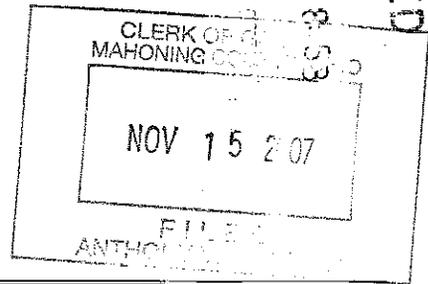


IN THE COURT OF COMMON PLEAS
MAHONING COUNTY, OHIO

STATE OF OHIO ex rel. :
MARC DANN, :
ATTORNEY GENERAL OF OHIO, :
 :
Plaintiff, :
 :
v. :
 :
CTW DEVELOPMENT CORPORATION :
 :
Defendant. :

CASE NO. 2006 CV 02715

JUDGE _____



CONSENT ORDER

The Complaint in the above-captioned matter having been filed herein, and Plaintiff, State of Ohio, by its Attorney General Marc Dann (hereinafter "**Plaintiff**"), and Defendant CTW Development Corporation (hereinafter "**Defendant**"), having consented to the entry of this Order,

NOW THEREFORE, without trial of any issue of fact or law, and upon consent of the parties hereto, it is hereby ORDERED, ADJUDGED AND DECREED as follows:

I. JURISDICTION AND VENUE

1. The Court has both personal and subject matter jurisdiction over the parties. The Complaint states a claim upon which relief can be granted against Defendant under Chapters 6111 and 1517 of the Ohio Revised Code (hereinafter "**R.C.**") and the rules promulgated under those statutes and under an action in civil trespass, and venue is proper in this Court.

II. PARTIES

2. The provisions of this Consent Order shall apply to and be binding upon the parties to this action, their agents, officers, employees, assigns, successors in interest and others bound by Rule 65(D) of the Ohio Rules of Civil Procedure who are acting in concert and/or privity with Defendant. Defendant shall provide a copy of this Consent Order to each general contractor and/or consultant it employs to perform work itemized herein and each general contractor shall provide a copy of this Consent Order to each of its subcontractors for such work.

III. SATISFACTION OF LAWSUIT

3. Plaintiff alleges in its Complaint that Defendant has owned and/or developed, in at least three phases, a piece of property that is over 400 acres located in Canfield Township, Mahoning County, known as "The Westford Lifestyle Community" (hereinafter "**the Site**") in such a manner as to violate Ohio's water pollution control laws, Ohio's laws protecting natural areas and preserves, and to engage in civil trespass. Defendant does not admit the allegations contained in the Complaint. Nevertheless, compliance with the terms of this Consent Order shall constitute full satisfaction of any civil liability by Defendant for all claims alleged in the Complaint.

4. Nothing in this Consent Order shall be construed to limit the authority of the State of Ohio to seek relief against other appropriate persons for claims or conditions alleged in the Complaint. Nothing in this Consent Order shall be construed to limit the authority of the State of Ohio to seek relief against Defendant or other appropriate persons for claims or conditions not alleged in the Complaint, including violations that occur after the filing of the Consent Order. Nothing in this Consent Order shall be construed to limit the authority of the State of Ohio to

seek relief against Defendant or other appropriate persons for criminal liability arising out of claims or conditions alleged in the Complaint, or not alleged in the Complaint, including criminal liability that may occur after the filing of the Consent Order. Similarly, nothing in this Consent Order shall be construed to limit the authority of the State of Ohio to undertake any action against any person, including Defendant, to eliminate or mitigate conditions that may present a threat to the public health, welfare or the environment.

IV. PERMANENT INJUNCTION

5. Defendant is hereby permanently enjoined and immediately ordered to comply with the requirements of R.C. Chapters 6111 and 1517 and the rules adopted thereunder. Defendant is further hereby permanently enjoined and ordered to immediately comply with the terms and conditions of the April 21, 2003 General National Pollutant Discharge Elimination System Permit for Stormwater Discharges Associated with Construction Activities (hereinafter the “**2003 Permit**”)(attached hereto as **Exhibit A**), and any renewals or modifications thereof.

V. COMPLIANCE PROGRAM

6. By no later than October 15, 2007, Defendant shall dewater the ponds on the site that Defendant refers to as Pond #1, and #5. All water removed from these ponds shall be properly disposed of by sending this water to a Publicly Owned Treatment Works for treatment. By no later than October 31, 2007, Defendant shall submit documentation to demonstrate that all water removed from the ponds on the site that defendant refers to as Pond #1 and #5 has been sent to a Publicly Owned Treatment Works for treatment. This documentation shall be submitted to the Ohio EPA at the address set forth in Paragraph 11(F)(iii).

7. By no later than November 30, 2007, Defendant shall dewater the ponds on the site that Defendant refers to as Pond #4, #7, Winstead Crossing #1, the unnumbered Winstead Crossing Pond and the unnumbered Wakehurst Village pond. All water removed from these ponds shall be properly disposed of by sending this water to a Publicly Owned Treatment Works for treatment. By no later than December 15, 2007, Defendant shall submit documentation to demonstrate that all water removed from the ponds on the site that Defendant refers to as Pond #4, #7, Winstead Crossing #1, the unnumbered Winstead Crossing Pond and the unnumbered Wakehurst Village Pond has been sent to a Publicly Owned Treatment Works for treatment. This documentation shall be submitted to the Ohio EPA at the address set forth in Paragraph 11(F)(iii). In the alternative, Defendant shall spray irrigate all water removed from the ponds on the site that Defendant refers to as Pond #4, #7, Winstead Crossing #1, the unnumbered Winstead Crossing Pond and the unnumbered Wakehurst Village Pond, onto the ground at the site only, in strict accordance with the terms and conditions of a Spray Irrigation Protocol Plan which has been previously submitted to the Ohio EPA at the address set forth in Paragraph 11(F)(iii). This Spray Irrigation Protocol Plan shall include, at a minimum, the following:

- (a) a description of the equipment to be used to spray irrigate the pond water;
- (b) any parameters that will be monitored and at what frequency they will be monitored;
- (c) a description of any operations records that will be maintained, such as location and volume of water irrigated;
- (d) the slope and application rates that will be used to ensure that no runoff occurs into surface waters of the state or to ensure that no erosion will occur in spray irrigation areas;
- (e) a description of any site specific management practices that will be used and maintained to prevent runoff;

- (f) the determination of appropriate weather conditions required for land application;
- (g) isolation distances from any present known and proposed occupied buildings, non-occupied buildings, and areas easily accessible to the public that will be used during spray irrigation activities (isolation distances should be no less than 100 ft.); and
- (h) a map that identifies the application areas and the present known and proposed occupied buildings, non-occupied buildings, and areas easily accessible to the public within three hundred feet of the land application area.

Defendant is prohibited from spray irrigating any water removed from the ponds on the site to lands not owned or leased by CTW Development Corporation.

8. Once the dewatering is complete of the ponds on site that Defendant refers to as Pond #1, #4, #5, #7, Winstead Crossing #1, the unnumbered Winstead Crossing Pond and the unnumbered Wakehurst Village Pond, but by no later than December 15, 2007, Defendant shall dredge all accumulated sediments from each of these ponds. These dredged sediments shall be properly dewatered, properly characterized, and then properly disposed of at a licensed solid or hazardous waste landfill, whichever is applicable. By no later than fifteen (15) days after Defendant has disposed of any dredged sediments at a licensed solid or hazardous waste landfill, Defendant shall submit copies of a receipt from the landfill for each such disposal event to the Ohio EPA at the address set forth in Paragraph 11(F)(iii).

9. Defendant shall immediately ensure that no water whatsoever is discharged from any of the ponds listed in Paragraph 8 to waters of the state unless and until Defendant has applied for and received an individual National Pollutant Discharge Elimination System Permit (hereinafter "NPDES") and a Permit to Install from the Director of the Ohio Environmental Protection Agency (hereinafter "Director" and "Ohio EPA" respectively).

10. In the alternative to submittal of an NPDES Permit application and a Permit to Install

application, Defendant may submit a written notification to the Ohio EPA at the address set forth in Paragraph 11(F)(iii) of its intention to remove all slag from the Site by a date certain and Defendant shall complete these removal activities by the date certain set forth in the notification. Should this alternative option require a permit from the Director, Defendant shall submit a timely application for the appropriate permit(s).

11. Defendant is hereby enjoined and ordered to implement the requirements related to stormwater imposed upon it in R.C. Chapter 6111, the rules adopted under that statute, and the 2003 Permit and any renewals or modifications thereof at the Site in accordance with the following schedule:

(A) By no later than fourteen (14) days from the effective date of this Consent Order, Defendant shall “permanently seed” any and all areas on the Site that have reached final grade but that have not established a uniform perennial vegetative cover with a density of at least 70 percent cover for the area. Defendant shall “permanently seed” any and all areas of the Site in strict accordance with the *Stormwater Control Specifications*, pages 159-175, (attached hereto as **Exhibit B**);

- i) prior to placing seed on the soil, Defendant shall prepare the soil to be seeded in strict accordance with the *Stormwater Control Specifications*, page 167: “Site Preparation” and “Seedbed Preparation”;
- ii) Defendant shall place seed on the soil in strict accordance with the *Stormwater Control Specifications*, page 167: “Seeding Dates And Soil Conditions” and “Dormant Seedings,” and with the “Permanent Seeding” chart found on page 169;
- iii) immediately following application of the seeds to the soil, Defendant shall apply mulch to all seeded areas and shall anchor such mulch in strict accordance with the *Stormwater Control Specifications*, page 160: “Specifications For Mulching” and page 168: “Mulching”;
- iv) immediately following application of the seeds and mulch to the soil, Defendant shall irrigate the seeded area in strict accordance with the *Stormwater Control Specifications*, page 168: “Irrigation”;

v) until Defendant has established a uniform perennial vegetative cover with a density of at least 70 percent cover for the seeded area, Defendant shall maintain and care for the seeded area in strict accordance with the *Stormwater Control Specifications*, page 170: "Specifications For Maintenance Of Permanent Seeding."

(B) Defendant shall immediately ensure that all stormwater "Best Management Practices" are maintained in a functional condition until all drainage areas on the site reach final stabilization, as defined by the 2003 Permit or any renewals or modifications thereof.

(C) By no later than October 30, 2007, Defendant shall ensure that all stormwater discharged from the Bradford Greene housing development located on the Site is not discharged into what Defendant refers to as "Pond #6, and Defendant shall implement upland controls within the Bradford Greene housing development area of the Site which shall include: (i) temporary stabilization of disturbed areas where no active grading or housing construction is occurring; (ii) silt fence on active construction areas where appropriate; (iii) curb and yard storm drain inlet protection; and (iv) rock construction entrances at all points of access to disturbed areas and on active individual building lots. Defendant shall also implement upland controls along the area Defendant refers to as Pond #6;

(D) Defendant shall properly maintain the silt fencing along appropriate perimeters of the Wakehurst Village housing development located on the Site at all times. The silt fence shall be maintained in such a manner as to ensure that sediment laden storm water does not run off of this housing development and into the golf course drains. The silt fence shall be used and placed in strict accordance with the requirements found in Part III(G)(2)(d)(iii) of the 2003 Permit;

(E) Within ten (10) days of a change in design, construction, operation or maintenance, which has a significant effect on the potential for the discharge of pollutants to surface waters of the state, or from the inspection date where it was revealed that a control practice has failed to perform its intended function and that another more appropriate control practice is required, Defendant shall amend its Stormwater Pollution Prevention Plan (hereinafter "SWPPP") to reflect the change or the new control practice. Defendant shall submit the amended version to the Director for his review and approval. The amended SWPPP shall be written in strict conformance with Part III of the 2003 Permit and shall thereafter be amended pursuant to the requirements of Part III(D) of the 2003 Permit, and shall include all post-construction information required by the 2003 Permit;

(F) Defendant shall employ a professional experienced in the design and implementation of standard erosion and sediment controls and storm water management practices addressing all phases of construction and shall ensure that this professional properly and

timely engages in the following work on the following schedule:

i) inspects all erosion and sediment controls on the Site weekly and also within 24 hours after each and every storm event that is greater than a ½ inch of rain in a 24 hour period, and ensure that all erosion and sediment controls and ponds on the Site are maintained, including but not limited to ensuring that these controls and ponds are regularly dredged of all accumulated materials, are regularly repaired where erosion gullies have formed, have all debris accumulated around the outlets removed, and all areas where seeding didn't take reseeded;

ii) inspects the Site weekly to identify areas contributing to stormwater discharges associated with "construction activity" and to evaluate whether the erosion and sediment controls implemented through this Consent Order are adequate, have been properly implemented and are operating correctly, or whether this Consent Order needs to be amended to include the implementation of additional erosion and sediment controls;

iii) inspects the Site weekly to identify all areas on the Site that will remain idle for the next twenty-one (21) days, draw these areas onto a simple map of the Site, ensure that these areas are temporarily seeded within the next seven (7) days in strict accordance with the Stormwater Control Specifications, pages 159-175, (See Exhibit B), and submit this map on a weekly basis to the Director at the address given below;

Ohio EPA
Northeast District Office
2110 E. Aurora Road
Twinsburg, OH 44087
attn: Dan Bogoevski.

a) prior to placing seed on the soil, Defendant shall prepare the soil to be seeded in strict accordance with the *Stormwater Control Specifications*, page 174: "Specifications For Temporary Seeding";

b) Defendant shall place seed on the soil in strict accordance with the *Stormwater Control Specifications*, page 174: "Specifications For Temporary Seeding";

c) immediately following application of the seeds to the soil, Defendant shall apply mulch to all seeded areas and shall anchor such mulch in strict accordance with the *Stormwater Control Specifications*, page 175: "Mulching Temporary Seeding";

d) immediately following application of the seeds and mulch to the soil, Defendant shall irrigate the seeded area in strict accordance with the *Stormwater Control Specifications*, page 168: "Irrigation," and

iv) maintains a log of any and all inspections conducted of the erosion and sediment controls on the Site in strict accordance with Part III(G)(2)(i) of the 2003 Permit. Each completed inspection log sheet must contain a signature line signed by Defendant in compliance with Part V(H) of the 2003 Permits. Defendant shall submit each of these reports, on a weekly basis, to the person and address given in Paragraph 11(F)(iii);

(G) By no later than November 30, 2007, Defendant shall submit a plan to the Ohio EPA/NEDO, describing the manner in which post-construction runoff control will be achieved for the drainage areas associated with Catch Basins #11 and #12 on Kyle Ridge Road. By no later than forty (40) days from the date this plan is approved by the Ohio EPA, Defendant shall install the approved post-construction runoff controls and shall remove the piping that conveys the flow from Catch Basins #11 and #12 directly to the unnamed tributary to Indian Run that passes through Kyle Woods;

(H) By no later than seven (7) days after Defendant has brought the Wakehurst Village housing area to final grade, Defendant shall submit written notification to the Director at the address given in Paragraph 11(F)(iii);

(I) By no later than fourteen (14) days after bringing the Wakehurst Village housing area to final grade, Defendant shall ensure that all post-construction stormwater runoff discharged from the Wakehurst Village housing area is treated in accordance with Part III(G)(2)(e) of the 2003 Permit. This shall include: (1) installing a permanent outlet structure on the unnumbered Wakehurst Village Pond to allow this pond to provide extended detention; (2) installing the wet extended detention basin known as Wakehurst Village Pond #1 consistent with the SWPPP submitted to the Ohio EPA by Defendant on June 30, 2006; and (3) installing a permanent outlet structure that provides extended detention in Pond #7;

(J) Before commencing any additional construction activity, as that term is defined in the 2003 Permit, Part 1(B), Defendant shall install the "Charles Gate Pond #1" as described in Defendant's SWPPP submitted to the Ohio EPA by Defendant on June 30, 2006;

(K) Within forty-five (45) days of completing all permitted land disturbance activities, Defendant shall submit a Notice of Termination Form to the Director pursuant to the terms and conditions of Part IV of the 2003 Permit for each of the two areas on the Site that are currently covered under the 2003 Permit.

12. Defendant is hereby enjoined and ordered to refrain from commencing or resuming clearing, grading, excavating, grubbing and/or filling activities or earthmoving, or otherwise developing or redeveloping any portion of the Site in such a manner as to result in the disturbance of at least one or more acres of total land, unless Defendant has timely submitted a Notice of Intent Form for coverage under the 2003 Permit or under any renewals or modifications thereof in strict accordance with Part II(A) and Part I(E)(1) of the 2003 Permit, and unless the Director has granted Defendant coverage to discharge under the terms of the 2003 Permit for each Notice of Intent Form submitted.

13. Defendant is hereby enjoined and ordered to refrain from discharging dredged or fill material into or from installing flow control structures in any stream, wetland, or any other "water of the state" located on the Site, as that term is defined in R.C. 6111.01(H), O.A.C. 3745-1-02(77) and O.A.C. 3745-38-01(S), without first applying for and receiving such permits as may be required by applicable federal, state, or local laws, rules, or regulations.

14. Defendant is prohibited from causing, permitting, or allowing the installation of a new system for disposing of sewage, sludge, sludge materials, industrial waste, or other wastes without first obtaining a Permit to Install from the Director. Defendant is further prohibited from causing, permitting, or allowing the modification of an existing system for disposing of sewage, sludge, sludge materials, industrial waste, or other wastes, without first obtaining a Permit to Install from the Director.

15. Defendant is hereby enjoined and ordered not to cause, permit, or allow any connections to any sanitary sewerage system collecting sewage within the Site unless and until the sewage discharged to Defendant's sanitary sewerage system is connected to a sanitary

sewerage system that conveys the sewage to a permitted Wastewater Treatment Works.

16. Defendant is hereby enjoined and ordered to refrain from trespassing onto the Arthur Kyle State Nature Preserve. By no later than ninety (90) days from the effective date of this Consent Order, Defendant shall deliver a certified check in the amount of six-thousand five-hundred dollars (\$6,500), made payable to "Division of Natural Areas and Preserves." Said check shall be mailed to the following address:

State of Ohio Attorney General's Office
State Office Tower
30 E. Broad Street, 25th Floor
Environmental Enforcement Section
Public Protection Division
Columbus, Ohio 43215 - 3400
Attention: Martha Sexton

VI. REVIEW OF SUBMITTALS

17. Upon the submission of any PTI application and/or upon the submission of any other documents by Defendant to the Director pursuant to this Consent Order, if the Director determines, in his sole discretion, that the PTI application or other documents are incomplete, unapprovable and/or do not meet the requirements of R.C. Chapter 6111, O.A.C. Chapters 3745-1, 3745-33 and/or 3745-42, the Director shall promptly inform Defendant of the nature of the deficiencies. Thereafter, Defendant shall submit any and all corrections, additions or deletions necessary to address the deficiencies noted by the Director in order for the applications/documents to be complete and/or approvable. Any and all required corrections, additions or deletions shall be submitted to the Director within twenty-one (21) days from the Director's mailing of notice to Defendant that the PTI application or other document(s) are incomplete and/or do not meet the requirements of the Rules and Regulations cited within this

paragraph. The Director may issue an approval of the PTI application or other documents, in his sole discretion, with additional terms and conditions as authorized by R.C. Rule 6111.03(J).

VII. CIVIL PENALTY

18. Defendant shall pay to the State of Ohio a civil penalty of one hundred and fifty-five thousand dollars (\$155,000), which shall be paid in the following amounts according to the following schedule:

on or before November 1, 2007:	twenty thousand dollars (\$20,000);
on or before December 1, 2007:	twenty thousand dollars (\$20,000);
on or before January 1, 2008:	fourteen thousand, three hundred seventy-five dollars (\$14,375);
on or before April 1, 2008:	fourteen thousand, three hundred seventy-five dollars (\$14,375);
on or before July 1, 2008:	fourteen thousand, three hundred seventy-five dollars (\$14,375);
on or before October 1, 2008:	fourteen thousand, three hundred seventy-five dollars (\$14,375);
on or before January 1, 2009:	fourteen thousand, three hundred seventy-five dollars (\$14,375);
on or before April 1, 2009:	fourteen thousand, three hundred seventy-five dollars (\$14,375);
on or before July 1, 2009:	fourteen thousand, three hundred seventy-five dollars (\$14,375);
on or before October 1, 2009:	fourteen thousand, three hundred seventy-five dollars (\$14,375);

All penalties shall be paid by delivering a certified check for the appropriate amount, made payable to "Treasurer, State of Ohio". Said check shall be mailed to the person and address set

forth in Paragraph 16.

VIII. STIPULATED PENALTIES

19. In the event that Defendant fails to meet any requirement of this Consent Order, and/or violates any term or condition of the 2003 Permit, Defendant shall immediately and automatically be liable for, and shall pay a stipulated penalty according to the following payment schedule:

For each day of each failure to meet a requirement of this Consent Order and/or failure to comply with the 2003 Permit up to thirty (30) days of a violation of a specific Paragraph of this Consent Order or Subparagraph of Sections V and/or VI: **\$250** per day per each violation.

For each day of each failure to meet a requirement of this Consent Order and/or failure to comply with the 2003 Permit, from the 31st to the 60th day of violation of a specific Paragraph of this Consent Order or Subparagraph of Sections V and/or VI which occurs after the effective date of this Consent Order: **\$500** per day per each violation.

For each day of each failure to meet a requirement of this Consent Order and/or failure to comply with the 2003 Permit, from the 61st to the 90th day of violation of a specific Paragraph of this Consent Order or Subparagraph of Sections V and/or VI which occurs after the effective date of this Consent Order: **\$750** per day per each violation.

For each day of each failure to meet a requirement of this Consent Order and/or failure to comply with the 2003 Permit, for all violations after and including the 91st day of violation of a specific Paragraph of this Consent Order or Subparagraph of Sections V and/or VI which occurs after the effective date of this Consent Order: **\$1000** per day per each violation.

20. Any stipulated penalty required to be paid pursuant to the provisions of Paragraph 19 of this Consent Order shall be made by delivering a certified check or checks for the appropriate amounts, to the order of "Treasurer, State of Ohio", within forty-five (45) days from the date of the failure to comply with this Consent Order. Said check shall be mailed to the address previously listed in Paragraph 16 of this Consent Order. Defendant shall also state in writing the

specific failure of the Consent Order and/or 2003 Permit term and condition that was not complied with, and the dates of non-compliance. Payment of stipulated penalties and acceptance of such stipulated penalties by Plaintiff for specific violations pursuant to this Section of the Consent Order shall not be construed to limit Plaintiff's authority to seek additional relief pursuant to R.C. Chapter 6111 or to otherwise seek judicial enforcement of this Consent Order.

IX. EFFECT OF CONSENT ORDER

21. This Consent Order does not constitute authorization or approval for the construction or modification of any physical structure, facility, disposal system, treatment works or sewerage system, or for the placement of fill in streams, wetlands, or other "waters of the state." Authorization or approval for any such construction, modification or fill shall be by permit issued by the Ohio EPA or other such permits as may be required by applicable federal, state, or local laws, rules, or regulations. This Consent Order is not and shall not be construed as a permit nor shall it in any way relieve Defendant from the obligation to obtain permits or approvals for treatment or disposal of wastewater or to comply with any applicable federal, state or local laws or regulations.

X. RETENTION OF JURISDICTION

22. The Court will retain jurisdiction of this action for the purpose of enforcing Defendant's compliance with this Consent Order.

XI. COSTS

23. Defendant is hereby ordered to pay the costs of this action.

XII. SIGNATORIES

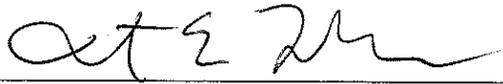
24. The undersigned is a representative of Defendant and understands the terms and conditions of this Consent Order and certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Order and to execute and legally bind Defendant to this document.

XIII. ENTRY OF CONSENT ORDER AND FINAL JUDGMENT BY CLERK

25. The Parties agree and acknowledge that final approval by the Plaintiff and Defendant, and entry of this Consent Order is subject to the requirement of 40 Code of Federal Regulations Section 123.27(d)(2)(iii), which provides for notice of the lodging of this Consent Order, opportunity for public comment, and the consideration of any public comment. The Plaintiff and Defendant reserve the right to withdraw consent to this Consent Order based on comments received during the public comment period. Defendant shall pay the cost of publishing the public notice within thirty (30) days of receipt of a bill or notice from the Director.

26. Upon the signing of this Consent Order by the Court, the Clerk is hereby directed to enter it upon the journal. Within three (3) days of entering the judgment upon the journal, the Clerk is hereby directed to serve notice of the judgment upon all parties, and its date of entry upon the journal in the manner prescribed by Rule 5(B) of the Ohio Rules of Civil Procedure and note the service in the appearance docket.

IT IS SO ORDERED:



JUDGE

11/9/07

Date

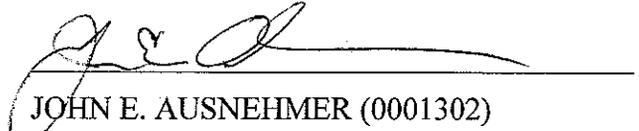
APPROVED:

STATE OF OHIO, ex rel.
MARC DANN
ATTORNEY GENERAL OF OHIO

 9-27-07

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Counsel for Defendant

By: Charles Whitman President

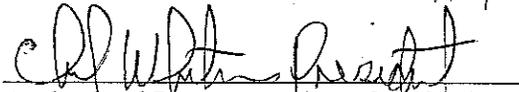

Authorized Representative of Defendant
CTW Development Corporation

EXHIBIT A

Page 1 of 36

Ohio EPA Permit No.: OHC000002

Effective Date: April 21, 2003

Expiration Date: April 20, 2008

OHIO ENVIRONMENTAL PROTECTION AGENCY

**AUTHORIZATION FOR STORM WATER DISCHARGES ASSOCIATED
WITH CONSTRUCTION ACTIVITY UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with the provisions of the federal Water Pollution Control Act, as amended (33 U.S.C. Section 1251 et. seq. hereafter referred to as "the Act") and the Ohio Water Pollution Control Act [Ohio Revised Code ("ORC") Chapter 6111], dischargers of storm water from sites where construction activity is being conducted, as defined in Part I.B of this permit, are authorized by the Ohio Environmental Protection Agency, hereafter referred to as "Ohio EPA," to discharge from the outfalls at the sites and to the receiving surface waters of the state identified in their Notice of Intent ("NOI") application form on file with Ohio EPA in accordance with the conditions specified in Parts I through VII of this permit.

This permit is conditioned upon payment of applicable fees, submittal of a complete NOI application form and written approval of coverage from the director of Ohio EPA in accordance with Ohio Administrative Code ("OAC") Rule 3745-38-06.

Original signed by Christopher Jones

Christopher Jones
Director

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PART I. COVERAGE UNDER THIS PERMIT

A. Permit Area.

This permit covers the entire State of Ohio.

B. Eligibility.

1. Construction activities covered. Except for storm water discharges identified under Part I.B.2, this permit may cover all new and existing discharges composed entirely of storm water discharges associated with construction activity that enter surface waters of the state or a storm drain leading to surface waters of the state.

For the purposes of this permit, construction activities include any clearing, grading, excavating, grubbing and/or filling activities that disturb the threshold acreage described in the next paragraph. Discharges from trench dewatering are also covered by this permit as long as the dewatering activity is carried out in accordance with the practices outlined in Part III.G.2.g.iv of this permit.

Prior to March 10, 2003, only construction activities disturbing five or more acres of total land were required to obtain NPDES construction storm water permit coverage. On and after March 10, 2003, construction activities disturbing one or more acres of total land will be eligible for coverage under this permit. The threshold acreage includes the entire area disturbed in the larger common plan of development or sale.

This permit also authorizes storm water discharges from support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided:

- a. The support activity is directly related to a construction site that is required to have NPDES permit coverage for discharges of storm water associated with construction activity;
- b. The support activity is not a commercial operation serving multiple unrelated construction projects and does not operate beyond the completion of the construction activity at the site it supports;
- c. Appropriate controls and measures are identified in a storm water pollution prevention plan (SWP3) covering the discharges from the support activity; and
- d. The support activity is on or contiguous with the property defined in the NOI;

Part I.B

2. Limitations on coverage. The following storm water discharges associated with construction activity are not covered by this permit:
 - a. Storm water discharges that originate from the site after construction activities have been completed, including any temporary support activity, and the site has achieved final stabilization. Industrial post-construction storm water discharges may need to be covered by an NPDES permit;
 - b. Storm water discharges associated with construction activity that the director has shown to be or may reasonably expect to be contributing to a violation of a water quality standard; and
 - c. Storm water discharges authorized by an individual NPDES permit or another NPDES general permit;

3. Waivers. After March 10, 2003, sites whose larger common plan of development or sale have at least one, but less than five acres of land disturbance, which would otherwise require permit coverage for storm water discharges associated with construction activities, may request that the director waive their permit requirement. Entities wishing to request such a waiver must certify in writing that the construction activity meets one of the two the waiver conditions:
 - a. **Rainfall erosivity waiver.** For a construction site to qualify for the rainfall erosivity waiver, the cumulative rainfall erosivity over the project duration must be five or less and the site must be stabilized with at least a 70 percent vegetative cover or other permanent, non-erosive cover. The rainfall erosivity must be calculated according to the method in U.S. EPA Fact Sheet 3.1 Construction Rainfall Erosivity Waiver dated January 2001. If it is determined that a construction activity will take place during a time period where the rainfall erosivity factor is less than five, a written waiver certification must be submitted to Ohio EPA at least 21 days before construction activity is scheduled to begin. If the construction activity will extend beyond the dates specified in the waiver certification, the operator must either: (a) recalculate the waiver using the original start date with the new ending date (if the R factor is still less than five, a new waiver certification must be submitted) or (b) submit an NOI application form and fee for coverage under this general permit at least seven days prior to the end of the waiver period (see Attachment A); or

Part I.B.3

- b. **TMDL (Total Maximum Daily Load) waiver.** Storm water controls are not needed based on a TMDL approved or established by U.S. EPA that addresses the pollutant(s) of concern or, for non-impaired waters that do not require TMDLs, an equivalent analysis that determines allocations for small construction sites for the pollutant(s) of concern or that determines that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. The pollutant(s) of concern include sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. The operator must certify to the director of Ohio EPA that the construction activity will take place, and storm water discharges will occur, within the drainage area addressed by the TMDL or equivalent analysis. A written waiver certification must be submitted to Ohio EPA at least 21 days before the construction activity is scheduled to begin.
4. **Prohibition on non-storm water discharges.** All discharges covered by this permit must be composed entirely of storm water with the exception of the following: discharges from fire fighting activities; fire hydrant flushings; potable water sources including waterline flushings; irrigation drainage; lawn watering; routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; uncontaminated ground water from trench or well point dewatering and foundation or footing drains where flows are not contaminated with process materials such as solvents. Dewatering activities must be done in compliance with Part III.G.2.g.iv of this permit. Discharges of material other than storm water or the authorized non-storm water discharges listed above must comply with an individual NPDES permit or an alternative NPDES general permit issued for the discharge.

Except for flows from fire fighting activities, sources of non-storm water listed above that are combined with storm water discharges associated with construction activity must be identified in the SWP3. The SWP3 must identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

Part I.B

5. Spills and unintended releases (Releases in excess of Reportable Quantities). This permit does not relieve the permittee of the reporting requirements of 40 CFR Part 117 and 40 CFR Part 302. In the event of a spill or other unintended release, the discharge of hazardous substances in the storm water discharge(s) from a construction site must be minimized in accordance with the applicable storm water pollution prevention plan for the construction activity and in no case, during any 24-hour period, may the discharge(s) contain a hazardous substance equal to or in excess of reportable quantities.

40 CFR Part 117 sets forth a determination of the reportable quantity for each substance designated as hazardous in 40 CFR Part 116. The regulation applies to quantities of designated substances equal to or greater than the reportable quantities, when discharged to surface waters of the state. 40 CFR Part 302 designates under section 102(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, those substances in the statutes referred to in section 101(14), identifies reportable quantities for these substances and sets forth the notification requirements for releases of these substances. This regulation also sets forth reportable quantities for hazardous substances designated under section 311(b)(2)(A) of the Clean Water Act (CWA).

C. Requiring an individual NPDES permit or an alternative NPDES general permit.

1. The director may require an alternative permit. The director may require any operator eligible for this permit to apply for and obtain either an individual NPDES permit or coverage under an alternative NPDES general permit in accordance with OAC Rule 3745-38-04. Any interested person may petition the director to take action under this paragraph.

The director will send written notification that an alternative NPDES permit is required. This notice shall include a brief statement of the reasons for this decision, an application form and a statement setting a deadline for the operator to file the application. If an operator fails to submit an application in a timely manner as required by the director under this paragraph, then coverage, if in effect, under this permit is automatically terminated at the end of the day specified for application submittal.

Part I.C

2. Operators may request an individual NPDES permit. Any owner or operator eligible for this permit may request to be excluded from the coverage of this permit by applying for an individual permit. The owner or operator shall submit an individual application with reasons supporting the request to the director in accordance with the requirements of 40 CFR 122.26. If the reasons adequately support the request, the director shall grant it by issuing an individual NPDES permit.
3. When an individual NPDES permit is issued to an owner or operator otherwise subject to this permit or the owner or operator is approved for coverage under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the effective date of the individual permit or the date of approval for coverage under the alternative general permit, whichever the case may be.

D. Permit requirements when portions of a site are sold

If an operator obtains a permit for a development, and then the operator (permittee) sells off lots or parcels within that development, permit coverage must be continued on those lots until a Notice of Termination (NOT) in accordance with Part IV.B is submitted. For developments which require the use of centralized sediment and erosion controls (i.e., controls that address storm water runoff from one or more lots) for which the conveyance of permit coverage for a portion of the development will either prevent or impair the implementation of the controls and therefore jeopardize compliance with the terms and conditions of this permit, the permittee will be required to maintain responsibility for the implementation of those controls. For developments where this is not the case, it is the permittee's responsibility to temporarily stabilize all lots sold to individual lot owners unless an exception is approved in accordance with Part III.G.4. In cases where permit coverage for individual lot(s) will be conveyed, the permittee shall inform the individual lot owner of the obligations under this permit and ensure that the Individual Lot NOI application is submitted to Ohio EPA.

Part I

E. Authorization

1. Obtaining authorization to discharge. Operators that discharge storm water associated with construction activity must submit an NOI application form in accordance with the requirements of Part II of this permit to obtain authorization to discharge under this general permit. As required under OAC Rule 3745-38-06(E), the director, in response to the NOI submission, shall notify the applicant in writing that he/she has been granted general permit coverage to discharge storm water associated with construction activity under the terms and conditions of this permit or that the applicant must apply for an individual NPDES permit or coverage under an alternate general NPDES permit as described in Part I.C.1.
2. No release from other requirements. No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations. Other permit requirements commonly associated with construction activities include, but are not limited to, section 401 water quality certifications, isolated wetland permits, permits to install sanitary sewers or other devices that discharge or convey polluted water, permits to install drinking water lines, single lot sanitary system permits and disturbance of land which was used to operate a solid or hazardous waste facility (i.e., coverage under this NPDES general permit does not satisfy the requirements of OAC Rule 3745-27-13 or ORC Section 3734.02(H)). This permit does not relieve the permittee of other responsibilities associated with construction activities such as contacting the Ohio Department of Natural Resources, Division of Water, to ensure proper well installation and abandonment of wells.

Part II. NOTICE OF INTENT REQUIREMENTS

A. Deadlines for notification.

Initial coverage: Operators who intend to obtain initial coverage for a storm water discharge associated with construction activity under this general permit must submit a complete and accurate NOI application form and appropriate fee at least 21 days prior to the commencement of construction activity. If more than one operator, as defined in Part VII of this general permit, will be engaged at a site, each operator shall seek coverage under this general permit. Where one operator has already submitted an NOI prior to other operator(s) being identified, the additional operator shall request modification of coverage to become a co-permittee. In such instances, the co-permittees shall be covered under the same facility permit number. No additional permit fee is required.

Part II.A

Individual lot transfer of coverage: Operators must each submit an individual lot notice of intent (Individual Lot NOI) application form (no fee required) to Ohio EPA at least seven days prior to the date that they intend to accept responsibility for permit requirements for their portion of the original permitted development from the previous permittee. The original permittee may submit an Individual Lot NOT at the time the Individual Lot NOI is submitted. Transfer of permit coverage is not granted until an approval letter from the director of Ohio EPA is received by the applicant.

B. Failure to notify.

Operators who fail to notify the director of their intent to be covered and who discharge pollutants to surface waters of the state without an NPDES permit are in violation of ORC Chapter 6111. In such instances, Ohio EPA may bring an enforcement action for any discharges of storm water associated with construction activity.

C. Where to submit an NOI.

Operators seeking coverage under this permit must submit a signed NOI form, provided by Ohio EPA, to the address found in the associated instructions.

D. Additional notification.

The permittee shall make NOIs and SWP3s available upon request of the director of Ohio EPA, local agencies approving sediment and erosion control plans, grading plans or storm water management plans, local governmental officials, or operators of municipal separate storm sewer systems (MS4s) receiving drainage from the permitted site. Each operator that discharges to an NPDES permitted MS4 shall provide a copy of its Ohio EPA NOI submission to the MS4 in accordance with the MS4's requirements, if applicable.

E. Renotification.

Upon renewal of this general permit, the permittee is required to notify the director of his intent to be covered by the general permit renewal. Permittees covered under the previous NPDES general permit for storm water discharges associated with construction activity (NPDES permit number OHR100000) shall have continuing coverage under this permit. The permittees covered under OHR100000 shall submit a letter within 90 days of receipt of written notification by Ohio EPA expressing their intent that coverage be continued. There is no fee associated with these letters of intent for continued coverage. Permit coverage will be terminated after the 90-day period if the letter is not received by Ohio EPA. Ohio EPA will provide instructions on the contents of the letter and where it is to be sent within the notification letter.

PART III. STORM WATER POLLUTION PREVENTION PLAN (SWP3)

A. Storm Water Pollution Prevention Plans.

A SWP3 shall be developed for each site covered by this permit. For a multi-phase construction project, a separate NOI shall be submitted when a separate SWP3 will be prepared for subsequent phases. SWP3s shall be prepared in accordance with sound engineering and/or conservation practices by a professional experienced in the design and implementation of standard erosion and sediment controls and storm water management practices addressing all phases of construction. The SWP3 shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with construction activities. In addition, the SWP3 shall describe and ensure the implementation of best management practices (BMPs) that reduce the pollutants in storm water discharges during construction and pollutants associated with post-construction activities to ensure compliance with ORC Section 6111.04, OAC Chapter 3745-1 and the terms and conditions of this permit.

B. Timing

A SWP3 shall be completed prior to the timely submittal of an NOI and updated in accordance with Part III.D. Upon request and good cause shown, the director may waive the requirement to have a SWP3 completed at the time of NOI submission. If a waiver has been granted, the SWP3 must be completed prior to the initiation of construction activities. The SWP3 must be implemented upon initiation of construction activities.

Permittees continuing coverage from the previous generation of this permit (OHR100000) that have initiated construction activity prior to the receipt of written notification from Ohio EPA to submit a letter of intent to continue coverage, as required in Part II.E, are not required to update their SWP3 as a result of this renewal (OHC000002). All permittees developing sites with coverage under OHR100000 that seek continuation of coverage do not need to update the post-construction section of their SWP3 as required in Part III.G.2.e of this permit.

C. SWP3 Signature and Review.

1. Plan Signature and Retention On Site. The SWP3 shall be signed in accordance with Part V.G. and retained on site during working hours.
2. Plan Availability
 - a. On-site: The plan shall be made available immediately upon request of the director or his authorized representative during working hours. A copy of the NOI and letter granting permit coverage under this general permit also shall be made available at the site.

Part III.C.2

- b. By written request: The permittee must provide a copy of the SWP3 within 10 days upon written request of any of the following:
 - i. The director or the director's authorized representative;
 - ii. A local agency approving sediment and erosion plans, grading plans or storm water management plans; or
 - iii. In the case of a storm water discharge associated with construction activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the operator of the system.
 - c. To the public: All NOIs, general permit approval for coverage letters, and SWP3s are considered reports that shall be available to the public in accordance with the Ohio Public Records law. The permittee shall make documents available to the public upon request or provide a copy at public expense, at cost, in a timely manner. However, the permittee may claim to Ohio EPA any portion of an SWP3 as confidential in accordance with Ohio law.
3. Plan Revision. The director or authorized representative, may notify the permittee at any time that the SWP3 does not meet one or more of the minimum requirements of this part. Within 10 days after such notification from the director, (or as otherwise provided in the notification) or authorized representative, the permittee shall make the required changes to the SWP3 and, if requested, shall submit to Ohio EPA the revised SWP3 or a written certification that the requested changes have been made.

D. Amendments

The permittee shall amend the SWP3 whenever there is a change in design, construction, operation or maintenance, which has a significant effect on the potential for the discharge of pollutants to surface waters of the state or if the SWP3 proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity. Amendments to the SWP3 may be reviewed by Ohio EPA in the same manner as Part III.C.

Part III

E. Duty to inform contractors and subcontractors

The permittee shall inform all contractors and subcontractors not otherwise defined as "operators" in Part VII of this general permit, who will be involved in the implementation of the SWP3, of the terms and conditions of this general permit. The permittee shall maintain a written document containing the signatures of all contractors and subcontractors involved in the implementation of the SWP3 as proof acknowledging that they reviewed and understand the conditions and responsibilities of the SWP3. The written document shall be created and signatures shall be obtained prior to commencement of work on the construction site.

F. Total Maximum Daily Load (TMDL) allocations

If a TMDL is approved for any waterbody into which the permittee's site discharges and requires specific BMPs for construction sites, the director may require the permittee to revise his/her SWP3.

G. SWP3 Requirements

Operations that discharge storm water from construction activities are subject to the following requirements and the SWP3 shall include the following items:

1. Site description. Each SWP3 shall provide:
 - a. A description of the nature and type of the construction activity (e.g., low density residential, shopping mall, highway, etc.);
 - b. Total area of the site and the area of the site that is expected to be disturbed (i.e., grubbing, clearing, excavation, filling or grading, including off-site borrow areas);
 - c. A calculation of the runoff coefficients for both the pre-construction and post construction site conditions;
 - d. An estimate of the impervious area and percent imperviousness created by the construction activity;
 - e. Existing data describing the soil and, if available, the quality of any discharge from the site;
 - f. A description of prior land uses at the site;

Part III.G.1

- g. An implementation schedule which describes the sequence of major construction operations (i.e., grubbing, excavating, grading, utilities and infrastructure installation) and the implementation of erosion, sediment and storm water management practices or facilities to be employed during each operation of the sequence;
- h. The name and/or location of the immediate receiving stream or surface water(s) and the first subsequent named receiving water(s) and the areal extent and description of wetlands or other special aquatic sites at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project;
- i. For subdivided developments where the SWP3 does not call for a centralized sediment control capable of controlling multiple individual lots, a detail drawing of a typical individual lot showing standard individual lot erosion and sediment control practices.

This does not remove the responsibility to designate specific erosion and sediment control practices in the SWP3 for critical areas such as steep slopes, stream banks, drainage ways and riparian zones.

- j. Location and description of any storm water discharges associated with dedicated asphalt and dedicated concrete plants covered by this permit and the best management practices to address pollutants in these storm water discharges;
- k. A copy of the permit requirements (attaching a copy of this permit is acceptable); and
- l. Site map showing:
 - i. Limits of earth-disturbing activity of the site including associated off-site borrow or spoil areas that are not addressed by a separate NOI and associated SWP3;
 - ii. Soils types should be depicted for all areas of the site, including locations of unstable or highly erodible soils;
 - iii. Existing and proposed contours. A delineation of drainage watersheds expected during and after major grading activities as well as the size of each drainage watershed, in acres;

Part III.G.1.I

- iv. Surface water locations including springs, wetlands, streams, lakes, water wells, etc., on or within 200 feet of the site, including the boundaries of wetlands or stream channels and first subsequent named receiving water(s) the permittee intends to fill or relocate for which the permittee is seeking approval from the Army Corps of Engineers and/or Ohio EPA;
 - v. Existing and planned locations of buildings, roads, parking facilities and utilities;
 - vi. The location of all erosion and sediment control practices, including the location of areas likely to require temporary stabilization during the course of site development;
 - vii. Sediment and storm water management basins noting their sediment settling volume and contributing drainage area;
 - viii. Permanent storm water management practices to be used to control pollutants in storm water after construction operations have been completed.
 - ix. Areas designated for the storage or disposal of solid, sanitary and toxic wastes, including dumpster areas, areas designated for cement truck washout, and vehicle fueling;
 - x. The location of designated construction entrances where the vehicles will access the construction site;
 - xi. The location of any in-stream activities including stream crossings;
2. Controls. The SWP3 must contain a description of the controls appropriate for each construction operation covered by this permit and the operator(s) must implement such controls. The SWP3 must clearly describe for each major construction activity identified in Part III.G.1.g: (a) appropriate control measures and the general timing (or sequence) during the construction process that the measures will be implemented; and (b) which contractor is responsible for implementation (e.g., contractor A will clear land and install perimeter controls and contractor B will maintain perimeter controls until final stabilization). Ohio EPA recommends that the erosion, sediment, and storm water management practices used to satisfy the conditions of this permit, should meet the standards and specifications in the current edition of Ohio's Rainwater and Land Development (see definitions) manual or other standards acceptable to Ohio EPA. The controls shall include the following minimum components:

Part III.G.2

- a. **Non-Structural Preservation Methods.** The SWP3 must make use of practices which preserve the existing natural condition as much as feasible. Such practices may include: preserving riparian areas adjacent to surface waters of the state, preserving existing vegetation and vegetative buffer strips, phasing of construction operations in order to minimize the amount of disturbed land at any one time and designation of tree preservation areas or other protective clearing or grubbing practices. The recommended buffer that operators should leave undisturbed along a surface water of the state is 25 feet as measured from the ordinary high water mark of the surface water.

- b. **Erosion Control Practices.** The SWP3 must make use of erosion controls that are capable of providing cover over disturbed soils unless an exception is approved in accordance with Part III.G.4. A description of control practices designed to restabilize disturbed areas after grading or construction shall be included in the SWP3. The SWP3 must provide specifications for stabilization of all disturbed areas of the site and provide guidance as to which method of stabilization will be employed for any time of the year. Such practices may include: temporary seeding, permanent seeding, mulching, matting, sod stabilization, vegetative buffer strips, phasing of construction operations, use of construction entrances and the use of alternative ground cover.

- i. **Stabilization.** Disturbed areas must be stabilized as specified in the following tables below. Permanent and temporary stabilization are defined in Part VII.

Table 1: Permanent Stabilization

Area requiring permanent stabilization	Time frame to apply erosion controls
Any areas that will lie dormant for one year or more	Within seven days of the most recent disturbance
Any areas within 50 feet of a stream and at final grade	Within two days of reaching final grade
Any other areas at final grade	Within seven days of reaching final grade within that area

Part III.G.2.b.i

Table 2: Temporary Stabilization

Area requiring temporary stabilization	Time frame to apply erosion controls
Any disturbed areas within 50 feet of a stream and not at final grade	Within two days of the most recent disturbance if the area will remain idle for more than 21 days
For all construction activities, any disturbed areas that will be dormant for more than 21 days but less than one year, and not within 50 feet of a stream	Within seven days of the most recent disturbance within the area For residential subdivisions, disturbed areas must be stabilized at least seven days prior to transfer of permit coverage for the individual lot(s).
Disturbed areas that will be idle over winter	Prior to the onset of winter weather

Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed.

- ii. **Permanent stabilization of conveyance channels.** Operators shall undertake special measures to stabilize channels and outfalls and prevent erosive flows. Measures may include seeding, dormant seeding (as defined in the 1996 edition of the Rainwater and Land Development manual), mulching, erosion control matting, sodding, riprap, natural channel design with bioengineering techniques or rock check dams.
- c. **Runoff Control Practices.** The SWP3 shall incorporate measures which control the flow of runoff from disturbed areas so as to prevent erosion from occurring. Such practices may include rock check dams, pipe slope drains, diversions to direct flow away from exposed soils and protective grading practices. These practices shall divert runoff away from disturbed areas and steep slopes where practicable.
- d. **Sediment Control Practices.** The plan shall include a description of structural practices that shall store runoff allowing sediments to settle and/or divert flows away from exposed soils or otherwise limit runoff from exposed areas. Structural practices shall be used to control erosion and trap sediment from a site remaining disturbed for more than 14 days. Such practices may include, among others: sediment settling ponds, silt fences, earth diversion dikes or channels which direct runoff to a sediment settling pond and storm drain inlet protection. All sediment control practices must be capable of ponding runoff in order to be considered functional. Earth diversion dikes or channels alone are not considered a sediment control practice unless those are used in conjunction with a sediment settling pond.

Part III.G.2.d

The SWP3 must contain detail drawings for all structural practices.

- i. Timing. Sediment control structures shall be functional throughout the course of earth disturbing activity. Sediment basins and perimeter sediment barriers shall be implemented prior to grading and within seven days from the start of grubbing. They shall continue to function until the up slope development area is restabilized. As construction progresses and the topography is altered, appropriate controls must be constructed or existing controls altered to address the changing drainage patterns.
- ii. Sediment settling ponds. Concentrated storm water runoff and runoff from drainage areas, which exceed the design capacity of silt fence or inlet protection, shall pass through a sediment settling pond. For common drainage locations that serve an area with 10 or more acres disturbed at one time, a temporary (or permanent) sediment settling pond must be provided until final stabilization of the site. The permittee may request approval from Ohio EPA to use alternative controls if it can demonstrate the alternative controls are equivalent in effectiveness to a sediment settling pond. It is recommended for drainage locations serving less than 10 acres, smaller sediment basins and/or sediment traps should be used.

The sediment settling pond shall be sized to provide at least 67 cubic yards of storage per acre of total contributing drainage area. When determining the total contributing drainage area, off-site areas and areas which remain undisturbed by construction activity must be included unless runoff from these areas is diverted away from the sediment settling pond and is not co-mingled with sediment-laden runoff. The depth of the sediment settling pond must be less than or equal to five feet. The configuration between inlets and the outlet of the basin must provide at least two units of length for each one unit of width (> 2:1 length:width ratio). Sediment must be removed from the sediment settling pond when the design capacity has been reduced by 40 percent (This is typically reached when sediment occupies one-half of the basin depth). When designing sediment settling ponds, the permittee must consider public safety, especially as it relates to children, as a design factor for the sediment basin and alternative sediment controls must be used where site limitations would preclude a safe design. The use of a combination of sediment and erosion control measures in order to achieve maximum pollutant removal is encouraged.

Part III.G.2.d

- iii. Silt Fence and Diversions. Sheet flow runoff from denuded areas shall be intercepted by silt fence or diversions to protect adjacent properties and water resources from sediment transported via sheet flow. Where intended to provide sediment control, silt fence shall be placed on a level contour. This permit does not preclude the use of other sediment barriers designed to control sheet flow runoff. The relationship between the maximum drainage area to silt fence for a particular slope range is shown in the table below.

Maximum drainage area (in acres) to 100 linear feet of silt fence	Range of slope for a particular drainage area (in percent)
0.5	< 2%
0.25	≥ 2% but < 20%
0.125	≥ 20% but < 50%

Storm water diversion practices shall be used to keep runoff away from disturbed areas and steep slopes where practicable. Such devices, which include swales, dikes or berms, may receive storm water runoff from areas up to 10 acres.

- iv. Inlet Protection. Other erosion and sediment control practices shall minimize sediment laden water entering active storm drain systems, unless the storm drain system drains to a sediment settling pond.
- v. Stream Protection. If construction activities disturb areas adjacent to streams, structural practices shall be designed and implemented on site to protect all adjacent streams from the impacts of sediment runoff. No structural sediment controls (e.g., the installation of silt fence or a sediment settling pond in-stream) shall be used in a stream. For all construction activities immediately adjacent to surface waters of the state, it is recommended that a setback of at least 25-feet, as measured from the ordinary high water mark of the surface water, be maintained in its natural state as a permanent buffer. Where impacts within this setback area are unavoidable due to the nature of the construction activity (e.g., stream crossings for roads or utilities), the project shall be designed such that the number of stream crossings and the width of the disturbance within the setback area are minimized.
- vi. Modifying Controls. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the permittee must replace or modify the control for site conditions.

Part III.G.2

- e. **Post-Construction Storm Water Management Requirements.** So that receiving stream's physical, chemical, and biological characteristics are protected and stream functions are maintained, post-construction storm water practices shall provide perpetual management of runoff quality and quantity. To meet the post-construction requirements of this permit, the SWP3 must contain a description of the post-construction BMPs that will be installed during construction for the site and the rationale for their selection. The rationale must address the anticipated impacts on the channel and floodplain morphology, hydrology, and water quality.

Detail drawings and maintenance plans must be provided for all post-construction BMPs. Maintenance plans shall be provided by the permittee to the post-construction operator of the site (including homeowner associations) upon completion of construction activities (prior to termination of permit coverage). For sites located within a community with a regulated municipal separate storm sewer system (MS4), the permittee, land owner, or other entity with legal control of the property may be required to develop and implement a maintenance plan to comply with the requirements of the MS4. Maintenance plans must ensure that pollutants collected within structural post-construction practices, be disposed of in accordance with local, state, and federal regulations. Permittees, except for those regulated under the small MS4 program, are not responsible under this permit for operation and maintenance of post-construction practices once coverage under this permit is terminated.

This permit does not preclude the use of innovation or experimental post-construction storm water management technologies. However, the director may require discharges from such structures to be monitored to ensure compliance with Part III.G.2.e of this permit. The installation of structural controls in certain scenarios may also require a separate permit under section 404 of the CWA. Permittees are only responsible for the installation and maintenance of storm water management measures prior to final stabilization of the site and are not responsible for maintenance after storm water discharges associated with construction activity have been eliminated from the site. However, post-construction storm water BMPs that discharge pollutants from point sources once construction is completed, may in themselves, need authorization under a separate NPDES permit.

Linear construction projects, (e.g., pipeline or utility line installation), which do not result in the installation of impervious surface, are not required to comply with the conditions of Part III.G.2.e of this permit. However, linear construction projects must be designed to minimize the number of stream crossings and the width of disturbance.

Part III.G.2.e

Large Construction Activities. For all large construction activities (involving the disturbance of five or more acres of land or will disturb less than five acres, but is a part of a larger common plan of development or sale which will disturb five or more acres of land), the post construction BMP(s) chosen must be able to detain storm water runoff for protection of the stream channels, stream erosion control, and improved water quality. Structural (designed) post-construction storm water treatment practices shall be incorporated into the permanent drainage system for the site. The BMP(s) chosen must be sized to treat the water quality volume (WQ_v) and ensure compliance with Ohio's Water Quality Standards in OAC Chapter 3745-1. The WQ_v shall be equivalent to the volume of runoff from a 0.75-inch rainfall and shall be determined according to one of the two following methods:

- i. Through a site hydrologic study approved by the local municipal permitting authority that uses continuous hydrologic simulation and local long-term hourly precipitation records or
- ii. Using the following equation:

$$WQ_v = C * P * A / 12$$

where:

WQ_v = water quality volume in acre-feet

C = runoff coefficient appropriate for storms less than 1 inch
(see Table 1)

P = 0.75 inch precipitation depth

A = area draining into the BMP in acres

Table 1
Runoff Coefficients Based on the Type of Land Use

Land Use	Runoff Coefficient
Industrial & Commercial	0.8
High Density Residential (>8 dwellings/acre)	0.5
Medium Density Residential (4 to 8 dwellings/acre)	0.4
Low Density Residential (<4 dwellings/acre)	0.3
Open Space and Recreational Areas	0.2

Where the land use will be mixed, the runoff coefficient should be calculated using a weighted average. For example, if 60% of the contributing drainage area to the storm water treatment structure is Low Density Residential, 30% is High Density Residential, and 10% is Open Space, the runoff coefficient is calculated as follows $(0.6)(0.3) + (0.3)(0.5) + (0.1)(0.2) = 0.35$.

Part III.G.2.e

An additional volume equal to 20 percent of the WQ_v shall be incorporated into the BMP for sediment storage and/or reduced infiltration capacity. Ohio EPA recommends that BMPs be designed according to the methodology included in the Rainwater and Land Development manual or in another design manual acceptable for use by Ohio EPA.

BMPs shall be designed such that the drain time is long enough to provide treatment, but short enough to provide storage available for successive rainfall events as described in Table 2 below.

**Table 2
Target Draw Down (Drain) Times for Structural
Post-Construction Treatment Control Practices**

Best Management Practice	Drain Time of WQ_v
Infiltration	24 - 48 hours
Vegetated Swale and Filter Strip	24 hours
Extended Detention Basin (Dry Basins)	48 hours
Retention Basins (Wet Basins)*	24 hours
Constructed Wetlands (above permanent pool)	24 hours
Media Filtration, Bioretention	40 hours

* Provide both a permanent pool and an extended detention volume above the permanent pool, each sized at $0.75 * WQ_v$

The permittee may request approval from Ohio EPA to use alternative structural post-construction BMPs if the permittee can demonstrate that the alternative BMPs are equivalent in effectiveness to those listed in Table 2 above. Construction activities shall be exempt from this condition if it can be demonstrated that the WQ_v is provided within an existing structural post-construction BMP that is part of a larger common plan of development or if structural post-construction BMPs are addressed in a regional or local storm water management plan. Public entities (i.e., the state, counties, townships, cities, or villages) shall comply with the post-construction storm water management requirements of Part III.G.2.e for roadway construction projects initiated after March 10, 2006 and where practicable for projects initiated as of the effective date of this permit and thereafter.

For redevelopment projects (i.e., developments on previously developed property), post-construction practices shall either ensure a 20 percent net reduction of the site impervious area, provide for treatment of at least 20 percent of the WQ_v , or a combination of the two.

Part III.G.2.e

Small Construction Activities. For all small land disturbance activities (which disturb one or more, but less than five acres of land and is not a part of a larger common plan of development or sale which will disturb five or more acres of land), a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed must be included in the SWP3. Structural measures should be placed on upland soils to the degree attainable.

- i. Such practices may include, but are not limited to: storm water detention structures (including wet basins); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite; and sequential systems (which combine several practices). The SWP3 shall include an explanation of the technical basis used to select the practices to control pollution where flows exceed pre-development levels.
 - ii. Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel to provide non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., no significant changes in the hydrological regime of the receiving water).
- f. **Surface Water Protection.** If the project site contains any streams, rivers, lakes, wetlands or other surface waters, certain construction activities at the site may be regulated under the CWA and/or state isolated wetland permit requirements. Sections 404 and 401 of the Act regulate the discharge of dredged or fill material into surface waters and the impacts of such activities on water quality, respectively. Construction activities in surface waters which may be subject to CWA regulation and/or state isolated wetland permit requirements include, but are not limited to: sewer line crossings, grading, backfilling or culverting streams, filling wetlands, road and utility line construction, bridge installation and installation of flow control structures. If the project contains streams, rivers, lakes or wetlands or possible wetlands, the permittee must contact the appropriate U.S. Army Corps of Engineers District Office. (CAUTION: Any area of seasonally wet hydric soil is a potential wetland - please consult the Soil Survey and list of hydric soils for your County, available at your county's Soil and Water Conservation District. If you have any questions about Section 401 water quality certification, please contact the Ohio Environmental Protection Agency, Section 401 Coordinator.)

Part III.G.2.f

U.S. Army Corps of Engineers (Section 404 regulation):
Huntington, WV District (304) 529-5210 (Muskingum, Hocking and Scioto River Basin)
Buffalo, NY District (716) 879-4329 (Lake Erie Basin)
Pittsburgh, PA District (412) 395-7152 (Mahoning River Basin)
Louisville, KY District (502) 315-6678 (Little & Great Miami River Basin)

Ohio Environmental Protection Agency (Section 401 regulation):
Columbus, OH (614) 644-2001 (all of Ohio)

g. **Other controls.**

- i. **Non-Sediment Pollutant Controls.** No solid (other than sediment) or liquid waste, including building materials, shall be discharged in storm water runoff. The permittee must implement all necessary BMPs to prevent the discharge of non-sediment pollutants to the drainage system of the site or surface waters of the state. Under no circumstance shall concrete trucks wash out directly into a drainage channel, storm sewer or surface waters of the state. No exposure of storm water to waste materials is recommended.
- ii. **Off-site traffic.** Off-site vehicle tracking of sediments and dust generation shall be minimized.
- iii. **Compliance with other requirements.** The SWP3 shall be consistent with applicable State and/or local waste disposal, sanitary sewer or septic system regulations, including provisions prohibiting waste disposal by open burning and shall provide for the proper disposal of contaminated soils to the extent these are located within the permitted area.
- iv. **Trench and ground water control.** There shall be no turbid discharges to surface waters of the state resulting from dewatering activities. If trench or ground water contains sediment, it must pass through a sediment settling pond or other equally effective sediment control device, prior to being discharged from the construction site. Alternatively, sediment may be removed by settling in place or by dewatering into a sump pit, filter bag or comparable practice. Ground water dewatering which does not contain sediment or other pollutants is not required to be treated prior to discharge. However, care must be taken when discharging ground water to ensure that it does not become pollutant-laden by traversing over disturbed soils or other pollutant sources.

Part III.G.2

- h. **Maintenance.** All temporary and permanent control practices shall be maintained and repaired as needed to ensure continued performance of their intended function. All sediment control practices must be maintained in a functional condition until all up slope areas they control are permanently stabilized. The SWP3 shall be designed to minimize maintenance requirements. The applicant shall provide a description of maintenance procedures needed to ensure the continued performance of control practices.
- i. **Inspections.** At a minimum, procedures in an SWP3 shall provide that all controls on the site are inspected at least once every seven calendar days and within 24 hours after any storm event greater than one-half inch of rain per 24 hour period. The permittee shall assign qualified inspection personnel (those with knowledge and experience in the installation and maintenance of sediment and erosion controls) to conduct these inspections to ensure that the control practices are functional and to evaluate whether the SWP3 is adequate and properly implemented in accordance with the schedule proposed in Part III.G.1.g of this permit or whether additional control measures are required. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWP3 shall be observed to ensure that those are operating correctly. Discharge locations shall be inspected to ascertain whether erosion and sediment control measures are effective in preventing significant impacts to the receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site vehicle tracking.

The permittee shall maintain for three years following the submittal of a notice of termination form, a record summarizing the results of the inspection, names(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWP3 and a certification as to whether the facility is in compliance with the SWP3 and the permit and identify any incidents of non-compliance. The record and certification shall be signed in accordance with Part V.G. of this permit.

- i. **When practices require repair or maintenance.** If the inspection reveals that a control practice is in need of repair or maintenance, with the exception of a sediment settling pond, it must be repaired or maintained within three days of the inspection. Sediment settling ponds must be repaired or maintained within 10 days of the inspection.

Part III.G.2.i

- ii. **When practices fail to provide their intended function.** If the inspection reveals that a control practice fails to perform its intended function and that another, more appropriate control practice is required, the SWP3 must be amended and the new control practice must be installed within 10 days of the inspection.
 - iii. **When practices depicted on the SWP3 are not installed.** If the inspection reveals that a control practice has not been implemented in accordance with the schedule contained in Part III.G.1.g of this permit, the control practice must be implemented within 10 days from the date of the inspection. If the inspection reveals that the planned control practice is not needed, the record must contain a statement of explanation as to why the control practice is not needed.
3. **Approved State or local plans.** All dischargers regulated under this general permit must comply, except those exempted under state law, with the lawful requirements of municipalities, counties and other local agencies regarding discharges of storm water from construction activities. All erosion and sediment control plans and storm water management plans approved by local officials shall be retained with the SWP3 prepared in accordance with this permit. Applicable requirements for erosion and sediment control and storm water management approved by local officials are, upon submittal of a NOI form, incorporated by reference and enforceable under this permit even if they are not specifically included in an SWP3 required under this permit. When the project is located within the jurisdiction of a regulated municipal separate storm sewer system (MS4), the permittee must certify that the SWP3 complies with the requirements of the storm water management program of the MS4 operator.
4. **Exceptions.** If specific site conditions prohibit the implementation of any of the erosion and sediment control practices contained in this permit or site specific conditions are such that implementation of any erosion and sediment control practices contained in this permit will result in no environmental benefit, then the permittee shall provide justification for rejecting each practice based on site conditions. Exceptions from implementing the erosion and sediment control standards contained in this permit will be approved or denied on a case-by-case basis.

PART IV. NOTICE OF TERMINATION REQUIREMENTS

A. Failure to notify.

The terms and conditions of this permit shall remain in effect until a signed Notice of Termination (NOT) form is submitted. Failure to submit an NOT constitutes a violation of this permit and may affect the ability of the permittee to obtain general permit coverage in the future.

B. When to submit an NOT

1. Permittees wishing to terminate coverage under this permit must submit an NOT form in accordance with Part V.G. of this permit. Compliance with this permit is required until an NOT form is submitted. The permittee's authorization to discharge under this permit terminates at midnight of the day the NOT form is submitted.
2. All permittees must submit an NOT form within 45 days of completing all permitted land disturbance activities. Enforcement actions may be taken if a permittee submits an NOT form without meeting one or more of the following conditions:
 - a. Final stabilization (see definition in Part VII) has been achieved on all portions of the site for which the permittee is responsible (including, if applicable, returning agricultural land to its pre-construction agricultural use);
 - b. Another operator(s) has assumed control over all areas of the site that have not been finally stabilized;
 - c. For residential construction only, temporary stabilization has been completed and the lot, which includes a home, has been transferred to the homeowner. (Note: individual lots without housing which are sold by the developer must undergo final stabilization prior to termination of permit coverage.); or
 - d. An exception has been granted under Part III.G.4.

C. How to submit an NOT

Permittees must use Ohio EPA's approved NOT form. The form must be completed and mailed according to the instructions and signed in accordance with Part V.G of this permit.

PART V. STANDARD PERMIT CONDITIONS.

A. Duty to comply.

1. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of ORC Chapter 6111, and is grounds for enforcement action.
2. Ohio law imposes penalties and fines for persons who knowingly make false statements or knowingly swear or affirm the truth of a false statement previously made.

B. Continuation of an expired general permit.

An expired general permit continues in force and effect until a new general permit is issued.

C. Need to halt or reduce activity not a defense.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to mitigate.

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Duty to provide information.

The permittee shall furnish to the director, within 10 days of written request, any information which the director may request to determine compliance with this permit. The permittee shall also furnish to the director upon request copies of records required to be kept by this permit.

F. Other information.

When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the NOI, SWP3, NOT or in any other report to the director, he or she shall promptly submit such facts or information.

Part V

G. Signatory requirements.

All NOIs, NOTs, SWP3s, reports, certifications or information either submitted to the director or that this permit requires to be maintained by the permittee, shall be signed.

1. These items shall be signed as follows:

a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

i. A president, secretary, treasurer or vice-president of the corporation in charge of a principal business function or any other person who performs similar policy or decision-making functions for the corporation; or

ii. The manager of one or more manufacturing, production or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: By a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal or other public agency: By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA).

2. All reports required by the permits and other information requested by the director shall be signed by a person described in Part V.G.1 of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

Part V.G.2

- a. The authorization is made in writing by a person described in Part V.G.1 of this permit and submitted to the director;
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator of a well or well field, superintendent, position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - c. The written authorization is submitted to the director.
3. Changes to authorization. If an authorization under Part V.G.2 of this permit is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part V.G.2 of this permit must be submitted to the director prior to or together with any reports, information or applications to be signed by an authorized representative.

H. Certification.

Any person signing documents under this section shall make the following certification:

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

I. Oil and hazardous substance liability.

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject under section 311 of the CWA or 40 CFR Part 112. 40 CFR Part 112 establishes procedures, methods and equipment and other requirements for equipment to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable surface waters of the State or adjoining shorelines.

Part V

J. Property rights.

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

K. Severability.

The provisions of this permit are severable and if any provision of this permit or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

L. Transfers.

Ohio NPDES general permit coverage is transferable. Ohio EPA must be notified in writing sixty days prior to any proposed transfer of coverage under an Ohio NPDES general permit. The transferee must inform Ohio EPA it will assume the responsibilities of the original permittee transferor.

M. Environmental laws.

No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

N. Proper operation and maintenance.

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of SWP3s. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

O. Inspection and entry.

The permittee shall allow the director or an authorized representative of Ohio EPA, upon the presentation of credentials and other documents as may be required by law, to:

Part V.O

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and
3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

PART VI. REOPENER CLAUSE

- A. If there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with construction activity covered by this permit, the permittee of such discharge may be required to obtain coverage under an individual permit or an alternative general permit in accordance with Part I.C of this permit or the permit may be modified to include different limitations and/or requirements.
- B. Permit modification or revocation will be conducted according to ORC Chapter 6111.

PART VII. DEFINITIONS

- A. "Act" means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, Pub. L. 97-117 and Pub. L. 100-4, 33 U.S.C. 1251 et. seq.
- B. "Best management practices (BMPs)" means schedules of activities, prohibitions of practices, maintenance procedures and other management practices (both structural and non-structural) to prevent or reduce the pollution of surface waters of the state. BMP's also include treatment requirements, operating procedures and practices to control plant and/or construction site runoff, spillage or leaks, sludge or waste disposal or drainage from raw material storage.
- C. "Commencement of construction" means the initial disturbance of soils associated with clearing, grubbing, grading, placement of fill or excavating activities or other construction activities.
- D. "Concentrated storm water runoff" means any storm water runoff which flows through a drainage pipe, ditch, diversion or other discrete conveyance channel.
- E. "Director" means the director of the Ohio Environmental Protection Agency.

Part VII

- F. "Discharge" means the addition of any pollutant to the surface waters of the state from a point source.
- G. "Disturbance" means any clearing, grading, excavating, filling, or other alteration of land surface where natural or man-made cover is destroyed in a manner that exposes the underlying soils.
- H. "Final stabilization" means that either:
1. All soil disturbing activities at the site are complete and a uniform perennial vegetative cover (e.g., evenly distributed, without large bare areas) with a density of at least 70 percent cover for the area has been established on all unpaved areas and areas not covered by permanent structures or equivalent stabilization measures (such as the use of mulches, rip-rap, gabions or geotextiles) have been employed. In addition, all temporary erosion and sediment control practices are removed and disposed of and all trapped sediment is permanently stabilized to prevent further erosion; or
 2. For individual lots in residential construction by either:
 - a. The homebuilder completing final stabilization as specified above or
 - b. The homebuilder establishing temporary stabilization including perimeter controls for an individual lot prior to occupation of the home by the homeowner and informing the homeowner of the need for and benefits of, final stabilization. (Homeowners typically have an incentive to put in the landscaping functionally equivalent to final stabilization as quick as possible to keep mud out of their homes and off sidewalks and driveways.); or
 3. For construction projects on land used for agricultural purposes (e.g., pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its pre-construction agricultural use. Areas disturbed that were previously used for agricultural activities, such as buffer strips immediately adjacent to surface waters of the state and which are not being returned to their pre-construction agricultural use, must meet the final stabilization criteria in (1) or (2) above.
- I. "Individual Lot NOI" means a Notice of Intent for an individual lot to be covered by this permit (see parts I and II of this permit).
- J. "Larger common plan of development or sale"- means a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan.

Part VII

- K. "MS4" means municipal separate storm sewer system which means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) that are:
1. Owned or operated by the federal government, state, municipality, township, county, district(s) or other public body (created by or pursuant to state or federal law) including special district under state law such as a sewer district, flood control district or drainage districts or similar entity or a designated and approved management agency under section 208 of the act that discharges into surface waters of the state; and
 2. Designed or used for collecting or conveying solely storm water,
 3. Which is not a combined sewer and
 4. Which is not a part of a publicly owned treatment works.
- L. "National Pollutant Discharge Elimination System (NPDES)" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits and enforcing pretreatment requirements, under sections 307, 402, 318 and 405 of the CWA. The term includes an "approved program."
- M. "NOI" means notice of intent to be covered by this permit.
- N. "NOT" means notice of termination.
- O. "Operator" means any party associated with a construction project that meets either of the following two criteria:
1. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or
 2. The party has day-to-day operational control of those activities at a project which are necessary to ensure compliance with an SWP3 for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions).
- As set forth in Part II.A, there can be more than one operator at a site and under these circumstances, the operators shall be co-permittees.
- P. "Owner or operator" means the owner or operator of any "facility or activity" subject to regulation under the NPDES program.

Part VII

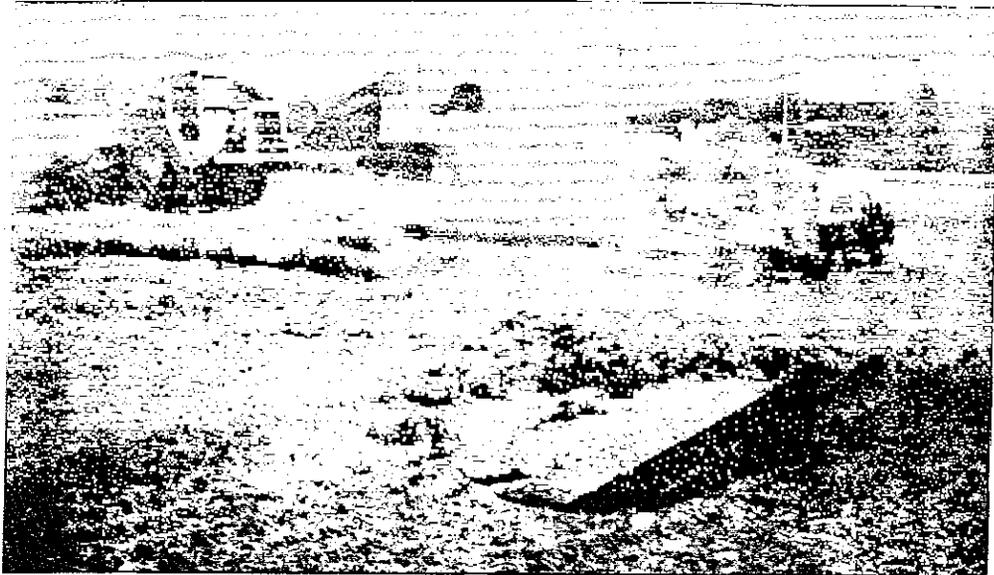
- Q. "Permanent stabilization" means the establishment of permanent vegetation, decorative landscape mulching, matting, sod, rip rap and landscaping techniques to provide permanent erosion control on areas where construction operations are complete or where no further disturbance is expected for at least one year.
- R. "Percent imperviousness" means the impervious area created divided by the total area of the project site.
- S. "Point source" means any discernible, confined and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or the floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.
- T. "Rainwater and Land Development" is a manual describing construction and post-construction best management practices and associated specifications. A copy of the manual may be obtained by contacting the Ohio Department of Natural Resources, Division of Soil & Water Conservation.
- U. "Riparian area" means the transition area between flowing water and terrestrial (land) ecosystems composed of trees, shrubs and surrounding vegetation which serve to stabilize erodible soil, improve both surface and ground water quality, increase stream shading and enhance wildlife habitat.
- V. "Runoff coefficient" means the fraction of total rainfall that will appear at the conveyance as runoff.
- W. "Sediment settling pond" means a sediment trap, sediment basin or permanent basin that has been temporarily modified for sediment control, as described in the latest edition of the Rainwater and Land Development manual.
- X. "State isolated wetland permit requirements" means the requirements set forth in Sections 6111.02 through 6111.029 of the ORC.
- Y. "Storm water" means storm water runoff, snow melt and surface runoff and drainage.
- Z. "Surface waters of the state" or "water bodies" means all streams, lakes, reservoirs, ponds, marshes, wetlands or other waterways which are situated wholly or partially within the boundaries of the state, except those private waters which do not combine or effect a junction with natural surface or underground waters. Waters defined as sewerage systems, treatment works or disposal systems in Section 6111.01 of the ORC are not included.

Part VII

- AA. "SWP3" means storm water pollution prevention plan.
- BB. "Temporary stabilization" means the establishment of temporary vegetation, mulching, geotextiles, sod, preservation of existing vegetation and other techniques capable of quickly establishing cover over disturbed areas to provide erosion control between construction operations.
- CC. "Water Quality Volume (WQ_v)" means the volume of storm water runoff which must be captured and treated prior to discharge from the developed site after construction is complete. WQ_v is based on the expected runoff generated by the mean storm precipitation volume from post-construction site conditions at which rapidly diminishing returns in the number of runoff events captured begins to occur.

EXHIBIT B

MULCHING



DESCRIPTION

Applying a protective layer of mulch, usually of straw, to bare soil is used to abate erosion by shielding it from raindrop impact to helping establish vegetation by conserving moisture and creating favorable conditions for seeds to germinate.

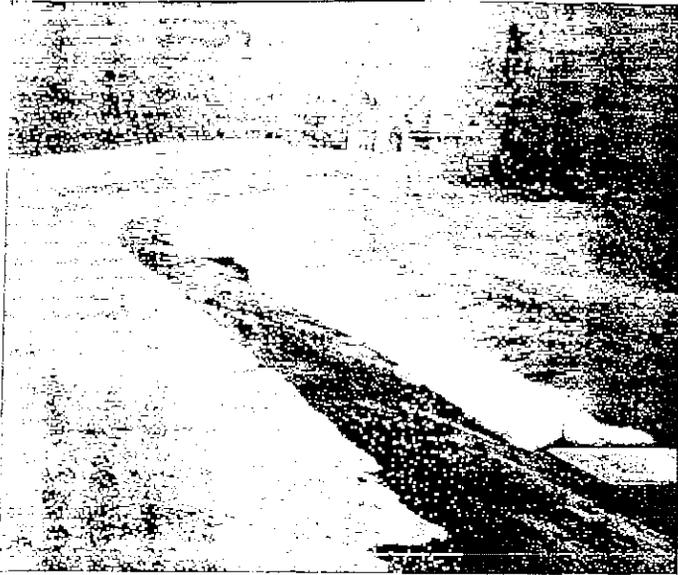
CONDITIONS WHERE PRACTICE APPLIES

Mulch should be used liberally throughout construction to limit the areas that are bare and susceptible to erosion. Mulch can be used in conjunction with seeding to establish vegetation or by itself to provide erosion control when the season does not allow grass to grow. Mulch and other vegetative practices must be applied on all disturbed portions of construction-sites that will not be re-disturbed for more than 45 days.

Specifications
for
Mulching

1. Mulch and/or other appropriate vegetative practices shall be applied to disturbed areas within 7 days of grading if the area is to remain dormant (undisturbed) for more than 45 days or on areas and portions of the site which can be brought to final grade.
2. Mulch shall consist of one of the following:
 - Straw--Straw shall be unrotted small grain straw applied at the rate of 2 tons/ac. or 90 lb./1,000 sq. ft. (two to three bales). The straw mulch shall be spread uniformly by hand or mechanically so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000-sq.-ft. sections and place two 45-lb. bales of straw in each section.
 - Hydroseeders--Wood cellulose fiber should be used at 2,000 lb./ac. or 46 lb./1,000 sq. ft.
 - Other--Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 10-20 tons/ac.
3. Mulch Anchoring--Mulch shall be anchored immediately to minimize loss by wind or runoff. The following are acceptable methods for anchoring mulch.
 - Mechanical--Use a disk, crimper, or similar type tool set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but be left generally longer than 6 in.
 - Mulch Nettings--Use according to the manufacturer's recommendations, following all placement and anchoring suggestions. Use in areas of water concentration and steep slopes to hold mulch in place.
 - Asphalt Emulsion--For straw mulch, apply at the rate of 160 gal./ac. (0.1 gal./sy) into the mulch as it is being applied or as recommended by the manufacture.
 - Synthetic Binders--For straw mulch, synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equal may be used at rates recommended by the manufacturer.
 - Wood Cellulose Fiber--Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 lb./acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb./100 gal. of wood cellulose fiber.

MATTING



DESCRIPTION

Matting such as excelsior or jute matting is used to stabilize easily eroded areas such as channels and steep slopes while vegetation is becoming established.

CONDITIONS WHERE PRACTICE APPLIES

Matting should be used on:

- Channels where the designed flow exceeds 3.5 fps,
- Steep slopes,
- Problem areas that have highly erosive soils,
- Areas that may be slow to establish adequate vegetative cover.

DESIGN CRITERIA

Materials--Matting is available in many acceptable materials that provide excellent soil protection. Two acceptable materials are jute and excelsior matting. Excelsior matting is a wood fiber mulch covered with plastic netting on one or both sides. Jute matting is a woven cloth of jute yarn and may be used in conjunction with organic mulch. Both are widely available, easily installed, and adaptable to most site conditions.

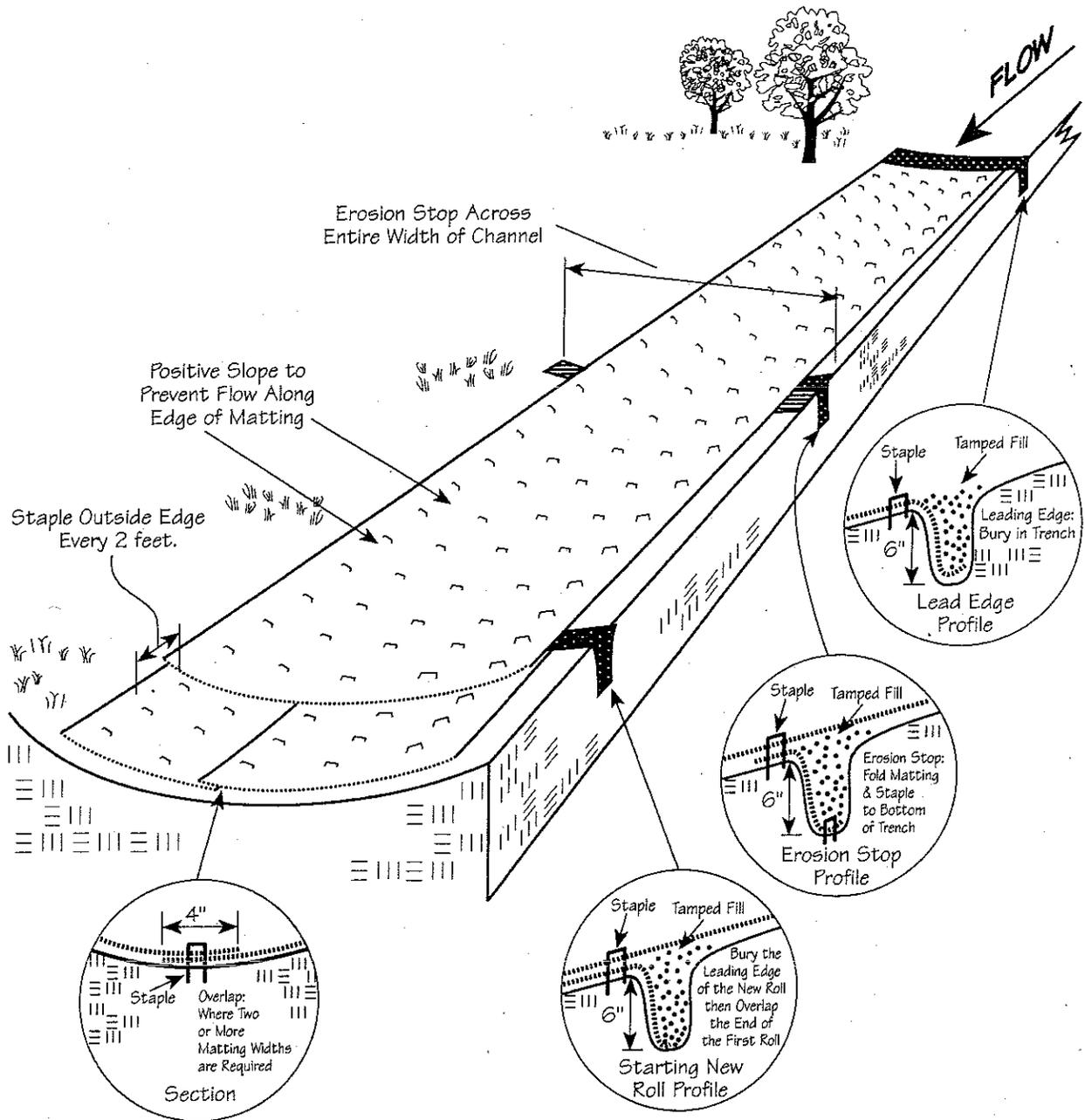
Grade of Matting--The specific grade of a matting should be specified. Matting is available in many different grades for a wide range of uses and site conditions.

Channel Width--Channels often require several widths of mattings. The width of coverage should be specified for individual sections of channel.

Manufacturers Instructions--Matting manufacturers usually provide detailed installation instructions for their products. The manufacturer's instructions should be referenced during design and included in construction plans. If instructions are not available, the following guidelines listed in the specifications for matting may be used.

Erosion Stops--Erosion stops are made of strips of matting placed in narrow trenches 6-12 in. deep across the full cross section of the channel. The strips are installed under the channel lining matting. Erosion stops prevent undermining and gullies from forming beneath the matting. They should be specified when recommended by the matting manufacturer and for areas of high-erosion potential such as where rocky conditions may prevent good soil matting contact, erosive soils or steep slopes. Depending on erosion potential, specifications should require erosion stops spaced from 20-100 ft. apart.

Specifications for Matting



Specifications
for
Matting

1. Material--Excelsior matting shall be 48 in. wide and weigh an average of 0.75 lb./sq. yd. or greater. Jute matting shall be 48 in. wide and weigh an average of 1.2 lb./yd or greater. Matting made of other material and providing equal or greater stabilization than the above may be substituted.
 - 2 ft. in rows the entire length of the matting. Every other row of staples running the length of the matting should be staggered.
2. Site Preparation--After the site has been shaped and graded, a seedbed shall be prepared that is relatively free of foreign material, clods or rocks that are greater than 1.5 in. in diameter. The site shall be prepared to ensure that the matting has good soil contact and the matting will not "bridge" or "tent" over obstructions.
 - To join two rolls together, cut a trench to anchor the end of the new roll and secure it the same as the top roll. Overlap the end of the previous roll 18 in. over the new roll. Continue to staple as described above.
 - When using excelsior matting, the plastic netting shall be on top of the wood fiber.
3. Matting shall be held in place as recommended by the manufacturer as adequate for the site conditions or with sod staples. Sod staples are U-shaped wire staples used for fastening sod, jute or excelsior matting and other erosion-control materials to the soil surface. Sod staples shall be No. 11 gauge or heavier and be 6-10 in. in length. In loose or sandy soils longer staples shall be used.
4. Planting--Lime and fertilizer shall be used according to the recommendation of a soil test or the seeding plan. Seed according to the matting manufacturer's recommendations; or, for excelsior matting, seed area to be protected before installation; or, when using jute matting, apply half the seed before and half the seed after installation.
5. Matting shall be installed as specified by the manufacturer as appropriate for the site conditions or the following procedure may be used:
 - After the site is prepared and erosion stops are installed, start laying the mat from the top of the slope or channel and unroll the matting allowing 4-in. overlaps at the edges.
 - Secure the matting by burying the top ends in a trench 6 in. deep and staple the folded ends to the bottom of the trench. Backfill and tamp firmly to the established grade.
 - Staple matting every 12 in. across the width beginning at the edges and every
6. Erosion stops shall be used where recommended by the matting manufacturer and on areas specified where high-erosion potential may cause undermining and gullies to form beneath the matting.
 - Erosion stops shall be made of strips of matting placed in narrow trenches 6-12 in. deep that cover the full cross section of the channel. They shall be spaced according to the manufacturer's recommendations or by the following:
 - 3 ft. down the channel from each point of entry of concentrated flow,
 - at points where change in gradient or direction of channel occurs, and
 - on long slopes at spacing from 20-100 ft. depending upon the erodibility of the soil, velocity and volume of flow.
 - Erosion stops shall extend beyond the channel liner to the full design width of the channel, this will check any rills that might form outside or along the edge of the channel lining.
 - Erosion stops shall be constructed with 6 in. deep trench, stapled to the bottom of the trench, backfilled and tamped firmly to conform with the cross section of the channel.
 - If seeding has been done prior to installation of erosion stops, reseed disturbed areas prior to placement of channel liner.

PERMANENT SEEDING



DESCRIPTION

Permanent seeding includes the seedbed preparation, seeding, and the establishment of perennial vegetation used to permanently stabilize soil, prevent sediment pollution, reduce runoff by promoting infiltration, and provide stormwater quality benefits offered by dense vegetation.

CONDITIONS WHERE PRACTICE APPLIES

Permanent seeding should be applied to:

- Areas or portions of construction-sites which can be brought to final grade. Applications of permanent seeding should not be delayed while construction on limited portions of the site is being completed.
- Areas that will be regraded, but will be dormant for a year or more.

PLANNING CONSIDERATIONS

Healthy dense turf will have a dramatic long lasting effect on stormwater quality as well as promoting infiltration and reducing the amount of runoff. To establish quality vegetation, careful preparation of the seedbed, soil, even subsoil is highly encouraged.

Soil Compaction--Stormwater quality and the amount of runoff both vary significantly with soil compaction. Non-compacted soils improve stormwater by promoting:

- dense vegetation,
- high infiltration & lower runoff rates,
- pollutant filtration, deposition & absorption, and
- beneficial biologic activity in the soil.

Construction activity can cause highly compacted soils but also offers the opportunity to improve soil condition. The best time for improving soil condition is during the establishment of permanent vegetation. It is highly recommended that subsoilers, plows or other implements be specified as part of final seedbed preparation. Use discretion in slip-prone areas.

Minimum Soil Conditions--Vegetation cannot be expected to stabilize soil that is unstable due to its texture, structure, water movement or excessively steep slope. The following minimum soil conditions are needed for the establishment and maintenance of a long-lived vegetative cover. If these conditions cannot be met, see the Standards and Specifications for Resoiling.

- Soils must include enough fine-grained material to hold at least a moderate amount of available moisture.
- The soil must be free from material that is toxic or otherwise harmful to plant growth.

Specifications
for
Permanent Seeding

SITE PREPARATION

1. A subsoiler, plow or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
2. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation and seeding.
3. Resoil shall be applied where needed to establish vegetation.

SEEDBED PREPARATION

1. Lime--Agricultural ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 lb./1,000 sq. ft. or 2 tons/ac.
2. Fertilizer--Fertilizer shall be applied as recommended by a soil test. In lieu of a soil test, fertilizer shall be applied at a rate of 12 lb./1,000 sq. ft. or 500 lb./ac. of 10-10-10 or 12-12-12 analysis.
3. The lime and fertilizer shall be worked into the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 in. On sloping land the soil shall be worked on the contour.

SEEDING DATES AND SOIL CONDITIONS

Seeding should be done March 1 to May 31 or Aug 1 to September 30. These seeding dates are ideal but, with the use of additional mulch and irrigation, seedings may be made any time throughout the growing season. Tillage/seedbed preparation should be done when the soil is

dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, see the following section on dormant seeding.

DORMANT SEEDINGS.

1. Seedings shall not be planted from October 1 through November 20. During this period the seeds are likely to germinate but probably will not be able to survive the winter.
2. The following methods may be used for "Dormant Seeding":
 - From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
 - From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
 - Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
 - Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

MULCHING

1. Mulch material shall be applied immediately after seeding. Seedings made during optimum seeding dates and with favorable soil conditions and on very flat areas may not need mulch to achieve adequate stabilization. Dormant seeding shall be mulched.

2. Materials

- Straw--If straw is used it shall be unrotted small-grain straw applied at the rate of 2 tons/ac. or 90 lb./1,000 sq. ft. (two to three bales). The mulch shall be spread uniformly by hand or mechanically so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000-sq.-ft. sections and spread two 45-lb. bales of straw in each section.
- Hydroseeders--If wood cellulose fiber is used, it shall be used at 2,000 lb./ac. or 46 lb./1,000 sq. ft.
- Other--Other acceptable mulches include mulch matting applied according to manufacturer's recommendations or wood chips applied at 6 tons/ac.

3. Straw Mulch Anchoring Methods

Straw mulch shall be anchored immediately to minimize loss by wind or water.

- Mechanical--A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 in.

- Mulch Nettings--Nettings shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.

- Asphalt Emulsion--Asphalt shall be applied as recommended by the manufacturer or at the rate of 160 gal./ac.

- Synthetic Binders--Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equal may be used at rates recommended by the manufacturer.

- Wood Cellulose Fiber--Wood cellulose fiber binder shall be applied at a net dry weight of 750 lb./ac. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb./100 gal. of wood cellulose fiber.

IRRIGATION

1. Permanent seeding shall include irrigation to establish vegetation during dry or hot weather or on adverse site conditions as needed for adequate moisture for seed germination and plant growth.

2. Excessive irrigation rates shall be avoided and irrigation monitored to prevent erosion and damage from runoff.

Permanent Seeding			
Seed Mix	Seeding Rate		Notes:
	lb./ac.	lb./1,000ft. ²	
General Use			
Creeping Red Fescue	20-40	½-1	
Domestic Ryegrass	10-20	¼-½	
Kentucky Bluegrass	10-20	¼-½	
Tall Fescue	40	1	
Dwarf Fescue	40	1	
Steep Banks or Cut Slopes			
Tall Fescue	40	1	
Crown Vetch	10	¼	Do not seed later than August.
Tall Fescue	20	½	
Flat Pea	20	½	Do not seed later than August.
Tall Fescue	20	½	
Road Ditches and Swales			
Tall Fescue	40	1	
Dwarf Fescue	90	2¼	
Kentucky Bluegrass	5		
Lawns			
Kentucky Bluegrass	60	1½	
Perennial Ryegrass	60	1½	
Kentucky Bluegrass	60	1½	For shaded areas
Creeping Red Fescue	60	1½	
Note: Other approved seed species may be substituted.			

Specifications
for
Maintenance of Permanent Seeding

1. Permanent seeding shall not be considered established for at least 1 full yr. from the time of planting. Seeded areas shall be inspected for failure and vegetation reestablished as needed. Depending on-site conditions, it may be necessary to irrigate, fertilize, overseed, or reestablish plantings in order to provide permanent vegetation for adequate erosion control.
2. Maintenance fertilization rates shall be established by soil test recommendations or by using the rates shown in the following table.

Maintenance for Permanent Seedings Fertilization and Mowing					
Mixture	Formula	lb./ac.	lb./1,000 ft. ²	Time	Mowing
Creeping Red Fescue Ryegrass Kentucky Bluegrass	10-10-10	500	12	Fall, yearly or as needed.	Not closer than 3"
Tall Fescue	10-10-10	500	12		Not closer than 4"
Dwarf Fescue	10-10-10	500	12		Not closer than 2"
Crown Vetch Fescue	0-20-20	400	10	Spring, yearly following establish- ment and every 4-7 yr. thereafter	Do not mow
Flat Pea Fescue	0-20-20	400	10		Do not mow

Note: Following soil test recommendations is preferred to fertilizer rates shown above.

SODDING



DESCRIPTION

Sod is used to provide immediate soil stabilization in erosive areas such as drainageways and on steep slopes.

CONDITIONS WHERE PRACTICE APPLIES

Sod may be used where immediate cover is required or preferred and where vegetation will be adequate stabilization such as minor swales, around drop inlets, and lawns.

Specifications
for
Sodding

MATERIALS

1. Sod shall be harvested, delivered and installed within a period of 48 hr. Sod not transplanted within this period shall be inspected and approved prior to installation.
2. The sod shall be kept moist and covered during hauling and preparation for placement on the sod bed.
3. Sod shall be machine cut at a uniform soil thickness of 0.75 in., plus or minus 0.25 in., at the time of cutting. Measurements for thickness shall exclude top growth and thatch.

SITE PREPARATION

1. A subsoiler, plow or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
2. The area shall be graded and resoiling shall be done where needed.
3. Soil Amendments:
 - Lime--Agricultural ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 lb./1,000 sq. ft. or 2 tons/ac.
 - Fertilizer--Fertilizer shall be applied as recommended by a soil test. In lieu of a soil test fertilizer shall be applied at a rate of 12 lb./1,000 sq. ft. or 500 lb./ac. of 10-10-10 or 12-12-12 analysis.
 - The lime and fertilizer shall be worked into the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 in.
4. Before laying sod, the surface shall be uniformly graded and cleared of all debris, stones and clods larger than 3-in. diameter.

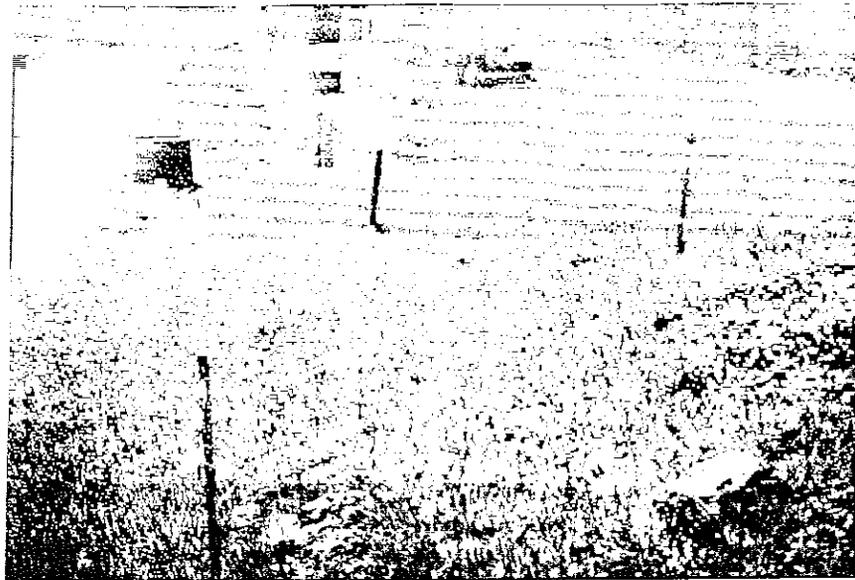
SOD INSTALLATION

1. During periods of excessively high temperatures, the soil shall be lightly irrigated immediately prior to laying the sod.
2. Sod shall not be placed on frozen soil.
3. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered in a brick-like pattern. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would dry the roots.
4. On sloping areas where erosion may be a problem, sod shall be laid with the long edge parallel to the contour and with staggered joints. The sod shall be secured with pegs or staples.
5. As sodding is completed in any one section, the entire area shall be rolled or tamped to ensure solid contact of roots with the soil surface. Sod shall be watered immediately after rolling or tamping until the sod and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within 8 hr.

SOD MAINTENANCE

1. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4 in.
2. After the first week, sod shall be watered as necessary to maintain adequate moisture and ensure establishment.
3. The first mowing shall not be attempted until sod is firmly rooted.

TEMPORARY SEEDING



DESCRIPTION

Temporary seeding provides erosion control on areas in between construction operations. Grasses which are quick growing are seeded and usually mulched to provide prompt, temporary soil stabilization. It effectively minimizes the area of a construction-site prone to erosion and should be used everywhere the sequence of construction operations allows vegetation to be established.

CONDITIONS WHERE PRACTICE APPLIES

Temporary seeding should be applied on exposed soil where additional work (grading, etc.) is not scheduled for more than 45 days. Permanent seeding should be applied if the areas will be idle for more than a year.

PLANNING CONSIDERATIONS

This practice has the potential to drastically reduce the amount of sediment eroded from a construction-site. Control efficiencies greater than 90% will be achieved with proper applications of temporary seeding. Because practices used to trap sediment are usually much less effective, temporary seeding is to be used even on areas where runoff is treated by sediment trapping practices. Because temporary seeding is highly effective and practical on construction-sites, its liberal use is highly recommended.

Specifications
for
Temporary Seeding

Temporary Seeding Species Selection			
Seeding Dates	Species	Lb./1,000 ft. ²	Per Ac.
March 1 to August 15	Oats	3	4 bushel
	Tall Fescue	1	40 lb.
	Annual Ryegrass	1	40 lb.
	Perennial Ryegrass	1	40 lb.
	Tall Fescue	1	40 lb.
	Annual Ryegrass	1	40 lb.
August 16 to November 1	Rye	3	2 bushel
	Tall Fescue	1	40 lb.
	Annual Ryegrass	1	40 lb.
	Wheat	3	2 bushel
	Tall Fescue	1	40 lb.
	Annual Ryegrass	1	40 lb.
	Perennial Ryegrass	1	40 lb.
	Tall Fescue	1	40 lb.
	Annual Ryegrass	1	40 lb.
November 1 to Spring Seeding	Use mulch only, sodding practices or dormant seeding.		

Note: Other approved seed species may be substituted.

1. Structural erosion- and sediment-control practices such as diversions and sediment traps shall be installed and stabilized with temporary seeding prior to grading the rest of the construction-site.
2. Temporary seed shall be applied between construction operations on soil that will not be graded or reworked for 45 days or more. These idle areas should be seeded as soon as possible after grading or shall be seeded within 7 days. Several applications of temporary seeding are necessary on typical construction projects.
3. The seedbed should be pulverized and loose to ensure the success of establishing vegetation. However, temporary seeding shall not be postponed if ideal seedbed preparation is not possible.
4. Soil Amendments--Applications of temporary vegetation shall establish adequate stands of vegetation which may require the use of soil amendments. Soil tests should be taken on the site to predict the need for lime and fertilizer.
5. Seeding Method--Seed shall be applied uniformly with a cyclone seeder, drill, cultipacker seeder, or hydroseeder. When feasible, seed that has been broadcast shall be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used, the seed and fertilizer will be mixed on-site and the seeding shall be done immediately and without interruption.

MULCHING TEMPORARY SEEDING

1. Applications of temporary seeding shall include mulch which shall be applied during or immediately after seeding. Seedings made during optimum seeding dates and with favorable soil conditions and on very flat areas may not need mulch to achieve adequate stabilization.

2. Materials:

- Straw--If straw is used, it shall be unrotted small-grain straw applied at the rate of 2 tons/ac. or 90 lb./1,000 sq. ft. (two to three bales). The mulch shall be spread uniformly by hand or mechanically so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000-sq.-ft. sections and spread two 45-lb. bales of straw in each section.
- Hydroseeders--If wood cellulose fiber is used, it shall be used at 2,000 lb./ac. or 46 lb./1,000 sq. ft.
- Other--Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 tons/ac.

3. Straw mulch shall be anchored immediately to minimize loss by wind or water. Anchoring Methods:

- Mechanical--A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 in.
- Mulch Nettings--Nettings shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentration runoff and on critical slopes.
- Asphalt Emulsion--Asphalt shall be applied as recommended by the manufacturer or at the rate of 160 gal./ac.
- Synthetic Binders--Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equal may be used at rates recommended by the manufacturer.
- Wood-Cellulose Fiber--Wood-cellulose fiber binder shall be applied at a net dry weight of 750 lb./ac. The wood-cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb./100 gal.