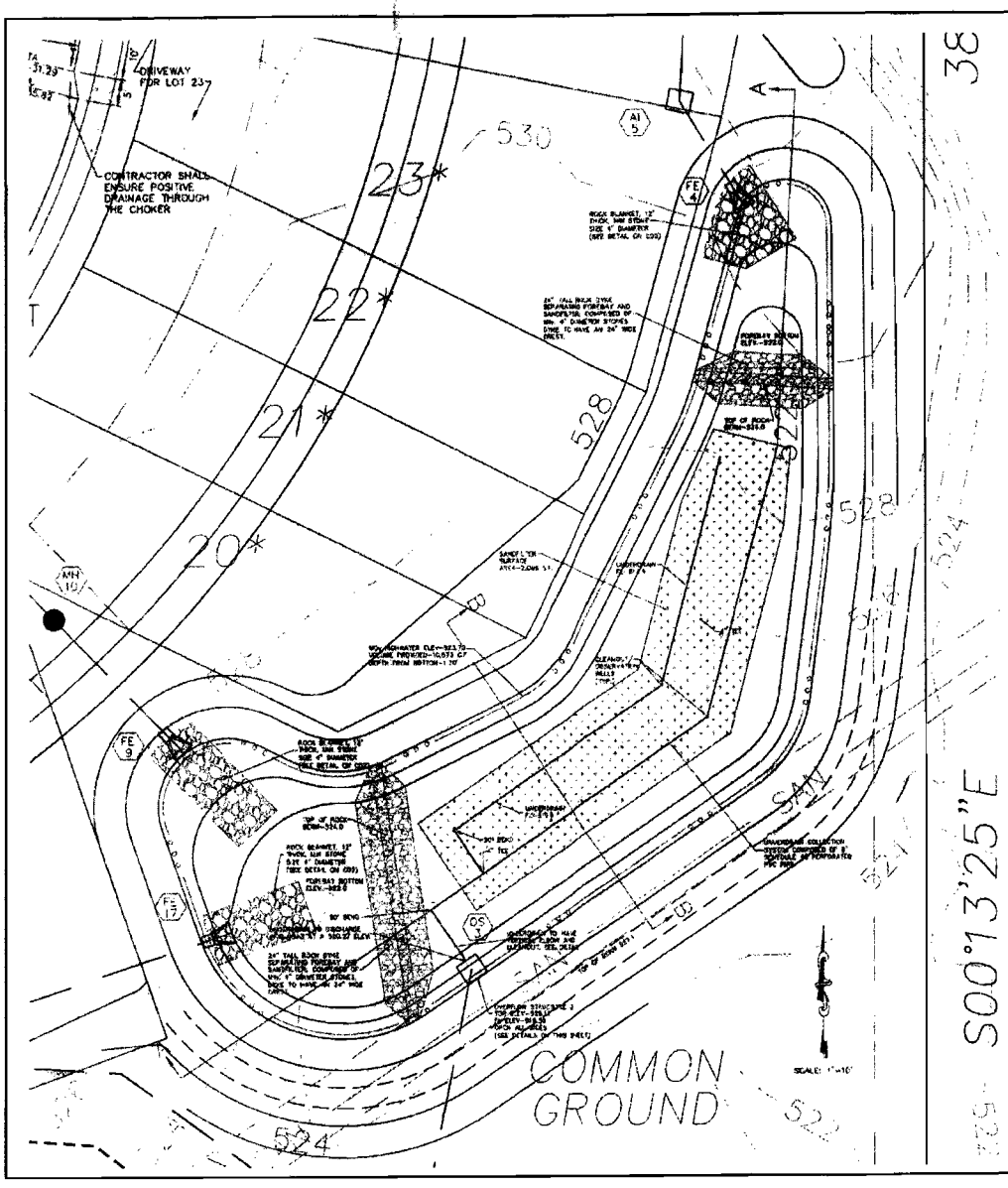
Table 3.2.4-2 Typical Maintenance Activities for Infiltration Trenches
(Source: EPA, 1999)

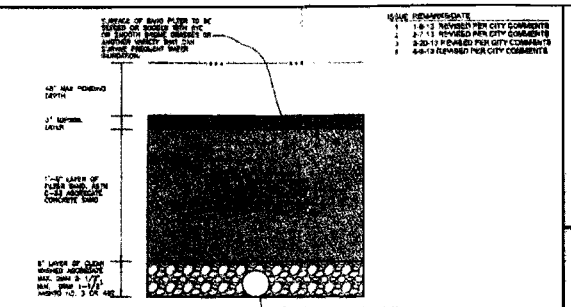
Activity	Schedule
• Ensure that contributing area, facility and inlets are clear of debris. • Ensure that the contributing area is stabilized. • Remove sediment and oil/grease from pretreatment devices, as well as overflow structures. • Mow grass filter strips should be mowed as necessary. Remove grass clippings.	Monthly
• Check observation wells following 3 days of dry weather. Failure to percolate within this time period indicates clogging. • Inspect pretreatment devices and diversion structures for sediment build-up and structural damage. • Remove trees that start to grow in the vicinity of the trench.	Semi-annual Inspection
• Replace pea gravel/topsoil and top surface filter fabric (when clogged).	As needed
• Perform total rehabilitation of the trench to maintain design storage capacity. • Excavate trench walls to expose clean soil.	Upon Failure

Additional Maintenance Considerations and Requirements

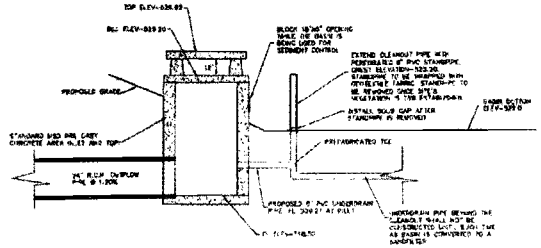
- A record should be kept of the dewatering time of an infiltration trench to determine if maintenance is necessary.
- Removed sediment and media may usually be disposed of in a landfill.

⚠ Regular inspection and maintenance is critical to the effective operation of infiltration trench facilities as designed. Maintenance responsibility for a infiltration trench should be vested with a responsible authority by means of a legally binding and enforceable maintenance agreement that is executed as a condition of plan approval.

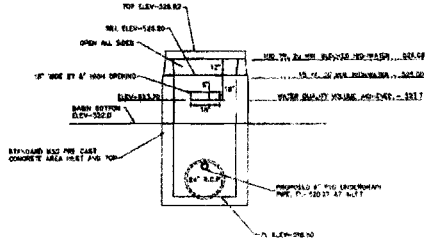




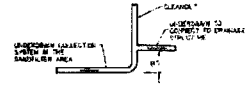
TYPICAL SECTION SAND FILTER
N.T.S.



OVERFLOW STRUCTURE 3
SIDE SECTION MODIFIED FOR SEDIMENT CONTROL
N.T.S.



OVERFLOW STRUCTURE 3
FRONT ELEVATION
N.T.S.



VERTICAL ELBOW
UNDERDRAIN DETAIL
N.T.S.

PROJECT TITLE

WEATHERBY LANDING

CITY OF ST. LOUIS, MISSOURI

THE STERLING CO.
ENGINEERS & SURVEYORS

Date: 11/12/12
ROBERT ARNOLD
License No. PE-2002015517
Civil Engineer

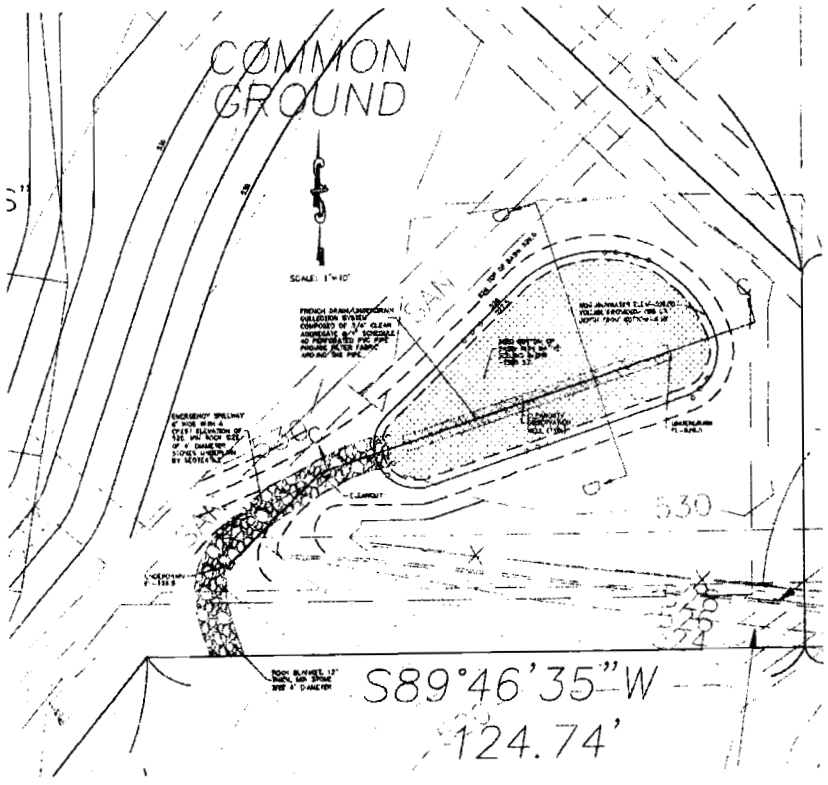
MCBRIDE & SON HOMES LAND DEVELOPMENT, INC.
16901 SWINGLEY RIDGE ROAD, STE. 340
CHESTERFIELD, MISSOURI 63017
Ph. 636-537-2000
www.mcbridesonhomes.com

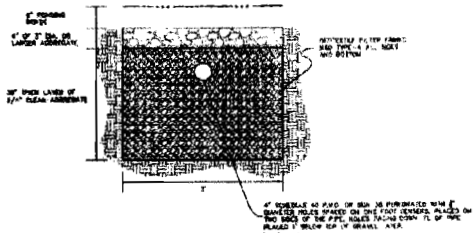
WATER QUALITY PLANS & DETAILS BASIN A

P-I-Z No. 1305 05
City No.
Date: 11/12/2012
Job No. 12-05-127

Page No.
10.1

IMP





TYPICAL FRENCH DRAIN SECTION
N.T.S.

PROJECT TITLE

WEATHERBY LANDING
(WFALLON, MISSOURI)

THE STERLING CO.
ENGINEERS & SURVEYORS

Date: 12/04/12
ROGER T. DAROLD
Licence No. PE-2002016412
Civil Engineer

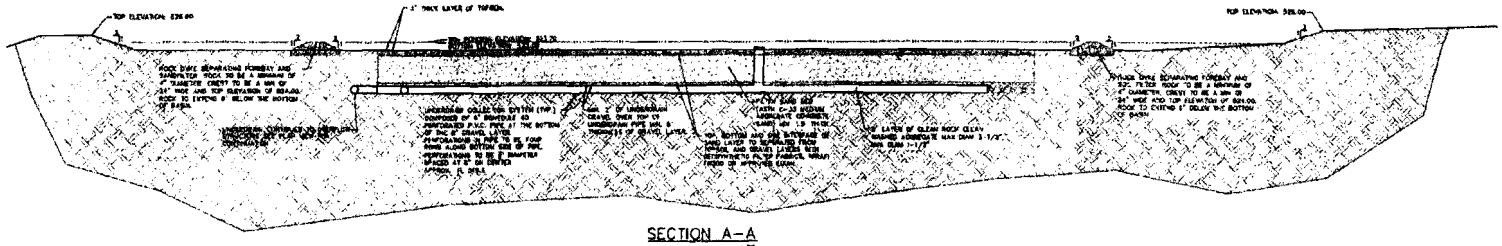
MCBRIDE & SON HOMES LAND DEVELOPMENT, INC.
16501 SWINGLEY RIDGE ROAD, STE. 300
CHESTERFIELD, MISSOURI 63017
PH. 636-537-3000
www.mcbrideandsonhomes.com

WATER QUALITY PLANS & DETAILS BASIN B

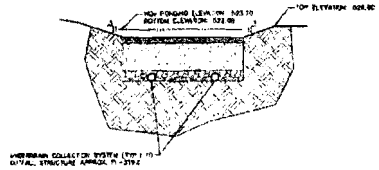
P+Z No. 1305.05
City No.
Date 11/12/2012
Job No. 12-05-127

Page No.
10.2

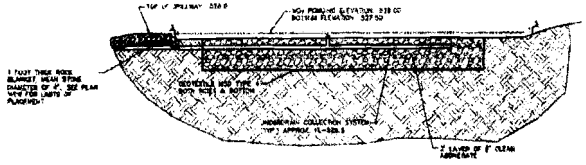
EMP



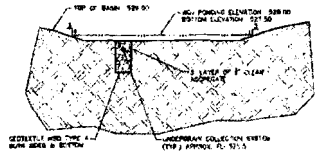
SECTION A–A
NTS



SECTION B–B
NTS



SECTION C–C
NTS



SECTION D–D
NTS

ISSUE REMARKS/DATE
1 1-9-13 REVISED PER CITY COMMENTS
2 5-1-13 REVISED PER CITY COMMENTS
3 3-20-13 REVISED PER CITY COMMENTS
4 6-5-13 REVISED PER CITY COMMENTS

PROJECT TITLE
WEATHERBY LANDING
ST. CHARLES COUNTY, MISSOURI

THE STERLING CO.
ENGINEERS & SURVEYORS
1500 West Bishop Road
Wentzville, Missouri 63385
Ph. 314-387-0800 | Fax 314-387-1944
Corporate Certificate of Authority #001346

STATE OF MISSOURI
RICHARD A. BRAUN
NUMBER
PE-2001019412
CIVIL ENGINEER

Date 6-4-2013
Revised
Drawn by
Checked by
License No. PE-2001019412
Dist. Engineer

MCBRIDE & SON HOMES LAND DEVELOPMENT, INC.
16261 SWINGLEY RIDGE ROAD, STE. 300
CHESTERFIELD, MISSOURI 63017
Ph. 636-537-2000
www.mcbrideandsons.com

WATER QUALITY PLANS & DETAILS BASIN A & B

P+Z No. 1305.05
City No.
Date 11/12/2012
Job No. 12-05-127

Page No.
10.3
IMP

ARTICLE II. AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND METHOD OF REDUCING FLOOD LOSSES

SECTION 415.020: AUTHORIZATION

The General Assembly of the State of Missouri has in Section 89.020, RSMo., delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety and general welfare of its citizenry. Therefore, the City Council of O'Fallon, Missouri, does ordain as follows. (R.O. 2007 §415.020; Ord. No. 4974 §1, 3-30-06)

SECTION 415.030: FINDINGS OF FACT

A. The flood hazard areas of certain areas in the City of O'Fallon are subject to periodic inundation which results in loss of life, property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief and impairment of the tax base, all which adversely affect the public health, safety and general welfare.

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

C. The Flood Insurance Study (FIS) that is the basis of this Chapter uses a standard engineering method of analyzing flood hazards which consist of a series of interrelated steps.

1. Selection of a base flood that is based upon engineering calculations which permit a consideration of such flood factors as its expected frequency of occurrence, the area inundated and the depth of inundation. The base flood selected for this Chapter is representative of large floods which are characteristics of what can be expected to occur on the particular streams subject to this Chapter. It is in the general order of a flood which could be expected to have a one percent (1%) chance of occurrence in any one (1) year as delineated on the Federal Emergency Management Agency's FIS (Flood Insurance Study) and illustrative materials dated March 17, 2003, as amended, and any future revisions thereto.

2. Calculations of water surface profiles are based on a standard hydraulic engineering analysis of the capacity of the stream channel and overbank areas to convey the regulatory flood.

3. Computation of a floodway required to convey this flood without increasing flood heights more than one (1) foot at any point.

4. Delineation of floodway encroachment lines within which no development is permitted that would cause any increase in flood height.

5. Delineation of flood fringe, i.e., that area outside the floodway encroachment lines, but still subject to inundation by the base flood. (R.O. 2007 §415.030; Ord. No. 4974 §1, 3-30-06)

SECTION 415.040: PURPOSE

It is the purpose of this Chapter to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

1. To protect human life and health;

2. To minimize expenditure of public money for costly flood control projects;

3. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

4. To minimize prolonged business interruptions;

5. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains;

6. To help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas;

7. To ensure that potential home buyers are notified that property is in a flood area; and

8. To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions. (R.O. 2007 §415.040; Ord. No. 4974 §1, 3-30-06)

SECTION 415.050: METHODS OF REDUCING FLOOD LOSSES

In order to accomplish its purpose, this Chapter includes methods and provisions for:

1. Restricting or prohibiting uses which are dangerous to health, safety and property due to water or erosion or to flood heights or velocities.

2. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction.

3. Controlling the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters.

4. Controlling filling, grading, dredging and other development which may increase erosion or flood damage.

5. Preventing or regulating the construction of flood barriers which will unnaturally divert floodway waters or which may increase flood hazards in other areas. (R.O. 2007 §415.050; Ord. No. 4974 §1, 3-30-06)

ARTICLE III. GENERAL PROVISIONS

SECTION 415.060: LANDS TO WHICH THIS CHAPTER APPLIES

This Chapter shall apply to all areas of special flood hazards within the jurisdiction of the City of O'Fallon, Missouri. (R.O. 2007 §415.060; Ord. No. 4974 §1, 3-30-06)

SECTION 415.070: BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD

The areas of special flood hazard identified by the Federal Emergency Management Agency through a scientific and engineering report entitled "The Flood Insurance Study for the City of O'Fallon, Missouri" dated March 17, 2003, with accompanying Flood Insurance Rate Maps and any revision thereto are hereby adopted by reference and declared to be a part of this Chapter. (R.O. 2007 §415.070; Ord. No. 4974 §1, 3-30-06)

SECTION 415.080: ESTABLISHMENT OF A FLOODPLAIN DEVELOPMENT PERMIT

A floodplain development permit shall be required for all proposed construction or other development, including the placement of manufactured homes, in the areas described in Section 415.070. No person, firm, corporation or unit of government shall initiate any development or substantial improvement or cause the same to be done without first obtaining a separate floodplain development permit for each structure or other development. (R.O. 2007 §415.080; Ord. No. 4974 §1, 3-30-06)

SECTION 415.090: COMPLIANCE

No structure or land shall hereafter be located, extended, converted or structurally altered without full compliance with the terms of this Chapter and other applicable regulations. (R.O. 2007 §415.090; Ord. No. 4974 §1, 3-30-06)

SECTION 415.100: ABROGATION AND GREATER RESTRICTIONS

This Chapter is not intended to repeal, abrogate or impair any existing easements, covenants or deed restrictions. However, where this Chapter and another ordinances conflict or overlap, whichever imposes the more stringent restrictions shall prevail. (R.O. 2007 §415.100; Ord. No. 4974 §1, 3-30-06)

SECTION 415.110: INTERPRETATION

In the interpretation and application of this Chapter, all provisions shall be:

1. Considered as minimum requirements; and

2. Deemed neither to limit nor repeal any other powers granted under State Statutes. (R.O. 2007 §415.110; Ord. No. 4974 §1, 3-30-06)

SECTION 415.120: WARNING AND DISCLAIMER OF LIABILITY

The degree of flood protection required by this Chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes. This Chapter does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This Chapter shall not create liability on the part of the City of O'Fallon or by any officer or employee thereof for any flood damages that result from reliance on this Chapter or any administrative decision lawfully made thereunder. (R.O. 2007 §415.120; Ord. No. 4974 §1, 3-30-06)

ARTICLE IV. ADMINISTRATION

SECTION 415.130: DESIGNATION OF THE LOCAL ADMINISTRATOR

The City Council or their designee is hereby appointed to administer and implement the provisions of this Chapter by granting or denying floodplain development permit applications in accordance with its provisions. (R.O. 2007 §415.130; Ord. No. 4974 §1, 3-30-06)

SECTION 415.140: DUTIES AND RESPONSIBILITIES OF THE CITY COUNCIL

Duties of the City Council or their designee shall include, but not be limited to:

1. Review all floodplain development permits to assure that sites are reasonably safe from flooding and that the permit requirements of the Chapter have been satisfied.

2. Review permits for proposed development to assure that all necessary permits have been obtained from those Federal, State or local governmental agencies from which prior approval is required.

3. Notify adjacent communities and the Missouri State Emergency Management Agency (SEMA) prior to any alteration or relocation of a watercourse and submit evidence of such notification to the Federal Emergency Management Agency.

4. Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished and shall be maintained within the altered or relocated portion of any watercourse.

5. Verify and record the actual elevation (in relation to mean sea level) of the lowest floor (including the basement) of all new or substantially improved structures.

6. Verify and record the actual elevation (in relation to mean sea level) to which the new or substantially improved structures have been floodproofed.

7. When floodproofing is utilized for a particular structure, the City Council or their designee shall obtain certification from a registered professional engineer or architect.

8. Where interpretation is needed as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), the City Council or their designee shall make the necessary interpretation. The person contesting the location of the boundary shall be given reasonable opportunity to appeal the interpretation as provided in this Article.

9. In order to administer the provisions of Article V where the base flood elevation data has not been provided in accordance with Section 415.070 for criteria for new construction, substantial improvements or other development in Zone A where base flood elevations have not been determined, the City Council or their designee shall obtain, review and reasonably utilize any base flood elevation and floodway data available from Federal, State or other sources. (R.O. 2007 §415.140; Ord. No. 4974 §1, 3-30-06)

SECTION 415.150: ESTABLISHMENT OF A FLOODPLAIN DEVELOPMENT PERMIT

A floodplain development permit shall be obtained before construction or development begins within any area of special flood hazard established in Article III, Section 415.070. No person, firm or corporation or unit of government shall initiate any development or substantial improvement or cause the same to be done without first obtaining a separate permit for each development as defined in Section 415.010. Application for a floodplain development permit shall be made on forms furnished by the City Administrator and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location,

dimensions and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities; and the location of the foregoing. Specifically, the following information is required:

1. Elevation in relation to mean sea level of the lowest floor (including basement) of all structures.

2. Elevation in relation to mean sea level to which any non-residential structure is to be floodproofed.

3. Certification from a registered, professional engineer or architect that the non-residential floodproofed structure will meet the floodproofing criteria in Article V, Section 415.190(2).

4. Description of the extent to which any watercourse or floodplain will be altered or relocated as a result of proposed development. (R.O. 2007 §415.150; Ord. No. 4974 §1, 3-30-06)

SECTION 415.160: APPLICATION FOR FLOODPLAIN DEVELOPMENT PERMIT

To obtain a floodplain development permit, the applicant shall first file an application in writing on a form furnished for that purpose. Every floodplain development permit application shall:

1. Describe the land on which the proposed work is to be done by lot, block and tract, house and street address or similar description that will readily identify and specifically locate the proposed structure or work;

2. Identify and describe the work to be covered by the floodplain development permit;

3. Indicate the use or occupancy for which the proposed work is intended;

4. Indicate the assessed value of the structure and the fair market value of the improvement;

5. Specify whether development is located in designated flood fringe or floodway;

6. Identify the existing base flood elevation and the elevation of the proposed development;

7. Give such other information as reasonably may be required by the City Council or their designee;

8. Be accompanied by plans and specifications for proposed construction; and

9. Be signed by the permittee or his/her authorized agent who may be required to submit evidence to indicate such authority. (R.O. 2007 §415.160; Ord. No. 4974 §1, 3-30-06)

ARTICLE V. PROVISIONS FOR FLOOD HAZARD REDUCTION

SECTION 415.170: GENERAL STANDARDS

In all areas of special flood hazards (Zones A, AE, AO, AH) or areas that have had fill placed to remove it from the special flood hazard area, the following provisions are required:

1. Although a building constructed on fill and elevated above the base flood elevation meets the NFIP regulations, filling a substantial portion of the floodplain reduces storage for floodwater and tends to increase peak flows downstream. In order to maintain floodplain storage the developer must compensate for each cubic foot of fill, including buildings or other items that will displace floodwater in the event of the 100-year flood. This can be accomplished by compensatory storage or removing an equal volume of fill from the same parcel of ground, at the same incremental flood frequency elevation as the flood storage replaced, to maintain the same hydraulic conditions. Evidence of conforming with this provision, in the form of a study including plans and calculations, shall be submitted to the City Engineer and the City's stormwater consultant for review and approval. The consultant's fee for review will be part of the developer's construction site plan application or grading plan application fee.

2. All new construction, including manufactured homes and substantial improvements, shall be designed (or modified) and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

3. All new construction and substantial improvements shall be constructed with materials resistant to flood damage.

4. All new construction and substantial improvements shall be constructed by methods and practices that minimize flood damage.

5. All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing and air-conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

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

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

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

9. The storage or processing of materials that are in time of flooding buoyant, flammable, explosive or could be injurious to human, animal or plant life is prohibited.

10. Storage of other material or equipment may be allowed if not subject to major damage by floods and firmly anchored to prevent flotation or if readily removable from the area within the time available after flood warning.

11. Until a floodway has been designated, no development, including landfill, may be permitted within Zones A and AE on the City's FIRM unless the applicant for the land use has demonstrated that the proposed use, when combined with all other existing and reasonable anticipated uses, will not increase the water surface elevation of the 100-year flood as shown on the Flood Insurance Rate Study incorporated by reference, Article III, Section 415.070. (R.O. 2007 §415.170; Ord. No. 4974 §1, 3-30-06)

SECTION 415.180: STANDARDS FOR SUBDIVISION PROPOSALS

A. All subdivision proposals and other proposed new developments, including manufactured home parks or subdivisions, shall be consistent with the need to minimize flood damage.

B. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage.

C. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards.

D. Base flood elevation data shall be provided for subdivision proposals and other proposed development including proposals for manufactured home parks and subdivisions. (R.O. 2007 §415.180; Ord. No. 4974 §1, 3-30-06)

SECTION 415.190: SPECIFIC STANDARDS

In all areas of special flood hazards where base flood elevation data has been provided as set forth in Article III, Section 415.070 or Article IV, Section 415.140(9) (Zones A, AE, AO and AH) or areas that have had fill placed to remove it from the special flood hazard area, the following provisions are required:

1. *Residential construction.* New construction or substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to one (1) foot or more above the base flood elevation.

2. *Non-residential construction.* New construction or substantial improvement of any commercial, industrial or other non-residential structure shall either have the lowest floor, including basement, elevated to one (1) foot or more above the base flood elevation or, together with attendant utility and sanitary facilities, be floodproofed so that below such a level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall certify that the standards of this Subsection are satisfied. Such certification shall be provided to the official as set forth in Section 415.140(7).

3. *Requirements for all new construction and substantial improvements.* Fully enclosed areas below the main floor that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria: a minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot higher than one (1) foot above grade. Openings may be equipped with screens, louvers, valves or other coverings or devices provided that they permit the automatic entry and exit of floodwater.

4. *Manufactured homes.*

a. All manufactured homes shall be anchored to resist flotation, collapse or lateral movement. Manufactured homes must be anchored in accordance with State and local building codes and FEMA guidelines. In the event that over-the-top frame ties to ground anchors are used, the following specific requirements (or equivalent) shall be met:

(1) Over-the-top ties be provided at each of the four (4) corners of the manufactured home with two (2) additional ties per side at intermediate locations and manufactured homes less than fifty (50) feet long requiring one (1) additional tie per side;

(2) Frame ties be provided at each corner of the home with five (5) additional ties per side at intermediate points and manufactured homes less than fifty (50) feet long requiring four (4) additional ties per side;

(3) All components of the anchoring system be capable of carrying a force of four thousand eight hundred (4,800) pounds; and

(4) Any addition to the manufactured home is similarly anchored.

b. All manufactured homes shall be placed within Zones A, AO, AH and AE on the community's FIRM, be elevated on permanent foundation such that the lowest floor of the manufactured home is one (1) foot or more above the base flood elevation and

be securely anchored to an adequately anchored foundation system in accordance with the provisions of this Section.

5. *Recreational vehicles.* Recreational vehicles placed on sites within all unnumbered and numbered A Zones, AO, AE and AH Zones on the community's FIRM shall either:

a. Be on the site for fewer than one hundred eighty (180) consecutive days; or

b. Be fully licensed and ready for highway use*; or

c. Meet the permitting, elevating and the anchoring requirements for manufactured homes of this Section.

*A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices and has no permanently attached additions. (R.O. 2007 §415.190; Ord. No. 4974 §1, 3-30-06)

SECTION 415.200: FLOODWAYS

Located within areas of special flood hazard established in Article III, Section 415.070 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles and erosion potential, the following provision shall apply:

1. Prohibit encroachments, including fill, new construction, substantial improvements and other developments unless certification by a registered professional engineer or architect is provided demonstrating that encroachments shall not result in any increase in flood levels during occurrence of the base flood discharge.

2. If Subsection (1) above is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Article V.

3. In Zone A where base flood elevations have not been determined, obtain, review and reasonably utilize any floodway data available through Federal, State or other sources or Article V, Section 415.180(D) of this Chapter in meeting the standards of this Section. Provide a study establishing the limits of the 10-, 50-, 100- and 500-year flood elevations and limits of flood waters at those elevations. (R.O. 2007 §415.200; Ord. No. 4974 §1, 3-30-06)

SECTION 415.210: AREAS OF SHALLOW FLOODING (AO AND AH ZONES)

Located within the areas of special flood hazard are areas designated as AH and AO Zones. These areas have special flood hazards associated with base flood depths of one (1) to three (3) feet where a clearly defined channel does not exist and where the path of flooding is

unpredictable and indeterminate. The following shall also apply to any area previously in the AH and AO Zone that has had fill placed to bring it out of the special flood hazard area. The following provisions apply:

1. *AO Zones.*

a. All new construction and substantial improvements of residential structures, including basement, elevated above the highest grade at least (1) one foot above the depth number specified in feet on the community's FIRM at least four (4) feet if no depth number is specified.

b. All new construction and substantial improvements of any commercial, industrial or other non-residential structures, including manufactured homes, shall have the lowest floor, including basement, elevated above the highest adjacent grade at least (1) one foot above the depth number specified in feet on the community FIRM at least four (4) feet if no depth number is specified or together with attendant utilities and sanitary facilities be completely floodproofed so that the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

c. Adequate drainage paths shall be required around structures on slopes in order to guide floodwaters around and away from proposed structures. (R.O. 2007 §415.210; Ord. No. 4974 §1, 3-30-06)

ARTICLE VI. AMENDMENTS AND SEVERABILITY

SECTION 415.220: AMENDMENTS AND SEVERABILITY

A. *Amendments.* The regulation, restrictions and boundaries set forth in this Chapter may from time to time be amended, supplemented, changed or appealed to reflect any and all changes in the National Flood Disaster Protection Act of 1973, provided however, that no such action may be taken until after a public hearing in relation thereto, at which parties in interest and citizens shall have an opportunity to be heard. At least twenty (20) days notice of the time and place of such hearing shall be published in newspaper of general circulation in the City of O'Fallon, Missouri. The regulations of this Chapter are in compliance with the National Flood Insurance Program regulations as published in Title 44 of the Code of Federal Regulations.

B. *Severability.* If any Section, clause, provision or portion of this Chapter is adjudged unconstitutional or invalid by a court of appropriate jurisdiction, the remainder of this Chapter shall not be affected thereby. (R.O. 2007 §415.220; Ord. No. 4974 §1, 3-30-06)

ARTICLE VII. NON-CONFORMING USE

SECTION 415.230: NON-CONFORMING USE

A. A structure or the use of a structure or premises which was lawful before the effective date of this Chapter, but which is not in conformity with the provisions of this Chapter, may be continued subject to the following conditions:

1. No such use or substantial improvement of that use shall be expanded, changed, enlarged or altered in a way which increases its non-conformity.

2. Uses or adjuncts thereof which are or become nuisances shall not be entitled to continue as non-conforming uses.

B. If any non-conforming use or structure is destroyed by any means, including flood, it shall not be reconstructed if the cost is equal to or more than fifty percent (50%) of the market value of the structure before the damage occurred except that if it is reconstructed in conformity with the provisions of this Chapter. This limitation does not include the cost of any alteration to comply with existing State or local health, sanitary, building or safety codes or regulations or the cost of any alteration of a structure listed on the National Register of Historic Places or a State inventory of historic places. (R.O. 2007 §415.230; Ord. No. 4974 §1, 3-30-06)

ARTICLE VIII. VARIANCE PROCEDURE

SECTION 415.240: VARIANCE PROCEDURES

A. The Board of Adjustment as established by the City of O'Fallon, Missouri, shall hear and decide appeals and requests for variances from the requirements of this Chapter.

B. The Board of Adjustment shall hear and decide appeals when it is alleged there is an error in any requirement, decision or determination made by the City Administrator or his/her designate in the enforcement or administration of this Chapter.

C. Any person aggrieved by the decision of the Board of Adjustment or any taxpayer may appeal such decision to the Circuit Court of St. Charles County as provided in Section 89.110, RSMo.

D. Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historical Places or the State inventory of historic places without regard to the procedures set forth in the remainder of this Section.

E. In passing upon such application, the Board of Adjustment shall consider all technical evaluation, all relevant factors, standards specified in other Sections of this Chapter and:

1. The danger that materials may be swept onto other lands to the injury of others;

2. The danger to life and property due to flooding or erosion damage;

3. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

4. The importance of the services provided by the proposed facility to the community;

5. The necessity to the facility of a waterfront location, where applicable;

6. The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;

7. The compatibility of the proposed use with existing and anticipated development;

8. The relationship of the proposed use to the Comprehensive Plan and floodplain management program for that area;

9. The safety of access to the property in times of flood for ordinary and emergency vehicles;

10. The expected heights, velocity, duration, rate of rise and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site; and

11. The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems and streets and bridges.

F. Upon consideration of the factors listed above and the purpose of this Chapter, the Board of Adjustment may attach such conditions to the granting of variances as it deems necessary to further the purposes of this Chapter.

G. *Conditions For Variances.*

1. Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of one-half (½) acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing Subdivisions (2--6) below have been fully considered. As the lot size increases beyond the one-half (½) acre, the technical jurisdiction required for issuing the variance increases.

2. Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or the State inventory of historic places without regard to the procedures set forth in the remainder of this Section.

3. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

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

5. Variances shall only be issued upon:

a. A showing of good and sufficient cause,

b. A determination that failure to grant the variance would result in exceptional hardship to the applicant, and

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

6. A community shall notify the applicant in writing over the signature of a community official that:

a. The issuance of a variance to construct a structure below base flood level will result in increased premium rates for flood insurance up to amounts as high as twenty-five dollars ($25.00) for one hundred dollars ($100.00) of insurance coverage; and

b. Such construction below the required freeboard or below the base flood level increases risks to life and property. Such notification shall be maintained with the record of all variance actions as required by this Section. (R.O. 2007 §415.240; Ord. No. 4974 §1, 3-30-06)

ARTICLE IX. PENALTIES FOR VIOLATION

SECTION 415.250: PENALTIES FOR VIOLATION

A. Violation of the provisions of this Chapter or failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with grants of variances or special exceptions) shall constitute a misdemeanor. Any person who violates this Chapter or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more than one hundred dollars ($100.00) or imprisoned for not more than ninety (90) days, or both, and in addition shall pay all costs and expenses involved in the case. Each day such violation continues shall be considered a separate offense.

B. Nothing herein contained shall prevent the City of O'Fallon from taking such other lawful action as is necessary to prevent or remedy any violation. (R.O. 2007 §415.250; Ord. No. 4974 §1, 3-30-06)

Appendix G

(Ordinance Section 400.170)

Environmental Protection Planned Development

SECTION 400.170: TYPES OF PLANNED DEVELOPMENTS AND THE QUALIFYING OBJECTIVES

Types Of Planned Developments And The Qualifying Objectives. The City Council shall only attach the Planned Development Designation to a site and subsequently approve a Planned Development if it is determined to meet the qualifying objectives to the satisfaction of the Council of one (1) of the three (3) types of permitted Planned Developments outlined below:

1. *Environmental protection planned developments.* A proposed environmental protection planned development is for a residential, commercial, office, high-tech or industrial site that must, to the satisfaction of the City Council, provide for the permanent protection and preservation of the natural features and environmentally sensitive areas of the site.

a. *Qualifying objectives.* The qualifying objectives for permitting the review of a proposed environmental protection planned development is to encourage the permanent protection of the environmentally sensitive areas of a site while still allowing for the site's development by concentrating development away from these environmentally sensitive areas. In order to accomplish the separation of the environmentally sensitive areas from the areas of the site suitable for development, limited departure from strict conformance to the underlying zoning district regulations and/or Subdivision and Land Development Code regulations may be permitted by the City Council in accordance with the allowances of this Article.

2. *Redevelopment planned developments.* A proposed redevelopment planned development is for residential, commercial, office, high-tech or industrial development at a specific site or location within the City that, as determined by the City Council, is in a state of decline and/or in need of redevelopment.

a. *Qualifying objectives.* The qualifying objectives for permitting the review of a proposed redevelopment planned development is to provide an incentive for the development community to develop at these specific sites or locations. The incentive provided to the developer would be through the permitted flexibility of the design of the site by allowing for limited departure from strict conformance to the underlying zoning district regulations and/or Subdivision and Land Development Code regulations per the allowances of this Article. By allowing for the limited departure from strict conformance to these regulations, proposed developments that may not otherwise be financially feasible may become attractive to the development community. Although many proposed developments of this nature will instead be encouraged to utilize the City's "MUTDD" Mixed-Use Traditional Development Zoning District classification (which must follow the same two-stage area plan and final plan review and approval process outlined in this Article), there may be instances where proposed developments cannot meet the required size and/or required mix of residential and non-residential uses necessary to utilize the City "MUTDD" zoning classification.

3. *Special exception planned developments.* A proposed special exception planned development is for a commercial, office, high-tech or industrial site that, due to its irregular shape and size, would necessitate the need for variances from the City's Zoning Code and/or Subdivision and Land Development Code through the Board of Adjustment after the initial approval of the proposed development by the Planning and Zoning Commission.

a. *Qualifying objectives.* The qualifying objectives for permitting the review of a proposed special exception planned development is to allow for both the Planning and Zoning Commission and City Council to comprehensively review the proposed development in its entirety (without the involvement of the Board of Adjustment) per the required two-stage area plan and final plan requirements of this Article. The variances needed for the proposed development would instead be reviewed as the proposed modifications to the underlying zoning district regulations and/or Subdivision and Land Development Code regulations per the allowances of this Article. This would no longer place the burden upon the Planning and Zoning Commission of having to decide whether a proposed development should be approved contingent upon receiving variances through the Board of Adjustment. This would also no longer place the burden upon the Board of Adjustment of having to decide whether or not to grant the requested variances on a proposed development that they have limited familiarity with that was approved by the Planning and Zoning Commission contingent upon receiving the variances. (R.O. 2007 §400.170; Ord. No. 4910 §1, 9-26-05)

Appendix H

(Pollution Prevention/Good Housekeeping For Municipal Operations

Guidance Document of Best Management Practices)

100 N. Main St, O'Fallon MO 63366

City of O'Fallon, Missouri

Pollution Prevention/Good Housekeeping For Municipal Operations Guidance Document of Best Management Practices

ADOPTED:

November 4, 2011

2011

REVISED:

Table of Contents

1. Introduction 3
2. Administration: 4
3. Landscaping and Lawn Care (Parks, Green Space and Trails) 5
4. Spill Response and Prevention 6
5. Pest Control 7
6. Pest Waste Collection 8
7. Septic System Management 9
8. Vehicle/Equipment Maintenance 10
9. Vehicle/Equipment Washing 12
10. Roadway and Bridge Maintenance 13
11. Alternative Discharge Options for Chlorinated Water 14
12. Hazardous and Waste Materials Management 15
13. Catch Basin and Storm Drain System Cleaning 17
14. Street Cleaning, Parking Lot Cleaning and Maintenance 19
15. Road Salt Storage and Application 20
16. Construction and Land Disturbance 21
17. Operation and Maintenance of Recycling and Composting Facilities 23
18. Stormwater Reference Information 25
19. Glossary of Terms 26
20. Appendix 1: Municipal Operations Profile Sheets 27
21. Appendix 2: Operation & Maintenance and Training Program Work Group 40
22. Appendix -3: Ordinance/Permitting References 41

1. Introduction

The Missouri Department of Natural Resources (MDNR) issued Phase II Stormwater Permit MO-R040039 to the City of O'Fallon, effective March 10, 2003. One of the minimum control measures in the permit that must be addressed includes pollution prevention and good housekeeping for municipal operations. Specifically, section 4.2.6.1.1 of the permit requires each permittee to "develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations."

The requirements set for the NPDES Phase II program are regulated by the Environmental Protection Agency (EPA) and locally by MDNR and are based on the Federal Clean Water Act. This program is a requirement for municipal separate storm sewer systems (MS4) that have a population of 10,000 or more. The City has been required to design a program along with our permit application which includes a Stormwater Management Plan (SWMP) with goals to reduce negative impacts to water quality and habitat by developing stormwater pollution prevention plans (SWPPP) or stormwater management programs within the required minimum control measures by utilizing best management practices to reduce the discharge of pollutants to the "maximum extent practicable", protect water quality and satisfy the appropriate water quality requirements set forth in the Federal Clean Water Act.

A Stormwater Management Plan (SWMP) for the City of O'Fallon, a small MS4 was developed by Alliance Water Resources, a contract company that operated both the Water and Wastewater operations for the City in the fall of 2002 and submitted to MDNR as part of the application for the Phase II permit. In, 2005, the Phase II program responsibilities transferred to the Stormwater Management Coordinator for the City. As a permittee under the state permit, the City of O'Fallon is bound by the commitments contained in the Plan.

- This document represents O'Fallon's adoption of the program as applicable to meet our needs and goals. This program is intended to impact all facets of municipal operations. It is the City of O'Fallon's intent to adhere to the policies and procedures stated herein in order to prevent pollution, to safeguard the environment for the health and benefit of all (City) employees, residents and visitors. The information has been formulated as guidance material for implementation of the Stormwater NPDES Phase II permit and has not been designed to be comprehensive in all aspects of each topic. This was performed in order to remain "flexible" in their use of this information as it pertains to their own unique municipal operations.

2. Administration:

The responsible party for administration of the operation and maintenance (O&M) program is the Stormwater Management Coordinator, Assistant City Engineer and City Engineer. This person(s) is responsible for ensuring the program is kept up to date, and that employees are trained on the procedures implementing the program.

The City of O'Fallon will train staff associated with activities that can impact pollution in stormwater runoff. Each department will identify employees who should be subject to training on that particular chapter. Employees will receive general stormwater pollution prevention training provided by the Stormwater Management Coordinator or others. Upon implementation of specific procedures, management will review the new procedures that incorporate stormwater BMPs, proper waste management and applicable NPDES permit requirements with all employees affected. New employees will be trained on applicable procedures within the first three months to six months of employment. Contractors working for the municipality and implementing BMPs for municipal work must train their employees on applicable BMP's before work begins. To maintain proficiency, a schedule of periodic retraining will be implemented, or provisions made for an employee awareness campaign to ensure employees remain aware of the BMPs and proper waste management.

Records documenting the training of employees and contractors must be maintained on file with the appropriate department. The form is the same form that is utilized by the City Safety Director for City wide and departmental safety meetings.

The following sections of this document have been developed as guidance for prevention of the discharge of pollutants and improved municipal good housekeeping practices for improved water quality throughout the City. The following departments will receive copies of this document for execution and training for compliance with Minimum Control Measure Six (6) of the NPDES Phase II permit which pertains to Pollution Prevention/Municipal Good Housekeeping: Highway, Building, Construction Inspection, Project Management, Stormwater, Water, Sewer, Environmental Services, Parks and Recreation, Landscaping, Facilities Maintenance and Fleet Services.

Pollution Prevention/Good Housekeeping Practices

3. Landscaping and Lawn Care (Parks, Green Space and Trails)

CITY DEPARTMENTS MOST APPLICABLE: PARKS, LANDSCAPING, HIGHWAY, CONSTRUCTION INSPECTION, BUILDING, PROJECT MANAGEMENT, AND STORMWATER MANAGEMENT

1. IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATER (SURFACE WATERS/RUNOFF)
    - Nutrient loading such as nitrogen and phosphorus from fertilizer runoff can cause excessive aquatic plant growth or algae formation
    - Refer to Appendix 1: Municipal Operations Profile Sheets
2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE
    - (BOD) – Biochemical Oxygen Demand – a decrease in dissolved oxygen which is harmful to aquatic habitat
    - Toxicity - pH, nitrogen, phosphorus
3. IDENTIFY AND CHOOSE APPROPRIATE BMP SOLUTIONS TO PREVENT/REDUCE IMPACTS WHICH MAY INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
    - Purchase only enough lawn care products necessary for one year – make sure it is stored properly to avoid waste generation, leaks or spills
    - Use slow release or naturally derived (organic) filters for potential pollutant runoff
    - Train employees in the proper application of lawn care products
    - Develop zero input/low input lawns
    - Consider alternative landscape techniques (i.e. naturescaping, xeriscaping)
    - Plant trees away from sewer lines or other underground utilities
    - Use drip irrigation techniques for landscaping
4. INSPECTION PROCEDURES
    - Routinely monitor lawns to identify problems during their early stages
    - Identify nutrient/water needs of plants, inspect for problems by testing soils

5. MAINTENANCE PROCEDURES
    - Minimize fertilizer application
    - Leave grass clippings on lawn, or mulch clippings onto lawn (no bagging)
    - Limit watering as necessary to supplement rainwater (1 inch/week is adequate)
    - Mow with sharpened blades to appropriate height
    - Water early in the A. M.
6. ADVISORY
    - Refer to University of Missouri Extension - (http://extension.missouri.edu/main/DisplayCategory.aspx?C=2)

4. Spill Response and Prevention

CITY DEPARTMENTS MOST APPLICABLE: ALL DEPARTMENTS

1. IDENTIFY POTENTIAL MATERIALS THAT IMPACT STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)
    - Liquids associated with vehicle/equipment maintenance produces (oils, fuels, hydraulic fluids, antifreeze, etc.)
    - Rock salt – ice control- with use of buckets or bags
    - Chemicals (fertilizers, pesticides, cleaning products)
    - Refer to Appendix 1: Municipal Operations Profile Sheets
2. PROBLEM EVALUATION: ASSESS IMPACT OF RECEIVING WATERS, PRIORITIZE
    - Toxicity (i.e. pH, color, odor, sheen for petroleum)
    - (BOD) – Biochemical Oxygen Demand – a decrease in dissolved oxygen which is harmful to aquatic habitat
3. INDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)
    - Keep all materials properly stored in, closed, labeled containment systems
    - Use secondary containment systems where appropriate (especially fueling stations)
    - Obtain spill recovery materials for immediate response to a spill (each department should keep supplies on hand)

4. INSPECTION PROCEDURES

    - Inspect secondary containment systems, oil/water separators periodically (approximately every 3 months if heavily used)
    - Inspect containers for leaks, areas near storm sewer inlets and outlets, floor drains for indications of spills

5. MAINTENANCE PROCEDURES

    - Pump out oil/water separators as needed
    - Protect drains with oil absorbent materials
    - Clean out inlets on regular schedule
    - Removed spilled salt from salt loading area

6. ADVISORY

    - Report petroleum spills (as necessary) to the Missouri Department of Natural Resources (MDNR) Emergency Response at (573) 634-2436 (http://sema.dps.mo.gov/mercc.htm) and Stormwater Management Coordinator at (636) 240-2000
    - Refer to the MERC (Missouri Emergency Response Center) for guidance information (http://sema.dps.mo.gov/mercc.htm)
    - Refer to MSDS (Material Safety Data Sheet) on file

5. Pest Control

CITY DEPARTMENTS MOST APPLICABLE: PARKS, LANDSCAPING, HIGHWAY, FACILITIES MAINTENANCE AND STORMWATER MANAGEMENT

1. IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)

    - Runoff of pesticides can harm aquatic life, may contaminate water or sediment
    - Refer to Appendix 1: Municipal Operations Profile Sheets

2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE

    - Toxicity to aquatic plants and animals (refer to MSDS or product website for listed environmental impacts)

3. IDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)

    - Purchase only enough pesticides necessary for one year – store properly to avoid waste generation (spills, leaks, product deterioration)

- Minimize or eliminate pesticide application where applicable, use lowest toxicity pesticides
- Do not apply pesticides immediately prior to or during rain events
- Ensure that employees are properly trained and certified in pesticide application techniques and safety
- Develop zero input, low input lawns
- Eliminate food, water, and shelter for pests
- Adopt integrated pest management (IPM) techniques

4. INSPECTION PROCEDURES
    - Identify pests – are levels acceptable or must action be taken to control pests?
    - Inspect pesticide inventory – properly dispose of out-of-date pesticide materials

5. MAINTENANCE PROCEDURES
    - Inspect pest traps (i.e. bait boxes or mechanical traps) regularly – remove (and properly dispose of) dead pests
    - Block/eliminate access to buildings/structures for pests
    - Remove pests by hand (where applicable)
6. ADVISORY
    - Abide by Missouri regulations pertaining to this topic
    - Refer to the MERC (Missouri Emergency Response Center) for guidance information (http://sema.dps.mo.gov/mercc.htm)

6. Pet Waste Collection

CITY DEPARTMENTS MOST APPLICABLE: PARKS AND RECREATION, CODE ENFORCEMENT, STORMWATER MANAGEMENT

1. IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)
    - Pet waste stations need to be properly maintained or installed
    - Refer to Appendix 1: Municipal Operations Profile Sheets

2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE
    - (BOD) – Biochemical Oxygen Demand – a decrease in dissolved oxygen which is harmful to aquatic habitat
    - Solids loading (pet waste particles, testing for fecal coliform or e-coli)
3. IDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)
    - Request installation of Pet Waste station
4. INSPECTION PROCEDURES
    - Inspect installed pet waste stations regularly for necessary cleanup/removal of waste
5. MAINTENANCE PROCEDURES
    - Remove animal wastes on regular basis from pet waste stations
6. ADVISORY
    - None

7. Septic System Management

CITY DEPARTMENTS MOST APPLICABLE: BUILDING, WATER/SEWER AND STORMWATER MANAGEMENT

1. IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)
    - Ponding of improperly treated wastewaters (on surface of leach field or a sand filter system) can increase the biochemical demand of receiving waters
    - Excessive amounts of disinfectant (i.e. chlorine) applied to a wastewater discharge from sand filter system can cause toxicity to aquatic life (plants and animals)
    - Refer to Appendix 1: Municipal Operations Profile Sheets
2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE
    - (BOD) – Biochemical Oxygen Demand – a decrease in dissolved oxygen which is harmful to aquatic habitat
    - Observation of color, odor, feces, etc.
3. IDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)
    - Divert stormwater runoff (i.e. from roof drains) away from septic system
    - Divert groundwater (sump pump) discharges away from septic system

- Locate swimming pools away from septic system (at least 20 ft from tank and 35 ft from closest edge of leach field or sand filter system is recommended)
- Prevent problems caused by vegetation – growth of woody plants on the system
- Prevent hydraulic loading – "spread out" the use devices which use large volumes of water across the entire day – clothes washing, dish washing, bathing, repair leaky fixtures
- Minimize water usage by using flow restrictors on potable water distribution devices (i.e. shower heads, or other faucets)

4. INSPECTION PROCEDURES

   Physical Evidence of Problems:

   - "Back up" of wastewater in sewer lines
   - Sewage odors
   - Leach field/sand filter – wetness/ponding on surface
   - Overflow of wastes from system components
   - Heavy vegetation (wood plants) growth on system components

5. MAINTENANCE PROCEDURES

   - "Pump Out" septic tank as needed
   - Mow surface vegetation regularly
   - Prevent "heavy equipment" from driving on top of the system components

6. ADVISORY

   - Contact O'Fallon Water and Sewer at (636) 281-2858
   - Contact St. Charles County Neighborhood Preservation at (636) 949-7900
   - Refer to the Missouri Department of Natural resources at (314) 416-2960

8. Vehicle/Equipment Maintenance

CITY DEPARTMENTS MOST APPLICABLE: FLEET, PARKS, WATER/SEWER, HIGHWAY, ENVIRONMENTAL SERVICES AND STORMWATER MANAGEMENT

1. IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)

   - Trace amounts of metals/hydrocarbons are found in materials (i.e. fuels, antifreeze, batteries, motor oils, grease and cleaning solvents) that are typically used in maintenance operations

- Refer to Appendix 1: Municipal Operations Profile Sheets

2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE

    - Toxicity (i.e. sheen on surface, odor, color)
    - (BOD) – Biochemical Oxygen Demand – a decrease in dissolved oxygen which is harmful to aquatic habitat

3. IDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)

    - Conduct maintenance work indoors – if perform work outside, guard against spillage of materials that could discharge to storm sewers or other pathways to receiving waters
    - Seal floor drains that discharge directly to the environment, if possible and direct to the sanitary sewer system following the appropriate discharge guidelines/requirements
    - Initiate single purpose use of vehicle bays – dedicate one (or more) bays that have no (or sealed) floor drains for repairs/maintenance
    - Clean up spilled materials immediately, using "dry" methods where appropriate (refer to MSDS for recommendations)
    - Install pretreatment systems (i.e. oil/water separators) where necessary in sewer lines to capture contaminants (oil, grit) and maintain as needed
    - Never leave vehicles unattended while refueling
    - Identify appropriate recycling/disposal options for wastes

4. INSPECTION PROCEDURES

    - Inspect (for maintenance purposes) floor drain systems, oil/water separators
    - Monitor "parked" vehicles/equipment for leaks

5. MAINTENANCE PROCEDURES

    - Maintain a clean work areas – remove contaminants from floors, drains, catch basins, using "dry " methods
    - Use non-hazardous cleaners. Use non chlorinated solvents instead of chlorinated solvents (or other environmentally friendly products)
    - Repair or replace any leaking containers
    - Use steam cleaning/pressure washing instead of solvent for parts cleaning
    - Store waste fluids in proper capped, labeled storage containers
    - Store batteries in leak-proof, compatible (i.e. non-reactive) containers

- Rinse grass from lawn care equipment on permeable (grassed) areas
- Protect against pollution if outside maintenance is necessary (cover storm inlet/catch basin or place gutter protection in front of them, use secondary containment vessels, etc)

6. ADVISORY

- Obtain site plan/site sketch of system and retain for reference

9. Vehicle/Equipment Washing

CITY DEPARTMENTS MOST APPLICABLE: FLEET, PARKS, WATER/SEWER, HIGHWAY, ENVIRONMENTAL SERVICES AND STORMWATER MANAGEMENT

1. IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)

- Nutrients (biodegradable soaps)-pH, nitrogen, phosphorus
- Metals (i.e. brake dust)
- Refer to Appendix 1: Municipal Operations Profile Sheets

2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE

- (BOD) – Biochemical Oxygen Demand – a decrease in dissolved oxygen which is harmful to aquatic habitat
- Visual Observance of color, odor, etc.

3. IDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)

- Initiate single purpose use of vehicle bays - dedicate only one bay for washing (with floor drain system to sanitary sewer-preferred)
- Perform cleaning with pressurized cold water, without the use of soaps, if wastewaters will flow to a storm sewer system
- Use minimal amounts of biodegradable soaps only if wastewaters will discharge to a sanitary sewer system
- Rinse with hoses that are equipped with automatic shutoff devices and spray nozzles
- Steam clean/pressure wash (without soap) where wastes can be captured for proper disposal (i.e. oil/water separators indoors)

4. INSPECTION PROCEDURES

- Inspect floor rain systems regularly – use only those that discharge to a sanitary sewer, identify the need for cleaning of storm sewers/catch basins, oil/water separators

5. MAINTENANCE PROCEDURES

- Map storm drain locations accurately to avoid illicit discharges
- Perform steam cleaning or pressure washing where wastes can be captured for proper disposal
- Take precautions against excess use of/spillage of detergents

6. ADVISORY

- Report petroleum spills (as necessary) to the Missouri Department of Natural Resources (MDNR) Emergency Response at (573) 634-2436 (http://sema.dps.mo.gov/mercc.htm) and Stormwater Management Coordinator at (636) 240-2000
- Refer to the MERC (Missouri Emergency Response Center) for guidance information (http://sema.dps.mo.gov/mercc.htm)

10. Roadway and Bridge Maintenance

CITY DEPARTMENTS MOST APPLICABLE: PARKS, HIGHWAY, CONSTRUCTION INSPECTION, PROJECT MANAGEMENT AND STORMWATER MANAGEMENT

1. IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)

- Road salt components – sodium, calcium, and chlorides
- Particulates – such as dry paint or abrasive compounds
- Debris
- Refer to Appendix 1: Municipal Operations Profile Sheets

2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE

- Particulate matter
- Toxicity (i.e. pH, chlorides)

3. IDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)

- Incorporate preventative maintenance and planning for regular operations and maintenance activities
- Pave in dry weather only
- Stage road operations and maintenance activity (patching, sealing, pot holes) to reduce spillage. Cover openings to catch basins/storm sewers or manholes during this activity
- Clean up fluid leaks or spills from paving equipment/materials immediately

- Restrict the use of herbicide/pesticide application to roadside vegetation
- Consider use of calcium magnesium acetate for deicing around bridges to minimize corrosion
- Clean out bridge scuppers and catch basins/storm sewer inlets regularly
- Direct water from bridge scuppers to vegetated areas
- Mechanically remove (i.e. sweep) debris from bridge deck and structure prior to washing

4. INSPECTION PROCEDURES
    - Inspect paving, sweeping, vacuuming, and all other maintenance equipment as appropriate
    - Inspect roads and bridges for implementation of applicable BMP's
5. MAINTENANCE PROCEDURES
    - Clean bridge scuppers routinely and keep free of debris
    - Direct water runoff from bridges to vegetated areas
    - Install catch basins in place of bridge scuppers where possible
    - Use tarps, booms, and vacuums during painting or blasting activities to control/capture particulate matter
    - Repair leaking/defective containers or equipment on paving equipment and other vehicles
6. ADVISORY
    - None

11. Alternative Discharge Options for Chlorinated Water

CITY DEPARTMENTS MOST APPLICABLE: PARKS AND RECREATION AND WATER/SEWER AND STORMWATER MANAGEMENT

1. IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)
    - Discharge of chlorinated (i.e. swimming pool, POTW) waters to surface waters can be harmful, injure or kill aquatic life
    - Refer to Appendix 1: Municipal Operations Profile Sheets
2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE
    - Toxicity (i.e. pH, chlorine)
    - Visual observance of odor

3. IDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)

    - De-chlorinate pool water before any discharge occurs, be it over land or to the sanitary sewer system or allow it to dissipate with sunlight, use, etc. prior to discharge (goal is for pH of 7.0)
    - Use ultraviolet radiation or osmosis to disinfect water/wastewater
    - Backwash water should be discharged to the sanitary sewer, if available – if not available, discharge water over vegetated areas, not to directly to surface waters

4. INSPECTION PROCEDURES

    - Check chlorine residuals prior to discharge (goal is for pH 7.0)
    - Do not discharge wastewaters into the sanitary sewer system during periods of high flow (notify POTW and work with them when preparing to discharge)

5. MAINTENANCE PROCEDURES

    - Maintain proper levels of chlorine residuals in pool
    - Allow disinfectant to dissipate prior to discharge of pool waters

6. ADVISORY

    - Obtain permission from the municipal publicly owned treatment works (POTW), City of O'Fallon, Duckett Creek or PWSD#2 prior to discharging any chlorinated pool waters to the sanitary sewer system

12. Hazardous and Waste Materials Management

CITY DEPARTMENTS MOST APPLICABLE: ALL DEPARTMENTS

1. IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)

    - Lubricant oils
    - Coating and their compatible solvents (paints, thinners, etc)
    - Anti freeze
    - Cleaning agents
    - Fuels (gas, diesel)
    - Refer to Appendix 1: Municipal Operations Profile Sheets

2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE

    - (BOD) – Biochemical Oxygen Demand – a decrease in dissolved oxygen which is harmful to aquatic habitat

- Toxicity to aquatic plants and wildlife (i.e. pH, temperature, sheen, nitrogen, phosphorus)
- Particulate loading, visual observance of particulates, color, odor, etc.

3. IDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)

    - Ensure that all materials are stored in closed, labeled containers – if stored outside, drums should be placed on pallets, away from storm/runoff receivers – inside storage areas should be located away from floor drains
    - Eliminate floor drain systems that discharge directly to storm drains, if possible
    - Use a pretreatment system to remove contaminants prior to discharge to storm sewer system
    - Reduce stock of materials "on hand" – use "first in/first out" management technique
    - Use the least toxic material (i.e. non hazardous) to perform the work
    - Install/use secondary containment devices where appropriate
    - Recycle materials if possible, or ensure proper disposal of wastes

4. INSPECTION PROCEDURES

    - Physical on-site verification of sealed floor drains (or directed to sanitary sewer system)
    - Regular inspection of material storage areas both inside and out
    - Regular inspection and cleaning of oil/water separators by qualified personnel or contractor
    - Inspect stormwater discharge locations regularly for contaminants, sediment, soil staining or blockages

5. MAINTENANCE PROCEDURES

    - Repair or replace any leaking/defective containers and replace labels if necessary
    - Maintain caps and/or covers on containers
    - Maintain aisle space for inspection of products/wastes

6. ADVISORY

    - U. S. Environmental Protection Agency (http://www.epa.gov)
    - OSHA (http://www.osha.gov)
    - Missouri Department of Natural Resources (http://www.dnr.mo.gov)

13. Catch Basin and Storm Drain System Cleaning

CITY DEPARTMENTS MOST APPLICABLE: STORMWATER, HIGHWAY, PARKS, FACILITIES, ENVIRONMENTAL SERVICES AND STORMWATER MANAGEMENT

1. IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)
    - Catch basins/inlets capture grit and debris, which, if not removed in a timely manner can discharge toxic and biological pollutants during rain and/or snow melt events
    - Storm drainage systems, while not designed for capture of solid materials, can perform in the same manner with similar results
    - Storm ditches, if stripped of vegetation during cleaning, can result in silt deposition in receiving waters (for purpose of this document, publicly owned/maintained only)
    - Detention/Retention Ponds capture grit, silt and other debris which while not designed for capture of solid materials, can perform in same manner with similar results (for purpose of this document, publicly owned/maintained only)
    - Refer to Appendix 1: Municipal Operations Profile Sheets
2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE
    - Toxicity – heavy metals, organic compounds (i.e. excessive yard waste), etc
    - (BOD) – Biochemical Oxygen Demand – a decrease in dissolved oxygen which is harmful to aquatic habitat
    - Sediment loading
3. IDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)
    - Address:

      -Storm drain receivers and (below grade) storm sewer systems

      -Parking lot receivers

      -Open ditches

      -Catch basins and floor drain systems inside of buildings should be either:

        - Sealed to prevent discharge
        - Discharged to sanitary sewer system
    - Contaminated wastewaters should not be discharged to catch basin/inlet/culvert
    - Increase frequency of cleaning as necessary

- Repair/replace storm inlets and grates as necessary

4. INSPECTION PROCEDURES

- Physical inspection – prioritized system and individual basins/inlets on steep grades may need more frequent cleaning
- Clean basin/inlet when depth of deposits are > 1/3 depth from the bottom of the basin to the invert of the lowest pipe/opening into or out of basin – Institute temporary street parking bans to facilitate access to basins
- Storm event inspection – (high flow list) identify pollution problems (i.e. sediments) to determine the need for additional protective measures
- Post storm event inspection – (high flow list) identify problems (i.e. blockages) to determine if further protective measures are needed

5. MAINTENANCE PROCEDURES

- Routine catch basins/inlets/storm sewer pipe cleaning as needed to remove sand/grit, salt from winter road maintenance, cleaning in fall to remove leaves/silt/debris
- Established ditch (City maintained)

  -Maintain proper slope

  -Maintain vegetation by cutting (to capture sediment) - Do not allow vegetation to grow to a height that would impair sight lines of drivers or motor vehicles

  -Remove blockages or debris

  -Excavation/ditch scraping – if necessary, use devices to capture sediment prior to stormwater discharge into receiving waters, reseed or sod ditch

- New installation – capture particulate matter – install sediment basins/ditch checks or other devices in ditch
- Proper disposal of debris removed from basins or storm system

6. ADVISORY

- None

14. Street Cleaning, Parking Lot Cleaning and Maintenance

CITY DEPARTMENTS MOST APPLICABLE: HIGHWAY, PARKS AND RECREATIONS, WATER/SEWER, ENVIRONMENTAL SERVICES, FLEET, FACILITIES AND STORMWATER MANAGEMENT

1. I IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)
    - Poorly maintained streets allow for a "build up" of trash, debris, from which sediment and toxic/biological pollutants can be "washed out" during rain and/or snow melt events
    - Street repair/paving processes use materials that can contaminate receiving waters if they interact with stormwater
    - Refer to Appendix 1: Municipal Operations Profile Sheets
2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE
    - Particulate matter – can cause sediment loading
    - Toxicity to aquatic life, pH, temperature, color, odor
    - (BOD) – Biochemical Oxygen Demand – a decrease in dissolved oxygen which is harmful to aquatic habitat
3. IDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)
    - Street sweeping/vacuuming – at regular intervals, and "as needed"
    - Perform operations such as paving in dry weather only
    - Prior to road reconstruction, consider/evaluate the use of "rolled curbing or shouldered roads" instead of "curbed roads"
    - Maintain roadside vegetation; select plants/trees that can withstand the action of road salt and drought. Direct runoff to these areas
4. INSPECTION PROCEDURES
    - Inspect streets, and plan for maintenance/repairs
    - Prioritize – some streets may need more frequent cleaning
5. MAINTENANCE PROCEDURES
    - Spring sweeping/vacuuming – remove salts/sand residues from snow melt
    - Fall sweeping, collection of leaves at appropriate time intervals to prevent blockages
    - Dry sweep or vacuum streets during dry weather

- Initiate temporary street by street parking bans to allow access for cleaning
- Maintain equipment – check for/repair fluid leaks
- Stage road operations and maintenance activity (patching, potholes) to reduce spillage of materials. Cover/protect inlets during activity

6. ADVISORY

- U.S. Environmental Protection Agency – Menu of BMP's website: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=99
- Stormwater Center – website on parking lot and street sweeping http://www.stormwatercenter.net/Pollution_Prevention_Factsheets/ParkingLotandStreetCleaning.htm

15. Road Salt Storage and Application

CITY DEPARTMENTS MOST APPLICABLE: HIGHWAY AND STORMWATER MANAGEMENT

1. IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)

- Salt is very soluble in water, and, in high concentrations, can have a deleterious effect on plants and aquatic life
- Refer to Appendix 1: Municipal Operations Profile Sheets

2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE

- Toxicity, pH, color, odor, chlorides

3. IDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)

- Require covered facility, tarp or other BMP in order to provide for protection for salt storage and size properly for seasonal needs
- Store salt on highest ground elevation to mitigate contact with stormwater runoff
- Calibrate salt spreaders as necessary
- Consider alternative deicing materials (i.e. calcium chloride, magnesium chloride)
- Use a wetting agent with salt to minimize "bouncing" during application
- Consider loading salt in covered area, or build into storage shed
- Unload salt deliveries into storage facility, or if not possible, move inside or under cover immediately

4. INSPECTION PROCEDURES

- Look for physical evidence of problems by:

  -Inspect salt storage sheds for leaks, other problems

  -Inspect salt piles for proper coverage, tarps for leaks or tears

  -Inspect salt application equipment

  -Inspect salt regularly for lumping or water contamination

  -Inspect surface areas for evidence of runoff – salt stains on ground near and around the salt shelter, loading area, or down slope

  -Inspect for excessive amounts of salt on roads

5. MAINTENANCE PROCEDURES

- Service trucks and calibrate spreaders regularly to ensure accurate, efficient distribution of salt
- Educate and train operators on hazards of over-salting to roads and environment
- Repair salt storage sheds if leaks detected
- Repair/replace tarps as needed

6. ADVISORY

- U.S. Environmental Protection Agency – Menu of BMP's website: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=99

16. Construction and Land Disturbance

CITY DEPARTMENTS MOST APPLICABLE: CONSTRUCTION INSPECTION, BUILDING, WATER/SEWER, PROJECT MANAGEMENT AND STORMWATER

1. IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)

- Sediment runoff (i.e. silt, debris) can affect fish reproduction and aquatic habitat
- Removal of shade trees from stream banks can increase water temperature which can result in reduced dissolved oxygen content in streams (increase risk of formation of algae)
- Refer to Appendix 1: Municipal Operations Profile Sheets

2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE

- Particulate matter – sediment, metals, etc. can cause sediment loading
- Increases with temperature, depletes oxygen in streams

3. IDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)

- Plan the construction and/or land clearing activities so that soil is not exposed for long periods of time
- Minimize compaction of soils and impervious cover
- Maximize opportunities for infiltration
- Install erosion and sediment control devices before disturbing soil
- Limit grading to small areas (phased grading)
- Stabilize site to protect against sediment runoff
- Protect against sediment flowing into storm drains
- Maintain native vegetation (especially near waterways)
- Install sediment barriers on slopes or divert stormwater to prevent erosion and sediment loss

4. INSPECTION PROCEDURES

- Regularly scheduled inspection (of erosion and sediment controls, including vegetation)
- Inspect during storm or snow melt events
- Inspect for proper installation of concrete wash off areas – make sure it is well marked
- Inspect for proper installation of port-a-potties to make sure not directly over storm sewer or close if leak should occur
- Inspect for trash and debris blowing on site, trash should be deposited in proper place on site
- Look for storage of hazardous materials around equipment for spill control

5. MAINTENANCE PROCEDURES

- Check/repair all devices that have been installed to ensure protection against sediment loss and erosion

6. ADVISORY

- U.S. Environmental Protection Agency – (http://www.epa.gov) – The National Menu of Best Management Practices (BMPs) for NPDES Stormwater Phase II document can be found at http://cfpub.epa.gov/npdes/stormwater/menuofbmps/menu/.cfm within EPA website, along with other related materials and information
- Missouri Department of Natural Resource – (http://www.dnr.mo.gov/env/wpp/stormwater/index.html) – there are several tabs and pages listed for related materials and information
- City of O'Fallon Stormwater Management Website – (http://www.ofallon.mo.us/dept_swm.htm)

17. Operation and Maintenance of Recycling and Composting Facilities

CITY DEPARTMENTS MOST APPLICABLE: ENVIRONMENTAL SERVICES, STORMWATER MANAGEMENT

1. IDENTIFY POTENTIAL IMPACTS TO/ON STORMWATER/RECEIVING WATERS (SURFACE WATERS/RUNOFF)

   - Includes a variety of materials such as yard waste, wood, paper, plastic, glass, aluminium, steel, and textiles
   - Refer to Appendix 1: Municipal Operations Profile Sheets

2. PROBLEM EVALUATION: ASSESS IMPACT ON RECEIVING WATERS, PRIORITIZE

   - (BOD) – Biochemical Oxygen Demand – a decrease in dissolved oxygen which is harmful to aquatic habitat
   - Toxicity, pH, color, odor, turbidity
   - Nutrient loading, increase nitrogen and phosphorus

3. IDENTIFY (AND CHOOSE APPROPRIATE) SOLUTIONS (BMP's)

   - Yard waste composting operations and mulch piles should be located away from stormwater drainage systems, and must not be located within 100 feet of a natural creek or man-made stormwater drainage channel, 300 feet from a water well or 1,000 feet from a sinkhole, under MDNR permit G97
   - Compost/mulch is confined by an impervious base with curbing or otherwise stored to prevent leachate and runoff from contaminating stormwater, and to prevent stormwater drainage running into the pile
   - Do not discharge leachate to stormwater. As necessary to manage leachate, design a system to collect and properly treat leachate or incorporate into the early stages of the composting process
   - Materials that will pollute stormwater are collected under a roofed structure or in an enclosed dumpster
   - The public is notified by signage at the facility that lists materials accepted at the facility and those unauthorized items that are not acceptable
   - Attendants are on duty to monitor use of the facility and to ensure unauthorized items are not deposited by the public
   - The Police Department routinely patrols the facility to prevent unauthorized dumping
   - No fluids are drained into any stormwater system
   - Every effort is made to ensure the facility is clean and that no unauthorized or contaminated materials are deposited at the facility
   - Materials easily moved by wind must be stored in a manner to prevent the material from becoming airborne and scattered
   - An emergency phone is available at the site for attendants to promptly report any problems to the supervisors or the Police
   - Drums or containers of oil, petroleum products or hazardous materials are not accepted. Also drums or containers that have previously contained these substances are unacceptable for recycling at the facility

4. INSPECTION PROCEDURES

- Look for physical evidence of problems by:

  -Inspect transfer station for leaks and necessary repairs

  -Inspect property encompassing the facility for trash, debris, etc.

  -Inspect equipment for leaks and other routine maintenance

  -Inspect surface areas for evidence of runoff – stains on ground near and around the transfer station, loading area, or down slope

5. MAINTENANCE PROCEDURES

- Service trucks and calibrate regularly
- Educate and train operators
- Repair transfer station facility if leaks detected

6. ADVISORY

- U.S. Environmental Protection Agency – Menu of BMP's website: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=99

18. Stormwater Reference Information

Many sources of information concerning stormwater are available. The sources listed below were used to develop the Pollution Prevention/Good Housekeeping Practices outlines:

Center for Watershed Protection
http://www.cwp.org/
Click on the publications and goods tab for related information

U.S. Environmental Protection Agency
http://www.epa.gov
The National Menu of Best Management Practices (BMPs) for NPDES Stormwater Phase II document can be found at http://cfpub.epa.gov/npdes/stormwater/menuofbmps/menu/.cfm within EPA website, along with other related materials and information

Missouri Department of Natural Resource
http://www.dnr.mo.gov/env/wpp/stormwater/index.html
There are several tabs and pages listed for related materials and information

Stormwater Center
http://www.stormwatercenter.net/
This website contains several model ordinances and other related materials

University of Missouri, Extension
http://extension.missouri.edu/main/DisplayCategory.aspx?C=2
For information relating to pest control, landscaping and lawn care

19. Glossary of Terms

Biochemical Oxygen Demand (BOD) – Depletion of dissolved oxygen in water caused by decomposition of chemical or biologic matter

Catch Basin – A unit that is installed to capture and retain debris, particulate matter, or other solid materials, but allows stormwater to flow through to its discharge location

Drip Irrigation -Irrigation performed via a perforated device (i.e. hose) that allows for a slow metering method with reduced evaporation and runoff losses

Integrated Pest Management – An environmentally sensitive approach to pest management that uses the least toxic control method – a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools

Loading – Term used in conjunction with sediment and hydraulic to describe excessive amounts of the term that is described

Naturescaping – An alternative landscaping technique that incorporates the use of native plants and creates beneficial wildlife habitat – also conserves water and energy, reduces soil/water pollution

Oil/Water Separator – A unit that is installed "in line" to a wastewater discharge pipe (sanitary system) which is devised to capture petroleum derived materials that float on water

Pesticides – Products that are toxic and are used to kill pests can be classified as insecticides, herbicides, rodenticides, biocides, aquacades

POTW – Publicly Owned Treatment Works also known as municipal wastewater treatment plant

Scupper – An opening (in a bridge deck) to allow water drainage – it does not capture debris, particulate matter, or other solid materials

Sediment – Any material that settles in a liquid; often called silt

Silt – A granular material resulting from disintegration of rock. Material consisting of mineral soil particles ranging in diameter from 0.02 millimeters to 0.002 millimeters

Stormwater – rainwater runoff or snow melt waters – these waters can interact with different types of materials, transporting contaminants to surface waters (i.e. streams, creeks, rivers)

Toxicity – The relative degree of being poisonous

Xeriscaping – An alternative landscaping technique that conserves water and protects the environment

Zero, input, low input (lawns) – have minimal need for care (i.e. addition of fertilizers/pesticides, irrigation, etc)

APPENDICES

20. Appendix 1: Municipal Operations Profile Sheets

The information listed in this section has been taken from the Center for Watershed Protection, Urban Subwatershed Restoration Manual 9, Municipal Pollution Prevention/Good Housekeeping Practices, and Version 1.0. This information is very informative and co-insides with the goals of our program therefore, we have placed it in its own section for employees to utilize as reference materials.

Pollution Generating Activities:

Table 4: Pollution Generating Activities and Stormwater Pollutants Associated with Municipal Operations

Pollution Generating Activity	Stormwater Pollutants					
	Sediment	Nutrients	Metals	Hydro-carbons	Toxins	Others
Hotspot Facility Management						
Vehicle Repair	○	○	●	●	●	
Vehicle Fueling	×	○	●	●	●	
Vehicle Washing	●	●	⊙	⊙	●	
Vehicle Storage	○	×	⊙	●	○	Trash
Outdoor Loading	●	⊙	⊙	○	○	Organic Matter
Outdoor Storage	●	⊙	⊙	⊙	⊙	
Waste Management	○	⊙	⊙	⊙	●	Trash
Building Repair	●	○	⊙	⊙	⊙	
Building Maintenance	●	×	●	○	⊙	
Parking Lot Maintenance	●	○	⊙	●	⊙	
Turf Management	⊙	●	×	×	●	Pesticides
Landscaping	○	●	×	×	●	Pesticides
Swimming Pool Discharges	×	×	×	×	×	Chlorine
Construction Project Management						
Construction	●	○	○	⊙	⊙	Trash

Table 4: Pollution Generating Activities and Stormwater Pollutants Associated with Municipal Operations						
Pollution Generating Activity	**Stormwater Pollutants**					
	Sediment	**Nutrients**	**Metals**	**Hydro-carbons**	**Toxins**	**Others**
Street Repair and Maintenance						
Street Maintenance	◉	×	◉	●	◉	Trash
Bridge Maintenance	○	×	◉	●	◉	Trash
Right-of-Way Maintenance	◉	●	×	×	●	Pesticides
Winter Operations	●	×	○	○	○	Chloride
Street Sweeping						
Street Sweeping	●	○	◉	◉	○	Trash, Organic Matter
Storm Drain Maintenance						
Maintenance of Inlet and Outlet Structures	◉	○	○	○	○	Trash, Organic Matter
Maintenance of Storm Drain System	◉	○	○	○	○	Trash, Organic Matter
Stormwater Hotline Response						
Controlling Spills	×	○	×	●	●	
Controlling Illicit Discharges	◉	○	○	●	●	Bacteria
Controlling Illegal Dumping	○	○	○	●	●	Trash, Organic Matter
Park and Landscape Maintenance						
Turf Management	◉	●	×	×	●	Pesticides
Landscaping	○	●	×	×	●	Pesticides
Landscape Waste Management	○	○	×	×	×	Organic Matter
Residential Stewardship						
Storm Drain Stenciling	×	×	○	◉	◉	Trash, Organic Matter
Waste Collection and Recycling	×	×	◉	○	◉	Trash
Hazardous Waste Collection	×	○	◉	●	●	Trash
Leaf and Landscape Waste Collection	○	×	×	×	×	Organic Matter
Stormwater Management Practice Maintenance						
Stormwater Management Practice Maintenance	◉	◉	◉	○	○	Bacteria
Employee Training						
Employee Training	●	●	●	●	●	Chloride, Trash

Key
× = not associated with operation
● = frequently associated with operation
◉ = infrequently associated with operation
○ = rarely associated with operation

Municipal Hotspots:

Table 1: Pollution Generating Activities Associated with Municipal Hotspot Facilities	
Municipal Hotspot Facility	**Pollution Generating Activities**
Public Works Yards	Vehicle Maintenance and Repair, Vehicle Fueling, Vehicle Washing, Vehicle Storage, Outdoor Loading and Unloading, Outdoor Storage, Dumpster/Waste Management, Building Repair, Building Maintenance, Parking Lot Maintenance, Turf Management, Landscaping
Vehicle Storage and Maintenance Yards	Vehicle Maintenance and Repair, Vehicle Fueling, Vehicle Washing, Vehicle Storage, Outdoor Loading and Unloading, Outdoor Storage, Dumpster/Waste Management, Parking Lot Maintenance
Equipment Storage and Maintenance Yards	
Materials Storage Yards	Outdoor Loading and Unloading, Outdoor Storage, Dumpster/Waste Management, Parking Lot Maintenance
Water and Wastewater Treatment Facilities	Vehicle Storage, Outdoor Loading and Unloading, Outdoor Storage, Dumpster/Waste Management, Building Repair, Building Maintenance, Parking Lot Maintenance, Turf Management, Landscaping
Landfills	Vehicle Fueling, Vehicle Storage, Outdoor Loading and Unloading, Outdoor Storage, Dumpster/Waste Management
Incinerators	
Solid Waste Handling and Transfer Facilities	

Table 1: Pollution Generating Activities Associated with Municipal Hotspot Facilities	
Municipal Hotspot Facility	**Pollution Generating Activities**
Hazardous Waste Handling and Transfer Facilities	Vehicle Fueling, Vehicle Storage, Outdoor Loading and Unloading, Outdoor Storage, Dumpster/Waste Management
Hazardous Waste Disposal Facilities	
Composting Facilities	Vehicle Storage, Outdoor Loading and Unloading, Outdoor Storage, Dumpster/Waste Management
Public Buildings	Outdoor Loading and Unloading, Outdoor Storage, Dumpster/Waste Management, Building Repair, Building Maintenance, Parking Lot Maintenance, Turf Management, Landscaping
Public Golf Courses	Vehicle Maintenance and Repair, Vehicle Fueling, Vehicle Washing, Vehicle Storage, Outdoor Loading and Unloading, Outdoor Storage, Dumpster/Waste Management, Building Repair, Building Maintenance, Parking Lot Maintenance, Turf Management, Landscaping
Public Swimming Pools	Building Repair, Building Maintenance, Parking Lot Maintenance, Swimming Pool Discharges

Table 2: Stormwater Pollutants Associated with Activities Conducted at Stormwater Hotspot Facilities						
Hotspot Operation or Activity	**Sediment**	**Nutrients**	**Metals**	**Hydro-carbons**	**Toxins**	**Others**
Vehicle Repair	○	○	●	●	●	
Vehicle Fueling	×	○	●	●	●	
Vehicle Washing	●	●	◉	◉	●	
Vehicle Storage	○	×	◉	●	○	Trash
Outdoor Loading	●	◉	◉	○	○	Organic Matter
Outdoor Storage	●	◉	◉	◉	◉	
Waste Management	○	◉	◉	◉	●	Trash
Building Repair	●	○	◉	◉	◉	
Building Maintenance	●	×	●	○	◉	
Parking Lot Maintenance	●	○	◉	●	◉	
Turf Management	◉	●	×	×	●	Pesticides
Landscaping	○	●	×	×	●	Pesticides
Swimming Pool Discharges	×	×	×	×	×	Chlorine
Key × = not a pollutant source ○ = minor pollutant contribution ◉ = moderate pollutant contribution ● = major pollutant contribution						

Commonly used practices:

Table 4: Pollution Prevention/Good Housekeeping Practices Commonly Used to Control Stormwater Pollution at Municipal Hotspot Facilities	
Hotspot Activity	**Pollution Prevention/Good Housekeeping Practices**
Vehicle Maintenance and Repair Vehicle Fueling Vehicle Washing Vehicle Storage	Drip pans, tarps, covered outdoor storage areas, secondary containment, discharge of washwater to sanitary sewer system, proper disposal of used fluids, disconnected storm drains, automatic shutoff nozzles, signs, spill response plans, spill clean up materials, dry clean up methods, employee training, stormwater retrofits
Outdoor Loading and Unloading Outdoor Storage	Covered loading and unloading areas, secondary containment, storm drain disconnection or treatment, inventory control, spill response plans, spill clean up materials, dry clean up methods, employee training, stormwater retrofits
Dumpster/Waste Management	Dumpster/waste management, secondary containment, storm drain disconnection or treatment, liquid separation/containment, employee training
Building Repair Building Maintenance Parking Lot Maintenance	Temporary covers/tarps, employee training, contractor training, proper cleanup and disposal procedures, disconnected storm drains, dry cleaning methods, stormwater retrofits
Turf Management Landscaping	Integrated pest management, reduced non-target irrigation, careful applications, proper disposal of landscaping waste, avoid blowing and hosing to storm drain, employee training, stormwater retrofits
Swimming Pool Discharges	Discharge to sanitary sewer system, discharge to pervious areas, employee training

Construction Management/Project Management/Building:

Table 3: Pollution Prevention/Good Housekeeping Practices Commonly Used to Improve Municipal Construction Project Management	
Existing Condition	**Recommended Improvements**
• No local erosion and sediment control and/or stormwater ordinance in place	• Develop a local erosion and sediment control and/or stormwater management ordinance • Ensure that municipal construction sites are required to meet the provisions of each ordinance
• Municipal construction projects are not subject to the requirements of the local erosion and sediment control and/or stormwater management ordinance	• Revise the local erosion and sediment control and/or stormwater management ordinance to ensure that municipal construction sites are required to meet the provisions of each ordinance • To set a better example for the regulated community, consider regulating municipal construction sites that are smaller than the one acre threshold, such as those that disturb more than 5,000 square feet
• Municipal construction projects are not subject to local plan review and site inspection procedures	• Revise the local development review process to ensure that municipal construction sites are subject to local plan review and site inspection procedures
• Existing contractor selection and procurement procedures do not consider erosion and sediment control and/or stormwater management	• Revise the selection and procurement procedures to ensure that erosion and sediment control and stormwater management are considered during the selection process
• Erosion and sediment control ordinance does not require use of the 10 critical elements	• Encourage the use of the 10 critical erosion and sediment control plan elements on all municipal construction projects • Revise the local erosion and sediment control ordinance to ensure that it includes the 10 critical elements • Provide training to design engineers and contractors on the 10 critical erosion and sediment control plan elements
• Innovative stormwater management practices are not used on municipal development projects	• Revise the local stormwater management ordinance to ensure these practices are allowed • Promote the use of innovative stormwater management practices on all municipal construction projects • Provide training to design engineers and contractors on the design and installation of innovative stormwater management practices

Street Repair and Maintenance:

Table 2: Pollution Prevention/Good Housekeeping Practices Commonly Used to Improve Street Repair and Maintenance Operations	
Street Repair or Maintenance Activity	**Recommended Improvements**
Routine Road and Bridge Maintenance	• Prevent paving materials and wastes from entering the storm drain system • Minimize the area of soils left exposed or graded • Collect any loose sand, gravel, asphalt, or other material as soon as possible after construction activities • When placing chip seals, limit spreading aggregate to the sealed surface and sweep up excess aggregate once cured and each day thereafter until aggregate loss is insignificant • Mix road stabilization materials during periods of calm, dry weather, and seal as soon as possible after dressing • Fill and compact soil, gravel, and asphalt in layers • Reuse road spoil in repairs if possible and sweep up and dispose of properly • Eliminate 'edge break' by fully sealing road shoulders • When striping, use water-based paints or thermoplastics rather than solvent-based ones • Avoid striping operations while the pavement is wet, during humid conditions, or if rain is likely • Avoid applying thermoplastics at low temperatures, i.e. below 13°C • When possible, use portable drip trays under equipment to catch spills • Use a skirt around the blaster to minimize the spraying of material away from the work site • Coordinate street-sweeping with line removal, so that waste material is picked up before it can be transported by rain, wind, and traffic • Use dry cutting techniques when saw cutting and sweep or vacuum up residue • Construct runoff barriers to protect storm drains from wet saw-cut runoff • Place drip pans or absorbent materials under saw-cut equipment when not in use • Use as little cooling water as possible and switch the water off when the saw is not in use
Winter-time Operations	• Ensure that the equipment is calibrated to optimum levels according to manufacturer's instructions • Place barriers in site-specific locations, i.e., along streams or direct drainages to route deicing material away from water bodies • Reduce plowing speed in sensitive areas to prevent exposure to deicing material • Identify and create facilities to capture deicing materials, where practical using booms or other similar barrier materials
Vegetative Maintenance	• Use mechanical methods of vegetation removal rather than herbicides • Dispose of lawn clippings at a landfill; clippings should not be disposed of in streams or storm drains • Avoid applying herbicides and pesticides if rain is expected • Calibrate equipment to avoid over application

Street Sweeping:

In general, street sweeping is usually more effective in arid and semi-arid climates where pollutants can accumulate over longer intervals on street and curb surfaces.

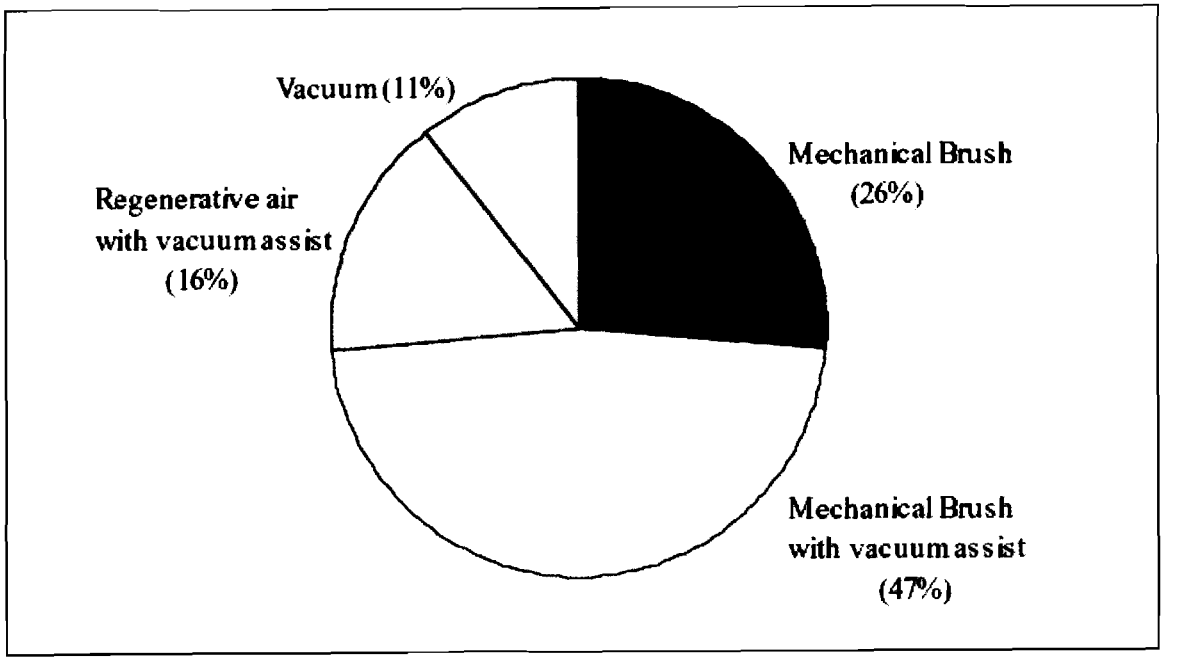


Table 1: Expected Pollutant Removal Rates for Street Sweeping (Law et al., 2008)

Frequency	Technology	Total Suspended Solids	Total Phosphorus	Total Nitrogen
Monthly	Mechanical	9%	3%	3%
	Regenerative Air/Vacuum	22%	4%	4%
Weekly	Mechanical	13%	5%	6%
	Regenerative Air/Vacuum	31%	8%	7%

Table 3: Good Housekeeping Techniques for Street and Parking Lot Sweeping
• Analyze sweeper wastes for hazardous waste content and dispose of properly at the landfill • Sweep prior to rainstorms so pollutants are not washed into storm drain system • Sweep as soon as possible following application of deicers or other applied chemicals • Properly maintain sweepers and operate according to manufacturers directions • Store swept material in a covered and contained site until it can be disposed of at a landfill • Implement parking controls to improve street sweeper efficiency by maximizing sweepable street edges where dirt tends to collect • Routinely inspect street curbs for sediment and debris and schedule dirtiest streets for regular sweeping • Coordinate seasonal sweeping schedules to coincide with important pollution prevention events during the subwatershed year. These include the end of curbside leaf collection, winter sanding operations, and peak pollen production in the spring • Select the most effective combination of street sweeper technology that is consistent with municipal budget resources • Sweep streets at the optimal frequency to remove the greatest pollutant removal, given local rainfall, street density, curb access and traffic safety • Post permanent signs to notify vehicle owners and residents about forthcoming sweeping operations and associated parking restrictions • Work with local police department to patrol designated routes to ticket illegally parked cars

Storm Drain System Maintenance:

Table 1: Expected Pollutant Removal Rates for Catch Basin Cleanouts (Law et al., 2008)

Frequency	Total Suspended Solids	Total Phosphorus	Total Nitrogen
Annual	18%	< 1%	3%
Semi-Annual	35%	2%	6%

Table 3: Equipment Used for Catch Basin and Inlet Cleaning (from Lager et al. 1979)

Equipment	Description
Manual cleaning	Bail out sediment-laden water and shovel into street then truck. Or crew enters catch basin and fill buckets with sediment that are then carried to a dump truck. Clean water is used to refill the catch basin.
Eductor cleaning	Eductor truck evacuates the catchment of the sediment-laden water into a settling tank.
Vacuum cleaning	Air blower of the vacuum truck is used to create a vacuum and the air-solid-liquid material is separated in the vacuum truck unit by gravity separation and baffles.
Vacuum combination jet cleaning (e.g. Vaccon)	A vacuum assisted truck that uses a combination of air, water and hydraulic suction. Suction is used to extract material from storm inlets. Water is used to clear material from storm drain pipes that is not removed by the vacuum. The material is stored in the truck holding tank and transported for disposal.

Table 4: Good Housekeeping Techniques for Storm Drain Cleanout
• Maintain a log of the amount of sediment collected and the date removed • Analyze waste to determine the nature of disposal method • Any liquids collected during cleanouts should be decanted and disposed of separately, depending on its hazard class • Minimally clean once or twice per year (just before and just after the rainy season) or when the catch basin storage is one-third full, whichever happens first • Plan cleaning to coincide with municipal street sweeping (MO-4) • Locate and map all the catch basins within the community, and use these maps to promote widespread storm drain stenciling • Keep records on accumulation rates within each individual catch basin using GIS or other tracking system • Report all suspicious catch basins to appropriate local authorities for follow-up inspection and enforcement (e.g., inappropriate discharges and illegal dumping)

Stormwater Hot Line Response:

Table 1: Information to Record in an Incident Report	
• Date and time of the incident • Weather conditions • Location of the incident • Whether it was a transportation-related incident or a spill or discharge from a specific location • Type of material spilled • Estimated amount of material spilled • Duration of the spill or discharge • Cause of the spill or discharge	• Response procedures implemented • Agencies and departments involved in cleanup activities • Materials/methods used for cleanup • Additional persons or agencies notified • Person/company responsible for the incident and their contact information • Potential environmental problems associated with the incident

Table 3: General Spill and Discharge Response Procedures (CASQA, 2003)
• Prevent wet and dry spills from entering the storm drain system by installing temporary barriers around catch basins and inlets • Use a rag, damp cloth or absorbent materials to clean up small quantities of non-hazardous liquids • Clean up of larger quantities of non-hazardous liquids can be achieved with the use of absorbents, gels and foams • Use brooms or shovels to clean up of small quantities of dry materials; street sweepers may be used to clean up larger quantities of dry materials • Promptly remove and properly dispose of any adsorbent materials used to clean up liquid spills • If water is used to clean up spills or other discharges, it must be collected and properly disposed of; wash water cannot be allowed to enter the storm drain system • Clean or dispose of any equipment used to clean up the spill properly • For hazardous or very large spills, a private cleanup company or Hazmat team may need to be contacted to assess the situation and/or conduct the cleanup and disposal of the materials • If the spilled material is hazardous, then the used cleanup materials and equipment are also hazardous and must be sent to a certified laundry or disposed of as hazardous waste

Park and Landscape Maintenance:

Table 3: Pollution Prevention/Good Housekeeping Practices Commonly Used to Improve Park and Landscape Maintenance Operations	
Activity	**Pollution Prevention/Good Housekeeping Practices**
	herbicides • Consider a low or no pesticide approach to maintaining landscaped areas
Fertilizer Application	• Never apply fertilizers or pesticides within five feet of pavement, 25 feet of a storm drain inlet, or 50 feet of a stream or water body • Consider a low or no fertilizer approach to maintain turf • Apply only when rain is not expected • Perform a soil test to determine actual fertilization needs and application rate • Calibrate fertilizer spreaders to avoid excessive application
Irrigation	• Employ shutoff devices to prevent irrigation after precipitation or if a pressure drop occurs due to broken sprinkler heads or lines • Design irrigation systems specific to each landscaped area's water requirements • Select native plant species whenever possible and group together plants with similar water requirements in order to reduce excess irrigation • Use soaker hoses not sprinklers and irrigate in the morning or evening to conserve water
Employee Training	• Train employees on the use and appropriate application of pesticides, herbicides and fertilizers • Ensure that designated no mow areas are well advertised • Educate staff on the benefits of trees and native and naturalized species

Table 3: Pollution Prevention/Good Housekeeping Practices Commonly Used to Improve Park and Landscape Maintenance Operations	
Activity	**Pollution Prevention/Good Housekeeping Practices**
Turf Reduction	• Plant trees and/or other native vegetation in suitable areas • Consider turf alternatives, such as native or low-water, cool-season turf grass • Allow natural regeneration in suitable areas
Turf Management	• Sweep any grass clippings away from paved surfaces after mowing • Use mulching type mowers or dispose of at local composting facility • Use erosion control measures when soils are exposed • Place stockpiled materials away from storm drains
Native Plantings	• Provide native and naturalized landscaping guidance and plant lists • Require use of appropriate native and naturalized landscaping on municipally-owned properties
Landscape Management	• Collect landscape waste (including grass clippings) and dispose of at a local yard waste recycling/composting facility • Do not use leaf blowers to blow waste into streets, storm drains or ditches
Pesticide/Herbicide Application	• Develop an integrated pest management plan that uses pesticides only as a last resort • Apply only when rain is not expected • Do not prepare herbicides or pesticides for application near storm drains • Use manual and/or mechanical methods to remove weeds rather than

Residential Stewardship (Community Participation/Programs):

Table 1: Comparison of Pollutant Contribution from Various Residential Behaviors							
Residential Polluting Behavior	**Stormwater Pollutants**						
	TSS	**Nutrients**	**Metals**	**Bacteria**	**Trash**	**Oil**	**Toxins**
Improper Fertilization	×	●	×	×	×	×	○
Excess Pesticide Use	×	×	×	×	×	×	●
Over-Watering	○	◉	○	×	○	×	◉
Extensive Turf Cover	○	◉	×	×	×	×	◉
Tree Clearing	◉	◉	×	×	×	×	×
Yard Waste Dumping	◉	●	×	○	○	×	×
Soil Compaction	◉	◉	○	○	×	×	×
Soil Erosion	●	◉	○	○	×	×	×
Failing Septic Systems	○	●	×	●	×	×	○
Pool Discharges	×	×	×	×	×	×	●
Car Washwater Flows	◉	●	◉	×	×	◉	◉
Hosing/Leaf-blowing	●	◉	◉	×	◉	◉	○
Use of De-icers	◉	○	○	×	×	×	◉
HHW Dumping	×	○	●	×	×	●	●
Car Fluid Spills/Dumping	×	×	◉	×	×	●	●
Connected Downspouts	◉	●	●	◉	×	○	○
Added IC and Bare Soil	●	○	◉	×	◉	○	○
Pet Waste Washoff	×	●	×	●	×	×	×
Poor STP Maintenance	●	●	●	◉	●	○	○
Buffer Encroachment	○	○	○	○	○	×	×
Storm Drain Dumping	◉	○	◉	◉	●	●	●

Table 1: Comparison of Pollutant Contribution from Various Residential Behaviors							
Residential Polluting Behavior	**Stormwater Pollutants**						
	TSS	**Nutrients**	**Metals**	**Bacteria**	**Trash**	**Oil**	**Toxins**

Key
● = major pollutant contribution
◉ = moderate pollutant contribution
○ = minor pollutant contribution
× = not a pollutant source

Table 3: Good Housekeeping Techniques for Residential Stewardship	
Service	**Good Housekeeping Techniques**
Storm drain stenciling	• Prioritize drains for marking in subwatersheds with impaired waters or sensitive aquatic resources • Provide stenciling supplies to volunteer groups • Target neighborhoods and areas where storm drain dumping is known/prevalent
Household hazardous waste collection	• If possible, provide curbside pickup of household hazardous waste • If resources are limited, provide widely advertised collection events several times a year • Provide public outreach documents potential effects of hazardous household materials on water quality and inform them how to properly store, handle, and dispose of the chemicals
Car fluid recycling	• Collect used oil/antifreeze through conveniently located collection centers or curbside pickup • Educate the public on how to manage car fluids properly and how to take advantage of your program's services.
Lawn care advice	• Provide a natural lawn care advice customer service line • Provide yard waste collections • Offer free soil tests to determine exact fertilizer and lime needs
Residential rooftop disconnection	• Provide downspout disconnection services • Offer a credit for rain barrel or rain garden installation • Distribute rain barrels at community and watershed-related events
Tree planting incentives	• Provide education about the multiple benefits of planting trees • Encourage private property tree plantings through incentives such as coupons for the purchase of qualifying trees at local nursery • Provide and plant free trees • Establish guidance on species selection and maintenance
Training	• Provide training to employees to conduct residential services such as rooftop disconnection, tree planting, etc.

Stormwater Management Maintenance Practice:

Table 1: Appropriate Management Good Housekeeping Techniques	
Existing Condition	**Recommended Improvements**
Community has not yet established a stormwater management practice inspection and maintenance program	Develop a local stormwater management practice inspection program and assign a department or agency to be responsible for managing the program Identify the dedicated funding source that will be used to maintain the inspection and maintenance program
Locations of permanent stormwater management practices have not been identified	Develop a map showing the location of all permanent stormwater management practices Collect basic information about each of the stormwater management practices (e.g. type and age of practice, previous maintenance activities)
Homeowners associations and individual property owners are responsible for the maintenance and upkeep of stormwater management practices	Develop a contact database listing the homeowners associations and individual property owners responsible for the maintenance and upkeep of stormwater management practices Include enforceable provisions within the local stormwater management ordinance that require regular maintenance on these facilities Conduct periodic inspections of facilities to ensure maintenance is being performed
Inspection and maintenance activities are not documented and tracked	Work with the department or agency responsible for the maintenance and upkeep of municipally-owned and/or operated stormwater management practices to develop a tracking system
Specific maintenance activities are not being performed	Update the inspection procedures or maintenance plan requirements to ensure maintenance is properly conducted

Employee Training:

Table 3: Employee Training Programs - Presenting the Right Information to the Right Audience		
Municipal Operation	**Training Targets**	**Training Topics**
Hotspot facility management	• Facility managers • Building maintenance staff • Fleet maintenance staff	• Vehicle maintenance and repair procedures • Vehicle washing procedures • Materials loading and unloading procedures • Materials storage procedures (outdoor storage) • Spill prevention and response • Dumpster management • Building repair and maintenance procedures
Construction project management	• Contract administration staff • Building services staff • Plan review staff • Site inspection staff	• Considering erosion and sediment control and stormwater management during contractor selection • Plan review techniques • Erosion and sediment control practices • Ordinance enforcement procedures
Street repair and maintenance	• Street maintenance staff • Vehicle operators	• Road maintenance procedures • Winter road maintenance procedures • Handling and application of pesticides and other chemicals
Street sweeping	• Street maintenance staff • Vehicle operators	• Street sweeping procedures • Materials disposal • Street sweeper maintenance
Storm drain maintenance	• Storm drain staff • Street maintenance staff • Vehicle operators	• Storm drain maintenance procedures • Materials disposal • Vacuum truck maintenance
Stormwater hotline response	• Stormwater hotline staff • Fire department staff • Police department staff • Public works staff • Storm drain staff • Site inspection staff	• Public relations • Response, cleanup and disposal procedures • Reporting procedures
Park and landscape maintenance	• Parks and recreation staff • Community forestry staff • Landscaping staff • Mowing staff	• Use and appropriate application of pesticides, herbicides and fertilizers • No mow areas • Benefits of trees and native and naturalized species
Residential stewardship	• Parks and recreation staff • Public school staff • Community outreach staff	• Providing residential services such as rooftop disconnection, tree planting, etc.
Stormwater management practice maintenance	• Storm drain staff • Site inspection staff • Maintenance staff	• Stormwater management practice inspection procedures • Stormwater management practice maintenance procedures

21. Appendix 2: Operation & Maintenance and Training Program Work Group

Michele Gremminger Stormwater Management Coordinator 636.240.2000	Jay Herigodt Assistant City Engineer 636.379.5416
Ken Hammell Director of Street Division 636.379.3801	Nathan Lacey Director of Building Safety 636.379.5597
Cindy Springer Managing Director of Parks and Recreation 636.379.5570	Bill Mitchison Parks Superintendent 636.379.5611
Dan Scherer Director of Water/Sewer Division 636.281.2858	Wade Montgomery City Engineer 636.379.5567
Mike Leonard Manager Facilities Maintenance 636.240.2000	Steve Beckman Manager of Fleet Services 636.379.5340
Jim Wenzara Director of Environmental Services 636.240.2921	Steve Bender Managing Director of Public Works 636.379.5560
Keith Riesberg City Administrator 636.379.5504	

22. Appendix -3: Ordinance/Permitting References

- O'Fallon Waste Management Code-Chapter 245, Section 245.020-245.090
- Stormwater Quality Management and Illicit Discharge Control, Chapter 405, Section 405.245
- Nuisance Ordinance for Debris and Yard Waste, Chapter 220, Section 220.270-290
- Animal Control Ordinance, Chapter 210, Section 210.030-100
- O'Fallon Erosion and Sediment Control Ordinance-Chapter 210, Section 510.010-070
- O'Fallon Grading Ordinance, Chapter 405, Section 405.070
- O'Fallon Stormwater Detention Ordinance, Chapter 405, Section 405.240
- O'Fallon Stormwater Quality-Best Management Practices, Chapter 405, Section 405.247
- US Army Corps of Engineers 404 Permit
- Missouri Department of Natural Resources 401 Certification

Appendix I

(Permit copies Waste Transfer Station, Water Plant, Wastewater Plant)

MISSOURI DEPARTMENT OF NATURAL RESOURCES
SOLID WASTE PERMIT
City of O'Fallon Regional Waste Transfer Station and Recycling Center
Solid Waste Processing Facility Construction Permit Number 418303
St. Charles County, Missouri

PERMITTEE

Owner:	City of O'Fallon c/o The Honorable Paul Renaud Mayor, City of O'Fallon 100 North Main Street O'Fallon, Missouri 63366	Operator:	City of O'Fallon c/o Mr. Christopher Keesy Director of Environmental Services 100 North Main Street O'Fallon, Missouri 63366

FACILITY LOCATION

The facility is located on Progress West Lane off Hoff Road as part of US Survey No. 54, Township 47 North, Range 2 East in the City of O'Fallon, St. Charles County, Missouri.

FACILITY DESCRIPTION

This facility is a solid waste processing facility located on Progress West Lane off Hoff Road and the North Service Road (West Terra Lane), north and west of the intersection of Bryan Road and Interstate 70. The general legal description of the site is a portion of U.S. Survey No. 54 in St. Charles County. This permit applies only to the tract of land consisting of the transfer station building and office, and adjacent turnaround and optional contractors' area, but not the portion of the building designated for source separated recyclable storage area as described by the engineering plans, specifications, and operating procedures submitted to the department. The transfer station will include approximately 0.09 acres to be used for waste collection and transfer operations.

PERMIT DOCUMENTS

These documents are incorporated by this reference into Permit Number 418303:

1. Construction Permit Application for City of O'Fallon Regional Waste Transfer Station and Recycling Center, on June 24, 2002, prepared by Dennis C. Wike, P.E., of Genesis Solid Waste Group, Inc. including the engineering report and engineering plan sheets.

2. The Comprehensive Annual Financial Report, December 31, 2000, for the City of O'Fallon, Missouri, prepared by Vicki M. Boschert, CPA, Director of the Department of Finance.

3. The City of O'Fallon Annual Budget for Fiscal Year 2002.

The following conditions are an integral part of the permit. Compliance with these conditions shall, in part, determine compliance with the permit. All reports, plans, and data required to satisfy these conditions shall be prepared or approved by a professional engineer registered in the State of Missouri.

GENERAL CONDITION

Operation and Design

Any change in the operation and/or design of this facility other than that which has been described in the application and approved in this permit is a modification of the permit; and written approval shall be obtained prior to the permittee making that change.

MODIFICATION AND TERMINATION OF PERMIT

The department reserves the right to revoke, suspend, or modify Permit Number 418303 after due notice if the permit holder fails to maintain the facility in compliance with: the Missouri Solid Waste Management Law and regulations; the terms and conditions of the permit; and the approved engineering plans and specifications; or, for creating a public nuisance, health hazard, or causing pollution.

9/13/02
Date of Permit

for James D. Werner, Director
Air and Land Protection Division
DEPARTMENT OF NATURAL RESOUCES

Solid Waste Management Program

City of O'Fallon Regional Waste Transfer Station

Permit Number: 0418303
Date Issued: June 19, 2003
County: St. Charles
Solid Waste Management District: L
DNR Regional Office: St. Louis Regional Office

Contact:
City of O'Fallon
100 N. Main St.
O'Fallon, MO 63366
Phone: 636-379-5405

Owner:
City of O'Fallon
100 N. Main St.
O'Fallon, MO 63366
Phone: 636-379-5405

Description:

8:08 AM
2/28/2013

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0129623
Owner:	City of O'Fallon
Address:	100 North Main Street, O'Fallon, MO 63366
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	O'Fallon Water Treatment Plant
Address:	321 Firma Road, O'Fallon, MO 63366
Legal Description:	NW ¼, NE ¼, Sec. 26, T48N, R3E, St. Charles County
UTM Coordinates:	X = 704159, Y = 4307796
Receiving Stream:	Mississippi River (P)
First Classified Stream and ID:	Mississippi River (P) (00001)
USGS Basin & Sub-watershed No.:	(07110009-010002)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 -Publicly Water Supply District - SIC #4941-
– Reject water from reverse osmosis water treatment plant before mixing with effluent from O'Fallon wastewater treatment plant – Design Flow is 0.75 MGD

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

May 14, 2010
Effective Date

Mark N. Templeton, Director, Department of Natural Resources

May 13, 2015
Expiration Date

Mike Struckhoff, Director, St. Louis Regional Office

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001***						
Flow	MGD	*		*	daily	24 hr. total
Sulfates + Chlorides	mg/L	1000		1000	once/week	grab
pH – Units	SU	**		**	once/week	grab
Nitrate – N	mg/L	*		*	once/week	grab
Hardness as $CaCO_3$	mg/L	*		*	once/week	grab
Total Dissolved Solids	mg/L	*		*	once/week	grab
Dissolved Oxygen	mg/L	*		*	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE **June 28, 2010** .						
Gross alpha particle activity	pCi/L	*		*	once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED **ANNUALLY**; THE FIRST REPORT IS DUE **October 28, 2010** . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0 - 9.0 pH units.
*** Effluent shall be monitored at the discharge point from the facility before mixing with the treated effluent from the O'Fallon wastewater treatment plant.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

C. SPECIAL CONDITIONS (continued)

3. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

(a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
   (1) One hundred micrograms per liter (100 µg/L);
   (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
   (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
   (4) The level established in Part A of the permit by the Director.

(b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

4. Report as no-discharge when a discharge does not occur during the report period.

5. Water Quality Standards

(a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.

(b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
   (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
   (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
   (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
   (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
   (5) There shall be no significant human health hazard from incidental contact with the water;
   (6) There shall be no acute toxicity to livestock or wildlife watering;
   (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
   (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

6. The permittee shall comply with any applicable requirements listed in 10 CSR 20-8 and 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the department for review and, if deemed necessary, approval.

Missouri Department of Natural Resources
STATEMENT OF BASIS
FOR THE PURPOSE OF RENEWAL OF
MO-0129623
O'FALLON WATER TREATMENT PLANT

A Statement of Basis (Statement) gives pertinent information regarding the applicable regulations and rational for the development of the NPDES Missouri State Operating Permit (operating permit). Statement of Basis are required for all operating permits fpr which a Fact Sheet is not required. Statement of Basis briefly describe, among other items, the derivation of the effluent limitation and the reasons for operating permit's Special Conditions. Fact Sheets should be developed for any permit that requires complex calculations or special conditions; and this is particularly true for permit conditions based on Best Professional Judgment (BPJ).

A Statement is not an enforceable part of an operating permit.

Part I – Facility Information

Facility Type: Public Water Supply District
Facility SIC Code(s) #: 4941

Facility Description:
Reject water from reverse osmosis water treatment plant before mixing with effluent from O'Fallon wastewater treatment plant –

Receiving Water Body's Water Quality & Facility Performance History:
This permit contains one parameter with an effluent limitation. The others are monitoring only. The past two years of discharge monitoring reports indicate compliance with the permit.

Comments:
No comments

Part II – Operator Certification Requirements

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.010(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Check boxes below that are applicable to the facility;

- Owned or operated by or for:
  - Municipalities ☐
  - Public Sewer District: ☐
  - County ☐
  - Public Water Supply Districts: ☒
  - Private sewer company regulated by the Public Service Commission: ☐
  - State or Federal agencies:

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200) and/or fifty (50) or more service connections.
This facility currently requires an operator with a D Certification Level
http://www.dnr.mo.gov/operator/index.do

Operator's Name: Dan Ismay
Certification Number: 1857
Certification Level: A

Part III – Rationale and Derivation of Effluent Limitations & Permit Conditions

ANTI-BACKSLIDING:
A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

☒ - All limits in this statement are at least as protective as those previously established; therefore, backsliding does not apply.

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:
As per [10 CSR 20-6.010(3)(B)], ...An applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the department.

COMPLIANCE AND ENFORCEMENT:
Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

Not Applicable ☒;
The permittee/facility is not currently under Water Protection Program enforcement action.

OUTFALL #001: Effluent limitations have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, effluent limitations have been retained from previous state operating permit – no changes proposed.

REMOVAL EFFICIENCY:
Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm

Not Applicable ☒;
This wastewater treatment facility is not a POTW. Influent monitoring is not being required to determine percent removal.

Sanitary Sewer Overflows (SSOs), Bypasses, Inflow & Infiltration (I&I) – Prevention/Reduction:
Sanitary Sewer Systems (SSSs) are municipal wastewater collection systems that convey domestic, commercial, and industrial wastewater, and limited amounts of infiltrated groundwater and storm water (i.e. I&I), to a POTW. SSSs are not designed to collect large amounts of storm water runoff from precipitation events.

Untreated or partially treated discharges from SSSs are commonly referred to as SSOs. SSOs have a variety of causes including blockages, line breaks, sewer defects that allow excess storm water and ground water to overload the system, lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. A SSOs is defined as an untreated or partially treated sewage release from a SSS. SSOs can occur at any point in an SSS, during dry weather or wet weather. SSOs include overflows that reach waters of the state. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations. SSSs can back up into buildings, including private residences. When sewage backups are caused by problems in the publicly-owned portion of an SSS, they are considered SSOs.

Not Applicable ☒;
This facility is not required to develop or implement a program for maintenance and repair of the collection system; however, it is a violation of Missouri State Environmental Laws and Regulations to allow untreated wastewater to discharge to waters of the state.

SCHEDULE OF COMPLIANCE (SOC):
A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.

Not Applicable ☒;
This permit does not contain a SOC.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):
In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities: (2) Authorized under section 402(p) of the CWA for the control of storm water discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with the EPA's *Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices* [EPA 832-R-92-006] (Storm Water Management), BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Storm Water Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of storm water discharges.

Not Applicable ☒;
At this time, the permittee is not required to develop and implement a SWPPP.

WATER QUALITY STANDARDS:
Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

WHOLE EFFLUENT TOXICITY (WET) TEST:
A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

Not Applicable ☒;
At this time, the permittee is not required to conduct WET test for this facility.

303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):
Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

Not Applicable ☒;
This facility does not discharge to a 303(d) listed stream.

Part IV – Administrative Requirements

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

Date of Statement of Basis: March 5, 2010

Tracy A. Haag
Environmental Engineer
St. Louis Regional Office
7545 S. Lindbergh, Suite 210
St. Louis, MO 63125
(314) 416-2960
tracy.haag@dnr.mo.gov

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0028720
Owner:	City of O'Fallon
Address:	100 North Main Street, O'Fallon, MO 63366
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	O'Fallon Wastewater Treatment Plant
Facility Address:	150 Firma Road, O'Fallon, MO 63366
Legal Description:	See page 2
Receiving Stream:	See page 2
First Classified Stream and ID:	See page 2
USGS Basin & Sub-watershed No.:	See page 2

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

See page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

December 12, 2008 — Effective Date

January 23, 2009 — Revised Date

Joseph P. Bindbeutel, Acting Director, Department of Natural Resources

December 11, 2013 — Expiration Date

Robert K. Morrison, P.E., Chief, Water Pollution Control Branch

FACILITY DESCRIPTION (continued)

Outfall #001 - POTW - SIC #4952
Screening/grit removal/primary clarifiers/pumping of effluent/bio-filters/activated sludge/aeration basins/final clarifiers/UV disinfection/aerobic digester/gravity belt thickeners/lime stabilization/belt filter press/land application of sludge biosolids.
Design population equivalent is 93,000.
Design flow is 11.25 MGD.
Actual flow is 8.2 MGD.
Design sludge production is 2,800 dry tons/year.

Legal Description:	USS 1687, Sec. 26, T48N, R3E, (proj), St. Charles County
Latitude/Longitude:	+3853480/-09038521
Receiving Stream:	Mississippi River (P)
First Classified Stream and ID:	Mississippi River (P) (00001)
USGS Basin & Sub-watershed No.:	(07110009-010002)

Outfalls #002 – Discontinued, No Exposure

Outfalls #003 – Discontinued, No Exposure

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/day	24 hr. total
Carbonaceous Biochemical Oxygen Demand$_5$	mg/L		45	25	twice/week	24 hr. comp.
Total Suspended Solids	mg/L		45	30	twice/week	24 hr. comp.
Temperature	°C	*			twice/week	grab
pH – Units	SU	**		**	twice/week	grab
Fecal Coliform***	#/100mL	1000		400	twice/week	grab
Organic Nitrogen	mg/L	*		*	twice/week	grab
Ammonia Nitrogen (year round)	mg/L	62.2		23.8	twice/week	grab
Oil & Grease	mg/L	15		10	once/month	grab
Nitrite & Nitrate	mg/L	*		*	once/month	grab
Total Phosphorus	mg/L	*		*	once/month	grab
Hardness as $CaCO_3$	mg/L	*		*	once/month	grab
Arsenic, Total Recoverable	µg/L	*		*	once/month	grab
Cadmium, Total Recoverable	µg/L	*		*	once/month	24 hr. comp.
Copper, Total Recoverable	µg/L	228		114	once/month	24 hr. comp.
Lead, Total Recoverable	µg/L	*		*	once/month	24 hr. comp.
Mercury, Total Recoverable	µg/L	*		*	once/month	24 hr. comp.
Nickel, Total Recoverable	µg/L	*		*	once/month	24 hr. comp.
Silver, Total Recoverable	µg/L	*		*	once/month	24 hr. comp.
Zinc, Total Recoverable	µg/L	1,853		923	once/month	24 hr. comp.

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE January 28, 2009.

Whole Effluent Toxicity (WET) Test	% Survival	See Special Conditions	once/year in August	24 hr. comp.

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2009.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

C. INFLUENT MONITORING REQUIREMENTS

The facility is required to meet a removal efficiency of 85% or more. The monitoring requirements shall become effective upon issuance and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below:

SAMPLING LOCATION AND PARAMETER(S)	UNITS	MONITORING REQUIREMENTS	
		MEASUREMENT FREQUENCY	SAMPLE TYPE
Influent			
Biochemical Oxygen Demand$_5$	mg/L	once/month	24 hr. comp.
Total Suspended Solids	mg/L	once/month	24 hr. comp.

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE April 28, 2009.

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.
*** Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.
**** Samples shall be taken in March, June, September & December.

D. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Changes in Discharges of Toxic Substances. The permittee shall notify the Director as soon as it knows or has reason to believe:
   (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
      (1) One hundred micrograms per liter (100 µg/L);
      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
      (4) The level established in Part A of the permit by the Director.
   (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

4. Report as no-discharge when a discharge does not occur during the report period.

D. SPECIAL CONDITIONS (continued)

5. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
   (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
   (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
   (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
   (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
   (e) There shall be no significant human health hazard from incidental contact with the water;
   (f) There shall be no acute toxicity to livestock or wildlife watering;
   (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
   (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

6. Sewage Sludge Requirements for General Public Use.

   (a) General Requirements.
      (1) Applicability. Sewage sludge will be considered as meeting the requirements of the U.S. Environmental Protection Agency for Class A biosolids criteria and will be considered suitable for general public use when the permittee meets the requirements under this permit special condition. General public use means the biosolids are suitable for all types of crops and vegetation including use in residential areas, public use areas and for horticulture, silviculture and agricultural uses.
      (2) Other Environmental Regulations. This permit does not pertain to requirements under any other environmental laws and regulations. For information on applicable requirements under the Missouri Solid Waste Management Law, Chapter 260, RSMo, contact the Solid Waste Management Program at (573) 751-5401. For general information on other environmental regulations, contact the Technical Assistance Program at (573) 526-6627.
      (3) Facility Description.
         (a) A mechanically cleaned fine screen is used to remove all fine solids from the influent raw wastewater. A manually cleaned bar screen is provided in the event the mechanical unit is not operational. Screenings will be removed and landfilled.
         (b) A grit chamber designed to remove 90% of 65 mesh or larger grit particles with a specific gravity of 2.65 or higher follows the mechanical screen. The grit is removed and landfilled.
         (c) Primary underflow solids and thickened waste activated sludge is pumped to a blending tank.
         (d) The sludge in the blending tank is de-watered on gravity belt thickeners followed by a belt filter press to a solids concentration of approximately 20 percent.
         (e) The filtered solids are next delivered by a conveyor belt to the lime stabilization and RDP EnVessel© Pasteurization unit capable of processing 2.4 dry tons per hour to EPA Class A pathogen reduction and vector attraction standards. The unit consists of a lime storage silo and feed system, a ThermoBlending unit to mix the quicklime with the dewatered sludge solids and raise the temperature to 70^0 C, and a pasteurization vessel designed to maintain the biosolids at a temperature of 70^0 C for 30 minutes in order to reduce pathogens to Class A standards. The Class A vector reduction criteria will be met by maintaining the pH of the biosolids to 12 for at least two hours.
         (f) The finished biosolids will be delivered by conveyor belt to either the storage area or directly to trucks to haul the biosolids to land application sites.
   (b) Management Requirements.
      (1) Fertilizer Registration.
         (a) Department permitting and tracking of land application sites will not be required if the biosolids product obtains and maintains a valid registration as a fertilizer under the Missouri Fertilizer Law, Section 266.291-266.351, RSMo and regulations.
         (b) Biosolids product that is not registered as a fertilizer is not approved for general public use and must comply with record keeping and reporting requirements under permit Standard Conditions Part III for all final biosolids product, including free public distribution.
      (2) Odor Control. Odor control facilities will be provided and maintained as necessary to prevent nuisance conditions and to comply with requirements under the Missouri Air Conservation law and regulations.

D. SPECIAL CONDITIONS (continued)

(3) Biosolids Management Plan. The permittee must maintain an updated biosolids management plan and an updated operation manual for the wastewater treatment facility including the biosolids facility. These documents should be maintained and be accessible at the facility and must include: operation procedures for all equipment items; safety and emergency procedures; monitoring, testing and reporting requirements; and records management.

(c) Biosolids Quality Requirements.
(1) Requirements for Class A Biosolids: The density of fecal coliform in the biosolids shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis) in accordance with 40 CFR 503.32(a)(7).
(2) Requirements for Class B Biosolids: Biosolids that do not meet the pathogen reduction requirements for Class A biosolids will be considered Class B biosolids provided that the same biosolids treatment process train is used as described herein.
(3) General Requirements for Class A or Class B Biosolids:
(a) Metals concentrations shall not exceed the quality concentrations in 40 CFR 503.13, Table 3 and Water Quality Guide WQ-425, Tables 2 and 3.
(b) Priority pollutants shall not exceed the median concentrations for municipal sludges based on the Statistical Analysis of 1988 EPA National Sewage Sludge Survey, Proceedings of the Industrial Wastewater/Sludge Land Application Training Workshop, University of Missouri Agricultural Engineering Extension, May 7, 1997. Copies may be obtained by contacting Bob Broz, University Extension at (573) 882-0085.

(d) General Public Use Requirements.
(1) Information Sheet for Users. An information/instruction sheet shall be provided to each user of the final biosolids product to provide information on nutrient content, appropriate application rates and other pertinent information for proper handling and use of the biosolids. A copy of the information sheet shall be submitted to the department for review and approval within 90 days after permit issuance.
(2) Land Application Rate. Biosolids that is land applied on an annual basis shall not exceed either one of the following criteria:
(a) Application rates shall not exceed the annual plant available nutrient requirements for nitrogen and phosphorus based on the vegetation to be grown, a realistic crop yield goal, soil testing results and testing of the biosolids for nutrient content.
(b) Application rate shall not exceed two (2.0) dry tons per acre/yr.
(3) Use of Biosolids for Land Reclamation. Approval for use of biosolids for land reclamation must be granted by the U.S. Environmental Protection Agency.
(4) Agricultural Use of Biosolids. Sewage sludge that does not meet the requirements for general public use may still be land applied in accordance with permit Standard Conditions Part III.

(e) Monitoring and Testing Requirements
(1) Process Monitoring.
(a) Monitoring of the biosolids process shall be such as to maintain final product quality. This shall include, but not be limited to testing and recording the solids concentrations at appropriate points along the process train, monitoring of polymer feed rates to the gravity belt thickeners, lime feed rates to the blending unit, pH and temperature in the pasteurization unit, and material volumes and weights that are processed.
(b) A log book shall be maintained that will provide a record of the amount of material being processed, the units that are kept in operation, polymer feed rates, equipment maintenance activities, and operational problems.

(f) Final Product Testing. Samples of the final biosolids product that are to be considered ready for public distribution shall be sampled and tested as follows. All sampling and testing shall be done in accordance with procedures contained in either Standard Methods or in EPA/625/R-92/013 "Environmental Regulations and Technology; Control of Pathogens and Vector Attraction in Sewage Sludge."
(1) For MPN fecal coliform bacteria, the permittee shall once each week collect and test a composite sample made from four individual samples collected over a 1-hour period. If the test is not to be conducted within one hour after sample collection, the composite sample shall be cooled to below 10^0 C, and tested for MPN fecal coliform bacteria within 6-hours after sample collection.
(2) Once per month, collect and test a sample composited from four individual samples collected over an 8-hour period for the following: organic nitrogen, ammonia nitrogen, nitrate nitrogen, total phosphorus, total potassium, sodium, calcium, magnesium, pH, and percent moisture.
(3) Once per quarter, collect and test a sample composited from four individual samples collected over an 12-hour period for the ten metals listed in WQ-425 Table 2.
(4) Once per year, collect and test a sample composited from four individual samples collected over an 12-hour period for the Priority Pollutants listed in 40 CFR 122.21 Appendix D, Tables II and III.

D. SPECIAL CONDITIONS (continued)

(g) Records and Reporting Requirements.
   (1) Time, locations and results shall be recorded for each monitoring requirement and maintained for at least three years. Copies of these records shall be made available to the department upon request.
   (2) Records of amounts, dates, names and addresses shall be kept for all persons receiving biosolids in bulk quantities of more than 2,000 pounds. If the biosolids is registered as a fertilizer, persons receiving 1.0 cubic yard of biosolids or less do not need to be identified but the total quantity of biosolids distributed in this manner must be recorded.
   (3) An annual report shall be submitted by January 28 of year to summarize biosolids production activities, monitoring results and documentation of fertilizer registration. A copy of the individual laboratory reports and daily records need not be submitted unless requested by the department. The reports shall be submitted to the St. Louis Regional Office and EPA Region VII office as part of the annual sludge report in permit Standard Conditions Part III.
   (4) All reporting requirements as contained in "Part III – Sludge and Biosolids from Domestic Wastewater Treatment Facilities" of the Standard Conditions contained in this permit shall apply.

7. All paint, solvents, petroleum products, petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) shall be stored so that these materials are not exposed to storm water. Spill prevention, control and/or management shall be provided sufficient to prevent any spills of these pollutants from entering a water of the state. Any contaminant system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.

8. Good housekeeping practices shall be maintained on the site to keep solid waste from entry into waters of the state.

9. All fueling facilities present on the site shall adhere to applicable federal and state regulations concerning underground storage, above ground storage, and dispensers, including spill prevention, control and counter measures.

10. Substances regulated by federal law under the Resource Conservation and Recovery Act (RCRA) or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) that are transported, stored or used for maintenance, cleaning or repair shall be managed accordingly to the provisions of RCRA or CERCLA.

11. An individual shall be designated by the permittee as responsible for environmental matters. Staff of the permitted facility shall inspect, on workdays, any structures that function to prevent pollution of storm water or to improve pollutants from storm water and of the facility in general to ensure that any Best Management Practices are continually implemented and effective.

12. All involved personnel shall be trained in material handling and storage, and housekeeping of maintenance area. Upon request, proof of training shall be submitted to the Department.

13. The permittee shall develop and implement a program for maintenance and repair of the collection system. The recommended guidance is the US EPA's Guide For Evaluating Capacity, Management, Operation, And Maintenance (CMOM) Programs At Sanitary Sewer Collection Systems (Document number EPA 305-B-05-002). The permittee shall submit a report semi-annually in April and October to the St. Louis Regional Office with the Discharge and Monitoring reports which address measures taken to locate and eliminate sources of infiltration and inflow into the collection system serving the facility.

D. SPECIAL CONDITIONS (continued)

14. Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#001	3.5%	Annually	24 hr. comp.	August

(a) Test Schedule and Follow-Up Requirements

(1) Perform a MULTIPLE-dilution test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.

(a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.

(b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.

(c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.

(d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.

(e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.

(f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.

(g) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.

(h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.

(i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.

(j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.

(k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.

(l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.

(m) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.

(2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

(3) If the effluent fails the test, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur) until one of the following conditions are met:

(a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.

(b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

C. SPECIAL CONDITIONS (continued)

14. Whole Effluent Toxicity (WET) tests (continued)

(4) Failure of at least two multiple-dilution tests during any period of accelerated monitoring violates the permit narrative requirement for aquatic life protection.
(5) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
(6) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
(7) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
(8) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
(9) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.
(10) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) PASS/FAIL procedure and effluent limitations:
(1) To pass a multiple-dilution test:
(a) For facilities with a computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC) OF 30% OR LESS, the AEC must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; **OR,**
(b) For facilities with an AEC greater than 30%, the LC50 concentration must be greater than 100%; **AND,**
(c) all effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other federal guidelines as appropriate or required. Failure of one multiple-dilution test may be considered an effluent limit violation.

(c) Test Conditions
(1) Test Type: Acute Static non-renewal
(2) All tests, including repeat tests for previous failures, shall include both test species listed below.
(3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
(4) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
(5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.

C. SPECIAL CONDITIONS (continued)

14. Whole Effluent Toxicity (WET) tests (continued)

(6) Multiple-dilution tests will be run with:
(a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.
(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
(8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

15. Permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 40 CFR Part 403. The approved pretreatment program is hereby incorporated by reference.

16. Permittee shall submit to the Department on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:

(a) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;
(b) A summary of the status of Industrial User compliance over the reporting period;
(c) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
(d) Any other relevant information requested by the Department.

17. As required in 40 CFR 122.21 (j)(4) the permittee shall, as part of its renewal application for this permit, submit to the department a written technical evaluation of the need to revise local limits under 40 CFR 403.5 (c)(1).

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

Missouri Department of Natural Resources
STATEMENT OF BASIS
FOR THE PURPOSE OF MINOR MODIFICATION
OF
MO-0028720
O'FALLON WWTP

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

A Factsheet is not an enforceable part of an operating permit.

This Factsheet is for a Major ☒, Minor ☐, Industrial Facility ☐; Variance ☐;
Master General Permit ☐; General Permit Covered Facility ☐; and/or permit with widespread public interest ☐.

Part I – Facility Information

Facility Address: 150 Firma Road, O'Fallon, MO 63366
Facility Type: POTW
Facility SIC Code(s): 4952

Facility Description:
Screening/grit removal/primary clarifiers/pumping of effluent/bio-filters/activated sludge/aeration basins/final clarifiers/UV disinfection/aerobic digester/gravity belt thickeners/lime stabilization/belt filter press/land application of sludge biosolids.

Application Date: 6-18-08
Expiration Date: 12-11-08
Last Inspection: 4-25-08 In Compliance ☒; Non-Compliance ☐

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	17.4	Secondary	Domestic, Municipal	0.0

Outfall #001
Legal Description: USS 1687, Sec. 26, T48N, R3E, (proj), St. Charles County
Receiving Stream: Mississippi River (P)
First Classified Stream and ID: Mississippi River (P) (00001)
USGS Basin & Sub-watershed No.: (07110009-010002)

Comments:
During the last permit renewal the Special Conditions for pretreatment were inadvertently left out of the permit. This modification restores the previous pretreatment language. There are no other changes to this permit.

Part II – Administrative Requirements

No public notice is required for this minor modification.

DATE OF STATEMENT: 1-2-09

COMPLETED BY:

CURT B. GATELEY, CHIEF
NPDES PERMITS UNIT
WATER PROTECTION PROGRAM
PERMITTING AND ENGINEERING SECTION
NPDES AND STORM WATER PERMITS UNIT
(573) 526-1155
curtis.gateley@dnr.mo.gov

Appendix I

(Permit copies Waste Transfer Station, Water Plant, Wastewater Plant)

MISSOURI DEPARTMENT OF NATURAL RESOURCES
SOLID WASTE PERMIT
City of O'Fallon Regional Waste Transfer Station and Recycling Center
Solid Waste Processing Facility Construction Permit Number 418303
St. Charles County, Missouri

PERMITTEE

Owner:	City of O'Fallon c/o The Honorable Paul Renaud Mayor, City of O'Fallon 100 North Main Street O'Fallon, Missouri 63366	Operator:	City of O'Fallon c/o Mr. Christopher Keesy Director of Environmental Services 100 North Main Street O'Fallon, Missouri 63366

FACILITY LOCATION

The facility is located on Progress West Lane off Hoff Road as part of US Survey No. 54, Township 47 North, Range 2 East in the City of O'Fallon, St. Charles County, Missouri.

FACILITY DESCRIPTION

This facility is a solid waste processing facility located on Progress West Lane off Hoff Road and the North Service Road (West Terra Lane), north and west of the intersection of Bryan Road and Interstate 70. The general legal description of the site is a portion of U.S. Survey No. 54 in St. Charles County. This permit applies only to the tract of land consisting of the transfer station building and office, and adjacent turnaround and optional contractors' area, but not the portion of the building designated for source separated recyclable storage area as described by the engineering plans, specifications, and operating procedures submitted to the department. The transfer station will include approximately 0.09 acres to be used for waste collection and transfer operations.

PERMIT DOCUMENTS

These documents are incorporated by this reference into Permit Number 418303:

1. Construction Permit Application for City of O'Fallon Regional Waste Transfer Station and Recycling Center, on June 24, 2002, prepared by Dennis C. Wike, P.E., of Genesis Solid Waste Group, Inc. including the engineering report and engineering plan sheets.

2. The Comprehensive Annual Financial Report, December 31, 2000, for the City of O'Fallon, Missouri, prepared by Vicki M. Boschert, CPA, Director of the Department of Finance.

3. The City of O'Fallon Annual Budget for Fiscal Year 2002.

The following conditions are an integral part of the permit. Compliance with these conditions shall, in part, determine compliance with the permit. All reports, plans, and data required to satisfy these conditions shall be prepared or approved by a professional engineer registered in the State of Missouri.

GENERAL CONDITION

Operation and Design

Any change in the operation and/or design of this facility other than that which has been described in the application and approved in this permit is a modification of the permit; and written approval shall be obtained prior to the permittee making that change.

MODIFICATION AND TERMINATION OF PERMIT

The department reserves the right to revoke, suspend, or modify Permit Number 418303 after due notice if the permit holder fails to maintain the facility in compliance with: the Missouri Solid Waste Management Law and regulations; the terms and conditions of the permit; and the approved engineering plans and specifications; or, for creating a public nuisance, health hazard, or causing pollution.

9/13/02
Date of Permit

James D. Werner, Director
Air and Land Protection Division
DEPARTMENT OF NATURAL RESOUCES

Solid Waste Management Program

City of O'Fallon Regional Waste Transfer Station

Permit Number: 0418303
Date Issued: June 19, 2003
County: St. Charles
Solid Waste Management District: L
DNR Regional Office: St. Louis Regional Office

Contact:
City of O'Fallon
100 N. Main St.
O'Fallon, MO 63366
Phone: 636-379-5405

Owner:
City of O'Fallon
100 N. Main St.
O'Fallon, MO 63366
Phone: 636-379-5405

Description:

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0129623
Owner:	City of O'Fallon
Address:	100 North Main Street, O'Fallon, MO 63366
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	O'Fallon Water Treatment Plant
Address:	321 Firma Road, O'Fallon, MO 63366
Legal Description:	NW ¼, NE ¼, Sec. 26, T48N, R3E, St. Charles County
UTM Coordinates:	X = 704159, Y = 4307796
Receiving Stream:	Mississippi River (P)
First Classified Stream and ID:	Mississippi River (P) (00001)
USGS Basin & Sub-watershed No.:	(07110009-010002)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 -Publicly Water Supply District - SIC #4941-

– Reject water from reverse osmosis water treatment plant before mixing with effluent from O'Fallon wastewater treatment plant – Design Flow is 0.75 MGD

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

May 14, 2010
Effective Date

Mark N. Templeton, Director, Department of Natural Resources

May 13, 2015
Expiration Date

Mike Struckhoff, Director, St. Louis Regional Office

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001***						
Flow	MGD	*		*	daily	24 hr. total
Sulfates + Chlorides	mg/L	1000		1000	once/week	grab
pH – Units	SU	**		**	once/week	grab
Nitrate – N	mg/L	*		*	once/week	grab
Hardness as $CaCO_3$	mg/L	*		*	once/week	grab
Total Dissolved Solids	mg/L	*		*	once/week	grab
Dissolved Oxygen	mg/L	*		*	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE **June 28, 2010** .						
Gross alpha particle activity	pCi/L	*		*	once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED **ANNUALLY**; THE FIRST REPORT IS DUE **October 28, 2010** . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0 - 9.0 pH units.
*** Effluent shall be monitored at the discharge point from the facility before mixing with the treated effluent from the O'Fallon wastewater treatment plant.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

C. SPECIAL CONDITIONS (continued)

3. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

(a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
   (1) One hundred micrograms per liter (100 µg/L);
   (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
   (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
   (4) The level established in Part A of the permit by the Director.

(b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

4. Report as no-discharge when a discharge does not occur during the report period.

5. Water Quality Standards

(a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.

(b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
   (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
   (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
   (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
   (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
   (5) There shall be no significant human health hazard from incidental contact with the water;
   (6) There shall be no acute toxicity to livestock or wildlife watering;
   (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
   (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

6. The permittee shall comply with any applicable requirements listed in 10 CSR 20-8 and 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the department for review and, if deemed necessary, approval.

Missouri Department of Natural Resources
STATEMENT OF BASIS
FOR THE PURPOSE OF RENEWAL OF
MO-0129623
O'FALLON WATER TREATMENT PLANT

A Statement of Basis (Statement) gives pertinent information regarding the applicable regulations and rational for the development of the NPDES Missouri State Operating Permit (operating permit). Statement of Basis are required for all operating permits fpr which a Fact Sheet is not required. Statement of Basis briefly describe, among other items, the derivation of the effluent limitation and the reasons for operating permit's Special Conditions. Fact Sheets should be developed for any permit that requires complex calculations or special conditions; and this is particularly true for permit conditions based on Best Professional Judgment (BPJ).

A Statement is not an enforceable part of an operating permit.

Part I – Facility Information

Facility Type: Public Water Supply District
Facility SIC Code(s) #: 4941

Facility Description:
Reject water from reverse osmosis water treatment plant before mixing with effluent from O'Fallon wastewater treatment plant –

Receiving Water Body's Water Quality & Facility Performance History:
This permit contains one parameter with an effluent limitation. The others are monitoring only. The past two years of discharge monitoring reports indicate compliance with the permit.

Comments:
No comments

Part II – Operator Certification Requirements

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.010(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Check boxes below that are applicable to the facility;

- Owned or operated by or for:
  - Municipalities ☐
  - Public Sewer District: ☐
  - County ☐
  - Public Water Supply Districts: ☒
  - Private sewer company regulated by the Public Service Commission: ☐
  - State or Federal agencies:

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200) and/or fifty (50) or more service connections.
This facility currently requires an operator with a D Certification Level
http://www.dnr.mo.gov/operator/index.do

Operator's Name: Dan Ismay
Certification Number: 1857
Certification Level: A

Part III – Rationale and Derivation of Effluent Limitations & Permit Conditions

ANTI-BACKSLIDING:
A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(l)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

☒ - All limits in this statement are at least as protective as those previously established; therefore, backsliding does not apply.

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:
As per [10 CSR 20-6.010(3)(B)], ...An applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the department.

COMPLIANCE AND ENFORCEMENT:
Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

Not Applicable ☒;
The permittee/facility is not currently under Water Protection Program enforcement action.

OUTFALL #001: Effluent limitations have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, effluent limitations have been retained from previous state operating permit – no changes proposed.

REMOVAL EFFICIENCY:
Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm

Not Applicable ☒;
This wastewater treatment facility is not a POTW. Influent monitoring is not being required to determine percent removal.

Sanitary Sewer Overflows (SSOs), Bypasses, Inflow & Infiltration (I&I) – Prevention/Reduction:
Sanitary Sewer Systems (SSSs) are municipal wastewater collection systems that convey domestic, commercial, and industrial wastewater, and limited amounts of infiltrated groundwater and storm water (i.e. I&I), to a POTW. SSSs are not designed to collect large amounts of storm water runoff from precipitation events.

Untreated or partially treated discharges from SSSs are commonly referred to as SSOs. SSOs have a variety of causes including blockages, line breaks, sewer defects that allow excess storm water and ground water to overload the system, lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. A SSOs is defined as an untreated or partially treated sewage release from a SSS. SSOs can occur at any point in an SSS, during dry weather or wet weather. SSOs include overflows that reach waters of the state. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations. SSSs can back up into buildings, including private residences. When sewage backups are caused by problems in the publicly-owned portion of an SSS, they are considered SSOs.

Not Applicable ☒;
This facility is not required to develop or implement a program for maintenance and repair of the collection system; however, it is a violation of Missouri State Environmental Laws and Regulations to allow untreated wastewater to discharge to waters of the state.

SCHEDULE OF COMPLIANCE (SOC):
A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.

Not Applicable ☒;
This permit does not contain a SOC.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):
In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities: (2) Authorized under section 402(p) of the CWA for the control of storm water discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with the EPA's *Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices* [EPA 832-R-92-006] (Storm Water Management), BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Storm Water Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of storm water discharges.

Not Applicable ☒;
At this time, the permittee is not required to develop and implement a SWPPP.

WATER QUALITY STANDARDS:
Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

WHOLE EFFLUENT TOXICITY (WET) TEST:
A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

Not Applicable ☒;
At this time, the permittee is not required to conduct WET test for this facility.

303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):
Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

Not Applicable ☒;
This facility does not discharge to a 303(d) listed stream.

Part IV – Administrative Requirements

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

Date of Statement of Basis: March 5, 2010

Tracy A. Haag
Environmental Engineer
St. Louis Regional Office
7545 S. Lindbergh, Suite 210
St. Louis, MO 63125
(314) 416-2960
tracy.haag@dnr.mo.gov

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0028720
Owner:	City of O'Fallon
Address:	100 North Main Street, O'Fallon, MO 63366
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	O'Fallon Wastewater Treatment Plant
Facility Address:	150 Firma Road, O'Fallon, MO 63366
Legal Description:	See page 2
Receiving Stream:	See page 2
First Classified Stream and ID:	See page 2
USGS Basin & Sub-watershed No.:	See page 2

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

See page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

December 12, 2008 — Effective Date
January 23, 2009 — Revised Date

Joseph P. Bindbeutel, Acting Director, Department of Natural Resources

December 11, 2013
Expiration Date

Robert K. Morrison, P.E., Chief, Water Pollution Control Branch

FACILITY DESCRIPTION (continued)

Outfall #001 - POTW - SIC #4952
Screening/grit removal/primary clarifiers/pumping of effluent/bio-filters/activated sludge/aeration basins/final clarifiers/UV disinfection/aerobic digester/gravity belt thickeners/lime stabilization/belt filter press/land application of sludge biosolids.
Design population equivalent is 93,000.
Design flow is 11.25 MGD.
Actual flow is 8.2 MGD.
Design sludge production is 2,800 dry tons/year.

Legal Description:	USS 1687, Sec. 26, T48N, R3E, (proj), St. Charles County
Latitude/Longitude:	+3853480/-09038521
Receiving Stream:	Mississippi River (P)
First Classified Stream and ID:	Mississippi River (P) (00001)

USGS Basin & Sub-watershed No.: (07110009-010002)

Outfalls #002 – Discontinued, No Exposure

Outfalls #003 – Discontinued, No Exposure

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/day	24 hr. total
Carbonaceous Biochemical Oxygen Demand$_5$	mg/L		45	25	twice/week	24 hr. comp.
Total Suspended Solids	mg/L		45	30	twice/week	24 hr. comp.
Temperature	°C	*			twice/week	grab
pH – Units	SU	**		**	twice/week	grab
Fecal Coliform***	#/100mL	1000		400	twice/week	grab
Organic Nitrogen	mg/L	*		*	twice/week	grab
Ammonia Nitrogen (year round)	mg/L	62.2		23.8	twice/week	grab
Oil & Grease	mg/L	15		10	once/month	grab
Nitrite & Nitrate	mg/L	*		*	once/month	grab
Total Phosphorus	mg/L	*		*	once/month	grab
Hardness as $CaCO_3$	mg/L	*		*	once/month	grab
Arsenic, Total Recoverable	µg/L	*		*	once/month	grab
Cadmium, Total Recoverable	µg/L	*		*	once/month	24 hr. comp.
Copper, Total Recoverable	µg/L	228		114	once/month	24 hr. comp.
Lead, Total Recoverable	µg/L	*		*	once/month	24 hr. comp.
Mercury, Total Recoverable	µg/L	*		*	once/month	24 hr. comp.
Nickel, Total Recoverable	µg/L	*		*	once/month	24 hr. comp.
Silver, Total Recoverable	µg/L	*		*	once/month	24 hr. comp.
Zinc, Total Recoverable	µg/L	1,853		923	once/month	24 hr. comp.

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE January 28, 2009.

Whole Effluent Toxicity (WET) Test	% Survival	See Special Conditions	once/year in August	24 hr. comp.

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2009.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

C. INFLUENT MONITORING REQUIREMENTS

The facility is required to meet a removal efficiency of 85% or more. The monitoring requirements shall become effective upon issuance and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below:

SAMPLING LOCATION AND PARAMETER(S)	UNITS	MONITORING REQUIREMENTS	
		MEASUREMENT FREQUENCY	SAMPLE TYPE
Influent			
Biochemical Oxygen Demand$_5$	mg/L	once/month	24 hr. comp.
Total Suspended Solids	mg/L	once/month	24 hr. comp.

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE April 28, 2009.

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.
*** Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.
**** Samples shall be taken in March, June, September & December.

D. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Changes in Discharges of Toxic Substances. The permittee shall notify the Director as soon as it knows or has reason to believe:
   (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
      (1) One hundred micrograms per liter (100 µg/L);
      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
      (4) The level established in Part A of the permit by the Director.
   (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

4. Report as no-discharge when a discharge does not occur during the report period.

D. SPECIAL CONDITIONS (continued)

5. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
   (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
   (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
   (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
   (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
   (e) There shall be no significant human health hazard from incidental contact with the water;
   (f) There shall be no acute toxicity to livestock or wildlife watering;
   (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
   (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

6. Sewage Sludge Requirements for General Public Use.

   (a) General Requirements.
      (1) Applicability. Sewage sludge will be considered as meeting the requirements of the U.S. Environmental Protection Agency for Class A biosolids criteria and will be considered suitable for general public use when the permittee meets the requirements under this permit special condition. General public use means the biosolids are suitable for all types of crops and vegetation including use in residential areas, public use areas and for horticulture, silviculture and agricultural uses.
      (2) Other Environmental Regulations. This permit does not pertain to requirements under any other environmental laws and regulations. For information on applicable requirements under the Missouri Solid Waste Management Law, Chapter 260, RSMo, contact the Solid Waste Management Program at (573) 751-5401. For general information on other environmental regulations, contact the Technical Assistance Program at (573) 526-6627.
      (3) Facility Description.
         (a) A mechanically cleaned fine screen is used to remove all fine solids from the influent raw wastewater. A manually cleaned bar screen is provided in the event the mechanical unit is not operational. Screenings will be removed and landfilled.
         (b) A grit chamber designed to remove 90% of 65 mesh or larger grit particles with a specific gravity of 2.65 or higher follows the mechanical screen. The grit is removed and landfilled.
         (c) Primary underflow solids and thickened waste activated sludge is pumped to a blending tank.
         (d) The sludge in the blending tank is de-watered on gravity belt thickeners followed by a belt filter press to a solids concentration of approximately 20 percent.
         (e) The filtered solids are next delivered by a conveyor belt to the lime stabilization and RDP EnVessel© Pasteurization unit capable of processing 2.4 dry tons per hour to EPA Class A pathogen reduction and vector attraction standards. The unit consists of a lime storage silo and feed system, a ThermoBlending unit to mix the quicklime with the dewatered sludge solids and raise the temperature to 70^0 C, and a pasteurization vessel designed to maintain the biosolids at a temperature of 70^0 C for 30 minutes in order to reduce pathogens to Class A standards. The Class A vector reduction criteria will be met by maintaining the pH of the biosolids to 12 for at least two hours.
         (f) The finished biosolids will be delivered by conveyor belt to either the storage area or directly to trucks to haul the biosolids to land application sites.
   (b) Management Requirements.
      (1) Fertilizer Registration.
         (a) Department permitting and tracking of land application sites will not be required if the biosolids product obtains and maintains a valid registration as a fertilizer under the Missouri Fertilizer Law, Section 266.291-266.351, RSMo and regulations.
         (b) Biosolids product that is not registered as a fertilizer is not approved for general public use and must comply with record keeping and reporting requirements under permit Standard Conditions Part III for all final biosolids product, including free public distribution.
      (2) Odor Control. Odor control facilities will be provided and maintained as necessary to prevent nuisance conditions and to comply with requirements under the Missouri Air Conservation law and regulations.

D. SPECIAL CONDITIONS (continued)

(3) Biosolids Management Plan. The permittee must maintain an updated biosolids management plan and an updated operation manual for the wastewater treatment facility including the biosolids facility. These documents should be maintained and be accessible at the facility and must include: operation procedures for all equipment items; safety and emergency procedures; monitoring, testing and reporting requirements; and records management.

(c) Biosolids Quality Requirements.
(1) Requirements for Class A Biosolids: The density of fecal coliform in the biosolids shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis) in accordance with 40 CFR 503.32(a)(7).
(2) Requirements for Class B Biosolids: Biosolids that do not meet the pathogen reduction requirements for Class A biosolids will be considered Class B biosolids provided that the same biosolids treatment process train is used as described herein.
(3) General Requirements for Class A or Class B Biosolids:
(a) Metals concentrations shall not exceed the quality concentrations in 40 CFR 503.13, Table 3 and Water Quality Guide WQ-425, Tables 2 and 3.
(b) Priority pollutants shall not exceed the median concentrations for municipal sludges based on the Statistical Analysis of 1988 EPA National Sewage Sludge Survey, Proceedings of the Industrial Wastewater/Sludge Land Application Training Workshop, University of Missouri Agricultural Engineering Extension, May 7, 1997. Copies may be obtained by contacting Bob Broz, University Extension at (573) 882-0085.

(d) General Public Use Requirements.
(1) Information Sheet for Users. An information/instruction sheet shall be provided to each user of the final biosolids product to provide information on nutrient content, appropriate application rates and other pertinent information for proper handling and use of the biosolids. A copy of the information sheet shall be submitted to the department for review and approval within 90 days after permit issuance.
(2) Land Application Rate. Biosolids that is land applied on an annual basis shall not exceed either one of the following criteria:
(a) Application rates shall not exceed the annual plant available nutrient requirements for nitrogen and phosphorus based on the vegetation to be grown, a realistic crop yield goal, soil testing results and testing of the biosolids for nutrient content.
(b) Application rate shall not exceed two (2.0) dry tons per acre/yr.
(3) Use of Biosolids for Land Reclamation. Approval for use of biosolids for land reclamation must be granted by the U.S. Environmental Protection Agency.
(4) Agricultural Use of Biosolids. Sewage sludge that does not meet the requirements for general public use may still be land applied in accordance with permit Standard Conditions Part III.

(e) Monitoring and Testing Requirements
(1) Process Monitoring.
(a) Monitoring of the biosolids process shall be such as to maintain final product quality. This shall include, but not be limited to testing and recording the solids concentrations at appropriate points along the process train, monitoring of polymer feed rates to the gravity belt thickeners, lime feed rates to the blending unit, pH and temperature in the pasteurization unit, and material volumes and weights that are processed.
(b) A log book shall be maintained that will provide a record of the amount of material being processed, the units that are kept in operation, polymer feed rates, equipment maintenance activities, and operational problems.

(f) Final Product Testing. Samples of the final biosolids product that are to be considered ready for public distribution shall be sampled and tested as follows. All sampling and testing shall be done in accordance with procedures contained in either Standard Methods or in EPA/625/R-92/013 "Environmental Regulations and Technology; Control of Pathogens and Vector Attraction in Sewage Sludge."
(1) For MPN fecal coliform bacteria, the permittee shall once each week collect and test a composite sample made from four individual samples collected over a 1-hour period. If the test is not to be conducted within one hour after sample collection, the composite sample shall be cooled to below 10^0 C, and tested for MPN fecal coliform bacteria within 6-hours after sample collection.
(2) Once per month, collect and test a sample composited from four individual samples collected over an 8-hour period for the following: organic nitrogen, ammonia nitrogen, nitrate nitrogen, total phosphorus, total potassium, sodium, calcium, magnesium, pH, and percent moisture.
(3) Once per quarter, collect and test a sample composited from four individual samples collected over an 12-hour period for the ten metals listed in WQ-425 Table 2.
(4) Once per year, collect and test a sample composited from four individual samples collected over an 12-hour period for the Priority Pollutants listed in 40 CFR 122.21 Appendix D, Tables II and III.

D. SPECIAL CONDITIONS (continued)

(g) Records and Reporting Requirements.
(1) Time, locations and results shall be recorded for each monitoring requirement and maintained for at least three years. Copies of these records shall be made available to the department upon request.
(2) Records of amounts, dates, names and addresses shall be kept for all persons receiving biosolids in bulk quantities of more than 2,000 pounds. If the biosolids is registered as a fertilizer, persons receiving 1.0 cubic yard of biosolids or less do not need to be identified but the total quantity of biosolids distributed in this manner must be recorded.
(3) An annual report shall be submitted by January 28 of year to summarize biosolids production activities, monitoring results and documentation of fertilizer registration. A copy of the individual laboratory reports and daily records need not be submitted unless requested by the department. The reports shall be submitted to the St. Louis Regional Office and EPA Region VII office as part of the annual sludge report in permit Standard Conditions Part III.
(4) All reporting requirements as contained in "Part III – Sludge and Biosolids from Domestic Wastewater Treatment Facilities" of the Standard Conditions contained in this permit shall apply.

7. All paint, solvents, petroleum products, petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) shall be stored so that these materials are not exposed to storm water. Spill prevention, control and/or management shall be provided sufficient to prevent any spills of these pollutants from entering a water of the state. Any contaminant system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.

8. Good housekeeping practices shall be maintained on the site to keep solid waste from entry into waters of the state.

9. All fueling facilities present on the site shall adhere to applicable federal and state regulations concerning underground storage, above ground storage, and dispensers, including spill prevention, control and counter measures.

10. Substances regulated by federal law under the Resource Conservation and Recovery Act (RCRA) or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) that are transported, stored or used for maintenance, cleaning or repair shall be managed accordingly to the provisions of RCRA or CERCLA.

11. An individual shall be designated by the permittee as responsible for environmental matters. Staff of the permitted facility shall inspect, on workdays, any structures that function to prevent pollution of storm water or to improve pollutants from storm water and of the facility in general to ensure that any Best Management Practices are continually implemented and effective.

12. All involved personnel shall be trained in material handling and storage, and housekeeping of maintenance area. Upon request, proof of training shall be submitted to the Department.

13. The permittee shall develop and implement a program for maintenance and repair of the collection system. The recommended guidance is the US EPA's Guide For Evaluating Capacity, Management, Operation, And Maintenance (CMOM) Programs At Sanitary Sewer Collection Systems (Document number EPA 305-B-05-002). The permittee shall submit a report semi-annually in April and October to the St. Louis Regional Office with the Discharge and Monitoring reports which address measures taken to locate and eliminate sources of infiltration and inflow into the collection system serving the facility.

D. SPECIAL CONDITIONS (continued)

14. Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#001	3.5%	Annually	24 hr. comp.	August

(a) Test Schedule and Follow-Up Requirements

(1) Perform a MULTIPLE-dilution test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.

(a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.

(b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.

(c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.

(d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.

(e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.

(f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.

(g) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.

(h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.

(i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.

(j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.

(k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.

(l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.

(m) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.

(2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

(3) If the effluent fails the test, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur) until one of the following conditions are met:

(a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.

(b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

C. SPECIAL CONDITIONS (continued)

14. Whole Effluent Toxicity (WET) tests (continued)

(4) Failure of at least two multiple-dilution tests during any period of accelerated monitoring violates the permit narrative requirement for aquatic life protection.
(5) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
(6) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
(7) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
(8) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
(9) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.
(10) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) PASS/FAIL procedure and effluent limitations:
(1) To pass a multiple-dilution test:
(a) For facilities with a computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC) OF 30% OR LESS, the AEC must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; **OR**,
(b) For facilities with an AEC greater than 30%, the LC50 concentration must be greater than 100%; **AND**,
(c) all effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other federal guidelines as appropriate or required. Failure of one multiple-dilution test may be considered an effluent limit violation.

(c) Test Conditions
(1) Test Type: Acute Static non-renewal
(2) All tests, including repeat tests for previous failures, shall include both test species listed below.
(3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
(4) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
(5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.

C. SPECIAL CONDITIONS (continued)

14. Whole Effluent Toxicity (WET) tests (continued)

(6) Multiple-dilution tests will be run with:
(a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.
(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
(8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

15. Permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 40 CFR Part 403. The approved pretreatment program is hereby incorporated by reference.

16. Permittee shall submit to the Department on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:

(a) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;
(b) A summary of the status of Industrial User compliance over the reporting period;
(c) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
(d) Any other relevant information requested by the Department.

17. As required in 40 CFR 122.21 (j)(4) the permittee shall, as part of its renewal application for this permit, submit to the department a written technical evaluation of the need to revise local limits under 40 CFR 403.5 (c)(1).

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

Missouri Department of Natural Resources
STATEMENT OF BASIS
FOR THE PURPOSE OF MINOR MODIFICATION
OF
MO-0028720
O'FALLON WWTP

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

A Factsheet is not an enforceable part of an operating permit.

This Factsheet is for a Major ☒, Minor ☐, Industrial Facility ☐; Variance ☐;
Master General Permit ☐; General Permit Covered Facility ☐; and/or permit with widespread public interest ☐.

Part I – Facility Information

Facility Address: 150 Firma Road, O'Fallon, MO 63366
Facility Type: POTW
Facility SIC Code(s): 4952

Facility Description:
Screening/grit removal/primary clarifiers/pumping of effluent/bio-filters/activated sludge/aeration basins/final clarifiers/UV disinfection/aerobic digester/gravity belt thickeners/lime stabilization/belt filter press/land application of sludge biosolids.

Application Date: 6-18-08
Expiration Date: 12-11-08
Last Inspection: 4-25-08 In Compliance ☒; Non-Compliance ☐

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	17.4	Secondary	Domestic, Municipal	0.0

Outfall #001
Legal Description: USS 1687, Sec. 26, T48N, R3E, (proj), St. Charles County
Receiving Stream: Mississippi River (P)
First Classified Stream and ID: Mississippi River (P) (00001)
USGS Basin & Sub-watershed No.: (07110009-010002)

Comments:
During the last permit renewal the Special Conditions for pretreatment were inadvertently left out of the permit. This modification restores the previous pretreatment language. There are no other changes to this permit.

Part II – Administrative Requirements

No public notice is required for this minor modification.

DATE OF STATEMENT: 1-2-09

COMPLETED BY:

CURT B. GATELEY, CHIEF
NPDES PERMITS UNIT
WATER PROTECTION PROGRAM
PERMITTING AND ENGINEERING SECTION
NPDES AND STORM WATER PERMITS UNIT
(573) 526-1155
curtis.gateley@dnr.mo.gov

Appendix J

(Storm Sewer System Maps)

Tickler Page

Storm Sewer Maps were too large to scan & can be located in hard copy (central office) files.

NPDES PHASE II

STORMWATER MANAGEMENT PLAN

FOR PERMIT CYCLE

2013-~~2017~~ 2018

CREATED:

MAY 2013

Revised: August 2013

BY

Stormwater Management

Appendix K
Missouri Department of Natural Resources
Fact Sheet – Master General Permit Renewal for Small MS4's

The Federal Water Pollution Control Act ("Clean Water Act: Section 402 Public Law 92-500 as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Permits in Missouri are issued by the Director of the Missouri Department of Natural Resources (department) under an approved program, operated in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). NPDES operating permits are issued for a period of five (5) years unless otherwise specified.

A Fact Sheet gives pertinent information regarding the applicable regulations, rational for the development of the NPDES Missouri State Operating Permit (operating permit), and the public participation process for operating permit listed below.

A Fact Sheet is not an enforceable part of an operating permit.
This Fact Sheet is for Major ☐, Minor ☐, Industrial Facility ☐; Variance ☐;
Master General Permit ☒; and/or permit with widespread interest ☐.

Part I – Facility Information

The following Facility Information shall appear on the coverage document issued to a General Permit Covered Facility.

NPDES #: MO-R040039
Facility name: City of O'Fallon
Facility Address: 100 N Main St, O'Fallon MO 63366
Owner's Name: City of O'Fallon
Owner's Address: 100 N Main St, O'Fallon MO 63366

Facility Region: Region 7
Facility County: St. Charles County

Facility Type: Municipal
Facility SIC Code: 9511
Facility NAICS Code: 924110

Facility Description: Discharges from Regulated Small Municipal Separate Storm Sewer Systems

_____

Comments: _____

_____

Part II – Outfalls

It is adequate to submit a representative subset of outfall information with the application. Specifically, outfalls needed for the application should be representative of discharges nearest the MS'4s jurisdictional boundaries or nearest the receiving classified waters running through the MS4's jurisdiction. The more comprehensive outfall information and maps required for the MS4's illicit discharge program shall be retained on site and made available to EPA, DNR and the public upon request.

A full description of the representative outfalls in the application shall appear on the coverage document issued to a General Permit Covered Facility. The following information is required for each outfall.

Outfall #001
Legal Description: ¼, 1/4, Section, Township, Range, Direction
Latitude/Longitude: +0000000/-0000000 (Degrees, Minutes, and Seconds)
Receiving Stream: Name and Classification
First Classified Stream and ID: Name, Class, Water Body ID – currently provided by the Department
USGS Basin & Sub-watershed No.: (#-#) [14 digit USGS Hydrologic Unit Code (HUC)]

This permit allows regulated MS4s to discharge storm water to the following waters, depending on location of the regulated MS4.

Missouri or Mississippi River, lakes or reservoirs, losing streams, metropolitan no-discharge waters, special streams, subsurface waters and other waters of the state.

10 CSR 20-7.031 Missouri Water Quality Standards, the department defines the Clean Water commission wate rquality objectives in the terms of "water uses to be maintained nd the criteria to protect those uses."

Part III – Rationale and Derivation of Effluent Limitations & Permit Conditions

INTRODUCTION:

This is a municipal storm water discharge permit which authorizes the discharge of storm water from regulated small municipal separate storm sewer systems (MS4s). The permit also aurhorizes the discharges or flows from emergency fire fighting activities. The permit does ***not*** authorize any additional non-storm water discharges, such as: process wastewater, storm water discharges that are mixed with process wastewater, or storm water associated with industrial activity, as defined in 10 CSR 20-6.200 or other discharges identified in Section 1.3 of this permit.

The permit is intended to authorize discharge of storm water even as jurisdictional boundaries change through the life of the permit. This rationale will explain which entities are covered under this permit, how to apply for coverage, and what the basic permit requirements are, including the general requirement of a storm water management program and written plan (SWMP).

This permit authorizes only the activities described in this permit. Compliance with this permit may not be considered a shield from compliance with any local ordinance, State Regulation or State Law.

TYPES OF ENTITIES COVERED UNDER THIS PERMIT:

This permit is intended to cover new or existing discharges composed entirely of storm water from small MS4s required by State regulation to obtain a permit. This permit is not intended to cover the discharge of storm water from MS4s that have been designated by the department as requiring coverage under an alternative general permit or a site-specific permit.

The criteria for permit coverage are contained in the Missouri Storm Water Regulations 10 CSR 20-6.200. In general, this includes any municipality, and federal or state facility/organization that owns or operates a regulated small MS4 as defined in 10 CSR 20-6.200 (i.e. serving a population of 1,000 or greater and located fully or partially within an urbanized area as determined by the latest Decennial Census by the Bureau of Census, or having a population of 10,000 or greater if outside an urbanized area.) MS4s discharging entirely too combined sewer systems are exempt based on their coverage under NPDES wastewater permits.

APPLICATION REQUIREMENTS:

The regulated small MS4 is required to see coverage under the Small MS4 General Permit or a site-specific permit by submitting completed application forms (Forms M & K if an individual applicant or Forms M & L if applying as a co-permittee), a jurisdictional boundary map showing perimeter outfall locations and a written description of the operator's SWMP. Note: If the small MS4 is seeking renewal of the revised general permit, they may submit the updates SWMP document separately up to 90 days following public notice of the general permit. Note: Form M is currently being revised to include additional information for site-specific small MS4s. (The regulated medium or large MS4 must submit new or renewal applications according to requirements identified in 10 CSR 20-6.200.) MS4 operators that become subject to 10 CSR 20-6.200 following the 2010 census shall submit permit applications

within 180 days following census publication. MS4 operators specifically designated by the department shall submit permit applications within 180 days following notice by the department.

STORM WATER MANAGEMENT PROGRAM (SWMP):

This SWMP is a documented and implementable plan to schedule activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state.

This permit in accordance with 10 CSR 20-6.200 and 40 CFR parts 9, 122, 123, and 124, requires the permittee to develop and implement a SWMP. The SWMP shall address the sis minimum control measures – public education and outreach, public involvement/participation process, illicit discharge detection and elimination, construction site storm water runoff control, post-construction storm water management and pollution prevention/good housekeeping for municipal operations. The SWMP shall include, but not limited to, best management practices, pertinent local regulations, interim milestones, measureable goals, measures of success and responsible persons for each of the measurable goals.

ORDINANCES:

To the extent allowable under State or local law, ordinances (or other regulatory mechanisms) are required to be developed, implemented and enforced within five years of initial permit issuance under the following sections:

1. Illicit discharge detection and elimination – to prohibit non-storm water discharges into the storm sewer system, and implement appropriate enforcement procedures and actions
2. Construction site storm water runoff control - to require erosion and sediment controls at construction sites, as well as sanctions to ensure compliance
3. Post-construction – to address post-construction runoff from new development and redevelopment projects, and sanctions to ensure compliance

SWMP UPDATES REQUIRED BY THE DEPARTMENT:

Changes requested by the department must be made in writing, set forth the time schedule for the permittee to develop the changes, and offer the permittee the opportunity to purpose the alternative program changes to meet the objective of the requested modification. All changes required by the department will be made in accordance with 10 CSR 20-6.200. The department may require changes to the SWMP as needed to: include components deemed necessary by the department to comply with the goals and requirements of the permit and Missouri Clean Water Law; address impacts on receiving water quality caused or affected by discharges from the MS4; or include more stringent requirements necessary to comply with new federal or state statutory or regulatory requirements.

The permittee may also change the SWMP during the life of the permit in accordance with procedures described in Section 4.4 of the permit.

ANNUAL REPORTING:
The permittee is expected to annually review and provide a written report on their SWMP in accordance with Sections 4.4 and 5.3 of the permit. The permittee shall submit the report by July 28 of each year utilizing the department's annual report form MO 78-1846 or latest version.

MONITORING:
Sampling and testing of storm water for specific parameters is not required on a routine basis under this permit. However, the department reserves the right to require sampling and testing, on a case-by-case basis. As per [10 CSR 20-2.010(78)], a waste load allocation is the amount of pollutants each discharger is allowed by the department to release into a given stream after the department has determined to total amount of pollutant that may be discharged into that stream without endangering its waste quality.

Usually waste load allocations are not calculated. All permittees are subject to the Maximum Extent Practicable per [10 CSR 20-6.200] & [40 CFR 122]. However, if a storm water-based TMDL and WLA have been put into place for any waterbody into which the permittee discharges, monitoring may be required for discharges affecting that waterbed. Regulated MS4s must have been procedures in place to investigate findings of illicit discharges further, also potentially resulting in monitoring. In such cases, the permittee shall follow regulations in 10 CSR 20 and Chapter 6 and monitoring requirements set forth in the permit.

303(d) LIST, TOTAL MAXIMUM DAILY LOAD (TMDL) AND WASTELOAD ALLOCATIONS
Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

PERMIT REQUIREMENTS:
The permit includes additional requirements that apply if a Total Maximum Daily Load (TMDL) has been approved for any waterbody into which the permittee discharges (Section 3.1. of the permit). In general, these requirements do not, in themselves, dictate additional measures that must be taken by the permittee. Instead, the permit requires the permittee to comply with any requirements included in a TMDL that address storm water discharges covered in the permit.

New requirements affecting the permittee's discharges could be in the form of additional narrative requirements for implementation of BMPs, or in the form of a Waste Load Allocation (WLA) that prescribes a specific quantitative limit for pollution from a specific source.

The permittee may maintain coverage under the general permit provided they comply with the applicable requirements outlined above. The Department reserves the right to require site-specific or alternate general permit coverage.

ANTI-BACKSLIDING:
A provision in the Federal Regulations [CWA § 303(d) (4); CWA §402 (c); CFR § 122.44(l)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

All limits, requirements, and/or conditions in the Fact Sheet are at least as protective as those previously established; therefore, backsliding does not apply.

ANTIDEGRADATION:
Policies which ensure protection of water quality for a particular water body where the water quality exceeds levels necessary to protect fish and wildlife propagation and recreations on and in the water. This also includes special protection of waters designated as outstanding natural resource waters. Antidegradation plans are adopted by each State to minimize adverse effects on water.

As per [10 CSR 20-7.031(2)(D), three (3) levels of protection provided by the antidegradation policy in subsections (A), (B), and (C) of this section shall be implemented according to procedures developed by the department. On April 20, 2007, the Missouri Clean Water commission approved *Missouri Antidegradation Rule and Implementation Procedure* (Antidegradation Rule), which is applicable to new or upgraded/expanded facilities. The implementation of the Antidegradation Rule will be implemented upon promulgation, which is tentatively scheduled for August 2008.

COMPLIANCE AND ENFORCEMENT:
Action taken by the department to resolve violations of the Missouri Clean Water Law, its implementing regulations, and/or any terms and condition of any operating permit.

Dischargers of storm water from regulated small MS4s, as defined in the Missouri Storm Water Regulations (10 CSR 20-6.200) who do not obtain coverage under this or other Missouri general permits, or under a site-specific NPDES permit, will be in violation of the Missouri Clean Water Law and its implementing regulations and subject to civil penalties of up to $10,000 per violation per day. For entities covered under a NPDEs permit, failure to comply with any NPDES permit requirement also constitutes a violation of the Missouri Clean Water Law and its implementing regulations.

Part IV – Administrative Requirements

PUBLIC NOTICE AND COVERAGE FOR AN INDIVIDUAL ENTITY:

As per the Missouri Clean Water Law, the Missouri Clean Water Commission, and the federal Clean Water Act, persons wishing to comment on Missouri State Operating Permits are directed to do so by a department-approved Public Notice coversheet. This Public Notice coversheet is attached to a Missouri State Operating Permit during the Public Notice period.

The need for an individual public notification process shall be determined and identified in the general permit. [10 CSR 20-6.020(1) (C) 5.]

Applicable ☒;
Issuance of coverage to an individual facility under this Master General Permit shall be placed on Public Notice for 30 days in accordance with 10 CSR 20-6.020(1)(B) & (C).

Not Applicable ☐;
Public Notice is not required for issuance of coverage under this Master General Permit to individual facilities for the first time.

The Public Notice period for this operating permit is tentatively scheduled to begin on January 11, 2008.

Date of Fact Sheet: March 20, 2008

Ruth Wallace, ES-III
Water Protection Program
Ruth.wallace@dnr.mo.gov

Michael Abbott, ES-III
Water Protection Program
Michael.abbott@dnr.mo.gov

Appendix L

(Peruque Creek and Dardenne Creek TMDL)

Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Peruque Creek

Waterbody Segment at a Glance:

State map showing location of watershed

County:	Warren St. Charles
Nearby Cities:	Wright City Foristell Wentzville
Length of Impairment:	12.5 miles
Pollutant:	Non-Volatile Suspended Solids (NVSS)
Pollutant Sources:	Urban and Rural Non-Point Sources (runoff)

Note: Added to the 2002 303(d) list

TMDL Priority Ranking: Medium

Description of the Problem

Beneficial uses of Peruque Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health associated with Fish Consumption

Use that is impaired

- Protection of Warm Water Aquatic Life

Standards that apply

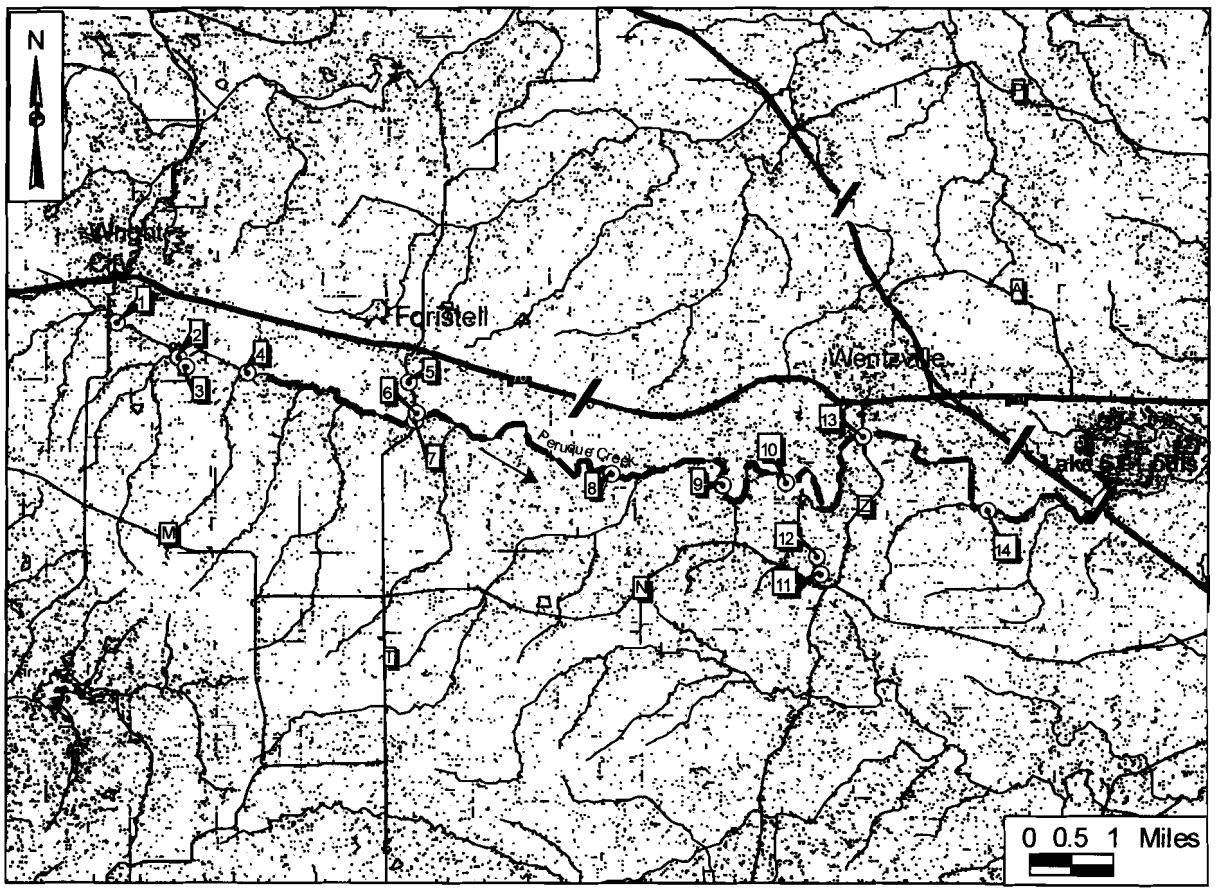
- All waterbodies in Missouri are protected by the *general* criteria (standards) contained in Missouri's WQS, 10 CSR20-7.031(3). These criteria (also called *narrative* criteria) list substances that all waters "shall be free from". The sections that apply to Peruque Creek are (A), (C) and (G) and they state:
  - Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
  - Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.
  - Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community.

Background Information and Water Quality Data

Rapid rates of sedimentation in upper Lake St. Louis suggest that excess erosion and high sediment loads are a problem in Peruque Creek upstream of the lake. This was the basis for adding Peruque Creek to the 2002 303(d) list. The impairment is listed as Non-Volatile Suspended Solids (NVSS). This term covers the silt, sand or gravel that is associated with erosion and sedimentation.

In 2000, Missouri Water Quality Monitoring (WQM) volunteers collected water quality data at three sites along Peruque Creek upstream of Lake St. Louis (see map below). Sampling occurred from April though July 2000. Volunteers sampled the water for temperature (Temp in degrees Celsius), dissolved oxygen (DO), specific conductance (SC), total solids (TS), total dissolved solids (TDS), turbidity (Turb), and pH. Each sampling site was visited four times for pH and six times for all other constituents with one exception – only five turbidity measurements were reported for Hepperman Road. This data is summarized in Table 1 (see next page).

Sampling Sites on Peruque Creek in St. Charles County, Missouri



Impaired Segment → Direction of flow

Table 1. Mean Water Quality Data Collected by Volunteers, April –June 2000							
Site # Location	**Temp C**	**DO mg/L**	**SC us**	**TS mg/L**	**TDS mg/L**	**Turb NTU**	**pH* SU**
9. Hepperman Road	20	7.5	458	181.5	228.3	12.8	7.9
10. Wilmer Road	20	7.8	447	207.2	215.3	14.0	8.0
14. Duello Road	20	6.8	448	247.9	221.7	20.2	7.9
* Median							

In 2002, the Department of Natural Resources and the Department of Conservation conducted an extended water quality monitoring effort on the portion of Peruque Creek upstream of Lake St. Louis. This data is summarized in Table 2.

Table 2. Mean Water Quality for Peruque Creek and Tributaries 2002
(number of samples averaged are in parentheses)

#	Location	TSS mg/L	VSS mg/L	Turb.	D.O. mg/L	Cond umhos/cm	KJN mg/L	NH_3N mg/L	NH_3N mg/L	TP mg/L
1	Peruque Cr. at Wright City	12.5 (8)	<5 (8)	41.6 (1)	4.1 (9)	653 (9)	0.54 (9)	0.04 (9)	<.05 (9)	0.09 (9)
2	Wright City WWTP	12.1 (8)	4.06 (8)		6.5 (8)	1019 (8)	2.95 (8)	0.07 (8)	0.11 (8)	1.33 (8)
3	Trib. 0.1 mi. below Wright City WWTP	16.4 (9)	5.39 (9)		5.1 (9)	1020 (9)	2.86 (9)	0.03 (9)	0.18 (9)	1.26 (9)
4	Peruque Cr. at Archer Rd.	62.1 (9)	2.81 (8)	143 (2)	8.1 (10)	895 (10)	1.68 (10)	<.05 (10)	0.22 (10)	0.55 (10)
5	Foristell WWTP	7.2 (5)	<5 (5)		4.3 (5)	1041 (5)	0.52 (5)	<.05 (5)	8.80 (5)	3.82 (5)
6	Trib. from Foristell WWTP	17.8 (7)	<5 (7)		9.2 (7)	927 (7)	0.68 (7)	<.05 (7)	2.72 (7)	1.86 (7)
7	Peruque Cr. at Hwy T	86 (26)	10.5 (27)	93.9 (19)	8.8 (26)	482 (25)	0.87 (26)	.05 (26)	0.14 (26)	0.11 (26)
8	Peruque Cr. at Prairie Point Rd.	37.6 (23)	6.5 (23)	38.4 (16)	8.6 (21)	408 (21)	0.56 (21)	0.04 (20)	0.15 (21)	0.09 (21)
9	Peruque Cr. at Hepperman Rd.	129.7 (15)	13.8 (15)	65.5 (15)	7.3 (14)	451 (13)	0.53 (14)	<.05 (14)	0.15 (14)	0.08 (14)
10	Peruque Cr. at Wilmer Rd.	8.7 (9)	<5 (8)	19.2 (2)	8.3 (10)	392 (10)	0.40 (10)	<.05 (10)	0.07 (10)	0.05 (10)
11	Castlegate WWTP	6.6 (9)	3.2 (9)		4.9 (9)	918 (9)	14.5 (9)	8.15 (9)	5.88 (9)	4.45 (9)
12	Trib. from Castlegate WWTP	5.6 (8)	<5 (8)		5.2 (8)	914 (8)	12.8 (8)	8.56 (8)	5.65 (8)	4.26 (8)
13	Peruque Cr. at Hwy Z	12.3 (8)	<5 (8)		6.4 (8)	426 (8)	0.45 (8)	<.05 (7)	<.05 (8)	0.05 (8)
14	Peruque Cr. at Duello Rd.	13.9 (9)	<5 (9)	32 (2)	7.2 (10)	403 (10)	0.41 (10)	<.05 (10)	0.10 (10)	0.07 (10)

Source: Missouri Department of Natural Resources and Missouri Department of Conservation

Total Suspended Solids (TSS), Volatile Suspended Solids (VSS, i.e. organic matter), and Turbidity data all suggest the middle section of Peruque Creek has the highest levels of suspended sediment. However, these stations were sampled more frequently and contain data from stormwater events not sampled at other stations. The conductivity (Cond), Kjeldahl nitrogen (KJN), ammonia nitrogen (NH_3N), nitrate nitrogen (NO_3N) and total phosphorus (TP) all show that the upper portions of Peruque

Creek are more affected by wastewater discharges (Wright City and Foristell) than the lower sections of the stream near Lake St. Louis.

Assessment of aquatic habitat and sampling of aquatic macroinvertebrate communities on Peruque Creek were done in 2002 by the Department of Natural Resources. Six sites on Peruque Creek were evaluated. Four sites were considered to have good riparian land use practices and two sites had obvious soil erosion problems. The mean habitat quality scores for these sites were 109 percent of mean reference habitat scores, indicating good habitat quality. Spring invertebrate sampling showed the upper and middle portions of the creek to be slightly impaired and the lower section of the creek in good condition. Fall sampling showed all but the uppermost part of Peruque Creek (which had almost no water at that time) to be in good condition. There were no observed differences in the habitat scores or the aquatic invertebrate communities between the four sites with good riparian land use and the two sites with obvious erosion problems. Observation of the stream at many locations noted large areas of bedrock on the bottom of the stream and areas with very coarse gravel or cobble substrate, all of which indicate the presence of occasional scouring flows that would prevent the deposition of fine sediments in the stream. These observations may explain the lack of impact in the immediate area where serious soil erosion problems were occurring.

These observations appear to be supported by measurements of fine sediment (sand and silt) deposition taken that same year. Table 3 summarizes this data. The data suggests that the upper portion of the creek, which has the smallest amount of watershed, is less subject to high flow events and scour, and therefore has a greater amount of fine sediment deposition in the stream. As the watershed becomes larger, the impact of high flows and scour become greater and the amount of fine sediments in the stream become progressively less.

Table 3. Percent Fine Sediment Deposition at Six Locations in Peruque Creek, 2002

Location	Percent Sand and Silt in Streambottom*
Ruge Park, Wright City	63
Archer Road	28
Highway T	27
Hepperman Road	30
Wilmer Road	8
Duello Road	12

Note: In this region of the state, values for sand and silt deposition in streambottoms of up to 30 percent are considered normal.

The studies conducted in 2002 suggest that neither water quality changes caused by wastewater discharges nor fine sediment deposition caused by soil erosion are significant problems on this portion of Peruque Creek. Aquatic invertebrate monitoring data was not conclusive and further monitoring of the aquatic invertebrate community is planned.

The local community (including several environmental groups) is active and involved regarding the health of Peruque Creek. WQM volunteers and Missouri Lakes Volunteer Program participants continue to collect data. The Peruque Watershed Alliance, formed in August 2001, is composed of residents and stakeholders, staff and members of Peruque Creek Watershed communities and interested people from St. Charles and Warren counties. The Alliance worked on a watershed plan for

Peruque Creek. The plan laid out objectives and strategies to minimize and prevent future impacts to natural resources, residents and communities in St. Charles and Warren counties.

In the spring of 2002, the city of Lake St. Louis received a grant from the U.S. Environmental Protection Agency for a special study on Peruque Creek. The consulting firm of Camp Dresser and McKee (CDM) was hired to conduct the study to try and define the challenges to the creek regarding water quality and to suggest solutions to protect the creek as a healthy waterbody. In the course of the study, they attempted to gather and review all available data pertaining to Peruque Creek. They then identified gaps in the data and conducted sampling to fill those gaps. The results of this study, along with CDM's recommendations, have been compiled in a report due out in November 2004. The Alliance will be responsible for implementing the CDM recommendations. An important component of their strategy is public education to increase awareness of the environment in general and the Peruque Creek watershed in particular.

For more information call or write:
Missouri Department of Natural Resources
Water Protection Program
P.O. Box 176, Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 751-1300 office
(573) 522-9920 fax
Program Home Page: www.dnr.mo.gov/env/wpp/index.html

Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Dardenne Creek

Water Body Segments at a Glance:

State map showing location of watershed

Counties: Warren
St. Charles

Nearby Cities: New Melle, Cottleville, St. Peters and St. Charles

Water Body ID: 219
Length of impaired segment: 7 miles
Pollutant: Low Dissolved Oxygen

Water Body ID: 221
Length of impaired segment: 16.5 miles
Pollutants: Low Dissolved Oxygen, Inorganic Sediment and Unknown

Water Body ID: 222
Length of impaired segment: 6 miles
Pollutants: Low Dissolved Oxygen
~~Inorganic Sediment~~ – Delisted. Approved by EPA on Oct. 6, 2011.

Pollutant Sources: Unknown or Not Given

Scheduled for TMDL Development: 2014 (unknown); 2015 (inorganic sediment); 2016 (low DO)

Description of the Problem

Beneficial uses of Dardenne Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health (Fish Consumption)
- Whole Body Contact Recreation
- Secondary Contact Recreation (except WBID 222)

Use that is impaired

- Protection of Warm Water Aquatic Life

Standards that apply

- In the Missouri Water Quality Standards, found in 10 CSR 20-7.031 Table A, the criterion for dissolved oxygen, or DO, in streams is a minimum of 5 mg/L (milligrams per liter or parts per million).

- Though Missouri does not have specific criteria for inorganic sediment, all water bodies in Missouri are protected by the general criteria (standards) contained in Missouri's Water Quality Standards (WQS), 10 CSR20-7.031(3). These criteria (also called narrative criteria) list substances that all waters "shall be free from". For example, points (3)(A), (C) and (G)state:
  - Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
  - Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.
  - Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community.

Background information and water quality data

The U. S. Environmental Protection Agency (EPA) placed Dardenne Creek on the 2002 303(d) list for unknown pollutants. EPA believes that the results and conclusions from the studies conducted by the Department of Natural Resources between 1998 and 2000 (see Tables 1 and 2 below) adequately demonstrate that Dardenne Creek is impaired.

Aquatic invertebrate sampling by the department in the spring of 2000 and the spring and fall of 2002 indicates poor water quality and/or poor aquatic habitat conditions in much of Dardenne Creek. This data is summarized in Table 1. The invertebrate scores used in this table compare the invertebrate community of the stream to the invertebrate community in a reference (high quality) stream in the same area of the state. Scores of 20-16 indicate a healthy invertebrate community.

Table 1. Invertebrate Scores and Percent Fine Sediment Deposition in Dardenne Creek

	Dardenne Cr. upstream of Busch CA	Dardenne Cr. in Vicinity of Busch CA	Dardenne Cr. downstream of Hwy 40
Inv. Score Spring 2000	10-14	16-20	0-8
Inv. Score Spring 2002	8-12	14	
Inv. Score Fall 2002	10-16	16	
% Fine Sediment Deposition	23-71	70-100	

Source: Missouri Department of Natural Resources

The poorer invertebrate scores below Highway 40 probably reflect the problems related to urbanization of that portion of the watershed.

Results of cooperative water quality monitoring program of Dardenne Creek by the Departments of Natural Resources and Conservation are summarized below.

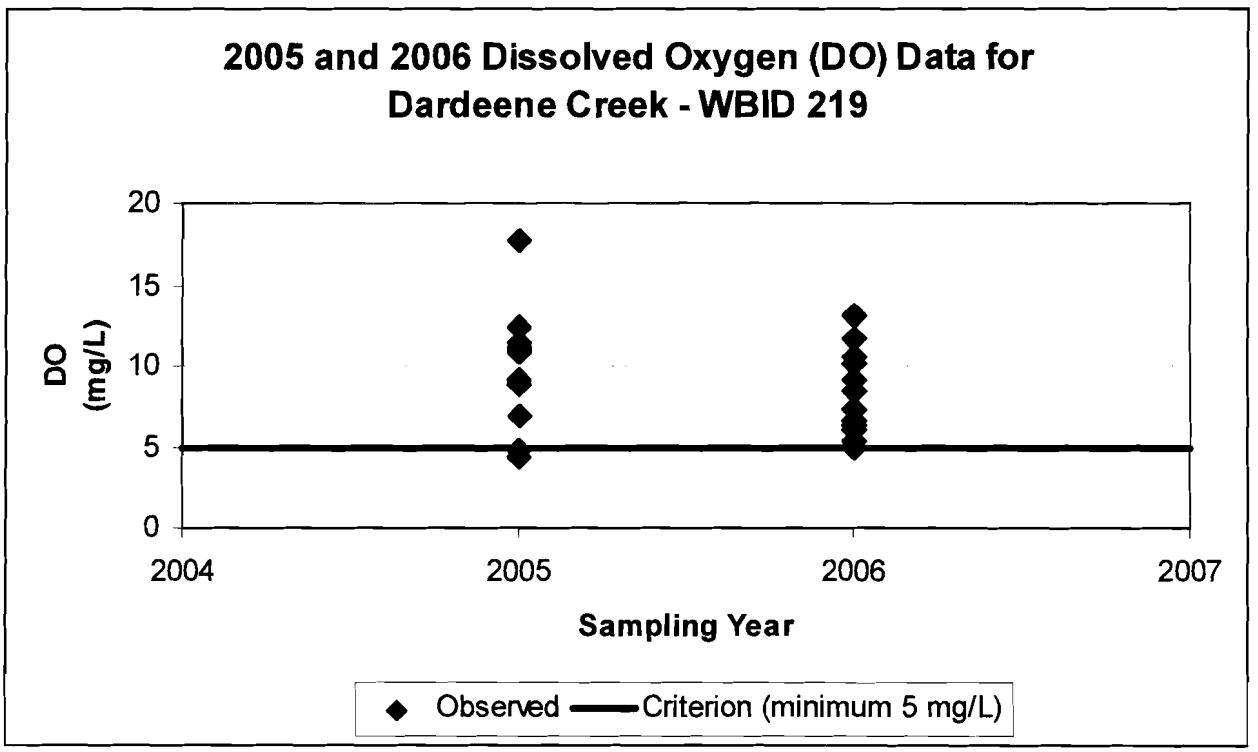
Table 2. Mean Water Quality Data for Dardenne Creek 1998-2003

	Holt Rd.	Hwy Z	Hopewell Rd.	Hwy DD	At Busch CA	Hwy N	Hwy C
Water Temp. (C)	16	20	17	14	21	20	17.5
Dissolved Oxygen (mg/L)	11.9	7.1	10.3	8.6	7.0	8.2	9.4

Conductivity (umhos/cm)	440	414	290	339	334	389	445
Organic+NH3N (mg/L)		0.48	0.69	0.36	0.62	0.98	1.08
NH3N (mg/L)	<0.05	0.06	0.13	<0.05	<0.05	<0.05	<0.05
NO2+NO3N	0.35	0.17	0.47	0.23	0.22	0.25	0.42
Total Phosphorus (mg/L)	0.03	0.08	0.13	0.08	0.11	0.18	0.17
Volatile Susp. Solids (mg/L)		3.7	5.8		7.6		
Turbidity (NTU)		19.5	30		39.6		
Fecal Coliform Bacteria (col/100 ml)			59		104	145	394

Source: Missouri Department of Natural Resources, Missouri Department of Conservation

Over the last several years, Missouri Volunteer Quality Monitoring monitors have been collecting data at nine sites along Dardenne Creek (see map below). In an effort to better understand the stream, the last three years of available volunteer data have been compiled and summarized (see table below). Volunteers sampled the creek for temperature (C°), dissolved oxygen (DO), biological oxygen demand (BOD), nitrates (NO_3), ammonia (NH_3), phosphate (PO_4), specific conductance (SC), total solids (TS), total dissolved solids (TDS), turbidity (TURB), pH, and fecal coliform (FC). Missouri Water Quality Monitoring Volunteer Macroinvertebrate Water Quality Ratings (WQRate) were also included and are an indication of the diversity of macroinvertebrates present. The results of this sampling are discussed below.



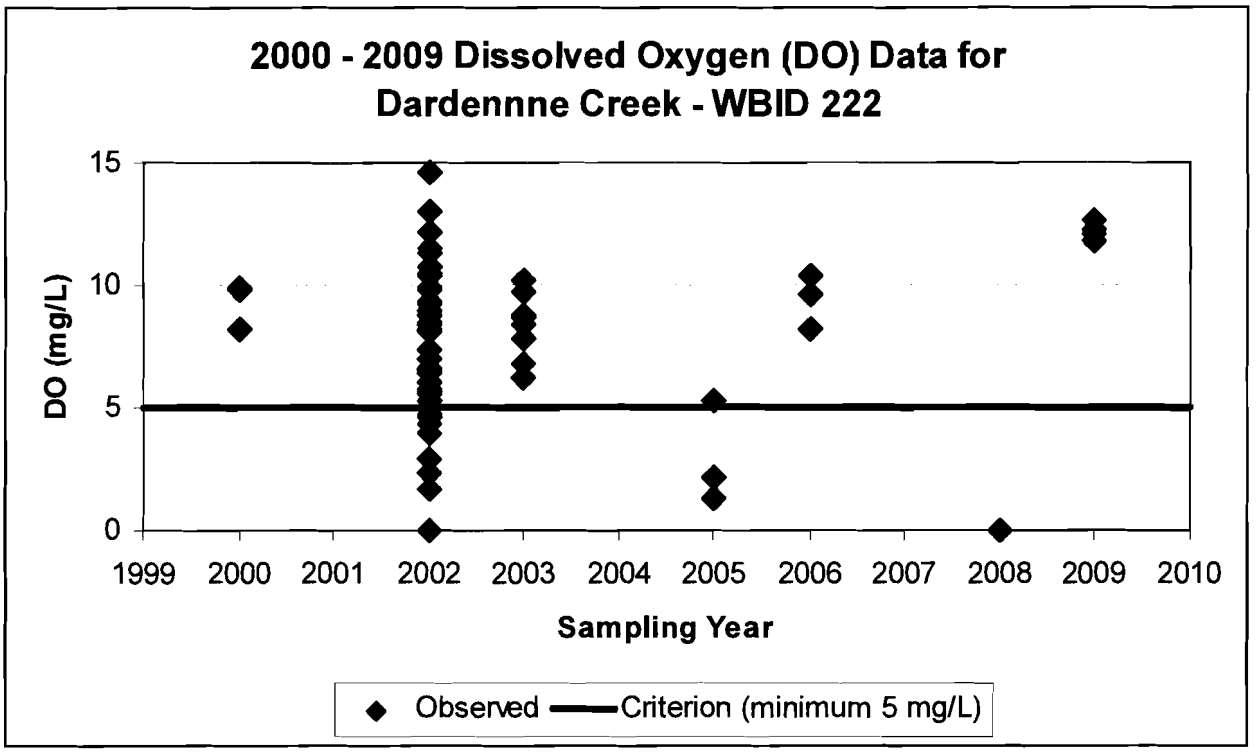
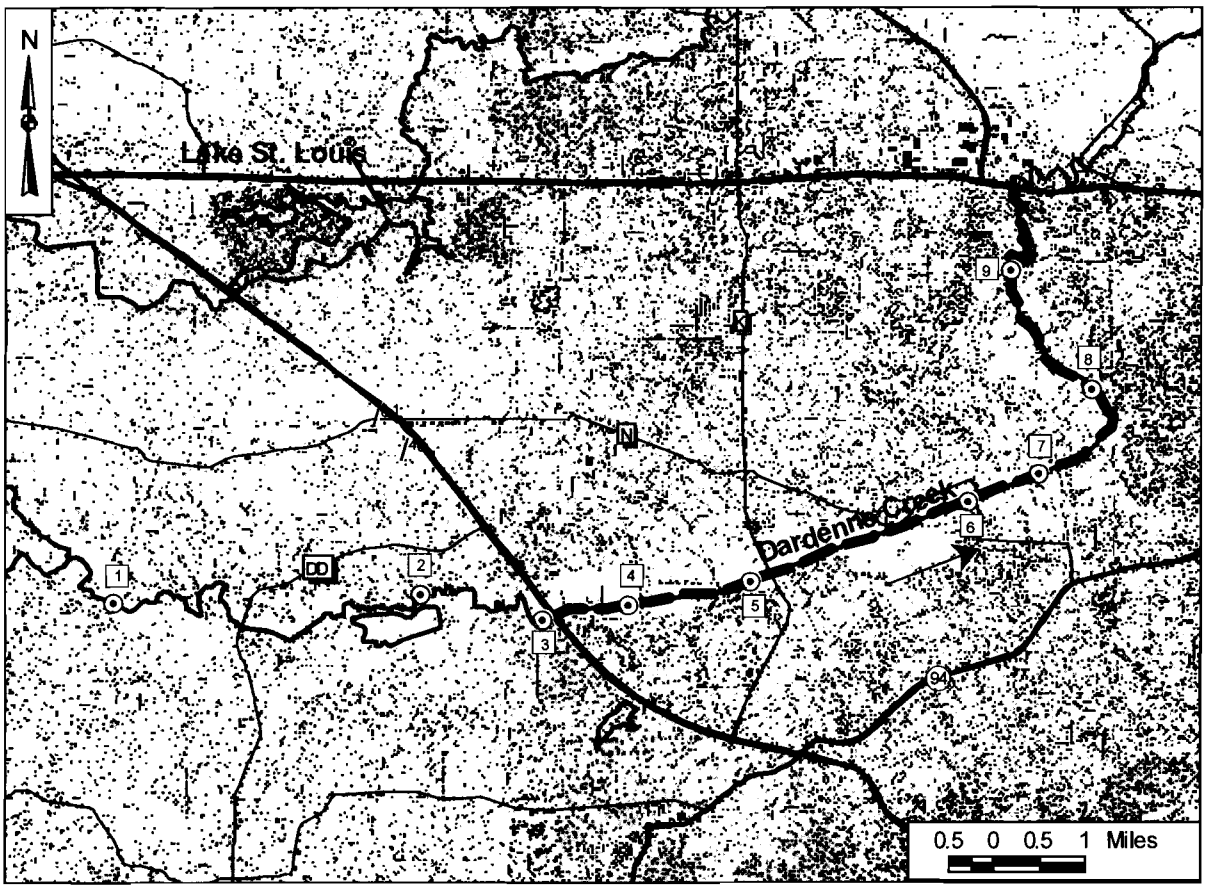


Table 3. Results of Volunteer Water Quality Monitoring: Mean Water Quality Data for Dardenne Creek

Location	WQRate	Temp	DO	BOD	NO_3	NH_3	PO_4	SC	TS	TDS	TURB	pH*	FC**
		C	mg/l	mg/l	mg/l	mg/l	Mg/l	us	mg/l	mg/l	NTU	su	cfu
1. Hopewell Road	26							469	802.9	176	8.8		
2. Busch Conservation Area		8.3	8.4	4.5	0.36	0.52	0.49	337			37.2	7.2	99
3. Highway 40	21	9.2	8.7	3.0	0.34	0.65	0.79	406	358.0		8.9	7.7	84
4. Henning Road		12.8	9.8	1.5	0.14	0.57	0.86	390			10.8	7.6	33
5. Highway K		9.3	7.0	3.0	1.79	0.75	0.29	630	270.6	242	22.5	7.7	203
6. Highway N		11.1	7.4	6.8	0.72	0.79	1.07	448	1108.0		22.7	7.5	20
7. Upstream of Mid-Rivers Mall	18.5	9.4	9.8	7.0	0.30	0.38	0.50	362	24.0		37.5	8.0	580
8. Downstream of Mid-Rivers Mall		9.3	9.2	4.2	0.24	0.22	0.50	498	232.0		22.6	7.8	227
9. Mexico Road		10.4	9.7	4.7	0.20	0.47	0.68	447			110.5	7.2	352
*Median Value													
**Geometric Mean													

Dardenne Creek with Sampling Sites, Warren and St. Charles Counties, Mo.



Impaired Segment → Direction of Flow

Sample Sites
1 – L. Dry Fk. 0.9 miles above Dutro Carter Cr.
2 – L. Dry Fk. just above Dutro Carter Cr.
3 – L. Dry Fk. just below Dutro Carter Cr.
4 – L. Dry Fk. 0.4 miles below Dutro Carter Cr.
5 – L. Dry Fk. 3 miles below Dutro Carter Cr.

Water Quality Rating: Volunteer Water Quality Invertebrate Ratings were given at three sites, and a declining trend can be seen in a downstream direction. The Water Quality Rating at Hopewell Road in 2001 was 26, a score that indicates excellent water quality. The Water Quality Rating at Highway 40 in 2001 was 21, indicating relatively good water quality. Water Quality Ratings were given upstream of Mid-Rivers Mall in 1998 and 2001. In 1998, the score was 16, indicating fair water quality, but the Water Quality Rating at the same site in 2001 was 21, similar to the score at Highway 40. This Water Quality Rating is rather forgiving, and the limited amount of ratings makes it difficult to pinpoint a particular problem In addition, there is no direct association between Water Quality Ratings and Missouri Water Quality Standards.

Note:
The final Dardenne Creek TMDL will be based on the most current available data and information. For TMDL status or additional information, please contact the Water Protection Program.

Missouri Department of Natural Resources
Water Protection Program
P.O. Box 176, Jefferson City, MO 65102-0176
1-800-361-4827 or 573-751-1300 office or 573-522-9920 fax
Program Home Page: dnr.mo.gov/env/wpp/index.html

Appendix M

(Excerpts from City Comprehensive Plan)

Utilities

Learning from the past...
Understanding the present...
Planning for the future

Action 19.7: The City should work with homeowners and business to develop alternative discharge points for roof drains, sump pumps, and other inappropriate connections that impact system capacity.

Implementation Strategy: Community Development, Ongoing

GOAL 20: WASTEWATER GROWTH

THE CITY OF O'FALLON AND ITS WASTEWATER TREATMENT SERVICE PROVIDERS SHOULD EXPAND THEIR WASTEWATER COLLECTION AND TREATMENT SYSTEMS TO ACCOMMODATE ADDITIONAL GROWTH.

Action 20.1: The City's wastewater treatment service providers should continue to ensure adequate and environmentally sound wastewater collection and treatment facilities are available.

Action 20.2: The City's wastewater treatment service providers should continue to expand wastewater collection and treatment facilities to serve potential annexation areas and new development.

Action 20.3: The City should continue to require connection to sanitary sewers as a condition of annexation.

Implementation Strategy: Community Development, Ongoing

Action 20.4: The City's wastewater treatment service providers should work in conjunction with each other on regional infrastructure planning to coordinate extensions across service boundaries.

Action 20.5: The City's wastewater treatment service providers should contribute to the costs associated with improvements to the extent that they benefit the overall service area, or if they improve the overall quality and efficiency of the system.

Action 20.6: The City's wastewater treatment service providers should continue to require funding for the installation of new water treatment and collection facilities to be the responsibility of the property owners/developers or those receiving direct benefit from these facilities.

Action 20.7: The City should continue to require that sanitary sewers installed in new developments extend through the entire property to permit further extensions to adjacent properties.

Implementation Strategy: Community Development, Ongoing

Action 20.8: The City's wastewater treatment service providers should maintain sewer revenues at a level that will support operation, maintenance, and capital improvement needs, where costs of necessary improvements to serve new development are supported by new development.

Action 20.9: The City should continue to require new development to fund the capital costs associated with expanding sewer facilities, including line extensions and plant capacity expansions.

Implementation Strategy: Community Development, Ongoing

Action 20.10: The City should continue to prohibit the use of privately owned, privately operated package wastewater treatment plants and instead encourage the use of membrane treatment plants.

Implementation Strategy: Community Development, Ongoing

GOAL 21: STORM WATER RUNOFF GENERAL

THE CITY OF O'FALLON SHOULD CONTINUE TO MANAGE THE QUANTITY AND QUALITY OF STORM WATER RUNOFF TO PROTECT PUBLIC HEALTH AND SAFETY, SURFACE AND GROUND WATER QUALITY, AND NATURAL DRAINAGE SYSTEMS. THE CITY OF O'FALLON SHOULD ALSO CONTINUE TO ENSURE LONG-RANGE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM COMPLIANCE.

Action 21.1: The City should continue to maintain annual capital budgeting for drainage improvements.

Implementation Strategy: Community Development & City Administration, Ongoing

Action 21.2: The City should develop a long-range storm water management program to minimize impacts from storm water discharge.

Implementation Strategy: Community Development & City Administration, Short Term

Action 21.3: The City should perform detailed drainage system, watershed, and culvert maintenance studies.

Implementation Strategy: Community Development, Short Term

Action 21.4: The City should consider a funding mechanism for the Storm Water Quality Program if justified by widespread need.

Implementation Strategy: Community Development, Intermediate Term

Action 21.5: The City should monitor creeks and streams to have obstructions to the natural water flow removed by the property owner.

Implementation Strategy: Community Development, Ongoing

GOAL 22: STORM WATER RUNOFF GROWTH

THE CITY OF O'FALLON SHOULD MAINTAIN A STORM WATER QUALITY PROGRAM THAT MEETS GOVERNMENT REQUIREMENTS AND LOCALLY PERCEIVED NEEDS.

Action 22.1: The City should continue to strictly enforce the City's Flood Hazard Prevention Ordinance.

Implementation Strategy: Community Development, Ongoing

Action 22.2: The City should ensure that road crossings are designed to minimize or eliminate impacts on natural drainage courses.

Implementation Strategy: Community Development, Ongoing

Action 22.3: Alternative methods for storm water shall be accepted for review when both functionally equivalent and environmentally acceptable.

Implementation Strategy: Community Development, Ongoing

Action 22.4: The City should require that wet detention areas be properly engineered for an eco system and that a funding system is in place to maintain it.

Implementation Strategy: Community Development, Ongoing

Action 22.5: The City should continue to develop and monitor Phase II storm water quality management and illicit discharge control.

Implementation Strategy: Community Development, Short Term

Action 22.6: The City should continue to ensure that storm water drainage facilities are designed to manage the amounts and rate of surface water runoff, minimize property damage from runoff, minimize potential erosion and sedimentation, preserve natural drainage systems and encourage retention of natural vegetation.

Implementation Strategy: Community Development, Ongoing

Action 22.7: The City should require discharge control methods which are aesthetically and environmentally acceptable as well as effective.

Implementation Strategy: Community Development, Ongoing

Action 22.8: The City should continue to protect water quality and reduce the potential for flooding and erosion damage by preventing encroachment into natural watercourse areas and by preserving the natural character of drainage ways.

Implementation Strategy: Community Development, Ongoing

Action 22.9: The City should ensure that downstream areas are protected from increased storm water runoff by managing runoff from upstream developments.

Implementation Strategy: Community Development, Ongoing

GOAL 23: REFUSE & RECYCLING

THE CITY OF O'FALLON SHOULD CONTINUE TO IMPROVE THE RESIDENTIAL REFUSE COLLECTION AND RECYCLING PROGRAM.

Action 23.1: The City should continue to increase effectiveness and efficiency of the City's Residential Refuse Collection and Recycling Program.

Implementation Strategy: Environmental Services, Ongoing

Action 23.2: The City should look for ways to expand refuse and recycling to increase income by service to surrounding cities or provide commercial pickup.

Implementation Strategy: Environmental Services, Intermediate Term

Action 23.3: The City should continue to review the expansion of bulk drop off days to City residents.

Implementation Strategy: Environmental Services, Intermediate Term

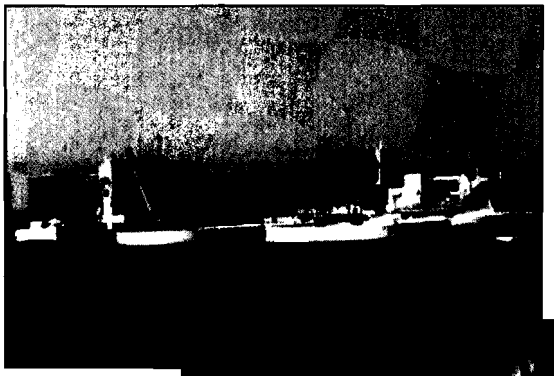
Action 23.4: The City should continue to seek funding for the lid replacement program on recycle carts.

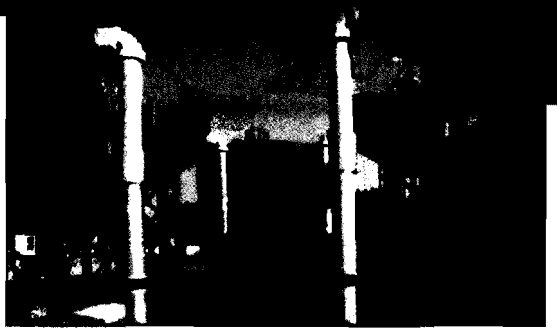
Implementation Strategy: Environmental Services, Ongoing

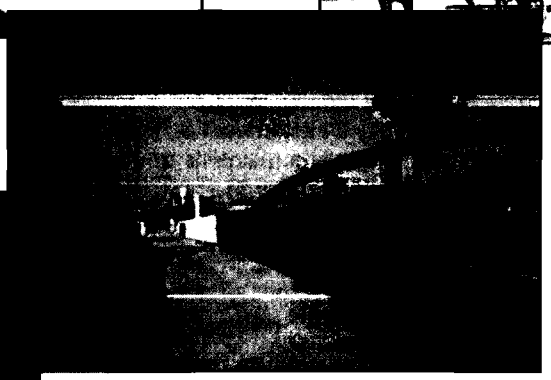
Action 23.5: The City should continue to upgrade the Global Positioning System (GPS) to provide better service and help reduce cost in the Refuse Collection and Recycling Program.
Implementation Strategy: Environmental Services, Intermediate Term

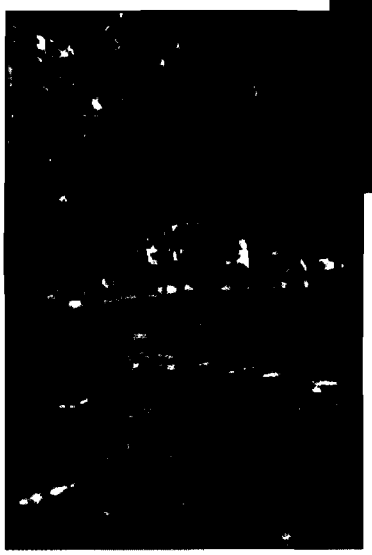
GOAL 24: EDUCATIONAL OUTREACH
UTILITES SHOULD PROVIDE EDUCATIONAL AND OUTREACH PROGRAMS.

Action 24.1: The City's potable water service providers should provide public education and outreach programs on water reuse, conservation, reclamation, and other new water efficient technology.
Implementation Strategy: Community Development & Public Relations, Short Term
Action 24.2: The City's wastewater treatment service providers should provide public education and outreach programs on the benefits to upgrading existing systems.
Implementation Strategy: Community Development & Public Relations, Intermediate Term
Action 24.3: The City should continue to provide public education and outreach programs on how individuals effect storm water management.
Implementation Strategy: Community Development & Public Relations, Short Term
Action 24.4: The City should continue to educate residents on the benefits of waste reduction, reuse, and recycling.
Implementation Strategy: Environmental Services, Public Relations & Community Development, Ongoing









Transportation and Circulation

Learning from the past…
Understanding the present…
Planning for the future

GOAL 55: BUSINESS EXPANSION
THE CITY OF O'FALLON SHOULD PROMOTE A CLIMATE IN WHICH BUSINESSES CAN COMPETE AND BE SUCCESSFUL IN ORDER TO SUPPORT THE GROWTH AND EXPANSION OF EXISTING BUSINESSES.

Action 55.1: The City should continue to maintain ongoing contacts through meetings and other means with business owners, managers, etc., to proactively identify their expansion needs.
Implementation Strategy: Economic Development, Ongoing

Action 55.2: The City should continue to provide research assistance on location availability, whether on- or off-site, to retain growing businesses within the City.
Implementation Strategy: Economic Development, Ongoing

Action 55.3: The City should continue to work with the Federal Government, the State of Missouri and St. Charles County, to provide incentive information for financing capital improvement, training, etc., for growing businesses.
Implementation Strategy: Economic Development, Ongoing

GOAL 56: BUSINESS STOCK MAINTAINED
THE CITY OF O'FALLON SHOULD CONTINUE TO ENSURE THAT CITY'S BUSINESS STOCK IS PROPERLY MAINTAINED.

Action 56.1: The City should continue its strong code enforcement and property maintenance efforts to ensure that the business stock is properly maintained and not allowed to deteriorate.
Implementation Strategy: Community Development, Ongoing

Action 56.2: The City should conduct a yearly review of the amenities (landscaping, lighting, fencing and paved surfaces) that were provided with the development to make sure they are properly maintained and not allowed to deteriorate.
Implementation Strategy: Community Development, Ongoing

Action 56.3: The City should closely monitor any vacant business property to ensure that they are not allowed to deteriorate.
Implementation Strategy: Community Development, Ongoing

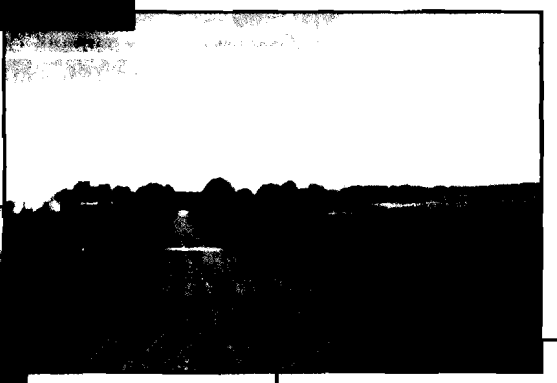
GOAL 57: STREAMLINE REGULATIONS AND PROCEDURES
THE CITY OF O'FALLON SHOULD CONTINUE TO STREAMLINE ITS DEVELOPMENT REGULATIONS AND APPROVAL PROCEDURES IN ORDER TO PROMOTE THE DEVELOPMENT OF INNOVATIVE BUSINESSES.

Action 57.1: The City should continue to streamline its development review and approval procedures (yet do so without compromising the quality of development and the opportunity for public participation) in order to ensure that unnecessary time delays and expenses are eliminated.
Implementation Strategy: Community Development, Ongoing

Action 57.2: The City should continue to involve the development community in the revision of its development regulations. This should include an open forum with the developers to collect input on how this process can be improved.
Implementation Strategy: Community Development, Ongoing

Action 57.3: The City should develop a program to disseminate new and amended regulations to the city web site within 30 days after approval by the City Council.
Implementation Strategy: Community Development & City Administration, Ongoing

Action 57.4: The City should continue to focus on creating a positive atmosphere for developers who wish to do business in the city.
Implementation Strategy: Economic Development & Community Development, Ongoing



Green

Learning from the past...
Understanding the present...
Planning for the future

Action 59.2: The City should use City resources, such as the City's website and other future telecommunication services, newsletter, and displays in the municipal buildings, libraries, and schools to name a few, that would raise awareness of climate change and energy-saving opportunities available to local residents.

Implementation Strategy: Public Relations, Intermediate Term

Action 59.3: The City should institute a campaign, such as Burlington, Vermont's "10 Percent Challenge," encouraging local residents, businesses, and institutions to reduce their fossil fuel energy use. *(For description see page 105)*

Implementation Strategy: City Administration & Public Relations, Intermediate Term

GOAL 60: MAYORS CLIMATE PROTECTION AGREEMENT

THE CITY OF O'FALLON SHOULD SUPPORT THE U. S. CONFERENCE OF MAYORS CLIMATE PROTECTION AGREEMENT.

Action 60.1: The City should review the requirements for The U.S. Conference of Mayors Climate Protection Agreement and sign the agreement if support is warranted. *(For description see page 106)*

Implementation Strategy: City Administration, Short Term

GOAL 61: SUPPORT GREEN DEVELOPMENT

THE CITY OF O'FALLON SHOULD SUPPORT THE BUILDING OF GREEN DEVELOPMENTS.

Action 61.1: The City should review all of their code requirements to make sure that they are Green friendly.

Implementation Strategy: Community Development, Short Term

Action 61.2: The City should write a Green code that lists the requirements for a Green development. This should be tied to the Green Building Council's LEED Award program and be detailed on both the site plans and construction plans to support unusual requests for variance in code requirement.

Implementation Strategy: Community Development, Short Term

Action 61.3: The City should write a Green code for existing buildings that provides incentives to property owners and can be recognized by Green Building Council's LEED Award program.

Implementation Strategy: Community Development, Short Term

GOAL 62: CONSERVATION OF NATURAL RESOURCES

THE CITY OF O'FALLON SHOULD INSTITUTE WAYS TO CONSERVE AND PROTECT OUR NATURAL RESOURCES NOT ONLY FOR CITY PURPOSES BUT ALSO FOR RESIDENTS.

Action 62.1: The City should institute landscaping methods that conserve our natural resources by planting locally grown flowers, shrubs, and trees that require minimal care and watering.

Implementation Strategy: Parks and Recreation, Intermediate Term

Action 62.2: The City should offer the opportunity for O'Fallon based landscapers and retailers to maintain plantings of flowers, trees and shrubs throughout the city at no charge to the city, other than the opportunity to place approved signage on the planted areas advertising the landscaper or retailer who maintains the planted area.

Implementation Strategy: Parks and Recreation & Public Relations, Short Term

Action 62.3: The City should recommend days and times when lawn sprinklers should be used by residents and the city.

Implementation Strategy: Parks and Recreation, Community Development & Public Relations, Short Term

Action 62.4: The City should promote the importance of clean streams and storm water management awareness to residents.

Implementation Strategy: Community Development & Public Relations, Ongoing

RECEIVED

DEC 0 2 2013

WATER PROTECTION PROGRAM

GOAL 63: PROMOTING RENEWABLE ENERGY
THE CITY OF O'FALLON SHOULD REQUIRE THAT BUILDING CONTRACTORS AND UTILITY PROVIDERS RESEARCH AND INCORPORATE NEW AND INNOVATIVE WAYS TO SAVE ENERGY IN NEW AND RE-DEVELOPED COMMERCIAL AND RESIDENTIAL PROJECTS.

Action 63.1: The City, its building contractors, and utility providers should implement a program that encompasses, but is not limited to the following:

- Consider parcels of land that cannot be developed to install wind turbine farms. This option should be offered to local farmers as a source of supplemental income.
- Encourage builders to use materials that contain solar photo voltaic (PV) cells such as in roofing tiles, shingles, glass windows, and outer walls. These cells generate electricity directly from the sunlight.
- Promote the use of solar cells that are installed on roofs to its residents and businesses

Implementation Strategy: City Administration & Community Development, Long Term

GOAL 64: CONSTRUCTION MATERIALS RECYCLING PROGRAM
THE CITY OF O'FALLON AND ITS TRASH HAULER PROVIDER SHOULD TAKE MAJOR STEPS IN THE DEVELOPMENT OF A RECYCLING PLAN FOR CONSTRUCTION WASTE.

Action 64.1: Research and implement a plan similar to the City of Austin, TX. *(For description see page 105)*

Implementation Strategy: Environmental Services, Intermediate Term

Action 64.2: The City should work with all residential and commercial building contractors participate in the construction waste recycling program when it has been developed.

Implementation Strategy: Community Development & Environmental Services, Intermediate Term

GOAL 65: PROMOTE HEALTHY LIFESTYLES
THE CITY OF O'FALLON SHOULD ENCOURAGE RESIDENTS TO LIVE A HEALTHY LIFESTYLE BY PROMOTING NATURAL, ORGANIC, AND NUTRITIONAL PRODUCTS.

Action 65.1: The City should allow compost bins for gardening purposes. Standards for compost bins would be defined by the City.

Implementation Strategy: Community Development, Short Term

Action 65.2: The City should offer an organic/naturally grown food market or satellite farmers markets to the residents.

Implementation Strategy: Community Development, City Administration & Economic Development, Long Term

GOAL 66: EDUCATION
THE CITY OF O'FALLON SHOULD PROVIDE "GREEN" EDUCATIONAL AND OUTREACH PROGRAMS.

Action 66.1: The City should provide outreach and educational programs to staff about energy and cost saving ways to be used in the municipal buildings.

Implementation Strategy: Administrative Services, Short Term

Action 66.2: The City should provide public education on Green features that can be implemented in new and existing homes.

Implementation Strategy: Public Relations, Administrative Services & Community Development, Short Term

Action 66.3: The City should provide residents with energy saving tips on how to conserve natural resources and energy at home via the web site with links and newsletters.

Implementation Strategy: Public Relations, Administrative Services & Community Development, Short Term

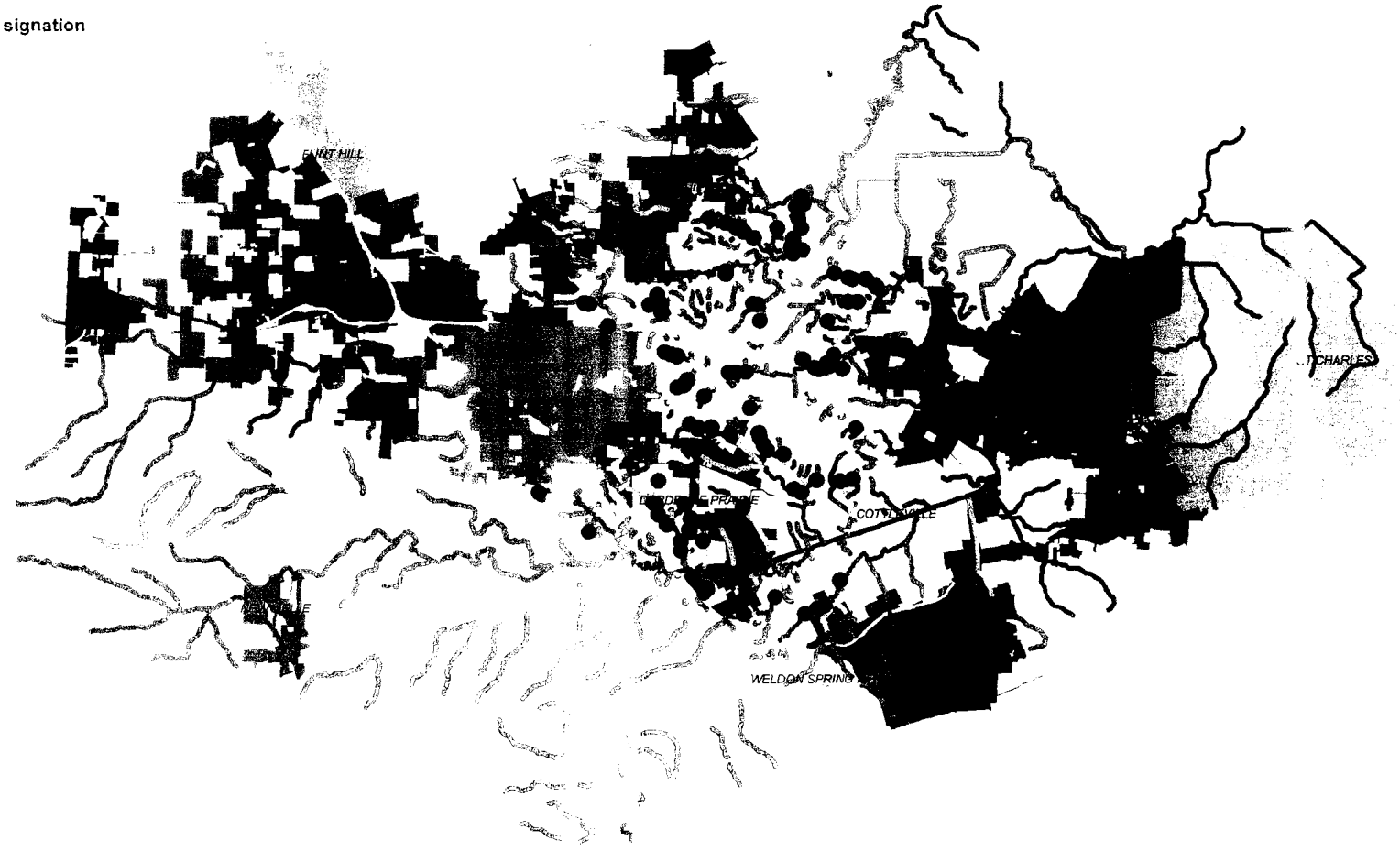
MAIN ST
O'Fallon MO 63366

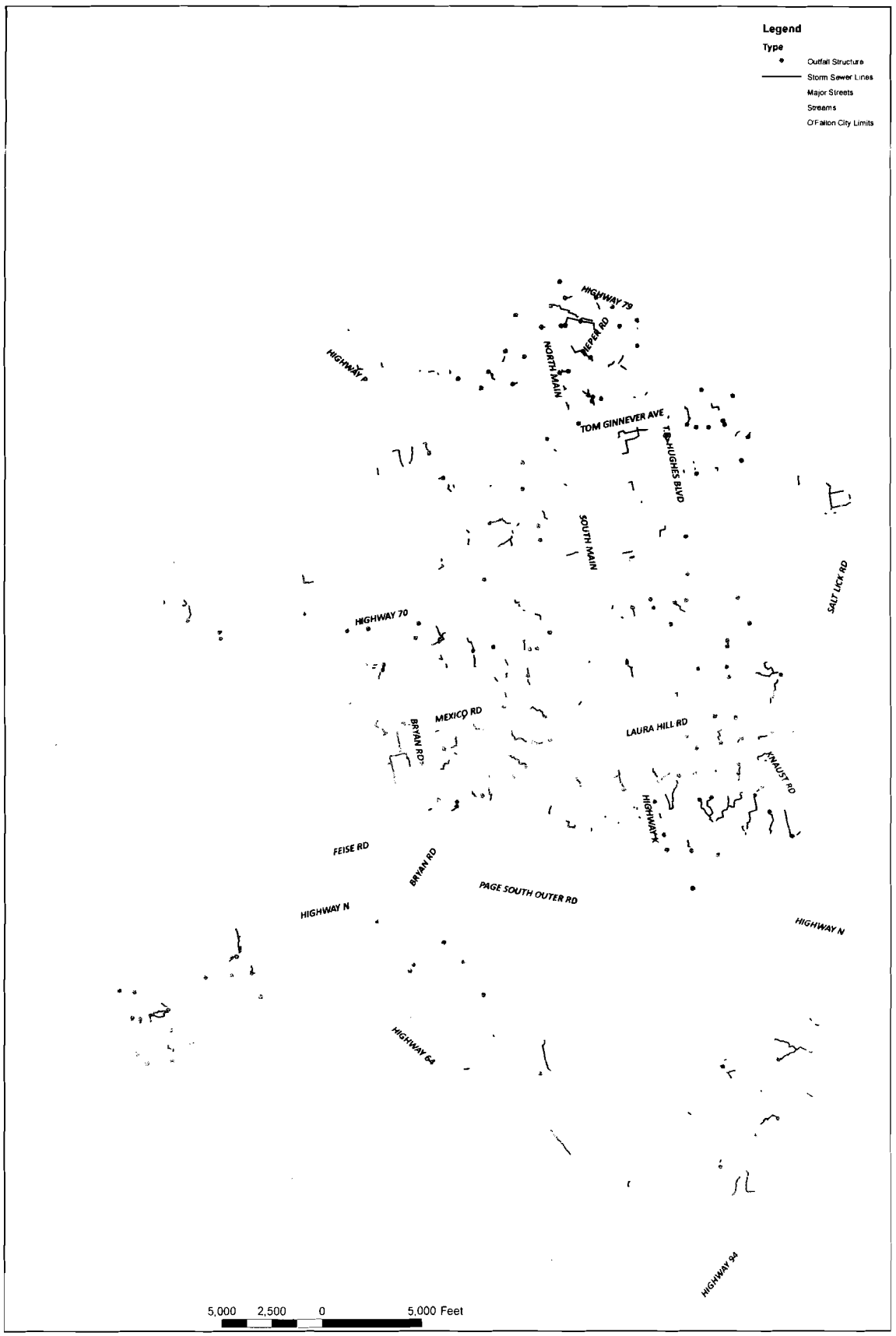
MDNR
Attn. Ms. Ruth WALLACE
1101 RIVERSIDE DR
Jefferson City MO 65101

RECEIVED

WATER

signation

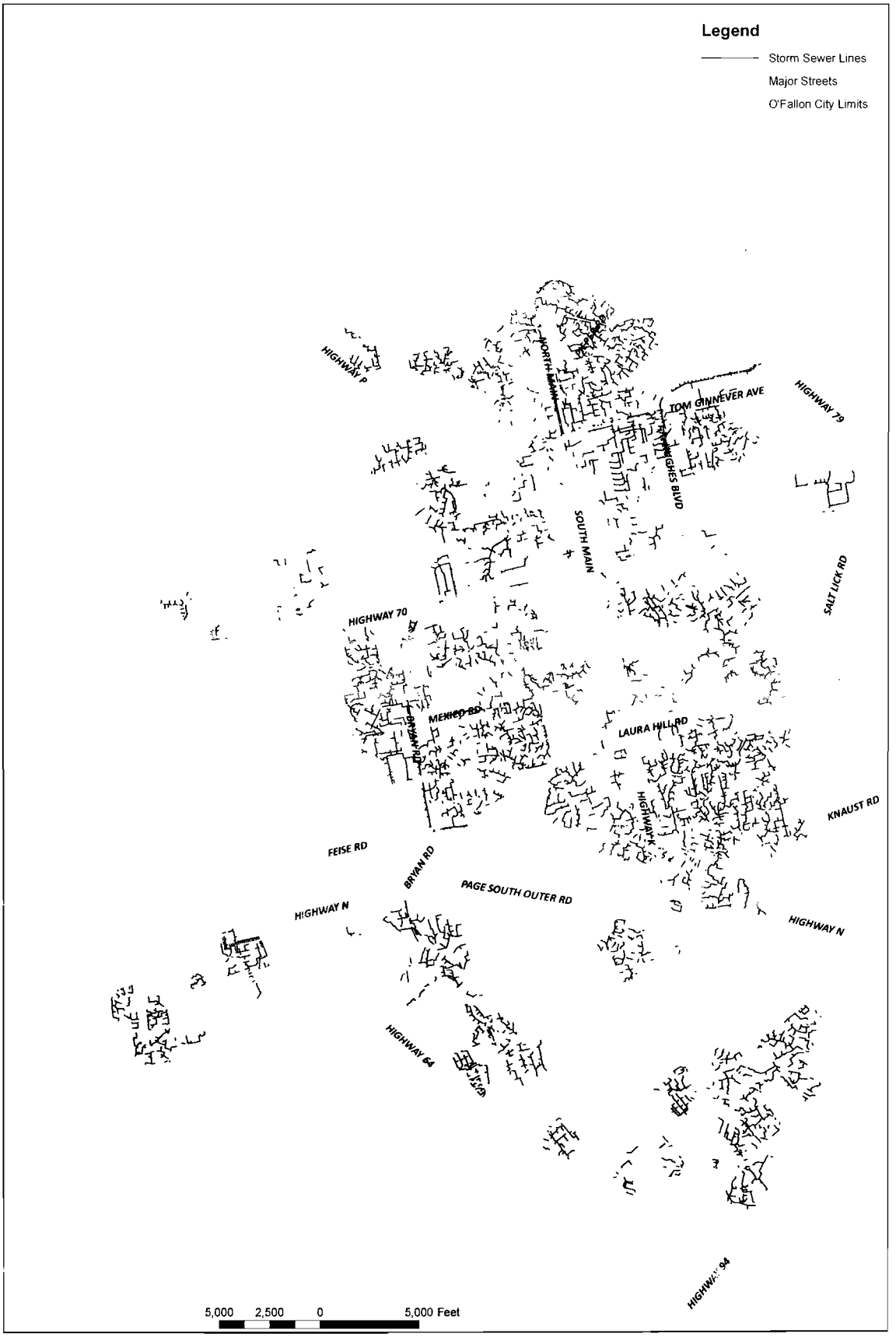




Community Development
Geographic Information Systems
O'Fallon, Missouri

Creek Outfall

Printed: 06/22/2012



Community Development
Geographic Information Systems
O'Fallon, Missouri

Storm Sewer System

Printed: 06/22/2012