SEP 19 2007

Hannibal Small MS4
MO-R040060

Storm Water Implementation Plan

for

City of Hannibal, Missouri

RECEIVED
SEP 21 2007
WATER PROTECTION PROGRAM

Project 45757

September 17, 2007

Burns & McDonnell
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ATTACHMENTS

A City of Hannibal Storm Water Ordinances No. 3140 and No. 3775
B City of Hannibal Building Permit Checklist
C Missouri Department of Natural Resources Storm Water Annual Report Form
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SUMMARY

The NPDES Phase II Rule defines a Storm Water Management Program that consists of six Minimum Control Measures (MCMs). When implemented together, these MCMs are expected to achieve significant reductions of pollutants discharged into receiving water bodies. The following are the six MCMs required for the program:

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

For the City of Hannibal, the Public Works Department, headed by Public Works Director, Jamie Page, P.E., has the main responsibilities for management and implementation of the Storm Water Management Program.

The following subsections outline the Best Management Practices (BMPs), measurable goals, and implementation schedule for each MCM proposed for the City of Hannibal's Storm Water Management Program.

MINIMUM CONTROL MEASURE #1
PUBLIC EDUCATION AND OUTREACH

Missouri State Operating Permit No. MO-R040060 requires the City of Hannibal to implement a Public Education and Outreach Program to distribute education materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff.

Hannibal's Public Education and Outreach Program will utilize several outlets to inform individuals and households about the steps they can take to reduce storm water pollution and how to become involved in the program. The key elements of this program include development and maintenance of a storm water website, issuing print ads and news releases through the local newspaper; brochures, and flyers at community events; and, maintaining a library of storm water literature available to the general public at City Hall.

The pollutant sources the Public Education and Outreach Program is designed to address are motor oil, pet wastes, yard wastes, fertilizers, herbicides, pesticides, sediment, and illicit discharges. The target audiences for the Public Education and Outreach Program and the pollutants that are likely to be utilized by each group include:

- Residential – Fertilizers, pet waste, pesticides, herbicides, motor oil, yard waste
- Developers – Sediment at construction sites and in streets, fertilizers, pesticides, herbicides, motor oil, yard waste
- Commercial – Fertilizers, illicit discharges, improper restaurant practices, motor oil in parking lots, pesticides, herbicides
- Industrial – Fertilizers, illicit discharges, motor oil in parking lots, pesticides, herbicides
- Institutional – Fertilizers, illicit discharges, improper restaurant practices, motor oil in parking lots, pesticides, herbicides

The following table establishes the tasks (BMPs), measurable goals, and implementation schedule proposed for the Public Education and Outreach Program.

Table 1
Public Education and Outreach Program Strategy and Implementation Schedule

Task	Measurable Goal	Implementation Schedule	Responsible Individual
Establish/maintain stormwater program website and advertise through news release	Establish website	January 31, 2008	Jamie Page
Advertise stream clean-ups through print ads, posters, and flyers	Have waiver available on-line and track at least 50 additional hits to the website after advertisement	May 31, 2008	Jamie Page
Advertise development of the storm water management plan in local newspaper	Track at least 50 additional hits to the website more than normal traffic	March 31, 2008	Jamie Page
Maintain supply of stormwater brochures at City Hall to distribute to interested citizens	Replenish supplies quarterly	December 31, 2008	Jamie Page
Pet Waste Sign Program	Post 10 signs encouraging proper pet waste disposal in City Parks	December 31, 2007	Jamie Page
Education/Outreach for Community Activities	The City will staff a table at City sponsored community events to distribute pamphlets and brochures	December 31, 2007	Jamie Page

MINIMUM CONTROL MEASURE #2
PUBLIC INVOLVEMENT/PARTICIPATION

Missouri State Operating Permit No. MO-R040060 requires the City of Hannibal to implement a Public Involvement/Participation Program that complies with State and local public notice requirements. The intent of the program is to achieve awareness and support from the general public for the Storm Water Management Program and pollution prevention practices.

Hannibal's Public Involvement/Participation Program will utilize avenues discussed in the Public Education and Outreach Program to advertise the Public Involvement/Participation activities. Public Involvement/Participation activities planned for the program include an annual stream clean-up, storm drain marking, and stream monitoring. These events will be advertised on the storm water website, advertisement and news releases in the local newspaper, and distribution of flyers. The target audiences for these programs include elementary and secondary school children, educators, stream teams, homeowners associations, businesses, and environmental groups.

The public will also be encouraged to participate in development of the Storm Water Management Plan. A survey will be mailed to all residents with the intent of determining the level of public interest and awareness of storm water management and pollution prevention. The public will be encouraged to review a summary of the Plan available on the storm water website.

The following table establishes the tasks (BMPs), measurable goals, and implementation schedule proposed for the Public Involvement/Participation Program.

Table 2
Public Involvement/Participation Program Strategy and Implementation Schedule

Task	Measurable Goal	Implementation Schedule	Responsible Individual
Advertise summary of the storm water management plan in local newspaper	Track at least 50 additional hits to the website more than normal traffic	March 31, 2008	Jamie Page
Annual stream clean-up through Keep Hannibal Beautiful program	At least 20 participants	May 31, 2008	Jamie Page
Storm drain marking	50 drains marked	December 31, 2008	Gene Majors
Stream monitoring by local youth clubs	Conduct quarterly monitoring	January 1, 2008	Jamie Page
Mail stormwater survey to residents in conjunction with stormwater master plan	500 responses	June 30, 2005	Jamie Page
Illicit Connection/Illegal Dumping Notification system via calls and e-mails	Document all messages	March 31, 2008	Jamie Page

MINIMUM CONTROL MEASURE #3
ILLICIT DISCHARGE DETECTION AND ELIMINATION

Missouri State Operating Permit No. MO-R040060 requires the City of Hannibal to:

- Develop, implement and enforce a program to detect and eliminate illicit discharges;
- Develop or submit a storm sewer system map;
- Prohibit, through ordinance, or other regulatory mechanism, non-storm water discharges into the storm sewer system and implement appropriate enforcement procedures and actions;
- Develop and implement a plan to detect and address non-storm water discharges, including illegal dumping; and,
- Inform public employees, business, and the general public of hazards associated with illegal discharges and improper disposal of waste.

A storm sewer map showing the location of all outlets and the names and location of all receiving waters will be developed by Burns & McDonnell, Inc. Sources of information used to assemble the storm sewer locations include historic sewer maps and interviews with City employees, verified by field survey. Verification of outlet locations will be achieved by field surveys. The map will be regularly updated by the City of Hannibal when changes are made to the storm sewer system and/or outfall locations.

Illicit discharges into the MS4 will be prohibited by storm water Ordinance No. 3260, already in place. A copy of the relevant section is attached. Implementation of the illicit discharge ordinance will be ensured through an amendment to Ordinance No. 3260 with provisions for enforcement and penalties including written warnings, fines and possible imprisonment.

An illicit discharge detection and elimination plan will be developed. Items addressed in plan will include:

- Procedures for locating priority areas which includes areas with higher likelihood of illicit connections (older sanitary sewer lines) or ambient sampling to locate impacted reaches
- Procedures for tracing the source of an illicit discharge including the specific techniques that will be used
- Procedures for removing the source of the illicit discharge
- Procedures for program evaluation and assessment

Once the plan has been developed, dry weather field surveys will be conducted to ascertain locations of possible illicit discharges that should be followed up by testing to confirm pollutants and their sources.

Public employees, businesses, and the general public will be informed of the hazards associated with illegal discharges and improper disposal of waste by development of an Illicit Discharge and Improper Waste Disposal informational page on the City's website; advertisement of the City's Yard Waste Recycling Program through print ads and website; and distribution of pamphlets, flyers, and brochures at community events.

The following table establishes the tasks (BMPs), measurable goals, and implementation schedule proposed for the Illicit Discharge and Detection Program.

Table 3
Illicit Discharge and Detection Program Strategy and Implementation Schedule

Task	Measurable Goal	Implementation Schedule	Responsible Individual
Storm sewer system map	Field verify locations of outfalls and complete map, update	December 31, 2007	Gene Majors
Prohibition of non-stormwater discharges into the MS4	Ordinance developed - Ord. No. 3260	Completed	Jamie Page
Enforcement of non-stormwater discharges	Amend Ordinance No. 3260 to include provisions for enforcement	June 30, 2008	Jamie Page
Develop illicit discharge detection and elimination plan	Develop plan	October 31, 2007	Jamie Page
Document locations of illicit connections during dry weather field surveys	Once plan is developed, conduct field surveys	June 30, 2008	Gene Majors
Illicit discharge page on municipal website	Track at least 10 hits to website after release of website is advertised in news release	March 31, 2008	Jamie Page
Advertise yard waste recycling program at website	Advertise program three times during spring season in newspaper and on radio	May 31, 2008	Jamie Page
Distribute brochure on proper disposal of waste and hazards of illicit discharges	Distribute brochures at community events and through a mailing to local businesses and industry	June 30, 2008	Jamie Page

MINIMUM CONTROL MEASURE #4
CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

Missouri State Operating Permit No. MO-R040060 requires the City of Hannibal to develop, implement, and enforce a program to reduce pollutants in any storm water runoff to the storm sewer system from construction activities that result in a land disturbance 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. Elements of the program shall include:

- An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance;
- Requirements for construction site operators to implement appropriate erosion and sediment control BMPs;
- Requirements for construction site operators to control waste that may cause adverse impacts to water quality;
- Procedures for site plan review which incorporate consideration of potential water quality impacts;
- Procedures for receipt and consideration of information submitted by the public; and,
- Procedures for site inspection and enforcement of control measures.

The City of Hannibal has regulatory mechanisms in place that cover many of Missouri State Operating Permit No. MO-R040060 regulatory requirements. These mechanisms include Hannibal's City Code, Chapter 9, Drainage and Flood Control, Article II Erosion Control and Cleanup (Ordinance No. 3140), Article IV Stormwater Runoff Management (Ordinance 3775), and the Building Permit Application Form. Copies of these regulatory mechanisms are attached.

In particular, the following regulations are in place or will be amended to comply with the requirements of Missouri State Operating Permit No. MO-R040060:

- Erosion and sediment controls at construction sites are required by Ordinances No. 3140 and 3775, already in place. However, these ordinances do not specify that all developments disturbing greater than or equal to one acre are subject to the ordinances. Therefore, the ordinances will be amended to incorporate these provisions. Implementation of the erosion and sediment controls at construction sites ordinance is ensured through enforcement and sanctions actions covered under Section 9-117 Enforcement and Section 9-118 Penalties for Violation in Ordinance No. 3775, already in place.
- Requirements for construction site operators to implement appropriate erosion and sediment control BMPs and control waste at construction sites that may cause adverse impacts to water quality are defined in Section 9-19 Methods of Erosion Control in Ordinance No. 3140, already in place. By provisions of Ordinance No. 3140, all developments must have an erosion control and clean-up plan approved by the City Engineer. The developer is encouraged to select the best method of erosion control for the project.

- A storm water management plan is required for all developments by Ordinance No. 3775. All plans are reviewed by the City Engineer. Procedures to develop the plan are included in Section 9-105 of Ordinance No. 3775, already in place.
- All construction sites will be inspected during each project phase. Enforcement of the erosion control measures includes written notices, stop-work orders, revocation of approval, appeal, and monetary penalties. Enforcement actions are defined in Section 9-117 Enforcement and 9-118 Penalties of Ordinance No. 3775, already in place.

A form page on the City's website will be developed to submit storm water complaints by the public. This feature will be advertised on the City's website.

The following table establishes the tasks (BMPs), measurable goals, and implementation schedule proposed for the Construction Site Storm Water Runoff Control Program.

Table 4
Construction Site Storm Water Runoff Control Program Strategy and Implementation Schedule

Task	Measurable Goal	Implementation Schedule	Responsible Individual
Erosion and sediment controls at construction sites ordinance	Amend Ordinances No. 3140 and No. 3775, to require developments greater than 1 acre to submit an erosion control and clean up plan, also amend Building Permit Form to specify any development greater than 1 acre	June 30, 2008	Jamie Page
Review site plans and permits for construction projects >1 acre not reviewed by other government entities	Review 100% of plans	January 31, 2006	Jamie Page
Conduct inspections of construction projects within jurisdiction that have the potential to discharge into the MS4	Conduct inspections at 100% of active construction sites within jurisdiction	December 31, 2007	Jamie Page
Enforce penalties by issuing citations in accordance with Ordinance No. 3775	Issue citations for 100% of infractions	December 31, 2007	Jamie Page
Advertise through website that complaints for improper stormwater runoff control from construction sites can be reported by citizens	Document response to 100% of complaints	May 31, 2008	Jamie Page
Promote training sessions for developers and City staff on proper installation of construction site runoff control BMPs	Mail and handout flyers for applicable training sessions to Contractors annually	May 31, 2008	Jamie Page

MINIMUM CONTROL MEASURE #5
POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

Missouri State Operating Permit No. MO-R040060 requires the City of Hannibal to:

- Develop, implement, and enforce a program to address 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 storm sewer system;
- Develop and implement strategies which include a combination of structural and/or non-structural BMPs appropriate for the community;
- Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects; and,
- Ensure adequate long-term operation and maintenance of BMPs.

The City of Hannibal has regulatory mechanisms in place that cover many of Missouri State Operating Permit No. MO-R040060 regulatory requirements. These mechanisms include Hannibal's City Code, Chapter 9, Drainage and Flood Control, Article IV Stormwater Runoff Management (Ordinance 3775), and the Building Permit Application Form. Copies of these regulatory mechanisms are attached.

In particular, the following regulations are in place and comply with the requirements of Missouri State Operating Permit No. MO-R040060:

- Storm water runoff from new development and redevelopment are addressed in Ordinance No. 3775 which requires submittal and approval of preliminary and final storm water management plans for all developments. Maintenance requirements for permanent storm water BMPs are defined in Section 9-114 of Ordinance No. 3775.
- In Section 9-107 of Ordinance No. 3775, final storm water management plan requirements are detailed. The final plan must include runoff calculations showing attempts to maintain pre-development conditions, and water quality impacts.
- Post-construction runoff from new developments and redevelopments are addressed in Ordinance No. 3775, already in place.
- Long-term operation and maintenance (O&M) of the selected BMPs are ensured through Section 9-114 Maintenance Responsibilities for Stormwater Management Facilities of Ordinance No. 3775.

The City of Hannibal will encourage appropriate non-structural and structural BMPs when reviewing storm water management plans. Training programs for developers will be available that will include discussion of non-structural and structural BMPs. The City will review current planning and zoning policies, review existing drainage areas and inventory existing BMPs to determine where additional BMPs could be incorporated to improve water quality. In addition, a riparian corridor setback ordinance will be maintained.

The following table establishes the tasks (BMPs), measurable goals, and implementation schedule proposed for the Post-Construction Storm Water Management in New Development and Redevelopment Program.

Table 5
Post-Construction Storm Water Management in New Development and Redevelopment Program Strategy and Implementation Schedule

Task	Measurable Goal	Implementation Schedule	Responsible Individual
Post-construction runoff control ordinance	Ordinance No. 3775 is in place and defines maintenance responsibilities	July 31, 2007	Jamie Page
Riparian corridor setback ordinance	Amend Ordinance 3775, Sec 9-113 to include a setback for developments adjacent to natural watercourses of 25-feet back from the high water mark of the watercourse	June 30, 2008	Jamie Page
Review site plans and permits for construction projects >1 acre not reviewed by other government entities	Review 100% of plans	January 31, 2005	Jamie Page
Conduct post-construction inspections of BMPs and inspect all development >1 acre within jurisdiction that discharges into the MS4	Conduct inspections at 100% of sites within jurisdiction	December 31, 2007	Jamie Page
Review existing drainage to determine additional areas for BMP implementation	Identify existing BMPs and plot on drainage map	December 31, 2009	Jamie Page
Conduct training sessions with developers and City staff on structural and non-structural BMPs	Conduct training session annually	June 30, 2008	Jamie Page

MINIMUM CONTROL MEASURE #6
POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

Missouri State Operating Permit No. MO-R040060 requires the City of Hannibal 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; and,
- Using training materials that are available from EPA, State, or other organizations, develop training to prevent and reduce storm water pollution from municipal maintenance activities.

The City of Hannibal will develop a Pollution Prevention/Good Housekeeping Program. The program will address the following elements:

- An inventory of the operation and maintenance programs targeted to prevent or reduce pollutant runoff from municipal operations based on an inspection of municipal facilities;
- Maintenance activities and schedules, and long-term inspection procedures for controls to reduce pollutants to the storm sewer system from identified facilities;
- Controls for reducing or eliminating the discharge of pollutants from municipal operations including streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet and maintenance shops with outdoor storage areas, and salt/sand storage locations and snow disposal areas;
- Procedures for the proper disposal of waste removed from the storm sewer system; and,
- 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.

The City of Hannibal will also develop a list of government employee training programs used to prevent and reduce storm water pollution from municipal activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance. An annual training session for City employees will be conducted to reinforce pollution prevention/good housekeeping practices.

The following table establishes the tasks (BMPs), measurable goals, and implementation schedule proposed for the Pollution Prevention/Good Housekeeping Program.

Table 6
Pollution Prevention/Good Housekeeping Program Strategy and Implementation Schedule

Task	Measurable Goal	Implementation Schedule	Responsible Individual
Identify and inspect all municipal operations subject to pollution prevention operations	Identify all Board of Public Works, Street Department and Parks & Recreation operations and develop maintenance schedules by January 1, 2008	January 1, 2008	Jamie Page
Street sweeping of all streets and roads	Sweep roads downtown monthly, weather permitting, and other areas on rotating basis	July 31, 2007	Jamie Page
Perform scheduled long term maintenance activities developed during municipal operation identification	Perform as scheduled annually	June 30, 2008	Jamie Page
Conduct training sessions with City staff on the proper disposal of waste removed from the MS4	Conduct training session annually	June 30, 2008	Jamie Page
Review and assess water quality impacts of new flood management projects with City's floodplain manager	Review 100% of plans submitted for flood management projects with floodplain manager	July 31, 2007	City Building Inspector

CITY OF HANNIBAL STORM WATER ORDINANCES NO. 3140 AND NO. 3775

Chapter 9

DRAINAGE AND FLOOD CONTROL*

Art. I. In General, §§ 9-1—9-15
Art. II. Erosion Control and Clean-up, §§ 9-16—9-50
Art. III. Flood Damage Prevention, §§ 9-51—9-99
Div. 1. Generally, §§ 9-51—9-70
Div. 2. Administration, §§ 9-71—9-80
Div. 3. Provisions for Flood Hazard Reduction, §§ 9-81—9-90
Div. 4. Floodplain Management Variance Procedures, §§ 9-91—9-99
Art. IV. Stormwater Runoff Management, §§ 9-100—9-123

ARTICLE I. IN GENERAL

Sec. 9-1. Blocking streams, creeks, tributaries, and storm drains.

No person shall introduce into any stream, creek, tributary or other natural watercourse in any manner whatsoever any substance other than water, nor shall any person introduce any substance into any part of the storm sewer system located within the city.
(Code 1963, § 148.010; Ord. No. 3260, § 1, 6-15-82)

Sec. 9-2. Drainage of swimming pools.

All persons draining, or causing to be drained, a swimming pool within the corporate limits of the city shall be required to obtain a permit for the disposal of said swimming pool contents in compliance with the provisions of this section.

(1) The applicant shall request a plan for the draining operation from the office of the city engineer of the city.

(2) The city engineer shall prepare a plan which will show that the draining is to be carried out in such a manner that no public or private objections, inconveniences, nuisances, property damage or unsafe conditions arise from the draining operations.

(3) If the city engineer determines that the pool can be released into natural above ground drainage ways, he shall direct the office of the building inspector to issue a drainage permit. The applicant shall then be responsible for any conditions created down stream by the release of pool contents.

(4) In the event of complaints, damage to public or private property, and any other related problems caused by the drainage of the pool into the natural drainage system, the pool

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***Editor's note**—Ord. No. 4021, § 1, adopted July 15, 1997, did not specifically amend the Code; hence, inclusion herein as § 9-2 was at the discretion of the editor.

Cross references—Definitions and rules of construction generally, § 1-2; buildings and building regulations, Ch. 7; placement of debris in streams, § 13-2; planning and development, Ch. 22; subdivisions, Ch. 29; zoning, Ch. 32.

State law reference—Powers of home rule charter cities, Mo. Const. Art. VI, § 19(a).

owner shall be required to contact the board of public works to obtain the necessary approval to drain the pool into the sanitary sewer system of the city. Pool owners shall be responsible for any applicable utility charges.

(Ord. No. 4021, § 1, 7-15-97)

Editor's note—Ord. No. 4021, § 1, adopted July 15, 1997, did not specifically amend the Code; hence, inclusion herein as § 9-2 was at the discretion of the editor.

Secs. 9-3—9-15. Reserved.

ARTICLE II. EROSION CONTROL AND CLEAN-UP

Sec. 9-16. Application of article.

The application of this article is not limited to cases in which building permits have been issued for construction work, but it is the intent of this article that it shall apply to all cases in which the owner of any real estate in the city permits soil from such real estate to be eroded onto the public way.

(Code 1963, § 121.050; Ord. No. 3140, § 1, 10-21-80)

Sec. 9-17. Orders of city engineer; compliance, enforcement.

No person shall fail to comply with any directions of the city engineer given pursuant to the provisions of this article. Each day that the violator fails to comply with directions of the city engineer shall constitute a separate offense. The city engineer shall have the authority to order the building inspector to revoke the building permit under which any work is being done until such time as compliance occurs. If the violation occurs for more than ten (10) days, the city may, at its option, clean up the eroded material, and the cost of such clean-up shall be levied against the property by a special tax bill.

(Code 1963, § 121.040; Ord. No. 3140, § 1, 10-21-80)

Sec. 9-18. Erosion control plan prerequisite to building permit.

No owner of real estate within the city, and no developer, contractor or builder doing business in the city, shall clear, grade, or remove soil from any real estate within the city prior to obtaining a building permit. No building permit shall be issued by the building inspector until such time as the owner, developer, builder or contractor has provided to the city engineer or his authorized representative a complete plan for erosion control and clean-up in the event that erosion should occur. No building permit may be issued until such plan is approved by the city engineer or his authorized representative.

(Code 1963, § 121.010; Ord. No. 3140, § 1, 10-21-80)

Sec. 9-19. Methods of erosion control.

Owners of real estate and developers, builders and contractors may use the following methods of erosion control, but are not necessarily limited to these methods:

(1) Immediate sod replacement over stripped areas.

(2) Covering the stripped areas with materials such as burlap.

(3) The use of settling basins along lower land elevations.

(4) Restriction of truck and equipment movements during wet soil conditions.

It is not the intent of this section to stipulate any particular means of erosion control or clean-up, but to allow the owner, developer, builder, or contractor to select the best method for any particular project, subject to the approval of the city engineer.
(Code 1963, § 121.020; Ord. No. 3140, § 1, 10-21-80)

Sec. 9-20. Clean-up plan.

The clean-up plan shall include a method of clean-up and a time schedule for the work to be done after the owner, builder, contractor or developer has been advised by the city engineer or his authorized representative that erosion has occurred or that excessive material has been tracked off-site onto the public way.
(Code 1963, § 121.030; Ord. No. 3140, § 1, 10-21-80)

Secs. 9-21—9-50. Reserved.

ARTICLE III. FLOOD DAMAGE PREVENTION*

DIVISION 1. GENERALLY

Sec. 9-51. Definitions.

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

100-year flood. See "base flood."

Accessory structure means the same as "appurtenant structure."

Actuarial rates. See "risk premium rates."

Administrator means the Federal Insurance Administrator.

Agency means the Federal Emergency Management Agency (FEMA).

***Editor's note**—Ord. No. 4291, § 1, adopted July 6, 2004, repealed the former Art. III., §§ 9-51—9-59, 9-71—9-74, 9-86—9-88, and enacted a new Art. III as set out herein. The former Art. III pertained to similar subject matter and derived from Code 1963, §§ 96.015, 96.020, 96.030, 96.040, 96.050, 96.060, 96.110, 96.120, 96.200, 96.300, 96.400, 96.500, 96.600—96.640, 96.700, 96.800, 96.810, 96.900; Ord. No. 3571, § 1, 4-7-87; Ord. No. 3822, § 1, 5-4-93; Ord. No. 3867, § 1, 5-3-94; Ord. No. 4277, § 1, 2-17-04.

Appurtenant structure means a structure that is on the same parcel of property as the principle structure to be insured and the use of which is incidental to the use of the principal structure.

Area of shallow flooding means a designated AO or AH zone on a community's flood insurance rate map (FIRM) with a one (1) percent or greater annual chance of flooding to an average depth of one (1) to three (3) feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

Area of special flood hazard is the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year.

Base flood means the flood having a one (1) percent chance of being equaled or exceeded in any given year.

Basement means any area of the structure having its floor subgrade (below ground level) on all sides.

Building. See "structure".

Chief executive officer or *chief elected official* means the official of the community who is charged with the authority to implement and administer laws, ordinances, and regulations for that community.

Community means any state or area or political subdivision thereof, which has authority to adopt and enforce floodplain management regulations for the areas within its jurisdiction.

Development means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, levees, levee systems, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials.

Elevated building means 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.

Eligible community or *participating community* means a community for which the Administrator has authorized the sale of flood insurance under the National Flood Insurance Program (NFIP).

Existing construction means 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, for FIRMs effective before that date. "Existing construction" may also be referred to as "existing structures."

Existing manufactured home park or subdivision means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities,

the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by a community.

Flood or *flooding* means a general and temporary condition of partial or complete inundation of normally dry land areas from (1) the overflow of inland and/or (2) the unusual and rapid accumulation or runoff of surface waters from any source.

Flood boundary and floodway map (FBFM) means an official map of a community on which the Administrator has delineated both special flood hazard areas and the designated regulatory floodway.

Flood elevation determination means a determination by the administrator of the water surface elevations of the base flood, that is, the flood level that has a one percent or greater chance of occurrence in any given year.

Flood elevation study means an examination, evaluation and determination of flood hazards.

Flood fringe means the area outside the floodway encroachment lines, but still subject to inundation by the regulatory flood.

Flood hazard boundary map (FHBM) means an official map of a community, issued by the Administrator, where the boundaries of the flood areas having special flood hazards have been designated as (unnumbered or numbered) A zones.

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

Flood insurance study (FIS) means an examination, evaluation and determination of flood hazards and, if appropriate, corresponding water surface elevations.

Floodplain or *flood-prone area* means any land area susceptible to being inundated by water from any source (see "flooding").

Floodplain management means 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 regulation means 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 means any combination of structural and nonstructural 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 or *regulatory floodway* means 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.

Floodway encroachment lines means the lines marking the limits of floodways on federal, state and local floodplain maps.

Freeboard means 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 bridge openings and the hydrological effect of urbanization of the watershed.

Functionally dependent use means a use that cannot perform its intended purpose unless it is located or carried out in close proximity to water. This term includes only docking facilities and facilities that are necessary for the loading and unloading of cargo or passengers, but does not include long-term storage or related manufacturing facilities.

Highest adjacent grade means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

Historic structure means any structure that is (a) 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; (b) certified or preliminarily determined by the secretary of 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; (c) individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the secretary of interior; or (d) individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either (1) by an approved state program as determined by the secretary of the interior or (2) directly by the secretary of the interior in states without approved programs.

Lowest floor means 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 floodproofing design requirements of this article.

Manufactured home means a structure, transportable in one (1) or more sections, that is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include a "recreational vehicle."

Manufactured home park or subdivision means a parcel (or contiguous parcels) of land divided into two (2) or more manufactured home lots for rent or sale.

Map means the flood hazard boundary map (FHBM), flood insurance rate map (FIRM), or the flood boundary and floodway map (FBFM) for a community issued by the Federal Emergency Management Agency (FEMA).

Market value or *fair market value* means an estimate of what is a fair, economic, just and equitable value under normal local market conditions.

Mean sea level means, for purposes of the National Flood Insurance Program (NFIP), 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 (FIRM) are referenced.

New construction means, for the purposes of determining insurance rates, structures for which the "start of construction" commenced on or after the effective date of an initial FIRM or after December 31, 1974, whichever is later, and includes any subsequent improvements to such structures. For floodplain management purposes, "new construction" means structures for which the "start of construction" commenced on or after the effective date of the floodplain management regulations adopted by a community and includes any subsequent improvements to such structures.

New manufactured home park or subdivision means 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) means the National Flood Insurance Program (NFIP).

Participating community also known as an "eligible community," means a community in which the administrator has authorized the sale of flood insurance.

Person includes any individual or group of individuals, corporation, partnership, association, or any other entity, including federal, state and local governments and agencies.

Principally above ground means that at least fifty-one (51) percent of the actual cash value of the structure, less land value, is above ground.

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

Remedy a violation means to bring the structure or other development into compliance with federal, state or local floodplain management regulations; or, if this is not possible, to reduce the impacts of its noncompliance.

Risk premium rates means those rates established by the administrator pursuant to individual community studies and investigations which are undertaken to provide flood

insurance in accordance with Section 1307 of the National Flood Disaster Protection Act of 1973 and the accepted actuarial principles. "Risk premium rates" include provisions for operating costs and allowances.

Special flood hazard area. See "area of special flood hazard."

Special hazard area means an area having special flood hazards and shown on an FHBM, FIRM or FBFM as zones (unnumbered or numbered) A, AO, AE, or AH.

Start of construction includes substantial-improvements, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition placement, or other improvements were within one hundred eighty (180) days of the permit date. The actual start means either the first placement or permanent construction of a structure on a site, such as the pouring of slabs or footings, the installation of piles, the construction of columns, 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, the installation of street and/or walkways, excavation for a basement, footings, piers, foundations, the erection of temporary forms, nor installation on the property of accessory structures, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial-improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

State coordinating agency means that agency of the state government, or other office designated by the governor of the state or by state statute at the request of the Administrator to assist in the implementation of the National Flood Insurance Program (NFIP) in that state.

Structure means, for floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home. "Structure" for insurance purposes, means a walled and roofed building, other than a gas or liquid storage tank, that is principally above ground and affixed to a permanent site, as well as a manufactured home on a permanent foundation. For the latter purpose, the term includes a building while in the course of construction, alteration or repair, but does not include building materials or supplies intended for use in such construction, alteration or repair, unless such materials or supplies are within an enclosed building on the premises.

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

Substantial-improvement means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure before "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 that 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 means a grant of relief by the community from the terms of a floodplain management regulation. Flood insurance requirements remain in place for any varied use or structure and cannot be varied by the community.

Violation means the failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required by this article is presumed to be in violation until such time as that documentation is provided.

Water surface elevation means 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 floodplain.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-52. Statutory authorization.

The Legislature of the State of Missouri has in sections 246.271 and 70.837, RSMo delegated the responsibility to local governmental units to adopt floodplain management regulations designed to protect the health, safety, and general welfare. Therefore, the City Council of the City of Hannibal, Missouri ordains as follows.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-53. Findings of fact.

(a) *Flood losses resulting from periodic inundation.* The special flood hazard areas of the City of Hannibal, Missouri are subject to inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base; all of which adversely affect the public health, safety and general welfare.

(b) *General causes of the flood losses.* These flood losses are caused by (1) the cumulative effect of development in any delineated floodplain causing increases in flood heights and velocities; and (2) the occupancy of flood hazard areas by uses vulnerable to floods, hazardous to others, inadequately elevated, or otherwise unprotected from flood damages.

(c) *Methods used to analyze flood hazards.* The flood insurance study (FIS) that is the basis of this article 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 article is

representative of large floods which are characteristic of what can be expected to occur on the particular streams subject to this article. It is in the general order of a flood which could be expected to have a one percent chance of occurrence in any one (1) year as delineated on the Federal Insurance Administrator's FIS, and illustrative materials dated September 1, 1981 as amended, and any future revisions thereto.

(2) Calculation 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.

(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-54. Statement of purpose.

It is the purpose of this article to promote the public health, safety, and general welfare; to minimize those losses described in division 1, section 9-53(a); to establish or maintain the community's eligibility for participation in the National Flood Insurance Program (NFIP) as defined in 44 Code of Federal Regulations (CFR) 59.22(a)(3); and to meet the requirements of 44 CFR 60.3(d) by applying the provisions of this article to:

(1) Restrict or prohibit uses that are dangerous to health, safety, or property in times of flooding or cause undue increases in flood heights or velocities;

(2) Require uses vulnerable to floods, including public facilities that serve such uses, be provided with flood protection at the time of initial construction; and

(3) Protect individuals from buying lands that are unsuited for the intended development purposes due to the flood hazard.

(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-55. Lands to which ordinance applies.

This article shall apply to all lands within the jurisdiction of the City of Hannibal identified as numbered and unnumbered A zones, AE, AO, and AH zones, on the flood insurance rate map (FIRM) and flood boundary and floodway map (FBFM) dated March 1, 1982 as amended, and any future revisions thereto. In all areas covered by this article, no development shall be permitted except through the issuance of a floodplain development permit, granted by the City of Hannibal or its duly designated representative under such safeguards and restrictions as the City of Hannibal or the designated representative may reasonably impose for

the promotion and maintenance of the general welfare, health of the inhabitants of the community, and as specifically noted in division 3.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-56. Floodplain administrator.

The building inspector is hereby designated as the floodplain administrator under this article.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-57. Compliance.

No development located within special flood hazard areas of this community shall be located, extended, converted, or structurally altered without full compliance with the terms of this article and other applicable regulations.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-58. Abrogation and greater restrictions.

It is not intended by this article to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this article imposed greater restrictions, the provisions of this article shall prevail. All other ordinances inconsistent with this article are hereby repealed to the extent of the inconsistency only.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-59. Interpretation.

In their interpretation and application, the provisions of this article shall be held to be minimum requirements, shall be liberally constructed in favor of the governing body, and shall not be deemed a limitation or repeal of any other powers granted by state statutes.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-60. Warning and disclaimer of liability.

The degree of flood protection required by this article is considered reasonable for regulatory purposes and is based on engineering and scientific methods of study. Larger floods may occur on rare occasions or the flood heights may be increased by man-made or natural causes, such as ice jams or bridge openings restricted by debris. This article does not imply that areas outside the floodway and flood fringe or land uses permitted within such areas will be free from flooding or flood damage. This article shall not create a liability on the part of the City of Hannibal, or any officer or employee thereof, for any flood damages that may result from reliance on this article or any administrative decision lawfully made thereunder.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-61. Severability.

If any section, clause, provision, or portion of this article is adjudged unconstitutional or invalid by a court of appropriate jurisdiction, the remainder of this article shall not be affected thereby.

Sec. 9-62. Penalties for violation.

Violation of the provisions of this article or failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with granting of variances) shall constitute a misdemeanor. Any person who violates this article or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more that one thousand dollars ($1,000.00), and in addition, shall pay all costs and expenses involved in the case. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent the City of Hannibal or other appropriate authority from taking such other lawful action as is necessary to prevent or remedy any violation.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-63. Amendments.

The regulations, restrictions, and boundaries set forth in this article 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 of interest and citizens shall have an opportunity to be heard. Notice of the time and place of such hearing shall be published in a newspaper of general circulation in the City of Hannibal. At least twenty (20) days shall elapse between the date of this publication and the public hearing. A copy of such amendments will be provided to the Region VII office of the Federal Emergency Management Agency (FEMA). The regulations of this article are in compliance with the National Flood Insurance Program (NFIP) regulation.
(Ord. No. 4291, § 1, 7-6-04)

Secs. 9-64—9-70. Reserved.

DIVISION 2. ADMINISTRATION

Sec. 9-71. Floodplain development permit (required).

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 division 1, section 9-55. 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.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-72. Designation of floodplain administrator.

The building inspector is hereby appointed to administer and implement the provisions of this article.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-73. Duties and responsibilities of floodplain administrator.

Duties of the building inspector shall include, but not be limited to:

(1) Review of all applications for floodplain development permits to assure that sites are reasonably safe from flooding and that the floodplain development permit requirements of this article have been satisfied.

(2) Review of all applications for floodplain development permits for proposed development to assure that all necessary permits have been obtained from federal, state, or local governmental agencies from which prior approval is required by federal, state, or local law;

(3) Review all subdivision proposals and other proposed new development, including manufactured home parks or subdivisions, to determine whether such proposals will be reasonably safe from flooding;

(4) Issue floodplain development permits for all approved applications;

(5) Notify adjacent communities and the 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 (FEMA);

(6) Assure that maintenance is provided within the altered or relocated portion of any watercourse so that the flood-carrying capacity is not diminished; and

(7) Verify and maintain a record of the actual elevation (in relation to mean sea level) of the lowest floor, including basement, of all new or substantially improved structures;

(8) Verify and maintain a record of the actual elevation (in relation to mean sea level) that the new or substantially improved non-residential structures have been floodproofed;

(9) When floodproofing techniques are utilized for a particular non-residential structure, the building inspector shall require certification from a registered professional engineer or architect.

(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-74. 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 building inspector;

(8) Be accompanied by plans and specifications for proposed construction; and

(9) Be signed by the permittee or his authorized agent who may be required to submit evidence to indicate such authority.

(Ord. No. 4291, § 1, 7-6-04)

Secs. 9-75—9-80. Reserved.

DIVISION 3. PROVISIONS FOR FLOOD HAZARD REDUCTION

Sec. 9-81. General standards.

(a) No permit for floodplain development shall be granted for new construction, substantial-improvements, and other improvements, including the placement of manufactured homes, within any numbered or unnumbered A zones, AE, AO, and AH zones, unless the conditions of this section are satisfied.

(b) All areas identified as unnumbered A zones on the FIRM are subject to inundation of the 100-year flood; however, the base flood elevation is not provided. Development within unnumbered A zones is subject to all provisions of this article. If flood insurance study data is not available, the community shall obtain, review, and reasonably utilize any base flood elevation or floodway data currently available from federal, state, or other sources.

(c) Until a floodway is designated, no new construction, substantial improvements, or other development, including fill, shall be permitted within any numbered A zone or AE zone on the FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

(d) All new construction, subdivision proposals, substantial-improvements, prefabricated structures, placement of manufactured homes, and other developments shall require:

(1) Design or adequate anchorage to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;

(2) Construction with materials resistant to flood damage;

(3) Utilization of methods and practices that minimize flood damages;

(4) All electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of floodings;

(5) New or replacement water supply systems and/or sanitary sewage systems be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters, and on-site waste disposal systems be located so as to avoid impairment or contamination; and

(6) Subdivision proposals and other proposed new development, including manufactured home parks or subdivisions, located within special flood hazard areas are required to assure that:

a. All such proposals are consistent with the need to minimize flood damage;

b. All public utilities and facilities, such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage;

c. Adequate drainage is provided so as to reduce exposure to flood hazards; and

d. All proposals for development, including proposals for manufactured home parks and subdivisions, of five (5) acres or fifty (50) lots, whichever is lesser, include within such proposals base flood elevation data.

(e) Storage, material, and equipment.

(1) The storage or processing of materials within the special flood hazard areas that are in time of flooding buoyant, flammable, explosive, or could be injurious to human, animal, or plant life is prohibited.

(2) Storage of other material or equipment may be allowed if not subject to major damage by floods, if firmly anchored to prevent flotation, or if readily removable from the area within the time available after a flood warning.

(f) Accessory structures. Structures used solely for parking and limited storage purposes, not attached to any other structure on the site, of limited investment value, and not larger that four hundred (400) square feet, may be constructed at-grade and wet-floodproofed provided there is no human habitation or occupancy of the structure; the structure is of single-wall design; a variance has been granted from the standard floodplain management requirements of this article; and a floodplain development permit has been issued.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-82. Specific standards.

In all area identified as numbered and unnumbered A zones, AE, and AH zones, where base flood elevation data have been provided, as set forth in division 3, section 9-81(b), the following provisions are required:

(1) Residential construction. New construction or substantial-improvement of any residential structures, including manufactured homes, shall have the lowest floor, including basement, elevated to or above Two (2) feet above base flood elevation.

(2) Non-residential construction. New construction or substantial-improvement of any commercial, industrial, or other non-residential structures, including manufactured homes, shall have the lowest floor, including basement, elevated to or above two (2) feet above the base flood elevation, or together with attendant utility and sanitary facilities, be floodproofed so that below the base flood elevation 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 floodplain administrator as set forth in division 2, section 9-73(9).

(3) Require, for all new construction and substantial-improvements, that fully enclosed areas below lowest floor used solely for parking of vehicles, building access, or storage in an area other than a basement and 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. A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding shall be provided; and

b. The bottom of all openings shall be no 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 floodwaters.

(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-83. Manufactured homes.

(a) All manufactured homes to be placed within all unnumbered and numbered A zones, AE, and AH zones, on the community's FIRM shall be required to be installed using methods and practices that minimize flood damage. For the purposes of this requirement, manufactured homes must be elevated and anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors.

(b) Require manufactured homes that are placed or substantially improved within unnumbered or numbered A zones, AE, and AH zones, on the community's FIRM on sites:

(1) Outside of a manufactured home park or subdivision;

(2) In a new manufactured home park or subdivision;

(3) In an expansion to an existing manufactured home park or subdivision; or

(4) In an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage as the result of a flood, be elevated on a permanent

foundation such that the lowest floor of the manufactured home is elevated to or above two (2) feet above the base flood elevation and be securely attached to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

(c) Require that manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision within all unnumbered and numbered A zones, AE, and AH zones, on the community's FIRM, that are not subject to the provisions of division 3, section 9-83(b) of this article, be elevated so that either:

(1) The lowest floor of the manufactured home is at or above two (2) feet above the base flood level; or

(2) The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than thirty-six (36) inches in height above grade and be securely attached to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-84. Areas of shallow flooding (AO and AH zones).

Located within the areas of special flood hazard as described in division 1, section 9-55 are areas designated as 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 provisions apply:

(1) *AO zones.*

a. All new construction and substantial-improvements of residential structures, including manufactured homes, shall have the lowest floor, including basement, elevated above the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least two (2) 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 as high as the depth number specified in feet on the community FIRM (at least two (2) 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.

(2) *AH zones.*

a. The specific standards for all areas of special flood hazard where base flood elevation has been provided shall be required as set forth in division 3, section 9-82.

b. Adequate drainage paths shall be required around structures on slopes, in order to guide floodwaters around and away from proposed structures.

(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-85. Floodway.

Located within areas of special flood hazard established in division 1, section 9-55 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters that carry debris and potential projectiles, the following provisions shall apply:

(1) The community shall select and adopt a regulatory floodway based on the principle that the area chosen for the regulatory floodway must be designed to carry the waters of the base flood without increasing the water surface elevation of that flood more that one (1) foot at any point.

(2) The community shall prohibit any encroachments, including fill, new construction, substantial-improvements, and other development within the adopted regulatory floodway unless it has been demonstrated though hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge.

(3) If division 3, section 9-85(2) is satisfied, all new construction and substantial-improvements shall comply with all applicable flood hazard reduction provisions of division 3.

(4) In unnumbered A zones, the community shall obtain, review, and reasonably utilize any base flood elevation or floodway data currently available from federal, state, or other sources as set forth in division 3, section 9-81(b).

(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-86. Recreational vehicles.

Require that recreational vehicles placed on sites within all unnumbered and numbered A zones, AO, AE, and AH zones on the community's FIRM either:

(1) Be on the site for fewer than one hundred eighty (180) consecutive days, or

(2) Be fully licensed and ready for highway use*; or

(3) Meet the permitting, elevation, and the anchoring requirements for manufactured homes of this article.

*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.
(Ord. No. 4291, § 1, 7-6-04)

Secs. 9-87—9-90. Reserved.

DIVISION 4. FLOODPLAIN MANAGEMENT VARIANCE PROCEDURES

Sec. 9-91. Establishment of appeal board.

The board of adjustment as established by City of Hannibal shall hear and decide appeals and requests for variances from the floodplain management requirements of this article.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-92. Responsibility of appeal board.

Where an application for a floodplain development permit or request for a variance from the floodplain management regulations is denied by the building inspector, the applicant may apply for such floodplain development permit or variance directly to the appeal board, as defined in division 4, section 9-91.

The board of adjustment shall hear and decide appeals when it is alleged that there is an error in any requirement, decision, or determination made by the building inspector in the enforcement or administration of this article.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-93. Further appeals.

Any person aggrieved by the decision of the board of adjustment or any taxpayer may appeal such decision to the Hannibal Court of Common Plea as provided in Chapter 89.100 of the Revised Statutes of Missouri, 1949.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-94. Floodplain management variance criteria.

In passing upon such applications for variances, the board of adjustment shall consider all technical data and evaluations, all relevant factors, standards specified in other sections of this article, and the following criteria:

(1) The danger to life and property due to flood damage;

(2) The danger that materials may be swept onto other lands to the injury of others;

(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 flood 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 flood waters, if applicable, expected at the site; and,

(11) The costs of providing government services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems; streets; and bridges.

(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-95. Conditions for approving floodplain management variances.

(a) Generally, variances may be issued for new construction and substantial-improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing items (2) through (6) below have been fully considered. As the lot size increases beyond the one-half (½) acre, the technical justifications required for issuing the variance increase.

(b) Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places, the state inventory of historic places, or local inventory of historic places upon determination provided the proposed activity will not preclude the structure's continued historic designation.

(c) Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

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

(e) 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.

(f) A community shall notify the applicant in writing over the signature of a community official that (1) 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 (2) such construction 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 article.
(Ord. No. 4291, § 1, 7-6-04)

Sec. 9-96. Conditions for approving variances for accessory structures.

Any variance granted for an accessory structure shall be decided individually based on a case-by-case analysis of the building's unique circumstances. Variances granted shall meet the following conditions as well as those criteria and conditions set forth in division 4, sections 9-94 and 9-95 of this article.

In order to minimize flood damages during the 100-year flood and the threat to public health and safety, the following conditions shall be included for any variance issued for accessory structures that are constructed at-grade and wet-floodproofed.

(1) Use of the accessory structures must be solely for parking and limited storage purposes in zone A only as identified on the community's flood insurance rate map (FIRM).

(2) For any new or substantially damaged accessory structures, the exterior and interior building components and elements (i.e., foundation, wall framing, exterior and interior finishes, flooring, etc.) below the base flood elevation, must be built with flood-resistant materials in accordance with division 3, section 9-81(d)(2) of this article.

(3) The accessory structures must be adequately anchored to prevent flotation, collapse, or lateral movement of the structure in accordance with section 9-81(d)(1) of this article. All of the building's structural components must be capable of resisting specific flood-related forces including hydrostatic, buoyancy, and hydrodynamic and debris impact forces.

(4) Any mechanical, electrical, or other utility equipment must be located above the base flood elevation or floodproofed so that they are contained within a watertight, floodproofed enclosure that is capable of resisting damage during flood conditions in accordance with division 3, subsection 9-81(d)(4) of this article.

(5) The accessory structures must meet all National Flood Insurance Program (NFIP) opening requirements. The NFIP requires that enclosure or foundation walls, subject to the 100-year flood, contain openings that will permit the automatic entry and exit of floodwaters in accordance with division 3, section 9-82(3) of this article.

(6) The accessory structures must comply with the floodplain management floodway encroachment provisions of division 3, subsection 9-84(2) of this article. No variances may be issued for accessory structures within any designated floodway, if any increase in flood levels would result during the 100-year flood.

(7) Equipment, machinery, or other contents must be protected from any flood damage.

(8) No disaster relief assistance under any program administered by any federal agency shall be paid for any repair or restoration costs of the accessory structures.

(9) A community shall notify the applicant in writing over the signature of a community official that (1) the issuance of a variance to construct a structure below base flood level will result in increased premium rates for flood insurance up to amount as high as twenty-five dollars ($25.00) for one hundred dollars ($100.00) of insurance coverage and (2) such construction 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 article.

(10) Wet-floodproofing construction techniques must be reviewed and approved by the community and registered professional engineer or architect prior to the issuance of any floodplain development permit for construction.

(Ord. No. 4291, § 1, 7-6-04)

Secs. 9-97—9-99. Reserved.

ARTICLE IV. STORMWATER RUNOFF MANAGEMENT

Sec. 9-100. Purpose.

It is the policy of the city to protect and promote the public health, safety and general welfare. The management of stormwater will reduce the possibility of damage to public and private property, will reduce the erosion on land and creek channels, will assist in the attainment and maintenance of water quality standards, and will preserve and enhance the environmental quality of the watercourses in the city.

Stormwater management must be performed on a watershed basis. A stormwater management plan for each watershed shall be prepared.

(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-101. Administration.

The administration of this article shall be the responsibility of the director of public works/city engineer of the city. In the interpretation and application of this article, the provisions expressed herein shall be held to be the minimum requirements.

(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-102. Definitions.

For the purposes of this article certain terms and words shall be used, interpreted and defined as set forth in this section. Unless the context clearly indicates to the contrary, words used in the present tense include the future tense; words used in the singular shall include the

plural, and vice versa; the words, "these regulations" mean "this ordinance"; and the word "shall" is always mandatory:

Administrative officer means the director of public works/city engineer or his designated representative.

Adverse impact means any modifications, alterations, or effects on a feature or characteristic of surface waters, including their quality, quantity, hydrodynamics, surface area, species composition, living resources, aesthetics or usefulness for human or natural uses which are or may potentially be harmful or injurious to human health, welfare, safety or property, to biological productivity, diversity, or stability, or which unreasonably interfere with the enjoyment of life or property, including outdoor recreation. The term includes secondary and cumulative, as well as direct impacts.

Applicant means the record owner, or his authorized representative, of a tract of land that is the site of development, or development activity within the scope of this article.

Base flood means the flood having a one (1) percent probability of being equaled or exceeded in any given year, i.e. the 100-year flood.

Bond means any form of security for the completion and performance of a stormwater management plan or the maintenance of drainage improvements in an amount and form satisfactory to the governing body.

Detention basin means any manmade area which serves as a means of controlling and temporarily storing stormwater runoff.

Detention storage means the temporary detaining or storage of stormwater in reservoirs, on rooftops, on parking lots and other areas under predetermined conditions.

Development means any change of land use or improvement on any parcel of land.

Differential runoff means the difference between the calculated volume of rate of stormwater runoff discharged from a site after development, and the calculated volume and rate of stormwater runoff discharged from a site prior to development.

Dry bottom basin means a facility designed for the temporary storage of stormwater runoff.

Forebay means a device to trap silt before it enters a detention pond.

Freeboard means the difference in elevation between the top of the detention basin dam and the design surface water elevation.

Greenway means sodded or green area designed to carry stormwater flow.

Maintenance means the act of maintaining or preserving, including, but not limited to, operation, construction and reconstruction.

One hundred-year storm means rainstorms of varying duration and intensity having a one (1) percent probability of being equaled or exceeded in any given year.

Overflow elevation means design elevation of discharge structure at which point, or above which point, water leaks out, or bleeds out, through a control device down to the control elevation.

Peak flow means the maximum rate of flow of water at a given point in a channel watercourse or conduit resulting from a predetermined storm or flood.

Person means an individual, corporation, partnership, and an unincorporated association of persons.

Post development conditions means those conditions which are expected to exist, or do exist, after alteration, resulting from human activity, of the natural topography, vegetation and rate, volume or direction of surface or subsurface flow.

Pre-development conditions means those conditions which existed at the time this article becomes effective in terms of topography, vegetation and rate, volume or direction of surface or subsurface flow, as indicated by the best available historical data.

Primary drainage (water management) systems includes major waterways and appurtenant structures or systems whose total tributary area from origin to outfall exceeds or equals fifty (50) acres.

Professional engineer means an engineer duly registered or otherwise authorized by the State of Missouri to practice engineering.

Rational method means an empirical formula for calculating peak rates of runoff resulting from rainfall.

Receiving bodies of water means any water body or stream into which surface waters flow.

Site means the area to be developed or altered.

Site plan means the plan, usually in map form, prepared pursuant to the governing body's zoning, subdivision, building regulations and codes.

Soil conservation service method means a technique for calculating stormwater runoff volume and peak flow described in Soil Conservation Service (SCS) Technical Release 55.

Stormwater management plan means the drawings, computations, data, reports, etc. that identify how stormwater runoff is to be handled.

Stormwater management system shall include all means, natural or manmade, used for conducting stormwater runoff to, through or from a drainage area to the point of outlet.

Stormwater runoff means water that results from precipitation which is not absorbed by the soil, evaporated into the atmosphere or entrapped by ground surface depressions and vegetation.

Structure means any object constructed above or below ground.

Swale means a low-lying stretch of land either natural or manmade.

Time of concentration means the elapsed time for stormwater to flow from the most distant point in a drainage basin to the outlet or point in question.

Tributary area means all of the area that contributes stormwater runoff to a given point.

Twenty-five-year storm means rainstorms of varying duration and intensities having a four (4) percent probability of being equaled or exceeded in any given year.

Wet bottom basin means a detention basin intended to have a permanent pool.

Watercourse means any natural or artificial stream, river, creek, channel, slough, gulch, ditch, canal, culvert, drain, waterway, gully, ravine, street roadway, reservoir, lake, pond, or natural or manmade drainageway; the swale or wash in which water flows, either continuously or intermittently, and which has a definite channel, bed or banks.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-103. Applicability.

Any person, firm, corporation or business or government entity within the municipality shall submit to the administrative officer for approval, a stormwater management plan before commencing any development or development activity in any existing or proposed plat. Preliminary stormwater management plans shall accompany any preliminary plats.

Written notice of intent to commence development shall be delivered to the administrative officer prior to undertaking any development activity, whether exempt from plan provisions or not. Application for a building permit may constitute notice of intent.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-104. Stormwater management required for all development.

Every development or alteration of land shall provide onsite stormwater management unless the city engineer waives such requirement for the reasons stated below:

(1) Offsite facility, two (2) or more developments. If two (2) or more developments, including that of the applicant, have provided for a common system.

(2) Offsite facility. If an offsite stormwater management system has been either constructed or identified for construction by the city, and the applicant has agreed to contribute to or participate in the construction thereof.

(3) Other management techniques. Management techniques other than detention facilities may be utilized by the developer provided that the techniques proposed meet the intent of this article and provide a benefit to the watershed that equals or exceeds the benefit that a detention facility would provide.

(4) Drainage provisions for the project were previously approved and remain valid as a part of a final plat.

(5) Isolated lots of record for single-family and two-family dwelling purposes unless the development involves changing in any way existing drainage facilities, degrades the

quality of water, adversely affects any wetland or adversely affects any sinkhole, watercourse or waterbody.

(6) Building construction which will not increase the amount of impervious area on the site and will not adversely impact an existing drainage area or drainage on adjoining properties.

(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-105. Preliminary stormwater management plan.

The purpose of the preliminary stormwater management plan is to provide an organized framework for evaluating and acting upon proposals for development as they relate to stormwater management issues.

It is the responsibility of an applicant to include sufficient information in the stormwater management plan to enable evaluation of the environmental quality of the affected area, the potential and predicted impacts of the proposed activity on affected waters and the effectiveness and acceptability of the measures proposed by the applicant for preventing or reducing adverse impacts of stormwater runoff following the rainstorms which exceed the maximum allowable release rate and the capacity of the stormwater drainage system.

The applicant shall furnish the administrative officer with three (3) copies of the preliminary stormwater management plan sealed by a professional engineer registered in the State of Missouri. The plan shall include as a preface the following information:

(1) The name, address, and telephone number of the applicant, and the owner, if different from the applicant.

(2) Name and address of the professional engineer.

(3) The legal description of the property and its acreage.

The plan shall also include maps at a minimum scale of 1″ < 100′ and other descriptive materials including the basis of computation, showing the following:

Required predevelopment site information:

(1) Detailed location sketch showing the parcel and major adjacent roads.

(2) Topographic map of the site with maximum five (5) feet contour intervals, except in floodplains or other areas of low relief where a smaller interval may be required.

(3) Where percolation or exfiltration systems are proposed, information as to the location and type of vegetative cover and soil types and characteristics representative of the design condition.

(4) Location of streams and other floodwater runoff channels, their normal channels and the extent of the floodplains at the established high water elevations, and the limits of the floodway.

(5) Location of lakes, ponds, swamps and detention basins indicating their normal shorelines, floodplains and lines of inflow and outflow.

(6) Location of farm drains, inlets and outfalls, storm sanitary and combined sewers and outfalls, septic tank systems and outlets, if any, and seeps, springs and flowing and other wells.

(7) Location and description of nearby existing offsite water management facilities such as wells, lakes, drainage ways, etc., which are potentially directly affected by the proposed construction or development.

(8) Concepts which will be considered within the site to handle all stormwater runoff, including the methods for detention or control of increased stormwater runoff generated by the development.

(9) A general plan showing the extent and nature of the stormwater system planned to serve the site including preliminary calculations indicating the runoff which must be handled by such systems, the methods and criteria which have been utilized in calculating such runoff, and basic information regarding the receiving watercourse into which such system will discharge.

(10) A general plan indicating the exterior perimeter of the site, the general development proposed for the project, and an indication by means of rough contours showing the terrain after grading of the site.

Following receipt of preliminary stormwater management plan, and information to be included with such plan, the general concepts and planning proposals will be reviewed by the city engineer. The purpose of this review shall be to jointly agree upon an overall stormwater management concept for the proposed development and to review criteria and design parameters which shall apply to final design of the project.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-106. Project classification and fees.

For purposes of evaluation, projects will be classified in three (3) categories according to acreage:

Class	*Review fee*
A. Less than 25 acres	$ 25.00
B. 25 acres to 200 acres	50.00
C. Over 200 acres	100.00

The effective acreage for a project is not limited to a fractional part of the total concept, rather if a project is developed in phases or small plots, the total acreage of the conceptual project will be considered.

The review fee shall be collected at the time the preliminary stormwater management plan is submitted to the administrative officer and will reflect the cost of the review process. These fees may be adjusted from time to time by the city council to reflect actual costs of administration and review.

(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-107. Final stormwater management plan.

Following review and approval of the preliminary plan by the city engineer, a final stormwater management plan shall be prepared for each phrase of the proposed project as each phase is developed. The final plan shall constitute a refinement of the concepts approved in the preliminary stormwater management plan with preparation and submittal of the following additional detailed information, unless specifically excluded during the preliminary concept review:

(1) For all existing drainage facilities which are to be maintained, altered, or enlarged as part of the stormwater management system, provide information as to their size, slopes, depths, outfalls, receiving waters, elevations, cross sections, profiles, construction materials and other design details as applicable.

(2) Location of all new drainage facilities, including detention basins, to be constructed. Provide design details on each facility as applicable.

(3) Location and extent of existing and proposed impervious surfaces (roads, parking lots, buildings, etc.) and their elevations. Provide grading and paving plans and specifications.

(4) Post development location of 100-year flood boundary.

(5) Location and extent of rights-of-way and easements for the stormwater management system, including all areas to be dedicated for water management purposes.

(6) Identification and description of any special or required maintenance procedures to keep the project functioning as designed.

(7) Provide stormwater management system design calculations as follows:

a. Design storms used.
b. Calculated hydrographs of inflow and outflow of design storms runoff for the project site under natural and undeveloped conditions.
c. Hydrographs of the runoff from the design storm for the project site under developed conditions.
d. For all detention basins, a plot or tabulation of storage volumes with corresponding water surface elevations and of the basin outflow rates for those water surface elevations.
e. Acreages and percentage of property proposed as:

1. Impervious surface;
2. Pervious surfaces (green areas);

3. Lakes, canals, detention areas, etc.;
4. Total acreage of project.

f. Runoff routing calculation showing discharge, elevations and volumes retained and/or detained during applicable storm event.

g. Calculation required for determination of minimum building floor and road elevations.

(8) Identify entity responsible for operation and maintenance of the system.

(9) Basic information regarding the receiving watercourse into which the proposed stormwater system will discharge including the watercourse location, general cross section, existing downstream culverts and bridges and other waterway openings within a reasonable distance; any existing detention basins or lakes and other information required to determine, in final form, the effect which the proposed development will have on downstream drainage conditions.

(10) The stormwater management plan for minor development activities may consist of a certification from a professional engineer that the differential runoff equals zero.

Final stormwater management plans shall be reviewed by the city engineer. If it is determined that the proposed development will provide control of stormwater runoff in accordance with the purposes, design criteria and performance standards of these regulations and will not be detrimental to the public health, safety and general welfare. The city engineer shall approve the plan or conditionally approve the plan, setting forth the conditions thereof. If it is determined that the proposed development will not control stormwater runoff in accordance with these regulations the city engineer shall disapprove the final stormwater management plan, and the date shall be returned to the applicant for resubmittal.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-108. General design requirements for stormwater management plans.

(a) A stormwater management system shall be laid out in such a manner as to reduce the velocity of overland flow and allow the maximum opportunity for infiltration of stormwaters into the ground, and to preserve and utilize natural streams, channels and detention basins, and wherever possible, to include streams and floodplains within parks or other public grounds.

(b) The maximum allowable release rate of stormwater after development shall not exceed the before development rate based on a 15-year frequency storm. The total drainage area must be used in calculating the allowable release rate. The required storage volume will be based on the project area only, with extraneous flows from upland areas being bypassed or discharged via overflow spillway or other devices.

(c) The increased stormwater runoff resulting from the proposed development shall be detained onsite by appropriate detention techniques. The minimum volume of storage shall be sufficient to store the volume from a 25-year storm (under developed conditions). Control devices shall limit the discharge from storage to a rate no greater than that prescribed by this article. Downstream property, watercourses channels or conduits shall not receive stormwater

runoff from proposed development at a higher peak flow rate than that which existed prior to the development.

(d) Generally acceptable locations of the stormwater channels in the design of a subdivision may include, but are not limited to, the following:

(1) Adjacent to roadways.

(2) In a depressed median of a double roadway, street or parkway, provided the median is wide enough to permit slopes of one (1) foot drop in six (6) feet horizontal or flatter.

(3) Centered on the rear lot lines in block, or entirely within the rear yards of a single row of lots or parcels.

(e) Systems such as curb and gutter, drop inlets and storm sewers shall discharge through closed conduits into a detention basin or natural drainage way. Suitable methods of erosion control shall be provided at the discharge of such enclosed conduits.

(f) Drainage channels and swales forming the natural drainage system near a watershed divide may be relocated or eliminated and incorporated into the planned system of storm-sewers and open channels.

(g) Flow toward streets. Any concentration of surface flow in excess of 2.0 cubic feet per second (cfs) for the 10-year frequency rain shall be intercepted before reaching the street right-of-way and shall be carried by an enclosed storm drain to connect with a drainage structure at the low point in the street right-of-way or to discharge to a watercourse.

(h) Whenever the plans call for passage and/or storage of stormwater runoff along lot lines, the utility-drainage easement shall be at least twenty (20) feet wide and no structure or vegetation which would obstruct the flow of stormwater shall be allowed, nor shall any change be made to prescribed grades and contours of the specified stormwater channels.

(i) All storm sewer outfalls shall be so designed, by reason of elevation of the invert, or by other features, that when the receiving stream is in full flood, the storm sewers continue to drain the areas they are designed to serve, unless the provision is made for sewer backups into planned storage locations.

(j) Detention facilities shall release stormwater at a nonerosive velocity. Protected channels receiving detention discharge shall incorporate features to reduce velocity to nonerosive levels at the point where such discharge enters the unprotected channel. If release is into a subsurface conduit the energy gradient in the receiving facility shall not be increased beyond the slope of the conduit.

(k) All utility sewer manholes constructed in an area designed for the storage or passage of stormwater, shall be provided with either a watertight manhole cover or be constructed with a rim elevation of a minimum of one (1) foot above the high-water elevation of the design storm.

(l) Projects that are to be developed in phases will require the submission of a master plan of the applicant's contiguous land holdings. Applications for individual project phases may be

considered only when the phases are totally independent of, or make sufficient provisions for, adjacent lands.

(m) Emergency spillway: Emergency overflow facilities must be provided in all instances so that stored waters will not exceed the safe capacity of the basin. At a minimum, the emergency spillway must be able to pass without damage the 100-year storm.

(n) Designs should result in aesthetically pleasing configurations which will enhance public acceptability.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-109. Hydraulic design considerations.

(a) Design storms. Stormwater systems will be designed with sufficient hydraulic capacity as a minimum for the following frequencies and durations.

Type of Facility	*Design frequency*
1. Detention basins	25 years
2. Primary drainage systems	25 years
3. Bridges and culverts	50 years
4. Secondary drainage systems, i.e., crossdrains and ditches for internal subdivision drainage	25 years

(b) The administrative officer may require alternative designs or features to reduce the cost of longterm maintenance.

(c) In critical areas, the administrative officer may require additional hydraulic capacity above the minimums set forth above, up to the 100-year frequency design.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-110. Method of evaluation.

Differential runoff evaluation consists of the determination of required volume of detention and verification of adequacy of discharge and control structures.

(1) Differential runoff rates shall be evaluated by the rational formula. The runoff coefficients from U.S. Weather Bureau Technical Paper No. 40 shall be used.

a. The durations analyzed shall be the following:

1. The duration approximately equivalent to the time of concentration for the site, but as a minimum, twenty (20) minutes.
2. One (1) hour.
3. Twenty-four (24) hours.

(2) Volumes of detention shall be evaluated according to the following methods:

a. Projects of less than twenty-five (25) acres shall be evaluated by the simplified volume formula.

b. Projects of twenty-five (25) acres or greater but less than two hundred (200) acres may be evaluated either by the simplified volume formula or the modified rational hydrograph method.

c. If the site is larger than two hundred (200) acres or if another method is desired to be used, the applicant shall submit a proposed method of evaluation for the calculations to the city engineer for review and approval.

(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-111. Detention basin design.

(a) *Dry-detention facilities:*

(1) Side slopes of the facility shall not be steeper than 3:1 (horizontal to vertical).

(2) Provisions must be incorporated to facilitate complete interior drainage to dry bottom basins.

(3) Multipurpose features may be designed to serve secondary purposes for recreation, open space or other types of use which will not be adversely affected by occasional or intermittent flooding.

(4) In no case shall the limits of maximum ponding elevation be closer than twenty-five (25) feet horizontally from any building and less than two (2) feet vertically below the lowest sill elevation.

(5) The entire reservoir area shall be seeded, fertilized and mulched, sodded or paved.

(6) Small flows through the detention basin should be handled by lined ditches from inflow structure to outflow structure to minimize erosion.

(7) The maximum planned depth of stormwaters stored shall not normally exceed five (5) feet.

(b) *Wet-detention facilities:* In addition to the general design features enumerated above for dry bottom basins, the following features should also be incorporated into the design of any wet bottom basin:

(1) Control elevations should be no higher than two and one-half (2.5) feet below the minimum road centerline elevation in the area served by the control device in order to protect the road subgrade when structures are constructed near roads.

(2) Side slopes shall not be steeper than 3:1 (horizontal to vertical) out to a depth of three (3) feet below the control elevation, then as steep as soils stability will allow.

(3) If fish are to be used to help keep the basin clean, at least one-quarter of an area of the permanent pool must be a minimum depth of ten (10) feet.

(4) For emergency purposes, cleaning or shoreline maintenance facilities shall be provided or plans prepared for the use of auxiliary equipment.

(5) In order to minimize weed growth, the normal pool depth shall be four (4) feet minimum.

(6) The design of any pond may include a low flow bypass channel or pipeline to divert runoff that can be accommodated by downstream drainageways.

(7) In order to minimize the effects of waves or ice, some type of bank stabilization such as riprap or concrete shall be placed along the normal pool shoreline.

(8) In order to minimize siltation of the poind, a forebay shall be included in the design.

(9) Chainlink or woven wire fence shall surround basin at the outer boundary of easement.

(c) *Impervious areas:* Paved parking lots may be designed to provide detention storage of stormwaters on all or a portion of their surfaces. Outlets will be designed so as to slowly empty the stored waters, and depths of storage must be limited to a maximum depth of six (6) inches so as to prevent damage to parked vehicles.

(d) *Rooftop storage:* Detention storage requirements may be met in total or in part by detention on flat roofs. Details of such designs to be included in the stormwater management plan shall include the depth and volume of storage, details of outlet devices and downdrains, elevations of overflow scuppers, design loadings for the roof structure and emergency overflow provisions.

(e) *Underground storage:* All or a portion of the detention storage may also be provided for in underground facilities, as long as all applicable requirements of this article are met. Details of such designs are to include type of facility, depth and volume of storage, details of inlet and outlet devices and locations, emergency overflow provisions, and measures to be used for surface and groundwater pollution control.

(f) *Design alternatives:* The above listing of design criteria is not intended to preclude the use of other known state of the art methods and available best management practices and should not be construed as a mechanism to discourage innovative design concepts.

(g) *Installation of stormwater runoff control measures:* Positive stormwater runoff control shall be provided for during development. Stormwater management plans shall include a schedule for the installation, construction or modification of all drainage facilities. Erosion control measures and a schedule for their installation shall be shown on the stormwater management plan. Installation of drainage facilities and erosion control measures shall proceed as scheduled.

(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-112. Developments adjoining a floodplain.

Where a development adjoins or encompasses a portion of a floodplain for a 100-year flood, the following shall apply:

(1) The applicant shall show the floodplain and floodway on the stormwater management plan.

(2) The applicant shall include in the stormwater management plan all other plans, plats, specifications, etc., required by federal, state, county and/or municipal law or regulations detailing such provisions or restrictions as are necessary to comply with the following:

a. All applicable zoning and subdivision requirements.
b. All applicable building code requirements.
c. All requirements of other federal, state or local agencies exercising jurisdiction over the area.

(3) The applicant shall not alter any channel in such a way that would prohibit any section of the channel from conveying, in its post-development state, the same amount of flow at the same or lower maximum water elevation, that it conveyed in its pre-development state.

(4) The applicant shall furnish, for the administrative officer's review and approval, the following information pertaining to proposed channel modifications:

a. Typical cross sections of the existing and proposed channel.
b. Plan view of the channel showing the location of existing constrictions, obstructions and other nontypical areas.
c. Hydrographs and/or flood routing calculations and backwater curve profiles of the proposed waterway corresponding to a storm recurrence interval of one hundred (100) years.
d. Engineering evaluation of all potential increases in flood hazards to the adjacent upstream or downstream private or public lands and facilities located thereon, showing provisions for eliminating any and all adverse impacts on said land and facilities at no public cost.
e. Minimum finished floor elevations which shall be set at or above the maximum water surface elevation as determined by either or both of the following:

1. "Current Flood Insurance Rate Map" published by the Federal Emergency Management Agency.
2. Backwater curve profiles of the proposed waterway due to a 100-year storm recurrence interval.

f. Designation on the final plan of all areas reserved for flood routing, detention or storage, together with the required wording pertaining to restrictions, dedications and maintenance responsibilities of such areas.
g. 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 regulatory flood at that location unless compensatory storage is also provided.

h. Verification of adequacy. Analysis of all elements of design is to be verified by the engineer of record submitting the plan. For projects less than fifty (50) acres in area there is no need for submittal of routing calculation or tabulated proof of adequacy of tributary runoff for detention; however, it is recommended that verification be made of:

1. Volume of detention for the total project.
2. Tributary (Q) peak runoff to basin.
3. Balanced maximum outflow rate from the low-flow structure.
4. Ratios of inflow to outflow rates.
5. Sizing of the overflow facilities.
6. Stability of detention dikes.
7. Safety features.
8. Maintenance features.

For projects of fifty (50) acres or greater but less than two hundred (200), routing calculation shall be submitted in legible tabulated form. Proof of adequacy of volume of detention and sizing computations for low-flow structure shall also be submitted. Features of stability and safety may also need to be documented if the scope of the project requires special attention in this area of design.

Projects over two hundred (200) acres in area shall provide documented verification of adequacy according to scope and complexity of design.

(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-113. Rights-of-way and easements.

(a) All stormwater management facilities shall be constructed within an easement or right-of-way dedicated for stormwater management use and connected to a public road or other location from which operation and maintenance is legally available. Minimum right-of-way and maintenance easements shall be provided by instrument or plat dedication for all waterways used to convey or detain runoff. The minimum widths of right-of-way and easements shall be as follows:

Facility	*Maintenance access width*
Open drainage channel or facility	15 feet each side from top of bank
Greenways	Width of greenway
Pipes and culverts	20 feet, centered
Detention areas	20 feet continuous around total area
Connecting access	20 feet

(b) Easements must include the top of the bank width and the maintenance access width.

(c) The maintenance access width begins at the point of the bank or slope of the facility.

(d) Additional maintenance access width may be required by the administrative officer in special circumstances.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-114. Maintenance responsibilities for stormwater management facilities.

(a) Detention facilities, when mandatory, are to be built in conjunction with the storm sewer installation and/or grading. Since these facilities are intended to control increased runoff, they must be partially or fully operational soon after the clearing of the vegetation. Silt and debris connected with early construction shall be removed periodically from the detention area and control structure in order to maintain close to full storage capacity.

(b) The responsibility for maintenance of stormwater management facilities in single-lot development projects shall remain with the owner, developer and general contractor until final inspection is performed and approved. After legal occupancy of the project, the maintenance shall be vested with the owner of the project.

The responsibility for maintenance of stormwater management facilities shall remain with the developer until such time as responsibility is transferred, under appropriate legal arrangements, to the private individual owners or such other maintenance entity as may be approved by the city council.

(c) If responsibility is to be transferred to the private individual owners in a subdivision, the developer shall assure perpetual maintenance of all open water courses and detention systems, if any are included, through the adoption of maintenance agreements or covenants for any facilities that remain in private ownership. Such agreements or covenants shall be subject to the approval of the administrative officer.

If the responsibility is to be transferred to the trustees of a subdivision, the developer shall establish a suitable indenture of trust. Upon release of escrows required for the subdivision development, the responsibility for maintenance shall be vested in the trustee of the subdivision by virtue of the trust indenture. The indenture of trust shall clearly indicate resident responsibility for maintenance and shall be subject to the approval of the administrative officer.

(d) The growth of noxious weeds, the creation of conditions which support the growth of mosquitoes and other insects, and the decrease in available storage by accumulated sediments shall be controlled. The cleanup of accumulated debris, flotsam and other materials after runoff events have subsided shall be assured.

(e) All privately owned detention storage facilities will be inspected by representatives of the city not less often than once every three (3) years. A certified report will be submitted covering the physical conditions, required storage capacity and operational conditions of key elements of the facility.

If deficiencies are found by the inspector, the owner of the detention facility will be required to take the necessary measures to eliminate nuisances and correct structural deficiencies. If

the owner fails to do so, the city may undertake the work necessary and recover all expenses from the owner.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-115. Performance bond; escrow.

Upon approval of the final plans for any stormwater management system, but before the issuance of any permits, the city engineer shall require the applicant to post an acceptable form of performance security for the amount of the work to be done pursuant to the approved stormwater management plans. This performance security shall not be fully released by the city engineer until a final inspection has been made and the facility has been found to be in compliance with the approved plans, and provisions have been made to assure perpetual maintenance.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-116. Plan adherence.

The applicant shall be required to adhere strictly to the stormwater management plan as approved. Any changes or amendments to the plan must be approved by the administrative officer in accordance with the procedures set forth in this article for obtaining stormwater management plan approval. Enforcement officials shall be granted inspection rights and right-of-entry privileges in order to ensure compliance with the requirements of this article.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-117. Enforcement.

If it is determined that the project is not being carried out in accordance with an approved stormwater management plan, or is being carried out without approval, the administrative officer is authorized to:

(1) *Written notice.* Issue written notice to the applicant or owner, specifying the nature and location of the alleged noncompliance, with a description of the remedial actions necessary to bring the project into compliance within a reasonable specified time.

(2) *Stop-work order.* Issue a stop-work order directing the applicant or owner to cease and desist all or any portion of the work which violates the provisions of this article, if the remedial work identified in the written notice is not completed within the specified time.

(3) *Revocation of approval.* Should the applicant or owner not bring the project into compliance with the written notice and stop-work order, he shall then be subject to immediate revocation of his stormwater management plan approval and to the penalties described in section 9-118.

(4) *Appeal.* Any notice, order or revocation issued pursuant to this section shall become final unless the person or persons named therein requests, in writing, no later than

ten (10) days after the date such notice, order or revocation is served, a hearing before the city council.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-118. Penalties for violation.

(a) *General.* Violation of the provision of this article or failure to comply with any of its requirements, including conditions and safeguards established in connection with variances or special use permits, shall constitute a misdemeanor. Any person who violates this article or fails to comply with any of its requirements shall upon conviction thereof be fined not more than five hundred dollars ($500.00) or imprisoned for not more than three (3) months, 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) *Corrective actions.* Nothing herein contained shall prevent the city from taking such other lawful action as is necessary to prevent or remedy any violation. All such costs connected therewith shall accrue to the person or persons responsible.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-119. Vested rights.

This article shall not in any way limit or modify the vested rights of any person to complete any development or improvements to lands based upon prior law, where a previous permit or authorization has been granted or applied for and where such previous permit or authorization remains in effect. The city may acknowledge vested rights in other circumstances where it is equitable and just.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-120. Conflict with other ordinances and codes.

In case of conflicts within this article or any part thereof, and the whole or part of any other existing or future ordinance or code of the city, the most restrictive in each case shall apply.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-121. Other permits.

Before starting any work regulated by this article, an applicant shall comply with the requirements set forth in all other applicable ordinances with respect to the submission and approval of preliminary and final subdivision plats, site plans for construction and rezoning improvement plans, and building, grading and zoning permits, along with those set forth in this article and as may be required by state statutes and the regulations of any department of the State of Missouri.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-122. Interpretation.

In the interpretation and application of this article, the provisions expressed herein shall be held to be the minimum requirements and shall be liberally construed in favor of the city and shall not be deemed a limitation or repeal of any other powers granted by state statutes.
(Ord. No. 3775, § 1, 2-4-92)

Sec. 9-123. Savings clauses.

The performance standards and design criteria set forth herein establish minimum requirements which must be implemented with good engineering practice and workmanship. Use of the requirements contained herein shall not constitute a representation, guarantee, or warranty of any kind by the municipality or its officers and employees of the adequacy or safety of any drainage management structure or use of land. Nor shall the approval of a stormwater management plan and the issuance of a permit imply that land uses permitted will be free from damages caused by stormwater runoff. The degree of protection required by these regulations is considered reasonable for regulatory purposes and is based on historical records, engineering and scientific methods of study. Larger storms may occur or stormwater runoff heights may be increased by manmade or natural causes. Enforcement of these provisions, therefore, shall not create liability on the part of the municipality or any officer of the municipality with respect to any legislative or administrative decision lawfully made hereunder, nor shall compliance relieve an owner, developer, and/or permittee from responsibility under any circumstances where liability would otherwise exist.
(Ord. No. 3775, § 1, 2-4-92)

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CITY OF HANNIBAL
BUILDING PERMIT CHECKLIST

CITY OF HANNIBAL, MISSOURI

Building Inspector's Office

320 Broadway . Hannibal, MO 63401

Phone: 573-221-0111 . Fax: 573-221-0646

BUILDING PERMIT CHECKLIST

ANY STRUCTURE(S) OTHER THAN ONE AND TWO FAMILY

Before a permit application is approved to issue, the following will be required:

An engineered storm water management plan with appropriate calculations and a site plan illustrating the storm water management installation, accompanied by a $25.00 review check.

Four sets of sealed engineered plans.

A site plan showing the following:
Contours
Spot elevations
Boundary survey
Easements
Parking requirements
Details of structures, roads etc...
Specifications
Foundation
If applicable, location in floodplain and BFEs.
Location of structure on site, relationship to lot lines.
Proposed size of requested utilities, and description, i.e., 200 Amp Electric, 1" water main, etc.
Proposed electrical panel diagram
Proposed plumbing diagram
Proposed location of utility services at structure.
Footprint of structure, showing dimensions.
Complete floor plan of structure
The road on which the structure is situated including location map.
Location of water and sewer mains, size of water main.
Location of any hydrants, the GPM of those hydrants, and the distance to the lot line.

- **The Fire Department may request a hydrologic study from an engineering firm to ascertain fire flow capability of existing or proposed water mains.**

The engineered plans shall include a cover sheet showing that the current International Code was used in designing the structure. It shall also show the following:

Occupancy classification/use
Construction type
Building area – allowable vs. actual
Building Height
Fire resistance requirements
Fire alarm system
Sprinkler system requirements
Suppression system, if required

Note: The complete plan set must be submitted for review.
No partial permits will be issued.
Plans requiring P.E. seal include:
Site
Structural
Mechanical
Electrical

Note: Plans requiring AIA seal include:
Building shell and interior

Hannibal Small MS4
MO-R040060, Marion County

MISSOURI DEPARTMENT OF NATURAL RESOURCES
STORMWATER ANNUAL REPORT FORM

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH

STORMWATER ANNUAL REPORT – MS4s

(MUNICIPAL SEPARATE STORM SEWER SYSTEMS)

PO BOX 176
JEFFERSON CITY, MO 65102

MAKE ENOUGH COPIES OF FORM FOR EACH REPORTING YEAR. Or go to http://www.dnr.mo.gov/oac/forms/index.html

****Each section MUST be completed. Please print or type.****

A. PERMITTEE INFORMATION

PERMITTEE (AGENCY NAME)	CHECK BOX IF THIS IS A NEW NAME ☐
MAILING ADDRESS	CHECK BOX IF THIS IS A NEW ADDRESS ☐
CITY, STATE AND ZIP CODE	CHECK BOX IF THIS IS A NEW CITY, STATE, ZIP ☐
FACILITY PHONE NUMBER	CHECK BOX IF THIS IS A NEW NUMBER ☐
PERMIT CERTIFICATION NO. MO-R	

HAVE ANY AREAS BEEN ADDED TO OR LOST FROM THE MS4 DUE TO ANNEXATION OR OTHER LEGAL MEANS?

☐ YES ☐ NO IF YES, INCLUDE UPDATED MAP

B. REPORTING PERIOD

(CHECK ONE) REPORT IS DUE BY APRIL 10 OF THE FOLLOWING YEAR

☐ Mar. 10, 2003 to Dec. 31, 2003 **-or-**
☐ Jan. 1, 2004 to Dec. 31, 2004
☐ Jan. 1, 2005 to Dec. 31, 2005
☐ Jan. 1, 2006 to Dec. 31, 2006
☐ Jan. 1, 2007 to Dec. 31, 2007

C. PROGRAM AREAS (ATTACHMENT)

As an attachment to this form, address each of the following items for **each** of the six program areas (public education, public participation/involvement, illicit discharge detection and elimination, construction, post-construction, and good housekeeping for municipal operations.) The status of each program area must be addressed, even if the program area was completed and fully implemented in a previous reporting year.

If another entity does not have its own permit but is instead covered under your permit, the Annual Report information under Section C of this form must also be provided for each such entity.

(Depending on the size of the municipality and the complexity of the programs, the attachments for this section will likely comprise one to five pages per program area.)

1. Implementation status.
   a. General summary
   b. Program elements changed or refined since previous report or permit application.
      Include a summary of any changes made in accordance with Section 4.4 of the permit that have already been submitted to the department, and any additions made in accordance with Section 4.4 of the permit.
   c. Status of Measurable Goals
      Provide:
      i. The completion date for any measurable goals completed during the reporting period.
      ii. An explanation for any measurable goals scheduled for completion during the reporting period that were not completed. (Any modified goals/deadline should be listed in Item 5, below.)

2. Overall compliance with permit conditions.
   a. Assessment of the appropriateness of the identified Best Management Practices (BMPs).
      Factors to consider in determining appropriateness include, but are not limited to, effectiveness for local population, pollution sources, receiving water concerns, and integration with local management procedures.

NOTE - FORM MAY BE REPRODUCED.

b. Progress towards achieving the statutory goal of reducing the discharge of pollutants to the Maximum Extent Practicable (MEP).
Include a general discussion on your assessment of the overall program effectiveness at protecting water quality.

3. Results of information collected and analyzed, if any, during the reporting period, including any monitoring data used to assess the success of the program at reducing the discharge of pollutants to the MEP.
Discharge monitoring is not a requirement under the permit. However, if you did collect any monitoring data for stormwater discharges within your jurisdiction, or if any program element included data collection of some sort, you submit a short summary of the information and any analysis completed. Examples of data sources include survey/polling results, miles of riverbank cleaned up, number of hits on a Web site before and after a public education campaign, etc. (Data recorded under Item 1.c, Measurable Goals, does not need to be repeated here.)

4. Brief summary of stormwater activities you plan to undertake during the next reporting cycle (including an implementation schedule).
Provide a short summary based on your existing Missouri State Operating Permit Stormwater Management Program implementation schedule. If any changes are planned from the original descriptions provided in the application or previous reports, they should be summarized in Item 5.

5. Proposed changes to the program area.
   a. Changes to BMPs
   b. Changes to Measurable Goals
   Provide a summary of proposed changes or additions to information previously submitted in reports or the permit application. Significant changes that involve replacing or deleting an ineffective or unfeasible BMP may require program review as outlined in Section 4.4 of the permit.

6. Statement, if not included in previous reports or application, that you are relying on another government entity to satisfy some of your permit obligations (if applicable).
Another entity may be relied on to perform requirements of your MS4 permit. However, as the permittee, you remain liable for compliance with the terms of the permit if the requirements are not fulfilled. You must complete this annual report for the geographic areas covered under your permit, for ALL program areas, even if one or more program elements is being performed by another entity. (However, if YOU are performing a program element for ANOTHER permittee, you do not need to include that activity in this report.)

7. A summary of the number and nature of inspections and formal enforcement actions performed.
Site-specific information may also be included, but is not required. (Information recorded under Item 1.c Measurable Goals, does not need to be repeated here.)

D. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

SIGNATURE OF PERMITTEE (LEGALLY RESPONSIBLE PERSON)	DATE SIGNED
NAME (PRINTED)	TITLE

NOTE - FORM MAY BE REPRODUCED.

ATTACHMENT FORMS FOR THE STORMWATER ANNUAL REPORT FORM

MINIMUM CONTROL MEASURE #1
PUBLIC EDUCATION AND OUTREACH

1. IMPLEMENTATION STATUS

Summary

Program Elements Changed or Refined

Status of Measurable Goals

Task	Measurable Goal	Was goal met?			If not met briefly explain reasons, current status, plan and new date for meeting goal
		Yes	No	On-Track	

2. OVERALL COMPLIANCE WITH PERMIT CONDITIONS

Assessment of the Appropriateness of the Identified BMPs

Progress Towards Achieving the Statutory Goal of Reducing the Discharge of Pollutants to the Maximum Extent Possible (MEP)

MINIMUM CONTROL MEASURE #1
PUBLIC EDUCATION AND OUTREACH

3. RESULTS OF INFORMATION COLLECTED AND ANALYZED, IF ANY, DURING THE REPORTING PERIOD

4. BRIEF SUMMARY OF STORMWATER PLANNED STORMWATER ACTIVITIES FOR THE NEXT REPORTING PERIOD

5. PROPOSED CHANGES TO THE PROGRAM AREA
Changes to BMPs
Changes to Measurable Goals
Summary of proposed changes or additions to information previously submitted in reports or the permit application

6. STATEMENT, IF NOT INCLUDED IN PREVIOUS REPORTS OR APPLICATION, THAT YOU ARE RELYING ON ANOTHER GOVERNMENT ENTITY TO SATISFY SOME OF YOUR PERMIT OBLIGATIONS (IF APPLICABLE)

7. SUMMARY OF THE NUMBER AND NATURE OF INSPECTIONS AND ENFORCEMENT ACTIONS PERFORMED

MINIMUM CONTROL MEASURE #2
PUBLIC INVOLVEMENT/PARTICIPATION

1. IMPLEMENTATION STATUS

Summary

Program Elements Changed or Refined

Status of Measurable Goals

Task	Measurable Goal	Was goal met?			If not met briefly explain reasons, current status, plan and new date for meeting goal
		Yes	No	On-Track	

2. OVERALL COMPLIANCE WITH PERMIT CONDITIONS

Assessment of the Appropriateness of the Identified BMPs

Progress Towards Achieving the Statutory Goal of Reducing the Discharge of Pollutants to the Maximum Extent Possible (MEP)

MINIMUM CONTROL MEASURE #2
PUBLIC INVOLVEMENT/PARTICIPATION

3. RESULTS OF INFORMATION COLLECTED AND ANALYZED, IF ANY, DURING THE REPORTING PERIOD

4. BRIEF SUMMARY OF STORMWATER PLANNED STORMWATER ACTIVITIES FOR THE NEXT REPORTING PERIOD

5. PROPOSED CHANGES TO THE PROGRAM AREA
Changes to BMPs
Changes to Measurable Goals
Summary of proposed changes or additions to information previously submitted in reports or the permit application

6. STATEMENT, IF NOT INCLUDED IN PREVIOUS REPORTS OR APPLICATION, THAT YOU ARE RELYING ON ANOTHER GOVERNMENT ENTITY TO SATISFY SOME OF YOUR PERMIT OBLIGATIONS (IF APPLICABLE)

7. SUMMARY OF THE NUMBER AND NATURE OF INSPECTIONS AND ENFORCEMENT ACTIONS PERFORMED

MINIMUM CONTROL MEASURE #3
ILLICIT DISCHARGE DETECTION AND ELIMINATION

1. IMPLEMENTATION STATUS

Summary

Program Elements Changed or Refined

Status of Measurable Goals

Task	Measurable Goal	Was goal met?			If not met briefly explain reasons, current status, plan and new date for meeting goal
		Yes	No	On-Track	

2. OVERALL COMPLIANCE WITH PERMIT CONDITIONS

Assessment of the Appropriateness of the Identified BMPs

Progress Towards Achieving the Statutory Goal of Reducing the Discharge of Pollutants to the Maximum Extent Possible (MEP)

MINIMUM CONTROL MEASURE #3
ILLICIT DISCHARGE DETECTION AND ELIMINATION

3. RESULTS OF INFORMATION COLLECTED AND ANALYZED, IF ANY, DURING THE REPORTING PERIOD

4. BRIEF SUMMARY OF STORMWATER PLANNED STORMWATER ACTIVITIES FOR THE NEXT REPORTING PERIOD

5. PROPOSED CHANGES TO THE PROGRAM AREA
Changes to BMPs
Changes to Measurable Goals
Summary of proposed changes or additions to information previously submitted in reports or the permit application

6. STATEMENT, IF NOT INCLUDED IN PREVIOUS REPORTS OR APPLICATION, THAT YOU ARE RELYING ON ANOTHER GOVERNMENT ENTITY TO SATISFY SOME OF YOUR PERMIT OBLIGATIONS (IF APPLICABLE)

7. SUMMARY OF THE NUMBER AND NATURE OF INSPECTIONS AND ENFORCEMENT ACTIONS PERFORMED

MINIMUM CONTROL MEASURE #4
CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

1. IMPLEMENTATION STATUS

Summary

Program Elements Changed or Refined

Status of Measurable Goals

Task	Measurable Goal	Was goal met?			If not met briefly explain reasons, current status, plan and new date for meeting goal
		Yes	No	On-Track	

2. OVERALL COMPLIANCE WITH PERMIT CONDITIONS

Assessment of the Appropriateness of the Identified BMPs

Progress Towards Achieving the Statutory Goal of Reducing the Discharge of Pollutants to the Maximum Extent Possible (MEP)

MINIMUM CONTROL MEASURE #4
CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

3. RESULTS OF INFORMATION COLLECTED AND ANALYZED, IF ANY, DURING THE REPORTING PERIOD

4. BRIEF SUMMARY OF STORMWATER PLANNED STORMWATER ACTIVITIES FOR THE NEXT REPORTING PERIOD

5. PROPOSED CHANGES TO THE PROGRAM AREA
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Summary of proposed changes or additions to information previously submitted in reports or the permit application

6. STATEMENT, IF NOT INCLUDED IN PREVIOUS REPORTS OR APPLICATION, THAT YOU ARE RELYING ON ANOTHER GOVERNMENT ENTITY TO SATISFY SOME OF YOUR PERMIT OBLIGATIONS (IF APPLICABLE)

7. SUMMARY OF THE NUMBER AND NATURE OF INSPECTIONS AND ENFORCEMENT ACTIONS PERFORMED

MINIMUM CONTROL MEASURE #5
POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

1. IMPLEMENTATION STATUS

Summary

Program Elements Changed or Refined

Status of Measurable Goals

Task	Measurable Goal	Was goal met?			If not met briefly explain reasons, current status, plan and new date for meeting goal
		Yes	No	On-Track	

2. OVERALL COMPLIANCE WITH PERMIT CONDITIONS

Assessment of the Appropriateness of the Identified BMPs

Progress Towards Achieving the Statutory Goal of Reducing the Discharge of Pollutants to the Maximum Extent Possible (MEP)

MINIMUM CONTROL MEASURE #5
POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

3. RESULTS OF INFORMATION COLLECTED AND ANALYZED, IF ANY, DURING THE REPORTING PERIOD
4. BRIEF SUMMARY OF STORMWATER PLANNED STORMWATER ACTIVITIES FOR THE NEXT REPORTING PERIOD
5. PROPOSED CHANGES TO THE PROGRAM AREA
Changes to BMPs
Changes to Measurable Goals
Summary of proposed changes or additions to information previously submitted in reports or the permit application
6. STATEMENT, IF NOT INCLUDED IN PREVIOUS REPORTS OR APPLICATION, THAT YOU ARE RELYING ON ANOTHER GOVERNMENT ENTITY TO SATISFY SOME OF YOUR PERMIT OBLIGATIONS (IF APPLICABLE)
7. SUMMARY OF THE NUMBER AND NATURE OF INSPECTIONS AND ENFORCEMENT ACTIONS PERFORMED

MINIMUM CONTROL MEASURE #6
POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

1. IMPLEMENTATION STATUS

Summary

Program Elements Changed or Refined

Status of Measurable Goals

Task	Measurable Goal	Was goal met?			If not met briefly explain reasons, current status, plan and new date for meeting goal
		Yes	No	On-Track	

2. OVERALL COMPLIANCE WITH PERMIT CONDITIONS

Assessment of the Appropriateness of the Identified BMPs

Progress Towards Achieving the Statutory Goal of Reducing the Discharge of Pollutants to the Maximum Extent Possible (MEP)

MINIMUM CONTROL MEASURE #6
POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

3. RESULTS OF INFORMATION COLLECTED AND ANALYZED, IF ANY, DURING THE REPORTING PERIOD

4. BRIEF SUMMARY OF STORMWATER PLANNED STORMWATER ACTIVITIES FOR THE NEXT REPORTING PERIOD

5. PROPOSED CHANGES TO THE PROGRAM AREA
Changes to BMPs
Changes to Measurable Goals
Summary of proposed changes or additions to information previously submitted in reports or the permit application

6. STATEMENT, IF NOT INCLUDED IN PREVIOUS REPORTS OR APPLICATION, THAT YOU ARE RELYING ON ANOTHER GOVERNMENT ENTITY TO SATISFY SOME OF YOUR PERMIT OBLIGATIONS (IF APPLICABLE)

7. SUMMARY OF THE NUMBER AND NATURE OF INSPECTIONS AND ENFORCEMENT ACTIONS PERFORMED