Construction Site Erosion and Sediment Control

PROGRAM MANUAL

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1. INTRODUCTION

1.1 BACKGROUND

The U.S. Environmental Protection Agency (EPA) established the National Pollutant Discharge Elimination System (NPDES) program as part of the Clean Water Act (CWA) to regulate discharges to surface water. In Maine, the Maine Department of Environmental Protection (MaineDEP) has delegated authority to regulate stormwater runoff that enters local water bodies through Municipal Separate Storm Sewer Systems (MS4s) in "Urbanized Areas", also known as "Regulated Area", which is based on the population density estimated from latest U.S. decennial census.

The City is required to obtain a permit for stormwater discharges from the MaineDEP, and is currently covered under a Maine Pollutant Discharge Elimination System (MEPDES) General Permit. The MEDES General Permit for Stormwater Discharges from Small MS4s (MS4 Permit) authorizes the City to discharge stormwater per their Stormwater Management Program (SWMP). In accordance with the MS4 Permit, the SWMP consists of six components called *minimum control measures* which, when implemented, should result in a reduction of pollutants discharging into receiving waters. The minimum control measures are:

1. Public Education and Outreach;
2. Public Involvement and Participation;
3. Illicit Discharge Detection and Elimination;
4. Construction Site Stormwater Runoff Control;
5. Post-Construction Stormwater Management; and
6. Good Housekeeping and Pollution Prevention.

The Construction Site Erosion and Sediment Control (ESC) Program described herein will partially satisfy the requirements of the fourth minimum control measure.

1.2 WHY IS CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL IMPORTANT?

When vegetation and topsoil are stripped from a construction site, erosion of unprotected land typically follows. *Erosion* is the process by which soil particles are displaced by the force of water falling as rainfall or flowing over land, or by the force of wind blowing across disturbed ground. Eroded soil particles can travel to nearby waterways, where these particles eventually fall out of suspension and settle to the bottom as *sediment*.

Although erosion is a natural process, the rate of erosion on most construction sites is as much as 500 times greater than on undisturbed, vegetated sites. Accelerated erosion accounts for the majority of deposited sediment, which degrades water quality by clouding waters, smothering fish eggs and shellfish spawning grounds, preventing growth of natural vegetation, clogging storm drain pipes, and interfering with navigation and recreational use.

Erosion and sediment control procedures (generally referred to as "Best Management Practices" or BMPs) are important for protecting local waterways from environmental damage caused by sediment pollution. Erosion controls are used to prevent soil displacement by dissipating energy from water and wind over disturbed areas, while sediment controls are used to allow sediment to fall out of stormwater runoff while still on the construction site.

1.3 REQUIREMENTS FOR MUNICIPALITIES AND CONSTRUCTION SITE OPERATORS

Municipalities covered under the MS4 Permit are required to develop, implement, and enforce a program to reduce pollutants from stormwater runoff from construction activities that result in a land disturbance of greater than or equal to one acre. (Note: Disturbances less than one acre are included if part of a larger common plan.) The City of Auburn

has elected to rely on the Maine Construction General Permit and Chapter 500 Stormwater Management Rules; the permit therefore directs the City to develop and implement a program that includes the following:

- Procedures for notifying construction site developers and operators of the requirements for registration under the Maine Construction General Permit or Chapter 500, Stormwater Management, for the discharge of stormwater associated with construction activities (see Section 2);
- Documentation of every construction activity that disturbs one or more acres within the Urbanized Area (see Section 3); and
- Site inspection procedures to ensure projects are in compliance with the Maine Construction General Permit and Chapter 500, Stormwater Management (see Section 4). In watersheds of Urban Impaired Streams, and in the permittee's highest priority watershed, inspect the construction activity at least three times with one inspection at project completion to ensure that all post-construction BMPs were properly installed, and that final stabilization of the site has been completed. All construction inspections must be properly documented. For other watersheds, inspect the construction activity a minimum of twice, with one inspection at project completion to ensure that all post-construction BMPs were properly installed, and that final stabilization of the site has been completed.

Operators of construction sites that disturb at least one acre of land are required to obtain coverage under the MEPDES General Permit for Discharges from Construction Activities (also known as the "Maine Construction General Permit" or MCGP). As part of the MCGP permitting process, construction site operators must submit a Notice of Intent (NOI) to the MaineDEP, develop an Erosion and Sedimentation Control (ESC) Plan describing site-specific BMPs and maintenance requirements, conduct regular construction site inspections, and implement corrective actions as needed. Additionally, the City of Auburn has established Soil Disturbance and Fill Standards under Chapter 18 of the City Code of Ordinances that apply to the placement of ten or more cubic yards of fill material at any one time at a specified site or to the accumulation of ten or more cubic yards of fill material. The standards require Applicants to obtain a Fill Permit from the City of Auburn and comply with the specified erosion control requirements.

1.4 PURPOSE OF THIS PROGRAM

The purpose of this Construction Site ESC Program is to establish written procedures for controlling erosion and sediment from construction sites that disturb an acre or more of land in accordance with the MS4 Permit. Additionally, this Manual provides general construction site inspection guidance for all projects required to obtain a Stormwater Management and/or Fill Permit. This Manual provides guidance to City of Auburn staff for implementing the Construction Site ESC Program procedures in a strategic fashion, and can be used as a training tool for staff.

2. LEGAL AUTHORITY

2.1 NOTIFICATION OF PERMIT REQUIREMENTS

The MS4 Permit requires that municipalities have procedures for notifying construction site developers and operators of the requirements for registration under the MCGP or Chapter 500 for the discharge of stormwater associated with construction activities. The City of Auburn's notification procedures consist of a question on permit application forms to trigger awareness of the MCGP and to direct projects disturbing one acre or more to obtain a MCGP. **Appendix A** includes a copy of the Development Review Application, which notes the following under the Delegated Review Authority Checklist for Site Location of Development and Stormwater Management:

1. If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with MaineDEP.
2. If the proposed impervious area is greater than one acre including any impervious area created since 11/16/05, then the applicant shall apply for a MaineDEP Stormwater Management Permit, Chapter 500, with the City.
3. If total impervious area (including structures, pavement, etc) is greater than 3 acres since 1971 but less than 7 acres, then the applicant shall apply for a Site Location of Development Permit with the City. If more than 7 acres then the application shall be made to MaineDEP unless determined otherwise.
4. If the development is a subdivision of more than 20 acres but less than 100 acres then the applicant shall apply for a Site Location of Development Permit with the City. If more than 100 acres then the application shall be made to MaineDEP unless determined otherwise.

2.2 RESPONSIBLE PARTIES

The City of Auburn has delegated authority from the State of Maine to administer and enforce the stormwater management regulations under 38 MRSA § 420-D. The City of Auburn Code of Ordinances (Chapter 60, ARTICLE XVI – Division 2 (Site Plans) and Division 4 (Subdivision)) establishes that site developments and subdivisions requiring stormwater permits shall be reviewed to ensure that they comply with the Stormwater Management Law promulgated by the MaineDEP. The Engineering Department is responsible for review of site developments and subdivisions to ensure compliance with these regulations. Additionally, the Department of Public Services follows current acceptable and standard erosion control procedures for all municipal construction work. In the case that a MCGP permit is required for a municipal project, a NOI is issued for a project, included in the contract Bid documents, and followed through the course of construction to ensure proper erosion control.

Additional responsible parties are listed in Table 2-1: *Responsible Parties for Implementing Construction Site ESC Program.*

Table 2-1: Responsible Parties for Implementing Construction Site ESC Program

Primary Responsible Party	Responsibilities
Planning Staff	- Coordinates with Engineering, Code, and other departments - Administers Stormwater Management & Erosion Control Ordinance - Performs "completeness" check of development applications - Identifies need for Stormwater Management Permit - Schedules review meeting(s) and public hearing(s) - Provides Public Notice - Compiles development review applications and other applicable documentation and submits to Engineering

Primary Responsible Party	Responsibilities
	- Coordinates Staff Reports, develops Conditions of Approval (including erosion and sediment control requirements) and submits notification to Engineering of Approvals and Issued Permits
Engineering Staff	- Conducts technical review of development review applications - Conducts construction site inspections for Fill Permits, sites that disturb more than one acre, and Post-Construction BMPs - Manages building permit review process - Reviews site inspection results and citizen complaints - Conducts abatement activities - Maintains Construction Site Database
Code Enforcement Staff	- Manages code enforcement - Attends Pre-Application Meetings & Development Review Group Meetings - Conducts construction site inspections during building and plumbing inspections - Notifies Engineering of construction site issues - Manages enforcement actions - Notifies applicant of requirements under federal and local law

3. PERMITTING PROCESS

As noted on the City's Development Review Application under the Delegated Review Authority Checklist for Site Location of Development and Stormwater Management, if the proposed impervious area is greater than one acre, including any impervious area created since 11/16/05, then the applicant shall apply for a MaineDEP Stormwater Management Permit, Chapter 500, with the City; the Engineering Department reviews all proposed plans for compliance with these standards. Additionally, in accordance with the City Code of Ordinances (Chapter 18, Article II, Division 2), a Fill Permit is required for activities with greater than or equal to ten cubic yards of fill; these permits are processed and issued by the Engineering Division of the Department of Public Services in accordance with the City of Auburn's Excavation and Street Opening Policy.

This Program Manual focuses on stormwater discharges from construction activities requiring a Stormwater Management Permit, which also must be covered under the MCGP. Procedures are outlined for reviewing, issuing, and tracking permits. The City follows a similar permitting process for other development review applications that do not require a Stormwater Management Permit.

3.1 STORMWATER MANAGEMENT, DEVELOPMENT REVIEW, AND FILL PERMIT REQUIREMENTS

Through the City's development review process, developments of a certain size are required to submit a Stormwater Management Permit application for review and approval by the Department of Planning, Permitting and Code; all developments requiring a Stormwater Management Permit trigger the requirement for a MCGP. Guidance for the development of an ESC Plan for a Stormwater Management Permit, per Chapter 500, is provided in the MaineDEP Erosion and Sediment Control BMP Manual. Erosion Control requirements for Fill Permits are stipulated in Chapter 18, Article II, Division 1 of the City Code of Ordinances; any erosion or sedimentation control measures not covered in this article shall be installed in accordance with the MaineDEP Erosion and Sediment Control BMP Manual.

Stormwater Management Permit Applications are required to include the following information relative to construction site erosion and sediment control for review:

- Amount of Disturbed Land, Developed Area, Impervious Area;
- Type of Direct Watershed; and
- Chapter 500 Basic Standard Submissions:
    - ESC Plan & Details;
    - Inspection & Maintenance Plan; and
    - Housekeeping Plan.

For all other Development Review Applications, which do not require a Stormwater Management Permit, the following information relative to construction site erosion and sediment control is required for review:

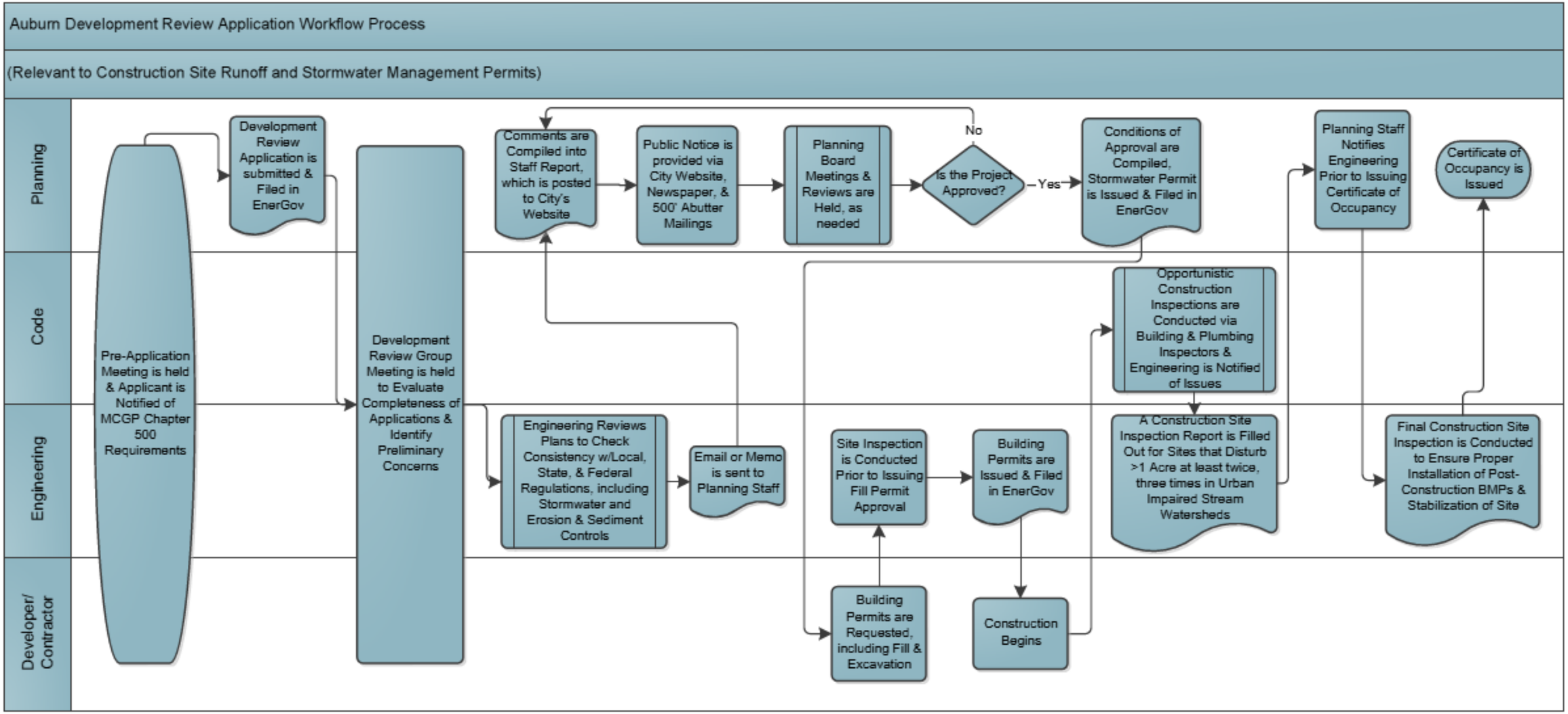
- Amount of Existing Impervious Area, Proposed Disturbed Area, Proposed Impervious Area;
- Erosion Control Measures consistent with Chapter 500 Basic Standards, as applicable; and
- Copy of MCGP, as applicable.

The following information relative to construction site erosion and sediment control is required for the review of Fill Permit Applications:

- Amount of Fill Area;
- MCGP #, as applicable; and
- Erosion Controls consistent with Chapter 18, Article II, Division 1 of the City Code of Ordinances.

Figure 3-1: *Development Review Application Workflow Process* illustrates how these requirements are integrated into the City's development review process. Development Review approval requirements and an application checklist are included in **Appendix B**.

Figure 3-1: Development Review Application Workflow Process



3.2 PERMIT ISSUANCE & CONDITIONS OF APPROVAL

The City will issue a Stormwater Management Permit following approval of the development review application(s) described above. Any conditions of permit approval will be retained by relevant City staff for future reference. Prior to issuance of Fill Permits, the Engineering Department conducts an initial site inspection. Copies of permits are kept on file within the City's EnerGOV system. No construction activities may commence until the City has issued all necessary permits.

3.3 PROJECT TRACKING

In accordance with the MS4 Permit, the City of Auburn is required to document every construction activity that disturbs one or more acres within the Urbanized Area. The Department of Planning, Permitting and Code maintains an Excel Spreadsheet of all Development Review Applications and can track the status of projects that exceed one acre of disturbance and require post-construction stormwater management BMPs; the City's EnerGOV System has also been recently updated to identify sites that disturb one or more acre. Additionally, the City's Fill Permit Application requests confirmation of whether the proposed fill area exceeds one acre and if a MCGP has been acquired; this information is entered into the City's EnerGOV System, which can be utilized to identify sites that will disturb one or more acres and require a MCGP. The Department of Planning, Permitting and Code compiles a Staff Report of review comments for each Development Review Application, which gets posted to the City's website and is available for public review.

4. CONSTRUCTION SITE INSPECTIONS

The City conducts periodic inspections of construction sites to ensure projects are in compliance with both state and local regulations, particularly the MCGP and Chapter 500 Rules. Construction site inspections are managed through the Department of Public Services in cooperation with the Department of Planning, Permitting and Code. In watersheds of Urban Impaired Streams, and in the permittee's highest priority watershed, construction sites are inspected at least three times, with one inspection at project completion to ensure that all post-construction BMPs were properly installed and that final stabilization of the site has been completed. All construction inspections are properly documented. For other watersheds, construction sites are inspected a minimum of twice, with one inspection at project completion to ensure that all post-construction BMPs were properly installed and that final stabilization of the site has been completed.

Construction site operators subject to the Chapter 500 Basic Standard (i.e. Stormwater Management Permit Sites) are required to conduct regular self-inspections once every seven calendar days, before and after storm events, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections. The construction site operator is responsible for retaining documentation of completed inspections and corrective actions onsite for review. Table 4-1: *Inspection Frequency Requirements* outlines how often construction site inspections must be completed by City staff and construction site operators.

Table 4-1: Inspection Frequency Requirements

Project Type	City Staff Inspections	Contractor Self-Inspections
Large Projects (≥1 acre disturbed)	- A minimum of two inspections (three if located within an Urban Impaired Stream Watershed or Logan Brook Watershed), including one upon completion - Opportunistic inspections - Complaint-driven inspections - Additional inspections as needed if chronic deficiencies are identified	- Weekly site inspections (every 7 calendar days) - Rain event inspections, before and after - Final inspection prior to completion of permanent stabilization measures
Fill Permits (any size ≥ 10 CY of fill)	- Initial site inspection prior to Issuing Fill Permit - Annual inspections of active sites - Opportunistic inspections - Complaint-driven inspections - Additional inspections as needed if chronic deficiencies are identified	- No inspections required
Small Projects (<10 CY of Fill)	- No inspections required	- No inspections required

4.1 PRE-INSPECTION PROCEDURES

Prior to conducting a construction site inspection, City staff should review available records, such as the approved Permit(s) and Plans submitted for the project. If applicable, review recent inspection reports in order to verify past problems have been corrected.

The following items will be needed for each construction site inspection:

- Inspection credentials (City ID and business cards);

- City of Auburn Stormwater Inspection Reports (see examples in **Appendix C**);
- Copy of ESC Plan and site map;
- Field book for taking notes;
- Personal protective equipment (hard hat, steel-toe boots, reflective safety vest, etc.); and
- Copies/notes of past inspection reports, if applicable.

4.2 INSPECTION PROCEDURES

4.2.1 Conducting the Inspection

Before entering the construction site or staging areas, observe the exterior of the site and note the various stages of construction. This is a good time to look at the condition of construction vehicle exit locations, perimeter controls (e.g. silt fence), and inlet protection in storm drains that could potentially receive runoff from the construction site.

Upon entering the site, ask to speak with the construction site operator (typically the site superintendent). If this person is not available, ask to speak with someone familiar with the ESC Plan. Request to see documentation of the completed inspections and corrective actions, as required by Chapter 500 for all Stormwater Management Permit Sites (i.e. reports from the weekly self-inspections, inspections before and after storm events, and the final inspection prior to completing permanent stabilization measures). If the necessary records are not available, ask why and then inform the individual of the requirement to maintain copies of completed inspection reports onsite for inspection by the City and MaineDEP; permittees are required to retain records for at least three years from the completion of permanent stabilization. The records should contain the following information:

- The name(s) and qualifications of the person making the inspections;
- The date(s) of the inspections and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicles access points to the parcel;
- BMPs that need maintenance;
- BMPs that failed to operate as designed or proved inadequate for a particular location and location(s) where additional BMPs are needed; and
- Notes on the corrective action taken and when it was taken for each BMP requiring maintenance, needing replacement, and locations needing additional BMPs.

Discuss the project with the construction site operator as you review the available records; this is a good way to evaluate how the procedures described in the ESC Plan are being implemented at the site. Questions to ask the construction site operator can include:

- How long has construction been underway? What is the sequence of construction activities?
- Does this project involve concrete pouring at the site? If so, how do you handle concrete washout?
- How do you track rainfall? What procedures are in place to prepare the site for a forecasted rain event?
- Are toxic or hazardous materials (paints, solvents, acids, etc.) stored onsite?
- Do you refuel vehicles or equipment onsite?
- Where does the construction site runoff discharge?
- Have there been any changes or amendments to the ESC Plan?

After discussing the work, proceed with the site inspection; inspect disturbed and impervious areas, erosion control measures, materials storage areas exposed to precipitation, and locations where vehicles enter or exit the site. Note the location and condition of BMPs, discharge locations, and inlets, and document any concerns or violations. Recommended steps for completing the site inspection are:

1. *Inspect discharge points and downstream, off-site areas.*

Look for locations around the perimeter of the project where sediment could migrate off-site (typically through construction vehicle exits). If sediment appears to be leaving the site, follow its path downstream to determine the extent of travel and impacts to receiving drains and waterways. Inspect downstream catch basins to ensure proper sediment control and decide if additional BMPs are needed. Additional steps shall be taken, where necessary, in order to prevent sedimentation of the water. Evidence of sedimentation includes visible gully erosion, discoloration of water by suspended particles, and slumping of banks.

2. *Compare construction site conditions with BMPs described in the ESC Plan.*

   Determine if all BMPs described in the ESC Plan (e.g. perimeter controls, sediment barriers, etc.) have been properly installed and maintained at the site; all measures should be maintained in effective operating condition until areas are permanently stabilized. As necessary, evaluate locations where additional BMPs may be required and are not included in the ESC Plan. If BMPs need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within seven calendar days and prior to any storm event. At project completion, upon issuance of the Certificate of Occupancy, a final inspection should be conducted to ensure that all post-construction BMPs were properly installed and that final stabilization of the site has been completed.

3. *Inspect disturbed areas where construction activity has stopped.*

   Exposed soil must be stabilized with vegetative or non-vegetative controls no later than seven calendar days after earth-disturbing activities in that portion of the site have temporarily or permanently ceased. Permanent re-vegetation of all disturbed areas, using native plant material wherever possible, shall occur within 30 days from the time the areas were last actively worked, or, for fall and winter activities, by June 15th, except where precluded by the type of activity (e.g., riprap, road surfaces, etc.). The vegetative cover shall be maintained.

4.2.2 Common Compliance Issues at Construction Sites

Compliance issues commonly found at construction sites include, but are not limited to, those listed in Table 4-2: *Common Compliance Issues at Construction Sites*. Keep these in mind as you conduct your site inspection.

Table 4-2: Common Compliance Issues at Construction Sites

Common Compliance Issue	Description
No perimeter controls onsite.	Silt fence or other perimeter controls must be installed at the site before the start of earth-disturbing activities.
No inlet protection.	Before earthwork begins, inlet protection must be installed in storm drains that may receive untreated runoff from the site. Storm drain inlet protection is often in the form of "silt sacks" that capture sediment before it can enter the drainage system. Silt sacks need to be cleaned, or removed and replaced, when they become clogged with accumulated sediment or debris. *(Note: Inlet protection can be removed in the event of flood conditions or other specific safety concern.)*
No erosion or sediment controls for temporary stockpiles.	Temporary stockpiles must be surrounded by silt fence or other temporary perimeter barrier, and cannot be placed within natural buffer areas. Wherever feasible, stockpiles should be covered to protect against erosion and prevent sediment discharge.

Common Compliance Issue	Description
Vehicle tracking of sediment onto nearby roadways.	Construction sites should have designated construction vehicle exit locations with sediment controls such as stone pads to prevent sediment from being tracked onto paved roadways. If sediment has accumulated on the roadway, construction exits should be repaired and street sweeping may be necessary. Also, check that construction vehicles are leaving the site only from designated exit locations.
Improper concrete washout.	Concrete washout water must be contained in a leak-proof container or leak-proof pit that is designed so that no overflows can occur due to rainfall or inadequate sizing. Washout should be done in designated areas as far away as possible from surface waters and storm drains.
Improper solid waste or hazardous waste management.	Designated dumpsters or other trash containers must be provided to contain and properly dispose of solid waste. Overflowing trash containers should be cleaned up immediately. Hazardous waste must be stored separately from solid waste in sealed containers with secondary containment (e.g. spill berms or contaminant pallets). Spill kits should be readily available.
Dewatering at the construction site.	Dewatering typically occurs during deep excavations to construct building footing or install underground utilities. Dewatering water that has visible suspended solids must be treated to remove sediment prior to discharge. Dewatering operations may require an additional permit from the EPA.

4.2.3 Exit Interview

At the conclusion of the site inspection, prepare a preliminary list of findings to be discussed with the construction site operator. Complete the Stormwater Inspection Report and determine the severity of observed deficiencies. Conduct an exit interview with the construction site operator to communicate your findings and explain any areas of concern. Let the operator know that no written warnings or fines will be imposed as long as deficiencies are addressed in a timely manner. Wherever possible, reference the section of the MCGP and Chapter 500 pertaining to negative findings.

Keep in mind that is up to the construction site operator to determine which BMPs to use. However, it is acceptable to explain to the operator how other construction sites typically handle certain compliance problems. Refer the operator to guidance materials such as the MaineDEP Erosion and Sediment Control BMP Manual.

4.3 POST-INSPECTION PROCEDURES

Upon returning to the office, make sure all relevant fields in the Stormwater Inspection Report have been completed. Save a copy of the completed inspection report for at least three years following the expiration of the City's MS4 Permit.

4.4 CONSTRUCTION TRACKING

Construction typically begins upon the issuance of Permits, at which time construction site inspections will begin; an initial site inspection is conducted prior to the approval of Fill Permits. The Engineering Department will be notified by the Planning, Permitting and Code Department prior to issuance of a Certificate of Occupancy so that a final construction site inspection can be conducted to ensure that all post-construction BMPs were properly installed and that final stabilization of the site has been completed. For each active construction site that disturbs over one acre, an inspection report, such as the one provided in **Appendix C**, will be utilized to document inspections; a Post-

Construction BMP Inspection Report, such as the one provided in **Appendix C**, will also be utilized during final inspections to ensure that Post-Construction BMPs have been properly installed. Records of these inspections will be kept on file for at least three years following the expiration of the City's MS4 Permit.

5. ENFORCEMENT

Any noncompliance with the MCGP is considered a violation of Maine's water quality laws and the federal Clean Water Act and may result in enforcement action by the City, State, or both. Noncompliance issues discovered during inspections (e.g. missing BMPs, sediment tracked offsite, etc.) are the responsibility of the construction site operator to resolve in a timely manner. This section describes the incremental procedures that will be implemented to enforce compliance with the MCGP, as well as the City's Stormwater Management and Erosion Control Ordinances.

5.1 VOLUNTARY COMPLIANCE

The preferred approach to address compliance problems is to pursue voluntary compliance from the construction site operator. Often, operators are not aware of the existence of activities on their sites that may constitute a permit violation. In these cases, providing the operator with information on the area of concern, reference to any relevant permit sections, potential environmental consequences, and suggestions on how to implement corrective actions may be enough to secure voluntary compliance.

5.2 ENFORCEMENT ACTIONS

When voluntary compliance cannot be obtained or does not produce the desired result, the Engineering Department will notify Code Enforcement. Enforcement actions will be the responsibility of Code Enforcement or the State of Maine. The City may issue fines for any violations of conditions of approval. Violations that are more serious or continued non-compliance may warrant a more aggressive enforcement approach, such as issuing a Stop Work Order and utilizing bonds to fix the violation, pending resolution of the problems as identified by the Engineering Department. Table 5-1: *Enforcement Procedures* outlines detailed enforcement steps.

Table 5-1: Enforcement Procedures

Enforcement Step	Responsibilities
Step 1 – Initial Actions	- Conduct onsite compliance meeting with construction site operator to document and discuss violations. - Set compliance date (determined on individual incident basis). - Provide construction site operator education. - Encourage voluntary compliance.
Step 2 – Follow-up Actions	- Conduct site visit to verify compliance and completion of work. - Send "notice of violation" letter*, indicating that unresolved issues and fines will be referred to prosecutor. - Request evidence of corrected problem.
Step 3 – Final Actions	- Send second "notice of violation" letter*. - Prosecutor to commence fines or issue a Stop Work Order.

*Document copies of all written notifications.

5.3 MAINEDEP PENALITIES FOR PERMIT VIOLATIONS

Construction sites that violate the requirements or conditions of the MCGP constitute a violation of Maine's water quality laws and the federal Clean Water Act and subject the discharger to penalties under 38 M.R.S.A. § 349, and § 309 of the Clean Water Act.

6. TRAINING AND VOLUNTARY REPORTING

6.1 ANNUAL EMPLOYEE TRAINING

Employee training is an important component of the City of Auburn's Program. City staff is trained in various stormwater management items throughout the MS4 Permit term. City staff responsible for implementing the Construction Site ESC Program, including those that review plans and permit applications, conduct site visits and inspections, maintain tracking database(s), and enforce any of the Program components, will be trained to conduct these activities and identify erosion and sediment control problems, recognize permit violations, and document findings.

Training will be conducted annually and/or as needed for staff turnover. Topics may vary each year based on staffing education needs. See **Appendix D** for an example of the staff training presentation.

6.2 VOLUNTARY REPORTING

The City of Auburn has a "Report It" tool on the City homepage that allow citizens to report problems within the City. The City also maintains a phone line and after hours emergencies can be reported to the Auburn Police Department at (207) 333-6650.

APPENDIX A: CITY OF AUBURN DEVELOPMENT REVIEW APPLICATION

Development Review Application

City of Auburn Planning and Permitting Department
City of Lewiston Department of Planning and Code Enforcement

PROJECT NAME: _____

PROPOSED DEVELOPMENT ADDRESS: _____

PARCEL ID#: _____

REVIEW TYPE: **Site Plan** □ **Site Plan Amendment** □
Subdivision □ **Subdivision Amendment** □

PROJECT DESCRIPTION: _____

_____

_____

CONTACT INFORMATION:

Applicant	**Property Owner**
Name:	**Name:**
Address:	**Address:**
Zip Code	**Zip Code**
Work #:	**Work #:**
Cell #:	**Cell #:**
Fax #:	**Fax #:**
Home #:	**Home #:**
Email:	**Email:**

Project Representative	**Other professional representatives for the project (surveyors, engineers, etc.),**
Name:	**Name:**
Address:	**Address:**
Zip Code	**Zip Code**
Work #:	**Work #:**
Cell #:	**Cell #:**
Fax #:	**Fax #:**
Home #:	**Home #:**
Email:	**Email:**

PROJECT DATA

The following information is required where applicable, in order complete the application

IMPERVIOUS SURFACE AREA/RATIO

Existing Total Impervious Area _____sq. ft.
Proposed Total Paved Area _____sq. ft.
Proposed Total Impervious Area _____sq. ft.
Proposed Impervious Net Change _____sq. ft.
Impervious surface ratio existing _____% of lot area
Impervious surface ratio proposed _____% of lot area

BUILDING AREA/LOT COVERAGE

Existing Building Footprint _____sq. ft.
Proposed Building Footprint _____sq. ft.
Proposed Building Footprint Net change _____sq. ft.
Existing Total Building Floor Area _____sq. ft.
Proposed Total Building Floor Area _____sq. ft.
Proposed Building Floor Area Net Change _____sq. ft
New Building _____(yes or no)
Building Area/Lot coverage existing _____% of lot area
Building Area/Lot coverage proposed _____% of lot area

ZONING

Existing _____
Proposed, if applicable _____

LAND USE

Existing _____
Proposed _____

RESIDENTIAL, IF APPLICABLE

Existing Number of Residential Units _____
Proposed Number of Residential Units _____
Subdivision, Proposed Number of Lots _____

PARKING SPACES

Existing Number of Parking Spaces _____
Proposed Number of Parking Spaces _____
Number of Handicapped Parking Spaces _____
Proposed Total Parking Spaces _____

ESTIMATED COST OF PROJECT _____

DELEGATED REVIEW AUTHORITY CHECKLIST

SITE LOCATION OF DEVELOPMENT AND STORMWATER MANAGEMENT

Existing Impervious Area _____sq. ft.
Proposed Disturbed Area _____sq. ft.
Proposed Impervious Area _____sq. ft.

1. ***If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with MDEP.***
2. ***If the proposed impervious area is greater than one acre including any impervious area crated since 11/16/05, then the applicant shall apply for a MDEP Stormwater Management Permit, Chapter 500, with the City.***
3. ***If total impervious area (including structures, pavement, etc) is greater than 3 acres since 1971 but less than 7 acres, then the applicant shall apply for a Site Location of Development Permit with the City. If more than 7 acres then the application shall be made to MDEP unless determined otherwise.***
4. ***If the development is a subdivision of more than 20 acres but less than 100 acres then the applicant shall apply for a Site Location of Development Permit with the City. If more than 100 acres then the application shall be made to MDEP unless determined otherwise.***

TRAFFIC ESTIMATE

Total traffic estimated in the peak hour-existing _____passenger car equivalents (PCE)
(Since July 1, 1997)

Total traffic estimated in the peak hour-proposed (Since July 1, 1997)_____passenger car equivalents (PCE)

If the proposed increase in traffic exceeds 100 one-way trips in the peak hour then a traffic movement permit will be required.

Zoning Summary

1. Property is located in the _____zoning district.
2. Parcel Area: _____acres / _____ square feet(sf).

Regulations	Required/Allowed	Provided
Min Lot Area	_____/	_____
Street Frontage	_____/	_____
Min Front Yard	_____/	_____
Min Rear Yard	_____/	_____
Min Side Yard	_____/	_____
Max. Building Height	_____/	_____
Use Designation	_____/	_____
Parking Requirement	1 space/ per_____ square feet of floor area	
Total Parking:	_____/	_____
Overlay zoning districts(if any):	_____/	_____/ _____
Urban impaired stream watershed?	YES/NO If yes, watershed name_____	

DEVELOPMENT REVIEW APPLICATION SUBMISSION

Submissions shall include fifteen (15) complete packets containing the following materials:

1. Full size plans containing the information found in the attached sample plan checklist.
2. Application form that is completed and signed.
3. Cover letter stating the nature of the project.
4. All written submittals including evidence of right, title and interest.
5. Copy of the checklist completed for the proposal listing the material contained in the submitted application.

Refer to the application checklist for a detailed list of submittal requirements.

L/A's development review process and requirements have been made similar for convenience and to encourage development. Each Citys ordinances are available online at their prospective websites:
Auburn: www.auburnmaine.org under City Departments/ Planning and Permitting/Land Use Division/Zoning Ordinance
Lewiston: http://www.ci.lewiston.me.us/clerk/ordinances.htm Refer to Appendix A of the Code of Ordiances

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, I certify that the City's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for development review only; a Performance Guarantee, Inspection Fee, Building Permit Application and other associated fees and permits will be required prior to construction.

Signature of Applicant:	**Date:**

APPENDIX B: CITY OF AUBURN DEVELOPMENT REVIEW CHECKLIST

Development Review Checklist

City of Auburn Planning and Permitting Department
City of Lewiston Department of Planning and Code Enforcement

THE FOLLOWING INFORMATION IS REQUIRED WHERE APPLICABLE TO BE SUBMITTED FOR AN APPLICATION TO BE COMPLETE

PROJECT NAME:_____

PROPOSED DEVELOPMENT ADDRESS and PARCEL #:_____

Required Information		***Check Submitted***		***Applicable Ordinance***	
Site Plan		***Applicant***	***Staff***	***Lewiston***	***Auburn***
	Owner's Names/Address				
	Names of Development				
	Professionally Prepared Plan				
	Tax Map or Street/Parcel Number				
	Zoning of Property				
	Distance to Property Lines				
	Boundaries of Abutting land				
	Show Setbacks, Yards and Buffers				
	Airport Area of Influence (Auburn only)				
	Parking Space Calcs				
	Drive Openings/Locations				
	Subdivision Restrictions				
	Proposed Use				
	PB/BOA/Other Restrictions				
	Fire Department Review				
	Open Space/Lot Coverage				
	Lot Layout (Lewiston only)				
	Existing Building (s)				
	Existing Streets, etc.				
	Existing Driveways, etc.				
	Proposed Building(s)				
	Proposed Driveways				
Landscape Plan					
	Greenspace Requirements				
	Setbacks to Parking				
	Buffer Requirements				
	Street Tree Requirements				
	Screened Dumpsters				
	Additional Design Guidelines				
	Planting Schedule				

Required Information		*Check Submitted*		*Applicable Ordinance*	
Site Plan		*Applicant*	*Staff*	*Lewiston*	*Auburn*
Stormwater & Erosion Control Plan					
	Compliance w/ chapter 500				
	Show Existing Surface Drainage				
	Direction of Flow				
	Location of Catch Basins, etc.				
	Drainage Calculations				
	Erosion Control Measures				
	Maine Construction General Permit				
	Bonding and Inspection Fees				
	Post-Construction Stormwater Plan				
	Inspection/monitoring requirements				
	Third Party Inspections (Lewiston only)				
Lighting Plan					
	Full cut-off fixtures				
	Meets Parking Lot Requirements				
Traffic Information					
	Access Management				
	Signage				
	PCE - Trips in Peak Hour				
	Vehicular Movements				
	Safety Concerns				
	Pedestrian Circulation				
	Police Traffic				
	Engineering Traffic				
Utility Plan					
	Water				
	Adequacy of Water Supply				
	Water main extension agreement				
	Sewer				
	Available city capacity				
	Electric				
	Natural Gas				
	Cable/Phone				
Natural Resources					
	Shoreland Zone				
	Flood Plain				
	Wetlands or Streams				
	Urban Impaired Stream				
	Phosphorus Check				
	Aquifer/Groundwater Protection				
	Applicable State Permits				

Required Information		***Check Submitted***		***Applicable Ordinance***	
Site Plan		***Applicant***	***Staff***	***Lewiston***	***Auburn***
	No Name Pond Watershed (Lewiston only)				
	Lake Auburn Watershed (Auburn only)				
	Taylor Pond Watershed (Auburn only)				
Right Title or Interest					
	Verify				
	Document Existing Easements, Covenants, etc.				
Technical & Financial Capacity					
	Cost Est./Financial Capacity				
	Performance Guarantee				
State Subdivision Law					
	Verify/Check				
	Covenants/Deed Restrictions				
	Offers of Conveyance to City				
	Association Documents				
	Location of Proposed Streets & Sidewalks				
	Proposed Lot Lines, etc.				
	Data to Determine Lots, etc.				
	Subdivision Lots/Blocks				
	Specified Dedication of Land				
Additional Subdivision Standards					
	Single-Family Cluster (Lewiston only)				
	Multi-Unit Residential Development (Lewiston only)				
	Mobile Home Parks				
	Private Commercial or Industrial Subdivisions (Lewiston only)				
	PUD (Auburn only)				
A JPEG or PDF of the proposed site plan					
Final sets of the approved plans shall be submitted digitally to the City, on a CD or DVD, in AutoCAD format R 14 or greater, along with PDF images of the plans for archiving					

APPENDIX C: CITY OF AUBURN STORMWATER INSPECTION REPORTS

Construction Inspection Form for Sediment and Erosion Control
(for use by MS4 CEOs)

Site Name: Map/Lot:	Date of Inspection:
Inspector:	Inspection Time: AM/PM
Pictures Taken:	Weather:
Type of Inspection: Initial / Return / Winter Stabilization / Final Stabilization	

Inspection Parameters		**Comments**
Description and estimate of construction area that is disturbed:		
Does contractor have Erosion and Sediment Control Plan, drawings, and inspection log on site?	**Yes / No**	
Is the contractor or a third party inspector conducting inspections after rain events and weekly as required by the Erosion and Sediment Control Plan for the site?	**Yes / No**	
Is the construction entrance clean with no trackout of sediment?	**Yes / No**	
Is waste properly managed (concrete washout disposed of properly, no liquids in waste container, waste containers closed)?	**Yes / No**	
Are there any petroleum or hazardous materials on site, and if so, are there spill controls in place?	**Yes / No**	
Review the site plan for sediment and erosion control requirements. Select "Pass" if structures are properly installed and functioning as required. Select "Fail" if contractor needs to make corrections or repairs, and describe briefly repairs needed. **Select "N/A" for "Not Applicable" if they do not apply at the site.**		
Catch Basin Protection	**Pass / Fail / NA**	
Silt Fence /Hay bales	**Pass / Fail / NA**	
Erosion Control Berm or Sock	**Pass / Fail / NA**	
Dust Control	**Pass / Fail / NA**	
Dewatering	**Pass / Fail / NA**	
Other:_____	**Pass / Fail / NA**	
Any Areas of Repeated Non-compliance that require MDEP Notification?	**Yes / No**	
Any other comments?		

CONSTRUCTION SITE
INSPECTION REPORT

POST-CONSTRUCTION BMP INSPECTION
FILL OUT AT PROJECT COMPLETION

Project Name:		**Site Plan #**
Date & Time of Site Visit:	**CGP Tracking No. (if applicable)**	
Location (Address of Site):		
Contractor:	**Owner:**	
Weather:		
Indicate date and total rainfall depth of most recent storm event:		

Is the site permanently stabilized? Yes No Partially (comment below)

Are temporary erosion and sediment control measures removed from the site?

Yes No Partially (comment below)

Will site conditions allow for proper inspection of Post Construction Stormwater BMP structures?

Yes No Partially (comment below)

Comments:_____

Type(s) of permanent Post Construction Stormwater BMP's installed per plan / observed (indicate how many of each):		
	#Per Plan	**#Observed**
Peak Flow Control / Detention Basins		
Wet Ponds		
Vegetated Buffers		
Infiltration BMPs		
Filtration BMPs		
Grassed Underdrained Soil Filter BMP		
Underdrained Bioretention Cell BMP		
Underdrained Subsurface Sand Filter BMP		
Stormtreat Filter BMP		
Filterra		
Roof Dripline Filtration BMP		
Manmade Pervious Surfaces		
The Stormfilter®		
Conveyance and Distribution Systems		
Vegetated Swales		
Flow Splitters and Bypass		
Level Spreaders		
Permeable Road Base		
Separator BMPs		
Other Structure (list below)		

Types of Stormwater Collection / Conveyance Systems Onsite:		
	#Per Plan	**#Observed**
Catch Basins		
Field Inlets		
Drain Manholes		
Drainage Swales (between an inlet and outlet)		
Culverts		
Inlets		
Outlets		
Curb/Gutter Openings		
Other:		

Post Construction Stormwater Management Structure Inspection Checklist (Inspect applicable systems)		
BMP SYSTEM	**INSPECTED YES/NO/N.A.**	**COMMENT # (List comment(s) on following page)**
Peak flow Control/Detention Basins		
Signs of structural failure		
Dimensions per plan		
Wet Ponds		
Side slopes stabilized and per plan		
Emergency spillway dimensions per plan		
Outlet control structure per plan		
Gravel trench per plan		
Forebay dimensions per plan		
Vegetated Buffers		
Buffer's slope <15% and relatively uniform		
Appropriate height of vegetation		
Spreaders and turn-outs dimensions per plan		
Spreaders bay's and turn-out pool's dimensions per plan		
Infiltration BMPS		
Infiltration area per plan		
Basin side slope per plan		
Proper grass buffer strips growth		
Pollution control devices installed per plan		
Filtration BMPs		
Grassed Under Drained Soil Filter		
Surface stabilized with grass growth		
Soil filter area per plan		
Overflow per plan		
Riser structure per plan		
Sediment forebay / inlet per plan		
Underdrained Bioretention Cell BMP		
Surface stabilized with vegetation growth		
Mulch depth installed per plan		
Retention cell area per plan		
Overflow per plan		
Riser structure per plan		
Sediment forebay / inlet per plan		
Under Drain Subsurface Sand Filter		
Inspection ports per plan		
Inlet/outlet control structures per plan		
Storm Treat Filter BMP		
Inlet/outlet control structures per plan		

Vegetation growth per plan		
Filterra		
Filter media and mulch layer at proper height		
Tree/plant is growing and in healthy condition		
Filter free of structural damage.		
Roof Dripline Filtration BMP		
Dripline filter area per plan		
Manmade Pervious Surfaces		
Surface area installed per plan		
The Stormfilter		
# Cartridges per plan		
Conveyance and Collection Systems		
Vegetated Swales		
Size and location appear consistent with plans		
Stabilized side slopes		
Erosion Control Blankets in place		
Swale reseeded/sodded on bare spots		
Woody or other undesirable vegetation controlled per plan		
Rip rap installed per plan		
Flow Splitters and Bypass		
Signs of structural failure		
Dimensions per plan		
Level Spreader		
Permeable Road Base		
Upslope face stone layer stabilized and free of eroded soil, road and, debris and leaf litter		
Culverts and Drain Lines		
Material/Diameter/General location per plans		
Inlet and outlet protection installed		
Cover appears appropriate		
Inlet and outlet embankment stabilized, rip rap in place		
Manholes/Catchbasins		
Size/General Location per plans		
Materials per plans		
Frame & Cover/ Grate installed properly		
Free of debris and sediment		
Other structures / Ponds		
Outlet Control Structure installed		
Sideslopes stabilized and vegetated		
Size and location appear consistent with plans		
Emergency spillway rip rap per plans		
Basin inlets/outlets clear of debris		
Inlets/outlets clear of debris and no signs of erosion		
Trash racks / debris guards installed properly		

Comment #	Comment

APPENDIX D: TRAINING PROGRAM

Auburn's Construction Site Erosion and Sediment Control Program

2013-2018

WOODARD &CURRAN

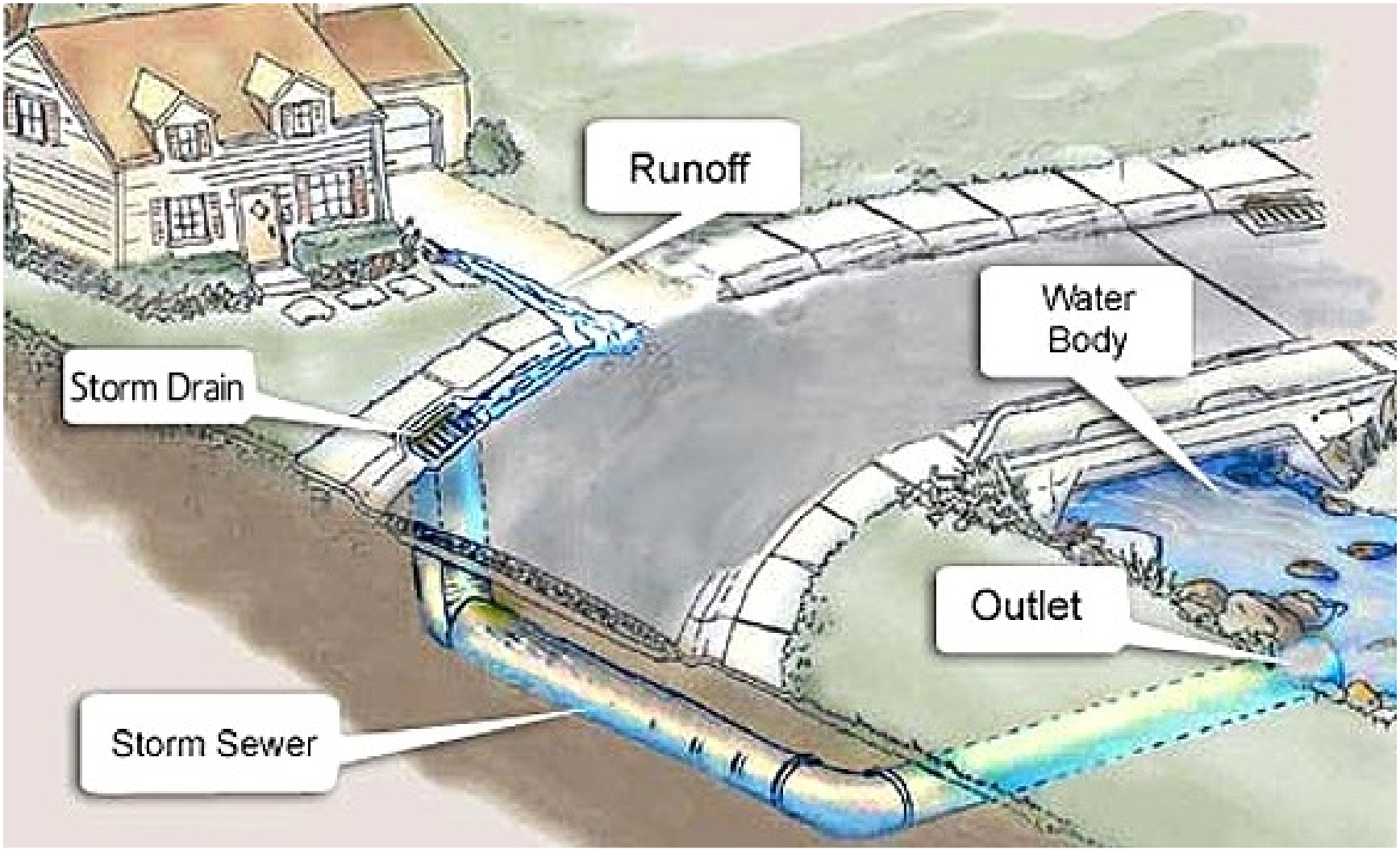
COMMITMENT & INTEGRITY DRIVE RESULTS

Today's training will answer…

- What is the MS4 Permit?
- What is Erosion and Sediment Control (ESC)?
- How does it impact us?
- What is Auburn's ESC Program?
- What is your role and responsibility?

WOODARD &CURRAN

Drainage



Drainage Prevents Damage

Stormwater is drained away to prevent expensive damage to our infrastructure.

basements	→	**cracking**
streets	→	**erosion**
beneath roadways	→	**road heaving**

WOODARD &CURRAN

Polluted Stormwater

- Unfortunately, our drainage systems also carry pollutants like sediment, oil, fertilizers, and trash.
- Rainwater that falls on paved streets, lawns, parking lots, and sidewalks becomes polluted stormwater.

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Stormwater & Water Pollution

- So, polluted stormwater from parking lots, roadways, and construction sites drains directly to streams and water bodies.
- **Did You Know**: the EPA lists sediment as the most common pollutant impairing the waters of the United States?

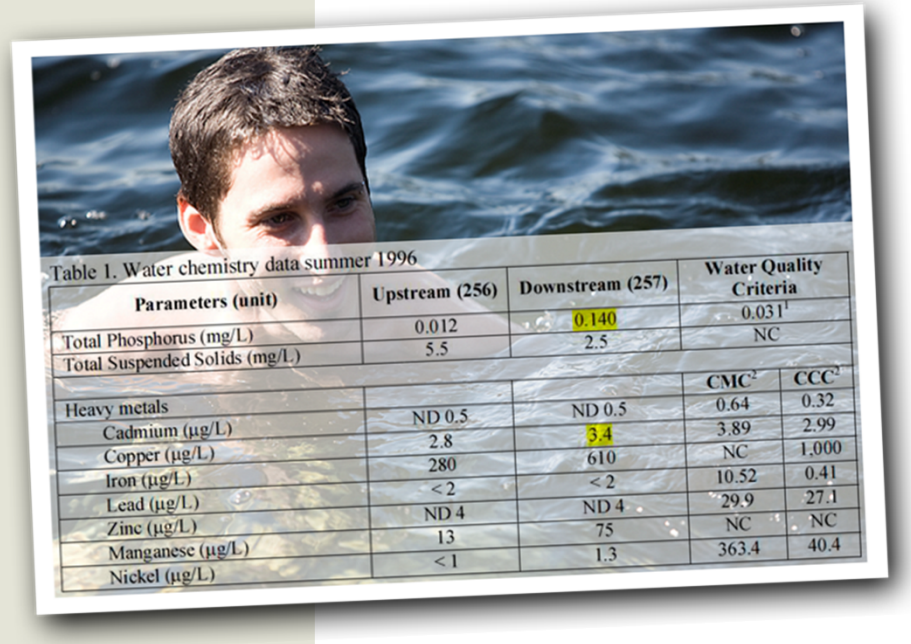

Table 1. Water chemistry data summer 1996

Parameters (unit)	Upstream (256)	Downstream (257)	Water Quality Criteria
Total Phosphorus (mg/L)	0.012	0.140	0.031[1]
Total Suspended Solids (mg/L)	5.5	2.5	NC
			CMC[2] / CCC[2]
Heavy metals			
Cadmium (µg/L)	ND 0.5	ND 0.5	0.64 / 0.32
Copper (µg/L)	2.8	3.4	3.89 / 2.99
Iron (µg/L)	280	610	NC / 1,000
Lead (µg/L)	< 2	< 2	10.52 / 0.41
Zinc (µg/L)	ND 4	ND 4	29.9 / 27.1
Manganese (µg/L)	13	75	NC / NC
Nickel (µg/L)	< 1	1.3	363.4 / 40.4

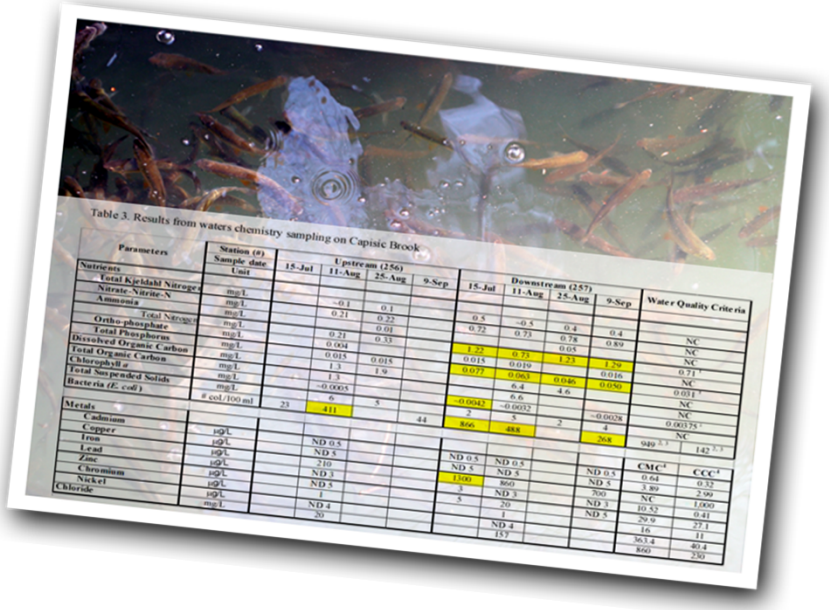

Table 3. Results from waters chemistry sampling on Capisic Brook

Parameters	Station (#)	Upstream (256)				Downstream (257)				Water Quality Criteria
	Sample date	15-Jul	11-Aug	25-Aug	9-Sep	15-Jul	11-Aug	25-Aug	9-Sep	
Nutrients	Unit									
Total Kjeldahl Nitrogen	mg/L									
Nitrate-Nitrite-N	mg/L		<0.1	0.1			<0.5			
Ammonia	mg/L		0.21	0.22		0.5		0.4		
Total Nitrogen	mg/L					0.72	0.71	0.78	0.4	
Ortho-phosphate	mg/L			0.01					0.89	NC
Total Phosphorus	mg/L		0.21	0.33		1.22	0.29	0.05		NC
Dissolved Organic Carbon	mg/L		0.004			0.015	0.019	1.23	1.29	NC
Total Organic Carbon	mg/L		0.015	0.015		0.077	0.063		0.016	0.71[3]
Chlorophyll a	mg/L		1.3	1.9			6.4	0.046	0.050	NC
Total Suspended Solids	mg/L		<0.0005				6.6	4.6		0.031[3]
Bacteria (E. coli)	# col/100 ml	23	6	5	44	<0.0042	<0.0032			NC
			411			2	5	2	<0.0028	NC
Metals						866	488		4	0.00375[3]
Cadmium	µg/L		ND 0.5						368	NC
Copper	µg/L		ND 5			ND 0.5	ND 0.5			989[2,3] / 142[2,3]
Iron	µg/L		210			ND 5	ND 5		ND 0.5	
Lead	µg/L		ND 3			1300	860		ND 5	CMC[2] / CCC[2]
Zinc	µg/L		ND 5			3	ND 3		ND 3	0.64 / 0.32
Chromium	µg/L					5	20		ND 5	3.89 / 2.99
Nickel	µg/L		ND 4				1			NC / 1,000
Chloride	mg/L		20				ND 4			10.52 / 0.41
							155			29.9 / 27.1
										16 / 11
										363.4 / 40.4
										860 / 230

What is an MS4?

- A municipal separate storm sewer system is:
  - A conveyance or system of conveyances owned by a state, city, town, or other public entity that discharges to the waters of the U.S. and is
    - Designed or used for collecting or conveying stormwater
    - Not a combined sewer
    - Not part of a publicly owned treatment works

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What is an MS4?

- **Clean Water Act** requires EPA to regulate any discharges from the MS4
  - In MA, EPA administers this permit
  - Every five years a new permit is drafted and issued (in theory)
  - Each permittee (city) is required to develop and submit a Stormwater Plan consistent with the general permit
  - Auburn is a permittee, part of the Androscoggin Valley Stormwater Working Group with Lewiston, Lisbon, and Sabattus

WOODARD &CURRAN

Failure to Comply with MS4 Permit

- Enforcement Action
  - Notice of Violation, fines, or other penalties
  - Consent Order
  - Prosecution
- Permit Termination or Revocation
- Permit Modification
  - Stricter permit limits
- Denial of Permit Renewal

Endangerment of Environment and Public Health & Safety

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Results of Polluted Stormwater

WOODARD &CURRAN

Auburn's Stormwater Program

- Six Minimum Control Measures
  - Public Education
  - Public Involvement
  - Illicit Discharge Detection and Elimination
  - **Construction Site Runoff Control**
  - Post-Construction Stormwater Management
  - Good Housekeeping and Pollution Prevention

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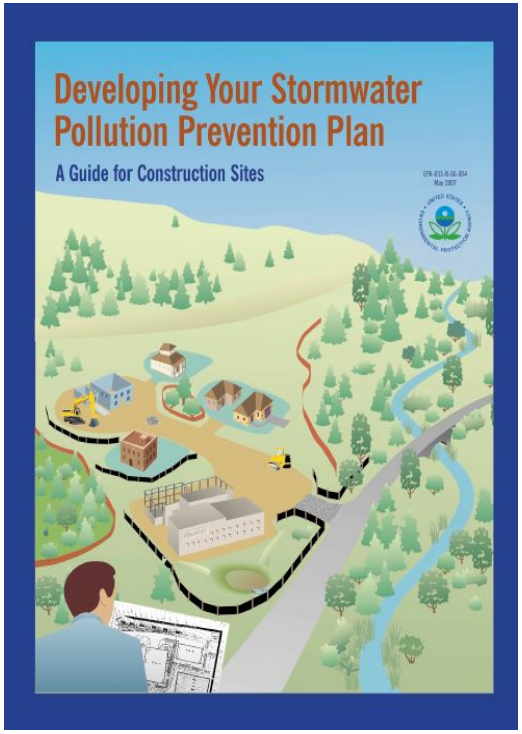
Construction Site ESC Program

- Ordinance requirements
- Construction site tracking
- Erosion and sediment control plans and BMPs at construction sites
- Control of construction waste (discarded building materials, concrete truck washout, litter, etc.)
- Procedures for site inspections and enforcement action
- Annual employee training



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What is Erosion and Sediment Control?

- Erosion is the process by which soil particles are displaces by the forces of water (e.g. rainfall) or wind.
- Eroded soil particles can travel to nearby waterways and settle to the bottom as sediment.
- Accelerated erosion occurs on construction sites at rates up to 500x greater than on undisturbed, vegetated sites.
- Erosion and sediment control (ESC) procedures (i.e. BMPs) protect local waterways from sediment pollution.

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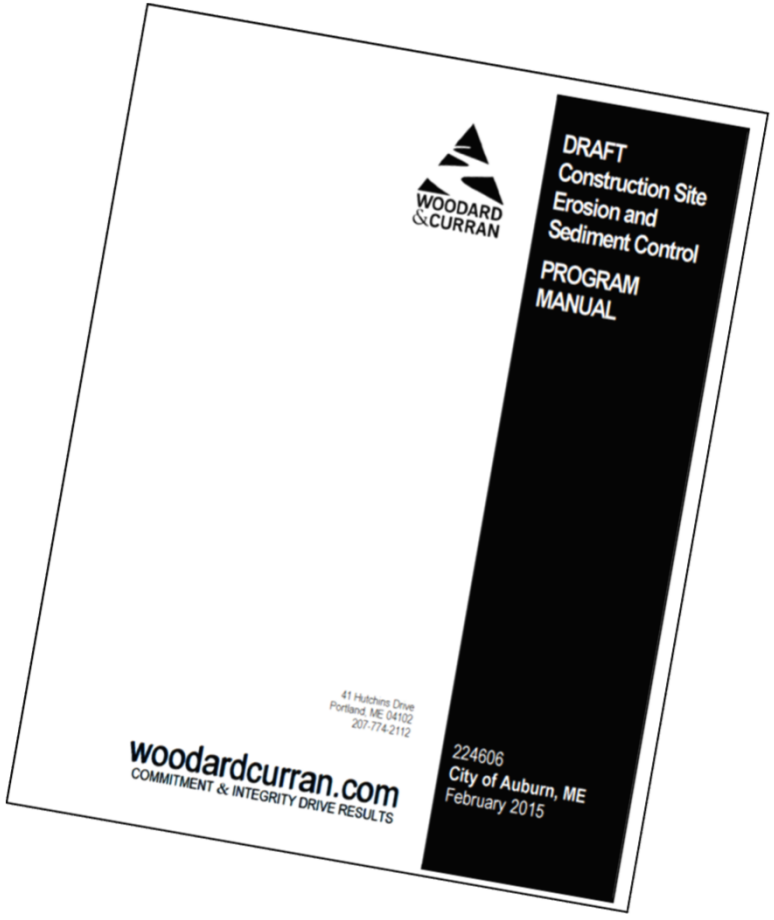
Auburn's ESC Program Overview

1. Site Plan Review and Permit Approval
2. Project Tracking Database
3. Construction Site Inspections
4. Enforcement



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Responsible Parties

- Administrative Authority
  - Department of Planning, Permitting, and Code
- Site Plan & Permit Review
  - Department of Planning, Permitting, and Code
- Field Inspections
  - Department of Public Services
  - Department of Planning, Permitting, and Code
- Tracking and Recordkeeping
  - Department of Planning, Permitting, and Code
- Review and Follow Up
  - Department of Public Services
  - Department of Planning, Permitting, and Code
- Enforcement Actions
  - Department of Planning, Permitting, and Code
  - Department of Public Services

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Site Plan Review & Permit Approval

- All projects requiring Planning Board Development Review must submit:
  - Site-specific Stormwater & Erosion Control Plan consistent with MaineDEP Chapter 500 Basic Standards
- Projects that will disturb ≥1 acre must also submit:
  - CGP Notice of Intent (NOI)

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Construction Site Inspections

Project Type	City Staff Inspections	Contractor Self-Inspections
Large Projects (≥1 acre)	• A minimum of two inspections (three if located within an Urban Impaired Stream Watershed or Logan Brook Watershed), including one upon completion • Opportunistic inspections • Complaint-driven inspections • Additional inspections as needed if chronic deficiencies are identified	• Weekly site inspections (every 7 calendar days) • Rain event inspections, before and after • Final inspection prior to completion of permanent stabilization measures
Fill Permits (any size ≥ 10 CY of fill)	• Initial site inspection prior to Issuing Fill Permit • Annual inspections of active sites • Opportunistic inspections • Complaint-driven inspections • Additional inspections as needed if chronic deficiencies are identified	• No inspections required
Small Projects (<10 CY of Fill)	• No inspections required	• No inspections required

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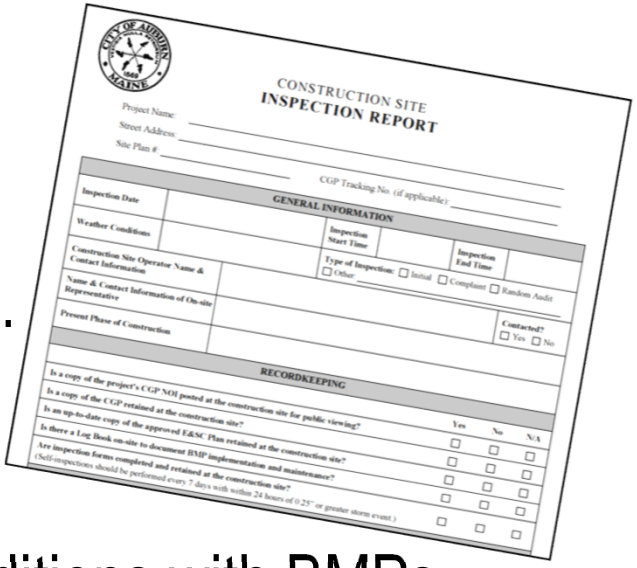
What Are You Looking For?

- Review ESC Plan.
- Inspect discharge points and downstream, off-site areas.
  - Perimeter controls
  - Inlet protection



CONSTRUCTION SITE
INSPECTION REPORT

Project Name:
Street Address:
Site Plan #:
CGP Tracking No. (if applicable):

GENERAL INFORMATION

Inspection Date		Inspection Start Time	Inspection End Time
Weather Conditions			
Construction Site Operator Name & Contact Information		Type of Inspection: ☐ Initial ☐ Compliant ☐ Random Audit ☐ Other	
Name & Contact Information of On-site Representative			Contacted? ☐ Yes ☐ No
Present Phase of Construction			

RECORDKEEPING

	Yes	No	N/A
Is a copy of the project's CGP NOI posted at the construction site for public viewing?	☐	☐	☐
Is a copy of the CGP retained at the construction site?	☐	☐	☐
Is an up-to-date copy of the approved E&SC Plan retained at the construction site?	☐	☐	☐
Is there a Log Book on-site to document BMP implementation and maintenance?	☐	☐	☐
Are inspection forms completed and retained at the construction site? (Self-inspections should be performed every 7 days with within 24 hours of 0.25" or greater storm event.)	☐	☐	☐

- Compare construction site conditions with BMPs described in the E&SCP.
- Inspect disturbed areas where construction activity has stopped.
  - Disturbed areas must be stabilized within 7 calendar days

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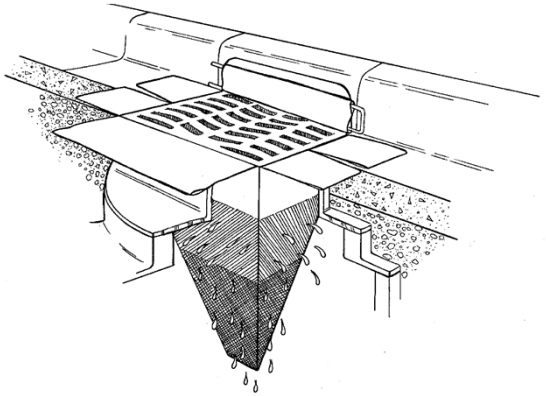
Common BMPs at Construction Sites

- Common Best Management Practices (BMPs) include:
  - Storm Drain Inlet Protection
  - Stabilized Construction Exits
  - Silt Fence / Perimeter Controls
  - Soil Stabilizing Mats, Mulches, and Blankets
  - Concrete Washout Stations
  - Temporary Sediment Traps
  - Solid Waste and Hazardous Materials Management
  - Vegetative Stabilization
- Additional BMPs used at construction sites can be found at: http://water.epa.gov/polwaste/npdes/swbmp/Construction-Site-Stormwater-Run-Off-Control.cfm

WOODARD &CURRAN

Storm Drain Inlet Protection

- "Silt sacks" or similar fabric filters are commonly used for inlet protection.
- Inspection tips:
  - Inlet protection must be installed before the start of earth-disturbing activities, and remain in place until final stabilization.
  - There should be no gaps allowing unfiltered water to enter the storm drain.
  - Accumulated sediment must be removed when it reaches a point where it impedes flow through the filter.
  - Filters must be replaced if the fabric is torn or otherwise becomes ineffective.



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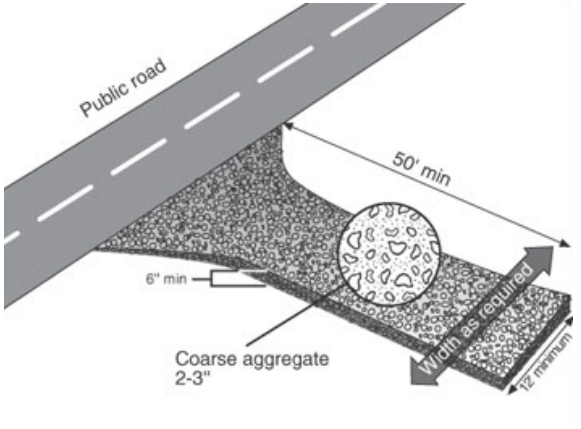
Stabilized Construction Exit

- Crushed stone driveways are effective for reducing the amount of sediment tracked onto paved roads.
- Inspection tips:
  - Check adjacent roadways for tracked sediment and determine if street sweeping is required.
  - Stone should be large enough so it does not wash away or get stuck in tire treads.
  - Installed length of crushed stone driveways should be at least 50 feet.
  - Stone should be replaced when voids become full of sediment.



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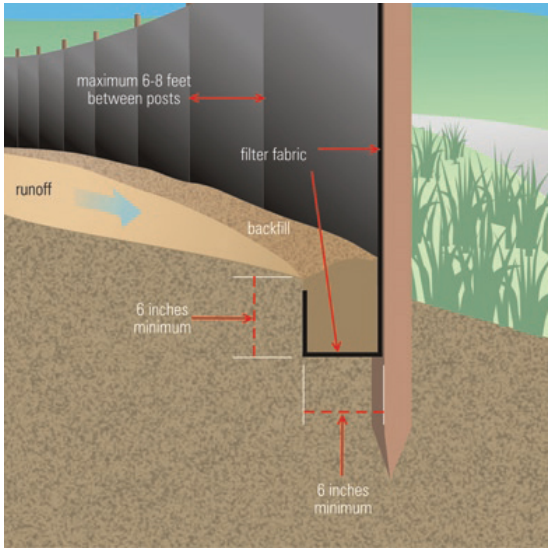
Perimeter Sediment Control

- Silt fence is a common perimeter sediment control intended to settle out sediment from sheet flow while allowing runoff to filter through.
- Inspection tips:
  - Silt fences should be installed along the contour (on a level horizontal plane), and the ends should be turned upslope in J-hooks to help pond surface runoff.
  - Silt fences must be trenched-in with stakes on the downslope side, and soil should be compacted after trenching/installation.
  - Sediment should be removed when it reaches 1/3 of the height of the silt fence.
  - Silt fences should not be used as check dams.



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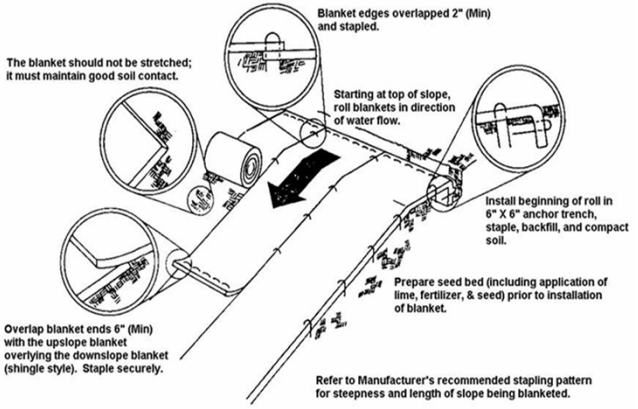
Mats, Mulches, and Blankets

- Soil stabilizing mats and blankets are often used on disturbed slopes to prevent erosion, while mulches are typically used in flat areas to help vegetation growth.
- Inspection tips:
  - Mats and blankets should be in complete contact with the underlying soil, and no water should be flowing underneath.
  - Mats and blankets installed in sections should be overlapped and stapled in accordance with manufacturers' instructions.
  - Mulch should not be placed in areas with concentrated flows.
  - If erosion is occurring in mulched areas, more mulch may need to be applied.



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Concrete Washout Stations

- Concrete washout water must be contained in a leak-proof container or leak-proof pit.
- Inspection tips:
  - Washout should be done in designated areas as far away as possible from surface waters and storm drains.
  - Concrete washout water must not contact the ground or overflow due to rainfall or inadequate sizing.
  - A sign should be installed adjacent to each washout facility to direct equipment operators to the proper area.

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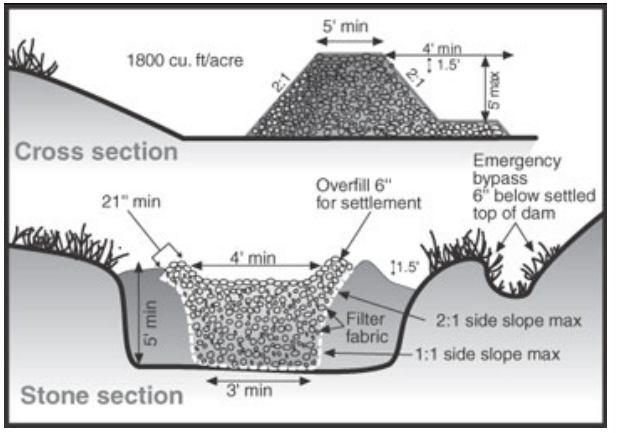
Temporary Sediment Traps

- Temporary sediment traps are small ponding areas constructed onsite that help settle out the majority of sediment from runoff prior to discharge.
- Inspection tips:
  - Traps should be designed to hold at least 1,800 cu. ft. of runoff per acre of contributing drainage.
  - Traps should not be located in a stream or culvert, or in areas where failure would pose a risk to life or property.
  - Sediment should be removed when it reached 1/3 of the design volume of the trap.
  - Check the outlet for maintenance needs.



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Solid Waste & Hazardous Materials

- Designated trash containers must be provided for solid waste. Hazardous materials (oil, gasoline, paint, etc.) must be stored separately in sealed containers with secondary containment.
- Inspection tips:
  - Overflowing trash containers should be cleaned up immediately.
  - Spill kits should be readily available.
  - Access to storage areas should be restricted to prevent vandalism.
  - Wastes must be disposed of properly in accordance with local, state, and federal disposal requirements.

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Vegetative Stabilization

- Vegetative stabilization is the temporary or permanent seeding and sodding of disturbed areas to minimize erosion.
- Inspection tips:
  - Disturbed areas where construction activity has stopped must be stabilized within 7 days.
  - Concentrated flows should be diverted away from newly seeded areas.
  - Check for erosion in stabilized areas. Soil stabilizing mats or mulch may be necessary to help establish vegetation.
  - For final stabilization, uniform vegetative cover must be perennial and provide at least 70% of the cover provided by vegetation prior to the commencement of earth-disturbing activities.

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Common Compliance Issues

Common Compliance Issue	Description
No perimeter controls onsite.	Silt fence or other perimeter controls must be installed at the site before the start of earth-disturbing activities.
No inlet protection.	Before earthwork begins, inlet protection must be installed in storm drains that may receive untreated runoff from the site. Storm drain inlet protection is often in the form of "silt sacks" that capture sediment before it can enter the drainage system. Silt sacks need to be cleaned, or removed and replaced, when they become clogged with accumulated sediment or debris. (Note: Inlet protection can be removed in the event of flood conditions or other specific safety concern.)
No erosion or sediment controls for temporary stockpiles.	Temporary stockpiles must be surrounded by silt fence or other temporary perimeter barrier, and cannot be placed within natural buffer areas. Wherever feasible, stockpiles should be covered to protect against erosion and prevent sediment discharge.
Vehicle tracking of sediment onto nearby roadways.	Construction sites should have designated construction vehicle exit locations with sediment controls such as stone pads to prevent sediment from being tracked onto paved roadways. If sediment has accumulated on the roadway, construction exits should be repaired and street sweeping may be necessary. Also, check that construction vehicles are leaving the site only from designated exit locations.
Improper concrete washout.	Concrete washout water must be contained in a leak-proof container or leak-proof pit that is designed so that no overflows can occur due to rainfall or inadequate sizing. Washout should be done in designated areas as far away as possible from surface waters and storm drains.
Improper solid waste or hazardous waste management.	Designated dumpsters or other trash containers must be provided to contain and properly dispose of solid waste. Overflowing trash containers should be cleaned up immediately. Hazardous waste must be stored separately from solid waste in sealed containers with secondary containment (e.g. spill berms or contaminant pallets). Spill kits should be readily available.
Dewatering at the construction site.	Dewatering typically occurs during deep excavations to construct building footing or install underground utilities. Dewatering water that has visible suspended solids must be treated to remove sediment prior to discharge. Dewatering operations may require an additional permit from the EPA.

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It's Only Filed If You Can Find It

- **Good recordkeeping** throughout the year is essential.
  - Approved site plans and Erosion and Sediment Control Plans
  - CGP NOIs for sites ≥1 acre
  - Construction Site Database
  - Completed Inspection Reports and photos
  - Calls and complaints (name, date, time, nature of complaint)
  - Enforcement actions taken

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Photo Credits

- Water Pollution
  - http://news.bbc.co.uk/olmedia/440000/images/_442536_fish300.jpg
  - http://soilphysics.uga.edu/images/RGA%20197.jpg
  - http://japanhs.weebly.com/uploads/3/8/1/3/38131351/452782119.jpg?634
  - http://www.twu.edu/images/rm/stream_pollution.jpg
- Erosion and Sediment Control
  - https://firestation219.files.wordpress.com/2012/03/construction-site-dust.jpg
- Storm Drain Inlet Protection
  - http://www.priceandcompany.com/siltsack.html
  - http://waterfilterz.com/2709-drain-filter-storm-water.html
- Perimeter Sediment Control
  - http://urbanworkbench.com/wp-content/uploads/2013/09/Silt-Fencing_3.jpg
  - http://upload.wikimedia.org/wikipedia/commons/9/95/Silt_fence_installation_detail_EPA.jpg
  - http://nebraskah2o.org/wp-content/uploads/2011/06/silt-fence-good.bmp
- Stabilized Construction Exit
  - http://extension.missouri.edu/explore/images/g01509art04.jpg
  - http://www.ecy.wa.gov/programs/wq/stormwater/wwstormwatermanual/entrance.JPG
- Mats, Mulches, and Blankets
  - http://1.bp.blogspot.com/_NfkyYGKIYDk/Sp6uSUW3OZI/AAAAAAAAAyE/PHNkilhcADY/s400/Camelot+ECB+Installation+2.JPG
  - http://www.enviro-pro-us.com/images/erosion-control-blanket-installation.png
- Concrete Washout Stations
  - http://ez-washout.com/images/skwashout1.jpg
- Temporary Sediment Traps
  - http://extension.missouri.edu/explore/images/g01509art09.jpg
  - http://www.montgomerycountymd.gov/DEP/Resources/Images/compliance/sedimentpondpermittedsite_280x210.jpg
- Solid Waste & Hazardous Materials Management
  - http://guam.stripes.com/sites/guam.stripes.com/files/styles/news_node/public/waste_0.jpg?itok=HJzE7mNI
  - http://www.enviro-pads.com/forweb/HAZ_MAT_Building.jpg
- Vegetative Stabilization
  - http://www.mass.gov/eea/agencies/czm/program-areas/stormsmart-coasts/coastal-landscaping/plant-highlights.html#GrassesandPerennials
  - http://www.propexglobal.com/propex/wp-content/uploads/landlok-trm.jpg

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THANK YOU!

QUESTIONS?

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COMMITMENT & INTEGRITY DRIVE RESULTS