

**Best Management Practices for
Stormwater Management to Preserve Water**

Stormwater Management Plan

FOR KALAMAZOO VALLEY COMMUNITY COLLEGE



MAY 2019

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Enforcement Response Procedure

Kalamazoo Valley Community College (KVCC) agrees to comply with all necessary measures to report, address, and resolve stormwater quality issues, using the City of Kalamazoo's ordinances or other regulatory plans. These procedures have previously been prepared and formally adopted by the Kalamazoo City Commission and/or are part of the Michigan Department of Environmental Quality (MDEQ) approved Stormwater Phase II National Pollutant Elimination Discharge System (NPDES) Individual Permit (Permit). These measures include the implementation of the Illicit Discharge Elimination Plan (IDEP), and the enforcement of City of Kalamazoo Ordinances that are associated with water quality, primarily:

- Chapter 29 of the City of Kalamazoo Code of Ordinances (Stormwater System) (see Attachment A of the City's 2015 Stormwater NPDES Permit Application and 2016-2017 revisions),
- Chapter 30 of the City of Kalamazoo Code of Ordinances (Soil Erosion and Sedimentation),
- Ordinance 1825 (Wellhead Protection Overlay), and,
- Ordinance 1826 (Performance Standards).

A list of KVCC's stormwater points of discharge to surface water is provided as Appendix A, Table 1.

KVCC would respond to any violations, such as an illicit connection or a soil erosion and sedimentation issue by issuing a work order utilizing Asset Essentials software by Facilities Site Manager, Terry Sibbersen, to report, address, and resolve violations as necessary and maintain compliance with the City of Kalamazoo's ordinances and regulatory plans.

KVCC would track instances of non-compliance utilizing Asset Essentials software, including as appropriate, the name of the person responsible for violating KVCC's regulatory mechanism, the date and location of the violation, a description of the violation, a description of the enforcement response used, a schedule for returning to compliance, and the date the violation was resolved.

Public Participation/Involvement Program (PPIP)

Purpose

The purpose of the PPIP is to establish an effective framework for involving those within the Kalamazoo Urbanized Area, including stormwater management permittees, agencies, organizations, and the general public, and to help implement and modify Stormwater Management Plans (SWMPs). KVCC will assist the City of Kalamazoo with its efforts towards public participation and involvement as outlined in Attachment B of the City's 2015 Stormwater NPDES Permit Application and 2016-2017 revisions. Below is a summary of the City of Kalamazoo's plan.

Procedure for Making the SWMP Available for Public Inspection and Comment

Best Management Practices (BMPs)

KVCC will utilize the City's public notification process regarding the SWMP via the City's websites www.protectyourwater.net and the general City website www.kalamazoocity.org/. These websites will serve as the primary BMP source.

The SWMP will be available for review on the City's website in the Stormwater Section at www.protectyourwater.net/stormwater-regulations. Opportunities for comment are provided on the websites by use of the Water Contact Section at www.protectyourwater.net/contact.

KVCC and the City will also consider utilizing other communication opportunities to reach the public about the SWMP, including publications (e.g. newsletters), and announcements at internal and external organizational meetings, etc. The City will primarily work independently to perform the PPIP but will work collaboratively with KVCC when applicable and possibly with other regional partners as appropriate – notably the Kalamazoo Area Stormwater Work Group for general issues, and the Total Maximum Daily Loads (TMDL) Non-Point Source groups.

BMP Method of Assessment

The City follows the BMPs provided in their 2015 Stormwater NPDES Permit Application and 2016-2017 revisions. In conjunction and with approval of the City, KVCC will utilize the BMPs listed below for the *method of assessment*. Other communication strategies will be considered as publication schedules and internal discussions are made.

BMP measurable goal A: BMP Public Notice - The SWMP will be available on www.protectyourwater.net by June 2019, and throughout the Permit cycle. KVCC will include information on the SWMP in the future using a newsletter publication, social media resources and/or their website (which ever delivery mechanism is applicable and/or available), which will include a link to www.protectyourwater.net. KVCC's involvement will target their stakeholders and school students as part of the community outreach.

Measurement of assessment: Number of website visits to the designated stormwater website page, the number and type of comments received from the public, and the number and type of other communication strategies implemented during the Permit cycle.

Schedule for implementation and interim milestones: KVCC and City staff will review submitted public comments monthly, and if appropriate and/or necessary, revise the SWMP annually, taking into consideration the public comments and other available information.

Frequency of the BMP: First Year or monthly in the first year pending applicability.

BMP measurable goal B: BMP Website Education - The website (www.protectyourwater.net) and KVCC's social media resources (as applicable and/or as available), will be utilized throughout the Permit cycle for public education, involvement opportunities and comment. KVCC's involvement will target their stakeholders and school students as part of the community outreach.

Measurement of assessment: Number of website visits to the designated stormwater website page, the number and type of comments received from the public, and the number and type of other communication strategies implemented during the Permit cycle.

Schedule for implementation and interim milestones: Continual operation.

Frequency of the BMP: Semi-annually or more frequently as necessary.

BMP measurable goal C: BMP Community Updates and Activities – KVCC will utilize a newsletter publication, social media resources and/or their website (which ever delivery mechanism is applicable and/or available) throughout the Permit cycle for promoting events including planetarium presentations of Habitat Earth at the Kalamazoo Valley Museum and the Kalamazoo area Master Rain Gardener Certification. KVCC's involvement will target their stakeholders and school students as part of the community outreach.

Measurement of assessment: Number of website visits to the designated stormwater website page, the number and type of comments received from the public, and, the number and type of other communication strategies implemented during the Permit cycle.

Schedule for implementation and interim milestones: Continual operation.

Frequency of the BMP: Continual operation.

Other

For the purposes of this Stormwater Permit, the City's Environmental Programs Manager serves as the Stormwater Program Manager and will be the City's point of contact (269-337-8583) for all related issues.

Public Education Plan (PEP)

The City follows the PEP provided in their 2015 Stormwater NPDES Permit Application and 2016-2017 (NPDES Permit) revisions. The City uses each educational event as an opportunity to educate and in most cases, distribute materials, and occasionally provide demonstrations of various educational models. Generally, City and other staff and/or volunteers use a broad-based water quality presentation technique, discussing stormwater, TMDL, wellhead protection, and risk minimization strategies (e.g. best management practices).

The City of Kalamazoo's PEP outlines the strategies its partners can participate in to educate the public about stormwater issues and concerns. KVCC will adopt the City's long term strategy to change societal attitudes and subsequent behavior associated with water quality issues. KVCC's PEP participation is not based on quantities but rather quality efforts. In conjunction with the City's PEP, KVCC will utilize its expertise, contacts, and resources to provide specific watershed and environmental education utilizing the City of Kalamazoo's revised *Table 5: Stormwater Public Education Plan 2016-2017 – Revised 2019* included in Appendix B.

The City has and will continue to conduct professional public surveys to determine the effectiveness of the public education outreach strategies. The surveys are conducted approximately every 5 years and will continue to be conducted on a once per permit cycle basis. The last survey was completed August 2017. For the PEP, KVCC and the City will cooperate to update questions for future surveys and coordinate the completion of future surveys.

KVCC commits to the following minimum schedule of PEPs (referenced as Appendix B, the City's revised Table 5) which will be reviewed annually between the City of Kalamazoo and KVCC, and if possible, additional PEPs may be included each year as available time permits.

KVCC Implementation Schedule & PEP Table Assignment

PEP Reference A (listed in Appendix B, Table 5, Row 7 Column 4)

Year 1: Installation of 1 raingarden, ACC campus

- Benefits of Native Vegetation
 - Delivery Mechanism or Activity

PEP Reference B (listed in Appendix B, Table 5, Row 1 Column 4)

Year 1: Installation of 1 cistern, BHLC campus

- Personal Watershed Stewardship
 - Delivery Mechanism or Activity

PEP Reference C (listed in Appendix B, Table 5, Row 1 Column 4, Row 4 Column 4, Row 5 Column 4, and Row 9 Column 4)

Year 1-20: Stormwater & watershed specific material enhancing distribution mechanism; annual ongoing

- Personal Watershed Stewardship
 - Delivery Mechanism or Activity
- Personal Actions that Can Impact the Watershed
 - Delivery Mechanism or Activity
- Waste Management Assistance
 - Delivery Mechanism or Activity

PEP Reference D (listed in Appendix B, Table 5, Row 2 Column 4, and Row 7 Column 4)

Year 3: Raingarden signage, 2, KVM and AWH

- Benefits of Native Vegetation
 - Delivery Mechanism or Activity

PEP Reference E (listed in Appendix B, Table 5, Row 1 Column 4, and Row 9 Column 4)

Year 3: Cistern signage, 1, FIC

- Personal Watershed Stewardship
 - Delivery Mechanism or Activity

PEP Reference F (listed in Appendix B, Table 5, Row 1 Column 8, Row 4 Column 8, Row 5 Column 8, Row 7 Column 8 and Row 9 Column 8)

Year 4: KVCC Campus-Specific Community Awareness Assessment, 1 survey, KVM (based on current opportunities)

- Personal Watershed Stewardship
 - Evaluation Method
- Personal Actions that Can Impact the Watershed
 - Evaluation Method
- Waste Management Assistance
 - Evaluation Method
- Benefits of Native Vegetation
 - Evaluation Method

PEP Reference G (listed in Appendix B, Table 5, Row 1 Column 4, and Row 4 Column 4)

Year 6-8: Printed Media (first poster/flyer), enhancing promotion of City's PEP

- Can be included in any of the City's Public Education Messages, depending on media topic

PEP Reference H (listed in Appendix B, Table 5, Row 1 Column 4, and Row 4 Column 4)

Year 9-14: Video Media (first production), enhancing promotion of City's PEP

- Can be included in any of the City's Public Education Messages, depending on media topic

PEP Reference I (listed in Appendix B, Table 5, Row 1 Column 4, Row 4 Column 4, Row 5 Column 4, and Row 9 Column 4)

Year 16-20: Showcase Existing Exhibits, based on availability of resources, applicability of buildings.

- Personal Watershed Stewardship
 - Delivery Mechanism or Activity
- Personal Actions that Can Impact the Watershed
 - Delivery Mechanism or Activity
- Waste Management Assistance
 - Delivery Mechanism or Activity

PEP Reference J (listed in Appendix B, Table 5, Row 1 Column 4, Row 8 Column 4)

Year 16-20: Showcase Existing Exhibits, based on availability of resources, applicability of buildings.

- Benefits of Native Vegetation
 - Delivery Mechanism or Activity

Illicit Discharge Elimination Plan (IDEP)

Introduction

The purpose of the City of Kalamazoo's Illicit Discharge Elimination Plan is to prohibit and eliminate illicit discharges and connections, including discharges of sanitary wastewater to the City of Kalamazoo's municipal separate storm sewer system (MS4). The separate storm sewer system includes both open and enclosed drainage systems that are owned or operated by the City and discharge to a surface water of the State or to a separate stormwater drainage system operated by another public agency.

KVCC will comply with the City of Kalamazoo's IDEP and the following is the Standard Operating Procedure (SOP) KVCC will enact. KVCC will utilize the City of Kalamazoo's revised *Table 2: Stormwater Management Plan – Revised 2019* included in Appendix C.

Roles and Responsibilities

KVCC will utilize its own employees, equipment and material as much as possible and practical to investigate illicit connects and discharges.

The KVCC management staff has developed a program that administers and manages the IDEP. Terry Sibbersen, Facilities Site Manager (or designee), serves as KVCC's primary MS4 IDEP contact for the City of Kalamazoo, including general administration, all written correspondence and verbal communication with the City of Kalamazoo, IDEP implementation and reporting, scheduling and facilitating internal meetings, and providing general prioritization and guidance of IDEP related work. If Terry Sibbersen is unavailable, Dannie Alexander, Director of Facilities and Construction Management, and Michael Collins, Executive Vice President of Enrollment and Campus Operations, are designated as the MS4 IDEP contacts.

Finding and Eliminating Illicit Connections and Discharges

KVCC will adhere to Attachment C of the City's 2015 Stormwater NPDES Permit Application and 2016-2017 revisions to actively identify and eliminate illicit connections and discharges to the stormwater system affecting the Phase II NPDES Permit. The Portage Creek/Arcadia Creek watershed is the primary watershed covering the City of Kalamazoo. It includes Portage Creek, the West Fork of Portage Creek, Arcadia Creek, and Axtell Creek. The Kalamazoo River Main Stem Corridor 3 is the secondary watershed, including Davis Creek (Davis-Olmstead Drain). KVCC has two main "campuses", one within the Arcadia Creek watershed and one within the Portage Creek watershed.

KVCC's Stormwater Sewer System Map including the two KVCC campuses covered under the City of Kalamazoo's MS4 Permit is provided in Appendix D. Additional detailed maps are also included in Appendix D showing specific features of each building's stormwater sewer system, and the identification of all KVCC's stormwater assets.

KVCC's Stormwater Sewer System Map (and all updated versions) will be available for public inquiries at Anna Whitten Hall upon request via Terry Sibbersen, Facilities Site Manager, or Dannie Alexander, Director of Facilities and Construction Management. (The map will also be available as part of the SWMP posted utilizing a newsletter publication, social media resources and/or their website (which ever delivery mechanism is available) for review and comment.

a) Stormwater sewer system maps

KVCC's Stormwater Sewer Systems located on the two KVCC watersheds covered under the City of Kalamazoo's MS4 Permit are as follows:

Arcadia Creek Watershed

- The Anna Whitten Hall (AWH), 202 N. Rose Street, Kalamazoo, MI 49007
- The Center for News Media (CNM), 100 E. Michigan Avenue, Kalamazoo, MI 49007
- Kalamazoo Valley Museum (KVM), 230 N. Rose Street, Kalamazoo, MI 49007

Portage Creek Watershed

- The Food Innovation Center (FIC), 224 E. Crosstown Parkway, Kalamazoo, MI 49007 and,
- The Culinary/Allied Health Building (CAH), 418 E. Walnut Street, Kalamazoo, MI 49007.

b) Prioritizing areas for dry weather screening

KVCC has 19 discharge points into the City of Kalamazoo's MS4 system. On a once per four-year basis, KVCC will conduct dry weather screening to identify illicit discharges or connections that exist within its system. At a minimum KVCC will conduct 4 outfall field evaluations each year for dry weather flow.

c) Performing dry weather screening

KVCC will perform dry weather screening utilizing the City's IDEP Action Chart for Outfall Field Evaluation, the Dry Weather Screening Form for field documentation and the IDEP Follow-up Investigation Report Form. (Template forms are provided in Appendix E.)

Outfalls will be screened on a once every four-year cycle, minimally 4 per year. Dry weather screening will be performed after at least 48 hours of any precipitation. Observations will be recorded on the field logs developed for the program. When flow is observed, staff will conduct field screening and document any unusual conditions, such as the presence/absence of flow, changes in water clarity, color, and odor; the presence of suds, oil sheens, sewage, floatable materials, bacterial sheens, algae, and slimes; and the staining of the banks or unusual vegetative growth. If warranted based on observations of unusual conditions or if the source of the illicit discharge is unknown, water samples from the outfall will be attempted for analysis including: temperature, pH, surfactants, ammonia, fecal coliform and/or fluoride. In addition, staff will also investigate undocumented connections and the integrity of the discharge structure.

Procedure: *(A minimum of two employees should investigate outfalls for safety reasons.)*

1. Locate outfalls to be investigated during a field investigation.
2. Conduct field observations to determine if any dry weather flow is present. If the source is not identified, the field screening will be conducted the same day for further investigation.
3. Conduct field screening if flow is observed at an outfall or point of discharge, and the source of an illicit discharge is not identified during the field observations. Record any unusual conditions, such as the:
 - presence/absence of flow, changes in water clarity, color, and odor;
 - the presence of suds, oil sheens, sewage, floatable materials, bacterial sheens, algae, and slimes; and,
 - the staining of the banks or unusual vegetative growth.

4. Investigate undocumented connections and the integrity of the discharge structure. Check outfalls during this reporting period that had dry weather flows for those confirmed as being either from dewatering, groundwater infiltration, surface water infiltration, air conditioning condensate, and/or NPDES discharge permits.
5. If warranted based on observations of unusual conditions, water samples from the outfall will be attempted for analysis including:
 - temperature,
 - pH,
 - surfactants,
 - ammonia,
 - fecal coliform and/or,
 - fluoride.
6. Record observations on the Dry Weather Screening Form.
7. Record GPS coordinates if no coordinates are in the system.
8. Take a picture of the outfalls.

Dry Weather Flow Present:

If flow from the outfall is obviously sanitary sewage discharged from the City of Kalamazoo's sanitary system, or if the source of flow from the outfall is not obvious, contact the City for assistance in identifying the source. Immediately contact the City of Kalamazoo's Wastewater Reclamation Plant, Treatment Operators Supervisor at 269-337-8681, or the Environmental Programs Manager at 269-337-8583.

Illicit Discharge Source Identification

Once an illicit discharge has been detected and the source is not obvious, the City will assist KVCC with conducting further investigation in accordance with the City's SWMP, Attachment C, Pages 14- 16 and its Appendix for the documentation forms. Tracking, identification and elimination will be recorded on the investigation report (Appendix E). KVCC will use any of the following methods:

- Upstream manhole investigation, to be completed on the day the discharge was detected,
- Indicator parameter testing, to be completed on the day the discharge was detected,
- Video testing,
- Dye testing,
- Smoke testing,
- Drainage area investigations,
- Documented visual observation or physical indicators, and/or
- Homeowner surveys and surface condition inspections for on-site sewage disposal systems.

Eliminating Illicit Discharges, Prioritization Schedule

If an illicit discharge is reported, or a complaint is filed, it will be investigated within 24 hours. If an illicit discharge is reported, identified and confirmed, through sampling or other means described above, KVCC will further assist to identify the source, and the source will be stopped immediately. Downstream stormwater sewers will be cleaned and vacuumed within 24-hours to prevent any further influence on surface waters. Illicit discharge response activities will be fully documented and kept in a separate file maintained by KVCC staff. Illicit discharge response activities along with field inspection sheets will be kept during each permit reporting period. IDEP response information is outlined below in further detail.

The prioritization schedule detailed below will be implemented to eliminate confirmed illicit discharges.

Conditions-Highest To Lowest Priority	Permanent Fix Timeline
Dry Weather Significant Illicit Discharges - untreated or partially treated human sewage	24 hours to eliminate the discharge; 72 hours response activities complete
Dry Weather Significant Illicit Discharges – non-sewage related, but meets 24-hour notification criteria	24 hours to eliminate the discharge; 72 hours response activities complete
Dry Weather Significant Illicit Discharges - does not meet 24-hour notification criteria	48 hours to eliminate the discharge; 60 days response activities complete
Dry Weather Non-Significant Illicit Discharges	48 hours to eliminate the discharge; 60 days response activities complete
Wet Weather Illicit Discharges	24 hours to eliminate the discharge; 60 days response activities complete

Responding to Illegal Dumping and Spills

KVCC's response to illegal spills and dumping will be in line with the City's SWMP, Attachment C, Pages 11, 13 and 14, and Attachment A, Sections 29-11 through 29-18.

Public Calls and Other Contacts

A public reporting system for illicit discharges and/or connections has been prepared by the City to record, investigate, source identify, and perform corrective action in an attempt to resolve reports to the maximum extent practicable. KVCC's response to public calls and other contacts will be in accordance with the City's SWMP, Attachment C, Page 16; IDEP Appendix. It is important to note that neither City nor KVCC staff are certified or trained as "First Responders" to chemical spills. Consequently, decisions regarding any required immediate and/or remedial actions will be directed to the Kalamazoo County HazMat Team who will make the determination whether they contact an appropriate remedial firm to perform the necessary remedial action and invoice the responsible party, or if the responsible party will directly retain the necessary firm. The City has pre-qualified firms available to perform emergency remedial work if a responsible party is not immediately identified. Subsequently, the City would attempt to identify a responsible party to collect reimbursement for accrued expenses. As necessary, KVCC may contact an appropriate remedial firm to perform the necessary remedial action.

The public reporting system for incidents within the City of Kalamazoo limits is as follows:

- For emergency or non-emergency incidents during regular business hours (8 a.m. to 5 p.m.) affecting City utilities, calls/reports from the public regarding illicit discharges and connections are typically made to the Kalamazoo Environmental Programs Manager at 269-337-8583 or the Environmental Services Supervisor at 269-337-8365.
- If the incident involves sanitary sewage discharged from the City of Kalamazoo's sanitary system, or if the source of flow from the outfall is not obvious, immediately contact the City of Kalamazoo's Wastewater Reclamation Plant, Treatment Operators Supervisor at 269-337-8681, or the Environmental Programs Manager at 269-337-8583. Sanitary sewer overflows (SSOs) should be reported to MDEQ Water Resources Division, Water Quality Unit, Marcus Tironi at 269-330-9468.
- For emergency incidents during non-business hours (5 p.m. to 8 a.m.) affecting City utilities, calls/reports from the public regarding illicit discharges and connections are made to the water emergency number at 269-337-8148, where they are handled by the Community Answering Service (CAS). Subsequently, the CAS is directed to immediately forward the calls to the Kalamazoo

Department of Public Safety (Central Dispatch) at 269-337-8994 to request that the Hazmat Team respond to the report. If appropriate or necessary, staff will also contact the Kalamazoo County IDEP Hotline at 269-381-3171 and the MDEQ Pollution Emergency Alert System (PEAS) Hotline 1-800-306-6837.

KVCC:

For all emergency or non-emergency incidents, calls/reports from the public are made to the KVCC Public Safety Department at 269-488-4575.

All KVCC recipients of these calls are directed to forward these calls to Public Safety. Public Safety will report these calls to KVCC management staff. Management staff will consider each report and prioritize it based on all available information. Management staff will then determine the appropriate response, based on the information provided and the availability of staff. Response options include, but are limited to, sending facilities staff to the site to perform an initial field assessment regarding the need for field/source investigations, or whether the Public Safety Central Dispatch (269-337-8994) should be contacted to request that the Hazmat Team be dispatched to the site, or staff may immediately contact Central Dispatch prior to performing an initial field assessment.

Training Staff

The City follows the Employee and Contractor training process as outlined in their SWMP Table 2 provided in their 2015 Stormwater NPDES Permit Application and 2016-2017 revisions. KVCC will utilize the City of Kalamazoo's revised Table 2: Stormwater Management Plan – Revised 2019 included in Appendix C. In conjunction and with approval of the City, KVCC will utilize the City's training process summarized below. Other communication strategies will be considered as publication schedules and internal discussions are made.

Training will be given to existing staff who are involved in illicit discharge-related activities on a once per five-year cycle beginning in 2019. New staff will be trained within the first year of hire.

Contractors hired by KVCC performing work that may affect the MS4 system will be required to have training per the contract specifications. KVCC will integrate stormwater control requirements into bid specifications, contractor training/certification and documentation.

The training will include:

- The definition of illicit discharges and connections;
- Techniques for finding illicit discharges, including field screening, source identification, and recognizing illicit discharges and connections;
- Methods for eliminating illicit discharges and the proper enforcement response;
- Techniques for sampling, analyzing, and recording information;
- Recognition of naturally occurring phenomena and their sources (bacteria sheens, slimes, and films; bryozoans, pollen, blue-green algae, green algae, tannins, and foams); and,
- Continued use of the Excel DVD "Storm Watch Municipal Storm Water Pollution Prevention, the MDEQ DVD "Storm Water Employee Training" for employee training, and the more specific IDEP focused DVD "Illicit Discharge Detection & Elimination A Grate Concern."

Illicit Discharge Elimination Program Effectiveness

KVCC will review the effectiveness of the IDEP in a manner similar to the City per their SWMP, Attachment C, Page 18. The IDEP will be evaluated by using the following:

- KVCC outfalls will be screened once per four-year cycle. Annual reports will include information on screening activities. In addition, reports will include an assessment of the screening.
- The number of illicit discharges/connections identified versus the number eliminated will be reported in annual reports. Also, difficulties in identifying, correcting illicit discharges/connections, and any enforcement issues will be contained in reports.
- Annual reports will contain information on any complaints by the regarding illicit discharges.
- The frequency of staff/contractor training will also be assessed during the permit period.

Annual Reporting

KVCC will document actions taken to eliminate illicit discharges and connections. KVCC will prepare IDEP reports in a manner approved by the City and in accordance with their SWMP, Attachment C. Annual reports will summarize the total estimated volume and pollutant load eliminated for the main pollutants of concern, and the locations of the discharges into both the City MS4s and the receiving water, if applicable. The annual report can be submitted to the City using the Annual Phase II Municipal Separate Storm Sewer System Report included in Appendix F or any future format required by the MDEQ.

Recordkeeping

KVCC will keep and maintain all IDEP records of:

- IDEP investigations and field logs,
- Records of actions taken to eliminate illicit discharges,
- Records of total estimated volume and pollutant loads eliminated, and
- Employee training records.

Illicit Discharge Ordinance

KVCC implementation and the enforcement of the IDEP will be in accordance with the City of Kalamazoo's Ordinances that are associated with water quality, primarily:

- Chapter 29 of the City of Kalamazoo Code of Ordinances (Stormwater System),
- Chapter 30 of the City of Kalamazoo Code of Ordinances (Soil Erosion and Sedimentation),
- Ordinance 1825 (Wellhead Protection Overlay), and,
- Ordinance 1826 (Performance Standards).

Chapter 29 of the City of Kalamazoo Code of Ordinances is included in the City's SWMP as Attachment A, 29-4A. Answers to specific questions in the City's Permit Application, SECTION VII. STORMWATER MANAGEMENT PROGRAM, Illicit Discharge Ordinance, are provided below after the permit application question number:

21. See Attachment A, 29-4A.
22. See Attachment A, 29-4A(3).
23. See Attachment A, 29-4A(3).
24. See Attachment A, 29-4A and 4B.
25. See Attachment A, 29-4A and 4B.
26. See Attachment A, 29-7, 8, 11.
27. See Attachment A, 29-11, 13, 14.

Construction Stormwater Runoff Control Program

KVCC's implementation of the Construction Stormwater Runoff Control (CSRC) Program will be in accordance with Chapter 30 of the City of Kalamazoo Code of Ordinances (Soil Erosion and Sedimentation). KVCC agrees to comply with all necessary measures to report, address, and resolve stormwater quality issues, using the City of Kalamazoo's ordinances or other regulatory plans, related to construction stormwater runoff control. These efforts include the training of appropriate staff and contractors on construction stormwater runoff control and the use of approved Best Management Practices.

The City is the Municipal Enforcing Agency (MEA) for Part 91 of Act 451, and as such, KVCC will follow Attachment D of the City's SWMP. Answers to specific questions in the City's Permit Application, SECTION VII. STORMWATER MANAGEMENT PROGRAM, Construction Stormwater Runoff Control, are provided below after the permit application question number:

28. See Attachment D "Construction Stormwater Runoff Control" section "Notifications," and Attachment E that contains Chapter 30 of the City Code of Ordinances "Soil Erosion and Sedimentation Control."
29. See Attachment D "Construction Stormwater Runoff Control" section "Notifications," and Attachment E that contains Chapter 30 of the City Code of Ordinances "Soil Erosion and Sedimentation Control."
30. See Attachment D "Construction Stormwater Runoff Control" section "MEA for SESC," Attachment E that contains Chapter 30 of the City Code of Ordinances "Soil Erosion and Sedimentation Control," and Attachment F "City of Kalamazoo Code of Ordinances Appendix A – Zoning Ordinance" Section 8.3 H1.d and H7.I.

For all CSRC program issues related to Ordinance 30, KVCC will directly interact with the City's MEA, the Department of Community Development and Planning Department, Code Administration Division, by calling 269-337-8566. For all CSRC program issues related to utility work within a right-of-way, KVCC will directly interact with the City's MEA, the Department of Public Services, Engineering Division, by calling 269-337-8697.

To report discharges of sediment to surface waters of the state, KVCC will:

1. Follow the IDEP procedures.
2. Contact the MEA soil erosion agent at the City of Kalamazoo.
3. Contact the MDEQ, Kalamazoo District Office, Water Resources Division at 269-568-2699 or 269-567-3500.
4. As necessary, contact the PEAS Hotline at 800-292-4706.

When required during construction projects, KVCC will obtain a Part 91 Soil Erosion and Soil Control permit through the City's MEA in accordance with Rule 1709 promulgated under the authority of Part 91, Soil Erosion and Sedimentation Control (SESC), of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. A copy of the City's SESC permit application is provided in Appendix G.

Post Construction Stormwater Control for New Development and Redevelopment Projects

Post-construction controls are necessary to maintain or restore stable hydrology in receiving waters by limiting surface runoff rates and volumes, and reducing pollutant loadings from sites that undergo development or significant redevelopment.

- KVCC will comply with their December 3, 2013 Stormwater Management Procedures (refer to CMOP 2072) to implement their Post-Construction Stormwater Controls. (Please note that the title of the person responsible to "promulgate procedures/guidelines" is not current. The title should now read "Executive Vice President for Enrollment and Campus Operations".)
- KVCC will comply with existing and future City of Kalamazoo ordinances or regulatory mechanisms to implement the Post-Construction Stormwater Controls.
- On at least a once every five-year basis or within the first year of hire, KVCC will provide training to appropriate staff on post-construction site stormwater runoff control and the use of approved BMPs.
- KVCC will provide documentation to the City of Kalamazoo of the use of Post-Control Stormwater Control BMPs to control runoff.
- KVCC will respond to any complaints received regarding stormwater runoff control at the facilities and inform the City of the details of the complaint and its resolution within 14 days of the complaint.

As an example, KVCC's most recent 2017 Stormwater Calculations for Pre- and Post-Development are provided along with the stormwater system maps in Appendix D.

Pollution Prevention and Good Housekeeping Activities for Municipal Operations

Introduction

The Pollution Prevention and Good Housekeeping (P2/GH) Program is designed to help reduce pollutants in surface runoff from facilities. KVCC outlines specific actions and implementation schedules for P2/GH to minimize pollutant runoff to the maximum extent practicable from its operations that have the potential to discharge stormwater to surface waters of the state.

KVCC's Stormwater Sewer System Map (and all updated versions) will be available for public inquiries at Anna Whitten Hall upon request via Terry Sibbersen, Facilities Site Manager, or Dannie Alexander, Director of Facilities and Construction Management. (The map will also be available as part of the SWMP posted utilizing a newsletter publication, social media resources and/or their website (which ever delivery mechanism is available) for review and comment.

Municipal Facility and Structural Stormwater Control Inventory

KVCC is considered a "Public School" which owns municipal properties and maintains a variety of structural stormwater controls. Below is a summary of the facilities and structural stormwater controls owned or operated within the urbanized area of Kalamazoo. Updating and revising the inventory is performed within 30 days following the adding or removing of a facility or structural stormwater control. KVCC staff will report changes to the City of Kalamazoo and the Information Technology staff that manage the assets database and maps to make the necessary changes to properly update the information. Changes to the facilities and structural storm water controls include additions, removals, or other structures no longer owned or operated by KVCC. This information will also be included in the City's Annual Phase II Municipal Separate Storm Sewer System Report (Appendix F).

List of KVCC Stormwater Assets – March 2019

- 19 outfalls
- 10 catch basins and outlets
- 2 manholes
- 4 raingardens
- 1 cistern
- 3 porous pavements
- 3 porous paver sidewalks
- 2 bioswales

A list of KVCC's stormwater points of discharge to surface water is provided as Appendix A, Table 1. KVCC's Stormwater Sewer System Map including the two KVCC campuses covered under the City of Kalamazoo's MS4 Permit is provided in Appendix D. Additional detailed maps are also included in Appendix D showing specific features of each building's stormwater sewer system, and the identification of all KVCC's stormwater assets.

Facility-Specific Stormwater Management

Facilities are assessed for the potential to discharge any of the following pollutants to surface water of the state such as sediment, salt, lawn clippings, oil sheens from dripping vehicles, nutrients from soil and fertilizer, heavy metals, phosphorus attached to soil particles. The BMPs are necessary to prevent pollutants from discharging to the surface water.

The following factors were considered for selection of the BMPs:

- Amount of urban pollutants stored at the site,
- Identification of improperly stored materials,
- The potential for polluting activities to be conducted outside,
- Proximity to waterbodies,
- Poor housekeeping practices, and
- Discharge of pollutants of concern to impaired waters.

Updating and revising the assessment will be 30 days prior to discharging stormwater from a new facility, and within 30 days of determining a need to update/revise the facility assessment. Data can be documented using a form similar to the following:

Facility	Facility Description	Address	Potential Pollutant Discharge to Surface Water	Potential Pollutant Activities	Prioritized Facilities
AWH	Classroom building	202 N. Rose St.	Low	Storm water runoff from street to raingardens 1 & 2 BMP1, BMP2, BMP3, BMP4, BMP5, BMP6, BMP7	3 - New raingardens will catch most pollutants
CNM	Classroom building	100 E. Michigan Ave.	Low	None BMP1, BMP2, BMP3, BMP5, BMP6, BMP7	5 - Only roof drains at this building
KVM	Museum	230 N. Rose St.	Low	Sidewalk salting BMP1, BMP1, BMP2, BMP3, BMP5, BMP6, BMP7	4 - New raingarden will catch runoff
FIC	Self-contained greenhouse	224 E. Crosstown Pkwy.	Low	Parking lot runoff and sidewalk salting BMP1, BMP2, BMP3, BMP4, BMP5, BMP6, BMP7	2 – 3-year old structures. Worked with DEQ to design; riparian O&M
CAH	Classroom & lab building	418 E. Walnut St.	Low	Parking lot runoff and sidewalk salting BMP1, BMP2, BMP3, BMP4, BMP5, BMP6, BMP7	1 – 3-year old structures; Worked with DEQ to design; riparian O&M

KVCC facilities have parking lots with stormwater discharge. Implemented BMPs (provided in Appendix C, Table 2) are referenced in the table above. Utilized BMPs are described below:

- Snow removal and deicing operations for KVCC are contracted and snow is stored mostly in lawn areas to minimize runoff (*Reference **BMP1** listed in Appendix C, Table 2, Row 16*).
- Pavement maintenance is contracted including street sweeping and vactoring for pervious pavement (*Reference **BMP2** listed in Appendix C, Table 2, Row 11*).
- Property /grounds and riparian buffer strip maintenance is contracted. KVCC will comply with the City's "Lawn Care Guidelines for Parks, Greenspaces, and Along Waterways". The contractor knows to keeps clippings and leaves picked up, to mow at scheduled frequencies, and maintain the natural vegetative buffer strips (*Reference **BMP3** listed in Appendix C, Table 2, Rows 12, 13 & 23*).
- Pesticide and herbicide use by a certified pesticide applicator only occurs when vegetation cannot be handled by mowing and poses a traffic hazard. Fertilizer is used to encourage growth in the lawn areas. This fertilizer contains no phosphorus (*Reference **BMP4** listed in Appendix C, Table 2, Row 24*).
- Vehicle Maintenance and fueling is done at the “vehicles building” at our Texas Township Campus (*Reference **BMP5** listed in Appendix C, Table 2, Row 4*).

- Small quantities of chemicals for facility maintenance are stored indoors away from storm drains. Trash receptacles are placed where the discharge of contaminants to surface water is unlikely. Dumpsters are maintained to minimize impact to the storm sewer system. Lids are kept closed. KVCC owns and operates stormwater control structures including catch basins and outfalls, pervious pavement parking lots, rain gardens, and cistern (*Reference BMP6 listed in Appendix C, Table 2, Row 10*).
- KVCC has approximately 9 catch basins to maintain at both the BLHC and ACC campuses (*Reference BMP7 listed in Appendix C, Table 2, Row 15*).

Structures are inspected on an annual basis by the KVCC facilities staff and maintenance is recommended to Field Services as necessary.

Structural Stormwater Control Operation and Maintenance (O&M)

O&M inspection and updating/revising the O&M assessment data should be conducted routinely. Data can be documented using a form similar to the following:

Structure/ ID#	Location	O&M Completed

Note: * denotes outlets to surface waters of the State

Catch Basins: Inspection/Maintenance/Cleaning Prioritization and Location

Catch basin inspection, maintenance, and cleaning are based on heavy traffic areas and problem spots for KVCC. Top priority is given to those catch basins in heavy traffic areas. KVCC prioritizes catch basin cleanout annually based on facility staff inspections and functionality of the system. Catch basin/inlet cleanings are only done primarily in response to reports of localized flooding due to obstructions or sediment build-up. The criteria used to determine if cleanout is necessary will typically be when the sump is 1/3 to 1/2 full of sediment.

Catch Basin Maintenance/Inspection Procedure

KVCC has several catch basins at both facilities. During the spring, summer, and fall seasons, KVCC facilities staff will inspect catch basins and raingarden for damage, sediment buildup, and functional ability. KVCC surface cleans catch basins at a minimum of once per season or as necessary for flooding or unpredictable incidences.

If surface cleaning is insufficient or when the catch basin becomes 1/3 to 1/2 full of sediment, KVCC facilities staff will contract to have a vactor truck remove debris and water. The contractor will be responsible for the proper disposal of the removed debris and water. This process is in line with the City's process for catch basin maintenance and inspection procedure.

KVCC contracts to repair or replace damaged infrastructure based on reports of failing or failed structures or planned road improvements. Catch basins are also inspected during IDEP investigations, and when functional problems are observed or reported. Disposal of maintenance waste materials is always performed in accordance with regulatory requirements.

The amount of sediment collected, the location, and the frequency of devices being cleaned is tracked.

Additional Stormwater Controls Inspection/Maintenance Procedures

Below are the inspection and maintenance procedures for addition stormwater structural controls. Updating and revising the procedure will be 30 days following the implementation of a new structural stormwater control.

Municipal Operations and Maintenance Activities

The City follows the operations and maintenance processes as outlined in their SWMP Table 2, Rows 1, 8, 10, 11, 14, 16, 17, 18, and last column as provided in their 2015 Stormwater NPDES Permit Application and 2016-2017 revisions. In conjunction with the City, KVCC will utilize the City's applicable processes as summarized below.

KVCC will utilize the City of Kalamazoo's revised Table 2: Stormwater Management Plan – Revised 2019 included in Appendix C. KVCC utilizes the same BMPs for operations and maintenance activities as are outlined in the Facility-Specific Stormwater Management processes:

- *Reference **BMP1** listed in Appendix C, Table 2, Row 16*
- *Reference **BMP2** listed in Appendix C, Table 2, Row 11*
- *Reference **BMP3** listed in Appendix C, Table 2, Rows 12, 13 & 23*
- *Reference **BMP4** listed in Appendix C, Table 2, Row 24*
- *Reference **BMP5** listed in Appendix C, Table 2, Row 4*
- *Reference **BMP6** listed in Appendix C, Table 2, Row 10*
- *Reference **BMP7** listed in Appendix C, Table 2, Row 15*

Roadways, Parking Lots, and Bridges

Parking lot maintenance: Pavement maintenance operations such as sweeping, sealing, saw cutting, vactoring and tack coating for new pavement placement are contracted or conducted by KVCC personnel as necessary. Prioritization of pavement maintenance operations is determined on an as needed basis. The prioritization schedule is reviewed annually.

Sweeping: Sweeping operations are contracted and completed bi-annually or as necessary based on observed conditions throughout the year. The prioritization is based on the current conditions and use of the parking lots, which is reviewed annually.

Vactoring: Vactoring pervious pavement operations are contracted and completed bi-annually or as necessary based on observed conditions throughout the year. As necessary and based on prioritization, the City will assist KVCC with vactoring capabilities. The prioritization is based on the current conditions and use of the pervious parking lots, which is reviewed annually.

Snow Removal/Salt Application: Snow removal and deicing operations are contracted and snow is stored to minimize runoff.

Vehicle Washing: Vehicle maintenance and fueling is done at the "vehicles building" located at our Texas Township Campus.

Managing Vegetated Properties

KVCC contractors mow the building grounds. Contractors are trained as certified chemical applicators and are allowed to apply fertilizers, pesticides and herbicides.

- Fertilizers – KVCC lawn care contractors use fertilizer to encourage growth in the lawn areas. The fertilizers do not contain phosphorus.
- Pesticides – On occasion, pesticides are used for wasp control and grub control.
- Herbicides – Herbicides have been used for weed control on a spot treatment basis.

Riparian Buffer Strips

Contractors hired to perform lawn maintenance activities within riparian buffer strips along the streams running through KVCC's property are expected to comply with pollution prevention and good housekeeping BMPs. Lawn care contractors are required to manage the riparian buffer zone by mowing at recommended frequencies taking care not to allow woody growth, but rather to encouraging the native plant growth. Contractors are inspected by the KVCC staff. Contract language has been modified to include P2/GH expectations.

Contractor Requirements and Oversight

Contractors hired to perform maintenance activities are expected to comply with pollution prevention and good housekeeping BMPs. Contractors are inspected by the KVCC staff. Contract language has been modified to include P2/GH expectations.

Employee Training

Training will be given to existing staff who are involved in KVCC facilities operations outlined above on a once per five-year cycle. New staff will be trained within the first year of hire. Specific training for contractors will be done prior to work being performed.

The training topics will include the effects of pollutants on water quality entering the MS4, such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, stormwater system maintenance, and any other activities as specified in the permit. The training schedule is listed below and outlined in the following table:

- For existing employees, one training session within the first year of the Nested Jurisdiction Agreement with the City of Kalamazoo;
- For new employees, one training session during the first year of employment; and,
- For contractors, the permittee shall ensure that the contractors are trained before they perform the contract work. (Note: KVCC includes stormwater control requirements in their bid specifications.)

Employees	Training Frequency
KVCC Facilities Staff	1 per 5-year permit cycle
Seasonal	At time of hire
Contractors	As needed and before contract work is performed.

Total Maximum Daily Load - Total Phosphorus

The Kalamazoo River Watershed and Lake Allegan, an impoundment of the Kalamazoo River, have a designated Total Maximum Daily Load (TMDL) for phosphorus. A “Cooperative Agreement” was created and enacted by the wastewater (point) dischargers within the watershed to voluntarily reduce their NPDES permitted phosphorus loadings during the key growing period of the year, April through September. Through studies by the MDEQ, 33% of the phosphorus load was estimated to be from point sources of pollution. Non-point source (NPS) pollution, the more diffuse and difficult type of pollution to control, was estimated to comprise 76% of the phosphorus inputs to the watershed.

The effort to reduce both point source and NPS pollution necessitated the development of the document “Lake Allegan/Kalamazoo River Watershed TMDL Implementation Strategic Plan for 2012 and Beyond” (TMDL Strategic Plan). Currently KVCC does not utilize fertilizers or other products with phosphorus. KVCC will adhere to the TMDL Strategic Plan by implementing BMPs when opportunities arise including but not limited to reduced discharge, sweeping, installation of rain gardens or asset cleaning. If in the future the circumstances change, this document outlines several strategies that KVCC could employ to reduce phosphorus including but not limited to soil erosion prevention, sweeping and the operation and maintenance of the facilities assets. KVCC will pursue sediment and phosphorus reduction efforts as applicable and will participate in the public education and outreach efforts as outlined in Appendix B, Table 5, the Stormwater Public Education Plan – Revised 2019.

Appendices

***Appendix A* - MS4 NPDES Application: Table 1 – KVCC MS4
Points of Discharge**

MS4 NPDES Application: Table 1 - KVCC MS4 Points of Discharge

Outfall ID	Location Description	Discharge Type	Pipe Size	Discharge Location	GPS Location
AWH GWS1	Anna Whitten Hall	Ground water sump	6"	City Storm @ Water St.	42.292790,-85.584406
AWH RD1	Anna Whitten Hall	Roof drains	8"	City Storm @ Water St.	42.292790,-85.584406
AWH RG1	Anna Whitten Hall	Infiltration structure with overflow	6"	City Storm @ Water St.	42.292679,-85.583817
AWH RG2	Anna Whitten Hall	Infiltration structure with overflow	6"	City Storm @ Water St.	42.292683,-85.583573
AWH RG3	Anna Whitten Hall	Infiltration structure with overflow	6"	City Storm @ Water St.	42.292726,-85.583682
CNM RD1	Center for New Media	Roof drains	4"	City Storm @ Kalamazoo Mall/E. Michigan Ave.	42.292004,-85.583118
CNM RD2	Center for New Media	Roof drains	8"	City Storm @ Kalamazoo Mall/E. Michigan Ave.	42.292242,-85.583054
CAH PLD1	Culinary & Allied Health	Pervious lot drain	8"	Portage Creek	42.285243,-85.577491
CAH PLD2	Culinary & Allied Health	Pervious lot drain	8"	Portage Creek	42.285538,-85.577130
CAH PLD3	Culinary & Allied Health	Pervious lot drain	8"	Portage Creek	42.285679,-85.577035
CAH RD1	Culinary & Allied Health	Roof drains	8"	Portage Creek	42.285832,-85.577695
CAH RD2	Culinary & Allied Health	Roof drains	12"	Portage Creek	42.285491,-85.578196
FIC PLD1	Food Innovation Center	Pervious lot drain	8"	Portage Creek	42.280125,-85.578042
FIC PLD2	Food Innovation Center	Pervious lot drain	8"	Portage Creek	42.280419,-85.578104
FIC PLD3	Food Innovation Center	lot drain and overflow for cistern	8"	Portage Creek	42.280604,-85.578304
FIC RD1	Food Innovation Center	Roof drains	12"	Axtell Creek	42.281071,-85.580165
KVM RD1	Kalamazoo Valley Museum	Roof drains	8"	City Storm @ Eleanor St.	42.293405,-85.583636
KVM SD1	Kalamazoo Valley Museum	Sidewalk drain	6"	City Storm @ Rose St.	42.293211,-85.584732
KVM RG1	Kalamazoo Valley Museum	Infiltration structure with overflow	6"	City Storm @ Rose St.	42.293281,-85.584520

***Appendix B* - Table 5: Stormwater Public Education Plan 2016-17 Progress Report – Revision 2019**



TABLE 5: Stormwater Public Education Plan 2016-17 Progress Report - Revision 2019

Public Education Message	Target Audiences	Key Messages	Delivery Mechanism or Activity	Timeline for Development	Timeline for Implementation	Responsible Party	Evaluation Method	Progress
Personal Watershed Stewardship	Residents, visitors, public employees, students; businesses, institutions, construction contractors, and developers.	Definition of a watershed; education on specific watershed(s) that public can affect; purpose for protecting watershed; ways human activities can affect watersheds.	City's protectyourwater.net website; City's pre-movie theatre ads; radio ads; Metro Bus Ads; City's annual Consumers Confidence Report/Water Quality Report (CCR); classroom presentations and demonstrations; facility tours; event presentations/model demonstrations (Groundwater Simulator and EnviroScape), static displays; material distribution (e.g. "Storm Watch" and "Brown Water, Green Weeds" brochures, sponges). KVCC Ref. B, C, E, G, H & I	Already developed: Website; pre-movie theatre ads; radio ads; Metro Bus ads; CCR; A View from the Curb; classroom presentation format and models; static display; and some materials for distribution (e.g., handouts, sponges).	Already implemented: website; pre-movie theatre ads (Kalamazoo 10 and Celebration Cinema); radio ads; Metro Bus ads; A View from the Curb (bi-annually); CCR annually in July; City staff participation as booth attendees at the annual Home Show (if selected); goal of two presentations and/or demonstrations and two tours a year.	City of Kalamazoo Environmental Services/Water Resources Division staff. Other participants may be the Kalamazoo River Watershed Council (KRWCC), Portage & Arcadia Creeks (P & A) Steering Committee and Kalamazoo River Mainstem 3 Corridor (KRM3C) Steering Committee, the Environmental Concerns Committee (ECC), the Kalamazoo Area Stormwater Work Group, and WHP Committee.	O & M of City's website, pre-movie ads, radio ads, Metro Bus ads; number of presentations, materials distributed, events participated in; feedback received from community. Third Public Survey (2017). KVCC Reference F	Continued use of www.protectyourwater.net platform with new stormwater sections, movie theater ads, new placards for Metro Bus Display campaign, and collaborative radio education campaign with City of Battle Creek using WKFR 103.3 FM and WRKR 107.7 FM. Distributed numerous materials and participated in numerous events where we incorporated stormwater, TMDL, and groundwater education into the same events. Annual Water Quality Report (CCR) had sections on stormwater and watershed management. See Table 4 for additional details. See text for brief Public Survey comments.
Ultimate Stormwater Discharge Location and Potential Impacts	Residents, visitors, public employees, students; businesses.	Discharges to surface water.	Maintain stormwater asset markers, and consider additional locations. On-line GIS shows stormwater assets, including outfalls. Use of Annual Water Quality Report (Consumers Confidence Report). KVCC Reference D	Already developed stormwater asset marker installation plan, CCR text, and on-line GIS.	Already installed approximately 420 markers to selected catch basins/inlets. 55 read "No Dumping Drains to Lake" and the rest read "No Dumping Drains to River." Goal is to install markers in additional areas by 2013, dependent upon resources. On-line GIS already available.	City of Kalamazoo Environmental Services/Water Resources Division staff. Other participants may be the Kalamazoo River Watershed Council (KRWCC), Portage & Arcadia Creeks (P & A) and Kalamazoo River Mainstem 3 Corridor (KRM3C) steering committees, the Kalamazoo Area Stormwater Work Group, private organizations and citizens.	Number of markers installed and maintained. Continued availability of on-line GIS; continued movie theater ads, radio ads, and website; continued presentations and model demonstrations.	Maintained approximately 533 markers on selected catch basins/inlets. Maintained use of and currency of on-line and internal GIS database. Continued to rotate movie ads associated with stormwater. Maintained and made available new IDEP Brochure. Revised Performance Standards in 2015 that considers stormwater controls and outfall locations.
Public Reporting of Illicit Discharges	Residents, visitors, public employees, students, businesses, construction contractors, and developers.	Definition of illicit discharges/connections; illicit discharges can adversely impact surface and groundwater; importance of and how to detect and report known and suspected illicit discharges to City and/or MDNRE; City ordinances.	protectyourwater.net website, the City's main website, the CCR, movie ads, radio ads, presentations, and staff training. Internal communication/protocol regarding roles & responsibilities in handling reports (e.g. Hazmat Team and staff support). New IDEP Brochure for citizens, and staff training.	Already developed: websites; movie ads, radio ads, Metro Bus ads, CCR; A View from the Curb; classroom presentation format and models; static display; staff training, and some materials for distribution (e.g., handouts, sponges); use the P & A slogan "What gets to the street, gets to the creek!" Partner in development of IDEP Brochure.	Will continue during permit period as budget and resources allow: message on websites, movie ads, radio ads, the CCR, and in A View from the Curb. Will continue to discuss the issue during many classroom presentations and model demonstrations, use static display, and use the P & A slogan "What gets to the street, gets to the creek!" Training for new staff.	City of Kalamazoo Environmental Services /Water Resources Division staff. Other participants may be the Kalamazoo River Watershed Council (KRWCC), Portage & Arcadia Creeks (P & A) and Kalamazoo River Mainstem 3 Corridor (KRM3C) steering committees, ECC, the Kalamazoo Area Stormwater Work Group, and WHPP Committee.	Existence of a public reporting system. Number of reports received/logged; number of responses to calls; number of and variety of strategies to inform public on the importance of and how to report illicit discharges and connections. Implementation of staff training.	Maintained public reporting system, with specific forms for recording report and follow-up actions (see IDEP section of SWPPI and Table 3 in text of Progress Report. Used annual Consumers Confidence Report (CCR) to state report mechanism. www.protectyourwater.net has IDEP information, and there are stormwater movie theater ads, New collaborative IDEP Brochure and discussions at events to educate public about reporting illicit discharges. Made available IDEP Brochure. Training for new and existing employees, and general outreach has resulted in an increased number of reports regarding illicit discharges.
Personal Actions that Can Impact the Watershed	Residents, visitors, public employees, students, businesses, construction contractors, and developers.	Improper disposal of chemicals can adversely impact surface water/ importance of using the Kalamazoo County Household Hazardous Waste Center; improper use of chemicals (e.g., fertilizers) can adversely impact surface water; best management practices can prevent adverse impacts to surface water.	City's protectyourwater.net website; City's pre-movie theatre ads; radio ads; City's annual Consumers Confidence Report/Water Quality Report (CCR); classroom presentations and demonstrations; facility tours; event presentations/model demonstrations (Groundwater Simulator and EnviroScape), static displays; material distribution. Public Survey. KVCC Ref. C, G, H & I	Already developed: websites; CCR; A View from the Curb; movie ads; radio ads; classroom presentation format and models; static display; and some materials for distribution (e.g., handouts, sponges); use of the P & A slogan "What gets to the street, gets to the creek!"; discussion to develop ordinance banning phosphorus in most applications. Prepare Public Survey in 2016/17.	Will continue during permit period as budget and resources allow: disposal contract with Kalamazoo County Household Hazardous Waste Center; message on websites, movie ads, radio ads, the CCR, and in A View from the Curb. Will continue to discuss the issue during many classroom presentations and model demonstrations, use static display and distribute materials (e.g., "Storm Watch" and "Brown Water, Green Weeds" brochures, sponges), and use the P & A slogan "What gets to the street, gets to the creek!" Will consider/evaluate adoption of ordinance banning phosphorus. Send out Public Survey in 2017.	City of Kalamazoo Environmental Services/Water Resources Division staff. Other participants may be the Kalamazoo River Watershed Council (KRWCC), Portage & Arcadia Creeks (P & A) and Kalamazoo River Mainstem 3 Corridor (KRM3C) steering committees, ECC, the Kalamazoo Area Stormwater Work Group, and WHPP Committee.	Number of website visitors; continued contract with Kalamazoo County for Household Hazardous Waste Collection Center use; number of educational presentations and demonstrations discussing stormwater; continued movie theatre ads, radio ads, and Metro Bus campaign. 2017 Public Survey results. KVCC Reference F	Continued use of www.protectyourwater.net website. Ongoing movie theater ads, new placards for Metro Bus display campaign, and collaborative radio education campaign with City of Battle Creek using WKFR 103.3 FM and WRKR 107.7 FM. Distributed numerous materials and participated in numerous events where we incorporated stormwater, TMDL, and groundwater education into the same events. Used annual Consumers Confidence Report (CCR) to discuss watershed management. See Table 4 for additional details. See IDEP text section for brief comments regarding 2017 Public Survey.

Public Education Message	Target Audiences	Key Messages	Delivery Mechanism or Activity	Timeline for Development	Timeline for Implementation	Responsible Party	Evaluation Method	Progress
Waste Management Assistance	Residents, visitors, public employees, students; businesses, institutions, construction contractors, and developers.	Improper disposal of chemicals and solid waste can adversely impact surface water; availability of and importance of using the Kalamazoo County Household Hazardous Waste Center and the City's solid waste collection services (leaf, brush, bulk trash, recyclables).	Contract with Kalamazoo County for Household Hazardous Waste Center use; City's protectyourwater.net website and main websites; City's pre-movie theatre ads; radio ads; City's "A View From the Curb" publication; classroom presentations and demonstrations; facility tours; event presentations/model demonstrations; static displays; material distribution. 2017 Public Survey. KVCC Ref. C & I	Already developed: contract with Kalamazoo County; websites; one pre-movie theatre ad specifically addresses issue; radio ads; A View from the Curb; classroom presentation format and models; static display; and some materials for distribution. Public Survey 2016/ 2017.	Will continue during permit period as budget and resources allow: disposal contract with Kalamazoo County Household Hazardous Waste Center; Solid Waste Management Program (4 parts); message on websites, in "A View from the Curb," movie ads, and radio ads. Will continue to discuss the issue during many classroom presentations and model demonstrations, use static display and distribute materials. Public Survey distribution 2017.	City of Kalamazoo Environmental Services/Water Resources Division staff. Kalamazoo County responsible to continue service. Other participants may be the Kalamazoo River Watershed Council (KRWC), Portage & Arcadia Creeks (P & A) and Kalamazoo River Mainstem 3 Corridor (KRM3C) steering committees, ECC, the Kalamazoo Area Stormwater Work Group, and WHPP Committee.	Number of website visitors; continued contract with Kalamazoo County for Household Hazardous Waste Collection Center use; continued City Solid Waste Collection Program; number of City residents using collection services; volume of materials collected; number of educational presentations and demonstrations discussing stormwater; continued movie theater ad; Metro Bus Display campaign; radio ad campaign. Survey done. KVCC Reference F	Continued with the www.protectyourwater.net website, continued contract with Kalamazoo County Household Hazardous Waste Center, continued movie theater ads with 2 rotated ads specifically designed to address proper disposal practices, provided presentations, continued Metro Bus Display campaign, continued and enhanced radio ad campaign. See Table 4. There are approximately 12,000 participants in the household recycling collection program (~40% of total). The volume of bulk trash collected continues to grow. The average annual volume of leaves picked has also grown; the leaves are composted and given away free of charge to residents. See the SWMP Table for more details. Public survey prepared in 2016/2017 and performed in 2017. See brief discussion of survey in text.
Septic Tank Maintenance	Septic system owners; septage haulers.	Proper septic system O & M; how to recognize system failure and its potential impact on water quality; proper disposal of pumped waste; where to get information; existing ordinances.	City's protectyourwater.net website and main websites; classroom presentations and demonstrations; pre-movie ad; radio ad; event presentations/model demonstrations; static displays; ordinances.	Since there are only two short sections of streets within the City that are not serviced by sanitary sewer and have storm sewers, we largely defer this issue to Kalamazoo County Environmental Health, other than our general education campaign discussed in "Progress."	Will continue to have information available on the website protectyourwater.net, rotate pre-movie ad; rotate radio ad; and discuss the issue during model demonstrations and presentations.	City of Kalamazoo Environmental Services/ Water Resources Division staff. Kalamazoo County is the primary organization and regulatory authority regarding septic systems. Other participants may be the Kalamazoo River Watershed Council (KRWC), Portage & Arcadia Creeks (P & A) and Kalamazoo River Mainstem 3 Corridor (KRM3C) steering committees, the Kalamazoo Area SWWG, and WHP Committee .	Since there are only two short sections of streets within the City that are not serviced by sanitary sewer and have storm sewers, we largely defer this issue to Kalamazoo County Environmental Health. However, number of City website page visits for that topic can be measured; and continued movie theater ads and radio ad material.	The www.protectyourwater.net website contains information regarding septic systems along with rotated movie ads and the collaborative radio ad campaign with Battle Creek. Discussed topic during Groundwater Simulator, EnviroScape, and Jug Kit model demonstrations and presentations.
Benefits of Native Vegetation	Property owners; City employees, especially Parks & Recreation staff; general citizens.	Using native vegetation is usually beneficial, especially for surface water buffers since they typically are relatively low maintenance (don't need chemicals), they effectively absorb stormwater, decrease the need for mowing, and improve wildlife habitat.	Communicate the benefits to City decision makers; incorporate native vegetation into as many vegetative projects to the maximum extent practical. Maintain and consider enhancement of the City's Lawn Care Guidelines document. KVCC Ref. A & D	Already have several good links on website regarding benefits of native plants; will continue to research and modify/add as deemed appropriate.	Will continue to have information available on the website protectyourwater.net and discuss the issue during model demonstrations and presentations.	City of Kalamazoo Environmental Services/Water Resources Division staff. Other participants may be the Kalamazoo River Watershed Council (KRWC), Portage & Arcadia Creeks (P & A) and Kalamazoo River Mainstem 3 Corridor (KRM3C) steering committees, TMDL Committees, ECC, and the Kalamazoo Area Stormwater Work Group.	Existence of website links; number of events that discuss benefits of using native plants; material made available to general citizens; communication to select City staff and contractors; participation with collaborative grant projects implementing vegetative strategies. KVCC Reference F	The www.protectyourwater.net contains sections discussing benefits of native vegetation - see stormwater section. Incorporated new buffer rules within revised Performance Standards in 2015. Discussed topics and participated in collaborative water quality initiatives (e.g. the Davis-Olmstead Drain Project) with partners. Continued buffer maintenance around South Crosstown Pond, etc. Made available related brochures (e.g. "Keep Your Lawn Green and Your Water Clean" and "Together...Better Roads, Cleaner Streams"). Recommended use of native vegetation/green options associated with Site Plan Review.
Management of Riparian Lands	Property owners; riparians; developers/contractors; lake & stream associations; golf courses; City employees, especially Parks & Recreation staff.	Importance of riparian corridors; issues/challenges associated with water quality; BMPs for riparians.	Communicate issue to general citizens via website, and pre-movie ad; discuss issue at presentations/demonstrations regarding water quality; incorporate BMPs into City policy as appropriate and practical. KVCC Reference J	Continue research for additional links for informational sources via website and research for potential handout material for presentations or website downloads. Prepare and incorporate new movie ad.	Will add new website links by 2012; will add additional handout material by 2013.	City of Kalamazoo Environmental Services/Water Resources Division staff. Other participants may be the Kalamazoo River Watershed Council (KRWC), Portage & Arcadia Creeks (P & A) and Kalamazoo River Mainstem 3 Corridor (KRM3C) steering committees, TMDL Committees, ECC, and the Kalamazoo Area Stormwater Work Group.	Existence of website links; number of events that discuss importance of and BMPs for riparian properties; communication to select City staff and contractors; participation with collaborative grant projects implementing vegetative strategies.	Maintained the www.protectyourwater.net website and relevant links. Participated in the Kalamazoo River Conservation Plan efforts by attending meetings, providing information, and reviewing documents. Contributed information to the TMDL Steering Committee; KRWC, Portage & Arcadia Creeks Steering Committees, and the KSWG Committee. Made available "Keep Your Lawn Green and Your Water Clean" and "Together...Better Roads, Cleaner Streams" brochures. Researched and incorporated limited native vegetative seeding for select sloped area at the Schippers Crossing site. Enhancement of buffer at the South Crosstown Pond.
Entity Specific Pollutants	Business specific sectors; City-wide operations & maintenance; City Environmental Managers.	Importance of proper management of chemicals and disposal practices; existing City ordinances/ regulations.	Target mailings to selected business sectors; available website links/information; communication to business owners/managers/operators re: relevant issues; discussion of issue at presentations/model demonstrations; IDEP brochure. KVCC Ref. C, E & I	Already have had two targeted mailings to commercial business sectors (pressure washing and waste haulers); enhanced website links and new section; IDEP brochure. Already have demonstration models.	Will continue to evaluate need to add and enhance new website links, text, and graphics; will continue to participate in collaborative efforts to develop and distribute new materials. Will continue to discuss issue during presentations/model demonstrations.	City of Kalamazoo Environmental Services/Water Resources Division staff. Other participants may be the Kalamazoo River Watershed Council (KRWC), Portage & Arcadia Creeks (P & A) and Kalamazoo River Mainstem 3 Corridor (KRM3C) steering committees, TMDL Committees, ECC, the Kalamazoo Area Stormwater Work Group, and WHPPP Committee.	Continued and enhanced website links; additional website links, text and graphics; material made available to general citizens; number of presentations/model demonstrations that issue was discussed; collaboration with Fire Marshal; collaborative efforts with other organizations. KVCC Reference F	Continued with the www.protectyourwater.net and relevant links; continued Metro Bus Displays with new designs; continued rotation of numerous movie ads. Continued employee training with videos about municipal operations/BMPs. On-going collaboration with Fire Marshal/Public Safety Officers that perform business inspections and Right-toKnow to share information/database about facility chemical storage (e.g. Contaminant Source Inventories), and prepared and distributed Chemical Storage Inventory Forms. Made available new IDEP brochure. On-going Contaminant Source Inventory Update/Risk Assessment for Wellhead Protection Area (one-half of City).

***Appendix C - Table 2: Stormwater Management Plan – Revision
2019***



TABLE 2: 2015 Stormwater Management Plan - Revised 2019

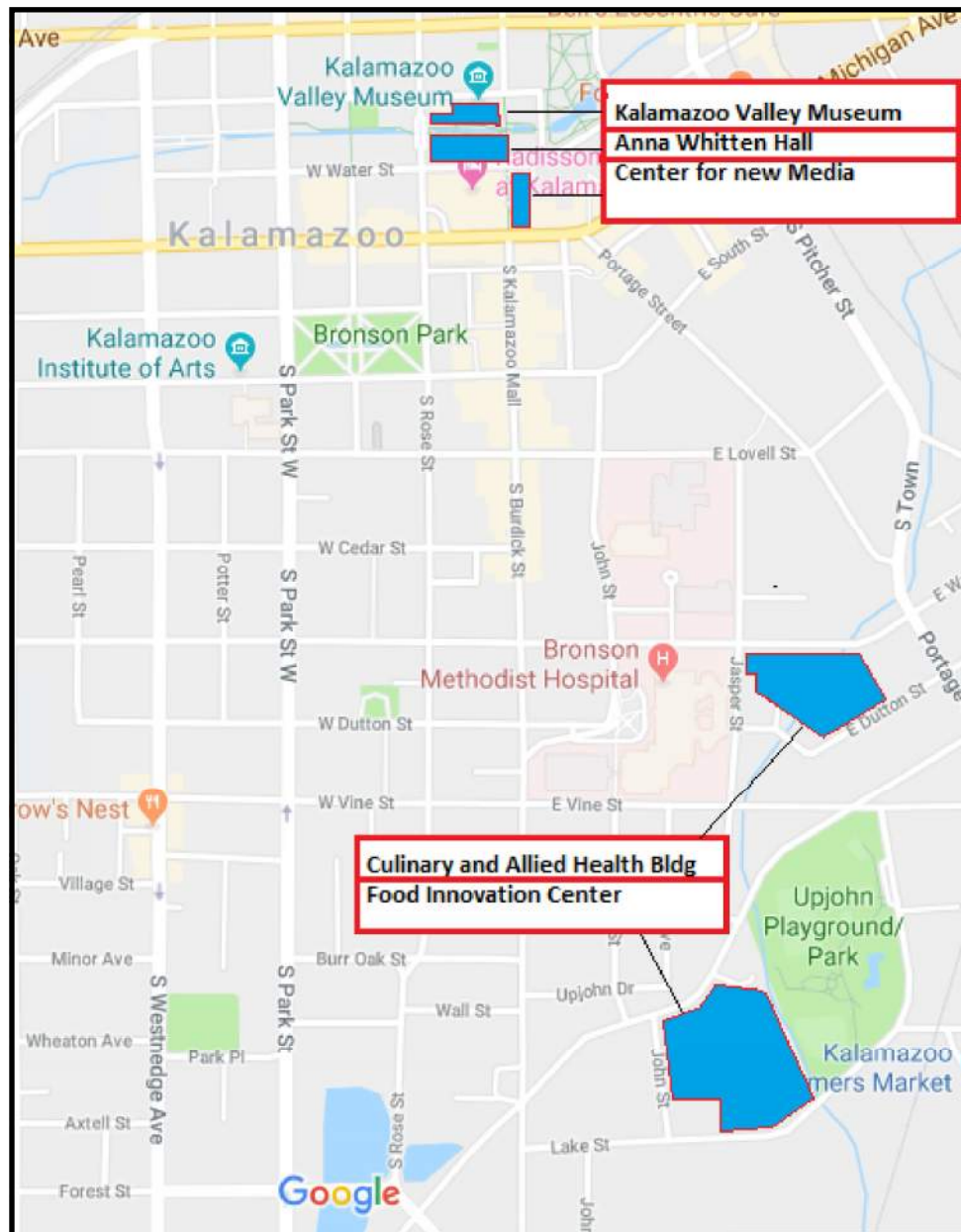
BMP/Action	Description/Method of Implementation	Minimum Measures							Frequency/Schedule	Method of Evaluating Effectiveness	Progress
		PP/IP	PEP	IDEP	Construction Stormwater Control	Post-Construction Stormwater Control	PP/Municipal Good Housekeeping	TMDL			
Enforcement Response Procedures (ERPs)	See Attachment A (Chapter 29 of City of Kalamazoo Code of Ordinances - Stormwater); Attachment B (Chapter 30 of Code - Soil Erosion and Sedimentation Control); Appendix A of Code, Section 8.3H (Site Plan Review); Section 10 (Violations, Penalties and Enforcement).			X	X	X			As needed.	Enforcement as necessary.	
Public Participation/ Involvement Program	See Attachment B.	X							See Attachment B	See Attachment B.	
Public Education Plan	See Table 3.		X						See Table 3	See Table 3.	
Illicit Discharge Elimination Plan <i>KVCC BMP5</i>	See Attachment C, Figures 3 and 4, Tables 1 and 4.			X					See Attachment C	See Attachment C.	
Construction Stormwater Runoff Control Program	Continue Soil Erosion & Sedimentation Control Program. Per Ordinance 1790, permit and enforce soil erosion and sedimentation controls associated with construction sites, per Part 31. Both the City's Code Enforcement Division and the Engineering Division are APAs for Part 91, addressing construction sites and street/utility work, respectively.				X				Continue APA status for enforcing Act 91.	Continued certification for APA status; number of Permits issued; enforcement of Ordinances and policies; reduction in TSS.	
Documentation of Post-Construction Stormwater Control for New and Redevelopment Projects.	Current: Performance Standards for Groundwater Protection within Wellhead Protection Capture Zones and Stormwater Quality Management (Ordinance No. 1826); Pending: Updates.					X			Continuous. Updates by October 1, 2015	Effective use and enforcement of Ordinance; updates in 2015.	
Continue Site Plan Review process using the Wellhead Protection Zoning Overlay Ordinance and Performance Standards Ordinance.	Per Ordinances 1825 and 1826, require stormwater pre-treatment prior to discharge into the City's MS4 or directly into the surface waters. Appendix A of Code, Section 8.3. Pending: Updates for Performance Standards.				X	X			Continuous. Updates by October 1, 2015	Number of site plans reviewed; number of required pre-treatment BMPs; number of natural BMPs; reduction in TSS; updates in 2015.	
Employee and Contractor Training.	Continue use of the Excal DVD "Storm Watch Municipal Storm Water Pollution Prevention" and/or the MDEQ DVD "Storm Water Employee Training" for employee training. In addition, the Technician 3 staff will watch the more specific IDEP focused DVD "Illicit Discharge Detection & Elimination A Grate Concern."						X		All staff within 5 year Permit cycle. New hires within 1 year of hire. Contractors to begin viewing Storm Watch DVD in 2016 if they do not have staff with Stormwater Certification.	Number of employees trained; integration of stormwater control requirements into bid specifications Contractor training/certification documentation.	
List structural stormwater controls.	List by Table all municipally owned properties with stormwater structural controls.						X	X	Continuous maintenance of list of municipal properties and structural stormwater controls with locations.	Completion of list with locational information; maintenance of updated list.	

BMP/Action	Description/Method of Implementation	Minimum Measures							Frequency/Schedule	Method of Evaluating Effectiveness	Progress
		PP/IP	PEP	IDEP	Construction Stormwater Control	Post-Construction Stormwater Control	PP/Municipal Good Housekeeping	TMDL			
Inspect, perform maintenance, and evaluate all Stormwater Controls. <i>KVCC BMP6</i>	Inspect, perform maintenance as needed, and evaluate for effectiveness each City-owned stormwater control identified within this SWMP.						X	X	Annusl annual inspections of all City-operated stormwater controls.	Continuation and possible enhancement of inspection program; completion of identified needed maintenance; proper disposal of associated waste generated from maintenance.	
Continue street sweeping program. <i>KVCC BMP2</i>	Use one to two Elgin Pelican series street sweepers to clean streets. A contractor removes the dumpsters that the sweepers deposit the debris in and delivers it to a Class II landfill. The same contractor tracks the volume of the debris accumulated.						X	X	On average, weekly sweeping for downtown area, and two to three times annually for the remaining City.	Number of sweepings, pounds of material collected and disposed; reduction in TSS.	
Continue Leaf Collection Program. <i>KVCC BMP3</i>	Residents are asked to rake their leaves in the late fall into the edge of the street in accordance with a published schedule. City crews then use a combination of tractors, front-end loaders and compactor trucks to collect the leaves. Cycle is repeated (weather permitting). Collected leaves are hauled and deposited at a city composting facility.						X	X	Bi-Annual publication of "A View From the Curb The City's Guide to Waste & Recycling."	Volume of leaves collected and disposed; estimated pounds of phosphorus prohibited from entering surface waters and clogging storm sewers; continued Bi-Annual publication of "A View From the Curb The City's Guide to Waste & Recycling"; reduction in phosphorus loadings.	
Continue Brush Pick-up Program. <i>KVCC BMP3</i>	A private contractor currently performs brush collection once a month from May through October on the same day as bulk trash (see below). Residents are asked to place bundled brush in the curb lawn for collection in accordance with the published monthly bulk trash collection schedule.						X	X	Per published monthly schedule from May through October on the same day as bulk trash. Bi-Annual publication of "A View From the Curb The City's Guide to Waste & Recycling."	Volume of brush collected; estimated pounds of phosphorus prohibited from entering surface waters, and clogging storm sewer; continued Bi-Annual publication of "A View From the Curb The City's Guide to Waste & Recycling"; reduction in phosphorus loadings.	
Continue Bulk Trash Collection Program.	A private contractor performs bulk trash collection for the City. Curbside collection is provided to residential properties with four units or less. All other properties must contract individually with private companies for trash removal. Residents place bulk trash near the curb for collection in accordance with a published schedule. A limit of 7.7 cubic yards per property per month is currently in place.						X		Monthly, per published schedule. Bi-Annual publication of "A View From the Curb The City's Guide to Waste & Recycling."	Volume of bulk trash collected; continued Bi-Annual publication of "A View From the Curb The City's Guide to Waste & Recycling."	
Catch Basin/Inlet Cleaning. <i>KVCC BMP7</i>	Due to budget/staff constraints, there is currently no scheduled stormwater catch basin/inlet cleaning program. However, cleanings are performed on a requested and urgently needed basis (e.g., localized flooding), and associated with IDEP investigations as needed. Waste collected is by vactor trucks or by hand and are disposed of at the Wastewater Treatment Plant, unless it is determined that it be necessary to dispose of it at a Type II Landfill or by a certified hazardous waste hauler determined location.						X	X	As requested and on an "as needed" basis.	Adequate response to internal and citizen requests.	
Snow and Ice Removal Program. <i>KVCC BMP1</i>	The City applies rock salt, rock salt with liquid calcium chloride, rock salt with sand mix, a pre-wetting de-icing material, and is experimenting with beet juice to maintain safer roadway travel while reducing rock salt usage. Product use is largely dependent upon weather conditions. Other agricultural products, such as corn-based products, are also being evaluated. In addition, the Kalamazoo Mall uses a snowmelt system instead of salting.						X		As needed.	The amount of rock salt and sand mix used under appropriate conditions. Strategy to reduce the use of sand	

BMP/Action	Description/Method of Implementation	Minimum Measures							Frequency/Schedule	Method of Evaluating Effectiveness	Progress
		PP/IP	PEP	IDEP	Construction Stormwater Control	Post-Construction Stormwater Control	PP/Municipal Good Housekeeping	TMDL			
Continue Use of Enclosed Salt Storage Facility.	Rock salt is stored in an enclosed above-ground salt storage facility with a capacity of 7,000 tons, above the 100-year flood plain elevation.						X		Continuous: Use enclosed salt storage facility located at the Harrison Street Facility.	Continued use of enclosed above-ground facility; compliance with SWPPP for wastewater treatment plant.	
Continue implementation of SWPPP for the 415 Stockbridge Avenue Facility.	Since this the fleet maintenance operation at this location meets the criteria for which a SWPPP is necessary, one was prepared.						X		Continuous: Fleet Director or representative to maintain stormwater certified operator status, implement inspections and continue BMPs.	Acquired Stormwater Certified Operator License(s); number of inspections; number of BMPs implemented; overall SWPPP compliance.	
Continue Recyclable Material Collection Program.	There are three components to the City's residential recycling program: weekly curbside residential collection for all residential properties with four units or less; multi-unit collection for those property owners or managers willing to participate; and a recycling drop-off facility is available to all citizens.						X		Annual evaluation to continue program. Bi-Annual publication of "A View From the Curb The City's Guide to Waste & Recycling."	Volume of materials collected and number of participants; continued Bi-Annual publication of "A View From the Curb The City's Guide to Waste & Recycling."	
Continue Household Hazardous Waste Collection.	City residents are able to dispose of their hazardous waste at the Kalamazoo County Household Hazardous Waste Center, 1301 Lamont Avenue, free of charge. Each year the City enters into a contract with Kalamazoo County, which shares proportionally the cost with all participants to operate the program.						X		Re-evaluate and propose renewal of contract on an annual basis. Bi-Annual publication of "A View From the Curb The City's Guide to Waste & Recycling."	Continued contracts with Kalamazoo County; volume and type of materials collected and number of participants; continued Bi-Annual publication of "A View From the Curb The City's Guide to Waste & Recycling."	
Environmental Safer Products.	The City Commission Policy for "Procurement of Recycled & Environmentally Friendly Products" is provided as Attachment 1.						X		2015: Continue current policy; 2016: Review and consider updates/revisions.	Continuation and/or enhancement of existing policy.	
Waterway Vegetative Buffers.	Continue use of the City's "Lawn Care Guidelines for Parks, Greenspaces, and Along Waterways" and discussion with staff and seasonal employees during annual "training day."						X		2014: Continue current policy; 2015: Review and consider updates/revisions. By 2015, incorporate specifications into lawn mowing contracts for subcontractors.	Continuation and/or enhancement of existing policy; number of existing vegetative buffers maintained and new ones installed along waterways. Incorporation of specifications into contracts.	
Lawn Care Guidelines. <i>KVCC BMP3</i>	Continue use of the City's "Lawn Care Guidelines for Parks, Greenspaces, and Along Waterways" and discussion with staff and seasonal employees during annual "training day."						X		2015: Continue current policy; 2016: Review and consider updates/revisions. By 2017, incorporate specifications into lawn mowing contracts for subcontractors.	Continuation and/or enhancement of existing policy. Effective communication with lawn maintenance employees and temporary seasonal hires regarding policy. Incorporation of specifications into contracts.	
Reduction of Pesticides, Herbicides, and Fertilizers. <i>KVCC BMP4</i>	The City has a "Pesticide/Herbicide Advisory Committee" to monitor the use of pesticides and herbicides in the City and recommend policies and guidelines. Also, continue use of the City's "Lawn Care Guidelines for Parks, Greenspaces, and Along Waterways" and discussion with staff and seasonal employees during annual "training day."						X		2015: Continue current policy; 2016: Review and consider updates/revisions.	Continuation and/or enhancement of existing policy.	

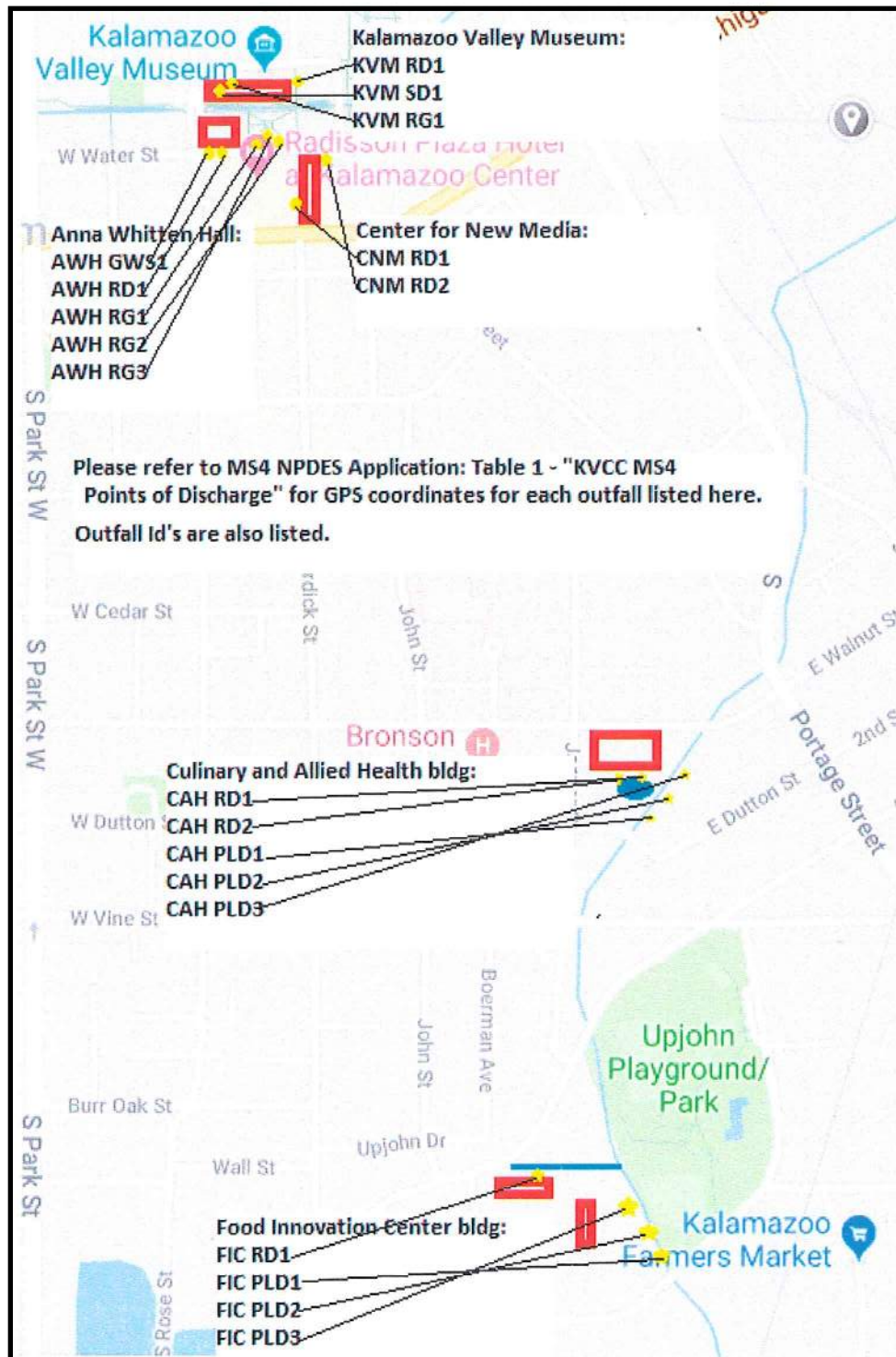
***Appendix D - KVCC Stormwater Sewer System Maps,
Stormwater Asset Identification, and Pre- and Post-Construction
Calculations***

KVCC STORMWATER SEWER SYSTEM LOCATION MAP



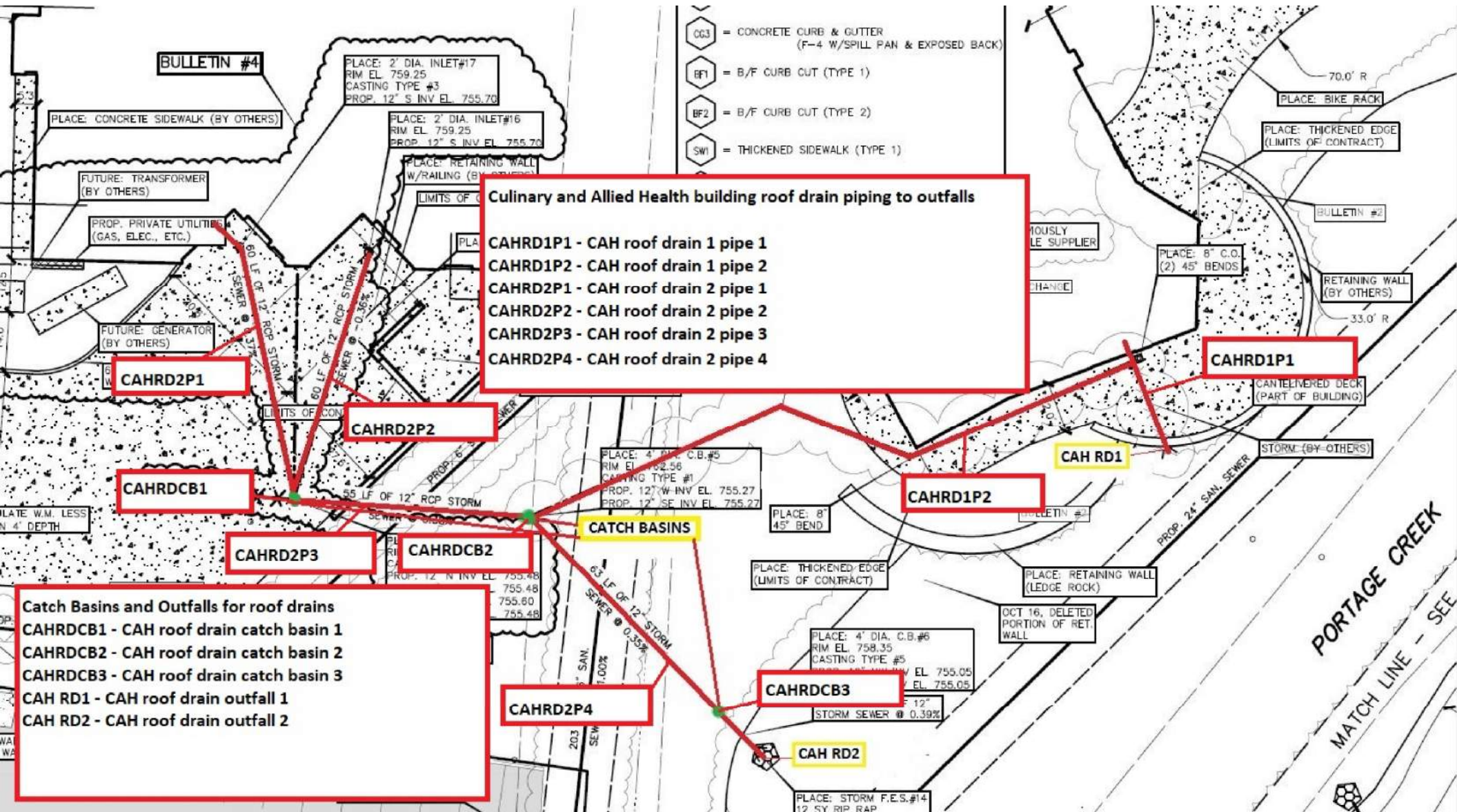
Blue shading indicates the property boundary of the facility location

KVCC BUILDINGS AND STORMWATER SYSTEM ASSET IDENTIFICATIONS



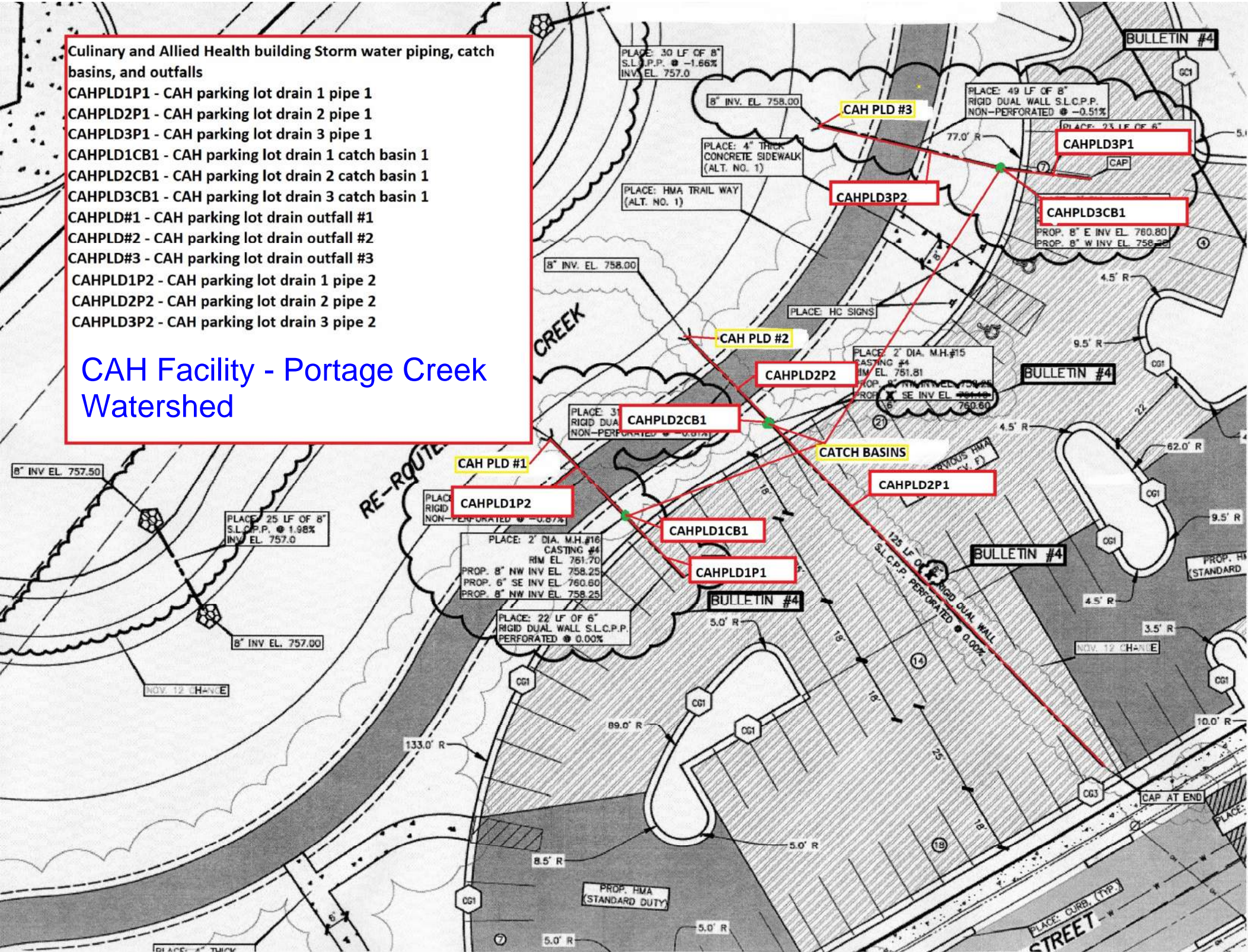
Buildings are outlined in red and assets have yellow symbols.

CAH Facility - Portage Creek Watershed



CAHPLD1P1 - CAH parking lot drain 1 pipe 1
CAHPLD2P1 - CAH parking lot drain 2 pipe 1
CAHPLD3P1 - CAH parking lot drain 3 pipe 1
CAHPLD1CB1 - CAH parking lot drain 1 catch basin 1
CAHPLD2CB1 - CAH parking lot drain 2 catch basin 1
CAHPLD3CB1 - CAH parking lot drain 3 catch basin 1
CAHPLD#1 - CAH parking lot drain outfall #1
CAHPLD#2 - CAH parking lot drain outfall #2
CAHPLD#3 - CAH parking lot drain outfall #3
CAHPLD1P2 - CAH parking lot drain 1 pipe 2
CAHPLD2P2 - CAH parking lot drain 2 pipe 2
CAHPLD3P2 - CAH parking lot drain 3 pipe 2

CAH Facility - Portage Creek Watershed



KVCC Food Innovation Center pervious parking lot drainage system, greenhouse roof drain, cistern overflow, and outfalls

FICPLD1 - FIC parking lot drain outfall #1

FICGHRDP1 - FIC greenhouse roof drain pipe 1

FICPLD2 - FIC parking lot drain outfall #2

FIC Cistern overflow P1 - FIC cistern overflow pipe 1

FICPLD3 - FIC parking lot drain outfall #3

FICPLD1CB1 - FIC parking lot drain 1 catch basin 1

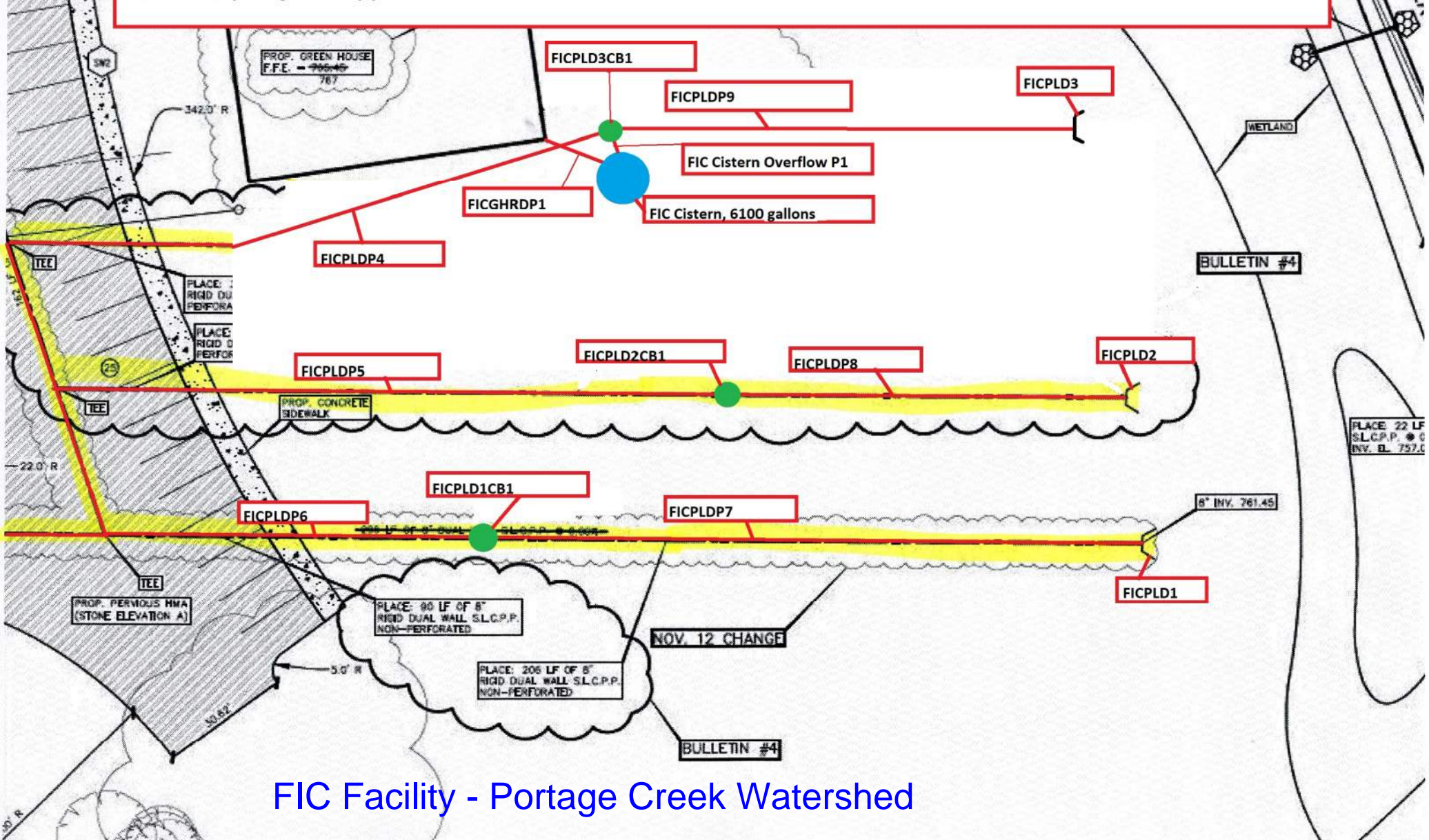
FICPLD2CB1 - FIC parking lot drain 2 catch basin 1

FICPLD3CB1 - FIC parking lot drain 3 catch basin 1

FICPLDP7 - FIC parking lot drain pipe 7

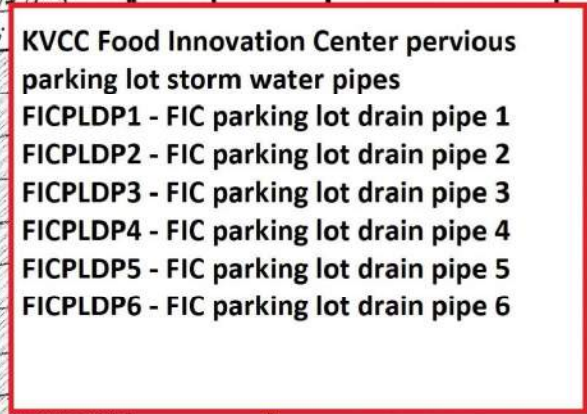
FICPLDP8 - FIC parking lot drain pipe 8

FICPLDP9 - FIC parking lot drain pipe 9

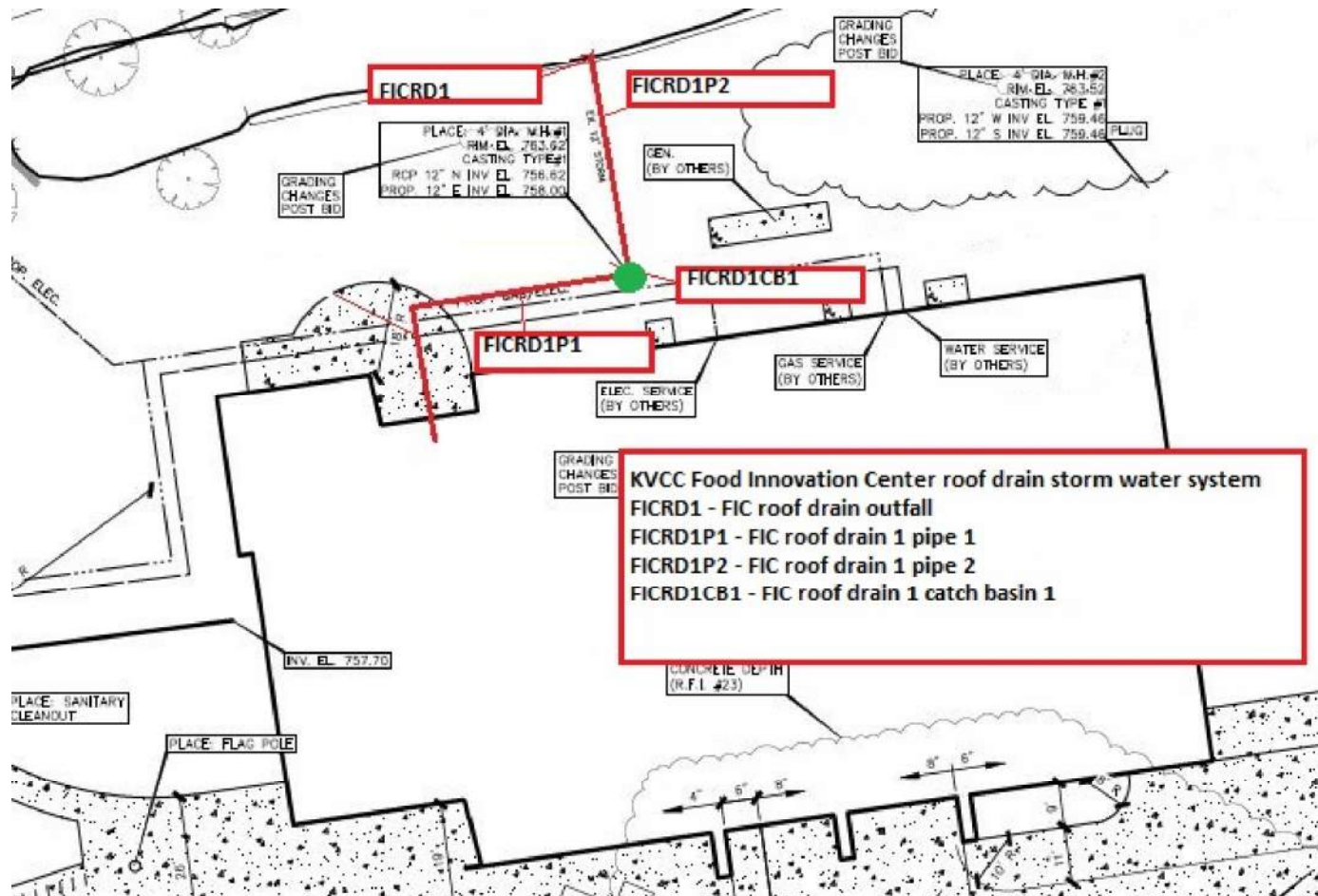


FIC Facility - Portage Creek Watershed

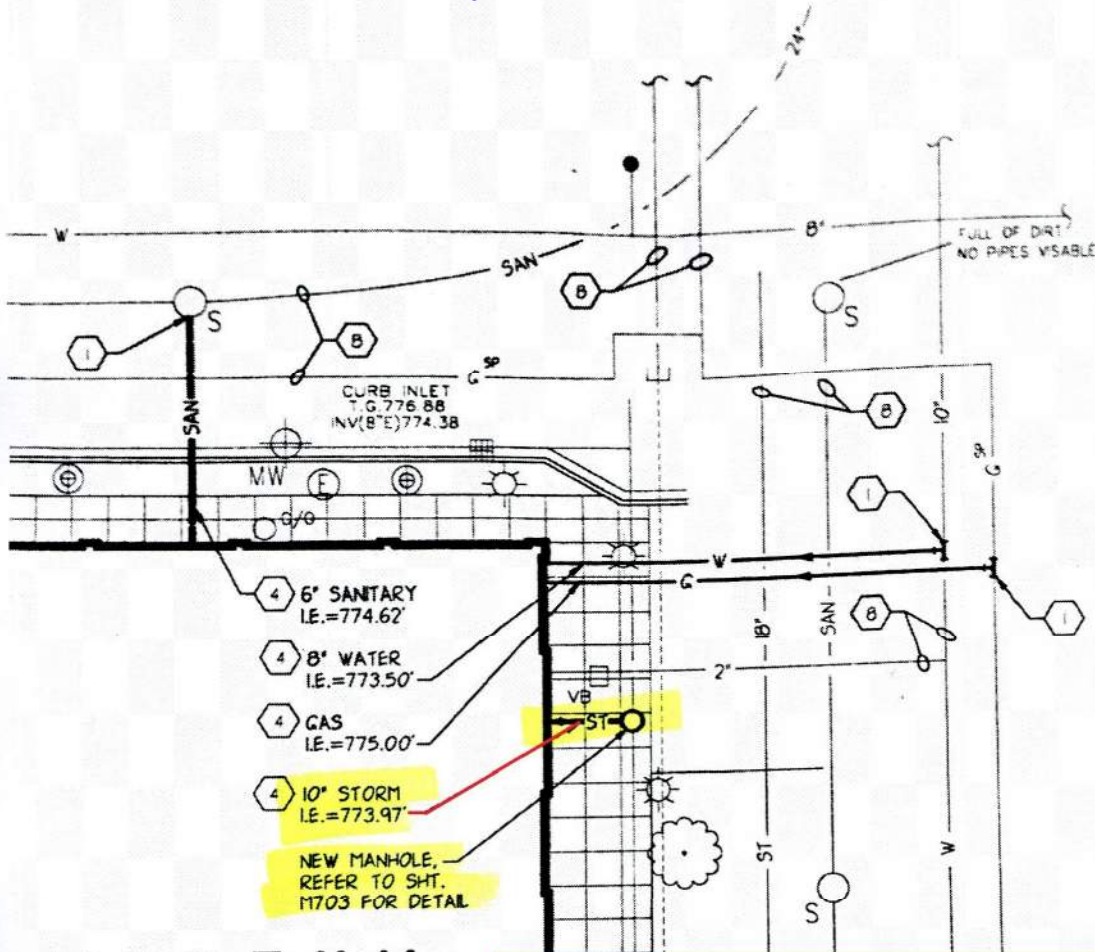
FOOD INNOVATION CENTER PERVIOUS PARKING LOT DRAINAGE SYSTEM



FIC Facility - Portage Creek Watershed



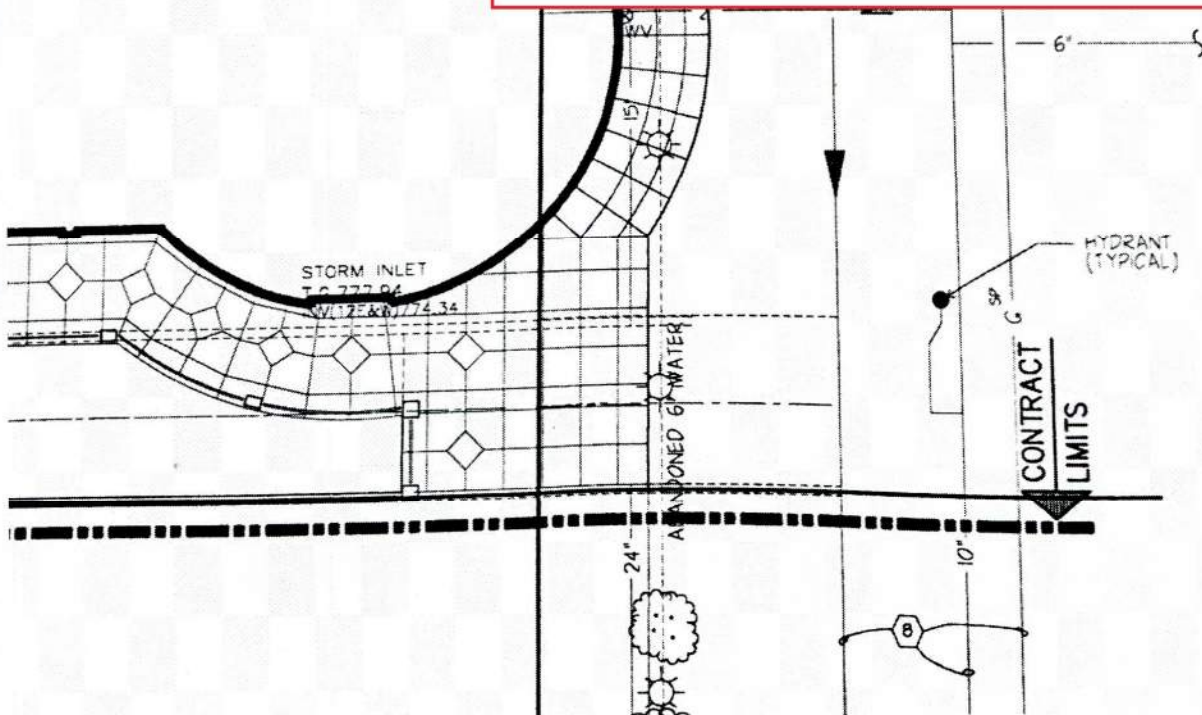
KVM Facility - Arcadia Creek Watershed



MUSEUM

2N - 778'-8"

Kalamazoo Valley Museum roof drain system
KVMRD1 connects to city system under Mall sidewalk to City manhole.



MECHANICAL SITE PLAN

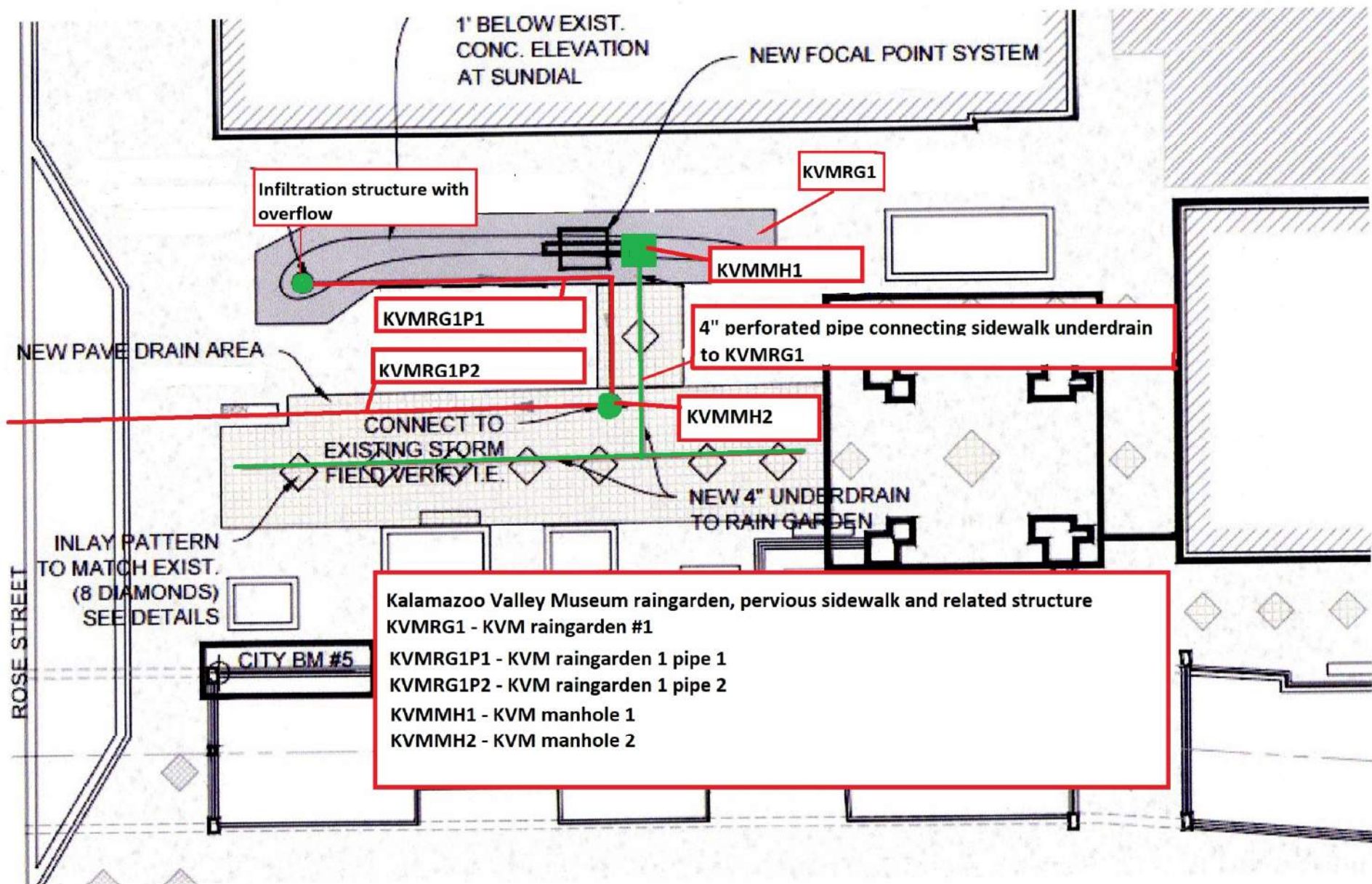
THE NEW MUSEUM

KALAMAZOO VALLEY COMMUNITY COLLEGE

KALAMAZOO, MICHIGAN

V. 15, 1993

3165\MUSM001



KVM Facility - Arcadia Creek Watershed

ARCADIA CREEK

BIOSWALE

BM #3

24" STORM

KALAMAZOO MALL

NEW PAVE DRAIN SIDEWALK AREA

RIPRAP INLETS

4" perforated pipe connecting sidewalk under to AWH rain garden 3

AWHRG3

AWHRG3P1

AWHRG1

AWHRG1P1

AWHRG2

AWHRG2P1

Infiltration structures with overflow

NEW FOCAL POINT SYSTEMS

12" STORM

12" STORM

12" STORM

12" (S) = 775.75

12" (E) = 775.42

12" (W) = 775.64

RM = 779.62

2.28

72.10

3.53

73.28

WATER STREET

RM = 777.14

8" (S) = 773.45

SUMP = 772.88

C.B.#9

M.H.#8

C.B.#7

KVCC Anna Whitten Hall rain gardens and associated piping and structures

AWHRG1, 2, and 3 - AWH rain gardens 1, 2, and 3

AWHRG1P1 - rain garden 1 Pipe 1

AWHRG2P1 - rain garden 2 Pipe 1

AWHRG3P1 - rain garden 3 pipe 1

Infiltration structures are rain garden overflows with filter baskets

Sidewalk underdrain connects to AWHRG3 only

Bioswales do not connect to city system

(VERTICAL DATUM BASED ON A PUBLISHED ELEVATION OF
MANHOLE #1 OF 780.50')

BMW1 ELEV. = 778.87'
SET SQUARE CUT IN CONCRETE 0.3' NORTH OF THE
NORTHEAST CORNER OF KALAMAZOO VALLEY COMMUNIT
COLLEGE, ANNA WHITTEN HALL BUILDING.

#1#2 ELEV. = 779.71'
FOUND CUT 'X' IN THE NORTHWEST TOP FLANGE BOLT OF
FIRE HYDRANT LOCATED 15' NORTH OF THE NORTH
RIGHT-OF-WAY LINE OF WEST WATER STREET, WITHIN THE
RIGHT-OF-WAY OF KALAMAZOO MALL DRIVE, ON THE
SOUTHEAST SIDE OF A GRASS ISLAND CONTAINING 2
EVERGREEN TREES.

MH#1 - 4'Ø CONCRETE
 RM = 780.50
 INV (N) 8" IRON = 773.85
 INV (NE) 8" IRON = 773.80
 INV (E) 10" RCP = 772.60
 INV (W) 6" RCP = 772.42

MH#2 - 4'Ø BLOCK
 RM = 779.67
 INV (E) 18" RCP = 773.67
 INV (W) 10" RCP = 773.80
 INV (S) SIZE AND TYPE UNKNOWN
 DUE TO DEBRIS BLOCKING PIPE

CB#3 - 2'Ø BLOCK
 RM = 779.39
 BOTTOM OF BLOCK = 777.07
 NO PIPES VISIBLE

MH#4 - 4'Ø BLOCK
 RM 779.52
 INV (W) 18" RCP = -775.6+L
 BOTTOM OF STRUCTURE
 FULL OF SILT AND DEBRIS

CB#5 - 2'Ø BLOCK
 RM = 779.04
 INV (E) 8" CLAY = 777.04
 SUMP = 776.8

CB #6 - 2'Ø BLOCK
 RM = 779.13
 INV (W) 8" CLAY = 776.83
 BOTTOM OF BLOCK = 776.73

CB#7 - 4'Ø BLOCK
 RM = 777.44
 INV (SW) 6" PVC = 773.3
 SUMP = 773.2

MH#8 - 4'Ø CONCRETE
 RM = 777.66
 INV (S) 6" PVC = 768.32

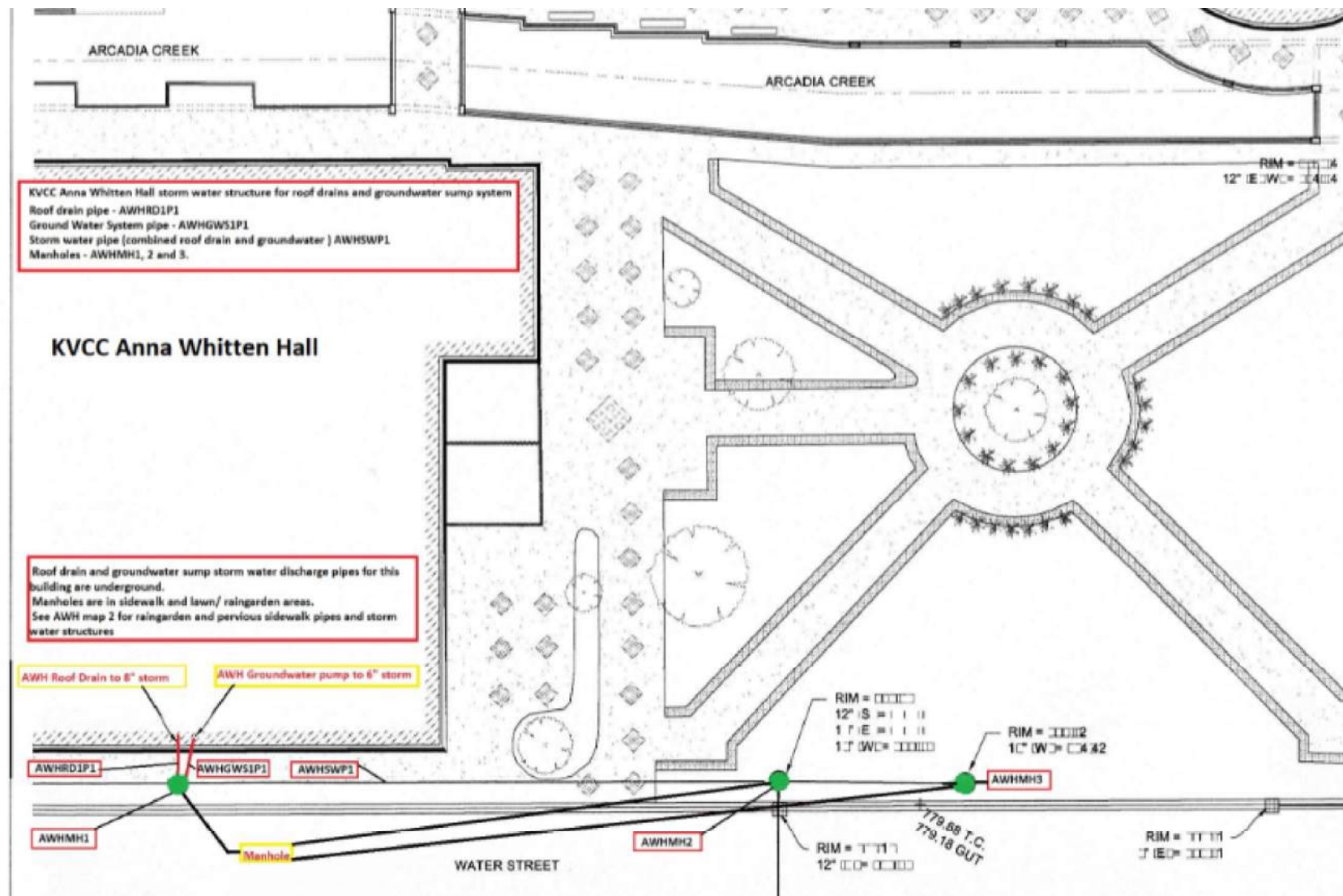
CB#9 - 2'Ø BLOCK
 RM = 777.78
 INV (SE) 12" SLCCP = 773.3
 SUMP = 774.20

CB#10 - 2'Ø CONCRETE
 RM = 777.86
 INV (N) 6" PVC 775.34
 SUMP = 775.40

CB#11 - 2'Ø CONCRETE
 RM = 777.91
 INV (N) 6" PVC = 775.27
 INV (S) 6" PVC = 775.31
 INV (W) 6" PVC = 775.4
 SUMP = 774.90

CB#12 - 2'Ø CONCRETE
 RM = 777.89
 INV (S) 6" PVC = 775.31
 SUMP = 774.90

AWH Facility - Arcadia Creek Watershed



Kalamazoo Valley Community College
Bronson Downtown Campus

Stormwater Runoff Calculations (Pre & Post Development)

Volume = Use 2 yr. 24 hr. Storm = 2.37"

Flow = Use $Q = c i A$ for 2 yr. Storm $i = 96 \div T + 16$ (Used 20 min. for time of concentration)

$c = .9$ for Impervious

A = Area in Acres

Q = cfs

FIB BEFORE

119,371 sq.ft. Impervious = 2.74 Acres

Flow = $c i A$

$.9 \times 2.67 \times 2.74 A = \mathbf{6.58 \text{ cfs}}$

Volume = $c A \times 2.37" = .9 \times 119,371 \text{ sq.ft.} \times 2.37" \div 12" = \mathbf{21,218 \text{ cft}}$

FIB AFTER

North 1/2 building plus 2 driveways = 13,266 sq.ft. = .30 Acres

All remaining is pervious pavement or drains to on-site detention/retention pond.

Flow = $c i A$

$.9 \times 2.67 \times .3 = \mathbf{.72 \text{ cfs}}$

Volume = $c A \times 2.37" = .9 \times 13,266 \text{ sq.ft.} \times 2.37" \div 12" = \mathbf{2,358 \text{ cft}}$

CMH BEFORE

26,302 sq.ft. Impervious = .60 Acres

Flow = $c i A$

$$.9 \times 2.67 \times .6 A = \underline{\underline{1.44 \text{ cfs}}}$$

$$\text{Volume} = c A \times 2.37" = .9 \times 26,302 \text{ sq.ft.} \times 2.37" \div 12" = \underline{\underline{4,675 \text{ cft}}}$$

CMH AFTER

2 driveways of impervious = 4,650 sq.ft. = .11 Acres

All remaining drains to pervious parking lot.

Flow = $c i A$

$$.9 \times 2.67 \times .11 A = \underline{\underline{.26 \text{ cfs}}}$$

$$\text{Volume} = c A \times 2.37" = .9 \times 4,650 \text{ sq.ft.} \times 2.37" \div 12" = \underline{\underline{827 \text{ cft}}}$$

CULINARY & DUTTON PARKING BEFORE

94,098 sq.ft. Impervious = 2.16 Acres

Flow = $c i A$

$$.9 \times 2.67 \times 2.16 A = \underline{\underline{5.19 \text{ cfs}}}$$

$$\text{Volume} = c A \times 2.37" = .9 \times 94,098 \text{ sq.ft.} \times 2.37" \div 12" = \underline{\underline{16,726 \text{ cft}}}$$

CULINARY & DUTTON PARKING AFTER

824 sq.ft. Impervious = .02 Acres

All remaining drains to pervious parking or to detention/retention pond.

Flow = $c i A$

$$.9 \times 2.67 \times .02 A = \underline{\underline{.05 \text{ cfs}}}$$

$$\text{Volume} = c A \times 2.37" = .9 \times 824 \text{ sq.ft.} \times 2.37" \div 12" = \underline{\underline{146 \text{ cft}}}$$

***Appendix E* - Dry Weather Screening Form for Field
Documentation and IDEP Follow-up Investigation Report Form**

**FACILITY: KALAMAZOO VALLEY COMMUNITY COLLEGE
DRY WEATHER SCREENING FORM**

Outfall ID: _____ Date: ____/____/____ Time: _____ am/pm By: _____

Weather Conditions: _____ Temp: _____ Wind: _____

Description and condition of outfall structure: _____

Location GPS? **Y / N** Picture of Outfall? **Y / N**

Observation	Y / N	Comments	Follow Up? Y / N
Dry Weather Flow?			
Water Clarity?			
Odor?			
Suds?			
Oil Sheen?			
Floatables?			
Bacti Sheen?			
Algae?			
Slimes?			
Staining of banks?			
Unusual veg.?			
Color?			
Sample Taken?			

If a sample was taken, record results below:

Parameter	Value	Units
Temperature		°C
pH		S.U.
Fluoride		mg/L
Surfactant		mg/L
Ammonia		mg/L
Fecal Coliform		#/100 mL

FACILITY: KALAMAZOO VALLEY COMMUNITY COLLEGE

IDEP FOLLOWUP INVESTIGATION REPORT

FACILITY INFORMATION

Facility Name:

Facility Address:

Outfall ID:

INSPECTION INFORMATION

Inspection Start Date:

Inspection End Date:

KVCC Inspector(s):

Inspection Summary/Notes (include information on suspected source):

Explain Action Required: Yes / No / NA

Due Date:

Was the source eliminated? Yes / No

Is Enforcement Action Required? Yes / No

Comments:

Completed by _____

Date _____

Appendix F - Annual Phase II Municipal Separate Storm Sewer System Report

Kalamazoo Valley Community College

Annual Phase II Municipal Separate Storm Sewer System Report

Address:

Reporting Period:

PURPOSE:

The purpose of this report is to summarize Phase II Municipal Separate Storm Sewer System (MS4) permit activities between October 1, 20__ and September 30, 20__ for [Kalamazoo Valley Community College](#). Decisions, actions, and results performed are explained below:

A. Environment Response Plan (ERP)

(Choose between the two options below)

No actions to report

Or

Report actions here.

B. Public Education Plan (PEP) – See PEP table for specific actions, Appendix B

C. Illicit Discharge Elimination Program (IDEP)

<i>IDEP Action Description</i>	<i>Actions #/Yes/No/NA</i>	<i>Explanation</i>
Number of outfalls/points of discharge?		
Was dry weather screening performed?		
Any illicit discharges identified this period? If so, how many?		
Were illicit discharges eliminated within 90 days? If not, explain when or include a plan.		
Was IDEP training provided in accordance with the program? If yes, provide documentation. If no, provide explanation.		

Summarize the evaluation and effectiveness		
Will you continue to implement the approved IDEP during the next reporting cycle? (Respond: yes, yes with changes, or no) *If yes with changes or no, submit revisions.		

D. Construction Stormwater Runoff Control

<i>Construction Stormwater Runoff Control Action Description</i>	<i>Actions #/Yes/No/NA</i>	<i>Explanation</i>
Were any Soil Erosion and Sedimentation Control (SESC) permits obtained per Ordinance?		
Did soil or sediment discharge into the MS4 from construction activity? If so, was the City of Kalamazoo notified?		

E. Post-Construction Stormwater Runoff Program

<i>Post-Construction Stormwater Runoff Control Action Description</i>	<i>Actions #/Yes/No/NA</i>	<i>Explanation</i>
Were post-construction performance standards applied to all projects subject to the City of Kalamazoo stormwater ordinance and performance standards?		
Were any site plans reviewed and approved to ensure compliance with the City of Kalamazoo stormwater ordinance and performance standards? If no, describe exceptions.		

F. Pollution Prevention and Good Housekeeping Program

Were the inspection, maintenance, and cleaning activities for the following structural controls implemented in accordance with the approved procedure? Provide documentation.

<i>Structural Control Type</i>	<i>Inspection & Maintenance Activities Conducted in Accordance with Approved Procedures? (Yes/No)</i>	<i>If no, provide explanation</i>	<i>Certify inspection and/or maintenance date</i>
Detention Basins			
Oil/Water Separators			
Secondary Containment			
Vegetated Swales			
Infiltration Basins/Trenches			

Porous Pavement			
Rain Gardens			
Other Structural Controls: (Add space as needed)			

Are you implementing BMPs in accordance with your approved procedures to prevent or reduce pollutant runoff from the following operating and maintenance activities?

<i>Activity</i>	<i>BMPs Implemented? Yes/No/ NA</i>	<i>If no, provide explanation</i>
Road, Parking Lot, and Sidewalk Maintenance (e.g. pothole, sidewalk, and curb and gutter repair)		
Cold Weather Operations (e.g. plowing, sanding, application of deicing agents, and snow pile disposal)		
Maintenance of college-owned vehicles, including certifying that no vehicles are washed with a discharge to the regulated MS4.		

Are you following the procedures/actions below?

<i>Activity</i>	<i>Procedures followed: #/Yes/No/NA</i>	<i>If no, provide explanation</i>
Was P2/GH training provided in accordance with the program? If yes, provide documentation. If no, provide explanation		
Contractor training: provide training materials/Information in bid documents and/or preconstruction meetings.		
Is your pesticide applicator certified by the State of Michigan		

G. Total Maximum Daily Load (TMDL)

<i>Activity</i>	<i>BMPs Implemented? Yes/No/ NA</i>	<i>If no, provide explanation</i>
Determine innovative and ecologic actions to meet TMDL goals		
Continue with overall TMDL public events		
Address TMDL Phosphorus reductions, Pollution Prevention & Good Housekeeping		

***Appendix G - Permit Application for Part 91 Soil Erosion and
Sedimentation Control Form***

APPLICANT RESPONSIBILITIES

All construction or work for which a permit is required shall be subject to inspection by the City and all such construction or work shall remain accessible and exposed for inspection purposes until approved by the City.

- It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes.
- It shall be the duty of the person doing the work authorized by permit to notify the Building Official that such work is ready for inspection.
- Every request for inspection must be scheduled at least one (1) working day before such inspection is desired.
- It shall be the duty of the person requesting any inspections required by this code to provide access to and means for inspection of such work.
- Final Inspection: To be made after all finished work is completed.
- Other Inspections: In addition to the required inspections specified above, the City may make or require other inspections of any work to ascertain compliance with the provisions of the Soil Erosion and Sedimentation Control (SESC) and other laws and ordinances which are enforced by the City.
- Re-inspections: A re-inspection fee may be assessed when such portion of work for which a re-inspection is scheduled, but is not complete or when required corrections are not made.

CERTIFICATE OF COMPLETION

- Certificate of Completion: It is the applicants responsibility to contact the City to request a Certificate of Completion after all final inspections have been conducted and approved.
- Issuance: After the City inspects the work and finds no violations of the provisions of applicable codes or other laws and ordinances that are enforced by the code enforcement agency, the City shall issue a Certificate of Completion.

EXPIRATION OF PERMIT

- A permit remains valid as long as work is progressing and inspections are requested and conducted. A permit shall become invalid if the authorized work is not commenced within sixty days (60) after issuance of the permit or if the authorized work is suspended or abandoned for a period of sixty days (60) after the time of commencing the work.

BA PAY ENV

PERMIT APPLICATION for Part 91 SOIL EROSION AND SEDIMENTATION CONTROL (SESC Permit)



DEVELOPMENT CENTER
415 STOCKBRIDGE AVENUE
KALAMAZOO, MICHIGAN 49001
(269) 337-8026

Required documents/documentation:

A Soil Erosion and Sediment Control Plan including drawings and documentation to clearly describe the proposed earth change which describes steps to be taken to effectively reduce accelerated soil erosion and sediment or both, and which shall include but not be limited to the following information:

- ☐ **A MAP AT A SCALE OF NOT MORE THAN 200 FEET TO THE INCH INCLUDING A LEGAL DESCRIPTION AND SITE LOCATION SKETCH WHICH INCLUDES THE PROXIMITY OF ANY PROPOSED EARTH CHANGES TO LAKES OR STREAMS, OR BOTH; AND CONTOUR INTERVALS OR SLOPE DESCRIPTION.**
- ☐ **A SOILS SURVEY OR WRITTEN DESCRIPTION OF THE SOIL TYPES OF THE EXPOSED LAND AREA CONTEMPLATED FOR EARTH CHANGE.**
- ☐ **A DESCRIPTION AND LOCATION OF THE PHYSICAL LIMITS OF EACH PROPOSED EARTH CHANGE.**
- ☐ **A DESCRIPTION AND LOCATION OF ALL EXISTING AND PROPOSED ON-SITE DRAINAGE FACILITIES.**
- ☐ **THE TIMING A SEQUENCE OF EACH PROPOSED EARTH CHANGE.**
- ☐ **A DESCRIPTION AND THE LOCATION OF ALL PROPOSED TEMPORARY SOIL EROSION CONTROL MEASURES.**
- ☐ **A DESCRIPTION AND LOCATION OF ALL PROPOSED PERMANENT SOIL EROSION CONTROL MEASURES.**
- ☐ **A PROGRAM PROPOSAL FOR THE CONTINUED MAINTENANCE OF ALL PERMANENT SOIL EROSION CONTROL FACILITIES WHICH REMAIN AFTER THE PROJECT COMPLETION, INCLUDING THE DESIGNATION OF THE PERSON RESPONSIBLE FOR THE MAINTENANCE. (SUCH MAINTENANCE RESPONSIBILITIES SHALL BECOME PART OF ANY SALES OR EXCHANGE AGREEMENT FOR THE LAND ON WHICH THE PERMANENT SOIL EROSION CONTROL MEASURES ARE LOCATED)**

EXPIRATION DATE _____

I. APPLICANT (Please check if applicant is the landowner or designated agent*)			
NAME <input type="checkbox"/> LANDOWNER <input type="checkbox"/> DESIGNATED AGENT			
ADDRESS			
CITY	STATE	ZIP CODE	AREA CODE / TELEPHONE NUMBER

3. PROPOSED EARTH CHANGE		
PROJECT TYPE: <input type="checkbox"/> RESIDENTIAL <input type="checkbox"/> MULTI-FAMILY <input type="checkbox"/> COMMERCIAL <input type="checkbox"/> INDUSTRIAL <input type="checkbox"/> LAND BALANCING		
DESCRIBE PROJECT		SIZE OF EARTH CHANGE (acres or square feet)
NAME OF AND DISTANCE TO NEAREST LAKE, STREAM , OR DRAIN	DATE PROJECT TO START	DATE PROJECT TO BE COMPLETED

5. PARTIES RESPONSIBLE FOR EARTH CHANGE				
NAME OF LANDOWNER (If not provided in Box No. 1 above)			ADDRESS	
CITY	STATE	ZIP CODE	AREA CODE / TELEPHONE NUMBER	
NAME OF INDIVIDUAL "ON SITE" RESPONSIBLE FOR EARTH CHANGE			COMPANY NAME	
ADDRESS	CITY	STATE	ZIP CODE	AREA CODE / TELEPHONE NUMBER

I (we) affirm that the above information is accurate and that I (we) will conduct the above described earth change in accordance with Part 91, Soil Erosion Sedimentation Control, of the Natural Resource and Environmental Protection Act, 1994 PA 451, as amended, applicable local ordinances, and the documents accompanying this application.		
LANDOWNER'S SIGNATURE	PRINT NAME	DATE
DESIGNATED AGENT'S SIGNATURE*	PRINT NAME	DATE

Rev. 7/03

In accordance with Rule 1709 promulgated under the authority of Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and in addition to the information on the attached plan(s) and special conditions, the following general conditions apply to the earth change authorized by this permit:

- ## SPECIFIC CONDITIONS

[illegible]