

**CONSTRUCTION SITE MAINTENANCE REPORT**

General Information			
Project Name:	Wind Colebrook South		
Location:	29 Flagg Hill Road Colebrook, Connecticut		
CT DEP Tracking No.:		(1) Report No.:	
Date of Maintenance:		Start / End Time:	
Describe present phase of construction:			
Type of Maintenance:			
<input type="checkbox"/> Regular	<input type="checkbox"/> Pre-storm event	<input type="checkbox"/> Post-storm event	<input type="checkbox"/> Plan Update
Maintenance Information			
Inspection Report Reference (No., Item)	Maintenance performed:		
Performed by:			
Inspection Report Reference (No., Item)	Maintenance performed:		
Performed by:			
Inspection Report Reference (No., Item)	Maintenance performed:		
Performed by:			
Inspection Report Reference (No., Item)	Maintenance performed:		
Performed by:			
Inspection Report Reference (No., Item)	Maintenance performed:		
Performed by:			

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Performed by:	
Inspection Report Reference (No., Item)	Maintenance performed:
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Inspection Report Reference (No., Item)	Maintenance performed:
Performed by:	
Inspection Report Reference (No., Item)	Maintenance performed:
Performed by:	
Inspection Report Reference (No., Item)	Maintenance performed:
Performed by:	
Inspection Report Reference (No., Item)	Maintenance performed:
Performed by:	

Certification statement:

I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the site. I further certify, based on such review and in my professional judgment, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and the conditions for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities issued on October 1, 2002 (or as reissued or modified), and the controls required for such Plan are appropriate for the site. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements.

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

**APPENDIX G  
HAZARDOUS MATERIAL OR OIL SPILL RECORDS**

**HAZARDOUS SUBSTANCE/OIL SPILL DISCHARGE EVENT**

General Information			
Project Name:	Wind Colebrook South		
Location:	29 Flagg Hill Road Colebrook, Connecticut		
CT DEP Tracking No.:		(2) Discharge Report No.	
Date of Event:		Time of Event:	
Responsible Party:			
Substance Discharged:			
Description of Event			
Is other descriptive information attached to this inspection report? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Control and Containment Measures Implemented			



**APPENDIX H  
UPDATE RECORDS**

**PLAN UPDATE DESCRIPTION**

<b>General Information</b>			
Project Name:	Wind Colebrook South		
Location:	29 Flagg Hill Road Colebrook, Connecticut		
CT DEP Tracking No.		Revision No.	
Section:		Date:	
<b>Description of Revision</b>			
<b>Reason for Revision</b>			
Revision Requested By:	% Inspection	% Maintenance	% Agency Inspection
% Other:			

**PLAN UPDATE LOG**

Revision No.	Description -		
Section:	Date of Revision :		
By:			
Revision No.	Description -		
Section:	Date of Revision :		
By:			

Revision No.	Description -
Section:	Date of Revision : <input style="width: 150px;" type="text"/>
By:	
Revision No.	Description -
Section:	Date of Revision : <input style="width: 150px;" type="text"/>
By:	
Revision No.	Description -
Section:	Date of Revision : <input style="width: 150px;" type="text"/>
By:	

**Certification statement:**

I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the site. I further certify, based on such review and in my professional judgment, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and the conditions for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities issued on October 1, 2002 (or as reissued or modified), and the controls required for such Plan are appropriate for the site. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements.

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Company: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

**APPENDIX I  
CT DEP NOTICE OF TERMINATION (NOT)**



## General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

### Notice of Termination Form

Please complete and submit this form in accordance with the general permit (DEP-PED-GP-015) in order to ensure the proper handling of your termination. Print or type unless otherwise noted.

Note: Ensure that for commercial and industrial facilities, registrations under the *General Permit for the Discharge of stormwater Associated with Industrial Activity* (DEP-PED-GP-014) or the *General Permit for the Discharge of stormwater from Commercial Activities* (DEP-PED-GP-004) have been filed where applicable. For questions about the applicability of these general permits, please call the Department at 860-424-3018.

#### Part I: Registrant Information

1. Permit number: <b>GSN</b>			
2. Fill in the name of the registrant(s) as indicated on the registration certificate: Registrant:			
3. Site Address:			
City/Town:	State:	Zip Code:	
4. Date all storm drainage structures were cleaned of construction sediment: Date of Completion of Construction:			
Date of Last Inspection (must be at least three months after final stabilization pursuant to Section 6(b)(6)(D) of the general permit)			
5. Check the post-construction activities at the site (check all that apply):			
<input type="radio"/> Industrial	<input type="radio"/> Residential	<input type="radio"/> Commercial	<input type="radio"/> Capped Landfill
<input type="radio"/> Other(describe):			

#### Part II: Certification

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."	
_____ Signature of Permittee	_____ Date
_____ Name of Permittee (print or type)	_____ Title (if applicable)

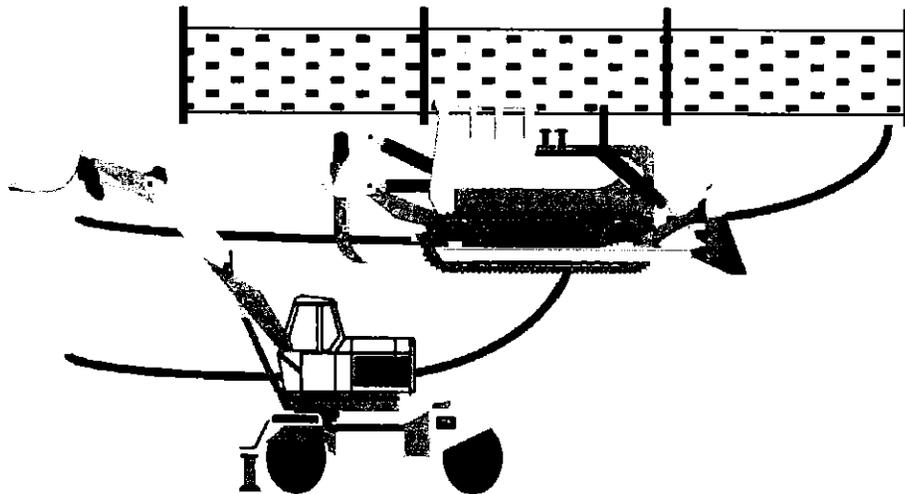
Note: Please submit this Notice of Termination Form to:  
 STORMWATER PERMIT COORDINATOR  
 BUREAU OF WATER MANAGEMENT  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 79 ELM STREET  
 HARTFORD, CT 06106-5127

**APPENDIX J**  
**CONNECTICUT GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER AND**  
**DEWATERING WASTEWATERS ASSOCIATED WITH CONSTRUCTION ACTIVITIES**  
**(DEP-PED-GP-015)**



STATE OF CONNECTICUT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF MATERIALS MANAGEMENT & COMPLIANCE  
ASSURANCE  
WATER PERMITTING & ENFORCEMENT DIVISION  
860-424-3018

## **General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities**



Issuance Date: April 9, 2010  
Expiration Date: October 1, 2011

Printed on recycled paper

Bureau of Materials Management & Compliance Assurance  
DEP-PED-GP-015

I of 24

## General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

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## General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

### Section 1. Authority

This general permit is issued under the authority of Section 22a-430b of Connecticut General Statutes.

### Section 2. Definitions

The definitions of terms used in this general permit shall be the same as the definitions contained in Section 22a-423 of the Connecticut General Statutes and Section 22a-430-3(a) of the Regulations of Connecticut State Agencies. As used in this general permit, the following definitions shall apply:

"Authorized activity" means any activity authorized under this general permit.

"Coastal area" means coastal area as defined in Section 22a-93(5) of the Connecticut General Statutes.

"Coastal waters" means coastal waters as defined in Section 22a-29 of the Connecticut General Statutes.

"Commissioner" means commissioner as defined in Section 22a-2(b) of the Connecticut General Statutes.

"Construction activities" means activities including but not limited to clearing and grubbing, grading, excavation, and dewatering.

"Department" means the department of environmental protection.

"Developer" means a person or municipality which is responsible, either solely or through contract, for the design and construction of a project site.

"Dewatering wastewater" means wastewater generated from the lowering of the groundwater table, the pumping of accumulated stormwater from an excavation, or the pumping of surface water from a cofferdam, or pumping of other surface water that has been diverted into a construction site.

"Disturbance" means the execution of any of the construction activities defined above.

"Erosion" means the detachment and movement of soil or rock fragments by water, wind, ice and gravity.

"Fresh-tidal wetland" means a tidal wetland with an average salinity level of less than 0.5 parts per thousand.

*"Guidelines"* means the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, or as may be amended, established pursuant to Section 22a-328 of the Connecticut General Statutes.

*"High tide line"* means high tide line as defined in Section 22a-359(c) of the Connecticut General Statutes.

*"Individual permit"* means a permit issued to a named permittee under Section 22a-430 of the Connecticut General Statutes.

*"Inland wetland"* means wetlands as defined in Section 22a-38 of the Connecticut General Statutes.

*"Municipal separate storm sewer"* means conveyances for stormwater (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) owned or operated by any municipality and discharging directly to surface waters of the state.

*"Municipality"* means a city, town or borough of the state.

*"Permittee"* means any person who or municipality which initiates, creates or maintains a discharge in accordance with Section 3 of this general permit.

*"Person"* means person as defined in Section 22a-4i23 of the Connecticut General Statutes.

*"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 other floating craft from which pollutants are or may be discharged.

*"Registrant"* means a person who or municipality which files a registration.

*"Registration"* means a registration form filed with the commissioner pursuant to Section 4 of this general permit.

*"Retain"* means to permanently hold on-site with no subsequent point-source release as in a detention system where there is a temporary holding or delaying of the delivery of stormwater downstream.

*"Sediment"* means solid material, either mineral or organic, that is in suspension, is transported, or has been moved from its site of origin by erosion.

*"Site"* means geographically contiguous land or water on which an authorized activity takes place or on which an activity for which authorization is sought under this general permit is proposed to take place. Non-contiguous land or water owned by the same person and connected by a right-of-way, which such person controls, and to which the public does not have access shall be deemed the same site.

*"Soil"* means any unconsolidated mineral and organic material of any origin.

"*Stabilize*" means the use of pavement, establishment of vegetation, use of geotextile materials, or organic or inorganic mulching materials, or retention of existing vegetation to prevent erosion.

"*Stormwater*" means waters consisting of precipitation runoff.

"*Tidal wetland*" means a wetland as that term is defined in Section 22a-29(2) of the Connecticut General Statutes.

"*Total disturbance*" means the total area on a site that will be exposed or susceptible to erosion during the course of a project.

"*Total sediment load*" means the total amount of sediment carried by stormwater runoff on an annualized basis.

"*Upland soils*" means soils which are not designated as poorly drained, very poorly drained, alluvial, or flood plain by the National Cooperative Soils Survey, as may be amended from time to time, of the Soil Conservation Service of the United States Department of Agriculture and/or the Inland Wetlands Commission of the community in which the project will take place.

"*Water company*" means water company as defined in Section 25-32a of the Connecticut General Statutes.

### Section 3. Authorization Under This General Permit

#### (a) *Eligible Activities*

The following activity is authorized by this general permit, provided the requirements of subsection (b) of this section are satisfied:

The discharge of stormwater and dewatering wastewater from construction activities which result in the disturbance of one or more total acres of land area on a site regardless of project phasing. In the case of a larger plan of development (such as a subdivision), the estimate of total acres of site disturbance shall include, but is not limited to, road and utility construction, individual lot construction (i.e. house, driveway, septic system, etc.), and all other construction associated with the overall plan, regardless of the individual parties responsible for construction of these various elements.

#### (b) *Requirements for Authorization*

This general permit authorizes the activity listed in subsection (a) of this section provided:

##### (1) Coastal Management Act

Such activity must be consistent with all applicable goals and policies in Section 22a-92 of the Connecticut General Statutes, and must not cause adverse impacts to coastal resources as defined in Section 22a-93(15) of the Connecticut General Statutes.

(2) Endangered and Threatened Species

Such activity must not threaten the continued existence of any species listed pursuant to Section 26-306 of the Connecticut General Statutes as endangered or threatened and must not result in the destruction or adverse modification of habitat designated as essential to such species.

(3) Historic Places

Such activity must at all times be in compliance with State and Federal Historic Preservation statutes, regulations and policies including identification of any potential impacts on property listed or eligible for listing on the State and/or National Registers of Historic Places and a description of measures necessary to avoid or minimize those impacts.

(4) The stormwater is *not* discharged to a Publicly Owned Treatment Works or to ground water;

(5) The discharge shall *not* cause pollution due to acute or chronic toxicity to aquatic and marine life, impair the biological integrity of aquatic or marine ecosystems, or result in an unacceptable risk to human health.

(6) Any construction site that is registered under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, issued October 1, 1997, is authorized by this general permit provided that the site continues to meet the conditions listed in Section 6 of this general permit.

(c) *Registration*

Pursuant to Section 4 of this general permit, a completed registration with respect to the construction activity shall be filed with the commissioner 30 days prior to the commencement of the activity unless exempted by Section 3(d) of this general permit.

(d) *Small Construction*

For construction projects with a total disturbed area (regardless of phasing) of between one and five acres, the permittee shall agree to adhere to the erosion and sediment control land use regulations of the town in which the construction activity is conducted. No registration pursuant to Section 4 of this general permit shall be required for such construction activity as long as it receives town review and written approval of its erosion and sediment control measures and follows the Guidelines. If no review is conducted by the town, the permittee must register and comply with Section 6.

(e) *Geographic Area*

This general permit applies throughout the State of Connecticut.

(f) *Effective Date and Expiration Date of this General Permit*

The modification of this general permit is effective on April 9, 2010, and expires on October 1, 2011.

(g) *Effective Date of Authorization*

Any activity is authorized by this general permit on the date the general permit becomes effective or on the date the activity is initiated, whichever is later.

(h) *Revocation of an Individual Permit*

If an activity is eligible for authorization under this general permit and such activity is presently authorized by an individual permit, the existing individual permit may be revoked by the commissioner upon a written request by the permittee. If the commissioner revokes such individual permit in writing, such revocation shall take effect on the effective date of authorization of such activity under this general permit.

(i) *Issuance of an Individual Permit*

If the commissioner issues an individual permit under Section 22a-430 of the Connecticut General Statutes, authorizing an activity authorized by this general permit, this general permit shall cease to authorize that activity beginning on the date such individual permit is issued.

#### Section 4. Registration Requirements

(a) *Who Must File a Registration*

With the exception noted below or in Section 3(d) of this general permit, any person or municipality which initiates, creates, originates or maintains a discharge described in Section 3(a) of this general permit shall file with the commissioner a registration form that meets the requirements of Section 4 of this general permit along with the applicable fee at least thirty (30) days before the initiation of construction activities.

If a site has been previously registered under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities issued October 1, 1997 or October 1, 2002 and modified April 8, 2004, the permittee does *not* need to submit a new registration under this general permit, unless the ownership of the site has been transferred.

If the site for which a registration is submitted under this permit is owned by one person or municipality but is leased or, in some other way, the legal responsibility of another person or municipality (the developer), the developer is responsible for submitting the registration required by this permit. The registrant is responsible for compliance with all conditions of this permit.

(b) *Scope of Registration*

A registrant shall register on one registration form only those discharges that are operated by such permittee on one site.

(c) *Contents of Registration*

(1) Fees

- (A) The registration fee of \$625.00 shall be submitted with a registration form, provided that the registration fee for a municipality shall be \$312.50. A registration shall not be deemed complete and no activity shall be authorized by this general permit (with the exception of activities previously registered under the general permit issued October 1, 1997 or October 1, 2002 and modified April 8, 2004), unless the registration fee has been paid in full.
- (B) Registrants required to submit a stormwater pollution control plan (Plan) in accordance with Section 6(b)(3)(C) of this permit shall pay an additional plan review fee of \$625.00 with the submittal of the Plan, the registration form and registration fee, provided that the plan review fee for a municipality shall be \$312.50.
- (C) The registration fee and plan review fee shall be paid by check or money order payable to the Department of Environmental Protection.
- (D) The registration fee and plan review fee are non-refundable.

(2) Registration Form

A registration shall be filed on forms prescribed and provided by the commissioner and shall include the following:

- (A) Legal name, address, and telephone number of the registrant. If the registrant is a person (as defined in Section 2) transacting business in Connecticut and is registered with the Connecticut Secretary of the State, provide the exact name as registered with the Connecticut Secretary of the State.
- (B) Legal name, address and telephone number of the owner of the property on which the activity will take place.
- (C) Legal name, address and telephone number of the primary contact for departmental correspondence and inquiries, if different from the registrant.
- (D) Legal name, address and telephone number of the developer of the property on which the subject activity is to take place.
- (E) Legal name, address and daytime and off-hours telephone numbers of the general contractor or other representative, if different from the developer.
- (F) Legal name, address and telephone number of any consultant(s) or engineer(s) retained by the permittee to prepare the registration and Stormwater Pollution Control Plan.
- (G) Location address or description of the site with respect to which the registration is submitted.

- (H) The estimated duration of the construction activity.
- (I) A brief description of the construction activity, including, but not limited to:
  - (i) Number of acres disturbed.
  - (ii) Assurance that construction is in accordance with the Guidelines and local erosion and sediment control ordinances.
  - (iii) A determination of whether or not a coastal consistency review is necessary for the activity.
  - (iv) Assurance that there are no endangered or threatened species suspected or known to be impacted by the activity.
- (J) A brief description of the stormwater discharge, including:
  - (i) The name of the municipal separate storm sewer system or immediate surface water body or wetland to which the stormwater runoff discharges, and whether or not the site discharges within 500 feet of a tidal wetland.
  - (ii) The name of the watershed or nearest waterbody to which the site discharges.
- (K) An 8 1/2" by 11" copy of the relevant portion or a full-sized original of a United States Geological Survey (USGS) quadrangle map, with a scale of 1:24,000, showing the exact location of the site and the area within a one mile radius of the site. Identify the quadrangle name on such copy.
- (L) For all sites that will disturb 10 acres or more (regardless of phasing), a copy of the Stormwater Pollution Control Plan shall be submitted (with the \$625.00 plan review fee) in accordance with Section 6(b)(3)(C) of this general permit.
- (M) The signature of the registrant and of the individual or individuals responsible for actually preparing the registration, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I certify that this permit registration is on complete and accurate forms as prescribed by the commissioner without alteration of the text. I understand that a false statement made in the submitted information may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the

Connecticut General Statutes, and in accordance with any other applicable statute.

I also certify under penalty of law that I have read and understand all conditions of the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities issued on October 1, 2002 (or as reissued or modified), that all conditions for eligibility for authorization under the general permit are met, all terms and conditions of the general permit are being met for all discharges which have been initiated and are the subject of this registration, and that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowingly making false statements."

- (N) The following certification must be signed by a professional engineer, licensed to practice in Connecticut:

"I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the site. I further certify, based on such review and on my professional judgment, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and the conditions for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities issued on October 1, 2002 (or as reissued or modified), and the controls required for such Plan are appropriate for the site. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements."

(d) *Where to File a Registration*

A registration shall be filed with the commissioner at the following address:

CENTRAL PERMIT PROCESSING UNIT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
79 ELM STREET  
HARTFORD, CT 06106-5127

(e) *Additional Information*

The commissioner may require a registrant to submit additional information that the commissioner reasonably deems necessary to evaluate the consistency of the subject activity with the requirements for authorization under this general permit.

(f) *Additional Notification*

For discharges through a municipal separate storm sewer system authorized by this general permit, a copy of the registration shall also be submitted to the owner and operator of that system.

For discharges within a public drinking water supply watershed or aquifer area, a copy of the registration and the Plan described in Section 6(b) of this general permit shall be submitted to the water company.

In addition, a copy of this registration and the Plan shall be available upon request to the local wetlands agency or its equivalent, or its duly authorized agent.

*(g) Action by Commissioner*

- (1) The commissioner may reject without prejudice a registration if he determines that it does not satisfy the requirements of Section 4(c) of this general permit more than 30 days have elapsed since the commissioner requested that the registrant submit additional information or the required fee and the registrant has not submitted such information or fee. Any registration refiled after such a rejection shall be accompanied by the fee specified in Section 4(c)(1) of this general permit.
- (2) The commissioner may disapprove a registration if he finds that the subject activity is inconsistent with the requirements for authorization under Section 3(b) of this general permit, or for any other reason provided by law.
- (3) Disapproval of a registration under this subsection shall constitute notice to the registrant that the subject activity must be authorized under an individual permit.
- (4) Rejection or disapproval of a registration shall be in writing.

**Section 5. Termination Requirements**

*(a) Notice of Termination*

At the completion of a construction project registered pursuant to Section 4 of this general permit, a Notice of Termination must be filed with the commissioner. A project shall be considered complete after the site has been stabilized for at least three months following the cessation of construction activities. A site is not considered stabilized until there is no active erosion or sedimentation present and no disturbed areas remain exposed.

*(b) Termination Form*

A termination notice shall be filed on forms prescribed and provided by the commissioner and shall include the following:

- (1) The permit number as provided to the permittee on the permit certificate.
- (2) The name of the registrant as reported on the general permit registration form (DEP-PED-REG-015).
- (3) The address of the completed construction site.

- (4) The date all storm drainage structures were cleaned of construction debris pursuant to Section 6(b)(6)(C)(iv) of this general permit, the date of completion of construction, and the date of the final inspections pursuant to Section 6(b)(6)(D) of this general permit.
  - (5) A description of the post-construction activities at the site.
  - (6) Signature of the permittee.
- (c) *Where to File a Termination Form*

A termination form shall be filed with the commissioner at the following address:  
WATER PERMITTING & ENFORCEMENT DIVISION  
BUREAU OF MATERIALS MANAGEMENT & COMPLIANCE ASSURANCE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
79 ELM STREET  
HARTFORD, CT 06106-5127

#### Section 6. Conditions of this General Permit

The permittee shall at all times continue to meet the requirements for authorization set forth in Section 3 of this general permit. In addition, a permittee shall assure that authorized activities are conducted in accordance with the following conditions:

- (a) *Conditions Applicable to Certain Discharges*
- (1) Any person who or municipality that discharges stormwater into coastal tidal waters for which a permit is required under either the Structures and Dredging Act in accordance with Section 22a-361 of the Connecticut General Statutes or the Tidal Wetlands Act in accordance with Section 22a-32 of the Connecticut General Statutes, shall obtain such permit(s) from the commissioner. A tidal wetland permit is required for the placement of any sediment upon tidal wetland, whether it is deposited directly or indirectly.
  - (2) Any site which has a post-construction stormwater discharge that is located less than 500 feet from a tidal wetlands which is not a fresh-tidal wetland, shall discharge such stormwater through a system designed to retain the volume of stormwater runoff generated by 1 inch of rainfall on the site.

(b) *Stormwater Pollution Control Plan*

A registrant shall develop a Stormwater Pollution Control Plan ("Plan") for each site authorized by this general permit. Once the construction activity begins, the permittee shall perform all actions required by such Plan and shall maintain compliance with the Plan thereafter. The Plan shall be designed to address two components of stormwater pollution: (1) pollution caused by soil erosion and sedimentation during and after construction; and (2) stormwater pollution caused by use of the site after construction is completed, including, but not limited to, parking lots, roadways and the maintenance of grassed areas.

(1) Development of Plan

- (A) The registrant shall develop a Plan for the site. Plans shall be prepared in accordance with sound engineering practices. The Plan shall ensure and demonstrate compliance with the Guidelines.
- (B) For any stormwater discharges that were permitted under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities issued October 1, 1997 or October 1, 2002 and modified April 8, 2004, the existing Plan shall be updated in accordance with subsection (b)(6) of this section. The permittee shall maintain compliance with such Plan thereafter.

(2) Deadlines for Plan Preparation and Compliance

For construction activities authorized by this general permit that are initiated after the date of issuance of this general permit, the registrant shall prepare the Plan no later than thirty days before the date of initiation of the construction activity.

(3) Signature and Plan Review

- (A) The Plan shall be signed by the registrant in accordance with Section 6(h) of this general permit. The Plan shall be certified by all contractors and subcontractors in accordance with subsection (b)(6)(E) of this section.
- (B) The registrant shall provide a copy of the Plan, and the registration form required in Section 4 of this general permit to the following persons immediately upon request:
  - (i) the commissioner;
  - (ii) the local agency approving sediment and erosion plans, grading plans, or stormwater management plans, and the local official responsible for enforcement of such plans;
  - (iii) in the case of a stormwater discharge through a municipal separate storm sewer system, the municipal operator of the system;
  - (iv) in the case of a stormwater discharge located within a public drinking water supply watershed or aquifer area, the water company.

The registrant shall also provide a copy of the Plan to all contractors or developers conducting construction activities on individual lots or buildings within the overall plan of development, regardless of ownership. These additional contractors or developers shall sign the certification in Section 6(b)(6)(E)(ii).

For all registrants or permittees submitting a Plan in accordance with subsection (b)(3)(B)(i) of this section, a plan review fee of \$625.00 shall be submitted with the Plan.

(C) For construction activities that result in the disturbance of ten or more total acres of land area on a site (regardless of phasing), the Plan shall be submitted to the commissioner no later than thirty days before the initiation of construction activities. Plans shall be submitted in conjunction with the registration submitted in compliance with Section 4 of this general permit.

(D) The commissioner may notify the registrant at any time that the Plan and/or the site do not meet one or more of the minimum requirements of this permit. Within 7 days of such notice, or such other time as the commissioner may allow, the permittee shall make the required changes to the Plan and perform all actions required by such revised Plan. Within 15 days of such notice, or such other time as the commissioner may allow, the permittee shall submit to the commissioner a written certification that the requested changes have been made and implemented and such other information as the commissioner requires, in accordance with Sections 6(g) and 6(h) of this general permit.

(4) Keeping Plans Current

The permittee shall amend the Plan whenever there is a change in contractors or subcontractors at the site, or a change in design, construction, operation, or maintenance at the site which has the potential for the discharge of pollutants to the waters of the state and which has not otherwise been addressed in the Plan or if the actions required by the Plan fail to prevent pollution.

(5) Failure to Prepare, Maintain or Amend Plan

In no event shall failure to complete, maintain or update a Plan in accordance with subsections (b)(1) and (b)(4) of this section relieve a permittee of responsibility to implement any actions required to protect the waters of the state and to comply with all conditions of the permit, including but not limited to installation and maintenance of all controls and management measures described in subsection (b)(6)(C) of this section and in the Guidelines.

(6) Contents of the Plan

The Plan shall include, at a minimum the following items:

(A) Site Description

- (i) A description of the nature of the construction activity,
- (ii) Estimates of the total area of the site and the total area of the site that is expected to be disturbed by construction activities
- (iii) An estimate, including calculations if any, of the average runoff coefficient of the site after construction activities are completed and existing data describing the soil or the quality of any discharge from the site;

- (iv) A site map indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, the location of major structural and non-structural controls identified in the Plan, the location of areas where stabilization practices are expected to occur, areas which will be vegetated following construction, surface waters (including inland wetlands, tidal wetlands, and fresh-tidal wetlands), and locations where storm water is discharged to a surface water (both during and post-construction); and
- (v) The name of the immediate receiving water(s) and the ultimate receiving water(s) of the discharges authorized by this general permit and areal extent of wetland acreage on the site.

(B) Construction Sequencing

Each Plan shall clearly identify the expected sequence of major construction activities on the site, including but not limited to installation of erosion and sediment control measures, clearing, grubbing, grading, cut and fill operations, drainage and utility installation, and paving and stabilization operations. This section shall include an estimated timetable for all activities, which shall be revised in accordance with subsection (4) above as necessary. Wherever possible, the site shall be phased to avoid the disturbance of over five acres at one time. The Plan shall clearly show the limits of disturbance for the entire activity and for each phase. Any Plan that shows a site disturbance of over ten acres total (regardless of phasing) requires submittal of the Plan to the commissioner, in accordance with subsection (b)(3)(C) of this section.

(C) Controls

Each Plan shall include a description of appropriate controls and measures that will be performed at the site to prevent pollution of the waters of the state. The Plan shall clearly describe for each major activity identified in subsection (b)(6)(B) of this section, the appropriate control measures and the timing during the construction process that the measures would be implemented. (For example, perimeter controls for one portion of the site will be installed after the clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. Perimeter controls will be actively maintained until final stabilization of those portions of the site upgradient of the perimeter control. Temporary perimeter controls will be removed after final stabilization.) Controls shall be designed in accordance with the Guidelines. Use of controls to comply with subsection (b)(6)(C)(i) of this section that are not included in the Guidelines must be approved by the commissioner or his designated agent. The description of controls shall address the following minimum components:

(i) Erosion and Sediment Controls

1) Stabilization Practices

The Plan shall include a description of interim and permanent stabilization practices, including a schedule for implementing the practices. Site plans shall ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Stabilization practices may include but not be limited to: silt fences, temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other vegetative and non-structural measures as may be identified by the Guidelines. Where construction activities have permanently ceased or have temporarily been suspended for more than seven days, or when final grades are reached in any portion of the site, stabilization practices shall be implemented within three days. Areas that will remain disturbed but inactive for at least thirty days shall receive temporary seeding in accordance with the Guidelines. Areas that will remain disturbed beyond the planting season shall receive long-term, non-vegetative stabilization sufficient to protect the site through the winter. In all cases, stabilization measures shall be implemented as soon as possible in accordance with the Guidelines. Areas to be graded with slopes steeper than 3:1 (horizontal:vertical) and higher than 15 feet shall be graded with appropriate slope benches in accordance with the Guidelines.

2) Structural Practices

The Plan shall include a description of structural practices to divert flows away from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from the site. Such practices include but may not be limited to earth dikes (diversions), drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, outlet protection, reinforced soil retained systems, gabions, and temporary or permanent sediment basins and chambers. Unless otherwise specifically approved in writing, structural measures shall be installed on upland soils.

At a minimum, for discharge points that serve an area with between 2 and 5 disturbed acres at one time, a sediment basin, sediment trap, or other control as may be defined in the Guidelines for such drainage area, designed in accordance with the Guidelines, shall be designed and installed. All sediment traps or basins shall provide a minimum of 134 cubic yards of water storage per acre drained and shall be maintained until final stabilization of the contributing area. This requirement shall not apply to flows from off-site areas and flows from the

site that are either undisturbed or have undergone final stabilization where such flows are diverted around the sediment trap or basin. Any exceptions must be approved in writing by the commissioner.

For discharge points that serve an area with more than five (5) disturbed acres at one time, a sediment basin designed in accordance with the Guidelines, shall be designed and installed, which basin shall provide a minimum of 134 cubic yards of water storage per acre drained and which basin shall be maintained until final stabilization of the contributing area. This requirement shall not apply to flows from off-site areas and flows from the site that are either undisturbed or have undergone final stabilization where such flows are diverted around the sediment basin. Outlet structures from sedimentation basins shall not encroach upon a wetland. Any exceptions must be approved in writing by the commissioner.

3) Maintenance

Maintenance shall be performed in accordance with the Guidelines, provided that, if additional maintenance is required to protect the waters of the state from pollution, the Plan shall include a description of the procedures to maintain in good and effective operating conditions all erosion and sediment control measures, including vegetation, and all other protective measures identified in the site plan.

(ii) Dewatering Wastewaters

Where feasible and appropriate, dewatering wastewaters shall be infiltrated into the ground. Dewatering wastewaters discharged to surface waters shall be discharged in a manner that minimizes the discoloration of the receiving waters. Each plan shall include a description of the operational and structural practices that will be used to ensure that all dewatering wastewaters will not cause scouring or erosion or contain suspended solids in amounts that could reasonably be expected to cause pollution of waters of the State.

(iii) Post Construction Stormwater Management

Each plan must include a description of measures that will be installed during the construction process to control pollutants in stormwater discharges that will occur after construction operations have been completed. Unless otherwise specifically provided by the commissioner in writing, structural measures shall be placed on upland soils. This general permit only addresses the installation of stormwater management measures, and not the ultimate operation and maintenance of such structures included in such measures after the construction activities have been completed and the site has

undergone final stabilization. The following measures must be implemented:

- 1) For construction activities initiated after October 1, 1992, the permittee shall install post-construction stormwater management measures designed to remove suspended solids and floatables (i.e. oil and grease, other floatable liquids, floatable solids, trash, etc.) from stormwater. A goal of 80 percent removal of total sediment load from the stormwater discharge shall be used in designing and installing stormwater management measures. Such measures may include but are not limited to: stormwater detention structures (including wet ponds); stormwater retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff on-site; vegetated buffer strips; sediment removal chambers or structures; and sequential systems (which combine several practices). Provisions shall be included to address the maintenance of any system installed.
- 2) Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., maintenance of hydrologic conditions, such as the hydrodynamics present prior to the initiation of construction activities).
- 3) Any site which has a post-construction stormwater discharge located less than 500 feet from a tidal wetlands which is not a fresh-tidal wetland, shall discharge such stormwater through a system designed to retain the volume of stormwater runoff generated by 1 inch of rainfall on the site.

(iv) Other Controls

A description of other controls used at the site. The following controls must be implemented:

1) Waste Disposal

A description of best management practices to be performed at the site, which practices shall ensure that no litter, debris, building materials, or similar materials are discharged to waters of the State.

- 2) Off-site vehicle tracking of sediments and the generation of dust shall be minimized.

- 3) All post-construction stormwater structures shall be cleaned of construction sediment and any remaining silt fence shall be removed prior to filing of a termination notice pursuant to Section 5 of this general permit.

(O) Inspection

A description of the inspection procedures that must be addressed and implemented in the following manner:

Qualified personnel (provided by the permittee) shall inspect disturbed areas of the construction activity that have not been finally stabilized, structural control measures, and locations where vehicles enter or exit the site at least once every seven calendar days and within 24 hours of the end of a storm that is 0.1 inches or greater. Where sites have been temporarily or finally stabilized, such inspection shall be conducted at least once every month for three months.

- (i) 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 shall be observed to ensure that they are operating correctly. Where discharge locations or points are assessable, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking.
- (ii) Based on the results of the inspection, the description of potential sources and pollution prevention measures identified in the Plan shall be revised as appropriate as soon as practicable after such inspection. Such modifications shall provide for timely implementation of any changes to the site within 24 hours and implementation of any changes to the Plan within 3 calendar days following the inspection. The Plan shall be revised and the site controls updated in accordance with sound engineering practices, the Guidelines, and subsections (4) and (6)(C)(i) 3) of this section.
- (iii) A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Plan, and actions taken shall be made and retained as part of the Plan for at least three years after the date of inspection. The report shall be signed by the permittee or his/her authorized representative in accordance with the requirements of Section 6(h) of this general permit.

(E) Contractors

- (i) The Plan shall clearly identify each contractor and subcontractor that will perform actions on the site which may reasonably be expected

to cause or have the potential to cause pollution of the waters of the State, and shall include a copy of the certification statement shown below signed by each such contractor and subcontractor. All certifications shall be included in the Plan.

(ii) Subdivisions

Where individual lots in a subdivision or other common plan of development are conveyed or otherwise the responsibility of another contractor, those individual lot contractors shall be required to comply with the provisions of this general permit and shall sign the certification statement below regardless of lot size or disturbed area. The permittee shall provide a copy of the Plan to each of these contractors.

(iii) Certification Statement

The Plan shall include the following certification signed by each contractor and subcontractor identified in the Plan as described above:

"I certify under penalty of the law that I have read and understand the terms and conditions of the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities. I understand that as a contractor or subcontractor at the site, I am authorized by this general permit, and must comply with the terms and conditions of this permit, including but not limited to the requirements of the Stormwater Pollution Control Plan prepared for the site."

The certification shall include the name and title of the person providing the signature; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

(c) Reporting and Record Keeping Requirements

- (1) The permittee shall retain copies of the Plan and all reports required by this general permit, and records of all data used to complete the registration to be authorized by this general permit, for a period of at least three years from the date that construction at the site is completed unless the commissioner specifies another time period in writing.
- (2) The permittee shall retain an updated copy of the Plan required by this general permit at the construction site from the date construction is initiated at the site until the date construction at the site is completed.
- (3) Upon completion of construction, for sites authorized by the General Permit for the Discharge of Stormwater Associated with Commercial Activity or the General Permit for the Discharge of Stormwater Associated with Industrial Activity, the Plan shall be kept as an appendix to the Stormwater Management

Plan or Stormwater Pollution Prevention Plan (as applicable) for a period of at least three years from the date of completion of construction.

(d) *Regulations of Connecticut State Agencies incorporated into this General Permit*

Title permittee shall comply with the following Regulations of Connecticut State Agencies which are hereby incorporated into this general permit, as if fully set forth herein:

(1) Section 22a-430-3:

- Subsection (b) General - subparagraph (1)(D) and subdivisions (2),(3),(4) and (5)
- Subsection (c) Inspection and Entry
- Subsection (d) Effect of a Permit - subdivisions (1) and (4)
- Subsection (e) Duty to Comply
- Subsection (f) Proper Operation and Maintenance
- Subsection (g) Sludge Disposal
- Subsection (h) Duty to Mitigate
- Subsection (I) Facility Modifications, Notification -subdivisions (1) and (4)
- Subsection (j) Monitoring, Records and Report Requirements - subdivisions (1), (6), (7), (8), (9) and (11) (except subparagraphs (9) (A) (2) and (9) (c))
- Subsection (k) Bypass
- Subsection (m) Effluent Limitation Violations
- Subsection (n) Enforcement
- Subsection (p) Spill Prevention and Control
- Subsection (q) Instrumentation, Alarms, Flow Recorders
- Subsection (r) Equalization

(2) Section 22a-430-4

- Subsection (t) Prohibitions
- Subsection (p) Revocation, Denial, Modification
- Appendices

(e) *Reliance on Registration*

In evaluating the registrant's registration, the commissioner has relied on information provided by the registrant. If such information proves to be false or incomplete, the registrant's authorization may be suspended or revoked in accordance with law, and the commissioner may take any other legal action provided by law.

(f) *Duty to Correct and Report Violations*

Upon teaming of a violation of a condition of this general permit, a permittee shall immediately take all reasonable action to determine the cause of such violation, correct and mitigate the results of such violation, prevent further such violation, and report in writing such violation and such corrective action to the commissioner within five (5) days of the permittee's teaming of such violation. Such information shall be filed in accordance with the certification requirements prescribed in Section 6(h) of this general permit.

(g) *Duty to Provide Information*

If the commissioner requests any information pertinent to the authorized activity or to compliance with this general permit or with the permittee's authorization under this general permit, the permittee shall provide such information within fifteen (15) days of such request. Such information shall be filed in accordance with the certification requirements prescribed in Section 6(h) of this general permit.

(II) *Certification of Documents*

Any document, including but not limited to any notice, information or report, which is submitted to the commissioner under this general permit shall be signed by the permittee, or a duly authorized representative of the permittee, and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

(i) *Date of Filing*

For purposes of this general permit, the date of filing with the commissioner of any document is the date such document is received by the commissioner. The word "day" as used in this general permit means the calendar day; if any date specified in the general permit falls on a Saturday, Sunday, or legal holiday, such deadline shall be the next business day thereafter.

(j) *False Statements*

Any false statement in any information submitted pursuant to this general permit may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes.

(k) *Correction of Inaccuracies*

Within fifteen (15) days after the date a permittee becomes aware of a change in any information in any material submitted pursuant to this general permit, or becomes aware that any such information is inaccurate or misleading or that any relevant information has been omitted, such permittee shall correct the inaccurate or misleading information or supply the omitted information in writing to the commissioner. Such information shall be filed in accordance with the certification requirements prescribed in Section 6(h) of this general permit.

(l) *Transfer of Authorization*

Authorizations under this general permit are non-transferable. However, any person or municipality registering a discharge that has previously been registered under this permit may adopt by reference the Plan developed by the previous permittee. The new permittee shall amend the Plan as required by Section 6(b)(4) prior to submitting a new registration.

(m) *Other Applicable Law*

Nothing in this general permit shall relieve the permittee of the obligation to comply with any other applicable federal, state and local law, including but not limited to the obligation to obtain any other authorizations required by such law.

(n) *Other Rights*

This general permit is subject to and does not derogate any present or future rights or powers of the State of Connecticut and conveys no rights in real or personal property nor any exclusive privileges, and is subject to all public and private rights and to any federal, state, and local laws pertinent to the property or activity affected by such general permit. In conducting any activity authorized hereunder, the permittee may not cause pollution, impairment, or destruction of the air, water, or other natural resources of this state. The issuance of this general permit shall not create any presumption that this general permit should or will be renewed.

**Section 7. Commissioner's Powers**

(a) *Abatement of Violations*

The commissioner may take any action provided by law to abate a violation of this general permit, including but not limited to penalties of up to \$25,000 per violation per day under Chapter 446k of the Connecticut General Statutes, for such violation. The commissioner may, by summary proceedings or otherwise and for any reason provided by law, including violation of this general permit, revoke a permittee's authorization hereunder in accordance with Sections 22a-3a-2 through 22a-3a-6, inclusive, of the Regulations of Connecticut State Agencies. Nothing herein shall be construed to affect any remedy available to the Commissioner by law.

(b) *General Permit Revocation, Suspension, or Modification*

The commissioner may, for any reason provided by law, by summary proceedings or otherwise, revoke or suspend this general permit or modify to establish any appropriate conditions, schedules of compliance, or other provisions which may be necessary to protect human health or the environment.

(c) *Filing of Individual Application*

If the commissioner notifies a permittee in writing that such permittee must obtain an individual permit if he wishes to continue lawfully conducting the authorized activity, the permittee must file an application for an individual permit within thirty (30) days of receiving the commissioner's notice. While such application is pending before the commissioner, the permittee shall comply with the terms and conditions of this general permit and the subject approval of registration. Nothing herein shall affect the commissioner's power to revoke a permittee's authorization under this general permit at any time.

Issued Date: April 9, 2010

ANHEY W. MARRELLA

Commissioner

This is a true and accurate copy of the general permit executed on April 9, 2010 by the Commissioner of the Department of Environmental Protection.

**APPENDIX K  
SUPPORTING CALCULATIONS**

# Percolation Tests

Percolation Test #1

Presoak at 7:15 AM

<u>Time</u>	<u>Reading</u>
11:30	3-3/8"
11:40	5-3/4"
11:50	7-5/8"
12:00	8-3/4"
12:10	9-3/4"
12:20	10-1/2"
12:30	11"

Percolation Rate = 3 inches per hour

Percolation Test #46

Presoak at 7:20 AM

<u>Time</u>	<u>Reading</u>
11:35	3-1/2"
11:45	7-1/2"
11:55	10-1/4"
12:05	11-1/2"
12:15	12-5/8"
12:25	13-1/4"
12:35	13-3/4"

Percolation Rate = 3 inches per hour

Percolation Test #44

Presoak at 8:00 AM

<u>Time</u>	<u>Reading</u>
12:50	.8"
1:00	9-3/8"
1:10	11-5/8"
1:20	12-3/8"
1:30	13-1/8"
1:40	13-7/8"
1:50	14-1/4"

Percolation Rate = 2-1/4" per hour

Percolation Test #45

Presoak at 8:05 AM

<u>Time</u>	<u>Reading</u>
12:55	4-1/2"
1:05	5-1/2"
1:15	6- 1/4"
1:25	6- 7/8"
1:35	7-1/2"
1:45	8"
1:55	8-1/2"

Percolation Rate = 3 inches per hour

Percolation Test #45

<u>Time</u>	<u>Reading</u>
12:55	4-1/2"
1:05	5-1/2"
1:15	6- 1/4"
1:25	6- 7/8"
1:35	7-1/2"
1:45	8"
1:55	8-1/2"

Percolation Rate = 3 inches per hour

Percolation Test #10B

Presoak 8: 40 AM

<u>Time</u>	<u>Reading</u>
2:20	6- 3/8"
2:30	8"
2:40	9-1/8"
2:50	10"
3:00	10-5/8"
3:10	11-1/8"
3:20	11- 5/8"

Percolation Rate = 3 inches per hour

Percolation Test #38

Presoak 8: 45 AM

<u>Time</u>	<u>Reading</u>
2:22	6 "
2:32	8-1/2"
2:42	9- 5/8"
2:52	10-1/4"
3:02	10-3/4"
3:12	11- 1/4"
3:22	11-3/4"

Percolation Rate = 3 inches per hour

Percolation Test #10E

Presoak 8:50 AM

<u>Time</u>	<u>Reading</u>
2:24	7"
2:34	10-7/8"
2:44	12"
2:54	12-7/8"
3:04	13-1/2"
3:14	14"
3:24	14-1/2"

Percolation Rate = 3 inches per hour

Percolation Test #37

Presoak 9:00 AM

<u>Time</u>	<u>Reading</u>
2:26	10-1/2"
2:36	14-1/2"
2:46	17-1/4"
2:56	18"
3:06	18-5/8"
3:16	19-1/2"
3:26	19-7/8"

Percolation Rate = 2-1/4 inches per hour

Percolation Test #18

Presoak 9:30 AM

<u>Time</u>	<u>Reading</u>
3:45	4-3/8"
3:55	6"
4:05	7-5/8"
4:15	8-7/8"
4:25	10-1/8"
4:35	10- 3/4"
4:45	11-1/4"

Percolation Rate = 3 inches per hour

Percolation Test #43

Presoak 9:40 AM

<u>Time</u>	<u>Reading</u>
5:00	2-1/4"
5:10	4-1/2"
5:20	5- 5/8"
5:30	6-1/4"
5:40	7-1/8"
5:50	7- 5/8"
6:00	8-1/8"

Percolation Rate = 2-1/4 inches per hour

Percolation Test #41

Presoak 9:45 AM

<u>Time</u>	<u>Reading</u>
5:02	6-1/4"
5:12	9-3/8"
5:22	10-1/4"
5:32	11-1/8"
5:42	11-7/8"
5:52	12-3/8"
6:02	12-7/8"

Percolation Rate = 3 inches per hour

Percolation Test #25

Presoak 9:50 AM

<u>Time</u>	<u>Reading</u>
5:04	8-1/2"
5:14	10-1/4"
5:24	11-1/4"
5:34	12"
5:44	12-5/8"
5:54	13-1/8"
6:04	13-5/8"

Percolation Rate = 3 inches per hour

Percolation Test #28

Presoak 10:30 AM

<u>Time</u>	<u>Reading</u>
6:25	4-1/2"
6:35	5-7/8"
6:45	6-5/8"
6:55	7-1/2"
7:05	8 1/8"
7:15	8-5/8"
7:25	9-1/8"

Percolation Rate = 3 inches per hour

Percolation Test #29

Presoak 10:35 AM

<u>Time</u>	<u>Reading</u>
6:28	4-1/2"
6:38	7"
6:48	8-1/8"
6:58	9-1/8"
7:08	10"
7:18	10-5/8"
7:28	11-1/8"

Percolation Rate = 3 inches per hour

Percolation Test #31

Presoak 10:40 AM

<u>Time</u>	<u>Reading</u>
6:30	5-1/8"
6:40	7-5/8"
6:50	9-1/8"
7:00	10"
7:10	10-5/8"
7:20	11-1/8"
7:30	11-5/8"

Percolation Rate = 3 inches per hour

# **Storm Sewer Pipe and Swale Sizing Calculations**

*Wind Colebrook South  
Flagg Hill Road  
Colebrook, CT*

DRAINAGE CALCULATIONS FOR PERMANENT  
DIVERSION SWALE #1 (PDS 1) AND CROSS CULVERTS FROM  
STATION 1+00 TO 12+00  
SIZE FOR LARGEST CONTRIBUTING DRAINAGE AREA TO SWALE  
(STATION 1+00)

10-YEAR DESIGN STORM  
**8-26-11**

**Rational Method:**

$$Q = CIA$$

Where:

Q = flow rate (cfs)

C = runoff coefficient

I = rainfall intensity (in/hr)

A = area (ac.)

Total area contributing to swale: 4.39 ac.

Proposed Land Cover

Grass = 1.64 ac.

Wooded = 2.60 ac.

Impervious = 0.15

$$C = [(.9*0.15) + (.3*1.64) + (.2*2.60)]/4.39 = 0.26$$

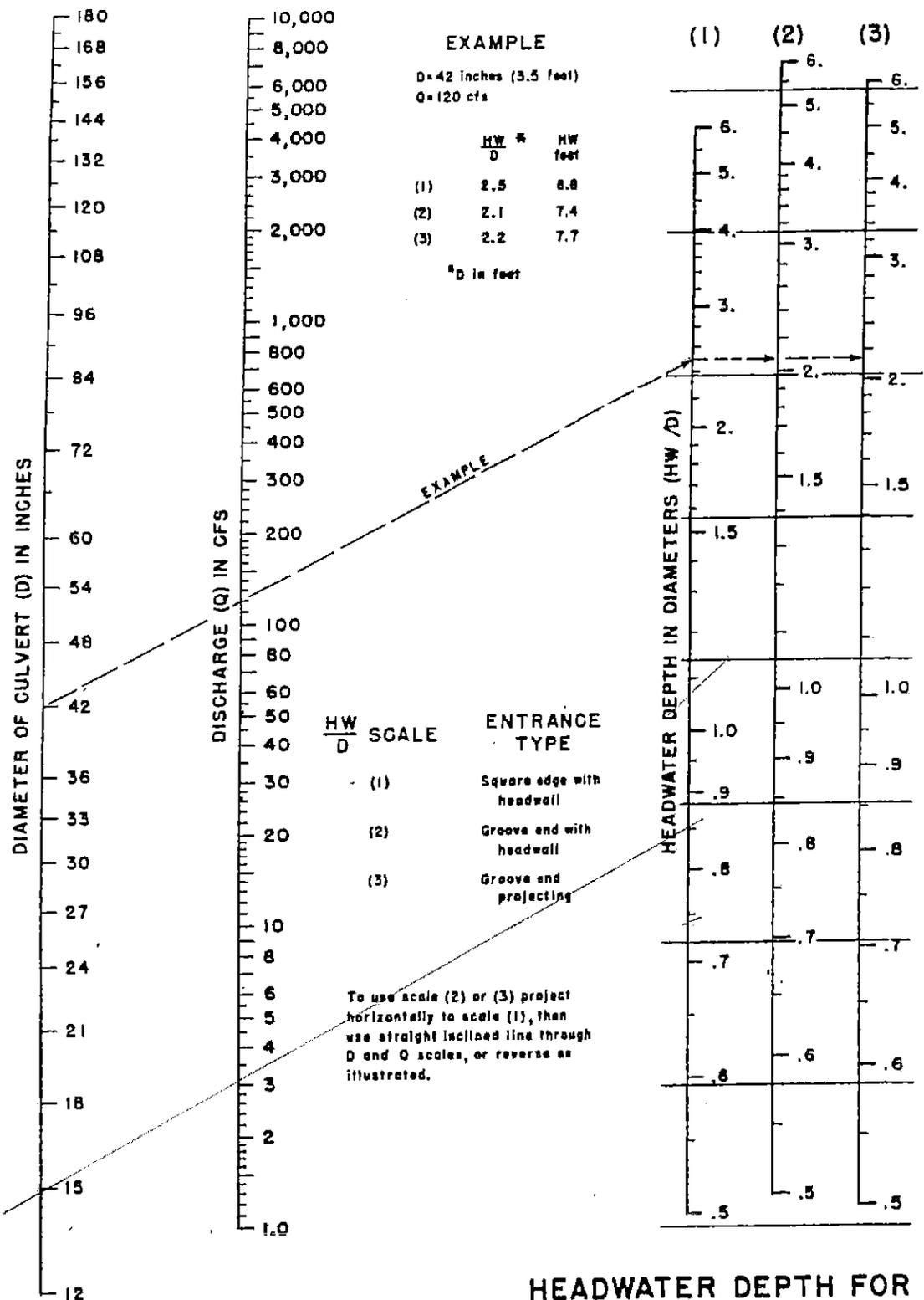
Time of Concentration = 30 minutes  $\therefore$  I = 2.8 in/hr

$$Q = C*I*A = .26 * 2.8 * 4.39 = 3.20 \text{ cfs}$$

HW/D for 15" RCP = 0.85

Velocity in riprap-lined swale at 13.95% slope (steepest portion of swale) = 5.28 fps.

# CHART 1



## HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

HEADWATER SCALES 283  
 REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN. 1963

CROSS CULVERT  
 STA. 1+00R.

Worksheet  
Worksheet for Trapezoidal Channel

PDS # 1

TO CROSS CULVERT  
STA. 1+00

Project Description	
Worksheet	PDS 1
Flow Element	Trapezoidal Channel to Cross Culvert.
Method	Manning's Form
Solve For	Channel Depth

Input Data	
Mannings Coeff	0.040
Channel Slope	139500 ft/ft
Left Side Slope	2.00 H : V
Right Side Slope	2.00 H : V
Bottom Width	1.00 ft
Discharge	3.20 cfs

Results	
Depth	0.35 ft
Flow Area	0.6 ft <sup>2</sup>
Wetted Perim	2.59 ft
Top Width	2.42 ft
Critical Depth	0.49 ft
Critical Slope	0.037250 ft/ft
Velocity	5.28 ft/s
Velocity Head	0.43 ft
Specific Energ	0.79 ft
Froude Numb	1.86
Flow Type	supercritical

← USE MOD. RIPRAP

*Wind Colebrook South  
Flagg Hill Road  
Colebrook, CT*

DRAINAGE CALCULATIONS FOR FLOWS TO CATCH BASIN 1+10L

10-YEAR DESIGN STORM  
**8-26-11**

**Rational Method:**

$$Q = CIA$$

Where:

Q = flow rate (cfs)

C = runoff coefficient

I = rainfall intensity (in/hr)

A = area (ac.)

Total area contributing to swale: 0.12 ac.

Proposed Land Cover

Impervious = 0.12

$$C = 0.90$$

Time of Concentration = 5 minutes  $\therefore I = 6.0$  in/hr

$$Q = C \cdot I \cdot A = .9 \cdot 6.0 \cdot 0.12 = 0.65 \text{ cfs}$$

HW/D for 15" RCP = <0.5

*Wind Colebrook South  
Flagg Hill Road  
Colebrook, CT*

DRAINAGE CALCULATIONS FOR FLOWS TO CATCH BASIN 4+20L

10-YEAR DESIGN STORM  
**8-26-11**

**Rational Method:**

$$Q = CIA$$

Where:

Q = flow rate (cfs)

C = runoff coefficient

I = rainfall intensity (in/hr)

A = area (ac.)

Total area contributing to swale: 0.08 ac.

Proposed Land Cover

Impervious = 0.08

$$C = 0.90$$

Time of Concentration = 5 minutes  $\therefore I = 6.0$  in/hr

$$Q = C \cdot I \cdot A = .9 \cdot 6.0 \cdot 0.08 = 0.43 \text{ cfs}$$

HW/D for 15" RCP = <0.5

*Wind Colebrook South  
Flagg Hill Road  
Colebrook, CT*

**DRAINAGE CALCULATIONS FOR FLOWS TO CATCH BASIN 6+20L**

**10-YEAR DESIGN STORM  
8-26-11**

**Rational Method:**

$$Q = CIA$$

Where:

Q = flow rate (cfs)

C = runoff coefficient

I = rainfall intensity (in/hr)

A = area (ac.)

Total area contributing to swale: 0.33 ac.

Proposed Land Cover

Impervious = 0.33

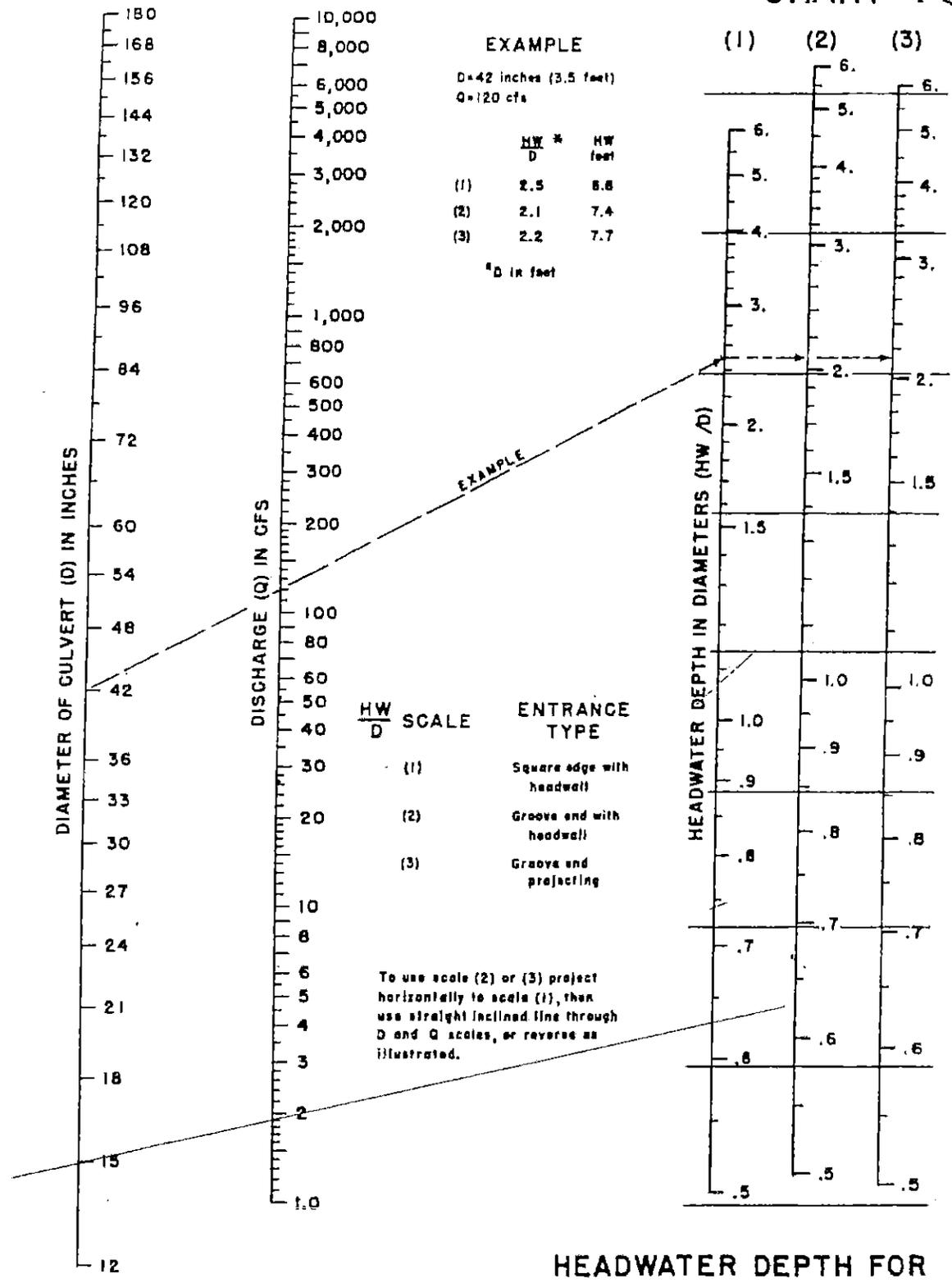
$$C = 0.90$$

Time of Concentration = 5 minutes  $\therefore I = 6.0$  in/hr

$$Q = C \cdot I \cdot A = .9 \cdot 6.0 \cdot 0.33 = 1.78 \text{ cfs}$$

HW/D for 15" RCP = 0.65

# CHART 1



## HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

HEADWATER SCALES 2B3  
 REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN. 1963

CB 6+20 L

*Wind Colebrook South  
Flagg Hill Road  
Colebrook, CT*

DRAINAGE CALCULATIONS FOR COMBINED FLOWS TO DMH1  
AND BIORETENTION AREA #2

10-YEAR DESIGN STORM  
**8-26-11**

**Rational Method:**

$Q = CIA$

Where:

$Q$  = flow rate (cfs)

$C$  = runoff coefficient

$I$  = rainfall intensity (in/hr)

$A$  = area (ac.)

Total area contributing to swale: 0.41 ac.

Proposed Land Cover

Impervious = 0.41 ac.

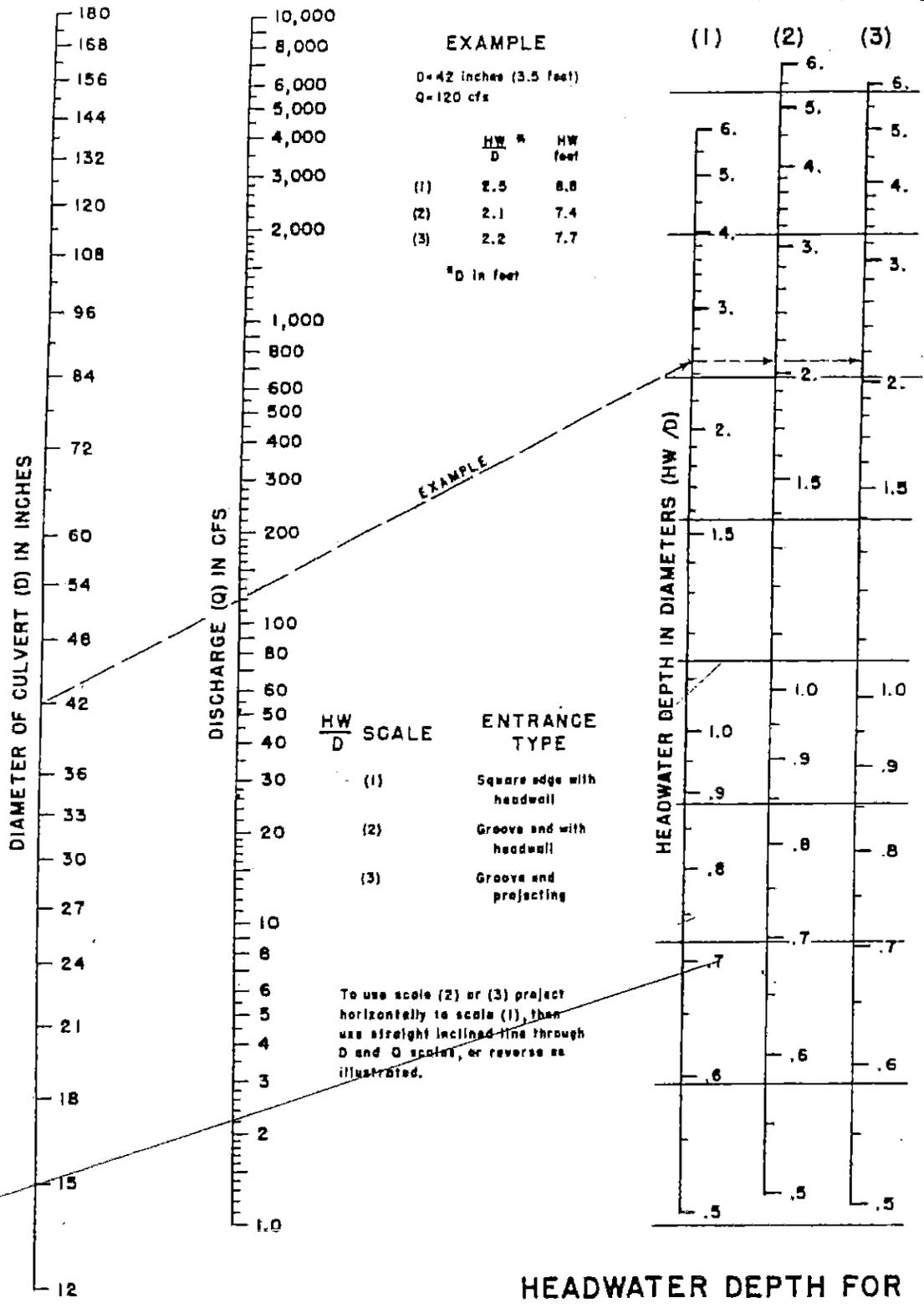
$C = 0.90$

Time of Concentration = 5 minutes  $\therefore I = 6.0$  in/hr

$Q = C * I * A = .9 * 6.0 * 0.41 = 2.21$  cfs

HW/D for 15" RCP = 0.70

# CHART 1



## HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

HEADWATER SCALES 2 B3  
 REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN. 1963

Flows to DMH1 AND  
 BIOPRETENTION AREA #2

*Wind Colebrook South  
Flagg Hill Road  
Colebrook, CT*

DRAINAGE CALCULATIONS FOR PERMANENT  
DIVERSION SWALE #2 (PDS 2) AND CB 18+70 L

10-YEAR DESIGN STORM  
**8-26-11**

**Rational Method:**

Q = CIA

Where:

Q = flow rate (cfs)

C = runoff coefficient

I = rainfall intensity (in/hr)

A = area (ac.)

Total area contributing to swale: 1.59 ac.

Proposed Land Cover

Grass = 0.51 ac.

Wooded = 1.03 ac.

Impervious = 0.05 ac.

$$C = [(.9*0.05) + (.3*0.51) + (.2*1.03)]/1.59 = 0.25$$

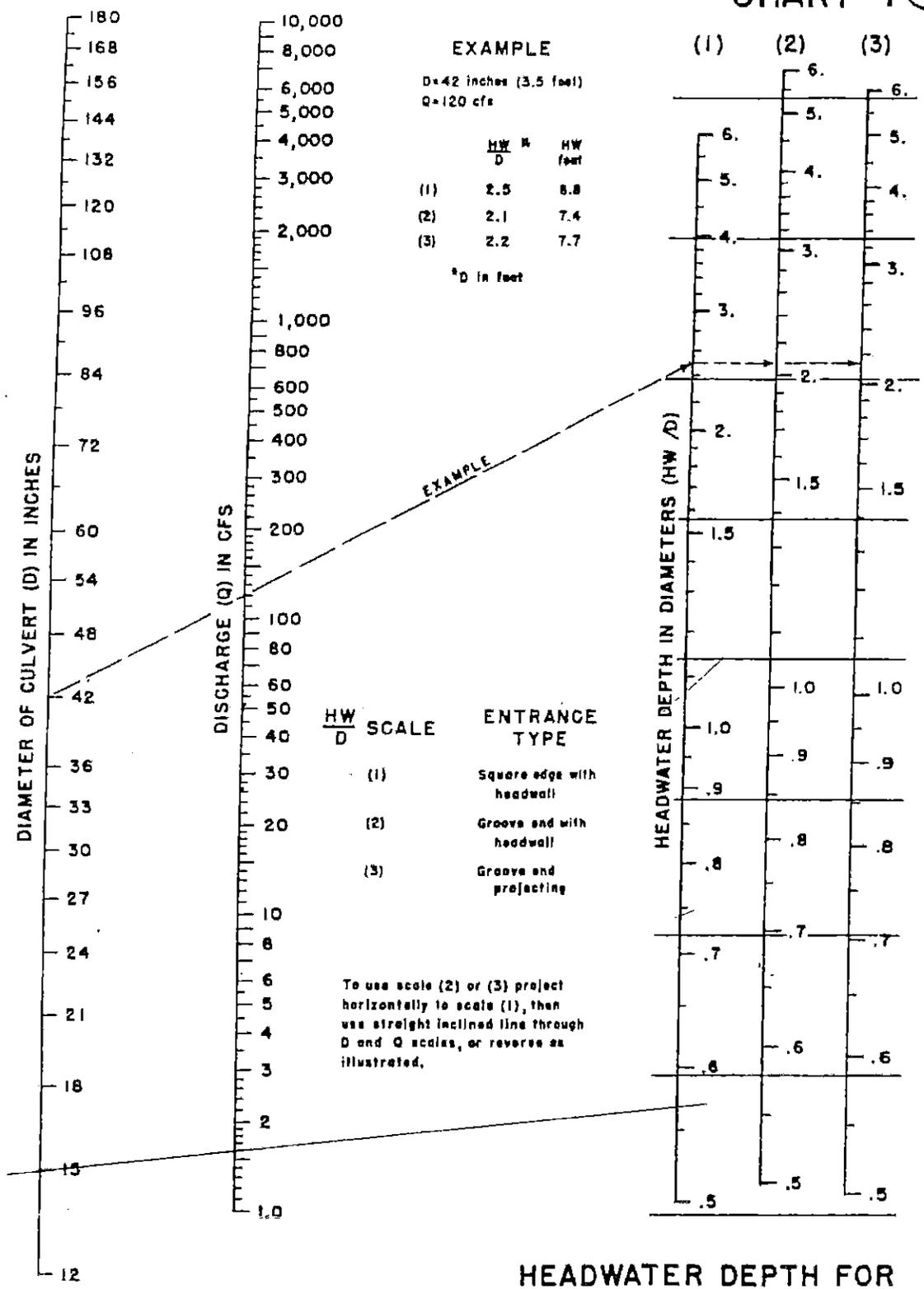
Time of Concentration = 15 minutes  $\therefore I = 4.0$  in/hr

$$Q = C*I*A = .25 * 4.0 * 1.59 = 1.59 \text{ cfs}$$

HW/D for 15" RCP = 0.55

Velocity in riprap-lined swale at 8.0% slope = 3.56 fps.

# CHART 1



## HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

HEADWATER SCALES 2 & 3  
 REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN. 1963

CB 18+70L TO  
 OUTLET