

COLLABORATIVE ADAPTIVE MANAGEMENT IMPLEMENTATION SCHEDULE AND AGREEMENT FOR HINKSON CREEK TMDL

The parties to this Collaborative Adaptive Management Implementation Schedule and Agreement for Hinkson Creek TMDL (“Agreement”) are the Missouri Department of Natural Resources (“MDNR”), the U.S. Environmental Protection Agency (“EPA”), and the permittees to MS4 Permit No. MO-0136557, the County of Boone, Missouri (“Boone County”), the Curators of the University of Missouri (the “University of Missouri”), and the City of Columbia, Missouri (“Columbia”). Boone County, the University of Missouri, and Columbia may collectively be referred to as the “Permittees.” The Permittees, MDNR, and EPA may collectively be referred to as the “Parties.”

Background

EPA finalized a Total Maximum Daily Load for Hinkson Creek under the Federal Clean Water Act (“CWA”) on or about January 28, 2011 (the “Hinkson Creek TMDL”) which indicates that the Hinkson Creek TMDL is “a phased and adaptive plan to restore water quality conditions in the Hinkson Creek watershed.” (Hinkson Creek TMDL at *ix*).

Through the phased Hinkson Creek TMDL, EPA used information available at the time of the Hinkson Creek TMDL, but expressly incorporated into that document a recognition that additional data and information would be collected to validate the assumptions of the Hinkson Creek TMDL or to reassess the Hinkson Creek biocommunity and other water quality parameters. (Hinkson Creek TMDL at *ix*). The MDNR and EPA both recognize that it may be appropriate to revise the Hinkson Creek TMDL based on analyses performed after additional data and information has been collected. (*Id.*).

MDNR seeks to ensure appropriate implementation of TMDLs for waters wholly within the State of Missouri through its continuing planning process, the permitting process, and other mechanisms. MDNR has agreed to implement the Hinkson Creek TMDL using a phased and adaptive plan, in full cooperation and coordination with the Parties, as described in this Agreement.

The Parties desire to address the water quality issues described in the Hinkson Creek TMDL. The Parties have constructed an operational framework and schedule for implementing the phased approach indicated in the Hinkson Creek TMDL through this Agreement. The Agreement provides for the establishment of an iterative process to provide a community-based approach to improving the water quality and biological characteristics of Hinkson Creek.

MDNR has developed two general criteria for identifying situations where a collaborative adaptive management approach may be appropriate: (1) there is a need for action within a system with significant scientific complexity and uncertainty, where additional data acquired through sampling or modeling may be appropriate, and (2) the issue is of such importance that MDNR and community stakeholders are committed to long-term engagement using this process and to providing the required resources. Both of these criteria are present in the evaluation of Hinkson Creek.

There are a significant number of scientific or technical complexities and uncertainties regarding the Hinkson Creek watershed. The Hinkson Creek TMDL measured and determined impairment in terms of the biological community, per the applicable water quality standard. The Hinkson Creek TMDL concludes that no one pollutant may be entirely responsible for the problem, and neither EPA nor MDNR has identified any sole contaminant(s) responsible. Collaborative adaptive management allows the Parties and other community stakeholders to collaboratively examine a number of potential actions to improve water quality in Hinkson Creek with the goal of achieving compliance with applicable water quality standards.

Based on the foregoing, the Parties hereby agree to implement a phased approach to the Hinkson Creek TMDL issued by EPA through the implementation of a collaborative adaptive management approach and schedule as described in this Agreement.

Definitions

A. *Adaptive Management.* In general, Adaptive Management is an approach that uses scientific methodologies in the design, implementation, and evaluation of management strategies. Adaptive management is based on assessment, planning, action, monitoring, evaluation and adjustment based on knowledge gained. If done correctly, it is both effective and efficient. When it works best, decision-making improves over time as more information is gathered. Adaptive Management is specifically encouraged by EPA for use in implementation of the Hinkson Creek TMDL. See Letter from Karl Brooks to Ed Robb, Aug. 31, 2011, attached hereto as **Attachment 1**.

B. *Collaborative Adaptive Management (“CAM”).*¹ CAM is a stakeholder-based adaptive management process for decision-making, dealing with the scientific and socio-economic complexities and uncertainties inherent in many ecosystems. It uses an iterative process to make changes and then determine the effect of those changes on water quality. CAM is a method for taking management actions and mapping their influence on the health of the stream ecosystem, including the biological community. CAM does not pre-determine the actions that are taken, but allows a focus on those actions that are most effective in improving water quality. Collaborative adaptive management can be used in complex systems where physical, chemical and biological processes must be monitored in order to gain understanding of the system or area of interest. It is ideal for working in complex systems where it is difficult to directly compare results because of natural variability (such as stream flow). CAM can be more effective than other approaches in accepting, and dealing with, the complexities and uncertainty. As used in this Agreement, it is the process through which the Stakeholder Committee will make recommendations to MDNR, Columbia, Boone County and University of Missouri.

C. *Effective Date.* The Effective Date of this Agreement is the date the last party executes the Agreement and provides original executed documents to the other Parties.

¹ The terms and provisions of this Agreement are based in part on guidance by the Missouri DNR in a June 6, 2011, Memorandum regarding Collaborative Adaptive Management. In addition, concepts in the agreement are modeled after the U.S. Department of Interior on Adaptive Management, “Adaptive Management: The U.S. Department of Interior Technical Guide” (2007).

D. *Hinkson Creek*. Hinkson Creek is a water body located in Boone County, Missouri, and more particularly described on Page iii of the Hinkson Creek TMDL.

E. *Hinkson Creek TMDL*. The United States Environmental Protection Agency Region 7 Total Maximum Daily Load for Hinkson Creek (MO_1007 and _1008) located in Boone County, Missouri established on January 28, 2011 and signed by Karen A. Flournoy, Acting Director of the Water, Wetlands and Pesticides Division, which is attached hereto as **Attachment 2**.

F. *MS4 Permit*. MS4 Permit means the Missouri State Operating Permit, number MO-0136557, issued by MDNR to the Permittees under the National Pollution Discharge Elimination System authorizing discharges from the Permittees' municipal separate storm sewer systems. The current version of the MS4 Permit was issued effective January 28, 2011, with an expiration date of January 27, 2016. The Parties anticipate modifying the MS4 Permit consistent with paragraph 14.1 below.

General Provisions

1. The goals and objectives of this Collaborative Adaptive Management Agreement are to implement the Hinkson Creek TMDL and improve Hinkson Creek by: (1) identifying primary pollutants of concern if possible, (2) improving diversity of key indicator micro and macro invertebrate species, (3) improving stream ecosystem health and general water quality in Hinkson Creek, (4) establishing a meaningful stakeholder process that ensures appropriate actions are taken within reasonable timeframes, and (5) achieving the ultimate goal of Hinkson Creek meeting applicable water quality standards, as developed by MDNR and approved by the Missouri Clean Water Commission and the EPA. In pursuing these goals and objectives, the Parties intend to take actions and conduct monitoring as necessary to ultimately demonstrate that applicable water quality standards are met.

2. The Parties have established an operational framework for addressing water quality issues for Hinkson Creek. Consistent with the terms of this Agreement, a stakeholder committee has been assembled to implement the terms of this Agreement and provide for additional processes, as necessary, to meet the goals and objectives of this Agreement.

3. The Parties shall endeavor to successfully implement collaborative adaptive management as described herein to implement the Hinkson Creek TMDL.

4. The Parties agree that when MDNR submits to EPA for approval an updated Section 303(d) List of impaired waters in 2012, Hinkson Creek will no longer appear on the Section 303(d) List for unknown pollutants because the Hinkson Creek TMDL has been established for these water body/pollutant pairs (this Agreement does not impact MDNR's listing decision for bacteria for Hinkson Creek WBID 1008). Rather, as part of the next biennial integrated Missouri Water Quality Report ("305(b) Report") submitted to EPA in 2012 pursuant to CWA Section 305(b), 33 U.S.C. § 1315(b) (which also includes the above-mentioned CWA Section 303(d) List), MDNR shall re-categorize Hinkson Creek as a Category 4A waterbody for unknown pollutants consistent with MDNR's *Methodology for the Development of the 2012 Section 303(d) List in Missouri*, as approved by the Missouri Clean Water Commission on

September 8, 2010, pursuant to 10 CSR 20-7.050(4)(A). If MDNR determines that Hinkson Creek meets applicable water quality standards in the future, MDNR would formally document this conclusion by updating the 305(b) Report to EPA, which would occur no sooner than 2014. In the future, a TMDL may be established for bacteria and/or other pollutants with respect to Hinkson Creek, in which case the Parties may choose to discuss and/or address such TMDL through collaborative adaptive management, although nothing in this Agreement requires the Parties to do so.

Establishment Tasks

5. Stakeholder Committee and its Teams.

5.1 Creation of a Stakeholder Committee. The Permittees, with MDNR's concurrence, have identified interested parties, including elected officials, to represent the broad variety of interests and viewpoints. This group of community stakeholders was appointed by members of the Columbia City Council; the Boone County Commission; and a representative appointed on behalf of the Curators of the University of Missouri, to carry out the tasks outlined in this Agreement. The Stakeholder Committee includes representatives of Columbia, Boone County, the University of Missouri, MDNR, affected business and community groups, and members of the community who live in the watershed. These stakeholders and members of the teams defined below must commit to the process as outlined in this Agreement and will serve without compensation.

5.2 Creation of an Action Team. The Permittees have appointed several non-elected representatives of the Parties to this group. This team will serve as a liaison group between the entire Stakeholder Committee and any Parties charged with carrying out identified tasks. This team may propose actions as described below, and will evaluate the feasibility of action recommendations from the Stakeholder Committee, and will report back to the Stakeholder Committee any problems with implementation. The Action Team will work with the Stakeholders to resolve the implementation problems prior to forwarding the recommendation to their respective implementing organizations.

5.3 Creation of a Science Team. A Science Team has been appointed consisting of not more than nine (9) persons, not holding public office. The purpose of the Science Team is to identify, evaluate and advance the necessary scientific studies needed to support the collaborative adaptive management processes described herein. The Science Team will coordinate monitoring and modeling for Hinkson Creek related to the collaborative adaptive management process. This team will respond to inquiries from and make recommendations to the Stakeholder Committee. The Science Team is responsible for understanding available scientific information that is applicable to the questions at hand, selecting the best and most relevant information, and synthesizing it into reports for the Stakeholder Committee. This team is to be populated by individuals with scientific backgrounds and credentials relating to the areas of biology, hydrology, ecology, chemistry, botany, geomorphology and other physical science disciplines to evaluate characteristics of Hinkson Creek. The best available science is considered to be relevant scientific studies from all credible sources including peer-reviewed government and university research, other published studies, and Science Team original research products. Applicable historic information, privately produced technical reports, and unpublished data may

have value and are considered as long as they can be assessed for accuracy and credibility. To prevent multiple and/or duplicate requests of the Science Team, the Stakeholder Committee as a body must submit all requests for additional information or guidance to the Science Team. Members of the Stakeholder Committee are not to develop a request or contact individual members of the science team except through a process developed and approved by the Stakeholder Committee.

5.4 The Stakeholder Committee, in consultation with the Action Team and Science Team, shall make written recommendations to the Parties regarding various actions or monitoring activities. The Stakeholder Committee, Action Team, and Science Team shall each develop reasonable and fair procedures with respect to the frequency of their meetings, making their recommendations (by majority vote or otherwise), and shall explain any dissenting viewpoints in communicating such recommendations.

6. Hinkson Creek Monitoring. The Science Team will design sampling and analysis plans for Hinkson Creek in cooperation with MDNR and EPA. Such sampling and analysis plans shall include an implementation schedule which identifies the responsible parties to conduct the sampling and analysis, and a schedule with interim milestones and a completion date.

6.1 Such plans will meet the protocols of an EPA- and MDNR-approved Sampling and Analysis Plan and Quality Assurance Project Plan ("QAPP"). For any plan that does not already have an approved QAPP, MDNR and EPA shall make good faith efforts to review and act on any such plan within 30 calendar days of receipt. In the event that such review time exceeds 30 calendar days, the Permittees may provide written notice to MDNR and EPA of any actions under this Agreement that will be delayed or otherwise affected by such extended review. Upon providing such notice, the due date for any affected actions will be extended by the number of days requested beyond 30 calendar days until MDNR and EPA approval, modification, or disapproval.

6.2 The Sampling and Analysis Plan shall take into consideration sample locations to provide data to determine characteristics of the various significant tributaries to the Hinkson Creek. In the event that samples need to be collected during non-representative flow conditions, the Parties agree to take such conditions into account as appropriate when reviewing the resulting data.

Implementation Phase

7. Design of Proposed Actions. A series of action alternatives will be proposed by the Action Team to make progress towards meeting the goals and objectives set forth in Paragraph 1 of this Agreement. These actions and alternatives may be segment specific and based upon sampling information gained from the monitoring program and information provided by the Science Team. Additionally, continued refinement of proposed actions shall occur upon receipt of further monitoring evaluation done at the completion of each action item. The refinement of proposed actions shall occur within 90 calendar days of the Action Teams receipt of monitoring evaluations.

8. Selection of Action. An action, or set of actions, will be selected for implementation and the resulting change in conditions will be monitored sufficiently for comparison with data collected under paragraphs 6 and 9.

8.1 Within 120 calendar days of receiving a proposed action from the Action Team, the Stakeholder Committee, in consultation with the Action Team and Science Team, shall make written recommendations to the respective Permittees regarding various actions or monitoring activities, including a draft budget and timeframe for implementation. The Stakeholder Committee shall provide a copy of each recommendation to each of the Parties.

8.2 The Permittees each agree to either (a) implement each recommendation from the Stakeholder Committee that would involve action on their part, or, (b) within 90 calendar days after receiving such recommendation (or such other timeframe as specified in the recommendation or as the Parties may agree), send the Stakeholder Committee and other Parties a written proposal to modify the recommendation, reject the recommendation, or request additional time to make such decision. Such proposal shall explain the reasons for any proposed modification or rejection or any request for additional time. Within 60 calendar days after receiving such proposal, the Stakeholder Committee shall decide whether to accept the proposal or propose further modifications to it. If further modifications are proposed, the affected Permittees shall review such proposal within 60 calendar days of receipt, and, if necessary, resubmit consistent with this section.

8.3 Without limiting the Parties' ability to initiate dispute resolution as set forth in paragraph 21, any of the Parties may invoke Dispute Resolution at any time before the 30th day after an action or monitoring activity is agreed to by one of the Permittees, or at any time before the 30th day after an action is rejected by the Permittee(s) and/or Stakeholder Committee.

8.4 After an action or monitoring activity is agreed upon or otherwise resolved in connection with a Dispute Resolution process, and at least annually, the Permittees shall incorporate such recommendation, including its schedule for implementation, as an update to the Permittees' Stormwater Management Program and Plan ("SWMP") pursuant to Section 4.4 of the Permittees' MS4 Permit.

9. Evaluative Monitoring. Once an action is selected and implemented, evaluative monitoring and/or modeling shall be required to be conducted by the Permittees, unless otherwise agreed by the Parties, to determine the effectiveness of the action selected consistent with MDNR and EPA Sampling and Analysis Plan and Quality Assurance Project Plan.

10. Action Revisions. After evaluating the impact of the action, the action and monitoring shall be revised based on what is learned and the cycle shall be repeated or other actions may be chosen for implementation. If additional actions shall continue, the process for selection of an action will begin again as set forth in paragraph 8. Additional actions may be determined by the Parties as not needed at the point Hinkson Creek is assessed as no longer impaired by the Parties consistent with paragraph 11 and the reservations included within that paragraph. MDNR and EPA recognize that implementation of the Hinkson Creek TMDL will be

adaptive and iterative, using new data or information to adjust the implementation activities. (Hinkson Creek TMDL at *x*).

11. Determining Success / Completion and Termination. The Stakeholder Committee will periodically review data regarding Hinkson Creek's response to each action or set of actions taken under this Agreement. In assessing the degree of such response, the Stakeholder Committee shall use as a baseline the MDNR data referenced in Section 4.5.2.1. through 4.5.2.4. of the Hinkson Creek TMDL and the methods provided. The Stakeholder Committee will prioritize monitoring conducted pursuant to paragraph 18.1 of this Agreement, as well as consider any other existing and readily available water quality related data assembled by MDNR, to determine what actions appear to be most effective and to determine and document whether the State of Missouri's water quality standards have been met. The collaborative adaptive management process may reach a logical end, and this Agreement may be terminated, as follows:

11.1 Meeting Water Quality Standards for the protection of aquatic life.

- a. EPA-approved Method. If Hinkson Creek is determined to be attaining compliance with applicable water quality standards for the protection of aquatic life, including as determined by calculating and scoring the appropriate metrics in accordance with the Missouri Stream Condition Index ("MSCI") scale described in the February 2002 MDNR document *Biological Criteria for Wadeable/Perennial Streams in Missouri*² and as described in paragraphs 11.1.a.i. through 11.1.a.iii. below, then no further additional actions shall be required by the Permittees under this Agreement or the Hinkson Creek TMDL.
 - i. A multi-metric MSCI score shall be calculated at a minimum for each of the eleven (11) historic Hinkson Creek sampling sites for samples collected pursuant to this Agreement. This sampling will be conducted during stable base flow sampling events, at least one of which will be collected in the Spring (mid-March through mid-April) and one in the Fall (mid-September through mid-October).
 - ii. To demonstrate full attainment of Missouri's narrative water quality standards for the protection of aquatic life for Hinkson Creek, the MSCI score determined pursuant to paragraph 11.1.a.i of this Agreement shall be compared to those of the reference streams contained within the Ozark/Moreau/Loutre Ecological Drainage Unit (the EDU that contains Hinkson Creek). The determining factor will be the percentage of scores of 16 or greater. This percentage shall be calculated consistent with Tables 1.2

² MDNR, 2002. Biological Criteria for Wadeable/Perennial Streams of Missouri, *available at:* <http://www.dnr.mo.gov/env/esp/docs/BiologicalCriteriaforWadeableStreamsofMissouri.pdf>, and attached hereto as **Attachment 3**.

and B.1 in the Methodology for the Development of the 2012 Section 303(d) List in Missouri, attached hereto as **Attachment 4**.

- iii. Additionally, regardless of the demonstration in paragraph 11.1.a.ii, any individual sampling site that scores less than 16 in the majority of the sampling events shall be deemed impaired. In such case, consistent with this Agreement and notwithstanding the “no further additional actions” language above, the Parties will pursue continued implementation consistent with paragraphs 7 through 10 of this Agreement, and may focus such implementation to address the individual sampling site impairment.
- b. In the alternative to the EPA Approved Method above, the Parties may pursue the Alternative Method described below.
 - i. If Hinkson Creek is determined to be achieving compliance with applicable water quality standards for the protection of aquatic life, as determined in accordance with the applicable Listing Methodology document approved by the Missouri Clean Water Commission and/or other scientifically sound methods, then no further additional actions shall be required of the Permittees under this Agreement or the Hinkson Creek TMDL. With respect to the biological condition of Hinkson Creek, using Missouri’s Listing Methodology document referenced above, full attainment will be evaluated by calculating and scoring the appropriate metrics in accordance with the MSCI scale or other method as included in the Missouri Listing Methodology Document at the time the stream is evaluated. Similarly, all other water quality parameters will be evaluated in a manner consistent with Missouri’s current Listing Methodology Document as approved by the Missouri Clean Water Commission pursuant to 10 CSR 20-7.050(4)(A). *See, e.g., Methodology for the Development of the 2012 Section 303(d) List in Missouri*, as approved by the Missouri Clean Water Commission on September 8, 2010 (including description of how to assess for compliance with narrative water quality standards for the protection of aquatic life using biological data based on numeric thresholds).
- c. *Procedures for Documenting WQS Attainment.* The following procedures shall govern any termination of this Agreement using either procedure referenced above in paragraphs 11.1.a. or 11.1.b.:

- i. A written analysis of the technical, scientific, and legal basis for the conclusion that Hinkson Creek meets the applicable water quality standards shall be presented to the Science Team for its review and analysis.
- ii. Within a reasonable time thereafter, or other timeframe as agreed by the Parties, the Science Team shall provide a written recommendation to the Stakeholder Committee, with a copy to each of the Parties, as to whether or not Hinkson Creek meets the applicable water quality standards.
- iii. Prior to the close of the public comment period regarding the Section 303(d) List, the Stakeholder Committee shall make a written recommendation to MDNR, with a copy to each of the Parties, as to whether or not Hinkson Creek meets the applicable water quality standards.
- iv. If the Parties agree with the Stakeholder Committee's recommendation, the Parties may terminate this Agreement on the basis of meeting the applicable water quality standards. Alternatively, if one or more of the Parties believes that Hinkson Creek has achieved compliance with the applicable water quality standards, but at least one of the Parties disagrees, then the following procedures shall apply. After allowing MDNR at least 60 days to consider and/or respond to the Stakeholder Committee's recommendation, any one of the Parties may invoke Dispute Resolution consistent with paragraph 21 below.

11.2 Identification of a specific Pollutant. The process may also end and the Agreement may be terminated if a specific pollutant is identified, and the TMDL is subsequently modified or revised. Any modification of the TMDL shall be consistent with CWA requirements, including EPA review and approval when appropriate. Modification of the TMDL is not subject to Dispute Resolution as set forth in Paragraph 21 below. The Parties retain all rights with regard to the modification or revision of the TMDL provided under the CWA and/or the Missouri Clean Water Law.

11.3 Extension based on Permit cycle. Prior to each expiration date listed on the Permittees' MS4 permit, the Parties shall decide whether to renew or extend the term of this Agreement. This Agreement will terminate on the expiration date of the Permittees' MS4 Permit if one of the Parties provides notice of termination by certified mail at least 30 days prior to such date. If no such notice is received, then the Agreement will be extended for successive additional one-year terms, unless the Parties otherwise agree.

11.4 *Unresolved Dispute.* In the event that a dispute cannot be resolved through the process set forth in paragraph 21, any one of the Parties may terminate this Agreement. Notice of such termination shall be by certified mail directed to the representative of the Parties identified in paragraph 22 of this Agreement and shall be tendered within 15 calendar days of the conclusion of the mediation or Informal Dispute Resolution process. Upon such termination, all Parties reserve all rights and defenses afforded to them under applicable law.

11.5 *As Otherwise Agreed.* The Parties may otherwise agree in writing to terminate or modify this Agreement.

Costs

12. The Stakeholder Committee will draft suggestions to guide the process of cost sharing for the implementation of this Agreement. The ultimate determination of the distribution of costs rests with the appropriate legal bodies legally authorized by the State of Missouri through the Constitution and statutes for each of the respective Parties (for example: MDNR, the Columbia City Council; the Boone County Commission; and the Curators of the University of Missouri, or their legal designees). The financial commitments of EPA are those solely outlined in paragraph 19 below. The financial commitments of MDNR are those solely outlined in paragraph 18 below. Nothing in this Agreement obligates EPA or MDNR to incur additional financial obligations.

Implementation of Hinkson Creek TMDL

13. This Agreement is designed to implement the Hinkson Creek TMDL through collaborative adaptive management processes. The primary objectives are described in paragraph 1 above. The action(s) necessary to reach this objective are to be determined by the committees and teams included herein with appropriate evaluation of their impacts upon the Parties, including the cost impact upon the residents and businesses existing within the Hinkson Creek watershed.

13.1 The collaborative adaptive management approach allows a wide range of activities to contribute to reaching the water quality goals; some of these activities may reduce stormwater run-off, others may improve the quality of the run-off that does occur; under collaborative adaptive management both can contribute to the solution by improving the biological community. By learning as the Stakeholder Committee, Science Team and Action Team implement actions, the goal of this Agreement is to find, collaboratively, the most effective approach(es) rather than be committed to one pre-determined approach.

Permits

14. Permits (such as the MS4 Permit) issued under the National Pollution Discharge Elimination System by MDNR for discharges into Hinkson Creek are typically issued for a period of five years.

14.1 This Agreement shall not be construed as a permit, or a modification of any permit, and the Permittees remain responsible for achieving and maintaining compliance with any applicable laws, regulations, and permits. Within 30 days after executing this

Agreement, the Permittees shall request that Sections 3.1.1 and 3.1.2 of their MS4 Permit be modified consistent with the revisions described within **Attachment 5** attached hereto, and MDNR and EPA agree to consider such modification, without revising the expiration date thereof, subject to receiving and reviewing relevant comments during any applicable public participation process. So long as MDNR modifies the MS4 Permit consistent with the language in Attachment 5, the Permittees agree not to appeal or otherwise challenge such modification. Upon executing this Agreement, the Permittees shall (1) implement best management practices and other actions and monitoring activities as recommended and agreed to pursuant to the terms of this Agreement and as will be reflected in revised Sections 3.1.1. and 3.1.2. of the MS4 Permit, and (2) update their SWMP within 12 months after the effective date of this Agreement and as otherwise necessary as described in paragraph 8.4 to reflect the actions taken per this Agreement.

14.2 In the event that the MS4 Permit is not modified consistent with the language included within Attachment 5, the Parties each reserve the right to invoke Dispute Resolution.

14.3 As the Parties, through the Stakeholder Committee and Science and Action Teams, learn more about the watershed and what actions are most effective in improving water quality, MDNR, subject to EPA oversight, might agree in its discretion to change some of those permitting limitations and conditions at the time of permit renewal.

Best Management Practices

15. Efforts to improve the water quality of Hinkson Creek have been undertaken by Columbia, Boone County, the University of Missouri, Governmental and Quasi-governmental Organizations, and private individuals since the last bioassessment in Hinkson Creek. Several dozen of these actions, costing millions of dollars, are discussed in the Hinkson Creek TMDL and included in the appendix of the Hinkson Creek TMDL. (Hinkson Creek TMDL at p. 63, Appendix D).

15.1 These efforts include storm water ordinances for both Columbia and Boone County. The ordinances require undisturbed buffers or set-backs along stream banks, with the width of the buffer increasing with stream size.

15.2 In addition, the Missouri Department of Transportation has moved its local maintenance operations facility, which had been just south of Interstate 70 on the east side of Hinkson Creek. This effectively removes a significant source of chlorides from the stream.

15.3 In addition to these actions, while the processes outlined in this Agreement are being implemented, Columbia, Boone County and the University of Missouri will continue to address risks to some of the State's narrative water quality criteria by implementation of protective City and County ordinances and University policies and implementing and documenting improved use of the best management practices ("BMPs") within the Hinkson Creek watershed.

15.4 Within 120 days after execution of the Agreement, the Action Team will provide recommendations to the Stakeholder Committee for specific early action projects as

called for in paragraph 15.3 above, to be implemented concurrently with the baseline monitoring to be performed by MDNR. The early action projects should be consistent with the goals and objectives of the Agreement.

Public Participation

16. The Collaborative Adaptive Management process described in this Agreement will be collaborative, interactive, and shall be conducted in accordance with Chapter 610 RSMo, otherwise known as the Sunshine Law. For purposes of this Agreement, the Parties acknowledge that the Stakeholder Committee, Action Team, and Science Team are public governmental bodies within the meaning of the Sunshine Law, and the Parties agree that the Stakeholder Committee, Action Team, and Science Team shall each handle their records and meetings subject to and in compliance with the Sunshine Law, including designating someone for each to serve as custodian under § 610.023 RSMo. A representative of Boone County is expected to handle administrative duties and serve as custodian with respect to the Stakeholder Committee, while a representative from the City of Columbia is expected to do so for the Action Team, and a representative from MDNR is expected to do so for the Science Team. Major decisions will be publicly announced through news releases and website announcements. Opportunities for public input will be periodically provided. Nothing in this Agreement makes the Sunshine Law applicable to EPA, which is subject to the federal Freedom of Information Act, 5 U.S.C. § 552 *et seq.*

Periodic Report

17. A report to the public will be prepared by the Permittees and approved by the Stakeholder Committee summarizing the activities of the Stakeholder Committee every year, and this Collaborative Adaptive Management report shall be included as part of the annual report described in Section 5.3 of the Permittees' MS4 Permit. The report may reference other documents prepared at the request of the Stakeholder Committee.

Actions of MDNR

18. MDNR will be an active participant in the Collaborative Adaptive Management process. MDNR will specifically provide:

18.1 Biomonitoring of micro and macro invertebrates and other indicator species as may be agreed to with the Science Team to determine the current level of species diversity. MDNR will provide sampling and analysis of the eleven (11) sampling locations previously sampled for the TMDL. Sample analysis shall be conducted two (2) times each year in the spring and fall. The sampling will be conducted for a three (3) year period at MDNR's expense, unless MDNR, EPA and the Permittees determine that the third year of monitoring is not necessary. MDNR will strive to meet the goal of notifying the Permittees' designated staff seven (7) calendar days before any proposed sampling period, or otherwise as soon beforehand as reasonably practical, MDNR will provide a participant to serve on the Stakeholder Committee and Science Team, and may appoint a representative to the Action Team if desired in the future. The participants may be the same individual or different individuals at MDNR's discretion.

18.2 While the Parties fully intend that implementation of the Hinkson Creek TMDL will be accomplished in accordance with the collaborative adaptive management process described in this Agreement for its duration, nothing in this Agreement restricts MDNR discretion and/or authority to act as provided by law, statute, or regulation.

18.3 While this Agreement is effective, at the time MDNR places any future CWA Section 303(d) List on public notice, MDNR shall notify each of the Parties, the Stakeholder Committee, and the Science Team, about how MDNR intends to categorize Hinkson Creek within the next 305(b) Report, in order to provide such entities time to consider whether water quality data from Hinkson Creek supports re-categorizing Hinkson Creek within such 305(b) Report.

Actions of EPA

19. EPA will participate in the Collaborative Adaptive Management process as follows:

19.1 EPA will provide a participant to serve on the Science Team who shall be an employee of EPA; and

19.2 EPA will provide a participant to serve as the Facilitator for the Stakeholder Committee. The Facilitator's duties shall include: supporting the functions, organization, and discussions of the Stakeholder Committee; assuring active participation and cooperation from stakeholders; assisting in the development of internal procedures and rules; and ensuring proper focus on tasks to be accomplished. The person serving as the facilitator shall be approved by the parties by consensus.

19.3 No provision of this Agreement shall be interpreted to require obligation or payment of funds by EPA or the United States in violation of the Anti-Deficiency Act, 31 U.S.C. § 1331, 1342, 1511-1519, or any other applicable law.

19.4 While the Parties fully intend that implementation of the Hinkson Creek TMDL will be accomplished in accordance with the collaborative adaptive management process described in this Agreement for its duration, nothing in this Agreement restricts EPA discretion and/ or authority to act as provided by law, statute, or regulation.

Actions of the Permittees

20. The Permittees will actively participate in the CAM process. In addition to any responsibilities described above, the Permittees shall have the following specific responsibilities:

20.1 The Permittees agree to provide reasonable levels of funding to implement recommended actions and monitoring activities, and to cooperate regarding implementation of recommended actions.

20.2 The Permittees will each provide one participant to serve on the Stakeholder Committee and one participant to serve on the Action Team. The participants may be the same individual or different individuals at the Permittees' discretion.

20.3 The Permittees are bodies created and operating consistent with the Missouri Constitution and enabling legislation passed by the Missouri General Assembly. Nothing in this Agreement intends to modify any legal authority or restriction provided under Missouri law.

Dispute Resolution

21. Disputes arising under this Agreement among the Parties shall be resolved as follows.

21.1 Informal Dispute Resolution. In the event of a significant delay or disagreement among the Parties about how to proceed with respect to any action item or monitoring activity proposed by one of the teams or the Stakeholder Committee, or if one or more of the Parties disagrees that Hinkson Creek is attaining water quality standards for the protection of aquatic life as provided in paragraph 11.1, or if one or more of the Parties disagrees that the Alternative Method selected pursuant to paragraph 11.1.b. is a scientifically sound method to demonstrate that Hinkson Creek is attaining water quality standards for the protection of aquatic life, one of the Parties may invoke Informal Dispute Resolution by notifying the other Parties of the basis for its objections in writing, including a specific reference to this dispute resolution provision. The Parties shall seek to invoke Informal Dispute Resolution in a timely manner upon recognition of the dispute. The Parties shall have 60 calendar days from receipt of the objection to informally resolve the dispute. The Parties may extend this informal dispute resolution period by written consent. If the Parties reach agreement on the issue in dispute, that agreement shall be reduced to writing. If the parties are unable to reach agreement, the objecting party may demand a written response to the objection from any other Party or Parties. Such response shall be provided within 10 calendar days. Thereafter, the position advanced by MDNR shall be considered binding, unless one of the Parties requests mediation as described below or terminates the Agreement.

21.2 Mediation. The objecting party may request mediation by notifying all other Parties within 10 calendar days after the conclusion of the informal dispute resolution period. The Parties agree to participate in at least four hours of mediation with a professional mediator. The Parties intend to share equally in the costs of the mediation, so long as funding is available, or as otherwise agreed. If the Parties do not reach agreement regarding who to hire as a mediator within 15 calendar days from the date of the mediation request, then the Director of MDNR may select the mediator and schedule the mediation. EPA reserves the right to opt out of any cost of mediation in the event EPA does not agree with the mediator as selected by the Director of MDNR. In the event that such mediation does not resolve the dispute, any one of the Parties may terminate this Agreement. Communications made during any such mediation are confidential under the Administrative Dispute Resolution Act of 1996, 5 U.S.C. § 574, and shall be so treated by the Parties unless otherwise required by state statutes or regulations. In the event that such mediation does not resolve the dispute, any one of the Parties may terminate this Agreement pursuant to paragraph 11.4 above.

Correspondence and Documentation

22. Correspondence or documentation with regard to this Agreement shall be directed to the following representatives of the Parties, or their successors:

For MDNR:

Joseph F. Engeln
Assistant Director for Science and Technology
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

and

General Counsel's Office
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

For EPA:

Branch Chief
Water Quality Management Branch
U.S. Environmental Protection Agency Region 7
901 North 5th Street
Kansas City, KS 66101

and

Regional Counsel
Office of Regional Counsel
U.S. Environmental Protection Agency Region 7
901 North 5th Street
Kansas City, KS 66101

For Boone County:

Boone County Presiding Commissioner
801 East Walnut, Room 333
Columbia, MO 65201

and

Stormwater Coordinator

Boone County Resource Management
801 East Walnut, Room 315
Columbia, MO 65201

For the University of Missouri:

Director, Environmental Health and Safety
University of Missouri
8 Research Park Development Bldg.
Columbia, MO 65211

and

General Counsel
University of Missouri System
227 University Hall
Columbia, MO 65211

For the City of Columbia:

Public Works Director
City of Columbia
701 East Broadway
Columbia, MO 65201

and

General Counsel
City of Columbia
701 East Broadway
Columbia, MO 65201

Counterparts

23. This agreement may be executed in two or more counterparts which, when taken together and signed by all parties contemplated herein, shall form the Agreement between the parties.

IN WITNESS WHEREOF, the Parties to this Agreement have caused this document to be executed as of the Effective Date hereof.

THE MISSOURI DEPARTMENT OF NATURAL RESOURCES

Sara Parker Pauley
Director

Dated: _____

U.S. ENVIRONMENTAL PROTECTION AGENCY

By: _____

Dated: _____

THE CITY OF COLUMBIA, MISSOURI

By: _____

Dated: _____

THE CURATORS OF THE UNIVERSITY OF MISSOURI

By: _____

Dated: _____

THE COUNTY OF BOONE, STATE OF MISSOURI

By: _____

Dated: _____