IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

UNITED STATES OF AMERICA and THE STATE OF ILLINOIS, Plaintiffs, v. CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250 CONSENT DECREE

TABLE OF CONTENTS

Plaintiffs United States of America, on behalf of the United States Environmental Protection Agency ("EPA"), and the State of Illinois ("State"), on behalf of the Illinois Environmental Protection Agency ("Illinois EPA"), have filed a complaint in this action concurrently with the lodging of this Consent Decree alleging that Defendant the City of Rockford, Illinois ("Rockford"), violated Section 301(a) of the Clean Water Act ("Act"), 33 U.S.C. § 1311(a), and Section 12(f) of the Illinois Environmental Protection Act, 415 ILCS 5/12(f) (2014).

The Complaint alleges that Rockford failed to operate its municipal separate storm sewer system ("MS4") in accordance with the requirements of its National Pollutant Discharge Elimination System ("NPDES") permit.

Rockford neither admits nor denies any liability to the United States or the State of Illinois arising out of the transactions or occurrences alleged in the Complaint.

The Parties recognize, and the Court by entering this Consent Decree finds, that this Decree has been negotiated by the Parties in good faith and will avoid litigation between the Parties, and that this Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, before the taking of any testimony, without the adjudication or admission of any issue of fact or law except as provided in Section I, and with the consent of the Parties, IT IS HEREBY ADJUDGED, ORDERED, AND DECREED as follows:

I. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of this action, pursuant to 28 U.S.C. §§ 1331, 1345, and 1355, and Section 309(b) of the Act, 33 U.S.C. § 1319(b), and over the Parties. Venue lies in this District pursuant to Section 309(b) of the Act, 33 U.S.C.

§ 1391(b), and 28 U.S.C. §§ 1391(b) and (c) and 1395(a), because the violations alleged in the Complaint are alleged to have occurred in, and the City of Rockford is located in, this judicial district. For purposes of this Consent Decree, or any action to enforce this Decree, Rockford consents to the Court's jurisdiction over this Decree and any such action, and over Rockford, and consents to venue in this judicial district.

2. For purposes of this Consent Decree, Rockford agrees that the Complaint states claims upon which relief may be granted pursuant to Section 309(b) of the Act.

II. APPLICABILITY

3. The obligations of this Consent Decree apply to and are binding upon the United States, the State, and Rockford, and upon any successors, assigns, or other entities or persons otherwise bound by law.

4. No transfer of ownership or operation of the Rockford Municipal Separate Storm Sewer System, or any part thereof, whether in compliance with the procedures of this Paragraph or otherwise, shall relieve Rockford of its obligation to ensure that the terms of the Consent Decree are implemented and maintained. At least 30 days prior to such transfer, Rockford shall provide a copy of this Decree to the proposed transferee and shall simultaneously provide written notice of the prospective transfer, together with a copy of the proposed written agreement, to EPA Region 5, the United States Department of Justice, the Illinois Attorney General's Office, and the Illinois Environmental Protection Agency in accordance with Section XIV of this Decree (Notices). Any attempt to transfer ownership or operation of any part or all of the Rockford MS4 without complying with this Paragraph constitutes a violation of this Decree.

5. Rockford shall provide a copy of this Consent Decree to all officers, employees,

and agents whose duties might reasonably include compliance with any provision of this Decree, as well as to any contractor retained to perform work required under this Decree. Rockford shall condition any such contract entered into after the Effective Date of this Consent Decree upon performance of the work in conformity with the terms of this Decree.

6. In any action to enforce this Consent Decree, Rockford shall not raise as a defense the failure by any of its officers, directors, employees, agents, or contractors to take any actions necessary to comply with the provisions of this Decree, subject, however, to Rockford's ability to seek relief pursuant to the Force Majeure provisions of Section IX of this Decree.

III. OBJECTIVES

7. All actions taken pursuant to this Consent Decree, and any attachment thereto, shall have the objective of causing Rockford to achieve and maintain full compliance with the Act, applicable state law, and the terms and conditions of Rockford's MS4 Permit.

IV. DEFINITIONS

8. Terms used in this Consent Decree that are defined in the Act or in regulations promulgated pursuant to the Act, including the stormwater regulations at 40 C.F.R. § 122.26, shall have the meanings assigned to them in the Act or such regulations, unless otherwise provided in this Decree. Whenever the terms set forth below are used in this Decree, the following definitions shall apply:

a. "Complaint" shall mean the complaint filed by the United States and the State of Illinois in this action;

b. "Consent Decree" or "Decree" shall mean this Consent Decree and all appendices attached hereto listed in Section XXIII;

c. "Date of Lodging" shall mean the date that this Consent Decree is lodged with the Clerk of the Court for the United States District Court for the Northern District of Illinois;

d. "Day" shall mean a calendar day unless expressly stated to be a business day. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business of the next business day;

e. "Defendant" shall mean the City of Rockford ("Rockford" or the "City");

f. "EPA" shall mean the United States Environmental Protection Agency and any of its successor departments or agencies;

g. "Effective Date" shall have the definition provided in Section XV;

h. "Illinois EPA" shall mean the Illinois Environmental Protection Agency and any of its successor departments or agencies;

i. "Municipal Separate Storm Sewer System" ("System" or "MS4") means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) owned or operated by a city or other legal entity such as Rockford that discharges into waters of the United States; (ii) designed or used for collecting or conveying stormwater; (iii) which is not a combined sewer; and (iv) which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 C.F.R. §122.2;

j. "MS4 Permit" shall mean NPDES permit no. ILS000001, issued by the Illinois EPA on April 30, 1996, effective May 1, 1996, and renewed effective December 1, 2004,

and all future modifications, amendments, renewals, or reissuances of this permit. Where this Consent Decree references a specific part, section, or sub-section of the MS4 Permit, it is referring to the 2004 Permit but also includes the relevant substantive successor provisions in any reissued MS4 Permit.

k. "Paragraph" shall mean a portion of this Consent Decree identified by an Arabic numeral;

l. "Parties" shall mean the United States, the State of Illinois, and Defendant;

m. "Rockford's MS4" shall mean the entire Municipal Separate Storm Sewer System owned and operated by Defendant City of Rockford, Illinois;

n. "Section" shall mean a portion of this Consent Decree identified by a roman numeral;

o. "State" shall mean the State of Illinois, including the Illinois Attorney General and the Illinois EPA ;

p. Rockford's "Stormwater Management Program" or "SWMP" shall mean the management program, as described in Rockford's Stormwater Management Plan dated August 2015 and attached as Appendix A, that covers the duration of the MS4 Permit;

q. "United States" shall mean the United States of America, acting on behalf of EPA.

V. COMPLIANCE REQUIREMENTS

MS4 Permit Compliance

9. Permit Compliance. Rockford shall comply with all terms and conditions of its MS4 Permit.

MS4 Performance Requirements

10. Pursuant to Rockford's MS4 Permit, Rockford must have a Stormwater Management Plan. Rockford's SWMP dated August 2015 is attached as Appendix A of this Consent Decree.

11. Beginning no later than the Effective Date of this Consent Decree, Rockford shall fulfill the terms of the program elements described in documents contained in Appendices A through N of this Consent Decree exclusive of Appendix D. Beginning no later than the later of January 1, 2016 or the Effective Date of this Consent Decree, Rockford shall fulfill the terms of Appendix D of this Consent Decree.

12. Rockford shall fulfill the terms of Appendix B, *Standard Operating Procedures for Detention Basins*, of this Consent Decree, in accordance with Part II A.2. of the MS4 Permit or its substantive successor provision in any reissued MS4 Permit.

13. Rockford shall fulfill the terms of Appendix C, *Standard Operating Procedures for Street Sweeping*, of this Consent Decree, in accordance with Part II.A.4. of the MS4 Permit or its substantive successor provision in any reissued MS4 Permit.

14. Subject to the terms of Paragraph 11, Rockford shall fulfill the terms of Appendix D, *Right-of-Way & Drainageway Inspection & Maintenance Standard Operating Procedures*, of

this Consent Decree, in accordance with Part II.A.2. of the MS4 Permit or its substantive successor provision in any reissued MS4 Permit.

15. Rockford shall fulfill the terms of Appendix E, *Standard Operating Procedures for City of Rockford Pesticide, Herbicide, and Fertilizer Applications*, of this Consent Decree, in accordance with Part II.A.6. of the MS4 Permit or its substantive successor provision in any reissued MS4 Permit.

16. Rockford shall fulfill the terms of Appendix F, *Erosion and Sediment Control Plan Review and Regulatory Inspections*, of this Consent Decree, in accordance with Part II A.3.a. of the MS4 Permit or its substantive successor provision in any reissued MS4 Permit.

17. Rockford shall fulfill the terms of Appendix G, *Erosion and Sediment Control Guidance Manual for City of Rockford Projects*, of this Consent Decree, in accordance with Part II A.3.a of the MS4 Permit or its substantive successor provision in any reissued MS4 Permit.

18. Rockford shall fulfill the terms of Appendix B, *Standard Operating Procedures for Detention Basins*, and Appendix F, Erosion and Sediment Control Plan Review and Regulatory Inspections, of this Consent Decree, in accordance with Part II A.3.b. of the MS4 Permit or its substantive successor provision in any reissued MS4 Permit.

19. Rockford shall fulfill the terms of Appendix H, *Industrial High Risk Runoff Facility Inspection Program Standard Operating Procedures*, of this Consent Decree, in accordance with Part II A.9 of the Permit or its substantive successor provision in any reissued MS4 Permit.

20. Rockford shall fulfill the terms of Appendix I, *Illicit Discharge Detection and Elimination Program Standard Operating Procedures*, of this Consent Decree, in accordance

with Parts II A.7 and V.B. of the MS4 Permit or their substantive successor provisions in any reissued MS4 Permit.

21. Rockford shall fulfill the terms of Appendix J, *Monitoring and Sampling Program Standard Operating Procedures*, of this Consent Decree, in accordance with Part V.A. of the MS4 Permit or its substantive successor provision in any reissued MS4 Permit.

22. Rockford shall fulfill the terms of Appendix K, *Stormwater and Environmental Education Standard Operating Procedure*, of this Consent Decree, in accordance with Part II.A of the MS4 Permit or its substantive successor provision in any reissued MS4 Permit.

23. Rockford shall enforce compliance with the provisions of its SWMP consistent with Appendix L, *Enforcement Response Plan*, of this Consent Decree, in accordance with Part II.A of the MS4 Permit or its substantive successor provision in any reissued MS4 Permit.

Funding

24. Beginning no later than the later of January 1, 2016 or the Effective Date of this Consent Decree, funding shall be in an amount sufficient to implement all measures in the SWMP and to comply with the MS4 Permit. In order to ensure that adequate funds are budgeted as required by this Paragraph, Rockford may seek local funding authority or legislation from the General Assembly enabling it to impose a storm water management fee. Nothing herein shall preclude Rockford from using the storm water management fee for the management of storm water generally, including funding flood control projects, so long as adequate funding is maintained to implement all measures in the SWMP, comply with the MS4 Permit, and comply with all the requirements of this Decree.

Legal Authority

25. As of the Date of Lodging of the Consent Decree, Rockford has enacted revisions to its local ordinances that are acceptable to EPA and Illinois EPA.

Permits

26. Where any compliance obligation under this Section requires Rockford to obtain a federal, state, or local permit or approval, Rockford shall submit timely and complete applications and take all other actions necessary under law to obtain all such permits or approvals. Rockford may seek relief under the provisions of Section IX of this Consent Decree (Force Majeure) for any delay in the performance of any such obligation resulting from a failure to obtain, or a delay in obtaining, any permit or approval required to fulfill such obligation, if Rockford has submitted timely and complete applications and has taken all other actions necessary to obtain all such permits or approvals.

VI. CIVIL PENALTY

27. Within 30 Days after the Effective Date of this Consent Decree, Rockford shall pay the total sum of $329,395.00 as a civil penalty, $164,697.50 to the United States, and $164,697.50 to the State of Illinois, together with interest accruing from the date on which the Decree is lodged with the Court, at the rate specified in 28 U.S.C. § 1961, as of the Date of Lodging.

28. Defendant shall pay the civil penalty due to the United States at https://www.pay.gov or by FedWire Electronic Funds Transfer ("EFT") to the U.S. Department of Justice account, in accordance with instructions provided to Defendant by the Financial Litigation Unit ("FLU") of the United States Attorney's Office for the Northern District of

Illinois after the Effective Date. The payment instructions provided by the FLU will include a Consolidated Debt Collection System ("CDCS") number, which Defendant shall use to identify all payments required to be made in accordance with this Consent Decree. The FLU will provide the payment instructions to:

Jeff Miller
Finance Department
City of Rockford
425 East State Street
Rockford, IL 61104
779-348-7457
Jeff.Miller@rockfordil.gov

on behalf of Defendant. Defendant may change the individual to receive payment instructions on its behalf by providing written notice of such change to the United States and EPA in accordance with Section XIV (Notices).

29. At the time of payment, Defendant shall send notice that payment has been made: (i) to EPA via email at cinwd_acctsreceivable@epa.gov or via regular mail at EPA Cincinnati Finance Office, 26 W. Martin Luther King Drive, Cincinnati, Ohio 45268; (ii) to the United States via email or regular mail in accordance with Section XIV; and (iii) to EPA in accordance with Section XIV. Such notice shall state that the payment is for the civil penalty owed pursuant to the Consent Decree in *United States of America and the State of Illinois v. City of Rockford, Illinois* and shall reference the civil action number, CDCS Number and DOJ case number 90-5-1-1-09632.

30. Rockford shall pay the civil penalty due to the State by certified check payable to the Illinois EPA for deposit into the Environmental Protection Trust Fund ("EPTF"). Payment shall be sent by first class mail and delivered to:

Illinois Environmental Protection Agency
Fiscal Services
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

The case name and case number shall appear on the face of the check. A copy of the certified check and any transmittal letter shall be sent to:

Jennifer A. Van Wie
Assistant Attorney General
Environmental Bureau
Illinois Attorney General's Office
69 West Washington Street, Suite 1800
Chicago, Illinois 60602

31. If Rockford fails timely to tender payment as required in this Section, interest shall continue to accrue in accordance with the provisions of 31 U.S.C. § 3717 until payment is made.

VII. REPORTING REQUIREMENTS

32. Defendant shall submit the following reports:

a. By April 1 and October 1 of each year after the lodging of this Consent Decree, until termination of this Decree pursuant to Section XVIII, Defendant shall submit to EPA electronically, and by U.S. Mail or courier to both EPA and Illinois EPA, reports for the reporting periods from January 1 through December 31 (the "Annual Report") and January 1 through June 30 (the "Update Report"), respectively. The Annual Report shall conform to the requirements of the Permit and shall include any additional information specified in Appendix M to this Consent Decree; the Update Report shall provide a narrative update of progress for the period covered by that report. Following the submittal of the initial Annual and Update Reports

and as appropriate thereafter, the parties will meet to determine whether to terminate the requirement to submit future Update Reports.

b. If Defendant knows or, in the reasonable exercise of diligence, should have known that it has violated any requirement of this Consent Decree, Defendant shall notify EPA and the State of such violation and its likely duration, in writing, within twenty (20) working Days of the Day Defendant first becomes aware of the violation, with an explanation of the violation's likely cause and of the remedial steps taken, or to be taken, to prevent or minimize such violation. If the cause of a violation cannot be fully explained at the time the report is due, Defendant shall so state in the report. Defendant shall investigate the cause of a violation reported pursuant to this Paragraph and shall then submit an amendment to the report, including a full explanation of the cause of such violation, within forty (40) Days of the Day Defendant becomes aware of the cause of such violation. Such second report shall not be required in any case in which Rockford states in its initial report under this Paragraph that it has identified the cause of the violation reported. Nothing in this Paragraph or the following Paragraph relieves Defendant of its obligation to provide the notice required by Section IX (Force Majeure).

33. Whenever any violation of this Consent Decree or of the MS4 Permit may pose an immediate and substantial threat to the public health or welfare or the environment or any other event affecting Rockford's performance under the Consent Decree in a manner that may pose an immediate and substantial threat to the public health or welfare or the environment occurs, Rockford shall notify EPA and Illinois EPA orally or by electronic or facsimile transmission to the contacts listed in Paragraph 80 as soon as possible, but no later than 24 hours after Rockford

first knew of the violation or event. This procedure is in addition to the requirements set forth in the preceding Paragraph.

34. All reports shall be submitted to the persons designated in Section XIV of this Consent Decree (Notices).

35. Each report submitted by Rockford under this Section shall be signed by an official of the submitting party and include the following 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 a fine and imprisonment for knowing violations.

This certification requirement does not apply to emergency or similar notifications where compliance would be impractical.

36. The reporting requirements of this Consent Decree do not relieve Rockford of any reporting obligations required by the Act or implementing regulations, or by any other federal, state, or local law, regulation, permit, or other requirement.

37. Any information provided pursuant to this Consent Decree may be used by the United States and the State of Illinois in any proceeding to enforce the provisions of this Decree and as otherwise permitted by law.

VIII. STIPULATED PENALTIES

38. Rockford shall be liable for stipulated penalties to the United States and the State of Illinois for violations of this Consent Decree as specified below, unless excused under Section IX (Force Majeure). A violation includes failing to perform any obligation required by the terms of this Decree, including any work plan or schedule approved under this Decree, according to all applicable requirements of this Decree and within the specified time schedules by or approved under this Decree.

39. Late Payment of Civil Penalty

If Rockford fails to pay the civil penalty required to be paid under Section VI of this Consent Decree (Civil Penalty) when due, Rockford shall pay a stipulated penalty of $1,000 per day for each day that the payment is late.

40. Compliance Requirements

The following stipulated penalties shall accrue per violation per day for each violation of the requirements identified in Section V of this Consent Decree:

Consent Decree Violation	**Stipulated Penalty** **(Per day per violation unless otherwise specified)**
Detention Basins – Subject to the terms of Sections 6.1 and 6.2 of Appendix B, Standard Operating Procedures for Detention Basins, of this Consent Decree, as applicable:	
Failure to inspect Public and Priority basins annually as required by Section 6.1 of Appendix B	$600 per missed inspection.

Consent Decree Violation	Stipulated Penalty (Per day per violation unless otherwise specified)
Failure to inspect all known private basins at least once every 2 years as required by Section 6.1 of Appendix B	$150 per missed inspection first through tenth violation; $300 per missed inspection eleventh through twentieth violation; $600 per missed inspection twenty-first violation and subsequent.
Failure to complete inspections of all known basin following rainfall events as required by Section 6.2 of Appendix B	$250 per missed inspection per day beyond 72 hours up to seven days after the rainfall event; $2000 per missed inspection beyond seven days after the rainfall event.
Street Sweeping – Subject to the terms of Section 5.0 of Appendix C, Street Sweeping Standard Operating Procedures, of this Consent Decree:	
Failure to complete street sweeping and parking lot sweeping each year as required by Section 5.0 of Appendix C	$50 per mile missed first 100 miles; $100 per mile missed 101 miles to 200 miles; $200 per mile missed 201 miles and subsequent; $50 per parking lot missed, first ten violations; $100 per parking lot missed, eleventh through twentieth violations; $150 per parking lot missed twentieth violation and subsequent.
Municipal Operations - Subject to the terms of Sections 6 and 10 of Appendix D, Right-of-Way and Drainage Inspection and Maintenance Standard Operating Procedures, of this Consent Decree:	
Failure to inspect all ditches and creeks every other year (during even years) as required by Section 6.1 of Appendix D	$100 per mile for the first 20 miles missed (or $2,000 for the first 20% missed); $200 per mile for 21-100 miles missed (or $20,000 for 21%-50% missed); $300 per mile for 100+ miles missed (or $150,000 for 51-100%).

Consent Decree Violation	Stipulated Penalty (Per day per violation unless otherwise specified)
Failure to inspect City trash racks and remove debris/floatables at least once annually, and prior to and following a rain event as required by Sections 10.1 and 10.2 of Appendix D	$400 per missed inspection/maintenance.
Failure to monitor and remove floatables from two monitoring locations at a frequency necessary to prevent flow obstruction but at a minimum of twice a year, and/or failure to report amount collected as required by Section 10.1 of Appendix D	$400 per missed inspection/maintenance.
Erosion & Sediment Control – Subject to the terms of Section 4.0, 5.3, 6.1 and 6.2 of Appendix F, Erosion and Sediment Control Plan Review and Regulatory Inspections, of this Consent Decree, as applicable:	
Failure to review and approve SWPPPs and Erosion and Sediment Control Plans prior to issuing a Grading and Stormwater Discharge Permit or a Building Permit, as applicable, as required by Section 4.0 of Appendix F	$400 per missed review.
Failure to inspect sites within 2 weeks of start of construction in cases where City is notified by property owner or the City knew or should have known of the start of construction as required by Section 6.1 of Appendix F	$150 per missed inspection first through tenth violation; $300 per missed inspection eleventh through twentieth violation; $600 per missed inspection twenty-first violation and subsequent.
Failure to complete two full inspections of each IEPA permitted project between May 1 and November 30 and required inspection(s) between December 1 and April 30 as required by Section 6.1 of Appendix F	$150 per missed inspection first through tenth violation; $300 per missed inspection eleventh through twentieth violation; $600 per missed inspection twenty-first violation and subsequent.
Failure to conduct monthly inspections in follow-up to an administrative order as required by Section 5.3 of Appendix F	$400 per missed inspection.

Consent Decree Violation	Stipulated Penalty (Per day per violation unless otherwise specified)
Failure to complete a pre-construction inspection on environmentally sensitive areas in cases where City is notified by property owner or the City knew or should have known of the start of construction as required by Section 6.2 of Appendix F	$400 per missed inspection.
Failure to conduct a field inspection in response to a citizen complaint within 3 business days as required by Section 5.3 of Appendix F	$400 for the first through 14th day; $1,000 for the 15th through 30th day; and $1,250 for the 31st day and beyond.
Erosion & Sediment Control for City Projects – Subject to Section 4.2 of Appendix G, Erosion and Sediment Control Guidance Manual for City of Rockford Projects, of this Consent Decree:	
Failure to submit an NOI and SWPPP for City projects prior to commencing construction as required by Section 4.2 (a) or (b), or as directed pursuant to Section 4.2(c) of Appendix G	$400 for the first through 14th day; $1,000 for the 15th through 30th day; and $1,250 for the 31st day and beyond.
Industrial High Risk Runoff – Subject to the terms of Section 4.0 of Appendix H, Industrial High Risk Runoff Facility Inspection Program Standard Operating Procedures, of this Consent Decree:	
Failure to review & update the industrial list annually as required by Section 4.0 of Appendix H	$400 for the first through 14th day; $1,000 for the 15th through 30th day; and $1,250 for the 31st day and beyond.
Failure to conduct a field inspection in response to citizen complaints within 72 hours as required by Section 4.0 of Appendix H	$400 per inspection per day beyond 72 hours for the first through the 14 day; $1,000 for the 15th through 30th day; and $1,250 for the 31st day and beyond.
Illicit Discharge Detection & Elimination – Subject to the terms of Sections 5.2, 5.3 and 5.4 of Appendix I, Illicit Discharge Detection and Elimination Program Standard Operating Procedures, of this Consent Decree, as appropriate:	

Consent Decree Violation	Stipulated Penalty (Per day per violation unless otherwise specified)
Failure to initiate an investigation in response to employee-generated complaints within 3 business days as required by Section 5.2 of Appendix I	$400 per inspection per day beyond 3 business days for the first through the 14th day; $1,000 for the 15th through 30th day; and $1,250 for the 31st day and beyond.
Failure to conduct a field investigation in response to citizen complaints within 3 business days as required by Section 5.3 of Appendix I	$400 per inspection per day beyond 3 business days for the first through the 14th day; $1,000 for the 15th through 30th day; and $1,250 for the 31st day and beyond.
Dry Weather Screening: Failure to inspect all outfalls every even year as required by Section 5.4 of Appendix I	$150 per missed outfall 1st through 14th day; $300 per missed outfall 15th through 30th day; $600 per missed outfall for 31st day and beyond.
Training – Subject to the terms of Section 2 of Appendix K, Stormwater and Environmental Education Standard Operating Procedures, of this Consent Decree:	
Failure to ensure that all staff received training in accordance with the requirements of Section 2 of Appendix K	$400 per missed training per person.
Monitoring and Sampling Program – Subject to the terms of Section 5 of Appendix J, Monitoring and Sampling Program Standard Operating Procedures, of this Consent Decree:	
Failure to conduct tributary monitoring and wet weather outfall monitoring as required by Sections 5.1.2 and 5.2.2 of Appendix J	$400 per missed outfall or sampling location.
Funding, Personnel and Equipment	
Failure to provide funds for each operating year in an amount sufficient to implement all measures in the SWMP and to comply with the MS4 Permit pursuant to Paragraph 24 of this Consent Decree	$50,000 per budget year.

Consent Decree Violation	**Stipulated Penalty** **(Per day per violation unless otherwise specified)**
Failure to timely seek special legislation by State legislature enabling Rockford to impose a storm water management fee pursuant to Paragraph 24 of this Consent Decree pursuant to Paragraph 24 of this Consent Decree	$400 for the first through 14th day; $1,000 for the 15th through 30th day; and $1,250 for the 31st day and beyond.

41. Reporting Requirements. The following stipulated penalties shall accrue per violation per day for each violation of the reporting requirements of Section VII of this Consent Decree:

Penalty Per Violation Per Day	Period of Noncompliance
$ 250	1st through 14th day
$ 1,000	15th through 30th day
$ 3,000	31st day and beyond

42. Stipulated penalties under this Section shall begin to accrue on the day after performance is due or on the day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed or until the violation ceases. Stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree.

43. Rockford shall pay any stipulated penalty within 30 days of receiving the United States' written demand. Stipulated penalties shall be paid 50% to the United States and 50% to the State of Illinois in accordance with the payment provision in Paragraphs 28 and 30.

44. The United States, after consultation with the State, may in the unreviewable exercise of its discretion reduce or waive stipulated penalties otherwise due to it under this Consent Decree.

45. Stipulated penalties shall continue to accrue as provided in Paragraphs 39-42 during any Dispute Resolution, but need not be paid until the following:

a. If the dispute is resolved by agreement or by a decision of EPA that is not appealed to the Court, Rockford shall pay accrued penalties determined to be owing, together with interest, to the United States and the State within 30 days of the Effective Date of the agreement or the receipt of EPA's decision or order.

b. If the dispute is appealed to the Court and the United States and State prevail in whole or in part, Rockford shall pay all accrued penalties determined by the Court to be owing, together with interest, within 60 days of receiving the Court's decision or order, except as provided in subparagraph c, below.

c. If any Party appeals the District Court's decision, Rockford shall pay all accrued penalties determined to be owing, together with interest, within 15 days of receiving the final appellate court decision.

46. Rockford shall pay stipulated penalties owing to the United States and the State in the manner set forth in Paragraphs 28 and 30 and with the confirmation notices required by Paragraphs 29 and 30, except that the transmittal letter shall state that the payment is for stipulated penalties and shall state for which violation(s) the penalties are being paid.

47. If Rockford fails to pay stipulated penalties according to the terms of this Consent Decree, Rockford shall be liable for interest on such penalties, as provided for in 28 U.S.C.

§ 1961, accruing as of the date payment became due. Nothing in this Paragraph shall be construed to limit the United States and the State from seeking any remedy otherwise provided by law for Rockford's failure to pay any stipulated penalties.

48. Subject to the provisions of Section XII (Effect of Settlement/Reservation of Rights), the stipulated penalties provided for in this Consent Decree shall be in addition to any other rights, remedies, or sanctions available to the United States or the State (including, but not limited to, statutory penalties, additional injunctive relief, mitigation or offset measures, and/or contempt) for Defendant's violation of this Consent Decree or applicable law. Where a violation of this Consent Decree is also a violation of the Clean Water Act or the conditions of its MS4 permit, Defendant shall be allowed a credit, for any stipulated penalties paid, against any statutory penalties imposed for such violation.

IX. FORCE MAJEURE

49. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Rockford, of any entity controlled by Rockford, or of Rockford's contractors that delays or prevents the performance of any obligation under this Decree despite Rockford's best efforts to fulfill the obligation. The requirement that Rockford exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any such event (a) as it is occurring and (b) after it has occurred to prevent or minimize any resulting delay to the greatest extent possible. "Force majeure" does not include Rockford's financial inability to perform any obligation under this Decree.

50. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree Rockford shall provide notice to EPA and Illinois EPA orally or by electronic or facsimile transmission to the contacts listed in paragraph 80 within 96 hours of when Rockford first knew that the event might cause a delay. Within seven business days thereafter, Rockford shall provide in writing to EPA and Illinois EPA an explanation and description of: a) the reasons for the delay; b) the anticipated duration of the delay; c) all actions taken or to be taken to prevent or minimize the delay; d) a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; e) Rockford's rationale for attributing such delay to a force majeure event if it intends to assert such a claim; and f) a statement as to whether, in the opinion of Rockford, such event may cause or contribute to an endangerment to public health, welfare or the environment. Rockford shall include with any notice all available documentation supporting the claim that the delay was attributable to a force majeure. Failure to comply with the above requirements shall preclude Rockford from asserting any claim of force majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure. Rockford shall be deemed to know of any circumstance of which Rockford, any entity controlled by Rockford, or Rockford's contractors knew or should have known.

51. If EPA, after a reasonable opportunity for review and comment by Illinois EPA, agrees that the delay or anticipated delay is attributable to a force majeure event, the time for performance of the obligations under this Consent Decree that are affected by the force majeure event will be extended by EPA, after a reasonable opportunity for review and comment by Illinois EPA, for such time as is necessary to complete those obligations. An extension of the

time for performance of the obligations affected by the force majeure event shall not, of itself, extend the time for performance of any other obligation. EPA will notify Rockford in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event.

52. If EPA, after a reasonable opportunity for review and comment by Illinois EPA, does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, EPA will notify Rockford in writing of its decision.

53. If Rockford elects to invoke the dispute resolution procedures set forth in Section X (Dispute Resolution), it shall do so no later than 15 days after receipt of EPA's notice. In any such proceeding, Rockford shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that Rockford exercised best efforts to avoid and mitigate the effects of the delay, and that Rockford complied with the requirements of Paragraphs 49 and 50 above. If Rockford carries this burden, the delay at issue shall be deemed not to be a violation by Rockford of the affected obligation of this Consent Decree.

X. DISPUTE RESOLUTION

54. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Decree. Rockford's failure to seek resolution of a dispute under this Section shall preclude Rockford from raising any issue as a defense to an action by the United States or State to enforce any obligation of Rockford arising under this Decree.

55. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall be considered to have arisen when Rockford sends the United States and the State a written Notice of Dispute. Such Notice of Dispute shall state clearly the matter in dispute. The period of informal negotiations shall not exceed 20 Days from the date the dispute arises, unless that period is modified by written agreement. If the Parties cannot resolve the dispute by informal negotiations, then the position advanced by the United States, after consultation with the State, shall be considered binding unless, within 30 Days after the conclusion of the informal negotiation period, Rockford invokes formal dispute resolution procedures as set forth below.

56. Formal Dispute Resolution. Rockford shall invoke formal dispute resolution procedures within the time period provided in the preceding Paragraph by serving on the United States and the State a written Statement of Position regarding the matter in dispute. The Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting Rockford's position and any supporting documentation relied upon by Rockford.

57. The United States, after consultation with the State, shall serve its Statement of Position within 45 Days of receipt of Rockford's Statement of Position. The United States' Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the United States. The United States' Statement of Position shall be binding on Rockford, unless Rockford files a motion for judicial review of the dispute in accordance with the following Paragraph. An administrative record of the dispute ("Administrative Record") shall be maintained by EPA and

shall contain all Statements of Position, including supporting documentation, submitted pursuant to Paragraph 56 and this Paragraph. Where appropriate, EPA may allow submission of supplemental statements of position by the parties to the dispute. The Director of the Water Division will issue a final decision ("Administrative Decision") resolving the matter in dispute. The decision of the Director of the Water Division shall be binding upon Defendant, subject only to the right to seek judicial review, in accordance with the following Paragraph.

58. Rockford may seek judicial review of the Administrative Decision by filing with the Court and serving on the United States and the State, in accordance with Section XIV of this Consent Decree (Notices), a motion requesting judicial resolution of the dispute. The motion shall be filed within 14 Days of receipt of the Administrative Decision pursuant to the preceding Paragraph. The motion shall contain a written statement of Rockford's position on the matter in dispute shall set forth the relief requested and any schedule within which the dispute shall be resolved for orderly implementation of the Decree.

59. The United States shall respond to Rockford's motion within the time period allowed by the Local Rules of this Court. Rockford may file a reply memorandum, to the extent permitted by the Local Rules.

60. Standard of Review. In any dispute under this Section, the City shall bear the burden of demonstrating by a preponderance of the evidence that its position clearly complies with this Consent Decree and the Clean Water Act. The United States reserves the right to argue that its position is reviewable only on the administrative record and must be upheld unless arbitrary and capricious or otherwise not in accordance with law, and the City reserves the right to oppose any such argument.

61. The invocation of dispute resolution procedures under this Section shall not, by itself, extend, postpone, or affect in any way any obligation of Rockford under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties with respect to the disputed matter shall continue to accrue from the first day of noncompliance, but payment shall be stayed pending resolution of the dispute as provided in Paragraph 45. If Rockford does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section VIII (Stipulated Penalties).

XI. INFORMATION COLLECTION AND RETENTION

62. The United States, the State, and their representatives, including attorneys, contractors, and consultants, shall have the right of entry into any facility covered by this Consent Decree, at all reasonable times, upon presentation of credentials, to:

a. monitor the progress of activities required under this Consent Decree;

b. verify any data or information submitted to the United States or the State in accordance with the terms of this Consent Decree;

c. obtain samples and, upon request, splits of any samples taken by Rockford or its representatives, contractors, or consultants;

d. obtain documentary evidence, including photographs and similar data; and

e. assess Rockford's compliance with this Consent Decree.

63. Upon request, Rockford shall provide EPA, the State, or their authorized representatives splits of any samples taken by Rockford. Upon request, EPA shall provide Rockford splits of any samples taken by EPA.

64. Until three years after the termination of this Consent Decree, Rockford shall retain, and shall instruct its contractors and agents to preserve, all non-identical copies of all documents, records, or other information (including documents, records, or other information in electronic form) in its or its contractors' or agents' possession or control, or that come into its or its contractors' or agents' possession or control, that relate in any manner to Rockford's performance of its obligations under this Consent Decree. This information-retention requirement shall apply regardless of any contrary corporate or institutional policies or procedures. At any time during this information-retention period, upon request by the United States or State, Rockford shall provide copies of any documents, records, or other information required to be maintained under this Paragraph.

65. At the conclusion of the information-retention period provided in the preceding Paragraph, Rockford shall notify the United States and the State at least 90 days prior to the destruction of any documents, records, or other information subject to the requirements of the preceding Paragraph and, upon request by the United States or the State, Rockford shall deliver any such documents, records, or other information to EPA or Illinois EPA. Rockford may assert that certain documents, records, or other information is/are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Rockford asserts such a privilege, it shall provide the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of each author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by Rockford.

However, no documents, records, or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on grounds of privilege.

66. Rockford may also assert that information required to be provided under this Section is protected as Confidential Business Information ("CBI") under 40 C.F.R. Part 2 and 35 Ill. Adm. Code 130.101, *et seq*. As to any information that Rockford seeks to protect as CBI, Rockford shall follow the procedures set forth in 40 C.F.R. Part 2 and 35 Ill. Adm. Code 130.101, et seq.

67. This Consent Decree does not limit or affect any right of entry or inspection, or any right to obtain information held by the United States or the State pursuant to applicable federal laws, regulations, or permits, nor does it limit or affect any duty or obligation imposed by applicable federal or state laws, regulations, or permits on Rockford to maintain documents, records, or other information.

XII. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS

68. This Consent Decree resolves the claims of the United States and the State for the violations alleged in the Complaint filed in this action through the Date of Lodging.

69. The United States and the State reserve all legal and equitable remedies available to enforce the provisions of this Consent Decree, except as expressly stated in Paragraph 68. This Decree shall not be construed to limit the rights of the United States or the State to obtain penalties or injunctive relief under the Act or implementing regulations, under applicable State laws or regulations, or under other federal laws, regulations, or permit conditions, except as expressly specified in Paragraph 68.

70. The United States and the State further reserve all legal and equitable remedies to address any imminent and substantial endangerment to the public health or welfare or the environment arising at, or posed by, Rockford's MS4, whether related to the violations addressed in this Consent Decree or otherwise.

71. In any subsequent administrative or judicial proceeding initiated by the United States or the State for injunctive relief, civil penalties, other appropriate relief relating to Rockford's MS4, Rockford shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or the State in the subsequent proceeding were or should have been brought in the instant case, except with respect to claims that have been specifically resolved pursuant to paragraph 68 of this Section.

72. This Consent Decree is not a permit, or a modification of any permit, under any federal, State, or local laws or regulations. Rockford is responsible for achieving and maintaining complete compliance with all applicable federal, State, and local laws, regulations, and permits, and Rockford's compliance with this Decree shall be no defense to any action commenced pursuant to any such laws, regulations, or permits, except as set forth herein. The United States and the State do not, by their consent to the entry of this Decree, warrant or aver in any manner that Rockford's compliance with any aspect of this Decree will result in compliance with provisions of the Act, 33 U.S.C. § 1251 et seq., or with any other provisions of federal, State, or local laws, regulations, or permits.

73. This Consent Decree does not limit or affect the rights of Rockford, the State, or the United States against any third parties, not party to this Decree, nor does it limit the rights of third parties, not party to this Decree, against Rockford, except as otherwise provided by law.

74. This Consent Decree shall not be construed to create rights in, or grant any cause of action to, any third party not party to this Decree.

75. Nothing in this Consent Decree limits the rights or defenses available under Section 309(e) of the Act, 33 U.S.C. § 1319(e), in the event that the laws of the State, as currently or hereafter enacted, may prevent Rockford from raising the revenues needed to comply with this Decree.

XIII. COSTS

76. The Parties shall bear their own costs of this action, including attorneys' fees, except that the United States and the State shall be entitled to collect the costs (including attorneys' fees) incurred in any action necessary to collect any portion of the civil penalty or any stipulated penalties due but not paid by Rockford.

XIV. NOTICES

77. Unless otherwise specified in this Decree, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing and addressed as follows:

As to the United States by email:

eescdcopy.enrd@usdoj.gov
Re: DJ # 90-5-1-1-09632

and

olson.erik@epa.gov

As to the United States by mail:

EES Case Management Unit
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
Re: DJ # 90-5-1-1-09632

and

Erik Olson
Associate Regional Counsel
U.S. Environmental Protection Agency
Region 5
77 W. Jackson Boulevard (C-14J)
Chicago, Illinois 60604-3590

As to EPA:

Erik Olson
Associate Regional Counsel
U.S. Environmental Protection Agency
Region 5
77 W. Jackson Boulevard (C-14J)
Chicago, Illinois 60604-3590

Felicia Chase
Environmental Scientist
U.S. Environmental Protection Agency
Region 5
77 W. Jackson Boulevard (WC-15J)
Chicago, Illinois 60604-3590

As to the State of Illinois:

Jennifer A. Van Wie (or designee)
Assistant Attorney General
Environmental Bureau
Illinois Attorney General's Office
69 West Washington, Suite 1800
Chicago, Illinois 60602

Manager, Compliance Assurance Section
Bureau of Water, Division of Water Pollution Control
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Mail Code CAS 19
Springfield, IL 62794-9276

Thomas Williams
Field Operations Section
Rockford Regional Office
Illinois Environmental Protection Agency
4302 North Main Street
Rockford, Illinois 61103

As to Rockford:

Patrick Hayes, Legal Director
City of Rockford
425 East State Street
Rockford, Illinois 61104

Richard S. Davis
Beveridge & Diamond PC
1350 I Street, N.W., Suite 700
Washington, D.C. 20005

78. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided above.

79. Notices submitted pursuant to this Section shall be deemed submitted upon mailing, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing.

80. Notices submitted pursuant to Paragraphs 33 and 50 for oral, electronic, or facsimile transmission shall go to:

Felicia Chase, Enforcement Officer
Water Division
U.S. Environmental Protection Agency
Region 5
Telephone: (312)886-0240
Email: chase.felicia@epa.gov
Fax: (312)582-5849

Thomas Williams
Field Operations Section
Rockford Regional Office
Illinois Environmental Protection Agency
Telephone: (815) 987-7760
Email: thomas.williams@illinois.gov
Fax: (815) 987-7005

XV. EFFECTIVE DATE

81. The Effective Date of this Consent Decree shall be the date upon which this Decree is entered by the Court or a motion to enter the Decree is granted, whichever occurs first, as recorded on the Court's docket, provided, however, that Rockford hereby agrees that it shall be bound to perform duties scheduled to occur prior to the Effective Date. In the event the United States withdraws or withholds consent to this Consent Decree before entry, or the Court declines to enter the Consent Decree, then the preceding requirement to perform duties scheduled to occur before the Effective Date shall terminate.

XVI. RETENTION OF JURISDICTION

82. The Court shall retain jurisdiction over this case until termination of this Consent Decree, for the purpose of resolving disputes arising under this Decree or entering orders modifying this Decree, pursuant to Sections X and XVII, or effectuating or enforcing compliance with the terms of this Decree.

XVII. MODIFICATION

83. The terms of this Consent Decree, including any attached appendices, may be modified only by a subsequent written agreement signed by all the Parties. Where the modification constitutes a material change to this Decree, it shall be effective only upon approval by the Court.

84. Any disputes concerning modification of this Consent Decree shall be resolved pursuant to Section X of this Decree (Dispute Resolution), provided, however, that, instead of the burden of proof provided by Paragraph 60, the Party seeking the modification bears the burden of demonstrating that it is entitled to the requested modification in accordance with Federal Rule of Civil Procedure 60(b).

85. Application for construction grants, State Revolving Loan Funds, or any other grants or loans, or delays caused by inadequate facility planning or inadequate specifications on the part of Rockford shall not be cause for extension of any required compliance date in this Consent Decree.

XVIII. TERMINATION

86. After Rockford has achieved initial compliance with the requirements of Section V (Compliance Requirements) of this Consent Decree, has thereafter maintained satisfactory

compliance with this Decree and Rockford's MS4 Permit for a period of three years, and has paid the civil penalty and any accrued stipulated penalties as required by this Decree, Rockford may serve upon the United States and the State a Request for Termination, stating that Rockford has satisfied those requirements, together with all necessary supporting documentation.

87. Following receipt by the United States and the State of Rockford's Request for Termination, the Parties shall confer informally concerning the Request and any disagreement that the Parties may have as to whether Rockford has satisfactorily complied with the requirements for termination of this Consent Decree. If the United States, after consultation with the State, agrees that the Decree may be terminated, the Parties shall submit, for the Court's approval, a joint stipulation terminating the Decree.

88. If the United States does not agree that the Consent Decree may be terminated, Rockford may invoke Dispute Resolution under Section X of this Decree. However, Rockford shall not seek Dispute Resolution of any dispute regarding termination, under Paragraph 56 of Section X, until 120 days after service of its Request for Termination.

XIX. PUBLIC PARTICIPATION

89. This Consent Decree shall be lodged with the Court for a period of not less than 30 Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States, after consultation with the State, reserves the right to withdraw or withhold its consent if the comments regarding the Decree disclose facts or considerations indicating that the Decree is inappropriate, improper, or inadequate. Rockford consents to entry of this Decree without further notice and agrees not to withdraw from or oppose entry of this Decree by the Court or to

challenge any provision of the Decree, unless the United States has notified Rockford in writing that it no longer supports entry of the Decree.

XX. SIGNATORIES/SERVICE

90. Each undersigned representative of Rockford, the State, EPA, Illinois EPA, and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

91. This Consent Decree may be signed in counterparts, and its validity shall not be challenged on that basis. Rockford agrees to accept service of process by mail with respect to all matters arising under or relating to this Decree and to waive the formal service requirements set forth in Rules 4 and 5 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons.

XXI. INTEGRATION

92. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein. Other than deliverables that are subsequently submitted and approved pursuant to Section V of this Decree, no other document, nor any representation, inducement, agreement, understanding, or promise, constitutes any part of this Decree or the settlement it represents, nor shall it be used in construing the terms of this Decree.

XXII. FINAL JUDGMENT

93. Upon approval and entry of this Consent Decree by the Court, this Decree shall constitute a final judgment of the Court as to the United States, the State, and Rockford.

XXIII. APPENDICES

94. The following appendices are attached to and part of this Consent Decree:

Appendix A: Rockford's Stormwater Management Plan (excluding attachments)

Appendix B: Standard Operating Procedures for Detention Basins;

Appendix C: Standard Operating Procedures for Street Sweeping;

Appendix D: Standard Operating Procedures for Right-of-Way & Drainageway Inspection & Maintenance;

Appendix E: Standard Operating Procedures for City of Rockford Pesticide, Herbicide, and Fertilizer Applications;

Appendix F: Standard Operating Procedures for Erosion and Sediment Control Plan Review and Regulatory Inspections;

Appendix G: Erosion and Sediment Control Guidance Manual for City of Rockford Projects;

Appendix H: Standard Operating Procedures for Industrial High Risk Runoff Facility Inspection Program;

Appendix I: Standard Operating Procedures for Illicit Discharge Detection and Elimination (IDDE) Program;

Appendix J: Standard Operating Procedures for Monitoring and Sampling Program;

Appendix K: Standard Operating Procedures for Stormwater and Environmental Education;

Appendix L: Enforcement Response Plan;

Appendix M: Annual Reporting Requirements under Paragraph 32; and

Appendix N: Technical Manual.

Dated and entered this __ day of _____, 2015.

_____
UNITED STATES DISTRICT JUDGE
Northern District of Illinois

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States and the State of Illinois v. City of Rockford, Illinois.*

FOR PLAINTIFF UNITED STATES OF AMERICA:

[redacted] DATE: 10/6/15

JOHN C. CRUDEN
Assistant Attorney General
Environment and Natural Resources Division
United States Department of Justice

[redacted] DATE: 9/29/15

Anna E. Cross
Trial Attorney
Environmental Enforcement Section
Environment and Natural Resources Division
United States Department of Justice
P.O. Box 7611
Washington, D.C. 20044
(202) 514-1671
anna.cross@usdoj.gov

ZACHARY T. FARDON
United States Attorney
Northern District of Illinois

[redacted] DATE: 9/28/15

Monica V. Mallory
Assistant United States Attorney
327 South Church Street, Suite 3300
Rockford, Illinois 61101
(815) 987-4444
monica.mallory@usdoj.gov

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States and the State of Illinois v. City of Rockford, Illinois.*

FOR THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY:

[redacted]

MARK POLLINS
Division Director
Water Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

9/28/2015

FOR THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 5:

[redacted]

DATE: 9/24/2015

SUSAN HEDMAN
Regional Administrator
United States Environmental Protection Agency
Region 5 (R-19J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

[redacted]

DATE: 9/23/15

ERIK H. OLSON
Associate Regional Counsel
United States Environmental Protection Agency
Region 5 (C-14J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States and the State of Illinois v. City of Rockford, Illinois.*

FOR PLAINTIFF THE PEOPLE OF THE STATE OF ILLINOIS:
ex rel. LISA MADIGAN, Attorney General of the State of Illinois

MATTHEW J. DUNN, Chief
Environmental Enforcement/Asbestos Litigation Division

BY: [redacted] DATE: 9/28/15
ELIZABETH WALLACE, Chief
Assistant Attorney General
Environmental Bureau
69 West Washington Street, Suite 1800
Chicago, Illinois 60602

FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY:

LISA BONNETT, Director
Illinois Environmental Protection Agency

[redacted] DATE: 9/25/15
JOHN J. KIM
Chief Legal Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States and the State of Illinois v. City of Rockford, Illinois.*

FOR THE CITY OF ROCKFORD:

[redacted]

DATE: September 23, 2015

Lawrence J. Morrissey, Mayor
City of Rockford, Illinois
425 E. State St., 8th Floor
Rockford, IL 61104

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX A

SWMP Stormwater Master Plan

FINAL

THE CITY OF ROCKFORD
ILLINOIS, USA

August 2015

CITY OF ROCKFORD

MUNICIPAL SEPARATE STORM SEWER SYSTEM

STORMWATER MASTER PLAN

NPDES Permit No. ILS000001

Submitted

August 10, 2015

Prepared by:

Missman, Inc.

City of Rockford

Table of Contents

List of Tables

List of Appendices

1.0 INTRODUCTION

The purpose of a Stormwater Master Plan is to develop a comprehensive planning approach to manage stormwater quality and quantity throughout the City. Planning helps to mitigate potential damage to property and infrastructure and ensure public safety and health.

The City of Rockford Stormwater Master Plan (SWMP) was developed as part of municipal separate storm sewer system (MS4) requirements by the State of Illinois of the National Pollution Discharge Elimination System (NPDES) stormwater discharge permit program. This SWMP outlines the City of Rockford's objectives, goals, programs, and standard operating procedures to provide policy and management guidance for activities affecting stormwater throughout the City of Rockford.

Background

The City of Rockford (City) is located along both banks of the Rock River in northeast Illinois occupying a total area of 64.67 square miles of which, approximately 0.87 square miles is water. The City consists of a population of approximately 150,000 residents who experience the typical Midwestern climate experiencing the four seasons. As referenced in the *Multi-Hazard Mitigation Plan, Winnebago County, Illinois*, the general climate in the region consists of an annual temperature of 53.51°F with an average precipitation of 40.09 inches most occurring in the spring and summer months. In addition, there is an average annual snowfall of approximately 15 inches and consisting of an average annual humidity of 80.84%.

The City is comprised of 17 watersheds including creeks, drainage-ways, and detention basins, 450 miles of storm sewer, 928 outfall structures, four dams (3-city owned; 1-ComEd owned), and one levee. Due to the size and topography of the City and the Rock River running through the center of the City there is a relatively high potential for stormwater issues to arise. In light of this, there is a greater emphasis of need for local management of urban stormwater and waterways to help protect water quality and control flooding. This is especially important since the City consists of significant and concentrated urban development.

The National Pollutant Discharge Elimination System (NPDES) Stormwater program began in 1990 and required MS4 communities like the City of Rockford to obtain NPDES coverage concerning stormwater regulations from the State of Illinois which is enforced by the Illinois Environmental Protection Agency (IEPA) and federally by the Environmental Protection Agency (EPA). The City of Rockford obtained its first NPDES Permit in 1996 to meet the requirements of the Clean Water Act. The most recent NPDES permit issued to Rockford was in 2004. Staff has been working with the Illinois Environmental Protection Agency (IEPA) since 2009 to renew this permit. The City hopes for a renewed permit in August 2015. A copy of the latest NPDES permit can be found in Appendix B. Based on its population and that the storm sewer system is separate from the sanitary sewer system Rockford qualified as a Phase 1 NPDES permit. It is the only municipality in Illinois that holds a Phase 1 permit.

There are 10 stormwater management program requirements under the Phase 1 permit.

- Structural Controls
- Erosion & Sediment Control: Construction Site Runoff & Post Construction Stormwater Management
- Roadways
- Flood Control
- Pesticide, Herbicide & Fertilizer Application
- Illicit Discharges and Improper Disposal
- Spill Prevention and Response
- Industrial and High Risk Runoff
- Public Education, Pollution Prevention and Good Housekeeping
- Monitoring: Wet Weather and Dry Weather

At the end of every year the City is required to submit an annual report to the Illinois Environmental Protection Agency on its efforts towards compliance with the NPDES permit. The 2014 Annual Report can be found in Appendix C.

2.0 LEGAL AUTHORITIES

To comply with the Clean Water Act the City has developed the following stormwater related Ordinances to manage stormwater runoff and to help reduce pollutants from the MS4 to the maximum extent practicable:

1. Chapter 17 – Nuisances
2. Chapter 26 – Streets, Sidewalks and Other Public Places
3. Chapter 109 – Stormwater Management Ordinance
4. Chapter 2 Division 4 – General Ordinance Violation
5. Chapter 121 – Subdivision Ordinance

It is noted that all City and/or private proposed projects shall refer to the following resources for planning and design guidance or as required by the City for stormwater management and flood control:

- Rockford Engineering Design Criteria Manual
- Rockford Stormwater Technical Guidance Manual
- *Design and Construction of Sanitary and Storm Sewers*. American Society of Civil Engineers and the Water Pollution Control Federation. 1986.
- *Illinois Urban Manual*. United States Department of Agriculture – Natural Resources Conservation Service. 1995.
- http://cfpub.epa.gov/npdes/stormwater/menuofbmps/menu.cfm - U.S. EPA's website for stormwater BMPs
- Standard Specifications for Water and Sewer Construction in Illinois – latest edition

- Illinois Department of Transportation Standard Specifications for Road and Bridge Construction – latest edition

3.0 STORMWATER MANAGEMENT STANDARD OPERATING PROCEDURES

One main objective of the stormwater management program is to achieve compliance with the City's NPDES permit. Several Standard Operating Procedures (SOPs) were developed that state the process for City staff to manage and inspect various aspects of the stormwater management program. They provide guidance on who is responsible, equipment needed, training required, inspection process and documentation required to perform specific operations. The individual SOPs can be found in Appendix D.

a. Detention Basin SOP

Describes the inspection process and maintenance requirements for both City-owned and privately owned detention basins. Maintenance efforts include mowing, removal of debris (trees, brush, garbage and silt) and erosion repairs. For point of reference the City owns and/or maintains the following detention ponds:

- Lowes Distribution Center
- Elliot Golf Course (City owns & maintains structure itself; Park District minor maint.)
- Arden Court
- Greater Rockford Industrial Park
- Logistics Park
- Mulford Village Dr.
- Newtowne & Javelin Drs.
- Marchesano @ Fire Station 3
- Linden Pointe (Park District owns & minor maint.; City maintains structure itself)

b. Erosion & Sediment Control Plan Review and Regulatory Inspections SOP

This document addresses the City's procedures for reviewing erosion and sediment control plans, Stormwater Pollution Prevention Plans (SWPPP) and performing regulatory site inspections. An important component of any stormwater management program is the reduction of pollutants from construction sites that may discharge to the municipal separate storm sewer system or waters of the state. A proactive program to identify and inspect all permitted construction sites can significantly reduce pollutants entering the municipal storm drainage system.

c. Erosion & Sediment Control Guidance Manual for City of Rockford Projects

This document explains to City staff for City of Rockford projects the requirements for plan reviews, General NPDES permit requirements, SWPPP content, site inspections and allowable discharges.

d. Right-of-Way & Drainageway Inspection & Maintenance SOP

It is the responsibility of the City to ensure the proper operation and maintenance of the storm sewer system, including city-owned and timely enforcement of privately-owned stormwater structures. The City shall inspect, maintain, clean, and repair all city owned components of the storm sewer system including storm inlets, pipes, culverts, manholes, detention ponds, drainageways and all other stormwater structures to the maximum extent practicable. The City shall inspect, track and take

necessary action to require that privately-owned stormwater structures are adequately maintained. This document outlines the SOPs for completing the inspections and maintenance of the storm sewer system.

e. Street Sweeping SOP

It is the responsibility of the City to provide street sweeping services to its citizens in an effort to enhance the overall storm water quality, health, and aesthetic beauty of the City. This SOP describes the protocol for street sweeping activities.

f. Pesticide, Herbicide and Fertilizer (PHF) Applications SOP

The City of Rockford holds a General NPDES Permit for Pesticide Application Source Discharges that is issued by the IEPA. The SOP addresses the City's procedures when applying PHFs of City owned properties.

g. Illicit Discharge Detection and Elimination (IDDE) Program

An illicit discharge is defined as any discharge that enters the storm sewer system that is not comprised entirely of stormwater, except discharges pursuant to a NPDES permit or identified as permissible in the City's ordinance. This SOP outlines how to detect and investigate a potential illicit discharge.

h. Spill Prevention and Response SOP

The SOP discusses procedures to prevent, contain, and respond to spills that may discharge to the City's storm sewer system. The Dept. of Public Works works closely with the Rockford Fire Department, who is the "First Emergency Responder" for spill response incidents, to maintain an accurate database. The Fire Department serves as the Incident Commander in spill scenarios.

i. Industrial High Risk Runoff (IHRR) Facility Inspection Program SOP

The goal of this SOP is to reduce the amount of polluted runoff from industrial and commercial facilities entering the City's storm sewer system. This document addresses how industrial facilities are identified for inspections and the procedures for performing them.

j. Stormwater & Environmental Education SOP

This document outlines how the City staff and the public will be educated regarding the City's stormwater programs. Various brochures on best management practices have been developed for educating the public.

k. Monitoring & Sampling Program SOP

It is important for the City to monitor the water quality within its storm sewer system in order to reduce and eliminate contaminates to the City's groundwater and waterways. This document addresses the procedures for the collection of water quality samples in varying conditions and locations for Representative Monitoring, Industrial High Risk Runoff and Illicit Discharge & Elimination monitoring.

4.0 STORMWATER MANAGEMENT GOALS AND STRATEGIES

The Stormwater Master Plan provides guidance to help manage stormwater, reduce urban runoff sources of pollution, protect the City's river, creeks and watersheds and protect the City's groundwater. The City's source of drinking water is through wells so protecting the groundwater is very important to the health and safety of its citizens. This plan guides stakeholders and decision-makers to look at stormwater comprehensively to ensure stormwater management and the health of our watersheds. The City has taken an integrated planning approach to stormwater management and have included goals and strategies into the Countywide Multi-Hazard Mitigation Plan and into its 2020 Implementation Plan. As the various organizations have formed to revitalize the City these goals and strategies are incorporated into those discussions and plans as well. Enforcing the concept that mitigating stormwater hazards plays an integral component in rebuilding Rockford.

The City has established goals that are key to an effective and sustainable stormwater management program.

Goal 1 – Reduce the potential for stormwater threats to public health, safety and property.

Goal 2 – Improve water quality and habitat conditions in the City's watersheds.

Goal 3 – Encourage site planning and stormwater techniques, such as low-impact development and green infrastructure, that best replicate pre-development hydrologic conditions.

Goal 4 – Comply with City, State and Federal regulations for stormwater, water quality and floodplain management.

The City has developed various strategies to meet the goals stated above, along with tactical activities and performance measures to implement those strategies. Each year the City states in its Stormwater Annual Report the actions it has taken to meet the goals and reports the performance measure data as noted in the SOPs. As technology, regulations and community understanding of stormwater management challenges evolve and change, the City will need to respond with new strategies and tactics. These strategies will be used in prioritizing projects and the status of each strategy will be evaluated and updated annually.

Strategy 1 – Preserve and enhance natural and environmentally sensitive areas

a. Update codes and regulations to regulate development and encourage development outside of environmentally sensitive areas.
b. Use topography to direct land development.
c. Establish a "green infrastructure" program to link, manage and expand existing parks, preserves and greenways.
d. Complete watershed assessments to identify the environmentally sensitive areas and enhancement projects.

Strategy 2 – Support regulations to improve on site stormwater management and reduce flooding damage

a. Update codes and regulations to regulate development and require post construction management plans of the stormwater systems on site.
b. Promote best management practices to reduce the effects of stormwater runoff.
c. Conduct regular inspections of the stormwater system for proper maintenance, including detention basins, creeks, inlets, dams/levees, and other structural controls.

d. Develop an open space acquisition reuse and preservation plan targeting hazard areas.

Strategy 3 – Protect the groundwater supply and enhance drinking water quality

a. Provide a program to inspect industrial and commercial properties to reduce illicit discharges into the ground and streams.
b. Provide a program to inspect outfalls into the creeks and river to detect illicit discharge.
c. Provide a monitoring and sampling program to evaluate the water quality within the watersheds.

Strategy 4 – Maintain and enhance local watershed protection

a. Complete watershed studies and plans.
b. Develop a community engagement process to identify and prioritize stormwater improvement projects.
c. Identify wetland sites for restoration projects.
d. Complete waterway planning for Kent and Keith Creeks.

Strategy 5 – Protect floodways and floodplains

a. Update Codes and regulations to enhance development and building standards within floodplains
b. Maintain compliance with the National Flood Insurance Program
c. Work with FEMA and the Illinois State Water Survey to complete revisions to the Flood Insurance Rate Maps to more accurately define the floodways and floodplains.
d. Develop and inventory of best practices to support neighborhoods impacted by the floodplain limits on the Flood Insurance Rate Maps.
e. Develop a creek inspection program to evaluate the condition of the channels and prioritize bank restoration projects.

Strategy 6 – Improve existing stormwater management facilities and construct new facilities

a. Complete retrofits as needed on city-owned detention basins to improve water quality and increase the detainment area for stormwater runoff.
b. Complete maintenance items noted in the Army Corp of Engineers and Illinois Department of Natural Resources inspection reports.
c. Remove and/or widen existing bridges as needed to reduce the restrictions to water flow in the creeks.

Strategy 7 – Provide ongoing public outreach and engagement on the stormwater management program.

a. Update educational brochures to the community on the stormwater program.
b. Attend various community events to inform and engage the citizens about potential impacts of pollutants on the stormwater system and groundwater.
c. Support water quality monitoring programs
d. Inform and engage the community about potential impacts of climate change of the City's stormwater infrastructure

5.0 WATERSHED INFORMATION

As previously mentioned, the City consists of a vast watershed and waterway network. Historic modifications to natural drainage patterns and increase in impervious area have contributed to ongoing stormwater and flooding problems throughout the community. Watershed assessments identify past and current flooding and water quality problems, overall current stormwater management and flood control issues and provides watershed-specific data and reference information. It is expected that as watershed assessments are completed the information will be utilized by planners, developers, engineers and residents to design and construct various sites throughout the City. The City has identified 17 watersheds (includes Rock River) due to the presence of a major creek system (reference Appendix A-1 for the Rockford Watersheds Map). Reference Table 1 below for a list of the City watersheds and general description. In addition, the table identifies the year a Hydrology and Hydraulic (H & H) modeling/assessment was completed for the watershed (if applicable). The City has prioritized four of the watersheds for a full watershed assessment. The goal is to complete one assessment every other year.

Table 1 – City of Rockford Watersheds

Watershed	Approximate Acres	H & H Study Completion	Assessment Completed	Priority for Completing Full Assessment
Airport East	3,700	In process- Completion Summer 2016	Preliminary in 2009	1 - Underway
Blackhawk	1,190	NA	Preliminary in 2009	
Buckbee Creek (South East)	5,450	2013	Full Assessment in 2013	
Forest Hills	840	2013	Preliminary in 2009	
Fuller Creek	2,970	2013	Preliminary in 2009	
Keith Creek	9,000	2011	Preliminary in 2009	2
Kent Creek	29,980	2013	Preliminary in 2009	3 – North Kent
Kilbuck Creek		NA		
Kishwaukee North	8,410	NA	Preliminary in 2009	
Klehm	1,030	NA	Preliminary in 2009	
Madigan Creek	4,120	NA	Full Assessment in 2013	
Manning Creek	1,480	NA	Preliminary in 2009	
North Main	2,822	NA	Preliminary in 2009	
Riverside	4,620	NA	Preliminary in 2009	
Sinnissippi	1,490	NA	Preliminary in 2009	
South Main	1,200	NA	Preliminary in 2009	
Spring Creek	3,550	2013	Preliminary in 2009	4
Rock River	No Data	2013	NA	

NA – Not applicable or no study performed

It is noted that the watersheds listed above (with the exception of the Rock River and Kilbuck Creek watersheds) have had a Stormwater Management/Flood Control Assessment completed in 2009. These assessments are basic but a detailed description of each assessment can be viewed at the following link: http://www.rockfordil.gov/11569.aspx. Data such as detention facilities and outfalls are out of date. The individual assessments discuss stormwater drainage and/or flooding issues along with potential projects to fix the issues. It is also noted that each assessment includes individual maps of the watershed boundary depicting the location of issues/complaints, possible projects, along with the locations of the watershed outfalls, detention, and storm sewer piping. Reference below for a list of watersheds and their associated issues, complaints, and the future, proposed and/or completed projects (if applicable). Two of the assessments (Buckbee Creek & Madigan Creek) have been revised through a cooperative effort with Winnebago County through a Sec. 319 grant from the Illinois Environmental Protection Agency. Stakeholders of the Kishwaukee River completed a Kishwaukee River Corridor Green Infrastructure Plan for which Kilbuck Creek is located. As the creeks are evaluated the noted erosion concerns will be included within the assessments listed below and repairs will be prioritized according to the Standard Operating Procedures for Drainageways.

Based on the 2009 Watershed Assessments completed by MWH

Airport East

Camp Grant Army Barracks – To improve area drainage in an area with flat topography and the lack of storm sewers, ditch regrading will be required. (2014-2015 the Airport Dr/Falcon Rd Reconstruction Project installed a storm sewer system and improved grading throughout the area around the Rockford Airport)

Milford Avenue and 11th Street – To utilize two existing culverts that are underutilized at these two intersections, regrading of the channel upstream and reroute the stream flow to these culverts is proposed. (IDOT is designing culvert improvements under 11th St in the area. A property owner has designed a channel relocation to the culverts)

N.E. of Chesterfield Avenue and Blackwell Drive – Localized/nuisance flooding was reported at this location.

Channel clearing needed along creek from 20th Street to 11th Street

The City has retained Willett Hofmann & Associates to survey and complete a hydraulic and hydrology study of this watershed.

Blackhawk

Intersection of Harrison Avenue and Kishwaukee Street – Illinois Department of Transportation (IDOT) has completed a project where (2) 48-inch storm sewers were installed under Kishwaukee Street.

Buckbee/South East

A watershed assessment was completed for Buckbee Creek through a Section 319 grant
Harmon Park Drainage Improvements – Proposed 10-year plan for stormwater detention and conveyance projects following stormwater study. A regional detention facility has been conceptually designed for construction, early 2016. Several phases of the project have been completed to date.

Sandy Hollow and 11th Street Area – This area of the watershed is heavily urbanized and lacks adequate drainage due to nonexistent storm sewer or ditch infrastructure. Various street and drainage improvements have been completed and will continue.

Rock River Outfall Repairs – The outfall at RRWRD is in need of repairs. Project is designed and construction begin August 2015.

RRWRD Overflow Basin – An overflow basin has been designed and is under construction

Retrofit of the Greater Rockford Industrial Park Detention Pond – The pond is a wet pond that was partially constructed and in need of maintenance. Pond shall be cleared of trees and brush and expanded to plan.
Concrete Channel Repairs – The City has repaired several sections of the concrete channel over the past several years. Additional repairs were made in 2015 and will continue. Major repairs and bridge replacement will be completed as part of the Harrison Avenue Reconstruction Project.

Yale Drive Channel Improvements – The City has completed several gabion basket stabilization projects within this channel. More are needed but funding will be required through grants and by the property owners as this channel is owned by private property.

Fuller Creek
Lowes Distribution Center – Localized/nuisance erosion and more frequent flooding was reported south of this location due to its development.

S.W. of Beltline Road and U.S. Highway 20 – Future channel realignment is proposed at this location.

Keith Creek
Channel Widening from 18th Street to 5th Street – To date the City has applied twice for grants and have not been approved.

Backflow Preventers at Outfalls to Creek are needed

Alpine Dam Repairs – Repairs are needed at Alpine Dam. Design has been completed and the City is awaiting funding for construction.

Alpine Road Box Culverts – The north and south branch box culverts are under design for reconstruction.

Continued Creek Clearing of Debris and Silt

Continued Wall Repairs and Stabilization – Repairs have been completed Hunter Ave. and at 5th Street

Box Culvert Under Charles Street – The box culvert requires repairs or replacement due to both the bottom and the top heaving

Bridge Removals Between 18th St and 5th St – The City is programming bridge removals of 5th St, 8th St, 10th St and 12th St. The railroad bridge at 18th St will be programmed for removal as well.

Acquire and Demolish Properties in the Floodplain from 18th St to 9th St – This has been completed through Hazard Mitigation Grant Funds and DCEO CDBG and IKE Buyout Grant Funds.

Kent Creek

Safford Road and Springfield Avenue – Area is proposed for a future 400-acre mixed use development. (Not developed to date)

Riverside Boulevard and Rockton Avenue – Area proposed for future development. (Various phases have been under development)

Rockton Avenue and John Wesley Road – The area has the potential for a future regional detention facility to be constructed.

State Street In-Kind Culvert Replacement – IDOT completed this culvert replacement.

ACOE Channel Widening – The project to widen the channel to a 15-foot wide bottom along the north and south branches of Kent Creek has been completed.

ACOE Channel Widening - The project to widen the northwest channel to a 15-foot wide bottom of Kent Creek has been completed.

ACOE Diversion Channel/Levee – Project has been completed.

It is also noted that a portion of this watershed is inspected by the ACOE. Following a 2012 inspection, it was determined that the channel system consisted of a number of issues and is considered unacceptable. The ACOE has made the following recommendations to the City to correct the issues:

1. Woody vegetation along the banks was noted at many locations which need to be removed.

2. Minor shoaling observed which should be removed (along with debris) to prevent erosion on the opposite channel bank.

3. Reestablish and protect the bank caving that is occurring along the right bank of the North Branch channel near North Central Avenue and along the left bank of the South Branch downstream of S. Central Avenue.

Klehm

Elizabeth Center (N.W. of Heath and Main Streets) – Localized/nuisance flooding was reported due to poor drainage.

S.E. of Forsythia Drive and Ogilby Road – Maintenance of a 60-foot grassed drainage easement in this area is proposed.

Barbara Coleman Complex (Loomis and Main Streets) – The area is proposed for future redevelopment. (No development to date)

Madigan Creek

A watershed assessment was completed through a Section 319 grant and can be found in the Appendices

Tulip Lane – Localized/nuisance flooding was reported.

Intersection at Argus and Sundae Drives – Localized/nuisance flooding occurs. (This is flooding due to maintenance issues of a private pond. City has been working through maintenance enforcement with the property owner)

S.E. of Woodbine and Gordon Avenue – Area has completed maintenance.

N.E. of Newburg Road and Gordon Avenue – Channel cleaning and regrading in this area has been completed.

N.W. of Greenleaf Way and Einor Avenue – Channel cleaning and regrading in this area has been completed.

Stoney Creek Way and Madigan Creek – Localized/nuisance flooding occurs due to undersized culverts. (Developer to upsize the culverts during next phases of development)

Wood Creek Bend and Madigan Creek – Localized/nuisance flooding reported. Storm sewer in area will need to be upsized to keep runoff to the road.

Trainer Road and Madigan Creek – Maintenance is need on a 78-inch culvert at this location along with slope stabilization.

Madigan Creek– Major flooding at the intersection of E. State St. and Trainer Rd. Culverts under E. State St are undersized. This is an IDOT roadway. Future developments shall provide additional detention storage along State Street between Mulford and Perryville Roads.

Quarry S.W. of Charles Street and Mulford Road – A proposed plan to deepen quarry and increase the pump rate that discharges to the creek has the potential for water quality impacts.

N.E. of Brady Lane and Stone Bridge Crossing – Construction of a bridge for an additional access road is proposed.

North Main

Main Street Between Elm and Mulberry Streets – Street improvements are proposed in this area. (This project has been completed)

Ford Avenue and Latham Street – Localized/nuisance flooding was reported.

Willoughby Avenue and Douglas Street – Localized/nuisance surface flooding was reported.

South of Fulton Avenue and Harlem Boulevard – The installation of a new 12-inch storm sewer and inlet in a low point of the roadway is proposed.

Country Club Beach – Substantial over-bank flooding occurs in this area due to its location within the 100-yr floodplain. Backflow prevention has been installed to delay the flooding

Browns Beach – Substantial over-bank flooding occurs in this area due to its location within the 100-yr floodplain

Sinnissippi

N.E. of Chamberlain and Longwood Streets – Localized/nuisance flooding was reported for several blocks.

2nd St and Lower Jefferson Streets – Localized/nuisance ponding was reported on the roadway.

Longwood and Benton Streets – Localized/nuisance ponding was reported on the roadway.

Parkview Avenue and Spring Creek Road – Due to major surface flooding that occurs at this intersection from an unnamed tributary, a project to retrofit the detention facility north of the crossing is proposed.

Parkwood Avenue and Rural Street – Channel restoration is proposed between James and Parkwood Avenues.

South Main

Springfield Avenue and Beltline Road – Future development is proposed in this area. (No development to date)

Spring Creek

Ryebrook Street – Future development is proposed in this area.

Parkview Avenue and Spring Creek Road – Localized/nuisance flooding occurs in this area.

Camella Court – Streambank stabilization maintenance in this area is needed.

S.W. of Spring Creek Road and Alpine Road – Residents in this area are experiencing major surface flooding in the backyards.

S.E. of Spring Creek Road and Alpine Road – Residents in this area are experiencing major surface flooding in the backyards.

S.W. of Weymouth and Spring Lake Drives – The pond in this area has water quality impacts from elevated coliform count.

N.W. of Weymouth and Spring Lake Drive – Dredging maintenance of the channel is needed in this area. Installation of a trash rack at the pond's outlet is proposed.

S. of Muirfield Land and Fireside Drive – Maintenance in this area is needed.

Throughout the planning process all watershed Stormwater Management/Flood Assessments shall be reviewed and reevaluated. The existing list of potential stormwater management projects shall be edited and prioritized in order of severity of need based on the inspections completed on the creeks, drainageway and detention ponds. Nuisance drainage and flooding problems received throughout the year will be prioritized based on funding available and after life safety and flow obstruction issues are remedied. To achieve this the City shall hold a public meeting to explain watershed priority project list, and to gather input with respect to the public's interests/needs for completion.

6.0 FLOODING AND FLOODPLAIN MANAGEMENT

Flooding is a significant natural hazard in the City; therefore proper management of the floodplains can help reduce the impacts of stormwater. Flood damage in Winnebago County results from three types of floods, flash flooding, overbank or riverine flooding, and urban flooding. Flash floods arise with very little warning and often result in locally intense damage. Flash flooding could affect any low-lying location or areas of poor drainage within the City. Overbank/Riverine flooding typically are associated with precipitation events that are of relatively long duration and occur over large areas. Flooding is caused by water overflowing the banks of the channels. Urban flooding involves the overflow of storm drain systems and can result from inadequate drainage combined with heavy rainfall or rapid snowmelt. Floods on the Rock River generally are associated with spring snowmelt combined with ice jams and rain storms. Floods on the much smaller tributes of the Rock River in Winnebago County are usually caused by intense thunderstorms which occur in the late summer, or early fall.

All floodplains are susceptible to flooding in the City of Rockford. The floodplain of concern is for the 100-year flood event which is defined as areas that have a 1% change of flooding in any given year. However, flooding is dependent on various local factors including, but not limited to, impervious surfaces, amount of precipitation, river-training structures, etc.

Flood peaks have been increased by recent urbanization of uplands. Urbanization often is accompanied by floodplain filling or encroachment which reduces the cannel conveyance capacity and increases the rainfall runoff. Increased flooding on the main channels can produce backwater effects up tributaries thus increasing the flood hazard. Additional flood runoff is unable to flow through restricted culverts and bridges which often are clogged with sediment and debris from new construction.

Reducing floodplain development is crucial to reducing flood-related damages. Areas with recent development may be more vulnerable to drainage issues. Storm drains and sewer systems are usually most susceptible to drainage issues. Damage to these can cause back-up of water, sewage, and debris into homes and basements, causing structural and mechanical damage as well as creating public health hazards and unsanitary conditions.

Flooding is a significant natural hazard. The type and severity of flooding are functions of the magnitude and distribution of precipitation over a given area, the rate at which precipitation infiltrates the ground, the geometry and hydrology of the catchment, and flow conditions in and along the river channel.
Unmanaged stormwater can cause flooding and erosion. When flooding occurs and water overflows onto roads and other areas containing materials such as trash and industrial waste, these pollutants are carried into the streams and creeks. Properly managed stormwater protects land and streams from flooding, pollutants, erosion, and can recharge groundwater.

The City has developed local and regional partnerships to coordinate implementation of flood control measures including the:

- Rockford Park District
- Winnebago County

- Illinois Emergency Management Agency (IEMA)
- Illinois Department of Natural Resources (IDNR)
- Federal Emergency Management Agency (FEMA)
- US Army Corp of Engineers (ACOE)
- Resilient Neighbors Network (RNN) within the National Hazard Mitigation Association
- United States Geological Survey (USGS)

Best Management Practices

Best management practices are useful measures to control and reduce the effects of flooding. Below is just a few methods the City has undertaken to make improvements to its storm system:

1. Constructing new and retrofitting existing detention basins to help reduce volume and rate of stormwater released during storm events into streams.
   a. *Elliot Detention Basin* – The City has reconstructed this basin to include a sediment trap. Inspections show that additional work is needed to account for the continued sediment buildup.
   b. *Logistics Park Basin* – With partnership with a construction company needing material this pond has been expanded. In July 2015 the City installed dry wells in the bottom of the basin.
   c. *Linden Pointe Basin* – Though not owned by the City the City is responsible for the structural components of the basin. This basin has been restudied because rain events since construction of this pond has shown it does not hold the required rain event. The goal is to expand the volume of the pond and repair the seeping walls.
   d. *Harmon Park Basin* – The City is partnering with the Rockford Park District to construct a detention pond in a large neighborhood built without considering the impacts of stormwater. Properties have been acquired and demolished to create in-series detention and storm systems.

2. Utilize stormwater infiltration methods such as porous and permeable pavements and infiltration trenches to reduce and store stormwater runoff

   a. The City has constructed an alley downtown using porous pavement and is looking to continue use of porous pavement in alleys.
   b. The City has worked with various developments to include permeable pavements within the parking lots.

3. Continue investigations and education of nuisance flooding on private property.

   a. The City investigates flooding complaints and works to educate the property owners on methods to reduce flooding on their property. Most property owners do not realize they have drainage easements on the property and that they are responsible for the maintenance of those easements.

   b. The City monitors known flood risk areas both public and private as noted in Table 2. These

are monitored due to continuous obstructed inlets, flooding of streets due to undersized storm system and known flash flood areas, flooding of basins that overtop the adjacent roadway, and flooding along the river.

Table 2. Known Flood Risk Areas

Flood Risk Areas	Project Location	Project Description
1	Sandhutton Ave & Danburry Dr - Harrison Park Assoc.	Detention basin - flooding risk
2	Turnberry Ridge Drainage (Citadel, Samuelson)	Job complete- monitor for flooding
3	Linden Pointe Detention Basin (Scarlet Oak Dr)	Detention basin - flooding risk
4	Leland Place (NE Rote & Divine)	Detention basin - flooding risk
5	Red Oak Estates (SE Rote & Eden)	Drainage ditch needs maintenance
6	Mill Rd & Highgrove Pl	Detention basin - flooding risk
7	Alpine Dam	monitor water level, trash rack, inspect dam
8	Churchill Park - 6th Ave, 7th Ave street flooding	monitor streets for flooding
9	Harmon Park - Eastgate, Sexton, McArthur, Log Cabin	monitor streets for flooding
10	Arden Court Detention Basin	monitor water level, trash rack
11	Red Oak Lane & Ramsey Clos	monitor streets for flooding
12	Country Club Beach Rd	Monitor river level, streets for flooding
13	Browns Beach Rd	Monitor river level, streets for flooding
14	Rote Rd, Bell School Rd	monitor streets, ditches, basins for flooding
15	University Dr.	monitor street, ditches, basins for flooding
16	Broadway Viaduct	monitor street for flooding
17	Keith Creek at Schnucks on Charles St (2642 Charles St)	monitor water level in creek, bridges
18	Shirley Rd	monitor water level in creek
19	Levings Lake Dam	monitor water level, inspect dam
20	Page Park Dam	monitor water level, inspect dam
21	Montague St & West St	clean out inlets, chronic problem area
22	15th Ave & 13th St	clean out inlets, chronic problem area
23	Parkview Ave and Crabapple Ln	monitor open top inlet, cuilvert on Parkview Ave
24	Kishwaukee St and Sandy Hollow Rd	inspect trash racks
23	1733 Homewood Dr	inspect trash racks
24	N Central Ave & Liberty Dr	monitor for street flooding
25	3000 Alida St	monitor manhole cover
26	700 Parkwood, Rural, James	monitor new drainage system, street flooding
27	Charles St & 9th St	monitor street for flooding

7.0 WATER QUALITY MONITORING PROGRAM

In order to improve the general water quality within the City and that enters the Rock River, the City has developed a stormwater sampling/monitoring program that was created in 2003. Tributary sampling is completed at the locations in Table 3 and Representative monitoring at outfall locations is shown in Table 4. The City takes samples during storm events and during dry weather events. The frequency and parameters the City must test for are noted in Table 5. Results of the monitoring and trends are reported in the annual report. Historically, the City has not seen majors concerns in the sample results. Any anomalies have been investigated and found to not be of concern.

Table 3 – Representative Tributary Monitoring Locations

Site ID	Locations*
T1	North Kent Creek @ Fairgrounds Park
T2	South Kent Creek @ Tay & Corbin St.'s
T3	Keith Creek @ Tenth Avenue Park
T4	Keith Creek @ Dahlquist Park
T5	Spring Creek @ Starkweather Avenue

*Reference Appendix A-2 for a map exhibit of the tributary monitoring locations.

Table 4 - Representative Outfall Monitoring Locations

Source: Rockford Stormwater NPDES Permit No. ILS000001		
Outfall ID	**Location***	**Watershed Description**
Station R1	Paradise Boulevard	225 ac residential & open space
Station R2	Market St. & N. Water St.	50 ac commercial, offices & residential
Station R3	Fairview Blvd & Crosby St.	510 ac residential
Station R4	8th Street & Wills Avenue	780 ac industrial, commercial & residential
Station R5	Forest View Rd & 28th Ave	80 ac light industrial

*Reference Appendix A-2 for a map exhibit of the outfall monitoring locations.

Mitigation Goals

- Mapping City wells and cone of influence
- Mapping groundwater ordinances and plume of contamination
- Installation of additional sampling locations

Table 5 – Stormwater Sampling Schedule & Parameters

PARAMETER	MONITOR FREQUENCY				
	Year 1	Year 2	Year 3	Year 4	Year 5
BOD5 (mg/l)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
COD (mg/l)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
TSS (mg/l)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
Total Nitrogen (mg/l)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
Total Kjeldahl Nitrogen (mg/l)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
Total Phosphorus (mg/l)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
Fecal Coliform (per mg/l)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
Oil and Grease (mg/l)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
Total Cadmium (mg/l)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
Total Copper (mg/l)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
Total Lead (mg/l)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
Total Zinc (mg/l)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
pH (S.U.)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
Hardness (as $CaCO_3$)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr
Temperature (C^o)	2x/yr	2x/yr	2x/yr	2x/yr	2x/yr

8.0 ENFORCEMENT PROCEDURES

The intent of this document is to provide guidance to City officials and staff in enforcing the Stormwater Management Ordinance. The provisions of this enforcement response plan are not intended to limit the judgment and flexibility of the administrator in determining an appropriate response.

Actual enforcement procedures should consider any unusual aspects of a violation or condition, as well as special characteristics of an enforcement action, in determining the proper response.

Minor infractions may be resolved by a verbal notice, telephone call, or warning letter advising the owner/operator/person of the nature of the violation. If such action fails to generate an adequate response by the owner/operator/person, further enforcement actions as provided by the ordinance may be taken.

The City has developed a Stormwater Enforcement Response Plan that can be referenced in Appendix E.

9.0 ANNUAL REPORT REQUIREMENTS

The City shall prepare an annual system-wide report to be submitted by no later than April 1 of each year, in accordance with the city permit (ILS000001, Appendix B-1). A copy of the 2014 Annual Report can be found in Appendix C. The report shall include a brief overview of the entire Municipal Separate Storm Sewer System and the following separate sections:

1. Status of implementing the stormwater management program(s) – provide summaries for individual permit components as detailed in Part III – Schedules for implementation of, and compliance with, SWMP.

2. Proposed changes to the stormwater management program(s).

3. Revisions, if necessary, to the assessments of controls and the fiscal analysis reported in the permit application under 40 CFR 122.26(d)(2)(iv) and (d)(2)(v).

4. An overall summary of the data, including monitoring data, accumulated throughout the reporting year.

5. Annual expenditures for the reporting period, with a breakdown for the major elements of the stormwater management program and the budget for the year following each annual report.

6. A summary describing the number and nature of enforcement actions, inspections, and public education programs.

7. Identification of water quality improvements or degradation.

8. Provide the Latitude and Longitude of the Representative Monitoring Outfalls listed in Table V.A.1.b, along with a map identifying their locations within the city.

9. A brief summary of what the city has experienced and evaluated in the past year about its programs regarding stormwater and pollution prevention, and a list of any proposed changes to their programs and/or additional actions they feel would be beneficial.

10. A summary of the effectiveness and accuracy of the monitoring results obtained as a result of the current requirements of the Permit. The City should provide suggestions and justifications for any possible improvements to the current monitoring locations and/or frequency as well as information indicating reasons why certain monitoring requirements should be modified or eliminated.

10.0 SWMP CITY RESOURCES

a. City Staff Stormwater Responsibility

The stormwater activities and functions related to permit compliance of the SWMP are divided among multiple personnel within the City's Department of Public Works (DPW). The following is a list of the responsible Public Works City staff and titles:

Marcy Leach – Stormwater Administrator & Engineering Operations Manager

Dean Kurth – Stormwater Program Manager

Brad Holcomb – Stormwater Program Manager

Jason Irvin – Project Manager (Storm & Water)

Ryan Lundberg – Stormwater & Environmental Coordinator

Justin Emerson – Sr. Project Manager (GIS/Facilities Mngt)

Warren Stahl – Sr. Engineering Technician

Justin Kink – Sr. Engineering Technician

Vacant – (2) Sr. Engineering Technician

Interns/temps

A full and more detailed breakdown of the stormwater program staff, respective responsibilities, and personnel requirements is located in Appendix F.

b. Fiscal Expenditures

To operate the SWMP annually, the City has to develop a projected budget for program activities. The projected 2015 budget for SWMP activities is presented on Table 6 below.

Table 6 – SWMP Fiscal Information

Item	Budget Source	2015 (Budgeted)
Street Sweeping	Street	$473,335
Sewer Repair/Inlet Cleaning	Street	$693,002
Bridge, Dam, Ditch Maintenance	Street	$91,000
City-Wide Inlet Repair	CIP	$150,000
Stormwater City-Wide Drainage Fund	CIP	$450,000
Stormwater Sampling & Testing	General	$25,000
Stormwater (Other)	CIP	$560,000
Stormwater Maintenance & Monitoring	CIP	$120,000
City-Wide Bank Stabilization	CIP	$500,000
Stormwater Miscellaneous Consultant Contract	General	$50,000

Additional funding options that should be evaluated to maintain the stormwater program and continue compliance with the City's NPDES permit. Stormwater program funding sources include:

- Stormwater utility
- State Revolving Fund loans
- Stormwater Fees
- Property taxes or sales tax
- Grants
- Debt financing
- Local improvement districts
- Developer participation
- System development fees/connection charges

The City maintains equipment for use in various stormwater operations. The latest list is below.

City of Rockford Public Works Equipment List (May 2015)		
Type of Vehicle	**Description**	**Quantity**
Light Duty Trucks	1/2 to 1 Ton w/ arrow-board	12
John Deere Backhoes	Class 410	8
Case Backhoe	Class N590	1
Wheel Loader	Model 644R - 4 yd bucket	1
Caterpillar Wheel Loader	Model 950G - 4 yd bucket	1
Truck Mounted Clam Loader	(Tree & Brush Loaders)	2
Street Sweepers	Vacuum Style	2
Vermeer Wood Chippers	Model 1800 (3 w/ winches)	3
Bobcat Skid Street Loaders	1 model 863; 2 Model 773	3
Aerial Bucket Trucks - Forestry	1 - 50' Reach; 1 - 60' Reach	2
Aerial Bucket Trucks - Traffic	Used for Signal Repair	4
GMC Tanker Truck	2200 Gal. Capacity	1
Tandem Axle Dump Trucks *	10 yd Capacity Dump Bodies	32
Single Axle Dump Trucks *	7 yd Capacity Dump Bodies	16
* Of the 45 dump trucks, 30 are quipped for Snow & Ice Operations		
Mini Salt & Plow		2
Pothole Patch Trucks		4
Stake Bed Trucks		2
Storm Sewer Vacuum Truck		1
Trailers	Various sizes (5); Loaded w/ shoring matl(4)	9
Compressors		3
Passenger Buses	Avg Passenger Seating - 35	17
Drivers - Approximately 70 CDL licensed drivers within Public Works		
Mechanics - 6 Heavy Equipment & 2 Light Duty		
Equipment Operators - 13		
Tree Trimmers - 7		
24 - 2 man crews (Street/Water/Traffic/Property)		

11.0 STORMWATER MASTER PLAN REVIEW AND MODIFICATION TIMING

The City's Stormwater Administrator & Engineering Operations Manager will review annually.

12.0 ORDINANCE REVIEW SCHEDULE

The City's Stormwater Administrator & Engineering Operations Manager will review annually.

13.0 DEFINITIONS

Reference Appendix G for a list of relevant definitions.

14.0 REFERENCE MATERIAL LIST

Reference Appendix H for the City Yards Stormwater Plan.
Reference Appendix I for a list of references.

15.0 DECREE

A copy of the decree can be found in Appendix J.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX B

DETENTION BASINS

STANDARD OPERATING PROCEDURE

June 2015

1.0 General

The purpose of this standard operating procedure for the detention basin monitoring program is to comply with Part II, A.2 of the City of Rockford's NPDES Storm Water Permit (ILS000001). This document addresses the process to perform detention basin inspections on public and privately owned detention basins.

2.0 Legal Authority

All properties with detention basins have drainage and detention easements on the recorded plats which allow the City to access the property to check the basins for maintenance needs.

If it is determined that a detention basin has maintenance issues the property owner will be notified to make the necessary repairs. Failure to properly maintain a detention basin can result in violations on municipal code Chapter 109, Article 6, as well as violations of the easement provisions.

3.0 Documentation and Record Management

All detention basin locations and ID numbers are mapped on the City of Rockford's GIS database and are hyperlinked to files with all data pertaining to that basin. A spreadsheet of basin inspections has been developed to indicate maintenance categorization following inspections and to track maintenance performed on the detention basins. The data shall be updated continuously as new information is gathered for the basins.

To access the detention basin database perform the following:

1) Open the Stormwater Drive (note: this drive has limited access for people who perform duties directly related to the City's stormwater program),
2) Open the Detention Basin folder,
3) All basins have number Id's which is how they are categorized in the folder.

Basin folders include the following data: past inspection reports & photos, recorded plat (indicating maintenance responsibility) property owner(s). Other data can be added to the files as it becomes available (i.e. correspondence, engineering plans, etc.)

4.0 Staffing and Equipment

Positions of the City of Rockford's Stormwater Environmental Team (SWET) include: Engineering Operations Manager, Stormwater Program Manager(s), Stormwater Coordinator and designated project managers and engineering techs.

Inspections for the detention basins will be performed by the Public Works Engineering Division utilizing the following staff positions: Operations Manager(s), Program Manager(s), Project Manager(s), Coordinator(s), and Engineering Technicians. These positions shall be trained to perform these inspections according to the Standard Operating Procedures for Stormwater and Environmental Education and be familiar with this document.

Equipment to perform the inspection should include: the Detention Basin Inspection Form (Attachment B) or Field Observation Form (Attachment C), safety vest, work boots (possibly rubber boots or hip waders), camera, tape measure, and rain gear. It is also recommended the inspector review previous reports prior to completing the inspection.

5.0 Detention Basin Monitoring

The detention basins within the City of Rockford limits have been broken down into three (3) categories:

5.1 Public Detention Basins

These basins are owned, operated and maintained by the City of Rockford. These basins are listed as part of Attachment A.

5.2 Private Detention Basins

These are detention basins owned, operated and maintained by private citizens or homeowner associations that have not been designated as Private Priority Detention Basins. The majority of the detention basins within the City of Rockford limits fall under this category.

5.3 Private Priority Detention Basins

These are private basins that have been given a Private Priority Basin designation based on previous inspections & observations. These designated basins will be inspected or observed more frequently than other privately owned basins. These basins are listed as part of Attachment A.

The following criteria shall be considered to add or remove private basins from the Priority Basin List:

- History of overtopping
- Owner lack of maintenance
- Significant collection of debris or floatables
- Basin failure
- Downstream flooding
- Significant grading or maintenance work has been completed recently
- Redesign or retrofit has been completed
- Large regional basin
- Newly constructed basin

6.0 Detention Basin Inspection Frequency

All detention basins within the City of Rockford limits shall be inspected based on scheduled Dry Weather inspections and Storm Event inspections.

6.1 Dry Weather Basin Inspection Frequency

Public & Private Priority Basins

All public and private priority detention basins shall be inspected annually utilizing the Detention Basin Inspection Form (Attachment B). Maintenance of the detention basins and stormwater systems shall be in accordance with the post construction management plan for that property.

Private Basins

All private detention basins shall be inspected no less frequently than every two years and as needed in response to a public complaint or a concern identified by the City. Maintenance of the detention basins and stormwater systems shall be in accordance with the post construction management plan for that property.

Any detention basins that were not previously located shall be inspected in the year the City became aware of their presence.

6.2 Storm Event Basin Inspection Frequency

The source for weather observation data to be used by Staff is from the National Weather Service website (http://w1.weather.gov/data/obhistory/KRFD.html) which reports the past 72 hours of weather data (including hourly rainfall data) from the Chicago Rockford International Airport.

In addition, the following factors shall be utilized to determine inspection frequency:

- Intensity of rainfall
- Duration
- Previous weather conditions, (i.e. soil moisture content, frost depth, time since previous event)

Public and Private Priority Basins
All public and private priority detention basins will be inspected within 72 hours following a 4 inch or greater, 24 hour storm event.
Non-Priority Private Basins
All non-priority private detention basins will be inspected within two (2) weeks of a 6 inch or greater, 24 hour storm event.

7.0 Performing Basin Inspections

7.1 Dry Weather Basin Inspection

The attached detention basin inspection form (Attachment B) shall be used when performing inspections. Number, type and size of inlet and outlet structures will not need to be recorded unless there was a change in design or it wasn't previously recorded. Photos will be taken to show basin conditions and to indicate items of concern. It is recommended the inspector review previous reports prior to completing the inspection.

Reasons for follow-up can include but not be limited to:

- Structure failures (berms, pipes, etc.)
- Poor seeding establishment
- Blockages in or around the inlet and outlet structures
- Obstructions in the basins.
- No maintenance is being completed. (mowing, debris removal, etc.)

7.2 Storm Event Basin Inspection

During event inspections the Field Observation Form (Attachment C) shall be utilized and the basins will be visually inspected for:

- Structural integrity
- Debris and floatable build up at outflow or other locations
- Potential or active flooding concerns
- Potential or active property damage

Inspectors must be aware of their surroundings when performing inspections during and after storm events.

7.3 Concern for Public Safety during Basin Inspections

If during a basin inspection, there are found to be concerns about the integrity of the basin, the inspector shall immediately contact the City Engineer (See Attachment E for Emergency Contact Phone Numbers). The City Engineer, or his designee, will assess the basin for further action.

If the inspector determines there are urgent concerns for the health and safety of the public, the inspector shall call 911 to notify the Rockford Fire Department. The inspector shall then immediately inform the City Engineer of the current situation.

8.0 Basin Maintenance Notifications

8.1 Private and Private Priority Basins

1. Inspections shall be reviewed by the Public Works, Engineering Division to determine the type of maintenance needed. Basin maintenance will be categorized as:
    a. None – no additional maintenance required
    b. Minor – No immediate concerns. Minor maintenance (mowing, removal of debris) is needed. Flows are not compromised

c. Intermediate – No maintenance is being performed and flows are or will be compromised if maintenance doesn't commence.
d. Major – Basin needs significant maintenance and/or repairs.

2. For basins categorized as having Intermediate and Major maintenance needs:
   a. Owners shall be sent letters detailing needed repairs. This shall be completed within one (1) week for dry weather inspections and within two (2) weeks of storm event inspections.
   b. Owners shall be given 90 days to complete the maintenance or will be instructed to contact the City regarding a maintenance timetable. Depending on the extent of the repairs and the history of the property or owner the owner may be sent through the code enforcement hearing process.
   c. The city will request basin owners to send in the attached maintenance confirmation form (Attachment D) upon completion of maintenance items as directed in the letter. Staff will review the maintenance to confirm it has been completed.
   d. As maintenance is reported as completed on basins in the Intermediate and Major categories it will be indicated on the spreadsheet. Failure of an owner of such a basin to notify the City within the 90 day timeframe will result in an additional inspection to assess compliance.

3. All other basin owners will receive a form letter reminding them of their maintenance responsibilities.

4. All basin owners will receive the Detention Basin Maintenance Guide included as Attachment F.

5. All detention basins and their maintenance category will the tracked on an Excel spreadsheet.

8.2 Public Basins

The Public Works Street Division performs and tracks routine maintenance (mowing, sediment removal, etc.) on public basins according to the Right-of-Way and Drainageway Standard Operating Procedure document. The Stormwater Environmental Team shall notify the Street Division within 48 hours of the inspection of the maintenance issues on City owned basins.

9.0 Enforcement

All recorded plats indicate provisions of the drainage and detention easements and identifies the property owner's responsibilities. Violations of these requirements will make the responsible party subject to enforcement as outlined in Chapter 109, Article 13 of the City of Rockford Code of Ordinances and the Enforcement Response Plan.

Attachment A
Public Basin & Private Priority Basin List

The following are detention basins where the City of Rockford has maintenance responsibilities or are considered private priority basins.

Public Basins	Private Priority Basins
Lowes Distribution Center	Harrison Park
Elliot Golf Course	Turnberry Ridge
Arden Court	Linden Pointe
Greater Rockford Industrial Park	Colony Bay
Logistics Parkway	Leland Place (NE Rote & Divine)
Harmon Park Ponds/Swales	Mill & Highgrove
New Towne Dr. & Javelin Dr.	Red Oak Estates #8 (SE Rote & Eden)
Mulford Village Pond X (west)	
802 Marchesano Dr. (Fire Station #3)	

Attachment B

City of Rockford
Detention Basin Inspection Form
(If yes is checked take a picture and make comment)

Basin ID _____ Inspector(s) _____

Inspection Date: _____ Basin Type: _____Dry _____Wet

Was there rain in the last 24 hours? Yes___ No___ 10 yr. /24 hr. Event yes_____ No_____

Rainfall Amount _____

1. Does basin have sediment deposits? Yes_____ No_____ If Yes, estimated Quantity _____
2. Is there standing water in the basin? Yes___ No ___ If Yes, water depth at outlet structure _____

   Depth of Debris Line_____
3. Is there debris in the basin? Yes _____ No _____
4. Inlet/Outlet Conditions

   Is there erosion or undercutting at the inlets/outlets? Yes_____ No _____

   Has the rip rap or other material been displaced/moved from around the inlet/outlet?
   Yes_____ No _____ N/A _____

   Is there garbage or debris obstructing the structures? Yes_____ No_____
5. Embankment/Bottom Conditions

   Are there any indications of erosion or sloughing? Yes_____ No_____
6. Downstream conditions (100 ft. downstream of the outfall)

   Are there indications of excessive erosion downstream of the primary outlet structure?
   Yes_____ No _____ N/A _____

   Check if further follow-up is needed_____

Comments/Other Maintenance: _____

_____

_____

_____

_____

Note: If this is a new installation include the number, type and size of inlet and outlet structures.

Inspector Signature: _____ Date: _____

Attachment C

City of Rockford Field Observation

1. Person Making Observation: _____ Date: _____

2. Type of Observation (check all that apply):

_____ Drainageway	_____ Creek
_____ Citizen Complaint	_____ Industrial/Commercial Site
_____ Detention Basin	_____ Outfall Monitoring
_____ Construction Site	_____ Illicit Discharge (If the Illicit Discharge is active contact Brad Holcomb or Dean Kurth immediately)
_____ Inlet	_____ Other _____

3. Location/Project Name: _____

4. Is this a post rain event observation? _____ Yes _____No

5. If yes: Date of Rainfall _____ Rainfall amount (inches) _____

6. Is there standing water in the basin? Yes___ No ___ If Yes, water depth at outlet structure _____

7. Is a follow-up inspection required? _____ Yes _____ No

8. Is maintenance needed? _____ Yes _____ No

9. Comments (please be detailed and supply photos if necessary): _____

_____

_____

_____

_____

Inspector Signature: _____ Date: _____

Provide Copies to one of the following:

Brad Holcomb, Stormwater & Environmental Program Manager – Cell # 815-218-7343, brad.holcomb@ockfordil.gov,
Dean Kurth, Environmental & Stormwater Project Manager – Cell # 815-218-7353, dean.kurth@rockfordil.gov
Ryan Lundberg, Stormwater Coordinator - Cell # 815-985-0585, ryan.lundberg@rockfordil.gov
Marcy Leach, Operations Manager – Cell – 815-520-0658, marcy.leach@rockfordil.gov

Attachment D

DETENTION BASIN MAINTENANCE CONFIRMATION

Please fill out and return to the above address when all maintenance is completed

BASIN ID # _____

NAME: _____ PHONE: _____

ADDRESS: _____ EMAIL: _____

LOCATION OF DETENTION BASIN: _____

MAINTENANCE START DATE: _____ MAINTENANCE END DATE: _____

ARE YOU PERFORMING THE MAINTENANCE? YES: _____ NO: _____

TYPE OF MAINTENANCE PERFORMED: _____
_____

CONTRACTORS (IF APPLICABLE):_____
CONTACT: _____
ADDRESS:_____
PHONE/FAX: _____EMAIL:_____

ENGINEERING COMPANY (IF APPLICABLE):_____
CONTACT: _____
ADDRESS: _____
PHONE/FAX: _____EMAIL:_____

NOTE: Any grading or change in design may require additional City of Rockford permitting and approvals. Contact the City of Rockford Public Works Department (779-348-7300) to determine permitting requirements.

SIGNATURE: _____ DATE: _____

FOR OFFICE USE ONLY

DATE OF FOLLOW-UP INSPECTION: _____INSPECTOR:_____
MAINTENANCE APPROVED: YES: _____ NO: _____ IF NO, WHY? _____
_____
COMMENTS: _____
_____

Attachment E

Emergency Contact List

Emergency – 911

Position	Name	Cell Phone #	Email
Public Works Director	Tim Hanson	815-985-4635	Timothy.hanson@rockfordil.gov
City Engineer	Matt Vitner	815-222-4659	Matthew.Vitner@rockfordil.gov
Emergency Operations Division Fire Chief	Joe Corl	815-289-7282	Joe.Corl@rockfordil.gov
Engineering Operations Manager	Marcy Leach	815-520-0658	marcy.leach@rockfordil.gov
Street and Transportation Superintendent	Mark Stockman	815-262-6733	mark.stockman@rockfordil.gov
Stormwater Program Manager	Brad Holcomb	815-218-7343	brad.holcomb@rockfordil.gov
Stormwater Program Manager	Dean Kurth	815-218-7353	dean.kurth@rockfordil.gov
Stormwater Coordinator	Ryan Lundberg	815-985-0585	Ryan.lundberg@rockfordil.gov
Street Maintenance Supervisor	Harry Noble	815-218-0843	Harry.noble@rockfordil.gov
Forestry Supervisor	Mitch Leatherby	815-980-2062	mitchell.leatherby@rockfordil.gov
Project Manager	Jason Irvin	815-988-0069	Jason.irvin@rockfordil.gov
Hazardous Materials District Chief	Dan Zaccard	815-494-8659	dan.zaccard@rockfordil.gov

THE CITY OF ROCKFORD ILLINOIS, USA

Timothy Hanson
Director
Public Works Department

August 15, 2013

(Insert name & address of responsible party)

Re. **Detention Basin Maintenance at *(insert plat name)* (Basin ID #)**

Dear Mr./Ms. ;

Storm water detention basins are a best management practice designed to reduce the impacts of pollution and increased velocity of storm water runoff caused by developments. They are an essential part of the City of Rockford's efforts to improve the quality of our streams, rivers and ponds. Once a detention basin fails, or if it is not adequately maintained, it will no longer perform its intended function and is often very expensive to replace.

By performing routine maintenance on storm water detention basins those responsible for them can reduce potential costly repairs, not only to the basin themselves but downstream as well. On (insert date) the City of Rockford inspected the above referenced detention basin to determine if maintenance is needed to keep the basin functioning as originally designed.

An inspection on the above referenced detention basin was completed and the inspection identified the following item requiring maintenance:

1.
2.
3.

According to the recorded plat you are responsible for the maintenance of this basin. If you fail to maintain it as required and it results in a failure you could be found liable for all resulting damage. In addition, failure to properly maintain the basin will result in violations to Chapter 109, Article 6 of the City of Rockford's code of ordinances.

Please fill out the attached maintenance permit once all maintenance items are completed or contact the City of Rockford within 90 days to discuss a timetable to complete the required maintenance.

If you have any questions regarding this maintenance, please contact the Stormwater Program Manager, Brad Holcomb, at (815) 967-7061 or by email at Brad.Holcomb@rockfordil.gov.

Sincerely,

Matthew Vitner, P.E.
City Engineer

Enc. photo documentation, recorded plat, maintenance guide, maintenance confirmation

Timothy Hanson
Director
Public Works Department

Detention Basin Maintenance at *(Insert plat name)* (Basin ID #)

Photo #1

Picture description

Photo #2

Note: the attached photos indicate examples of corrective actions observed on this construction site. When performing maintenance as indicated in the photos, check the entire site for other areas with similar maintenance needs.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX C

THE CITY OF
ROCKFORD
ILLINOIS, USA

STREET SWEEPING
STANDARD OPERATING PROCEDURES

June 2015

1.0 General

It is the responsibility of the City of Rockford to provide street sweeping services to its citizens in an effort to enhance the overall stormwater quality, health and aesthetic beauty of the City. This process shall begin in the spring season, as weather conditions allow and continue in various cycles thru the autumn season to capture fallen leaves. The protocol for street sweeping activities is as follows:

2.0 Equipment

1. Contracted – City contractor shall provide a total 5 street sweepers comprised of both mechanical and vacuum models for Arterial, Residential, Central Business District and municipal parking lot sweeping.

2. Internal – City shall maintain a total of 2 vacuum sweepers for special event sweeping as well as emergency response to soil & debris from weather related events or accidental loose material spills.

3. Dump Trucks – City shall have on hand 2 tandem axle haul trucks for the immediate removal of internally generated street sweepings to an appropriate landfill site.

3.0 Personnel

1. The Street Superintendent will oversee street sweeping operations at the administrative level and will assign 2 field supervisors, one as primary and one secondary, to manage day to day sweeping operations. The primary field supervisor is responsible for managing and scheduling the city's sweeping contractor as well as overseeing any internal sweeping activities. Field supervisors shall inspect and approve all street sweeping activities to ascertain the quality of work meets City standards. The secondary supervisor will oversee operations in the absence of the primary supervisor.

2. A sufficient number of City of Rockford field staff, usually 8 to 10 employees, will be trained in the operation of street sweepers in order to maintain qualified individuals on staff to provide Emergency Street sweeping in order to address debris or material spills as well as cleanup subsequent to windstorms or flooding.

    a. This training shall be in accordance with the Stormwater and Environmental Education Standard Operating Procedures.
    b. All training records shall be saved and maintained by the street supervisor. All sign in sheets and training records may be kept on either electronic and/or paper files.

3. The City sweeping contractor (see appendix A) shall provide sufficient staffing to complete their various cycles within a time frame that is acceptable to the City.

4.0 Material Disposal

The City and/or its contractor shall dispose of all street sweepings at a licensed landfill facility. Street sweepings shall not be utilized for general backfill under any circumstances. The cost for disposal shall be the responsibility of the entity or vendor generating the material at a price negotiated prior to beginning seasonal sweeping operations.

5.0 Scheduling

The following street sweeping schedule is weather dependent and will begin subsequent to each winter season and continue thru late November. The schedule should be re-evaluated annually and adjusted based on weather conditions.

1. Arterial Streets – Arterial streets will be swept 3 times by the City's contractor beginning with the first cycle in April, the second in late June or early July, and the third cycle in September. Median tops are to be cleaned in conjunction with the first and third cycle of arterial street sweeping.

2. Central Business District – What is considered the Central Business District will be swept by the City's contractor twice a month beginning in April and ending late November, between the hours of midnight and 7 AM for a total of 14 to 16 cycles.

3. Municipal Parking Lots – The 38 municipal surface lots owned by the City of Rockford will be swept by the City's contractor once a month beginning in April and ending late November for a total of 7 to 8 cycles.

4. Residential Streets – Residential streets shall be swept by the City's contractor twice a year; once in the spring beginning in late April continuing for approximately six to eight weeks until completion. The second residential sweeping cycle will begin late September / early October continuing for approximately 8 to 10 weeks as weather will allow.

5. Special Events – The frequency of Special Events street sweeping is dependent on the number of scheduled events and their potential to produce litter and debris. On average, there are four to six of these functions annually. Special Events street sweeping will normally be performed by city staff utilizing city owned vacuum sweepers. Special events can include but not be limited to:

    a. Memorial Day Parade
    b. St. Patrick's Day Parade
    c. Fourth of July Parade & Fireworks
    d. Labor Day Parade
    e. Annual Holiday Stroll (beginning in 2013)

6.0 Documentation and Record Management

The Street Superintendent and Field Supervisors shall be responsible for the collection and reporting of the following data:

1. Curb miles swept shall be recorded on a daily basis (internal & external).
    a. Contractor shall track curb miles they have swept and provide to the City by December 31st of each year.
    b. All records of miles swept shall be maintained electronically within the Street Division share drive.

2. Daily street sweeping tonnage (internal & external).
    a. Contactor shall track daily tonnage they have collected and provide to the City by December 31st of each year.
    b. All records of tonnage swept shall be kept electronically within the Street Division share drive.

3. Regular & overtime man-hours (internal only).
    a. Hours worked shall be tracked within the City's timekeeping system and the Street Division share drive.

4. Log of all special events or emergency street sweeping shall include location/area, man-hours, tonnage and type of material removed.
    a. Records of special events sweeping shall be logged and kept within the Street Division share drive. Emergency street sweeping records shall be recorded within the Hansen request for service program.

5. Street sweeping mileage shall be evaluated as noted above and the mileage determination shall be documented along with the mileage that was actually completed.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX D

THE CITY OF
ROCKFORD
ILLINOIS, USA

RIGHT-OF-WAY & DRAINAGEWAY INSPECTION & MAINTENANCE

STANDARD OPERATING PROCEDURES

June 2015

1.0 General

It is the responsibility of the City of Rockford Public Works Department to ensure the proper operation and maintenance of the MS4, including city-owned and timely enforcement of privately-owned stormwater structures. The City shall inspect, maintain, clean, and repair all city owned components of the MS4 including storm inlets, pipes, culverts, manholes, detention ponds, drainageways and all other stormwater structures to the maximum extent practicable. The City shall inspect, track and take necessary action to require that privately-owned stormwater structures are adequately maintained.

2.0 Personnel

2.1 Inspections

1. Storm Inlets/Manholes/Pipes – Street Maintenance Workers, Stormwater Staff, Engineering Project Managers, Engineering Technicians
2. Creek/Drainageway inspections – The Stormwater Staff of the Engineering Division and the Street Supervisors

2.2 Maintenance

Street Supervisors, Equipment Operators, Maintenance Workers, External Contractors

3.0 Equipment

3.1 Inspection

1. Clip Board with pen or pencil
2. Work boots or appropriate foot wear
3. Tape measure
4. Camera
5. Safety vest
6. Hard hats when around heavy equipment

3.2 Maintenance

1. Jet/Vac sewer cleaning vehicles (i.e. Vactor)
2. Light duty pickup trucks equipped with traffic control "arrow-board"
3. Backhoe
4. Heavy duty pickup with utility box
5. Skid-steer loader with bucket and breaker attachment
6. Heavy duty flatbed truck with cement mixer
7. Lawn mower(s)
8. Dump trucks

4.0 Material Disposal

All waste material generated by the inlet cleaning operation shall be emptied from the jet/vac vehicles at an approved dumping station and immediately loaded onto dump trucks and deposited in a licensed landfill facility. All sediment and debris removed from all cleaning operations shall be deposited in a licensed landfill facility.

5.0 Storm Inlets/Manholes/Pipes

5.1 Inspection

The City has over 29,000 known storm structures within its right-of-way and easements. Inspections are completed under two different processes.

1. Reactive:
   As citizens or city staff notify the Street Division of blocked inlets or pipes, sunken/broken structures or broken pipes. These inspections are completed by the Street Supervisors or the Stormwater Staff and tracked through the Infor (Hansen) Service Request System. Notification can be in the form of phone calls, emails, website requests or Hansen requests. A work order is generated by the Street Division and scheduled for inspection based on severity. Clogged inlets causing flooding are inspected and cleaned same day or within 24 hrs. Sunken structures are inspected immediately and barricade placed same day or within 24 hrs. Repairs are completed as part of the Yearly Inlet Package. All other requests are inspected within 1 week.

2. Proactive:
   As the Engineering Division performs street inspections for the Annual Capital Improvement Program projects or when the State performs resurfacing or reconstruction on State Highways within the City's jurisdiction. These inspections are completed by Engineering Project Managers or Engineering Technicians.

5.2 Maintenance

1. Inlet & Pipe Cleaning – Storm structure cleaning shall begin following the winter season with the initial focus on known problem areas that are susceptible to sediment and debris accumulation or flooding. List of known problem areas are kept at the Street Division and reviewed annually to determine if areas should be added or deleted from the list. Changes to the list will be summarized each year in the annual report. Subsequent inlet cleaning shall be based on the citizen requests/complaints and as needed based on the reactive and proactive inspections of the Street Supervisors, Stormwater Staff and Engineering Division. Frequency associated with known problem areas is dependent on weather conditions (i.e. A heavy winter as in the 2013/2014 winter season causes more debris to accumulate in the gutters and inlets requiring more frequent inlet cleaning and street sweeping.). Inlet cleaning shall also be completed as part of City road construction projects, as needed.

2. Inlet & Pipe Repairs – Storm structures, mains & laterals found to be substandard or failing shall be rebuilt or repaired in a timely manner dependent on weather conditions, with the largest percentage of the repairs being performed by an external contractor. Internal staffing will address moderate repairs as scheduling will allow. Inlets found to be in disrepair during the inspections as part of the Capital Improvement Program shall be repaired as part of the roadway project.

5.3 Documentation

Record of all storm structures / storm pipes inspected to include date, type of structure, size of each pipe, exact location (intersection, address, etc.), physical condition at time of inspection, sand/silt or debris present and recommended resolution to any of the above listed defects. If location, type and size of inlet vary from the GIS map system then the inlet data shall be given to the Facilities Management Section so the GIS maps can be updated.

Record of all structures/pipes cleaned to include date, type of structure, location (address or intersection), type and approximate amount of debris deducted, and number of feet of laterals or mains cleaned. Documentation shall be kept by the Street Division for the entire year and a summary of structures cleaned and the amount of material deducted shall be given to the Stormwater Section by the end of February of each for inclusion in the Annual Report.

Record of all structures repaired/replaced to include date, type of structure, address or intersection, nature of repair and cost of repair. For structures repaired by the Street Division the documentation shall be kept by the Street Division for the entire year and a summary of the number of inlets repaired shall be given to the Stormwater Section by end of February each year to include in the Annual Report. For inlets repaired as part of the Capital Improvement Program the documentation shall be kept by the project managers for the entire year and provide a summary of the number of structures repaired/replaced to the Stormwater Section by the end of February each year for inclusion in the Annual Report.

6.0 Drainageways

The City does not own or maintain all of these drainageways and creeks. Maintenance of private drainage systems shall be the responsibility of the property owner(s). The following is a list of drainageways within the City:

- Southeast Drainage Ditch/Buckbee Creek (Paved)
- Northwest Drainage Ditch (Paved)
- Airport East Watershed Creek
- Kent Creek
- Keith Creek
- Madigan Creek
- Manning Creek
- Fuller Creek
- Spring Creek
- Forest Hills Watershed Creek

6.1 Inspection

The City inspects all publicly and privately maintained drainageways and creeks. The City continues to assess the number of miles of paved and unpaved drainageways and creeks within its jurisdiction. As this is evaluated revisions to the total mileage to be inspected will be included in the annual report. If during an off inspection year the City determines there are additional drainageways to be inspected then it shall be documented in the annual report and included in the required inspections for following year.

These inspections are completed by the Stormwater Staff during the even years. This may be completed while performing the outfall inspections for illicit discharge. Inspections are to be performed during low flow conditions. Inspections of non-paved ditches/creeks shall be in accordance with Appendix A, Chapter 4 of Center for Watershed Protection Manual 10 "Unified Stream Assessment - A User's Manual." Inspections for paved ditches shall be in accordance with Appendix A, Chapter 4 and Appendix B, Chapter 9 of Center for Watershed Protection Manual 10 "Unified Stream Assessment - A User's Manual."

Results of the inspections shall be reviewed by the Stormwater Staff and Street Superintendent to determine appropriate maintenance measures.

1. Maintenance will be categorized as:
   i. None – no additional maintenance required
   ii. Minor – No immediate concerns. Minor maintenance (mowing, removal of debris) is needed. Flows are not compromised
   iii. Intermediate – No maintenance is being performed and flows will be compromised if maintenance doesn't commence. Minor erosion noted.
   iv. Major – Flows are compromised. Severe erosion noted. Needs significant maintenance and/or repairs.
   v. Life Safety

6.2 Maintenance

Privately Maintained Ditches/Creeks

Maintenance Notifications

1. For Life Safety concerns
   The property owner shall be immediately notified by phone, if possible. Otherwise the notification shall be provided through an in-person visit to the property-owner's residence. In all cases, the property owner shall also receive written notification. The written notification shall specify the required corrective actions, require the property-owner to commence corrective actions within 7 days, provide instructions and a deadline for certifying the completion of those corrective actions, provide a contact for the property-owner to obtain additional information, and identify consequences for noncompliance including follow-up action by the City. If a property-owner fails to certify

completion of the required corrective actions, the City will enter the property 10 days from the date of the notification to make the necessary improvements and the property owner will be responsible for all improvement costs and any associated fees, including attorney fees. Notification shall, also, include contacting the Stormwater Staff prior to commencing work in ensure proper remediation.

2. For Intermediate and Major maintenance needs:
    a. Owners shall be sent letters detailing needed repairs. This shall be completed within one (1) week of the inspection. Notification shall include the property owner scheduling a meeting with the Stormwater Staff to review remediation measures and to determine if work would require permitting through the IDNR or ACOE.
    b. If no permit is required property owners shall be given 90 days to complete the maintenance. If additional time is needed the property owner shall request an extension which will be reviewed by the Stormwater Staff. Depending on the extent of the repairs and the history of the property or owner the owner, may be sent through the code enforcement hearing process.
    c. The city will request property owners to send in the attached maintenance confirmation form upon completion of maintenance items as directed in the letter. Staff will review the maintenance to confirm it has been completed.
    d. As maintenance is reported as completed on the ditches/creeks in the Intermediate and Major categories it will be indicated on the spreadsheet. Failure of an owner of such a ditch/creek to notify the City within the 90 day timeframe will result in an additional inspection to assess compliance.

3. All other ditch/creek property owners will receive a form letter reminding them of their maintenance responsibilities.

4. All ditch/creek property owners will receive the Ditch/Creek Maintenance Guide included as Appendix C.

5. All ditches/creeks and their maintenance category will the tracked on an Excel spreadsheet.

Publicly Maintained Ditches/Creeks

Life Safety repairs shall be completed as soon as possible, with the understanding that temporary measures shall occur immediately to allow time for the Engineering Division, Street Superintendent and contractor to determine the best course of action for the remediation.

Major repairs to the City-owned paved and un-paved drainage systems/channels will be initiated by the Public Works Engineering Division and shall be prioritized based on the extent of the flow obstruction and erosion concerns. Analysis will begin within 30 days of the inspection and design solutions will begin. Construction timeframes vary due to weather, contractor availability and funding source determination. Temporary stabilization may be required to prevent additional erosion while the project is under design. This work may be completed by the Street Division or by a contractor.

Intermediate and Minor repairs shall be completed either internally by the Street Division or externally by contractors as required. In some cases the Engineering Division may complete the repairs as part of the Capital Improvement Program and shall be consistent with the Stormwater Management Plan.

Maintenance activities occasionally require equipment or personnel to enter a stream, river, channel, wetland or other water body. Cleanup/Repair, Drainage Ditch and Channel Maintenance and Bridge Repairs are among that maintenance work items that can require work in or near a water body. Maintenance equipment should not enter a water body without the required regulatory permits (e.g., Army Corps of Engineers Clean Water Act Section 404 permit, State Illinois Department of Natural Resources). The Floodplain Manager should be contacted to identify the appropriate permits.

In maintenance work near waterbodies, the following environmental stewardship practices should be followed.

- Evaluate alternatives to performing work in the water body.
- Tires should be cleaned before entering a water body.
- Heavy equipment driven into a water body to accomplish work should be clean of petroleum residue.
- Water levels should be below the gearboxes of the equipment in use, or equipment lubricants and fuels should be sealed such that inundation by water would not result in leaks.

Stream channelization or channel deepening as part of cleanup operations is prohibited and avoid placing equipment in-stream, whenever possible. Work is to be performed during low-flow conditions whenever possible and disturbance to existing stream bank vegetation is not to occur "unless absolutely necessary." Removed material must not be placed on the streambanks or in the floodway, and disturbed areas must be seeded and mulched.

6.3 Documentation

Inspection documents completed by consultants (IDNR), ACOE and the Stormwater staff shall be maintained in the Stormwater Share drive and paper reports completed by the ACOE shall be maintained in the appropriate file folders in the file cabinets.

Maintenance work performed or managed by the Engineering Division the Engineering Project Managers shall document all maintenance work performed by its contractors, including date, type of activity, nature of debris removal or bank stabilization performed and the approximate amount of debris removed (tons or cubic yards). Maintenance work completed on privately owned systems will be documented as noted above and shall be tracked on a Time and Materials basis in accordance with the latest edition of the Illinois Department of Transportation Specifications for city staff. Contractor costs shall be tracked based on contract agreement. The Engineering Division shall maintain this documentation for the entire year and provide the data to the Stormwater Section by the end of February each year for inclusion in the Annual Report.

The Street Division shall document all maintenance work performed by the Street Division and its contractors, including date, type of activity, nature of debris removal or bank stabilization performed and the approximate amount of debris removed (tons or cubic yards). The Street Division shall maintain this documentation for the entire year and provide the data to the Stormwater Section by the end of February each year for inclusion in the Annual Report.

The Stormwater Section shall maintain the maintenance documentation in the Stormwater Share Drive.

7.0 Dams & Levees

The City operates and maintains 3 dams (Alpine Dam, Page Park Dam, and Levings Lake Dam) and 1 levee (Kent Creek South Diversion Channel Levee) within its jurisdiction.

7.1 Inspections

Page Park Dam, Alpine Dam and Levings Lake Dam are required to be inspected annually by the City to meet the Illinois Department of Natural Resources (IDNR) compliance. The City retains a consultant to complete the annual inspections along with City staff. A report is completed by the consultant and submitted to the IDNR and the City. Traditionally, the Army Corp of Engineers completes an annual inspection of these dams and supplies a report to the City. For Kent Creek South Diversion Channel the Army Corp of Engineers completes an inspection of the diversion channel and levee and supplies the City with a report. When informed the City staff shall accompany the ACOE staff during the inspections.

7.2 Maintenance

Alpine Dam shall be operated and maintained in accordance with the Alpine Dam Operations and Maintenance Manual kept on file with the Engineering Division. Page Park Dam, Levings Lake Dam and Kent Creek South Diversion Channel shall be operated and maintained in accordance with the its Operation and Maintenance Manual kept on file in the Street Division and the Engineering Division. The City has agreements with the Rockford Park District for various maintenance tasks at Alpine Dam, Page Park Dam and Levings Lake but, ultimately, it's the City's responsibility to ensure the maintenance tasks are completed.

Publicly – Owned Detention Ponds

The City owns several detention ponds within its jurisdiction. The City owned ponds are listed below.

- Lowes Distribution Center
- Elliot Golf Course
- Arden Ct.
- Greater Rockford Industrial Park
- Logistics Parkway
- Harmon Park Ponds/Swales
- New Towne Dr. and Javelin Dr.
- Mulford Village Pond X (west)
- 802 Marchesano Dr. (Fire Station #3)

The City does not own the detention pond in Linden Pointe Subdivision but it is responsible for the maintenance of the pond walls and outlet structure. Rockford Park District owns and provides all other maintenance for this pond.

8.1 Inspection

Inspections are to be performed in accordance with the Detention Pond Inspection Standard Operating Procedures.

8.2 Maintenance

- Ponds shall be mowed a minimum of twice per year.
- Pond mowing and cleaning work shall be scheduled when dry weather is expected.
- Remove sediment & trash from grates, placing it in a truck for disposal.
- Do a visual inspection to make sure any grates, structures, manholes, boxes and pipes are in good working order.
- Provide outlet protection where feasible to minimize the amount of debris that might leave the basin during the cleaning process.
- Remove sediment and debris from the pond bottom.
- Clean structures and pond bottom by vactor truck, sweeping or shoveling when needed.
- All material is to be disposed into a dump truck and deposited in a licensed landfill.

8.3 Documentation

The Street Division shall document when maintenance was completed, type of maintenance completed and the amount of sediment and debris removed. Documentation shall be maintained by the Street Division for the year and by the end of February each year shall provide a summary of the work completed to the Stormwater Section for inclusion in the annual report. If the detention ponds require repairs then the Stormwater Section shall be notified. The Stormwater Staff and the Street Supervisors will determine the appropriate course of action for the

repairs and which Division will be responsible for the repairs. Priority of repairs shall be based on life safety, potential pond failure and funding available.

8.0 Bridges & Box Culverts

9.1 Inspection

The Engineering Division hires a consultant that is certified to completed bridge and box culvert inspections. Per State requirement, this is completed every two years and a report is generated of all bridges and box culverts including inspection results, structural integrity, pictures and recommended maintenance. Prior to and after a major rainstorm event the bridges & box culverts shall be inspected by the Street Supervisors or Stormwater Staff to determine if any debris is obstructing the natural flow through these structures. The amount and type of debris shall be documented.

9.2 Maintenance

Debris removal from the structures shall be completed at the earliest possible time by the Street Division staff or external contractors. Structural maintenance is completed by the Engineering Division through contracted projects. Major repairs shall be prioritized by the Engineering Division based on life safety and funding available.

9.3 Documentation

The Biennial Bridge Inspection Report shall be kept by the Engineering Division. Inspections made before and after major storm events shall be kept by the Stormwater Section. If maintenance is completed by the Street Division then the Street Division shall maintain the documentation and provide a summary of the maintenance to the Stormwater Section by the end of February each year for inclusion in the Annual Report. If maintenance is completed by the Engineering Division then the Project Managers shall maintain the documentation and provide a summary of the maintenance to the Stormwater Section by the end of February each year for inclusion in the Annual Report

9.0 Publicly Owned Trash Racks

9.1 Inspection

Trash racks shall be inspected by the Street Supervisors or Stormwater Staff prior to and following a major rainstorm event (4 inches or greater in 24 hours) to document any debris and floatables obstructing the natural flow through these structures. The City-owned trash rack locations are:

- Alpine Dam (floatable site per NPDES permit)
- Page Park
- Kishwaukee & Sandy Hollow (floatable site per NPDES permit)
- Arden Ct.
- Blackhawk Rd @ Falcon Rd

Section V of the permit requires the City to establish two monitoring points (identified above) for removal of floatables, to collect floatables material at the frequency necessary to prevent flow obstruction but at a minimum of twice each year, to estimate by volume or weight the amount collected, and to report the total each year in the annual report.

Locations not required under the NPDES permit will be inspected a minimum of once per year with debris removal as needed to prevent flow obstruction.

9.2 Maintenance

Prior to the storm event the debris and floatables shall be removed from the trash racks by either the Street Division or Stormwater Staff. The amount and type of debris/floatables removed shall be documented by weight. If debris/floatables accumulated after the storm then the debris/floatables will be removed at the earliest possible time by Street Division staff or external contractors.

9.3 Documentation

Documentation of the inspection, repair or debris/floatable removal from City-owned trash racks shall include date, type and amount (weight) of debris/floatables removed and any repairs needed and/or required or completed. Documentation shall be kept by the Stormwater Section for inclusion in the Annual Report.

10.0 Snow & De-Icing Operations

The Street Division is responsible for all snow and de-icing operations. Preparation for the winter season begins in August and the Street Superintendent shall be responsible for all coordination and documentation of the snow and de-icing operations. Each year the Street Superintendent shall meet with the Rockford Township Street Superintendent to coordinate efforts and improve efficiency of jointly owned streets. The Street and Water Divisions' staff perform the snow and de-icing operations of the City's arterial and collector level streets and perform the de-icing operations for residential streets and city-owned parking lots. A contractor is used to perform the snow removal operations on residential level streets and City owned parking lots. Each year the Street Superintendent shall review which operations should be completed by a Contractor to provide a more efficient or improved level of service. All documentation related to the snow and de-icing operations is retained by the Street Superintendent. Any change to the operation as noted above shall be documented in the Annual Report. Each year prior to and through the winter season the Street Superintendent shall analyze its salt supply and the rate it is being applied during the operations. If needed the amount of salt ordered, used and applied shall be adjusted. This evaluation shall be documented within the Annual Report. Salt storage and loading operations shall be in accordance with the City Yards Stormwater Pollution Plan. Brine and sand solutions shall be evaluated yearly for possible de-icing operations. If the Street Superintendent chooses to use sand for de-icing operations then additional street sweeping and inlet cleaning operations shall be evaluated. The Street Superintendent shall track the salt/sand/brine usage for each event and provide a monthly total to the Stormwater Staff by the end of February each year for inclusion in the Annual Report. Any adjustments made

shall be documented and provided to the Stormwater Staff for inclusion in the Annual Report.

11.0 Right-of Way and City-Owned Property Maintenance

11.1 Maintenance

In the City of Rockford property owners are responsible for mowing the right-of-way adjacent to their properties. Since the City owns approximately 900 properties the Street Division and the Community & Economic Development Department are responsible for maintaining these properties and their adjacent right-of-way. There are, also, various sections of right-of-way on arterial and collector level roads that the City is responsible for regardless of adjacent property ownership. The City contracts out the maintenance of these properties and the right-of-way and the specifications for those vendors are in Appendix D – City-wide Grounds Maintenance and in Appendix E - City Streets – Tree & Landscaping Maintenance.

11.2 Documentation

The Street Division shall randomly inspect the contractors' performance and document whether the contractor is meeting the requirements of the specifications. The Street Superintendent or the Street Supervisors shall determine if the lack of performance is addressed by verbal or written communication and whether its' severity warrants a deduction from the contractor's pay request.

APPENDIX A

Chapter 4: Severe Erosion (ER)

The USA assesses the most severe eroding banks along the survey reach, particularly at places where valuable infrastructure is threatened. Specifically, you will look for potential stream repair or restoration opportunities such as bank stabilization or grade control.

4.1 About Erosion

Stream erosion reflects the natural process of channel migration and adjustment, whereby streams continuously meander, widen and narrow in an attempt to reach a stable equilibrium. The balance between sediment load and discharge can be disrupted by urbanization. Severe erosion can occur when a stream's current velocity exceeds stability thresholds for bank materials at channel boundaries. Reduced bank stability caused by increased bankfull flooding can lead to rapid and excessive bank erosion as the stream adjusts to the changing hydrologic conditions.

The process of channel widening or downcutting can worsen as streams become progressively disconnected from their flood plain. Nick points occur where significant changes in streambed elevation are caused by channel incision, and are indicators of dynamic channel processes at work. Eroding banks can cause loss of property, destroy in-stream habitat, and contribute significant sediment loads downstream. Trimble (1997) estimated that more than half of the sediment loads from highly urban watersheds were derived from eroded stream banks. Figure 19 shows various examples of stream erosion you may encounter while conducting an ER assessment.

Extensive bank erosion and channel headcuts should be expected in urban subwatersheds. The ER form only collects information on localized nick points and banks where erosion greatly exceeds average reach conditions. Broader bank stability conditions are assessed as part of the overall RCH assessment (Chapter 11).

Figure 19: Types of Stream Erosion

Active bank erosion you can expect along meander bends in urban settings (Panel A), extreme erosion events that contribute significant sediment loads to receiving waters (Panel B), and in-stream nick points indicating channel erosion occurring in an upstream direction (Panel C) are examples of severe erosion you will want to record on ER forms.

Questions to ask when assessing eroded banks:

Is this area more severe than the rest of the survey reach?

Is infrastructure or property threatened?

What appears to be the cause of the erosion?

Are the banks actively contributing sediment to the stream?

Is this site a candidate for bank stabilization or grade control?

Severely eroded banks are evaluated during the USA for several reasons:

Nature and type of channel erosion: Knowing the nature and type of erosion within urban streams can help determine how eroding areas are influencing upstream and downstream reaches. The dominant channel erosion process in an urban stream often dictates which types of stream repair and restoration practices should be applied, if any (Manual 4). Locating nick points or headcuts can indicate where upstream erosion problems may occur in the future given current hydrologic conditions. A quantitative estimate of bank erosion can be used to model subwatershed sediment loadings.

Severity of bank erosion: While most urban streams exhibit some evidence of past or current bank erosion, the ER helps identify the most severe locations for potential bank stabilization or restoration (although they may not always be practical or feasible given overall subwatershed restoration goals).

Threatened infrastructure: Excessive erosion may expose or undermine existing infrastructure such as outfalls, sewer lines, telephone polls, bridge abutments, roads, parking lots, or other structures built too close to the stream. In some cases, it may be critical to repair or stabilize eroding areas to prevent future damage to valuable infrastructure.

4.2 Introduction to the ER Form

This section introduces the severe erosion impact form (ER) that assesses individual locations of eroded stream banks encountered during your stream walk. You are asked to record basic data on the location of erosion sites, estimate current channel dynamics and dimensions, and identify potential bank stabilization opportunities at each problem site. This section describes each part of the ER form, and provides guidance on how to complete it. Appendix A contains a blank copy of the ER impact form. A completed example ER form is included at the end of this chapter in Section 4.6, along with detailed explanations to help clarify how the field crew filled out each section of the form.

The first part of the ER form contains general header information common to all impact forms, and is self-explanatory.

You may want to modify the header section to reflect your reach and site labeling system, and whether you are using GPS units to fix locations. If you are using GPS units, record the beginning and end coordinates for each site, the GPS unit ID # and an LMK number. If the eroded bank is less than 100 feet long, GPS cannot calculate an accurate length, and you should measure it by pacing or with a tape measure.

The next part of the ER form asks you to describe the general channel processes that affect the eroding bank or stream channel. You should note the location and dimensions of the eroding area, as well as the ownership of the adjacent stream corridor.

You are asked to determine the overall **channel process** affecting the erosion site (e.g., is it aggrading or degrading), and to characterize how the channel process exerts itself on the stream (e.g., scour, slope failure, etc.). Of significant interest are headcuts and **nick points**, which are locations where active channel erosion is migrating in an upstream direction. Nick points are excellent indicators of the active channel erosion dynamics and directly affect the design of stream restoration projects. **Headcuts** observed on the side of a stream may also indicate the presence of an outfall discharging to the flood plain or side slope. You should trace these headcuts to their source. **Scour** is the process of removing bed or bank material through the erosive action of flowing water. **Bank failure** occurs when the toe of the stream bank is eroded beyond the point of bank support. **Slope failure** is often used describe the failure at steep bank slopes.

While not everyone has a full understanding of urban stream geomorphology, Table 13 gives some tips on how to determine the dominant channel processes in the stream. Table 14 also illustrates what many of these channel processes look like in the stream. If you feel uncomfortable about describing the channel process, simply check the currently unknown box.

Each eroded bank section should be recorded as either left, right, or both banks, and whether it occurs on a bend in the stream, or along a relatively straight section. Headcuts branching off the stream should also be recorded as either left or right bank, while nick points are, by definition, located within the stream channel itself. Bank erosion is typically found along meander bends and may be enhanced if the bend occurs against a steep slope.

Table 13: Features Used to Determine Current Channel Process

Process	Definition	Geomorphic Evidence
Aggradation	The geologic process by which a streambed is raised in elevation by the deposition of additional material transported from upstream (opposite of degradation)*	Mid-channel bars Embedded riffles Siltation in pools Accretion on point bars Deposition in the overbank zone
Degradation	The removal of streambed materials caused by the erosional force of water flow that results in a lowering of the bed elevation throughout the reach (opposite of downcutting)*	Deepened or "entrenched" stream bed Cut face on bar forms Headcutting and nickpoint migration Suspended armor layer in bank Terrace cut through older bar material Exposed sanitary or storm sewers
Downcutting (or incision)	Deepening of stream channel cross section resulting from process of degradation*	Tall banks (may see stratification) Disconnection from flood plain May occur if widening prohibited
Headcutting	The erosion of the channel bed, progressing in an upstream direction*	Nickpoints Small drops in elevation (mini waterfalls) Abnormally steeped channel segments
Widening	Increased width of stream channel cross section resulting from degradation process	Falling/leaning trees Scour on both banks through riffle Exposed tree roots; Fracture lines along top of bank Exposed infrastructure
Stable	Channel in balance between aggrading and degrading forces	Water reaches toe of each bank Moss on rocks or extending down into bottom of bank Banks are stable; connected to flood plain Erosion is slight and limited to meander bends

** Definitions from the Washington State Aquatic Habitat Guidelines Program (2002)*

The ER form also asks for some basic channel and bank dimensions. Figure 20 provides guidance on how to measure the cross-sectional area of a stream channel. **Bank height** is typically the distance from top of water to top of bank. At streamside headcuts, be sure to estimate the length of active erosion, as well as its potential distance if the headcut has not migrated all the way to its source. For nick points, record the height and distance to the next upstream grade control structure such as a road crossing or channelized section. Alternatively, you can simply note the location of the next grade control structure and calculate the length back in the office.

The last part of the ER form allows you to recommend any potential restoration practices that may be appropriate for the eroded bank (Box 6). Envisioning stream restoration potential can seem difficult at first, but can be acquired with a little study and a lot of practice. Some practices to consider include bank stabilization, grade control, or other stream repairs. Rigid bank stabilization includes such things as boulder revetments, root wads,

Table 14: Erosion Characteristics to Note During Site Assessment

Stable reach, with low banks, stream still has access to flood plain at high flows.

Aggrading reach with obvious formation of mid channel bars.

Signs of degradation include visible stratification lines in stream bank

Downcutting reach with tall banks on either side

Presence of manhole stack in stream is evidence of stream widening process

Moss covered banks are indicators that banks have since stabilized

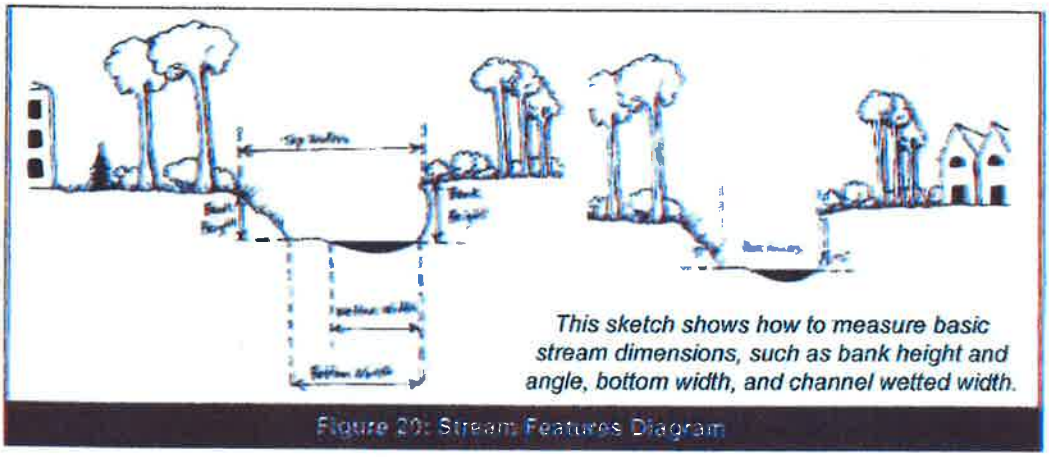
Extreme erosion can occur when streams cut into steep slopes. Check level of soil consolidation in these areas to see if actively eroding

Below this eroded bench is a stabilized stream bank. This should not be considered as active bank erosion.

Headcut rapidly migrating upwards towards an outfall. Note collapse of adjacent vegetation

rip rap, or other relatively hard structures. Soft bank stabilization practices include coir fiber logs, live fascines, brush mattresses, or other bioengineering techniques that use vegetation to protect the banks (Figure 21). Grade control practices refer to step pools, rock vanes, or log drops that prevent the migration of headcuts (Figure 22). These and other stream repair practices are described in more detail in Manual 4.

The **erosion severity score** rates the extent of erosion on a five-point scale, where five is the most severe. You should also check to see if access is available to get heavy equipment to the site. Erosion severity and access scores should be marked on the ER form to identify the most severe and accessible eroded banks in the subwatershed.



This sketch shows how to measure basic stream dimensions, such as bank height and angle, bottom width, and channel wetted width.

Figure 20: Stream Features Diagram

Figure 21: Example Hard and Soft Bank Stabilization Practices

Panel A illustrates the use of rip rap to restore an eroded section of stream. Panel B shows the mixed use of coir fiber logs and riprap to stabilize outfall and repair adjacent stream bank.

4.3 Which Eroded Banks Should I Record?

Some bank erosion should be expected in most urban streams, and it is unrealistic to have field crews GPS and assess every foot of eroded bank if restoration is not practical. Therefore, slope failures, bank sloughing, incision, or channel enlargement should only be recorded for banks that are noticeably worse than the "average" eroded bank along the survey reach (Figure 23). Sites with average bank erosion should only be counted if adjacent infrastructure is threatened or significant property loss is evident. Streamside headcuts and channel nick points with elevation changes of at least two feet should always be recorded, since they signal that active channel erosion is migrating upstream.

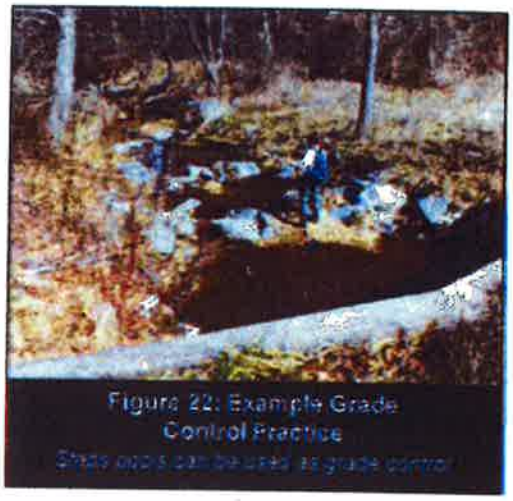


Figure 22: Example Grade Control Practice

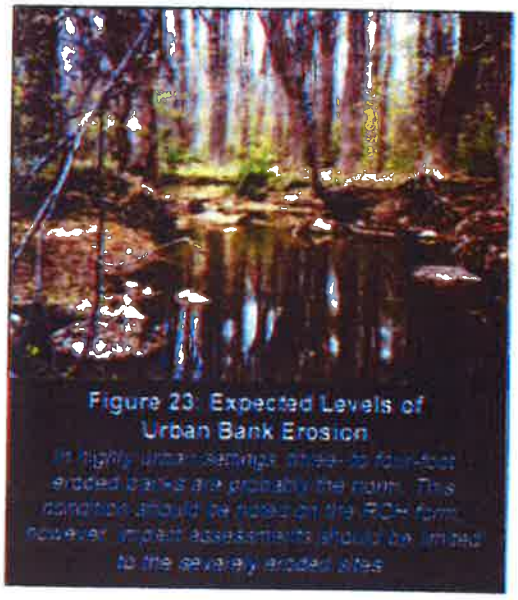


Figure 23: Expected Levels of Urban Bank Erosion

4.4 Field Assessment Tips

This list provides some quick tips for assessing stream erosion:

- Track all headcuts to their source, even if they are lateral to the stream.
- Only include channel nick points if the vertical change in stream elevation is more than a foot.
- Look for root hairs on stream banks to determine active erosion.
- Look for signs of major sediment deposition to determine channel degradation.
- Stratified layers in the bank may be a clue that the stream is downcutting.
- Banks composed of unconsolidated materials such as gravel, sand, or silt are often more unstable than those of compacted clay.
- If bedrock is present, then stream widening may be the dominant channel process. In this case, bank height may not be greater than average reach conditions, but the increase in cross sectional area may be greater.
- Make sure to look behind overhanging vegetation to determine extent of bank erosion and vegetative cover.
- Be sure not to confuse historic channel migration features with newly formed, actively eroding benches.
- Don't worry if you can't envision stream restoration. Take a look at Manual 4, and tour some local stream restoration projects prior to performing the ER.

Table 15: How ER Data Can Be Used	
Problem Assessed	Nature and type of channel erosion Severity of bank erosion Threatened infrastructure
Potential Restoration Practice *(Manual profile sheets)*	Potential sites for bank stabilization (R-3, R-15) Grade control (R-18 to R-21)
Stream Corridor Metric	# of severe bank erosion sites Estimated bank erosion sediment load
Output for Planning	Map of erosion sites
**The code in parentheses refers to the appropriate restoration profile sheet in the Restoration Manual Series. R- sheets can be found in Manual 4: Stream Repair Practices*	

4.5 Using ER Data in Subwatershed Restoration

Severe erosion data can be used to identify eroded banks, generate a list of potential stream repair practices, develop stream erosion metrics, and generate planning maps (Table 15). This information can show the degree to which channel erosion poses a significant threat in the stream corridor and how important stream stabilization and repair projects will be in the overall restoration plan.

4.6 Example ER Form

The severe erosion impact form (ER) assesses individual locations of eroded stream banks encountered during your stream walk. You are asked to record basic data on the location of erosion sites, estimate current channel dynamics and dimensions, and identify potential bank stabilization opportunities at each problem site. A detailed explanation of how the field crew filled out each section of this example form is included on the next page.

Severe Bank Erosion **ER**

A.

WATERSHED/SUBSHED: SMILEY RUN | DATE: 3/10/03 | ASSESSED BY: MK, SWB
SURVEY REACH: 102-1 | TIME: 9:45 AM | PHOTO ID (CAMERA-PIC #): A # 03-04
SITE ID (Condition-#) ER-1 | START LAT ° ' " LONG ° ' " LMK | GPS: (Unit ID)
END LAT ° ' " LONG ° ' " LMK

B.

PROCESS: ☐ Currently unknown
☐ Downcutting ☐ Bed scour
☑ Widening ☐ Bank failure
☐ Headcutting ☐ Bank scour
☐ Aggrading ☑ Slope failure
☐ Sed. deposition ☐ Channelized

BANK OF CONCERN: ☐ LT ☑ RT ☐ Both (looking downstream)
LOCATION: ☐ Meander bend ☐ Straight section ☑ Steep slope/valley wall ☐ Other: TREE ENCROACHMENT
DIMENSIONS:
Length (if no GPS) LT — ft and/or RT 100 ft | Bottom width 10 ft
Bank Ht LT — ft and/or RT 5.5 ft | Top width 15 ft
Bank Angle LT — ° and/or RT 90 ° | Wetted Width 7.5 ft

LAND OWNERSHIP: ☑ Private ☐ Public ☐ Unknown | LAND COVER: ☐ Forest ☐ Field/Ag ☐ Developed:

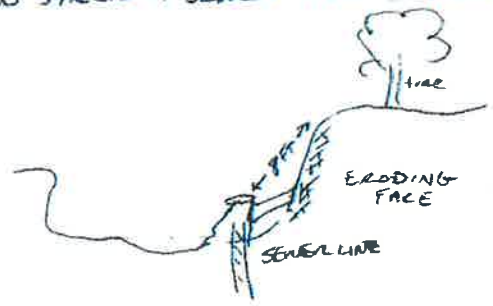
C.

POTENTIAL RESTORATION CANDIDATE: ☐ No ☐ Grade control ☑ Bank stabilization ☐ Other:
THREAT TO PROPERTY/INFRASTRUCTURE: ☐ No ☑ Yes (Describe): SEWER LINE
EXISTING RIPARIAN WIDTH: ☐ <25 ft ☐ 25-50 ft ☐ 50-75 ft ☐ 75-100 ft ☐ >100 ft

EROSION SEVERITY (circle #)	5	4	3	2	1
Channelized- ☐ 5	Active downcutting; tall banks on both sides of the stream eroding at a fast rate; erosion contributing significant amount of sediment to stream; obvious threat to property or infrastructure.		Past downcutting evident; active stream widening; banks actively eroding at a moderate rate; no threat to property or infrastructure		Grade and width stable; isolated areas of bank failure/erosion, likely caused by a pipe outfall, road scour, impaired riparian vegetation or adjacent use.
ACCESS:	5	4	3	2	1
	Good access: Open area in public ownership, sufficient room to stockpile materials, easy stream channel access for heavy equipment using existing roads or trails.		Fair access: Forested or developed area adjacent to stream. Access requires tree removal or impact to landscaped areas. Stockpile areas small or distant from stream.		Difficult access. Must cross wetland, steep slope or other sensitive areas to access stream. Minimal stockpile areas available and/or located a great distance from stream section. Specialized heavy equipment required.

NOTES/CROSS SECTION SKETCH:

BIG MESS!!
JUST UPSTREAM OF GROCERY STORE, BANK ACTIVELY ERODING, HEAVY SEDIMENT DEPOSITION IN STREAM. SEWER LINE EXPOSED.



REPORTED TO AUTHORITIES ☐ Yes ☑ No

How the Example ER Form Was Completed

Part A

The field crews in this example assessed an eroded bank in the Smiley Run subwatershed in survey reach 102-1. They took two photos at this location that also happened to be the first excessively eroded site they encountered in the reach.

Part B

In this part of the ER form, the eroded bank extended about 100 feet along the right bank and appeared to be threatening an embankment. Measured bank height was almost nine feet.

Part C

Here the field crew identified an eroded bank as a potential candidate for bank stabilization due to an exposed sewer line. Because of the immediate threat to infrastructure, the crew rated the bank erosion as a "5" for severity. Site access was considered good, although the best access was across private property.

Severe Bank Erosion **ER**

WATERSHED/SUBSHED:		**DATE:** ___/___/___	**ASSESSED BY:**
SURVEY REACH:	**TIME:**___:___AM/PM	**PHOTO ID** (CAMERA-PIC #):	/#
SITE ID: (*Condition-#*) **ER-**____	*START* **LAT** ___ ° ___ ' ___ " **LONG** ___ ° ___ ' ___ " **LMK** ____		**GPS:** (*Unit ID*)
	END **LAT** ___ ° ___ ' ___ " **LONG** ___ ° ___ ' ___ " **LMK** ____		

PROCESS: ☐ Currently unknown

☐ Downcutting ☐ Widening ☐ Headcutting ☐ Aggrading ☐ Sed. deposition

☐ Bed scour ☐ Bank failure ☐ Bank scour ☐ Slope failure ☐ Channelized

BANK OF CONCERN: ☐ LT ☐ RT ☐ Both (*looking downstream*)

LOCATION: ☐ Meander bend ☐ Straight section ☐ Steep slope/valley wall ☐ Other:

DIMENSIONS:

Length (*if no GPS*)	LT_____ft	and/or RT_____ft	Bottom width _____ft
Bank Ht	LT_____ft	and/or RT_____ft	Top width _____ft
Bank Angle	LT_____°	and/or RT_____°	Wetted Width _____ft

LAND OWNERSHIP: ☐ Private ☐ Public ☐ Unknown

LAND COVER: ☐ Forest ☐ Field/Ag ☐ Developed:

POTENTIAL RESTORATION CANDIDATE: ☐ No ☐ Grade control ☐ Bank stabilization ☐ Other:

THREAT TO PROPERTY/INFRASTRUCTURE: ☐ No ☐ Yes (Describe):

EXISTING RIPARIAN WIDTH: ☐ ≤25 ft ☐ 25 - 50 ft ☐ 50-75ft ☐ 75-100ft ☐ >100ft

EROSION SEVERITY (*circle#*) Channelized= ☐ 1	Active downcutting; tall banks on both sides of the stream eroding at a fast rate; erosion contributing significant amount of sediment to stream; obvious threat to property or infrastructure.	Pat downcutting evident, active stream widening, banks actively eroding at a moderate rate; no threat to property or infrastructure		Grade and width stable; isolated areas of bank failure/erosion; likely caused by a pipe outfall, local scour, impaired riparian vegetation or adjacent use.
	5	4	3	2 1
ACCESS:	**Good access:** Open area in public ownership, sufficient room to stockpile materials, easy stream channel access for heavy equipment using existing roads or trails.	**Fair access:** Forested or developed area adjacent to stream. Access requires tree removal or impact to landscaped areas. Stockpile areas small or distant from stream.		**Difficult access.** Must cross wetland, steep slope or other sensitive areas to access stream. Minimal stockpile areas available and/or located a great distance from stream section. Specialized heavy equipment required.
	5	4	3	2 1

NOTES/CROSS SECTION SKETCH:

REPORTED TO AUTHORITIES ☐ YES ☐ NO

APPENDIX B

Chapter 9: Channel Modification (CM)

This part of the USA examines the extent to which stream channels are modified within the urban stream corridor. Examples of channel modifications include channelization, bank armoring, channel lining, and flood plain encroachment. During the channel modification (CM) assessment, you will be specifically looking for channel segments that may need structural repair or present opportunities for a more natural stream channel design.

9.1 About Channel Modification

Many urban stream segments have been historically modified to safely convey floodwaters, maintain a stable channel, restrict channel migration, or realign channels around property or infrastructure. The basic engineering approach is to "design" a new channel or flood plain with less roughness (e.g., boulders, vegetation, large woody debris, meander bends), greater slope, and expanded cross-sectional area to pass floodwaters more quickly and efficiently. As a consequence, some urban streams are converted into straight channels that are often lined with concrete to reduce roughness. In other streams with little room for channel migration, banks are often fixed in place by armoring them with rip-rap and rock. In other situations, the capacity of the flood plain to accommodate floodwaters has been structurally altered by filling, dikes, or other measures.

In the most extreme instances, streams are entirely enclosed in underground pipes or extended culverts (note: this category of channel modification is already assessed in the USA by the SC form). Both stream and riparian habitat can be degraded or eliminated by channel modifications, and in some cases, fish passage may also be prevented. Newer, more environmentally-sensitive channel design may be a viable option to restore some natural features within modified channels. Figure 38 illustrates some of the typical channel modifications you may encounter during the USA.

Channel modifications are included in the USA survey for several reasons:

Stream Interruption: An understanding of channel modification gives you a sense of the degree of stream interruption in your subwatershed. This factor is extremely

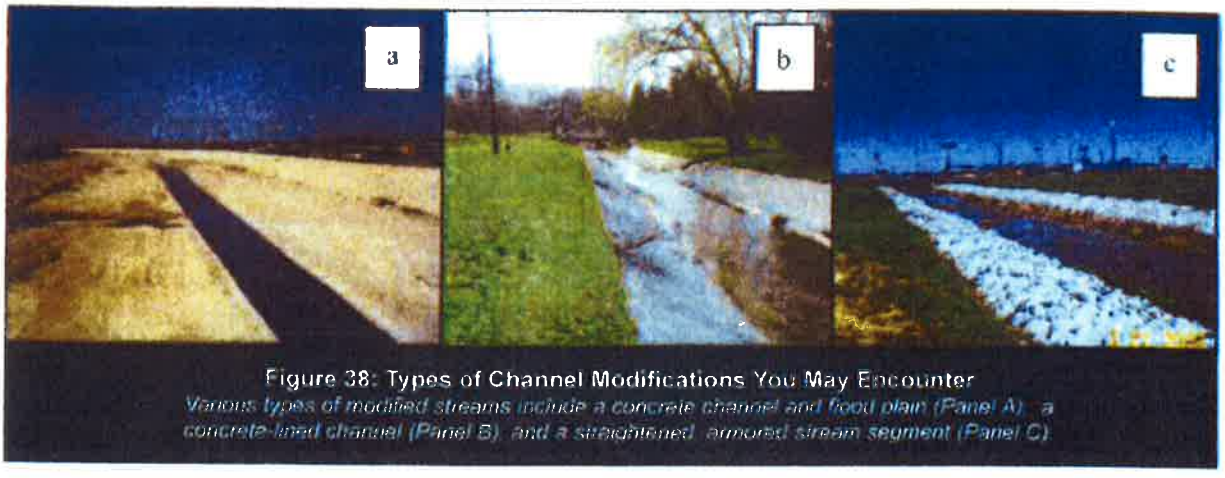


Figure 38: Types of Channel Modifications You May Encounter
Various types of modified streams include a concrete channel and flood plain (Panel A), a concrete-lined channel (Panel B), and a straightened, armored stream segment (Panel C).

Questions to ask when assessing channel modifications:

How severely is this modification affecting stream corridor habitat?

What is the length and purpose of the modification?

Can softer bank stabilization methods be used?

Can more natural channel design be employed?

important to determine where stream restoration projects make sense across the entire stream corridor.

Channelization: In some instances, channelized segments of the stream network are candidates for restoration using techniques such as de-channelization, natural channel design, and baseflow channel creation. Also, if the CM form suggests armoring or other stabilization techniques are failing, it may be a good opportunity to replace them with bioengineering techniques (Manual 4).

Habitat Degradation: The CM form quickly identifies the portion of the urban stream network where stream or riparian habitat has been degraded or eliminated by channel modification.

Tracking Stream Bank Armoring: While some communities have been stabilizing banks for decades, institutional knowledge of these project locations may have been lost. The CM form can help generate a map of these repair/ restoration locations.

9.2 Introduction to the CM Form

This section introduces you to the channel modification (CM) assessment form. The form asks you to record basic data on the length and nature of the channel modification, and determine whether it might be a candidate for possible restoration. This section describes the four parts of the CM form, and provides guidance on how to complete each one. Appendix A provides a blank version of the CM form. A completed example CM form is included at the end of this chapter in Section 9.6, along with detailed explanations to help clarify how the field crew filled out each section of the form.

The first part of the CM form contains general header information that locates where the modified channel section is in the survey reach.

As always, the header should be modified to reflect your reach and site labeling system. If you are using a GPS unit, record the beginning and ending coordinates for each channel segment, and remember to note the GPS unit ID # and an LMK number. If the modified section is shorter than 50 feet long, GPS units cannot calculate an accurate length. Instead, measure these sections by pacing or with a tape measure. Depending on how extensively channels have been modified in the subwatershed, you may want to skip these short sections altogether.

The next part of the CM form asks you to describe the type of channel modification and the dominant material that comprises it.

Four basic options are available. **Channelization** refers to a channel that has been excavated and straightened to eliminate natural meanders and bends. **Bank armoring** consists of an extended length of bank protected by hard stabilization measures, such as rip-rap, gabions, rock, or retaining walls. Armoring can occur on one or both banks and should only be recorded if it extends more than 50 feet. Concrete channels should be checked on the CM form if the natural stream or banks have been replaced with concrete lining that extends more than 50 feet. Lastly, **flood plain encroachment** should be checked if you see obvious signs of earth fill, levees, or dikes in

the flood plain or stream corridor. Note that more than one type of channel modification can occur in each segment. If only one bank is affected by the modification, indicate this in the notes section on the CM form. Table 23 illustrates a number of common channel modifications you may encounter in the field.

Next, assess the condition of the channel, and note any perennial flow, sediment deposition, vegetative growth, or apparent connection with the flood plain. Each of these conditions provides useful clues about sediment and flow dynamics through the modified channel. You should also measure the basic dimensions of the channel modification, take a photo, and draw a rough sketch.

The next part of the CM form asks you to assess the nature of the stream corridor adjacent to the channel modification and the current baseflow channel segment. Both factors are crucial to determine if natural channel design may be suitable for the channel segment.

You should estimate the "**available**" width of the adjacent stream corridor on both sides of the channel. Available means open ground, with no obvious structures or utilities present.

Table 23. Channel Modifications to Note During Site Assessment

At crossings, only record on CM form if modification extends at least 100 feet up or downstream.

Measure the width of the channel bottom. If there is perennial flow, measure the water depth.

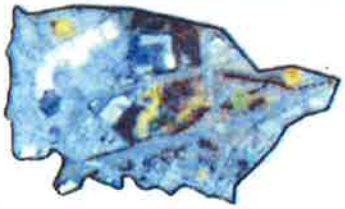
Channelized and concrete-lined segment that maintains good connectivity with the flood plain.

Sediment deposits and algal growth on bottom of a concrete-lined channel.

Rock revetments should be recorded as bank armoring.

Imbricated rip-rap used for bank stabilization; Record if 50 feet or longer

Gabion baskets used to stabilize a stream bank.



Highly urban subwatersheds frequently have most of their surface streams piped.

Exposed portion of an enclosed stream in a commercial area.

Also, note if any earthen fill, dikes, or levees occur in the adjacent stream corridor, which could constrain flood plain capacity. Lastly, you should examine the **baseflow channel**, noting the average depth of flow, and the fraction of the channel bottom over which it flows. Check to see if there is a defined low-flow channel, and record its average depth of flow.

The last part of the CM form asks you to recommend whether the modified channel might be a candidate for structural repair, more natural channel design, or fish barrier removal. Consult profile sheets R-5 to R-15, R-25, R-30, CR-32, and CR-33 in Manual 4 to familiarize yourself with these stream restoration techniques. If you don't feel comfortable making a restoration recommendation, simply check the "Can't tell" box. The CM form provides some guidance on how to score the overall **severity** of channel modification on a scale of one to five (five being the most severe). Figure 39 illustrates modified channel segments that should be considered restoration candidates.

9.3 Which Modified Channels Should I Record?

Most urban streams are extensively modified over much of their length, so only record "hard" channel modifications longer than 50 feet. Do not record channel modifications that are immediately associated with structured stream crossings unless they extend 100 feet above or below the crossing. "Soft" bank stabilization practices should not be counted.

9.4 Field Assessment Tips

Some quick tips for evaluating channel modifications in the field are provided below:

- To reduce the number of forms you will need to complete, only record channel modifications that are at least 50 feet long.
- Also, you only need to record channel modifications associated with stream crossings if they extend at least 100 feet upstream or downstream of the crossing.
- Keep in mind that channel modifications can occur on the bed, banks, and flood plain of the stream corridor.
- If a channel modification extends on both sides of a road crossing that is used as a survey reach boundary, make sure to extend the survey reach to include the entire modified channel.
- Enclosed sections or extended culverts are picked up on the SC form and should not be recorded on the CM form.

Figure 39: Restoration of Channelized Stream Segments
Candidate site for structural repair (Panel A) and natural channel restoration (Panel B)

Table 24. How CM Data Can Be Used	
Problem Assessed	Stream interruption Channelization Habitat degradation
Potential Restoration Practice *(Manual Profile sheets)*	Baseflow channel creation (R-25)* Natural channel design (CR-32) De-channelization (CR-33)
Stream Corridor Metric	Channelized length Channelized length per stream mile
Output for Planning	Map of potential fish barriers Map of channelized sections Map of potential de-channelization projects Map of grade control structures
**The code in parentheses refers to the appropriate restoration profile sheet in the Restoration Manual Series. R and CR-sheets can be found in Manual 4: Stream Repair and Practices*	

9.5 Using CM Data in Subwatershed Restoration

Channel modification (CM) data can be used in several ways for restoration planning. CM data can be used to measure stream interruption, generate a list of stream restoration practices, develop stream channelization and habitat metrics, and generate planning maps (Table 24). CM data can help you decide whether channel modifications are a significant problem in the subwatershed and how important channel restoration should be in the overall restoration plan.

9.6 Example CM Form

The CM form asks you to record basic data on the length and nature of the channel modification, and determine whether it might be a candidate for possible restoration. A detailed explanation of how the field crew filled out each section of this example form is included on the next page.

Channel Modification **CM**

A.

WATERSHED/SUBSHED: SMILEY RUN | DATE: 3/10/03 | ASSESSED BY: ACK, SAE

SURVEY REACH ID: 102-1 | TIME: 10:25 (AM)/PM | PHOTO ID: (Camera-Pic #) 4 # 08

SITE ID: (Condition-#) CM-1 | START LAT ___° ___' ___" LONG ___° ___' ___" LMK ___ | GPS: (Unit ID)

END LAT ___° ___' ___" LONG ___° ___' ___" LMK ___

B.

TYPE: ☒ Channelization ☒ Bank armoring ☐ concrete channel ☐ Floodplain encroachment ☐ Other:

MATERIAL:			DIMENSIONS:	
☐ Concrete ☐ Gabion	Does channel have perennial flow?	☒ Yes ☐ No	Height	6.5 (ft)
☒ Rip Rap ☐ Earthen	Is there evidence of sediment deposition?	☐ Yes ☒ No	Bottom Width	8.0 (ft)
☐ Metal	Is vegetation growing in channel?	☐ Yes ☒ No	Top Width:	15.0 (ft)
☐ Other:	Is channel connected to floodplain?	☐ Yes ☒ No	Length:	150 (ft)

C.

BASE FLOW CHANNEL
Depth of flow 10 (in)
Defined low flow channel? ☒ Yes ☐ No
% of channel bottom 70 %

ADJACENT STREAM CORRIDOR
Available width LT 50 (ft) RT 100 (ft)
Utilities Present? ☒ Yes ☐ No
Fill in floodplain? ☐ Yes ☒ No

D.

POTENTIAL RESTORATION CANDIDATE ☐ Structural repair ☐ Base flow channel creation ☐ Natural channel design ☐ Can't tell ☒ no ☐ De-channelization ☐ Fish barrier removal ☐ Bioengineering

CHANNELIZATION SEVERITY: (Circle #)	A long section of concrete stream (>500') channel where water is very shallow (<1" deep) with no natural sediments present in the channel.		A moderate length (> 200'), but channel stabilized and beginning to function as a natural stream channel. Vegetated bars may have formed in channel.		An earthen channel less than 100 ft with good water depth, a natural sediment bottom, and size and shape similar to the unchannelized stream reaches above and below impacted area.
	5	4	3	(2)	1

NOTES: Bottom of channel is natural - just banks have been straightened and armored downstream of road crossing - seems a bit excessive - not much rest. potential

How the Example CM Form was Completed

Part A

In this example, the field crew assessed an armored stream section in the Smiley Run subwatershed in survey reach 102-1, and took a single photo at this location.

Part B

The field crew evaluated a channel segment armored with 150 feet of rip-rap on both banks as part of a past bank stabilization project. The channel had perennial flow, but showed no signs of deposition or vegetative growth in the channel, which also did not appear to be connected to the flood plain.

Part C

In this part of the form, the field crew observed a defined low flow channel. Flow was approximately 10 inches deep and took up most of the width of the channel. Exploring the adjacent flood plain area, the field crew observed no fill or excavation activities, though utilities did interrupt the stream corridor on the left bank.

Part D

The field crew assigned this segment a low severity rating due to its natural channel bottom and relatively short distance of modification. They were unable to envision a particular type of restoration at the site.

Channel Modification **CM**

WATERSHED/SUBSHED:		**DATE:** ___/___/___	**ASSESSED BY:**
SURVEY REACH ID:	**TIME:** ___:___ AM/PM	**PHOTO ID:** (*Camera-Pic #*)	/#
SITE ID: (*Condition-#*) CM-____	*START* **LAT** ___° ___' ___" **LONG** ___° ___' ___" **LMK** ____		**GPS:** (*Unit ID*)
	END **LAT** ___° ___' ___" **LONG** ___° ___' ___" **LMK** ____		

TYPE: ☐ Channelization ☐ Bank armoring ☐ concrete channel ☐ Floodplain encroachment ☐ Other:

MATERIAL:		**DIMENSIONS:**
☐ Concrete ☐ Gabion ☐ Rip Rap ☐ Earthen ☐ Metal ☐ Other:	Does channel have perennial flow? ☐ Yes ☐ No Is there evidence of sediment deposition? ☐ Yes ☐ No Is vegetation growing in channel? ☐ Yes ☐ No Is channel connected to floodplain? ☐ Yes ☐ No	Height _____(ft) Bottom Width _____(ft) Top Width: _____(ft) Length: _____(ft)

BASE FLOW CHANNEL
Depth of flow _____(in)
Defined low flow channel? ☐ Yes ☐ No
% of channel bottom _____%

ADJACENT STREAM CORRIDOR
Available width LT_____(ft) RT_____(ft)
Utilities Present? ☐ Yes ☐ No
Fill in floodplain? ☐ Yes ☐ No

POTENTIAL RESTORATION CANDIDATE ☐ Structural repair ☐ Base flow channel creation ☐ Natural channel design ☐ Can't tell ☐ no ☐ De-channelization ☐ Fish barrier removal ☐ Bioengineering

CHANNEL-IZATION SEVERITY: (*Circle #*)	A long section of concrete stream (>500') channel where water is very shallow (<1" deep) with no natural sediments present in the channel.	A moderate length (> 200') ,but channel stabilized and beginning to function as a natural stream channel. Vegetated bars may have formed in channel.	An earthen channel less than 100 ft with good water depth, a natural sediment bottom, and size and shape similar to the unchannelized stream reaches above and below impacted area.
	5	4 3	2 1

NOTES:

APPENDIX C

Guidelines for Creek/Ditch Maintenance by Creekside Property Owners

Creeks carry direct runoff from creekside properties and through linkage with manmade storm drains which carry runoff from the rest of the City's land area. This interconnected system is the means by which stormwater runoff is contained to minimize flooding. Maintenance of the creeks is the responsibility of the owner whose property includes/abuts a creek (typically property line is to the centerline of a creek). When the creek area is not properly maintained, the resulting obstructions can lead to increased flooding, changes in the course of the creek and increased erosion of the obstructed property or downstream of the property. When maintained properly, creeks are a natural resource that provide habitat for wildlife and provide aesthetic benefits that can increase the value of creekside properties. The purpose of this guide is to provide you, the creekside property owner, with practical information for the proper care and preventative maintenance of the creek as a part of your property.

The City of Rockford requires the following guidelines for maintaining the creek on your property:

- **Remove all debris and garbage:** This may include bottles and cans, broken concrete, tires, fallen fences, appliances or any other man-made objects. This also includes wood and fallen trees or tree limbs. This is the property owner's responsibility even if the object has washed down from upstream. It is recommended that all stored material on your property be placed a minimum of 10 feet away from the top of the bank to avoid material washing away into the creek during heavy storms. Sheds and minor structures should be anchored to the ground if closer than 10 feet.
- **Remove vegetation except low ground cover from the bottom of the stream channel up to the top of the bank (flood line):** This includes shrubs, tulle, pampas grass, cattails and bamboo. Leave all root systems in place to help with erosion prevention. Remove hanging vines that may create an obstruction to the natural flow of the water in the creek. Berry vines should be trimmed back to the bank.
- **Remove tree limbs within or hanging over the creek to within 2 feet of the toop of the creek bank:** Any single tree of 2 inch diameter or greater which is living and not leaning toward the creek may remain. Trim any trees growing in clusters, trees with mulitple trunks or trees within the stream channel that may cause an obstruction to the flow of waterr, but leaving the root system in place.
- **Do not clear-cut the creek slope:** Leave gournd cover such as low grasses or vines. Trees should be cut at ground level with roots left in the ground.
- **Keep slope stabilization measures in good condition:** If you have existing slope stabilization measures such as rip-rap (rock, concrete, etc.) a retaining wall, or jute covering, keep these measures in good conditioin. If these measures require any repair of if you want to install a measure to stabilize a slope, you must first contact the jurisdictional agencies to determine if a permit will be necessary. If any work is done to alter the creek including widening, filling, dredging/altering the natrual creek flow, an Army Corps of Engineers and Illinois Departement of Natural Resources permit may be required.

Ditch Maintenance: You may have a ditch or drainage swale on your property that is there to convey stormwater either to the rear or front of your property or from one side of your property to the other. These ditches/swales shall be mowed regularly, kept clear of obstruction and shall not be filled with dirt or mulch. Lack of proper maintenance may cause flooding in and around your property.

For assistance, please contact the Stormwater & Environmental Team by calling 815-987-5570, Mon.-Fri. between 8am-5pm.

April, 2014

425 East State Street, Rockford, Illinois 61104-1068 USA
(815) 987-5570 (815) 967-7068 fax www.rockfordil.gov

APPENDIX D

Appendix D

City-Wide Grounds Maintenance

1.0 Specific Requirements

1.1 Seasonal Work. The vendor shall remove all leaves and winter debris or trash from beds, turf and non-turf areas twice a year, once in the spring and once in the fall.

1.2 On-site preparation and cleanup. Prior to each mowing occurrence the vendor shall pick clean the entire site, removing all litter, trash, branches, glass, and debris. The first cycle of mowing will generally entail an increased amount of litter picking over subsequent cycles. The vendor will not be paid additional any amount over and above what is bid for each site, therefore should consider this in their overall bid submittal. The vendor shall notify the City Representative of excessive litter, illegal dumping or large tree limbs. If this condition exists, it will be addressed by the City upon inspection and approval of the City Representative. Paper, cups and other litter must not be mowed so as not to detract from the sites' appearance. When mowing along roadways, the first two (2) swaths cuts along the curb or roadway edge shall be made in such a direction that all clippings discharged from mowers shall be away from the curb or roadway edge. If the Vendor is determined by the City Representative to be in violation of the aforementioned standards, said Vendor shall be subject to liquidated damages as outlined in paragraph 4.10. and any additional cost to the City for cleanup shall be deducted from subsequent invoices submitted by the Vendor.

1.3 Trimming. Final trimming around permanent objects such as trees, posts, shrubs, fences, guard rails, signs, curbsides, and roadway edges, will be accomplished with suitable mechanical equipment at the same cutting height as the rest of the turf so as not to detract from the appearance of the site. Trimmings are to be cleaned from all hard surfaces (sidewalks, curbs, driveways, and streets).

1.4 Labor, Tools, and Equipment. The vendor agrees to furnish all necessary labor, tools and equipment in connection with the grounds maintenance of the specified locations. Vendor shall provide a list of available staffing to be used in his operation.

1.5 Equipment. Mowing equipment can include riding mowers, walk behind mowers, nylon line trimmers and hand clipping, where necessary. Mowing equipment shall be kept in good, safe operating condition with sharp blades so that the grass is cut properly and in such a condition that oil and gasoline are not leaked. Vendor shall submit a list of equipment and indicate the age of said equipment to be used for mowing.

1.6 Equipment/safety. The vendor shall remove equipment at the completion of the workday. The City of Rockford does not assume any responsibility, at any time, for the protection of or loss of equipment or supplies either at the work site or elsewhere.

1.7 Fueling and Oiling. Spilled gasoline and oil kills grass. Mowers will not be fueled and oiled in grass areas: they should be moved to paved areas for this function.

1.8 Scheduling. The vendor will perform the work in accordance with the schedule provided or the instructions received from the City representative. Generally, the work may be performed between the hours of 7:00 a.m. and 6:00 p.m. and on any day or days of the week in accordance with the City's noise ordinance (see section 2.2). If special circumstances require different hours the vendor shall seek approval for such a change from the City. The City reserves the right to add additional sites during the mowing season under the terms of this contract. Contractor quotes for any additional sites shall be consistent with other sites of similar size and difficulty currently included in this contract. The City also reserves the right to adjust the frequency of the mowing cycle based on need, or request site specific mowing on demand. The respective City representative shall be notified within 24 hours upon completion of a scheduled mowing cycle. All invoices shall be submitted to City representative within 10 days of completing a mowing cycle and must include a valid invoice number, the specific cycle for which the invoice is presented, the group or Block of sites, and the correct date. Do not submit invoices directly to the City Finance Department. They will not be paid until validated by respective City representative(s).

1.9 Liquidated Damages. The Vendor is responsible to remove trash & debris prior to each mowing occurrence, and is also responsible for the removal of grass clippings from all adjacent hard surfaces subsequent to mowing each site as outlined in paragraph 4.2. If the Vendor fails to effectively remove trash, debris and clippings based on the observance of the Designated City of Rockford representative, the City will notify him of default. In the event of default, the City will either use City staff or a third party to complete clean-up and any *additional cost to the City shall be deducted from subsequent payment(s) owed the Vendor.*

2.0 Detailed Specifications

2.1 Public Works Division – Right of Ways and Properties

2.1.1 Maintenance. Mow lawn as instructed by schedule provided by the City representative. Mowing should be done from the street curb inward, using cement property markers, utility poles, fences, bushes and tree lines, and farm fields to determine the right-of-way boundary width. When mowing along roadways, the first two (2) swath cuts shall be made in such a manner as to discharge all clippings away from the roadway edge or curb.

2.1.2 Height of Grass/Height of Cut. Grass should never exceed six inches in height. Grass when cut should be 2" in height and no windrows of grass shall remain.

2.1.3 Weeds. Removal of weeds growing from along curb lines, roadway edges or sidewalks and drive approaches, so as not to detract from the appearance of the site, are the responsibility of the vendor. Weeds shall be

defined as all grasses, annual plants, and vegetation overgrowth and underbrush other than trees or shrubs provided.

2.1.4 Inaccessible areas. All areas too wet, too steep or otherwise inaccessible for use of standard mowers shall be line trimmed at the same frequency as the mowing schedule.

2.1.5 Frequency. Each location has listed an estimated amount of cuts during the contract period and is no guarantee of work to be performed under this contract. The total number of cuts is an estimate based on previous years. The City representative will establish and provide the vendor with a final schedule of mowing dates that is appropriate for each block of sites.

2.1.6 Locations. The City breaks out the maintenance of properties into packages to allow multiple vendors to complete the tasks as outlined above. The packages are broken down by Block and are shown in the next several tables.

	Block A – Weekly Mow
Site #	**Location**
A-1	**Whitman St. & Ridge Ave.** – Grant Ave. Cul-De-Sac Greenspace [*approx .18 acres*]
A-2	**Fairview Blvd.** (middle island Blvd. from Morsay Dr north) Bag clippings [*approx .16 acres*]
A-3	**Morsay Dr. from NEX Fairview to Lynmar Ct.** [*approx .3 acres*]
A-4	**Arden Ct. Detention Pond Drainage Area** – If conditions are too wet to mow bottom, must string trim all. [*approx. 1 acre*]
A-5	**Midway Theater Lot** – East side of building. [*approx. .75 acres*]
A-6	**Charles St. & 7th St** – NW & SE Corner landscape areas. [*approx. .07 acres*]

	Block B – Mow Every 2 Weeks
Site #	**Location**
B-1	**1000 Block, W State St. -** as listed – [*approx .24 acres each – approx. 2.8 acres total*] Includes 1019, 1025, 1040, 1045, 1046, 1049, 1050, 1053, 1055, 1057, 1059, 1061, & 1062.
B-2	**1100 Block, W State St.-** as listed – [*approx .43 acres each – approx. .85 acres total*] Includes 1101, 1119, 1121, 1125, 1133, & 1137
B-3	**1200 Block, W State St-** as listed – [*approx .14 acres each – approx. .82 acres total*] Includes 1211, 1215, 1225, 1233, 1237, & 1239
B-4	**1300 Block, W State St.-** as listed – [*approx .13 acres each – approx. 1.63 acres total*] Includes 1304, 1305, 1307, 1308, 1311, 1312, 1315, 1316, 1319, 1322, 1323, 1326, 1332, & 1336
B-5	**1400 Block, W State St., -** as listed – [*approx .27 acres each – approx. 1.9 acres total*] Includes 1412, 1416, 1420, 1424, 1430, 1434, & 1455
B-6	**1500 Block, W State St.-** as listed – [*approx .14 acres each – approx. .43 acres total*] Includes 1503, 1505, & 1509
B-7	**1600 thru 2000 Blocks, W State St.-** as listed – [*approx .19 acres each – approx. 2.24 acres total*] Includes 1601, 1605, 1625, 1701, 1711, 1719, 1804, 1807, 1810, 1821, 1916, 1923, 2003, & 2007
B-8	**2100 thru 2500 Blocks, W State St. -** as listed – [*approx .17 acres each – approx. 2.4 acres total*] Includes 2104, 2108, 2123, 21XX, 2201, 2202, 2205, 2228, 2304, 2307, 2317, 2412, 2505, & 2510
B-9	**2600 thru 2700 Blocks, W State St.-** as listed – [*approx .19 acres each – approx. 1.9 acres total*] Includes 2601, 2607, 2710, 2716, & 2717
B-10	**113 Carson Ct. –** Lot behind 2223 W. State St. [*approx .22 acres*]
B-11	**Forest Ave, 109, 113 & 125 –** [*approx .1 acres each – approx .3 acres total*]
B-12	**112 Lakin Terrace –** [*approx .1 acre*]
B-13	**Mulberry St. –** 1010, 1042, 1050, 1056, 1060 & 1510 – [*approx .2 acres each – approx. 1.2 acre total*]
B-14	**N. Avon St – 111 & 119** – [*approx .33 acres total*]
B-15	**N. Central Ave** – 120, 124 & 128 (3 Adjacent Lots)– [*approx .51 acres total*]
B-16	**S. Avon St – 107, 109 & 113** – [*approx .14 acres total*]
B-17	**114 Oakley Ave. –** [*approx .07 acre*]
B-18	**Oakwood Ave. – 106 & 109** – [*approx .05 acres total*]
B-19	**117 S. Independence Ave. –** [*approx .04 acre*]
B-20	**110 S. Johnston** – [*approx .04 acre*]
B-21	**115 N Day Ave -** [approx .09 acres]
B-22	**Irving Ave - 119, 122, & 129 -** [approx .15 acres total]

	Block C – Weekly Mow
Site #	**Location**
C-1	**1740 Colorado** – Drainage Area [*approx .14 acres*] If unable to mow due to being wet, need to string trim
C-2	**2208 & 2211 Colorado** – Drainage Areas [*approx .5 acres*] If unable to mow due to being wet, need to string trim
C-3	**1620 Log Cabin -** Vacant Lot [approx .27 acres]
C-4	**1623 & 1649 Log Cabin** – Vacant lots and part of this is a Drainage Area [*approx .39 acres*] - If unable to mow due to being wet, need to string trim
C-5	**1822 Nebraska -** Vacant Lot [approx .21 acres]
C-6	**1827 Nebraska** – Vacant Lot [*approx .13 acres*]
C-7	**3533 Louisiana** – Vacant Lot [*approx .28 acres*]
C-8	**1727 MacArthur** – Vacant Lot [*approx .19 acres*]
C-9	**1731 MacArthur -** Vacant Lot [approx .19 acres]
C-10	**1716 Sexton -** Vacant Lot [approx .20 acres]
C-11	**2003 Montana** – Drainage Area [*approx .19 acres*] If unable to mow due to being wet, need to string trim
C-12	**3522 Westgate Pkwy** – Vacant Lot [*approx .12 acres*]
C-13	**WESLEYAN ST. DRAINAGE AREA (Flats Only) –** From 20th St. to East of Ohio Pkwy. [*approx. 8.25 acres*]
C-14	**20th ST. VIADUCT –** South of Wesleyan North of Viaduct – **Open Lot and Right of Way** on both sides of 20th St. South of viaduct litter pick & string trim both sides of road railroad tracks. [*approx.75 acres*]

	Block D – Mow Every 2 Weeks
Site #	**Location**
D-1	**1200/ 1300 Block 6th Ave – City Lots as listed** – [*approx. 1 acre total*] 1241, 1303, 1307, 1311, 1317, 1321, 1325, 1329, 1335, 1339, 1343, 1349, 1353, 1357
D-2	**1400 Block 6th Ave & 700 Block 11th St – City Lots as listed** – [approx. 1.38 acres total] 1403, 1407, 1411, 1417, 1424, 1427, 1429, 1435, 1439, **ALSO** 701 & 705 11th St
D-3	**1500 Block 6th Ave – City Lots as listed** – [approx. .82 acres total] 1501, 1507, 1515, 1519, 1525
D-4	**1600 Block 6th Ave & 700 Block of 13th St – City Lots as listed** – [approx. 2.5 acres total] 1601, 1602, 1609, 1611, 1615, 1621, 1625, 1629, 1633, 1637, 1641, 1645, 1649, 1653, 1657, 1659 ALSO 702 & 710 13th St
D-5	**1300-1500 Blocks 7th Ave - 700 Block 9th St & 11th St– City Lots as listed** – [approx. .98 acres total] 1310, 1316, 1320, 1324, 1340, 1342, 1346, 1352, 1358, 1408, 1414, 1420, 1430, 1444, 1450, 1502, 1506, 1510, 1514, 1516, 1522, ALSO 718, 724 & 726 9th St & 721 11th St
D-6	**1600-1700 Blocks 7th Ave – City Lots as listed** – [approx. 1.9 acres total] 1602, 1606, 1614, 1616, 1620, 1621, 1624, 1628, 1634 1650, 1658, 1662
D-7	**700 – 900 Blocks 13th St & 700 Block of 7th Ave, City Lots as listed** – [approx. .96 acres total] 800, 807, 811/ 813, 816, 817, 818, 901, 902, 913, 914 ALSO 1718 & 1724 (2 small lots) 7th Ave
D-8	**800-1000 Blocks 14th St, City Lots as Listed** – [approx. 1.2 acres total] 804, 808, 815, 816, 821, 825, 913, 917, 1009, 1015
D-9	**800-900 Blocks 15th St, City Lots as Listed** – [approx .65 acres total] 809, 815, 819, 919

	Block E – Mow Every 2 Weeks
Site #	**Location**
E-1	**NW corner of N Main St and Vernon St** - See Map, L Shaped Vacant Lot
E-2	**SW corner of N Main St and Vernon St** - See Map, Vacant Lot
E-3	**SE corner of Auburn St and N Main St** - See Map, Large Triangular Vacant Lot
E-4	**NE corner of Myott Ave and N Main St** - See Map, Large Vacant Lot
E-5	**1430 N Court St** - Parcel # 11-14-402-014 (approx. 0.11 acres)
E-6	**CAMPUS HILLS BLVD.** – West of N. Main. (Island) [*approx 0.12 acres*]
E-7	**RIVERSIDE ST.** – Between Halsted Rd. & Belmont St. to RR Tracks. [*approx. 1.0 acres*]
E-8	**MERRIOTT CLOSE** - Island [*approx 0.9 acres*]
E-9	**RIVERSIDE BLVD** -N. Rockton Av. to Central Av/Owens Center Rd. (south side of road) [*approx 2.2 acres*] (north side of road) [*approx 2.2 acres*]
E-10	**NW DRAINAGE DITCH** Belmont Blvd. to Riverside Blvd. (*access from Grouse Ct*) [*approx 4.6 acres} (Both sides of ditch)*
E-11	**RIVERSIDE BLVD** -N. Main St to N. Rockton Ave (southside of road) [*approx 1.6 acres*] (north side of road) [*approx 1.5 acres*]
E-12	**N. ROCKTON AV.** - Embury to Elmwood Rd. (east side of road) [*approx 1.2 acres*] (west side of road) [*approx .7 acres*]
E-13	**ROCKTON AVE. & HALSTED RD**. Lot on the south east corner next to Fire Station [*approx .3 acres*]
E-14	**RIDGE & CUSTER** – NW Corner & area West of RR. Tracks on south side of Custer Ave. [*approx .2 acres*]
E-15	**HALSTED RD** -Hazel St. to Searles Av. (south side of road) [*approx .14 acres*]
E-16	**HALSTED RD.** – Hazel to Central (north side) [*approx 1 acres*]
E-17	**AUBURN & HORSMAN** - NW Corner Mow between RR track and Auburn St [*approx 0.9 acres*]
E-18	**ROW** - Between Ridge Ave. & Huffman Blvd., RR Tracks to Adolphson St. [*approx. .8 acres*]
E-19	**COUNTRY CLUB TERRACE** – Mow Island (eastside of road) [*approx .25 acres*]
E-20	**COUNTRY CLUB TERRACE @ WILLOUGHBY** – Northwest corner west to Edson St.. {*approx .1 acres*}
E-21	**4608 AUBURN ST.** – City Lot [*approx. .5 acres*]
E-22	**AUBURN ST.** - From 3916 Auburn St to Johnston Ave (south side road) [*approx 1.6 acres*]
E-23	**AUBURN ST.** – South side of Auburn St. from Auburn High School to Springfield Ave. [*approx. .5 acres*]
E-24	**GRACE ST. DEAD END** – West of 2323 Grace St. & 1722 Tacoma to RR Tracks. [*approx. .3 acres*]
E-25	**CENTRAL AV** -Auburn St. to Kent Creek (eastside of road) [*approx 1.2 acres*]

	Block F – Mow Every 2 Weeks
Site #	**Location**
F-1	**3300 thru 3400 Blocks, W State St.- as listed** – [*approx .19 acres each – approx. 1.9 acres total*] Includes 33xx, 3320, 3330, 34xx, & 3410
F-2	**Kilburn Ave, 111 & 125** – [*approx. .57 acres*]
F-3	**112 Carbaugh Ave** - [approx .16 acres]
F-4	**302 & 234 N Hinkley Ave** - Parcel # 11-22-106-032, 11-22-109-016 (approx. 0.33 acres)
F-5	**118, 122, 124, 126 Concord Ave** - Parcel # 11-20-277-002, 007, 008, 009, 010 (approx. 0.82 acres)
F-6	**3xx Concord Ave** - Parcel # 11-20-281-005 (approx. 0.10 acres)
F-7	**430 Concord Ave** - Parcel # 11-20-426-007 (approx. 0.19 acres)
F-8	**3417 Green St** - Parcel # 11-20-281-007 (approx. 0.08 acres)
F-9	**130 Lexington Ave** - Parcel # 11-20-278-011 (approx. 0.18 acres)
F-10	**316 Lexington Ave** - Parcel # 11-20-282-004 (approx. 0.18 acres)
F-11	**3417 Chestnut St** - Parcel # 11-20-279-013 (approx. 0.07 acres)
F-12	**409, 411 S Horace Ave** - Parcel # 11-21-306-026, 027 (approx. 0.37acres)
F-13	**5xx S Horace Ave** - Parcel # 11-21-326-012 (approx. 0.12 acres)
F-14	**3915 Delaware St** - Parcel # 11-20-402-014 (approx. 0.17 acres)
F-15	**520 Hartford Ave** - Parcel # 11-20-429-012 (approx. 0.12 acres)
F-16	**418 Albert Ave** - Parcel # 11-21-226-011 (approx. 0.09 acres)
F-17	**1130 Andrews St** - Parcel # 11-22-131-010 (approx. 0.23 acres)
F-18	**1131 Andrews St** - Parcel # 11-22-128-014 (approx. 0.07 acres)
F-19	**1402 Andrews & 330 N Hinkley Ave** - Parcel # 11-22-106-024, 025 (approx. 0.16 acres)
F-20	**452 N Avon St** - Parcel # 11-22-128-017 (approx. 0.13 acres)
F-21	**614 N Avon St** - Parcel # 11-15-379-057 (approx. 0.27 acres)
F-22	**715 Bluefield St** - Parcel # 11-15-378-010 (approx. 0.11 acres)
F-23	**17xx Chestnut St & 218 S Independence Ave** - Parcel # 11-21-285-009, 004 (approx. 0.24 acres)
F-24	**1918 Elm St** - Parcel # 11-21-284-001 (approx. 0.09 acres)
F-25	**1417 Mulberry St** - Parcel # 11-22-109-032 (approx. 0.14 acres)
F-26	**1435 Mulberry St** - Parcel # 11-22-109-026 (approx. 0.15 acres)
F-27	**1329 School St** - Parcel # 11-15-380-038 (approx. 0.18 acres)
F-28	**1502 School St** - Parcel # 11-22-102-006 (approx. 0.11 acres)
F-29	**210 Tay St** - Parcel # 11-22-183-002 (approx. 0.06 acres)
F-30	**211, 213, 219, 227 N Avon St, 2xx, 220, 226, 228 Ogden Ave, 10xx, 1045, 1047, 1051, 1055, 1061, 1067 Mulberry St & 10xx, 1036, 1044, 1050, 1056, 1060 W Jefferson St** - Parcel # 11-22-251-001, 003, 004, 005, 016, 017, 018, 019, 020, 021, 037, 031, 030, 029, 028, 036, 010, 009, 008, 007, 006 (approx. 5.12 acres)
F-31	**416 Underwood St** - Parcel # 11-22-202-015 (approx. 0.14 acres)
F-32	**436 & 440 Underwood St** - Parcel # 11-22-202-008, 007 (approx. 0.28 acres)
F-33	**450 Underwood St** - Parcel # 11-22-202-005 (approx. 0.02 acres)
F-34	**219 N Johnston Ave** - Parcel # 11-21-209-005 (approx. 0.16 acres)

F-35	**617 Greenview Ave** - Parcel # 11-16-377-001 (approx. 0.14 acres)
F-36	**1535 Andrews St (neigborhood park)** - Parcel # 11-22-102-023 (approx. 0.09 acres)
F-37	**8xx & 824 Lee St** - Parcel # 11-22-205-004, 003 (approx. 0.016 acres)
F-38	**1027 Woodlawn Ave** - Parcel # 11-14-352-007 (approx. 0.11 acres)
F-39	**729 & 733 N Rockton Ave** - Parcel # 11-23-103-002, 001 (approx. 0.09 acres)
F-40	**713 Locust St** - Parcel # 11-22-234-012 (approx. 0.07 acres)
F-41	**903 Acorn St** - Parcel # 11-22-229-022 (approx. 0.05 acres)
F-42	**309 Horsman St** - Parcel # 11-22-280-004 (approx. 0.24 acres)
F-43	**W. STATE & CHESTNUT CROSSOVER** – SWX & Triangle Island [*approx. .6 acres*]
F-44	**W. State & Kilburn Ave** – NEX, City Lot [approx. .6 acres]
F-45	**HORSMAN ST.** – Along Old Quarry & City Lots South of Quarry. [*approx. .5 acres*]
F-46	**WHITMAN ST** -Horsman St. to N. Rockton Av. (south side of road) [*approx 1.2 acres*]
F-47	**W. JEFFERSON ST/MULBERRY ST.** - Kilburn Av. (south side of road) [*approx .26 acres*]
F-48	**OGDEN ST.** – City Lot @ Mulberry St. & W. Jefferson between Ogden St. & RR Tracks. [*approx. .4 acres*]
F-49	**CITY LOTS** – West side of Kent Creek from Mulberry St. to South of Elm St.. [*approx. 2.4 acres*]
F-50	Island at **FISHER AV. & HASKELL AV.** [*approx .09 acres*]
F-51	**ROCKTON & CHERRY** – East Side from street to south end of parking area. [*approx .09 acres*]
F-52	Triangle Lot at **PRESTON ST**, at Howard Av, and Anderson St. [*approx .06 acres*]
F-53	**S. PIERPONT & PRESTON ST.** – NWX, City Lot [*approx .4 acres*]
F-54	**N. PIERPONT AV.** -W. State St. to School St. (west side of road). [*approx .6 acres*] Mow back to edge of farm field or tree line
F-55	**SCHOOL ST.** -N. Pierpont Av. to Springfield Av. (both sides of road) [*approx 1.2 acres*] Mow back to edge of farm field or tree line
F-56	**W. STATE ST.** -Daisyfield Rd. to Springfield Ave (south side of rd.) Between W. State & Service Rd. [*approx 1 acre*]
F-57	**W. STATE ST.** – From Fire Station # 6 west to Springfield Ave (north side of road) Mow back to edge of farm field or tree line. [*approx 1.2 acres*]
F-58	**1326 Chestnut St** - Parcel # 11-22-326-004 (approx. 0.18 acres)

	Block G – Mow Every 2 Weeks
Site #	**Location**
G-1	**CURVE ST.** -S. Avon St. to Corbin St. (Road north - both sides of RR tracks plus vacant lot on SW corner of Selden and Avon St) [*approx 1.3 acres*]
G-2	**523 CENTRAL AVE** – Chip lot & Hill, both sides of fence and weed whip along guardrail. Mow south to southernmost RR Tracks. [*approx 3.8 acres*]
G-3	**PIERPONT & LEXINGTON** – Drainage Area, East and West side of Pierpont St. [*approx .5 acres*]
G-4	**E. SIDE OF HORACE AVE. @ HUDSON ST.** – City Lot [*approx. 6.4 acres*]
G-5	**TAY ST.** -Cedar St. to Curve St. (both sides of road, and along RR Tracks) [*approx .1 acres*]
G-6	**CENTRAL AV.** -Cunningham St. to City Yards Entrance (2 triangle lots, one on each side of the road and ROW on both sides) [*approx 1.9 acres*]
G-7	**CUNNINGHAM ST.** -1521 Cunningham St to Morgan St. (north side of road) and;
G-8	**MORGAN ST.** – Cunningham St to Central Ave. (south side of road) [*approx 1.6 acres*]
G-9	**MARYLAND & HUDSON** – City Right of Way [*approx .9 acres*]
G-10	**1026 S. MAIN** – City lot [*approx. .1 acres*]
G-11	**700/800 S Main** – Old Train Depot (See Map) [*approx.4.75 acres*]
G-12	**1101 S. Church St.** – [*approx .12 acres*]
G-13	**525 S Main St (actually two lots)** - Parcel # 11-22-489-002 & 11-22-489-001 (approx. 0.75 acres)
G-14	**609 S Main St** - Parcel # 11-27-226-010 (approx. 1.08 acres)
G-15	**616 Newport Ave** - Parcel # 11-20-454-006 (approx. 0.11 acres)
G-16	**636 Hartford Ave** - Parcel # 11-20-477-013 (approx. 0.13 acres)
G-17	**4xx Short Horsman St** - Parcel # 11-22-405-018 (approx. 0.31 acres)
G-18	**201 Kent St** - Parcel # 11-27-282-002 (approx. 0.31 acres)

	Block H – Mow Every 2 Weeks
Site #	**Location**
H-1	**206, 210, 214 Lane St** - Parcel # 11-27-429-008, 007, 006 (approx. 0.38 acres)
H-2	**430 Knowlton St** - Parcel # 11-27-405-001 (approx. 0.20 acres)
H-3	**325 Salter Ave** - Parcel # 11-27-405-020 (approx. 0.17 acres)
H-4	**ARAGONA & REGINA** – City Right of Way between Dead Ends. [*approx .2 acres*]
H-5	**MONTAGUE RD.** -Pierpont Av. to Montague St. – intermittent as indicated. Mow to edge of farm field, pole line or tree line. [*approx 1 acres*]
H-6	**S. MAIN ST. & MARCHESANO DR.** (northeast corner lot) Street east to tree line, fence north to bookstore. [*approx .2 acres*] Southeast corner south to House. [*approx. .1 acres*]
H-7	**FORSYTHIA DR.** – Drainage area from fence on east end of property to tree line on west side of Forsythia. Includes waterway. [*approx. 1.7 acres*] (**Must** string trim anywhere mowers can't be used)
H-8	**SAUK DR.** – City Right of way, North and South sides, wherever property is undeveloped. [*approx. .7 acres*]
H-9	**SIMPSON RD.** – Right of Way adjacent to cul-de-sac near S. Main St. [*approx. .2 acres*]
H-10	**PRAIRIE RD. & S. MAIN ST.** – Right of Way along S. Main and Prairie Rd. and open lot on NW corner [*approx. 3.2 acres*]
H-11	**S MAIN ST & HARRISON AVE., North and south side of Harrison** -S. Main St. to the River, Mow from street curb in, using utility poles, fence, bush & tree lines to determine right of way boundary width. Trim along all guardrails. Wrap both corners of Harrison & S. Main about 100 yards on Main St for visibility. [*approx 1.5 acres*]

	Block I – Mow Every 2 Weeks
Site #	**Location**
I-1	**MILFORD AV** -11th St to 9th St. (north side of road) (Must trim around guardrail) [*approx .6 acres*]
I-2	**NEW MILFORD SCHOOL RD** -1968 New Milford School Rd to Falcon Rd. (north side of road) [*approx .6 acres*]
I-3	**LINDEN RD** -S. Alpine Rd. to 35th St. (north side of road) [*approx .3 acres*] (south side of road) [*approx .2 acres*]
I-4	**35TH ST** -Linden Rd. to Bonanza Way (east side of road) [*approx 1.1 acres*] (west side of road) [*approx .7 acres*]
I-5	**SAMUELSON RD** -S. Alpine Rd. to 11th St. (south side of road) [*approx 3.6 acres*] (north side of road) [*approx 3.6 acres*]
I-6	**SAMUELSON RD** -11th St. to Falcon Rd. (north side of road) [*approx .1 acres*] (south side of road) [*approx .1 acres*]
I-7	**EASY ST.** – Boulevard between Easy St. & 6th St. [*approx. 1.5 acres*]
I-8	**AIRPORT DR. & S. 6TH ST.** – City Lot between 39th Ave & Airport Dr. from S. 6th St. to S. 9th St. [*approx.3.6 acres*]
I-9	**RESEARCH PKWY.** – City Right of Way in front of Retention Pond. [*approx. .4 acres*]
I-10	**20TH ST. RIGHT OF WAY** – Bypass 20 to Samuelson Rd. (both sides of road, where residents don't mow) [*approx. .6 acres*]

	Block J – Mow Every 2 Weeks
Site #	**Location**
J-1	**HARRISON AV.** -From the River to Kishwaukee St. Mow from street curb in using utility poles, fence, bush & tree lines to determine right of way boundary width. Trim along all guardrails Cut back to fenceline on the NE corner of Harrison and Seminary. (south side of road) [*approx 2 acres*] (north side of road) [*approx 2 acres*]
J-2	**SEMINARY ST.** -Harrison Ave to Blackhawk Park Ave. Also mow triangle lots at Seminary & Magnolia. (west side of road) [*approx 1.0* acres] (east side of road) [*approx 1.0 acres*]
J-3	**SANER RD.** – Along RR Tracks between Kishwaukee St. & S. 4th St. [*approx.1.6 acres*]
J-4	**REED AVE. & HORTON ST.** – Large City Lot on South side of Reed Ave. [*approx. 3.8 acres*]
J-5	**HARRISON AVE.** -11th St. to Alpine Rd. Trim along all guardrails. Mow from street curb to drainage ditch. Wrap NW corner of Harrison & 20th for visibility. Mow back to private fenceline on south side, west of Ohio Pkwy. Include landscaped terrace in front of Duplex' in 3600 block. (south side of road) [*approx 2 acres*] (north side of road) [*approx 2.2 acres*]
J-6	**25th ST. DEAD END** - See map, Vacant Lots and ROW, String trim around guardrail. [*approx .25 acres*]
J-7	**1604 6th St** - Parcel # 11-35-229-001 (approx. 0.11 acres)
J-8	**2614 10TH St** - Parcel # 15-01-103-017 (approx. 0.15 acres)
J-9	**S. ALPINE & GRINNELL** – SWX, Right of Way. [*approx. .1 acres*]
J-10	**S. ALPINE & O'CONNELL** – SW Quadrant behind homes SEE MAP (Utility Easement). [*approx. 3 acres*]
J-11	**MANCHESTER DR.** -Harrison Av. to Middlebury Ave. Steep slope must be string trimmed if unable to mow. (westside of road) [*approx 1.2 acres*]
J-12	**18th ST SOUTH OF BROADWAY** – West side of street along RR Tracks. [*approx. .3 acres*]
J-13	**22ND AVE BOULEVARD** – Between Kishwaukee St. & 7th St. [approx .7 acres]
J-14	Island at **APPLE ORCHARD LA.** [*approx .08 acres*]
J-15	**S. ALPINE RD.** -Longmeadow La. to Apple Orchard La. (eastside of road) [*approx .3 acres*]

	Block K – Mow Every 2 Weeks
Site #	**Location**
K-1	**S. ALPINE RD.** -Larson Ave. to E. State. St. String trim along both sides of guardrail (west side of road) [*approx 1 acre*]
K-2	**BROADWAY/WOODRUFF VIADUCT** (See Map, ROW and about two passes behind sidewalks on both sides of Broadway) [*approx .1 acres*]
K-3	**WOODRUFF AVE.** -Broadway to 9th Street. Mow from pavement edge to railroad tracks or tree line. Steep slope must be string trimmed if unable to mow. (south side of road) [*approx 2 acres*]
K-4	**100 Blk even side of Fairview Ave** on southside of creek - mow from Fairview back east to tree line, from creek south to parking lot
K-5	**100 Blk odd side of Fairview Ave** on northside of creek - Weed whip/ mow from Fairview west for about 200' on both sides of guardrail and down into creek about 8'
K-6	**NW corner of S 6th St and 11th Ave** - SEE MAP, actually two triangle city lots
K-7	**Oak Grove** – City Lot [*approx 1 acre*]
K-8	**7th Avenue & 5th Street** – SW Corner Trim both sides of guardrail all the way west to first driveway [*approx .25 acres*]
K-9	**712 4th Ave (L shaped lot)** - Parcel # 11-26-251-009 (approx. 0.14 acres)
K-10	**521 College Ave** - Parcel # 11-26-179-005 (approx. 0.28 acres)
K-11	**724 7th Ave** - Parcel # 11-26-401-003 (approx. 0.07 acres)
K-12	**715 7th Ave** - Parcel # 11-26-404-006 (approx. 0.14 acres)
K-13	**702 S 3rd St** - Parcel # 11-26-108-001 (approx. 0.14 acres)
K-14	**312 Penfield Pl** - Parcel # 11-26-159-016 (approx. 0.17 acres)
K-15	**325 Penfield Pl** - Parcel # 11-26-160-006 (approx. 0.17 acres)
K-16	**819 Seminary St** - (approx. 0.15 acres)
K-17	**Windpoint Deadend** - 600/ 700 blk of Parkside Dr, large vacant lot
K-18	Island at **GROVE ST. & KISHWAUKEE ST.** [*approx .02 acres*]
K-19	**Oak Grove at Glendale** – City ROW [approx .1 acres]
K-20	**326 Bremer St.** – [*approx .11 acres*]
K-21	**805 S. 5th St.** – this needs to be mowed all the way south to the alley [*approx .34 acres*]
K-22	**5TH AV.** between KISHWAUKEE ST TO 4TH ST (south side of street) [*approx .1 acres*]
K-23	**5TH AV.** : RR crossing-Kishwaukee-4th St (north side of street) including slopes of overpass [*approx .03 acres*]
K-24	SW Triangle Lot: **5th Av**-5th St-RR tracks [*approx .1 acres*]
K-25	NE Triangle Lot: **5 th Av**-4th St-RR tracks [*approx .1 acres*]
K-26	Island on **CENTER TERR.** between Point Av. and Coco Joes, (south side of the road) [*approx .1 acres*]
K-27	**N. ALPINE RD** -Maray Dr. to north side of creek. (westside of road) [*approx .07 acres*]
K-28	**N. ALPINE RD** -from Seventh Day Adventist Church to Aldeen Park property line (eastside of road) [*approx .14 acres*]
K-29	**426 N. 3rd St.** – City Lot, L shaped lot [*approx .2 acres*]
K-30	Island at **REVELL AV.** & 9TH ST. (north east side) [*approx .09 acres*]

K-31	Island between **HALL ST.** & 6TH ST. & JEFFERSON ST. (north east corner) [*approx .1 acres*]
K-32	Island at **JEFFERSON ST.** & 6TH ST. & 5TH ST. (south west corner -by Uncle Nick's) [*approx .09 acres*]
K-33	**11TH ST & CHARLES ST.** – SE corner right of way by Marie's Pizza. Includes lot next to house on 11th St. side. [approx .1 acres]
K-34	**1006 Kishwaukee St.** – [*approx .17 acres*]
K-35	**1310 Kishwaukee St. & ROW across Lorden Ct along concrete wall** – [*approx .30 acres*]
K-36	**808 & 812 10th Ave** – [*approx .34 acres*]
K-37	**7xx Kishwaukee Ct.** – (3 lots combined) [*approx. 1.4 acres*]
K-38	**735 8th Ave** – [*approx .24 acres*]
K-39	**807 8th Ave** – [*approx .06 acres*]
K-40	**802 – 804 S. 5th St.** – [*approx .53 acres*]
K-41	**8xx S. 6th St.** – [*approx .48 acres*]
K-42	Island on **SKYLARK DRIVE** between Crosby St and Fairview Blvd. [*approx .1 acres*]

	Block L – Mow Every 2 Weeks
Site #	**Location**
L-1	**City Lot** – Between Highcrest Rd. & Parkview Dr. – South side of Springcreek Rd., and:
L-2	**City Right of Way** – North side of Springcreek Rd. from Stoneridge east to end of wooded area. [*approx. 1.25 acres*]
L-3	Island at end of **ALPINE CT.** [*approx .46 acres*]
L-4	Island at **GREENWOOD AV.** & **SKYLARK DR.** [*approx .4 acres*]
L-5	Island at 2000 **BIRCHWOOD DR.** (south side of street) [*approx .02 acres*]
L-6	**EDGEWOOD DR.** – Along Golf Course from Forest Hills Rd. East to where Edgewood turns South (mostly string trim). [*approx. .3 acres*]
L-7	**N. ALPINE & BROOKVIEW RD.** – NWX on Alpine. [*approx. .2 acres*]
L-8	**N. ALPINE RD** - Olde Lyme Dr. to Innsbruck Dr. (eastside of road) [*approx 1.9 acres*]

	Block M – Mow Every 2 Weeks
Site #	**Location**
M-1	**SPRING CREEK RD** -Shaw Woods Dr. to Dior Dr. (south side of road) [*approx .4 acres*]
M-2	**SHAW WOODS DR** -Spring Creek Rd. to Spring Brook Rd. (west side of road) [*approx .9 acres*]
M-3	**SPRING BROOK RD** –Woodhill to Mulford Rd. (south side of road, includes drainage area west of Applewood Ln *THIS MUST BE WEED WHIPPED*) [*approx .8 acres*] **SPRING BROOK RD** -Spring Lake Dr to Mulford Rd. (north side of road) [*approx .2 acres*] NWX(mow 100' North), SWX, SEX (Mow 100' South), of Spring Brook & Mulford (right of ways only – includes string trimming around all guard rails).
M-4	**REID FARM & TRAINER RD. –** City Right of way (see map). [*approx .2 acres*]
M-5	**REID FARM RD** -Olde Creek Rd to Barrick Dr. (eastside of road) [*approx .55 acres*]
M-6	**OLDE CREEK RD** (*old Spring Creek Rd)* -Perryville Rd. to Reid Farm Rd. (south side of road) [*approx .73 acres*]
M-7	**BELL SCHOOL RD. -** Spring Creek Rd. to Spring Brook Rd, both sides of street except where landscaped. [*approx 1 acre*]
M-8	**ROTH RD. –** Old Creek Rd. North to Dead End, both sides. East side only mow ½. Remainder is County Highway property. [*approx. 2 acres*]
M-9	**Springwheat Dr -** Large vacant lot [approx. 12 acres] - mow from roads edge north to approx creek line. Starting at the property line of 3688 Springwheat mow east to tree line just before Bell School Rd. Also at north east corner there is a small area that needs to be mowed all the way to the edge of Bell School.

	Block N – Mow Every 2 Weeks
Site #	**Location**
N-1	**49xx Guilford Rd** - ONLY mow from edge of road to tree line
N-2	**EASTLAWN DR.,** South of CREEKVIEW RD. Weed whip along guardrail and south end of creek wall. [*approx .46 acres*]
N-3	**NEWBURG RD. & S. MULFORD RD. –** City Lot, NWX. [*approx. .3 acres*]
N-4	**NEW TOWNE & JAVELIN –** NWX, Drainage area. [*approx. 1 acres*]
N-5	**ROTE RD. –** Lyford Rd. to Bell School Rd., both sides & trim along guardrails. [approx. 1 acre]
N-6	**LYFORD RD. –** Rote Rd. to E. State St. Right of Way. [*approx. 1.8 acres*]
N-7	**LYFORD RD. –** City Lot (see map) [*approx. 10.2 acres*]
N-8	**N. MULFORD RD** -680 N. Mulford Rd. to Garrett La. (west side of road) [*approx .1 acres*]

	Block O – Mow Every 2 Weeks
Site #	**Location**
O-1	**MULFORD RD.** -Harrison Ave. to Charles St. (east side of road) [*approx .4 acres*] (west side of road) [*approx .5 acres*]
O-2	**SANDY HOLLOW RD** - Mulford Rd to S Alpine Rd (northside of road) [*approx 2.7 acres*] (south side of road) [*approx 2.3 acres*]
O-3	**SANDY HOLLOW RD** -11th St. to S. Alpine Rd. (north side of road) [*approx .6 acres*] (south side of road) [*approx 1.1 acres*]
O-4	**SANDY HOLLOW RD** -Kishwaukee St. to 11th St. (north side of road) [*approx .6 acres*] (south side of road) [*approx .2 acres*] (**Must** string trim anywhere mowers can't be used including all of ditches along here)

	Properties & Complexes
Site #	**Location**
PC-1	1200 Rock St. (Barber Coleman Complex)
PC-2	1200 & 1300 S. Main St (Barber Coleman out lots)
PC-3	301 S. Water St. (Ingersoll) * HILLS MUST BE WEED WHIPPED ONCE A MONTH *
PC-4	1419 Blaisdell (Church School)
PC-5	615 Furman St. (CD Lot)
PC-6	605 N Main St (Armory)
PC-7	302 S. Main St (Brown Lot)
PC-8	523 S Central Ave (City Yards) SEE MAP

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX E

THE CITY OF ROCKFORD ILLINOIS, USA

PESTICIDE, HERBICIDE AND FERTILIZER APPLICATIONS

STANDARD OPERATING PROCEDURES FOR CITY OF ROCKFORD

June 2015

1.0 GENERAL

The purpose of this standard operating procedure is to comply with Part II, A, 6, a of the City of Rockford's NPL Stormwater Permit (ILS000001). This document addresses City of Rockford procedures when applying pesticides, herbicides and fertilizers on City owned properties.

2.0 LICENSING/PERMITTING

The City of Rockford has submitted and received the IEPA General NPDES Permit for Pesticide Application Point Source Discharges (ILG870147). The City is a Level 1 applicator based on IEPA's designations and shall base their application procedures on those requirements. In addition, City of Rockford employees who apply pesticides, herbicides & fertilizers shall be trained and licensed through the Illinois Department of Agriculture's (IDOA), Pesticides Use and Regulation Program (http://www.agr.state.il.us/Environment/Pesticide/usereg.html). As licensed employees are within the street division all training and management of licensing shall be tracked by the Forestry Supervisor.

The City requires all contracted applicators to comply with these and any other applicable requirements. Proof of Licensing shall be provided to the City prior to execution of City contracts.

3.0 PROCEDURES

3.1 General

Staff applying chemicals shall wear all appropriate personal protective equipment and fully understand their rights to know what chemicals they are applying through the availability of on-site Material Safety Data Sheets.

a. Though the City does not presently apply fertilizers, future applications will be based on soil test results prior to application to avoid the economic and environmental costs that can be incurred with excess fertilizer use.
b. Staff and contractors will follow label directions when storing, handling, mixing, recycling, and disposing of chemicals and empty containers.
c. Applicators shall make every effort not to transfer, pour or dispose of chemicals indoors. When those activities occur outdoors, handling of chemicals shall be a minimum of fifty (50) feet from storm drains, or drainageways.
d. Staff and contractors will have spill cleanup materials available in case of a spill and clean up chemical spills promptly with dry methods, if possible. All spills shall be reported to their supervisor immediately and documented. Report shall indicate: location, chemical spilled, approximate quantity, and how it was cleaned up. The Stormwater and Environmental Team (SWET) shall be notified within 24 hours of the spill and shall initiate an illicit discharge investigation as detailed in the Illicit Discharge Detection and Elimination Program Standard Operating Procedures. The Fire Department Hazardous Material Team or 911 Emergency shall be notified for any spill that exceeds the threshold quantity as noted on its Safety Data Sheet.
e. Spill Kits are located in the chemical storage room at the City Yards.

3.2 Application

a. All pesticides, herbicides and fertilizers shall be used strictly in accordance with their labels, ILG87 and all applicable federal, state, and local laws, regulations, and ordinances, as applicable.
b. Always follow the manufacturer's recommendation on handling and applying the chemicals.
    1. Chemicals should not be applied during rain storms, within 24 hours of a forecast rain storm or while the area is being irrigated.
    2. Chemicals should not be applied right before or during high-wind events nor should any chemical susceptible to drift be applied if wind conditions are likely to exceed 5 MPH.
    3. Apply only the recommended amounts of chemicals. Chemical application in excess of the manufacturers label is not an environmentally responsible practice and could promote excessive runoff or soil leaching.
c. Use caution not to overspray (applying in an undesired location) the chemicals onto an impervious surface, such as a sidewalk or roadway and clean up all over-sprayed chemicals.
d. Do not apply landscape chemicals to frozen ground or during snow melt.
e. Do not over water recently fertilized areas to minimize the amount of runoff into streets and into storm drains.
f. Only mix enough chemical to complete the application. Excess or expired chemicals shall be returned to the supplier for proper disposal.

3.3 Application Schedule

The following is a list of City maintained locations and approximate pesticide / herbicide application schedules for the targeted areas within the City of Rockford (Appendix A – Detailed application schedule):

a. Sidewalks – May 1st thru June 30th
b. Raised Medians – May 1st thru June 30th (Attachment B).
c. Paved Ditches - June 1st thru July 31st
d. Creeks – July 31st thru October 31st
e. Ash Trees – June 1st thru August 31st - City-wide (Attachment C)

Note: This is a tentative schedule; actual schedule may vary due to weather conditions.

A log shall be kept indicating the amount of chemicals used during each application event.

3.4 Chemical Storage

All chemicals shall be stored according to label directions and shall not exceed threshold quantities as stated on the Safety Data Sheets.

All herbicides, fungicides and insecticides shall be stored in an enclosed, secure building at the maintenance facility. The materials shall be stored in accordance with all current federal, state and local laws, regulations and ordinances. Access to the storage area should be limited to licensed pesticide operators or applicators. Non-licensees requesting access to the storage area for any reason should be accompanied by a licensed pesticide operator or applicator.

3.5 Application Equipment

The following items shall be required for maintenance and use of application equipment:

a. No sprayer should be used that is not approved for the type of chemical being applied.
b. Spreaders shall be used to apply materials that are available only in granular forms.
c. Fertilizers and pesticides should be loaded into application equipment over impervious surfaces, so that any spills can be cleaned without seeping into ground water.
d. Properly calibrate application equipment according to manufactures instructions to ensure the recommended amount of chemical is applied.

e. To avoid build up and cross contamination, application equipment shall be cleaned after each use. Cleaning shall be completed according to manufacturer's recommendations.

4.0 EMPLOYEE TRAINING

All training shall be in accordance with the Standard Operating Procedures for Stormwater and Environmental Education. Training shall also be completed as required by the employee's IDOA Pesticides Applicators License. Records of employee training will be maintained by the Forestry Supervisor in the Street Division.

5.0 RECORD KEEPING

All application and maintenance records for the City of Rockford shall be kept by the Street Division of Public Works. For contracted PHF applications the Street Division shall receive copies of the maintenance records from the contractor by December 15th of every year or as directed otherwise.

Attachment A

Timothy S. Hanson
Director of Public Works
Department of Public Works

May 16, 2013

RE: Application of Pesticide/Herbicide and related schedule.

The following is a list of locations and approximate pesticide / herbicide application schedules for the targeted areas within the City of Rockford:

1. Sidewalks – May 1st thru June 30th
   a. CBD – Area bordered by 4th St. on the east, Winnebago St. on the west, Jefferson St./Park Ave. on the north and Cedar St./Chestnut St. / Walnut St. on the south.
   b. CBD – 7th St. between E. State St. and 6th Ave.
   c. CBD – Broadway between 6th St. and 9th St.

2. Raised Medians – May 1st thru June 30th (see attached list for locations).

3. Paved Ditches - June 1st thru July 31st
   a. Northwest Drainage Ditch – Between W. Riverside Blvd. and Kent Creek.
   b. Westleyan / SE Drainage Ditch – Between Ohio Pkwy. and Kishwaukee St.
   c. Upland / Holmes Drainage Ditch – Between Wilmette Ct. and Harrison Ave.

4. Creeks – July 31st thru October 31st
   a. Keith Creek – Between Fairview Blvd. and Kishwaukee St. (Incremental, applied over a 5 year period).
   b. Kent Creek – Between Central Ave. and Cedar St. (Incremental, applied over a 3 year period).

5. Ash Trees – June 1st thru August 31st - City-wide (see attached list)

Note: This is a tentative schedule; actual schedule may vary due to weather conditions.

Attachment B

MEDIAN LIST

	LIN FT	START	COMP
RIVERSIDE FROM N MAIN TO ROBEY AVE	258		
MAIN FROM RIVERBLUFF TO ELMWOOD	5847		
CENTRAL FROM LIBERTY TO 50' SOUTH OF AUBURN	1090		
AUBURN ST FROM SUNSET TO OAKLEY	574		
RIDGE AVE 40' NORTH AND SOUTH OF AUBURN	100		
RIDGE 100' NORTH OF WHITMAN	100		
SOUTH BOUND 2ND ST OFF RAMP FROM WHITMAN BRIDGE (LONG MEDIAN)	1064		
FOREST HILLS 200' SOUTH OF LANDSTROM	450		
N 2ND ST FROM WHITMAN TO SPRING CREEK	2863		
N 2ND ST JERSEY WALL OVER SPRING CREEK BRIDGE	3118		
WHITMAN FROM N MAIN TO N 2ND ST	2757		
WHITMAN FROM N MAIN TO LEE ST	1882		
KILBURN FROM JEFFERSON TO BRUCE	2357		
SCHOOL ST 100' EAST AND WEST OF CENTRAL	200		
KILBURN FROM SAFFORD TO 100' EAST OF CENTRAL	480		
CENTRAL 200' NORTH AND SOUTH OF KILBURN	300		
CENTRAL 100' NORTH AND SOUTH OF HALSTED	200		
CENTRAL 100' NORTH AND SOUTH OF RIVERSIDE	200		
RIVERSIDE WEST OF CENTRAL	825		
SPRING CREEK FROM RIVER TO STARKWEATHER	393		
SPRING CREEK FROM 150' WEST OF ALPINE TO 200' EAST OF SPRINGBROOK	830		
SPRING CREEK FROM SHAW WOODS TO TANGLEWOOD	3383		
ALPINE FROM RIVERSIDE TO BROOKVIEW	676		
ALPINE FROM DEMPSTER TO 150' SOUTH OF HARRISON	5997		
PINE FROM SAMUELSON TO SANDY HOLLOW	4740		
RRISON FROM S MAIN TO PRAIRIE RD	1180		
HARRISON FROM 18TH ST TO ALPINE	7261		
HARRISON FROM ALPINE TO MULFORD (NEW 08)	7210		
20TH ST FROM ALTON TO CENTER ST	1113		
BROADWAY FROM ALPINE TO POINT	786		
NEWBURG FROM ALPINE TO QUENTIN RD	643		
NEWBURG 200' EAST AND WEST OF MULFORD	1074		
CHARLES ST FROM 28TH ST TO PARKSIDE	2618		
FAIRVIEW BLVD 100' NORTH AND SOUTH OF MORSAY DR	150		
MORSAY 150' EAST OF FAIRVIEW	350		
MULFORD FROM HARRISON TO E RIVERSIDE	25533		
SPRINGBROOK 150' EAST OF PERRYVILLE	290		
BELL SCHOOL 100' SOUTH OR RIVERSIDE	100		
E STATE FROM LYFORD TO MILL RD	6097		
E STATE FROM MILL RD TO ROXBURY	5595		
COLLEGE EAST AND WEST OF SEMINARY	185		
MORGAN ST BRIDGE WALL EAST AND WEST	2026		
	101,830		

Attachment C

Emerald Ash Borer Treatment Log as of August 26, 2015

EAB TREATMENTS - SW						PESTICIDE USED			ACTIVE INGREDIENT
						TREE-AGE			IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Previous HANSEN REQUEST #	COMMENTS
1	5-19-15	1209 Corbin St.	4	10	50	Myron Cottage	47°C Cloudy	#144229	Slow uptake
2	" "	1215 Corbin St.	2	21	120	Myron Cottage	47°C Cloudy	#144230	
3	" "	1127 Corbin St.	6	25	160	Myron Cottage	47°C Cloudy	#144242	
4	" "	1117 Corbin St.	4	22	135	Myron Cottage	47°C Cloudy	#144243	
5	" "	909 Corbin St.	2	17	85	Myron Cottage	47°C Cloudy	#144245	
6	" "	825 Kent St.	22	23	150	Myron Cottage	51°C Cloudy	#144244	
7	" "	907 Kent St.	2	19	100	Myron Cottage	51°C Cloudy	#146956	
8	5-20-15	1215 Kent St.	2	9	40	Myron Cottage	42°C Cloudy	#146959	
9	" "	" "	6	9	40	Myron Cottage	42°C Cloudy	#146959	
10	" "	906 Rose Ave	22	18	90	Myron Cottage	42°C Cloudy	#146955	
11	" "	1703 Hulin St	6	7	40	Myron Cottage	46°C Cloudy	#146970	Slow uptake
12	" "	15275 Central Ave.	5	25	160	Myron Cottage	45°C Light Rain	#144218	
13	5-21-15	2362 Meadowview Dr.	4	6	25	Myron Cottage	44°C Cloudy	#144228	
14	" "	" "	6	6	25	Myron Cottage	44°C Cloudy	#144228	
15	" "	2502 Forsythia Dr.	3	9	40	Myron Cottage	44°C Cloudy	#144226	
16	" "	2160 Gilby Rd	3	21	120	Myron Cottage	55° Partly Sunny	#136845	
17	"Empty Lot"	2000 Gilby Rd & Bird St.	2	11	50	Myron Cottage	55° Partly Sunny	#146957	
18	" "	416 Webster Ave.	7	21	120	Myron Cottage	55° Partly Sunny	#144214	
19	" "	2028 Green St.	12	27	180				By Pass Treatment
20	" "	615 Royal Ave.	6	27	180	Myron Cottage	56° Partly Sunny	#143174	→ NW Rockford

EAB TREATMENTS - SE

						PESTICIDE USED			ACTIVE INGREDIENT
						TREE-AGE			IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Previous HANSEN REQUEST #	COMMENTS
1	5-29-15	Empty Lot 901 13th St.	8	14	70	Myron Cottage	68° Cloudy	*141904	
2	" "	" "	10	15	70	Myron Cottage	68° Cloudy	*141904	
3	" "	" "	12	17	85	Myron Cottage	68° Cloudy	*141904	
4	" "	918 13th St.	7	10	50	Myron Cottage	68° Cloudy	*141894	Very slow uptake
5	" "	1408 12th St.	23	16	75	Myron Cottage	77 Cloudy	*141905	
6	6-2-15	1625 9th Ave.	1	18	90	Myron Cottage	52° cloudy +sun	*141892	
7	" "	" ↓ "	4	16	75	Myron Cottage	52° cloudy +sun	*141892	
8	" "	1629 9th Ave	3	15	70	Myron Cottage	52° cloudy +sun	*141893	
9	" "	1636 9th Ave.	5	16	75	Myron Cottage	52° cloudy +sun	*141981	
10	" "	1633 9th Ave.	5	21					Present Top Crown Dieback Past + Present
11	" "	1641 9th Ave.	2	17	85	Myron Cottage	62° Sunny	Field	
12	" "	" "	6	14	70	Myron Cottage	62° Sunny	Field	
13	6-3-15	2227 9th Ave.	6	18	90	Myron Cottage	52° Sunny	*141880	
14	" "	2215 10th Ave.	4	4	25	Myron Cottage	62° Sunny	*141879	
15	" "	1211 12th Ave	2	7	40	Myron Cottage	65° Sunny	*141965	
16	" "	1130 17th Ave	5	21	120	Myron Cottage	72° Sun	*142283	
17	6-4-15	624 Blenheim Dr.	5	4	25	Myron Cottage	68° Cloudy	*141730	
18	" "	1820 Colorado Ave.	5	14	70	Myron Cottage	70° Cloudy	*141993	
19	" "	3303 California Rd	4	11	50	Myron Cottage	70° Cloudy	*142232	
20	" "	1903 Arizona Ave.	10	9	40	Myron Cottage	70° Cloudy	*141969	

EAB TREATMENTS - SE						PESTICIDE USED: TREE-AGE			ACTIVE INGREDIENT: IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Previous HANSEN REQUEST #	COMMENTS
161	5-22-15	815 28th St.	2	8	40	Myron Cottage	55° Sunny	supervisor	
162	" "	6102 Bonhaim Dr.	4	14	70	Myron Cottage	55° Sunny	Supervisor	← #141731
163	" "	4864 flintridge	6	23	150	Myron Cottage	66° Sunny	Supervisor	
164	5-26-15	517 Washington St	3	20	110	Myron Cottage	70° Cloudy	#141830	
165	" "	331 Washington St.	23	12	50	Myron Cottage	70° Rain	#141832	
166	5-27-15	1220 31st St.	4	11	50	Myron Cottage	64° Cloudy	#141870	
167	" "	512 29th St.	3	14	70	Myron Cottage	65° Cloudy	#141738	
168	" "	1608 27th St.	1	18	90	Myron Cottage	66° Cloudy	#141737	
169	" "	524 27th St.	2	25	160	Myron Cottage	66° Cloudy	#134405	
170	" "	1604 27th St.	3	4	25	Myron Cottage	66° Cloudy	#141733	very slow uptake
171	" "	1504 24th St.	5	13	70	Myron Cottage	66° Cloudy	#141988	
172	5-28-15	1614 24th St.	3	11	50	Myron Cottage	57° Sunny	#141992	
173	" "	908 21st St.	7	15	70	Myron Cottage	57° Partly Sunny	#141877	
174	" "	2715 2nd Ave.	7	8	40	Myron Cottage	57° Sunny	#141808	
175	" "	1520 20th St	8	15	70	Myron Cottage	66° Sunny	142278	
176	" "	1803 18th St.	12	18	90	Myron Cottage	66° Sunny	141878	
177	" "	1919 15th St.	23	12	50	Myron Cottage	76° Cloud & Sun	#142274	
178	" "	" "	24	11	50	Myron Cottage	76° Cloud & Sun	#142274	
179	6-4-15	2117 Calgary Ct.	3	10	50	Myron Cottage	77° Cloudy	#142752	
180	6-9-15	304 S. 2nd St.	2	9	40	Myron Cottage	62° Cloud & Sun	#147402	

EAB TREATMENTS - SW

PESTICIDE USED: TREE-AGE

ACTIVE INGREDIENT: IMMEMECTIN BENZOATE

#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
21	5-19-15	1707 Clifton Ave.							Notice Orange Dot 1/2 Dead
22	5-22-15	224 Webster Ave.	5	22	135	Meyer Cottage	71° Sunny	#144217	
23	6-30-15	1325 Blake St.	4	19	100	Meyer Cottage	60° fog	#146712	
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EAB TREATMENTS - NW

PESTICIDE USED: TREE-AGE

ACTIVE INGREDIENT: IMMEMECTIN BENZOATE

#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Previous HANSEN REQUEST #	COMMENTS
1	5-21-15	615 Royal Ave	6	27	180	Myron Cottage	51° Partly Sunny	*143174	
2	5-21-15	710 Royal Ave.	3	16	75	Myron Cottage	67° Cloudy	*143173	
3	" "	830 Royal Ave.	1	21	120	Myron Cottage	69° Cloudy	*143172	
4	" "	607 Royal Ave.	1	27	180			*143175	ByPass (Body Lifting Sidewalk)
5	6-22-15	215 N. Day Ave.	5	24	155	Myron Cottage	73° Cloudy	*143199	
6	" "	211 N. Day Ave	5	24	155	Myron Cottage	73° Cloudy	*143200	
7	" "	304 Miriam Ave.	22	20	110	Myron Cottage	74° Light Rain	*143176	
8	" "	↓	5	18	——	——	——	*143176	ByPass Structural Damage
9	" "	415 N Independence Ave.	5	21	120	Myron Cottage	72° Light Rain	*143012	
10	6-23-15	714 N. Day St.	6	15	——	——	——	*143195	ByPass (Marked + Letter)
11	" "	118 N Johnston Ave.	3	24	155	Myron Cottage	67° Sunny	*143970	
12	" "	611 N. Johnston Ave	5	14	70	Myron Cottage	67° Sunny	*143969	
13	" "	811 N. Johnston Ave.	4	24	155	Myron Cottage	71° Sunny	*143967	
14	" "	903 N. Johnston Ave.	5	21	120	Myron Cottage	74° Sunny	*143963	
15	" "	916 N. Johnston Ave	5	26	170	Myron Cottage	76° Sunny	*143965	
16	6-24-15	2319 Sherman Ave.	4	21	120	Myron Cottage	60° Cloudy	*143114	
17	" "	2307 Sherman Ave.	3	24	155	Myron Cottage	61° Cloudy	*143113	
18	" "	2206 Sherman Ave	20	20	110	Myron Cottage	63° Cloudy	*143966	
19	" "	2003 Sherman Ave	4	25	160	Myron Cottage	65° Cloudy	*143112	
20	" "	2201 School St.	——	——	——	——	——	*143193	No Ash tree Present

EAB TREATMENTS - SE						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Arbor Jay HANSEN REQUEST #	COMMENTS
181	6-5-15	2212 Montana Ave.	3	11	50	Myron Cottage	67° Cloudy	#142244	Very Very Slow Uptake (Take off Treatment List)
182	" "	3503 Wesleyan Ave.	2	9	40	Myron Cottage	69° Cloudy	#142271	
183	" "	" "	3	12	50	Myron Cottage	69° Cloudy	#142271	
184	" "	3115 Wesleyan Ave	2	14	70	Myron Cottage	74° Cloudy	#142243	
185	" "	2306 Richard Ave	22	11	50	Myron Cottage	74° Cloudy	#142272	
186	" "	" "	6	12	50	Myron Cottage	74° Cloudy	#142272	
187	6-8-15	440 Black Hawk Park Rd.	#1	11	50	Myron Cottage	61° Sunny	#147795	#1 Eastbound
188	" "	" "	#2	11	50	Myron Cottage	61° Sunny	#147795	#2
189	" "	" "	#3	11	50	Myron Cottage	61° Sunny	#147795	#3
190	" "	" "	#4	13	50	Myron Cottage	61° Sunny	#147795	#4
191	" "	" "	#5	17	85	Myron Cottage	69° Sunny	#147795	#5
192	" "	" "	#6	16	75	Myron Cottage	69° Sunny	#147795	#6
193	" "	" "	#7	15	70	Myron Cottage	76° Sunny	#147795	#7
194	" "	" "	#8	14	70	Myron Cottage	76° Sunny	#147795	#8
195	" "	3105 S. 1st St. North Empty Lot	1	8	40	Myron Cottage	79° Sunny	#147408	
196	6-9-15	409 S. 1st St.	1	9	40	Myron Cottage	63° Cloudy	#147404	
197	" "	" "	6	8	40	Myron Cottage	63° Cloudy	#147404	
198	" "	405 S. 1st St.	9	8	40	Myron Cottage	63° Cloudy	#147773	
199	" "	401 S. 2nd St.	10	11	50	Myron Cottage	76° Clouds + Sun	#147401	
200	" "	410 S. 3rd St.	3	16	75	Myron Cottage	76° Clouds + Sun		

EAB TREATMENTS - SE						PESTICIDE USED: TREE-AGE			ACTIVE INGREDIENT: IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Arnica's HANSEN REQUEST #	COMMENTS
201	6-10-15	934 S. 3rd St.	6	24	155	Myron Cottage	76° Sun	#147784	
202	" "	2020 S. 4th St.	6	11	50	Myron Cottage	76° Sun	#142275	
203	" "	2108 S. 4th St.	7	10	—			#142276	Tree Completely Dead
204	" "	615 S. 5th St.	14	21	120	Myron Cottage	86° Sunny	#141967	
205	" "	" "	21	13	70	Myron Cottage	86° Sunny	#141967	
206	" "	234 Highland Ave	8	8	40	Myron Cottage	86° Sunny	#141867	Slow Uptake
207	" "	" "	12	10	50	Myron Cottage	86° Sunny	#141867	
208	6-11-15	217 S. Prospect St.	4	15	70	Myron Cottage	70° cloudy	#141869	
209	" "	235 S. Chicago Ave	23	22	135	Myron Cottage	72° T-storm	#141866	
210	" "	301 S. Chicago Ave	10	12	50	Myron Cottage	72° T-Storm	#141833	
211	" "	2265 London Ave	3	—				#141868	No Tree (but) Remnant Spot + Fresh Grass
212	" "	524 St. Louis Ave	3	6	25	Myron Cottage	70° T-Storm	#141831	
213	" "	3911 Shirley Rd.	1	21	120	Myron Cottage	70° T-Storm	#141728	
214	6-12-15	2703 Hooker Ave	3	20	110	Myron Cottage	63° Light Fog	#141829	
215	" "	" "	5	18	90	Myron Cottage	63° Light Fog	#141829	
216	" "	807 Jordan Pl	6	16	75	Myron Cottage	68° Light Fog	#141742	
217	" "	[redacted]						#141802	Same Location
218	" "	3616 Larson Ave.	2	16	75	Myron Cottage	63° Mist	#141741	
219	" "	" "	5	15	70	Myron Cottage	63° Mist	#141741	
220	" "	3817 Larson Ave	2	24	155	Myron Cottage	63° Mist	#141732	

EAB TREATMENTS - NE						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Previous HANSEN REQUEST #	COMMENTS
41	6/5/15	625 Calvin Park Blvd	4	15	70	A-24	67° Cloudy	141516	
42	6/5/15	3620 Crosby ST	6	9	40	A-24	69° cloudy	141693	
43	6/5/15	3608 Crosby ST	3	18	90	A-24	70° Cloudy	141696	
44	6/5/15	3906 Crosby ST	2	20	110	A-24	70° Cloudy	141676	
45	6/5/15	3906 Crosby ST	4	18	90	A-24	70° Cloudy	141676	
46	6/8/5	120 Skylark Dr	6	18	90	A-24	67° P/cloudy		
47	6/8/15	4340 Marsay Dr	4	13	70	A-24	74° Fair		
48	6/8/15	316 Hemlock Ln	2	25	160	A-24	77° P/cloudy		
49	6/8/15	316 Hemlock Ln	6	22	135	A-24	77° P/cloudy		
50	6/9/15	3906 Crosby ST	21	16	75	A-24	60° Cloudy	141676	
51	6/9/15	516 Hemlock Ln	4	20	110	A-24	64° Cloudy		
52	6/9/15	3000 Rural ST		23	150	A-24	70° Cloudy		In Park on W
53	6/10/15	3000 Rural ST		20	110	A-24	75° P/cloudy		In Park on Rural side
54	6/10/15	507 Vale	6	19	100	A-24	83° Cloudy		~~In Park on Rural side~~
55	6/10/15	507 Vale	3	8	40	A-24	83° cloudy		
56	6/10/15	602 James	23	11	50	A-24	85° Cloudy		
57	6/10/15	431 Dawson Ave	23	32	240	A-24	86 m/cloudy		
58	6/11/15	3603 Greenwood	3	13	70	A-24	71° Cloudy		Incomplete - Complete
59	6/11/15	3603 Greenwood	6	14	70	A-24	73° Cloudy		
60	6/17/15	317 Fairview	7	18	90	A-24	66° Cloudy		

EAB TREATMENTS - SE

PESTICIDE USED: TREE-AGE

ACTIVE INGREDIENT: IMMEMECTIN BENZOATE

#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
1	6-15-15	2931 Oak Grove Ln.	4	18	90	Myron Cottage	72° Rain	#141828	
2	" "	" "	7	19	100	Myron Cottage	72° Rain	#141828	
3	" "	" "	13	15	70	Myron Cottage	72° Rain	#141828	
4	" "	720 Woodland Dr.	4	24	155	Myron Cottage	75° Cloudy	#141804	
5	" "	1736 Sexton Dr	6	9	40	Myron Cottage	75° Cloudy	#141997	
6	" "	504 Sawyer Rd.						#147789	No Ash tree Present
7	" "	824 Taft Rd.	2	14	70	Myron Cottage	76° Cloudy	#142439	
8	6-16-15 "	711 Seminary St.	2	15	70	Myron Cottage	66° Partly Sunny	#147779	Very slow uptake
9	" "	717 Seminary St.	2	14	70	Myron Cottage	66° Partly Sunny	#147780	Very slow uptake
10	" "	809 Seminary St.	6	6	25	Myron Cottage	71° Sunny	#147781	Very slow uptake
11	" "	815 Seminary St.	1	9	40	Myron Cottage	71° Sunny	#147782	Very slow uptake
12	" "	2902 Sewell St.	7	6	25	Myron Cottage	75° Sunny	#142437	
13	6-17-15	3022 Utah Pl.	5	12	50	Myron Cottage	59° Cloudy	#141968	
14	" "	3208 Minnesota Dr.	4	9	40	Myron Cottage	59° Cloudy	#141994	
15	" "	3445 Minnesota Dr.	21	21	120	Myron Cottage	62° Cloudy	#142281	
16	" "	3316 Thelma St.	6	7	40	Myron Cottage	62° Cloudy	#142257	
17	" "	2303 Cornell Dr.	11	25	160	Myron Cottage	68° Cloudy	#142279	
18	" "	2208 Ohio PKWY	23	27	180	Myron Cottage	68° Cloudy	#142273	
19	" "	" "	21	20	110	Myron Cottage	68° Cloudy	#142273	
20	6-18-15	1316 Farnella St.	5	7	40	Myron Cottage	79° Cloudy	#141907	

EAB TREATMENTS - SE						PESTICIDE USED			ACTIVE INGREDIENT
						TREE-AGE			IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
221	6-18-15	1324 Parmelee St.	2	7	40	Myron Cottage	71° Cloudy	*141906	
222	" "	1913 EastGate Pkwy	6	22	135	Myron Cottage	72° Cloudy	*128711	
223	" "	2342 EastGate Pkwy						*141996	No Ash tree present
224	" "	923 Parkside Dr.	1	25	160	Myron Cottage	77° Cloudy	*141724	
225	" "	704 Parkside Dr.	3	24	155	Myron Cottage	77° Cloudy	*141723	
226	" "	408 Parkside Dr.						*141727	No Ash tree present
227	6-19-15	2116 Portland Pl.	4	9	40	Myron Cottage	56° Sunny	*142250	
228	" "	4015 Laramie Ln.	3	9	40	Myron Cottage	56° Sunny	*142254	
229	" "	" "	6	8	40	Myron Cottage	56° Sunny	*142254	
230	" "	4112 Laramie Ln.	7	9	40	Myron Cottage	61° Sunny	*142255	
231	" "	" "	2	8	40	Myron Cottage	61° Sunny	*142255	
232	" "	4125 Laramie Ln.	5	14	70	Myron Cottage	61° Sunny	*142256	
233	" "	3415 Michael Dr.	5	9	40	Myron Cottage	67° Sunny	*141739	
234	6-30-15	2119 Christina St.	4	19	100	Myron Cottage	62° Fog	*147785	
235	" "	2216 Christina St.	4	16	17	Myron Cottage	64° Cloudy	*147788	
236	7-1-15	2201 Harrison Ave.	13	14	70	Myron Cottage	59° Cloudy	*142434	
237	" "	" "	11	—		Myron Cottage		*142434	
238	" "	" "	9	12	50	Myron Cottage	59° Cloudy	*142434	
239									
240									

EAB TREATMENTS - NE						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Previous HANSEN REQUEST #	COMMENTS
61	6-22-15	518 Fairview	6	16	75	A-24	74° Cloudy	141705	
62	6-23-15	1410 Benton St	4	6	25	A-24	65° Sunny	141657	
63	6-23-15	425 Gardner	2	11	50	A-24	65° Sunny	need #	
64	6-23-15	425 Gardner	4	11	50	A-24	65° Sunny	need #	
65	6-23-15	419 Gardner	2	12	50	A-24	69 Sunny	need #	
66	6-23-15	419 Gardner	4	13	70	A-24	69 Sunny	need #	
67	6-23-15	401 Gardner	5	26	170	A-24	72 Sunny	need #	
68	6-23-15	406 Gardner	4	17	85	A-24	77 Sunny	need #	
69	6-24-15	312 N. Gardner	2	7	40	A-24	62 cloudy	need #	very slow intake
70	6-24-15	533 London	21	23	150	A-24	67 cloudy	need #	
71	6-24-15	603 N. Chicago Ave							Tree Has been Removed
72	6-24-15	516 N. Chicago	8	18	40	A-24	69 cloudy	need #	
73	6-24-15	303 N. Prospect	6	17	85	A-24	74 cloudy	need #	
74	6-29-15	5872 Shelford	1	24	155	A-24	62 fog	need #	
75	6-29-15	5872 Shelford	3	23	150	A-24	62 fog	need #	
76	6-29-15	1912 Shaw woods	4	7	40	A-24	64 cloudy	need #	uns
77	6-29-15	773 N. 1st St	2	18	90	A-24	65 cloudy	need #	
78	6-29-15	724 N. 1st St	2	11	50	A-24	69 cloudy	need #	
79	6-29-15	730 N 1st ST	2	20	110	A-24	69 cloudy	need #	
80	7-1-15	602 N. 1st	2	6	25	A-24	58 cloudy	147774	

EAB TREATMENTS - NW						PESTICIDE USED: TREE-AGE			ACTIVE INGREDIENT: IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Previous HANSEN REQUEST #	COMMENTS
21	6-24-15	2223 School St.	21	17	85	Myron Cottage	73° Cloudy	*143194	
22	" "	815 Hoban Ave.	5	24	155	Myron Cottage	75° cloudy	*143236	
23	6-25-15	711 Alliance Ave.	2	30	225	Myron Cottage	67° Cloudy	*143198	
24	" "	2505 Ashland Ave	4	28	195	Myron Cottage	69° Cloudy	*143202	
25	" "	2511 Ashland Ave.	5	30	225	Myron Cottage	77° Partly Sunny	*143201	
26	" "	" "	1	27	180	Myron Cottage	77° Partly Sunny	*143201	
27	" "	2516 Ashland Ave.	2	22	135	Myron Cottage	76° Cloudy	*143237	
28	6-26-15	601 Albert Ave	6	17	85	Myron Cottage	61° cloudy	*143132	
29	" "	2416 Ashland Ave	5	26	170	Myron Cottage	61° Cloudy	*143968	
30	" "	720 N. Sunset Ave.	10	18	90	Myron Cottage	61° Cloudy	*143115	
31	" "	422 N. Sunset Ave	4	17	85	Myron Cottage	61° Cloudy	*143103	
32	6-29-15	314 Underwood St	3	18	90	Myron Cottage	62° fog	8-21-2013 List	
33	" "	452 Underwood St.	6	16	75	Myron Cottage	63° fog	8-20-2013 List	
34	" "	436 Jilson Ave.						*142981	No Ash tree Present
35	" "	528 N. Harman St	1	8	40	Myron Cottage	70° cloudy	*143357	
36	" "	" "	6	8	40	Myron Cottage	70° Cloudy	*143357	
37	" "	1203 Taylor St.	13	20	110	Myron Cottage	73° Cloudy	List 8-23-2013	
38	" "	1417 Sherman Ave.	1	19	100	Myron Cottage	73° Cloudy	*143025	
39	" "	1427 Sherman Ave.	5	19	100	Myron Cottage	73° Cloudy	*143020	
40	6-30-15	1004 Andrews St	20	16	75	Myron Cottage	64° Cloudy	*142942	

EAB TREATMENTS - NW						PESTICIDE USED: TREE-AGE			ACTIVE INGREDIENT: IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Previously HANSEN REQUEST #	COMMENTS
61	7-1-15	1221 Camp Ave	4	25	160	A-24	64° cloudy	143961	
62	7-6-15	703 Cottage Grove	10	18	90	A-24	70° cloudy	142514	
63	7-6-15	1331 Post	4	16	75	A-24	72° cloudy	143463	
64	7-6-15	1326 Post	2	23	150	A-24	74° cloudy	143462	
65	7-6-15	1415 Camp	5	28	195	A-24	76° Rain	139195	
66	7-6-15	1421 Camp	2	12	50	A-24	75° Light Rain	143945	
67	7-8-15	1502 Camp	21	4	25	A-24	54° cloudy	143944	
68	7-8-15	1508 Camp	2	11	50	A-24	54° cloudy	143943	
69	7-8-15	1603 Camp	10	22	135	A-24	57° cloudy	143942	
70	7-8-15	1626 Camp	3	9	40	A-24	61° cloudy	143941	
71	7-8-15	1818 Camp	2	18	90	A-24	64° cloudy	143634	
72	7-8-15	1818 Camp	4	18	90	A-24	64° cloudy	143635	
73	7-8-15	1742 Douglas	2	15	70	A-24	67 cloudy	142516	
74	7-8-15	1742 Douglas	9	7	40	A-24	67° cloudy	need #	
75	7-8-15	1742 Douglas	13	15	50	A-24	67° cloudy	need #	
76	7-8-15	1742 Douglas	11	15	70	A-24	67° cloudy	need #	
77	7-13-15	1788 Douglas	6	8	40	A-24	67° cloudy	142515	
78	7-13-15	2221 Douglas	21	10	50	A-24	71° sunny	142513	
79	7-13-15	2204 Douglas	4	15	70	A-24	74° cloudy	142512	
80	7-13-15	2204 Douglas	23	11	50	A-27	74° cloudy	need #	

EAB TREATMENTS - NW

PESTICIDE USED	ACTIVE INGREDIENT
TREE-AGE	IMMEMECTIN BENZOATE

#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Previous HANSEN REQUEST #	COMMENTS
1	7-1-15	1325 Blaisdell St.	—	—	—	—	—	#143027	No Ash tree Present
2	Location	1333 Blaisdell St.	2	20	110	Myron Cottage	59° cloudy	Field Location	Empty House
3	" "	704 Irving Ave	21	9	40	Myron Cottage	59° cloudy	#143011	
4	7-7-15	1503 Yonge St.	6	9	40	Myron Cottage	63° cloudy	8-8-2013	
5	" "	" "	8	22	135	Myron Cottage	63° cloudy	8-8-2013	
6	" "	1283 N. Main St.	10	23	150	Myron Cottage	63° cloudy	#143960	
7	" "	1321 N. Court St.	22	19	100	Myron Cottage	65° cloudy	#143416	
8	" "	" "	" "	" "	" "	" "	" "	#143417	
9	" "	618 Oakley Ave	3	11	50	Myron Cottage	65° cloudy	#143010	
10	" "	2008 Shelley Pr.	3	24	155	Myron Cottage	71° cloudy	#143014	
11	7-8-15	1726 N Court St.	1	25	160	Myron Cottage	53° cloudy	#142923	
12	" "	2309 N. Court St.	5	19	100	Myron Cottage	58° cloudy	#142917	
13	" "	2310 N. Court St	3	17	85	Myron Cottage	63° cloudy	#142919	
14	" "	3356 Sun Valley Ter.	6	16	75	Myron Cottage	63° cloudy	#142584	
15	" "	[illegible]						#142589	
16	" "	3348 Sun Valley Ter.		22	135	Myron Cottage	63° cloudy	#142590	
17	" "	" "		19	100	Myron Cottage	63° cloudy	#142590	
18	" "	2208 Clinton Pl.	5	14	70	Myron Cottage	66° cloudy	Blank	2 years (Ago) tree was bypassed because surface roots [illegible]
19	" "	1810 Oxford St.	7	11	50	Myron Cottage	66° cloudy	#142478	
20	7-15-15	1005 Haskell Ave.	3	23	150	Myron Cottage	57° sunny	#143414	

EAB TREATMENTS - NW						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Previous HANSEN REQUEST #	COMMENTS
21	7-9-15	2040 Oxford St.	6	13	70	Myron Cottage	62° Cloudy	*142477	
22	" "	" "	11	14	70	Myron Cottage	62° Cloudy	*142477	
23	" "	1742 Oxford St.	6	21	120	Myron Cottage	62° Cloudy	*142479	
24	" "	1302 National Ave.	2	17	85	Myron Cottage	65° Cloudy	*143443	
25	" "	1210 National Ave.	—	—	—	—	—	*143444	No Ash tree present
26	" "	1214 National Ave.	—	—	—	—	—	*143460	No Ash tree Present
27	" "	1420 Grant Ave.	2	19	100	Myron Cottage	69° Cloudy	*143430	
28	" "	1422 Grant Ave.	5	19	100	Myron Cottage	69° Cloudy	*143429	
29	" "	1404 Grant Ave.	7	23	150	Myron Cottage	70° Cloudy	*143431	
30	7-14-15	1110 Grant Ave	6	25	160	Myron Cottage	72° Sunny	*143432	
31	" "	1306 Grant Ave.	4	12	50	Myron Cottage	72° Sunny	*143433	
32	" "	2118 Kilburn St	4	31	—	Past ByPass Treatment		→	Orange Dot over 1/2 decline
33	" "	705 Kilburn St.	13	7	40	Myron Cottage	79° Cloudy	*143245	
34	" "	" "	11	7	40	Myron Cottage	79° Cloudy	*143245	
35	" "	" "	8	4	25	Myron Cottage	79° Cloudy	*143245	
36	" "	1011 Haskell Ave.	1	26	170	Myron Cottage	79° Cloudy	*143413	
37	7-15-15	721 Locust St.	4	21	120	Myron Cottage	59° Sunny	*143244	
38	" "	1516 Midway Dr.	6	16	75	Myron Cottage		*142610	
39	" "	1841 Harlem Blvd.	—	—	—	—	—	*143633	No Ash tree present
40	7-20-15	2010 Harlem Blvd.	3	20	110	Myron Cottage	62° Cloudy	*142[illegible]85	

EAB TREATMENTS - NW						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Review HANSEN REQUEST #	COMMENTS
81	7-13-15	1825 Douglas	2	9	40	A-24	78° Fair	142517	
82	7-13-15	2020 Cumberland	2	15	70	A-24	78°	142476	
83	7-20-15	3318 Charles st	11	20	110	A-24	66°	141740	
84	7-20-15	2102 Cumberland	20	19	100	A-24	69°	142537	
85	7-20-15	2037 Clinton st	2	16	75	A-24	75°	142486	
86	7-20-15	703 Auburn st	9	7	40	A-24	78°	142220	
87	7-20-15	1605 Grace st	6	9	40	A-24	80°	142616	
88	7-20-15	1603 Burton st	10	16	75	A-24	83°	142922	
89	7-20-15	1603 Burton ST	12	16	75	A-24	83°	need #	
90	7-21-15	523 Brown	2	7	40	A-24	64 Sunny	142540	
91	7-21-15	523 Brown	6	21	120	A-24	64 sunny	need #	
92	7-21-15	1320 Boilvin Ave	6	20	110	A-24	71 sunny	143461	
93	7-22-15	1211 Garrison Ave	4	7	40	A-24	64° Sunny	143439	
94	7-22-15	1211 Garrison Ave	6	9	40	A-24	64° Sunny	need #	
95	7-22-15	2216 Dresden	6	26	170	A-24	83° Sunny	134733	
96	7-24-15	818 Ellis Ave	6	12	50	A-24	64 cloudy	142533	
97	7-24-15	2416 Ashland ave	5	26	170	A-24	76 cloudy	143968	
98	7-24-15	523 Chisholm Trl	2	20	110	A-24	79 cloudy	143235	
99	7-24-15	1820 Melrose	3	14	70	A-24	82 cloudy	142491	
100	7-27-15	1742 Hancock	4	13	70	A-24		142536	

EAB TREATMENTS - NW

PESTICIDE USED: TREE-AGE
ACTIVE INGREDIENT: IMMEMECTIN BENZOATE

#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
41	7-15-15	1724 Harlem Blvd	6	7	40	Myron Cottage	75° Sunny	#143962	
42	" "	" "	3	7	———		→	#143962	Cell=3 Marked + Letter Standard Stamp
43	" "	412 Mulberry St	5	9	40	Myron Cottage	75° Sunny	Not on List 2013 Year	
44	7-16-15	130 N. Church St	6	8	40	Myron Cottage	63° Cloudy	#143441	
45	" "	126 N. Church St.	7	8	40	Myron Cottage	63° Cloudy	#143612	Very Sparse + Very Slow Uptake
46	" "	132 N. Church St	9	8	40	Myron Cottage	64° Cloudy	#143613	Very Slow uptake
47	" "	408 Mulberry St	4	8	40	Myron Cottage	64° Cloudy	#143617	Very Slow uptake
48	7-17-15	3333 N. Church St	9	13	70	Myron Cottage	74° Sunny	#142582	
49	" "	2203 Latham St.	6	17	85	Myron Cottage	74° Sunny	#142612	
50	" "	1904 Latham St.	5	18	90	Myron Cottage	74° Sunny	#142925	
51	" "	1704 Latham St.	4	13	70	Myron Cottage	77° Sunny	#142618	
52	" "	416 King St.	3	18	90	Myron Cottage	77° Sunny	#143415	
53	" "	504 King St.	5	20	110	Myron Cottage	85° Sunny	#143418	
54	7-20-15	2024 Harlem Blvd	2	17	85	Myron Cottage	62° Clouds	#142483	
55	" "	2026 Harlem Blvd.	2	25	160	Myron Cottage	69° Cloudy	#142484	
56	" "	" "	5	21	120	Myron Cottage	69° Cloudy	#142484	
57	" "	2333 Harlem Blvd	1	13	70	Myron Cottage	88° Cloudy	#142482	
58	" "	" "	4	15	70	Myron Cottage	83° Cloudy	#142482	
59	" "	" "	7	13	70	Myron Cottage	83° Cloudy	#142482	
60	7-21-15	" "	13	11	50	Myron Cottage	62° Sunny	#142482	

EAB TREATMENTS - NE						PESTICIDE USED TREE-AGE		ACTIVE INGREDIENT IMMEMECTIN BENZOATE	
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Previous HANSEN REQUEST #	COMMENTS
101	7-27-15	1742 Hancock	8	14	70	A-24		need #	
102	7-27-15	1742 Hancock	12	14	70	A-24		need #	
103	7-27-15	225 Hancock	1	23	150	A-24		#143442	
104	7-27-15	225 Hancock	6	21	120	A-24		#143459	
105	7-27-15	225 Hancock	23	15	70	A-24		need #	
106	7-28-15	2040 melrose	1	16	50	A-24	71°	#142496	
107	7-28-15	2040 melrose	7	11	50	A-24	71°	need #	
108	7-28-15	2321 melrose	7	20	110	A-24	76°	#142494	
109	7-29-15	1915 melrose	5	18	90	A-24	75°	#142493	
110	7-29-15	1901 melrose	6	21	120	A-24	76°	#142492	
111	7-29-15	1824 melrose	6	20	110	A-24	79°	#142487	
112	7-29-15	1826 melrose	5	20	110	A-24	79°	#142488	
113	7-29-15	1906 Hancock	2	19	100	A-24	82°	#142982	
114	7-30-15	1516 midway	7	16	75	A-24	71°	#142610	
115	7-30-15	715 W. State	20	25	160	A-24	76°	need #	
116									
117									
118									
119									
120									

EAB TREATMENTS - NE

PESTICIDE USED: TREE-AGE

ACTIVE INGREDIENT: IMMEMECTIN BENZOATE

#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Previous HANSEN REQUEST #	COMMENTS
21	7-1-15	312 LaFayette Ave.	1	18	90	Myron Cathage	64° cloudy	#147783	
22	7-1-15	309 Roland Ave.	6	12	50	Myron Cathage	67° cloudy	#141707	
23	" "	4205 Eastridge Dr.	6	21	120	Myron Cathage	67° cloudy	#141673	
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
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38									
39									
40									

EAB TREATMENTS - NW						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	Previous HANSEN REQUEST #	COMMENTS
101	7-21-15	2403 Harlem Blvd.	4	14	70	Myron Cottage	82° Sunny	*142481	
102	" "	2426 Harlem Blvd.	3	14	70	Myron Cottage	71° Sunny	*142480	
103	" "	2220 Logan St.	1	15	70	Myron Cottage	71° Sunny	*142511	
104	" "	1906 Hancock St.	2	19	100	Myron Cottage	71° Sunny	*142982	
105	" "	1902 Hancock St.	21	11	50	Myron Cottage	75° Sunny	*142534	
106									
107									
108									
109									
110									
111									
112									
113									
114									
115									
116									
117									
118									
119									
120									

I-Treats

EAB TREATMENTS - SWE						PESTICIDE USED			ACTIVE INGREDIENT
						TREE-AGE			IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
1	6-2-14	4826 Antioch Dr.	6	12	40	Myron Cattage	Cloudy 75°	167127	uptake Very Slow
2	6-2-14	3306 Jacqueline Dr.	4	11	40	Myron Cattage	Partly Sunny 76	167129	uptake Very Slow
3	6-3-14	2505 Revelation LN.	1	[illegible]	50	Myron Cattage	Sunny 65°	167130	
4	6-3-14	2505 Revelation LN.	6	10	30	Myron Cattage	Sunny 65°	167131	
5	6-3-14	2523 Revelation LN.	7	15	60	Myron Cattage	Sunny 67°	167132	
6	6-3-14	2551 Revelation LN.	7	16	65	Myron Cattage	Sunny 69°	167133	
7	6-3-14	2563 Revelation LN.	7	18	80	Myron Cattage	Sunny 69°	167134	
8	6-3-14	2565 Revelation LN.	2	16	65	Myron Cattage	Sunny 71°	167135	
9	6-3-14	2617 Revelation LN.	7	18	80	Myron Cattage	Sunny 75°	167136	
10	6-3-14	2629 Revelation LN.							Stump DBH=26
11	6-4-14	2657 Revelation LN.	7	23	150	Myron Cattage	Light Rain 62°	167139	
12	6-4-14	5087 Valley Pines Dr.	1	15	60	Myron Cattage	Light Rain 62°	167140	
13	6-4-14	3904 Lookout Dr.	13	9	30	Myron Cattage	Cloudy 61°	167170	
14	6-4-14	3904 LookOut Dr.	11	8	25	Myron Cattage	Cloudy 61°	167170	
15	6-5-14	3717 MAYWood Ct.	6	8	25	Myron Cattage	Sunny 53°	167172	
16	6-5-14	5181 Houston Rd.	4	18	80	Myron Cattage	Mostly Sunny 65°		
17	6-5-14	3122 Breezeway Dr.	5	18	80	Myron Cattage	Mostly Sunny 63		
18	6-5-14	3084 Breezeway Dr.	11	7	20	Myron Cattage	Mostly Sunny 67°		
19	6-6-14	1212 Asche Ave.	[illegible] #10						Marked + Letter [illegible]
20	6-6-14	1212 Asche Ave.	[illegible] #14						Marked + Letter [illegible]

Re-Treats

5048

EAB TREATMENTS - SW E						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL#	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
21	6-5-14	1212 Asche Ave.	Westside #11	6	20	Myron Cottage	Mostly Sunny 72°		Uptake Very Slow
22	6-5-14	1212 Asche Ave.	#12	6	20	Myron Cottage	Mostly Sunny 72°		Uptake Very Slow
23	6-5-14	1212 Asche Ave.	#13	8	25	Myron Cottage	Mostly Sunny 72°		Uptake Very Slow
24	6-6-14	1212 Asche Ave.	#15	8	25	Myron Cottage	Mostly Sunny 59°		
25	6-6-14	1212 Asche Ave.	#17	9	30	Myron Cottage	Mostly Sunny 59°		
26	6-6-14	1212 Asche Ave.	# 18	8	25	Myron Cottage	Mostly Sunny 59°		
27	6-6-14	1212 Asche Ave.	#19	9	30	Myron Cottage	Mostly Sunny 59°		
28	6-6-14	1212 Asche Ave	#1	9	30	Myron Cottage	Sunny 77°		
29	6-6-14	1212 Asche Ave	#2	9	30	Myron Cottage	Sunny 77°		
30	6-6-14	1212 Asche Ave.	#3		100	Myron Cottage	Sunny 77°		
31	6-6-14	1212 Asche Ave.	#4	9	30	Myron Cottage	Sunny 77°		
32	6-9-14	4607 Newcastle Rd.	5	16	65	Myron Cottage	Sunny 72°		
33	6-10-14	1212 Asche Ave	5	10	30	Myron Cottage	Light Rain 65°		
34	6-10-14	1212 Asche Ave	1	11	40	Myron Cottage	Light Rain 65°		
35	6-11-14	3469 Precision Dr	3	18	80	Myron Cottage	Light Rain 61°		
36	6-11-14	3469 Precision Dr.	5	16	65	Myron Cottage	Light rain 61°		
37	6-11-14	3469 Precision Dr.	7	15	60	Myron Cottage	Light Rain 61°		
38	6-11-14	3230 PYRamid Dr	24	16	65	Myron Cottage	Cloudy 63°		
39	6-11-14	3230 PYRamid Dr.	21	14	50	Myron Cottage	Cloudy 63°		
40	6-12-14	3230 PYRamid Dr.	20	14	change 70 ml	Myron Cottage	Light Fog 57°		

EAB TREATMENTS - SE						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
141	6-10-14	4635 Newcastle	5	22	135	A-24	62° Cloudy		
142	~~——~~	~~↓~~	~~2~~	~~20~~	~~n/a~~	"	"	~~——~~	by passed / Sidewalk Lifting
143		1836 Apple Tree Ln	4	16	65	"	62° Cloudy		
144	~~——~~	~~↓~~	~~1~~	~~27~~	~~n/a~~		"	~~——~~	by passed too Large
145	6-11-14	4603 Longmeadow Ln	5	21	120	A-24	61° rain		Two Day intake
146	6-12-14	4628 Longmeadow Ln	5	14	70	A-24	55° Fog		
147	6-12-14	1817 Arnold Ave		16	75	"	61° Cloudy		
148	6-12-14	1817 Arnold Ave		22	115	"	61° Cloudy		
149	6-12-14	1619 Arnold Ave	11	18	75	"	61° Cloudy		
150	6-12-14	1520 Kerstin CT	2	21	120		61°		
151	6-13-14	1520 Kerstin CT	4	~~22~~	135	A-24	53° Sunny		
152	6-13-14	1532 Kerstin CT	4	23	150	"	58 Sunny		
153	~~6-13-14~~	~~1532 Kerstin CT~~	~~1~~	~~21~~	~~n/a~~	"	"	~~——~~	non-Treatment Bark Falling Away
154	6-19-14	1517 Kerstin CT	1	25	160	A-24	67 Cloudy		
155	6-19-14	1517 Kerstin CT	4	22	135	"	67 Cloudy		
156	~~6-20-14~~	~~1517 Kerstin CT~~	~~12~~	~~27~~	~~n/a~~	~~A-24~~	71 Cloudy	~~——~~	Defective Vascular System (Removal)
157	6-20-14	1517 Kerstin CT	10	~~24~~	155	"	71 Cloudy		
158		~~1517 Kerstin CT~~				"			
159	6-20-14	5326 Cybele Ln	3	18	90	"	73 Cloudy		
160	~~6-20-14~~	~~5326 Cybele Ln~~	~~6~~	~~11~~	~~n/a~~	~~"~~		~~——~~	Defective Vascular System marked for Removal

Re-Treats

EAB TREATMENTS - SW E

PESTICIDE USED: TREE-AGE

ACTIVE INGREDIENT: IMMEMECTIN BENZOATE

#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
41	6-12-14	5060 27th Ave	1	19	100	Myron Cottage	Cloudy 67°		
42	~~6-12-14~~	~~4219 O'Connell St.~~	~~3~~						~~Bad Lifting Sidewalk (ByPass)~~
43	6-12-14	4308 Mayflower Ave	2	19	100	Myron Cottage	Cloudy 74°		
44	6-13-14	3475 Holiday Dr.	6	18	90	Myron Cottage	Sunny 52°		Flat Picture Looks City
45	6-13-14	4608 Traylor CIR	5	18	90	Myron Cottage	Sunny 55°		
46	6-13-14	4309 Redleaf Rd	3	31	240	Myron Cottage	Sunny 62°		Sidewalk (Starting) Drop
47	6-13-14	3223 New England Dr.	3	31	240	Myron Cottage	Sunny 62°		
48	6-13-14	4329 Majesty Ct.	2	22	135	Myron Cottage	Sunny 62°		
49	6-13-14	3351 Tannenbaum LN.	4	16	75	Myron Cottage	Sunny 62°		
50	6-16-14	3315 Jacqueline Dr.	2	20	110	Myron Cottage	Partly Sunny 62°		
51	6-16-14	3310 Jacqueline Dr.	11	9	40	Myron Cottage	Partly Sunny 65°		
52	6-16-14	3310 Jacqueline Dr.	8	9	40	Myron Cottage	Partly Sunny 65°		
53	~~6-16-14~~	~~3310 Jacqueline Dr.~~	~~9~~	~~15~~	~~70~~				~~Lifting Sidewalk (ByPass)~~
54	~~6-16-14~~	~~3404 Jacqueline Dr~~	~~11~~						~~Lifting Sidewalk (ByPass)~~
55	~~6-16-14~~	~~3404 Jacqueline Dr~~	~~2~~						~~Start of Lifting Sidewalk (ByPass)~~
56	6-16-14	3009 Foliage LN.	3						over 1/2 Decline Marked & Letter
57	6-16-14	3003 Greendale Dr.	4	18	90	Myron Cottage	Partly Sunny 81°		
58	6-19-14	2303 Winnetka Dr.	5	16	75	Myron Cottage	Cloudy 73°		
59	6-19-14	2308 Winnetka Dr.	1	15					Marked & Letter after 1/2 decline
60	~~6-19-14~~	~~2906 Concordia Dr.~~	~~4~~						~~ByPass~~ Bulging terrace Lifting Sidewalk

Re-Treats

EAB TREATMENTS - SW E						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
61	6-17-14	5048 American Rd	1	9	40	Myron Cottage	Cloudy 70°		
62	6-17-14	5048 Merican Rd.	2	8	40	Myron Cottage	Cloudy 70°		
63	6-17-14	5048 AMerican Rd	3	8	40	Myron Cottage	Cloudy 70°		
64	6-17-14	5048 AMerican Rd	6		40	Myron Cottage	Cloudy 70°		
65	6-18-14	2810 NorthMoor Dr.	2	21	120	Myron Cottage	Cloudy 76°		
66	6-18-14	2920 NorthMoor Dr.	1	16	75	Myron Cottage	Cloudy 77°		
67	6-1814	2722 Colorado Ave	5	16	75	Myron Cottage	T-Storms 67°		
68	6-18-14	2606 Colorado Ave	3	16	75	Myron Cottage	Cloudy 69°		
69	6-19-14	5111 UPland Dr.	3	—	—				Notice Orange Dot Present
70	6-19-14	5112 UPland Dr.	4	—	—				Notice Orange Dot Present
71	6-19-14	5020 UPland Dr.	3	17	85	Myron Cottage	Cloudy 67°		
72	6-19-14	4612 UPland Dr.	11	—	—				Lifting Sidewalk
73	6-19-14	4612 UPland Dr.	9	—	—	—			Roots / Lean
74	6-19-14	4511 UPland Dr.	2	19	100	Myron Cottage	Cloudy 67°		
75	6-19-14	4511 UPland Dr.	5	19	100	Myron Cottage	Cloudy 67°		
76	6-19-14	4503 UPland Dr.	—	—					No (Ash tree) Present
77	6-19-14	4804 UPland Dr.	6						Notice Orange Dot Present
78	6-19-14	2315 Holmes St.	5	—					Bulging terrace / Lean
79	6-19-14	2315 Holmes St.	2	—					Bulging terrace / Lean / Root replacement Sidewalk
80	6-19-14	2200 (2214 + 2216) Holmes St.	10/1	—	—				Notice Orange Dot Present

EAB TREATMENTS - SW E						PESTICIDE USED			ACTIVE INGREDIENT
						TREE-AGE			IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
81	~~6-19-14~~	~~2615 Bucknell Dr.~~	1	—					ByPass Bulging terrace New Sidewalk ByPass treatment
82	~~6-19-14~~	~~2615 Bucknell Dr.~~	6						Marked Letter Bad Decline
83	~~6-20-14~~	~~2706 Ohio Parkway~~	10						ByPass Bulging terrace curb
84	6-24-14	2516 Skokie Dr.	4	14	70	Myron Cattage	cloudy 72°		
85	~~6-24-14~~	~~2528 Skokie Dr.~~	4/1	22/23					BYPass 1) Lifting Sidewalk 2) New Sidewalks
86	6-24-14	5362 Dierks Dr.	13	13	70	Myron Cattage	Partly Sunny 83°		
87	6-24-14	5345 Dierks Dr.	10	13	70	Myron Cattage	Partly Sunny 83°		
88	6-25-14	5334 Dierks Dr.	19	13	70	Myron Cattage	Mostly Sunny 66°		
89	6-25-14	5379 Dierks Dr.	23	10	50	Myron Cattage	Partly Sunny 69°		
90	6-25-14	5386 Dierks Dr.	8	13	70	Myron Cattage	Partly Sunny 69°		
91	~~6-25-14~~	~~1806 Highridge Rd~~	2/6						BYPass Lifting Sidewalk
92	6-25-14	1904 Highridge Rd.	5	13	70	Myron Cattage	Mostly Sunny 76°		
93	~~6-25-14~~	~~1904 Highridge Rd.~~	2						ByPass Location Full
94	~~6-25-14~~	~~1677 Grassridge Rd.~~	2						BYPass Location Somewhat Full & Lifting Sidewalk
95	~~6-25-14~~	~~1677 Grassridge Rd.~~	3						ByPass V-Crotched trunk Area (Full Crown)
96	6-25-14	1999 Santa Monica Dr.	2	21	120	Myron Cattage	Mostly Sunny 76°		
97	6-25-14	1669 TeleMark Dr.	3	21	120	Myron Cattage	Partly Sunny 81°		
98	6-25-14	1669 TeleMark Dr.	5	20	110	Myron Cattage	Partly Sunny 81°		
99	~~6-26-14~~	~~1720 Telemark Dr.~~	~~4~~	~~26~~	~~170~~				BYPass (Water Crown Area V=Crotch)
100	~~6-26-14~~	~~1601 Highridge Rd~~	2/6						BYPass (Lifting Sidewalks)

EAB TREATMENTS - SW						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
141	6/23/14	5321 Cybele Ln	4	17	85	A-24	68°		
142	6/23/14	5321 Cybele Ln	7	21	120	" "	68°		
143	6/23/14	1522 Powderhorn Dr	20	18	90	" "	73°		
144	6/23/14	1522 Powderhorn Dr	23	21	120	" "	73°		
145	7/2/14	954 ANEE	2	15	70	A 24	Sunny/60°		
146	7/2/14	895 ANEE	5	13	70	" "	Sunny/60°		
147	7/2/14	895 Anee	2	12	50	" "	Sunny/60		
148	7/2/14	1252 Anee	1	17	85	" "	Cloudy 64°		
149	7/2/14	949 Britania	4	11	50	" "	Cloudy 64°		Intake Slow Fixed 7-3-14
150	7/3/14	913 Candlefern	5	20	110	A-24	P. Sunny 64°		
151	7/3/14	875 Stone Field	3	16	50	" "	P. Sunny 64°		
152	7/7/14	875 Stone Field	7	9	40	A-24	Fog 72°		
153	7/7/14	6673 Southfield	3	13	70	"	Cloudy 75°		2 dr. Complete 7-8-14
154	7/8/14	6643 Sandalwood	6	11	50	A-24	Cloudy 67°		
155	7/8/14	6648 Sandalwood	1	17	85	" "	Cloudy 67°		
156	7/8/14	6683 Sandalwood	2	18	90	" "	Cloudy 74°		
157	7/8/14	6683 Sandalwood	21	16	75	"	Cloudy 74°		
158	7/8/14	1364 Revere Ridge	4	16	75	" "	Cloudy 75°		
159	7/8/14	1377 Revere Rdg	24	12	50	" "	Cloudy 75°		
160	7/9/14	1190 Revere Ridge	1	12	50	" "	Cloudy 60°		

EAB TREATMENTS - [redacted] NE

PESTICIDE USED: TREE-AGE
ACTIVE INGREDIENT: IMMEMECTIN BENZOATE

#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
101	6-26-14	1460 Livingston Dr.	5	9	40	Myron Cottage	Cloudy 63°		
102	~~6-26-14~~	~~1434 Livingston Dr.~~	4/6						BYPass (Lifting Sidewalks)
103	~~6-26-14~~	~~1404 Livingston Dr.~~	1						BYPass (Lifting Sidewalks)
104	6-26-14	1340 Livingston Dr.	5	12	50	Myron Cottage	Cloudy 65°		
105	6-26-14	1340 Livingston Dr.	7	7	40	Myron Cottage	Cloudy 65°		
106	6-26-14	7353 Fairmont LN	12	11	50	Myron Cottage	Cloudy 65°		
107	~~6-27-14~~	~~7380 Fairmont LN~~	3						BYPass stress & structural
108	~~6-27-14~~	~~7412 Fairmont LN~~	3						BYPass Structural Weak
109	6-27-14	7412 Fairmont LN.	7	12	50	Myron Cottage	Cloudy 66°		
110	~~6-27-14~~	~~1357 Sandhurst LN.~~	1						BYPass Lifting Sidewalk
111	6-27-14	1753 Oak Park Dr.	20	12	50	Myron Cottage	Mostly Sunny 71°		Add on List
112	6-27-14	7236 Sentinel Rd.	1	16	75	Myron Cottage	Mostly Sunny 78°		
113	6-27-14	7236 Sentinel Rd	3	16	75	Myron Cottage	Mostly Sunny 78°		
114	~~6-27-14~~	~~7218 Sentinel Rd~~	4						B Marked & Letter over ½ decline
115	~~6-27-14~~	~~7218 Sentinel Rd~~	6						BYPass (Poor Root System)
116	6-27-14	7090 Sentinel Rd	3	15	70	Myron Cottage	Mostly Sunny 78°		
117	6-27-14	7085 Sentinel Rd	6	15	70	Myron Cottage	Partly Sunny 85°		
118	6-27-14	7085 Sentinel Rd	4	16	75	Myron Cottage	Partly Sunny 85°		
119	~~6-27-14~~	~~7085 Sentinel Rd~~	7						BYPass (Storm damage trunk in the heart wood)
120	7-9-14	1619 Marshfield	11	12	50	Myron Cottage	Partly Sunny 71°		(Add to List)

~~7-12-14 1431 Sandhurst Dr.~~ BYPass Lifting Sidewalk

EAB TREATMENTS - ~~SW~~NE						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
121	6-30-14	1608 Oakforest Dr.	4	12	50	Myron Cottage	Cloudy 69°		
122	6-30-14	1552 Oakforest Dr.	6	12	50	Myron Cottage	Cloudy 69°		
123	6-30-14	1648 Raintree	6	13	70	Myron Cottage	Cloudy 70°		
124	6-30-14	1463 Ramsey	6	23	150	Myron Cottage	Cloudy 75°		
125	6-30-14	1463 Ramsey	2	23	150	Myron Cottage	Cloudy 75°		
126	6-30-14	7217 Centennial Trr.	7	12	50	Myron Cottage	Cloudy 74°		
127	6-30-14	1150 Fox Chase Lane	3	10	50	Myron Cottage	Cloudy 76°		
128	7-1-14	7112 Weathered Oak Ln	6	12	50	Myron Cottage	Cloudy 64°		
129	7-1-14	7150 Weathered Oak Ln	7	10	50	Myron Cottage	Cloudy 64°		
130	7-1-14	6951 ACADemy TH.	5	10	50	Myron Cottage	Cloudy 66°		
131	7-1-14	6951 ACADemy TH.	2	13	70	Myron Cottage	Cloudy 66°		
132	7-1-14	6758 Academy TH.	4	14	70	Myron Cottage	Cloudy 71°		
133	7-1-14	6758 Academy TH.	6	17	85	Myron Cottage	Cloudy 71°		
134	7-1-14	6758 Academy TH.	2	19	100	Myron Cottage	Partly Sunny 75°		
135	7-1-14	1617 Albany LN.	4	11	50	Myron Cottage	Sunny 75°		
136	7-9-14	1585 Marshfield	1	16	75	Myron Cottage	Partly Sunny 66°		
137	7-9-14	1585 Marshfield	3	18	90	Myron Cottage	Partly Sunny 66°		
138	~~7-9-14~~	~~1585 Marshfield~~	5	—					By Pass Lifting Sidewalk
139	~~7-9-14~~	~~1585 Marshfield~~	7						By Pass Lifting Sidewalk
140	7-9-14	1640 Albany LN.	4	11	50	Myron Cottage	Partly Sunny 69°		*Slow uptake

EAB TREATMENTS - SE						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
61	7/9/14	1308 Revere Ridge	7	20	110	A. 24	60° cloudy		
62	7/9/14	1309 Revere Ridge	5	18	90	"	60° cloudy		
63	7/9/14	6652 Timberline	6	14	70	"	69° P. Sunny		
64	7/9/14	6655 Timberline	7	12	50	"	69° P. Sunny		
65	7/9/14	1338 Brandywine	6	14	70	"	71° P. Sunny		
66	7/9/14	1340 Brandywine	1	11	50	"	71° P. Sunny		Added Ash to Treatment list
67	7/11/14	1009 Trainer Rd	7	12	50	"	59° Sunny		
68	7/11/14	943 Trainer Rd	2	9	40	"	66° Sunny		
69	7/11/14	943 Trainer Rd	6	8	40	"	66° Sunny		
70	7/11/14	894 Trainer Rd	4	10	50	"	72° Cloudy		
71	7/11/14	6364 Spring Hill	20	19	100	"	72° cloudy		
72	7/11/14	6364 Spring Hill	19	15	70	"	72° cloudy		
73	7/28/14	5340 Forest View Ave	3	22	135	"	57° Sunny		
74	7/28/14	5340 Forest View Ave	7	17	85	"	57° Sunny		
75	7/28/14	1522 Powder Horn	3	25	160	"	57 Sunny		
76	7/28/14	1522 Powder Horn	6	20	110	"	57 Sunny		
77									
78									
79									
80									

EAB TREATMENTS - ~~SW~~ NE						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
141	7-9-14	6835 Cody LN.	3	23	150	Myron Cottage	Partly Sunny 75°		
142	7-10-14	6244 Featherstone Ct.	2	12	50	Myron Cottage	mostly sunny 56°		
143	7-10-14	6459 Shiloh Close	1	12	50	Myron Cottage	Mostly Sunny 59°		
144	7-10-14	6459 Shiloh close	5	10	50	Myron Cottage	Mostly Sunny 59°		
145	7-10-14	6358 Brigantine LN.	2	12	50	Myron Cottage	Partly Sunny 64°		
146	7-10-14	6333 Brigantine LN.	5	14	70	Myron Cottage	Partly Sunny 64°		
147	7-10-14	6382 Brigantine LN.	7	12	50	Myron Cottage	Partly Sunny 69°		(Add to List)
148	7-10-14	2203 Carrington Chase	3	12	50	Myron Cottage	Partly Sunny 74°		(Add to List)
149	7-10-14	6377 Brigantine LN.	4	17	85	Myron Cottage	Sunny 74°		(Add to List)
150	7-10-14	6377 Brigantine LN.	19	13	70	Myron Cottage	Sunny 74°		(Add to List)
151	7-11-14	2187 Carrington Chase	4	17	85	Myron Cottage	Mostly Sunny 59°		
152	7-11-14	2141 Carrington Chase	4	15	70	Myron Cottage	Mostly Sunny 59°		
153	7-11-14	2042 Wembley Place	10	16	75	Myron Cottage	Partly Sunny 66°		
154	7-11-14	2042 Wembley Place	13	17	85	Myron Cottage	Cloudy 66°		
155	7-11-14	2082 Wembley Place	6	17	85	Myron Cottage	Mostly Cloudy 72°		
156	7-11-14	2130 Wembley Place	7	16	75	Myron Cottage	Mostly Sunny 75°		
157	7-14-14	2145 Wembley Place	1	16	75	Myron Cottage	cloudy 61°		(Add to list)
158	7-14-14	2172 Wembley Place	1	15	70	Myron Cottage	Cloudy 61°	~~Not sure~~	
159	7-14-14	2210 Wembley Place	1	15	Advised (Private) treatment done				but Add to City Bar treatment List → Wait for call
160									

EAB TREATMENTS - ~~SW~~ NE						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
161	~~7-14-14~~	2209 Wembley Place	6	10					Marked + Letter Declining
162	7-14-14	2209 Wembley Place	21	14	70	Myron Cottage	Partly Sunny 72°		
163	7-15-14	6483 Muirfield LN.	3	17	85	Myron Cottage	Partly Sunny 53°		
164	7-15-14	6658 Old Hunters Run	6	19	100	Myron Cottage	Partly Sunny 53°		
165	7-15-14	6235 Muirfield LN	3	14	70	Myron Cottage	Cloudy 55°		(Add to List)
166	7-15-14	6235 Muirfield LN.	6	14	70	Myron Cottage	Cloudy 55°		(Add to List.)
167	7-15-14	6670 Timberline LN.	1	10	50	Myron Cottage	Cloudy 58°	5E	(Add to List)
168	7-15-14	6636 Timberline LN.	7	10	50	Myron Cottage	Cloudy 58°	↓	(Add to List)
169	7-15-14	1205 Woodcreek Bend	10	9	40	Myron Cottage	Cloudy 58°		
170	7-15-14	1205 Woodcreek Bend	12	9	40	Myron Cottage	Cloudy 58°		
171	7-16-14	1303 Hillcrest Rd.	5	26	170	Myron Cottage	Fog 52°		
172	~~7-16-14~~	1115 Charlotte Dr.			By Pass		Poor Condition Cell=1,3,6,7		
173	7-16-14	4909 Carla Cir	21	21	120	Myron Cottage	Sunny 55°		
174	7-16-14	5005 Carol Ct	2	19	100	Myron Cottage	Sunny 60°		
175	7-16-14	721 Woodridge Dr.	12	22	135	Myron Cottage	Sunny 64°		
176	7-16-14	5123 David Dr.	4	20	110	Myron Cottage	Sunny 67°		
177	7-16-14	1214 Mondale Dr.	4	26	170	Myron Cottage	Partly Sunny 69°		
178	7-17-14	4926 Orchard Ct.	3	14	70	Myron Cottage	Cloudy 56°		(Add to List
179	7-17-14	1104 Fieldcrest Dr.	6	5	25	Myron Cottage	Cloudy 57°		(Add to List
180	7-17-14	5614 Elaine Dr.	1	18	90	Myron Cottage	Cloudy 62°	↓	(Add to List
	7-17-14	5614 Elaine Dr.	5	18	90	Myron Cottage	Cloudy 62°		

EAB TREATMENTS - ~~SW~~ NE						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
181	7-17-14	1254 NorthCrest Dr.	1	13	70	Myron Cottage	Partly Sunny 71°		
182	~~7-17-14~~	~~1213 NorthCrest Dr.~~	4						By Pass Lifting Sidewalk
183	7-17-14	5553 Tasselberry	10	16	75	Myron Cottage	Partly Sunny 71°		
184	7-18-14	415 S. Mulford Rd	20	20	110	Myron Cottage	Partly Sunny 76°		
185	7-18-14	415 S. Mulford Rd.	21	9	40	Myron Cottage	Partly Sunny 76°		
186	7-18-14	415 S. Mulford Rd.	23	17	85	Myron Cottage	Partly Sunny 76°		
187	7-18-14	415 S. Mulford Rd	24	21	120	Myron Cottage	Partly Sunny 76°		
188	7-18-14	415 S Mulford Rd.	2	19	100	Myron Cottage	Partly Sunny 76°		
189	7-18-14	415 S Mulford Rd.	3	16	75	Myron Cottage	Partly Sunny 76°		
190	7-18-14	415 S. Mulford Rd	4	16	75	Myron Cottage	Partly Sunny 76°		
191	7-18-14	415 S. Mulford Rd	5	11	50	Myron Cottage	Partly Sunny 76°		(Slow uptake)
192	7-18-14	415 S. Mulford Rd	6	16	75	Myron Cottage	Partly Sunny 76°		
193	7-21-14	3227 Orleans Ave.	4	15	70	Myron Cottag	Sunny 63°		(Very slow uptake)
194	~~7-21-14~~	~~812 Wood 3rd~~	1				66' R.O.W		* Note Posted to tree (Tree Green Seal)
195	7-21-14	1915 23rd st.	23	23	150	Myron Cottage	Sunny 76°		
196	7-21-14	1915 23rd st.	19	19	100	Myron Cottage	Sunny 76°		(Very Slow Uptake) " "
197	7-22-14	809 Highview Ave.	6	17	85	Myron Cottage	Cloudy 70°		
198	7-22-14	1623 Grant Ave NW	23	11	50	Myron Cottage	Sunny 74°		Northwest Rockford
199	7-22-14	2125 Grant Ave	6	8	40	Myron Cottage	Cloudy 76°		
200	7-22-14	2315 Grant Ave.	6	11	50	Myron Cottage	Cloudy 76°		

Treat Bi-Annually for EAB

EAB TREATMENTS - ~~SW~~ NW						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
201	7-22-14	2300 Huffman Blvd.	West Side	29	210	Myron Cottage	Cloudy 83°		
202	7-23-14	2300 Huffman Blvd	West Side	16	75	Myron Cottage	Sunny 64°		
203	7-23-14	1807 Huffman Blvd.	4	17	85	Myron Cottage	Sunny 67°		
204	7-23-14	1738 Hancock	7	9	40	Myron Cottage	Sunny 69°		
205	7-23-14	2208 Oxford St	4	17	85	Myron Cottage	Sunny 75°		
206	7-23-14	2016 Cumberland St.	2	9	40	Myron Cottage	Sunny 75°		
207	7-24-14	707 Cottage Grove Ave	4	28	195	Myron Cottage	Sunny 58°		
208	7-24-14	518 Ellis Ave.	6	12	50	Myron Cottage	Sunny 58°		
209	7-24-14	1935 Cumberland St.	2	12	50	Myron Cottage	Sunny 63°		
210	7-24-14	6595 E-State St.	19			Myron Cottage	Sunny 73°		SE Rockford
211	7-24-14	6595 E-State St	20			Myron Cottage	[redacted]	BYPass	Vascular Stress
212	7-24-14	6595 E-State St.	21	14	70	Myron Cottage	Sunny 73°		
213	7-24-14	6595 E-State St.	23	13	70	Myron Cottage	Sunny 73°		
214	7-24-14	3139 N. Trainer Rd	6	14	70	Myron Cottage	Sunny 78°		NE Rockford
215	7-25-14	3178 N. Trainer Rd	4	13	70	Myron Cottage	Cloudy 59°		
216	7-25-14	3238 N. Trainer Rd	5						BYPass (Large Storm Damage Wood)
217	7-25-14	3238 N. Trainer Rd	1	13	70	Myron Cottage	Cloudy 59°		
218	7-25-14	3261 N. Trainer Rd	7	13	70	Myron Cottage	Light Rain 60°		
219	7-25-14	3261 N. Trainer Rd	4	14	70	Myron Cottage	Light Rain 60°		
220	7-25-14	3289 N Trainer Rd.	3	13	70	Myron Cottage	Cloudy 60°		

EAB TREATMENTS - ~~SW~~ NE						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
221	7-25-14	3296 N. Trainer Rd	7	12	50	Myron Cattage	Cloudy 62°		
222	7-25-14	3296 N. Trainer Rd	4	12	50	Myron Cattage	Cloudy 62°		
223	7-25-14	3296 N. Trainer Rd	1	8	40	Myron Cattage	Cloudy 62°		
224	7-25-14	3353 N. Trainer Rd	7	13	70	Myron Cattage	Cloudy 70°		
225	7-28-14	2841 English Lane.	1	9	40	Myron Cattage	Sunny 57°	(No dieback)	Present S-Shaped tunnels & bark lifted (Looks very Healthy)
226	7-28-14	2944 Hedge Cliff Dr.	2	9	40	Myron Cattage	Sunny 60°	(No dieback)	Present S-Shape tunnels & bark lifted (Looks very Health)
227	7-28-14	3354 WindSong	1	15	70	Myron Cattage	Sunny 62°		Poor Condition trunk base slow uptake
228	7-28-14	3354 WingSong	4	17	85	Myron Cattage	Sunny 62°		
229	~~7-28-14~~	~~3354 Windsong~~	7						ByPass Weak Crown Structure
230	~~7-29-14~~	~~6618 Chartwell~~	2						ByPass trunk base Rot (Punky) → Mailed Letter
231	7-29-14	6618 Chartwall	7	13	70	Myron Cattage	Sunny 56°		
232	7-29-14	2617 Beaumont Pl.	2	32	255	Myron Cattage	Cloudy 61°		
233									
234									
235									
236									
237									
238									
239									
240									

EAB TREATMENTS - SE						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
81	8-1-14	4811 Manhattan Dr.	1	14	70	Myron Cottage	Sunny 65°		Up take (Very) Slow (Surface Roots)
82	"	" "	6	17	85	Myron Cottage	Sunny 65°		(Surface Roots)
83	"	4793 " "	3	16	75	Myron Cottage	Sunny 66°		Uptake Slow (Surface Roots)
84	"	" "	6	15	70	Myron Cottage	Sunny 66°		Uptake Slow (Surface Roots)
85	"	4833 " "	6	14	70	Myron Cottage	Sunny 79°		Uptake Very Slow (Surface Roots)
86	"8-4-14	" "	1	14	70	Myron Cottage	Clouds 76°		Uptake Slow (Surface Roots)
87		4773 " "	6	16	75	Myron Cottage	Sunny 82°		Uptake Slow (Surface Roots)
88	8-4-14	4751 " "	2	15	70	Myron Cottage	Cloudy 65°		Uptake Slow (Surface Roots)
89	"	" "	6	16	75	Myron Cottage	Cloudy 65°		Uptake Slow (Surface Roots)
90	"	4857 " "	2	[redacted]					By Pass Orange Dot Present
91	"	" "	6	14	70	Myron Cottage			Uptake Slow (Surface Roots)
92	"	4873 " "	2	14	70	Myron Cottage			Uptake Slow (Surface Roots)
93	"	" "	6	14	70	Myron Cottage			Uptake Slow (Surface Roots)
94		NET * Spring Creek Clover Leaf							
95	8-5-14	Southeast Leaf Petal		9	40	Myron Cottage	Cloudy 72°		
96	"	" "	"	10	50	Myron Cottage	Cloudy 72°		
97	"	" "	"	11	50	Myron Cottage	Cloudy 72°		
98	"	Southeast Leaf Petal	"	8	40	Myron Cottage	Cloudy 73°		
99	"	" "	"	8	40	Myron Cottage	Cloudy 73°		
100									

EAB TREATMENTS - ~~SE~~ NE						PESTICIDE USED TREE-AGE			ACTIVE INGREDIENT IMMEMECTIN BENZOATE
#	DATE	ADDRESS	CELL #	DBH "	QUANTITY INJECTED (M/LITERS)	APPLICATOR NAME	WEATHER CONDITIONS	HANSEN REQUEST #	COMMENTS
101		* NEt Spring Creek Clover Leaf							
102	8-6-14	Northeast Leaf Petal		9	40	Myron Cottage	Cloudy 77°		
103	"	" "	"	9	40	Myron Cottage	Cloudy 77°		
104	"	" "	"	9	40	Myron Cottage	Cloudy 77°		
105	"	" "	"	9	40	Myron Cottage	Cloudy 77°		
106	"	" "	"	9	40	Myron Cottage	Cloudy 77°		
107									
108	8-7-14	NWt Northwest Leaf Petal							BYPass No Ashes Present
109									
110									
111									
112									
113									
114									
115									
116									
117									
118									
119									
120									

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Logs/Comments
95083	6/29/11	2505	REVELATION	6/29/11	FMISC-EAB	Cell 1, 13", 45ML, Jacobi, Cloudy/65, No problems	Completed by Jacobi, 6/23/11
95085	6/29/11	2505	REVELATION	6/29/11	FMISC-EAB	Cell 6, 10", 30ML, Jacobi, Cloudy/65, No problems	Completed by Jacobi, 6/23/11
95087	6/29/11	2523	REVELATION	6/29/11	FMISC-EAB	Cell 7, 13", 45ML x 2, Jacobi, Cloudy/65, Blowout 1st application, 2nd applicaiton - No problems	Completed by Jacobi, 6/23/11
95098	6/29/11	2551	REVELATION	6/29/11	FMISC-EAB	Cell 7, 15", 60ML, Jacobi, Cloudy/65, No problems	Completed by Jacobi, 6/23/11
95099	6/29/11	2563	REVELATION	6/29/11	FMISC-EAB	Cell 7, 17", 75ML, Jacobi, Cloudy/60, No problems	Complete by Jacobi 6/24/11
95100	6/29/11	2565	REVELATION	6/29/11	FMISC-EAB	Cell 1, 15", 60ML, Jacobi, Cloudy/60, No problems	Complete by Jacobi 6/24/11
95101	6/29/11	2617	REVELATION	6/29/11	FMISC-EAB	Cell 7, 17", 75ML, Jacobi, Cloudy/60, No problems	Complete by Jacobi 6/24/11
95102	6/29/11	2629	REVELATION	6/29/11	FMISC-EAB	Cell 7, 16", 55ML, Jacobi, P Cloudy/60, No problems	Complete by Jacobi 6/24/11
95104	6/29/11	2657	REVELATION	6/29/11	FMISC-EAB	Cell 7, 20", 110ML, Jacobi, P Cloudy/60, No problems	Complete by Jacobi 6/24/11
95108	6/29/11	3717	MAYWOOD	6/29/11	FMISC-EAB	Cell 6, 7", 20ML, Jacobi,Cloudy/65, No problems	Complete by Jacobi 6/24/11
95106	6/29/11	3904	LOOKOUT	6/29/11	FMISC-EAB	Cell 12, 7", 20ML, Jacobi,Cloudy/65, No problems	Complete by Jacobi 6/24/11
95107	6/29/11	3904	LOOKOUT	6/29/11	FMISC-EAB	Cell 13, 7", 20ML, Jacobi,Cloudy/65, No problems	Complete by Jacobi 6/24/11
95105	6/29/11	5087	VALLEY PINES	6/29/11	FMISC-EAB	Cell 1, 13", 45ML, Jacobi, P Cloudy/60, No problems	Complete by Jacobi 6/24/11
95110	6/29/11	5181	HOUSTON	6/29/11	FMISC-EAB	Cell 4, 17", 75ML, Jacobi,Cloudy/65, No problems	Complete by Jacobi 6/24/11
95112	6/29/11	3122	BREEZEWAY	6/29/11	FMISC-EAB	Cell 5, 17", 75ML, Jacobi,Cloudy/69, No problems	complete by Jacobi 6/27/11
95114	6/29/11	3475	HOLIDAY	6/29/11	FMISC-EAB	Cell 6, 7", 20ML, Jacobi,Sunny/71, No problems	complete by Jacobi 6/27/11
95115	6/29/11	4608	TREVOR	6/29/11	FMISC-EAB	Cell 5, 17", 75ML, Jacobi,Sunny/78, No problems	complete by Jacobi 6/27/11
95111	6/29/11	4826	ANTIOCH	6/29/11	FMISC-EAB	Cell 5, 11", 40ML, Jacobi,Cloudy/69, No problems	complete by Jacobi 6/27/11
95116	6/29/11	1212	ASCHE	6/29/11	FMISC-EAB	Cell 19A, 8", 25ML, Jacobi,;Sunny/65, No problems	Complete by Jacobi, 6/28/11
95117	6/29/11	1212	ASCHE	6/29/11	FMISC-EAB	Cell 19B, 8", 25ML, Jacobi,Sunny/65, No problems	Complete by Jacobi, 6/28/11

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Logs/Comments
95457	7/6/11	1212	ASCHE	7/6/11	FMISC-EAB	6/28/11, cell 20A, 6", 20ML, Jacobi, 65/Sunny, Good cond.	Jacobi completed 6/28/11
95458	7/6/11	1212	ASCHE	7/6/11	FMISC-EAB	6/28/11, cell 20B, 7", 20ML, Jacobi, 65/Sunny, Good cond.	Jacobi completed 6/28/11
95459	7/6/11	1212	ASCHE	7/6/11	FMISC-EAB	6/28/11, cell 21B, 6", 20ML, Jacobi, 67/Sunny, Good cond.	Jacobi completed 6/28/11
95460	7/6/11	1212	ASCHE	7/6/11	FMISC-EAB	6/28/11, cell 23A, 8", 25ML, Jacobi, 67/Sunny, Good cond.	Jacobi completed 6/28/11
95461	7/6/11	1212	ASCHE	7/6/11	FMISC-EAB	6/28/11, cell 24A, 8", 25ML, Jacobi, 37/Sunny, Good cond.	Jacobi completed 6/28/11
95467	7/6/11	3230	PYRAMID	7/6/11	FMISC-EAB	6/29/11, cell 20, 14", 50ML, Jacobi, 73/Sunny, Good cond.	complete. Jacobi 6/29/11
95468	7/6/11	3230	PYRAMID	7/6/11	FMISC-EAB	6/29/11, cell 22, 13", 45ML, Jacobi, 73/Sunny, Good cond.	complete. Jacobi 6/29/11
95470	7/6/11	3230	PYRAMID	7/6/11	FMISC-EAB	6/29/11, cell 24, 15", 60ML, Jacobi, 73/Sunny, X2 - Blowout.	complete. Jacobi 6/29/11
95464	7/6/11	3469	PRECISION	7/6/11	FMISC-EAB	6/29/11, cell 3, 16", 65ML, Jacobi, 67/Sunny, Good cond.	complete. Jacobi 6/29/11
95465	7/6/11	3469	PRECISION	7/6/11	FMISC-EAB	6/29/11, cell 4, 15", 60ML, Jacobi, 67/Sunny, Good cond.	complete. Jacobi 6/29/11
95466	7/6/11	3469	PRECISION	7/6/11	FMISC-EAB	6/29/11, cell 6, 13", 45ML, Jacobi, 67/Sunny, Good cond.	complete. Jacobi 6/29/11
95473	7/6/11	4217	OCONNELL	7/6/11	FMISC-EAB	6/30/11, cell 3, 15", 60ML, Jacobi, 72/Sunny, Good Cond	complete. Jacobi, 6/30/11
95474	7/6/11	4308	MAYFLOWER	7/6/11	FMISC-EAB	6/30/11, cell 1, 18", 80ML, Jacobi, 77/Sunny, Good Cond	complete. Jacobi, 6/30/11
95475	7/6/11	4309	RED COAT	7/6/11	FMISC-EAB	6/30/11, cell 3, 29", 210ML, Jacobi, 79/Sunny, Good Cond	complete. Jacobi, 6/30/11
95471	7/6/11	5060	27TH	7/6/11	FMISC-EAB	6/30/11, cell 1, 18", 80ML, Jacobi, 66/Sunny, Good Cond	complete. Jacobi, 6/30/11
95481	7/6/11	3310	JACQUELINE	7/6/11	FMISC-EAB	7/1/11, cell 8, 7", 20ML, Jacobi, 80/Cloudy, Good Cond	complete. Jacobi 7/1/11
95478	7/6/11	3351	TANNENBAUM	7/6/11	FMISC-EAB	7/1/11, cell 5, 15", 60ML, Jacobi, 79/Cloudy, Good Cond	complete. Jacobi 7/1/11
95479	7/6/11	3404	JACQUELINE	7/6/11	FMISC-EAB	7/1/11, cell 2, 14", 50ML, Jacobi, 79/Cloudy, Good Cond	complete. Jacobi 7/1/11
95480	7/6/11	3404	JACQUELINE	7/6/11	FMISC-EAB	7/1/11, cell 4, 14", 50ML, Jacobi, 79/Cloudy, Good Cond	complete. Jacobi 7/1/11
95477	7/6/11	4329	MAJESTY	7/6/11	FMISC-EAB	7/1/11, cell 2, 21", 120ML, Jacobi, 77/Sunny, Good Cond	complete. Jacobi 7/1/11
99302	8/10/11	3003	GREENDALE	8/26/11	FMISC-EAB	TREAT FOR EAB	JACOBI TREATED 1 UNIT

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Logs/Comments
99302	8/10/11	3003	GREENDALE	8/26/11	FMISC-EAB	TREAT FOR EAB	DUP OF 100087
99304	8/10/11	2810	NORTHMOOR	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	JACOBI TREATED 1 TREE
99304	8/10/11	2810	NORTHMOOR	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	DUP OF 100088
99308	8/10/11	2920	NORTHMOOR	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	JACOBI TREATED 1 TREE
99308	8/10/11	2920	NORTHMOOR	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	DUP OF 100091
99310	8/10/11	2722	COLORADO	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	JACOBI TREATED 1 TREE
99310	8/10/11	2722	COLORADO	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	DUP OF 100093
99321	8/11/11	2617	BEAUMONT	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	FOR EAB
99321	8/11/11	2617	BEAUMONT	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	DUP OF 100094
99322	8/11/11	2706	OHIO	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	FOR EAB
99322	8/11/11	2706	OHIO	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	DUP OF 100097
99325	8/11/11	5020	UPLAND	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	FOR EAB
99325	8/11/11	5020	UPLAND	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	DUP OF 100100
99323	8/11/11	5112	UPLAND	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	FOR EAB
99323	8/11/11	5112	UPLAND	8/26/11	FMISC-EAB	TREAT TREE FOR EAB	DUP OF 100098
99883	8/15/11	4503	UPLAND	9/1/11	FMISC-EAB	EAB TREATMENT - 1 TREE	FOR EAB
99883	8/15/11	4503	UPLAND	9/1/11	FMISC-EAB	EAB TREATMENT - 1 TREE	DUP OF 100101
99884	8/15/11	4511	UPLAND	9/1/11	FMISC-EAB	EAB TREATMENT - 1 TREE	FOR EAB
99884	8/15/11	4511	UPLAND	9/1/11	FMISC-EAB	EAB TREATMENT - 1 TREE	DUP OF 100103
99886	8/15/11	2315	HOLMES	9/1/11	FMISC-EAB	EAB TREATMENT - 1 TREE	FOR EAB
99886	8/15/11	2315	HOLMES	9/1/11	FMISC-EAB	EAB TREATMENT - 1 TREE	DUP OF 100104
99885	8/15/11	4612	UPLAND	9/1/11	FMISC-EAB	EAB TREATMENT - 1 TREE	FOR EAB
99885	8/15/11	4612	UPLAND	9/1/11	FMISC-EAB	EAB TREATMENT - 1 TREE	DUP OF 100106
99944	8/15/11	2200	HOLMES	9/2/11	FMISC-EAB	TREAT ASH TREE FOR EAB	FOR EAB
99944	8/15/11	2200	HOLMES	9/2/11	FMISC-EAB	TREAT ASH TREE FOR EAB	Not a dupe, but closed as dupe - should have never been entered, need all data on specific tree, can't pinpoint 1 tree on this address.
100109	9/6/11	2303	WINNETKA	9/6/11	FMISC-EAB	cell 5, 15", 60 ML, Jacobi, 65/sunny, good cond	complete. Jacobi
100104	9/6/11	2315	HOLMES	9/6/11	FMISC-EAB	cell 2, 21", 120 ML, Jacobi, 68/sunny, good cond	complete. Jacobi
100079	9/6/11	2606	COLORADO	9/6/11	FMISC-EAB	cell 3, 15", 60ML, Jacobi, 71/sunny, good cond	complete. Jacobi

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Logs/Comments
100085	9/6/11	2615	BUCKNELL	9/6/11	FMISC-EAB	cell 1, 22", 135ML, Jacobi, 73/Coudy good cond	complete. Jacobi
100094	9/6/11	2617	BEAUMONT	9/6/11	FMISC-EAB	cell 3, 31", 240ML, Jacobi, 55/sunny, good cond	complete. Jacobi
100097	9/6/11	2706	OHIO	9/6/11	FMISC-EAB	cell 10, 29", 210 ML, Jacobi, 65/sunny, good cond	complete. Jacobi
100093	9/6/11	2722	COLORADO	9/6/11	FMISC-EAB	cell 5, 15", 60ML, Jacobi, 71/sunny, good cond	complete. Jacobi
100075	9/6/11	2801	EDELWEISS	9/6/11	FMISC-EAB	cell 6, 20", 110ML, Jacobi, 82/sunny, good cond	complete. Jacobi
100077	9/6/11	2804	EDELWEISS	9/6/11	FMISC-EAB	cell 4, 17", 75ML, Jacobi, 82/sunny, good cond	complete. Jacobi
100088	9/6/11	2810	NORTHMOOR	9/6/11	FMISC-EAB	cell 2, 20", 110 ML, Jacobi, 63/sunny, good cond	complete. Jacobi
100081	9/6/11	2906	CONCORDIA	9/6/11	FMISC-EAB	cell 4, 27", 180 ML, Jacobi, 71/cloudy, good cond	complete. Jacobi
100091	9/6/11	2920	NORTHMOOR	9/6/11	FMISC-EAB	cell 1, 15", 60 ML, Jacobi, 71/sunny, good cond	complete. Jacobi
100087	9/6/11	3003	GREENDALE	9/6/11	FMISC-EAB	cell 4, 17", 75ML, Jacobi, 59/Sunny, good cond	complete. Jacobi
100078	9/6/11	3009	FOLIAGE	9/6/11	FMISC-EAB	cell 3, 14", 50ML, Jacobi, 71/Sunny, Good cond	complete. Jacobi
100083	9/6/11	3223	NEW ENGLAND	9/6/11	FMISC-EAB	cell 3, 29", 210 ML, Jacobi, 66/Cloudy, Good cond	complete. Jacobi
100073	9/6/11	3306	JACQUELINE	9/6/11	FMISC-EAB	Cell 4, 9", 30ML, Jacobi, 66/Sunny, Good Cond	complete. Jacobi
100071	9/6/11	3310	JACQUELINE	9/6/11	FMISC-EAB	Cell 10, 13", 45ml, Jacobi, 80/Cloudy, Good Cond Cell 12, 7", 20ml, Jacobi, 80/Cloudy, Good Cond	complete. Jacobi
100074	9/6/11	3315	JACQUELINE	9/6/11	FMISC-EAB	Cell 2, 18", 80ML, Jacobi, 78/Sunny, Good Cond	complete. Jacobi
100101	9/6/11	4503	UPLAND	9/6/11	FMISC-EAB	cell 7, 14", 50ML, Jacobi, 56/sunny, good cond	complete. Jacobi
100103	9/6/11	4511	UPLAND	9/6/11	FMISC-EAB	cell 5, 17", 75ML, Jacobi, 56/Sunny, Good cond	complete. Jacobi
100106	9/6/11	4612	UPLAND	9/6/11	FMISC-EAB	cell 10, 18", 80ML, Jacobi, 60/sunny, good cond	complete. Jacobi
100110	9/6/11	4628	CLEVELAND	9/6/11	FMISC-EAB	cell 1, 19", 90ML, 70/sunny, good cond	complete. Jacobi
100108	9/6/11	4804	UPLAND	9/6/11	FMISC-EAB	cell 24, 17", 75ML, Jacobi, 60/Sunny, good cond	complete. Jacobi

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Logs/Comments
100100	9/6/11	5020	UPLAND	9/6/11	FMISC-EAB	cell 3, 16", 65ML, Jacobi, 74/sunny, good cond	complete. Jacobi
100098	9/6/11	5112	UPLAND	9/6/11	FMISC-EAB	cell 4, 11", 40ML, Jacobi, 73/sunny, good cond	complete. Jacobi
100132	9/6/11	1517	KERSTIN	9/6/11	FMISC-EAB	cell 2, 21", 120ML, Jacobi, 55/sunny, good cond	complete. Jacobi
100131	9/6/11	1520	KERSTIN	9/6/11	FMISC-EAB	cell 3, 19", 90ML, Jacobi, 55/Sunny, good cond	complete. Jacobi
100127	9/6/11	1522	POWDERHORN	9/6/11	FMISC-EAB	cell 4, 18", 80ML Jacobi, 60/sunny, good cond cell 21, 16", 65ML, Jacobi, 60/sunny, good cond	complete. Jacobi
100133	9/6/11	1532	KERSTIN	9/6/11	FMISC-EAB	cell 4, 21", 120ML, Jacobi, 69/sunny, good cond	complete. Jacobi
100117	9/6/11	1601	HIGHRIDGE	9/6/11	FMISC-EAB	cell 1, 13", 45ML, Jacobi, 72/sunny, good cond	complete. Jacobi
100124	9/6/11	1619	ARNOLD	9/6/11	FMISC-EAB	cell 12, 16", 65ML, Jacobi, 70/sunny, good cond	complete. Jacobi
100122	9/6/11	1669	TELEMARK	9/6/11	FMISC-EAB	cell 4, 19", 90ML, Jacobi, 61/sunny, good cond cell 6, 17", 75ML, Jacobi, 61/sunny, good cond	complete. Jacobi
100121	9/6/11	1720	TELEMARK	9/6/11	FMISC-EAB	cell 4, 24", 155ML, Jacobi, 80/sunny, good cond	complete. Jacobi
100115	9/6/11	1806	HIGHRIDGE	9/6/11	FMISC-EAB	cell 1, 13", 45ML, Jacobi, 68/sunny, good cond cell 6, 12", 40ML, Jacobi, 68/sunny, good cond	complete. Jacobi
100134	9/6/11	1817	ARNOLD	9/6/11	FMISC-EAB	cell 4, 15", 60ML, Jacobi, 73/sunny, did not take full dose	complete. Jacobi
100118	9/6/11	1904	HIGHRIDGE	9/6/11	FMISC-EAB	cell 1, 12", 40ML, Jacobi, 77/sunny, good cond cell 5, 12", 40ML, Jacobi, 77/sunny, good cond	complete. Jacobi
100120	9/6/11	1999	SANTA MONICA	9/6/11	FMISC-EAB	cell 1, 19", 90ML, Jacobi, 75/sunny, good cond	complete. Jacobi
100112	9/6/11	2516	SKOKIE	9/6/11	FMISC-EAB	cell 4, 12", 40ML, 73/sunny, good cond	complete. Jacobi
100113	9/6/11	2528	SKOKIE	9/6/11	FMISC-EAB	cell 4, 20", 110 ML, 77/sunny, good cond	complete. Jacobi
100128	9/6/11	5321	CYBELE	9/6/11	FMISC-EAB	cell 4, 15", 60ML, Jacobi, 63/sunny, good cond	complete. Jacobi
100129	9/6/11	5326	CYBELE	9/6/11	FMISC-EAB	cell 5, 17", 75ML, Jacobi, 63/sunny, Did not take full dose	complete. Jacobi

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Logs/Comments
100114	9/6/11	5334	DIERKS	9/6/11	FMISC-EAB	5334 Dierks - cell 19, 11", 40ML, Jacobi, 64/sunny, good cond 5362 Dierks - cell 13, 12", 40ML, Jacobi, 64/sunny, good cond 5345 Dierks - cell 5, 10", 30ML, Jacobi, 66/sunny, good cond 5386 Dierks - cell 2, 11", 40ML, Jacobi, 70/sunny, good cond	complete. Jacobi
100126	9/6/11	5340	FOREST VIEW	9/6/11	FMISC-EAB	cell 6, 16", 65ML, Jacobi, 70/sunny, good cond	complete. Jacobi
100119	9/6/11	6677	GRASSRIDGE	9/6/11	FMISC-EAB	cell 2, 16", 65ML, Jacobi, 69/cloudy, good cond cell 4, 17", 75ML, Jacobi, 69/Cloudy, good cond	complete. Jacobi
100141	9/6/11	1836	APPLE TREE	9/6/11	FMISC-EAB	cell 4, 14", 50ML, Jacobi, 69/cloudy, good cond	complete. Jacobi
100138	9/6/11	4603	LONGMEADOW	9/6/11	FMISC-EAB	cell 5, 20", 110ML, Jacobi, 59/cloudy, good cond	complete. Jacobi
100140	9/6/11	4607	NEWCASTLE	9/6/11	FMISC-EAB	cell 4, 14", 50ML, Jacobi, 69/cloudy, good cond	complete. Jacobi
100137	9/6/11	4628	LONGMEADOW	9/6/11	FMISC-EAB	cell 5, 12", 40ML, Jacobi, 75/sunny, good cond	complete. Jacobi
100142	9/6/11	4635	NEWCASTLE	9/6/11	FMISC-EAB	cell 5, 20", 110ML, Jacobi, 69/cloudy, good cond	complete. Jacobi
110573	3/21/12	533	HILTON	3/21/12	FMISC-EAB	Property Owner paid Tree Care to treat 25" Green Ash in cell 1 with soil drench.	RFS for documentation purposes only
112510	4/23/12	1372	BOILVIN	4/23/12	FMISC-EAB	Treat ash in cell 5	[illegible] (OOPS)
112513	4/23/12	2120	HARLEM	4/23/12	FMISC-EAB	38" Green Ash, cell 3. Tree Care treated at property owner's expense. RFS Created for tracking purposes only.	No action taken, RFS was only to document Tree Care's treatment of the tree.
115764	5/21/12	1303	HILLCREST	6/5/12	FMISC-EAB	Cell 5, 22" DBH, 135ml, JAcobi, Sunny, 55'	Jacobi
116014	5/21/12	875	STONEFIELD	6/7/12	FMISC-EAB	Cell 3, 9" DBH, 30ml, Jacobi, Sunny/66'	Jacobi, Route 1
115770	5/22/12	1214	MONDALE	6/5/12	FMISC-EAB	Cell 4, 25", 160ml, Jacobi, Sunny/65'	Jacobi
115781	5/22/12	1218	ARNOLD	6/5/12	FMISC-EAB	Cell 2, 16" DBH, 65ml, Jacobi, Sunny/60'	Jacobi
115782	5/22/12	1218	ARNOLD	6/5/12	FMISC-EAB	Cell 4, 17" DBH, 75ml, Jacobi, Sunny/60'	Jacobi
115769	5/22/12	4830	ORCHARD	6/5/12	FMISC-EAB	[illegible] Route 1	Jacobi
115774	5/22/12	5123	DAVID	6/5/12	FMISC-EAB	Cell 4, 18" DBH, 80ml, Jacobi, Sunny/70'	Jacobi

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Logs/Comments
115768	5/22/12	721	WOODRIDGE	6/5/12	FMISC-EAB	cell 12, 20" DBH, 110ml, Jacobi, Sunny/63'	Jacobi
115778	5/23/12	1115	CHARLOTTE	6/5/12	FMISC-EAB	Call 3, 19" DBH, 90ml, Jacobi, Sunny/64'	Jacobi
115776	5/23/12	4909	CARLA	6/5/12	FMISC-EAB	Cell 21, 19" DBH, 90ml, Jacobi, Sunny/60'	Jacobi
115775	5/23/12	5005	CAROL	6/5/12	FMISC-EAB	Cell 2, 18" DBH, 80ml, Jacobi, Sunny/57'	Jacobi
115786	5/24/12	1190	REVERE RIDGE	6/5/12	FMISC-EAB	Cell 1, 11" DBH, 40ml, JACOBI, Sunny/75'	Jacobi
115785	5/24/12	1252	ANEE	6/5/12	FMISC-EAB	Cell 1, 15" DBH, 60ml, Jacobi, Sunny/75'	Jacobi
115914	5/24/12	1308	REVERE RIDGE	6/7/12	FMISC-EAB	Cell 7, 18", 80ml, Jacobi, Sunny/75'	Jacobi
115913	5/24/12	1309	REVERE RIDGE	6/7/12	FMISC-EAB	Cell 5, 16" DBH, 65ml, Jacobi, Sunny/75'	Jacobi
115915	5/24/12	1364	REVERE RIDGE	6/7/12	FMISC-EAB	Cell 4, 14" DBH, 50ml, Jacobi, Sunny/84'	Jacobi
115916	5/24/12	1377	REVERE RIDGE	6/7/12	FMISC-EAB	Cell 24, 11" DBH, 40ml, Jacobi, Sunny/84'	Jacobi
115784	5/24/12	415	MULFORD	6/5/12	FMISC-EAB	Cell 3, DBH 15, Qty Injected (ml) 60, Applicator JACOBI, Weather Cond Sunny/68', 6, 15, 60, JACOBI, Sunny/68', 20, 18, 80, JACOBI, Sunny/80', 21, 9, 30, JACOBI, Sunny/79', 23,16, 65, JACOBI, Sunny/79'	Jacobi
115783	5/24/12	5614	ELAINE	6/5/12	FMISC-EAB	Cell 5, 17" DBH, 75ml, Jacobi, Sunny/72'	Jacobi
115917	5/25/12	6652	TIMBERLINE	6/7/12	FMISC-EAB	Cell 6, 12" DBH, 40ml, Jacobi, Sunny/86'	Jacobi
115922	5/25/12	6655	TIMBERLINE	6/7/12	FMISC-EAB	Cell 7, 11" DBH, 40ml, Jacobi, Sunny/86'	Jacobi
116001	5/29/12	1205	WOODCREEK	6/7/12	FMISC-EAB	Cell 10, 7" DBH, 20ml, Jacobi, Sunny/77'	Jacobi
116002	5/29/12	1205	WOODCREEK	6/7/12	FMISC-EAB	Cell 12, 7" DBH, 20ml, Jacobi, Sunny/77'	Jacobi
115942	5/29/12	1338	BRANDYWINE	6/7/12	FMISC-EAB	Call 6, 13" BDH, 45ml, Jacobi, Sunny/69'	Jacobi
115940	5/29/12	6643	SANDALWOOD	6/7/12	FMISC-EAB	Cell 6, 9" DBH, 30ml, Jacobi, Sunny/60'	Jacobi

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Logs/Comments
115938	5/29/12	6648	SANDALWOOD	6/7/12	FMISC-EAB	Cell 1, 15" DBH, 60ml, Jacobi, Sunny/60'	Jacobi
115935	5/29/12	6683	SANDALWOOD	6/7/12	FMISC-EAB	Cell 3, 15" DBH, 60ml, Jacobi, Sunny/60'	Jacobi
115937	5/29/12	6683	SANDALWOOD	6/7/12	FMISC-EAB	Cell 21, 14" DBH, 50ml, Jacobi, Sunny/60'	Jacobi
116008	5/29/12	894	TRAINER	6/7/12	FMISC-EAB	cell 4, 8" DBH, 25ml, Jacobi, Sunny/79'	Jacobi
116006	5/30/12	1009	TRAINER	6/7/12	FMISC-EAB	Cell 7, 11" DBH, 40ml, Jacobi, Sunny/61'	Jacobi
116007	5/30/12	943	TRAINER	6/7/12	FMISC-EAB	Cell 2, 7" DBH, 20ml, Jacobi, Sunny/61'	Jacobi
116004	6/1/12	6364	SPRING HILL	6/7/12	FMISC-EAB	Cell 19, 13" DBH, 45ml, Jacobi, Sunny/59'	Jacobi
116005	6/1/12	6364	SPRING HILL	6/7/12	FMISC-EAB	Cell 20, 16" DBH, 65ml, Jacobi, Sunny/75'	Jacobi
116011	6/1/12	6673	SOUTHFIELD	6/7/12	FMISC-EAB	Cell 3, 11" DBH, 40ml, Jacobi, P Cloudy	Jacobi, Route 1
116013	6/1/12	895	ANEE	6/7/12	FMISC-EAB	Cell 5, 11" DBH, 40ml, Jacobi, Sunny/48'	Jacobi, Route 1
116010	6/1/12	913	CANDLEFORD	6/7/12	FMISC-EAB	Cell 5, 18" DBH, 80ml, Jacobi, Sunny/51'	Jacobi, Route 1
116009	6/1/12	949	BRITTANIA	6/7/12	FMISC-EAB	Cell 4, 9" DBH, 30ml, Jacobi, Sunny/53'	Jacobi, Route 1
116012	6/1/12	954	ANEE	6/7/12	FMISC-EAB	Cell 2, 13" DBH, 45ml, Jacobi, Sunny/48'	Jacobi, Route 1
117479	6/11/12	1150	FOX CHASE	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 6 8" DBH 25ml Sunny/70	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Legs/Comments
117476	6/11/12	1213	NORTH CREST	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 5 9" DBH 30ml Sunny/60	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117475	6/11/12	1254	NORTH CREST	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 1 11" DBH 40ml Sunny/67	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117465	6/11/12	1340	LIVINGSTON	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 5 10" 30mlSunny/60	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117470	6/11/12	1357	SANDHURST	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 2 8" DBH 25ml Sunny/65	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
112509	6/11/12	1372	BOILVIN	4/23/12	FMISC-EAB	Treat Ash in cell 5	Closed as dup of 112509. (OOPS)
112509	6/11/12	1372	BOILVIN	4/23/12	FMISC-EAB	Treat Ash in cell 5	OOPS - Cattage went to address property owner paid Tree Care to treat the tree.
117466	6/11/12	1404	LIVINGSTON	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 4 11" DBH 40ml Sunny/60	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117469	6/11/12	1431	SANDHURST	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 3 12" DBH 40ml Sunny/65	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117467	6/11/12	1434	LIVINGSTON	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 4 11" DBH 40ml Sunny/60	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Logs/Comments
117468	6/11/12	1460	LIVINGSTON	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 4 7" DBH 20ml Sunny/65	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117464	6/11/12	1463	RAMSEY	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 3 21" DBH 120ml Sunny/73	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117456	6/11/12	1552	OAKFOREST	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 6 11" DBH 40ml Sunny/63	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117502	6/11/12	1585	MARSHFIELD	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 3 16" DBH 65ml Cloudy/77 Treated Ash with TREE-AGE CELL 7 17" DBH 75ml Cloudy/77	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117458	6/11/12	1608	OAKFOREST	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 4 11" DBH 40ml Sunny/62	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117480	6/11/12	1617	ALBANY	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 4 9" DBH 30ml Sunny/73	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117481	6/11/12	1640	ALBANY	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 4 9" DBH 30ml Sunny/73	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Log/Comments
117463	6/11/12	1648	ROWNTREE	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 7 11" DBH 40ml Sunny/60	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117494	6/11/12	2042	WEMBLEY	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 2 15" DBH 60ml Sunny/73 Treated Ash with TREE-AGE CELL 5 15" DBH 60ml Sunny/73	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117493	6/11/12	2082	WEMBLEY	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 5 16" DBH 65ml Sunny/68	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117492	6/11/12	2130	WEMBLEY	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 7 14" DBH 50ml Sunny/67	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117495	6/11/12	2141	CARRINGTON	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 4 14" DBH 50ml Sunny/78	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117490	6/11/12	2172	WEMBLEY	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 2 13" DBH 45ml Sunny/65	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117496	6/11/12	2187	CARRINGTON	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 4 15" DBH 60ml Sunny/78	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Logs/Comments
117488	6/11/12	2209	WEMBLEY	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 20 13" DBH 45ml Sunny/75	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117489	6/11/12	2210	WEMBLEY	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 3 13" DBH 45ml Sunny/55	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117487	6/11/12	6244	FEATHERSTONE	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 2 10" DHB 30ml Sunny/74	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117500	6/11/12	6333	BRIGANTINE	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 5 13" DBH 45ml Sunny/72	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117498	6/11/12	6358	BRIGANTINE	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 2 11" DBH 40ml Sunny/72	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117486	6/11/12	6459	SHILOH	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 2 10" DBH 30ml Sunny/71	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117483	6/11/12	6758	ACADEMY	6/28/12	FMISC-EAB	CELL 2 16" DBH 65ml Sunny/55 Treated Ash with TREE-AGE	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117482	6/11/12	6835	CODY	6/28/12	FMISC-EAB	Ash with TREE-AGE CELL 4 21" DBH 120ml Sunny/55	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Logs/Comments
117484	6/11/12	6951	ACADEMY	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 2 11" DBH 40ml Sunny/55	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
111683	6/11/12	707	COTTAGE GROVE	4/5/12	FMISC-EAB	Treat for EAB	Treated. .26" DBH, 170ml. Cattage
117462	6/11/12	7085	SENTINEL	6/28/12	FMISC-EAB	CELL 3 14" DBH 50ml Sunny/72 Treated Ash with TREE-AGE	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117461	6/11/12	7090	SENTINEL	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 4 13" DBH 45ml Sunny/72	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117477	6/11/12	7112	WEATHERED OAK	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 6 9" DBH 30ml Sunny/52	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117478	6/11/12	7150	WEATHERED OAK	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 7 8" DBH 25ml Sunny/52	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117474	6/11/12	7217	CENTENNIAL	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 6 9" DBH 30ml Sunny/52	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117460	6/11/12	7218	SENTINEL	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 5 12" DBH 40ml Sunny/71	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Logs/Comments
117459	6/11/12	7236	SENTINEL	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 4 14" DBH 50ml Sunny/71	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117473	6/11/12	7353	FAIRMONT	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 12 10" DBH 30ml Sunny/75	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117472	6/11/12	7380	FAIRMONT	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 3 10" DBH 30ml Sunny/65	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
117471	6/11/12	7412	FAIRMONT	6/28/12	FMISC-EAB	Treated Ash with TREE-AGE CELL 6 10" DBH 30ml Sunny/65	EAB Treatment of Route 13 completed 6/11/12 by Jacobi/Cattage
110292	6/12/12	1915	23RD	3/16/12	FMISC-EAB	P/B LARSON inspection - treat ash trees in ROW @ address for EAB.	CCR Request form Ald Johnson again. Homeowners think one of the trees looks bad. BRandon will call Adl Johnson.
110292	6/12/12	1915	23RD	3/16/12	FMISC-EAB	P/B LARSON inspection - treat ash trees in ROW @ address for EAB.	Cell 19, 90ml, cell 23 - 150ml
118118	6/12/12	6483	MUIRFIELD	7/11/12	FMISC-EAB	Treated 1 tree. 3 15" B Jacobi Sunny/61	complete.
118117	6/12/12	6658	OLD HUNTERS	7/11/12	FMISC-EAB	Treated 1 tree. 5 17" 75 B Jacobi Sunny/75	Complete.
111770	6/12/12	809	HIGHVIEW	4/9/12	FMISC-EAB	Treat Ash Tree	Cattage/Loudermilk
116172	6/13/12	1738	HANCOCK	6/11/12	FMISC-EAB	Green Ash, cell 8", No Wires. Treat for EAB	30mol. Cattage.

RFS #	Date Completed	Address/Block	Street	Date Added	Problem Code	Comments	Logs/Comments
116174	6/13/12	1935	CUMBERLAND	6/11/12	FMISC-EAB	Green Ash, 10" DBH, cell 2, wires (telecom - OK). Treat for EAB	30ml. Cattage.
116175	6/13/12	2016	CUMBERLAND	6/11/12	FMISC-EAB	EAB	25ml. Cattage
116184	6/13/12	2125	GRANT	6/11/12	FMISC-EAB	GREEN ASH, 7" DBH, CELL 7, NO WIRES. TREAT FOR EAB.	20ml. Cattage
116179	6/13/12	2205	HANCOCK	6/11/12	FMISC-EAB	GREEN ASH, 16" DBH, CELL 6, NO WIRES, TREAT FOR EAB	65ml. Cattage
116177	6/13/12	2208	OXFORD	6/11/12	FMISC-EAB	Green Ash, 16" DBH, CELL 4, NO WIRES. TREAT FOR EAB	65ml. Cattage
116183	6/13/12	2315	GRANT	6/11/12	FMISC-EAB	GREEN ASH, 10" dbh, CELL 7, NO WIRES. TREAT FOR EAB.	30ml. Cattage
116181	6/14/12	518	ELLIS	6/11/12	FMISC-EAB	GREEN ASH, 9" DBH, CELL 6, NO WIRES. TREAT FOR EAB.	Cell 11. 40ml. Cattage
121466	6/22/12	5553	TASSELBURY	8/29/12	FMISC-EAB	Cell # 10 DBH - 15" Qty Injected (ml) 60 Applicator Name - CATTAGE Weather Conditions -Sunny/76	Cattage completed.
117136	6/28/12	1623	GRANT	6/25/12	FMISC-EAB	Autumn P. Ash. 9" DBH, cell 23, wires. Treat for EAB. Mark Stockman	Complete. Cattage. Cell 23, 9" DBH, 30ml, Sunny/80'
117193	6/28/12	1807	HUFFMAN	6/25/12	FMISC-EAB	Treat 17" Ash in cell 5 for EAB.	Complete Cattage. Cell 5, 17", 75ml, sunny/80'
116910	6/28/12	3227	ORLEANS	6/20/12	FMISC-EAB	treat for EAB	Completed. Cattage. Cell 4, 14" DBH, 50ml, Sunny/86'
117385	7/2/12	2300	HUFFMAN	6/27/12	FMISC-EAB	Treat 2 Green Ash trees for EAB. 16" DBH in cell 2N; 24" DBH in cell 4S.	treated 2 Ash trees 86'/Sunny Cattage/Loudermilk Cell 4S 155ml
118293	7/13/12	1122	WINNEBAGO	7/12/12	FMISC-EAB	Treat 45" DBH White Ash in cell 1.	EAB treatment. White Ash, cell 1, 45" DBH, 450ml - TreeaAge. Sunny/63'. Jacobi.
121413	8/23/12	812	WOOD	8/29/12	FMISC-EAB	Property owner hired True Green to treat the ash tree in front of his house. Wants it inspected and to know that it won't be taken down.	Inspected by Brandon Larson. OK to stay. 8" DBH, cell 1, no wires.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX F

THE CITY OF ROCKFORD ILLINOIS, USA

EROSION & SEDIMENT CONTROL PLAN REVIEW AND REGULATORY INSPECTIONS STANDARD OPERATING PROCEDURES

June 2015

1.0 General

The purpose of this Standard Operating Procedure (SOP) for plan review and erosion and sediment control regulatory inspections is to comply with Part II, A.3 of the City of Rockford's NPDES Stormwater Permit (ILS000001). This document addresses the City's procedures for reviewing erosion and sediment control plans; Stormwater Pollution Prevention Plans (SWPPP) and performing regulatory site inspections.

2.0 Legal Authority

Legal authority for the City's Erosion and Sediment Control Program is found in the City's Code of Ordinances Chapter 109, Article 3. This City of Rockford Code provides City staff the authority to access properties for inspections. Chapter 109, Article 3, the Stormwater Technical Manual and the ILR10 Permit provides specific erosion and sediment control requirements.

3.0 Staffing

Staff from the Department of Public Works shall conduct the reviews of the erosion and sediment controls (ESC) plans and SWPPPs. The primary public works staff that will be trained in plan review include the following positions: Engineering Operations Manager and the Stormwater Program Managers. Training shall be from in-house and external training sources as approved by the Engineering Operations Manager and the Stormwater Program Manager(s).

Staff from the Department of Public Works, Engineering Division shall be responsible for performing permit compliance inspections. The primary public works staff that will be trained to perform full site inspections will be the following positions: Engineering Operations Manager, Stormwater Program Manager(s), Stormwater Coordinator and designated Project Managers Engineering Techs. Each team member shall be trained to perform the inspections as referenced in the ILR10 construction permit and shall be familiar with this document. Training shall be from in-house and external training sources as approved by the Engineering Operations Manager and the Stormwater Program Manager(s). Project Managers and Engineering Technicians can perform inspections provided they have the above training and are approved to perform inspections by the Engineering Operations Manager and the Stormwater & Environmental Program Manager.

All training shall be in accordance with the Standard Operating Procedures for Stormwater and Environmental Education.

The following equipment shall be utilized when performing inspections: a copy of the SWPPP and erosion and sediment control plans, clipboard, inspection form, camera, personal protection equipment. Personal protection equipment shall include:

- Hard hats – required on all sites with equipment running overhead or as required by the contractor.
- Safety vests – required on all sites.
- Work boots, rubber boots or hip waders (depending on site conditions).

Safety while doing any inspection is a top priority. Staff should always be aware of their surroundings as well as the location of equipment operating in the area.

4.0 Review and Approval of Erosion and Sediment Control Plans and Stormwater Pollution Prevention Plans

Pursuant to Article 5 of the City's Stormwater Management Ordinance and the City's Subdivision and Site Plan Review Processes, the Stormwater Administrator, or their designee will review Stormwater Pollution Prevention Plans (SWPPPs) and erosion and sediment control (ESC) plans for compliance with Articles 3, 5 and 6 of the City's Code of Ordinances Chapter 109 and with the requirements of ILR10, the *IL Urban Manual* and the City's Stormwater Technical Manual. This review, which is one component of the overall plan review process conducted by the City, covers both construction and post-construction stormwater controls. Construction shall not commence on a project until the City has conducted this review and issued its approval of the SWPPP and ESC plan through issuance of a Grading and Stormwater Discharge Permit or through issuance of a Building Permit.

This SOP applies to all construction projects involving one acre or more of land disturbance or involving less than one acre of land disturbance but that are part of a larger common unit of development, including municipal projects. All such projects are required to obtain and comply with the IEPA Construction General Permit (ILR10) and have the SWPPP and ESC plan reviewed and approved by the City of Rockford Department of Public Works. As part of the review process, all project applicants must submit a Grading and Stormwater Discharge Application which identifies the parties responsible for both the temporary stormwater controls utilized during construction and the parties responsible for ongoing operation and maintenance of post-construction stormwater controls. The SWPPP and ESC plan review checklist (Attachment A) and the City's Stormwater Technical Manual will be used by the Department's Stormwater Program Manager and staff to review all projects requiring an IEPA construction general permit. The project owners or their consultants are required to submit ESC plans and SWPPPs to IEPA and to the City for review and approval as part of the City's process for issuing a Grading and Stormwater Discharge Permit. Work at the site is prohibited until it has obtained permit coverage and is authorized to discharge stormwater under ILR10 and until the City has provided its approval through issuance of a Grading and Stormwater Discharge Permit or the Building Permit. Submittals to IEPA will be verified on the website referenced in Section 5.0.

Subsequent revisions to construction plans after initial City approval must be reviewed and approved by the Stormwater Administrator or designee in accordance with the process described above. The Stormwater Administrator will conduct his/her review pursuant to the ordinance requirements in place at the time of the new review. If the Stormwater Administrator determines that the revised plans are in compliance, an amended Grading and Stormwater Discharge Permit may be issued.

Plan submittal, review and approval will be tracked by the Public Works Department – Engineering Division (PWE) and the Community & Economic Development Department – Construction & Development Services Division (CDS) using the Hansen tracking system. PWE and CDS manage this tracking system and will enter all new projects into the tracking system in accordance with the City's Plan Review Process. The project's status is updated in the system as each review is completed and approved. The Engineering Division, also, utilizes Excel to track plan submittals, reviews and approvals.

5.0 Inspections

The City's oversight inspection program consists of pre-construction inspections where applicable, field inspections and drive-thru inspections. Many active construction sites are viewed by staff while driving to other appointments. Any active construction site that is believed not to have the necessary IEPA or City of Rockford approvals will be inspected for compliance.

If a construction site is found not to have the necessary IEPA or City of Rockford permits a stop work order shall be issued until the proper documents are submitted and approved.

Any milling of parking lots or road projects that are larger than one acre shall be considered maintenance and no IEPA construction permit is required. Any parking lot or road projects larger than one acre that are having material removed down to the sub-base also do not require IEPA construction permitting provided there is less than one acre of disturbance to the subsoil and the adjacent area. (These requirements will be revised as necessary to be consistent with any revisions to the IEPA construction general permit.) These sites shall also have erosion and sediment control measures (BMP's) in place as needed to reduce and/or eliminate sediment runoff.

The Illinois Environmental Protection Agency (IEPA) issues NPDES permits to construction sites and maintains information on permitted sites on their website. The City will work with the local office of the Illinois Environmental Protection Agency to review its list of permitted sites. The City shall also utilize the website below to make sure all NPDES permitted sites have obtained the proper City of Rockford approvals.
(http://dataservices.epa.illinois.gov/NoticesofIntent/ConstructQuickSearch.aspx)

Sites with less than one acre of disturbance or do not require NPDES permitting shall have erosion and sediment control measures in place as needed to reduce and/or eliminate sediment runoff. These sites shall be inspected at the City's discretion based on the proximity of environmentally sensitive areas, citizen complaints and past contractor compliance issues.

5.1 NPDES Permitted Facilities

All Construction sites regulated under IEPA general construction permit (ILR10) shall be inspected by the City's Public Works – Engineering Division. Sites that have not begun construction activity or are inactive (no construction activity) and have been temporarily stabilized shall receive drive thru inspections only (Section 6.3) until such time as construction begins or re-commences. Sites that have been final stabilized as defined in the ILR10 permit are not required to be inspected and either the City's Hansen System or the Engineering Division's Excel tracking system will indicate that final stabilization has been achieved.

5.2 City of Rockford Projects

Any City of Rockford project of 1 acre or more in land disturbance or with less than one acre of land disturbance but that is part of a larger common unit of development shall comply with the requirements of the NPDES (ILR10) general construction permit. These projects are subject to the same inspection requirements as a private property project.

5.3 Citizenry Complaints and Past Known Noncompliance Record

The City has a citizen complaint program which includes a hotline (779-348-7300) for phone calls and the City's website (www.rockfordil.gov). Complaints from the public are recorded and investigated. Every citizenry complaint will be followed up with a field inspection by City staff within three business days.

Monthly inspections shall be completed for construction companies, property owners and/or developers that have had an administrative order issued within the past year. If an additional administrative order has not been issued within a year from the last administrative order issuance then the City will return to the normal inspection process. If non-compliance continues then additional enforcement procedures will take place (see Section 8.0).

6.0 Field Inspection Program

This section describes the procedures for performing field inspections of construction sites. These inspections are a critical component of this program.

6.1 Inspection Priority and Frequency

Field inspections may be scheduled in advance with the contractor though the preference is to perform inspections without prior notice. Field inspections will be prioritized at the City's discretion. Factors for prioritization will be based on: citizen complaints, proximity to environmentally sensitive areas, date construction commenced, previous noncompliance of the owner, contractor or consultant or random site visits.

All NPDES permitted construction sites on which construction has commenced shall have a full erosion and sediment control inspection completed a minimum of two (2) times during the construction season (May 1st – November 30); provided, however, that sites for which an alternate inspection frequency is specified by Section 5.1 or Section 5.3 of this SOP shall be inspected as stated in that Section. The first full erosion and sediment control inspection for each site will be conducted within the first two weeks of the construction start date as noted on the grading and stormwater discharge permit. In the situation where construction continues beyond the season additional inspections shall be completed a minimum of once every three months. Sites/contractors with past compliance issues will be inspected monthly in accordance with Section 5.3. In lieu of full inspections, drive thru inspections (Sec. 6.3) shall be completed on sites that are inactive (no construction activity) and have been temporarily stabilized. Sites that have been final stabilized as defined in the ILR10 general construction permit are not required to be inspected under this SOP.

6.2 Pre-Construction Inspections

When a project is adjacent to an environmentally sensitive area a pre-construction inspection shall be completed to confirm all necessary BMP's are in place prior to the commencement of any land disturbing activity other than those associated with BMP placement.

Environmentally sensitive areas are areas such as wetlands, creeks, rivers, drainageways, IEPA designated superfund sites, site with endangered species and areas with steep slopes (6% or greater).

Attachment B is a copy of the Pre-Construction Checklist.

6.3 Drive Thru Inspections

Drive thru inspections shall be utilized to document visits to sites that do not constitute a full erosion and sediment control site inspection. A drive thru inspection does not replace a full erosion and sediment control site inspection; it is an assessment of the site conditions to determine if a more detailed inspection is required. Drive thru inspections may be scheduled or may be conducted on an ad hoc basis as City inspectors drive by or through a site during the course of other routine business. Drive thru inspection reviews include: cleanliness of the site and the condition of in–place BMP's. A copy of the Drive Thru Inspection Checklist, which will be completed during the inspection, is included as Attachment C of this document. If ther are no deficiencies noted during the drive thru then no follow-up action is required. If there are minor deficiencies the site supervisor or owner shall be notified at the time of the inspection via an on-site meeting or a phone call to make the necessary corrective actions. If the deficiencies have not been addressed in a timely manner or the construction site has major deficiencies, a full erosion and sediment control site inspection shall be completed within 3 business days of the drive thru inspection. Major deficiencies include overall poor site conditions; poorly installed BMP's, failure of BMP's, evidence of sediment leaving the site or great potential that sediment can leave the site. Major deficiencies do not include routine maintenance of structural controls where the site is generally in good condition and there is no evidence that routine maintenance is not conducted in a timely manner. The drive thru inspections results shall be documented according to Section 9.0.

6.4 Full Erosion and Sediment Control Site Inspection

The full Erosion and Sediment Control Site Inspection Form (Attachment D) shall be completed during the inspection and any deficiencies will be reviewed with the site supervisor, if available. A letter (Attachment E) describing the inspection report results will be sent to all responsible parties as detailed on the ILR10 Notice of Intent, typically the owner and/or contractor. When deemed applicable, pictures shall be taken to document site conditions.

The inspection form primarily focuses on site conditions including but not limited to: discharge points, disturbed areas that have not been final stabilized, structural control measures, locations where vehicles enter and exit the site, evidence of discharges to Waters of the State and Best Management Practices (BMPs) effectiveness and condition. The SWPPP and inspection records will be reviewed if accessible. If the SWPPP is not accessible a follow up appointment will be scheduled to review the document.

The primary manuals the City will utilize for BMP installations and maintenance will be the Illinois Urban Manual and the IDOT Erosion and Sediment Control Field Guide for Construction Inspections. Other manuals may be utilized if approved by the City of Rockford.

The City shall confirm that corrective actions for major deficiencies identified during field inspections are completed in a timely manner either through certification provided by the site owner and/or operator or through follow-up inspections by the City. Major deficiencies include overall poor site conditions; ineffective or inappropriate BMPs; missing BMPs (i.e., BMPs required by the SWPPP but not installed or implemented); BMPs that were not installed or constructed correctly, and in accordance with good engineering practices and the Stormwater Technical Manual and the Illinois Urban Manual; and poorly maintained or implemented BMPs. Major deficiencies do not include routine maintenance of structural controls where the site is generally in good condition and there is no evidence that routine maintenance is not conducted in a timely manner. If the site owner/operator does not provide certification of all required corrective actions for major deficiencies within one week following the inspection, the City will issue a stop work order until such time as the deficiencies have been addressed and certified to the City. Deficiencies not addressed shall follow the enforcement procedures in Section 8.0. Status of corrective actions will be noted in the inspection and sampling log.

7.0 Termination of NPDES permits

Construction sites that meet the termination requirements in the ILR10 permit shall be listed as inactive and will no longer be inspected. Prior to termination, sites shall be reviewed to confirm final stabilization as detailed in the ILR10 General Construction Permit and construction best management practices have been removed. This review shall consist of a final inspection, which could be a field inspection or a drive thru inspection if appropriate, or certification by the construction site owner/operator.

8.0 Enforcement

Enforcement measures will be in accordance with Chapter 109, Article 13 and the City of Rockford Stormwater Division Enforcement Response Plan for corrective actions not remedied within the required timeframe.

9.0 Documentation and Record Management

Hard copies of site data (inspection reports and letters) will be filed by site name and/or address in file folders. In addition, digitized copies will also be saved in the Stormwater Drive on the City of Rockford computer system. Digitized information may include: SWPPP, inspection reports/checklists, letters, photos, correspondence, etc. These files will be saved as follows:

1) Open the Stormwater Drive (note: this drive has limited access for people who perform duties directly related to the City's stormwater program),
2) Open the Construction folder,
3) Open the COR Inspection folder,
4) Open the inspection folder for the current year,
5) If a folder for a site is already created open it and save the data. Inspection reports should be saved by date. If it is a new site create a new folder.

Any construction site where inspections carry over to the next year shall have the entire digitized inspection folder copied and pasted to the next year. All hard copy inspections shall be saved in the same file.

An excel spreadsheet for all inspections has also been created. This spreadsheet can be found in the Stormwater Drive in the folder entitled ***Inspection and Sampling Logs***. All spreadsheets are saved by year for easy tracking. Data includes: date, construction site name, type of inspection, NPDES permit # (if applicable), type of follow-up needed, date of follow-up and whether corrective actions have been addressed. Notes about the inspection can also be included.

SWPPP/ESC Plan review Checklist

Note: the SWPPP template IEPA references is the USEPA template. After reviewing the IEPA ILR10 permit and the USEPA SWPPP template the following items are required in all SWPPP

Site Name _____

To be used on construction sites that require an IEPA NPDES stormwater permit (ILR10)

SWPPP Content	Yes	NO	NA	Comments
Contact Information/Responsible parties				
Project Owner & contact information				
SWPPP Preparer Contact Information				
Site Information				
Project Name & Address				
Latitude & Longitude (NOI is acceptable)				
Discharge Information				
Is project discharging to the City of Rockford's MS4?				
Name of closest receiving waters				
Runoff Coefficients after construction				
Nature of Construction Activity				
Description of Project				
Size of project (total size & area to be disturbed)				
Sequence of Construction (major soil disturbing)				
Allowable Non-stormwater Discharges				
Site Maps				
Drainage patterns before and after major grading activities				
Vehicle entrance & exit locations plus controls to prevent offsite tracking				
Total site areas and areas of soil disturbance				
Location and types of all structural and non-structural controls				
Areas where stabilization practices are to occur				
Material and equipment storage areas				
Stockpile locations				
Locations of surface waters and wetlands				
Location(s) where storm water discharges from site				
Inspections & Maintenance				
Inspection Schedule & procedures				
Procedures for corrective actions				
Person(s) responsible for corrective actions				

SWPPP Content	Yes	No	Na	Comments
Documentation requirements				
Endangered species (NOI is acceptable)				
Historic Preservation (NOI is acceptable)				
Other required permitting (if applicable)				
Does the SWPPP address protection of endangered species or historic preservation? (if applicable)				
Erosion & Sediment Controls - Should include specifications and location on maps (Illinois Urban Manual to be used for guidance)				
Note: these are commons controls used onsite in the area. Other BMP's may be necessary or more effective				
Perimeter controls				
Sediment Trackout Controls				
Stockpile Contols				
Inlet Protection Controls				
Stabilization Practices				
Concrete washout				
Other Controls				
Post Construction Runoff				
Are post construction runoff measures included to minimize pollutants after construction is completed?				

SWPPP & ESC Plan Reviewer _____

Date of Plan Review _____

Attachment B

Pre-Construction Checklist

The pre-grading checklist shall be completed when a project is adjacent to an environmentally sensitive area.

Date: _____ Project Name: _____

Inspector: _____

1. Are all required certifications signed and included in the SWPPP? Yes_____ No _____
2. Is the SWPPP located onsite? Yes_____ No _____

   Location of the SWPPP_____
3. Has the SWPPP manager and Inspector been identified? Yes _____ No _____
4. Has the primary contractors been identified and the NOI updated (if necessary) Yes ____ No _____
5. Are all required BMP's (inlet protection, perimeter controls, stabilized construction entrance, etc.) installed? Yes_____ No _____

Any question answered "NO" must be corrected prior to the start of grading.

Comments: _____

_____

_____

_____

Inspector Signature: _____ Date: _____

Attachment C

Drive Thru Inspection Checklist

A Windshield inspection is a windshield survey of site conditions at a construction site. A windshield inspection will be acceptable for sites with no visible corrective actions or with minor maintenance issues provided the site supervisor is contacted and the maintenance items are addressed. A follow-up must be completed to confirm maintenance has been completed. Sites with significant maintenance needs will have a stormwater construction site inspection completed (see Standard operating Procedure for Regulatory Erosion and Sediment Control Inspections Section 5.3 & 5.4).

Construction Site Name: _____ Date: _____

Inspector: _____

Site Conditions:

1. Site is clean and well maintained (trash and debris picked up, streets clean, no spills, etc.)

   Yes _____ No _____

2. All visible BMP's are maintained and there are no corrective actions needed.

   Yes ___ No ___ NA _____

3. Minor BMP maintenance is needed and the Site Manager has been contacted.

   Yes ____ No ____ NA ____

4. Name of Site Contact: _____

5. Phone # _____

6. Date of Follow-up (if necessary): _____

7. All maintenance items addressed: Yes _____ No _____

8. If maintenance items were not addressed or additional maintenance is noted during the follow-up visit a stormwater construction site inspection will be done.

9. Is there evidence of sediment leaving the site? Yes _____ No _____

10. Is a Stormwater Construction Site Inspection Needed? Yes _____ No _____

Comments: _____

_____

_____

Inspector Signature: _____ Date: _____

Provide Copy to Stormwater & Environmental Team

Attachment D

City of Rockford
Erosion and Sediment Control Site Inspection Report

General Information			
Project Name			
NPDES Tracking No.		**Location**	
Date of Inspection		**Start/End Time**	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Describe present phase of construction			

Inspection Type:

Random Site Visit ____ Citizen Complaint ____ Date Received _____ Time Received _____

Weather at time of this inspection?
❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds ❑ Other:

Temperature: _____ Date of last Rain Event (> 0.5") _____

Have all discharge points been inspected? ❑Yes ❑No **Are there any discharges at the time of inspection?** ❑Yes ❑No
If yes, describe:

Was the SWPPP onsite and available for review? ❑Yes ❑No ❑Onsite but not Accessible/Reviewed

Site-specific BMPs

- *Utilize the SWPPP and the erosion and sediment control plans (if accessible) to determine types and locations of BMP's for the site.*
- *Describe corrective actions initiated, date completed, and note the person that completed the work in the Corrective Action Log.*

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes
1		❑Yes ❑No	❑Yes ❑No	
2		❑Yes ❑No	❑Yes ❑No	
3		❑Yes ❑No	❑Yes ❑No	
4		❑Yes ❑No	❑Yes ❑No	
5		❑Yes ❑No	❑Yes ❑No	
6		❑Yes ❑No	❑Yes ❑No	
7		❑Yes ❑No	❑Yes ❑No	
8		❑Yes ❑No	❑Yes ❑No	
9		❑Yes ❑No	❑Yes ❑No	
10		❑Yes ❑No	❑Yes ❑No	

Overall Site Issues

Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA	
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA	
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA	
4	Are discharge points and receiving waters free of any sediment deposits?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA	
5	Are storm drain inlets properly protected?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA	
6	Is the construction exit preventing sediment from being tracked into the street?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA	
7	Is trash/litter from work areas collected and placed in covered dumpsters?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA	
8	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA	
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA	
10	Are materials that are potential stormwater contaminants stored inside or under cover?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA	
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA	
12	(Other)	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA	

General Comments

Inspector Signature: _____ Date: _____

Timothy Hanson
Director
Public Works Department

Attachment E

September 5, 2013

(Insert Name & Address of permit holder)

RE: Erosion Control Inspection at *(insert name of facility)* (ILR10 insert permit #)

Dear Mr. / Ms. ;

A soil erosion and sediment control inspection was conducted on September 4, 2013 by the City of Rockford. The purpose of the inspection was to determine the effectiveness of soil erosion and sediment control measures in preventing water pollution.

The site inspection identified the following items needing your attention to meet the requirements of your NPDES permit as well as the City of Rockford Code of Ordinances:

1.
2.
3.
4.
5.

Under the Illinois Construction General Permit (ILR10), all corrective actions must be completed in a timely manner. Please provide a response to this letter within 7 days certifying all corrective actions have been completed or provide an estimate for completion along with an explanation for the delay. Failure to do so will result in a Stop Work Order being posted until all corrective actions have been addressed. Please send the certification via email.

Please note, the ILR10 general construction permit was updated and new requirements became effective August 1st, 2013. Please review the revised permit and adjust the SWPPP accordingly.

If you have any questions regarding this inspection, please contact the Stormwater Program Manager, Brad Holcomb at (779) 348-7611, or by email at brad.holcomb@rockfordil.gov.

Sincerely,

Matthew Vitner, P.E.
City Engineer

Cc.

Timothy Hanson
Director
Public Works Department

Erosion Control Inspection at **(ILR10)**

Photo #1

Picture description

Photo #2

Picture description

Photo #3

Picture description

Note: the attached photos indicate examples of corrective actions observed on this construction site. When performing maintenance as indicated in the photos, check the entire site for other areas with similar maintenance needs.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX G

THE CITY OF
ROCKFORD
ILLINOIS, USA

EROSION AND SEDIMENT CONTROL GUIDANCE MANUAL FOR CITY OF ROCKFORD PROJECTS

June 2015

1.0 GENERAL

An important component of any stormwater management program is the reduction of pollutants from construction sites that may discharge to the municipal separate storm sewer system or waters of the state. A proactive program to identify and inspect all permitted construction sites can significantly reduce pollutants entering the municipal storm drainage system.

The following program and procedures shall be followed by City of Rockford's Public Works, Engineering Division when managing municipal construction projects. This guidance applies to the Project Managers and stormwater compliance inspectors who oversee the City's construction projects. Project Managers are located in the City's Public Works, Engineering Division and their responsibilities include overseeing City construction projects. The stormwater compliance inspectors are generally the projects consultant or contractor and they conduct the stormwater compliance inspections required by the ILR10 or an individual NPDES permit, where appropriate. The inspectors are responsible for ensuring that the project is in compliance with the ILR10 and the SWPPP, that corrective actions are identified and corrected in a timely manner, and that all BMPs are being properly operated and maintained. In addition, a member of Stormwater & Environmental Team (SWET) from the Public Works, Engineering Division shall conduct compliance oversight inspections as addressed by the City's Standard Operating Procedures for Erosion and Sediment Control Plan Review and Regulatory Inspections. All Project Managers and stormwater compliance inspectors, as well as erosion and sediment control plan reviewers, must be knowledgeable in the principles and practices of erosion and sediment control measures, the requirements of the ILR10, the Illinois Urban Manual and the City's stormwater technical manual, and be trained annually pursuant to the City's Standard Operating Procedure for Stormwater and Environmental Education. Consultants and contractors c. supply documentation of training in lieu of participating in City sponsored training events.

Questions regarding this document or the IEPA General Construction permit should be directed to a member of the Stormwater & Environmental Team (SWET).

2.0 PLAN REVIEWS

Any construction project managed by the City of Rockford, regardless of size, will be required to have erosion and sediment control measures that meet the requirements of Articles 3, 5 and 6 of the City's Code of Ordinances Chapter 109, the standards in the Illinois Urban Manual and the City's stormwater technical manual. These erosion and sediment control plans must be approved by a member of SWET in the Public Works, Engineering Division, specifically by a person knowledgeable in the principles and practices of erosion and sediment control measures and trained annually pursuant to the City's Standard Operating Procedure for Stormwater and Environmental Education. In addition, any construction project managed by the City of Rockford that disturbs more than 1 acre or are part of a larger common unit of development shall comply with the IEPA General Construction Permit (ILR10) which includes developing a Stormwater Pollution Prevention Plan (SWPPP) and erosion and sediment control plans. These plans must also be approved as indicated above, and pursuant to the City's Standard Operating Procedures for Erosion and Sediment Control Plan Review and Regulatory Inspections as part of the plan review process.

3.0 PROJECT MANAGERS/INSPECTORS STORMWATER RESPONSIBILITIES

As the owners on an IEPA permitted construction project the City is responsible to assure the SWPPP and erosion and sediment control plans are implemented and being maintained. The ultimate goal of any SWPPP is to keep pollutants from leaving the site, including infiltration. As the project managers for the City of Rockford you are responsible to ensure the day–to-day activities are followed in a compliant manner and to assure the SWPPP is being implemented and maintained.

NOTE: Most regulatory inspections are initiated by a drive thru or citizen complaint. First impressions for a regulatory inspector are important. If a drive thru shows a site is clean, organized with all BMP's maintained that inspector may decide to drive to the next site. If a site is messy, unorganized with poorly maintained BMP's regulatory inspections will happen often.

4.0 PERMITTING REQUIREMENTS

4.1 CONSTRUCTION PROJECTS LESS THAN ONE ACRE, PARKING LOTS & ROAD PROJECTS

Though IEPA permitting is not required, unless items a & b apply in section 4.2, sites less than one acre shall have erosion and sediment control measures (BMP's) in place as required to reduce and/or eliminate sediment runoff.

Any milling of parking lots or road projects that are larger than one acre shall be considered maintenance and no IEPA construction permit is required. Any parking lot or road projects larger than one acre that are having material removed down to the sub-base material also do not require IEPA construction permitting provided there is less than one acre of disturbance to the subsoil and the adjacent area. These sites shall also have erosion and sediment control measures (BMP's) in place as required in order to reduce and/or eliminate sediment runoff.

The drive thru inspection form (attachment A) shall be used to by technicians, coordinators and managers in the Public Works Engineering Division to ensure BMP's are in place and functional. These positions shall be trained as indicated in the Stormwater & Environmental Education Standard Operating Procedures. This inspection shall be done throughout the project with copies provided to the Stormwater & Environmental team for review.

Contractors not addressing erosion and sediment control concerns shall be reported to the Stormwater and Environmental Team who shall perform a full erosion and sediment control inspection.

4.2 NPDES CONSTRUCTION PERMITS

An IEPA General Construction Permits Notice of Intent (NOI) must be submitted by the project manager or a member of SWET when:

a. There is more than 1 acre of land disturbance (clearing, grading, and excavation of land),
b. When a site less than 1 acre is part of a larger common plan of development,
c. When there is potential for contributing to a violation of water quality standards or significant contribution of pollutants to waters of the state.

ALL NOI's must be submitted on the City of Rockford's IEPA construction login page (http://dataservices.epa.illinois.gov/SWConstructionPermit/bowLogin.aspx). For logi information see a member of SWET. Coverage under the ILR10 requires submittal of t SWPPP in addition to the NOI. An electronic version of the SWPPP must be sent to IEPA by email at the following address: epa.constilr10@illinois.gov. Construction can start 30 days after NOI and SWPPP submittal and following the issuance of the City Grading and Stormwater Discharge Permit or the Building Permit. .

All SWPPP documents, including the inspections and erosion control plan should be kept onsite in one location, preferably a 3-ring binder. The permit and notice of intent should be posted.

The SWPPP is a living document and should be updated as the project progresses (see attachment D).

The following is a summary of the requirements of the ILR10 General Construction Permit. City of Rockford project managers, inspectors, technicians, consultants and contactors should be familiar with the contents of the permit as well as this document. Any questions should be directed to a member of the Stormwater and Environmental Team.

5.0 SWPPP CONTENT

The SWPPP is a site specific document and will vary for each project. The following are items that shall be included in the SWPPP, see Section 2.0 for SWPPP and erosion and sediment control plan review requirements which must take place prior to the start of construction. All SWPPP's must be kept current in accordance with ILR10 permit requirements.

5.1 Site Description– Every SWPPP will be site specific but information shall include

- Description of the nature of construction activity or demolition work;
- A description of the intended sequence of major activities which disturb soils for major portions of the site (e.g. clearing, grubbing, excavation, grading, on-site or off-site stockpiling of soils, on-site or off-site storage of materials;
- An estimate of the total area of the site and the total area of the site that is expected to be disturbed by clearing, grubbing, excavation, grading, on-site or off-site stockpiling of soils and storage of materials, or other activities;
- An estimate of the runoff coefficient of the site after construction activities are completed and existing data describing the soil or the quality of any discharge from the site;
- A site map indicating:
  - drainage patterns and approximate slopes anticipated before and after major grading activities,
  - locations where vehicles enter or exit the site and controls to prevent offsite sediment tracking,
  - areas of soil disturbance,
  - the location of major structural and nonstructural controls identified in the plan,
  - the location of areas where stabilization practices are expected to occur,
  - locations of on-site or offsite soil stockpiling or material storage,
  - surface waters (including wetlands),
  - locations where stormwater is discharged from the site and discharged to surface waters.

5.2 **Controls** – A description and installation details of the BMP's being used on the site. The plan should clearly describe each major activity and the type and timing of controls that will be installed during each activity. The Illinois Urban Manual (www.aiswcd.org/IUM), the IDOT Erosion and Sediment Control Field Guide or other similar document shall be used. See common BMP's at the end of this document.

- ***Erosion and Sediment Controls*** – design, install & maintain erosion and sediment controls to minimize the discharge of pollutants. All controls must be maintained and kept in effective operating condition during the entire project. At a minimum controls must:
  - Control stormwater volume & velocity to minimize erosion.
  - Control stormwater discharges, including peak flow rates & total storm volume to minimize erosion at the outlets and to minimize downstream channel and streambank erosion,
  - Minimize the amount of soil exposed during construction activity,
  - Minimize disturbance of steep slopes,
  - Minimize sediment discharge from the site,
  - Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration.
  - Minimize soil compaction and preserve topsoil.

- ***Stabilization Practices*** – include a description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans should ensure that existing vegetation is preserved where practicable and that disturbed portions of the site are stabilized. Stabilization practices may include: temporarily seeding, permanent seeding, mulching, chemicals, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, staged or staggered development, and other appropriate measures.

  - A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated, shall be included in the plan.
  - Stabilization of disturbed areas must be initiated within 1 day of permanent or temporary cessation of earth disturbing activities on all or a portion of a site and shall be completed as soon as possible but not later than 14 days from the initiation of stabilization work in an area. Exceptions to these time frames are specified as in paragraphs (i) and (ii):

    (i) Where the initiation of stabilization measures is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.

    (ii) On areas where construction activity has temporarily ceased and will resume after 14 days, a temporary stabilization method can be used. Temporary stabilization techniques and materials shall be described in the SWPPP.

- ***Structural Controls*** – a description of structural practices used to divert flows from exposed soils, store flows or limit runoff and the discharge of pollutants. This may include:
  - Silt Fence,
  - earth dikes,
  - drainage swales,
  - sediment basins & traps,
  - check dams,
  - subsurface or slope drains,
  - level spreaders,
  - inlet protection & outlet protection

- ***Other Controls & Pollution Prevention***
  - Design, install, implement and maintain pollution prevention measures to minimize exposure such as wash waters, building materials, products, construction wastes, landscape material, pesticides, fertilizers , spills and other materials
  - Waste Disposal – no construction materials, including but not limited to concrete waste and paint, shall be dumped on the ground, discharged offsite or in any location that could lead to waters of the state.

- ***Post Construction Stormwater Management***
  - Describe measures that will be installed to control pollutants after construction operations have been completed.
  - Permittee must plan and put forth stormwater BMP's that will retain the greate amount of stormwater runoff practicable given the site and project constraints b installing one or more BMP's as detailed in the Illinois Urban Manual.
  - Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall as necessary to provide non-erosive flows from the structure.
  - Unless otherwise specified in the Illinois Urban Manual the SWPPP shall be designed for a 25 year, 24 hour event.

5.3 Contractor Certifications

The stormwater pollution prevention plan must clearly identify for each measure identified in the plan, the contractor(s) or subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the plan must sign a copy of the certification statement in paragraph 2 below in accordance with Part VI.G {Signatory Requirements) of the ILR10 Permit All certifications must be included in the stormwater pollution prevention plan except for owners that are acting as contractors.

Certification Statement - All contractors and subcontractors identified in a stormwater pollution prevention plan in accordance with paragraph 1 above shall sign a copy of the following certification statement before conducting any professional service at the site identified in the stormwater pollution prevention plan:

> "I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR10) that authorizes the stormwater discharges associated with industrial activity from the construction site identified as part of this certification."

The certification must include the name and title of the person providing the signature in accordance with Part VI.G of the ILR10 Permit: the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

5.4 SWPPP Certification - All Notices of Intent, stormwater pollution prevention plans, reports, certifications or information either submitted to the Agency or the operator of a large or medium municipal separate storm sewer system shall be signed by a designated official or officer.

> "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 gathered and evaluated 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."

6.0 INSPECTIONS

6.1 Pre-Grading Inspections

All best management practices shall be installed prior to the initial disturbance of soils associated with clearing, grading, and excavation of land.

When a project is adjacent to an environmentally sensitive area a pre-construction review shall be completed by the project consultant, the project manager or a member of SWET to confirm all necessary BMP's are in place prior to the commencement of any land disturbing activity other than those associated with BMP placement. Environmentally sensitive areas are areas such as wetlands, creeks, rivers, drainageways, IEPA designated superfund sites, site with endangered species and areas with steep slopes (6% or greater). Attachment B is a copy of the Pre-Construction Checklist.

6.2 ILR10 Inspection Requirements

Generally, project consultants or contractors perform stormwater compliance inspections as required in the ILR10 permit. When conducting these inspections, it is preferable, though not required, that the same person performs weekly and rain event inspections. This is because of their familiarity with the project area. The inspector should also be knowledgeable in the principles and practices of erosion and sediment control measures as addressed in Section 1.0, and meet the criteria for "Qualified Personnel" as defined in ILR10.

When stormwater compliance inspections are to be conducted by City staff the project manag shall consult with a member of SWET to ensure the inspector meets the qualifications as defined in the ILR10 permit and has received the training as detailed in the Stormwater & Environmental Education Standard Operating Procedures.

Inspections must be done at least once every seven calendar days and within 24 hours of the end of a storm or by the end of the following business or work day that is 0.5 inches or greater. Every inspection report should indicate what type of inspection is being done. Weather data should be included. (Attachment C - sample inspection report)

Inspections may be reduced to once per month when construction activities have ceased due to frozen conditions. Weekly inspections will recommence when construction activities are conducted, or if there is 0.5" or greater rain event, or a discharge due to snowmelt occurs.

Inspectors should verify previous weeks maintenance items have been addressed. The following items should be inspected:

- All disturbed areas,
- Equipment and material storage areas,
- Onsite BMP's, these should be checked for maintenance, proper installs and that they are functioning properly,
- Discharge locations,
- Locations where vehicles enter and exit.
- ***The entire site must be monitored to assure no potential pollutants enter the City of Rockford's storm system or leaves the site.***

Based on the results of the inspection, the description of potential pollutant sources identified in the SWPPP shall be revised as appropriate as soon as practicable after such inspection to minimize the potential for such discharges. Such modifications shall provide for timely implementation of any changes to the plan and pollution prevention control measures within 7 calendar days following the inspection. The inspection report shall either indicate when maintenance was completed or a maintenance log shall be included.

6.3 Regulatory Inspections

City projects can be inspected anytime by authorized representatives of the Illinois or U.S. EPA. In addition, all City projects requiring an ILR10 permit shall be inspected by SWET in the Public Works Engineering Division at least twice during the construction season (May 1st – November 30) pursuant to the City's Standard Operating Procedures for Erosion and Sediment Control Plan Review and Regulatory Inspections. The inspector shall review the inspection result with the project manager to initiate corrective actions.

7.0 NON-STORMWATER DISCHARGES

Non-Stormwater is discharges not composed entirely of rain. The following non-stormwater discharges are authorized under the ILR10 permit providing they do not contain pollutants:

- Firefighting activities
- Fire hydrant flushing's
- Waters used for dust control
- Water used to wash vehicles where detergents are not used
- Potable water sources including uncontaminated waterline flushing
- Landscape irrigation drainages
- Routine external building wash down which does not use detergents
- Pavement wash waters which does not use detergents and where spills or leaks of toxic or hazardous materials have **not** occurred,
- Uncontaminated air conditioning condensate
- Uncontaminated springs or groundwater
- Foundation footing drains where flows are not contaminated.

All other discharges (i.e. concrete or paint waste) must be managed as part of the SWPPP.

8.0 INCIDENCE OF NON-COMPLIANCE (ION)

Permit Language:

> *The permittee shall notify the appropriate Agency Field Operations Section office by email at: epa.swnoncomp@illinois.gov, telephone or fax within 24 hours of any incidence of noncompliance for any violation of the stormwater pollution prevention plan observed during any inspection conducted, or for violations of any condition of this permit. The permittee shall complete and submit within 5 days an "Incidence of Noncompliance" (ION) report for any violation of the stormwater pollution prevention plan observed during any inspection conducted, or for violations of any condition of this permit. Submission shall be on forms provided by the Agency and include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. Corrective actions must be undertaken immediately to address the identified noncompliance issue(s).*

If you or your contractor believes there is cause for an incidence of non-compliance submittal contact the Stormwater & Environmental Team (SWET) immediately for guidance. A member of SWET shall notify the local IEPA office within 24 hours after an incident and submit a report within 5 days.

Corrective actions must be initiated immediately.

9.0 PERMIT TERMINATION

- Where a site has completed final stabilization and all stormwater discharges from constructic activities that are authorized by this permit are eliminated, the permittee must submit a completed Notice of Termination.
    - Talk to a member of the Stormwater & Environmental Team regarding terminating a permit.
- All SWPPP records and inspections must continue to be current until permit is terminated.
- Records must be kept for three years after termination.

Attachment A

Drive Thru Inspection Checklist

A Drive Thru inspection is a windshield survey of site conditions at a construction site. A drive thru inspection will be acceptable for sites with no visible corrective actions or with minor maintenance issues provided the site supervisor is contacted and the maintenance items are addressed. A follow-up must be completed to confirm maintenance has been completed. Sites with significant maintenance needs will have a stormwater construction site inspection completed (see Erosion and Sediment Control, Plan Review and Regulatory Inspections Section 6.3 & 6.4).

Construction Site Name: _____ Date: _____

Inspector: _____

Site Conditions:

1. Site is clean and well maintained (trash and debris picked up, streets clean, no spills, etc.)

   Yes _____ No _____

2. All visible BMP's are maintained and there are no corrective actions needed.

   Yes ___ No ___ NA _____

3. Minor BMP maintenance is needed and the Site Manager has been contacted.

   Yes ____ No ____ NA ____

4. Name of Site Contact: _____

5. Phone # _____

6. Date of Follow-up (if necessary): _____

7. All maintenance items addressed: Yes _____ No _____

8. If maintenance items were not addressed or additional maintenance is noted during the follow-up visit a stormwater construction site inspection will be done.

9. Is there evidence of sediment leaving the site? Yes _____ No _____

10. Is a Stormwater Construction Site Inspection Needed? Yes _____ No _____

Comments: _____
_____
_____

Inspector Signature: _____ Date: _____

Provide Copy to Stormwater & Environmental Team

Attachment B

Pre-Grading Checklist

Date: _____

Inspector: _____

1. Are all required certifications signed and included in the SWPPP? Yes_____ No _____
2. Is the SWPPP located onsite? Yes_____ No _____

   Location of the SWPPP _____
3. Has the SWPPP manager and Inspector been identified? Yes _____ No _____
4. Has the primary contractors been identified and the NOI updated (if necessary) Yes ____ No _____
5. Are all required BMP's (inlet protection, perimeter controls, stabilized construction entrance, etc.) installed? Yes_____ No _____

Any question answered "NO" must be corrected prior to the start of grading.

Comments: _____

_____

_____

_____

Inspector Signature: _____ Date: _____

Attachment C

Erosion and Sediment Control Site Inspection Report

General Information			
Project Name			
NPDES Tracking No.		**Location**	
Date of Inspection		**Start/End Time**	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Describe present phase of construction			

Weather Information
Weather at time of this inspection? ☐Clear ☐Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds ❑ Other: Temperature: _____ Date of last Rain Event (> 0.5")_____
Are there any discharges at the time of inspection? ❑Yes ☐No **If yes, describe:**
Inspection Type: ☐ Weekly ☐Rain Event Amount of Rain_____

Site-specific BMPs

- *Number the structural and non-structural BMPs identified in your SWPPP on your site map and list them below (add as many BMPs as necessary). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required BMPs at your site.*
- *Describe corrective actions initiated, date completed, and note the person that completed the work in the Corrective Action Log.*

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes	Corrective Action Completed (7 day follow-up)
1		☐Yes ☑No	☐Yes ☐No		❑Yes ❑No
2		☑Yes ❑No	☐Yes ☐No		❑Yes ❑No
3		☐Yes ❑No	☐Yes ☐No		❑Yes ❑No
4		☐Yes ❑No	☐Yes ☐No		❑Yes ❑No
5		☐Yes ❑No	☐Yes ❑No		❑Yes ❑No
6		❑Yes ☐No	☐Yes ❑No		❑Yes ❑No
7		❑Yes ☐No	☐Yes ❑No		❑Yes ❑No
8		❑Yes ☐No	☐Yes ❑No		❑Yes ❑No
9		❑Yes ☐No	☐Yes ❑No		❑Yes ❑No
		❑Yes ☐No	☐Yes ❑No		❑Yes ❑No

Overall Site Issues

Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes	Corrective Action Completed (7 day follow-up)
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA		❑Yes ❑No
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA		❑Yes ❑No
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA		❑Yes ❑No
4	Are discharge points and receiving waters free of any sediment deposits?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA		❑Yes ❑No
5	Are storm drain inlets properly protected?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA		❑Yes ❑No
6	Is the construction exit preventing sediment from being tracked into the street?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA		❑Yes ❑No
7	Is trash/litter from work areas collected and placed in covered dumpsters?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA		❑Yes ❑No
8	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA		❑Yes ❑No
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA		❑Yes ❑No
10	Are materials that are potential stormwater contaminants stored inside or under cover?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA		❑Yes ❑No
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA		❑Yes ❑No
12	(Other)	❑Yes ❑No ❑NA	❑Yes ❑No ❑NA		❑Yes ❑No

General Comments/Follow-Up Observations

Inspector Signature:_____ **Date:**_____

Attachment D

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX H

THE CITY OF
ROCKFORD
ILLINOIS, USA

INDUSTRIAL HIGH RISK RUNOFF FACILITY INSPECTION PROGRAM

STANDARD OPERATING PROCEDURES

June 2015

1.0 General

The goal of this standard operating procedure is to reduce the amount of polluted runoff from industrial and commercial facilities entering the City of Rockford's MS4. This industrial high risk runoff inspection program complies with Part II, A, 9 of the City of Rockford's NPDES Storm Water Permit (ILS000001). This document addresses how industrial facilities are identified for inspections and the procedures for performing them.

2.0 Legal Authority

Legal authority for the Industrial High Risk Runoff Inspection program is found in the City of Rockford's Code of Ordinances Chapter 109, Article 12. This Chapter of the City of Rockford Code provides City staff the authority to access properties for inspections.

3.0 Staffing

Staff from the Department of Public Works shall be responsible for performing inspections at industrial, commercial and other high risk facilities to ensure that these facilities are in compliance with the City of Rockford's Code of Ordinances Chapter 109, Article 12. Each team member shall be trained to perform the inspections as referenced in the ILR00 industrial stormwater permit and shall be familiar with this document. The primary public works staff trained to perform industrial inspections shall be the following positions: Engineering Operations Manager, Stormwater Program Manager(s), Stormwater Project Manager, Stormwater Coordinator and designated project Managers and Engineering Techs. Each shall be trained in performing industrial inspections from in-house and external training sources as approved by the Engineering Operations Manager and the Stormwater Program Manager(s). Project Managers and Engineering Technicians can perform inspections provided they have the above training and are approved to perform inspections by the Engineering Operations Manager and the Stormwater Program Manager(s).

All training shall be in accordance with the Standard Operating Procedures for Stormwater and Environmental Education.

The following equipment may be utilized when performing inspections: a copy of the SWPPP and SPCC for the site if available (if copies cannot be obtained beforehand they shall be reviewed onsite), clipboard, inspection form, camera, sampling supplies, personal protection equipment. Personal protection equipment shall include:

- Hard hats – as required by the industrial facility.
- Safety vests – as required by the industrial facility
- Work boots
- Safety glasses - as required by the industrial facility

Safety while doing any inspection is a top priority. Staff should always be aware of their surroundings as well as the location of equipment operating in the area.

4.0 Inspection Frequency and Priority

Inspections may be scheduled in advance or without prior notice. Inspections shall be prioritized based on the following:

Inspection Priority		Approx. # of Facilities	Priority Ranking
Citizen Complaints and Staff Observations			High
Flows recorded during outfall Inspections & tracked to an industrial facility & past compliance concerns within the past 3 years.			High
Municipal Facilities (see attachment B for list of municipally owned facilities and priority ranking)	List categories of high priority facilities (e.g., vehicle maintenance)	2	High
	List categories of medium priority facilities	2	Medium
	List categories of low priority facilities (e.g., municipal buildings)	80	Low
Facilities requiring an IEPA industrial Stormwater permit based on SIC and ILR00	Facilities with approved permit	57	Medium
	Unpermitted facilities - Food Manufacturing (SIC starting at 20)	17	Medium
	Unpermitted facilities - Textile & Apparel products & manufacturing (SIC starting at 22,23)	18	Low
	Unpermitted facilities – Wood & paper manufacturing facilities (SIC starting at 24, 25)	17	High
	Unpermitted facilities – Wood, paper & Printing facilities (SIC starting at 27)	52	Low
	Unpermitted facilities – Chemical & Petroleum related industries (SIC Starting at 28, 29)	32	High
	Unpermitted facilities – Rubber, leather & glass products. (SIC starting at 30, 31, 32)	32	Low
	Unpermitted facilities – Metal fabrication Industries (SIC starting at 33, 34, 35)	293	High
	Unpermitted facilities – Electronic & transportation equipment (SIC starting at 36, 37, 38)	46	Low
	Unpermitted facilities – Miscellaneous Manufacturing (SIC starting at 39)	27	Low
	Unpermitted facilities – Transportation and trucking services, USPS (SIC starting at 41, 42, 43)	153	Low
	Unpermitted facilities – Recycling Facilities (SIC starting at 5015, 5093	8	High
	Facilities with No Exposure Certifications	60	Low
Facilities that do not required an IEPA industrial Stormwater permit	Commercial Fueling Stations	66	Medium
	Laundry and dry cleaning facilities	20	Medium
	Car repair shops and car washes	159	Medium
	Retailers with lawn & garden centers	8	Medium
	Large & Small retailers	75	Low
	Landscapers	37	Low
	Restaurants	596	Low
	Other facilities as determined by the City	------	TBD

The City shall inspect 100% high priority facilities and 50% medium priority facilities once every permit term. The City shall continue to evaluate the database using desktop analysis to determine if a facility's Standard Industrial Classifications (SIC) are appropriate, if it is still operational and within City limits. Citizen complaint inspections will be in addition to the scheduled inspections. Low priority facilities shall not be inspected unless there is a complaint submitted or an issue referred by another public entity such as the County Health Department or the RRWRD. The facility inventory and prioritization will be evaluated annually and revised where appropriate based on inspection findings and desktop analysis. New facilities will be added when identified. Changes will be summarized each year in the Annual Report.

Once all high and medium priority facilities have been reviewed new inspections on the facilities shall commence.

Complaints from the public shall be recorded and investigated. The City has a citizen complaint program which includes a hotline (779-348-7300) for phone calls and the City's website (www.rockfordil.gov) to register a complaint. Calls to the hotline shall be forwarded to the Stormwater & Environmental Program Manager or the Stormwater Project Manager. The same positions are sent emails for online complaints.

Citizen complaints shall be followed up with a field inspection by City staff within 72 hours of the complaint being submitted. Citizen complaints may initially be investigated as an Illicit Discharge Investigation (see Illicit Discharge and Detection and Elimination Standard Operating Procedures. If an industrial inspection is warranted procedures in Section 6.0 shall be followed. Priority ranking and inspection frequency may be adjusted based on inspection results if necessary.

5.0 Identification of Industrial High Risk Runoff Facilities

The City utilizes the following resources to build and update their industrial facility database for performing inspections. Updated data shall be incorporated into the existing database and mapping. This database shall be updated annually and changes referenced in the annual report. Mapping of industrial facility locations shall be updated at the same time as the database. See Appendix A for contacts to the listed organizations

5.1 Rock River Water Reclamation District

The Rock River Water Reclamation District {RRWRD) requires that all significant industrial users that wish to connect to the Publicly-Owned Treatment Works (POTW} obtain a wastewater discharge permit prior to connecting or discharging to the POTW. This information is maintained by the RRWRD in their customer database.

5.2 NPDES Permitted Facilities

The Illinois Environmental Protection Agency (IEPA) issues NPDES permits to industrial facilities (based on SIC code) and maintains information on permitted sites on their website. The City will work with the local office of the Illinois Environmental Protection Agency to review its list of permitted sites or utilize the website below to make sure all NPDES permitted sites have obtained the proper City of Rockford approvals. This website shall be reviewed quarterly and the database updated as needed. (http://dataservices.epa.illinois.gov/NoticesofIntent/IndustrialQuickSearch.aspx)

Since IEPA does not list "No Exposure" certifications on their website the City shall request an updated list annually from IEPA.

5.3 Sara Title III and EPCRA Reporting (Toxic Release Inventory)

The City reviews the USEPA's Toxic Release Inventory (TRI), which requires facilities to submit data annually. This inventory shall be reviewed to determine what facilities within Rockford City limits have submitted reports and to add them to the database if necessary. (http://www.epa.gov/tri/index.htm).

5.4 City of Rockford Fire Department

The City of Rockford Fire Department maintains a database of industrial facilities with hazardous materials (Tier II reporting to Illinois Emergency Management Agency). An updated copy of this shall be requested annually and the database updated as needed.

5.5 City of Rockford Water Division

That City of Rockford Water Division shall provide a list of non-residential (more than one unit) users annually. This list can be used to determine existing facilities using water and further to identify any industrial activity not otherwise captured for prioritization. This list shall be updated annually.

5.6 Winnebago County Health Department

The Winnebago County Health Department maintains a list of permanent food establishments in Winnebago County. The City shall request an updated copy annually and update its database as needed.

5.7 Illinois Department of Agriculture – Motor Fuel Dispenser Information for Businesses

The City utilizes the Illinois Department of Agriculture's database to determine the locations of licensed fueling stations within City limits. This report is updated annually. (http://www.agr.state.il.us/programs/consumer/w&m/index.html)

5.8 City Owned Facilities

The database shall include City owned facilities which use or store pollutants or implement activities that may pose a threat to water quality. These facilities shall include, but are not limited to: city yards including vehicle storage and maintenance facilities, well houses, pesticide storage facilities, the compost facility, publicity owned parking lots, and City owned public buildings. While IEPA has confirmed that stormwater discharges from the city yards do not require authorization under a NPDES permit, the City shall develop a stormwater plan establishing best management practices for that site and shall evaluate that plan annually for potential improvements to best management practices and efficiencies to operations. Changes to the plan shall be summarized in the Annual Report. All other facilities shall maintain Stormwater Pollution Prevention Plans or Spill Prevention Control and Countermeasure plans if required through state or federal requirements.

Well houses are inspected daily by the Water Division for chemical leaks and other issues per Water EPA requirements. All other City owned facilities shall be inspected based on their priority rank. See Appendix B for a list of City owned facilities and their priority ranking.

6.0 Performing Industrial High Risk Runoff Inspections

The Industrial Survey Storm Water Compliance form (Appendix C) shall be completed during the inspection and any noticeable issues addressed with the facility supervisor during an exit interview. The inspector should review all areas of a facility that could impact water quality through stormwater runoff or illicit discharges. During the inspection, City inspectors shall complete the following steps:

1) For facilities requiring NPDES Industrial stormwater permitting, an appointment shall be made with the site representative. This is to ensure the appropriate person is onsite and available. For facilities that do not require an industrial stormwater permit unscheduled inspections are preferred.
2) If scheduling, obtain a copy of the facilities Stormwater Pollution Prevention Plan (SWPPP) for review in advance of the inspection. If it is not available the SWPPP shall be reviewed during the inspection.
    a. Review the facilities standard industrial classification (SIC) and confirm a SWPPP or No Exposure certification is required.
    b. If permitting is required confirm SWPPP is up to date and/or confirm the facility qualifies for the No Exposure certification.
    c. Review required inspection reports.
    d. If a facility does not have a permit/SWPPP as required discuss with site manager the permit requirements and determine a timeframe to develop a SWPPP. These facilities shall be referred to the IEPA in a timely manner.

3) Review the interior and/or exterior of the facility as needed utilizing the attached inspection report (Appendix C).
    a. Any items in the visual survey section of the inspection report marked "no" shall be reviewed with the site manager with possible corrective actions discussed.
    b. Photos may be taken if possible and not against the facility's policy.
    c. Review the facilities discharge point(s) as indicated on the SWPPP. If the discharge point is not indicated the inspector shall determine the discharge point (i.e. storm drain inlets, where the facilities storm sewer enters the City's right-of-way, an adjacent drainageway, property perimeter etc.). See Table 1 for common discharges produced at generating sites.
    d. Ensure floor drains are not connected to the stormsewer system.
4) Indicators of potential illicit discharges from a facility include:
    a. Odors (gas, sewer, rancid/sour, etc.)
    b. Deposit/stains (oily, flowline, paint, etc.)
    c. Pipe Benthic growth
    d. Dry weather discharges from the facility to the storm sewer system
    e. Other potential indicators can be found in the Illicit Discharge and Elimination standard operating procedures.
5) If an indicator of illicit discharges is present the City may:
    a. If sampling of the questionable discharge is required by the facility's NDPES permit, verify that sampling is being completed and request test results.
    b. If sampling is not required or being completed for the particular discharge in question, or the City questions the accuracy of the facility's test results, the City can request additional sampling to confirm tests. Inspectors shall observe sampling to verify location of sample taken.
    c. Utilize the City's field testing equipment and follow the monitoring standard operating procedures. Sample types shall be based on the type of facility.
        i. Sampling may need to be completed upstream of the site to verify the source of suspected illicit discharge.
        ii. If an illicit discharge is not from the facility, initiate an illicit discharge investigation as detailed in the Illicit Discharge Detection and Elimination standard operating procedures.
    d. If test results indicate presence of contaminants including exceedances of NDPES permit limits, contact IEPA and City legal department to discuss enforcement.
    e. Require facility to implement temporary and/or permanent best management practices based on their response plans and as approved by the City to control or eliminate the contaminant.
    f. Perform subsequent field test to confirm that discharge has been managed appropriately.
    g. All documents, sampling results and conversations shall be saved as indicated later in this document.
6) Letters shall be sent to all NPDES permitted facilities detailing inspection findings and timeframes for performing corrective actions (see sample letter in Appendix D). A copy of this letter shall also be emailed to the Illinois EPA Rockford office (see Appendix A for contact information). For facilities that do not require NPDES permitting, letters shall only be sent if there are corrective actions.

Table 1: Common Discharges Produced at Generating Sites	
Generating Site	**Activity Generating the Discharge**
Vehicle Operations (Maintenance, Repair, Fueling, Washing, Storage)	• Improper disposal of fluids down shop and storm drains • Spilled fuel, leaks and drips from wrecked vehicles • Hosing of outdoor work areas • Wash water from cleaning • Spills
Outdoor Materials (Loading/Unloading, Outdoor Storage)	• Liquid spills at loading areas • Hosing/washing of loading areas into shop storm drains • Leaks and spills of liquid stored outside
Waste Management (Spill prevention and response, Dumpster management	• Spills and leaks of liquids • Dumping into storm drains • Leaking dumpsters
Physical Plant Maintenance (Building repair, Remodeling and maintenance, Parking lot maintenance)	• Discharges from power washing steam cleaning • Rinse Water and wash water discharges during clean up • Runoff from degreasing and re-surfacing
Turf and Landscaping (Turf Management Landscaping/rounds care)	• Non-target irrigation • Improper rinsing of fertilizer/pesticide applicators
Unique Hotspot Operations (pools, Golf Courses, Marinas, Construction, restaurants, Hobby Farms)	• Discharge of chlorinated water from pools • Dumping of sewage and grease.

7.0 Enforcement

Enforcement measures shall be in accordance with Chapter 109, Article 13 and the City of Rockford Storm Water Division Enforcement Response Plan for corrective actions not remedied within the required timeframe.

8.0 Documentation and Record Management

Hard copies of site data (inspection reports and letters) will be filed by address in file folders. In addition, digitized copies will also be saved in the Stormwater Drive on the City of Rockford computer system. Digitized information may include: SWPPP, inspection reports/checklists, letters, photos, correspondence, etc. These files will be saved as follows:

1) Open the Stormwater Drive (note: this drive has limited access for people who perform duties directly related to the City's stormwater program),
2) Open the IHRRI folder,
3) Open the IHRI Inspections folder,
4) Open the inspection folder for the current year,
5) Inspections shall be saved by address and facility name.
6) If a folder for a site is already created open it and save the data. Inspection reports should be saved by date. If it is a new site create a new folder.

Any industrial facility site where inspections carry over to the next year shall have the entire digitized inspection folder copied and pasted to the next year. All hard copy inspections shall be saved in the same file.

An excel spreadsheet for all inspections has also been created. This spreadsheet can be found in the Stormwater Drive in the folder entitled ***Inspection and Sampling Logs***. All spreadsheets are saved by year for easy tracking. Data includes: date, facility name and address, SIC number, NPDES permit # (if applicable), type of follow-up needed, date of follow-up and whether corrective actions have been addressed. Notes about the inspection can also be included.

Appendix A

Database Contacts

Company	Name	Phone #	Email	Website
Rock River Water Reclamation District	Barb LeMoine	815-387-7636	BLeMoine@rrwrd.dst.il.us	
City of Rockford Fire Department	Ken Eitenmiller – Hazardous Materials Chief	779-348-7171	Ken.eitenmiller@rockfordil.gov	
	Matt Knott – Division Chief	779-500-6537	Matt.knott@rockfordil.gov	
City of Rockford Water Division	Tim Holdeman	779-348-7355	Tim.holdeman@rockfordil.gov	
Illinois EPA	Melissa Parrott (Springfield)	217-782-0610	Melissa.Parrott@Illinois.gov	http://dataservices.epa.illinois.gov/NoticesofIntent/IndustrialQuickSearch.aspx
	Thomas Williams (Rockford)	815-987-7760	Thomas.williams@Illinois.gov	
Winnebago County Health Department (may need to submit FOIA)	Lisa Sprecher	815-720-4117	lsprecher@wchd.org	
Sara Title III and EPCRA Reporting	List only			http://www.epa.gov/tri/index.htm
Illinois Department of Agriculture	List only			http://www.agr.state.il.us/programs/consumer/w&m/index.html

Appendix B

PROPERTIES OWNED BY CITY OF ROCKFORD, ILLINOIS

Name	Type	Address	Priority Ranking
Armory	Vacant Development Prop	613 N Main Street	Low
Shopstead	Leased Retail Space	1012 S Main Street	Low
City Yards Admin	City Operations Location	523 S Central Ave	Low
City Yards Shop	Mechanic Shop	523 S Central Ave	High
City Yards Traffic	City Operations Location	523 S Central Ave	High
Water Division	Water Operations Location	1111 Cedar Street	Medium
City Hall	City Operations Location	425 E State Street	Low
Fire Administration/911	City Operations Location	201 S 1ST Street	Low
Fire Station 1	Fire station	528 Woodlawn Avenue	Low
Fire Station 2	Fire station	1004 7th Street	Low
Fire Station 3	Fire station	1520 S. Main Street	Low
Fire Station 4	Fire station	2959 Shaw Woods	Low
Fire Station 5	Fire station	391 Trainer Road	Low
Fire Station 6	Fire station	3329 W State Street	Low
Fire Station 7	Fire station	4979 Falcon Road	Low
Fire Station 8	Fire station	505 Sherman	Low
Fire Station 9	Fire station	2416 Halstead	Low
Fire Station 10	Fire station	3407 Rural	Low
Fire Station 11	Fire station	2117 Calgary	Low
Coronado Theater	Theater	312-314 N Main Street	Low
Ingersoll	Vacant Development Prop	301 S Water Street	Low
Fire Repair Shop	Mechanic Shop	2323 Sawyer Road	Medium
Human Services	City Operations Location	625 N Church Street	Low
PSB Overnight Parking	Open Lot Vehicles	420 W State Street	Low
Concourse Overnight Parking	Open Lot Vehicles	322 S Church	Low
Yards Overnight Parking	Open Lot Vehicles	400 S Independence	Low
Plant		Stanley St. south of Preston	Low
Group 1	Group well-no bldg	Cedar & Tay St's	Low
Group 2	Group well-no bldg	Cedar & Stanley St's	Low
Group 5	Group well-no bldg	Preston & Tay St's	Low
Group 6	Group well-no bldg	Chestnut & Tay St's	Low
Well 3	Base Well	1404 Riverbluff Blvd.	Low
Well 4	Land to be sold	801 Marchesano Dr.	Low
Well 5 - 5A	Treatment plant	2526 Pelham Rd.	Low
Well 6	Base Well	2604 19th Ave.	Low
Well 9A	Secondary Well	2708 Crosby St.	Low
Well 10	Treatment plant	4316 Newburg Rd.	Low
Well 11	Land to be sold	1218 7th Ave.	Low
Well 12	Land to be sold	1022 Benton St.	Low
Well 13	Treatment plant	4625 Skyline Dr.	Low
Well 15	Zone Control Valve	3030 Chestnut St.	Low
Well 16	Land to be sold	4550 Harrison Ave.	Low
Well 17	Secondary Well	3700 Brookview Rd.	Low
Well 18	Base Well	1409 S. Johnston Ave.	Low
Well 19	Used for storage only	1220 Lockheed Lane	Low
Well 20	Land to be sold	2434 N Central Ave,	Low
Well 21	Base Well	703 Daisyfield Rd.	Low

Well 22	Base Well	5110 Auburn St.	Low
Well 23	Secondary Well	1206 Elmwood Rd.	Low
Well 24	Base Well	6475 Cessna Dr.	Low
Well 25	Secondary Well	5602 Springcreek Rd.	Low
Well 26	Secondary Well	5516 E State St.	Low
Well 27	Land to be sold	5834 Guilford Rd.	Low
Well 28	Secondary Well	5400 Kishwaukee Rd.	Low
Well 29	Treatment plant	4750 Pepper Dr.	Low
Well 30	Treatment plant	6544 Palo Verde	Low
Well 31	Treatment plant	1780 Bell School Rd.	Low
Well 33	Used for storage only	930 Arthur Ave.	Low
Well 34	Base Well	3945 Dawes Rd.	Low
Well 35	Secondary Well	2944 Bildahl St.	Low
Well 36	Treatment plant	4141 Samuelson Rd.	Low
Well 37	Base Well	2100 Huffman Blvd.	Low
Well 39	Secondary Well	7423 Springbrook Rd.	Low
Well 40	Treatment plant	788 Lyford Rd.	Low
Well 42	Treatment plant	6733 Newburg Rd.	Low
Well 43	Treatment plant	3447 Publishers Dr.	Low
Well 44	Base Well	5250 Owen Center Rd.	Low
Well 45	Base Well	1141 Cedar St.	Low
Tank T-02	Elevated Tank	2310 Wentworth Ave	Low
Tank T-05	Elevated Tank	Christopher Drive	Low
Zone Control Valve-01	Zone Control Valve	Spring Creek & Springdale	Low
Zone Control Valve-02	Zone Control Valve	5701 Strathmoor Dr	Low
ZCV-03	Zone Control Valve	N Mulford & Mulford Village Dr	Low
ZCV-04	Zone Control Valve	738 Lyford Rd	Low
ZCV-05	Zone Control Valve	Highcrest & Spring Creek	Low
ZCV-06	Zone Control Valve	Crosby St & Dawson Ave	Low
ZCV-07	Zone Control Valve	Harrison Ave & 22nd St	Low
ZCV-09	Zone Control Valve	3030 Chestnut St.	Low
	Inter-zone booster station	Guilford & Fairview	Low
	Inter-zone booster station	Alpine & E State	Low
	Inter-zone booster station	Broadway & Eastgate Pkwy	Low
	Inter-zone booster station	Sandy Hollow & 20th St	Low
	Inter-zone booster station	Elmwood Rd	Low
	Inter-zone booster station	Samuelson Rd	Low

Appendix C

Industrial Survey
Storm Water Compliance Form

COMPANY NAME			DATE
TELEPHONE		FAX	
ADDRESS		CITY, ZIP	
MAILING ADDRESS (if different from site address)		MAILING CITY, ZIP	
CONTACT		TITLE	EMAIL/PHONE NUMBER
FACILITY #	SIC CODE	Does the facility have a NPDES industrial storm water permit or a 'No Exposure' Exemption? (circle one) Yes No	
DAYS OF WEEK FACILITY CONDUCTS BUSINESS (CIRCLE): Sun Mon Tues Wed Thurs Fri Sat Hours of Operation: _____		Is the SWPPP available or review? Yes No NA	

Weather Conditions: ☐ Clear ☐ Cloudy ☐ Rain ☐ Sleet ☐ Fog ☐ Snowing ☐ High Winds ☐ Other:
Temperature:

Briefly describe the principal activities that occur on-site including all manufacturing and/or services provided.

Are any vehicles serviced or washed/cleaned at this facility? (circle one) Yes No
If yes, is this performed indoors or outdoors?

Does the waste drain to (circle one): Rockford sanitary sewer Dry well Storm sewer
100% recycled Collected for off-site disposal

Are any materials/products stored outdoors (i.e. chemicals, equipment, tanks, drums, barrels, etc.)? If Yes what is the material? _____, Where is it stored? _____
How is it stored? (pallets, undercover, etc.)

Do you use or store liquid chemicals in quantities of 25 pounds or more? (circle one) Yes No
If yes, is this indoor or outdoor storage? If outdoors, where and how? _____

If Yes what is the chemical? _____ Is there secondary containment? (circle one) Yes No

Proximity to water bodies, drainageways and inlets?

Do you use or store dry chemicals in quantities of 500 pounds or more? (circle one) Yes No
If yes, is this indoor or outdoor storage?

If Yes what is the chemical?

Does the facility generate *any* wastewater excluding domestic wastewater? (circle one) Yes No
If yes, please describe the wastewater. (circle all that apply)

Boiler blowdown Noncontact cooling water Process water Remediation water

Cooling tower blowdown Wash water (vehicle, equipment, etc.)

Other _____

Is this wastewater discharged to the Rockford sewer system? (circle one) Yes No Unknown

VISUAL SURVEY	YES	NO	N/A
GENERAL – Are regular housekeeping practices carried out? Are good housekeeping procedures and reminders posted in appropriate locations?			
SPILL CONTAINMENT - Are appropriate spill containment and cleanup materials kept on-site and in convenient locations and are staff familiar with these locations and use of the material?			
EQUIPMENT - Is exposed piping and process equipment regularly inspected and/or tested to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters?			
OUTSIDE AREAS (Free of staining & debris; exhibits good housekeeping; maintained in a manner to prevent runoff)			
CHEMICAL STORAGE – The outside storage area is kept to minimize the possibility of a release. Chemicals/materials are protected from precipitation/storm water runoff and the containers show no signs of leaking.			
DUMPSTERS – No liquids are leaking from the dumpster; surrounding area is free of trash. Distance from water bodies, inlet and drainageways. _____			
ABOVEGROUND STORAGE TANKS – No ground staining, no spillage observed and no discharge to storm drain. Tanks are maintained to minimize the possibility of a release (secondary containment).			
ONSITE STORM DRAIN – Protected from accidental discharge other than water.			
POWER WASH OR STEAM CLEAN - (discharge to sewer) Drains to oil/water separator connected to a sanitary sewer and not a septic system. Steam cleaning not discharged to parking lot, storm drain or soil.			
PARKING LOT/DRIVEWAY – Free of excess trash, chemical staining or liquids other than water.			
Indicators are not present to suspect an illicit discharges or connections? If answered "no" list indicators:			
MOP WATER TO SANITARY SEWER VIA CLARIFIER – Mop water is not dumped to the soil, parking lot, gutter, or other areas susceptible to storm water drainage.			
OTHER – Non-storm water discharge (i.e. non-hazardous process discharge)			
OVERALL EVALUATION/COMMENTS:			

Inspector Signature: _____ Date: _____

Form developed from the following sources: *Hazardous waste/Hazardous materials Facility Storm Water Compliance Survey* form for Riverside, CA, and *Industrial and Commercial Environmental Survey*, for Portland,

Appendix D

Timothy Hanson
Director
Public Works Department

July 8, 2013

(Insert name & address of
Permit holder contact)

RE: Industrial Inspection at (insert facility name) (ILR00 insert permit # if applicable)

Dear Mr. /Ms. ;

An industrial inspection for stormwater compliance was conducted on (insert date) by the City of Rockford. The purpose of the inspection was to determine if stormwater pollution prevention measures are adequate for the site and to determine if the site was in compliance with the City of Rockford's Code of Ordinances.

The inspection identified the following items needing corrections to comply with your IEPA Industrial Stormwater Permit and Chapter 109 of the City of Rockford Code of Ordinances:

1.
2.

I have included a copy of the IEPA industrial stormwater permit for your review and implementation. I have also included a link to the IEPA website which details the industrial permitting requirements as well as sample SWPPP's. (http://www.epa.state.il.us/water/permits/storm-water/industrial.html)

Please update the City via phone or email within 30 days to review your progress in completing the above items. Failure to contact the City shall result in enforcement measures as indicated in Chapter 109 and the City's Stormwater Division Enforcement Response Plan.

If you have any questions regarding this inspection please contact our Storm Water and Environmental Program Manager, Brad Holcomb, at (815) 967-7061 or email at brad.holcomb@rockfordil.gov.

Sincerely,

Matthew Vitner, P.E.
City Engineer

Timothy Hanson
Director
Public Works Department

Industrial Stormwater Inspection at (insert facility name) (ILR10 insert permit #)

Photo #1

Picture description

Photo #2

Picture description

Photo #3

Picture description

Note: Approval may be needed from the facility prior to taking photos.

Note: the attached photos indicate examples of corrective actions observed on this construction site. When performing maintenance as indicated in the photos, check the entire site for other areas with similar maintenance needs.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX I

THE CITY OF ROCKFORD ILLINOIS, USA

ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE) PROGRAM

STANDARD OPERATING PROCEDURES

June 2015

1.0 General

The purpose of this standard operating procedure for Illicit Discharge Detection and Elimination program is to comply with Part II, A.7 of the City of Rockford's NPDES Stormwater Permit (ILS000001). This document outlines how to detect and investigate a potential illicit discharge.

Additional guidance can be found in: *Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments* by the Center for Watershed Protection.

2.0 Legal Authority

The City has the authority to investigate all reports of illicit connections or illegal dumping within its City limits. Legal authority for the City's Illicit Discharge Detection and Elimination Program can be found in the City of Rockford's Code of Ordinances in Chapter 109, Article 12.

3.0 Definition of Illicit Discharges

An illicit discharge is defined as any discharge that enters the MS4 (municipal separate storm sewer system) that is not composed entirely of stormwater, except discharges pursuant to a National Pollutant Discharge Elimination System (NPDES) permit.

3.1 Allowable Non-stormwater discharges

Illicit discharges are considered "illicit" because storm sewer systems, unlike sanitary sewer systems, are not designed to accept, treat, or discharge non-stormwater wastes. Unless identified by the City of Rockford or Illinois EPA as significant sources of pollutants to waters of the state, Table 1 indicates non-stormwater discharges that shall not be prohibited from entering the MS4 though they should be investigated to confirm they are the only source:

Table 1. Allowable Non Stormwater Discharges	
Waterline Flushing	Foundation drains
Landscape Irrigation	Air conditioning condensate
Diverted stream flows	Irrigation water
Rising ground waters	Springs
Uncontaminated pumped groundwater	Water from crawl space pumps
Discharges from potable water sources	Footing drains
Individual residential car washing	Lawn Watering
Dechlorinated swimming pool discharges	Street wash waters
Flows from riparian habitats and wetlands	Discharges or flows from emergency firefighting activities
Uncontaminated groundwater infiltration (as defined at 40 CFR 35.2005(b)(20)) to separate storm sewers	

3.2 Categories of Illicit discharges

1) TRANSIENT – Short in duration, lasting only a short time and then disappearing.
    a. Examples of potential Direct transient illicit discharges include:
        i. Intermittent discharges of wash water or process water to the storm sewer through a straight pipe connection from an industrial facility
        ii. Discharges of non-stormwater to a floor drain that is connected to the storm sewer.
        iii. Discharges of contaminated stormwater including discharges from industrial facilities that have, but are not in compliance with, a stormwater NDPES permit.

    b. Examples of potential Indirect transient illicit discharges include:
        i. Materials that have been dumped into a storm drain inlet or catch basin (Figure 1),
        ii. An old or damaged sanitary sewer line that is leaking fluids into groundwater that then seeps into a storm sewer line or drainage way, and
        iii. A failing septic system that is leaking into a cracked storm sewer line.

2) CONTINUOUS – Continuing without changing, stopping, or being interrupted. Examples include:
    a. Sanitary wastewater piping that is cross-connected from a building or sanitary sewer line to the storm sewer,
    b. A broken sanitary line resulting in discharge of sanitary waste into the storm sewer system(Figure 2), and
    c. A discharge of process wastewater or other non-stormwater from an industrial facility to the storm sewer system.

3.3 Illicit Discharge Indicators

The following are indicators of potential illicit discharges/connections. An investigation shall be initiated should any of the following be observed:

- Flowing water when there has been 3 days without precipitation
- Discolored water (cloudy, sheen on water, etc.)
- Sediment laden water
- Foul smelling water (i.e. fats, oil, grease from restaurants, sewage)
- Dead fish or animals near water bodies
- Blockages in storm system
- Sanitary sewer overflows
- Basement back-ups
- Floatables
- Staining indicating flows (oily, rust, etc.)

4.0 Staffing

The primary staff from the Stormwater Environmental Team (SWET) responsible for performing illicit discharge investigations shall be the following positions: Engineering Operations Manager, Stormwater Program Manager(s), Stormwater Coordinator and a designated project manager and Engineering Techs.

The following staff from the following City of Rockford departments shall receive annual training for detecting and initiating illicit discharge investigations:

- Community and Economic Development – Inspectors, Enforcement Specialists
- Public Works Streets & Engineering Division, (Engineers, Managers, Technicians, Street Maintenance & supervisors)

When a potential illicit discharge has been observed the bubble chart in Appendix A shall be followed through the investigation process. Staff from the Department of Public Works Stormwater Environmental Team (SWET) shall be responsible for performing outfall inspections and review of illicit discharge complaints and/or observations. Each team member shall be familiar with this document and be trained to recognize potential illicit discharges and the process to initiate an investigation. Project Managers and Senior Engineering Techs can perform inspections provided they are current in their training and are approved to perform inspections by the Engineering Operations Manager and the Stormwater Program Manager(s).

Equipment to perform the investigation can include but not limited to: the field observation or appropriate inspection form, map of the storm system, camera, sample bottles, sampling equipment and personal protection equipment.

Under no circumstances should anyone perform an investigation that could cause bodily harm to themselves or others. In those cases the proper authorities. (i.e. the Fire Department) should be contacted for direction and assistance.

4.1 Safety Procedures

The field activities described in this guide could include sampling of potentially contaminated water and, as such, have some associated risk. As with any field procedures, appropriate precautions should be taken to ensure the safety of field crews. General and specific suggested safety procedures are provided below.

General suggestions:

- While performing field work activities, use appropriate caution, make an effort to recognize potentially dangerous situations while performing field work, and take the proper steps to avoid or minimize them.
- Field work activities should not be performed alone.
- A list of team member and emergency contact numbers should be kept with each field team.
- Long pants and close-toed shoes are required.
- Carry adequate water, sunscreen, and bug repellent if needed.

- Employees should use their judgment to ensure their safety while working during inclement weather. It may be necessary to suspend and/or reschedule field work if the weather will not permit safe and effective completion of the activities. Recommended precautions include:

  - Severe heat or cold: Dress appropriately, take breaks as needed to warm up or cool down, and stay hydrated.
  - Thunderstorms: Stop working, get out of the water, if applicable, and take shelter if there is a threat of lightning strikes.
  - Snowstorms, flooding, tornadoes, and other dangerous weather: Field work should be stopped or canceled if dangerous weather arises or is predicted.

- Each field work team should have a functioning mobile phone and a fully-stocked first aid kit.

Public roadways

- Whenever work will be performed in or near a public roadway, wear a high-visibility safety vest.

Manholes and similar structures

If a manhole cover or similar structure must be removed (in order to determine sewer line configuration, for example):

- Safety-toe footwear (steel-toed shoes) should be worn.
- Lifting manhole covers should be done with the proper tools and technique so as to avoid injury.
- The open cover should only remain open as long as necessary to gather the required information, and should never be left unattended.
- Due to the potential dangers of confined spaces, do not enter a manhole or put your head below the rim of the opening without the proper training.

Stream walks and illicit discharges

- Properly fitting waders with high-traction soles should be worn when walking in a stream.
- Rubber gloves should be worn if contact with polluted water is expected.
- Skin contact with suspected illicit discharges should be avoided.
- Hand sanitizer and/or careful hand washing should be employed after potential contact with polluted water.
- High-visibility orange or yellow vests should be worn.
- Wear safety goggles when performing any chemical tests.
- Reagents and other chemicals should be used and disposed of properly by following the guidance on the MSDS safety sheets.

5.0 Identification of Illicit Discharges

5.1 NPDES Permitted Facilities

During the process of performing industrial and construction inspections these sites will also be checked for illicit discharges and connections pursuant to the Standard Operating Procedures governing the City's Industrial High Risk Runoff Facility Inspection Program and its Erosion & Sediment Control Plan Review and Regulatory Inspections. The Illinois Environmental Protection Agency (IEPA) issues NPDES permits to construction sites and industrial facilities and maintains limited information on permitted sites on their website. This website shall be reviewed as detailed in those standard operating procedures to ensure all NPDES permitted sites identified have obtained the proper City of Rockford approvals.

5.2 Non-Routine Inspections

If an employee observes evidence of an illicit discharge during an informal or non-routine inspection, he/she shall complete the Field Observation Form (Appendix B) and provide it to a supervisor who shall inform a member of SWET by the end of the business day for further follow-up. SWET shall initiate an investigation within 3 business days. While it may not be reasonable to expect all City employees to have copies of the forms at all times, there are other ways to collect the information:

- The person observing the discharge can provide the information verbally to dispatch, the supervisor, or a member of SWET who can then complete the field observation form.
- The person can log information onto the form upon returning to the office based on their recollection and any field notes; or
- A member of SWET dedicated to inspecting and tracing illicit discharges can be sent to the location as soon as possible where the potential illicit discharge was observed to collect the necessary information directly on the form.

It is important to collect as much information as possible at the time of initial observation because of the likelihood that a discharge may be transitory or intermittent. Initial identification of the likely or potential sources of the discharge is also very important.

5.3 Submitted Complaints (i.e. citizens, staff, etc.)

Citizen complaints are a high priority for the City of Rockford. The City has an existing compliance program under which citizens can either call a hotline (779-348-7300) or report an illicit discharge/connection online (www.rockfordil.gov). All complaints from the public will be followed-up with the field inspection by City staff within 3 business days.

Reports to the hotline during normal business hours shall be forwarded directly to a member of SWET. Reports after hours shall be sent to Ocean Remote, a 24 hour service which will have instructions to notify the on-call supervisor. The supervisor shall send a crew to investigate and a field observation form (Appendix B) shall be filled out and provided to a member of the Storm Water & Environmental Team for further investigation.

Complaints submitted online shall be emailed directly to SWET who shall initiate an investigation within 3 business days. See sample below.

You forwarded this message on 8/23/2013 10:46 AM

From: webmaster
Sent: Thu 8/22/2013 7:59 PM
To: [illegible]
Cc:
Subject: Stormwater Complaint Form Submitted

To view all entries: Login to http://www.rockfordil.gov/umbraco/umbraco.aspx#contour

NOTE: You must have an existing Umbraco User Account

Name:
Address:
Phone:
Email:
Date of Occurrence:
***Location:**
1519 W. Jefferson St.
***Description of Problem:**
There is standing rain water in front of the house from the alley
Was a commercial vehicle involved:
No
If so, what was the company name or license plate number on the vehicle:

5.4 Dry Weather Screening of Outfalls

Screening of stormwater outfalls is conducted during dry weather to identify potential illicit discharges (i.e., flowing outfalls, staining or other evidence of illicit discharge) and is followed by indicator monitoring to characterize flow types to aid in finding sources. The field screening can also be used to develop a systematic outfall inventory and map of the MS4 (Table 2). Regular inspections of outfalls are a primary part of an effective IDDE program.

Table 2. Outfalls to Include in the Screening

Outfalls to Screen	Features Not to Screen
• Both large and small diameter pipes that are, or appear to be part of the storm drain infrastructure. • Outfalls that appear to be piped headwater streams. • Field connections to culverts. • Submerged or partially submerged culverts • Outfalls blocked with debris or sediment • Pipes that appear to be outfalls from stormwater treatment practices • Small ductile iron pipes • Pipes that appear to only drain roof downspouts but are subsurface to prevent definitive confirmation.	• Drop inlets from roads in culverts (unless evidence of illegal dumping) • Cross-drainage culverts in transportation right-of-way (i.e. can see daylight at other end) • Weep holes • Flexible HDPE pipes that are known to serve as slope drains • Pipes that are clearly connected to roof downspouts via above ground connections

The inspections shall primarily rely on visual observations and the use of portable instrumentation during dry weather to complete a thorough inspection of the City's outfalls. See Table 1 on the Monitoring Standard Operating Procedures for a list of common indicator parameters used to detect illicit discharges. The protocol is applicable to most typical storm sewer systems; however, modifications to materials and methods may be required to address situations such as open channels, piped stream networks, systems impacted by sanitary sewer overflows, or situations where groundwater or backwater conditions preclude or confound adequate inspection. The primary focus of the protocol is sanitary waste, however, toxic and nuisance discharges may also be identified.

5.4.1 When to conduct an outfall survey?

- To maintain a regular schedule of long-term inspections for outfalls the City shall inspect all known outfalls every even year. The outfall database shall be updated following the even year inspections. Newly located outfalls shall be inspected in the years the City became aware of them.
- Late Fall/Early Spring- outfalls are easiest to spot during leaf-off conditions; however, it may require field work outside of the leaf-off time frame.
- After a dry period of at least 72 hours (trace rainfall activity may be acceptable depending on the size of the watershed).
- Early Morning/Late Afternoon- though not always possible, checking outfalls when people are home may increase the chances of catching an illicit connection.
- Avoid conditions during snow melt and/or if salt has been applied to the road system draining to the outfalls. Also note that some field tests (e.g. ammonia, chlorine) are affected by cold temperatures or confounded by the presence of salt (detergents).

5.4.2 Mapping

The first step to successful field work is to have a map with the necessary information. Data that shall be considered for inclusion on mapping for either outfall screenings or illicit discharge investigation is detailed in Table 3. Which data layers shall be dependent on the scale of the map and the type of illicit discharge reported. See appendix F for a sample map.

Table 3. Map Preparation

Desired Data layers Outfall Screenings	Desired Data layers Illicit Discharge Investigation
Roads	Roads
Streams	Streams
Outfall Locations	Outfall Locations
City Boundaries	Jurisdictional Boundaries
Aerial Photography	Aerial Photography
	Industrial facilities
	Storm System (inlets, manholes, pipes)
	Water mains
	Sanitary mains

5.4.3 Outfall screening procedures

The primary field screening tool shall be the Stormwater Inspection Outfall form (Appendix C). The basic procedure at each outfall is to take a picture of the outfall and, if the outfall is not already in the City's mapping system, mark the location on the printed map (record location on ArcGIS once back in the office). Next, a Stormwater Inspection Outfall form is completed, which includes recording a description of the outfall (e.g., pipe material, diameter), a description of physical indicators of potential illicit discharges for both flowing and non-flowing outfalls.

If the outfall has dry weather flow, an illicit discharge investigation shall be implemented.

6.0 Illicit Discharge Investigations.

An illicit discharge investigation shall be initiated when one of the identification measures indicates a potential illicit discharge or connection and the source has not been identified.

An illicit discharge source investigation is conducted to isolate the source of the pollution. There are two types of source investigations: Drainage Area Investigations and Storm Drain Investigations. An illicit discharge that is determined to be likely transient in frequency, entering the storm drain system directly through dumping or spills from the landscape shall follow the procedure for a Drainage Area Investigation. A continuous or intermittent discharge that likely occurs from direct or indirect entry into the storm drain system from the interaction of pipes underground shall follow the procedure for a Storm Drain Investigation. Either investigation should be conducted during dry weather. Regardless of the type of investigation the Illicit Discharge Investigation form (Appendix D) shall be utilized.

A rapid windshield survey of the drainage area may be used to find the potential discharger or generating sites if the discharge observed at an outfall has distinct or unique characteristics that allow crews to quickly ascertain the probable operation or business that is generating it. Discharges with a unique color, smell, or off-the-chart indicator sample reading may point to a specific industrial or commercial source.

A rapid windshield survey works well in small drainage areas, particularly if field crews are already familiar with its business operations. Field crews can match the characteristics of the discharge to the most likely type of generating site, and then inspect all of the sites of the same type within the drainage area until the source is found. For example, if fuel is observed at an outfall, crews might quickly check every business operation in the catchment that stores or dispenses fuel.

In larger or more complex drainage areas, GIS data can be analyzed to pinpoint the source of a discharge. If only general land use data exist, maps can at least highlight suspected industrial areas. If more detailed Standard Industrial Classification (SIC) code data are available digitally, GIS may be used to pull up specific hotspot operations or generating sites that could be potential dischargers.

In a Storm Drain Investigation, field crews strategically inspect manholes within the storm drain network system to observe flows or measure chemical or physical indicators that can isolate discharges to a specific segment of the network. Once the pipe segment has been identified, on-site investigations are used to find the specific discharge or improper connection. This method involves progressive screening at select manholes in the storm drain network to narrow the discharge to an isolated pipe segment between two manholes. Field crews need to make two key decisions when conducting a storm drain network investigation—where to start screening in the network and what indicators will be used to determine whether a manhole is considered clean or dirty.

6.1 Illicit Discharge Investigation Procedures

The field crew can sample the pipe network in one of three ways:

- Crews can work progressively up the trunk from the outfall and test manholes along the way.
- Crews can split the trunk into equal segments and test manholes at strategic junctions in the storm drain system.
- Crews can work progressively down from the upper parts of the storm drain network toward the problem outfall.

During a manhole inspection, manholes are opened and inspected for visual evidence of contamination. Where flow is observed, and determined to be contaminated through visual indicators or field monitoring, the upstream tributary storm sewer system is isolated for investigation (e.g. further flow inspection, dye testing, CCTV). No additional downstream manhole inspections are performed unless the observed flow is determined to be uncontaminated or until all upstream illicit connections are identified and removed. Where flow is not observed but an intermittent discharge is suspected in a junction manhole, select inlets to the structure are partially dammed for the next 48 hours when no precipitation is forecasted. Inlets are dammed by blocking a minimal percentage of the pipe diameter at the invert using sandbags, caulking, weirs/plates, or other temporary barriers. The manholes are thereafter re-inspected (prior to any precipitation or snow melt) for the capture of periodic or intermittent flows behind any of the inlet dams. The same visual observations and field testing is completed on any captured flow, and where contamination is identified, abatement is completed prior to inspecting downstream manholes. In addition to documenting investigative efforts in written and photographic form, it is recommended that information and observations regarding the construction, condition, and operation of the structures also be compiled.

Where flow is observed and does not demonstrate obvious indicators of contamination, samples are collected and analyzed and then compared with established benchmark values to determine the likely prominent source of the flow. This information facilitates the investigation of the upstream storm sewer system. Benchmark values may be refined over the course of investigations when compared with the actual incidences of observed flow sources. In those manholes where periodic or intermittent flow is captured through damming inlets, additional laboratory testing (e.g. toxicity, metals, etc.) should be considered where an industrial discharge is suspected. See Monitoring Standard Operating Procedures for guidance on how to collect and analyze samples.

Adequate storm and sanitary sewer mapping is a prerequisite to properly execute a storm drain investigation. As necessary and to the extent possible, infrastructure mapping should be verified in the field and corrected prior to investigations. This effort affords an opportunity to collect additional information such as latitude and longitude coordinates using a global position system (GPS) unit if so desired. To facilitate subsequent investigations, tributary area delineations should be confirmed and junction manholes should be identified during this process.

To facilitate investigations, storm drain infrastructure should be evaluated for the need to be cleaned to remove debris or blockages that could compromise investigations. Such

material should be removed to the extent possible prior to investigations, however, some cleaning may occur concurrently as problems manifest themselves.

Where field monitoring has identified storm sewer systems to be influenced by sanitary flows or washwaters, the tributary area is isolated for implementation of more detailed investigations. Additional manholes along the tributary are inspected to refine the longitudinal location of potential contamination sources (e.g. individual or blocks of homes). Targeted internal plumbing inspections, dye testing, smoke testing or CCTV inspections are then employed to more efficiently confirm discrete flow sources. Consulting services shall be utilized to perform these tests.

6.2 Eliminating Illicit Discharges

Once the source of an illicit discharge has been identified, steps should be taken to eliminate the discharge. Four questions should be answered for each individual illicit discharge to determine how to proceed; the answers will usually vary depending on the source of the discharge.

1) Who is responsible?
2) What methods will be used to repair?
3) How long will the repair take?
4) How will removal be confirmed?

Financial responsibility for source removal will typically fall on property owners, the City, or a combination of the two. Methods for removing illicit discharges usually involve a combination of education and enforcement. A process for addressing illicit discharges that focuses on identifying the responsible party and enforcement procedures is presented in Figure 1, while Table 4 presents potential sources of illicit discharges. Additional guidance can be found in Chapter 14 of the Illicit Discharge Detection and Elimination Guidance Manual.

Investigators should use judgment in exercising the right mix of compliance assistance and enforcement with approval of the Stormwater Administrator. Voluntary compliance should be used for first-time, minor offenders. Often, property owners are not even aware of a problem, and are willing to eliminate it when educated. More serious violations or continued non-compliance may warrant a more aggressive, enforcement oriented approach provided it is consistent with Chapter 109 and the City of Rockford Stormwater Division Enforcement Response Plan.

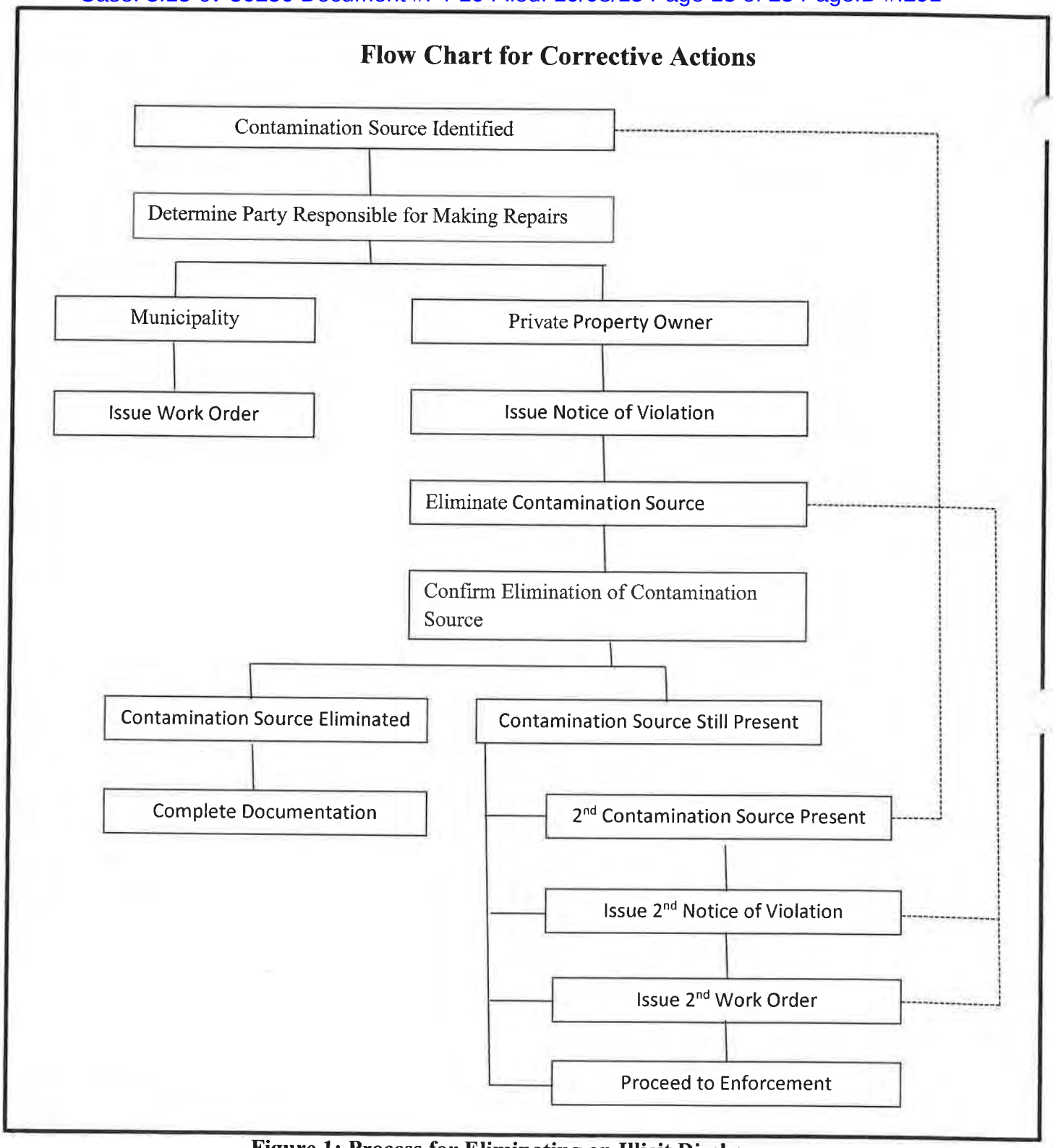


Figure 1: Process for Eliminating an Illicit Discharge

Table 4: Sources of Illicit Discharges	
Type of Discharge	**Source**
Sewage	Break in right-of-way
	Commercial or industrial direct connection
	Residential direct connection
	Infrequent discharge (e.g., RV dumping)
	Straight pipes/septic
Wash Water	Commercial or industrial direct connection
	Residential direct connection
	Power wash/car wash (commercial)
	Commercial wash down
	Residential car wash or household maintenance related activities
Liquid Wastes	Professional oil change/car maintenance
	Heating oil/solvent dumping
	Homeowner oil change and other liquid waste disposal (e.g., paint)
	Spill (trucking)
	Other industrial wastes

6.3 Post-Removal Confirmation

As the sources of illicit discharges are confirmed, measures to correct them must be taken, working with the property owner or other responsible party. The exact type of repair needed will depend on the type of discharge and mode of transmission.

After completing the removal of illicit discharges from a subdrainage area, it is re-inspected to verify corrections and documented as detailed in in Section 9.0. Depending on the extent and timing of corrections, verification monitoring can be done at the initial junction manhole or the closest downstream manhole to each correction. Verification is accomplished by using the same visual inspection, field monitoring, and damming techniques as described above.

7.0 Illinois Environmental Protection Agency (IEPA) Notifications

IEPA shall be notified within 24 hours should an illicit discharge meet the requirements of the Illinois Emergency Management Agency Emergency Release Notifications (Appendix E). A member of SWET shall perform this notification.

8.0 Enforcement

Enforcement measures will be in accordance with Chapter 109, Article 13 and the City of Rockford Storm Water Division Enforcement Response Plan for corrective actions not remedied within the required timeframe.

9.0 Documentation and Record Management

All outfalls and illicit discharge complaints shall be mapped on the City's GIS system and be hyperlinked to their specific files. This will aid in tracking potential illicit discharges and also allow us to determine problem areas where we may consider focusing education efforts.

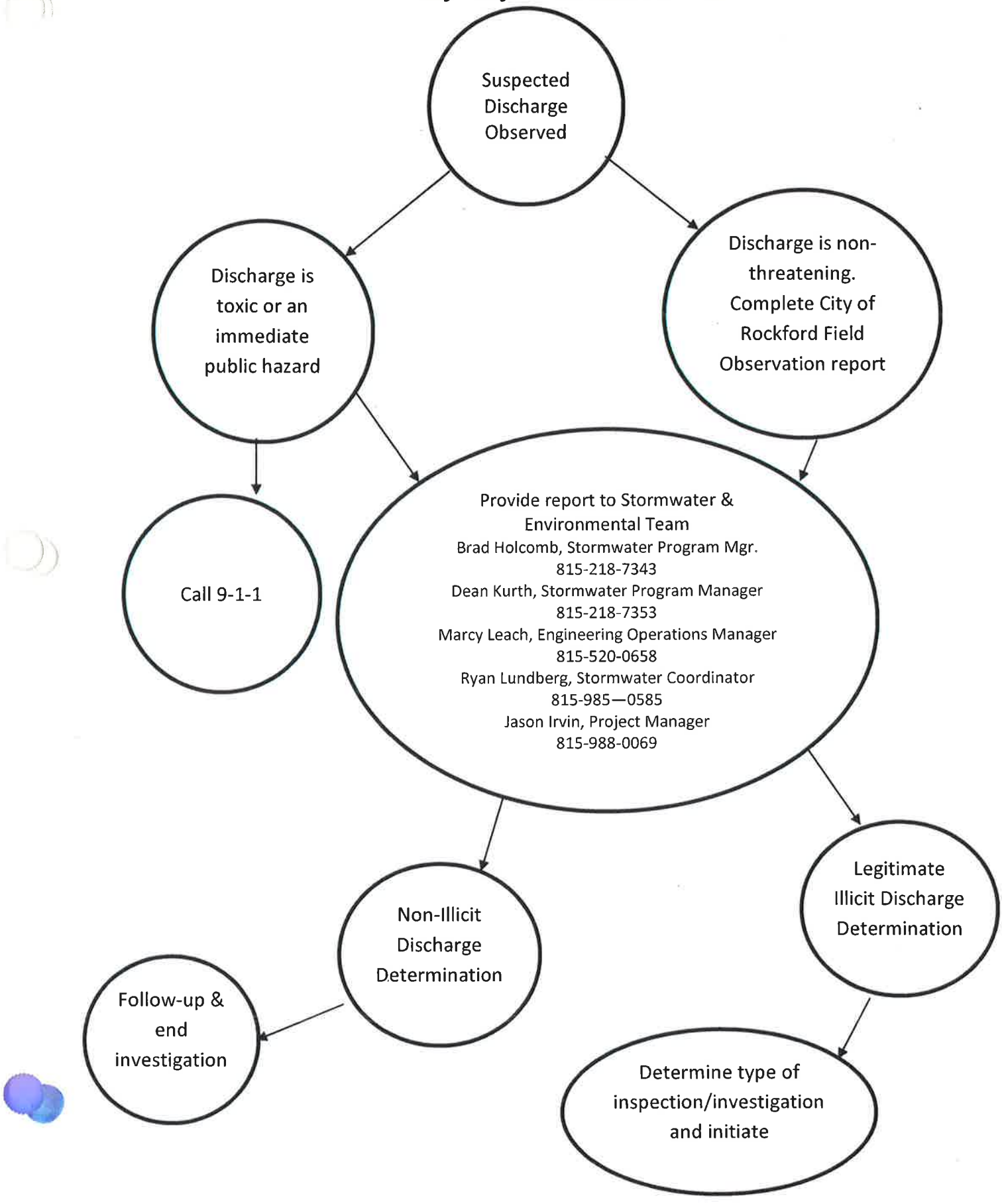
All illicit discharge complaints/investigations (inspection reports and letters) will be filed by address to help track repeat offenders. In addition, digitized copies will also be saved in the Storm Water Drive on the City of Rockford computer system. Digitized information can include: initial observation report, investigation report, photos, correspondence and any other pertinent information. These files will be saved as follows:

1) Open the Storm Water Drive (note: this drive has limited access for people who perform duties directly related to the City's storm water program),
2) Open the IDDE folder,
3) Open the folder for the current year,
4) Create a folder with the address and save all data in that folder.

An excel spreadsheet for all investigations has also been created. This inspection and sampling log is saved by year. All complaints/ investigations for that year are saved on this spreadsheet for easy tracking. Data includes: date, location, type of discharge, source (if determined), nature of follow-up and whether corrective actions have been addressed (if applicable). Notes about the investigation can also be included.

Appendix A

ILLICIT DISCHARGE REPORTING AND RESPONSE
By City of Rockford Staff



Appendix B

City of Rockford Field Observation

1. Person Making Observation: _____ Date: _____

2. Type of Observation (check all that apply):

_____ Drainageway	_____ Creek
_____ Citizen Complaint	_____ Industrial/Commercial Site
_____ Detention Basin	_____ Outfall Monitoring
_____ Construction Site	_____ Illicit Discharge (If the Illicit Discharge is active contact Brad Holcomb, Dean Kurth or Ryan Lundberg immediately)
_____ Inlet	_____ Other _____

3. Location/Project Name: _____

4. Is this a post rain event observation? _____ Yes _____ No

5. If yes: Date of Rainfall _____ Rainfall amount (inches) _____

6. Is a follow-up inspection required? _____ Yes _____ No

7. Is maintenance needed? _____ Yes _____ No

8. Comments (please be detailed and supply photos if necessary): _____

_____

_____

_____

_____

_____

Signature: _____ Date: _____

Provide Copies to one of the following:

Brad Holcomb, Stormwater Program Manager – Cell # 815-218-7343, brad.holcomb@ockfordil.gov,
Dean Kurth, Stormwater Program Manager – Cell # 815-218-7353, dean.kurth@rockfordil.gov
Ryan Lundberg, Stormwater Coordinator - Cell # 815-985-0585, ryan.lundberg@rockfordil.gov
Marcy Leach, Operations Manager – Cell – 815-520-0658, marcy.leach@rockfordil.gov
Jason Irvin, Project Manager – Cell – 815-988-0069, Jason.irvin@rockfordil.gov

Appendix C

ROCKFORD

S.W.E.T.

Stormwater & Environmental Team

Stormwater Outfall

Tributary/Watershed:		Date:	Assessed By:
Site ID #:	Time: AM/PM	Photo ID #:	
Location:		GPS ID:	

Bank: ☐ LT ☐ RT ☐ Head	Type: Material: Submerged:	Shape:	
Flow: ☐ None ☐ Trickle ☐ Moderate ☐ Substantial ☐ Other: _____	☐ Closed Pipe ☐ Concrete ☐ Metal ☐ PVC/Plastic ☐ Brick ☐ Other: _____ Partially	☐ Circular ☐ Double ☐ Elliptical ☐ Triple ☐ Other: _____	Diameter: ____(in) ☐ No ☐ Fully
	☐ Open Channel ☐ Concrete ☐ Earthen ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____	Depth: ____(in) Width (Top): ____(in) Width (Bot): ____(in)

Condition: ☐ None ☐ Chip/Cracked ☐ Peeling Paint ☐ Corrosion ☐ Other: _____	Odor: ☐ No ☐ Gas ☐ Sewage ☐ Rancid/Sour ☐ Sulfide ☐ Other: _____	Deposits/Stains ☐ None ☐ Oily ☐ Flow Line ☐ Paint ☐ Other: _____	Veggie Density: ☐ None ☐ Normal ☐ Inhibited ☐ Excessive ☐ Other: _____	Pipe Benthic Growth: ☐ None ☐ Brown ☐ Orange ☐ Green ☐ Other: _____
				Pool Quality: ☐ No Pool ☐ Good ☐ Odors ☐ Colors ☐ Oils ☐ Suds ☐ Algae ☐ Floatables ☐ Other: _____

For Flowing Only	Color: ☐ Clear ☐ Brown ☐ Grey ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐ Other: _____
	Turbidity: ☐ None ☐ Slight Cloudiness ☐ Cloudy ☐ Opaque
	Floatables: ☐ None ☐ Sewage (toilet paper, etc.) ☐ Petroleum (oil sheen) ☐ Other: _____
Other Concerns:	☐ Excess Trash (paper/plastic bags) ☐ Dumping (bulk) ☐ Excessive Sedimentation ☐ Needs Regular Maintenance ☐ Bank Erosion ☐ Other: _____

Notes / Sketch:

Revision: October 2013

Signature: _____ Date: _____

Appendix D

Illicit Discharge Investigation Form

Responder Information *(for hotline incidents only)*	
Call taken by:	Call date:
Reporter Information	
Incident time:	Incident date:
	Precipitation (inches) in past 24-48 hrs:
Caller contact information *(optional)*:	

Incident Location *(complete one or more below)*			
Latitude & longitude:			
Stream address or outfall #:			
Closest street address:			
Nearby landmark:			
Primary Location Description	**Secondary Location Description:**		
☐ Stream corridor *(In or adjacent to stream)*	☐ Outfall	☐ In-stream flow	☐ Along banks
☐ Upland area *(Land not adjacent to stream)*	☐ Near storm drain	☐ Near other water source (storm water pond, wetland, etc.):	
Narrative description of location:			

Upland Problem Indicator		
☐ Dumping	☐ Oil/solvents/chemicals	☐ Sewage
☐ Wash water, suds, etc.	☐ Other: _____	

Stream Corridor Problem Indicator Description				
Odor	☐ None	☐ Sewage	☐ Rancid/Sour	☐ Petroleum (gas)
	☐ Sulfide (rotten eggs); natural gas	☐ Other: Describe in "Narrative" section		
Appearance	☐ "Normal"	☐ Oil sheen	☐ Cloudy	☐ Suds
	☐ Other: Describe in "Narrative" section			
Floatables	☐ None	☐ Sewage (toilet paper, etc.)	☐ Algae	☐ Dead fish
	☐ Other: Describe in "Narrative" section			
Narrative description of problem indicators:				
Suspected Violator (name, personal or vehicle description, license plate #, etc.):				

Data Collection	
Sample collected for testing? ☐ Yes ☐ No	
Sample collected from? ☐ Flow ☐ Pool ☐ Other	
Sample result indicated: ☐ No Pollutants ☐ Presence of pollutants	
Investigation Notes	
Initial investigation date:	Investigators:
☐ No investigation made	Reason:
☐ Referred to different department/agency:	Department/Agency:
☐ Investigated: No action necessary	
☐ Investigated: Requires Action	Description of actions:
Hours between call and investigation:	
Notification and Enforcement Actions (if any):	
Date case closed:	
Notes:	

Investigator: (sign & print name)_____

Date of Investigation: _____

Appendix E

IEMA
Illinois Emergency Management Agency

Jonathon E. Monken, Director

EMERGENCY RELEASE NOTIFICATION FACT SHEET

A. Immediate telephone notification shall be given by the owner or operator of a facility when a release equal to or exceeding the reportable quantity of an extremely hazardous substance[1] or a CERCLA hazardous substance[2] occurs at the facility.

In such incidents, notifications are to be made to the following:

1. **Illinois Emergency Management Agency (IEMA) State Emergency Response Commission (SERC)** at **1-800-782-7860** (within state) or **(217) 782-7860** (when calling from out-of-state).
2. **Local Emergency Planning Committee (LEPC)** that is likely to be affected by the release. The telephone number(s) can be obtained from IEMA.
3. **National Response Center (NRC)** at **1-800-424-8802** (if the substance is a CERCLA hazardous substance)

Please Note: ***Transportation-related incidents only require 9-1-1 notification.***

B. Immediate telephone notification is also required if an incident or accident involving a hazardous material[3] occurs which results in:

1) a member of the general public is killed;
2) a member of the general public receives injuries requiring hospitalization;
3) an authorized official of an emergency agency recommends an evacuation of an area by the general public;
4) a motor vehicle has overturned on a public highway;
5) Fire, breakage, release or suspected contamination occurs involving an etiologic agent;
6) Any release of petroleum (or oil) that produces a sheen on nearby surface water[4] and or threatens navigable waters;
7) Any spill or overfill of petroleum that results in a release to the environment that exceeds 25 gallons.[4]

In such incidents, notification shall be made as noted in Paragraph A, above, except no notification is required to the NRC, except items 6 and 7 (oil that impacts water and overfills).

At a minimum, notification shall include:

1) the chemical name or identity of any substance involved in the release;
2) an indication of whether the substance is an extremely hazardous substance;
3) an estimate of the quantity in pounds of any such substance that was released into the environment;
4) the time and duration of the release;
5) the specific location of the release;
6) the medium or media (air, land, water) into which the release occurred;
7) any known or anticipated acute or chronic health risks associated with the emergency and, where appropriate, advice regarding medical attention necessary for exposed individuals;
8) proper precautions to take as a result of the release, including evacuations;
9) the name and telephone number of the person or persons to be contacted for further information.

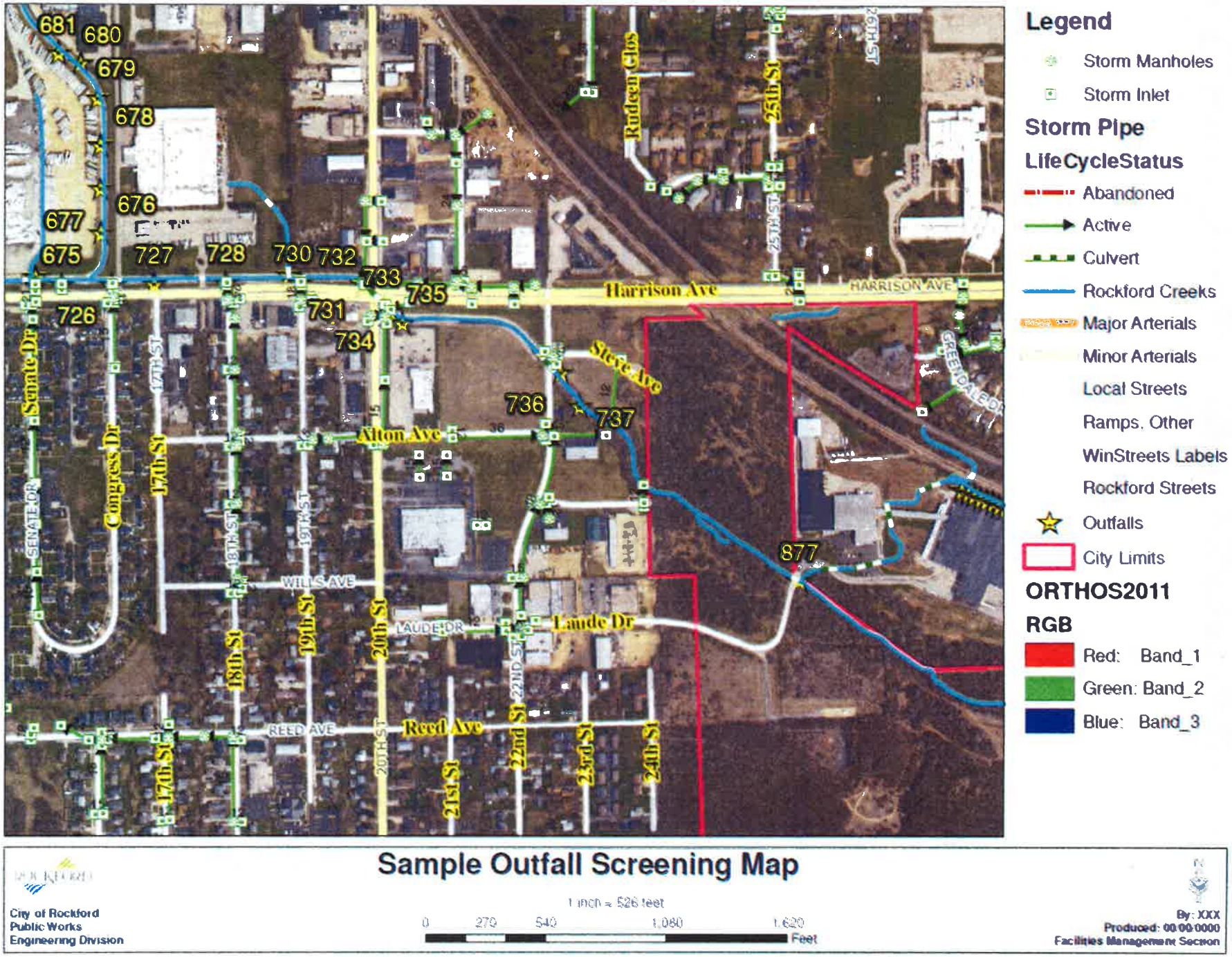
WRITTEN FOLLOW-UP NOTICE IS REQUIRED WITH RESPECT TO INCIDENTS AS DESCRIBED IN PARAGRAPH A, ABOVE. As soon as practicable after such release (within 30 days), the owner or operator shall provide a written follow-up emergency notice (or notices, as more information becomes available) to the SERC and the LEPC, updating the information provided in the immediate notification and including additional information with respect to:

1) Actions taken to respond to and contain the release,
2) Any known or anticipated acute or chronic health risks associated with the release,
3) Where appropriate, advice regarding medical attention necessary for exposed individuals.

[1] See 40 CFR 355 for a listing of extremely hazardous substances (EHS).
[2] See 40 CFR 302.4 for a listing of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) hazardous substances.
[3] See 49 CFR 172.101 for a list of hazardous materials.
[4] See 41 IAC 176.340 Reporting and Cleanup of Spills and Overfills.

(These rules are compiled in 29 IAC 430 and 29 IAC 620) ***Last Updated 2/2011***

Appendix F



Sample Outfall Screening Map

City of Rockford
Public Works
Engineering Division

1 inch = 526 feet

0 270 540 1,080 1,620 Feet

By: XXX
Produced: 00/00/0000
Facilities Management Section

Timothy Hanson
Director
Public Works Department

June 28, 2013

(Insert address)

Rockford, IL

Notice of Ordinance Violation

Address where violation occurred: , Rockford, IL

It has been brought to the attention of the City of Rockford that automotive waste has been dumped into the City's sewer system by the occupier of the above address. The following ordinance was found to be in violation:

Sec. 26-11.1 Non-Storm Water and Industrial Storm Water Discharge

Non-storm water and industrial storm water discharge is prohibited to the City right-of-way and waters of the State, creeks, streams and rivers except as:

a) Authorized and in compliance with a separate NPDES permit.
b) Authorized and in compliance with the City's MS4 NPDES permit.
c) As permitted and in compliance with the City's Storm Water Ordinance.

Any persons or property found in violation of this section shall be subject to a fine as set forth by the City Council and shall perform remediation to eliminate the discharge.

Sec. 26-11.2. - Depositing refuse in streets and sidewalks

No person shall discharge or dispose of used motor vehicle fluids (including, but not limited to, oil and antifreeze), tires, hazard materials (including, but not limited to, paint, solvents, pesticides and herbicides), refuse or garbage, grass clippings, leaf litter, dirt and animal wastes in or upon any street, alley, sidewalk, storm sewer or other public place except as provided in this Code. Any persons or property found in violation of this section shall be subject to a fine as set forth by city council and shall immediately remove the refuse.

Sec. 109-23 Discharge Prohibitions

a) **Prohibition of illegal discharges**. No person shall discharge or cause to be discharged into the Storm Drain System or water course any materials including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water.

Timothy Hanson
Director
Public Works Department

The area in question must be cleaned up within seven (7) days of the date of this letter and automotive fluids must be properly disposed of. Failure for clean up the site in the required timeframe or any future violations will result in fines and site clean-up.

If you have any questions regarding this violation, please contact our Storm Water and Environmental Program Manager, Brad Holcomb at 815-967-7061 or by email at Brad.Holcomb@rockfordil.gov .

Sincerely,

Matthew Vitner
City Engineer

Timothy Hanson
Director
Public Works Department

Notice of Ordinance Violation, (insert address)

Photo #1

Picture description

Photo #2

Picture description

Photo #3

Picture description

Note: the attached photos indicate examples of corrective actions observed on this construction site. When performing maintenance as indicated in the photos, check the entire site for other areas with similar maintenance needs.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX J

THE CITY OF ROCKFORD ILLINOIS, USA

MONITORING AND SAMPLING PROGRAM

STANDARD OPERATING PROCEDURES

June 2015

1.0 General

The purpose of this standard operating procedure (SOP) for the Monitoring Program is to comply with Part II, A.7 & 9 and Part V, A & B of the City of Rockford's NPDES Storm Water Permit (ILS000001). This document addresses the procedures for the collection of water quality samples in varying conditions and locations for Representative Monitoring, Industrial High Risk Runoff and Illicit Discharge Detection & Elimination Monitoring. The City shall follow the NPDES Permit terms should there be any conflict or deviation with any portion of this SOP.

Additional guidance can be found in: *Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments* by the Center for Watershed Protection.

2.0 Legal Authority

Legal authority for the Monitoring Program is found in the City of Rockford's Code of Ordinances Chapter 109, Article 12.

3.0 Staffing

Positions of the City of Rockford's Stormwater Environmental Team (SWET) include: Engineering Operations Manager, Stormwater Program Manager(s), Stormwater Coordinator and designated Project Managers and Engineering Techs.

Monitoring & sampling will be performed by the Public Works Engineering Division utilizing the following staff positions: Operations Manager(s), Program Manager(s), Project Manager(s), and Coordinator(s). These positions shall be trained to perform these functions according to the Standard Operating Procedures for Stormwater and Environmental Education and shall be familiar with this document.

Safety while completing any of these tasks is a top priority. Staff should always be aware of their surroundings and any potential hazards in the area.

4.0 Laboratory

The City shall use the Rock River Water Reclamation District (RRWRD) Laboratory (unless otherwise determined by the City) to analyze the samples collected. The laboratory hours are from 8:00 am – 4:30 pm on weekdays and are closed on weekends. Grab samples of fecal coliform are not accepted on Fridays or after 3:30 pm, Monday thru Thursday.

Field staff completing the sample collection should notify the lab contact or lab (typically by email) to inform them a delivery is forthcoming prior to the start of the sample collection operation.

Location
RRWRD Lab
3333 Kishwaukee Street
Rockford, Illinois 61109
(815) 387-7522
web_lab@rrwrd.dst.il.us

Lab Contact
Mary Johnson, Lab Supervisor
mjohnson@rrwrd.dst.il.us
(815) 387-7523

The field staff that collected the sample shall be the same person to deliver the sample to the lab. If this cannot be accomplished then it shall be documented when and to whom the sample was transferred to for delivery on the Sample Sheets. When delivering the sample the field staff must supply a City of Rockford employee identification card to the security guard at the entrance gate of the RRWRD complex. Staff will receive a gate opener to get to the laboratory and will return the opener and receive the identification back upon exiting the complex.

5.0 Representative Monitoring

The City's representative monitoring program includes in-stream sampling of tributaries to the Rock River and representative outfalls. Appendix A lists the Analytical Parameters to be sampled.

5.1 Tributary Monitoring

Tributary sites are analyzed for a suite of nutrient, heavy metal, and conventional water quality parameters, as noted in Appendix A.

5.1.1 Locations

Samples are collected at the following five (5) urban tributary locations:
(Refer to the site maps being Appendixes D-H for detailed locations)

Site ID	Locations
T1	North Kent Creek @ Fairgrounds Park
T2	South Kent Creek @ Tay & Corbin St.'s
T3	Keith Creek @ Tenth Avenue Park
T4	Keith Creek @ Dahlquist Park
T5	Spring Creek @ Starkweather Avenue

5.1.2 Frequency

Four dry weather samples will be collected on the second Monday in the months of February, May, August and November. A dry weather period is that which occurs at least 72 hours from a previously measurable (greater than 0.1 inch rainfall) storm event. The day of Monday was selected to complete these sample collections is based on an understanding with the RRWRD Lab and their workload. If weather conditions preclude collection of samples as scheduled, the sample collection shall be re-scheduled with the RRWRD Lab when and as conditions allow. Some conditions that may delay the collection of samples include but are not limited to: extreme temperatures, frozen flows, flooded conditions, high velocity flows and/or drought conditions.

5.1.3 Supplies and Equipment

The basic supplies and equipment needed to collect water quality samples from flowing tributaries includes:

- Safety vest
- Hip waders
- YSI 556 DO Meter
- Cooler (for storing and transporting samples)
- Ice (for preserving samples – obtained at the City Yards)
- Permanent marker (for labeling sample bottles)
- Tributary Sample Sheets, Appendix N
- Five (5) one-gallon plastic jugs (from the laboratory)
- Five (5) sterile six-ounce bottles (from the laboratory)
- Labels for the jugs and the sterile bottles (from the laboratory)

5.2 Representative Outfalls

The City of Rockford's NPDES Storm Water Permit No. ILS000001 (City's permit) details most of the criteria & requirements cited in this section. The City's permit identifies five representative outfall locations for monitoring.

5.2.1 Locations

Samples are collected at the following five (5) representative outfall locations:
(Refer to the site maps being Appendixes I-M for detailed locations

Source: Rockford Storm Water NPDES Permit No. ILS000001		
Outfall	**Location**	**Watershed Description**
Station R1	Paradise Boulevard	225 ac residential & open space
Station R2	Market St. & N. Water St.	50 ac commercial, offices & residential
Station R3	Fairview Blvd & Crosby St.	510 ac residential
Station R4	8th Street & Wills Avenue	780 ac industrial, commercial & residential
Station R5	Forest View Rd & 28th Ave	80 ac light industrial

These sites have been prepared for the installation of automatic samplers and tip-bucket rain gauges.

5.2.2 Frequency

Samples shall be collected in the spring and fall for a total of two sets of the required samples at each location (R1-R5) each year. Samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event.

5.2.3 Rain Event Data Collection

Data must be maintained for the following of each rain event:

- Date of event
- Duration of event (in hours)
- Rainfall measurements or estimates (in inches)
- Duration between event and end of previous event (in hours)
- Estimate of the total volume of the discharge sampled (in gallons)

The source of weather observation data to be used by Staff is from the National Weather Service website (http://w1.weather.gov/data/obhistory/KRFD.html) which reports the past 72 hours of weather data (including hourly rainfall data) from the Chicago Rockford International Airport. Copy and paste this data into the Rain Event data log spreadsheet found in the City's Storm Water directory.

5.2.4 Sampling Techniques for Representative Outfalls

The City's permit allows for grab samples and/or composite samples to be collected from the outfall sites. The use of automatic samplers is also allowed given proper programming of the unit. Appendix B denotes which technique to use, grab or composite, based on the type of sample to be collected.

5.2.4.1 Grab Sampling for Representative Outfall

Grab samples may be taken by hand or with the use of automatic samplers. Sampling consists of 3 grab samples; the first grab sample shall be taken within 2 hours after the commencement of the storm event. The second and third grab samples shall be taken at intervals of not less than 2 hours thereafter. Should the discharge cease before the 2nd and 3rd samples can be taken, Staff shall identify the approximate time that the discharge ceased.

5.2.4.2 Composite Sampling for Representative Outfall

Composite samples may be taken using automatic samplers that are triggered using either tipping-bucket rain gages programmed to initiate sampling after 0.1 inch of rain, or flow meters programmed to initiate sampling after 0.1 inches of runoff. Using automatic samplers to collect a composite sample is the preferred method.

5.2.4.3 Fecal Coliform Grab Sample for Representative Outfall

Staff will complete a grab sample to be tested for fecal coliform independent of the use of a composite or grab sampling technique. If possible, this grab sample will take place during the same storm event, but if this cannot be performed, these samples will be taken from separate events.

These samples should be collected directly from the discharge stream into the sterilized 6 oz Nalgene sample bottle with the sodium thiosulfate preservative. Do no overfill this bottle to ensure the proper amount of preservative remains with the sample.

5.2.5 Supplies and Equipment

The basic supplies and equipment needed to collect water quality samples from flowing tributaries includes:

- Safety vest
- Manhole hook
- YSI 556 DO Meter
- Cooler (for storing and transporting samples)
- Ice (for preserving samples – obtained at the City Yards)
- Permanent marker (for labeling sample bottles)
- Storm Sewer Sample Sheets, Appendix N
- Five (5) one-gallon plastic jugs (from the laboratory)
- Five (5) 1 liter glass sample bottle (from the laboratory)
- Five (5) sterilized, 6 oz. Nalgene sample bottle with sodium thiosulfate (Na2S2O3) preservative (from laboratory)
- Labels for the jugs and the sterile bottles (from the laboratory)
- ISCO automatic sampler (if necessary – pre-event setup required)
- Two-gallon polyethylene bottle (for use with automatic samplers).

Sample Bottles, Preservatives, and Maximum Holding Times
Field Technicians will deliver samples to the Laboratory within three hours of collection. Laboratory Analysts will split the sample needed for the analyses required and preserve accordingly.

5.3 Collection of Grab Samples

The laboratory will provide sample containers in accordance with Appendix B. The labeled uncapped bottle is submerged in the flow by hand, and allowed to fill without entraining surface or bottom debris. The sample is taken from a visibly flowing location that is deep enough to accommodate the sample container under these conditions. If there is no flow the samples should not be collected. Stagnant pools will not be sampled.

The filled containers are immediately placed in a cooler with water ice. The minimum information required on the label is the site identifier code, date and time, and sample designation (bottle type) as shown below. Laboratory issued stickers and/or tags may be used.

T-1 07-21-13 @ 1200 Fecal Coliform

5.4 Collection of Composite Samples

Composite samples are collected using the automatic samplers. Based on previous data, in order to collect the appropriate quantity for the required samples, the sampled rain event must produce 0.4 inches to 0.5 inches of total rainfall.

The samplers must be in-place prior to the start of a rain event. Installation and setup of the sampler is important for proper function. The following is a list of tasks to complete during this process:

- Install sampler before rain event
- Make sure battery for the sampler holds enough charge
- Verify the sampler is programmed properly (weather time or rain gauge weighted)
- Verify the intake tube is free of kinks and the line is clear of debris
- When using the tip bucket trigger, verify the connection is free of debris and moisture
- When using the tip bucket trigger, verify the tip bucket and screen is free of debris. A ladder will be required to complete this.
- Verify the program have been started before replacing the cover on the sampler

When staff returns for the collection of the sample, document the readout of the samplers display before completing other tasks. This data will provide rainfall totals registered by the sampler.

Pull the samplers internal bottle out and carefully fill the sample bottles provided by the laboratory. The filled containers are immediately placed in a cooler with water ice. The minimum information required on the label is the site identifier code, date and time, and sample designation (bottle type) as shown below. Laboratory issued stickers and/or tags may be used.

R-1 07-21-13 @ 1200 FOG

5.5 YSI 556 Meter – Field measurements

Field measurements of water quality (pH, DO, temperature, conductivity) are made in the same location following water sample collection. The meter must be properly calibrated according to the manufacturer's instructions for accurate measurements to be taken. Record this information on the Tributary or Storm Sewer Sample Sheet.

6.0 Illicit Discharge Detection and Elimination Indicator Monitoring

Illicit Discharge Detection & Elimination (IDDE) indicator monitoring is used to confirm illicit discharges, and provide clues about their source or origin when discovered though tributary, outfall monitoring or IDDE SOP. In addition, this monitoring can measure improvements in water quality during dry weather flow.

6.1 Where to Collect Samples

Indicator sampling normally occurs at three principle locations in the storm drain system to detect illicit discharges – at the outfall, in the stream, and within the storm drain pipe network.

Monitoring of dry weather flows from outfalls is the most common location for indicator sampling.

In-stream monitoring involves sample collection during dry weather flow conditions. Stream monitoring is less precise than outfall monitoring at detecting individual discharges. It can detect the most severe or high volume discharges, and measure progress over time in terms of changes in stream water quality.

In-pipe sampling is often needed to track down and isolate individual discharges once a potential discharge problem is encountered at an outfall.

6.2 When to Collect Samples

Indicator samples should be collected during dry weather periods to avoid flowing outfalls caused by storm water or groundwater infiltration. A dry weather period is that which occurs at least 72 hours from a previously measurable (greater than 0.1 inch rainfall) storm event. An exception to this is for response to reported active illicit discharges to which an investigation should occur immediately.

Time of day that sampling is conducted is particularly important when the suspected source is residential sewage. Peak water usage occurs in the morning and evening, therefore sampling in the early morning is recommended in these situations.

6.3 Supplies and Equipment

The basic supplies and equipment needed to collect water quality samples for IDDE includes:

- Safety vest
- Manhole hook
- YSI 556 DO Meter
- Hach DR 900 Colorimeter
- Hach 2100 Turbidity Meter
- Cooler (for storing and transporting samples)
- Ice (for preserving samples – obtained at the City Yards)
- Permanent marker (for labeling sample bottles)
- Storm Sewer or Tributary Sample Sheets
- One-gallon plastic jug per sample set (from the laboratory)
- One liter glass sample bottle per sample set (from the laboratory)
- Six oz. Nalgene sterilized sample bottle per sample set with sodium thiosulfate (Na2S2O3) preservative (from laboratory)
- Labels for the jugs and the sterile bottles (from the laboratory)
- ISCO automatic sampler (if necessary – pre-event setup required)
- Two-gallon polyethylene bottle (for use with automatic samplers).

Sample Bottles, Preservatives, and Maximum Holding Times
Field Technicians will deliver samples to the Laboratory within three hours of collection. Laboratory Analysts will split the sample needed for the analyses required and preserve accordingly.

6.4 Water Quality Indicators Used to Identify Illicit Discharges

Different water quality parameters can be used to confirm the presence or origin of an illicit discharge at a flowing storm drain outfall. These parameters, which are discussed in more detail in Appendix C, include:

- Ammonia
- Boron
- Chlorine
- Color
- Conductivity
- Detergents
- *E. Coli*, enterococci, or total coliform
- Fluoride
- Hardness
- pH
- Potassium
- Surfactants
- Turbidity

Table 1 summarizes these parameters, compares their ability to detect different flow types, and reviews some of the challenges that may be encountered when analyzing them in the lab or in the field.

Table 1: Water Quality Parameters Used to Identify Illicit Discharges

Parameter	Flow Types It Can Detect				Analytical Challenges
	Sewage	Wash Water	Tap Water	Industrial/ Commercial Waste	
Ammonia	●	◉	○	◉	Can change into other forms of nitrogen as flow travels to the outfall
Boron	◉	◉	○	N/A	
Chlorine	○	○	○	◉	High chlorine demand in natural systems limit usefulness to flow with very high chlorine concentrations
Color	◉	◉	○	◉	
Conductivity	◉	◉	○	◉	Not useful in natural systems with high salinities
Detergents	●	●	○	◉	Reagent is a hazardous waste
E. coli Enterococci Total coliform	◉	○	○	○	24-hour test procedure Need to modify standard analytical procedures to measure high bacteria concentrations
Fluoride*	○	○	●	◉	Regent is a hazardous waste
Hardness	◉	◉	◉	◉	
pH	○	◉	○	◉	
Potassium	◉	○	○	●	May need to use two separate analytical techniques, depending on the concentration
Surfactants	●	●	○	◉	Reagent is a hazardous waste
Turbidity	◉	◉	○	◉	

Key:
● Can almost always (i.e., > 80% of the time) distinguish this flow type from clean water (e.g., tap water, natural water). For tap water, can almost always distinguish tap water from natural water.
◉ Can sometimes (i.e., > 50% of the time) distinguish this flow type from clean water, depending on regional characteristics, or can be helpful when used with another parameter.
○ Poor indicator parameter. Cannot reliability distinguish an illicit discharge from clean water (e.g., tap water, natural water).
N/A Data are not available to assess the usefulness of this parameter in distinguishing this flow type from clean water (e.g., tap water, natural water).
* Fluoride is a poor indicator when used on its own. However, when it is used with other parameters, such as detergents, ammonia and potassium, it can almost always distinguish between sewage and wash water.

6.5 Selecting Indicator Parameters

As shown in Table 1, no single water quality parameter meets all of these criteria. However, in most cases, only a small subset of these parameters (e.g., three to five) is required to adequately confirm the presence of an illicit discharge. The CITY will use the parameters associated with the Flow Chart Method, as well as pH and chlorine, to confirm the presence of illicit discharges at flowing storm drain outfalls. Additional information about the Flow Chart Method is provided below.

6.6 Flow Chart Method

The primary data interpretation technique to be used to identify illicit discharges is the Flow Chart Method. The Flow Chart Method has been selected because it is a relatively simple interpretation technique that uses four basic water quality parameters to confirm the presence of an illicit discharge. The water quality parameters used in the Flow Chart Method can be used to distinguish amongst the four major flow types typically found in residential watersheds, including sewage and wash water, which are the most common types of illicit discharges found in urban communities.

The Flow Chart Method uses benchmark concentrations to identify and characterize illicit discharges. The benchmark concentrations were developed by CWP and Pitt (2004), Lalor (1994) and Pitt et al. (1993) from illicit discharge detection and elimination work conducted in Alabama and Maryland.

The basic decision points involved in the Flow Chart Method are shown in Figure 1 and described below.

6.6.1 Distinguish Clean Flow from Contaminated Flow Using Detergents

The first step in the Flow Chart Method is to determine whether the discharge is "clean" or is derived from either sewage or wash water, based on the presence of detergents. Surfactants and/or boron are used as the primary indicator of detergents, and values of surfactants or boron that exceed 0.25 mg/L or 0.35 mg/L, respectively, signal that the discharge is contaminated by either sewage or wash water.

6.6.2 Distinguish Wash Water from Sewage Using the Ammonia-to-Potassium Ratio

If the discharge contains detergents, the next step is to determine whether the discharge is derived from sewage or wash water, using the ammonia-to-potassium ratio. An ammonia-to-potassium ratio of greater than one suggests sewage contamination, while a ratio of less than one indicates wash water contamination.

6.6.3 Distinguish Tap Water from Natural Water

If the sample is free of detergents, the next step is to determine whether the flow is derived from natural sources (e.g., groundwater, springs) or from tap water. The indicator used in this analysis is fluoride, and values of fluoride that exceed 0.60 mg/L signal that tap water is the source. Fluoride concentrations of between 0.25 and 0.60 mg/L indicate that the source may be excess or non-target irrigation water. The purpose of determining the source of a relatively "clean" discharge is that it can identify water main breaks and identify where potable water is being used in a manner (e.g., non-target irrigation, vehicle rinsing, and building rinsing) that contributes polluted runoff to the storm drain system.

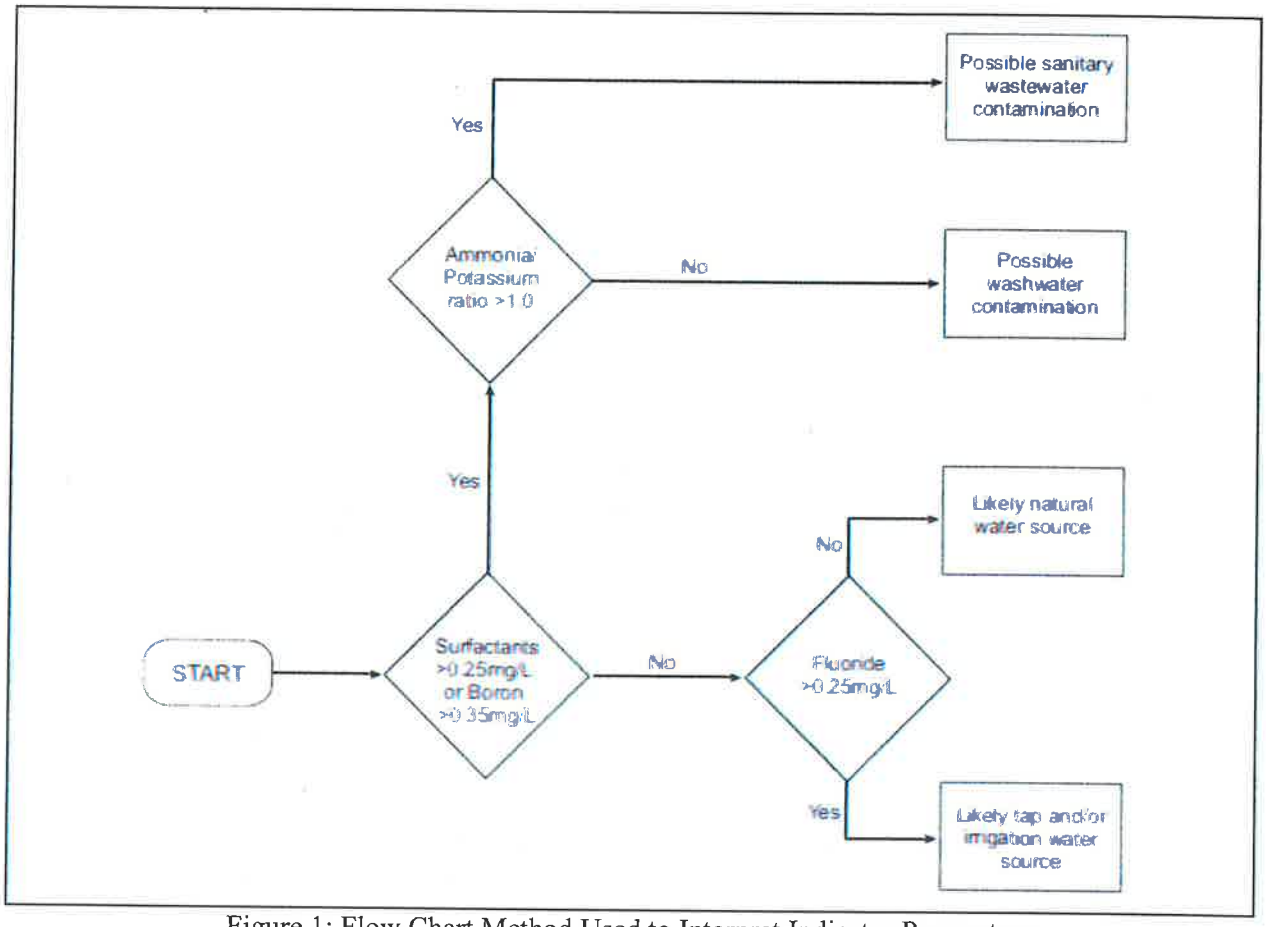


Figure 1: Flow Chart Method Used to Interpret Indicator Parameters

6.7 Interpreting Water Quality Data

This section provides information on three other techniques that the CITY may use to interpret water quality data with respect to illicit discharges. One or more of which the CITY may use to supplement the Flow Chart Method:

- Environmental Consultant – A consultant may be used when staff time is limited to analyze the test results or additional interpretation of the results is needed.
- Single Parameter Screening
- Industrial Flow Benchmarks

As with the Flow Chart Method, each of these techniques uses benchmark concentrations to identify and characterize illicit discharges. The benchmark concentrations were developed by CWP and Pitt (2004), Lalor (1994) and Pitt et al. (1993) from illicit discharge detection and elimination work conducted in Alabama and Maryland.

6.7.1 Single Parameter Screening

Research by Lalor (1994) suggests that a detergent is the best single parameter that can be used to detect the presence of the most common illicit discharges (i.e., sewage and wash water). However, ammonia is another parameter that has been used by some communities with widespread or severe sewage issues. While some communities have used a benchmark concentration as low as 0.30 mg/L, an ammonia concentration of greater than 1.0 mg/L is generally considered to be a positive indicator of sewage flow. Ammonia can be analyzed using a portable spectrophotometer, which provides fairly rapid results and allows investigators to begin tracking down and eliminating sources while they are still out in the field.

As a single indicator parameter, ammonia does have some limitations. First, ammonia, by itself, is not always capable of identifying sewage discharges, particularly if they have been diluted by "clean" flows. Second, while some wash waters and industrial wastes have relatively high ammonia concentrations, not all of them do. This increases the possibility of obtaining false negatives during outfall monitoring efforts. Third, other dry weather discharges, such as those caused by excess and non-target irrigation, can also have ammonia concentrations that exceed 1.0 mg/L. This may lead investigators to falsely assume that sewage is the source of a particular illicit discharge. Adding potassium as an indicator parameter and looking at the ammonia-to-potassium ratio is a simple adjustment to the single parameter approach that helps to more accurately and reliably characterize illicit discharges.

6.7.2 Industrial Flow Benchmarks

Commercial and industrial sites often produce illicit discharges that are not composed entirely of sewage or wash water (e.g., spills, discharges from floor drains). Consequently, if a particular sub-watershed or drainage area has a high density of industrial sites, additional water quality parameters may need to be used to identify and characterize illicit discharges.

The seven water quality parameters that are commonly used to identify the industrial-related illicit discharges and are not picked up by the Flow Chart Method include: ammonia, color, conductivity, hardness, pH, potassium and turbidity. Table 2 summarizes the benchmark concentrations that are commonly used to identify industrial-related illicit discharges.

Table 2: Parameters and Benchmark Concentrations Used to Identify Industrial-Related Illicit Discharges		
Parameter	**Benchmark Concentration**	**Notes**
Ammonia	≥ 50 mg/L	• Existing "Flow Chart" Parameter. • Concentrations higher than the benchmark typically can identify a few industrial-related illicit discharges
Color	≥ 500 units	• Supplemental parameter that identifies a few specific industrial illicit discharges. Should be refined with local data.
Conductivity	≥ 2,000 µS	• identifies a few specific industrial-related illicit discharges • May be useful in distinguishing between different industrial sources
Hardness	≤ 10 mg/L as $CaCO_3$ ≥ 2,000 mg/L as $CaCO_3$	• Identifies a few specific industrial illicit discharges • May be useful in distinguishing between industrial sources
pH	≤ 5	• Only captures a few industrial discharges • High pH values may also indicate an industrial discharge, but residential wash water may have high pH values as well
Potassium	≥ 20 mg/L	• Existing "Flow Chart" Parameter • Excellent indicator of a broad range of industrial discharges.
Turbidity	≥ 1,000 NTU	• Supplemental parameter identifies a few specific industrial discharges. Should be refined with local data.

As shown in Table 2, most industrial-related illicit discharges can consistently be identified by using potassium as an indicator parameter. Note that these discharges would be incorrectly classified as wash water if the Flow Chart Method was used on its own.

Table 3 illustrates how the industrial flow benchmarks can be used independently or to supplement the Flow Chart Method. The best industrial indicator parameters, which can almost always (i.e., > 80% of the time) distinguish industrial-related discharges from wash water and sewage, are identified with bold text. The industrial indicator parameters that can sometimes (i.e., > 50% of the time) distinguish industrial-related discharges from wash water and sewage are identified with italicized text.

By their very nature, industrial sites can produce a bewildering diversity of illicit discharges that are difficult to identify, let alone characterize. Consequently, the CITY may experience some initial difficulties in identifying industrial-related discharges. Over time, however, as its illicit discharge detection and elimination program matures, it will build a sampling database that it can use to identify and better characterize industrial-related illicit discharges.

Table 3: Usefulness of Various Parameters to Identify Industrial Discharges

Industrial Benchmark Concentrations	Detergents as Surfactants (mg/L)	Ammonia (mg/L)	Potassium (mg/L)	Initial "Flow Chart" Class	Color (Units)	Conductivity (:S/cm)1	Hardness (mg/L as $CaCO_3$)	pH	Turbidity (NTU)	Best Indicator Parameters to Identify This Flow Type	Additional Indicator Parameters to Identify This Flow Type
	--	≥50	≥20		≥500	≥2000	≤10 ≥2,000	≤5	≥1,000		
Concentrations in Industrial and Commercial Flow Types											
Automotive Manufacturer[1]	5	0.6	**66**	**Wash water**	15	220	30	6.7	118	Potassium	
Poultry Supplier[1]	5	4.2	**41**	**Wash water**	23	618	31	6.3	111	Potassium	
Roofing Product Manufacturer[1]	8	10.2	*27*	**Wash water**	*>100*[2]	242	32	7.1	229	None	Potassium Color
Uniform Manufacturer[1]	6	6.1	**64**	**Wash water**	*>100*[2]	798	35	10.4	*2,631*	Potassium	Color Turbidity
Radiator Flushing	15	(26.3)	**(2,801)**	**Wash water**	**(3,000)**	**(3,278)**	*(5.6)*	(7.0)	-	Potassium Conductivity Color	Hardness
Metal Plating Operation	7	**(65.7)**	**(1,009)**	**Wash water**	(104)	**(10,352)**	**(1,429)**	*(4.9)*	-	Ammonia Potassium Conductivity Hardness	pH
Commercial Car Wash	140	0.9; (0.2)	4; **(43)**	**Wash water**	>61; (222)	274; (485)	71; (157)	7.7; (6.7)	156		Potassium Turbidity
Commercial Laundry	(27)	(0.8)	3	**Wash water**	47	(563)	(36)	(9.1)	-		

Best indicator, shaded in pink, distinguish this source from residential wash water in 80% of samples in both Tuscaloosa and Birmingham, AL.

Supplemental indicator, shaded in yellow, distinguish this source from residential wash water in 50% of samples.

(Data in parentheses are mean values from Birmingham); Data not in parentheses are from Tuscaloosa

[1] Fewer than three samples for these industrial-related flows.

[2] The color analytical technique used had a maximum value of 100, which was exceeded in all samples. Color may be a good indicator of these industrial discharges and the benchmark concentration may need adjustment downward for the City of Rockford.

Source: Illicit Discharge Detection and Elimination, A Guidance Manual – Center for Watershed Protection October 2004.
(Please refer to this document for further guidance.)

Appendix A

Analytical Parameters

List of Water Quality Analyses	
Storm Water Analysis	**Tributary Site Analyses**
	Dissolved oxygen
5-day biochemical oxygen demand (BOD)	5-day biochemical oxygen demand (BOD)
Chemical oxygen demand (COD)	Chemical oxygen demand (COD)
Total Kjeldahl Nitrogen Ammonia Nitrogen Nitrate+nitrite Nitrogen	 Ammonia Nitrogen Nitrate+nitrite Nitrogen
Total Phosphorus	Total Phosphorus
Fats, Oils and grease	
Cadmium (total) Copper (total) Lead (total) Zinc (total)	Cadmium (total) Chromium (total) Copper (total) Lead (total) Nickel (total) Zinc (total)
pH	pH
Hardness	Hardness
Fecal coliform bacteria E. coli (occasionally, as laboratory capacity allows)	Fecal coliform bacteria E. coli (occasionally, as laboratory capacity allows)
Total suspended solids Total dissolved solids	Total suspended solids Total dissolved solids

Appendix B

Sample Bottles, Preservatives, and Maximum Holding Times

City Staff will deliver samples to the Laboratory within three hours of collection. Laboratory Analysts will split the sample needed for the analyses required and preserve accordingly.

Parameter	Type	Container & Preservation
Fecal Coliform (and E. coli)	Grab	Sterilized, 6 oz. Nalgene sample bottle **with sodium thiosulfate ($Na_2S_2O_3$) preservative**, chill with ice.
Fats, Oils & Grease	Grab	1 liter glass sample bottle, chill with ice.
All other parameters	Composite or Grab	1 gallon plastic sample bottle, chill with ice.

Bottles used in the automatic samplers are two-gallon polyethylene.

Laboratory analysts will preserve samples, as necessary immediately upon delivery to the laboratory. In cases when analysts begin the analysis immediately upon sample delivery, they may omit sample preservation. With the exception of metals, all samples are stored in a 4°C refrigerator.

Parameter	Preservative	Hold Time
DO (field)	NA	NA
Temperature	NA	NA
pH	NA	NA
Conductivity	NA	NA
Metals	HNO_3 to pH < 2	6 months
Nitrogen, Ammonia	H_2SO_4 to pH < 2	28 days
Nitrogen, Kjeldahl	H_2SO_4 to pH < 2	28 days
Nitrogen, Nitrate	---	48 hours
Phosphorus	H_2SO_4 to pH < 2	28 days
Biochemical Oxygen Demand	---	48 hours
Chemical Oxygen Demand	H_2SO_4 to pH < 2	28 days
Hardness	HNO_3 to pH < 2	6 months
Total Suspended Solids / Dissolved Solids	---	7 days
Oil and Grease	H_2SO_4 to pH < 2	28 days
Fecal Coliform (or E. coli)	sodium thiosulfate ($Na_2S_2O_3$)	6 hours

Appendix C

Water Quality Parameter Overview

This appendix provides an overview of the thirteen different water quality parameters that can be used to confirm the presence or origin of an illicit discharge.

Ammonia

Ammonia is a good indicator of sewage, since its concentration is much higher there than is ground or tap water. High ammonia concentrations may also be found in liquid waste streams generated on industrial sites. Ammonia is relatively simple and safe to analyze. Some challenges associated with analyzing ammonia include the tendency for it to volatilize and the fact that it can come from non-human sources, such as pets or wildlife.

Boron

Boron is an element present in the compound borax, which is often found in detergents and soaps. Consequently, boron should be a good indicator for both wash water and sewage. Preliminary research conducted in Alabama supports this contention, particularly when it is combined with other detergent indicators, such as surfactants. Boron may not be a useful indicator everywhere in the country since it is occasionally found at elevated levels in groundwater and is a common ingredient in a number of water softener products. Over time, the CITY should collect data on the boron concentrations found in local tap water and groundwater sources to confirm whether or not it is a useful local indicator of illicit discharges.

Chlorine

Chlorine is used throughout the country to disinfect tap water, except where private wells serve as the primary water supply. Chlorine concentrations in tap water tend to be significantly higher than those in most other flow types. Unfortunately, chlorine is extremely volatile, and even moderate concentrations of organic material can cause chlorine levels to drop below detection levels. Because chlorine is non-conservative, it is not a reliable indicator, although if a very high chlorine concentration is found, it typically indicates a water main break, swimming pool discharge, or a discharge from a chlorine-based industrial process.

Color

Color is a numeric computation of the color observed in a water quality sample, as measured in terms of cobalt-platinum units. Both industrial wastes and sewage tend to have elevated color values. Unfortunately, some "clean" flows can also have high color values. Field testing in Alabama found high color values associated with all contaminated flows, but also for many "clean" flows, which yielded many false positive results. Overall, color may be a good initial screening parameter, but needs to be supplemented by other indicator parameters.

Conductivity

Conductivity, or specific conductance, is a measure of how easily electricity can flow through water. Conductivity is often strongly correlated with the total amount of dissolved solids found in the water column. The utility of conductivity as an indicator depends on whether concentrations are elevated in natural or "clean" waters. In particular, conductivity is a poor indicator of illicit discharges in estuarine waters and in northern climates where salt is used to remove salt from roadways.

Field testing in Alabama suggests that conductivity has limited value in detecting sewage or wash water. It does, however, have some value in detecting industrial-related illicit discharges, some of which can exhibit extremely high conductivity values. Conductivity is extremely easy to measure using meters, so it has the potential to be a useful supplemental indicator in sub-watersheds dominated by commercial and industrial land uses.

Detergents

Most illicit discharges have elevated concentrations of detergents. Sewage and wash water discharges contain detergents that were used to wash clothes or dishes, whereas industrial-related discharges contain detergents used in commercial or industrial cleaning compounds. The nearly universal presence of detergents in illicit discharges, combined with their absence in natural waters or tap water, makes them an excellent indicator parameter. Research has revealed that three indicator parameters that measure detergents or its components: surfactants, fluorescence, and surface tension. Surfactants have been the most widely applied and transferable of these three indicator parameters.

E. coli, Enterococci and Total Coliform

Each of these bacteria is found in very high concentrations in sewage flows, particularly when compared with other flow types. They are very good indicators of sewage and septic discharges, except in sub-watersheds where pet or wildlife sources exist. Overall, bacteria is a good supplemental indicator and can be used to find "problem" outfalls that are discharging flows with bacteria concentrations that exceed public health standards. Relatively simple analytical methods are now available for bacteria samples, although they still suffer from two monitoring constraints. The first is the relatively long time (i.e., 18-24 hours) it takes to get results. The second is that the waste produced during analysis may be considered a biohazard and may require special disposal procedures.

Fluoride

Fluoride is added to drinking water supplies in most communities to improve dental health, and is normally found in tap water at a concentration of two parts per million. Consequently, fluoride is an excellent indicator of tap water discharges and water main breaks or leaks that end up in the storm drain system. Fluoride is obviously not a useful indicator in communities that do not fluoridate their drinking water supplies or in areas where private wells serve as the primary water supply. One key constraint is that the recommended analytical method for fluoride uses a reagent that is considered to be a hazardous waste. It must be properly disposed of.

Hardness

Hardness measures the number of positive ions dissolved in the water column. It primarily measures magnesium and calcium, but sometimes measures the presence of other metals. Field testing in Alabama suggests that hardness has limited value as an indicator parameter, except where values are extremely high or low, which may indicate the presence of an industrial-related discharge. It may be a useful supplemental indicator in communities where groundwater has hardness levels that are higher than those in tap water. In these situations, hardness can help distinguish between groundwater and tap water and other potable water-derived flows (i.e., sewage, wash water).

pH

Most discharges are neutral, having a pH value of around 7, although groundwater pH values can be somewhat variable. pH is a reasonably good indicator for industrial-related discharges, which can have

very high or very low pH values ranging from 3 to 12. pH is very simple to measure in the field using low cost test strips or meters. Although pH, on its own, isn't a particularly conclusive indicator parameter, it can be used as an initial screening parameter, identifying outfalls that merit follow up investigation.

Potassium

Potassium is found at relatively high concentrations in sewage and in extremely high concentrations in many industrial-related discharges. Consequently, it is a very useful indicator parameter. Although simple meters can be used to detect potassium at relatively high concentrations (i.e., 5 mg/L or greater), more complex colorimetric methods are needed to detect potassium at concentrations lower than 5 mg/L.

Surfactants

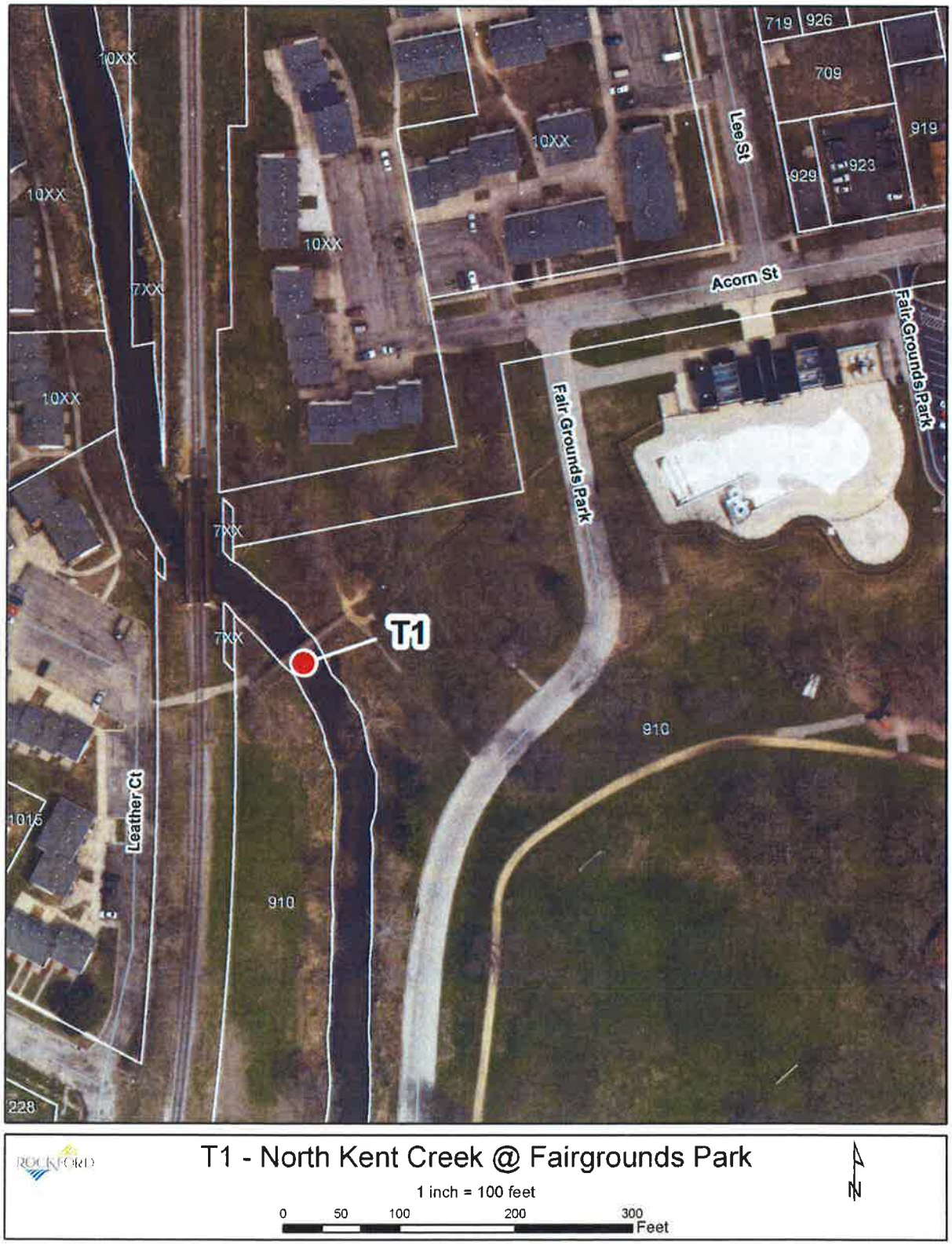
Surfactants are the active ingredient in most commercial detergents and are typically measured as Methyl Blue Active Substances (MBAS). They are a synthetic replacement for soap. Since surfactants are not found in nature, but are always present in detergents, they are excellent indicators of sewage and wash water flows. The presence of surfactants in cleaners, emulsifiers and lubricants also makes them an excellent indicator of industrial-related discharges. Several analytical methods are available to measure the surfactant content of a water quality sample. Unfortunately, the reagents used in these analyses include toluene, chloroform or benzene, each of which is considered hazardous waste and each of which pose a potential human health risk. The recommended analytical method uses chloroform as a reagent, which is safer than the reagents used in the other analytical methods.

Turbidity

Turbidity is a quantitative measure of the cloudiness of a water column and is normally measured with a specialized instrument called a turbidimeter. While turbidity itself cannot always be used to distinguish between different flow types, it is potentially useful in determining whether or not a discharge is illicit and merits a follow up investigation.

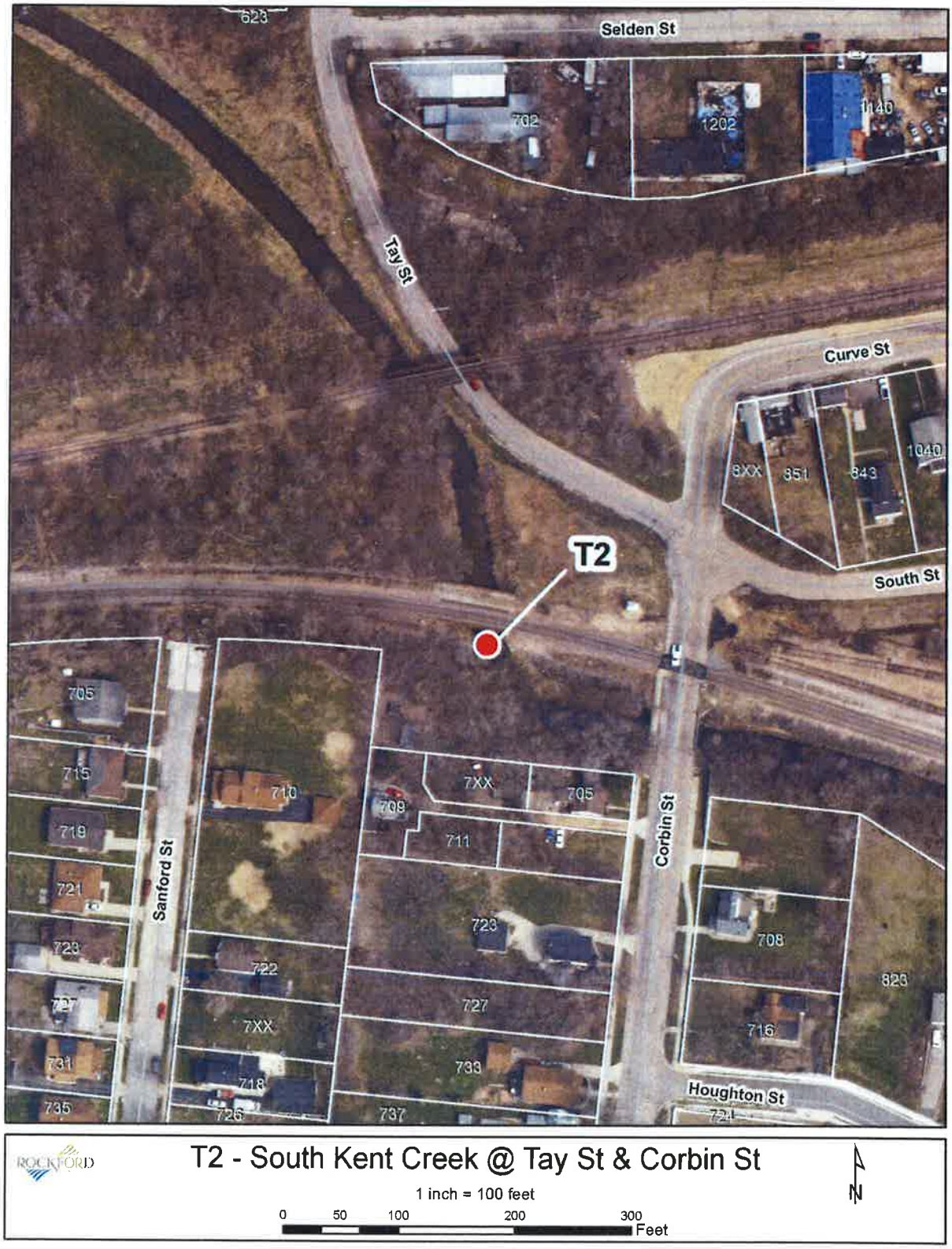
Appendix D

Tributary Site Map



Appendix E

Tributary Site Map



Appendix F

Tributary Site Map

Appendix G

Tributary Site Map

Appendix H

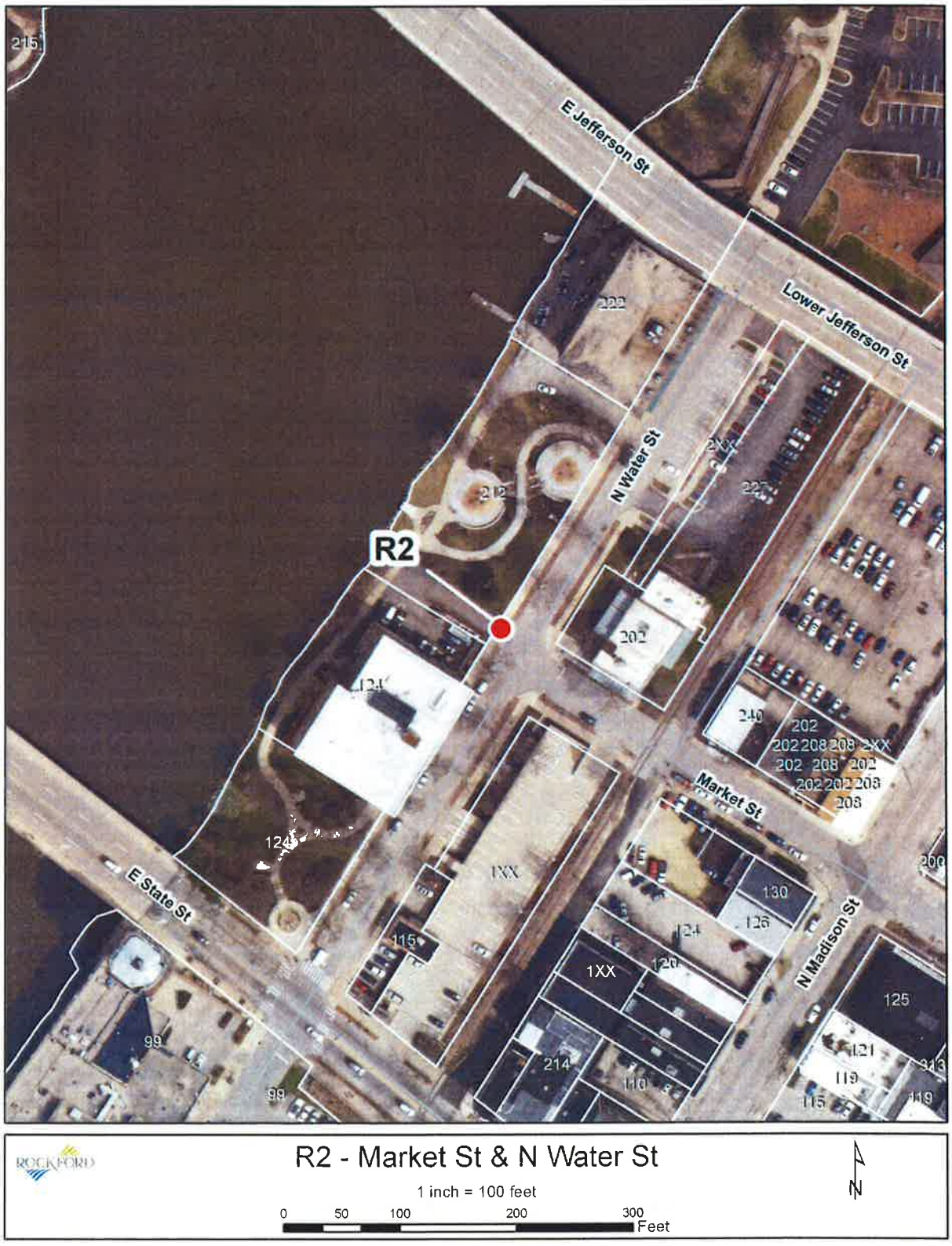
Tributary Site Map

Appendix I

Outfall Site Map

Appendix J

Outfall Site Map



Appendix K

Outfall Site Map

Appendix L

Outfall Site Map

Appendix M

Outfall Site Map

Appendix N

Baetis

ROCK RIVER WATER RECLAMATION DISTRICT
Storm Water Sample Sheet

LAB NUMBER:

Outfall Number:	Fecal Grab Grid Locations:
Date:	Sample Tech(s):
Weather Conditions:	

STREAM CHARACTERISTICS

Sample Grid Location	Time Collected	D.O.	Temp °C	pH	River Elevation	Secchi Disc Clarity

COMPOSITE SAMPLE DATA

Sample Volume:	
Preservative:	

CHAIN OF CUSTODY

Relinquished by:	Rec'd by:
Date:	Date:
Time:	Time:

Sample Number:					
Analysis Requested	Result (indicate units)	Analyst	Analysis Requested	Result (indicate units)	Analyst
METALS			pH		
Cu			Conductivity		
Cd					
Zn					
Pb			Fecal Coliform		
			BOD		
			COD		
			TSS		
			FOG		
NITROGEN					
TKN					
NH^3					
NO_3					
CYANIDE					
Total					
			Other		
PHOSPHORUS					
Total					
Chemist:				Date:	

ROCK RIVER WATER RECLAMATION DISTRICT
Tributary Sample Sheet

LAB NUMBER:

Site:	Fecal Grab :
Date:	Sample Tech(s):
DO Probe Model No.:	DO Probe Serial No.:
Weather Conditions:	

STREAM CHARACTERISTICS

Sample Grid Location	Time Collected	D.O.	Temp °C	pH	Conductivity	Secchi Disc Clarity

COMPOSITE SAMPLE DATA

Sample Volume:

Preservative:

CHAIN OF CUSTODY

Relinquished by:	Rec'd by:
Date:	Date:
Time:	Time:

Sample Number:					
Analysis Requested	Result (indicate units)	Analyst	Analysis Requested	Result (indicate units)	Analyst
METALS			pH		
Cu			Conductivity		
Cd					
Ni					
Cr			Fecal Coliform		
Zn			E. coli		
Pb			BOD		
			COD		
			TSS		
			TDS		
NITROGEN			Hardness		
NH^3					
NO_3					
CYANIDE					
Total					
			Other		
PHOSPHORUS					
Total					
Chemist:				Date:	

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX K

THE CITY OF
ROCKFORD
ILLINOIS, USA

STORMWATER AND ENVIRONMENTAL EDUCATION

STANDARD OPERATING PROCEDURE

June 2015

1.0 General

The purpose of this standard operating procedure for the Stormwater & Environmental Education program is to comply with Part II, A.6.B AND Part II,A.10 of the City of Rockford's NPDES Stormwater Permit (ILS000001). The Engineering Operations Manager oversees the City's Stormwater Programs and the Stormwater and Environmental Program Manager manages the program. This document outlines how City staff and the public will be educated regarding the City's stormwater programs.

2.0 Staff Training

Within 90 days of their start date, all newly hired staff in the Public Works Engineering Division shall receive general training in the following areas regarding the stormwater program:

1) General overview of the stormwater program
2) Illicit Discharge Detection and Elimination
3) Erosion and Sediment Control Requirements
4) Job Site Safety

The Stormwater Program and Job Site Safety shall be provided by the Stormwater and Environmental Team.

All Public Works Engineering Division technical staff shall also attend additional training, both internally and externally, for any other stormwater related topics when necessary and as scheduling allows them to do so. Internal training may include supervisor meetings, contractor meetings, pre-construction meetings and informal reviews of stormwater program.

The City receives training notices from a variety of different sources. These include, but are not limited to: Illinois EPA, local soil and water conservation districts, USEPA (primarily webinars), Lorman, Illinois Association of Floodplain Managers and the American Public Works Association. Typically the Engineering Operation Manager or the Stormwater and Environmental Program Manager are notified of upcoming training who then forward the information to the Engineer Division staff. Other training opportunities will be reviewed as they become available.

Tracking: All training received by staff is recorded in the Stormwater Drive along with any certificates received (see section 4.0). All in-house training shall be saved in the same location. Sign –in sheets, instructor and topics discussed shall be included in the respective folders. Copies of certificates shall be given to the Engineering Operations Manager so they may be incorporated into the employees personnel file in the Human Resources Department.

In-depth in-house training shall be provided to designated staff in the City of Rockford Public Works Engineering Division for the following stormwater related topics:

2.1 Private Detention Basin Inspections (training every other year or prior to event inspections as described in the Standard Operating Procedures for Detention Basins – Section 4.2) – presented by the Stormwater Program Manager(s).

1. Public Works Engineering Division staff attendance shall include: Engineers, Managers, Technicians, and Coordinators.
2. Topics to include: review of Standard Operating Procedures Detention Basins and the detention basin maintenance guide, Identifying and locating detention basins, procedures for conducting inspections and recording and saving inspection reports and photos.

2.2 Public and Priority Private Detention Basin Inspections (annual training)

1. Public Works Engineering Division staff attendance shall include: Engineering Operations Manager, Stormwater Program Manager(s), Stormwater Coordinator and designated Project Manager and Engineering Tech.
2. Topics to include: review of Standard Operating Procedures for public and high priority detention basins, list of basins, when to perform event inspections, procedures for conducting inspections and recording and saving inspection reports and photos.

2.3 Inlet & Storm Pipe Inspections (annual training)

1. Staff attendance shall include: Street Supervisors and designated street maintenance staff
2. Topics to include: Review of standard operating procedures, inspecting inlets and storm pipes, procedures for cleaning of inlets and disposal of material.

2.4 Creek Inspections (training to be held every other year)

1. Public Works Engineering Division staff attendance shall include: Engineering Operations Manager, Stormwater Program Manager(s), Stormwater Coordinator and designated Project Manager.
2. Topics to include: Identify eroding stream channels, review of creek inspection form, reporting and documenting inspections.

2.5 Erosion and Sediment Control on City Construction Projects (annual training) – presented by the Stormwater Program Manager(s).

1. Public Works Engineering Division staff attendance shall include: Engineers, Managers, Technicians, and Coordinators.
2. Topics to include: ILR10 general construction permit requirements, common BMP's from Illinois Urban Manual and the IDOT Manual, requirements and procedures for conducting inspections, record keeping on City of Rockford projects.

2.6 Erosion and Sediment Control on Non-City Construction Projects (annual training) – presented by the Stormwater & Environmental Program Manager and the Environmental & Stormwater Project Manager.

1. Public Works Engineering Division staff attendance shall include: Engineering Operations Manager, Stormwater Program Manager(s), Stormwater Coordinator and designated Project Manager and Engineering Tech.
2. Topics to include: ILR10 general construction permit requirements, common BMP's from Illinois Urban Manual and the IDOT Manual, requirements and procedures for conducting inspections, follow up and enforcement procedure and record keeping.

2.7 Street Sweeping (annual training) Presented by the Street Superintendent or their designee

1. Staff attendance shall include: Street Supervisors, designated street maintenance staff and designated contractor staff.
2. Topics for the training shall include but not be limited to: review of these standard operating procedures, disposing of street sweepings, review of contractor street sweeping procedures and locations of previous concerns and issues.

2.8 **Flood Control and Floodplain Management** (annual training) – presented by the City Floodplain Manager

1. Staff attendance shall include: Designated Managers, Coordinators & Technicians
2. Topics to include: floodplain regulations, review of areas where nuisance flooding occurs, IDNR/ACOE regulations.

2.9 **Pesticide, Herbicide & Fertilizer Applications** (annual training) – presented by Forestry Supervisor.

1. Staff attendance shall include: Designated street maintenance staff.
2. Topics to include: review of standard operating procedures and the IEPA General NPDES Permit for Pesticide Application Point Source Discharges (ILG870147), status of certifications and training required to maintain, reporting and documenting applications, spill plan.

2.10 **Illicit Discharge Detection and Elimination Program** (annual training) - presented by the Stormwater Program Manager(s).

1. Staff attendance shall include:
   a. Public Works Engineering Division: Engineers, Managers, Technicians, Coordinators and street supervisors.
   b. Community and Economic Development – inspectors, Enforcement Specialists

2. Topics to include: IDDE program – allowable discharges, indicators of potential illic discharges, process to report potential illicit discharges reporting and documenting observatio

2.11 **Outfall Inspections** (training to be held every other year)

1. Public Works Engineering Division staff attendance shall include: Engineering Operations Manager, Stormwater Program Manager(s), Stormwater Coordinator and designated Project Manager and Engineering Tech.
2. Topics to include: Review of Standard Operating Procedures for IDDE, procedures/protocols for Monitoring (including outfall screening and sampling) and outfall inspection sheet, reporting and documenting inspections.

2.12 **Industrial High Risk Runoff Program** (annual training)

1. Public Works Engineering Division staff attendance shall include: Engineering Operations Manager, Stormwater Program Manager(s), Stormwater Coordinator and designated Project Manager and Engineering Tech.
2. Topics to include: Review of Standard Operating Procedures for Industrial High Risk Runoff Program including procedures for conducting inspections, List of IHRRI facilities, reporting and documenting inspections.

2.13 **Monitoring Program** (annual training)

1. Public Works Engineering Division staff attendance shall include: Engineering Operations Manager, Stormwater Program Manager(s), Stormwater Coordinator and designated Project Manager and Engineering Tech.
2. Topics to include: Review of Standard operating procedures for Monitoring Program and IDDE, reporting and documenting samples review on operating equipment.

3.0 Public Education

The City continues to review ways to increase public awareness on reducing contaminants in our stormwater to improve water quality. These activities adopted to date include:

3.1 Educational Brochures

Several brochures regarding a number of topics about improving our stormwater quality have been developed. These are all available for the public at City Hall and can also be found on the City's website at (http://rockfordil.gov/public-works/engineering-cip/stormwater.aspx). In addition, public works staff has placed brochures at locations throughout the City as an added effort to educate the public including but not limited to: Rockford Park District and Winnebago County Soil & Water Conservation District. Educational brochures and documents available include:

- Concrete Washout
- Erosion and Sediment Control
- Fertilizer and Pesticide Applications
- Hazardous Materials
- Illicit Discharge and Detection
- Pet Waste
- Water Friendly Landscaping
- Residential Deicing
- Recycling
- City's Stormwater Management Program
- Yard waste
- Citizens Guide to Pest Control & Pesticide Safety
- Rain Garden "How To" Manual
- Fats, Oil & Grease

The City will evaluate the need for additional education materials on an annual basis and will identify any new brochures or other materials in the City's annual reports.

3.2 Public Presentations/Meetings

When applicable, displays will be at public/private events. Presentations shall be made at neighborhood meetings, seminars, workshops as requested. A preliminary list of neighborhood meetings is included on the City of Rockford's SharePoint site under: Public Works, Engineering/Admin, Neighborhood Assoc. meetings. The City's annual reports will summarize the public presentations provided during the year.

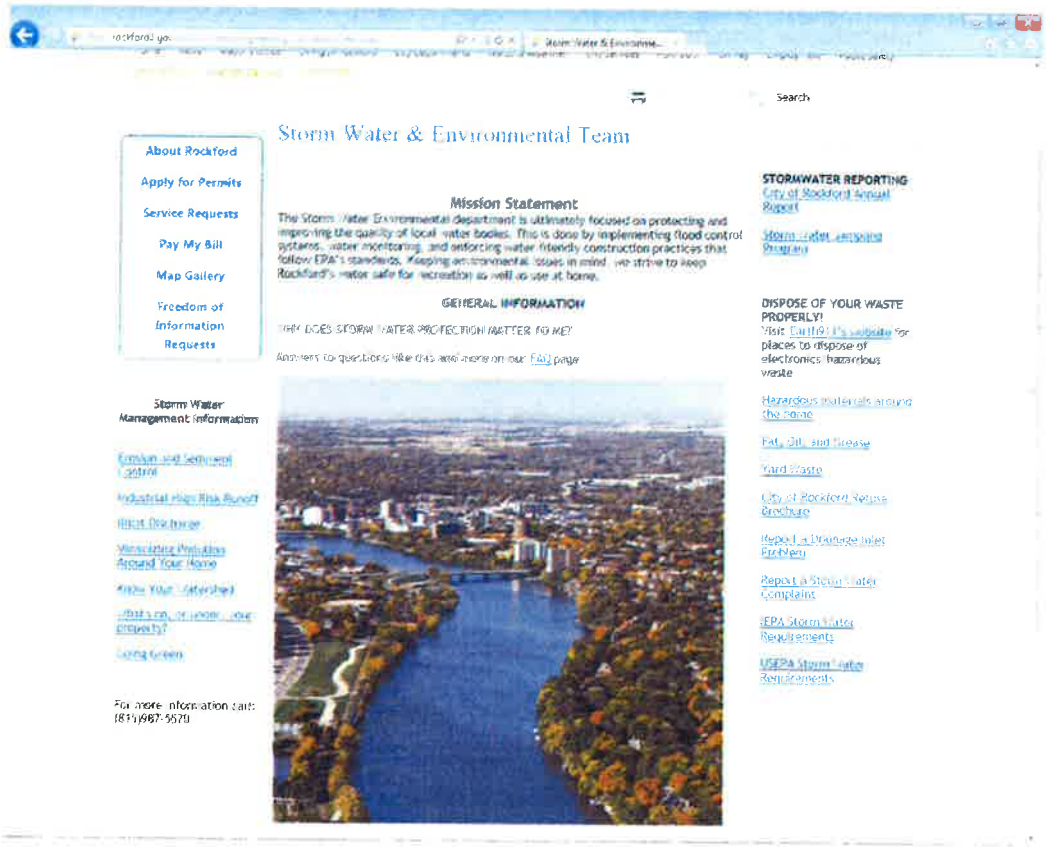
3.3 Erosion and Sediment Control Seminar

The City shall host or co-sponsor annual erosion and sediment control training for developers, development engineers, construction site operators and other interested parties. These seminars may cover a variety of topics regarding erosion and sediment control on construction sites. Certificates of attendance will be provided to attendees.

3.3 Public Reporting Tools

The public is encouraged to report any concerns about stormwater contaminants. The hotline (779-348-7300) and an online reporting tool (see web link in 3.4) are in place for the public to report a stormwater pollution concern.

A Stormwater link has been included on the City of Rockford's website (http://rockfordil.gov/public works/engineering-cip/stormwater.aspx). This link is designed to educate the public about our stormwater programs and other environmental topics and how they can help the City to improve the quality of water in the Rockford area.



4.0 Documentation and Record Management

All staff and public educations shall be saved in the Stormwater Drive.

These files shall be saved as follows:

1) Open the Stormwater Drive (note: this drive has limited access for people who perform duties directly related to the City's stormwater program),
2) Open the Education folder,
3) Open the folder for the current year,
4) Open folder for Community or staff education
5) Create a folder for the training, note: title of folder should show date and name of training (i.e. *2013.03.06 SWCD ESC Seminar*)
6) Data to be saved within folders may include: agenda, attendees (include certificate if received), correspondence

An excel spreadsheet for all inspections and education opportunities has also been created. This spreadsheet can be found in the Stormwater Drive in the folder entitled ***Inspection and Sampling Logs***. All spreadsheets saved by year for easy tracking. Data for education includes: date of event, type of public education/staff training, presenter/attendees, title of program, # in attendance and # and type of educational brochures handed out.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX L

City of Rockford
Stormwater Division
Enforcement Response Plan

Introduction

The intent of this document is to provide guidance to City officials and staff in enforcing the stormwater management ordinance. It should be used only as a guide while recognizing that each situation is unique. The provisions of this enforcement response plan are not intended to limit the judgment and flexibility of the administrator in determining an appropriate response.

While the purpose is to provide guidance for administration of the stormwater management ordinance, actual enforcement procedures should consider any unusual aspects of a violation or condition, as well as special characteristics of an enforcement action, in determining the proper response.

Minor infractions may be resolved by a verbal notice, telephone call, or warning letter advising the owner/operator/person of the nature of the violation. If such action fails to generate an adequate response by the owner/operator/person, further enforcement actions as provided by the ordinance may be taken.

Inspections

The Stormwater Division completes the inspections that are incorporated and required under the City's National Pollutant Discharge Elimination System (NPDES) permit. This includes the following categories of the NPDES permit:

1. Structural Controls
    a. Private detention ponds including the structures and drainage easements
    b. Creeks located through private property
2. Erosion and Sediment Control
    a. Construction Site Runoff
    b. Post Construction Maintenance
3. Flood Control/Floodplain Management
4. Pesticide, Herbicide and Fertilizer Applications
5. Illicit Discharges and Improper Disposal
6. Industrial and High Risk Runoff

Inspections for the above categories shall be completed in accordance with their corresponding standard operating procedures. After inspection is completed and the properties are found in non-compliance of the City's stormwater management ordinance this document provides the enforcement responses as needed or required.

Enforcement Responses

The order of precedence for enforcement responses outlined in this guide should not be construed to prevent the administrator from taking a stronger action without first implementing less stringent steps, if in his opinion, a more forceful response is necessary.

A code enforcement hearing shall be held prior to any enforcement action other than a telephone call, warning letter, notice of violation (NOV), or stop work order. The purpose of a code enforcement hearing is to provide a forum for the owner to present a defense to charges as outlined, or, to obtain additional information.

THE CITY OF ROCKFORD ILLINOIS, USA

Documented Phone Calls or Informal Discussions

In the case of the most minor violation of a permit or the ordinance, a telephone call or informal meeting may be sufficient to obtain the desired compliance. Phone calls should be documented onto the division's violation tracking table. Likewise, if an informal discussion is held, it should be entered onto the division's violation tracking table.

Warning Letter

A warning letter is the lowest level of formal response to a violation. It is intended for minor violations which would not cause harm to the environment.

Notice of Violation

A notice of violation (NOV) is an official notification to inform a non-compliant owner of a violation of the stormwater management ordinance. Within ten (10) days of receipt of this notice, a written explanation of the violation and a plan for the satisfactory correction and prevention thereof, to include specific required actions, shall be submitted by the owner to the administrator. Inspection to ensure performance of any corrective actions may be conducted by the administrator at his discretion. Submission of this plan in no way relieves the owner of liability for any violations occurring before or after receipt of the notice of violation.

Stop Work Order

A Stop Work Order may be issued when the administrator finds that an owner has violated, or continues to violate, the stormwater management ordinance or order issued thereunder. The order shall require that the owner:

(a) Comply forthwith; and
(b) Take such appropriate remedial or preventive action as may be needed or deemed necessary to properly address a continuing or threatened violation, including halting operations and terminating the discharge.

Administrative Orders

Administrative code hearing findings, decision and orders (AO) are enforcement documents which direct owners to perform, or to cease, specific activities. These administrative orders may also invoke a penalty. There are three (3) primary types of administrative code hearing orders: consent orders; compliance orders; and cease and desist orders. These administrative orders are issued by the Code Hearing Officer as a result of a code enforcement hearing.

Consent orders are entered into between the City and the owner to assure compliance as to specific actions to be taken by the owner to correct non-compliance within a specified time period. The code hearing officer may officially enter such consent orders, assurances of voluntary compliance or other similar documents establishing an agreement between the City and any owner responsible for noncompliance. Such documents shall include specific action to be taken by the owner to correct the noncompliance within a time period specified in the document. Such documents shall have the same force and effect as orders issued pursuant to Chapter 109 Article 13.

Compliance orders may be issued when the code hearing officer finds that an owner has violated, or continues to violate, the ordinance or an order issued thereunder. It is similar to a consent order except that the consent of the owner is not implied in its issuance. When the code hearing officer finds that an owner has violated or continues to violate a section of this article, or a permit or order issued under this article, the code hearing officer may issue an order to the owner responsible for the violation directing that the owner come into compliance within a specified time, and such order may include assessment of a penalty to be paid if the owner does not come into compliance within the time provided. Compliance orders also may contain other requirements to address the noncompliance, including additional self-monitoring and

management practices designed to minimize the amount of pollutants discharged offsite. A compliance order does not relieve the owner of liability for any violation, including any continuing violation. Issuance of a compliance order shall not be a bar against or a prerequisite for taking any other action against the owner.

Cease and desist orders may be issued when the administrator or code hearing officer finds that an owner has violated, or continues to violate, the stormwater management ordinance or order issued thereunder. Issuance of a cease and desist order shall not be a bar against or a prerequisite for taking any other action against the owner.

Administrative orders contain the following components:

1. Title - The title specifies the type of order being issued (see below), to whom it is being issued, summarizes the purpose of the order, and contains an identification number.

2. Legal Authority - The authority under which the order is issued (the stormwater management ordinance).

3. The Finding of Noncompliance - All violations must be described including the dates, the specific permit and/or ordinance provisions violated, and any damages known and attributable to the violation.

4. Required Activity - All orders should specify the required actions, such as installation of BMPs, additional inspections, appearance at show cause hearings, etc.

5. Milestone Dates for Corrective Actions - When compliance schedules are appropriate, all milestone dates must be established including due dates for required written reports.

6. Supplemental Clauses - The document should contain standard clauses providing that:

   (a) Compliance with the terms and conditions of the administrative order shall not be construed to relieve the owner of its obligation to comply with applicable state, federal or local law, or the permit;
   (b) Violation of the administrative order itself may subject the owner to additional penalties as set out in the stormwater management ordinance;
   (c) No provision of the order shall be construed to limit the town's authority to issue supplementary or additional orders, or to take action deemed necessary to implement this program or ordinance;
   (d) The order shall be binding upon the owner, its officers, administrators, agents, employees, successors, assigns, and all persons, firms or corporations acting under, through or on behalf of the owner.

Administrative orders issued as a result of a violation of the stormwater management ordinance may contain a penalty pursuant to Chapter 109-13:03 of the stormwater management ordinance. Administrative orders may also be used to advise an owner of the need to take, or cease, certain actions, and in such case, may or may not be associated with penalties as defined in the ordinance or in this guide.

Civil Litigation

Pursuant to Section 109-13:03 of the stormwater management ordinance, the administrator may, through the city attorney, petition the appropriate court(s) for issuance of preliminary or permanent injunctions to restrain or compel activities by an owner.

Penalties, Administrative or Civil

The stormwater management ordinance authorizes assessment of penalties not to exceed $750 per violation per day. Additionally, Section 109-13:03 of the ordinance and state statutes authorize the administrator to assess a civil penalty for actual damages incurred by the City.

If a violation results in conditions requiring the expenditure of public funds for mitigation of damages, a penalty shall be assessed in such amount as to offset the public funds so expended. This will in no way reduce or offset the liability of the owner with respect to damages incurred. Mitigation of damages may include, but not limited to, maintenance and repairs to the structural controls, implementation of erosion and sediment control measures, illicit discharge and high risk runoff cleanup and the labor and equipment utilized for such efforts.

Cease and Desist Order

A civil injunction may be requested at any time, for any violation, if in the opinion of the administrator in consultation with the city attorney, such action is justified, needed or appropriate.

Criminal Action

In cases where criminal acts are suspected by the administrator, after consultation with the city attorney, information shall be gathered and forwarded to the district attorney of the appropriate county for action. Criminal prosecution, if pursued, shall be in addition to other actions authorized by ordinance.

THE CITY OF ROCKFORD ILLINOIS, USA

TABLE A

ENFORCEMENT RESPONSE GUIDE

ESCALATION OF RESPONSES

The following table outlines a recommended course of action for violations of the stormwater ordinance. When enforcement actions involving a specific site, a common operator or owner include multiple or successive violations then the severity level may be increased.

While the purpose is to provide guidance for administration of the stormwater management ordinance, it is not intended to limit the judgment and flexibility of the administrator in determining an appropriate response.

SEVERITY OF VIOLATION	ACTION
1	Informal Phone Call/Discussion
2	Written warning
3	Notice of Violation
4	Stop Work Order
5	Administrative Order
6	Administrative Order with up to $750 per day Penalty

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX M

Appendix M:

Annual Reporting Requirements Under Paragraph 32 of the Consent Decree in *United States and the State of Illinois v. City of Rockford, Illinois*

The Annual Reports required under Paragraph 32 of the Consent Decree shall conform to the requirements of the Permit at Part V.C and shall include the information specified below. Annual Reports shall summarize progress in meeting all measurable goals identified in the Permit and in the City's Standard Operating Procedures (SOPs) which implement the stormwater program components in Part II and Part V of the Permit and which have been incorporated into the City's Stormwater Master Plan. In general, the information described below shall cover the activities conducted and results achieved during each annual reporting period. Where a duration is associated with a measurable goal (e.g., annual, every two years, the construction season, or the permit cycle), each Annual Report shall identify activities and results for the specific reporting period as well as the cumulative activities and results appropriate to the specific measurable goal.

1. **Municipal Operations including Structural Controls, Roadways, Flood Control, and Pesticide, Herbicide and Fertilizer Application** (***Appendix B***[1]: Standard Operating Procedures for Detention Basins; ***Appendix C***: Standard Operating Procedures for Street Sweeping; ***Appendix D***: Right-of-Way & Drainageway Inspection & Maintenance Standard Operating Procedures; ***Appendix E***: Standard Operating Procedures for City of Rockford Pesticide, Herbicide, and Fertilizer Applications)
    a. A report summarizing the inspection and maintenance database. This shall include a summary of inspection findings, follow-up needed, enforcement actions, and date corrective actions completed. The summary shall include:
        i. The following measureable goals in Section 5.0 of the *ROW and Drainage Inspection and Maintenance SOP*:
            1. Number of proactive inspections of stormwater infrastructure including inlets and pipes;
            2. Number of reactive inspections of stormwater infrastructure including inlets and pipes;
            3. Summary of findings from all inspections and status of required follow-up (e.g., cleaning, repair, replacement) including summary of the type and approximate amount of debris deducted and number of feet of storm sewer cleaned, and a summary of all structures repaired/replaced;
            4. List of current known problem areas susceptible to sediment and debris accumulation or flooding pursuant to Section 5.2 (inlet and pipe cleaning), and status of routine maintenance/cleaning in these

[1] All Appendix references are to other Appendices to the Consent Decree.

areas (number and percent of inlets cleaned; number of feet of laterals or mains cleaned; type and approximate amount of debris deducted);

5. Identify any changes to the list of known problem areas.

ii. Pursuant to Section 6.0 of *ROW and Drainage Inspection and Maintenance SOP* and Part II.A.2.d of the Permit:
    1. Number/summary of inspections of all publicly and privately maintained ditches and creeks;
    2. Summary of findings including number of miles in each maintenance category;
    3. Clearly identify stream channels inspected and inspection findings including stream miles experiencing horizontal and/or vertical erosion; if Rockford's system is capable of identifying these inspections and findings on its mapping system, produce the mapping with inspections and findings;
    4. Status of required follow-up (privately and publicly-maintained) including summary of maintenance work completed, type of activity, nature of debris removal or bank stabilization performed, approximate amount of debris removed, and status of all projects to stabilize and minimize erosion of stream channels.

iii. Summary of inspections and maintenance of dams and levees.

iv. Summary of inspections and maintenance of publicly-owned and/or maintained detention ponds, including amount of sediment and debris removed (see j. below)

v. Summary of inspection and maintenance of box culverts including both rain event and routine.

vi. Summary of inspections and maintenance of publicly-owned and/or operated trash racks including summary of the major rain event inspections (including date and size of rain events, dates debris and floatables removed, amount and type of debris/floatables removed).

vii. For the two floatables monitoring points, a summary of the amount of floatables materials collected and date(s) collected.

viii. Snow and De-Icing Operations: Summary of the annual evaluation of deicing operations pursuant to Section 11 of the *ROW and Drainage Inspection and Maintenance SOP* and Part II.A.4.c of the Permit including a description of any changes implemented to minimize the discharge of pollutants.

ix. Detention Basins:
    1. Number and percent of public and priority private basins inspected.
    2. Number and percent of non-priority private basins inspected during the reporting period and cumulatively over the two-year cycle.
    3. Number and percent of basins inspected in response to a public complaint or other concern identified by the city.

4. Number and description of storm event inspections including dates and size of rain events and dates of inspections for publicly-owned or operated basins, priority private basins, and non-priority private basins.
5. Summary of inspection findings and required follow-up including number of basins in each maintenance category, status of follow-up actions and corrective actions.
6. A summary of enforcement actions initiated including status.

x. Street Sweeping:
1. Dates of street sweeping in each category (arterial, central business district, etc.) and tonnage swept.
2. Description/rationale for any schedule deviations, schedule adjustments or changes.

xi. Pesticides, Herbicides and Fertilizer SOP:
1. Status of training and certification of City employees who apply pesticides, herbicides and fertilizers.
2. Description of reported spills including findings from the City's illicit discharge investigation pursuant to Section 3.1 of the *Pesticide, Herbicide and Fertilizer Applications SOP*.

2. **Construction Site Runoff Program** (***Appendix F:*** Erosion and Sediment Control Plan Review and Regulatory Inspections and ***Appendix G***: Erosion and Sediment Control Guidance Manual for City of Rockford Projects)
a. A report summarizing the number of construction sites in the inventory, the number of new sites added and terminated since the last report, the number of erosion and sediment control plans reviewed and approved and the number of plans that required revisions, the number of inspections conducted and the number that required enforcement follow-up, and the number and type of enforcement actions initiated and concluded.
i. The inventory should identify City-owned projects, private projects, and projects located in or adjacent to an environmentally sensitive area.
ii. A summary of inspections conducted shall include pre-construction inspections, routine field inspections (including the initial inspection to be conducted within the first two weeks of the construction start date), routine drive-by inspections, final inspections (or certifications) and inspections completed in response to citizen complaints.
iii. Identify any missed inspections pursuant to the frequencies specified in the *Erosion and Sediment Control Plan Review and Regulatory Inspections SOP*.
b. A summary of employee training.
c. A report summarizing the existing training opportunities and/or newly developed training for construction operators on control measure selection, installation, implementation, and maintenance as well as overall program compliance.

d. A summary of enforcement actions taken as required under Section VII of the Consent Decree including status of all actions.

3. **Industrial and High Risk Runoff Program** (***Appendix H***: Industrial High Risk Runoff Facility Inspection Program Standard Operating Procedures)
   a. A report summarizing the status of all municipally-owned and operated facilities and their development and implementation of appropriate storm water control measures via a Stormwater Pollution Plan to ensure the discharge of pollutants in storm water is minimized or eliminated, and are in compliance with Rockford's Chapter 109 Ordinance, Storm Water and Surface Water Management. As part of each annual report, describe any changes to high priority facilities' stormwater plan following each annual evaluation pursuant to Section 5.8 of the *Industrial High Risk Runoff Facility Inspection Program SOP*.
   b. A summary of its inspection and monitoring program including the inspections conducted in each priority category. Identify facility name and type pursuant to the table in Section 4.0 of the *Industrial High Risk Runoff Facility Inspection Program SOP*. For the high priority facilities, identify which are routine inspections and which are inspected in follow-up to citizen complaints, staff observations or flows observed during outfall inspections. Specify the percentage of high, medium and low facilities inspected to date up through the end of the reporting period.
   c. A summary of inspection findings including any required follow-up actions.
   d. A summary of monitoring results where the City has required monitoring at a facility pursuant to Section 6.0 of the *Industrial High Risk Runoff Facility Inspection Program SOP*
   e. Describe any changes or updates to the facility inventory and prioritization based on the annual evaluation and the reviews of the databases and other resources identified in Section 5 of the *Industrial High Risk Runoff Facility Inspection Program SOP*.
   f. A summary of enforcement actions taken and deficiencies corrected.

4. **Illicit Discharge and Improper Disposal** (***Appendix I***: Illicit Discharge Detection and Elimination Program Standard Operating Procedures)
   a. For reports covering even years, a summary of its dry weather screening activities as required under Part VII of the Consent Decree, including the number and percentage of outfalls that were screened, findings, the number and type of follow-up actions including initiation of an illicit discharge investigation (including type(s) of investigation), a description of the illicit discharge (e.g., pollutant, volume if known), and the dates each illicit discharge identified was eliminated.
   b. A summary of the number of reports received (e.g., citizen complaints), what type of follow-up actions were conducted including initiation of an illicit discharge investigation (including type(s) of investigation), whether illicit discharges were

identified, description of any illicit discharges, and whether/when an identified illicit discharge was eliminated.

c. A summary of any enforcement actions initiated to eliminate an illicit discharge including the status.

d. A summary of the dates training was provided, the number of employees required to be trained, and the number of employees actually trained as required under Part VII of the Consent Decree.

5. **Monitoring** (***Appendix J***: Monitoring and Sampling Program Standard Operating Procedures): The results of the wet weather and in-stream monitoring shall be described, including any deviations from the *Monitoring and Sampling Program SOP*, trends analysis and any changes to the City's stormwater management plan resulting from monitoring results or trends analysis.

6. **Enforcement Response Plan** (***Appendix L***): A summary of all enforcement actions initiated, active and concluded under the City's *Enforcement Response Plan*, including type of action, and status.

7. **Stormwater and Environmental Education** (***Appendix K*)**: A summary of the activities completed under the training program described in the *Stormwater and Environmental Education SOP*.

8. A description of any staffing changes.

9. A description of any proposed changes to the City's stormwater management plan including the justification or rationale for any proposed changes.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION

THE UNITED STATES OF AMERICA and THE STATE OF ILLINOIS Plaintiffs, v. THE CITY OF ROCKFORD, ILLINOIS, Defendant.	)	Civil Action No. 3:15cv50250

CONSENT DECREE
APPENDIX N

CITY OF ROCKFORD
STORMWATER
TECHNICAL GUIDANCE MANUAL

May 18, 2015

CITY OF ROCKFORD – STORMWATER TECHNICAL GUIDANCE MANUAL

Table of Contents

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

The City of Rockford Stormwater Technical Guidance Manual (Manual) is a technical guide to provide developers and applicant's assistance in complying with the Stormwater Ordinance and the technical requirements of a stormwater permit application.

Purpose

The purpose of the Technical Guidance Manual is to supplement the City of Rockford Stormwater Ordinance (Ordinance) by providing background, detail, and intent of the technical requirements in the Ordinance. This manual contains discussion, tables, figures and exhibits covering most of the topics found in the Ordinance to assist the applicant in preparing a complete Stormwater Management Permit Application. The examples illustrated in this Manual are general and attempt to cover the most common requirements. In practice there will be situations that arise in the design of a development that will not be directly related to one of the examples in this manual. The concepts illustrated can be applied to a variety of developments.

The Manual is linked directly to the City of Rockford Stormwater Management Ordinance by using the same Section numbers as those contained in the Ordinance, with a "T" added to the number.

The Manual is to facilitate implementation and provide guidance necessary to achieve the objectives and standards of the Ordinance. Other techniques may exist that will exceed the criteria with less effort or at a lower cost. The applicant accepts the burden of demonstrating the technical adequacy of the development design and is completely responsible for conformance with the criteria of the Ordinance.

The different technical requirements are further defined in this Manual by use of charts, tables and example problems. Recommended forms for compliance with the Ordinance are also provided.

TECHNICAL GUIDANCE

ARTICLE 2 — REQUIREMENTS FOR STORMWATER MANAGEMENT

T2-00 General Requirements

The guidance in this manual provides the minimum interpretation of the requirements of the Ordinance and serves as a baseline for preparation of a Stormwater Management Permit. In order to determine if a development requires a City of Rockford Stormwater Management permit, the applicant must refer to § 500 of the Ordinance. In general, a stormwater management permit does not apply to hydraulically disturbed areas less than or equal to 5,000 s.f. of aggregate development, unless the development is located in a Special Management Area, as defined in § 104 of the Ordinance. For activities exempt from the Ordinance, the applicant is referred to § 801. For any project with more than one permitting authority, it is advisable to have one review specialist.

Road development in the right-of-way, under the ownership or control of a unit of local government with greater than one acre of new impervious surfaces in aggregate shall consider stormwater detention. When questions arise regarding the one acre provision, the Administrator will be the sole judge in determining if the one acre of new impervious surfaces in aggregate has been exceeded.

Existing agricultural land uses are not addressed directly in the Ordinance, but in general only agricultural activities that create new impervious surfaces are regulated, and hydraulic disturbances greater than 5000 s.f. will require a permit. Hydraulic disturbances $\geq$1 acre will also require NPDES filed with IEPA. The definition of development excludes maintenance of existing agricultural systems for cultivated areas and crop productions. It also excludes activities undertaken as part of an NRCS conservation plan, such as terracing or other soil erosion prevention measures. When new rooftops or roadways on existing agricultural lands total 25,000 s.f. or more in aggregate, then detention is required similar to additions to other existing land uses.

T2-00(b) Site Runoff Storage Requirements

For developments requiring a general Stormwater Management Permit application, the owner and developer must attest to an understanding of the Ordinance criteria and an intent to comply, before initiating development.

T2-01 General Stormwater Requirements

Stormwater drainage requirements are applied to all development and redevelopment throughout the City of Rockford to prevent inappropriate site drainage contributing to increased flood damage. Proper site drainage analysis is meant to protect existing and future structures, as well as subsurface infrastructure and to improve water quality for the City. The developer must consider possible adverse effects of the proposed activity and avoid knowingly undertaking any activity that will cause a violation of the general Standards specified in § 201 of the Ordinance.

The erosion and sediment control must be installed prior to commencement of general construction and detention shall be complete before issuing occupancy.

T2-01(d) Overland Flow Paths

Overland flow paths should be designed to safely convey the 1% annual chance flood event. Overland flow paths can be

- Side/rear yard swales,
- Roadways,
- Storm sewers for upstream tributary areas <20 acres.

No development shall—

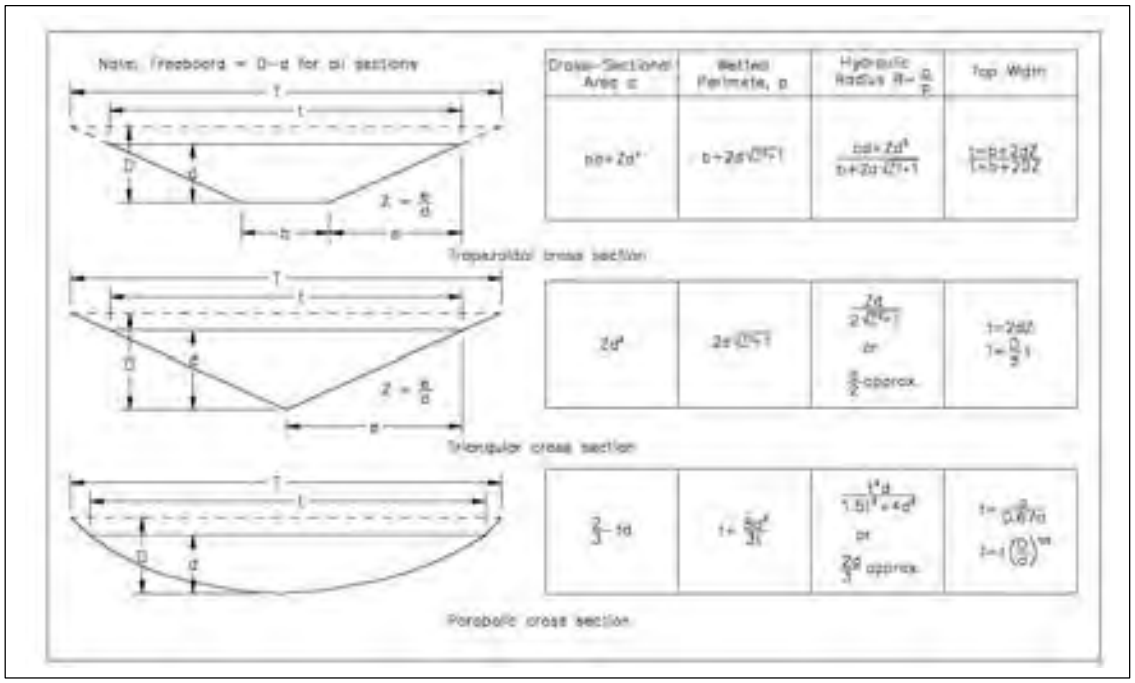
(1) result in any new or additional expense to any person other than the developer for flood protection; or

(2) increase flood elevations or decrease flood conveyance capacity upstream or downstream of the site.

$$Q = (1.49/n)\, AR^{2/3}\, S^{1/2}$$

where n is the channel roughness coefficient.

FIGURE 1
Geometric Elements of Channel Sections
(Reference: Chow, Ven Te, 1959; Open-Channel Hydraulics)



T2-01(e) Protection of Buildings

All usable space in new buildings, additions, and buildings undergoing substantial improvement must be protected against flooding from the base flood. A measure of protection has been added to the usable space of a building by requiring the usable space to be protected to the flood protection elevation (FPE), which is higher than the base flood elevation (BFE). This can be accomplished by elevating the buildings or floodproofing. Requirements for elevating and floodproofing are described in § 407. All usable space in buildings must be 2 feet above the base flood elevation. The required flood protection elevations for buildings is illustrated in Figure 1. Buildings proposed, but located in the floodplain must be elevated to the flood protection elevation whereas, buildings outside the floodplain in a known flood prone area must be protected to the flood protection elevation.

T2-01(f) Planning Principles

Meeting the requirements of this Ordinance has to be considered long before a site plan is approved, and this section defines some planning criteria necessary to accomplish this. It also states that zoning variances should be considered where current zoning creates a conflict, such as excessive set-back requirements and the intent to minimize impervious surfaces. The Ordinance of course does not require the applicant to request these types of variances officially; they should at least be discussed at a staff level when the site plan is being developed.

T2-01(g) Depressional Storage

Note that by definition, the depressional storage does not have a direct gravity outlet but if in agricultural production, it is more than likely drained by a tile and should be modeled as "empty" at the beginning of a storm. Flood storage on-site with a positive gravity surface outlet does not need to be compensated for, except when it qualifies as floodplain storage in Article 4 or when its loss causes a violation of a requirement of § 201.

The function cf any existing depressional storage should be modeled using an event hydrograph model [acceptable event hydrograph models are listed in § T202(e)] to determine the volume of storage that exists and its effect on existing site release rate. In order to prepare such a model, certain information must be obtained, including delineating the tributary drainage area, the stage-storage relationship and discharge rating curve, and identifying the capacity and elevation of the outlet(s).

The tributary area should be delineated on the best available topographic data. When the tributary area is confined to the project site, the site topographic map (1' contour interval) shall be used. If the tributary area to the depressional storage extends beyond the project limits, the Winnebago County 2' topographic maps should be used to supplement on-site survey data. If the County maps are not available, the United States Geological Survey (USGS) maps may be used for off-site areas.

After determining the tributary area, a hydrologic analysis of the watershed should be performed, including a calculation of the appropriate composite runoff curve number and time of concentration. Stage-storage data for the depressional area should be obtained

from the site topographic map. The outlet should be clearly marked and any calculations performed to create a stage-discharge rating curve should be included with the stormwater submittal.

A critical duration analysis should be performed within the depressional storage and the corresponding storage volume. The 100-year recurrence interval storm should be used for the 1-, 2-, 3-, 6-, 12-, 18-, 24-, 48-, 72-, 120-and 240-hour storm events. See § T202(f) for more information on the critical duration analysis.

Any depressional storage to be filled by the proposed development must be compensated for at a 1:1 ratio. If the entire existing tributary area is conveyed to the site runoff storage facility, the compensatory storage may be provided in the facility. If the off-site area tributary to the depressional area is not conveyed to the detention basin, a separate detention basin should be considered at the location of the existing depressional storage location so off-site flow is attenuated to the same degree in pre-project compared to in post-project conditions. The required compensatory storage should be added to the site storage requirement, and this total volume requirement should be available below the detention basin overflow elevation. It is not necessary to provide incremental compensatory storage for fill of depressional storage.

T2-02 Site Runoff Requirements

§ T202 lists some of the appropriate hydrologic and hydraulic calculation methods with which runoff can be calculated and suggest ways in which it can be adequately collected and conveyed without causing any negative impacts for a given design frequency. A site runoff example is contained in Figure 2, where the proposed site drains to one facility.

T2-02(a) Stormwater Facility Discharges

For simple developments with few drainage facilities, these criteria should be met if:

1. All site runoff exits the site through vegetated swales (i.e., runoff velocities are minimized); and

2. All site runoff exits the site either into an adjacent drainage way or spreads overland in the same direction as the predevelopment drainage, or into a drainage easement that is continuous until it reaches an existing downstream drainageway.

3. The runoff from the site demonstrated to be safely conveyed to a stream.

For larger developments or smaller developments that do not meet the above conditions, these criteria require that the developer consider the full impact site drainage system may have on downstream locations. It is necessary to:

1. Identify all points where runoff will exit the drainage site. This will include point discharge locations (where sump pumps discharge or where flows from drainage pipes, culverts, swales, or other drainage ways exit the site) as well as areas where diffused overland flow will exit the site.

2. Determine whether these immediate discharge points will be affected by the discharge. This will include considering the exit points susceptibility to water

damage (i.e., is the drainage ditch expected to convey water, or is a walkway expected to stay dry, etc.).

3. Determine whether the discharge quantity will affect the discharge point adversely. In general, if:

   a) The existing drainage patterns have been retained such that the points of discharge from the site have the same tributary areas as before discharges; and

   b) The discharge quantity at each point will be less than the pre-development flow rate to that point under pre-development conditions; and

   c) The point has been historically free from flood damage; then

The discharge quantity will probably not cause damage to the adjacent property. It is the responsibility of the applicant to check if the waterway can handle the post development flows long term without causing severe erosion. The applicant shall use an energy dissipater system at the outlet) of a storm sewer system that empties into a waterway, unless otherwise approved by the Stormwater Administrator.

If all the conditions above are not met, the developer must demonstrate that the proposed site drainage will not affect adjacent properties adversely. The developer is not responsible for rectifying off-site pre-existing failures to meet the criteria of the Ordinance. However, the developer is responsible for demonstrating that the development will not exacerbate existing related flood problems.

FIGURE 2
Detention Example

DETENTION EXAMPLE

FIGURE 2
Detention Example (continued)

PROCEDURE TO DETERMINE REQUIRED STORAGE

Step 1: Calculate volume to be retained to account for existing drain tile systems

VOLUME = RUNOFF x DCI AREA
DCI AREA = HYDRAULICALLY DISTURBED AREA x 0.30
For this example, the retention volume below the invert of the outlet is 3.88 acre-ft

Step 2: Calculate the allowable release rates

Q_{100} = 0.2 cfs/acre = 60 cfs

Step 3: Calculate Detention Storage Volume

To calculate the detention storage volume, begin by using the methodology found in the Natural Resources Conservation Service (NRCS) TR-55 Manual. Find the runoff depths of the 100-year design storm event. Using values associated with the example, the following runoff value is say:
Q_{100} = 5.50 in.

Using the following equation, the preliminary detention volume may be found (converted to acre-feet).
VOLUME = RUNOFF x ON-SITE TRIBUTARY AREA
V_{100} = 138 acre-feet

To finalize the detention basin design, a hydrologic model will be used in proposed detention basin designs and outlet release rates. Using NRCS TR-20 (a computer modeling software), enter in the data from the project site. After running the program for the 100-year event, the dimensions for the retention/detention facility will be found through several iterations.

Step 4: Add the Retention Volume to the Detention Facility

After designing the detention facility, the retention portion of the basin can be added. The retention volume will be added to the bottom of the detention facility, below the gravity outlet. Calculate the area of the bottom of the detention facility. With the value and the retention volume from step 1, calculate the depth below the outlet. This depth should not be greater than 18-inches. If the depth is greater than 18-inches, the detention area may need to be redesigned. The design may need to account for evaporation and inundation of the detention facility.

Step 5: Surcharge Storage Area

Two additional feet have been added to the top of the detention facility to control overflow from the dentention basin in the event the gravity outlet is blocked. A vegitated earth weir has been designed at the overflow point of the facility. The width of the weir is calculated by designing 2 feet of head and passing the pre-developed flow rate from the site, as required in the ordinance.

T2-02(b) Minor Stormwater System Criteria

Minor stormwater system drainageways are swales, channels, catch basins, drains, storm sewers, etc., that are designed for the motoring safety and convenience of the public (the normal drainage systems that convey water during frequent storms rather than allowing the runoff to pond or run on walkways, streets, or other locations where it would inconvenience public access or use of a site). The 10-year recurrence frequency is selected to define the upper limit for the minor stormwater system.

T2-02(c) Major Stormwater System Criteria

Major stormwater system drainageways are flow paths used only during major storms when the minor systems are overloaded. Restricting major stormwater flows to drainageways reduces the potential for flood damage.

All drainageways through the property that convey flows from areas off the development site should be left undisturbed or sized in accordance with the guidance set forth below.

Design of the major/minor systems may require:

1. Calculation of runoff rates for both the minor system criteria (typically 10-year design storm event) and the major system criteria (the 100-year design storm event);

2. Designing culverts, swales, catch basins and other "minor" drains to convey the minor design event fully; and

3. Calculating overland flow paths (broad swales, roadways, etc.) sufficient to carry the major design event flows and verifying that these flow paths do not result in property damage.

Sizing of the drainageways should:

1. Use the Manning's equation for open channels as shown in § T201(d). All drainageways should be designed for open-channel flow conditions. Surcharged design is acceptable only where the designer has fully considered the potential for hydrodynamic transients and the impacts on all connected drainageways. For minor stormwater systems that do not use open-channels, the drainageways may be calculated using the Modified Rational Method.

2. Have major stormwater system hydraulic gradelines (water surface elevation plus the pressure head) below elevations that could potentially cause damage. Hydraulic grade line evaluations must proceed upstream from:

   a) A demonstrated free overflow; or

   b) The expected base flood elevation of the most downstream point analyzed; or

   c) An alternative assumption demonstrated to be appropriate and conservative.

Steady-state backwater calculations are appropriate for calculating hydraulic grade lines in low-impact systems remote from the floodplain. Such calculations must consider at least the pressure and velocity heads of all drainageways. Tools that may be appropriate to assist in calculations include spreadsheets, WSP-2, HEC-2, HEC-RAS and, FHWA's HYDRA and Hydraflow.

3. Employ flood routing techniques for hydraulic evaluations for drainageways downstream of storage systems that address the time-varying nature of the storage facility adequately. If all storage basins are off-line or not in sequence, time-varying hydraulic routing need not be considered. Include the maximum discharge rated from the storage facility in the flow estimate at all downstream points.

   For in-line or sequential basins, the routing downstream must consider explicitly, or estimate conservatively, the impact of sequential storms, alternative storm patterns, and routing impacts between storage facilities. Continuous hydrologic routing techniques provide the explicit treatment of these factors. Such routing can be accomplished manually or by using appropriate time-varying hydraulic programs (e.g., STORM, SWMM, FEQ, UNET, HSPF).

4. Control maximum drainage system velocities in flow over roadways to address public safety needs. A commonly applied guide is that the product of velocity (ft./sec.) and depth (ft.) should not exceed a value of 4 for the storm with a 0.01 probability of occurrence in any year. § T2-02(h) defines the maximum allowable flow depths for transverse stream crossings of roads. This Guidance does not apply to existing watercourses for which the applicant has no control over the design.

Design of drainageways should:

1. Have sufficient energy dissipation at the outlet to prevent scouring of the streambank, bed, or downstream land. Armoring of the stream channel should not be considered in lieu of energy dissipation. Energy dissipation is essential to avoid transferring scour and stability problems further downstream.

2. To the extent possible, open-channel drainageways should have permanently deep rooted vegetated side slopes and inverts with velocities sufficiently limited to prevent scouring. This guide addresses the Plan requirement to control sediment and erosion from drainageways.

3. Have reasonable sideslopes given the engineering properties of the materials. A 3:1 sideslope typically provides adequate stability in an earth channel. If desired to be mowable a 4.1 is best. Deviations from the minimum value should be justified by appropriate calculations (e.g., slope stability calculations) and maintenance plans that do not require mowing.

T2-02(d) Existing Sub-Surface and Surface Drainage Systems

The applicant must locate all existing field tile systems on the project site. Particular attention should be paid to those field tile systems that are used to convey off-site flow

through the site to a downstream location. It is the responsibility of the developer to maintain adequate capacity of off-site drain tile systems entering the site. The potential for expansion of an existing agricultural drain can be determined by checking the topography tributary area upstream of a development which contains hydric soil and multiplying by 0.003 cfs/acre. If a drain tile system outlets into an adjacent property's drain tile system, the downstream drain tile capacity must be calculated using the slope and size of the drain tile. If the developer is not able to determine the capacity of the downstream system, then the assumption for the capacity should be limited to 0.003 cfs/acre multiplied by the amount of acres of hydric soil tributary to the downstream system at the point where it exits the developer's property. The developer has the option of:

1. Release into the existing drain tile system at the pro-rated capacity of the downstream field tile or 0.003 cfs/acre, whichever is less; or

2. Negotiate with the downstream property owner to upsize the field tile system to a greater capacity.

If the developer releases at 0.003 cfs/acre for the storm with 1% probability of occurrence in any year, the remaining 0.097 cfs/acre would need to be safely conveyed overland to the downstream property and discharged without scouring. The pro-rated capacity of a field tile can be determined as a percentage of the tributary area.

All field tile systems that do not serve a particular benefit (i.e., - draining open space) must be removed. It is not acceptable to only remove a few sections of the tile system. The concentration and conveyance of infiltrated runoff may cause problems if partial tile systems are left in place. Any on-site field tiles which remain on-site must be identified in record drawings.

T2-02(e) Design Runoff Rate

The design runoff rate for a development shall be the lesser of:

1. The runoff rate at the time of permit application, without the proposed project (i.e.- existing runoff rate); or

2. 0.2 cfs/acre of development.

The pre-developed runoff rate must account for any depressional storage and all other hydrologic features (e.g., soil conditions, ground cover and topography).

Acceptable event hydrograph computer models for determining the allowable release rate are: HEC-HMS, HEC-1 with SCS runoff method, SWMM, TR-20, and TR-55 tabular method. For calculation of design rates for conveyance, the Rational Method can be used for small subareas if the total drainage area at the point of design is 20 acres or less. The Administrator has the discretion to allow other event hydrograph models. The models listed in the Ordinance are all public domain models.

T2-02(f) Design Rainfall

For design storm events, the Illinois State Water Survey (ISWS) Bulletin 70 Northwest Sectional Rainfall Statistics shall be used. When designing for storage volume the 24-hour duration must be used. To design the conveyance capacity for stormwater system, the critical duration with the highest peak discharge shall be selected. The duration's that comprise a critical duration analysis are the 1-. 2-. 3-, 6-, 12-, 18-, 24-, 48-, 72-, 120-, 240- hour storm events. Table 1 lists the ISWS Bulletin 70 precipitation depths for various duration's and recurrence intervals.

TABLE 1
Illinois State Water Survey Bulletin 70
Rainfall Depths for Northwest Sectional

	Frequency						
Duration	**1-year**	**2-year**	**5-year**	**10-year**	**25-year**	**50-year**	**100-year**
5 min	0.31	0.37	0.47	0.56	0.67	0.78	0.89
10 min	0.57	0.68	0.87	1.02	1.23	1.44	1.62
15 min	0.70	0.84	1.07	1.25	1.51	1.76	1.99
30 min	0.95	1.15	1.46	1.71	2.07	2.42	2.77
1 hour	1.21	1.46	1.86	2.18	2.63	3.07	3.51
2 hour	1.52	1.83	2.33	2.74	3.31	3.86	4.47
3 hour	1.65	1.99	2.53	2.97	3.59	4.18	4.90
6 hour	1.93	2.33	2.96	3.48	4.20	4.90	5.69
12 hour	2.24	2.71	3.43	4.03	4.88	5.66	6.51
18 hour	2.37	2.86	3.63	4.26	5.15	6.01	6.92
24 hour	2.57	3.11	3.95	4.63	5.60	6.53	7.36
48 hour	2.80	3.42	4.28	4.96	6.07	7.02	8.07
72 hour	3.06	3.73	4.67	5.42	6.59	7.64	8.87
120 hour	3.45	4.13	5.10	5.91	7.21	8.36	9.97
240 hour	4.37	5.23	6.30	7.14	8.39	9.64	11.09

T2-02(g) Stormwater System Easements

The criteria of § 202(g) of the Ordinance suggests the land should be graded to drain to an existing public easement on the property (e.g., a public utility easement or existing drainage easement). If no such easement exists on the property, easements providing access for inspection and maintenance shall be granted on the property title for any stormwater structures (e.g., culverts, swales, ponds). Easement shall be noted "Maintained by the Individual Property Owners."

For development sites, the easement determination criteria required are:

1. Mapping of both the major and minor stormwater systems.

2. Mapping of an easement sufficient for maintenance for each of the stormwater facilities shown. A sufficient maintenance easement should be at least 10 feet wide around the perimeter of storage basins and along the drainageway, and extend continuously from a public roadway.

3. Dedication of the mapped easement on all plats or titles of all parcels containing

the easement. The dedication must indicate clearly that the purpose of the easement is for maintenance access to the stormwater facilities. This requirement does not require access for other public purposes, such as trails.

T2-02(h) Flow Depths

The major stormwater system may use roadways for conveyance of flows if such use of roadways is not otherwise prohibited (e.g., use of major traffic routes may be prohibited by highway regulations for safety reasons). In cases where roadways are included in the major drainage system, the depth of flow shall be calculated by the hydraulic methods described in § T202(c). Figure 3 helps explain the criteria of the Ordinance in regards to the maximum allowable flow depths on roadways.

T2-02(i) Diversions of Flow to Another Watershed

The criteria of § 202(i) of the Ordinance can be met best by designing all post-project runoff flow to a discharge from the site at the same location where it drained in pre-project conditions. Illinois drainage law must be consulted with regard to diversions and this Ordinance does not allow diversions prohibited by Illinois drainage law.

If the developer wishes to change the discharge locations this discharge must be approved in writing by the Administrator [§ 202(a)]. It will be necessary to calculate flows and hydraulic grade lines on all affected waterways for both the minor system design criteria and the major system design criteria, and to verify that the resultant hydraulic grade lines are below low entry point elevations or other damaging elevations.

The calculations should extend down both affected drainageways to the point where the prediversion flow direction joins the post diversion flow stream and up the affected drainageways to the point where the prediversion hydraulic grade line is calculated to be within 0.1 foot of the post diversion hydraulic grade line. If any of these drainageways have defined floodplains, the calculations must be accomplished in accordance with the guidance for floodplain hydraulic analysis [see Article 4 of the Ordinance]

T2-02(j) Best Management Practices Requirements

The City requires Best Management Practices (BMP's) to be considered for stormwater management. This section contains guidelines and standards to reduce and manage stormwater runoff. A hierarchy of BMP strategies shown below:

1. Minimize impervious surfaces on site to control increases in stormwater runoff

2. Preserve natural drainage features. Grass or vegetated swales, channels or flow paths should be left undisturbed to minimize impacts downstream of the subject site.

3. Utilize filter strips and level spreaders directly downstream of runoff contributing area to reduce runoff.

4. Utilize stormwater infiltration methods such as porous and permeable pavements and infiltration trenches to reduce and store stormwater runoff

5. Utilize bio-retention methods and rain gardens to infiltrate stormwater and reduce the need for traditional stormwater detention

6. To the extent practicable, drainage should be directed to and through on-site storage swales. The swales should be vegetated with water-tolerant species to prevent erosion and promote infiltration and pollutant capture

Directing sump pump flow away from storm sewers and impervious areas where practical to an infiltration area is an effective method to control stormwater flow. Redirecting sump pumps to a sanitary sewer system is not allowed.

The following standards and methods from the Illinois Urban Manual dated June 2013 shall be used as technical guidance for the BMP used:

NATURAL RESOURCES CONSERVATION SERVICE
ILLINOIS URBAN MANUAL
PRACTICE STANDARD

FILTER STRIP

(acre)
CODE 635

(Source:OH Rainwater and Land Development)

DEFINITION

A created or preserved area of vegetation designed to remove sediment and other pollutants and to enhance the infiltration of surface water runoff.

PURPOSE

The principal purpose of this practice is to remove sediment and other pollutants from runoff water by filtration, deposition, infiltration, absorption, and vegetative uptake. Another purpose is to reduce runoff quantities from impervious surfaces by infiltrating it into the ground.

CONDITIONS WHERE PRACTICE APPLIES

This practice may be applied in a variety of urban land uses where surface water runoff is discharged as overland sheet flow. Some typical locations of vegetated filter strips include:

1. Adjacent to roadways, parking lots, and other impervious surfaces to filter and convey runoff before it is discharged to swales, storm sewers, or surface water bodies
2. Lawns where roof downspouts are discharged to disperse and infiltrate runoff
3. Adjacent to wetlands, streams, ponds or lakes, or conservation practices to provide the runoff mitigation benefits described above and to serve as a wildlife habitat buffer
4. On construction sites and land undergoing development to filter sediment from overland sheet flow

CRITERIA

The maximum drainage area to a filter strip shall be 5 acres.

Vegetative filter strips shall have slopes 15% or less.

The minimum length (dimension parallel to flow path) of the filter strip is determined by the drainage area being treated and the width of the filter strip. The filter strip length shall be at least 1/2 the unit area length. The unit area

635 - 1

length is calculated by dividing the drainage area to the filter strip, in square feet, by the filter strip width (dimension perpendicular to flow path), in feet. The minimum filter strip length shall be 5 feet except on construction sites where the minimum length shall be 25 feet.

The width (dimension perpendicular to flow path) of the filter strip determines the required length of the filter strip. The wider the filter strip, the shorter the required filter strip length. The width shall be as near the same width as the impervious area being treated.

Some applications (e.g., roof downspouts) may require a level spreader to prevent a concentrated flow path through the filter strip. Level spreaders shall be installed according to the requirements in practice standard LEVEL SPREADER 870. For parking lots and roadways, a level spreader will not be needed if the edge of the contributing runoff area is reasonably level and uniform. Level spreaders shall be installed in the filter strip every 50 feet of filter strip length on slopes greater than 5% and every 100 feet of filter strip length on slopes 5% or less.

The maximum flow velocity through the filter strip shall be calculated for the 10-year frequency, 24-hour duration storm event and shall not exceed the maximum permissible velocities as described in practice standard GRASSED LINED CHANNEL 840.

Vegetation shall follow the requirements of practice standard PERMANENT VEGETATION 880 and be protected with an erosion control blanket meeting the requirements of practice standard EROSION BLANKET 830 or mulched meeting the requirements of practice standard MULCHING 875. In place of permanent seeding, the filter strip may be vegetated with sod following the requirements of practice standard SODDING 925.

The filter strip vegetation should be fully established before the contributing impervious surface is created and its runoff directed onto the filter strip. Where this is not possible, the filter strip shall be vegetated with sod.

CONSIDERATIONS

Nearly 80% of the maximum potential settleable solids removal is achieved with the sizing criteria listed above. The efficiency can be increased to nearly 90% if the filter strip length is increased so that it has a length equaling or exceeding the unit area length.

Ideally, filter strips function best on slopes 5% or less. However, on slopes 1 % or less, vegetation used should be tolerant of saturated soil conditions.

It is critical that appropriate soil stabilization materials be applied immediately after seeding on all vegetative filter strips to minimize rill development during cover establishment. Due to the added runoff volumes coming from the impervious surfaces, an erosion control blanket will be necessary in most installations. Mulch may be adequate on relatively flat slopes where the contributing drainage area is small. In addition to stabilizing soils, these materials should significantly aid seed germination and early plant establishment.

Native prairie vegetation should be used if possible. Native vegetation has distinct advantages over turf grass,

including denser, deeper root structure to enhance infiltration; reduced maintenance needs (particularly less need for herbicides and fertilizer); and enhanced wildlife habitat.

If site constraints prevent the installation of broad filter strips meeting the specified sizing criteria, even narrower strips can provide substantial stormwater mitigation benefits in contrast to conventional curb and gutter storm sewer approaches.

Protect the filter strips from heavy foot and vehicular traffic during construction to prevent compaction and loss of infiltration capacity.

The filter strip area should be cleared of trees, stumps, brush, rocks, and similar materials if they are likely to interfere with installation of the filter strip (e.g., cause short-circuiting or concentrations of flow). Ideally, uniform, well vegetated strips of natural/native vegetation should be preserved as filter strips since their infiltration capacities are likely to be greater if grading is avoided.

On construction sites and other areas with bare soil where the filter strip is being used as a temporary sediment control technique, it is critical that temporary stabilization be applied to exposed soils and that concentrated flow through the filter strip be avoided. If the potential for concentrated flow exists, consideration should be given to construction of other sediment control practices above the filter strip. These practices shall meet the requirements of practice standards found in this manual such as practice standard TEMPORARY SEDIMENT TRAP 960, and SILT FENCE 920.

PLANS AND SPECIFICATIONS

Plans and specifications for installing filter strips shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. At a minimum include the following items:

1. Location of the practice
2. Length and width of the filter strip
3. Slope of the filter strip
4. Required appurtenant practices such as level spreaders or temporary sediment basins
5. Grading requirements, topsoil stockpiling and utilization requirements
6. Soil preparation, seeding and temporary soil stabilization (i.e., erosion control blanket or mulching) requirements

All plans shall include installation, inspection, and maintenance schedules with the responsible party identified.

Standard drawing FILTER STRIP – GRASSED IL-535 may be used as the plan sheet.

OPERATION AND MAINTENANCE

On active construction sites, the filter strip shall be inspected after every runoff producing rain and repairs made as needed. After construction, filter strips should be inspected during and after major storm events, particularly during the first one or two years. After the first one or two years, the filter strip may be inspected each spring and after major storm events.

Filter strips should be inspected for proper distribution of flows and signs of erosion. The filter strip should be kept

free of litter. Irrigation needs should be minimal except during extended dry periods. Periodic aeration of the soils may be beneficial if the underlying soils have a high clay content, or there is difficulty in maintaining a good vegetative cover due to compaction.

If erosion is discovered, the eroded areas should be filled, reseeded, and mulched. Then the causes for the erosion should be determined and prevented from recurring.

Maintain the vegetation at the most dense stand possible.

Filter strips vegetated with turf grass should be mowed and the residue harvested a minimum of two or three times a year to promote good growth and vegetative density at ground level, nutrient removal from the system, and filtering ability.

Caution should be used when applying herbicides to filter strips or adjacent areas to minimize pollution to the water resources being protected.

Filter strips vegetated with native species should be managed through prescribed burning once every two to three years, after the vegetation is established. Where prescribed burning is not feasible, mowing may be substituted. In contrast to turf grass, native vegetation should be mowed higher and less frequently.

Filter strips that have accumulated so much sediment that they are higher than adjacent areas should be disked or graded as necessary to reestablish shallow sheet flow conditions, and be reseeded.

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NATURAL RESOURCES CONSERVATION SERVICE
ILLINOIS URBAN MANUAL
PRACTICE STANDARD

LEVEL SPREADER

(no.)
CODE 870

(Source: VA Erosion and Sediment Control Handbook)

DEFINITION

A device used to disperse concentrated runoff uniformly over the ground surface as sheet flow.

PURPOSE

The purpose of this practice is to convert concentrated, potentially erosive flow to sheet flow and release it uniformly over a stabilized area or filter strip. The resultant sheet flow enhances pollutant filtering and runoff infiltration and reduces the potential for erosion.

CONDITIONS WHERE PRACTICE APPLIES

The principal application of a level spreader is to convey runoff from impervious surfaces, such as parking lots or roadways, uniformly onto vegetated filter strips. Level spreaders can also be applied as outlets for diversion structures. Level spreaders are appropriate and/or necessary under the following conditions:

1. Where runoff from an impervious surface is uneven and/or runoff is released as concentrated flow, such as through curb cuts or roof downspouts
2. At the ends of diversions
3. Where the runoff water will not re-concentrate after release from the level spreader until it reaches an outlet designed for concentrated flow
4. Where sediment-free storm runoff can be released in sheet flow down a stabilized slope without causing erosion
5. Where the lip of the level spreader can be constructed in undisturbed soil
6. Where there will be no traffic over the spreader

CRITERIA

Criteria for level spreader design can vary greatly depending on the application. For this reason, two sets of criteria are specified for several of the factors that follow.

870 - 1

For impervious surface runoff applications:

The capacity for the level spreader is determined in the design of the filter strip to which it discharges (see practice standard FILTER STRIP 835).

The spreader shall run linearly along the entire width of the filter strip to which it discharges. In most cases, the spreader will be the same width as the contributing impervious surface. The ends of the spreader shall be tied into higher ground to prevent flow around the spreader.

The minimum depth shall be 6 inches and the minimum width shall be 6 feet for the lower side slope. Side slopes shall be 2:1 (horizontal to vertical) or flatter.

The grade of the spreader shall be 0%.

The discharge area shall meet the requirements of practice standard FILTER STRIP 835.

For diversion outlet applications:

The capacity of the spreader shall be determined using the peak flow from the 10-year frequency, 24-hour duration storm. The drainage area shall be restricted so that maximum flows into the spreader will not exceed 30 cfs.

Spreader dimensions: Select the length and depth of the spreader from the table below. The length dimension is parallel to the diversion.

Design Flow (cfs)	Minimum Depth (ft)	Minimum Length (ft)
0-10	0.5	10
10-20	0.6	20
20-30	0.7	30

The minimum width of the spreader shall be 6 feet for the lower side slope. Side slopes shall be 2:1 (horizontal to vertical) or flatter.

Construct a 20 foot transition section in the diversion channel so the width of the channel will smoothly meet the width of the spreader to ensure uniform outflow.

The last 20 feet of the diversion channel shall provide a smooth transition from the channel grade to the level spreader and where possible, shall be less than or equal to 1%. The grade of the level spreader shall be 0%.

The outlet discharge area must be generally smooth and well vegetated with a maximum slope of 10%.

For all applications:

The spreader lip shall be constructed to a uniform height and zero grade over the length of the spreader. For design flows of 4 cfs or greater, a rigid lip of non-erodible material, such as pressure-treated timbers or concrete curbing, shall be used. For flows less than 4 cfs, a vegetated lip may be used. The spreader lip shall be constructed on undisturbed soil.

When using a vegetated lip it shall be protected with an erosion control blanket to prevent erosion and allow the vegetation to become established. The erosion control blanket for a vegetated lip shall meet the requirements of

870 - 2

practice standard EROSION BLANKET 830. The blanket shall be a minimum of 4 feet wide extending a minimum of 1 foot downstream over the level lip. The blanket shall be secured with heavy duty staples and the downstream and upstream edges shall be buried at least 6 inches deep in a vertical trench.

When using a rigid lip it shall be entrenched at least 4 inches below existing ground and securely anchored to prevent displacement. An apron of coarse aggregate meeting IDOT CA-1 or CA-3 gradation shall be placed to the top of the rigid lip and extend downslope at least 3 feet. A filter fabric shall be placed under the coarse aggregate. The filter fabric shall meet the requirements of material specification 592 GEOTEXTILE Table 1 or 2, Class I, II, or IV.

Immediately after level spreader construction, seed and mulch the entire disturbed area of the spreader. Seeding shall meet the requirements of practice standard PERMANENT VEGETATION 880 and mulching shall meet the requirements of practice standard MULCHING 875.

CONSIDERATIONS

The level spreader is a relatively low-cost structure to:

1. Disperse impervious surface runoff uniformly to a filter strip or
2. Release small volumes of concentrated flow from diversions when conditions are suitable

To accomplish these purposes, particular care must be taken to construct the spreader lip completely level. Any depressions in the lip will concentrate the flow, resulting in a loss of pollutant filtering effectiveness and/or erosion. Evaluate the outlet system to be sure that flow does not concentrate below the outlet.

For filter strip applications, the determination of whether a level spreader is needed should be based on how the runoff is entering the filter strip. If the runoff is concentrated by curb cuts, and particularly if a large area of impervious surface drains to one point, a level spreader is essential to achieve effective pollutant removal in the filter strip. A level spreader also is important if the filter strip is relatively steep in order to avoid erosion from concentrated runoff discharge. If the runoff is evenly distributed over the width of the impervious surface (e.g., a curbless, even-sloped road or parking lot), a level spreader may not be necessary.

When the level spreader is used as an outlet for temporary or permanent diversions and diversion dikes, runoff containing high sediment loads must be treated in a sediment trapping device such as practice standard TEMPORARY SEDIMENT TRAP 960 or IMPOUNDMENT STRUCTURE-ROUTED 842 before release into a level spreader.

PLANS AND SPECIFICATIONS

Plans and specifications for installing a level spreader shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. At a minimum include the following items:

1. The spreader location
2. The length and width

3. For filter strip applications, plans for both the adjacent impervious surface and the filter strip, for diversion outlets, plans detailing the diversion structure and the adjacent outlet area
4. Lip details: vegetated or rigid
5. Stone gradation
6. Filter fabric specifications if used
7. Rigid lip material specifications if used
8. Erosion control blanket specifications if used
9. Seeding and mulching requirements

All plans shall include installation, inspection, and maintenance schedules with the responsible party identified.

Standard drawing LEVEL SPREADER IL-570 may be used as the plan sheet.

OPERATION AND MAINTENANCE

Inspect level spreaders after every rainfall until vegetation is established, and promptly make needed repairs. After the area has been stabilized, make periodic inspections and maintain vegetation in a healthy, vigorous condition.

Verify that the level spreader is distributing flow evenly. If problems are noted, make appropriate modifications to ensure even flow distribution.

REFERENCES

Illinois Department of Transportation, 1997. Standard Specifications for Road and Bridge Construction. IL

North Carolina Sedimentation Control Commission, 1988. Erosion and Sediment Control Planning and Design Manual. NC

Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation, 1992. Virginia Erosion and Sediment Control Handbook, 3rd ed., VA

NRCS IL January 1999

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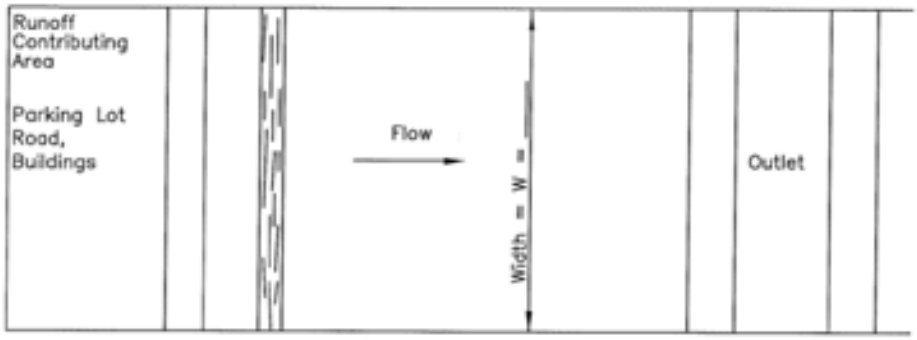
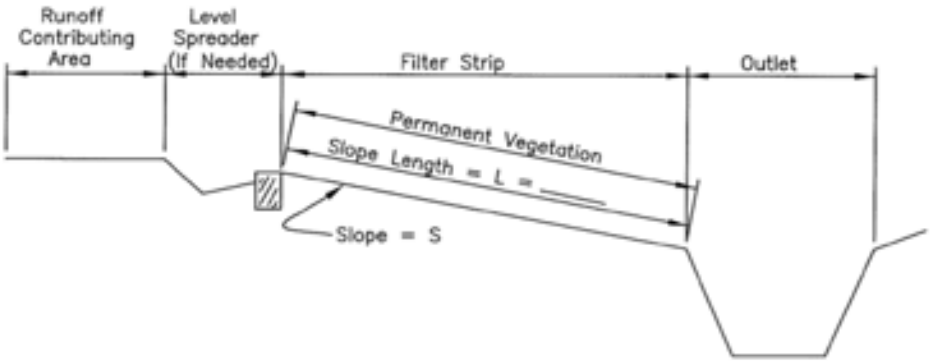
FILTER STRIP - GRASSED



PLAN VIEW



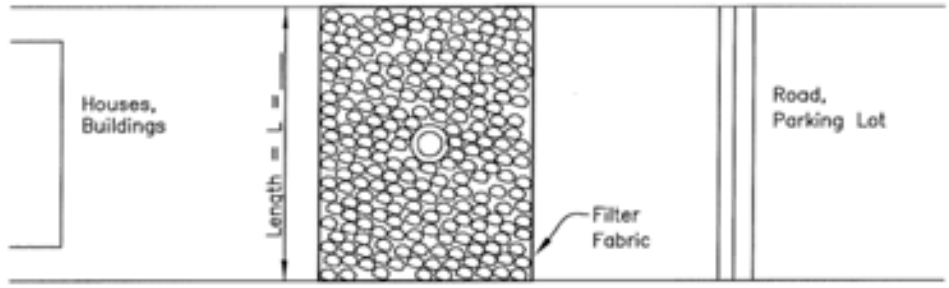
SECTION VIEW

Area To Be Seeded L x W = ____

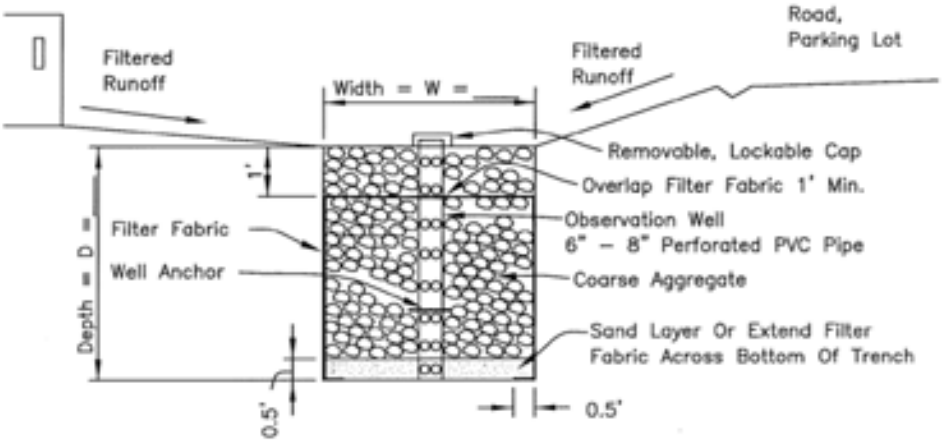
See plans for permanent vegetation requirements.
See plans for S, L and W dimensions.
Slope shall not exceed 15% (0.15 foot of fall per foot of horizontal distance).
See sheet LEVEL SPREADER IL-570 for level spreader requirements.

REFERENCE		NRCS	STANDARD DWG. NO.
Project		Natural Resources Conservation Service	IL-535
Designed	Date		SHEET 1 OF 1
Checked	Date		DATE 1-29-99
Approved	Date		

INFILTRATION TRENCH



PLAN VIEW

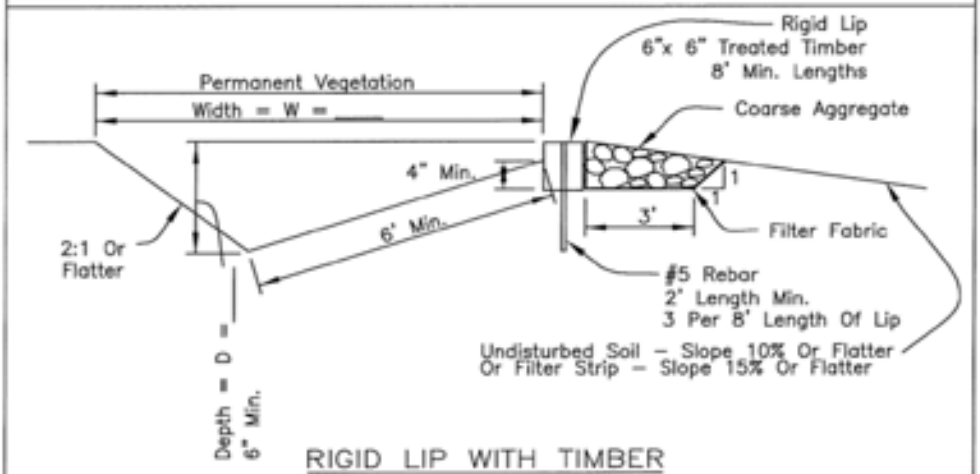


SECTION VIEW

NOTES:
1. Coarse aggregates shall meet one of the following IDOT gradations: CA–1 or CA–3.
2. Sand, if used, shall meet one of the following IDOT gradations: CA–14, CA–15 or CA–16.
3. Filter fabric shall meet the requirements of material specification 592 GEOTEXTILE Table 1 or 2, Class I with an apparent opening size of at least 30 for non–woven and 50 for woven.
4. PVC pipe shall meet material specification 547 PLASTIC (PVC, PE, ABS) PIPE.
5. See plans for L, W and D dimensions.

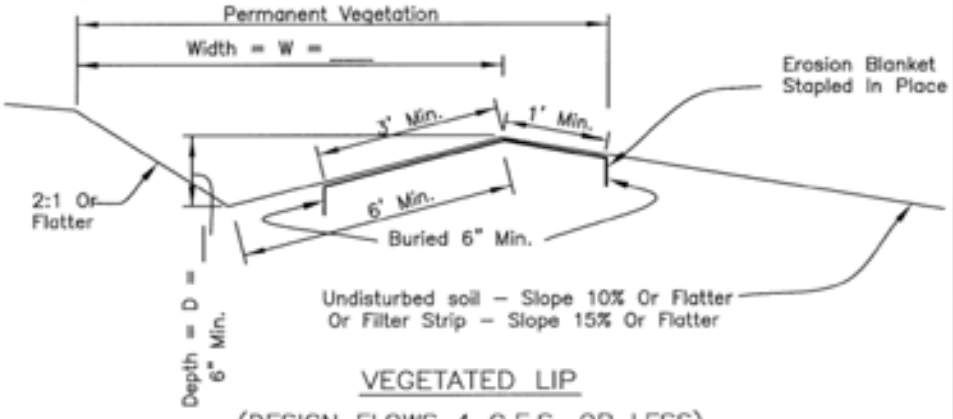
REFERENCE	NRCS	STANDARD DWG. NO.
Project _____	Natural Resources Conservation Service	IL-547
Designed _____ Date _____		SHEET 1 OF 1
Checked _____ Date _____		DATE 1-29-99
Approved _____ Date _____		

LEVEL SPREADER



RIGID LIP WITH TIMBER

(DESIGN FLOWS 4 C.F.S. TO 30 C.F.S.)



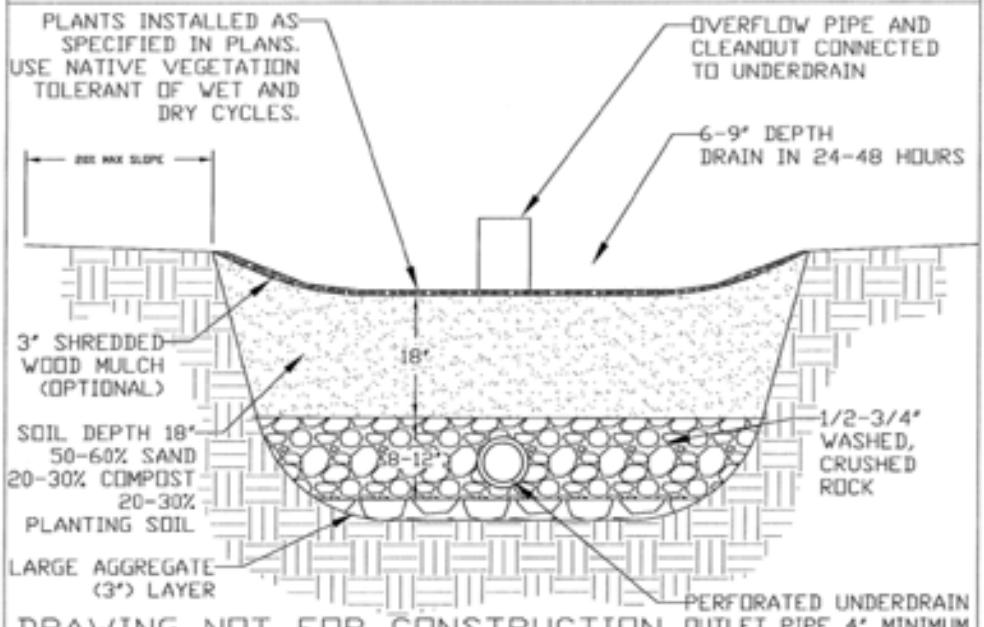
VEGETATED LIP

(DESIGN FLOWS 4 C.F.S. OR LESS)

NOTES:
1. Coarse aggregate shall meet one of the following IDOT gradations: CA–1, or CA–3.
2. Filter fabric shall meet the requirements of material specification 592 GEOTEXTILE, Table 1 or 2, Class I, II, or IV.
3. See sheet FILTER STRIP–GRASSED IL–535 for filter strip requirements.
4. See sheet EROSION BLANKET IL–530 for blanket material and installation requirements.
5. See plans for permanent seeding requirements.
6. See plans for D and W dimensions.

REFERENCE	NRCS	STANDARD DWG. NO.
Project ____	Natural Resources Conservation Service	IL-570
Designed ____ Date ____		SHEET 2 OF 2
Checked ____ Date ____		DATE 1-29-99
Approved ____ Date ____		

BIORETENTION FACILITY PLAN



DRAWING NOT FOR CONSTRUCTION

NOTES:

1. LOCATE FACILITIES AT LEAST 100 FEET FROM ANY WELLS OR SOURCE WATER LOCATIONS.
2. LOCATE FACILITY AT LEAST 25 FEET FROM ANY SEPTIC FIELDS AND UPGRADIENT IF POSSIBLE.
3. LOCATE FACILITY AT LEAST 25 FEET AND DOWNGRADIENT FROM BASEMENTS.
4. LOCATE FACILITY 5 FEET OR GREATER FROM A SLAB OR FOUNDATION.
5. RECOMMENDED MINIMUM AREA SHALL BE 200 SQUARE FEET WITH THE LENGTH AT A 2:1 RATIO OF THE WIDTH.
6. ADDITIONAL REGULATIONS MAY BE REQUIRED BY LOCAL ORDINANCES.
7. A GEOTEXTILE FABRIC SEPARATING THE LARGE AGGREGATE AND SOIL IS OPTIONAL.
7. DRAWING NOT TO SCALE.

REFERENCE		STANDARD DWG. NO.
Project		IUM-500
Designed ____ Date ____		SHEET 1 OF 1
Checked ____ Date ____		DATE 11-18-13
Approved ____ Date ____		

NATURAL RESOURCES CONSERVATION SERVICE
ILLINOIS URBAN MANUAL
PRACTICE STANDARD

GRASS-LINED CHANNEL

(Acre)
CODE 840

(Source: NC Erosion and Sediment Control Field Manual)

DEFINITION

A natural or constructed channel that is shaped or graded to required dimensions and established with suitable vegetation for stable conveyance of runoff.

PURPOSE

The purpose of this practice is to convey and dispose of concentrated surface runoff without damage from erosion, deposition, or flooding.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to construction sites and developing areas where:

1. Concentrated runoff will cause damage from erosion or flooding;
2. Sufficient depth of soil materials are present to allow establishment of vegetation that will stabilize the cross section and grade of the channel;
3. Slopes are generally less than 5%;
4. Space is available for a relatively large cross section.

Typical uses include roadside ditches, channels at property boundaries, outlets for diversions, and other channels and drainage of low areas.

CRITERIA

Capacity - As a minimum, grass-lined channels shall carry the peak runoff from the 10-year frequency, 24-hour duration storm. Where flood hazard exists, increase the capacity according to the potential damage. For grass-lined channels with a grade of less than 1 percent, out-of-bank flow may be permitted if such flow will not cause erosion, property or flooding damage. The minimum channel capacity in such cases shall be a 2-year frequency storm. Channel dimensions may be determined by using design tables with appropriate retarding factors or by Manning's formula using an appropriate "n" value. When retarding factors are used, the capacity may be based on "C" retardance and stability on "E" retardance, where the waterway will be regularly mowed and otherwise maintained.

840 - 1

Velocity - The maximum permissible velocities of flow shall not exceed the values shown in Table 1.

Cross section - The channel shape may be parabolic, trapezoidal, or V-shaped, depending on the need and site conditions. The design water surface elevation of a grass-lined channel receiving water from diversions or other tributary channels shall be equal to or less than the design water surface elevation in the diversion or other tributary channels. The parabolic shape is the preferred cross section. The triangular cross-section concentrates flow in the "v" of the channel causing higher and more erosive velocities. When vegetated triangular channels are used, the minimum side slopes should be 6:1 or flatter.

Drainage - Base flow shall be handled by a stone lined center, subsurface drain, or other suitable means since sustained wetness usually prevents adequate vegetative cover. The cross-sectional area of the stone lined center or subsurface drain size to be provided shall accommodate a flow rate of 0.1 cfs/acre or by actual maximum base flow.

Where tile is used along the channel, it should be located as close to 1/3 of the channel (top) width from the center of the waterway as practical. The top of the tile should be at least 2.0 feet (up to 4 feet, where possible) below the bottom of the channel, except where soil or outlet conditions make this depth unpractical. The tile shall meet the requirements shown in the practice standard SUBSURFACE DRAIN 945.

Alignment - Minor changes may be made to improve alignment. Care must be taken to avoid exposing soil materials (such as sodium soils or high clay content glacial till subsoil) that are not conducive to the establishment and maintenance of adequate vegetative cover.

Outlets - All grass-lined channels shall have a stable outlet with adequate capacity to prevent ponding or flooding damages. Appropriate measures must be taken to dissipate the energy of the flow to prevent scouring of the outlet channel. Examples of acceptable outlets include but are not limited to GRASS-LINED CHANNELS 840, IMPOUNDMENT STRUCTURE - FULL FLOW 841, IMPOUNDMENT STRUCTURE - ROUTED 842, INFILTRATION TRENCH 847, LEVEL SPREADER 870, and ROCK OUTLET PROTECTION 910.

Establishment of vegetation - Grass-lined channels shall be vegetated according to the practice standard PERMANENT VEGETATION 880.

Side slopes - Side slopes shall not be steeper than a ratio of 2 horizontal to 1 vertical. They should be designed to accommodate the equipment used for maintenance. Where planned to be crossed by large equipment, trapezoidal channels shall have side slopes of 8:1 or flatter and be protected according to the practice standard STABILIZED CONSTRUCTION ENTRANCE 930. When triangular (V-shaped) channels are used, the minimum side slopes should be 6:1 or flatter.

Sedimentation protection - Protect permanent grass-lined channels from sediment produced in the watershed, especially during the construction period. This can be accomplished by

840 - 2

the effective use of diversions, sediment traps, protected side inlets and vegetative filter strips along the channel.

Construction - The grass-lined channel will be constructed meeting the requirements of Construction Specification 27 - DIVERSIONS AND WATERWAYS.

CONSIDERATIONS

Generally, channels should be located to conform with and use the natural drainage system. Channels may also be needed along development boundaries, roadways, and back lot lines. In all situations channels should be located so that they do not make sharp, unnatural changes in direction or grade of flow. Avoid channels crossing watershed boundaries or ridges.

Major reconfiguration of the drainage system often entails increased maintenance and risk of failure.

Establishment of a dense, erosion resistant vegetation is essential. Construct and vegetate grass-lined channels early in the construction schedule before grading and paving increase the rate of runoff.

All grass-lined channels should be designed to permit easy crossing of equipment during construction and maintenance.

If local ordinances permit, storm sewers may be used to extend existing agricultural tile or base flow across a development. They may also be used as an under drain for the channel if the conduit is open jointed.

Geotextile fabrics or special mulch protection such as fiberglass roving or straw and netting provide stability until the vegetation is fully established. It may also be necessary to divert water from the channel until vegetation is established or to line the channel with sod. Rock checks or filter fabric checks may also be needed to protect the channel before vegetation is established. Sediment traps may be needed at channel inlets and outlets.

Applicable state drainage laws, traditional case law precedent and local ordinances and regulations must be observed in locating grass-lined channels.

PLANS AND SPECIFICATIONS

Plans and specifications for installing grass-lined channels shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. At a minimum include the following items:

1. Channel location and alignment.
2. Grade, depth and width.
3. Channel cross section type.
4. Seeding specifications and dates.
5. Subsurface drainage, if needed.

All plans shall include the installation, inspection, and maintenance schedules with the responsible party identified.

The grass-lined channel will be constructed meeting the requirements of Construction Specification 27 DIVERSIONS AND WATERWAYS. Standard drawings WATERWAY PLAN IL-540 P, T, or V may be used as the plan sheet.

OPERATION AND MAINTENANCE

During the establishment period, inspect grass-lined channels after every rainfall.

840 - 3

After grass is established, check the channel at regular intervals and after every heavy rainfall event. Immediately make repairs. It is particularly important to check the channel outlet and all road crossings for bank stability and evidence of piping or scour holes. Remove all significant sediment accumulations to maintain the designed carrying capacity. Keep the grass in a healthy, vigorous condition at all times, since it is the primary erosion protection for the channel.

NRCS IL October 2001

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TABLE 1

PERMISSIBLE VELOCITIES FOR CHANNELS LINED WITH VEGETATION

Channel Slope (%)	Lining	Permissible Velocity (ft./sec.) [1/]
0 – 5	Tall fescue Kentucky bluegrass Smooth bromegrass	5
	Grass-legume mixture	4
	Red fescue Redtop	3
	Small grains [2/]	2.5
5 – 10	Tall fescue	5
	Kentucky bluegrass Smooth bromegrass	4
	Grass-legume mixture	3
Greater than 10	Tall fescue Kentucky bluegrass Smooth bromegrass	3

[1/] For highly erodible soils, permissible velocities should be decreased 25%. An erodibility factor (K) greater than 0.35 would indicate a highly erodible soil. Erodibility factors (K-factors) for Illinois soils are available in every NRCS office.

[2/] For temporary seedings.

840 - 5

ILLINOIS URBAN MANUAL
PRACTICE STANDARD

POUROUS AND PERMEABLE PAVEMENTS

(sq. ft.)
CODE 890

Source: IUM Technical Review Committee

DEFINITION

Alternate pavement systems are designed to allow water to pass through the surface into the subsurface for storage and infiltration and to also reduce peak runoff rates and volumes, as well as reduce pollution loads.

PURPOSE

The purpose of this practice is to promote volume reduction, peak flow reduction and to reduce pollution into downstream water bodies.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where pavement is desirable or required, including but not limited to:

1. Parking lots
2. Driveways for residential and light commercial use
3. Alleys
4. Low traffic roadways
5. Boat ramps
6. Paths and sidewalks
7. Fire lanes
8. Community spaces
9. As an alternative to conventional paving

CRITERIA

1. Permeable soils.
2. Tributary area is less than 3 times the porous/pervious pavement area. Things that may affect this are: soil permeability, stabilization practice and amount of overland flow.

890-1

3. The site slope is less than 2%.
4. If the soils are not permeable then some type of under drain system should be used when the sub-grade soil permeability is less than 0.5 in / hr.
5. Under drain use must require a storm drain infrastructure.
6. Depth of water table. If water table is less than 2 feet below finish surface this practice should not be considered.
7. To facilitate infiltration, a graded stone and/or geo-textile fabric (IUM 592) should be used.
8. Heavy traffic loading will affect performance and longevity.
9. Ice management; low or no chloride, no sanding or cinders
10. Owner needs to be prepared for extensive maintenance.
11. Not suitable for storm water hot spots, areas with high pollutant loads or contaminated soils.
12. Roadway and parking lot marking should be applied as paint vs. an adhesive tape.
13. The base material shall be free of contaminates to allow for water passage.
14. ASTM test C1701 should be used to identify the needed flow through the porous / pervious pavement layer.

CONSIDERATIONS

1. Pretreatment of flows may be necessary
2. A porous system is going to have more void space in its cross section than a pervious system, allowing more water passage.
3. ADA compliant.
4. Pollutants of concern shall be identified along with the appropriate Best Management Practices to address or mitigate them.
5. Materials may consist of vegetation, interlocking blocks (P-ACM/M), unbound aggregate, concrete, asphalt, paver bricks and recycled glass.
6. Recommend draw down time of the sub-surface layer to be less than 48 hours.
7. Pipe under drains shall be sized for flow requirements. Perforations shall be slotted vs. round. A geo-textile may be needed (IUM 592).
8. Some practices are better suited to reduce contributions to the heat island effect.
9. No seal coating or sealers can be used with this practice because of reduced volume of water flow.
10. Street sweeping is one method that may help to remove debris; however, it may not remove debris far enough into the cross section.
11. Should not be used for high speed roads.
12. Areas of concern if used would be:
    a. Sediment laden runoff
    b. High traffic counts
    c. Heavy repetitive loading

890 - 2

d. Not accessible for maintenance

e. Non-permeable soils or a high water table

f. Removal of dissolved pollutants limited with under drain use.

g. Near or up against basement walls.

PLANS AND SPECIFICATIONS

Plans and specifications shall be prepared in accordance with the criteria of this standard and shall describe the requirements for applying the practice to achieve its intended use.

The extent of porous and pervious pavement shall be identified on the plans with some type of cross hatching.

A cross sectional detail showing locations and thickness of the materials needs to be included.

Installation sequence of materials may need to be listed.

A detailed specification should be developed to insure the proper type of porous or pervious pavement is installed.

STANDARD DRAWINGS

Pretreatment (IUM-XXX) – *to be developed*

OPERATION AND MAINTENANCE

1. No sanding or cinder use with this practice.
2. Low or no chloride ice management.
3. Rubber or plastic tipped snow plow blades shall be used.
4. Clean out of pretreatment practices.
5. Landscapes waste (leafs, clippings, branches, seeds, etc.) shall be removed or captured to prevent clogging of the surface.
6. If flushing is the method chosen to clean the cross section, the debris that is washed through must be removed.
7. Air wands are one method of cleaning the cross section; however, care should be taken not to blow the debris deeper into the pavement.

REFERENCES

IL Urban Manual Technical Committee

Geosyntec Consultants Permeable Pavement Technical Document

Michigan DEQ

urbst890.doc June 2013

ILLINOIS URBAN MANUAL
PRACTICE STANDARD

BIORETENTION FACILITY

(feet)
CODE 800

Source: Jessica Cuesill, Winnebago Soil and Water Conservation District

DEFINITION

Facility that utilizes a soil media, mulch, and vegetation to treat stormwater runoff through filtration in clay soils areas and through infiltration in areas with porous soils.

A bioretention facility is also sometimes referred to as a rain garden. However, the term rain garden is typically used to describe a small, planted depression on an individual homeowner's property. A bioretention facility serves the same purpose but typically describes larger projects in community common areas as well as non-residential applications. Bioretention facilities may take on greater impervious areas due to their applications in commercial developments.

PURPOSE

The purposes of a properly designed bioretention facility include the decrease of peak flow rates and volume for smaller storms in the receiving stream and the removal of pollutants from stormwater runoff utilizing the chemical, biological, and physical properties of plants, microbes, and soils. A bioretention basin may be applied individually or as part of a system of stormwater management practices.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where the following or similar conditions exist:

- Drainage area is small, less than four acres (preferably less than one acre) with an impervious area of less than one acre;
- Impervious areas with shallow grade allow for sheet flow over level entrance areas;
- Stormwater runoff from impervious surfaces is diverted or conveyed by a curb or gutter to specific location(s) with inflow protection;
- The hydraulic conductivity, or permeability, of soil is sufficient for drainage within a 48 hour period;
- If soil permeability is not sufficient, replacement of clay soils with a sand mixture and/or an under drain system allows for adequate drainage, and,

800-1

- Sufficient fall can be achieved between inlet and outlet for under drain if required.

CRITERIA

Construction projects may be subject to local, county, state and federal rules and regulations. Bioretention facilities shall be designed by a registered professional engineer as part of the overall site design for long-term water quality and quantity. A landscape architect should be used to determine types of plants needed and locations in the facility. A landscape architect may also provide valuable insight during the design, construction and maintenance phases. Plans and specifications shall be referred to by the site superintendent and field personnel during the construction process.

The facility shall not be constructed within a stream buffer or in areas adjacent to streams where sediment may be deposited during flood events.

Bioretention is not a suitable BMP at locations where the wet season water table is within four feet of the proposed ground surface and where soil is unstable. A water table that is too shallow can prevent stormwater runoff from draining completely through the facility.

The size and the design shall be based on the contributing drainage area, underlying soils, utilities, and existing vegetation. It is recommended to size a bioretention facility for a 1 year, 24 hour storm. A bypass is recommended for use in larger storms.

Locate facilities at least 100 feet from any wells or source water locations; at least 25 feet from any septic fields and upgradient if possible; at least 25 feet and downgradient from basements; five feet or greater from a slab or foundation, and, shall not cross property lines.

The recommended minimum area shall be 200 square feet with the length at a 2:1 ratio of the width. This is to allow enough space for a dense, randomly distributed planting area while decreasing the chances of concentrated flow. The facility must have soil with sufficient hydraulic conductivity (or replaced with a sand mixture of over 50%). A planting soil bed, with either a mulch layer or a grass mixture as a cover crop is highly recommended.

Vegetation must be able to withstand periods of inundation and drought such as some native plants.

The facility shall be designed to capture stormwater runoff and filter the water through the soil bed over a period of 24 to 48 hours.

Inflow velocities shall be reduced to less than three feet per second upstream of the facility to prevent erosion and facilitate uniform distribution across the BMP. This may require the installation of practices such as **FILTER STRIP 835** or **ROCK OUTLET PROTECTION 910**.

The bioretention facility can be excavated before final stabilization of the surrounding watershed; however, the soil mixture and/or underdrain system shall not be placed until the entire contributing drainage area has been stabilized and any restrictive layer remediated. Bioretention facilities should not be used for control of sediment and erosion on construction sites. Stabilization may require the installation of practices such as **EROSION CONTROL BLANKET 830**, **EROSION CONTROL BLANKET – TURF REINFORCEMENT MAT (TRM) 831** and **MULCHING FOR SEEDING AND SOIL STABILIZATION 875**.

Final graded dimensions, side slopes, and final elevations shall be constructed according to design drawings and specifications.

600 - 2

Underdrains are recommended for all facilities that do not have sufficient hydraulic conductivity (cannot drain within 48 hours). An underdrain increases the ability of the soil to drain and therefore ensures an adequate aerobic state that allows plants to grow. A minimum 4-inch perforated pipe (**PLASTIC PIPE 547**) with an 8- to 12-inch gravel bed shall be installed as an underdrain system. Space the pipe at a maximum of ten foot on-center and maintain a minimum grade of 0.5 percent. At least one cleanout shall be installed every 50 feet on each underdrain. The cleanout can also be used as an overflow relief system if situated one foot above the bioretention facility. It is recommended to cover the overflow with a grate or screen to keep large debris from clogging the pipe. The under drain shall connect to a stormwater system with adequate capacity or daylight to a suitable outfall with erosion protection such as **ROCK OUTLET PROTECTION 910**. Before placement of the aggregate, underdrain, and bioretention soil mixture, the bottom of the excavated area shall be roto-tilled to a minimum depth of six inches to alleviate any compaction that might impede infiltration. The underdrain may include an adjustable flow regulator to provide the right amount of infiltration.

Two layers of aggregate are recommended under the soil bed. A layer of ¾ - and ¾-inch washed, crushed rock (CA-8: IDOT Course Aggregate gradation number 8) shall separate the soil bed from the larger 3 inch aggregate (CA-1). A geotextile fabric is optional over the tilled soil surface and under the large aggregate. The fabric should have a sufficient permeability to drain the bioretention facility in 48 hours. Geotextiles shall be selected according to material specification **GEOTEXTILE 592**.

The planting soil bed is a mixture of organic mulch, planting soil, and sand. Typically the mixture consists of 20-30 percent planting soil, 20-30 percent organic compost, and 50-60 percent sand. Clay shall be limited to less than 5 percent. A minimum depth of 18 inches is recommended to provide adequate moisture capacity and create space for the root systems of plants. If larger vegetation is used (i.e. trees or shrubs), the planting soil must be at least four inches deeper than the bottom of the largest root ball. This soil mix will not be as firm as natural soils, so larger trees or shrubs shall be supported with guy wires or similar support. The planting soil mixture shall be free of stones, stumps, roots, or weedy material over one inch in diameter. Brush or seeds from noxious weeds shall not be present in the material.

Set the bioretention facility ponding depth to 6-8 inches, not exceeding 1 foot. Ponding design depths shall be kept to a minimum to reduce hydraulic overload of the soil bed and to maximize the surface area to facility depth ratio. Design the overflow structure to maintain the integrity of the facility and ponding depth. The rate and volume of overflow from the bioretention facility must not cause downstream erosion.

Trees, shrubs, and other plant materials shall be installed as specified in the project plans and according to applicable landscape standards with the exception that pesticides, herbicides and fertilizer shall not be applied during planting under any circumstances. After establishment, pesticides, fertilizer and other soil amendments may be applied at a minimum. Plant selection shall include native species tolerant of both wet and dry cycles. Deep rooted perennials are encouraged to increase the rate of infiltration.

An optional layer of the bioretention cell is the mulch. The mulch layer plays an important role in the performance of the bioretention facility. It helps maintain soil moisture and helps prevent erosion. It serves as a pre-treatment layer by trapping sediments. The mulch layer should be a standard landscape style,

shredded hardwood mulch. The mulch shall be milled and screened to a maximum four inch particle size and shall be free from sawdust, clay, trash and any artificially introduced chemical compounds. Grass clippings shall not be used as mulch. The layer of mulch shall not exceed three inches in depth to ensure plant roots are rooted in the soil. Ensure clearance of mulch around new plantings to facilitate watering and air exchange. The mulch may float and move as water backs up so raking the mulch back into place or reapplication may be necessary. If not using mulch, grass used as a cover crop would be an acceptable alternative.

Native vegetation including native trees and shrubs shall be used whenever possible.

CONSIDERATIONS

Bioretention is not recommended for upland areas with slopes greater than 20 percent. Steeper slopes may contribute to clogging if the area receives runoff with high sediment loads. Removing clogged sediment from the bioretention facility can be difficult.

When properly designed and maintained, bioretention facilities provide aesthetic enhancement as well as habitat for wildlife.

Provisions for safety may be mandatory based on local ordinance and should be considered regardless of requirements. A perimeter fence may be required based on local ordinance or specific site conditions.

PLANS AND SPECIFICATIONS

Plans and specifications for installing and maintaining a bioretention facility shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. Standard construction documents, including a grading plan, planting plan, technical specifications, and a facility maintenance plan should include the following items:

1. Facility location and alignment
2. Grade, depth, width, and side slope grade
3. Facility cross section
4. Material specifications including planting prescriptions

All plans shall include the installation, inspection, and maintenance schedules with the responsible party identified.

Bioretention facilities control stormwater runoff close to the source. They are typically shallow depressions located in upland areas used to treat stormwater runoff from pervious and impervious surfaces at commercial, residential, industrial areas and other developments. They can be designed so the runoff is either diverted directly into the bioretention facility or conveyed via a curb, gutter and/or pipe collection system.

Bioretention facilities are adaptable to most sites and integrate well with buffers, landscape berms, and setback areas.

The bioretention facility may also include pretreatment, a storage layer, flow regulation and an observation well.

Be aware of salt use in the drainage area of the bioretention facility. Salt tolerant plants or diverting the runoff away from the facility may reduce the number of replantings.

OPERATION AND MAINTENANCE

An operation and maintenance plan shall be provided for the bioretention facility.

For the first one to three years, bioretention systems require significant maintenance to ensure successful establishment. The primary

800 - 4

maintenance requirements are inspection, and repair and replacement of damaged or failed components and vegetation. Conduct routine inspections. Inspections are particularly important during vegetative establishment and should be done immediately following significant rainfall events. Routine inspections for standing water and corrective measures to restore proper infiltration rates are necessary. Invasive and/or weedy vegetation shall be removed immediately upon discovery. During the first growing season, watering and weeding shall be completed on a weekly basis or as needed.

Over the lifetime of the facility, bioretention maintenance resembles that of any maintained landscape area and shall include:

1. Inspect biannually for erosion
2. Mulch as needed to cover bare soil
3. Annually inspect vegetation to evaluate health and replace dead or diseased vegetation
4. If stressed vegetation is present, investigate soil further. If soil is contaminated, full or partial soil replacement is required
5. Inspect overflow devices
6. Remove trash and sediment as necessary
7. Aerate periodically

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NATURAL RESOURCES CONSERVATION SERVICE
ILLINOIS URBAN MANUAL
PRACTICE STANDARD

INFILTRATION TRENCH

(IL)
CODE 847

(Source: Center for Watershed Protection)

DEFINITION

An excavated trench filled with coarse granular material in which stormwater runoff is collected for temporary storage and infiltration.

PURPOSE

The purposes of this practice are to reduce runoff volume and peak discharges from a site, increase groundwater recharge and baseflow, and to filter soluble contaminants out of runoff before it reaches receiving waters. Infiltration trenches are not intended to remove coarse sediments.

CONDITIONS WHERE PRACTICE APPLIES

This permanent site development practice applies to small drainage areas not exceeding 5 acres.

The soils surrounding the trench shall have permeability rates of 0.5 to 2.41 in/hr, a minimum available water capacity of 0.15 in/in, and clay content less than 35%. These values can be found in published soil surveys.

Because infiltration trenches are not designed to filter coarse particulate matter, appropriate sediment control devices must be included in the site design and must be installed prior to the construction of the trench.

CRITERIA

Design capacity shall be a minimum volume of 0.5 inches of runoff per acre of drainage area.

The capacity of the trench shall be based on the porosity (% voids) of the coarse aggregate used in the system. If test data is not available, use 40% porosity for the coarse aggregate.

The trench shall be filled with coarse aggregate which meets IDOT CA-1, or CA-3 gradation. The bottom 6 inch layer in the trench shall be sand which meets IDOT CA-14, CA-15 or CA-16 gradation. The coarse aggregate shall be separated from the soil surrounding the trench by a filter fabric. The fabric

847 - 1

shall meet the requirements in material specification 592 GEOTEXTILE Table 1 or 2, Class 1 with an apparent opening size of at least 30 for non-woven and 50 for woven. The fabric shall extend through the coarse aggregate one foot below the trench surface to prevent plugging. The filter fabric may be extended across the trench bottom in place of the sand layer.

Infiltration trenches shall be designed to dewater within 72 hours. Table 1 lists the maximum trench depths allowed for various soil types for 48 and 72 hour dewatering time periods. The permeability rate shall be field verified to a depth 3 feet below the trench bottom.

The width of the infiltration trench is determined using the design volume and final trench depth values.

All infiltration trenches must have an overflow component since they are not designed to handle large runoff volumes.

The location of the infiltration trench shall meet the following requirements. The bottom of the trench shall be a minimum of 3 feet above the seasonal high water table, bedrock, an impermeable soil layer or dissimilar soil layer. The trench shall be a minimum of 20 feet downslope or 100 feet upslope from any building foundation. The trench shall be a minimum of 100 feet from drinking water wells, septic tanks, drainfields etc. The trench shall not be installed on landslopes greater than 15% and shall be at least 50 feet from where landslopes are greater than 15%. The trench shall not be installed in fill soils.

Observation wells shall be included with the infiltration trench to enable inspection of their performance. Observation wells shall be constructed of 6-8 inch diameter perforated pipe embedded vertically through the aggregate and extended above the ground surface. The surface protrusion shall be capped and protected against vandalism. A well anchor shall be secured to the pipe to prevent the well from being pulled out of the trench. The well anchor may consist of a metal plate or bar secured at or near the bottom of the observation well.

CONSIDERATIONS

It is absolutely critical that settleable particles and floatable organic materials be removed from runoff water before it enters the infiltration trench. The trench will clog and become nonfunctional if excessive particulate matter is allowed to enter the trench. Runoff filtering practices such as practice standard FILTER STRIP 835, and GRASSED LINED CHANNEL 840 must be installed upstream of the trench. If there are uncontrolled sources of grease or oil, grease traps also need to be installed upstream of the trench.

For the same reasons, control of construction site sediment is critical during trench installation. Appropriate sediment control practices such as practice standards TEMPORARY SEDIMENT TRAP 960 and SILT FENCE 920 must be installed and maintained during construction. A more reliable alternative is to wait to install the trench until construction is complete and the upstream drainage area is stabilized.

847 - 2

Infiltration trenches should not be installed if there is not a reliable long term commitment to upstream sediment control.

Care must be taken to prevent groundwater contamination by not installing infiltration trenches in highly permeable sand or gravel seams that are directly connected to underlying aquifers.

For removal of soluble contaminants, a 12 inch soil layer with a cation exchange capacity (CEC) of 0.5 millieq/100g or greater needs to be present. In Illinois, most soils that meet the permeability, available water capacity and clay content criteria will have a CEC of 0.5 millieq/100g or greater.

PLANS AND SPECIFICATIONS

Plans and specifications for installing infiltration trenches shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. At a minimum include the following items:

1. System location
2. Depth, width and length
3. Aggregate gradation
4. Filter fabric requirements
5. Observation well details
6. Identification of upstream sediment control BMPs

All plans shall include installation, inspection, and maintenance schedules with the responsible party identified.

Standard drawing INFILTRATION TRENCH IL-547 may be used as the plan sheet.

OPERATION AND MAINTENANCE

During the first year after construction, the observation well should be inspected after each significant rainfall event to ensure that the trench is draining properly. Thereafter, the well should be inspected seasonally.

If the trench clogs, it may be necessary to remove and replace all or part of the filter fabric and possibly the coarse aggregate. The frequency of such repairs will depend on the adequacy of pre-treatment as discussed previously.

Most of the maintenance should be concentrated on the pretreatment practices, such as filter strips and swales, upstream of the trench to ensure that sediment does not reach the infiltration trench.

Maintenance needs are to be discussed with the landowner or operator who is responsible for maintaining the practice.

REFERENCES

Illinois Department of Transportation, 1997. Standard Specifications for Road and Bridge Construction. IL

Ohio Department of Natural Resources, Division of Soil and Water Conservation, 1996. Rainwater and Land Development. 2nd ed., OH

NRCS IL January 1999

urbst847.doc

847 - 3

TABLE 1

MAXIMUN DEPTH FOR TRENCHES AND BASINS LIMITED BY SOIL PERMEABILITY RATE

Soil Texture	Minimum Permeability (fc) in/hr	Maximum Depth of Trench (d) in.	
		48 hours (T)	72 hours (T)
Sand	13	NA	NA
Loamy Sand	6	NA	NA
Sandy Loam	2	240	360
Loam	1	120	180
Silt Loam	1	120	180
Sandy Clay Loam	1	120	180
Clay Loam <35% Clay	0.8	96	144
Clay Loam >35% Clay	0.4	NA	NA
Silty Clay Loam <35% Clay	0.8	96	144
Silty Clay Loam >35% Clay	0.4	NA	NA
Sandy Clay <40% Clay	0.4	NA	NA
Sandy Clay >40% Clay	<0.06	NA	NA
Silty Clay	<0.06	NA	NA
Clay	<0.06	NA	NA

NA – not applicable Values based on a Soil Porosity of 40 %.

Maximum allowable depth computed by:

$$d = \frac{(fc)(T)100}{P}$$

where

d = depth	inch
fc = permeability rate	inch/hour
T = time to dewater	hour
P = porosity (% voids)	%

Design Volume of Trench = Required Runoff Volume / Porosity

Porosity = Volume of Voids / Total Volume
Required Runoff Volume = Volume of Voids in Trench

847 - 4

ILLINOIS URBAN MANUAL
PRACTICE STANDARD

RAIN GARDEN

(feet)
CODE 897

Source: Kendall County Soil and Water Conservation District

DEFINITION

Rain gardens are small, shallow, flat bottomed depressions constructed to temporarily hold and infiltrate stormwater allowing stormwater to soak into the ground onsite rather than leaving a property as runoff.

Designed to be periodically inundated with water for short periods of time, rain gardens are planted with vegetation tolerant of being periodically wet and dry.

PURPOSE

Rain gardens are constructed to:

- Retain stormwater runoff and facilitate infiltration;
- Improve water quality by trapping sediment and debris;
- Remove other pollutants through the biological, chemical and physical properties of plants, microbes and soils;
- Create a unique landscape feature and provide habitat for wildlife such as birds and insects including pollinators.

CONDITIONS WHERE PRACTICE APPLIES

In developed areas, impervious and compacted surfaces increase stormwater runoff significantly. Rain gardens capture runoff from rooftops, driveways, sidewalks, lawns and other impervious and compacted surfaces.

This practice applies to small drainage locations and locations with soils that will allow adequate infiltration unless constructed with engineered soil and/or an underdrain system.

CRITERIA

Regulations

Plan, design and construct stormwater runoff practices to comply with

917-1

ILLINOIS URBAN MANUAL
PRACTICE STANDARD

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CRITERIA

Regulations

Plan, design and construct stormwater runoff practices to comply with

917-1

applicable federal, state and local laws and regulations.

Utilities and Permits

The landowner and/or contractor shall be responsible for locating all buried utilities (Dial 811 to call JULIE) in the project area, including drainage tiles and other structural measures.

The landowner shall obtain all necessary permissions from regulatory agencies, including, but not limited to, local, state and federal units of government, or document that no permits are required.

Vegetation Selection

Stabilize all areas disturbed by construction with vegetation as soon as possible after construction and in accordance with IUM practice standard PERMANENT VEGETATION 880.

Select vegetation tolerant of the site conditions, particularly moisture and sun exposure conditions, in which the vegetation will be planted. A plant selection guide can be found in TABLE 897-1. If the rain garden is expected to receive pollutants, select vegetation tolerant of those pollutants.

Location and Design

- Locate the rain garden so that the drainage area is less than 2 acres with any impermeable portion of drainage area no greater than 1 acre.
- Locate the rain garden where soil remains stable when saturated.
- Locate the rain garden to avoid damage to any structures or negative impacts to wastewater treatment systems or wells. Rain gardens shall be a minimum of 25 feet from private sewage disposal systems and wells. Avoid areas within a source water protection area for public drinking water supply.
- Rain gardens shall be located a minimum of 10 feet away from any utilities or building structure to prevent infiltrating water from seeping into the foundation. A minimum of 35-40 feet separation is preferred.
- Direct outflow from the rain garden away from any building foundation.
- The bottom of the rain garden shall be flat, not exceeding 0.5% slope, to facilitate distribution of stormwater runoff and maximize infiltration.
- Rate and volume of overflow from the rain garden must not cause downstream erosion.
- Stormwater must be directed to the rain garden through means such as topography, swales, or tile connected to downspouts.
- Soil surface where runoff water will enter the rain garden must be stable. Include measures such as rock to dissipate energy where concentrated flow is expected.
- Include pretreatment or pollution removal areas such as grass filters or settling areas when runoff is expected to contribute excessive sediment, trash, debris

or other pollutants such as salt or oil that would be damaging to the system. These areas must be adequately designed to handle the expected load capacity. Locate and build such areas so they are easy to access and maintain.

- Provide, at minimum, 2 feet of soil between the bottom of the rain garden and fractured bedrock or high water table. The target separation should be 3 feet. Where there is an increased risk of groundwater pollution, an impermeable liner or layer of compacted earth may be used to separate the rain garden and the water table where there is an increased risk of groundwater pollution.

- Rain gardens are typically between 3 and 9 inches deep, but never exceeding 12 inches in depth.

- Mound excavated material on the downhill side of the rain garden no higher than 1 foot above the bottom of the rain garden.

- Side slopes within the ponding area must be 3:1 (H:V) or flatter. Slopes of any mounded spoil outside of the ponding area must be 5:1 or flatter.

- Design the rain garden to dewater within 48 hours or less. The target dewatering time shall be 24 hours or less. Locations with existing soils that do not meet the criteria above may need a designed underdrain or soil amendment.

- Design the rain garden to drain completely between designed storm events. Any runoff directed to the rain garden, such as runoff from downspouts, lawns and paved surfaces must be intermittent. Sump pumps which discharge continuously shall not be directed to the rain garden.

CONSIDERATIONS

- Illinois rain events are typically 1 inch or less. Designing the rain garden to capture the first 1 inch of runoff will capture a significant amount of stormwater runoff flowing to the rain garden thus treating the pollutants coming into the rain garden. The first flush of runoff carries with it the majority of the pollutants from a storm event.

- Soils with a hydrologic group designation of A or B, a USDA soil textural classification of:
  - Sand
  - Loamy sand
  - Sandy loam
  - Loam

  or an infiltration rate of at least 1 inch per hour are preferable for rain gardens. Soils with slower infiltration rates shall be amended or modified to increase infiltration. When appropriate, install underdrains where the soils have infiltration rates of ½ inch per hour or less. For soils information see USDA Web Soil Survey.

- Avoid compaction in infiltration areas during construction

917 - 3

including compaction from foot traffic. Ensure that any impermeable layer in the infiltration area of the rain garden is removed or broken up prior to planting on sites where compaction has occurred, particularly where construction equipment has been used to construct the rain garden.

- It is important to note, rain gardens shall not be used to control construction site erosion. Additionally, any sediment which builds up over time shall be removed from the rain garden.
- Sediment deposition can create a crust on the surface of the rain garden which will begin to limit infiltration. It is important to note removal of sediment build-up over time is necessary.
- Rain garden size typically ranges from 100 to 300 square feet in area, commonly 10-30% of the drainage area.
- Avoid construction of rain gardens on slopes greater than 12%.
- Rain gardens should not be located upslope from any building foundation from which runoff is being collected such as from downspouts.
- To adequately establish vegetation, select plants based on sun exposure, soils and moisture availability at the proposed site location. If the rain garden is expected to receive pollutants select plants tolerant of those pollutants. Road salts can be of particular concern.
- Vegetation placed in the infiltration area of the rain garden must be tolerant of periodically dry and periodically inundated conditions.
- Vegetation selection and placement is crucial to a successful rain garden. Select vegetation based on position and associated moisture regime within the rain garden.

Position	Moisture Tolerance
Low	Moist to Average
Medium	Average Moisture
High	Average to Dry

- It is important to note rain gardens are not intended to retain permanent water. Avoid plants that prefer saturated or wet conditions.
- Rain gardens can be located in areas of shade, partial sun or full sun. Partial sun and full sun, however, are preferable due to the availability of a larger selection of plant material. Areas beneath trees should also be avoided to prevent root damage to trees.
- Ensure an adequate growing medium for vegetation. Specified soil mixes or natural topsoil must be of sufficient depth to support

917 - 4

the root zone of the desired vegetation.

- Deep rooted native vegetation should be used and will improve soil infiltration over time. Native vegetation will typically perform better without added fertilizers.
- Consider including species beneficial for pollinators. Pollinator habitat areas consist of a sufficient variety of plant species to sustain the target pollinators throughout the growing season.
- Consider grouping plants and including signage to facilitate maintenance.
- Successful plant establishment is most easily accomplished during spring and fall when soil moisture is readily available. During vegetation establishment ensure adequate maintenance resources and watering capabilities exist.
- Seeding is not recommended as seeds can be washed away and are slow to establish. Plant the infiltration area of the rain garden with dormant or actively growing nursery stock. Ensure that trees and other vegetation will not hinder water from entering the rain garden, create traffic or safety issues, or obstruct utilities.
- Mulch vegetation after planting to suppress weeds and conserve moisture. Use shredded hardwood mulch or equivalent non-floatable mulch. Spread mulch evenly to a maximum depth of 3 inches. Ensure clearance of mulch around new plantings to facilitate watering and air exchange. Where phosphorous levels are a concern, discontinue adding mulch once plants are established.
- Consider diverting water or lowering the rain garden outlet until vegetation is established. Remove the diversion or complete construction of outlet to design depth when plants grow taller than ponding depth.
- Consider temporarily fencing around the rain garden to protect plantings if herbivore pressure exists.
- A single rain garden will not significantly impact flooding issues or water quality problems in a community. However, the cumulative impact of rain gardens in conjunction with other stormwater management practices has the potential to tangibly affect flooding, stream flow, local groundwater recharge and water quality concerns.

PLANS AND SPECIFICATIONS

Plans and specifications for installing a rain garden shall be in compliance with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. At a minimum include the following items:

1. Rain garden location
2. Grade, depth, width, length and side slope grade

3. Rain garden cross-section
4. Material specifications
5. Construction specifications

All plans shall include the installation, inspection and maintenance schedules with the responsible party identified.

OPERATION AND MAINTENANCE

An operation and maintenance plan shall be provided for the rain garden to include at a minimum:

- Periodic inspections during vegetative establishment and immediately following significant rainfall events.
- Prompt repair or replacement of damaged components such as areas subject to wear or erosion, as well as, failed plantings.
- Periodic inspection to remove accumulated sediment and debris.
- Rain garden vegetation will require regular watering and weeding during plant establishment.
- Prune trees and shrubs as needed. Weed rain garden to control unwanted vegetation. Annually, in early spring, remove or mulch in place the previous year's herbaceous growth which has died back.

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USDA-NRCS, *Pollinator Biology and Habitat: Technical Note 23.* 2008.

USDA Web Soil Survey
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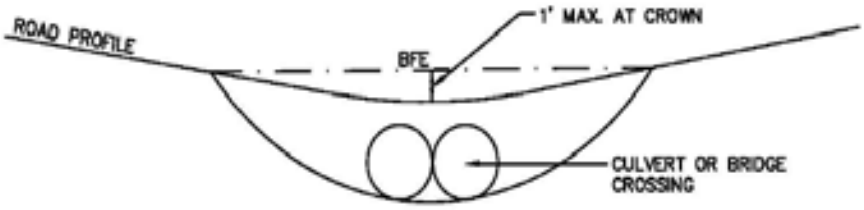
March 2014

Urbst897.doc

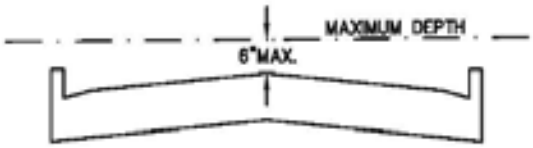
FIGURE 3
Maximum Allowable Flow Depths on Roadways

TRANSVERSE STREAM CROSSINGS



STREAM CROSS-SECTION

FLOW PARALLEL TO ROADWAY



ROAD CROSS-SECTION

Missman, INC. Professional Engineers & Land Surveyors	CITY OF ROCKFORD STORMWATER TECHNICAL MANUAL	REVISIONS No. DESCRIPTION DATE
	MAXIMUM ALLOWABLE FLOW DEPTHS ON ROADWAYS	FIG. 4

T2-03 Site Runoff Storage Requirements (Detention)

The objective of § T203 is to discuss the hydrologic models that can be used to develop peak-discharge frequency estimates for any watershed in question. The hydrologic models are used to size appropriate stormwater system(s) that are used to attenuate the increase in peak discharges due to additional impervious surfaces.

T2-03(a) Area of Disturbance

Site runoff storage volume is required for only the area of the site that has been hydrologically disturbed. If the development on a 60-acre site disturbs only 40-acres of the site, then the site runoff storage volume is necessary for only 40-acres. Figure 5 shows an example of this requirement.

T2-03(b) Release Rate

The peak release rate from a development site shall not exceed 0.2 cfs/acre of development for the 0.01 probability in any year. This has been found to be the natural safe stormwater discharging capacity of the downstream systems in the City of Rockford.

If the design required an outlet size smaller than 4-inches, then a waiver of detention rights can be requested. Other BMPS shall be used to detain as much water as possible. Appropriate protection of the outlet shall be designed to avoid the opening from being plugged.

The release rate is to be calculated by determining the hydrologically disturbed area of the development. If the site has more than one outlet, the allowable release for each discharge point shall be calculated based on the hydrologically disturbed area of the development to that particular outlet.

All central structures shall be provided with an intercepter for trash and debris and it shall be designed and constructed to prevent soil erosion and not require manual adjustments for its proper operation.

FIGURE 4
Hydrologically Disturbed Area Example

T2-03(c) Design Methods

In order to calculate the required storage volume, an event hydrograph routing method shall be used. There are several computer programs developed explicitly for determining the required storage volume using event hydrograph routing methods. Acceptable models include HEC-1 (only when used with SCS runoff method), HEC-HMS (also, using the SCS runoff method), SWMM, TR-20 or TR-55 tabular method. The HEC-1 and HECHMS are U.S. Army Corps of Engineers hydrologic models. TR-20 and TR55 were developed by the Soil Conservation Service (now named the Natural Resources Conservation Service). The HEC programs can be downloaded off the internet from:

http://www.hec.usace.army.mil/software/software-distrib/index.html

The TR-20 program can be downloaded off the internet from:

http://www.wcc.nrcs.usda.gov/water/quality/common/tr20/tr20.html

The SWMM program can be downloaded off the internet from:

http://www.epa.gov/ceampubl/DOS/SVVMM.INSTALSW.EXE

All event hydrograph routing methods shall use the Huff rainfall distribution appropriate for the storm duration as shown in Tables 2 and 3. Rainfall depths for different frequencies and durations are shown in Table 2 in § T202(f). Figure 5 shows the four Huff Quartile Distributions in graphical format. The only exception to using the Huff Quartile Distributions is when the TR-55 tabular method is used. When using the TR-55 tabular method it is acceptable to use the SCS Type II rainfall distribution. An antecedent moisture condition of 2 must be used when using the TR-20 event hydrograph program.

TABLE 2
Huff Rainfall Distributions

Rainfall Duration (hours)	Huff Distribution
1	1st
2	1st
3	1st
6	1St
12	2nd
18	3rd
24	3rd
48	4th
72	4th
120	4th
240	4th

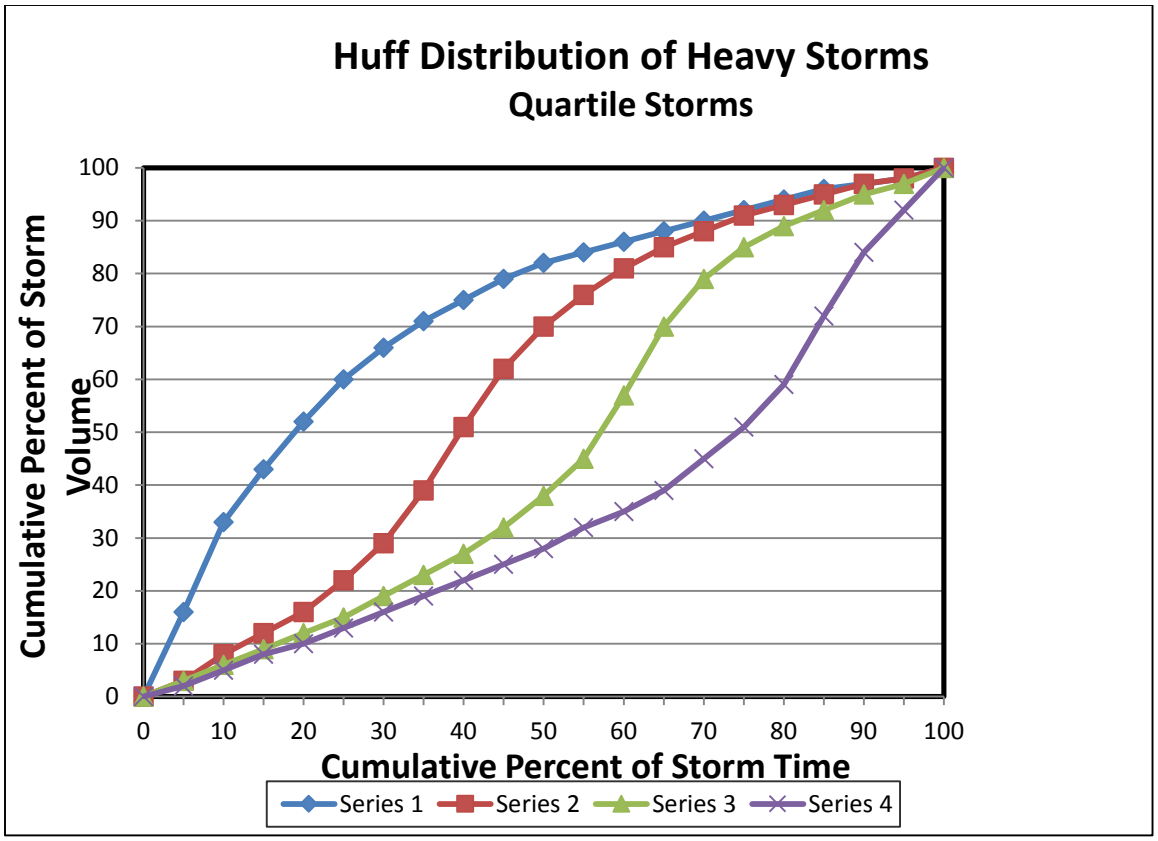
TABLE 3
Huff Quartile Distributions*

Cumulative Storm Percentage	Percent of Total Rainfall			
	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile
05	16	03	03	02
10	33	08	06	05
15	43	12	09	08
20	52	16	12	10
25	60	22	15	13
30	66	29	19	16
35	71	39	23	19
40	75	51	27	22
45	79	62	32	25
50	82	70	38	28
55	84	76	45	32
60	86	81	57	35
65	88	85	70	39
70	90	88	79	45
75	92	91	85	51
80	94	93	89	59
85	96	95	92	72
90	97	97	95	84
95	98	98	97	92

* Applies to drainage areas less than 10 square miles.

FIGURE 5

Median Time Distribution of Heavy Storm Rainfall at a Point
(Reference: ISWS, 1992; Rainfall Frequency Atlas of the Midwest)



Example: A development has an off-site drainage area of 100 acres as delineated on the Winnebago County 2-foot topographic map. The time of concentration for the off-site area is 1.5 hours, and the Runoff Curve Number is 80. Determine the critical duration and peak discharge to be by-passed through the development.

Solution: ATR-20 hydrologic model was used for the critical duration analysis. The following data was input to the model:

Drainage Area =	0.15625 square miles (100ac)
Time of Concentration=	1.5 hours
Runoff Curve Number=	80

The rainfall tables used (RAINFL 6, 7, 8, 9) are the Huff 1st, 2nd, 3rd, and 4th quartile distributions. The rainfall depths used are ISWS Bulletin 70 values, as listed in Table 1. The TR-20 hydrologic model input/output is listed below.

FIGURE 5
Median Time Distribution of Heavy Storm Rainfall at a Point
(continued)

```
*****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**.******.********

JOB TR-20                                                    NOPLOTS   JJJ
TITLE       Kane County Technical Manual
TITLE       Critical Duration Analysis Example APR00
5 RAINFL 6              0.05                                          HUFF 1ST
8             0.00  0.16          0.33        0.43          0.52    QUARTILE
8             0,60  0.66          0.71        0.75          0.79
8             0.82  0.84          0.86        0.88          0.90
8             0.92  0.94          0.96        0.97          0.98
8             1.    1.            1.          1.            1.
9 ENDTBL
5 RAINFL 7            0.05
8             0.00  0.03          0.08        0.12          0.16    HUFF 2ND
8             0.22  0.29          0.39        0.51          0.62    QUARTILE
8             0.70  0.76          0.81        0.85          0.88
8             0.91  0.93          0.95        0.97          0.98
8             1.    1.            1.          1.            1.
9 ENDTBL
5 RAINFL 8            0.05
8             0.00  0.03          0.06        6.09          0.12    HUFF 3RD
8             0.15  0.19          0.23        0.27          0.32    QUARTILE
8             0.38  0.45          0.57        0.70          0.79
8             0.85  0.89          0.92        0.95          0.97
8             1.00  1.00          too         1.00          1.00
9 ENDTBL
5 RAINFL 9            0.05
8             0.00  0.02          0.05        0.08          0.10    HUFF 4TH
8             0.13  0.16          0.19        0.22          0.25    QUARTILE
8             0.28  0.32          0.35        0.39          0.45
8             0.51  0.59          0,72        0.84          0.92
8             1.    1.            1.          1.            1.
9 ENDTBL
6 RUNOFF 1    1     2 .15625      80.         1.50                1 100ac
ENDATA
7 INCREM 6            1.00
7 COMPUT 7    1     1       0.0   3.56        1.        6 2       1  1hr
ENDCMP 1
7 COMPUT 7    1     1      0.0    4.47        2.        6 2       1  2hr
ENDCMP 1
7 COMPUT 7    1     1       0.0   4.85        3.        6 2       1  3hr
ENDCMP 1
7 COMPUT 7    1     1      0.0    5.68        6.        6 2       1  6hr
ENDCMP 1
7 COMPUT 7    1     1      0.0    6.59        12.       7 2       1  12hr
ENDCMP 1
7 COMPUT 7    1     1      0.0    6.97        18.       8 2       1  18hr
ENDCMP 1


          80-80 LIST OF INPUT DATA (CONTINUED).********************

7 COMPUT 7    1     1       0.0   7.58          24.     8 2       1   24hr
ENDCMP 1
7 COMPUT 7    1     1       0.0   8.16          48.     9 2       1   48hr
ENDCMP 1
7 COMPUT 7    1     1       0.0   8.78          72.     9 2       1   72hr
ENDCMP 1
7 COMPUT 7    1     1       0.0   9.96         120.     9 2       1   120hr
ENDCMP 1
7 COMPUT 7    1     1       0.0   11.14        240.     9 2       1   240hr
ENDCMP 1
ENDJOB 2
  0************.*****************END OF 80-80 usT*********************************
```

FIGURE 5
Median Time Distribution of Heavy Storm Rainfall at a Point
(continued)

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATION (HR)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 0 STORM 1													
+													
XSECTION 1	RUNOFF	.16	6	2	1.00	.0	3.56	1.00	1.81		1.34	91.84	587.8
XSECTION 1	RUNOFF	.16	6	2	1.00	.0	4.47	2.00	2.48		1.82	111.32	712.5
XSECTION 1	RUNOFF	.16	6	2	1.00	.0	4.85	3.00	2.75		2.03	112.13	717.7
XSECTION 1	RUNOFF	.16	6	2	1.00	.0	5.68	6.00	3.44		2.28	103.48	662.2
XSECTION 1	RUNOFF	.16	7	2	1.00	.0	6.59	12.00	4.31		6.02	88.89	568.9
XSECTION 1	RUNOFF	.16	8	2	1.00	.0	6.97	18.00	4.66		12.18	77.53	496.2
XSECTION 1	RUNOFF	.16	8	2	1.00	.0	7.58	24.00	5.22		15.92	67.74	433.5
XSECTION 1	RUNOFF	.16	9	2	1.00	.0	8.16	48.00	5.76		41.30	39.02	.249.7
%SECTION 1	RUNOFF	.16	9	2	1.00	.0	8.78	72.00	6.36		61.20	28.64	183.3
XSECTION 1	RUNOFF	.16	9	2	1.00	.0	9.96	120.00	7.47		101.62	20.08	128.5

1

TR20 XEQ 10-18-00 13:01 Kane County Technical Manual JOB 1 SUMMARY
REV PC 09183(.2) Critical Duration Analysis Example JJJ APR00 PAGE 5

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/DRAINAGE STRUCTURE ID	AREA (SQ MI)	STORM NUMBERS 1
0 XSECTION 1	.16	
ALTERNATE 0		11.38

LEND OF 1 JOBS IN THIS RUN

Summary Table 1 shows that the peak discharge from the 100 acre offsite basin is 112 cfs, and the corresponding critical duration is the 3-hour event.

All runoff volumes shall be calculated using the 24-hour duration with a 1% probability of occurrence in any one year. An antecedent moisture condition (AMC) of 2 shall be used for all runoff calculations. An AMC=2 represents average soil moisture conditions.

T2-03(d) Existing Release Rate Less Than Allowable

For all developments, the existing conditions release rate must be computed. If the existing release rate for the design storm event with a 1% probability of occurrence in any one year with a 24-hour duration is less than 0.2 cfs/acre, then that will be the developed release rate. It is common for sites with small amounts of tributary area and significant depressional storage to have the existing undeveloped release rate less than 0.2 cfs/acre.

T2-03(e) Downstream Water Surface Elevations

Outfalls are hydraulic structures whose capacity is governed by a balance between upstream and downstream head. Outfall capacity must be calculated within the range of differences in upstream and downstream hydraulic grade line that can be expected to occur statistically for a 100-year return period. It is important to make realistic assumptions about the outfall capacity.

Calculations should assume free outfall conditions only if hydraulic grade line calculations for the discharge channel indicate the outfall will be free during major storms. Hydraulic grade line evaluations must proceed upstream from:

1. A demonstrated free overflow; or

2. The expected 1% probability in any 1-year flood elevation at the most downstream point analyzed; or

3. An alternative assumption demonstrated to be appropriate and conservative.

When the outfall occurs in a regulatory floodplain, see the discussion in T2-03(i).

T2-03(f) Retention Requirement (Reserved)

T2-03(g) Site Runoff Storage Facility Design Requirements

The steps in designing the site runoff storage facility are as follows:

1. Determine the site and development area and the natural outlet point(s).

2. Calculate the off-site tributary area and the corresponding peak runoff rate from the 100-year, critical duration design storm event.

3. Determine if regulatory floodplain or floodway exists on the development site.

4. Calculate the existing release rate from the site, accounting for any depressional storage.

5. From the hydrologically disturbed area, determine the percent impervious area and calculate the approximate detention volume required using Figure 7.

6. Determine the location(s) of stormwater storage facilities and the existing outlets, including invert/overland flow elevations.

7. Use an event hydrograph routing method to iterate the size of the detention pond knowing the allowable release rate, an approximate storage volume, , and modeling the inflow hydrograph from the development area.

T2-03(h) Site Runoff Storage Facility Requirements Within the Regulatory Floodplain

The Ordinance does not prohibit the construction of site runoff storage facilities in the floodplain, but requires that their design consider carefully the function of the facility during flood flows. Detention volume sizing shall assume a free discharge, establishing a required volume. However, analysis of the operation of the facility must consider the requirement that existing conditions 100-year peak runoff rate not be exceeded where the restrictor is blocked. "Berming off" of existing floodplain storage and uncontrolled site discharge (on-line storage) is highly discouraged.

If it can be shown using detailed hydrologic and hydraulic analysis that the design of a storage facility within the regulatory floodplain provides a watershed benefit, the Administrator may approve the design. To show a watershed benefit, the applicant must demonstrate that there is a decrease in flood elevations for the 100-year, critical design storm event, either upstream and/or downstream of the development site. The decrease in elevation should be greater than 0.1 feet and in no locations, upstream or downstream of the development site should water surface elevations increase.

T2-03(j) Requirements Within the Regulatory Floodway

A hydrologic and hydraulic analysis must be performed to demonstrate no adverse impact upstream or downstream of the development site, as well as demonstrating that the required site storage volume will actually be available under all stream conditions. The storage facility shall provide a net watershed benefit.

T2-03(k) Off-Site Facilities

It is assumed that the site runoff storage will normally be located on the development site. If this is not the case, then the runoff storage site will itself constitute a development site and be subject to all of the requirements for development under the Ordinance.

The storage volume in the offsite facility, therefore, must be at least equal to the sum of the storage volume required for the original development, plus the volume required for development of the storage facility. If any other areas drain to the storage facility, additional storage volume must be provided as indicated under "Off-Site Flows", above. Further, the developer must demonstrate that the required storage volume is intentionally and operationally available under the full range of hydrologic and hydraulic conditions from dry weather to base flood conditions.

Runoff from the development site must be conveyed to the storage site. It precludes the option of oversizing an offsite storage volume and undersizing the outlet to compensate for allowing a larger discharge rate on the original development site. Conveyance from the development site to the storage site must be sized to convey the base flood peak flows considering both tailwater and headwater hydraulic conditions.

T2-03(l) See City Ordinance 2-03(L)

T2-03(m) Structures Built Across a Channel for Site Runoff Storage Facilities

Where a stream traverses a development site, special considerations for the location of detention facilities are warranted. The practice of building an impounding structure or dam across the stream to meet detention requirements is often problematic when a longer term view of the stream system is taken. In perennial streams, which in general are streams that exhibit a constant flow, a number of other processes are at work which the cross stream structure interrupts. These are (1) the movement of sediments downstream and (2) distribution of nutrients to aquatic organisms. In general the impact of this interruption is much more severe on perennial than intermittent streams where these processes are more likely to be in evidence. Therefore, structures built across a channel to impound water to obtain the required site runoff storage requirements are prohibited on any perennial stream unless it is part of a public flood control project with a net watershed benefit.

A stream's bed and bank configuration at any given time is related to a number of factors, but generally it is a product of the base flow, energy gradient, total sediment load, and size of the sediment particles. A change in any one of these four factors causes the stream to experience a long period of instability that tends back towards stability in a new configuration. A dam can affect the base flow of the stream and interrupts the sediment load that the stream is carrying. Sediment starved discharges from the impoundment pick up a new sediment load downstream. Increases in the base flow velocity can cause stream banks to widen in response to seeking equilibrium.

An ephemeral stream has no base flow by definition. The ephemeral portions of streams

are located in the upland watershed where under certain circumstances cross stream structures can actually be beneficial to the watershed on a regional basis when considering peak discharges.

When no better information is available, USGS 7.5-minute quadrangle maps can be consulted for the location of an intermittent stream. Intermittent streams are shown as "broken blue" lines. Where a stream is shown as a "solid blue" line on these maps, they are assumed to be perennial unless better information is submitted and accepted by the Administrator. Better information may include documented flow monitoring. The flow monitoring must be carried on for a minimum of one water year (October 1 through September 30) and documented by an individual who has had training in stream monitoring protocol and statistical analysis of stream flows.

Streams are shown as other than solid blue lines on a USGS Quadrangle Map may be assumed to be intermittent if they have a defined bed and banks and no flow is observed in them for some period of time. Where no bed and banks of a stream are observed, or above the discharge point of agricultural field tile systems, streams may be assumed ephemeral.

Stream stability calculations must document the streams current geomorphological classification for a significant reach downstream and upstream that would be influenced by the proposed dam. This length can vary based on the particular conditions but should be assumed to be no less than one thousand feet upstream of the pool and downstream of the impounding structure. This distance may extend off site. The submittal must include documentation that the proposed dam will not substantially change the base flow of the stream system, nor exacerbate known stream instability problems within the influenced reach. This submittal also must document the likelihood that other aquatic resources are present and what impact the cross stream structure would be on these resources. Where the impacts cannot be adequately mitigated then the cross stream structure should be considered prohibited.

These requirements are in addition to any requirements imposed by the U.S. Army Corps of Engineers (COE) in their permitting process or other requirements imposed by this ordinance. Also, any impounding structure must also satisfy Illinois Department of Natural Resources — Office of Water Resources Dam Safety permitting requirements.

ARTICLE 3 — EROSION AND SEDIMENT CONTROL

Erosion and sedimentation are naturally occurring geological phenomena. Land development activities have initiated more drastic, undesirable and damaging alterations in the natural cycle by accelerating the erosion — sedimentation process. The original natural vegetative cover of prairie grasses, trees and shrubs allowed only a minimal amount of soil to be eroded. But as soon as cover was disturbed, first by the plow, and more recently by development activities, the exposed ground surface has become subject to accelerated stormwater runoff and resultant soil erosion. The primary cause of soil erosion is the energy impact of the falling rain on the exposed soil.

Stream beds tend to build-up with sediment during the construction phase of development and then erode dramatically as the area stabilizes and runoff increases. As such, erosion interferes with water uses, degrades water quality, destroys natural plant growth and buries substrates important for fish feeding and spawning.

T3-00(a) Site Planning

The primary goal of any erosion and sediment control site plan should be to prevent soil erosion by minimizing the amount of bare soil exposed at any one time during construction. On-site sediment control is a secondary mechanism to prevent eroded soil from leaving the development site. Surface and erodibility for the mapped soils were obtained from the NRCS web soil survey located at:

http://websoilsurvey.nrcs.usda.gov/app

Soil erodibility factors have been calculated for all soil types in the County and are shown in Table 4. The potential erodibility of surface soil becomes greater with an increase in the erodibility co-efficient (k) used. Soil type information will provide assistance to the designer in selection of appropriate management practices for both temporary and permanent stabilization

TABLE 4
Soil Erodibility

Soil Map Unit	Soil	Surface Erosion Factor (k)	Subsurface Erosion Factor (k); 12" – 70" Depth Range	Erosion Risk
21B, C2	Pecatonica	.43	.49	Slight
22B, C2, D2	Westville	.43 (C2); .37 (D2)	.37	Slight (B, C2); Moderate (D2)
51A	Muscatine	.32	.49	Slight
61A	Atterberry	.37	.55	Slight
68A	Sable	.24	.49	Slight
86A, B, C2	Osco	.32 (A, B); .37 (C2)	.49	Slight
93E2	Rodman	.20	.20	Moderate
100A	Palms	N/A	.32	Slight
102A	La Hogue	.24	.37	Slight
104A	Virgil	.37	.43	Slight
119B	Elco	.37	.43	Slight
125A	Selma	.24	.28	Slight

146A	Elliot	.32	.49	Slight
152A	Drummer	.24	.37	Slight
172A	Hoopeston	.10	.20	Slight
188A	Beardstown	.20	.32	Slight
197A	Troxel	.28	.37	Slight
198A	Elburn	.28	.37	Slight
199A, B, C2	Plano	.37	.43	Slight
223B	Varna	.37	.43	Slight
227B	Argyle	.37	.43	Slight
242A	Kendall	.43	.43	Slight
243A, B, C2	St. Charles	.37 (A); .43 (B, C2)	.55 (A); .43 (B, C2)	Slight
259B2, C2	Assumption	.37	.43	Slight
278A	Stronghurst	.43	.49	Slight
279A	Rozetta	.37	.49	Slight
280B, C2	Fayette	.37	.49	Slight
290A, B, D2	Warsaw	.20 (A); .28 (B); .32 (D2)	.32 (A); .28 (B); .24 (D2)	Slight
293A	Andres	.28	.49	Slight
297B, D2	Ringwood	.28 (B); .32 (D2)	.37	Slight
310B, D2	McHenry	.49 (B); .37 (D2)	.37	Slight
327B, D2	Fox	.37 (B); .43 (D2)	.24 (B); .37 (D2)	Slight
329A	Will	.17	.32	Slight
330A	Peotone	.24	.37	Slight
332A, B	Billett	.17	.20 (A); .17 (B)	Slight
343A	Kane	.32	.37	Slight
354A, B	Hononegah	.02	.05	Slight
361B, D2, D3	Kidder	.28 (B, D3); .37 (D2)	.32 (B, D2); .28 (D3)	Slight
363B, D2	Griswold	.32	.32	Slight
369A	Waupecan	.32	.43	Slight
379A	Dakota	.20	.28	Slight
387A, B	Ockley	.37 (A); .43 (B)	.32	Slight
403C, E, F	Elizabeth	.32 (C, E); .28 (F)	.05 (E)	Slight (C); Moderate (E, F)
411B, C2	Ashdale	.37	.43	Slight
412B	Ogle	.37	.43	Slight
419A, B, C2	Flagg	.37	.43	Slight
429B, C2	Palsgrove	.43 (B); .49 (C2)	.43	Slight
440A, B, C2	Jasper	.37 (A, B); .43 (C2)	.43 (A, C2); .55 (B)	Slight
490A	Odell	.32	.43	Slight
505C2, D2, E2	Dunbarton	.37	.43 (C2, D2); .17 (E2)	Slight (C2, D2); Moderate (E2)
506A, B, C2	Hitt	.28 (A, B); .43 (C2)	.37	Slight
512B, C2	Danabrook	.37	.43	Slight
528A	Lahoguess	.28	.28	Slight
529A	Selmass	.24	.28	Slight
533	Urban Land	N/A	N/A	N/A

561B, C2, D2	Whalan & New Glarus	.37	.32 (B); .24 (C2); .28 (D2)	Slight (B, C2); Moderate (D2)
566B, C2, D2	Rockton & Dodgeville	.24 (B); .28 (C2, D2)	.32	Slight
570A, B, D2	Martinsville	.43	.43 (A); .28 (B); .32 (D2)	Slight
618B, C2	Senachwine	.32 (B); .37 (C2)	.43	Slight
622B, C2	Wyanet	.37 (B); .43 (C2)	.49	Slight
623A, B	Kishwaukee	.32	.32	Slight
675A, B	Greenbush	.37	.49	Slight
728B, C2, D2	Winnebago	.37	.37 (B); .32 (C2, D2)	Slight (B, C2); Moderate (D2)
768B, C, D	Backbone	.02	.37	
769B, D, E2	Edmund	.37	.20 (B); .24 (D)	Slight (B, D); Moderate (E2)
771A	Hayfield	.32	.37	Slight
772A	Marshan	.20	.32	Slight
777A	Adrian	N/A	.10	Slight
779B, D	Chelsea	.02	.28	Slight
780B, C2	Grellton	.28	.55 (B); .49 (C2)	Slight
781A, B	Friesland	.28	.55	Slight
783A, B	Flagler	.17	.17	Slight
802B	Orthents	.28	.37	Slight
835G	Earthen	N/A	N/A	N/A
864	Pits, quarries	N/A	N/A	N/A
865	Pits, gravel	N/A	N/A	N/A
939C2, D2	Rodman-Warsaw	.20	.20	Slight
1100A	Palms	N/A	.32	Slight
1103A	Houghton	N/A	N/A	Slight
1776A	Comfrey (undrained)	.32	.37	Slight
1777A	Adrian (undrained)	N/A	.10	Slight
3082A	Millington	.28	.32	Slight
3107A	Sawmill	.32	.43	Slight
3415A	Orion	.49	.55	Slight
3776A	Comfrey	.32	.37	Slight
3800A	Psamments	.02	.02	Slight
8451A	Lawson	.32	.43	Slight
8782A	Juneau	.49	.55	Slight
9051AA	Muscatine (terrace)	.32	.55	Slight
9061A	Atterberry (terrace)	.37	.55	Slight
9068A	Sable (terrace)	.32	.49	Slight
9086A	Osco (terrace)	.32	.49	Slight
9278A	Stronghurst (terrace)	.43	.49	Slight

9279A	Rozetta (terrace)	.37	.49	Slight
9675A	Greenbush (terrace)	.37	.49	Slight

(1) K factors are for Whole Soils.
(2) Subsurface K factor ratings are a weighted average for the depth range.
(3) Erosion risks are based on slope and soil erosion factor (k) of the soil types.

T3-00(a)(1) Phased Construction

When site vegetation is inadequate to stabilize areas not currently being constructed in a phased development, several options are available for vegetative stabilization.

1. If construction will occur within one-year the site may be planted with a temporary cover of annual grasses included in Table 5.

2. If construction of the phase will be greater than 1 year, stabilization may be accomplished with a cover that uses a mix of annual and perennial grasses shown in Table 6.

TABLE 5
Seed Mixtures For Temporary Stabilization
Remaining Less Than One Year

Seed	**Rate**	**Soil Drainage**				**Planting Period**
	Lbs./ac.	ED	WD	SP	PD	
Timothy	5		X	X	X	Spring
Kentucky Blue Grass	5		X	X		Spring/Fall
With one of the following:						
Oats	90					Early Spring-July 1
Cereal Rye	90					Early Spring-Oct 15
Spring or Winter Wheat	90					Early Spring-Oct 15
Spring Planting — Early Spring to June 15 Fall Planting — August 1 to October 15						

*ED = Excessively Drained; WD = Well Drained; SP = Somewhat Poorly Drained; PD = Poorly Drained

TABLE 6
Seed Mixtures For Temporary or Permanent Stabilization
Remaining For More Than One Year

Mix/Seed	Rate Lbs./ac.	Soil Drainage				Planting Period
		ED	WD	SP	PD	
1. Tall Fescue	24.0	X	X	X		Spring/Fall/Dormant
2. Smooth Brome	24.0	X	X			Spring/Fall/Dormant
3. Tall Fescue or Smooth Brome and Alfalfa	24.0 8.0	X	X			Spring/Dormant
4. Tall Fescue and Timothy or Red Top	14.5 3.0, 3.0	X	X	X	X	Spring/Fall/Dormant
5. Tall Fescue	14.5		X	X		
Red Top	3.0					
Alsike Clover	9.5					
6. Orchard Grass	7.0		X			Spring
Alsike or Ladino Clover	3.5					
7. Timothy and Alsike or Ladino Clover	4.0 8.0		X	X	X	Spring
Havland Mixtures						
8. Alfalfa	12.0		X			Spring/Dormant
9. Alfalfa and	8.0		X			Spring/Dormant
10. Orchard Grass	4.0					Spring/Dormant
11. Alfalfa and	8.0 4.0		X	X	X	Spring/Dormant
12. Alfalfa and Tall Fescue or Smooth Brome	8.0 6.0		X	X		Spring/Dormant
With one of the following:						
A. Oats	30					Early Spring-July 1
B. Cereal Rye	30					Early Spring-Oct 15
C. Spring or Winter Wheat	20					Early Spring-Oct 15

*ED = Excessively Drained; WD = Well Drained; SP = Somewhat Poorly Drained; PD = Poorly Drained

Erosion control methods should be appropriate for the size of site, the duration of construction and the slope, length and grade. Soil stabilization with vegetative cover is generally the most effective stabilization. Hydroseeding with mulch application or periodic hydromulching may be used for soil stabilization alone on slopes flatter than 3:1. When hydroseeding does not produce dense vegetation, areas should be re-seeded periodically until growth occurs or if short duration summer stabilization is required and hydroseeding should be supplemented with heavy hydromulching. For steep slopes and drainage ways, erosion control blankets or gypsum-plaster may be more appropriate.

T3-00(b) Standards and Specifications

The "Illinois Urban Manual: A Technical Manual Designated for Urban Ecosystem Protection and Enhancement" is the primary resource for design detail for effective erosion and sediment control.

The "Illinois Urban Manual" may be viewed from the following website link:
http://www/aoswcd/orgIUM

T3-00(c) General Requirements

Sediment control facilities are utilized to prevent sediment from leaving the site or entering buffers or special management areas within a development site. Sediment control structures commonly used include, sediment basins, sediment traps and silt fences. Sediment control facilities will be in place for all drainage leaving the site prior to mass grading. Plans for sediment control facilities should include grading or installation plan, sizing information, and maintenance procedures. Straw bale dikes are not preferred sediment control structures and should be used only where other alternatives are impractical

T3 00(d) Reserved

T3-00(e) Extended Construction Shutdown Periods

The condition of the site for extended construction shut down periods should be one of maximum stabilization and sediment trapping. All of the site that will not be constructed prior to the fall planting season should be stabilized with appropriate vegetative cover. The fall planting season ends on approximately October 15. Temporary seeding should be completed by this date. From October 1st until October 15, heavy mulch should be applied with the seed to prevent seedling losses to early frost. Prior to October 1st standard mulching rates apply. In years with prolonged summer droughts, heavy mulching should be applied with all seeding. The use of erosion control blankets with seeding is preferred on slopes 3:1 or greater and that are more than 100 feet in length.

Areas that are to be worked after October 15th shall be stabilized with tacified heavy mulch or erosion control blankets.

T3-00(f) Hydraulic and Hydrologic Design Requirements

Construction of sediment control structures is economically most practical when combined with stormwater management facilities. Because the site must have sediment control prior to mass grading, construction of the permanent detention facility as a sediment stilling basin is preferred. The ordinance sets a minimum design standard for sediment basins and traps that is commensurate with the duration of the rainfall event and the size of the drainage area.

For all areas greater than 3-acres, the minimum storm frequency to the detained for sediment removal is as follows:

Project Length	Design Event	Probability of Occurrence
< 6 months	2 year	50%
6 months — 1 year	5 year	20%
> 1 year	10 year	10%

Sufficient volume shall be created to retain all sediment from these design storm events. The facility shall be sized to hold the required volume for a period not less than 10-hours. This is the minimum settling time necessary to remove a substantial volume of the sediment from the runoff. To achieve a minimum 10-hour detention time from a 10-year, 24-hour storm event, the maximum design outflow would be limited to 0.065 cfs per acre-inch of runoff. The actual size of the facility may need to be larger where a site has one or more of the following conditions:

- The area of disturbance is greater than 75% of the maximum.
- Long or steep unvegetated slopes are present and will remain unstabilized for periods in excess of 7 days.
- The site drains into an adjacent wetland or special aquatic resource.
- The site drains into a previously developed parcel.
- The site drains across public highway or off-site private road.

T3-00(g) "As Needed" Practices on the Plans

"As needed practices" provide the permitee and the Administrator with a means to correct a deficiency in the management of erosion or in sediment control. Measures should be divided into temporary stabilization and sedimentation control measures. For each of these measures a typical detail should be provided. The project budget and contract should include each as well on a per unit basis. Projects shall utilize Soil Stabilization and Sediment Control measure details that are in accordance with the Illinois Urban Manual latest edition. Reference attached Figures 6 and 7 for Soil Stabilization and Sediment Control plan details.

Sediment Control (Figure 6)

a) Sediment Basin Dewatering
b) Temporary Sediment Trap
c) Temporary Sediment Trap
d) Silt Fence
e) Silt Fence Wire Support Plan
f) Fence Splicing Two Fences

Stabilization (Figure 7)

a) Erosion Blanket
b) Erosion Blanket
c) Erosion Blanket Turf Reinforcement Mat

Figure 6 A
Sediment Basin Dewatering

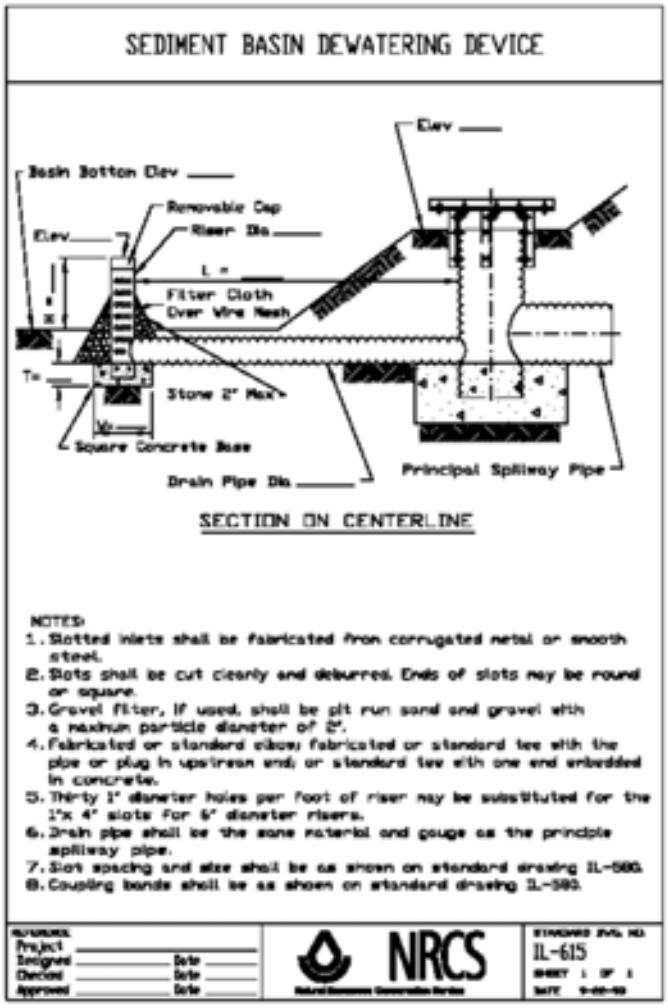


Figure 6 B
Temporary Sediment Trap

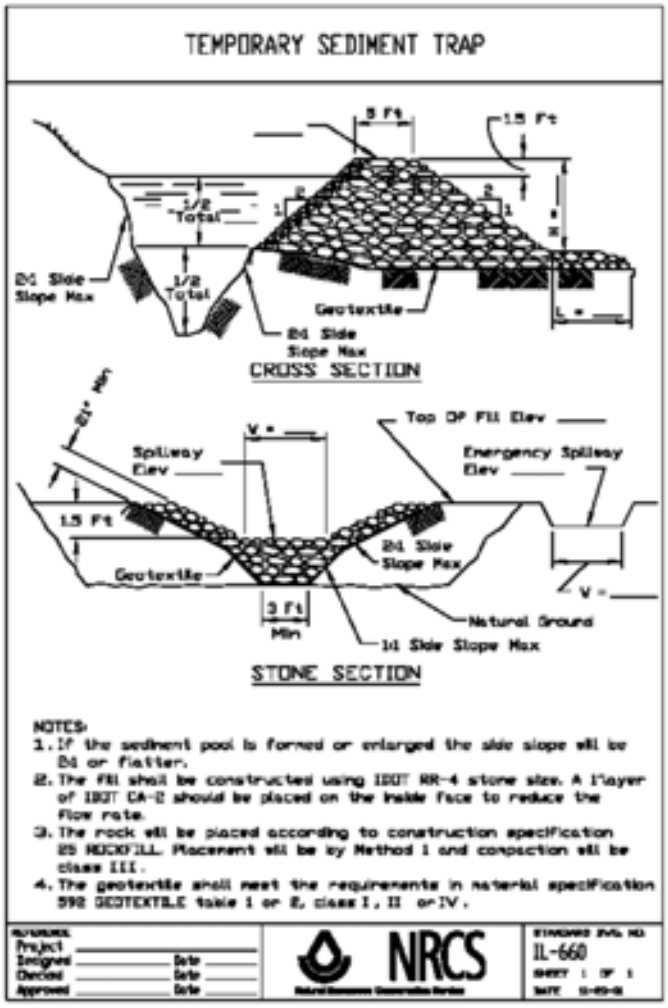
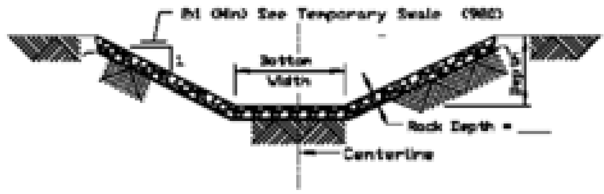


Figure 6 C
Temporary Sediment Trap

TEMPORARY ROCK SWALE PLAN



Reach No.			
From Station			
To Station			
Grade, %			
Drainage Area, Ac			
Construction Layout Data			
Top Width, Ft.			
Bottom Width			
Side Slope			
Depth, Ft.			
Stabilization Material			

NOTES:

1. All trees, stumps, brush and debris shall be removed from the construction area and disposed of properly.
2. Riprap shall meet IDOT gradation RR-3 Quality Designation A or B. Aggregate shall meet IDOT coarse aggregate gradations CA-2 or CA-3. Rock shall be placed according to construction specification 25 ROCKFILL using placement Method 1 and Class III compaction.
3. Filter fabric shall meet the requirements of material specification 592 592 GEOTEXTILE, Table 1 or 2, Class I, II, or IV and shall placed over the area prior to the placing of rock.
4. Spoil material from construction will be deposited in low areas or otherwise spread so as not to interfere with flow of water into the swale. Any earth fill shall be compacted to prevent differential settlement in the completed swale. The swale will be constructed to the specified grade, width and depth.

REFERENCE		NRCS	STANDARD DWG. NO. IL-680R
Project ______			SHEET 1 OF 1
Designed ______	Date ______		DATE [illegible]
Checked ______	Date ______		
Approved ______	Date ______		

Figure 6 D
Silt Fence

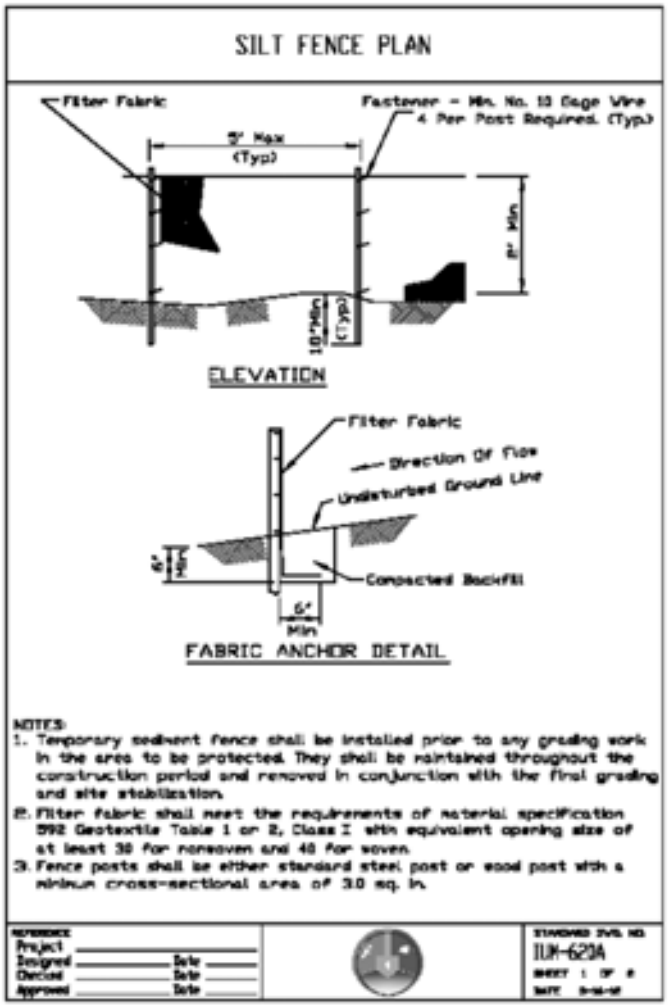


Figure 6 E
Silt Fence Wire Support

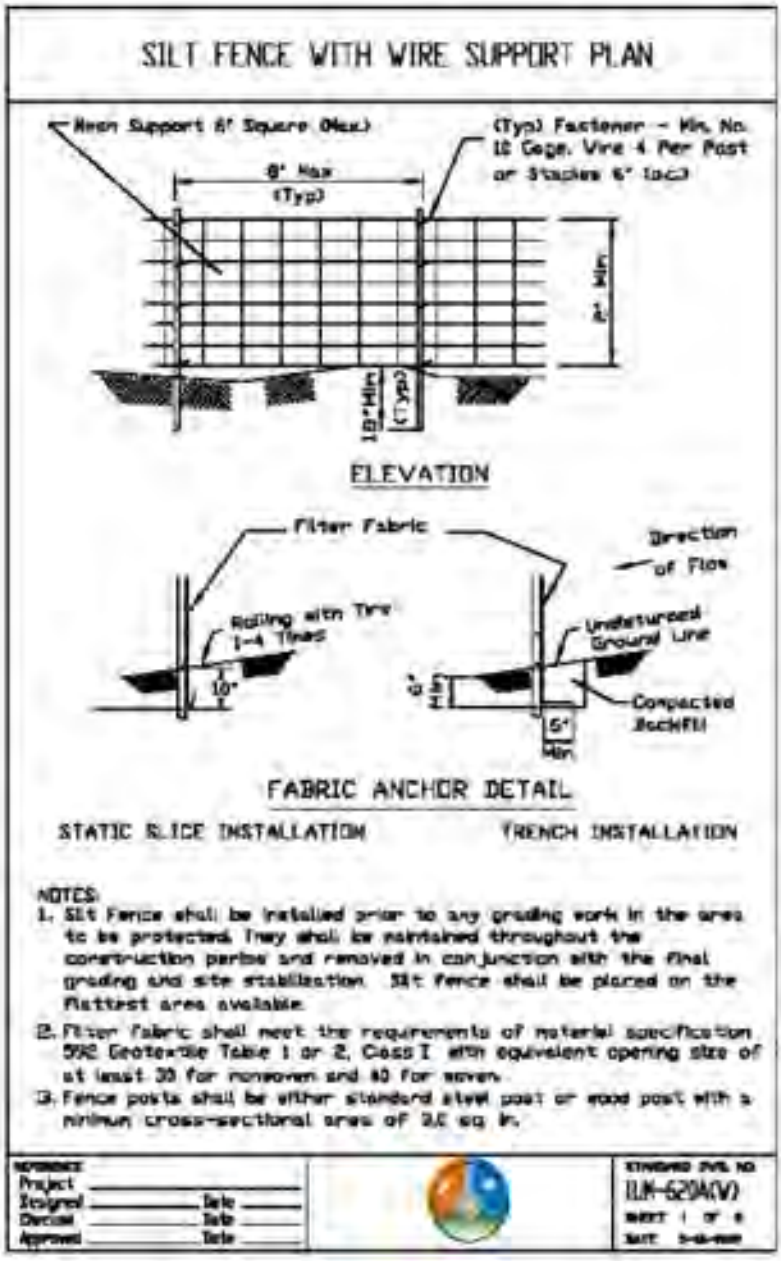


Figure 6 F
Fence Splicing Two Fences

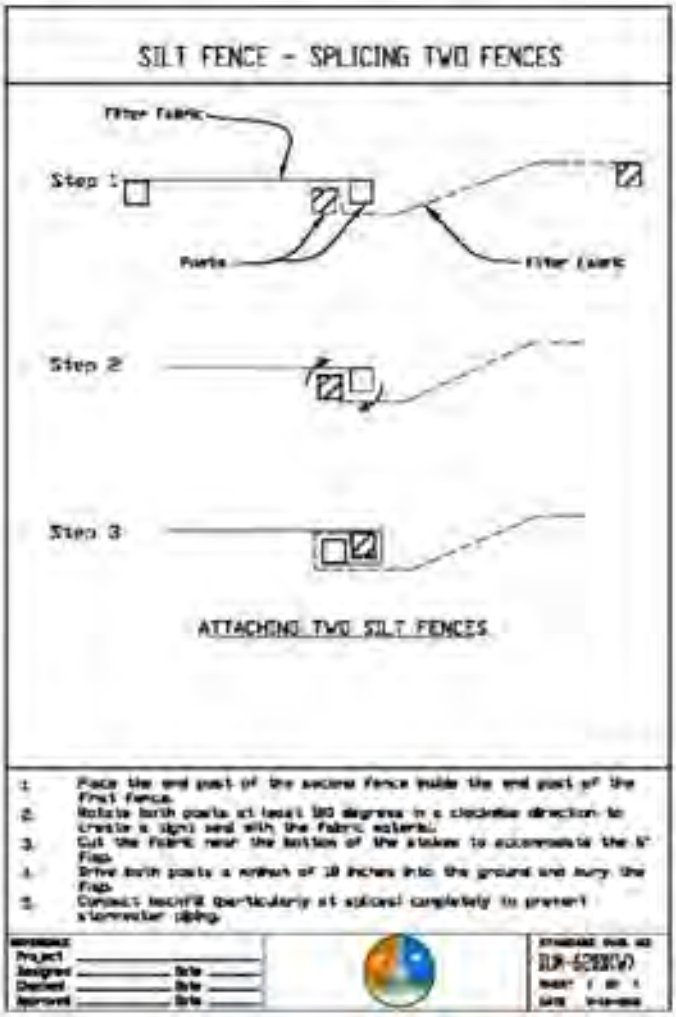


Figure 7 A
Erosion Blanket

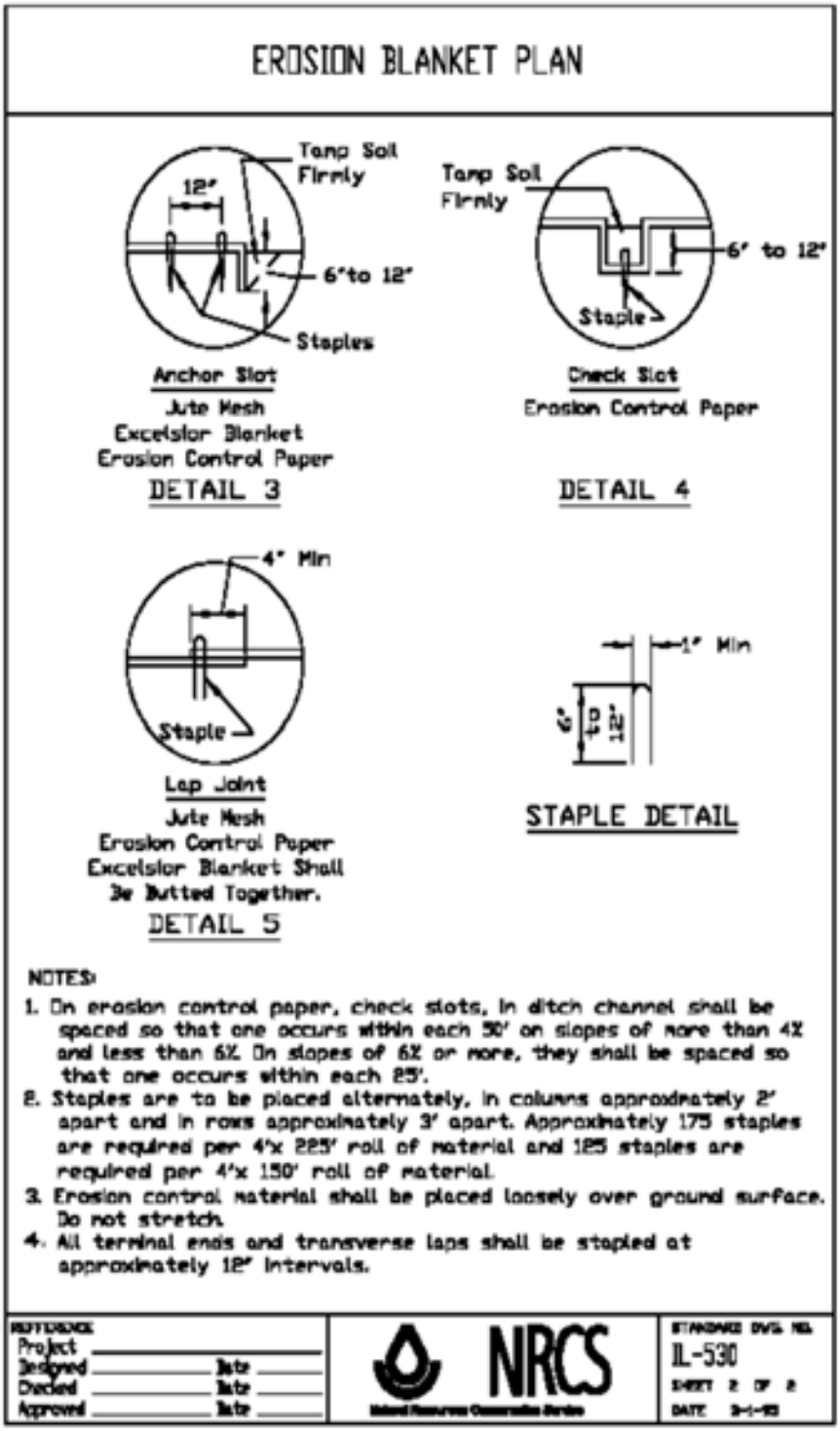


Figure 7 B
Erosion Blanket

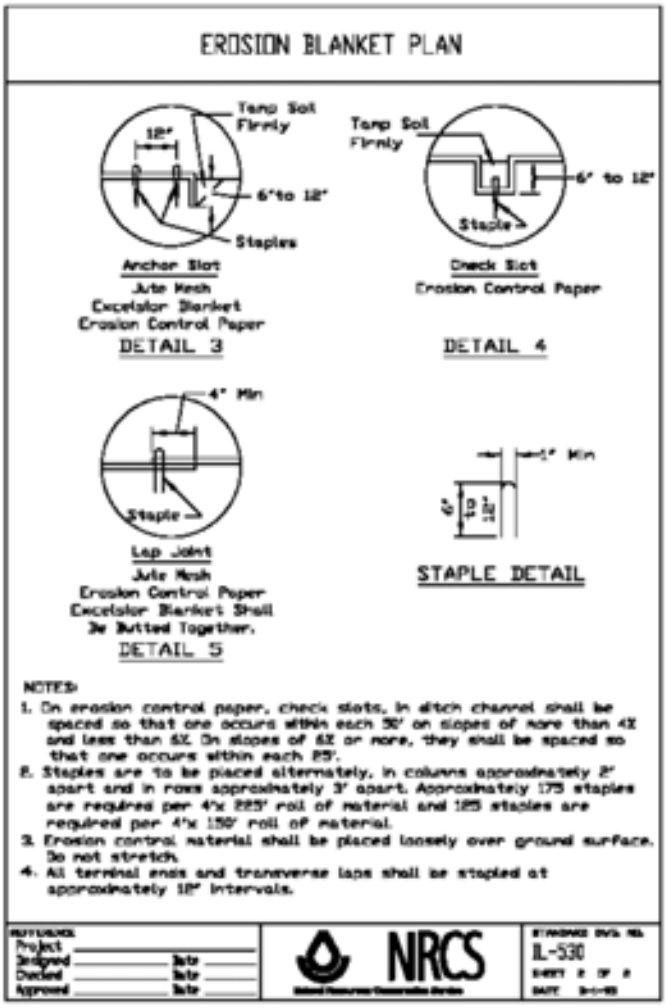
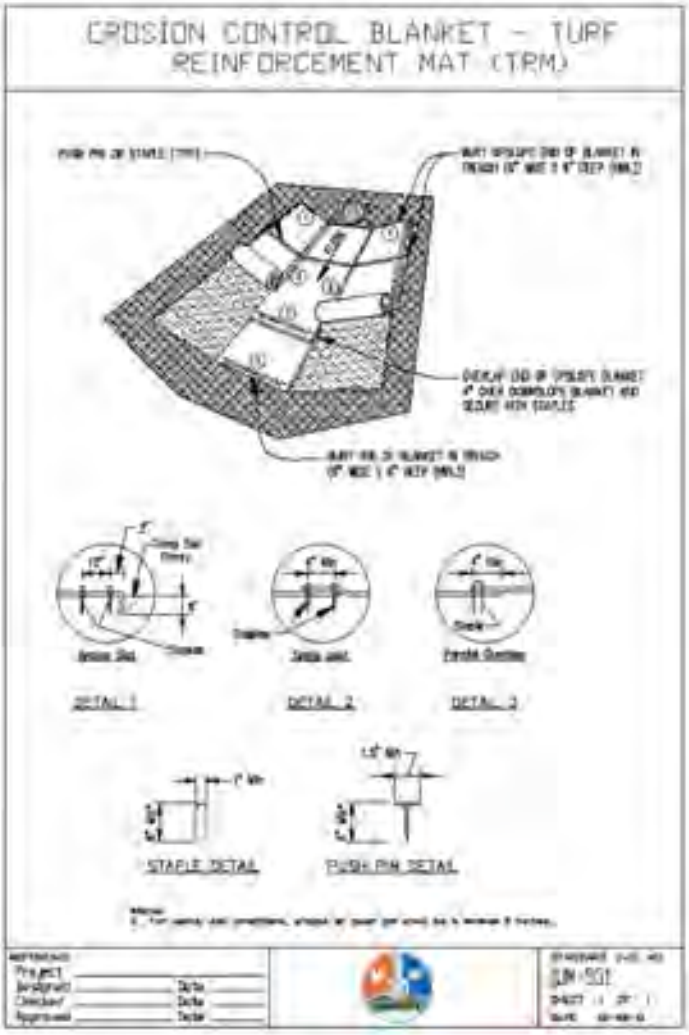


Figure 7 C
Erosion Blanket



T3-00(h) Limitation on Site Disturbance

The limitation on site disturbance is in recognition of the need to prevent erosion in preference to controlling sediment. Site disturbances shall not exceed 20 acres at any one time unless it is to balance cut and fill, for which a maximum of 40 acres may be disturbed at any one time. The Administrator has considerable flexibility to vary the maximum area of disturbance based on site or project specific conditions, or in recognition of a particularly effective plan with aggressive and effective implementation. The amount of area open to erosion at any one time poses a risk for delivery of sediment downstream and the risk needs to be minimized consistent with the requirements of getting the project constructed.

The plan for limiting disturbance should be fully developed with both the applicant and the contractor and may not be finalized until a permit is issued but before construction. It should also be flexible to meet the challenges of the City of Rockford weather patterns in the prime construction season.

Certain areas will be disturbed repeatedly, such as utility corridors and haul roads. These areas are not exempt from sediment and erosion control, but when defined on a plan or in the field, do not become subject to the limitation on disturbed area. Areas such as sedimentation basins and detention/retention facilities are also exempt from the area limitations.

Outside the normal spring and fall planting seasons, temporary stabilization may be accomplished by hydroseeding with heavy mulch. Multiple treatments may be necessary to adequately stabilize the site. The use of erosion control blankets with or without seed also meet the requirements. Permanent stabilization requires the placement of seed or sod. In the case of dormant season seeding the use of erosion control blankets or heavy mulching with permanent seeding satisfies the requirement. The use of heavy mulch may require multiple treatments depending on weather conditions and dislodgment protection.

T3-00(i) Erosion and Sediment Control Plan Requirements

Figure 16 illustrates the minimum components necessary for an erosion and sediment control plan sheet. The plan should clearly detail all phases of site construction and the erosion and sediment control practices to be installed. Weekly inspections shall be performed until final stabilization has occurred as defined and required by the Illinois Environmental Protection Agency's General Construction Permit (ILR10).

FIGURE 8
Sediment and Erosion Control Plan

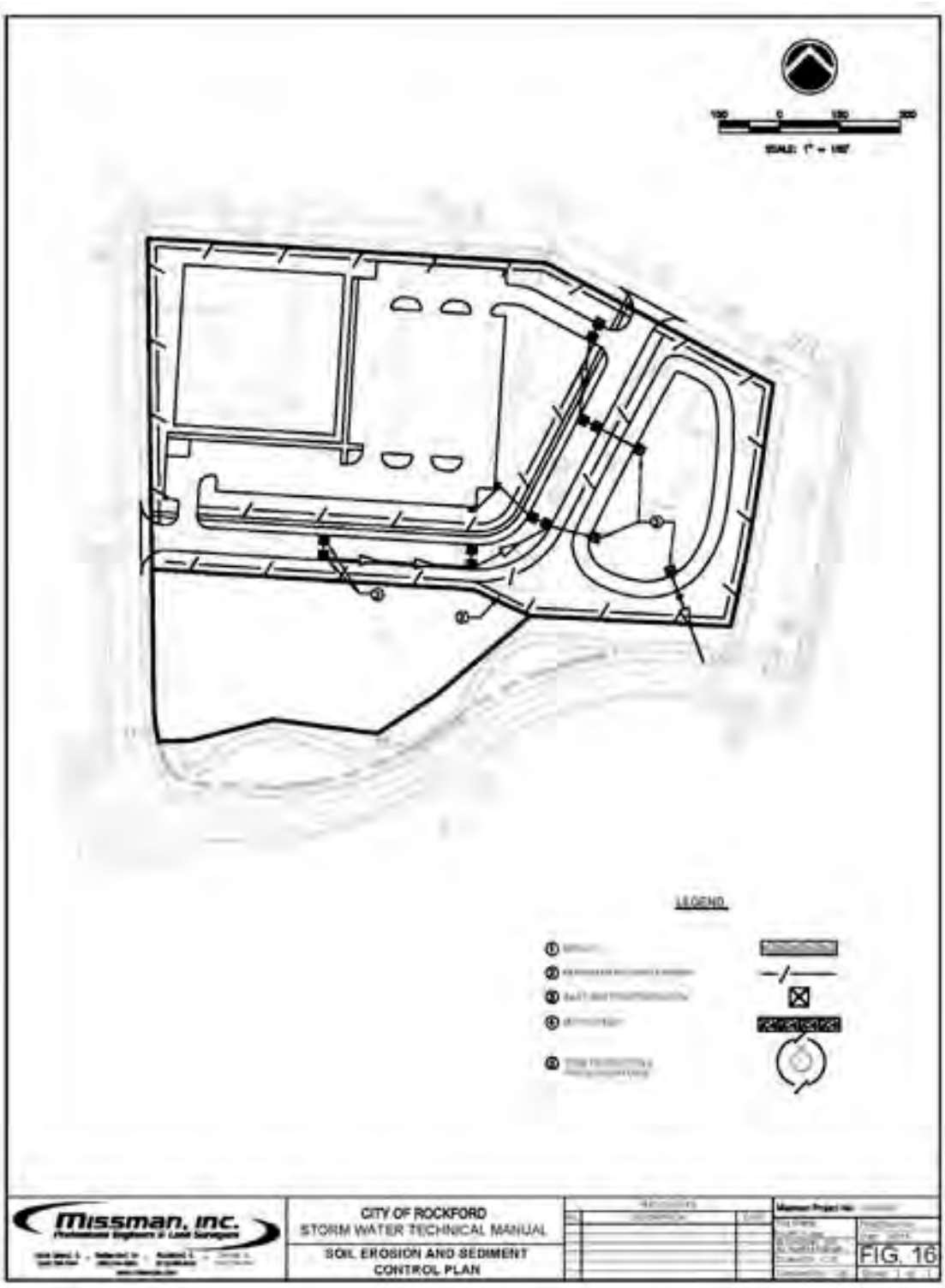


TABLE 7
Permanent Stabilization Practices

Permanent Stabilization Strategy	Urban Manual Code	Sheet & Rill Erosion	Rill & Gully Erosion	Stream-Bank Erosion	Stream Channel Erosion	Nutrients, Heavy Metal & Salt	Flooding	Increased Peak Discharge	Sediment Damage
Urban Stormwater Wetlands	880				Excellent	Excellent			Excellent
Erosion Blanket	830	Good	Fair	Fair	Fair				Fair
Filter Strip (Buffer)	835	Good		Excellent	Excellent	Good			Excellent
Vegetated Channels (Swales)	840			Good	Good	Fair	Fair		Fair
Infiltration Trench	847	Fair	Fair			Fair		Fair	
Level Spreader	870	Fair	Fair	Fair		Fair			Fair
Mulching	875	Good	Good	Fair		Fair		Fair	
Permanent Seeding	880	Excellent	Excellent	Good		Good			Good
Permeable Pavement	890	Fair	Fair	Fair		Fair	Fair	Fair	Fair
Pool & Riffle System				Fair	Good				Good
Rock Check Dam	905		Good						Fair
Rock Outlet Protection	910	Good	Good	Good					Good
Sedimentation Forebay						Good			Good
Sodding	925	Excellent	Excellent	Good		Good			Good
Structural Streambank Stabilization	940			Excellent					Excellent
Vegetative Streambank Stabilization	995			Excellent					Excellent

At a minimum the 2-year and 10-year runoff rates for all off-site flows need to be shown along with an appropriate method for conveying the flows without increased velocities or erosion from within the construction site.

A maintenance schedule and weekly inspection worksheet should also be included. The maintenance schedule should be placed on the erosion and sediment control plan sheet. Form 12 shows an inspection worksheet. The inspection shall evaluate stabilization as well as sediment control. Inspections shall be scheduled weekly and after 0.5 inch of rainfall or greater until permanent stabilization has been completely established. Weekly inspections may be reduced upon installation of permanent stabilization.

T3-00(j) Conveyance of Off-Site Flow

Ditches and waterways that convey off-site flow through the site shall be permanently stabilized upon construction. The permanent stabilization should replace temporary measures but it may be necessary to leave some temporary measures in place while the permanent stabilization establishes. Stabilization of off-site conveyance must protect the downstream land from erosion and sedimentation. Permanent stabilization must therefore include velocity reduction features at the property boundary. Use of level spreaders, lined aprons, and drop inlet pipe spillways are preferred.

T3-00(k) Stockpiles

Stockpiles are not to be placed in any special management areas or buffers. Sediment control measures shall be installed in stockpile area prior to mass excavation and stockpile placement. Control measures shall be in place on the down gradient side to prevent sediment runoff. When stockpiles remain for more than 3 days they require temporary stabilization. An adequate distance should be kept between the stockpile and special management areas such that maintenance of stabilization can be performed without entry into the special management area.

T3-00(m) Construction Dewatering

Discharge from site dewatering activities must be maintained in a manner that does not increase on-site erosion, convey sediment off-site or cause off-site flood damages. Dewatering discharge may not be outletted into wetlands on or off-site where practicable; discharge from on-site dewatering shall be routed into the site sediment basin. Thus, sediment basin volume of storage should include site dewatering.

T3-00(n) Protection of Public/Private Roadways

Public and private roadways must be kept free of nuisance soil. Access to the site must be large enough to provide a stabilized construction entrance (Figure 17) of sufficient width and length, on-site parking, and vehicle washdown facility where appropriate. Soil tracked onto public right-of-way must be cleaned before lie end of each workday. Street sweeping provides a mechanism for removal of loose soil materials, but may not be sufficient to remove materials compacted onto the roadway surfaces. Removal of such compacted materials during each workday and when required by the Administrator is also required. Removal of adhered soil materials will be done in a manner that does not damage the roadway or other right-of-way appurtenances.

T3-00(o) Construction Waste

Potential sources of pollution expected to be present on site during construction include but are not limited to oil, petroleum based additives, cleaning solvents, tar, cleaning solvents, fertilizers, soil stabilization additives and solids, and construction wastes. Contractor shall employ good housekeeping efforts, secondary containment measure, etc. to prevent spill or other accidental exposure of materials and substances to storm water runoff and shall train all personnel in the proper handling and cleanup of spilled materials.

Construction waste shall not be allowed to enter the City's storm system (inlets, curblines, drainageways, creek, ditches etc.) nor can it be poured on the ground surface. Similar to the SWPPP for the project, an approved washout or waste receptacle must be avaialable onsite. Code No. 954 of the Illinois Urban Manual discusses procedures for Temporary Washout Facilities.

T3-00(p) Temporary Stream Crossings

Temporary stream crossings (bridges, fords, and culvert crossings) should be designed for short-term use periods not to exceed 1 year. Temporary stream crossings are to be used only where there is no practicable alternative for moving heavy equipment from one side of a stream channel to another or where light duty equipment must cross a stream frequently for a very short period (<3 months). Prior to any in-stream work, appropriate agency(ies) permitting shall be obtained, if applicable.

Temporary stream crossings are applicable where the upstream drainage area does not exceed one square mile. For areas greater than one square mile, engineered structures should be designed. The following criteria should be addressed when designing temporary stream crossings:

- Erosion and sediment control
- Structural stability
- Safety
- Utility

At a minimum, the structure must be designed to pass the 2-year, 24-hour event and withstand erosion force of the 100-year (BFE) event. The outlet design velocity of the stream crossing structure should be non-erosive for the receiving stream. A swale or other water diversion shall be constructed (across the roadway) on both approaches a maximum of 50 feet on either side of the crossing to prevent direct runoff to the stream.

Figure 9 A
Stabilized Construction Entrance Plan

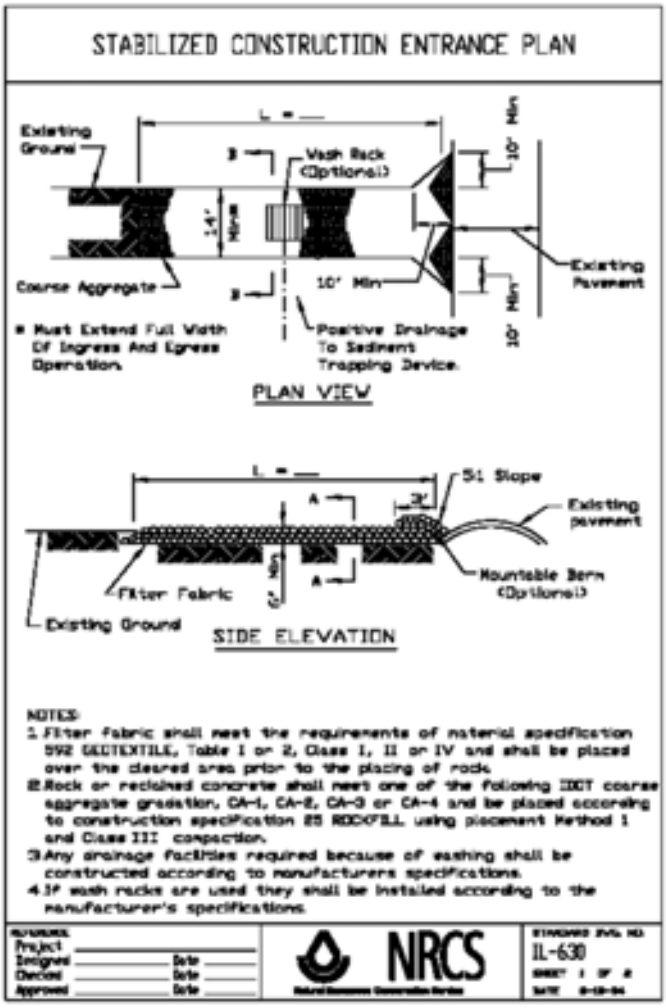
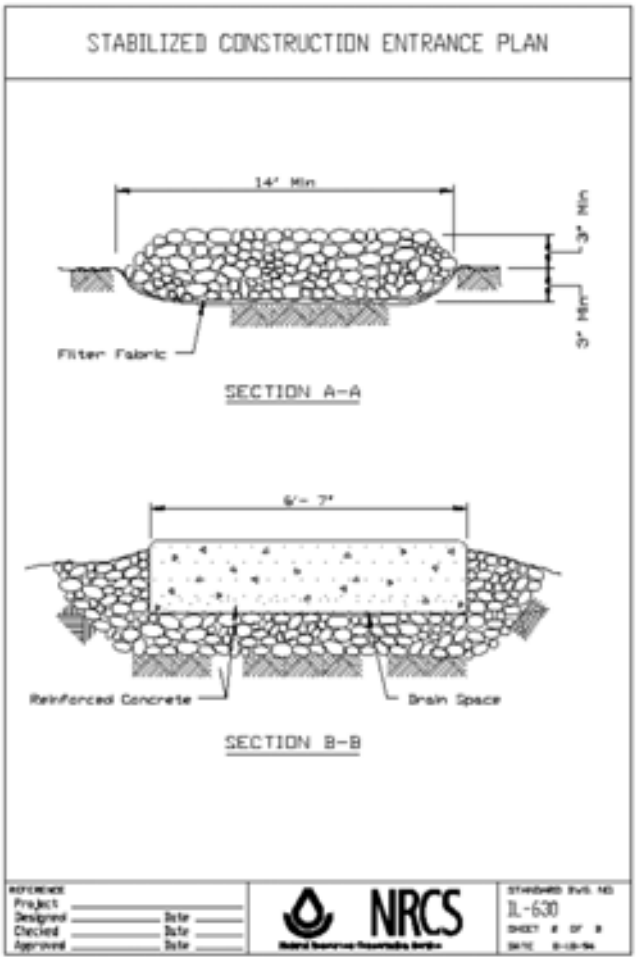


Figure 9 B
Stabilized Construction Entrance



ARTICLE 4— PROTECTION OF SPECIAL MANAGEMENT AREAS

A Special Management Area is defined as a floodplain, regulatory floodplains, and waters of the United States including: wetlands, streams, rivers, linear water bodies, and other water bodies.

The Ordinance includes basic objectives for development, which are directly related to special management areas and completed watershed studies are summarized below:

1. Prevent damages, including loss of life and inconveniences to the public, due to periodic flooding, to the greatest extent possible.

2. Assure the new development does not increase flood hazards to others.

3. Minimize new financial burdens for taxpayers for operations related to flooding.

4. Promote the orderly development of land and water resources and conserve the natural functions of floodplains.

5. Maintain and enhance the special aquatic resources of the City of Rockford and Winnebago County.

T4-01 Disclaimer

Nothing in this ordinance purports to alter or affect the regulatory program administered by IDNR- OWR. Anything in this ordinance to the contrary notwithstanding, if under the rules and regulations administered by IDNR-OWR a submittal need not be made to IDNR-OWR, or a review, approval or permit from IDNR-OWR need not be obtained, then nothing in this ordinance shall be construed to impose a requirement that such a submittal be made or that such a review, approval or permit be obtained from IDNR-OWR. Similarly, if IDNR-OWR has delegated its regulatory authority to another entity, then anything in this ordinance to the contrary notwithstanding, if required by such entity, such submittal shall be made or such review, approval or permit shall be obtained from such entity

T4-02 Statewide and Regional Permits

The Ordinance recognizes the general and specific conditions of the Statewide Permits and Regional Permits. For projects which meet the tests for applicability, and can meet the requirements of these permits, no additional requirements of the Ordinance with respect to floodplains apply. The applicant must send the Administrator documentation that the project complies with a Statewide or Regional permits.

T4-03 Floodplain Management

The applicant must identify floodplain limits using the best available information, or the applicant, Director, or Administrator may choose to develop a project-specific floodplain delineation.

The best available information may include reports and studies published by the U.S.

Army Corps of Engineers (COE), the U.S. Department of Agriculture — Natural Resources Conservation Service (NRCS), the U.S. Geological Survey (USGS), the Illinois State Water Survey (ISWS), the Illinois Department of Transportation, and the Illinois Department of Natural Resources-Office of Water Resources (IDNR-OWR). The Administrator will need to approve the use of any floodplain study not previously designated as a regulatory study prior b the use of the BFEs, flood profiles or delineations. Applicants should check for the best available information with ISWS Floodplain Repository for BFE data associated with "A Zone" delineations on FEMA maps. Project specific floodplain delineation requires detailed and sophisticated studies. Determining the relationship between the project site and the floodplain is the responsibility of the applicant.

Table 403 of the Ordinance contains a summary of the requirements for developments in the floodplain. The left column of the Table refers to the type of floodplain on-site. References in the Table to "all" refer to projects of the type noted or with the designation of floodplain noted, and they must meet the applicable requirements of the referenced section. The difference between the floodplain and the regulatory floodplain is the jurisdiction of IDNR-OWR. The floodplain is a more general area with elevations at or below the base flood elevation that does not necessarily have one square mile of drainage area. A site without any type of stream or creek flowing through or near it could have floodplain on site if there is a depressional area that contains runoff at or below the base flood elevation determined from a hydrologic model of the tributary watershed area.

T4-04 Floodplain, Regulatory Floodplain, Base Flood Elevation (BFE) and Regulatory Floodway Locations

This ordinance's protection standard is the base flood. The best available base flood data are listed below. Whenever a party disagrees with the best available data, the party shall finance the detailed engineering study needed to replace the existing data with better data and submit it to the FEMA and IDNR/OWR for approval prior to any development of the site.

1. The base flood elevation for the floodplains of Ditch No. 3, Dry Creek, Keith Creek, Kilburn Creek, Kilbuck Creek, Kishwaukee River, Madigan Creek, Main Drainage Ditch, Manning Creek, McDonald Creek, Mud Creek, North Branch Otter Creek, North Kent Creek, North Kinnikinnick Creek, Otter Creek, Pecatonica River, Randalls Creek, Rock River, South Branch Dry Creek, South Branch Kishwaukee River, South Branch Otter Creek, South Ditch, South Kent Creek/Kent Creek, South Kinnikinnick Creek shall be as delineated on the 100-year flood profiles in the countywide Flood Insurance Study of Winnebago County prepared by the Federal Emergency Management Agency and dated September 6, 2006.

2. The base flood elevation for each floodplain delineated as an "AH Zone" or AO Zone" shall be that elevation (or depth) delineated on the county wide Flood Insurance Rate Map of Winnebago County

3. The base flood elevation for each of the remaining floodplains delineated as an "A Zone" on the countywide Flood Insurance Rate Map of Winnebago County shall be according to the best data available from federal, state or sources. Should no other

data exist, an engineering study must be financed by the applicant to determine base flood elevations.

4. The base flood elevation for the floodplains of those parts of unincorporated Winnebago County that are within the extraterritorial jurisdiction of the City of Rockford or that may be annexed into the City of Rockford, shall be as delineated on the 100-year flood profiles in the Flood Insurance Study of Winnebago County prepared by the Federal Emergency Management Agency and dated September 6, 2006.

    a) The Administrator may require the use of a floodplain study not yet approved by IDNR-OWR and FEMA if its use would establish a higher BFE than the approved study.

5. The location of the regulatory floodway shall be as delineated on the current applicable regulatory map(s). The location of the regulatory floodway boundary shall be scaled on the site plan using references common to both the map and the plan (typically the centerlines of adjacent roadways). Where an interpretation is needed to determine the exact location of the regulatory floodway boundary, IDNR/OWR should be contacted. If an area of the site is located in the regulatory floodway that is higher than the BFE, that area is subject to the floodway standards of this Article, including the appropriate use criteria, until such time as a LOMA/LOMR receives concurrence from IDNR/OWR and is issued by FEMA.

    a) General criteria for analysis of flood elevations in the regulatory floodway are as follows:

        (i) The flood profiles, flows and data from the current applicable regulatory map must be used for analysis of the base conditions. If the study data appears to be in error or conditions have changed, FEMA and IDNR/OWR shall be contacted for approval and concurrence on the appropriate base conditions data to use. The same Manning's "n" value shall be used for both existing and proposed conditions unless a recorded maintenance agreement obligates a public entity to maintain the proposed conditions or the land cover is changing from vegetative to non-vegetative. The Director shall be copied on all related correspondence.

    b) If the BFE at the site is affected by backwater from a downstream receiving stream with a larger drainage area, the proposed development shall be shown to meet the requirements of this section with the receiving stream at both the normal water elevation and BFE.

    c) If the applicant is informed by IDNR/OWR, a local government or a private owner that a downstream or upstream restrictive bridge or culvert is scheduled to be removed, reconstructed or modified, or a regional flood control project is scheduled to be built, removed, constructed or modified within the next five years, the proposed development shall be analyzed and shown to meet the requirements of this section for both the existing conditions and the expected flood profile conditions when the bridge, culvert or flood control project is built, removed or modified.

    d) If the appropriate use will result in a change in the location of the regulatory

floodway or a change in the BFE, the applicant shall submit the information required for the issuance of a CLOMR to IDNR/OWR and FEMA. A public notice inviting public comment on the proposed change in the BFE or location of the regulatory floodway will be issued by IDNR/OWR or its designee before a CLOMR is issued. Filling, grading, dredging or excavating may take place upon issuance of a conditional approval from IDNR/OWR and the Administrator. No further development activities shall take place in the existing or proposed floodplain until a LOMR is issued by FEMA unless such activities meet all the requirements of Secs. 4-03 through 4-13 of this ordinance. The Director shall be copied on all related correspondence.

e) In the circumstances listed below and located in a regulatory floodway, at a minimum, the information set forth below shall be submitted to IDNR/OWR for its review and approval:

(i) analysis of the flood profile due to a proposed bridge, culvert crossing or roadway approach;

(ii) an engineer's determination that an existing bridge, culvert crossing or approach road is not a source of flood damage and the analysis indicating the proposed flood profile;

(iii) alternative transition sections and hydraulically equivalent compensatory storage; and

(iv) stormwater management permits issued to local units of government for regulatory floodway and floodplain development.

(v) IDNR/OWR will issue permits for any IDNR/OWR, state, federal or community projects.

T4-05 General performance standards

The following general performance standards are applicable to all development in a regulatory floodplain. The standards of this section apply except when superseded by more stringent requirements in subsequent sections.

1. No development shall be allowed in the regulatory floodplain that singularly or cumulatively creates any increase in flood stage or velocity offsite, or a damaging or potentially damaging increase in flood heights or velocity onsite or a threat to the public health, safety and welfare.

2. For all projects involving a channel modification, fill, stream maintenance or a levee, the flood conveyance and storage capacity of the regulatory floodplain shall not be reduced.

3. If the proposed development would result in a change in the regulatory floodplain or BFE the applicant shall obtain a LOMR from FEMA. No buildings may be built in the existing or proposed regulatory floodplain until the LOMR is obtained from FEMA unless the building meets all the building protection standards of Sec. 4-07. Proposed changes to the regulatory floodway delineation and the BFE must be submitted to IDNR/OWR for approval.

4. If the development is located in the Rock River a permit must also be received from IDNR/OWR.

5. Prior to the commencement of any construction, modification or removal of a dam the developer shall obtain an IDNR/OWR Dam Safety Permit or letter indicating a permit is not required.

6. For public flood control projects, Secs. 4-03 through 4-13 will be deemed met if the applicant demonstrates to IDNR/OWR and the Administrator—

   a) by hydraulic and hydrologic modeling that the proposed project will not singularly or cumulatively result in increased flood heights outside the project site or that any increases will be contained in easements for all flood events up to and including the base flood event;

   b) that the project will be operated and maintained by a public entity;

   c) that the project will reduce flood damage to an existing building or structure.

7. Fences within the floodplain shall not impede the base flood.

Nothing in this section precludes the design, engineering, construction or financing, in whole or in part, of a public flood control project by persons who are not public entities.

T4-06 Public health protection standards

1. Public health standards must be met for all floodplain development. In addition to the requirements of Sections 6 and 7 of this ordinance the following standards apply:

   a) No development in the floodplain shall include locating or storing chemicals, explosives, buoyant materials, flammable liquids, pollutants, or other hazardous or toxic materials below the flood protection elevation unless such materials are stored in a floodproofed and anchored storage tank and certified by a professional engineer or floodproofed building constructed according to the requirements of Section 7 of this ordinance.

   b) Public utilities and facilities such as sewer, gas and electric shall be located and constructed to minimize or eliminate flood damage.

   c) Public sanitary sewer systems and water supply systems shall be located and constructed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.

   d) New and replacement on-site sanitary sewer lines or waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding. Manholes or other above ground openings located below the flood protection elevation shall be watertight.

   e) Construction of new or substantially improved critical facilities shall be located outside the limits of the floodplain. Construction of new critical facilities shall be permissible within the floodplain if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor (including

basement) elevated or structurally dry floodproofed to the 500-year flood frequency elevation or three feet above the level of the 100-year flood frequency elevation whichever is greater. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities.

c) All other activities defined as development shall be designed so as not to alter flood flows or increase potential flood damages.

T4-07 Building Protection Standards

This section applies to all buildings located in the regulatory floodplain. However, most new and replacement buildings are not appropriate uses of the regulatory floodway.

1. In addition to the state permit and damage prevention requirements of this ordinance, all buildings located in the floodplain shall be protected from flood damage below the flood protection elevation. This building protection requirement applies to the following situations:

   a) Construction or placement of a new building or alteration or addition to an existing building valued at more than one thousand dollars ($1,000) or seventy (70) square feet.

   b) Substantial improvements or structural alterations made to an existing building that increase the floor area by more than twenty percent (20%) or equal or exceed the market value by fifty percent (50%). Alteration shall be figured cumulatively during the life of the building. If substantially improved, the existing structure and the addition must meet the flood protection standards of this section.

   c) Repairs made to a substantially damaged building. These repairs shall be figured cumulatively during the life of the building. If substantially damaged the entire structure must meet the flood protection standards of this section within 24 months of the date the damage occurred.

   d) Installing a manufactured home on a new site or a new manufactured home on an existing site. (The building protection requirements do not apply to returning a manufactured home to the same site it lawfully occupied before it was removed to avoid flood damage).

   d) Installing a travel trailer or recreational vehicle on a site for more than one hundred eighty (180) days per year.

   e) Repetitive loss to an existing building as defined in Article 1.

2. Residential or non-residential buildings can meet the building protection requirements by one of the following methods:

   a. The building may be constructed on permanent land fill in accordance with the following:

(i) The lowest floor (including basement) shall be at or above the flood protection elevation.

(ii) The fill shall be placed in layers no greater than six inches before compaction and should extend at least ten (10) feet beyond the foundation before sloping below the flood protection elevation.

(iii) The fill shall be protected against erosion and scour during flooding by vegetative cover, riprap, or other structural measure.

(iv) The fill shall be composed of rock or soil and not incorporated debris or refuse material, and

(v) Shall not adversely affect the flow of surface drainage from or onto neighboring properties and when necessary stormwater management techniques such as swales or basins shall be incorporated.

b. The building may be elevated on solid walls in accordance with the following:

(i) The building or improvements shall be elevated on stilts, piles, walls, crawlspace, or other foundation that is permanently open to flood waters.

(ii) The lowest floor and all electrical, heating, ventilating, plumbing, and air conditioning equipment and utility meters shall be located at or above the flood protection elevation.

(iii) If walls are used, all enclosed areas below the flood protection elevation shall address hydrostatic pressures by allowing the automatic entry and exit of flood waters. Designs must either be certified by a licensed professional engineer or by having a minimum of one (1) permanent opening on each wall no more than one (1) foot above grade with a minimum of two (2) openings. The openings shall provide a total net area of not less than one (1) square inch for every one (1) square foot of enclosed area subject to flooding below the base flood elevation, and

c. The foundation and supporting members shall be anchored, designed, and certified so as to minimize exposure to hydrodynamic forces such as current, waves, ice, and floating debris.

i. All structural components below the flood protection elevation shall be constructed of materials resistant to flood damage.

ii. Water and sewer pipes, electrical and telephone lines, submersible pumps, and other service facilities may be located below the flood protection elevation provided they are waterproofed.

iii. The area below the flood protection elevation shall be used solely for parking or building access and not later modified or occupied as habitable space, or

iv. In lieu of the above criteria, the design methods to comply with these requirements may be certified by a licensed professional engineer or architect.

3. The building may be constructed with a crawlspace located below the flood protection elevation provided that the following conditions are met:

   a) The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

   b) Any enclosed area below the flood protection elevation shall have openings that equalize hydrostatic pressures by allowing for the automatic entry and exit of floodwaters. A minimum of one opening on each wall having a total net area of not less than one (1) square inch per one (1) square foot of enclosed area. The openings shall be no more than one (1) foot above grade.

   c) The interior grade of the crawlspace below the flood protection elevation must not be more than two (2) feet below the lowest adjacent exterior grade.

   d) The interior height of the crawlspace measured from the interior grade of the crawl to the top of the foundations wall must not exceed four (4) feet at any point.

   e) An adequate drainage system must be installed to remove floodwaters from the interior area of the crawlspace within a reasonable period of time after a flood event.

   f) Portions of the building below the flood protection elevation must be constructed with materials resistant to flood damage, and

   g) Utility systems within the crawlspace must be elevated above the flood protection elevation.

4. Non-residential buildings may be structurally dry floodproofed (in lieu of elevation) provided a licensed professional engineer or architect certifies that:

   a) Below the flood protection elevation the structure and attendant utility facilities are watertight and capable of resisting the effects of the base flood.

   b) The building design accounts for flood velocities, duration, rate of rise, hydrostatic and hydrodynamic forces, the effects of buoyancy, and the impact from debris and ice.

   c) Floodproofing measures will be incorporated into the building design and operable without human intervention and without an outside source of electricity.

   d) Levees, berms, floodwalls and similar works are not considered floodproofing for the purpose of this subsection.

5. Manufactured homes or travel trailers to be permanently installed on site shall be:

   a) Elevated to or above the flood protection elevation in accordance with Section 7(B), and

   b) Anchored to resist flotation, collapse, or lateral movement by being tied down in accordance with the rules and regulations for the Illinois Mobile Home Tie-Down Act issued pursuant to 77 Ill. Adm. Code § 870.

6. Travel trailers and recreational vehicles on site for more than one hundred eighty (180) days per year shall meet the elevation requirements of section 7(D) unless the following conditions are met:

   a) The vehicle must be either self-propelled or towable by a light duty truck.

   b) The hitch must remain on the vehicle at all times.

   c) The vehicle must not be attached to external structures such as decks and porches

   d) The vehicle must be designed solely for recreation, camping, travel, or seasonal use rather than as a permanent dwelling.

   e) The vehicles largest horizontal projections must be no larger than four hundred (400) square feet.

   f) The vehicle's wheels must remain on axles and inflated.

   g) Air conditioning units must be attached to the frame so as to be safe for movement of the floodplain.

   h) Propane tanks as well as electrical and sewage connections must be quick-disconnect.

   i) The vehicle must be licensed and titled as a recreational vehicle or park model, and

   j) Must either:

      (i) entirely be supported by jacks, or

      (ii) have a hitch jack permanently mounted, have the tires touching the ground and be supported by block in a manner that will allow the block to be easily removed by used of the hitch jack.

7. Garages, sheds or other minor accessory structures constructed ancillary to an existing residential use may be permitted provided the following conditions are met:

   a) The garage of shed must be non-habitable.

   b) The garage or shed must be used only for the storage of vehicles and tools and cannot be modified later into another use.

c) The garage or shed must be located outside of the floodway or have the appropriate state and/or federal permits.

d) The garage or shed must be on a single family lot and be accessory to an existing principle structure on the same lot.

e) Below the base flood elevation, the garage or shed must be built of materials not susceptible to flood damage.

f) All utilities, plumbing, heating, air conditioning and electrical must be elevated above the flood protection elevation.

g) The garage or shed must have at least one permanent opening on each wall not more than one (1) foot above grade with one (1) square inch of opening for every one (1) square foot of floor area.

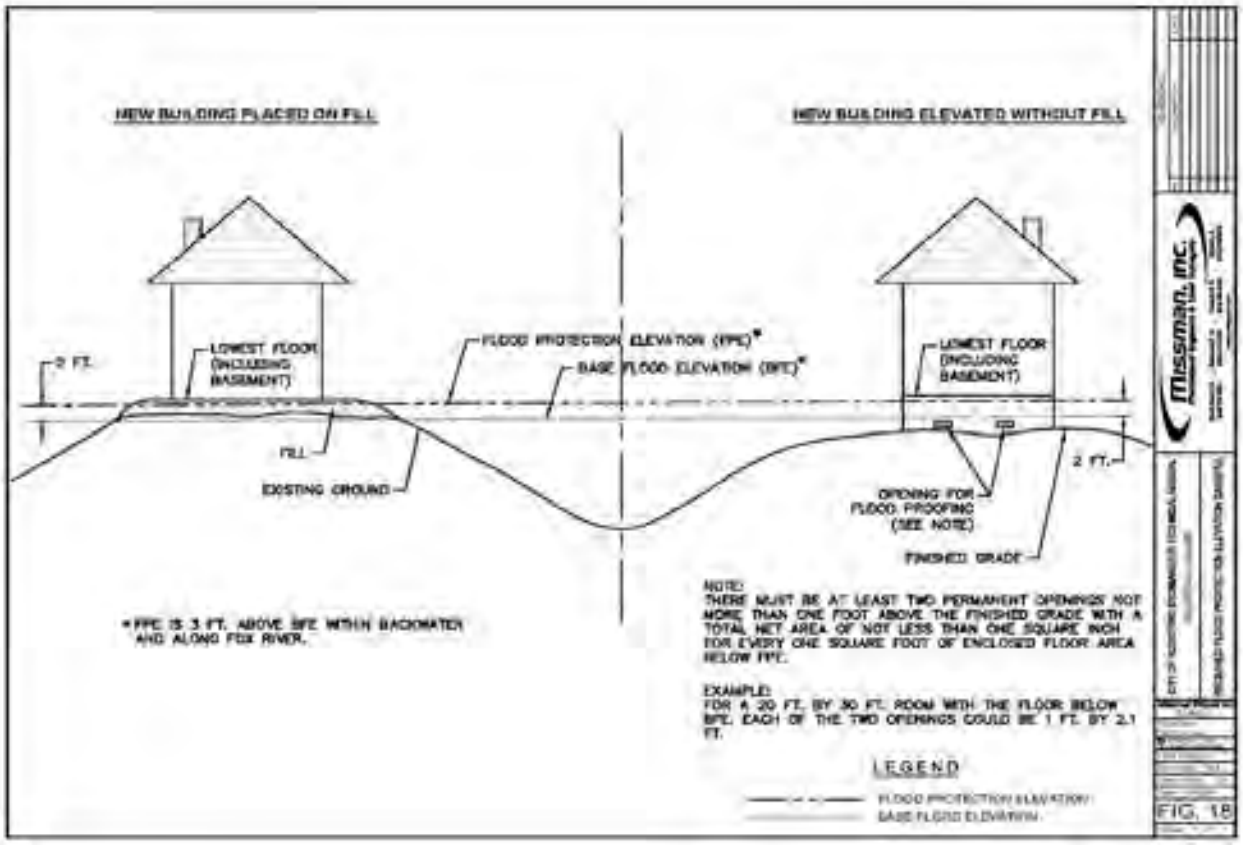
h) The garage or shed must be less than fifteen thousand dollars ($15,000) in market value or replacement cost whichever is greater or less than five hundred and seventy six (576) square feet (24'x24').

i) The structure shall be anchored to resist floatation and overturning.

j) All flammable or toxic materials (gasoline, paint, insecticides, fertilizers, etc.) shall be stored above the flood protection elevation.

k) The lowest floor elevation should be documented and the owner advised of the flood insurance implications.

FIGURE 10
Required Flood Protection Elevation



T4-08 Non-Conforming Structures

A structure that is non-conforming to the Ordinance contains a lowest floor, including basement, which is below the **FPE.** A non-conforming structure that is damaged by flood, fire, wind or other natural or man-made disaster may be restored on-site as long as the damage does not exceed 50% of its market value prior to being damaged, and the accumulative repairs over the life does not exceed 50%. Damage in excess of 50% of the structure's market value places the restoration into the substantial improvement category and therefore, the building must conform to the requirements of Article 4, § T407.

1. Lowest Opening

Proposed structures outside the Regulatory Floodplain shall be built with the lowest opening above the FPE.

2. Preventing Increased Flood Heights and Resulting Damages

No development in the floodplain shall create a threat to public health and safety.

a. Compensatory Storage.

(i) Whenever any portion of a floodplain is authorized for use, the volume of space which will be occupied by the authorized fill or structure below the base flood or 100-year frequency flood elevation shall be compensated for and balanced by a hydraulically equivalent volume of excavation taken from below the base flood or 100-year frequency flood elevation.

(ii) The excavation volume shall be at least equal to ***1.5 times*** the volume of storage lost due to the fill or structure

(iii) In the case of streams and watercourses, such excavation shall be made opposite or adjacent to the areas so filled or occupied.

(iv) All floodplain storage lost below the existing 10-year flood elevation shall be replaced below the proposed 10-year flood elevation. All floodplain storage lost above the existing 10-year flood elevation shall be replaced above the proposed 10-year flood elevation.

(v) All such excavations shall be constructed to drain freely and openly to the watercourse.

Within any floodway identified on the countywide Flood Insurance Rate Map, and within all other floodplains where a floodway has not been delineated, the following standards shall apply:

b. The only development in a floodway which will be allowed are Appropriate Uses, which will not cause a rise in the base flood elevation, and which will not create

a damaging or potentially damaging increase in flood heights or velocity or be a threat to public health and safety and welfare or impair the natural hydrologic and hydraulic functions of the floodway or channel, or permanently impair existing water quality or aquatic habitat. Construction impacts shall be minimized by appropriate mitigation methods as called for in this Ordinance. The approved Appropriate Uses are as follows:

(i) Flood control structures, dikes, dams and other public works or private improvements relating to the control of drainage, flooding, erosion, or water quality or habitat for fish and wildlife.

(ii) Structures or facilities relating to the use of, or requiring access to, the water or shoreline, such as pumping and treatment facilities, and facilities and improvements related to recreational boating, commercial shipping and other functionally water dependent uses;

(iii) Storm and sanitary sewer relief outfalls;

(iv) Underground and overhead utilities;

(v) Recreational facilities such as playing fields and trail systems, including any related fencing (at least 50 percent open when viewed from any one direction) built parallel to the direction of flood flows, and including open air pavilions and toilet facilities (4 stall maximum) that will not block flood flows nor reduce floodway storage;

(vi) Detached garages, storage sheds, or other non-habitable accessory structures that will not block flood flows nor reduce floodway storage;

(vii) Bridges, culverts, roadways, sidewalks, railways, runways and taxiways and any modification thereto;

(viii) Parking lots built at or below existing grade where either:

A) The depth of flooding at the 100-year frequency flood event will not exceed 1.0 foot; or

B) The applicant of a short-term recreational use facility parking lot formally agrees to restrict access during overbank flooding events and accepts liability for all damage caused by vehicular access during all overbank flooding events.

(ix) Floodproofing activities to protect previously existing lawful structures including the construction of water tight window wells, elevating structures, or construction of floodwalls around residential, commercial or industrial principal structures where the outside toe of the floodwall shall be no more than ten (10) feet away from the exterior wall of the existing structure, and, which are not considered substantial improvements to the structure.

(x) The replacement, reconstruction, or repair of a damaged building, provided that the outside dimensions are not increased, and if the building

was damaged to fifty (50%) percent or more of the market value before the damage occurred, the building will be protected from flooding to the flood protection elevation.

Modifications to an existing building that would not increase the enclosed floor area of the building below the 100-year frequency flood elevation, and which will not block flood flows including but not limited to, fireplaces, bay windows, decks, patios, and second story additions. If the building is improved to fifty (50%) percent or more of the market value before the modification occurred (i.e., a substantial improvement), the building will be protected from flooding to the flood protection elevation.

Appropriate uses do not include the construction or placement of any new structures, fill, building additions, excavation or channel modifications done to accommodate otherwise non-appropriate uses in the floodway, fencing (including landscaping or planting designed to act as a fence) and storage of materials except as specifically defined above as an Appropriate Use.

c. Compensatory storage in noted in Article 4.09A shall apply.

d. Except as provided in Article 4.09B of this ordinance, no development shall be allowed which, acting in combination with existing and anticipated development will cause any increase in flood heights or velocities or threat to public health and safety. The following specific development activities shall be considered as meeting this requirement*:

(i) Bridge and culvert crossings of streams in rural areas meeting the conditions of the Illinois Department of Natural Resources, Office of Water Resources Statewide Permit Number 2:

(ii) Barge fleeting facilities meeting the conditions of IDNR/OWR Statewide Permit Number 3:

(iii) Aerial utility crossings meeting the conditions of IDNR/OWR Statewide Permit Number 4;

(iv) Minor boat docks meeting the following conditions of IDNR/OWR Statewide Permit Number 5:

(v) Minor, non-obstructive activities such as underground utility lines, light poles, sign posts, driveways, athletic fields, patios, playground equipment, minor storage buildings not exceeding 70 square feet and raising buildings on the same footprint which does not involve fill and any other activity meeting the conditions of IDNR/OWR Statewide Permit Number 6:

(vi) Outfall Structures and drainage ditch outlets meeting the following conditions of IDNR/OWR Statewide Permit Number 7:

(vii) Underground pipeline and utility crossings meeting the conditions of IDNR/OWR Statewide Permit Number 8:

(viii) Bank stabilization projects meeting the conditions of IDNR/OWR Statewide Permit Number 9:

(ix) Accessory structures and additions to existing residential buildings meeting the conditions of IDNR/OWR Statewide Permit Number 10:

(x) Minor maintenance dredging activities meeting the following conditions of IDNR/OWR Statewide Permit Number 11:

(xi) Bridge and culvert replacement structures and bridge widening meeting the following conditions of IDNR/OWR statewide Permit Number 12:

(xii) Temporary construction activities meeting the following conditions of IDNR/OWR statewide Permit Number 13:

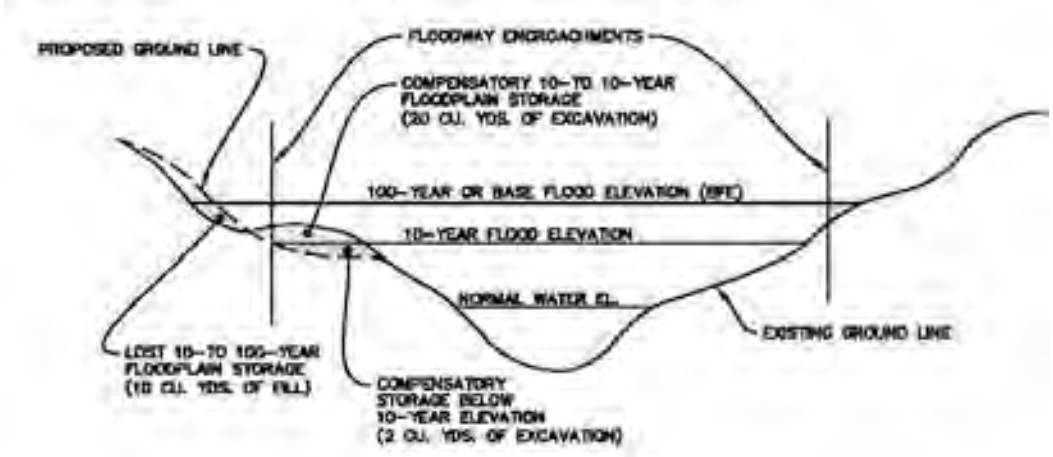
(xiii) Any Development determined by IDNR/OWR to be located entirely within a flood fringe area shall be exempt from State Floodway permit requirements.

e. Other development activities not listed in 10(B) may be permitted only if:

(i) Permit has been issued for the work by IDNR/OWR (or written documentation is provided that an IDNR/OWR permit is not required), or

(ii) Sufficient data has been provided to FEMA when necessary, and approval obtained from FEMA for a revision of the regulatory map and base flood elevation.

FIGURE 11
Compensatory Storage Example



COMPENSATORY STORAGE

Flood storage is measured between the normal water surface elevation and the BFE for a particular cross-section. The Ordinance defines hydraulically equivalent compen-satory storage as storage placed between the proposed

normal water surface elevation and the proposed BFE. All lost storage below the existing 10-year flood elevation is replaced below the proposed 10-year flood elevation and the storage lost above the existing 10-year flood elevation is replaced above the proposed 10-year flood elevation. It is important that the distinction between existing and proposed water surface elevations be maintained, since large scale regrading of the floodplain by excavation and fill will often result in a change in flood elevation for a given flood frequency. Isolated areas of minor fill in the floodplain will not normally change the flood profile of streams with larger drainage areas, so the existing and proposed flood profiles may be the same.

The Ordinance requires that the compensatory storage for fill or structures in a riverine floodplain equal 1.5 times the volume of floodplain storage lost. The increment of storage compensated over 100% may be at any elevation below BFE and above normal water surface elevation, as long as at least 100% of the lost storage increment between the existing normal water surface elevation and the existing 10-year flood elevation, and between the existing 10-year flood elevation and the existing BFE, is replaced within the respective proposed flood elevations.

Non-riverine floodplain storage need only be replaced with compensatory storage at the rate of 1:1, between the normal water surface elevation and the BFE.

When developing a grading plan to provide compensatory storage, the Ordinance provisions concerning channel modifications, grading transitions, and buffers must also be followed. The compensatory storage should be located adjacent or opposite the site of the fill, but must also comply with the other Ordinance provisions. This requirement will often limit the extent to which a floodplain may be filled at a particular location.

Where regulatory floodways are mapped, the compensatory storage must be contained within the proposed floodway boundaries. Shifting of the floodway boundaries outside of the existing floodway may be permissible as a way of providing floodway compensatory storage, but all other provisions of the Ordinance regarding floodplains and flood easements must be met and both IDNR-OWR or its designee and FEMA must approve the floodway boundary change. Hydraulically equivalent compensatory storage for fill in the floodway associated with roadway crossings shall meet the same requirements stated above. Artificially created storage upstream of a restrictive bridge or culvert need not be replaced, provided that damages will not occur downstream. Normally, regulatory flows are not attenuated by restrictive stream crossings and are therefore unchanged upstream and downstream of the restrictive crossing. The floodplain downstream of the crossing should be reviewed to determine whether structures are damaged. If it appears that there is a risk of additional damage, a detailed hydrologic investigation should be performed to establish the extent to which the artificial storage decreases flood flows and to determine what damages might be incurred.

For riverine floodplains, or any floodplain with a regulatory floodway, calculations for floodplain volume shall be submitted in tabular form showing

calculations by cross-section. The volume of floodplain storage under the without-project conditions and the with-project conditions should be determined using the average end-area method with plotted cross-sections.

Floodplain storage cross-sections should be prepared as follows:

(i) Cross-sections should be located parallel to each other and perpendicular to a stream reference line shown on the grading plan. The cross-sections used in the hydraulic analysis should be located perpendicular to flood flows, and may not be suitable for volumetric calculations.

(ii) All cross-sections should be plotted at the same standard engineering scale and should be at a horizontal:vertical ratio of between 5:1 and 10:1.

(iii) The scale chosen should be large enough to show the intent of the proposed grading.

(iv) Cross-sections should reflect both the existing and proposed conditions on the same plot.

(v) All cross-sections should show the normal water level and the 100-year flood elevation. For riverine floodplains, the cross-sections should also include the 10-year flood frequency elevation and where there is a regulatory floodway, the regulatory floodway encroachments should be scaled onto the cross-sections.

(vi) Cross-section should span the full floodplain and should include all existing and proposed structures.

In non-riverine floodplains, where the grading plan utilizes a one-foot contour interval and the drawing is at a maximum scale of 1"=50', floodplain storage may be calculated by measuring contour areas.

A grading plan of the project site should be provided to show existing and with-project conditions for the following details:

(i) Planimetric Data for All Structures and Construction (Including Location and Dimensions);

(ii) All Property Lines:

(iii) Certified Elevation Data, Including Ground Contours at Intervals of 2 Feet or less;

(iv) Location of Drainage and Flood Control Easements; and

(v) Location and Orientation of Cross-Sections.

3. Floodway Standards

Development proposed within the regulatory floodway will require hydraulic calculations to analyze the impacts of the development upon the floodway and floodplain. Backwater models such as HEC-2, WSP-2, and WSPRO are acceptable models. For simple crossings such as culverts or clear-span bridges, hand calculations such as USGS regression equations or the equations found in the Federal Highway Administration (FHWA) manuals may be sufficient.

Appropriate Uses

Development in the floodway must be an appropriate use of the floodway as stated in the Ordinance (Article 4, § 4-11(a)). Only development that is an appropriate use will be allowed in the floodway.

Modifications to an existing building that would not increase the enclosed floor area of the building below the BFE, and which will not obstruct flood flows are an appropriate use of the floodway and will require a permit from the Certified Community. Allowable modifications include fireplaces, bay windows, decks, patios, and second story additions.

If the proposed development within a regulatory floodway is not an appropriate use under the Ordinance, the development may only take place by revising the regulatory floodway designation on the site. It will be necessary to construct that portion of the project that revised the floodway on the property prior to the initiation of any building construction. In order to do this, the applicant must obtain local government concurrence of the revised floodway and an agreement from the unit local government to maintain it. The FEMA Community Acknowledgement form, to accompany the request for a proposed revision to the floodway is included as Form 11 in the next part of the manual. The maintenance agreement should be a statement from a community official that acknowledges the revised floodway and that the unit of local government will either assume responsibility to operate and maintain any revised floodway or will agree, upon default of the party responsible for such operation and maintenance, to undertake such operation and maintenance. In addition, all the information required to obtain a CLOMR must be submitted to IDNR-OWR or its designee and then. FEMA (depending on the source of the map). A stormwater permit may then be issued to proceed with the revision of the floodway. Upon completion of the construction necessary to revise the floodway, as-built plans must be submitted to the Administrator and FEMA to have a LOMR issued. Once a LOMR is issued revising the floodway map, and all necessary permits have been obtained, development may proceed in the former floodway area.

A minimum 20-foot buffer of open space is required on either side of the channel. Where floodway and buffer criteria apply to the same area, the more restrictive criteria shall be applied. The appropriate use definition applies to the floodway and any overlapping buffer area.

Engineering Criteria

Conveyance

Regulatory floodway conveyance must be maintained for all flood events up to and including the 100-year frequency flood except at bridges, culvert crossings, and dams. Conveyance is defined as:

K=[1.486/n]*A*[R^(2/3)], where

n = Manning's roughness factor
A = effective area of the cross-section
R = hydraulic radius

The same Manning's n-value shall be used for both existing and proposed conditions unless a recorded maintenance agreement with a federal, state, or local unit of government can assure the proposed conditions will be maintained or the land cover is changing from a vegetative to a non-vegetative land cover. (For a discussion of conveyance, consult Open Channel Hydraulics by Ven Te Chow, 1959, McGraw-Hill, New York, New York.)

Transition Sections

Expansion and contraction of flow require transition sections to determine effective regulatory floodway conveyance and shall be located and determined as described in the Ordinance. Alternative transitions shall require review and approval by IDNR-OWR. Expansion is the hydraulic condition of water flowing from a narrower section to a wider section and shall be assumed to occur no faster than at a rate of one foot horizontal for every four feet of the stream length. Contraction, the condition of water flowing from a wider section to a narrower section, shall be assumed to occur no faster than at a rate of one foot horizontal for every one foot of stream length. The floodplain area outside of the expansion and contraction flow area is considered to be ineffective flow area. Effective conveyance transition sections and expansion and contraction of flow are demonstrated in many hydraulic textbooks and manuals for hydraulic computer programs. When considering effective conveyance in a vertical direction, the expanding and contracting vertical transition shall be one foot vertical transition for every ten feet of stream length. The compensatory storage required by the ordinance may be placed within areas of ineffective conveyance within the floodway.

Average Channel Velocities

Channel velocities shall not be increased as a result of development. Minor increases may be permissible at some cross-sections along the project reach but the flow velocity of the change must remain below the scour velocity. Channel conditions vary, but channel scour must be considered if a velocity of above five feet per second is attained.

Flood Elevations

Flood elevations generated by the regulatory model must first be duplicated before updated data to reflect the existing conditions is input to the model. The flood profiles, flows and floodway data in the regulatory floodway study must be

used for analysis of the regulatory conditions. If the study data appears to be in error or conditions have changed, IDNR-OWR or its designee shall be contacted for approval and concurrence on the appropriate existing conditions data. Once the output of the regulatory model has been duplicated to within 0.1 foot of the regulatory profile, revisions should be input to reflect the existing conditions.

If existing conditions in the watershed outside of the applicant's project site will be affected by the development, the applicant shall obtain the best available information of the proposed off-site changes to anticipate the impacts of the proposed change. The existing and with-project conditions shall be modeled based on this data.

On-stream structures built for the purpose of retaining water must be approved by the Dam Safety Section of IDNR-OWR by way of a permit or a letter stating that a permit is not required. The address for the Dam Safety Section is:

Illinois Department of Natural Resources
Office of Water Resources
2300 South Dirksen Parkway
Springfield, Illinois 62764-9484
Attn: Dam Safety Section

Floodway Permit Applications Involving Hydraulic Analysis

There are two different conditions for development within a regulatory floodway. Either the applicant is trying to maintain the existing regulatory profile and floodway boundaries or a LOMR is requested.

The discharges from the regulatory model shall be used except where the Administrator requires new discharges. The necessity for new discharges will depend on the correlation between the existing conditions profile, the regulatory profile, and the magnitude of the impacts on the profile due to the project. If the existing conditions profile is calculated to be lower than the regulatory profile, the effects of lost storage must be analyzed and the new hydrologic analysis must reflect the future land use. The Administrator or the applicant may contact the Director for an opinion on the suitability of the regulatory discharges. New discharges shall be developed based on stream gage analysis (if available), or shall follow the methodologies outlined in the "Hydrologic Techniques" section within the "Stormwater Runoff' portion of this manual.

The first step to determine if a revision of the regulatory floodway conditions is desired, is to duplicate the regulatory profile using the same hydraulic model (usually HEC-2 or WSP-2). Data input into the duplicate model should be identical to the data, which generated the regulatory profile. It is not necessary to duplicate the entire regulatory profile but the applicant should start the profile at least four cross-section downstream of the project site. Once the input from the regulatory model has been duplicated, the output of the duplicate model should be verified against the output of the regulatory model. A copy of the

regulatory profile should be submitted along with the duplicate model run as part of the permit application package.

Where there is a designated floodway mapped, but there is no computer model available, the engineer should consult the Director about how to proceed with the specifics of modeling the existing conditions.

Once the duplicated model has been prepared and is operational, it must be updated to create an existing conditions model for a comparison against the with-project conditions. As discussed in "Floodplain Performance Standards", cross-sections should be added to the regulatory model where it is appropriate to add them for both the existing and with-project hydraulic analyses. The existing conditions model should include all corrections to the regulatory profile and should be modeled with attention to areas of ineffective conveyance. The applicant is responsible for all existing field conditions within the watershed which may affect the existing conditions hydraulic model. These areas can be maintained in the model for storage volume and area calculations by imputing an artificially high n-value for these areas (such as 99). This will cause the computer model to treat these areas as ones of ineffective flow, but the cross-sectional area is still maintained for the area and volume calculations. Ineffective flow areas should be clearly annotated on the plans and cross-sections.

The existing conditions profile must tie-in to the regulatory profile to within 0.5 foot, based on FEMA requirements, upstream and downstream of the project reach. Where it is not possible to meet the regulatory profile, a new hydrology study is required.

If the applicant is trying to maintain the existing regulatory floodway boundaries, he should scale the floodway encroachments off the regulatory floodway map and input this data into the existing conditions model. This will create the existing conditions floodway model. The with-project model must demonstrate that the proposed development has no incremental impact if the with-project condition maintains the conveyance, storage, and travel time of the existing conditions model and the flood stages are not increased.

If the applicant is trying to establish or revise a regulatory floodway, one of the standard floodway encroachment methodologies from the computer models shall be utilized. The floodway must meet the floodway definition of this Ordinance.

The floodway is considered to meet the surcharge criteria of no more than a 0.1 foot increase if the floodway meets the requirements of the Ordinance. It will be necessary for the applicant to check that the 10% velocity rule is met and these calculations should be part of the submittal to the Administrator.

The preferred approach for developing floodway encroachments involves the use of an equal amount of flood conveyance on each side of the stream centerline. Modifications to the floodway encroachment, which reduce conveyance on one side of the stream, shall first consider an increase of

conveyance on the streamside directly opposite the modified encroachment. When proposed floodway modifications form the affected property owners. Floodway encroachment methodologies generally create floodways by removing conveyance from the ends of the cross-sections and will typically create floodways with a considerably narrower floodway than necessary to meet the velocity criteria. The routines are a useful tool in developing a floodway that centers its conveyance about the centerline of the stream. The applicant will have to manually adjust the encroachments to develop a floodway which meets all the criteria of the Ordinance floodway definition.

When manually adjusting the floodway encroachments at every cross-section, the applicant should start at the most downstream cross-section and work upstream. In using a backwater model floodway encroachment methodology, the upstream cross-sections should generally not have any effect on the generated encroachments form the downstream section.

The with-project conditions model will use the same regulatory discharges and cross-section locations as the regulatory conditions model to reflect the development on the site. The applicant should first run the model using the with-project topography with the fixed encroachments set at the existing condition. If the conveyance, storage, and travel time are maintained and the flood stages are not increased, the with-project floodway will be allowed if it does not differ from the existing conditions floodway. If the rules are not yet met, there are two options: to revise the design to meet the criteria of the Ordinance or to develop a new floodway that meets the Ordinance definition and obtain a LOMR from FEMA, revising the regulatory floodway. Table 9 identifies the data requirements and reviewing agencies for the various types of revisions.

TABLE 8
Data Requirements for Revisions to Mapped Areas

Type of Revision	Data or Hydraulic Model (H.M.) Utilized	Reviewing/Approving Agency
LOMA	Elevation	Administrator, FEMA

LOMR Based on Fill	Elevation, Certification of Fill Compaction	Administrator, FEMA
Revision to Regulatory BFEs Based on Existing Conditions	Regulatory Conditions H.M. Existing Conditions H.M.	Administrator, IDNR-OWR, FEMA
Revision to Regulatory BFEs Based on Proposed Project	Regulatory conditions H.M. Existing Conditions H.M. With- Project H.M.	Administrator, IDNR-OWR, FEMA
Revision to Regulatory Floodplain Boundaries	Elevation	Administrator, IDNR-OWR, FEMA
Revision to Regulatory Floodway Based on Existing Conditions	*Regulatory Conditions Floodway H.M. *Existing Conditions Floodway H.M.	Administrator, IDNR-OWR, FEMA
Revision to Regulatory Floodway Based on a Proposed Project	Regulatory Conditions H.M. Existing Conditions H.M. With-Project Conditions Floodway H.M.	Administrator, IDNR-OWR, FEMA

* Where applicable, otherwise use the regulatory profile with scaled and encoded floodway encroachments. Note:

Forward copies of all submittals to the Administrator.

Public Flood Control Project

Public flood control project will be considered compliant with the Ordinance if the applicant can demonstrate to the Administrator and IDNR-OWR through a detailed hydrologic and hydraulic analysis that the proposed project will not singularly or cumulatively result in increased flood heights outside the project right-of-way or easements. This must be valid for all flood events up to and including the 100-year flood. A public control project shall have a public agency as either the applicant or co-applicant.

4. Riverine Floodplain

Within all regulatory riverine floodplains where the regulatory floodway has not been determined by the IDNR-OWR or FEMA, the applicant must provide a detailed hydrologic and hydraulic analysis which demonstrates a stormwater runoff conveyance path for the proposed development. The detailed analysis must conform to the hydrologic and hydraulic modeling requirements described in the "Basic Stormwater Management Requirement" section of the manual and this section, respectively. For mapped regulatory floodplains with certified 100-year flood discharges, the applicant may request from the Administrator permission to use the existing 100-year flood discharge. However, if the study conditions have changed, the Administrator may require a new hydrologic analysis. By definition, the stormwater conveyance path determination is slightly less detailed than a floodway determination under IDNR-OWR regulations. The stormwater conveyance path is essentially a conveyance floodway only and will not require an analysis of the floodway storage component.

The stormwater conveyance path must demonstrate that the proposed development will have no singular or cumulative impact on flood heights or velocities. A detailed analysis must be submitted and approved by the Administrator prior to the issuance of a watershed development permit. For riverine floodplains with a drainage area greater than 1.0 square mile, the applicant must also request and receive IDNR-OWR approval. In cases where the analysis of the flood conveyance path yields a revision to the FEMA mapped floodplain boundaries, the applicant will also need to request a LOMR from FEMA.

Upon acceptance of the stormwater conveyance path by the Administrator, the applicant shall locate all of the development outside the flood conveyance path and floodway performance standards. The hydraulic analysis of the relocated stormwater conveyance path cannot impact adjacent properties by more than 0.1 foot.

The applicant may limit the study to a floodplain determination and apply the performance standards of Article 4, § 411 to the entire floodplain, with the exception of the appropriate use requirements of Section 411.8.9. Therefore, compensatory storage for the displacement of floodplain storage due to fill or structures, will be required at a rate of 1.5 times the volume of floodplain storage lost.

5. Bridge and Culvert Standards

Permits involving new stream crossings or any significant modifications to existing structures will require a hydraulic model if the stream has a regulatory floodway. Both the existing and with-project conditions should contain the same cross-section locations so that each case can be compared at all locations along the reach.

For modification or replacement of existing structures, a determination must be made whether or not the existing structure is a source of flood damage. This is done by comparing the profile of the natural channel (as if the structure did not exist) against the profile of the channel with the existing structure in place. By delineating the floodplains of each of the two profiles upstream of the restrictive structure, the applicant can determine the area that is impacted by backwater created by the restrictive structure. If a building is located in the floodplain when analyzing a restrictive structure, but not in the floodplain when the structure is removed, the structure may be a source of flood damage. The applicant must then evaluate the feasibility of redesigning the structure to reduce the existing backwater, taking into consideration the effects on flood stages on upstream and downstream properties.

All excavations for new construction or modifications to existing structures at crossings must be designed in accordance with Article 4, § 401 of the Ordinance for limitations on average channel or regulatory floodway velocities.

Lost floodway storage must be compensated for as required in the "General Performance Standards" of the Ordinance except that artificially created storage lost due to a reduction in head loss behind a bridge shall not be required to be replaced, provided no damage will be incurred downstream.

Application submittal material should be submitted to IDNR-OWR for stream crossings over public bodies of water so that IDNR-OWR may issue a public notice. Also, where hydraulic analyses are required for road crossings, the application submittal material should also be submitted to IDNR-OWR for concurrence that a conditional LOMR is not required.

The detailed hydraulic analysis of upstream flood stages must be based on the Administrator approved regulatory discharges and corresponding flood elevations for tailwater conditions. Culverts must be analyzed using the U.S. DOT, FHWA Hydraulic Chart for the Selection of Highway Culverts. Bridges must be analyzed using the FHWA Hydraulics of Bridge Waterways calculation procedures, or an appropriate hydraulic computer model approved for use by the Administrator.

T4-10 Requirements for Wetland Delineation

Wetland delineations are required for all developments which have on-site waters of the U.S. or are adjacent to wetlands, isolated wetlands, or farmed wetlands. The Wetland delineation report shall identify the boundaries, locations, limits and area of all on-site wetlands.

This wetland delineation will follow the current federal guidance, which is conducted in

accordance with the standard methods sanctioned by the COE Corps of Engineers Wetland Delineation Manual (1987) and Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual; Midwest Region (2008). Wetland delineations under this section shall be valid for five years. The presence of wetland areas to be developed in agricultural areas requires that the NRCS certified delineation or determination be completed prior to submission of the wetland delineation report. Coordination of wetland delineation tasks with the NRCS is encouraged to minimize disagreements in identifying the boundary of such wetlands. Winnebago County lies within the boundaries of the Rock Island District COE. Specific Information on the current delineation of wetlands may be obtained from the District.

U.S. Army Corps of Engineers
Rock Island District
ATTN: Regulatory Branch
Clock Tower Building
Post Office Box 2004
Rock Island, IL 61204-2004
Phone: 309-794-5057
Fax: 309-794-5190 or 5191

T4-10(a) Delineation Hierarchy

In addition to identifying the location, extent, and area of on-site wetlands, off-site wetlands must be evaluated to a distance of at least 50 feet beyond the edge of the site to verify buffer requirements. This should be included in the wetland delineation report and show on the wetland delineation exhibit. The location and extent of off-site wetlands shall be determined by using the first of the following documents or procedures at the time of development.

1. Site specific delineation, if one has been performed
2. Wetlands that are identified in ADID studies or watershed plans
3. Wetlands identified in interim watershed plans
4. Wetlands identified in NRCS wetland inventory maps.

The purpose in including off-site wetland delineation is to determine the overall value of the wetland complexes that occur on more than one property, and to determine whether or not there is a buffer required on a development site due to the existing off-site wetland.

Information concerning delineation by the NRCS method can be obtained from:

District Conservationist
USDA-NRCS
4833 Owen Center Road
Rockford, IL 61101-6007
(815) 965-2392

T4-11 Mitigation to be Local

All wetland mitigation required under a Corps of Engineers §404 permit for wetland impacts must occur in Winnebago County. Every effort should be made to mitigate in the same watershed where the impacts occur.

T4-12 Threatened and Endangered Species Consultation

Prior to the issuance of a stormwater management permit or Building Permit, the applicant shall consult with the IDNR via utilizing their Ecological Compliance Assessment Tool (EcoCat) http://dnr.illinois.gov/EcoPublic/ with respect to the presence of threatened and endangered species. The applicant must obtain a statement of "consultation terminated" from the IDNR either by the EcoCat (immediate response) or by letter following IDNR review.

If COE 404 permitting is required, consultation with the U.S. Fish and Wildlife Service shall also be completed. The consultation process can be obtained at the following website:

http://www.fws.gov/midwest/Endangered /section7/s7process/index.html

Illinois Department of Natural Resources
524 S. Second Street
Springfield, IL 62701

The U.S. Fish and Wildlife Services may be contacted at the:

Rock Island Ecological Field Office
1511 47th Avenue
Moline, IL 61265
(309)_ 757-5800

T4-13 Wetland Preservation During Development

Jurisdictional wetland/stream areas that are not to be impacted by development shall be protected during all phases of construction activities by the best management practices available.

T4-14 Buffer Requirements

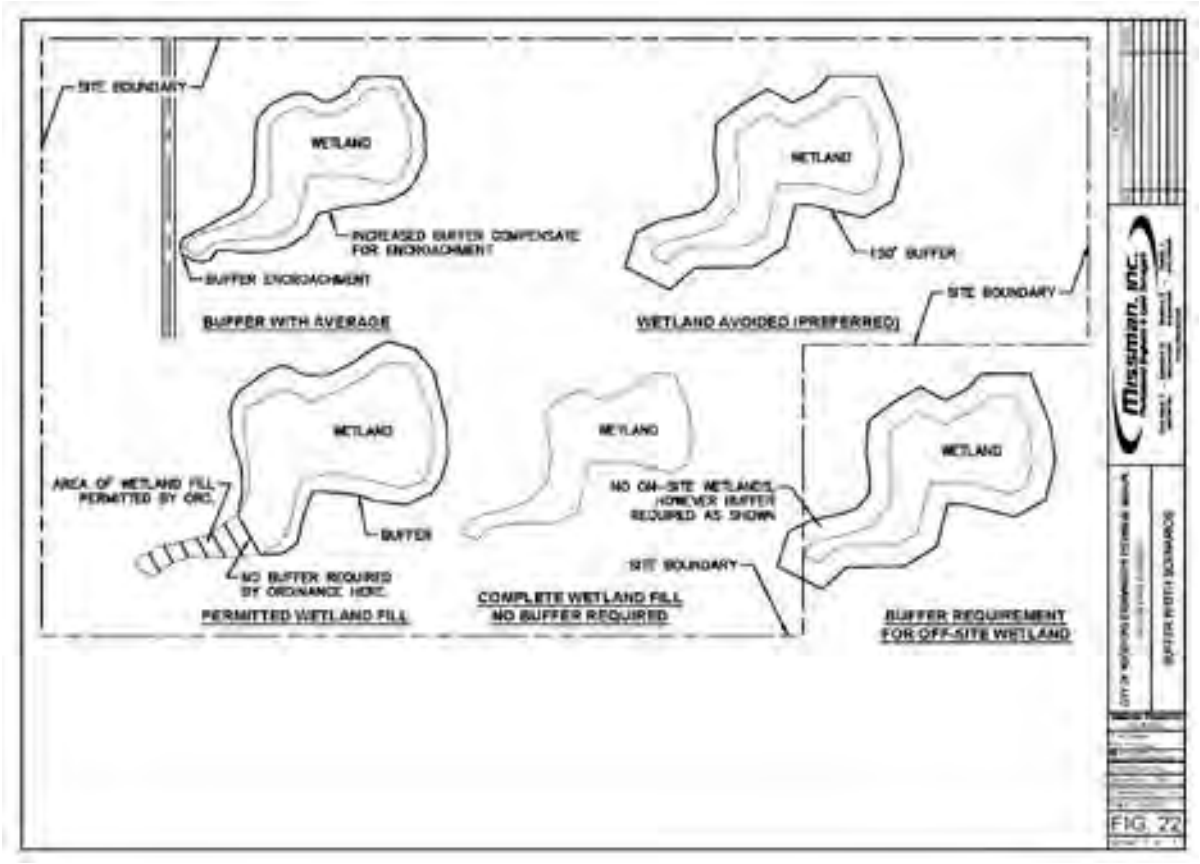
All buffer requirements shall be in accordance with all appropriate sections of Article 4-18 of the City of Rockford Stormwater Ordinance. Ordinance and COE requirements shall supercede all items discussed in the following article.

Buffers are defined as vegetated upland that serves a variety of functions including shoreline stabilization, sediment filtration, habitat, promotion of infiltration, and nutrient sequestration. Every attempt should be made to reduce or eliminate cut and fill activities, topsoil respread and soil compaction. Development of buffer areas in naturally occurring soils is preferred.

T4-14(a) Plantings in Buffers

Native vegetation, particularly deep-rooted warm season grasses and prairie forbs, are required for seeding, re-seeding, or inter-planting buffers. Only native plants with local (Upper Midwest) provenance maybe used. Plant material selection information may also be found in the Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois prepared by USDA-N RCS.

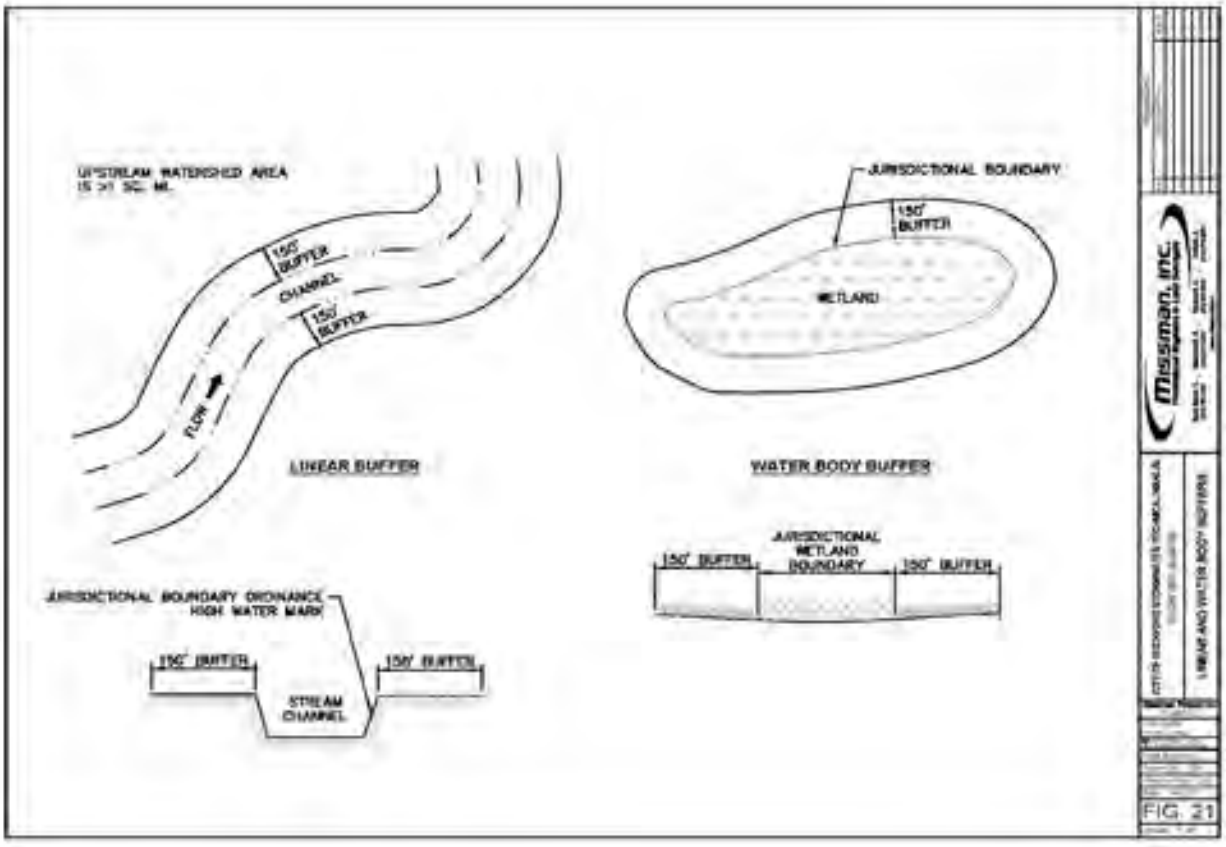
FIGURE 12
Buffer Width Scenarios



T4-14(b) Buffer Width Requirements

Two types of buffers are recognized: linear buffers and water body buffers (Figure 13).

FIGURE 13
Linear and Water Body Buffers

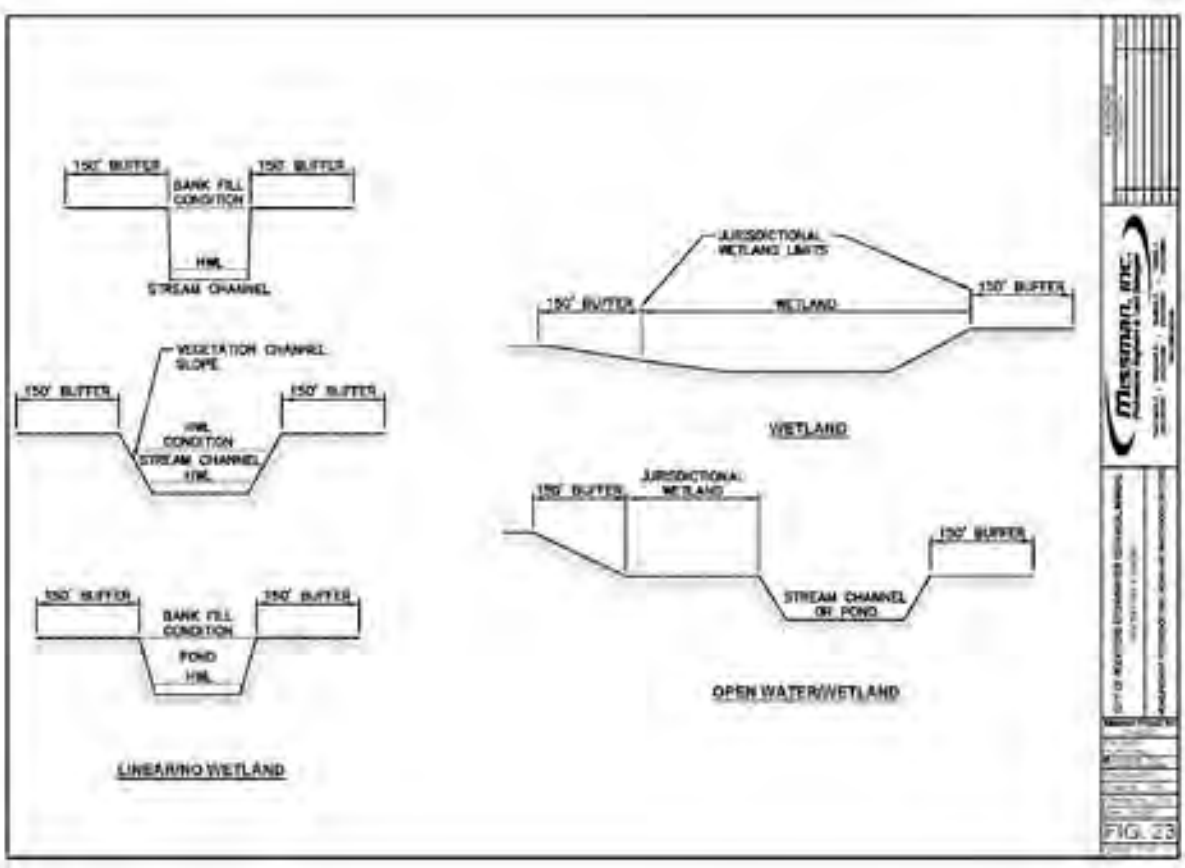


Buffer areas including the "Waters of the U.S." they protect shall be shown as easements on all newly platted lots and maintenance requirements for the buffer shall be recorded as a note against the deed. Buffer widths required are determined as part of the COE 404 permit. Jurisdictional “Waters of the U.S.”, including regulated wetlands, may not be considered buffer and shall not be encroached upon to create buffer.

Measurement Reference

For the purpose of measuring the width of the buffer, the interior edge of the buffer shall begin at the jurisdictional edge for wetlands and at the normal high water mark for other waters. Typically, this will be the edge of bank for ponds and lakes and the top of bank for linear water courses (Figure 14).

FIGURE 14
Measurement Reference for Linear and Water Body Buffers



Linear and Water Body Buffers

Linear buffers shall be designated along “Waters of the U.S.” including associated wetlands. This includes:

- Intermittent water courses
- Creeks
- Streams
- Rivers

Floodplain wetlands associated with streams are covered by § 418.1(d) and include:

- Floodplain wetland
- Backwater slough
- Oxbow
- Bordering wetland complex

As a general rule, linear buffer widths are 50 feet, if the drainage area is greater than 640 acres. For drainage areas less than 640 acres, the buffer width may be reduced by using the formula:

$$X = (A*0.0547)+15$$

Where X = buffer area

A = drainage area

The buffer width calculated will be rounded up to the nearest five feet.

Buffer protective measures include effective stabilization measures included in the “Illinois Urban Manual” or those approved by the Administrator.

MEASURE	IL URBAN STANDARD	USE
• Erosion Blanket	Std. 830	Temp
• Silt Fence	Std. 920	Temp
• Sodding (as temp measure)	Std. 925	Temp
• Deep-rooted grasses — Sod or Seed		Perm
• Sediment Trap	Std. 960	Temp
• Sediment Basin	Std. 841 & 842	Temp/Perm

If lineal "Waters of the U.S." are partially or completely relocated, the channel design must accommodate naturalized revegetation and utilize best management practices including:

- Vegetatively Stabilized Banks
- Pool and Riffle Design for Low Flow Conditions
- Channel Meanders
- Other Biological Stream Enhancements Approved by the Administrator.

Water body buffers shall encompass all non-linear "Waters of the U.S." including, but not

limited to lakes, ponds, and wetlands.

In both linear and water body buffers, buffer width averaging may be utilized. A conceptual buffer is illustrated in Figure 13 to show the ways in which buffer averaging may be applied.

T4-14(c) Access

Access by equipment into buffer areas is allowed to the extent necessary to provide maintenance to the buffer and/or maintenance and monitoring activities associated with wetlands within buffers.

Buffer areas shall typically remain private property and thus, not accessible to the general public.

T4-14(d) Undetained Stormwater

Per Ordinance § 4-14(d), undetained stormwater which has not passed through a site runoff storage facility shall discharge through an area or structure meeting the definition of best management practices or buffer before entering a jurisdictional Waters of the U.S. or wetland.

T4-14(e) Disturbance During Construction

Construction disturbance in buffer areas are prohibited. Disturbances include, but not limited to the following:

- Topsoil stockpiles
- Material stockpiles
- On-site equipment maintenance
- On-site equipment storage

ARTICLE 5 — STORMWATER MANAGEMENT
PERMIT SUBMITTAL REQUIREMENTS

T5-00 Stormwater Management and Other Permits Required

1. A stormwater management permit is required if—

   a) the development is located in the regulatory floodplain;

   b) a substantial improvement is to be located in the regulatory floodplain;

   c) there is any regulatory floodplain within the site; or

   d) the development disturbs more than 5,000 square feet of ground or 250 cubic yards of soil, unless the development consists solely of—

      (i) the installation, renovation or replacement of a septic system, potable water service line or other utility serving an existing structure;

      (ii) the maintenance, repair or at grade replacement of existing lawn areas not otherwise requiring a stormwater permit under this ordinance;

      (iii) the maintenance of an existing stormwater facility, not requiring other state or federal permits or approvals.

Section 500(a)(4) of the Ordinance includes exclusions from the necessity of obtaining a Stormwater Management Permit for developments that disturb more than 5,000 square feet of ground cover. The installation of storm sewers are not included as an exclusion because the storm sewers would be considered an improvement to the hydraulic conveyance of runoff that would otherwise have to flow overland or be absorbed into the ground.

Developments that do not require a Stormwater Management Permit are not excluded from obtaining all other appropriate stormwater management related approvals from federal, state and regional authorities.

T5-00(d) Professional Seals and Certification Required

A professional engineer shall certify a Stormwater Management Permit application by signing and sealing the application. By certifying of the application, the professional engineer is attesting to the contents of the entire bound application. If the professional engineer does not attest to a sheet or part of the application, it must be noted. Otherwise, it will be assumed that the contents of entire bound document are being attested to by the signature and seal of the professional engineer. For applications with separate plan sheets from the bound application, the professional engineer shall sign and seal the front cover of the bound plan set. When the total project site is over 20 acres, the survey must also be tied into the Winnebago County or City Survey Control Network. New Plats, for parcels greater than 20-acres in size, must also be submitted in an electronic format designated by the County. These files will not be used to define or record property holdings.

T5-01(a) Permit Expiration

Permits are valid for a minimum of three years. Permits expire on December 31 of the third year following the date of their issuance. If a permit is issued on January 2, 2015, the permit shall expire on December 31, 2018. If a permit is issued December 1, 2015 the permit shall expire on December 31, 2018.

T5-01(b) Permit Extension

The permittee may request an extension of a permit to pursue the permitted activity before the expiration date if the permitted activity has been started. For permitted activities in special management areas, a permit extension may be applied for but the activity must be in compliance with the current requirements of the Ordinance on December 31st of the year in which the original permit expires.

T5-01(c) Permit Revision

In cases where a permit has been issued for a particular activity and after receiving the permit, the design for the proposed activity is changed; the permittee shall submit revised plans to be reviewed along with a written explanation of the changes and the reason for the changes. These changes cannot be started until a written permit revision is received from the Administrator.

T5-02 Required Submittals

The applicant shall refer to Table 5-02 in §502 of the Ordinance to determine the required permit submittal sections. All Stormwater Management Permit applications shall include an application and project overview, plan set submittal, performance security, and maintenance schedule and funding. All permitted activities shall provide record drawings at the completion of the project. Applicants shall review and complete all necessary parts of the City of Rockford Stormwater Management Submittal and include the original forms with the required signatures in the bound application.

T5-02(a) Required Submittals

If the developer/applicant believes their project warrants special consideration for which a part of the submittal requirements are not required, the developer/applicant shall request in writing from the Administrator a modification in the requirements of the submittal. For example, if a developer was to redevelop a one square block in a downtown area that is nearly 100% impervious, they may request from the Administrator that no subsurface drainage investigation be performed because of the site's impervious area and location.

T5-03 Application and Project Overview

The applicant may obtain from the developer a letter authorizing the applicant to sign any documents related to the Stormwater Management Permit Applicaton. In such cases the signed letter by the developer shall be attached to the Stormwater Management Application. In completing parts (7) through (9) of §503(a), the sheet(s) addressing each part shall be attached to the application.

T5-04 Plan Set Submittal

An example plan set submittal for a hypothetical development is attached at a reduced scale. The correct scale for the submittal should be 1 inch = 100 feet or larger. The Winnebago County benchmark used for the project shall be identified on the plan set. Where it is practical, two FEMA benchmarks should be tied-in to verify accuracy. All benchmarks shall be labeled on the plan set. A plan set submittal shall be include the following:

1. Site Topographic Map.
2. General Plan View Drawing.
3. Sediment/Erosion Control Plan.
4. Vicinity Topographic Map.

T5-05 Stormwater Submittal

A stormwater submittal shall document a plan hydrologic and hydraulic evaluation that is required when any land is subdivided or developed. The plan evaluates stormwater runoff conditions and determines the need for site runoff controls and stormwater drainage facilities consistent with watershed capacities.

It is important that each stormwater management project and permit application be handled in an equitable, fair and consistent manner. A stormwater submittal provides the technical basis for accomplishing this and is an accepted practice throughout the country. The Ordinance provides the basis for determining capacities of existing facilities and thus for identifying the need to control potential problems associated with proposed changes. In addition, the relationship of a specific project to watershed concerns, such as off-site impacts or the use of a regional stormwater storage facility, also can be considered. Certification that the stormwater calculations and plans are prepared under the direct supervision of a professional engineer is required to encourage proper technical input.

Calculations should be submitted in the form of design reports, calculation sheets, and/or computer model documentation identifying and explaining the assumptions, data, and coefficients used in sizing the major and minor stormwater systems. The calculation of the hydraulic grade lines must be documented. Any time a computer model is used in the stormwater calculations the output should be included along with the input and output on diskette or other common media.

For the subsurface drainage investigations, all existing field tile systems, including the tiles entering and exiting the site, should be shown. The size, type, quality, and depth for each field tile should be noted, as well as the percentage of flow and silt found for each slit trench location. The percentage of the total depth of flow found is the percentage of tile diameter occupied by active flow. Any restrictions or surcharged conditions should be noted. Similarly, for percentage of silt, the percentage of tile diameter that is restricted by silt should be identified. If possible, field tile lines should be identified as mainline tile, sub-main tile or lateral tile.

An example of a narrative description is as follows:

> Example:
> "The Main project proposes a development of a 50 acre parcel located in the City of Rockford, Illinois. The existing site conditions consist of farmed row crops. The Main project will consist of 40 acres of [1]4-acre residential lots and 10-acres of open space. The general drainage pattern or the site is from the northwest to the southeast. There is 20-acres of off-site area that is tributary to the site and enters the site at the northwest corner. The off-site tributary area is conveyed through a detention pond prior to entering the Main project site. A storm sewer has been sized to collect and convey the 10-year off-site flow through the site. Flows greater than the 10-year design storm event will be conveyed via swale to the southeast corner of the site. The Main project will have two stormwater storage facilities on the east side of the site. The outflows from both facilities will be directed into an existing storm sewer which has been demonstrated to have existing capacity to accept this additional volume without surcharging."

The applicant will have to address each of the statements with technical support, calculations and models where necessary. All stormwater storage facilities should be functional and in working order prior to development of the remainder of the site. In projects with tributary site flow, a stormwater system shall also be in place to safely convey off-site flow prior to development of the site.

T5-06 Floodplain Submittal

A floodplain submittal is required whenever a hydrologic disturbance is proposed within a floodplain. The submittal is required if any part of the hydrologic disturbance will be in the floodplain, even if the majority of the development lies outside the floodplain. All floodplain modifications shall be the minimum required to accomplish the development.

The applicant shall provide a copy of the permit obtained from IDNR-OWR and approval from FEMA for all new base flood and floodway determinations when their permitting authority applies. It will be the decision of the Administrator whether or not the review of the stormwater permit application will begin prior to written receipt of IDNR-OWR and FEMA approval in such cases as permits are required. Hydraulic disturbance of the base flood and floodway shall not occur until all necessary permits are issued and received by the Administrator.

The floodplain submittal must include sufficient information for the qualified review specialist to ascertain compliance or noncompliance of the proposed development with the criteria of the Ordinance.

At a minimum, the floodplain submittal must contain:

1. Floodplain delineation.
2. Floodway delineation.
3. Floodplain calculations.
4. Topographic survey with Winnebago County benchmark used.
5. IDNR-OWR permits and FEMA approval, if required.

The applicant must provide the delineation by a professional engineer of floodplain boundaries on or adjacent to the proposed development site. The floodplain must be delineated for pre-development and post-development conditions. The floodplain delineations should be shown on maps at the same scale as these required for the site stormwater submittals (floodplain boundaries on the development site should be shown on the site topographic map and nearby off-site floodplain boundaries should be shown on a vicinity topographic map).

The applicant must provide calculations and drawings sufficient for the certified review specialist to determine compliance of the proposed development set forth in Article 4 of the Ordinance. In addition, the calculations and drawings must be sufficient to meet the requirements of the NFIP regulations.

T5-07 Wetland Submittal

For all activities which do not encroach into on-site wetlands or water but still have direct impacts, the following information must be submitted to the Administrator along with a written opinion from a firm which provides wetland related services. The firm, which provides the written opinion, will review and discuss the applicability of current Federal permits.

At a minimum, the wetland submittal shall include the following:

a) Wetland Delineation Report.
The wetland delineation report will be based upon the current federal methodology in place at the time of submittal. The report will clearly detail the wetland flora, hydric soils, wetland hydrology, and surrounding upland data. The delineation report shall also include representative, current growing season photographs of each wetland plant community. All field data and inventories shall be provided on current Federal forms or approved equivalent

b) Buffer Requirements.
The buffer requirements for the wetland or waters shall be shown on the wetland delineation plan. The calculation of buffer size and the vegetative quality of the buffer areas shall be included in the delineation report and referenced on the plan sheet.

c) Wetland Delineation Plan.
The wetland delineation plan will at a minimum identify the following (Figure 15).

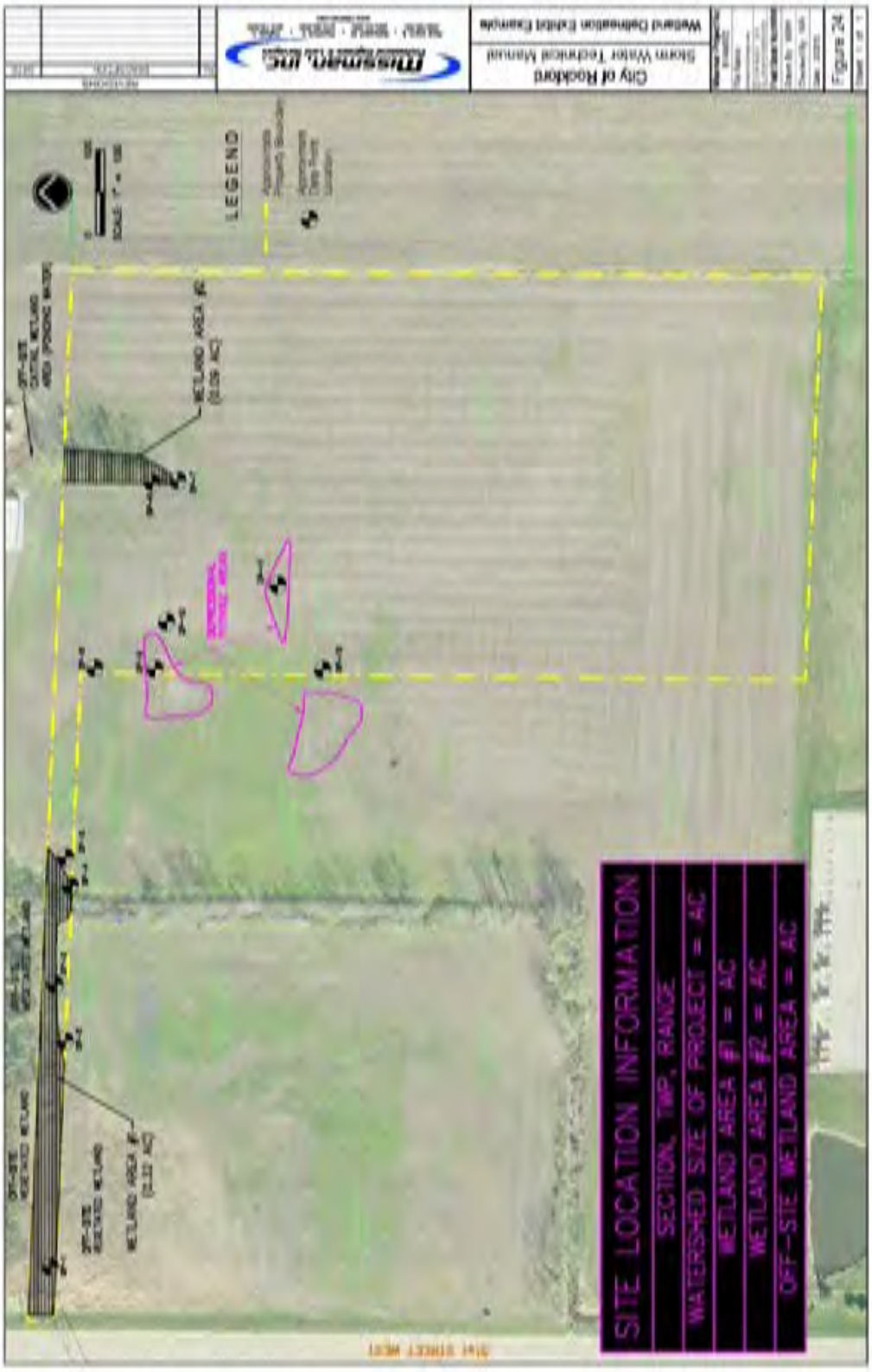
- All existing wetlands or waters on-site
- All existing off-site wetlands that lie all or in part within 50 ft. of the site boundary.

- Proposed impacts to wetlands and waters including size, shape and type of impact
- An indication of direct and indirect impacts
- Any on-site wetland mitigation plan.

- Planting plan for buffers including planting specifications, species lists, and appropriate stabilization measures.
- Wetland maintenance and monitoring activities and schedules.

Requirements for maintaining site conditions, including vegetation, soils and hydrology are set by the U.S. Army Corps of Engineers.

FIGURE 15
Wetland Delineation Example


City of Rockford
Storm Water Technical Manual
Wetland Delineation Exhibit Example
Figure 24
LEGEND
SITE LOCATION INFORMATION
SECTION, TWP, RANGE
WATERSHED SIZE OF PROJECT = AC
WETLAND AREA #1 = AC
WETLAND AREA #2 = AC
OFF-SITE WETLAND AREA = AC

ARTICLE 6 — LONG-TERM MAINTENANCE

The scheduled maintenance program must include at least:

1. A list of the planned maintenance tasks to be performed for each drainage facility and the frequency of each task; and

2. All supporting infrastructure (storm sewer, swales, etc.)

3. Identification of the party responsible for performing the maintenance of the drainage facility.

It is expected that naturally vegetated detention storage facilities, preserved wetlands, and preserved woodlands within private lots of a development meet a set of minimum performance standards. The performance standards have been developed in order for the Certified community to conclude if the plantings were "successful" enough to warrant a finding of compliance, and that the preserved areas are not degrading. If compliance is not met, corrective measures and subsequent monitoring is required to meet the terms and conditions of the Certified Community. The corrective measures will be funded by the SSA or backup SSA.

The success of naturalized detention ponds, preserved wetlands and woodlands, and buffers in achieving the desired effect is very dependent upon periodic management with a set of goals. The following is an example management and monitoring plan that includes a schedule describing minimum management requirements for success of the naturalized detention ponds and preserved wetlands and woodlands contained within a project site. A set of goals has been developed to assist the entity/person responsible for the maintenance with defining what is acceptable under the Ordinance.

T6-00 Long-Term Maintenance

- Protection of preserved areas from impacts directly associated with development activities.

- Provide a native vegetated buffer around detention ponds and preserve wetland areas to assist with filtering detrimental contaminants in the runoff.

- Enhance the preserved wetland areas by elimination of invasive, non-native species to increase the quality of the site.

A qualified consultant shall periodically visit the site during the first five years after planting to monitor the progress and health of the plantings and the preserved areas. These visits are to determine if remedial measures are required and to recommend procedures to correct any deficiencies. In most cases, these deficiencies are related to the maintenance of the wetlands (i.e. eroded side slopes, clogged outlets, trash, debris dumping). The following minimum maintenance activities shall be completed every other month unless otherwise indicated during the growing season (March 1-October 31):

1. Debris Management: All trash, brush, grass clippings, debris, etc. shall be removed from the created detention ponds, preserved wetlands, and buffer areas.

2. Stormwater Management Structures: All stormwater control structures and silt basins, etc. shall be cleaned out and/or repaired every two weeks to prevent clogging. This

is especially important in early spring and late fall. Dammed water can drown certain wetland plants if not rectified quickly.

3. Soil Erosion Control Management: All soil erosion control devices, structures and features, etc. are to be installed as required by the soil erosion control plan, and function properly at all times. Any deficiencies shall be corrected immediately.

The following management activities should be completed annually unless otherwise specified in the management plan:

1. Prescribed Burn Management: The detention ponds and preserved wetlands shall undergo periodic prescribed burns after the second growing season or as fuel allows. These burns help to reduce undesirable weedy species and encourage native species. These burns should only be performed by a qualified burn contractor.

2. Invasive Non-native Weeds: Purple loosestrife, reed canary grass, common reed, willow, thistle and other invasive weeds shall be controlled by the following: mechanically, through the use of mowing no sooner than the 3rd week of July, fire (as fuels allow), application of herbicide, or a combination of these methods.

3. Protection of Preserved Woodlands on Private Lots:Preserved woodlands shall have construction fencing placed around the limits of no construction zone. No equipment or materials shall be stored within the no construction zone and no equipment shall be driven within it.

An example of performance standards for the detention ponds and preserved wetlands is as follows:

1. A temporary cover crop shall be planted on all slopes immediately upon completion of detention pond grading. Within 3 months, at least 90% of the slopes, as measured by aerial cover, shall be vegetated. If the long-term slope vegetation is not planted with the temporary crop, then it should be planted in the first available growing season appropriate for each species. Prior to replanting, rill erosion shall require drainage improvements to eliminate them from reoccurring. All cover crop species must be non-persistent or native and not allelopathic. If a temporary cover crop is not planted immediately upon completion of grading, erosion blanket or heavy mulch must be installed to prevent erosion.

2. By the end of the fifth year, no individual area over the entire detention pond buffer area greater than 0.25 square meter shall be devoid of vegetation, as measured by aerial coverage.

3. By the end of the fifth year, none of the three most dominant plant species in any of the mitigated or preserved wetland community zones may be non-native or weedy species including by not limited to: cattails, reed canary grass, giant reed, blue grass, purple loosestrife, sandbar willow, thistle or barnyard grass, unless otherwise indicated on the approved mitigation plan.

Vegetation sampling is conducted to assist with determining if the performance standards have been met.

The sampling must occur prior to early June and again in August/September following the planting and be completed twice in Years 3, 4, and 5 during the monitoring period. Sampling will consist of a time meander search to record species presence. A visual estimate of species dominance and cover will be made. A Floristic Quality Assessment shall be performed (see § T412(c)). The number of native species present should increase over the 5 year monitoring period. Representative photographs will be taken at the time of sampling. An annual monitoring report will contain the following information:

a) Vegetation Map - This information shall be descriptive and shall define the limits of all vegetation areas by general community type, based on field observations. Dominant species within each zone shall be identified. Representative photographs of each vegetation area by general community zone shall be submitted to the entity responsible for maintenance and the certified community.

b) Cover shall be determined by visual estimate to ensure no bare earth is exposed leaving the area open to erosion.

An annual monitoring report based on the above sampling and soil erosion control inspection reports shall be submitted to the Administrator by the end of February of the year following the completion of monitoring and management tasks. The report will include a review of progress toward meeting goals and performance standards. If any of the performance criteria are not met for any year, the responsible entity must provide a detailed explanation and propose corrective measures. Particular attention should be given at the end of the second year to areas initially planted with native vegetation.

It is the applicant's responsibility to rectify any deficiencies in the detention ponds, mitigation areas and preserved areas through replanting and management including but not limited to burning and selective herbicide use.