320 A 3

420-448 Riverside

430 Riverside Street

Maine Turnpike Authority

DeLUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

778 MAIN STREET
SUITE 8
SOUTH PORTLAND, MAINE 04106
TEL. 207 775 1121
FAX 207 879 0896

- SITE PLANNING AND DESIGN
- ROADWAY DESIGN
- ENVIRONMENTAL ENGINEERING
- PERMITTING
- AIRPORT ENGINEERING
- CONSTRUCTION ADMINISTRATION
- TRAFFIC STUDIES AND MANAGEMENT

January 24, 2007

Ms. Barbara Barhydt
City of Portland, Planning Department
389 Congress Street
Portland, Maine 04101

Subject: **Lot 4 - 410 Riverside Street**
410 Riverside Street LLC
(Formerly Lot 4 of the 400 Riverside Street Properties,
Rist/Brunet Family Trust, Applicant/Owner)
ID #2004-0074, CBL #320-A-002

Dear Barbara:

The Planning Authority granted Site Plan Approval with Conditions to the Rist/Brunet Family Trust for the planned development at Lot 4 of the 400 Riverside Street Properties in the City of Portland at the October 25, 2005 Public Hearing. Since that time, 410 Riverside LLC, doing business as Eastman Industries, has purchased the Lot 4 property from the Rist/Brunet Family Trust. At this time, 410 Riverside LLC is requesting a one-year extension of the Site Plan Permit Approval. As outlined in Condition #3 of the November 18, 2005 approval letter, the approval was to be deemed expired unless work in the development commenced within one year of the approval. As we recently discussed, the owner has not yet commenced development activities but is seeking to do so soon. We trust you will understand the delay in activity has been primarily related to Eastman Industries' relocation to the site from their plant in Wisconsin. As such, the opportunity to begin the development activity has not been available. The pace of ownership activities at the business has also resulted in this minor lapse of time since the one-year expiration and we respectfully request your consideration of the extension despite the passing of the expiration period.

We also note that DeLuca-Hoffman Associates, Inc. provided additional supporting information to satisfy the conditions of approval in a letter dated January 25, 2006 to Ms. Kandi Talbot. We trust that the information provided at that time is satisfactory as it relates to the approved development proposal.

We trust this request can be considered by the Planning Authority and we look forward to the granting of a one-year extension of the Site Plan approval for the subject property. Accompanying this letter are a completed Amendment Application form and an Amendment fee of $250.00.

If you have any further comments or if additional information is required, please call this office.

Sincerely,

DeLUCA-HOFFMAN ASSOCIATES, INC.

Stephen R. Bushey, P.E.
Senior Engineer

SRB/sq/JN2314.03/Barhydt01-24-07

c: Nell Hanning, Economic Development Department
Mr. Nickolas Nikazmerad, Owner/Applicant
Eastman Industries
410 Riverside Street
Portland, ME 04103

City of Portland Site Plan Application

If you or the property owner owes real estate taxes, personal property taxes or user charges on any property within the City, payment arrangements must be made before permit applications can be received by the Inspections Division.

Address of Proposed Development: 410 Riverside Street		**Zone:** Industrial	
Existing Building Size: #1 20,000 sq. ft. #2 35,250 sq-ft		**Proposed Building Size:** 23,400 sq. ft.	
Existing Acreage of Site: 631,620 sq. ft.		**Proposed Acreage of Site:** 631,620 sq. ft.	
Tax Assessor's Chart, Block & Lot: Chart# 320 Block# A Lot# 2	**Property owner's mailing address:** 410 Riverside St Portland, ME 04103	**Telephone #:** 207-878-5353	
Consultant/Agent, mailing address, phone # & contact person: Deluca Hoffman Associates 778 Main Street S. Portland, ME 04106 207-775-1121	**Applicant's name, mailing address, telephone #/Fax#/Pager#:** Eastman Industries dba 410 Riverside LLC	**Project name:** —	

Fee For Service Deposit (all applications) _____ **($200.00)**

Proposed Development (check all that apply)

___ New Building ___ Building Addition ___ Change of Use ___ Residential ___ Office ___ Retail
___ Manufacturing ___ Warehouse/Distribution ___ Parking lot
___ Subdivision ($500.00) + amount of lots____ ($25.00 per lot) $_____ + major site plan fee if applicable
___ Site Location of Development ($3,000.00)
(except for residential projects which shall be $200.00 per lot_____)
___ Traffic Movement ($1,000.00) ___ Storm water Quality ($250.00)
___ Section 14-403 Review ($400.00 + $25.00 per lot)
___ Other_____

Major Development (more than 10,000 sq. ft.)

___ Under 50,000 sq. ft. ($500.00)
___ 50,000 - 100,000 sq. ft. ($1,000.00)
___ Parking Lots over 100 spaces ($1,000.00)
___ 100,000 - 200,000 sq. ft. ($2,000.00)
___ 200,000 - 300,000 sq. ft. ($3,000.00)
___ Over 300,000 sq. ft. ($5,000.00)
___ After-the-fact Review ($1,000.00 + applicable application fee)

Minor Site Plan Review

___ Less than 10,000 sq. ft. ($400.00)
___ After-the-fact Review ($1,000.00 + applicable application fee)

Plan Amendments

__X__ Planning Staff Review ($250.00)
___ Planning Board Review ($500.00)

~ Please see next page ~

Who billing will be sent to: (Company, Contact Person, Address, Phone #)

Nick Wakazmerad
Eastman Industries
410 Riverside St.
Portland, ME
878-5353

Submittals shall include (9) separate **folded** packets of the following:

a. copy of application
b. cover letter stating the nature of the project
c. site plan containing the information found in the attached sample plans checklist
d. 1 set of 11 x 17 plans

Amendment to Plans: **Amendment applications should include 9 separate packets of the above (a, b, & c)**

ALL PLANS MUST BE FOLDED NEATLY AND IN PACKET FORM

Section 14-522 of the Zoning Ordinance outlines the process which is available on our web site: portlandmaine.gov

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

Signature of applicant: Stephen Bunker agent	Date: 1/24/07

This application is for site review ONLY; a building Permit application and associated fees will be required prior to construction.

DeLUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, MAINE 04106
TEL. 207-775-1121
FAX: 207-879-0896
E-MAIL: dhai@delucahoffman.com

Eastman Industries – Portland, Maine

DH

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Eastman Industries – Portland, Maine

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Eastman Industries – Portland, Maine

City of Portland, Maine Site Plan Checklist

Project Name, Address of Project Number _____ Application _____

Submitted () & Date (b,c)	Item	Required Information	Section 14-525
_____	(1)	Standard boundary survey (stamped by a registered surveyor, at a scale of not less than 1 inch to 100 feet and including:	1
_____	(2)	Name and address of applicant and name of proposed development	a
_____	(3)	Scale and north points	b
_____	(4)	Boundaries of the site	c
_____	(5)	Total land area of site	d
_____	(6)	Topography - existing and proposed (2 feet intervals or less)	e
_____	(7)	Plans based on the boundary survey including:	2
_____	(8)	Existing soil conditions	a
_____	(9)	Location of water courses, marshes, rock outcroppings and wooded areas	b
_____	(10)	Location, ground floor area and grade elevations of building and other structures existing and proposed, elevation drawings of exterior facades, and materials to be used	c
_____	(11)	Approx location of buildings or other structures on parcels abutting the site	d
_____	(12)	Location of on-site waste receptacles	e
_____	(13)	Public utilities	e
_____	(14)	Water and sewer mains	e
_____	(15)	Culverts, drains, existing and proposed, showing size and directions of flows	e
_____	(16)	Location and dimensions, and ownership of easements, public or private rights-of-way, both existing and proposed	f
_____	(17)	Location and dimensions of on-site pedestrian and vehicular access ways	g
_____	(18)	Parking areas	g
_____	(19)	Loading facilities	g
_____	(20)	Design of ingress and egress of vehicles to and from the site onto public streets	g
_____	(21)	Curb and sidewalks	g
_____	(22)	Landscape plan showing:	h
_____	(23)	Location of existing proposed vegetation	h
_____	(24)	Type of vegetation	h
_____	(25)	Quantity of plantings	h
_____	(26)	Size of proposed landscaping	h
_____	(27)	Existing areas to be preserved	h
_____	(28)	Preservation measures to be employed	h
_____	(29)	Details of planting and preservation specifications	h
_____	(30)	Location and dimensions of all fencing and screening	i
_____	(31)	Location and intensity of outdoor lighting system	j
_____	(32)	Location of fire hydrants, existing and proposed	k
_____	(33)	Written statement	c
_____	(34)	Description of proposed uses to be located on site	l
_____	(35)	Quantity and type of residential, if any	l
_____	(36)	Total land area of the site	b2
_____	(37)	Total floor area and ground coverage of each proposed building and structure	b2
_____	(38)	General summery of existing and proposed easements or other burdens	c3
_____	(39)	Method of handling solid waste disposal	4
_____	(40)	Applicant's evaluation of availability of off-site public facilities, including sewer, water and streets	5
_____	(41)	Description of any problems of drainage or topography, or a representation that there are none	6
_____	(42)	An estimate of the time period required for completion of the development	7
_____	(43)	A list of all state and federal regulatory approvals to which the development may be subject to	8

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January 25, 2006

Ms. Kandi Talbot
City of Portland, Planning Department
389 Congress Street
Portland, Maine 04101

Subject: **Lot 4 - 410 Riverside Street**
410 Riverside Street LLC
(Formerly Lot 4 of the 400 Riverside Street Properties,
Rist/Brunet Family Trust, Applicant/Owner)
ID #2004-0074, CBL #320-A-001

Dear Kandi:

The Planning Authority granted Site Plan Approval with Conditions to the Rist/Brunet Family Trust for the planned development at Lot 4 of the 400 Riverside Street Properties in the City of Portland at the October 25, 2005 Public Hearing. Since that time, we have been made aware that 410 Riverside LLC, doing business as Eastman Industries, has purchased the Lot 4 property from the Rist/Brunet Family Trust. At this time, 410 Riverside LLC has retained DeLuca-Hoffman Associates Inc. (DHAI), to finalize and satisfy the conditions of Site Plan approval granted by the Portland Planning Board for the Lot 4 development project.

The Planning Staff may recall that DHAI submitted an application submission package for a Major Site Plan Review to the Planning Authority on February 18, 2004 on behalf of the Rist/Brunet Family Trust for development activities on the 10.6-acre Lot 6 of the McAlister Farm Subdivision off McAlister Farm Drive and the 15.57-acre Lot 4 of the 400 Riverside Street Properties, formerly the Donald D. Butler Subdivision, at 400 Riverside Street.

Since the time of the original Major Site Plan Review application submission, the following real estate and permitting actions have been associated with Lot 6 and Lot 4:

- The Rist/Brunet Family Trust received Planning Authority approval and successfully executed the exchange of portions of real property located within the McAlister Farm Subdivision and the 400 Riverside Street Properties and the adjacent Lot 1 parcel with the McAlister Farm Subdivision and containing the United States Postal Service.

- Rio-Tierra LLC, doing business as Porter Drywall Inc., purchased the Lot 6 property from the Rist/Brunet Family Trust. On behalf of Rio-Tierra LLC, Mohr & Seredin submitted and received Planning Board approval in June of 2005 for development activities on the Lot 6 property.

- As previously stated, 410 Riverside LLC has recently purchased the Lot 4 property from the Rist/Brunet Family Trust.

On behalf of 410 Riverside LLC, DHAI is submitting additional information and supporting documentation to address the outstanding items outlined in the Chairman's approval letter of November 18, 2005.

It is our understanding that the planned development is in conformance with the Site Location of Development Ordinance of the Land Use Code with the following conditions:

- That the Plans be revised in regards to the Development Review Coordinator's memorandum dated September 27, 2005 regarding stormwater management.

- That the Site Plan be revised to show the entire Lot 4 parcel, including the 200-foot wildlife buffer.

The additional information and supporting documentation to address the outstanding items of the Site Location of Development Ordinance of the Land Use Code is provided below and includes the following:

1. In response to Mr. Sheff's review comment and in accordance with MeDEP Chapter 500 – Stormwater Management, Section 5, Paragraph A, Line Item 3 that a Level Lip Spreader may not be more than 25 feet in length, DHAI has revised Sheet 5 – Grading, Drainage and Erosion Control Plan and Level Lip Spreader #2 to include two (2) Level Lip Spreaders of approximately 15.0 linear feet each.

   The two Level Lip Spreaders will be located just down slope from the riprap outlet plunge pool provided for the 24-inch HDPE outfall pipe (SD9) and will be sited such that the flows from each Level Lip Spreader will be returned to sheet flows prior to entering the down gradient natural emergent marsh.

2. DHAI has revised the plan set to include a Boundary Survey Plan for the entire 15.57-acre Lot 4 parcel. The legal Boundary Survey Plan was completed by Owen Haskell Inc. and dated December 5, 2005.

3. DHAI has revised Sheet 4 – Site Layout & Landscape Plan to include the entire Lot 4 parcel. The Lot 4 site contains a 250-foot setback requirement from the Presumpscot River and is located within the City's Shoreland Zoning District. We note that the 200-foot wildlife corridor along the river was established for Lot 6 of the McAlister Farm Subdivision only, as part of the original MeDEP permit approvals for the parcel. The plans have been revised accordingly to reflect these setbacks.

Accompanying this letter, please find Revised Lot 4 Site Plans.

It is our understanding that the planned development is in conformance with the Site Plan Ordinance of the Land Use Code with the following conditions:

- The wastewater generation from Lot 4 at 410 Riverside Street and Lot 5 of the 400 Riverside Street Properties shall be limited to flows as defined in the current Portland Public Works (PWD) capacity letter for sanitary flows and may not be eligible to use these facilities for any high-volume production discharges in the event the City adopts the amendment and the Applicant connects and discharges to the Westbrook system.

- That the Applicant addresses the Development Review Coordinator's memorandum dated September 27, 2005 regarding stormwater, historic sites, and inspection of facilities.

- That the hydrant location shall be reviewed and approved by the Fire Department prior to issuance of a building permit.

- That the Applicant submits a revised site plan showing the full parcel together with the 200-foot wildlife preservation corridor and Portland Trails easement.

- That Planning Report #55-05 is made to include the landscaping plan that had been reviewed and approved by the City Arborist.

- That the Applicant submits an acknowledgement by the Maine Historic Preservation body that the application has no detrimental impacts within historic districts.

- That the Applicant provides or grants a trail easement to Portland Trails for the easement, to be reviewed and approved by Corporation Counsel.

- That the Applicant submits elevations of the proposed building for review and approval by the Planning Authority prior to the issuance of a building permit.

The additional information and supporting documentation to address the outstanding items of the Site Plan Ordinance of the Land Use Code is provided below and includes the following:

1. **Wastewater**

The PWD provided a memorandum to the Planning Department dated April 28, 2005 recommending that Lot 4 at 410 Riverside Street and Lot 5 of the 400 Riverside Street Properties be included in the planned sewer service area established in the Portland-Westbrook Inter-municipal Sewer Service Agreement. The Department's recommendation included the condition that the wastewater generation be limited to the flows outlined in our Letter of Request to the PWD dated January 19, 2005.

In summary, wastewater discharge flows from Lot 4 at 410 Riverside Street and Lot 5 of the 400 Riverside Street Properties to the Riverside Street collection system have been approved for, and may not exceed 3,480 GPD.

Accompanying this letter, please find copies of our Letter of Request to the PWD and the PWD's memorandum to the Planning Authority.

2. **Development Review Coordinator's Memorandum dated September 27, 2005**

Our responses to Mr. Sheff's peer review comments are provided as they were presented in the summary section of the memorandum.

- **Stormwater**

Response to Comment:

- Based on review comments by Woodard & Curran, DHAI has made minor modifications to the drainage computations to confirm that postdevelopment peak discharge rates will be maintained to below predevelopment levels and our previous request for a variance from the peak discharge standard is no longer necessary.

  Accompanying this letter, please find final HydroCAD computations and supporting documentation for the predevelopment and postdevelopment conditions in support of the hydrologic analysis.

- Based on the hydrologic computations, vendor sizing worksheets, and vendor design criteria, the two (2) planned Water Quality Units will not warrant bypass appurtenances.

- **Maintenance & Inspection of Facilities**

Response to Comment:

- The Applicant and its personnel or hired subcontractors will be responsible for the maintenance of Lot 4 at 410 Riverside Street and all onsite utilities and related infrastructure at the site. The applicant and its personnel or hired subcontractors

will perform general site maintenance including the mowing of grassed areas, the pick-up of litter and the maintenance of all landscape and parking areas.

On behalf of the Applicant, DHAI is requesting that the identification of property management personnel and/or hired subcontractors who will be responsible for the regular inspection and monitoring of the stormwater facilities be submitted to the Planning Authority prior to the issuance of a building permit.

- DHAI has revised the Table of Contents of the Maintenance Manual for Stormwater Management System and Common Facilities to include Item F – Natural Buffers. Accompanying this letter, please find a copy of the Maintenance Manual.

3. **Hydrant Location**

The Lot 4 development activities will include the following fire protection items:

a. Extension of the existing 8-inch fire service line found within the site to the proposed building for sprinkler service.

b. Extension of domestic water supply off the existing 8-inch fire service line to the proposed building.

c. One (1) proposed fire hydrant located within the development site.

DHAI submitted a Utility Plan to Fire Chief LaMontagne of the Portland Fire Department requesting approval for the installation and location of the hydrant and fire service line and that any review comments be provided to the Planning Department.

On behalf of the Applicant, DHAI is requesting that the applicant provide confirmation of approval from the Fire Department for the proposed fire protection method and hydrant location to the Planning Authority prior to the issuance of a building permit.

4. **Revised Site Plan**

Accompanying this letter, please find revised Sheet 4 – Site Layout & Landscape Plan showing the entire Lot 4 parcel and termination of the 200-foot wildlife corridor along the river at the shared northeastern property boundary for Lot 6 and Lot 4.

5. **Landscape Plan**

Due to the project site being located at the back of the subdivision well off Riverside Street, and being bordered by the wooded shoreline of the Presumpscot River to the north, very limited landscaping measures are proposed for the development project.

The Landscape Plan, which has been reviewed and approved by the City Arborist, will maintain the existing mature trees sheltering the site along the property lines of the project site to the extent practicable and the owner will provide grass cover to stabilize non-paved surfaces.

Accompanying this letter, please find revised Sheet 4 – Site Layout & Landscape Plan to be included in the final Planning Report (#55-05) for the development project.

6. **Historic Sites**

Although, our belief was that the Maine Historic Preservation Commission's (MHPC) concerns largely pertained to the undeveloped Lot 6 parcel and not the currently developed Lot 4, the MHPC continues to conclude that portions of the Lot 4 project site above the 45-foot contour interval and areas proximate to the emergent marsh may be sensitive to prehistorical archaeological sites and therefore, will require a Phase I archaeological survey to determine whether such sites will be affected by ground disturbances prior to commencement of construction activities.

DHAI continues to maintain that the Lot 4 development activities will be limited to an area that was previously disturbed by the placement of a sanitary disposal leach field and that this development activity was granted MeDEP Department approval in Permit Order #L-007696-39-A-M, for the Donald D. Butler Subdivision on April 10, 1985. Based on this fact, DHAI continues to contend that the Lot 4 development activities will not impact any structures or areas with historical, architectural, or archaeological significance.

Based on continued dialogue with the MHPC and on behalf of the Applicant, DHAI is requesting that the applicant provide confirmation of approval from the MHPC that a Phase I survey is not required or evidence of an approved Phase I survey to the Planning Authority prior to the issuance of a building permit.

7. **Trail Easement**

It is the Applicant's intent to grant a trail easement to the Portland Trails. The Applicant is requesting that the trail easement be located adjacent to the 250-foot setback from the Presumpscot River contained within Lot 4 to the extent practicable and reserves the right that the alignment of the easement be mutually agreeable to the Applicant and Portland Trails prior to execution of the easement.

On behalf of the Applicant, DHAI is requesting that the applicant submit an Easement Agreement to the Corporation Counsel for review and approval prior to the issuance of a building permit.

8. **Elevations**

On behalf of the Applicant, DHAI is requesting that the applicant will submit building elevation plans to the Planning Department for review and approval prior to the issuance of a building permit.

In accordance with the City requirements for site plan approval, the following items will be submitted to the Planning Authority:

a. Mylar copies of the construction drawing for the Lot 4 development activities will be submitted to the Public Works Department prior to the release of the plat and electronic CADD.DXF files will be submitted with the final plans.

b. The Applicant will submit an estimate of costs to the Planning Division for review and approval in conjunction with the requirements of the performance guarantee. A letter from the Applicant's creditors covering the site improvements, as well as inspection fee payment of 2.0% of the guarantee amount, will be submitted to and approved by the Planning Division and Public Works prior to the recording of the subdivision plat.

c. The Applicant will post a defect guarantee, consisting of 10% of the performance guarantee, before the performance guarantee will be released.

d. Prior to construction, a preconstruction meeting will be arranged at a mutually agreeable time and held at the project site with the contractor, Development Review Coordinator, Public Works representative and Owner to review the construction schedule and critical aspects of the site work. At that time, the site/building contractor will provide three (3) copies of a detailed construction schedule to the attending City representatives.

e. A street opening permit will be obtained for work occurring within the public right-of-way.

f. The Development Review Coordinator will be notified five (5) working days prior to date required for final site inspection and prior to issuance of a Certificate of Occupancy.

We trust these responses satisfy the concerns of the City's Planning Authority and that the requirements of the Approval with Conditions have been satisfied in order for the Planning Authority to grant final approval for the planned development.

If you have any further comments or if additional information is required, please call this office.

Sincerely,

DeLUCA-HOFFMAN ASSOCIATES, INC.

Stephen R. Bushey, P.E.
Senior Engineer

SRB/sq/JN2314.03/Talbot-1-25-06

Attachments:
- Revised Lot 4 Site Plans
- DHAI Letter of Request to Portland Public Works
- Portland Public Works Memorandum to the Planning Authority
- Amended Hydrologic Computations & Support Documentation
- Maintenance Manual for Stormwater Management System and Common Facilities

c: * Jack Lufkin, Economic Development Department
* Mr. Nickolas Nikazmerad, Owner/Applicant
Eastman Industries
83A Bell Street
Portland, ME 04103

INSPECTION AND MAINTENANCE MANUAL FOR STORMWATER MANAGEMENT SYSTEM AND COMMON FACILITIES

For

Lot 4 - 410 Riverside Street

Prepared for:

410 Riverside Street LLC
83A Bell Street
Portland, Maine 04103

Prepared by:

DeLuca-Hoffman Associates, Inc.
778 Main Street, Suite 8
South Portland, Maine 04106
(207) 775-1121
dhai@delucahoffman.com

January 2006

TABLE OF CONTENTS

I. Introduction

Stormwater management systems are commonly installed in development projects such as the planned development at Lot 4 at 410 Riverside Street. The complexity and goals of these systems vary with the nature of the receiving water, as well as the type of development. Runoff from developed areas contains a number of contaminants. This runoff can contain a significant amount of non-point contaminants, which can have an adverse impact on the receiving waters. The installation of Erosion and Sediment Control Best Management Practices (BMPs) and water quality treatment measures can significantly reduce the non-point pollutant discharge from developed areas. These measures are particularly important to projects located adjacent to sensitive water bodies.

The effectiveness of stormwater management systems is dependent on their design, upkeep and maintenance to assure they meet their intended function, both during construction activities and over an extended period of time. It is critical that the stormwater management system is inspected on a regularly scheduled basis, both during construction activities and over an extended period of time, by persons knowledgeable of erosion and stormwater control and the standards and conditions of any permits, and that maintenance be performed on an as-needed basis.

The general contractor during construction will be responsible for regular inspection and monitoring of the stormwater facilities. Upon substantial completion of the construction and acceptance by the owner, these responsibilities will be transferred to the owner and their property management personnel. 410 Riverside Street LLC has the staff and the contracted services in place to handle these responsibilities.

It must also be recognized that the effectiveness of these systems, and their maintenance requirements, is related to the natural features found within a particular site, permanent stabilization measures in place, and the stormwater drainage infrastructure that transports the runoff flows to the water quality treatment measures. Thus, maintenance should be directed to the total system, not just the stormwater drainage infrastructure.

The purpose of this document is to define in detail the inspection and maintenance requirements for the planned development that are deemed necessary to assure that the stormwater management system functions as intended both during construction activities and on a long-term basis. Subsequent sections identify individual maintenance items, give a brief commentary on the function of and need for the item, a description of the work required, suggested frequency of accomplishment and documentation of the findings of the inspection and maintenance tasks performed, if any. While the suggested programs and schedules must be adapted to specific projects, the material presented should provide guidance for a successful long-term program.

Guidelines Layout

A summary of the individual items comprising the proposed stormwater management system for the development site has been prepared. The format used in the summary is as follows:

Preface: A general description of what function/benefit the item is intended to provide. This is a short summary and not intended to provide the design basis, which can be found in other sources.

Inspection: This section provides the inspection requirements for the individual item.

Maintenance: This section provides general information on the routine maintenance requirements of this item.

Frequency: This section outlines the best judgment of the designer of the item as to the frequency of maintenance.

Outcomes: Stormwater management system maintenance is performed to meet desired outcomes. Maintenance desired outcomes are specified for each item of the site contributing runoff to the stormwater management system and each drainage system item. They include maintaining performance and appearance of items of the stormwater management system, and the need to prevent maintenance work itself from becoming a pollutant source or damaging habitat.

The Water Quality Outcomes are:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources both during construction activities and over an extended period of time
O3	Avoid and/or minimize vegetation removal
O4	Preserve native plants

The Infrastructure Maintenance Outcomes are:

O5	Protect public safety and health
O6	Prevent infrastructure and permanent stabilization measure failures
O7	Maintain and/or restore the intended infrastructure and permanent stabilization measure functions
O8	Prevent and/or reduce flooding
O9	Protect infrastructure
O10	Meet public expectations for aesthetics

Comments: This section provides comment on the site-specific features and general conditions of the stormwater management system. This is a summary only and provides a list of the items included in the inspection and maintenance checklist of items.

In addition to the inspection and maintenance checklist of items, a log report has been developed. The log report allows the inspector to document the date, description of findings and maintenance tasks performed for each inspection and maintenance checklist item.

The inspection and maintenance checklist and log report are discussed later in this report.

Special Facilities Maintenance Requirements

This manual provides a set of minimum standards and practices for maintaining stormwater facilities. Manufactured stormwater facilities such as water quality treatment units often have maintenance requirements and manuals specified or written by the manufacturer.

Manufacturer or Designer's Maintenance Manuals

Where the manufacturer's manuals or plans provide an equal or greater level of maintenance and water quality protection, the contractor, owner/operator and any third party maintenance contractor shall follow them. These individual maintenance plans, specifications, or manuals must be approved by the reviewing agencies.

II. Project Overview

Key permits issued for the Lot 4 development include:

1. NRPA Tier I Permit for wetlands disturbances less than 15,000 sq. ft.
2. MeDEP Permit by Rule for construction activities adjacent to protected natural resources.
3. Maine Construction General Permit for discharge of stormwater associated with construction activities.

A copy of these permits should be appended to this manual as Appendix C. The contractor, owner/operator and any third party maintenance contractor of the stormwater management system should review these permits for a general description and background of the project, as well as any specific permit conditions or requirements of the project.

410 Riverside Street LLC has retained DeLuca-Hoffman Associates, Inc. to finalize and satisfy the conditions of Site Plan approval granted by the Portland Planning Board for the Lot 4 development project.

DeLuca-Hoffman Associates, Inc. prepared the designs for the stormwater management system for the development site and may be contacted at:

DeLuca-Hoffman Associates, Inc.
778 Main Street, Suite 8
South Portland, Maine 04106
(207) 775-1121

It is recommended that the preparer of the plans be contacted with any particular questions on the design intent or similar issues.

The applicable plans/design documents which apply to the projects are:

Lot 4 - 410 Riverside Street
Civil/Site Drawings: Permit Set
Prepared by DeLuca-Hoffman Associates, Inc.

A copy of these documents should be retained with the manual.

The manual is intended for general guidance. However, any substituted deviations from the manual should be reviewed with respect to provisions of Appendix C.

Stormwater runoff for the planned development generally flows to the north with ultimate discharge to the Presumpscot River. Stormwater runoff from the Lot 4 development site discharges to a natural tributary swale discharging to the Presumpscot River. The proposed design will include construction of multiple riprap outlet plunge pools with level lip spreaders, permanent stabilization BMP measures, and directing runoff from the planned development's impervious surfaces to the plunge pools and buffers.

III. Standard Inspection/Maintenance Descriptions

During Construction

The following standards must be met during construction.

A. Inspection and Corrective Action

Inspect disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.

B. Maintenance

Maintain all measures in effective operating condition until areas are permanently stabilized. If best management practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within 7 calendar days and prior to any storm event (rainfall).

C. Documentation

Keep a log (report) summarizing the inspections and any corrective action taken. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and location(s) where additional

BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken.

The log must be made accessible to department staff and a copy must be provided upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

Post Construction

An effective inspection and maintenance plan should define in detail the inspection and maintenance requirements for the natural features found within the site, permanent stabilization measures in place, and the stormwater drainage infrastructure of the stormwater management system provided for the development site. Persons knowledgeable of erosion and stormwater control and the standards and conditions of any permits should conduct the inspection, identify deficiencies, and perform maintenance to assure that the stormwater management system functions as intended on a long-term basis.

The checklist of individual items comprising the proposed stormwater management system includes the following:

A. Riprap Outlet Plunge Pool

Preface: Riprap outlet plunge pools will be constructed at the outlet locations for two stormwater collection systems proposed for the development site prior to discharge to the natural tributary swales that discharge to the Presumpscot River.

The purpose of riprapped outlet plunge pools is to provide erosion control protection at the outlet locations for each stormwater drainage system by reducing the velocity of the stormwater runoff discharging from each stormwater collection system prior to discharging to the natural tributary swale that discharges to the Presumpscot River.

A second purpose for each riprapped outlet plunge pool is to collect and detain sediments which have entered the stormwater collection system and escaped from the sediment sumps provided for each stormwater catchbasin, and have been transported to the discharge location of the stormwater conveyance system.

Inspection: During periods of dry weather, each riprapped outlet plunge pool should be inspected to measure the sediment accumulation.

Maintenance: If a significant accumulation of sediment is recorded in the riprapped outlet plunge pool, the sediment should be removed. Depending on the size of the plunge pool, the amount of sediment collected, and its location, the sediment may be removed manually, by mechanical equipment such as a backhoe, or by other methods. The material removed from the plunge pool should be disposed of in accordance with local practice for disposing of catch basin cleanings.

Maintenance/Inspection Responsibility: 410 Riverside Street property management personnel and/or contracted services.

Frequency: Each riprapped outlet plunge pool should be inspected semi-annually, (preferably in the early summer after spring runoff, and in the fall) and after significant storm events. The frequency of sediment cleaning will depend on the rate of sediment buildup.

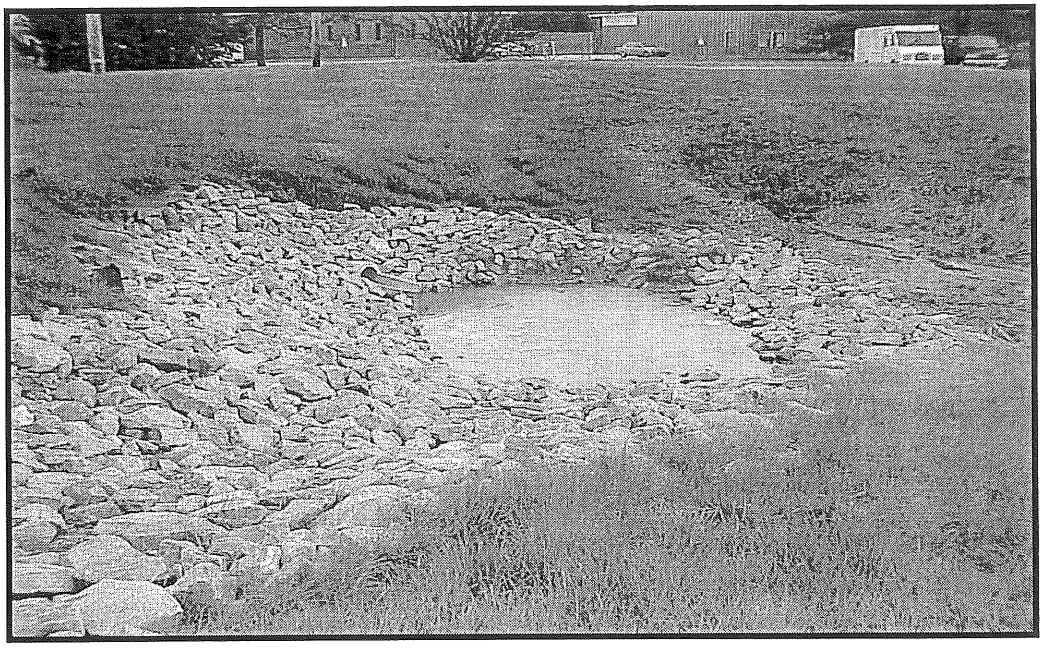
The rate of sediment buildup will depend on the make-up of upstream areas generating stormwater runoff and the frequency of inspection and maintenance of site elements.

Sediments will likely accumulate faster from stormwater runoff from open ditch transport systems and tributary drainage facilities with poorly maintained parking lots and sumped catch basins.

Comments: None.

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources, both during construction activities and over an extended period of time
O7	Maintain and/or restore the intended infrastructure function



RIPPRAPPED OUTLET PLUNGE POOL PROVIDES EROSION CONTROL PROTECTION AND REDUCES VELOCITIES PRIOR TO DISCHARGE TO DOWNSTREAM AREAS

B. Level Lip Spreader

Preface: Level lip spreaders will be constructed at the outlet locations for the two riprap outlet plunge pools proposed for the development site prior to discharge to the natural tributary swale that discharges to the Presumpscot River.

The purpose of each level lip spreader is to provide erosion control protection at the outlet to the stormwater drainage system by changing concentrated flows into sheet flows with discharge to stable areas prior to discharging to the natural tributary swale that discharges to the Presumpscot River.

Inspection: Level lip spreaders should be inspected for erosion and sedimentation accumulation and debris.

Maintenance: Eroded or silted level lip spreaders need to be repaired when inspected. If erosion is a problem, the level lip spreader design should be examined. Likewise, if siltation is a continued problem, the up-gradient conditions should be assessed.

A good time to clean is during the growing season, when it's easiest to reestablish vegetation. This is generally April through June and September through October.

If feasible, remove small amounts of sediment by hand when performing routine site maintenance.

Vegetation should only be removed when it reduces free movement of water through the level lip spreaders. Never remove more vegetation than is absolutely needed.

Vegetate bare soils by hydroseeding or cover bare soils with an approved BMP measure. Hand seed for smaller areas.

Maintenance/Inspection Responsibility: 410 Riverside Street property management personnel and/or contracted services.

Frequency: It is recommended that level lip spreaders be inspected quarterly until vegetation is established, and a year after installation. Thereafter, if no problems have been noticed, the frequency can be increased to once per year.

Design Guidelines: The level lip spreaders should be designed in accordance with the standard details and design criteria provided in the MeDEP Erosion and Sediment Control BMP handbook.

Applicability: 410 Riverside Street will utilize level lip spreaders.

Comments: None.

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources, both during construction activities and over an extended period of time
O3	Avoid and/or minimize vegetation removal
O4	Preserve native plants
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure

C. Stormwater Inlets

Preface: The success of any stormwater facility relies on the ability to intercept stormwater runoff at the design locations. Stormwater inlets may include open culverts, and field inlets. Inlets exist throughout a drainage catchment area at the points of stormwater collection and conveyance. This section is directed at maintenance of the actual inlet point. A later section addresses more substantive maintenance of the structures and conveyance facilities.

Inspection: The inspection of inlet points will need to be coordinated with other maintenance items. These include:

- Grounds maintenance and inspection
- Roadway maintenance
- Utility inspection and maintenance

The key element of the inspection is to assure the inlet entry point is clear of debris and will allow the intended water entry.

Maintenance: The key maintenance is the removal of any blockage that restricts the entry of stormwater to the inlet. The removed material should be taken out of the area of the inlet and placed where it will not re-enter the runoff collection system. Snow should be removed from inlets in parking lots/roadway areas.

Frequency: All inlets should be inspected on a monthly basis, and after/during significant storm events. A windshield survey is suitable for most inlets, but off-road inlets and pond structures require more rigorous inspection.

Maintenance/Inspection Responsibility: 410 Riverside Street property management personnel and/or contracted services.

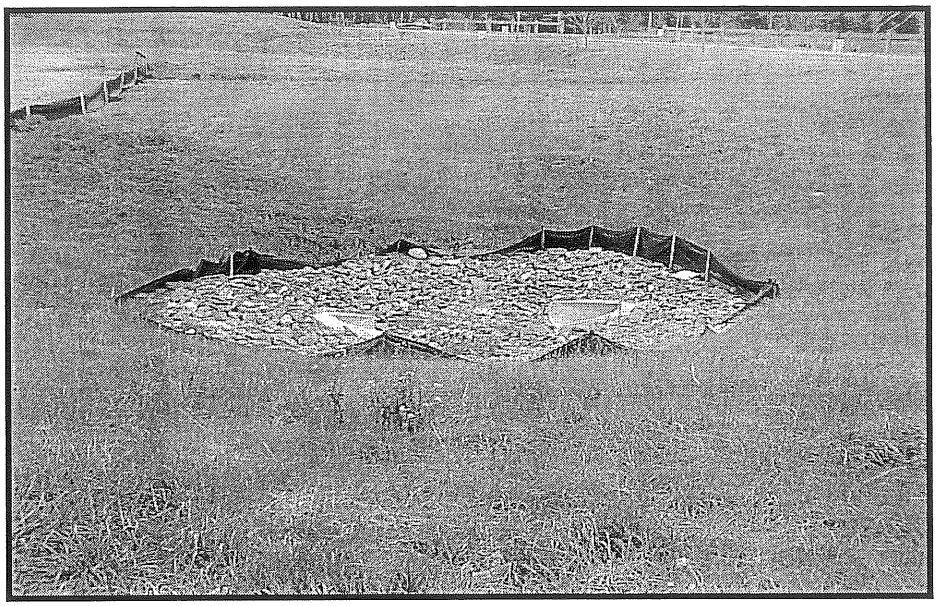
Comments: The planned development is located in the lower portion of the watershed area contributing stormwater runoff to the natural tributary swale that discharges to the Presumpscot River. Therefore, maintenance of inlets is

recommended on this project to prevent possible flooding of site elements during significant storm events.

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources, both during construction activities and over an extended period of time
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure

POORLY STABILIZED INLET ALLOWS ENTRANCE OF DEBRIS AND REDUCED CAPACITY



STABILIZED INLETS REDUCE DEBRIS ACCUMULATION AND MAINTAIN DESIGN CAPACITY

D. Tributary Drainage System

Preface: Stormwater from portions of the site is directed to stormwater drainage infrastructure, which transports the flows to mechanical devices prior to discharge to the natural tributary swale that discharges to the Presumpscot River. These conveyance systems can consist of open swales and ditches, piped drain system, or a combination of the two. Sediment that accumulates in the mechanical devices and riprapped outlet plunge pools is carried by the upstream tributary drainage system. Maintenance of these systems can play a major role in the long-term maintenance costs and the effectiveness of the drainage systems. Storm pipes are cleaned to remove sediment or blockages when problems are identified. Storm pipes must be clear of obstructions and breaks to prevent localized flooding.

Inspection: A tributary drainage system should be inspected periodically to assure that it is operating as intended, and that its carrying capacity has not been diminished by accumulation of debris and sediment or other hydraulic impediments. On piped systems, the inlets must be inspected to ensure the rims are set at the proper elevation to optimize flow entry and are not clogged with leaves or other debris. (See prior section for inlet location data.) The inlet basins are normally equipped with sumps, which will remove large sediment particles from the flow stream.

The level of sediment in the sumps should be checked to ensure their effectiveness. Pipelines connecting the inlets should be checked to determine if siltation is occurring. This will be most critical on drain lines laid at minimal slopes. This can usually be accomplished by a light and mirror procedure. Pipes are sometimes difficult to inspect, requiring special equipment and training. Usually, if a problem occurs the owner/410 Riverside Street Property

Manager needs to call a sewer or plumbing contractor to inspect, repair or clean pipelines.

In some projects most of the stormwater is carried in open swales, channels or ditches. These conveyance channels may be riprapped or vegetated, depending on the gradient and expected flow velocities. These facilities must be inspected to ensure debris or sedimentation does not reduce their carrying capacity. Excess vegetative growth must also be noted. The surface protection for the channels, either stone or vegetation, must be inspected to insure its integrity. Any areas subject to erosion should be noted.

Maintenance: Maintenance of a storm drainage system must assure that it continues to serve its design function on a long-term basis, and that its operation does not transport excessive sedimentation to any downstream stormwater facilities, or the receiving waters. Elevations on the rims of catch basins should be adjusted as needed to assure optimal water entry. Depending on the frost susceptibility of the soil, the rims may become elevated over time, causing flow to circumvent the inlet. When the sump in an inlet reaches two thirds of its volume, the sediment should be removed. This will typically be every 1 to 3 years, depending on the tributary drainage area and the amount of sand utilized for winter ice control. Catch basin cleaning would normally be accomplished with vacuum trucks under contract. The material removed must be disposed of at an approved site for such materials.

Generally, use mechanical methods to remove root obstructions from inside storm sewer pipes. Do not put root-dissolving chemicals in storm sewer pipes. If there is a problem, remove the vegetation over the line.

If sediment in the pipeline exceeds 20% of the diameter of the pipe, it should be removed. This may be accomplished by hydraulic flushing, or by mechanical means. If hydraulic flushing is used, the downstream conditions should be analyzed. In general, a sump or sediment trap should be used where it can be flushed into the riprapped outlet plunge pool, since it will hasten the time when it must be cleaned.

Vegetated ditches or swales should be mowed at least monthly during the growing season. Larger brush or trees must not be allowed to become established in the channel. Any vegetation cut in the ditch area should be removed from the site. Any areas where the vegetation fails will be subject to erosion and should be repaired and revegetated. Any riprap that becomes displaced should be replaced and chinked to assure its stability.

Sediment and debris from pipes should be disposed of as solid waste free of rocks.

Repair or replace pipes when a dent or break closes more than 20 percent of the pipe diameter.

Repair or replace pipes damaged by rust or deterioration.

Frequency: Piped drainage systems should be inspected on an annual basis. Adjustment of inlet rim elevations should be on an as-needed basis. Cleaning catch basin sumps and pipelines will depend on the rate of accumulation. Typically, catch basin sumps should be cleaned on a 1-to-3-year cycle. Pipeline cleaning schedules will be more variable. Open, vegetated swales should be mowed at least monthly during the growing season. Debris should be removed as required to maintain hydraulic capacity.

Maintenance/Inspection Responsibility: 410 Riverside Street property management personnel and/or contracted services.

Special Services: The 410 Riverside Street Property Manager may elect to contract with an independent agent for cleaning of catch basins, sumps and pipelines. The 410 Riverside Street Property Manager or an outside service, depending upon the nature of the particular situation, may perform remedial source control measures.

Comments: Maintenance of inlets is critical on this project.

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources, both during construction activities and over an extended period of time
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure

E. Vegetated Swales

Preface: Vegetated swales are often used to convey stormwater. Swales can be intended to be:

1. Mowed and maintained
2. Reverted to wetlands
3. Naturalized

Inspection: Swales should be inspected for erosion and sedimentation.

Maintenance: Eroded or silted channels need to be repaired when discovered. If erosion is a problem, the swale design should be examined. Likewise, if siltation is a continued problem, the upgradient conditions should be assessed.

A good time to clean is during the growing season, when it's easiest to reestablish vegetation. This is generally April through June and September through October.

If feasible, remove small amounts of sediment by hand when performing routine site maintenance.

Vegetation should only be removed when it reduces free movement of water through the ditch. Never remove more vegetation than is absolutely needed.

Only remove sediment when it reaches 20 percent of the ditch depth or affects the historic or designed hydraulic capacity.

Alternate cleaning areas with undisturbed areas, leaving undisturbed sections to act as sediment-trapping filters between worked areas.

Trap sediment that is generated by ditch maintenance to keep it from entering water bodies. Use sediment-trapping BMPs such as fabric fencing or filter bags at the lower end of each excavated area.

Prevent sediment from eroding when ditch work is performed. Perform work during dry weather unless there is an emergency such as property or road flooding.

Vegetate bare soils by hydroseeding or cover bare soils with an approved BMP. Hand seed for smaller areas.

Maintenance/Inspection Responsibility: 410 Riverside Street property management personnel and/or contracted services.

Frequency: It is recommended vegetated swales be inspected quarterly until vegetation is established and a year after installation. Thereafter, if no problems have been noticed, the frequency can be reduced to once per year.

Design Guidelines: The vegetated swale should consider channel cover at the time of concentration as well as several years after construction.

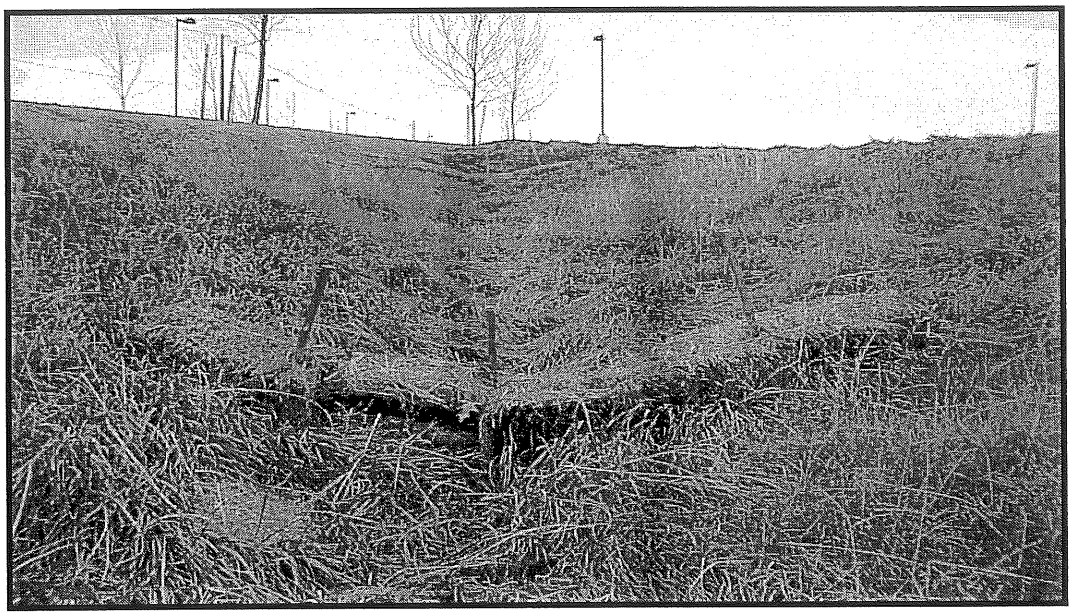
Design computations should state the assumed channel of vegetation and provide the basis for the Manning's or other roughness coefficient and for design.

Applicability: 410 Riverside Street will utilize vegetated swales as well as open channel systems.

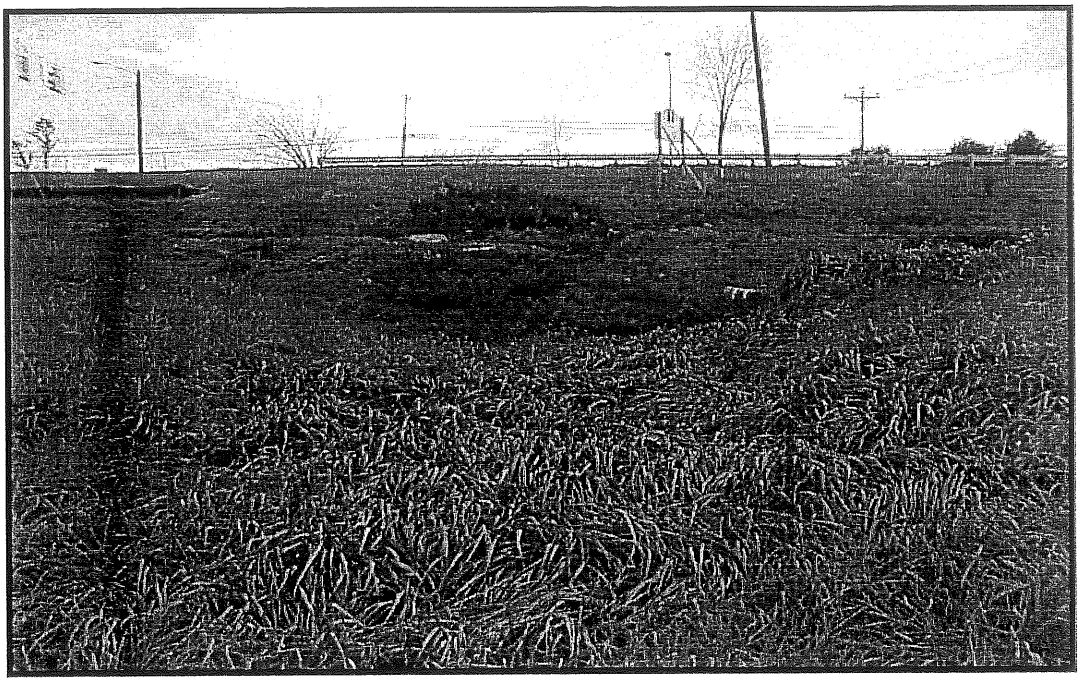
Comments: None

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources, both during construction activities and over an extended period of time
O3	Avoid and/or minimize vegetation removal
O4	Preserve native plants
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure



VEGETATED SWALE WITH HAY BALE CHECK DAM TO REDUCE VELOCITIES UNDER CONSTRUCTION



A WELL STABILIZED VEGETATED SWALE SHOWS LITTLE SIGN OF EROSIVE VELOCITIES OR FLOWS. THIS SWALE ALSO FUNCTIONS AS A POND SPILLWAY.

F. Natural Buffers

Preface: Natural buffers are vegetated, undisturbed areas located downstream from a project site that serve to store and remove pollutants from stormwater runoff flows from a site.

Inspection: Natural buffers should be inspected for evidence of erosion, concentrated flows, and sedimentation accumulation.

Maintenance: If natural buffers show evidence of erosion, concentrated flows and sedimentation accumulation, then upstream stormwater management systems that include riprap outlet plunge pools, level lip spreaders and tributary vegetated swales should be inspected.

Eroded or silted riprap outlet plunge pools, level lip spreaders and swales should be repaired. If erosion is a problem, the system designs should be examined. Likewise, if siltation is a continued problem, the up-gradient conditions should be assessed.

If feasible, additional site grading and additional level lip spreaders upstream of the natural buffer may be warranted.

Maintenance/Inspection Responsibility: 410 Riverside Street property management personnel and/or contracted services.

Frequency: It is recommended that natural buffers be inspected quarterly until the upstream stormwater management system has been installed and vegetation established. Thereafter, if no problems have been noticed, the frequency can be reduced to once per year.

Maintenance/Inspection Responsibility: 410 Riverside Street property management personnel and/or contracted services.

Comments: N/A

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources, both during construction activities and over an extended period of time
O3	Avoid and/or minimize vegetation removal
O4	Preserve native plants
O8	Prevent and/or reduce flooding

G. Catch Basins

Preface: Catch basins trap sediment and some oils that can pollute water bodies. They need to be inspected and cleaned annually to remove accumulated sediment, fluids, and trash.

Inspection: Inspect catch basins at least once per year.

Periodically inspect the catch basin and surrounding areas for pollutants such as leaks from dumpsters, minor spills, and oil dumping. Act to have the pollutant source removed.

Maintenance: Clean catch basins when they become one-third full to maintain sediment-trapping capacity. Catch basin and manhole cleaning should be performed in a manner that keeps removed sediment and water from being discharged back into the storm sewer.

Clean putrid materials from catch basins when discovered or reported.

Keep the inlet cleared of debris and litter.

Work inside underground structures requires special OSHA-required confined space equipment and procedures. The most practical option may be to contract with a sewer-cleaning contractor.

Disposal of waste from maintenance of drainage facilities shall be conducted in accordance with federal, state and local regulations.

Removed sediment must be disposed of as solid waste. Water should be disposed of in a sanitary sewer after oils are removed using oil-absorbent materials or other mechanical means. Used oil absorbents should be recycled or disposed of according to the manufacturer's instructions.

Repair any damages that prevent the catch basin from functioning as designed. An example is a broken or missing outlet elbow.

Maintenance/Inspection Responsibility: 410 Riverside Street property management personnel and/or contracted services.

Comments: N/A

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources, both during construction activities and over an extended period of time
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure

H. Manholes

Preface: Manholes are large cylindrical vaults usually set at storm sewer pipe connections. Unless you have OSHA approved training and equipment, never enter a manhole. There is a considerable risk of poisonous gas and injury.

Inspection: Inspect the manhole once per year. Check the frame and lid for cracks and wear, such as rocking lids or lids moved by traffic.

Periodically inspect the manhole and surrounding areas for pollutants such as leaks from dumpsters, minor spills, and oil dumping. Take action to have the pollutant source removed.

Maintenance: Clean manholes when there is a blockage of a water flow path. Cleaning should be performed in a way that ensures removed sediment and water is not discharged back into the storm sewer.

Work inside underground structures requires special OSHA-required confined space equipment and procedures. The most practical option may be to contract with a sewer-cleaning contractor.

Disposal of waste from maintenance of drainage facilities shall be conducted in accordance with federal, state, and local regulations.

Removed sediment must be disposed of as solid waste. Water should be disposed of in a sanitary sewer after oils are removed using oil-absorbent materials or other mechanical means. Used oil absorbents should be recycled or disposed of according to the manufacturer's instructions.

Repair all security and access features so they are fully functional. This includes locking lids, covers, and ladder rungs.

Replace broken parts or lids that rock or are moved by traffic.

Follow the practice described under the Activity: Installation, Repair and Replacement of Enclosed Drainage Systems.

Frequency: Structure should be monitored on a yearly basis.

Maintenance/Inspection Responsibility: 410 Riverside Street property management personnel and/or contracted services.

Comments: N/A

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources, both during construction activities and over an extended period of time
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure

I. Water Quality Treatment Units (WQUs)

Preface: A WQU is an underground vault that treats stormwater by mechanically separating oil and suspended solids from water. The oil rises to the surface and floats on the water and sediment settles to the bottom. Buried wet vaults are similar to oil/water separators in that they are subsurface vaults that separate sediment and floating materials from stormwater.

These facilities have special problems for maintenance and should be serviced by a professional knowledgeable in these services. The main issues are working in confined spaces and properly handling any sludge and oil cleaned from vaults or oil/water separators. All maintenance procedures must be completed in accordance with the manufacturer's recommendations.

Inspection: Periodically check stormwater flow out of the facility. It should be clear and not have a thick, visible oil sheen.

Annually check for cracks large enough to let soil enter the vault, broken or defective plates and baffles, and crushed or damaged pipes.

Periodically inspect the surrounding areas for pollutants such as leaks from dumpsters, minor spills, and oil dumping. Take action to have the pollutant source removed.

Inspect water levels after an extended dry period to check for leakage.

Maintenance: Remove trash and litter from the vault, inlet and piping.

Remove oil when it reaches one-inch thickness.

Remove sediment when it accumulates to 6 inches depth.

Work inside underground structures requires special OSHA-required confined space equipment and procedures. The most practical option may be to contract with a sewer-cleaning contractor.

Disposal of waste from maintenance of drainage facilities shall be conducted in accordance with federal, state and local regulations.

Removed sediment must be disposed of as solid waste. Water should be disposed of in a sanitary sewer after oils are removed using oil-absorbent materials or other mechanical means. Used oil absorbents should be recycled or disposed of according to the manufacturer's instructions.

Repair any cracked or defective plates or baffles. Cracks are repaired so that no cracks greater than ¼-inch are present. Repair any leaks that allow water levels to drop and cause oil to be washed from the unit.

Repair all security and access features so they are fully functional. This includes locking lids, covers, and ladder rungs.

Frequency: Water Quality Units should be monitored on a semi-annual basis or per the manufacturer's recommendations.

Maintenance/Inspection Responsibility: 410 Riverside Street property management personnel and/or contracted services.

Comments: N/A

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources, both during construction activities and over an extended period of time
O7	Maintain and/or restore the intended infrastructure function
O9	Protect infrastructure

J. Minor Culvert Repair (not in a stream)

Preface: This activity is the replacement or repair of culverts and inlets less than 6 feet in diameter. It applies only to structures that are in ditches, specifically for drainage, that do not carry water during dry weather.

Maintenance: Comply with stormwater and erosion control requirements of the Natural Resources Protection Act.

Avoid or minimize vegetation removal. If work is near a stream or wetland, there are likely regulatory requirements under the Maine Department of Environmental Protection Wetlands Protection Rules.

Other than to address a threat to public safety or property due to flooding, perform work during the dry season.

Minimize soil disturbance.

Use sediment controls to trap any sediment and prevent sediment from entering storm sewers and water bodies. Sediment trapping BMPs are used to the extent practical during emergencies.

Use cover BMPs to prevent erosion of bare soil. Vegetate bare soils.

Frequency: At least quarterly or after significant rainfall events.

Maintenance/Inspection Responsibility: 410 Riverside Street property management personnel and/or contracted services.

Comments: N/A

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O3	Avoid and/or minimize vegetation removal
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure

K. Pavement Sweeping

Preface: Pavement sweeping is performed to remove sand and litter from access drives, parking lots, and curb gutters. Pavement sweeping also reduces dust during dry weather. Pavement sweeping is also a storm sewer maintenance practice because it limits sediment washed into stormwater facilities. Water quality practices for pavement sweeping focus on sediment disposal. Reducing the amount of sediment washed into catch basins and other facilities can save money because sweeping is generally cheaper than removing sediment from facilities. Pavement sweeping also helps protect facilities from clogging with sediment.

Maintenance: Sweep the site if it will help keep sediment from storm sewers or water bodies. Sweeping is especially useful for cleaning up work areas.

Disposal of waste from maintenance of drainage facilities shall be conducted in accordance with federal, state, and local regulations.

Sweepings should be disposed of as solid waste or under a program permitted by the MeDEP.

Frequency: Sweeping should occur every spring and when necessary as dust or sediments build up on the streets due to construction activity or individual lot development.

Maintenance/Inspection Responsibility: 410 Riverside Street property management personnel and/or contracted services.

Comments: N/A

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources, both during construction activities and over an extended period of time
O5	Protect public safety and health
O10	Meet public expectations for aesthetics

L. Inspection and Maintenance Checklist

The above-described inspection and maintenance items have been summarized on a checklist attached hereto as Appendix A. The checklist includes a general commentary on the inspection and maintenance objectives, and suggested frequency of item inspections. Persons knowledgeable of erosion and stormwater control and the standards and conditions of the permits should conduct the inspections and maintenance to assure that the stormwater management system is functioning as intended.

M. Documentation

The inspections, maintenance, and any actions taken during the inspection of the stormwater management system shall be summarized in a log report. The log report is provided with the list of the items included in the inspection and maintenance checklist. The log should summarize inspections, maintenance, and any actions taken during the inspection of the stormwater management system and is provided with line items that include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If maintenance tasks require the cleanout of sediment or debris, then the log report shall indicate where the sediment or debris was disposed of after removal. Persons knowledgeable of erosion and stormwater control and the standards and conditions of the permits should maintain and update the log to assure that the stormwater management system functions as intended and on a long-term basis. The above described log report is attached hereto as Appendix B.

IV. Program Administration

A. General

A reliable inspection and maintenance program by the 410 Riverside Street Property Manager must be established to assure implementation of the maintenance programs described in the foregoing section. Key factors that must be considered in establishing a responsive property management structure include:

1. The property management personnel must be responsible for long-term operation and maintenance of the facilities.

2. The property management personnel have the financial resources to accomplish the inspection and maintenance program over the life of the facility.

3. The property management personnel must have a responsible administrator to manage the inspection and maintenance programs.

4. The property management personnel must have the staff to accomplish the inspection and maintenance programs, or must have authority to contract for the required services.

5. The property management personnel must have a management information system sufficient to file, retain, and retrieve all inspection and maintenance records associated with the inspection and maintenance programs.

If any of the above criteria cannot be met by the entity assigned inspection and maintenance responsibilities, it is likely that the system will fail to meet its water quality objectives at some point during its life. While each of the above criteria may be met by a variety of formats, it is critical to clearly establish the assigned property management personnel in a responsible and sustainable manner.

B. Record Keeping

Records of all inspections and maintenance work accomplished must be kept and maintained in the log report to document facility operations. These records should be filed and retained for a minimum 5-year time span. The filing system should be capable of ready retrieval of data for periodic reviews by appropriate regulatory bodies. Where possible, copies of such records should also be filed with the designated primary regulatory agency for their review for compliance with permit conditions.

C. Contract Services

In some instances or at specific times, the property management personnel may not have the staff to conduct the required inspection and/or maintenance programs as outlined in this document. In such cases the work should be accomplished on a contractual basis with a firm or organization that has the staff and equipment to accomplish the required work.

The service contract for inspection and maintenance should be a formal, well written legal document which clearly defines the services to be provided, the contractual conditions that will apply, and detailed payment schedules. Liability insurance should be required in all contracts.

Undoubtedly, the property manager and its representatives will prepare the actual service contract and procurement procedures to fit the needs for the project.

APPENDIX A

Summary Checklist
Inspection and Maintenance

Stormwater Management System Maintenance Program Summary Checklist					
		Frequency			
Item	Commentary	Monthly	Semi-Annual	Annual	Long-Term
Riprap Plunge Pool	Observe sediment accumulation in pool sump. Remove sediment from pool sump.		X		
Level Lip Spreader	Observe sediment accumulation in pool sump. Remove sediment from pool sump	X Quarterly until established		X	
Stormwater Inlets	Open culverts, field inlets. Inspect entry for debris accumulation. Remove debris to allow unimpeded entry. Inspect during/after significant storm events.	X			
Tributary Drainage System	Open swales/ditches, piped drain system or combined. Check for accumulation of debris/sediment or excess vegetation. Remove sediment when it exceeds 20% of pipe diameter.				X 1 to 3 years
Vegetated Swales	Swales or ditches are also used for stormwater conveyance. Inspect for debris accumulation, erosion and excessive vegetation. Mow monthly, remove debris, repair and vegetate any areas of erosion.	X Quarterly until established Mow		X At 1 year; annually	
Natural Buffers	Inspect resource and observe for evidence of erosion, concentrated flows, and encroachment of development.			X	
Catch Basins	Catch basins serve as the points of entry on a piped conveyance system. Sumps in the basins retain heavier sediment particles. Inspect to assure optimum water entry and accumulation of sediment in sumps. Clean sumps are required.			X	
Manholes	Requires OSHA-approved training. Inspect annually; check frame/lid for cracks/wear. Clean when water flow path is blocked.			X	
Water Quality Treatment Units	Check stormwater flow for oil sheen vs. clear water. Remove trash/litter. Remove oil at 1"; sediment at 6" depth. Serviced by contractors.			X	
Minor Culvert Repair	Inspect after large storms.		X		
Pavement Sweeping	Remove sand/litter from streets/gutters. As needed.			X	

APPENDIX B

Log Report

Stormwater Management System Maintenance Program Log Report Page 1 of 2					
Item	**Inspection & Maintenance Task**	**Date of Task**	**Description of Inspection finding and/or Maintenance Completed**	**Destination of Sediment or Debris Disposal if any**	**Name of Inspector**
Riprap Plunge Pool	Observe sediment accumulation in pool sump. Remove sediment from pool sump.				
Level Lip Spreader	Observe sediment accumulation in pool sump. Remove sediment from pool sump				
Stormwater Inlets	Open culverts, field inlets. Inspect entry for debris accumulation. Remove debris to allow unimpeded entry. Inspect during/after significant storm events.				
Tributary Drainage System	Open swales/ditches, piped drain system or combined. Check for accumulation of debris/sediment or excess vegetation. Remove sediment when it exceeds 20% of pipe diameter.				
Vegetated Swales	Swales or ditches are also used for stormwater conveyance. Inspect for debris accumulation, erosion and excessive vegetation. Mow monthly, remove debris, repair and vegetate any areas of erosion.				

Stormwater Management System Maintenance Program Log Report Page 2 of 2					
Item	**Inspection & Maintenance Task**	**Date of Task**	**Description of Inspection finding and/or Maintenance Completed**	**Destination of Sediment or Debris Disposal if any**	**Name of Inspector**
Natural Buffers	Inspect resource and observe for evidence of erosion, concentrated flows, and encroachment of development.				
Catch Basins	Catch basins serve as the points of entry on a piped conveyance system. Sumps in the basins retain heavier sediment particles. Inspect to assure optimum water entry and accumulation of sediment in sumps. Clean sumps are required.				
Manholes	Requires OSHA-approved training. Inspect annually; check frame/lid for cracks/wear. Clean when water flow path is blocked.				
Water Quality Treatment Units	Check stormwater flow for oil sheen vs. clear water. Remove trash/litter. Remove oil at 1"; sediment at 6" depth. Serviced by contractors.				
Minor Culvert Repair	Inspect after large storms.				
Pavement Sweeping	Remove sand/litter from streets/gutters. As needed.				

APPENDIX C

Permits for Project
(To be added at a subsequent time)

Post-it® Fax Note 7671	Date	Pages
To Gary Fullerton	From	
Co./Dept. Sebago Technics	Co. ME DEP	
Phone #	Phone # 287-3901	
Fax # 856-2206	Fax #	

234/97

RIST/BRUNET FAMILY TRUST
Portland, Cumberland County
OFFICE/WAREHOUSE EXPANSION
L-7696-TB-G-N (approval)

) NATURAL RESOURCES PROTECTION ACT
) FRESHWATER WETLAND ALTERATION
) WATER QUALITY CERTIFICATION
) FINDINGS OF FACT AND ORDER

Project Description: The applicant proposes to alter 8,531 square feet of forested freshwater wetland to add 23,400 square feet of office building and warehouse and more parking area to an existing manufacturing facility. The proposed wetland fill is shown on a plan entitled "Wetland Alteration of 400 Riverside Street," prepared by Sebago Technics and dated June 15, 2004. The proposed project is located on the west side of Riverside Street in the City of Portland. The applicant also submitted a Permit-By-Rule Notification Form (PBR #35938) stating that activities occurring adjacent to a stream and an outfall pipe will be constructed in accordance with Chapter 305 of the Natural Resources Protection Act. The location of the expansion was chosen to maximize its distance to the Presumpscot River while minimizing impacts to the wetlands. The amount of wetland alteration is the minimum amount necessary to allow the current tenant of the property to expand its business. The parking/building expansion was designed using 2:1 sideslopes to further minimize the wetland fill.

Permit for:	[X] Tier 1	
DEP Decision:	[X] Approved	[ ] Denied (see attached letter)
CORPS Action:	[X] The Corps has been notified of your application. The following are subject to Federal screening: (1) projects with previously authorized or unauthorized work, in combination with a Tier 1 permit for a single and complete project, which total more than 15,000 square feet of altered area; (2) projects with multiple state permits and/or state exemptions which apply to a single and complete project that total more than 15,000 square feet of altered area; and (3) projects that may impact a vernal pool, as determined by the State of Maine or the Corps. If your activity is listed above, *Corps approval is required for your project.* For information regarding the status of your application contact the Corps' Maine Project Office at 623-8367.	

[ ]

Standard Conditions:

1) If construction or operation of the activity is not begun within two (2) years from the date signed, this permit shall lapse and the applicant shall reapply to the Department for a new permit. This permit is transferable only with prior approval from the Department. If the activity is associated with a larger project, starting any aspect of that project constitutes start of construction.
2) The project shall be completed according to the plans in the application. Any change in the project plans must be reviewed and approved by the Department.
3) Properly installed erosion control measures shall be installed prior to beginning the project, and all disturbed soil should be stabilized immediately upon project completion.
4) A copy of this approval will be sent to the City of Portland. Department approval of your activity does not supersede or substitute the need for any necessary local approvals.

Please note the attached sheet for guidance on appeal procedures.

THIS APPROVAL DOES NOT CONSTITUTE OR SUBSTITUTE FOR ANY OTHER REQUIRED STATE, FEDERAL OR LOCAL APPROVALS NOR DOES IT VERIFY COMPLIANCE WITH ANY APPLICABLE SHORELAND ZONING ORDINANCES.

DAWN R. GALLAGHER, COMMISSIONER

9/10/04 DATE

FILED
SEP 10 2004
BOARD OF ENVIRONMENTAL PROT.
STATE OF MAINE

Date of initial application August 16, 2004
Date application accepted for processing August 27, 2004
Date filed with Board of Environmental Protection
MB/ATS53063/L7696GN

DEP INFORMATION SHEET

Appealing a Commissioner's Licensing Decision

Dated: May 2004

Contact: (207) 287-2811

SUMMARY

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's (DEP) Commissioner: (1) in an administrative process before the Board of Environmental Protection (Board); or (2) in a judicial process before Maine's Superior Court. This INFORMATION SHEET, in conjunction with consulting statutory and regulatory provisions referred to herein, can help aggrieved persons with understanding their rights and obligations in filing an administrative or judicial appeal.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

DEP's *General Laws*, 38 M.R.S.A. § 341-D(4), and its *Rules Concerning the Processing of Applications and Other Administrative Matters* (Chapter 2), 06-096 CMR 2.24 (April 1, 2003).

HOW LONG YOU HAVE TO SUBMIT AN APPEAL TO THE BOARD

The Board must receive a written notice of appeal within 30 calendar days of the date on which the Commissioner's decision was filed with the Board. Appeals filed after 30 calendar days will be rejected.

HOW TO SUBMIT AN APPEAL TO THE BOARD

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, c/o Department of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017; faxes are acceptable for purposes of meeting the deadline when followed by receipt of mailed original documents within five (5) working days. Receipt on a particular day must be by 5:00 PM at DEP's offices in Augusta; materials received after 5:00 PM are not considered received until the following day. The person appealing a licensing decision must also send the DEP's Commissioner and the applicant a copy of the documents. All the information listed in the next section must be submitted at the time the appeal is filed. Only the extraordinary circumstances described at the end of that section will justify evidence not in the DEP's record at the time of decision being added to the record for consideration by the Board as part of an appeal.

WHAT YOUR APPEAL PAPERWORK MUST CONTAIN

The materials constituting an appeal must contain the following information at the time submitted:

1. *Aggrieved Status.* Standing to maintain an appeal requires the appellant to show they are particularly injured by the Commissioner's decision.
2. *The findings, conclusions or conditions objected to or believed to be in error.* Specific references and facts regarding the appellant's issues with the decision must be provided in the notice of appeal.
3. *The basis of the objections or challenge.* If possible, specific regulations, statutes or other facts should be referenced. This may include citing omissions of relevant requirements, and errors believed to have been made in interpretations, conclusions, and relevant requirements.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.

5. *All the matters to be contested.* The Board will limit its consideration to those arguments specifically raised in the written notice of appeal.

6. *Request for hearing.* The Board will hear presentations on appeals at its regularly scheduled meetings, unless a public hearing is requested and granted. A request for public hearing on an appeal must be filed as part of the notice of appeal.

7. *New or additional evidence to be offered.* The Board may allow new or additional evidence as part of an appeal only when the person seeking to add information to the record can show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process or show that the evidence itself is newly discovered and could not have been presented earlier in the process. Specific requirements for additional evidence are found in Chapter 2, Section 24(B)(5).

OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license file is public information made easily accessible by DEP. Upon request, the DEP will make the material available during normal working hours, provide space to review the file, and provide opportunity for photocopying materials. There is a charge for copies or copying services.

2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing your appeal.* DEP staff will provide this information on request and answer questions regarding applicable requirements.

3. *The filing of an appeal does not operate as a stay to any decision.* An applicant proceeding with a project pending the outcome of an appeal runs the risk of the decision being reversed or modified as a result of the appeal.

WHAT TO EXPECT ONCE YOU FILE A TIMELY APPEAL WITH THE BOARD

The Board will formally acknowledge initiation of the appeals procedure, including the name of the DEP project manager assigned to the specific appeal, within 15 days of receiving a timely filing. The notice of appeal, all materials accepted by the Board Chair as additional evidence, and any materials submitted in response to the appeal will be sent to Board members along with a briefing and recommendation from DEP staff. Parties filing appeals and interested persons are notified in advance of the final date set for Board consideration of an appeal or request for public hearing. With or without holding a public hearing, the Board may affirm, amend, or reverse a Commissioner decision. The Board will notify parties to an appeal and interested persons of its decision.

II. APPEALS TO MAINE SUPERIOR COURT

Maine law allows aggrieved persons to appeal final Commissioner licensing decisions to Maine's Superior Court, see 38 M.R.S.A. § 346(1); 06-096 CMR 2.26; 5 M.R.S.A. § 11001; & MRCivP 80C. Parties to the licensing decision must file a petition for review within 30 days after receipt of notice of the Commissioner's written decision. A petition for review by any other person aggrieved must be filed within 40-days from the date the written decision is rendered. The laws cited in this paragraph and other legal procedures govern the contents and processing of a Superior Court appeal.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, contact the DEP's Director of Procedures and Enforcement at (207) 287-2811.

Note: The DEP provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.

Erosion Control

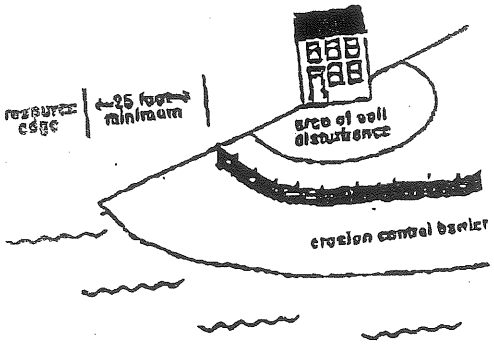
Before Construction

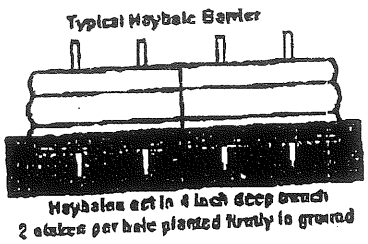
1. If you have hired a contractor, make sure you have discussed your permit with them. Talk about what measures they plan to take to control erosion. Everybody involved should understand what the resource is and where it is located. Most people could identify the edge of a lake or a river. The edges of wetlands, however, are often not obvious. Your contractor may be the person actually pushing dirt around but you are both responsible for complying with the permit.

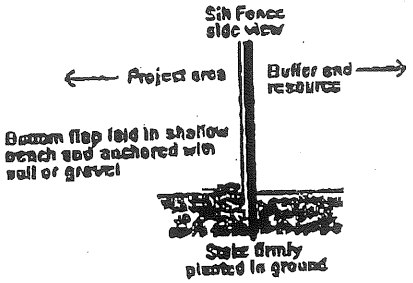
2. Call around and find sources for your erosion controls. You will probably need silt fence, hay bales and grass seed or conservation mix. Some good places to check are feed stores, hardware stores, landscapers and contractor supply houses. It is not always easy to find hay or straw during late winter and early spring. It may also be more expensive during those times of year. Plan ahead. Purchase a supply early and keep it under a tarp.

3. Before any soil is disturbed, make sure an erosion control barrier has been installed. The barrier can be either a silt fence, a row of staked hay bales, or both. Use the drawings below as a guide for correct installation and placement. The barrier should be placed as close as possible to the activity.

4. If a contractor is installing the barrier, double check it as a precaution. Erosion control barriers should be installed "on the contour", meaning at the same level along the land slope, whenever possible. This keeps stormwater from flowing to the lowest point of the barrier where it builds up and overflows or destroys it.







During Construction

1. Use lots of hay or straw mulch on disturbed soil. The idea behind mulch is to prevent rain from striking the soil directly. It is the force of raindrops striking the soil that causes a lot of erosion. More than 90% of erosion is prevented by keeping the soil covered.

2. Inspect your erosion control barriers frequently. This is especially important after a rainfall. If there is muddy water leaving the project site, then your erosion controls are not working as intended. In that situation, stop work and figure out what can be done to prevent more soil from getting past the barrier.

After Construction

1. After the project is complete, replant the area. All ground covers are not equal. For instance, a mix of creeping red fescue and Kentucky bluegrass is a good choice for lawns and other high maintenance areas. The same mix would not be a good choice for stabilizing a road shoulder or a cut bank that you don't intend to mow.

2. If you finish your project after September 15, then do not spread grass seed. There is a very good chance that the seed will germinate and be killed by a frost before it has a chance to become established. Instead, mulch the site with a thick layer of hay or straw. In the spring, rake off the mulch and seed the area. Don't forget to mulch again to hold in moisture and prevent the seed from washing away.

3. Keep your erosion control barrier up and maintained until the area is permanently stabilized.

NATURAL RESOURCE PROTECTION ACT (NRPA)
STANDARD CONDITIONS

THE FOLLOWING STANDARD CONDITIONS SHALL APPLY TO ALL PERMITS GRANTED UNDER THE NATURAL RESOURCE PROTECTION ACT, TITLE 38, M.R.S.A. SECTION 480-A ET.SEQ. UNLESS OTHERWISE SPECIFICALLY STATED IN THE PERMIT.

A. **Approval of Variations From Plans.** The granting of this permit is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation form these plans, proposals, and supporting documents is subject to review and approval prior to implementation.

B. **Compliance With All Applicable Laws.** The applicant shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.

C. **Erosion Control.** The applicant shall take all necessary measures to ensure that his activities or those of his agents do not result in measurable erosion of soils on the site during the construction and operation of the project covered by this Approval.

D. **Compliance With Conditions.** Should the project be found, at any time, not to be in compliance with any of the Conditions of this Approval, or should the applicant construct or operate this development in any way other the specified in the Application or Supporting Documents, as modified by the Conditions of this Approval, then the terms of this Approval shall be considered to have been violated.

E. **Initiation of Activity Within Two Years.** If construction or operation of the activity is not begun within two years, this permit shall lapse and the applicant shall reapply to the Board for a new permit. The applicant may not begin construction or operation of the activity until a new permit is granted. Reapplications for permits shall state the reasons why the applicant will be able to begin the activity within two years form the granting of a new permit, if so granted. Reapplications for permits may include information submitted in the initial application by reference.

F. **Reexamination After Five Years.** If the approved activity is not completed within five years from the date of the granting of a permit, the Board may reexamine its permit approval and impose additional terms or conditions to respond to significant changes in circumstances which may have occurred during the five-year period.

G. **No Construction Equipment Below High Water.** No construction equipment used in the undertaking of an approved activity is allowed below the mean high water line unless otherwise specified by this permit.

H. **Permit Included In Contract Bids.** A copy of this permit must be included in or attached to all contract bid specifications for the approved activity.

I. **Permit Shown To Contractor.** Work done by a contractor pursuant to this permit shall not begin before the contractor has been shown by the applicant a copy of this permit.

Revised (4/92)

DEP LW0428

NOTICE OF INTENT TO COMPLY WITH MAINE CONSTRUCTION GENERAL PERMIT

PLEASE TYPE OR PRINT IN *BLACK INK ONLY*

Name of Applicant:	The Galloway Group			Name of Owner or Lessee:		Rist/Brunet Family Trust	
Mailing Address:	C/o DeLuca Hoffman Associates, Inc. 778 Main Street, Suite 8						
State: ME	Zip Code: 04106		Daytime phone: (with area code)	207-775-1121		Email if available:	
Project Location: (Town/City):	400 Riverside Street Portland ME		UTM Northing: (if known)			UTM Easting: (if known)	
Map #:	320		Lot #:	Block A, Lot 2		Size of disturbed area proposed:	< 43,560 sq ft
Creating a common plan of development or sale?		No		Part of a larger project?		No	
Name of waterbody(ies) to which the disturbed area drains, or name municipality if drains to an MS4:	Wetlands Including A Natural Emergent Marsh & Natural Swales Tributary to the Presumpscott River						
Does site drain to an Impaired Waterbody ©? If so, give name:	No						
Detailed directions to site, including address if available:	Outer Route 302 in Portland Me, Take left onto Riverside Street, Take Right at 400 Riverside Street, Proximate to Maine Turnpike Authority Facility						
Description of project and its purpose:	See Accompanied Aplication and Attachment No. 1						

I am filing notice of my intent to carry out work which meets the requirements of the Construction General Permit (effective 2/17/03). I have a copy of the Construction General Permit. I have read and will comply with all of the standards. I have attached all the required submittals. *Notification forms cannot be accepted without the necessary attachments.*

☒ ALL: A check for $100 (non-refundable) made payable to: "Treasurer, State of Maine" if ESC plan is attached for review. Otherwise, check for $75.

☒ ALL: A U.S.G.S. topo map or Maine Atlas & Gazetteer map with the project site clearly marked.

☒ ALL: Drawing of the proposed activity (site plan)

☒ IF this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign.

☒ IF disturbed area drains to an Impaired Waterbody (C), attach an ESC plan.

IF disturbed area drains to any other waterbody and is 3 or more acres, EITHER (1) attach an ESC plan OR (2) include a statement (letter) that an ESC plan has been certified and by whom, from the person who certified the plan.

IF any construction activity will occur in essential habitat, attach written approval from the Dept. of Inland Fisheries & Wildlife.

I authorize staff of the Departments of Environmental Protection to access the project site for the purpose of determining compliance with the general permit. I also understand that ***this permit is not valid until approved by the Department or 14 days after receipt by the Department, whichever is less.***

Signature of Applicant/Agent:	Timothy J. McDonald, Project Engineer	Date:	8/04/04

Keep a copy as a record of permit. Send the form with attachments via certified mail to the Maine Dept. of Environmental Protection **at the appropriate regional office.** The DEP will send a copy to the Town Office as evidence of the DEP's receipt of notification. No further authorization by DEP will be issued after receipt of notice. An approved NOI is valid until 7/1/04. **Work carried out in violation of any standard is subject to enforcement action.**

OFFICE USE ONLY	Ck.#		Staff	Staff	
NOI #	FP	Date	Acc. Date	Def. Date	After Photos

ATTACHMENT 1

1.0 Description of Project

The proposed development at Lot 4 of the 400 Riverside Street Properties will include a one (1) story, 23,400 sq. ft. office building/warehouse on the existing 631,620 sq. ft. (14.5-acre) lot represented on Portland Tax Map 320 as Block A, Lot 2. The 14.5-acre parcel containing Lot 4 is located in the City of Portland Industrial-Moderate zoning district. The site is currently developed and includes an existing 26-foot-wide paved access drive from Riverside Street, a two (2) story, 20,000 sq. ft. office building/warehouse and a two (2) story, 35,250 sq. ft. office building/warehouse. The developed site is provided with 89 tenant parking spaces. When completed, there will be 42 new parking spaces provided for the planned development for a total of 123 parking spaces for the site, as well as multiple loading areas to serve the building's warehouse functions. Additionally, the planned development will include the installation of three (3) loading bays and a lift system for the existing two (2) story, 35,250 sq. ft. office building/warehouse.

The planned development will disturb approximately 98,000 sq. ft. (2.25 acres) of area within the development site. A stormwater collection system will serve the development and will collect stormwater runoff from the site's impervious surfaces and convey it into two (2) water quality treatment units prior to discharge to riprap plunge pools. The first riprap plunge pool will discharge adjacent to a natural emergent marsh which discharges stormwater runoff to a large, natural swale to the north. The second riprap plunge pool will also discharge to a large, natural swale to the north. The two (2) natural swales are tributary to the Presumpscot River.

1.1 Purpose for Project

The current tenant occupying the existing development site is Jotul, a company that manufactures and distributes woodstoves, fireplaces, and accessories. Jotul has stated that they will require an expansion to their current facilities in order to conduct future business operations. If Jotul is unable to expand their existing operations within the existing development site, then they will likely have to relocate. The planned development will be adequate for their future needs and allow the company to maintain proximity to the Maine Turnpike (Interstate 95).

1.2 U.S.G.S. Map

Attachment No. 2 contains an excerpt of the U.S.G.S. Map depicting the development site.

1.3 Site Map

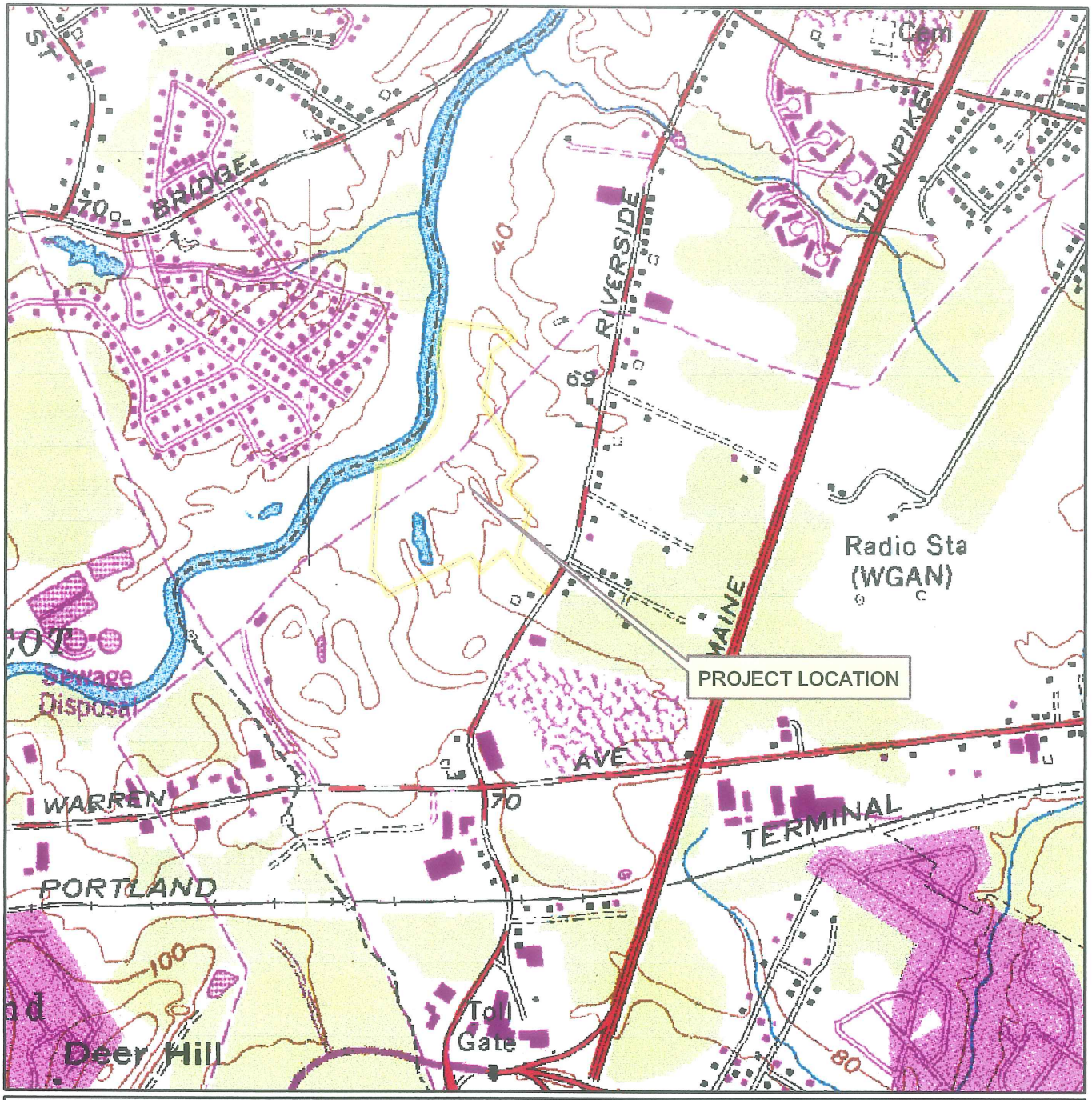
Attachment No. 3 includes Sheet 4B – Grading and Drainage And Erosion Control Plan which details the proposed activities and includes the locations of all temporary and permanent erosion and sediment control measures to be implemented at the development site.

1.4 Authorization to Sign

Attachment No. 4 includes a signed statement from the applicant, Rist/Brunet Family Trust, authorizing DeLuca-Hoffman Associates, Inc. to act as agent on behalf of the applicant.

ATTACHMENT 2

U.S.G.S. MAP



N

LOT 6 McALISTER FARM SUBDIVISION & LOT 4-400 RIVERSIDE ST

USGS TOPO MAP

SOURCE: CITY OF PORTLAND GIS DATA

DeLuca-Hoffman Associates, Inc.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, ME 04106
207-775-1121
www.delucahoffman.com

DRAWN:	RJK
CHECKED:	CJO
DATE:	NOV. 2003
FILENAME:	I:\2300 Jobs\2314\new2314figs\2314-USGS-FIG2.mxd
SCALE:	1 inch equals 1,000 feet

FIGURE

2

ATTACHMENT 3

Sheet 4B – Grading and Drainage And Erosion Control Plan

ATTACHMENT 4

Authorization Letter

March 29, 2004

To Whom It May Concern:

Martin Rist and Bonnie Brunet, Trustees of the Rist/Brunet Family Trust, hereby authorize DeLuca-Hoffman Associates, Inc. of South Portland, Maine to act as agent in the preparation and submittal of applications and supporting materials for proposed development activities at McAlister Farm Drive and 400 Riverside Street in Portland, Maine.

Sincerely

Martin Rist
Trustee

Bonnie Brunet
Trustee

Sebago Technics
Engineering Expertise You Can Build On

PERMIT-BY-RULE APPLICATION

Prepared for:

RIST/BRUNET FAMILY TRUST
LOT 6 – McALISTER FARM SUBDIVISION and
400 RIVERSIDE STREET
McAlister Farm Road
Portland, ME

Prepared by:

Sebago Technics, Inc.
One Chabot Street
P. O. Box 1339
Westbrook, ME 04098-1339

August 2, 2004

2/2004

DEPARTMENT OF ENVIRONMENTAL PROTECTION

PERMIT BY RULE NOTIFICATION FORM

(For use with DEP Regulation, Chapter 305)

PLEASE TYPE OR PRINT IN *BLACK INK ONLY*

Name of Applicant: (owner)	Rist/ Brunet Family Trust					Applicant Mailing Address:	400 Riverside Street		
Town/City:	Portland					State:	ME		
Zip Code:	04103	Daytime Telephone No: (include area code)	(207) 878-6971			Project Location:	McAllister Farm Rd		
County:	Cumberland	Map #:	320	Lot #:	A - 2	Name of Wetland or Waterbody:	unnamed stream		
Name of Agent:	Sebago Technics, Inc P.O. Box 1339, Westbrook, ME 04098					Agents Telephone No: (include area code)	(207)856-0277		
Detailed Directions to Site:	From exit 8 (I95) take a right onto Riverside St. Go approximately ½ mile and McAllister Farm Rd. is on the left past the intersection of Warren Ave. (across from handyman rental sign).								
						UTM Northing: (if known)		UTM Easting: (if known)	
Description of Project:	Addition of a 24.300 square foot office building/ warehouse and parking area to two existing buildings and parking area.								
						Part of a larger project?		Yes	X	No

(CHECK ONE) This project: does ☐ does not ☒ involve work below mean low water.

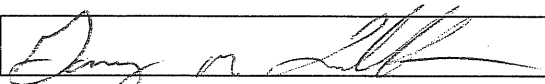
I am filing notice of my intent to carry out work which meets the requirements for Permit By Rule (PBR) under DEP Rules, Chapter 305. The work described above qualifies under the PBR Sections checked below. I and my agents, if any, **have read** and will comply with all of the standards in the Sections checked below.

- ☒ Sec. (2) Act. Adjacent to Protected Natural Res.
- ☐ Sec. (3) Intake Pipes
- ☐ Sec. (4) Replacement of Structures
- ☐ Sec. (5) REPEALED
- ☐ Sec. (6) Movement of Rocks or Vegetation
- ☒ Sec. (7) Outfall Pipes
- ☐ Sec. (8) Shoreline stabilization
- ☐ Sec. (9) Utility Crossing
- ☐ Sec. (10) Stream Crossing
- ☐ Sec. (11) State Transportation Facilities
- ☐ Sec. (12) Restoration of Natural Areas
- ☐ Sec. (13) F&W Creation/Enhance/Water Quality Improvement
- ☐ Sec. (14) Piers, Wharves & Pilings
- ☐ Sec. (15) Public Boat Ramps
- ☐ Sec. (16) Coastal Sand Dune Projects
- ☐ Sec. (17) Transfers/Permit Extension
- ☐ Sec. (18) Maintenance Dredging

I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules. I also understand that ***this permit is not valid until approved by the Department or 14 days after receipt by the Department, whichever is less.***

I have attached the following required submittals. **NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS:**

- ☒ ***Attach*** **a check for $55 (non-refundable) made payable to: "Treasurer, State of Maine".**
- ☒ ***Attach*** **a U.S.G.S. topo map or Maine Atlas & Gazetteer map with the project site clearly marked.**
- ☒ ***Attach*** **all specific requirements outlined in the PBR Sections checked above.**
- ☒ ***Attach*** **1 copy of this Notification Form (form only) to the original.**

Signature of Applicant/ Agent:		Date:	8-13-04

Keep a copy as a record of permit. Send the form with attachments via certified mail to the Maine Dept. of Environmental Protection at **the appropriate regional office listed below**. The DEP will send a copy to the Town Office as evidence of the DEP's receipt of notification. No further authorization by DEP will be issued after receipt of notice. Permits are valid for two years. **Work carried out in violation of any standard is subject to enforcement action.**

AUGUSTA DEP
STATE HOUSE STATION 17
AUGUSTA, ME 04333-0017
(207)287-2111

PORTLAND DEP
312 CANCO ROAD
PORTLAND, ME 04103
(207)822-6300

BANGOR DEP
106 HOGAN ROAD
BANGOR, ME 04401
(207)941-4570

PRESQUE ISLE DEP
1235 CENTRAL DRIVE
PRESQUE ISLE, ME 04769
(207)764-0477

OFFICE USE ONLY	Ck.#		Staff	Staff	
PBR #	FP	Date	Acc. Date	Def. Date	After Photos

DEPLW0309-G2004

Sebago Technics Engineering Expertise You Can Build On ONE CHABOT STREET WESTBROOK, ME 04098-1339 TEL (207) 856-0277	USGS TOPOGRAPHIC MAP	SCALE: 1" = 2,000' DATE: 5/24/04
LOCATION: 400 RIVERSIDE STREET PORTLAND, ME	APPLICATION BY: THE GALLOWAY GROUP	SHEET: 1 OF 1

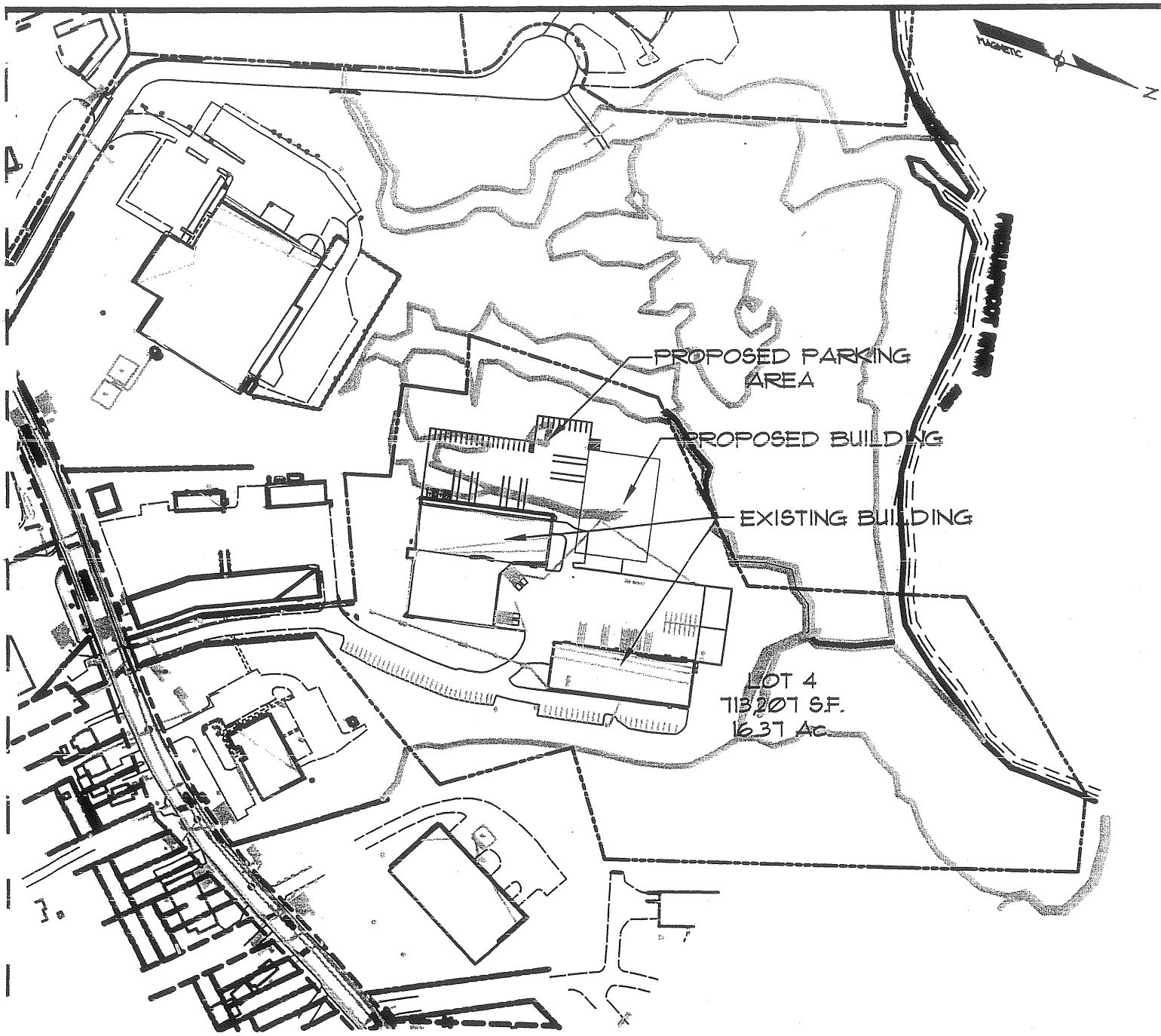
01078

Alternatives

The proposed commercial development will consist of a 23,400 square-foot office building/warehouse at the existing 400 Riverside Street Properties to expand the capacity of the existing development. The current tenant, Jotul, has requested that they will require a larger facility in the near future. The proposed expansion located adjacent to their existing facilities will be sufficient for their use if approved. If not, they will probably have to relocate. There current location is ideal for their product - fireplaces, wood stoves and accessories. The location is close to Maine's major artery, Interstate 95 (the Maine Turnpike).

The proposed development has been designed in the least environmentally damaging location on this property. There is an emergent wetland containing 14,200 square feet of emergent vegetation which leads into an intermittent tributary to the Presumpscot River. The proposed building will be located approximately 60 feet from the intermittent stream with final grading and disturbance located approximately 43 feet from the stream. The parking lot addition will be approximately 50 feet from the stream with final grading and disturbance approximately 38 feet from the stream. The slopes around the parking area and building have been steepened to 2:1. There is currently a riprap swale which connects the Vortechnics stormwater unit with the stream.

The proposed location of development is the furthest distance from the Presumpscot River on the property. This allows the commercial development to be clustered in one area on the property without altering higher valued emergent wetlands or land adjacent to the Presumpscot River. The proposed building is the required size needed by Jotul to expand their company, while maintaining the current location for their business. The required parking spaces and trailer turnaround are designed in accordance with the City of Portland's Zoning Ordinance. This project was designed to minimize the wetland alteration while maintaining a viable commercial development for the needs of the existing tenant.

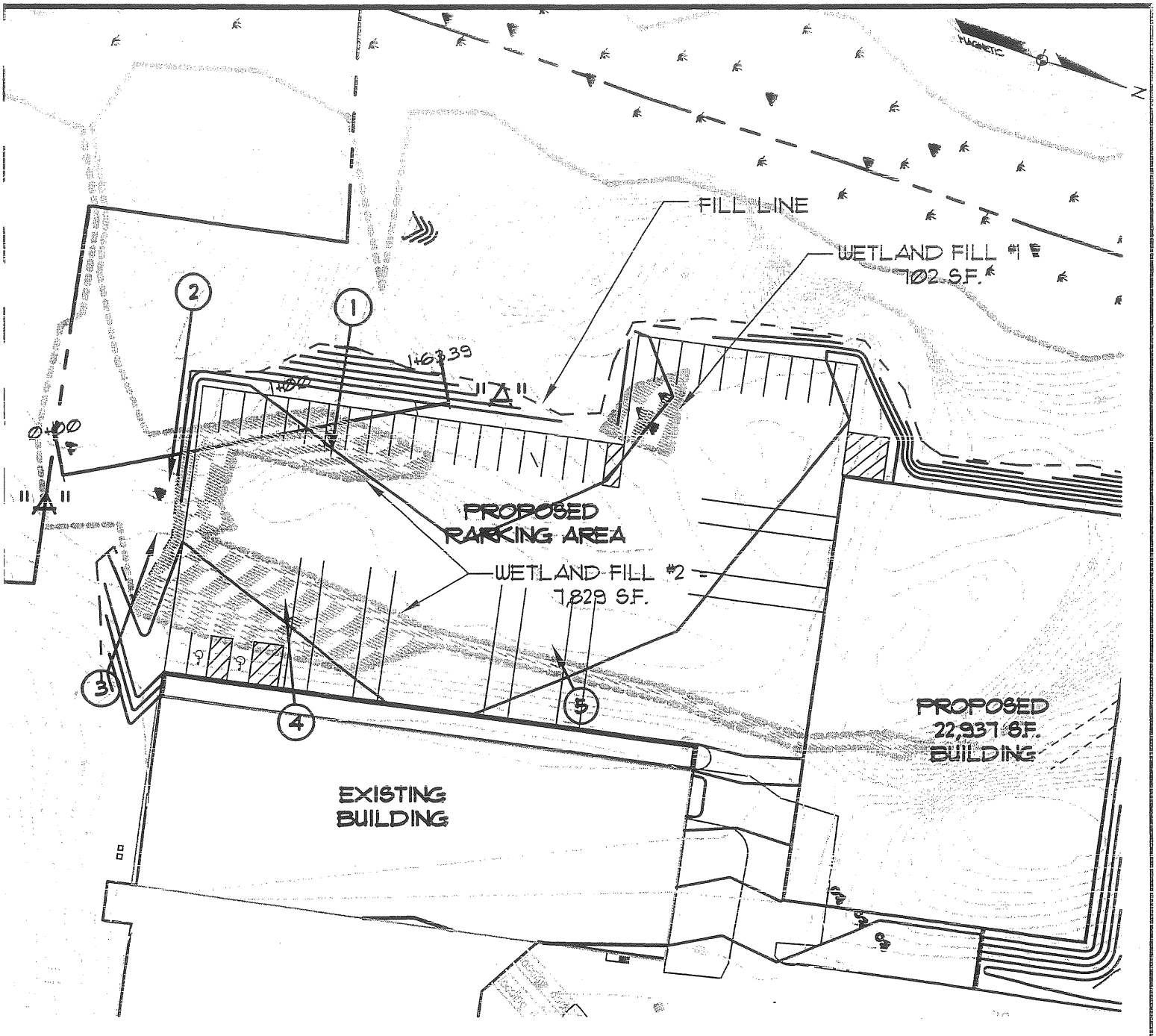


OVERALL SITE
OF:
400 RIVERSIDE STREET
RIVERSIDE STREET
PORTLAND, MAINE
FOR:
THE GALLOWAY GROUP
400 RIVERSIDE STREET
PORTLAND, MAINE

Sebago Technics
Engineering Expertise You Can Build On
One Chabot Street
Westbrook, Me 04098-1339
Tel (207) 856-0277

DESIGN BY:	GF
DRAWN BY:	PLS
CHECKED BY:	GF
DATE:	6-15-04
SCALE:	1"=250'
FIELD BK:	...
PROJ. NO:	01078
DRAWING:	01078WET MIT-3

SHEET 1 OF 4



4

LEADER AND BALLOON IN PLAN VIEW INDICATE VIEWING DIRECTION WHERE WETLAND WAS PHOTOGRAPHED.

TOTAL AREA OF WETLAND FILL = 8,531 S.F.

WETLAND ALTERATION

OF:

00 RIVERSIDE STREET

RIVERSIDE STREET
PORTLAND, MAINE

FOR:

THE GALLOWAY GROUP

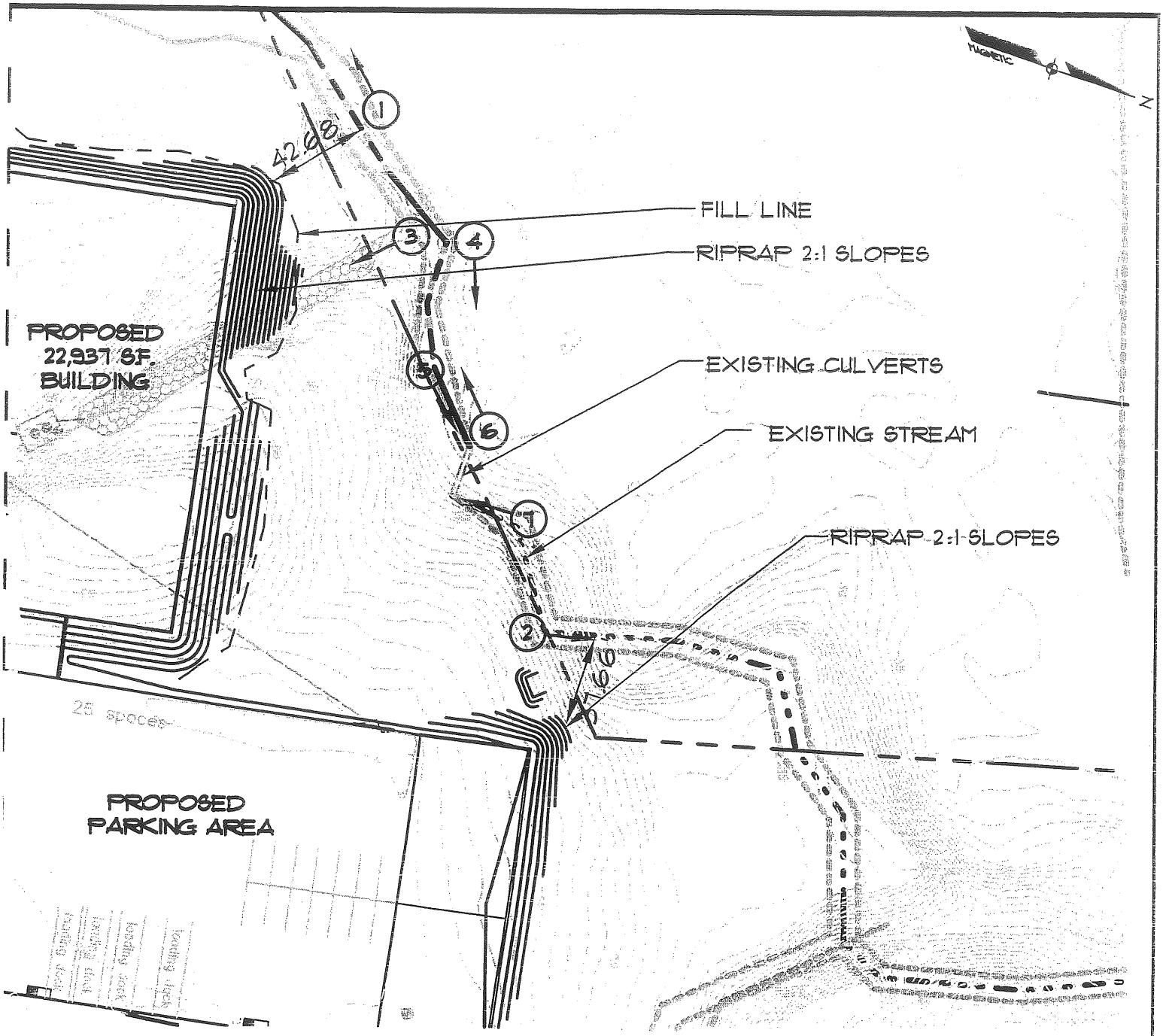
00 RIVERSIDE STREET
ORTLAND, MAINE

Sebago Technics

Engineering Expertise You Can Build On

One Chabot Street
Westbrook, Me 04098-1339
Tel (207) 856-0277

DESIGN BY:	GF
DRAWN BY:	PLS
CHECKED BY:	GF
DATE:	6-15-04
SCALE:	1"=60'
FIELD BK:	...
PROJ. NO:	01078
DRAWING:	01078WET MIT-3



4

LEADER AND BALLOON IN PLAN VIEW INDICATE VIEWING DIRECTION WHERE WETLAND WAS PHOTOGRAPHED.

WETLAND ALTERATION

OF:

00 RIVERSIDE STREET

RIVERSIDE STREET
PORTLAND, MAINE

OR:

THE GALLOWAY GROUP

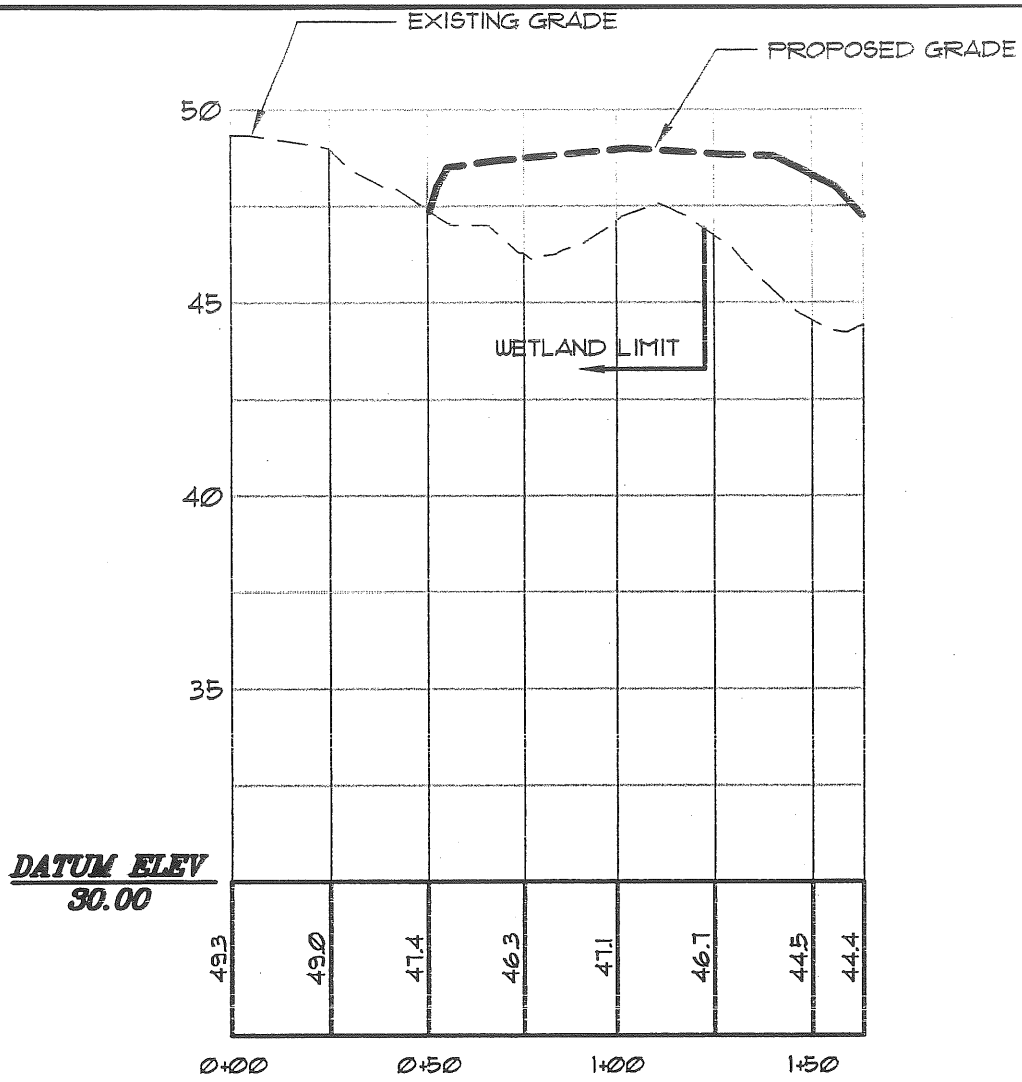
00 RIVERSIDE STREET
ORTLAND, MAINE

Sebago Technics

Engineering Expertise You Can Build On

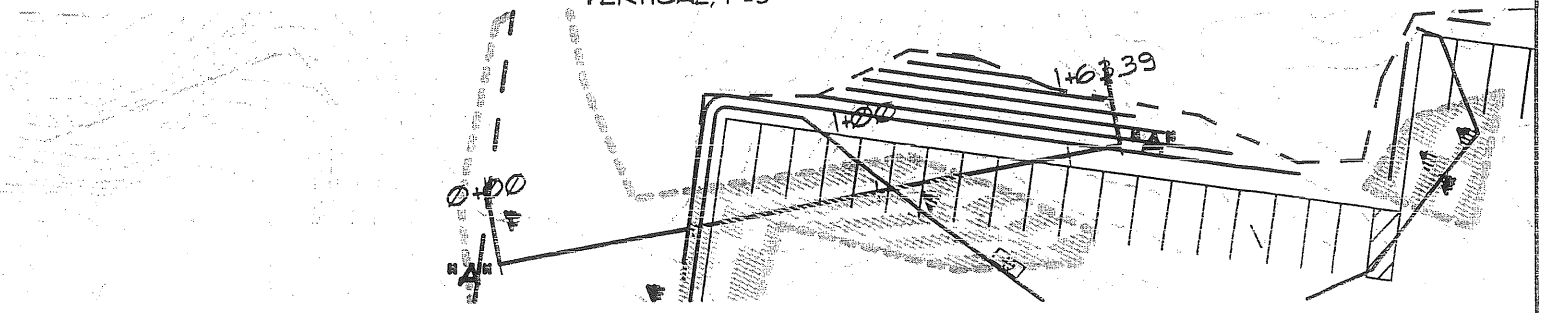
One Chabot Street
Westbrook, Me 04098-1339
Tel (207) 856-0277

DESIGN BY:	GF
DRAWN BY:	PLS
CHECKED BY:	GF
DATE:	6-15-04
SCALE:	1"=60'
FIELD BK:	...
PROJ. NO:	01078
DRAWING:	01078WET MIT-3



WETLAND CROSS-SECTION "A"-"A"

SCALE: HORIZONTAL, 1"=50'
VERTICAL, 1"=5'



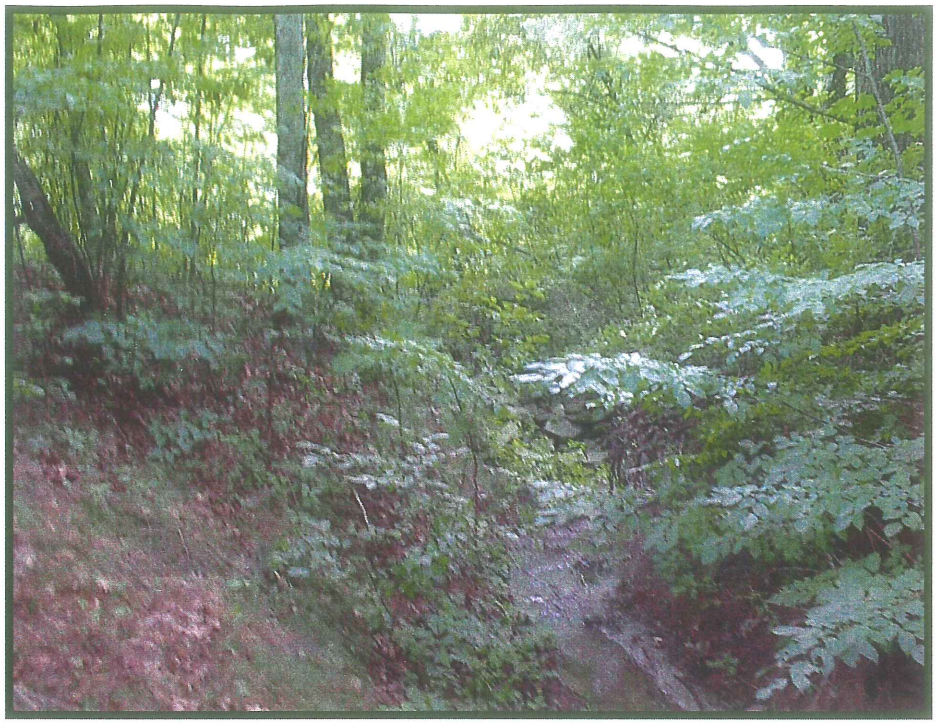
WETLAND "A"-"A"

SCALE: 1"=50'

CROSS-SECTION "A"
OF:
400 RIVERSIDE STREET
RIVERSIDE STREET
PORTLAND, MAINE
OR:
THE GALLOWAY GROUP
400 RIVERSIDE STREET
PORTLAND, MAINE

Sebago Technics
Engineering Expertise You Can Build On
One Chabot Street
Westbrook, Me 04098-1339
Tel (207) 856-0277

DESIGN BY:	GF
DRAWN BY:	PLS
CHECKED BY:	GF
DATE:	6-15-04
SCALE:	AS NOTED
FIELD BK:	---
PROJ. NO:	01078
DRAWING:	01078WET MIT-2



PHOTOGRAPH #1: Looking southerly at outlet of emerging wetland.

PHOTOGRAPH #2: Looking northerly at existing stream.

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One Chabot Street
Westbrook, ME 04098-1339
Tel. (207) 856-0277

PHOTOS OF WETLAND AREA

TAKEN BY: Jack E. Kimball

SCALE: NONE

DATE: July 23, 2004

LOCATION:
400 Riverside Street
Portland, Maine

APPLICATION BY:
The Galloway Group

SHEET:
1 of 4

PHOTOGRAPH #3: Looking southeasterly at riprap.

PHOTOGRAPH #4: Looking northerly at existing stream.

Sebago Technics
Engineering Expertise You Can Build On
One Chabot Street
Westbrook, ME 04098-1339
Tel. (207) 856-0277

PHOTOS OF WETLAND AREA

TAKEN BY: Jack E. Kimball

SCALE: NONE

DATE: July 23, 2004

LOCATION:
400 Riverside Street
Portland, Maine

APPLICATION BY:
The Galloway Group

SHEET:
2 of 4

PHOTOGRAPH #5: Looking northerly at exposed culvert in existing stream.

PHOTOGRAPH #6: Looking southerly at existing stream from exposed culvert.

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One Chabot Street
Westbrook, ME 04098-1339
Tel. (207) 856-0277

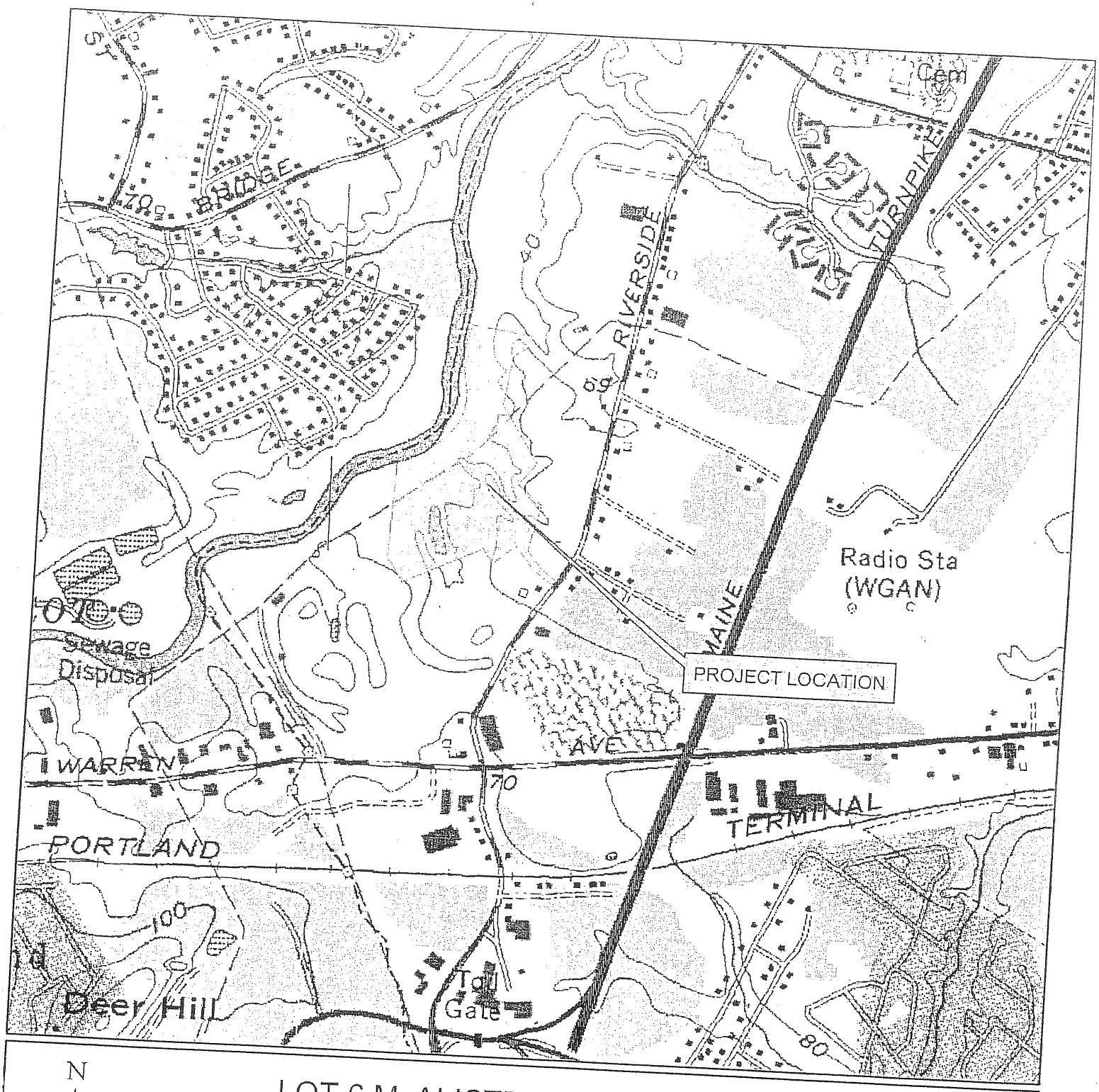
PHOTOS OF WETLAND AREA		SCALE: NONE
TAKEN BY: Jack E. Kimball		DATE: July 23, 2004
LOCATION: 400 Riverside Street Portland, Maine	APPLICATION BY: The Galloway Group	SHEET: 3 of 4

PHOTOGRAPH #7: Looking northerly at existing stream from culvert.

This space intentionally left blank.

SebagoTechnics
Engineering Expertise You Can Build On
One Chabot Street
Westbrook, ME 04098-1339
Tel. (207) 856-0277

PHOTOS OF WETLAND AREA		SCALE: NONE
TAKEN BY: Jack E. Kimball		DATE: July 23, 2004
LOCATION: 400 Riverside Street Portland, Maine	APPLICATION BY: The Galloway Group	SHEET: 4 of 4



N

LOT 6 McALISTER FARM SUBDIVISION
USGS TOPO MAP

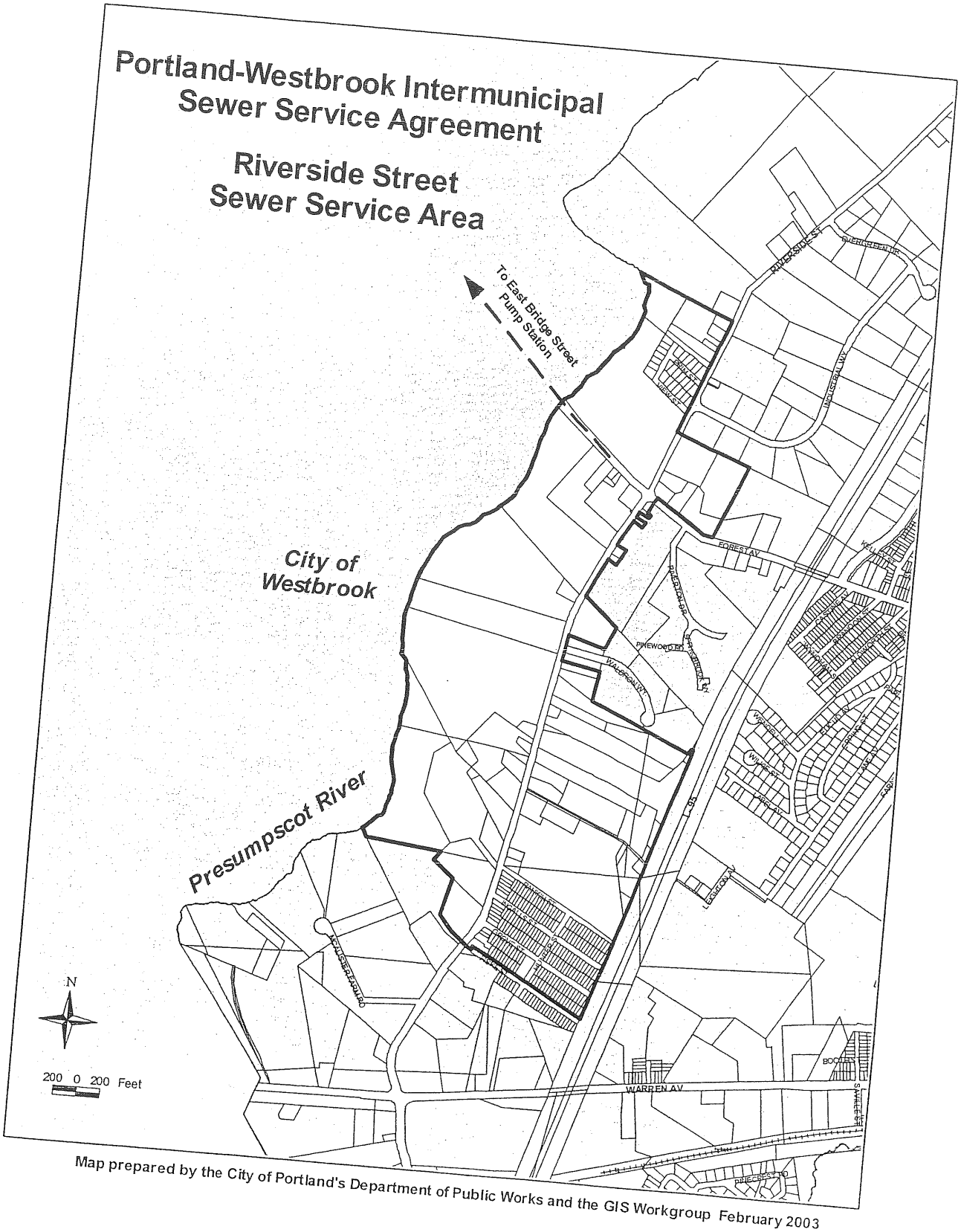
SOURCE: CITY OF PORTLAND GIS DATA

DeLuca-Hoffman Associates, Inc.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, ME 04106
207-775-1121
www.delucahoffman.com

DRAWN:	RJK
CHECKED:	CJO
DATE:	NOV. 2003
FILENAME:	I:\2300 Jobs\2314\2314-FIGURE1.mxd
SCALE:	1 inch equals 1,000 feet

FIGURE

1



Map prepared by the City of Portland's Department of Public Works and the GIS Workgroup February 2003

Tim Michaud

From: Stephen Harris [SKH@portlandmaine.gov]
Sent: Wednesday, November 12, 2003 2:44 PM
To: Grahamr@amtrak.com; Carolynh@bristolseafood.com; BPOULIN@CIANBRO.com; d_stevens@hphood.com; s_sawyer@hphood.com; Boyinr@MMC.org
Subject: November 24, 2003 Public Works Rulemaking

Service Area Plan
Exhibit A R...

** High Priority **

PUBLIC HEARING NOTICE
Promulgating Rule Changes to the City of Portland's
Rules and Regulations for the Use of the Waste Water System
Re: INTERMUNICIPAL SEWER SERVICE AGREEMENT

Reason For Rulemaking:

There is a significant need for public sewage collection and treatment in the Riverside Street/Warren Avenue/Forest Avenue vicinity of Portland, (see attached Exhibit A "SERVICE AREA"); and will be best served if the Portland Water District provides the interception and treatment of the sewage using the existing Westbrook Gorham regional treatment plant.

To meet this need a Three-Party Sewer Service Agreement with the Portland Water District and the City of Westbrook authorizing the agreement was enacted on September 18, 2002 as Council Order 54-02/03.

The City of Portland Industrial Pretreatment Program will administer the SERVICE AREA and PORTLAND agreed to amend its Ordinance and/or rules and regulations as required, to make the Westbrook Industrial Pretreatment Program applicable to the SERVICE AREA. The Public Works Environmental Engineering Staff have made proposed changes to Chapter 24 of the Code of Ordinances and Rules & Regulations for the Use of the Wastewater System necessary to fulfill the requirements of the Westbrook Inter-Municipal Sewer Service Area Agreement.

The Portland Water District will commence construction of the interceptor to service this area upon enactment of these proposed changes.

*Following two citations excerpted from Chapters 12 and 24 of the City of Portland, Maine Code of Ordinances

*Sec. 24-32.1. Administration.

(a) The director of the public works authority shall establish rules and regulations governing the availability and use of city wastewater collection and treatment facilities. The rules and regulations shall be consistent with federal law and ordinances. Said rules shall be enacted in conjunction with the Portland Water District prior to enactment.

*Sec. 12-105. Administration.

(b) Before promulgating any rules or regulations or amendments to rules and regulations, except emergency rules or regulations or amendments, the public works authority shall publish a notice of rulemaking at least twice in a newspaper having a general circulation in the community. The notice shall state that the public works authority will be promulgating rules, the general subject matter covered by the rules, that a copy of the proposed rules may be obtained at the public works authority and that a public hearing will be held at a specified date, time and place. The second newspaper notice must be published at least seven (7) days before the public hearing. The director may enact the proposed rules and regulations immediately after the public hearing. Rules enacted by the director shall go into effect five (5) days after enactment unless enacted on an emergency basis.

The Public Hearing for Promulgating Rule Changes To The City Of Portland's Rules And Regulations For The Use Of The Waste Water System For The Portland, Westbrook, and Portland Water District Inter-municipal Sewer Service Agreement Shall Be Held At Portland City Hall, 389 Congress Street, Portland, Maine 04101, Room 209 (second floor) on Monday November 24, 2003 at 1:30 P.M. .

2314/24

CITY OF PORTLAND, MAINE
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL ENGINEERING
MEMORANDUM

TO: Kandice Talbot, Planner
FROM: Stephen K. Harris, Assistant Engineer
DATE: April 28, 2005
SUBJECT: Re: Petition for inclusion of Lots 4, 5 & 6 in Intermunicipal Service Area

In order to accommodate the Petition Request from the Rist/Brunet Family Trust for Lot 6 of McAlister Farm Drive and Lots 4 & 5 of 400 Riverside Street Properties to be included within the Intermunicipal Sewer Service Area on Riverside Street, Public Works will be conducting a Public Hearing to redefine the Westbrook Intermunicipal Sewer Service Area as defined by the plan sheet labeled Attachment "A" in the City of Portland's Rules and Regulations for the Use of the Wastewater System. The Public Hearing will be conducted in the near future and the changes should be in place by mid-Summer barring adverse Public Comment.

Environmental Engineering is recommending that Lot 6 of McAlister Farm Drive (on an interim basis) and Lots 4 & 5 of 400 Riverside Street Properties be included within the Intermunicipal Sewer Service Area on Riverside Street. A a result of an Intermunicpal Agreement this service area has a total capacity of 150,000 gallons of wastewater that may be discharged to the City of Westbrook's Bridge Street Pump Station.

Due to the capacity limitation we would recommend that they be included in this Service Area with the condition that the wastewater generation be limited to the flows as defined in their current capacity letter request for sanitary flows and not be eligible to use these facilities for any high volume production discharge. We also shall recommend at the Public Hearing that as Lot 6 in the McAlister Farm Subdivision is in a distinctly different watershed, that when the McAlister Farm Subdivision is appropriately sewered in the future that Lot 6 be directed into the new sewer constructed to accommodate McAlister Farm Subdivision.

pc: Eric Labelle, PE, City Engineer
Bradley A. Roland, P.E., Project Engineer

2314/47

DeLUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

778 MAIN STREET
SUITE 8
SOUTH PORTLAND, MAINE 04106
TEL. 207 775 1121
FAX 207 879 0896

- SITE PLANNING AND DESIGN
- ROADWAY DESIGN
- ENVIRONMENTAL ENGINEERING
- PERMITTING
- AIRPORT ENGINEERING
- CONSTRUCTION ADMINISTRATION
- TRAFFIC STUDIES AND MANAGEMENT

January 19, 2005

office copy

Mr. Michael Bobinsky
Portland Public Works Department, Director
55 Portland Street
Portland, ME 04101

Subject: Request for Amendment to the Portland-Westbrook Inter-municipal Sewer Service Agreement

Dear Mr. Bobinsky

On behalf of the Rist/Brunet Family Trust, DeLuca-Hoffman Associates, Inc. (DHAI) is requesting that the Portland Public Works Department (PWD) consider an amendment to the planned sewer service area established in the Portland-Westbrook Inter-municipal Sewer Service Agreement to include additional existing and planned developments along Riverside Street. It is our understanding that the PWD has been given authority to establish rules and regulations governing the availability and use of city wastewater collection and treatment facilities and that the Inter-municipal Sewer Service Agreement will be administered by the Portland Industrial Pretreatment Program.

Our request that the Department consider an amendment to expand the planned sewer service area along Riverside Street is based on the significant need for public sewerage collection and treatment in the Riverside/Warren Avenue/Forest Avenue vicinity, a majority of which is located within the City of Portland Industrial-Moderate zoning district.

Specifically, DHAI is requesting that the planned sewer service area be expanded to include the following properties:

- Lot 6 of the McAlister Farm Subdivision located on McAlister Farm Drive. This existing lot is approximately 451,136 square foot (sq. ft.) (10.6 acres) and is identified on City of Portland Tax Map 320 as Block A, Lot 1.

- Lot 4 of the 400 Riverside Street Properties located at 400 Riverside Street. This existing lot is approximately 583,072 sq. ft. (13.7 acres) and is identified on City of Portland Tax Map 320 as Block A, Lot 2.

- Lot 5 of the 400 Riverside Street Properties located at 400 Riverside Street. This existing lot is approximately 113,256 sq. ft. (2.6 acres) and is identified on City of Portland Tax Map 320 as Block A, Lot 4.

These properties abut the planned sewer service area to the south along Riverside Street. The planned sewer service area map established in the Portland-Westbrook Inter-municipal Sewer Service Agreement and location map is attached to this letter for further explanation of these existing and planned development site locations.

The request to expand the planned sewer service area would include providing public sewerage collection and treatment services for existing and planned developments that include the following:

- Planned development for Lot 6 of the McAlister Farm Subdivision that could include one or more multi-tenant space(s) consisting of office building/warehouse.

- The planned development at Lot 4 of the 400 Riverside Street Properties will include one (1) unit of multiple-tenant space consisting of a one (1) story, 23,400 sq. ft. office building/warehouse.

- The existing developments at Lot 4 of the 400 Riverside Street Properties include a two (2) story, 20,000 sq. ft. office building/warehouse and a two (2) story, 35,250 sq. ft. office building/warehouse.

- The existing developments at Lot 5 of the 400 Riverside Street Properties include a two (2) story, 16,000 sq. ft. office building/warehouse, a two (2) story, 3,500 sq. ft. office building/warehouse, and a two (2) story, 2,400 sq. ft. office building/warehouse.

The sites requested for consideration comprise three adjoining lots located off McAlister Farm Drive and 400 Riverside Street. The planned developments are currently under regulatory review by the Portland Planning Authority as part of a Major Site Plan submission package. The submission package has included off-site wastewater disposal for each of the three (3) development sites into the municipal sewer system on Riverside Street pending approval of the amendment to the service area presented with this submission.

The current tenant occupying the existing Lot 4 development site is Jotul, a company that manufactures and distributes woodstoves, fireplaces, and accessories. Jotul has stated that they will require an expansion to their current facilities in order to conduct future business operations. If Jotul is unable to expand their existing operations within the existing development site, then they will likely have to relocate. The planned development will be adequate for their future needs and allow the company to maintain proximity to the Maine Turnpike (Interstate 95).

The Lot 6 site is undeveloped. Currently, a prospective tenant (Porter Drywall) is considering acquiring the development site, pending the acquisition of permits. The prospective tenant is considering the development site due to their needs and inability to acquire or find other suitable property in the region. It has come to our attention that several tenants currently conducting business within the Riverside Street vicinity are looking to either relocate or expand their business operations within the area.

As you may be aware, the industrial zoning within the communities of Portland, Westbrook, South Portland, and Scarborough is generally characterized by previously developed land with few opportunities for lot growth and availability. In the undeveloped areas of the Industrial zones, the land is generally limited by natural resources or other infrastructure restrictions.

A summary of the anticipated wastewater flows generated from the existing and planned developments discussed above is provided below:

- The anticipated wastewater design flows at Lot 6 and at 400 Riverside Street have been calculated for the following capacities using the requirements contained in the Maine Subsurface Wastewater Disposal Rules (MSWDR) and are based on our assumptions for potential occupancies that include the following:

Lot 6 - McAlister Farm Subdivision (currently undeveloped)

(1) Proposed Building:

Number of Tenants for Proposed Building:	4 Tenants
Employees per Tenant:	8 Employees
Design Flow per MSWDR Table 901.2:	15gpd/employee
Design Flow:	**480 GPD**

Lot 4 - 400 Riverside Street Properties (Lots 4 & 5)

- A review of water use records obtained from the Portland Water District for the 400 Riverside Street properties shows approximately 2,000 GPD of water usage for the period from September 2002 to October 2003. It is our understanding that these flows are for the existing buildings on the site. Per MSWDR Section 903.2.2, monthly water use records include a multiplier of 1.5 to establish an anticipated design flow and include:

Water Use Records for (5) Existing Buildings:	2,000gpd X 1.5 = 3,000 GPD
(1) Proposed Building:	
Number of Tenants for Proposed Building:	4 Tenants
Employees per Tenant:	8 Employees
Design Flow per MSWDR Table 901.2:	15gpd/employee
Subtotal:	480 GPD
Design Flow:	**3,000 gpd + 480 gpd = 3,480 GPD**
Total Combined Design Flow:	**480 GPD+3,480 GPD = 3,960 GPD**

The existing developments on Lot 4 and Lot 5 are served by on-site subsurface wastewater disposal systems. As part of our services for the owner, concepts were developed to continue on-site subsurface wastewater disposal from the existing and planned developments in accordance with the requirements included in the MSWDR and were based on our understanding of the existing site constraints, sizing, physical setbacks, approximate groundwater table elevation, and fate of effluent.

The conclusions resulting from the site layout concepts for on-site subsurface sewerage disposal include the following:

- The Lot 6 development site on McAlister Farm Drive is severely limited for the placement of an on-site wastewater disposal system. The limitations are principally due to on-site wetlands and natural topographic constraints associated with a ravine containing a regulated stream and floodplain wetland.

- The Lot 4 development site at 400 Riverside Street Properties is also severely limited for the placement of a new on-site subsurface wastewater disposal system or expansion to the existing disposal field. The existing site footprint area is abutted by wetlands to the north, east and west and contains a natural drainage way to the northwest of the site. Due to these site constraints, the planned development at Lot 4 includes the placement of the proposed 23,400 sq. ft. office building/warehouse in the approximate vicinity of the existing subsurface disposal field; therefore, the existing subsurface disposal system would need to be relocated if the new building is to be constructed.

- The existing developments at Lots 4 and 5 at the 400 Riverside Street Properties include existing on-site subsurface wastewater disposal systems that may be nearing their design capacities and design life, and appear to have operating conditions that are worsening over time. On this basis, the owner is seeking approval to discharge to the new municipal sewer once it is activated.

It is the owner's intent to discontinue these on-site subsurface systems and discharge wastewater flows from the existing buildings as well as the proposed buildings to the soon-to-be-activated Riverside Street Sewer. The overall plan would be to consolidate these flows into one discharge connection to the municipal sewer system on Riverside Street that ultimately discharges to the Presumpscot North Main Interceptor Sewer.

Wastewater flows from the existing and proposed buildings would be conveyed by proposed private, low-pressure sewer pump systems that discharge via a planned 3-inch force main to either a planned private, on-site pump station at the adjacent Lot 4 development site prior to discharge to the municipal sewer system on Riverside Street, or directly via a planned 3-inch force main to the municipal sewer system on Riverside Street. All systems would be privately owned and maintained. The owner, operating as the Galloway Group, currently provides all site management functions including maintenance and upkeep of the property. They routinely

contract maintenance and construction needs with area subcontractors and would continue to do so in the future.

The design intent and anticipated construction sequence for connection to the Riverside Street sewer includes the following:

a. Installation of a proposed 3-inch force main along the 400 Riverside Street access drive and connection to the last sewer manhole in Riverside Street in front of the Turnpike Authority. The force main may need to be installed along the frontage of the Maine Turnpike Authority property along Riverside Street in order to tie-in to the existing sewer main on Riverside Street. Utility easements would be established for these infrastructure routes.

b. Installation of the proposed private, low-pressure sewer pump systems for the existing buildings on the Lot 4 development site.

c. Once the existing Lot 4 buildings are connected to the municipal sewer system on Riverside Street, the existing subsurface disposal field would be abandoned/removed and construction of a one (1) story, 23,400 sq. ft. office building/warehouse would commence in the location identified on the plans. The planned development would include the installation of the proposed private, low-pressure sewer pump system.

d. The Lot 6 development may occur prior to the activation of the Riverside Street sewer. If approved, Porter Drywall proposes to install a temporary holding tank(s) to collect wastewater until the Riverside Street sewer becomes active, at which time a force main connection crossing Lot 4 would be installed to connect to the terminus manhole in the street, or to a force main installed for the proposed Lot 4 development . Sanitary sewerage generated on the Lot 6 site would be collected from the proposed building by a 6" PVC gravity sewer lateral conveying wastewater to a proposed private, low-pressure sewer pump system.

e. The existing facilities at Lot 5 would tie-in to the force main prior to tie-in to the municipal sewer system on Riverside Street, and may also require an independent pump and force main configurations.

In all cases, a 3-inch PVC force main would be installed along the existing 400 Riverside Street access drive to convey sanitary sewer flows from the on-site pump stations to the Riverside Street sewer. The force main may need to be installed along the frontage of the Maine Turnpike Authority property along Riverside Street in order to tie-in to the existing sewer main on Riverside Street. Utility easements would be established for these infrastructure routes. All work would be performed in accordance with the City of Portland Technical Standards. Please find Utility Plans 4A and 4B for the planned off-site sewer disposal layout attached to this letter.

It is our understanding that during the summer of 2004 the Portland Water District installed the cross-country sewer line that would convey flows from the Riverside Street sewer service area to the Presumpscot River Pumping Station. We acknowledge that this cross-country sewer line would need to be activated prior to the activation of the remaining inactive portion of sewer main on Riverside Street and acceptance of sewer flows from the existing and planned developments.

We look forward to your timely response to our request for consideration to amend the sewer service area established in the Portland-Westbrook Inter-municipal Sewer Service Agreement to include the development sites at Lot 6 of the McAlister Farm Subdivision and Lots 4 and 5 of the 400 Riverside Street Properties at 400 Riverside Street.

Please call this office with any questions or if additional information is required.

Sincerely,

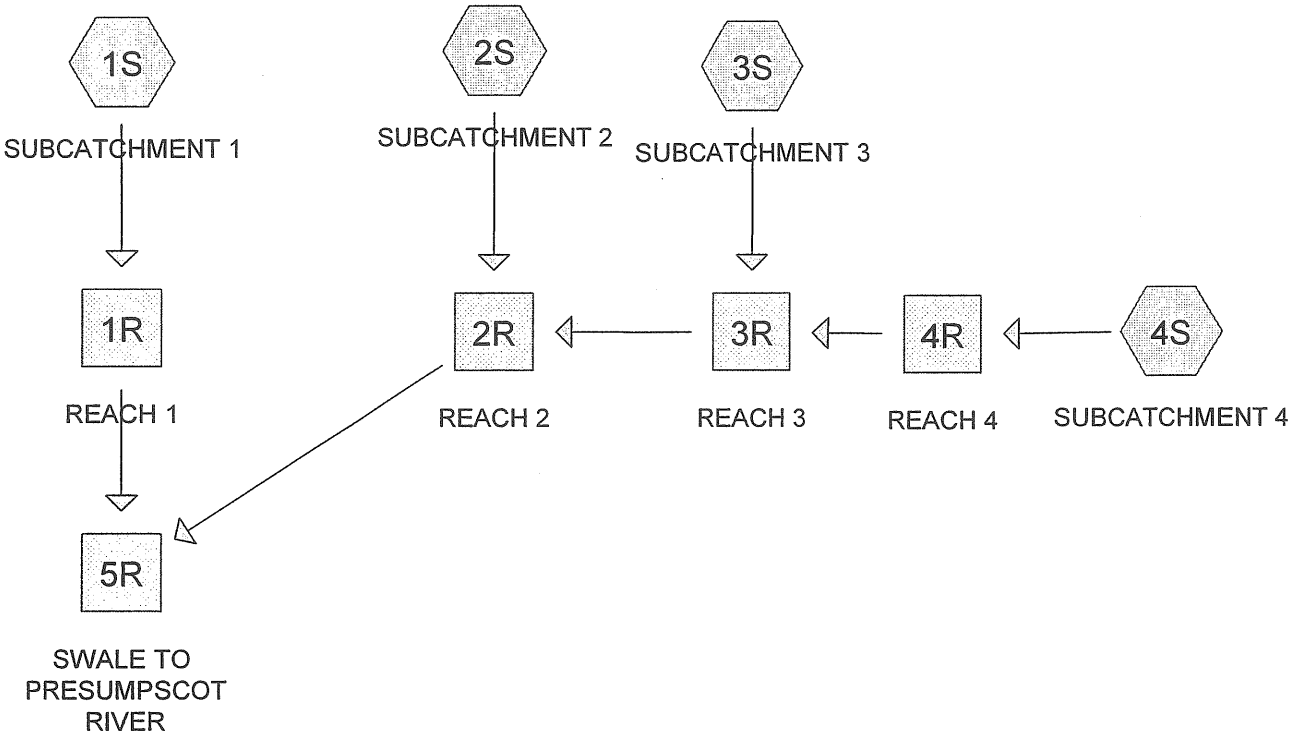
DeLUCA-HOFFMAN ASSOCIATES, INC.

Stephen R. Bushey, PE
Senior Engineer

SRB/sq/JN2314/Bobinsky-PPW-1-18-05

Enclosures: Riverside Street Sewer Service Area Map
Location Map
Site Utility Plans, 4A and 4B

c: Martin Rist, Rist/Brunet Family Trust
Kandi Talbot, Portland Planning Department



Subcat Reach Pond Link

Drainage Diagram for LOT 4-400 Riverside Street Properties1
Prepared by {enter your company name here} 12/5/2005

Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SUBCATCHMENT 1 Runoff Area=3.000 ac Runoff Depth=1.31"
Flow Length=680' Tc=12.4 min CN=81 Runoff=3.65 cfs 0.328 af

Subcatchment 2S: SUBCATCHMENT 2 Runoff Area=0.750 ac Runoff Depth=0.76"
Flow Length=160' Tc=5.3 min CN=71 Runoff=0.60 cfs 0.048 af

Subcatchment 3S: SUBCATCHMENT 3 Runoff Area=4.250 ac Runoff Depth=1.38"
Flow Length=780' Tc=11.6 min CN=82 Runoff=5.63 cfs 0.488 af

Subcatchment 4S: SUBCATCHMENT 4 Runoff Area=2.000 ac Runoff Depth=0.33"
Flow Length=420' Tc=8.5 min CN=60 Runoff=0.35 cfs 0.056 af

Reach 1R: REACH 1 Peak Depth=0.71' Max Vel=0.7 fps Inflow=3.65 cfs 0.328 af
n=0.400 L=200.0' S=0.0750 '/' Capacity=1,058.98 cfs Outflow=3.31 cfs 0.328 af

Reach 2R: REACH 2 Peak Depth=0.99' Max Vel=0.6 fps Inflow=5.22 cfs 0.591 af
n=0.400 L=200.0' S=0.0450 '/' Capacity=820.28 cfs Outflow=4.85 cfs 0.591 af

Reach 3R: REACH 3 Peak Depth=1.13' Max Vel=0.6 fps Inflow=5.63 cfs 0.544 af
n=0.400 L=200.0' S=0.0300 '/' Capacity=570.91 cfs Outflow=4.93 cfs 0.544 af

Reach 4R: REACH 4 Peak Depth=0.02' Max Vel=0.1 fps Inflow=0.35 cfs 0.056 af
n=0.130 L=450.0' S=0.0011 '/' Capacity=7,247.20 cfs Outflow=0.14 cfs 0.056 af

Reach 5R: SWALE TO PRESUMPSCOT RIVE Peak Depth=1.48' Max Vel=0.5 fps Inflow=7.45 cfs 0.920 af
n=0.400 L=150.0' S=0.0200 '/' Capacity=1,511.09 cfs Outflow=7.17 cfs 0.920 af

Total Runoff Area = 10.000 ac Runoff Volume = 0.920 af Average Runoff Depth = 1.10"

Subcatchment 1S: SUBCATCHMENT 1

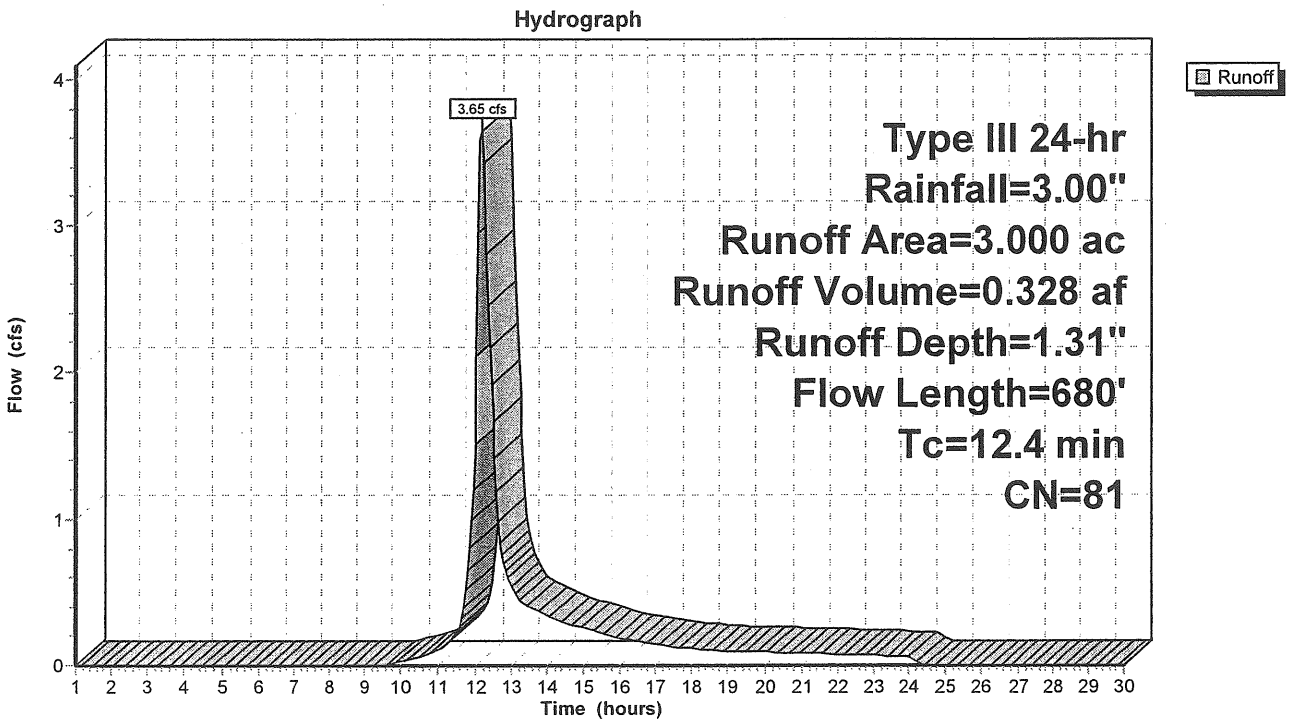
Runoff = 3.65 cfs @ 12.18 hrs, Volume= 0.328 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.750	98	IMPERVIOUS
0.750	77	WEEDS, LOW BRUSH, FAIR, HSG D
0.750	78	CONTINUOUS GRASS, HSG D
0.750	71	CONTINUOUS GRASS, HSG C
3.000	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0400	0.2		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.7	120	0.1670	2.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
0.5	260	0.0380	9.0	8,142.85	**Channel Flow, CHANNEL FLOW C-D** Area= 900.0 sf Perim= 110.0' r= 8.18' n= 0.130
3.5	200	0.0180	0.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED D T(** Short Grass Pasture Kv= 7.0 fps
12.4	680	Total			

Subcatchment 1S: SUBCATCHMENT 1



Subcatchment 2S: SUBCATCHMENT 2

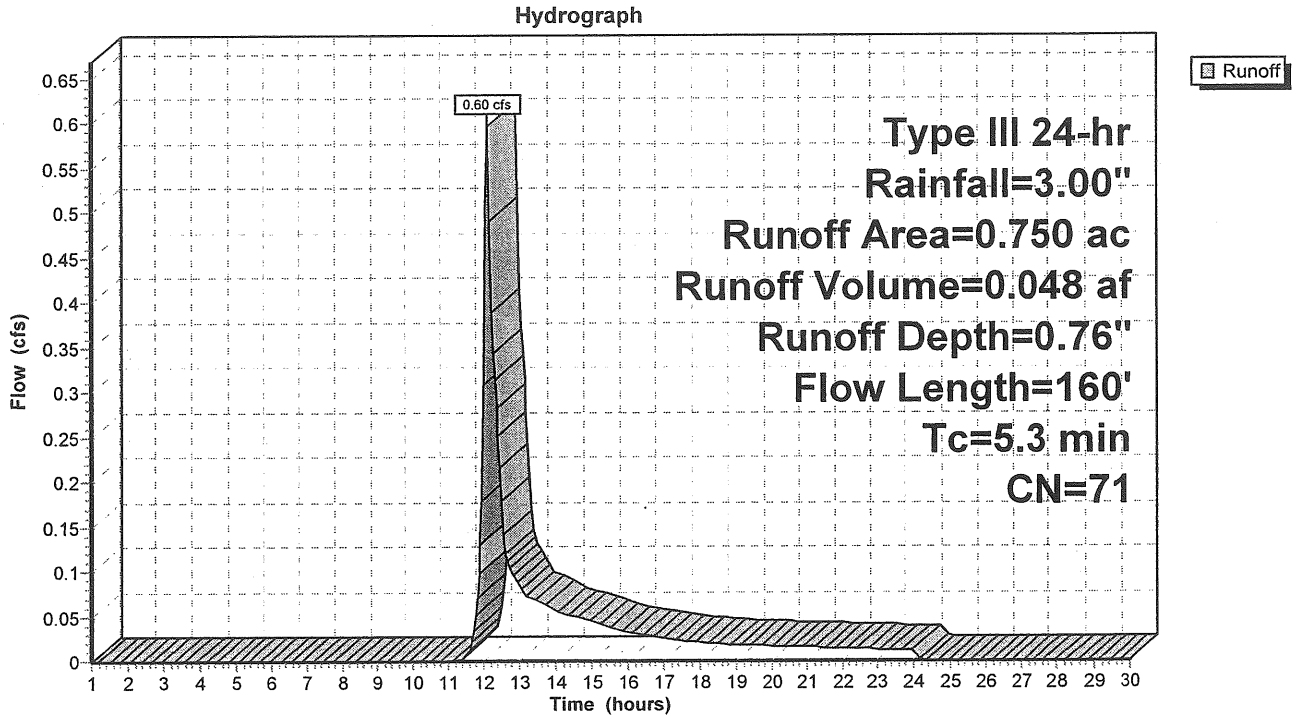
Runoff = 0.60 cfs @ 12.10 hrs, Volume= 0.048 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.150	56	BRUSH, WEEDS, FAIR, HSG B
0.150	58	CONTINUOUS GRASS, HSG B
0.150	71	CONTINOUS GRASS, HSG C
0.300	84	GRASSLAND, FAIR, HSG D
0.750	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.1200	0.3		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.4	60	0.1080	2.3		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
5.3	160	Total			

Subcatchment 2S: SUBCATCHMENT 2



Subcatchment 3S: SUBCATCHMENT 3

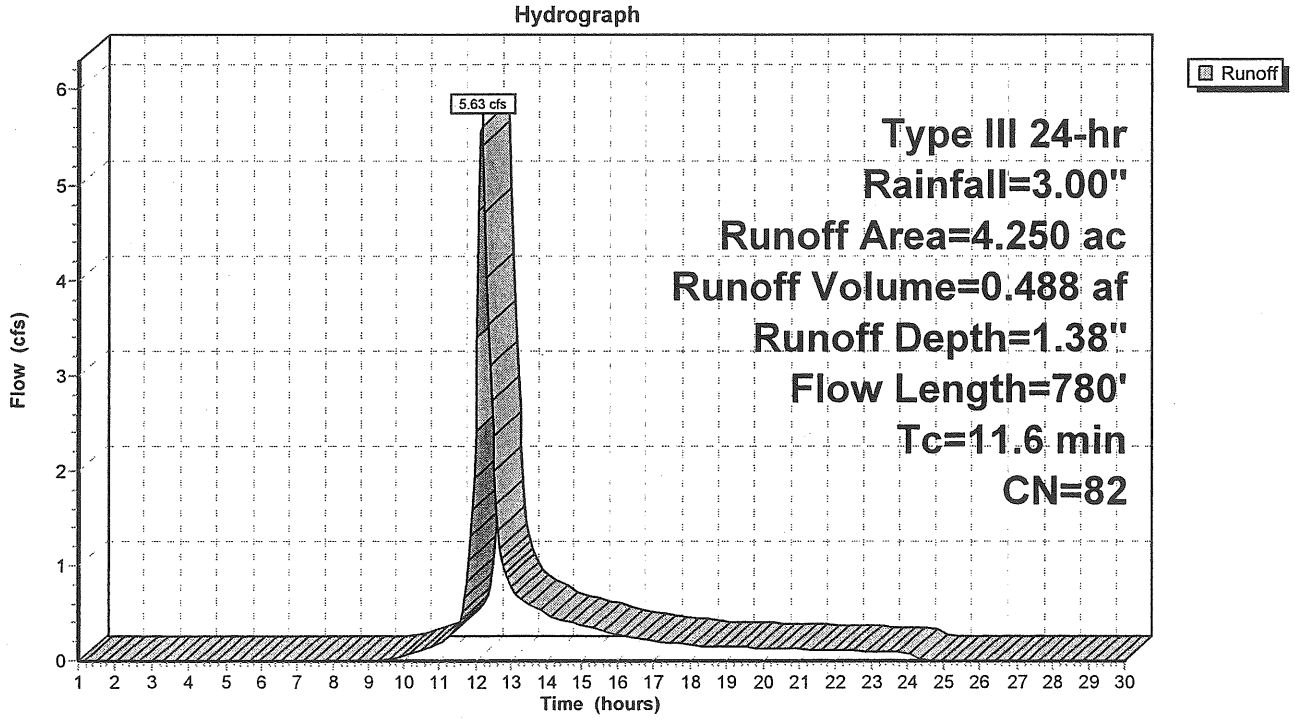
Runoff = 5.63 cfs @ 12.17 hrs, Volume= 0.488 af, Depth= 1.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
2.250	98	IMPERVIOUS
1.000	56	WEEDS, LOW BRUSH, FAIR, HSG B
1.000	71	CONTINOUS GRASS, HSG C
4.250	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	100	0.1700	0.4		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
2.7	200	0.0300	1.2		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
3.1	255	0.0078	1.4	169.13	**Channel Flow, CHANNEL FLOW C-D** Area= 125.0 sf Perim= 65.0' r= 1.92' n= 0.150
1.5	225	0.0580	2.5	569.17	**Channel Flow, CHANNEL FLOW D TO E** Area= 230.0 sf Perim= 50.0' r= 4.60' n= 0.400
11.6	780	Total			

Subcatchment 3S: SUBCATCHMENT 3



Subcatchment 4S: SUBCATCHMENT 4

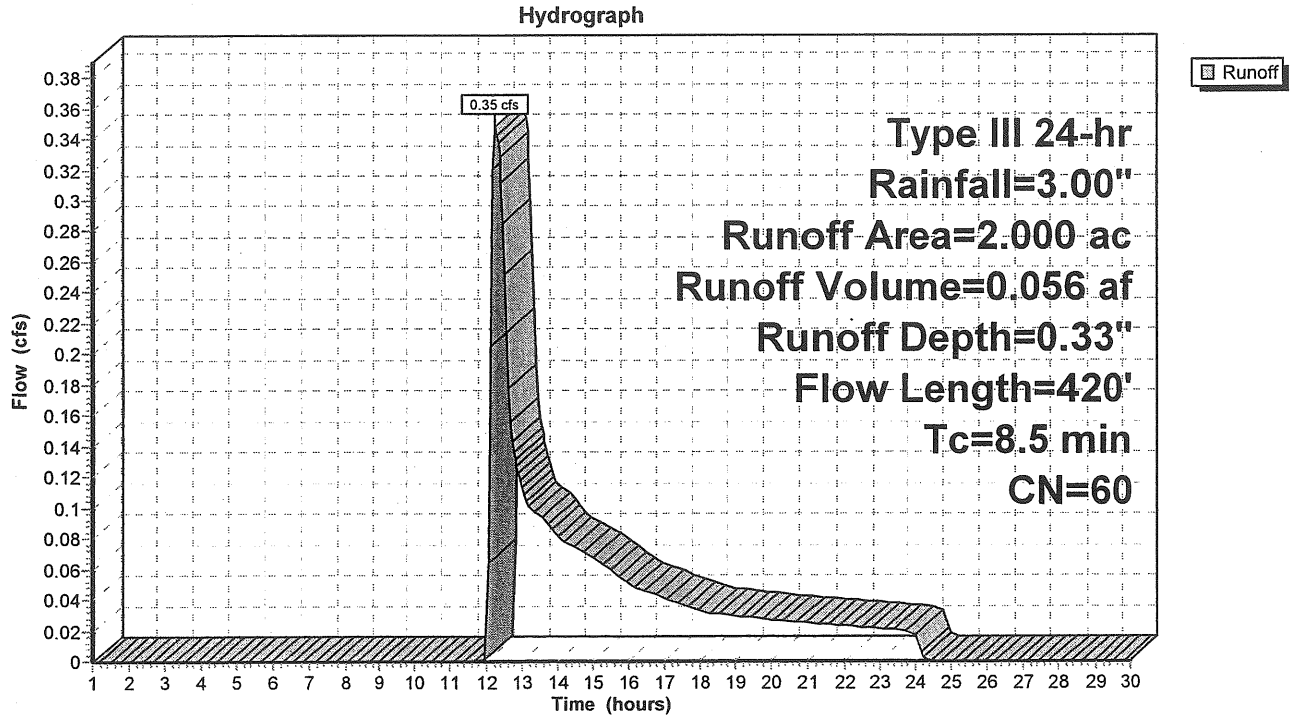
Runoff = 0.35 cfs @ 12.22 hrs, Volume= 0.056 af, Depth= 0.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS
1.680	56	WEEDS, LOW BRUSH, FAIR, HSG B
0.170	71	CONTINUOUS GRASS. HSG C
2.000	60	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1400	0.4		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
3.0	200	0.0500	1.1		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Woodland Kv= 5.0 fps
0.9	120	0.0500	2.2	388.87	**Channel Flow, CHANNEL FLOW C-D** Area= 175.0 sf Perim= 40.0' r= 4.38' n= 0.400
8.5	420	Total			

Subcatchment 4S: SUBCATCHMENT 4



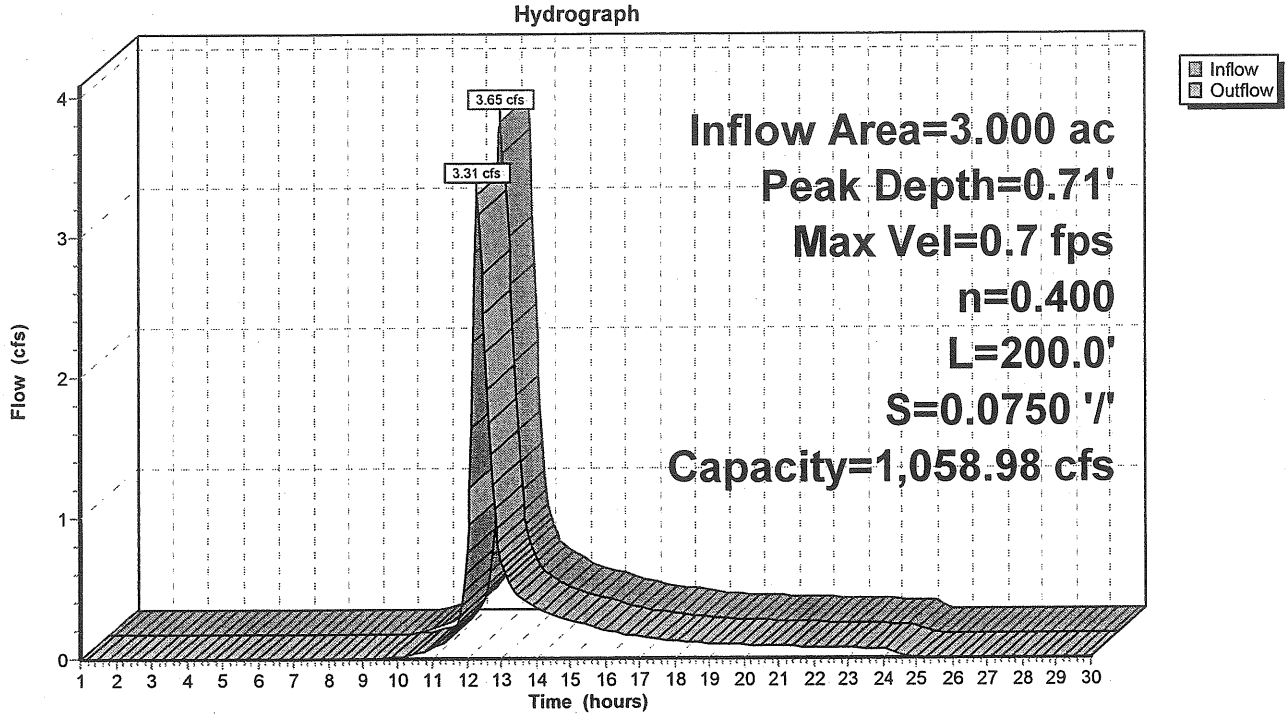
Reach 1R: REACH 1

Inflow Area = 3.000 ac, Inflow Depth = 1.31"
Inflow = 3.65 cfs @ 12.18 hrs, Volume= 0.328 af
Outflow = 3.31 cfs @ 12.33 hrs, Volume= 0.328 af, Atten= 9%, Lag= 8.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.7 fps, Min. Travel Time= 5.0 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 13.0 min

Peak Depth= 0.71' @ 12.24 hrs
Capacity at bank full= 1,058.98 cfs
Inlet Invert= 35.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0750 '/'
Side Slope Z-value= 3.0 '/'

Reach 1R: REACH 1



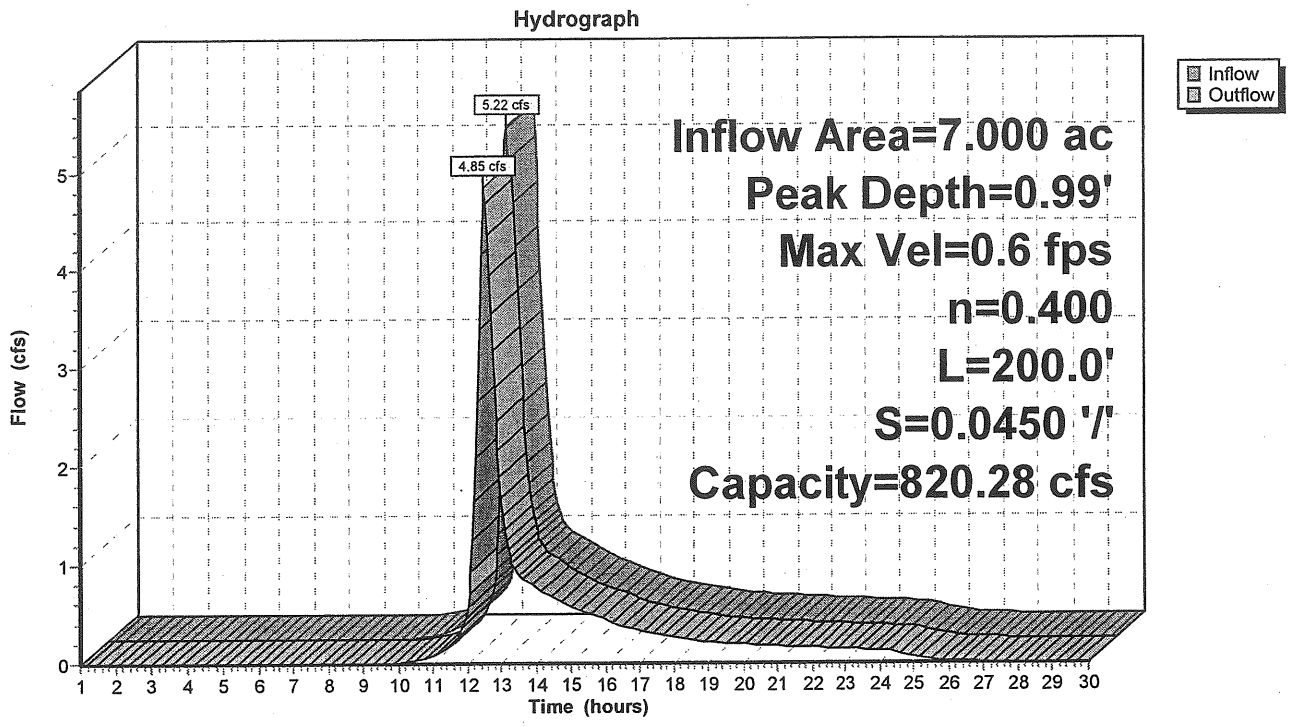
Reach 2R: REACH 2

Inflow Area = 7.000 ac, Inflow Depth = 1.01"
Inflow = 5.22 cfs @ 12.34 hrs, Volume= 0.591 af
Outflow = 4.85 cfs @ 12.50 hrs, Volume= 0.591 af, Atten= 7%, Lag= 9.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.6 fps, Min. Travel Time= 5.4 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 14.1 min

Peak Depth= 0.99' @ 12.41 hrs
Capacity at bank full= 820.28 cfs
Inlet Invert= 29.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0450 '/'
Side Slope Z-value= 3.0 '/'

Reach 2R: REACH 2



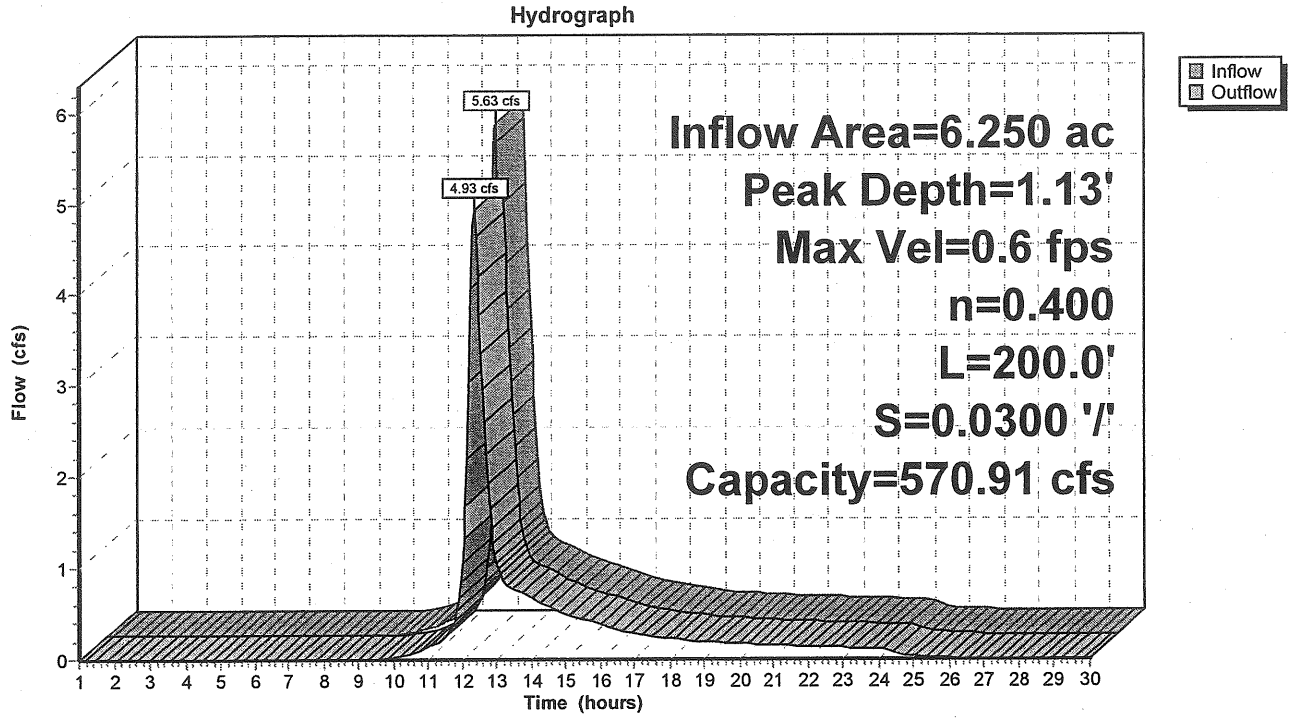
Reach 3R: REACH 3

Inflow Area = 6.250 ac, Inflow Depth = 1.04"
Inflow = 5.63 cfs @ 12.17 hrs, Volume= 0.544 af
Outflow = 4.93 cfs @ 12.34 hrs, Volume= 0.544 af, Atten= 12%, Lag= 10.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.6 fps, Min. Travel Time= 6.0 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 16.6 min

Peak Depth= 1.13' @ 12.24 hrs
Capacity at bank full= 570.91 cfs
Inlet Invert= 35.00', Outlet Invert= 29.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0300 '/'
Side Slope Z-value= 2.0 3.0 '/'

Reach 3R: REACH 3



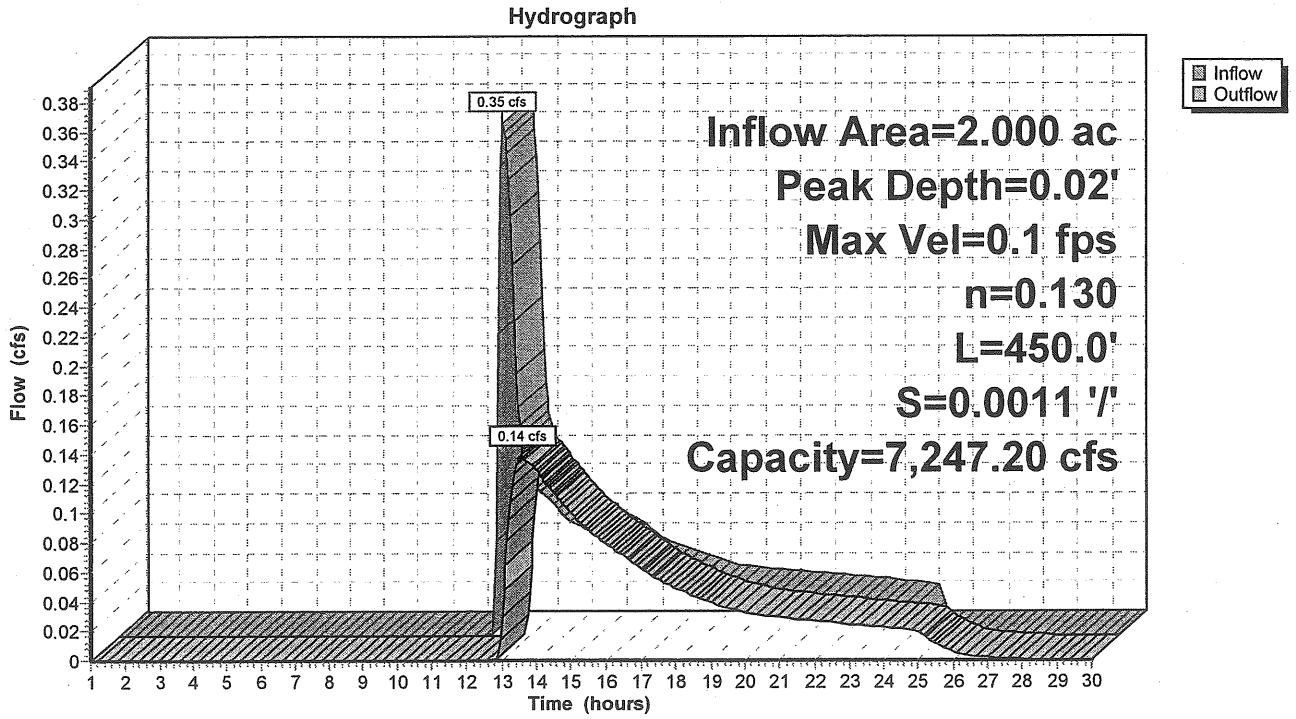
Reach 4R: REACH 4

Inflow Area = 2.000 ac, Inflow Depth = 0.33"
Inflow = 0.35 cfs @ 12.22 hrs, Volume= 0.056 af
Outflow = 0.14 cfs @ 13.58 hrs, Volume= 0.056 af, Atten= 61%, Lag= 81.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.1 fps, Min. Travel Time= 50.1 min
Avg. Velocity = 0.1 fps, Avg. Travel Time= 50.1 min

Peak Depth= 0.02' @ 12.75 hrs
Capacity at bank full= 7,247.20 cfs
Inlet Invert= 35.50', Outlet Invert= 35.00'
50.00' x 25.00' deep channel, n= 0.130 Length= 450.0' Slope= 0.0011 '/'
Side Slope Z-value= 3.0 '/'

Reach 4R: REACH 4



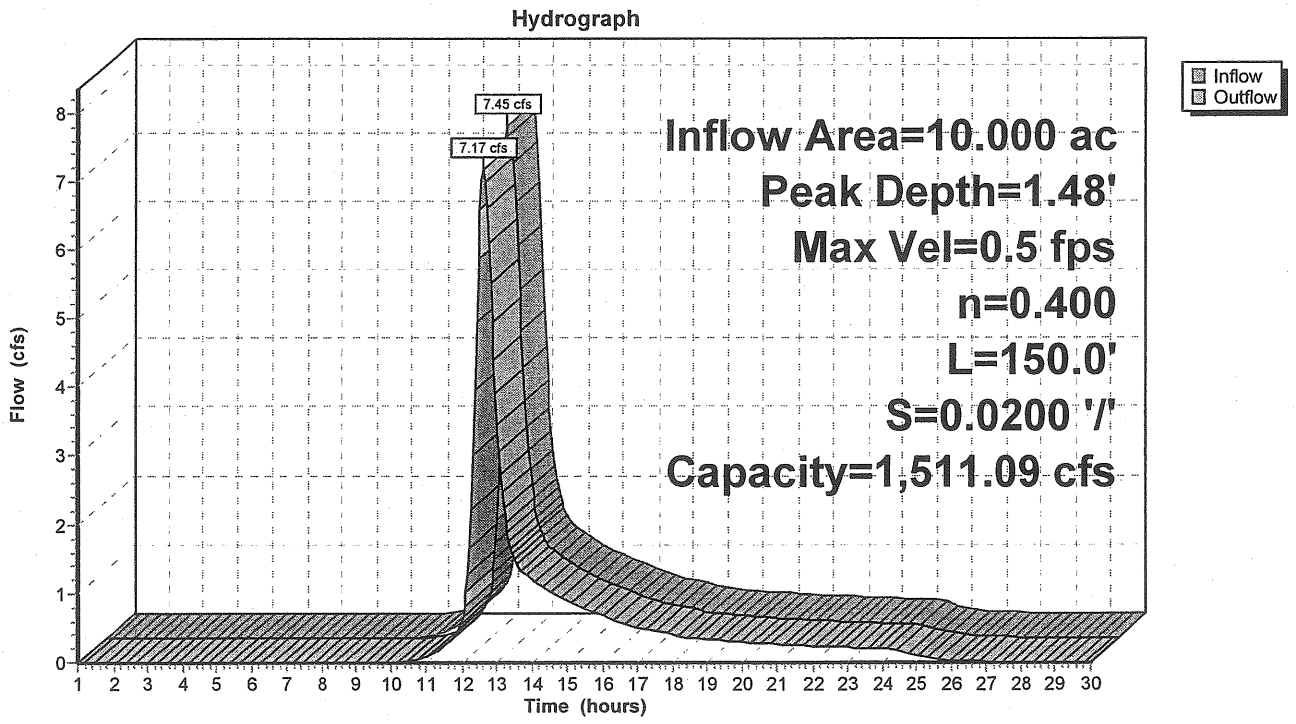
Reach 5R: SWALE TO PRESUMPSCOT RIVER

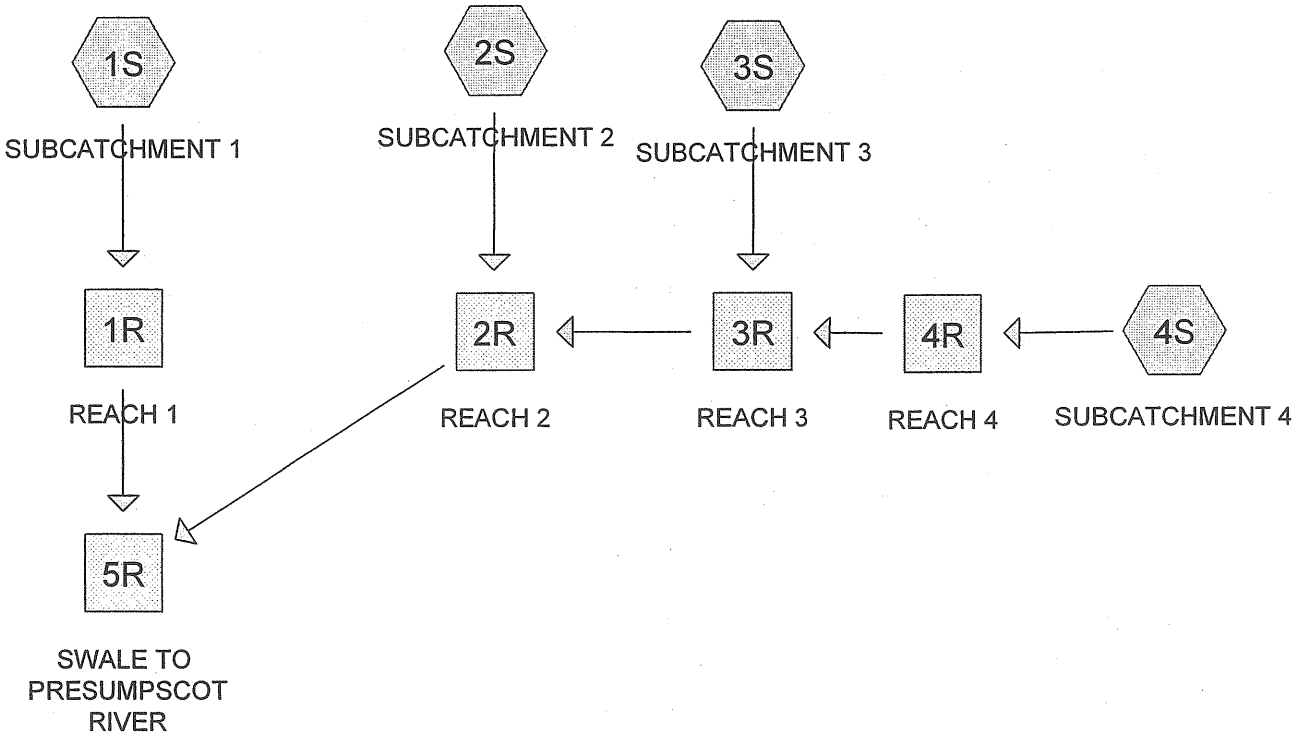
Inflow Area = 10.000 ac, Inflow Depth = 1.10"
Inflow = 7.45 cfs @ 12.45 hrs, Volume= 0.920 af
Outflow = 7.17 cfs @ 12.60 hrs, Volume= 0.920 af, Atten= 4%, Lag= 8.6 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.5 fps, Min. Travel Time= 4.8 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 12.1 min

Peak Depth= 1.48' @ 12.52 hrs
Capacity at bank full= 1,511.09 cfs
Inlet Invert= 20.00', Outlet Invert= 17.00'
5.00' x 15.00' deep channel, n= 0.400 Length= 150.0' Slope= 0.0200 '/'
Side Slope Z-value= 3.0 '/'

Reach 5R: SWALE TO PRESUMPSCOT RIVER





Subcat Reach Pond Link

Drainage Diagram for LOT 4-400 Riverside Street Properties1
Prepared by {enter your company name here} 12/5/2005

Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SUBCATCHMENT 1 Runoff Area=3.000 ac Runoff Depth=2.72"
Flow Length=680' Tc=12.4 min CN=81 Runoff=7.73 cfs 0.680 af

Subcatchment 2S: SUBCATCHMENT 2 Runoff Area=0.750 ac Runoff Depth=1.89"
Flow Length=160' Tc=5.3 min CN=71 Runoff=1.63 cfs 0.118 af

Subcatchment 3S: SUBCATCHMENT 3 Runoff Area=4.250 ac Runoff Depth=2.81"
Flow Length=780' Tc=11.6 min CN=82 Runoff=11.57 cfs 0.996 af

Subcatchment 4S: SUBCATCHMENT 4 Runoff Area=2.000 ac Runoff Depth=1.13"
Flow Length=420' Tc=8.5 min CN=60 Runoff=2.07 cfs 0.188 af

Reach 1R: REACH 1 Peak Depth=1.06' Max Vel=0.8 fps Inflow=7.73 cfs 0.680 af
n=0.400 L=200.0' S=0.0750 '/' Capacity=1,058.98 cfs Outflow=7.13 cfs 0.680 af

Reach 2R: REACH 2 Peak Depth=1.46' Max Vel=0.8 fps Inflow=11.11 cfs 1.303 af
n=0.400 L=200.0' S=0.0450 '/' Capacity=820.28 cfs Outflow=10.44 cfs 1.303 af

Reach 3R: REACH 3 Peak Depth=1.67' Max Vel=0.7 fps Inflow=11.57 cfs 1.184 af
n=0.400 L=200.0' S=0.0300 '/' Capacity=570.91 cfs Outflow=10.36 cfs 1.184 af

Reach 4R: REACH 4 Peak Depth=0.09' Max Vel=0.1 fps Inflow=2.07 cfs 0.188 af
n=0.130 L=450.0' S=0.0011 '/' Capacity=7,247.20 cfs Outflow=0.69 cfs 0.188 af

Reach 5R: SWALE TO PRESUMPSCOT RIVE Peak Depth=2.17' Max Vel=0.6 fps Inflow=16.30 cfs 1.983 af
n=0.400 L=150.0' S=0.0200 '/' Capacity=1,511.09 cfs Outflow=15.83 cfs 1.983 af

Total Runoff Area = 10.000 ac Runoff Volume = 1.983 af Average Runoff Depth = 2.38"

Subcatchment 1S: SUBCATCHMENT 1

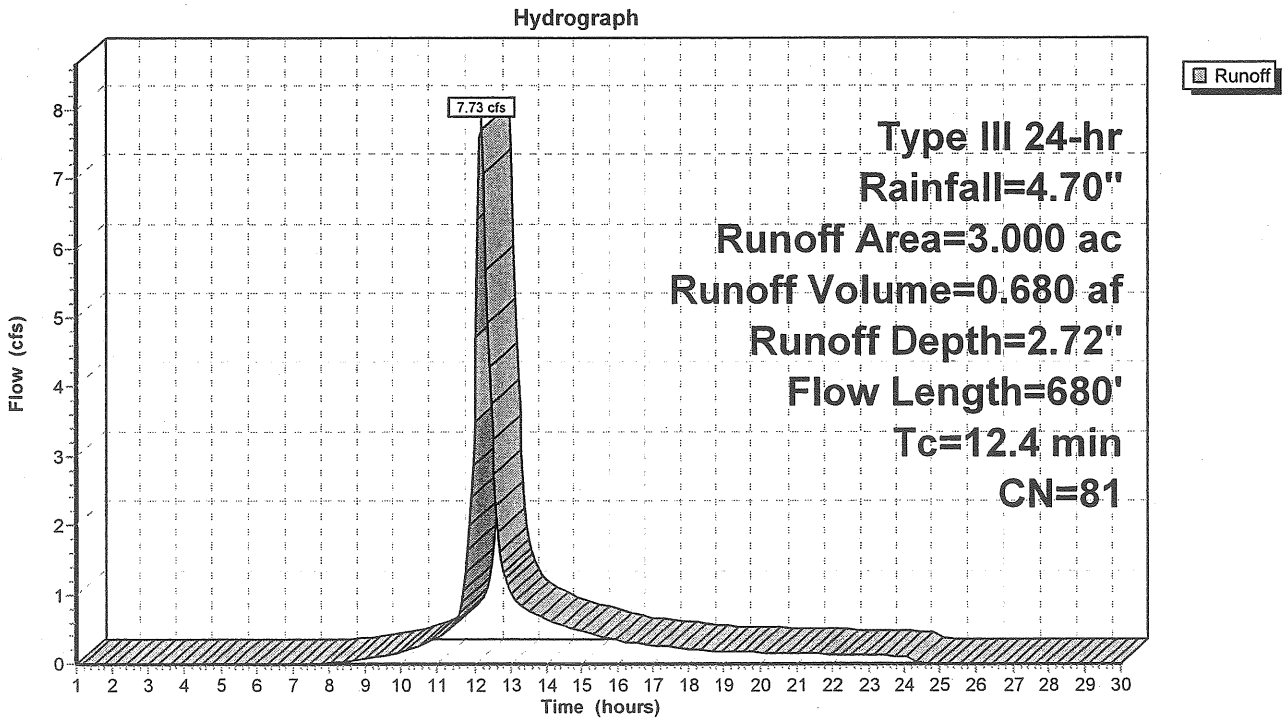
Runoff = 7.73 cfs @ 12.17 hrs, Volume= 0.680 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.750	98	IMPERVIOUS
0.750	77	WEEDS, LOW BRUSH, FAIR, HSG D
0.750	78	CONTINUOUS GRASS, HSG D
0.750	71	CONTINUOUS GRASS, HSG C
3.000	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0400	0.2		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.7	120	0.1670	2.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
0.5	260	0.0380	9.0	8,142.85	**Channel Flow, CHANNEL FLOW C-D** Area= 900.0 sf Perim= 110.0' r= 8.18' n= 0.130
3.5	200	0.0180	0.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED D TC** Short Grass Pasture Kv= 7.0 fps
12.4	680	Total			

Subcatchment 1S: SUBCATCHMENT 1



Subcatchment 2S: SUBCATCHMENT 2

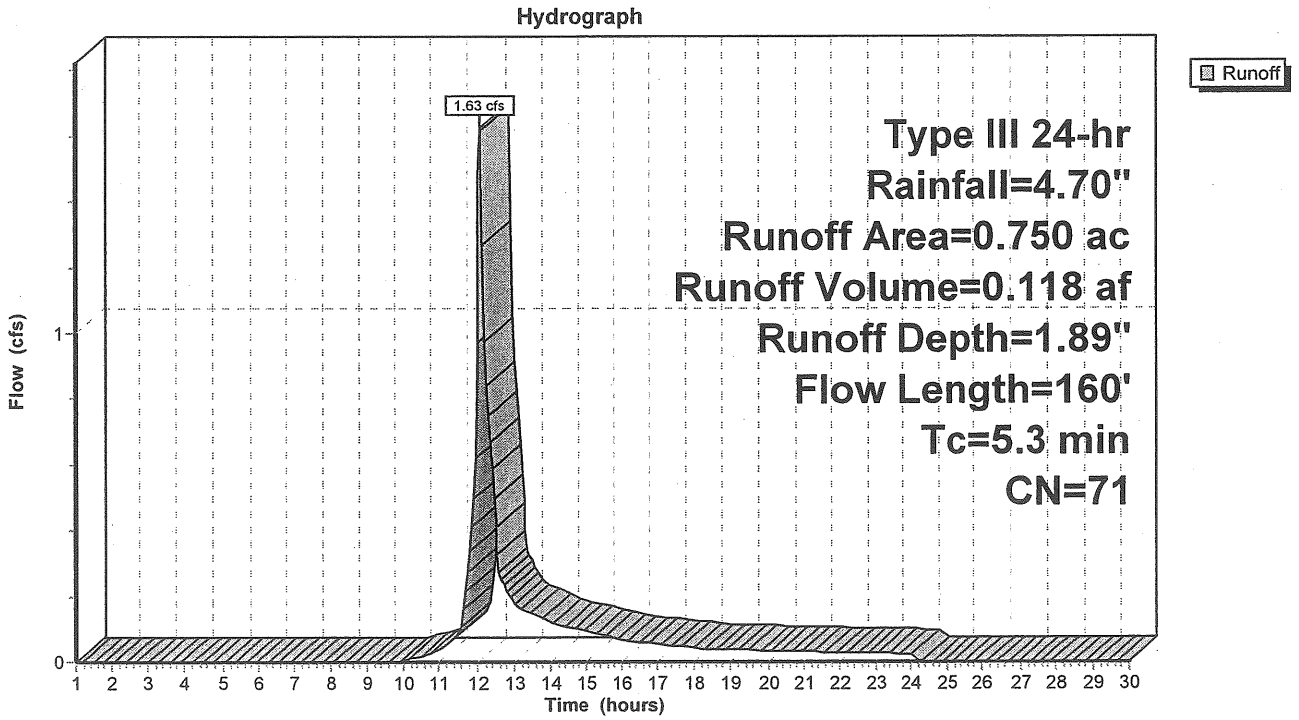
Runoff = 1.63 cfs @ 12.09 hrs, Volume= 0.118 af, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.150	56	BRUSH, WEEDS, FAIR, HSG B
0.150	58	CONTINUOUS GRASS, HSG B
0.150	71	CONTINOUS GRASS, HSG C
0.300	84	GRASSLAND, FAIR, HSG D
0.750	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.1200	0.3		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.4	60	0.1080	2.3		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
5.3	160	Total			

Subcatchment 2S: SUBCATCHMENT 2



Subcatchment 4S: SUBCATCHMENT 4

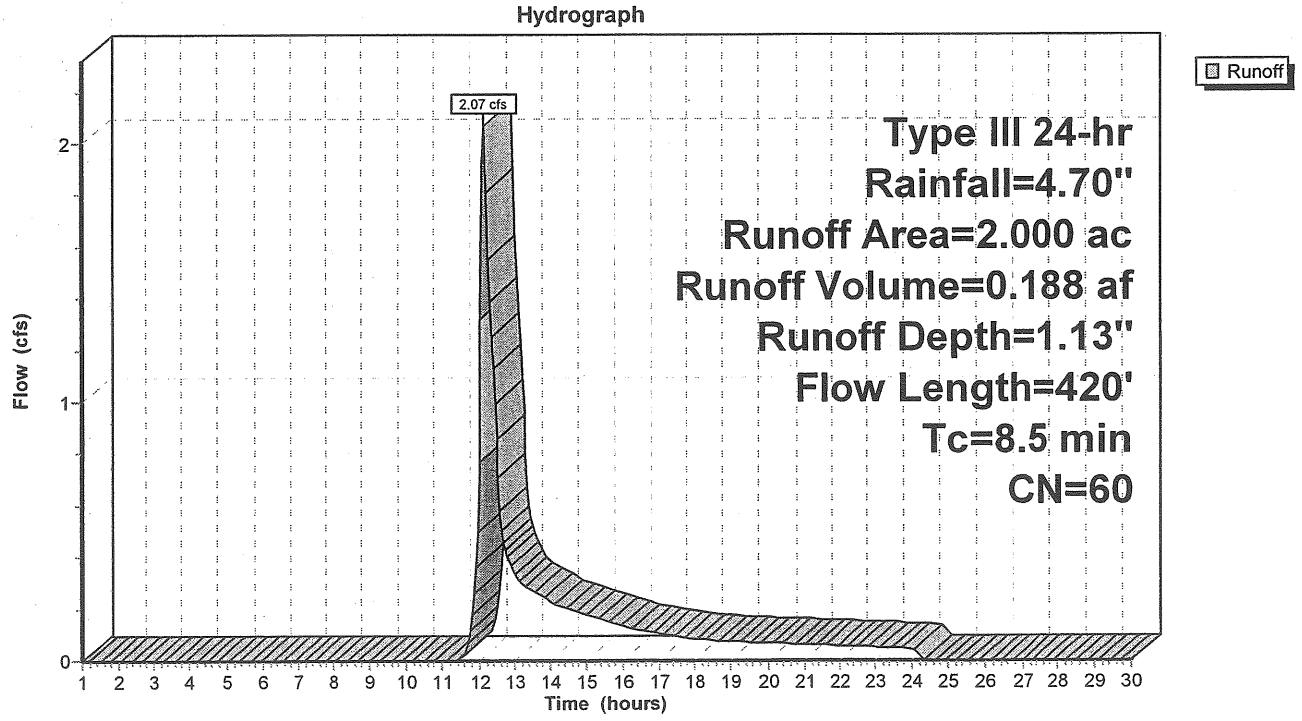
Runoff = 2.07 cfs @ 12.14 hrs, Volume= 0.188 af, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS
1.680	56	WEEDS, LOW BRUSH, FAIR, HSG B
0.170	71	CONTINUOUS GRASS. HSG C
2.000	60	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1400	0.4		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
3.0	200	0.0500	1.1		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Woodland Kv= 5.0 fps
0.9	120	0.0500	2.2	388.87	**Channel Flow, CHANNEL FLOW C-D** Area= 175.0 sf Perim= 40.0' r= 4.38' n= 0.400
8.5	420	Total			

Subcatchment 4S: SUBCATCHMENT 4



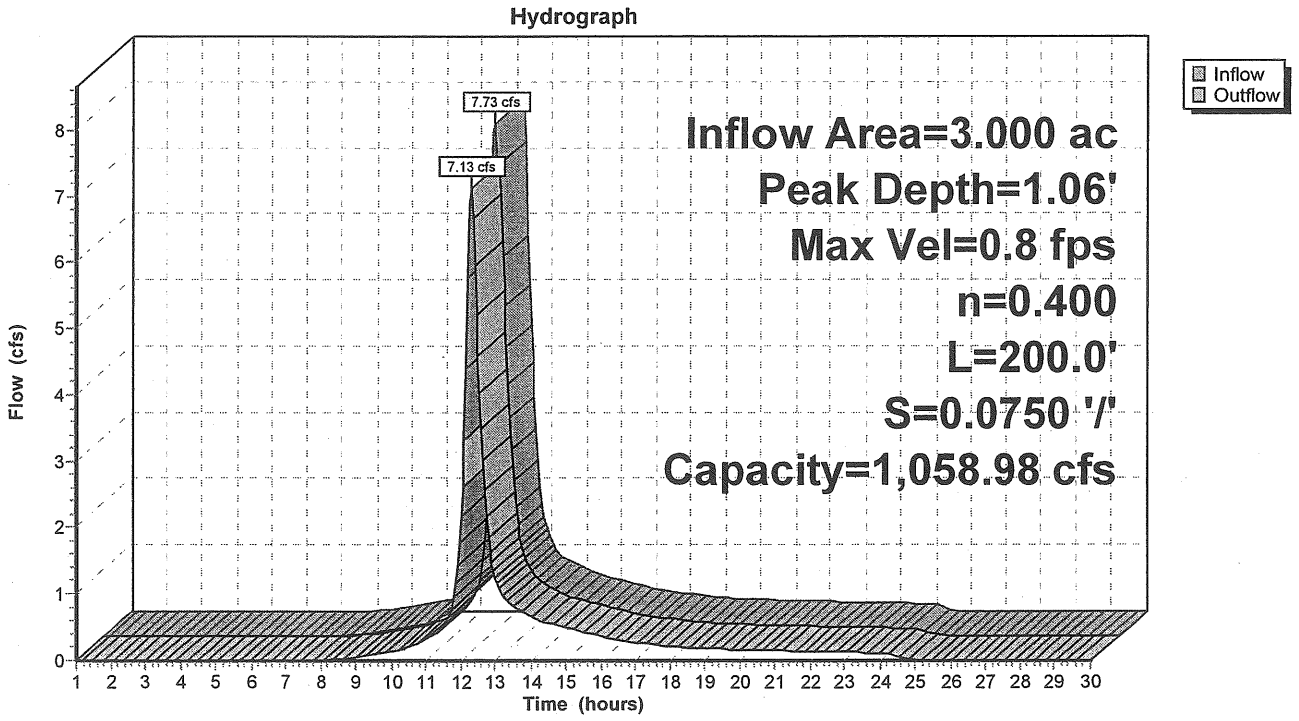
Reach 1R: REACH 1

Inflow Area = 3.000 ac, Inflow Depth = 2.72"
Inflow = 7.73 cfs @ 12.17 hrs, Volume= 0.680 af
Outflow = 7.13 cfs @ 12.29 hrs, Volume= 0.680 af, Atten= 8%, Lag= 7.3 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.8 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 11.3 min

Peak Depth= 1.06' @ 12.22 hrs
Capacity at bank full= 1,058.98 cfs
Inlet Invert= 35.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0750 '/'
Side Slope Z-value= 3.0 '/'

Reach 1R: REACH 1



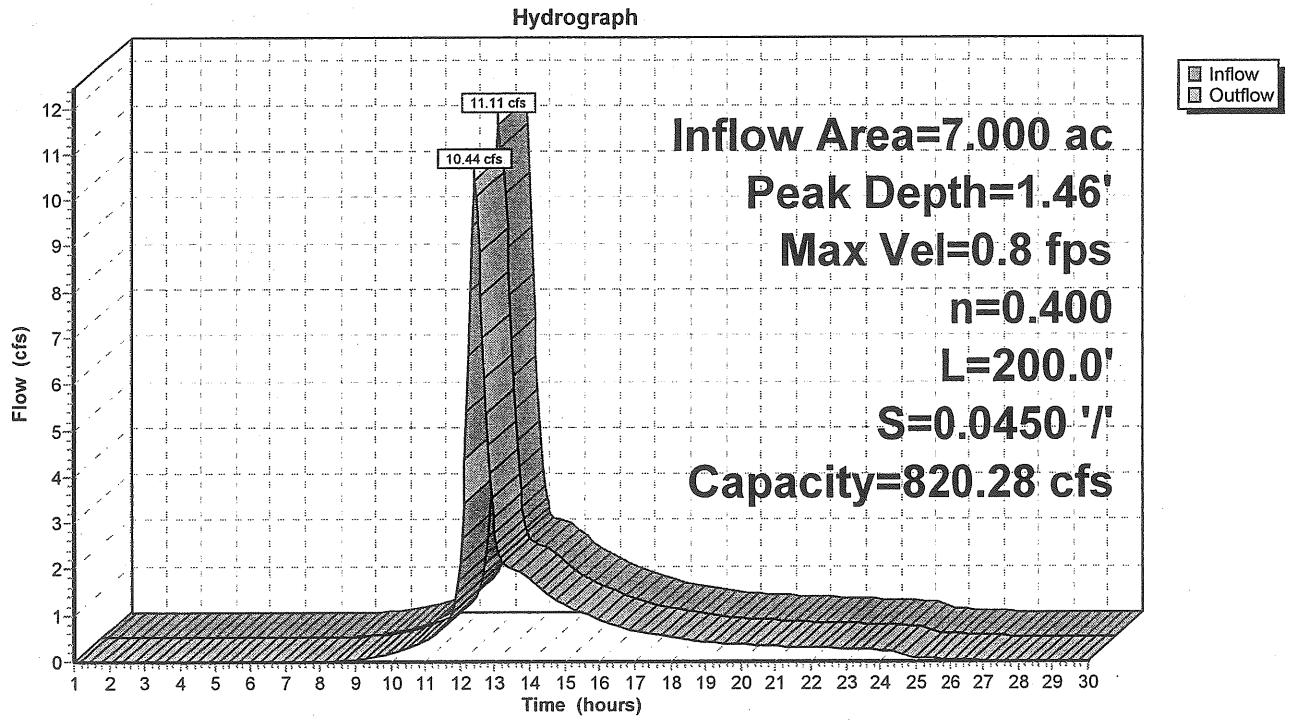
Reach 2R: REACH 2

Inflow Area = 7.000 ac, Inflow Depth = 2.23"
Inflow = 11.11 cfs @ 12.30 hrs, Volume= 1.303 af
Outflow = 10.44 cfs @ 12.43 hrs, Volume= 1.303 af, Atten= 6%, Lag= 7.6 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.8 fps, Min. Travel Time= 4.3 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 11.9 min

Peak Depth= 1.46' @ 12.36 hrs
Capacity at bank full= 820.28 cfs
Inlet Invert= 29.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0450 '/'
Side Slope Z-value= 3.0 '/'

Reach 2R: REACH 2



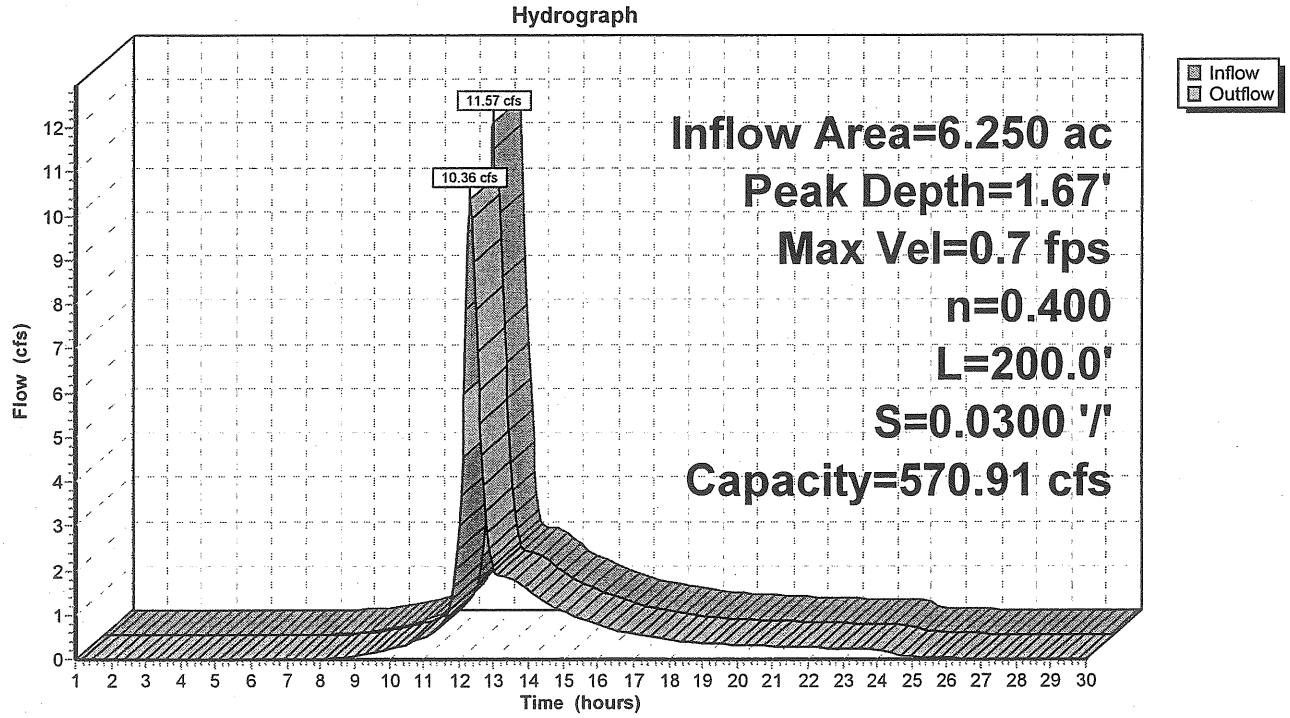
Reach 3R: REACH 3

Inflow Area = 6.250 ac, Inflow Depth = 2.27"
Inflow = 11.57 cfs @ 12.16 hrs, Volume= 1.184 af
Outflow = 10.36 cfs @ 12.31 hrs, Volume= 1.184 af, Atten= 10%, Lag= 8.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.7 fps, Min. Travel Time= 4.9 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 13.9 min

Peak Depth= 1.67' @ 12.22 hrs
Capacity at bank full= 570.91 cfs
Inlet Invert= 35.00', Outlet Invert= 29.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0300 '/'
Side Slope Z-value= 2.0 3.0 '/'

Reach 3R: REACH 3



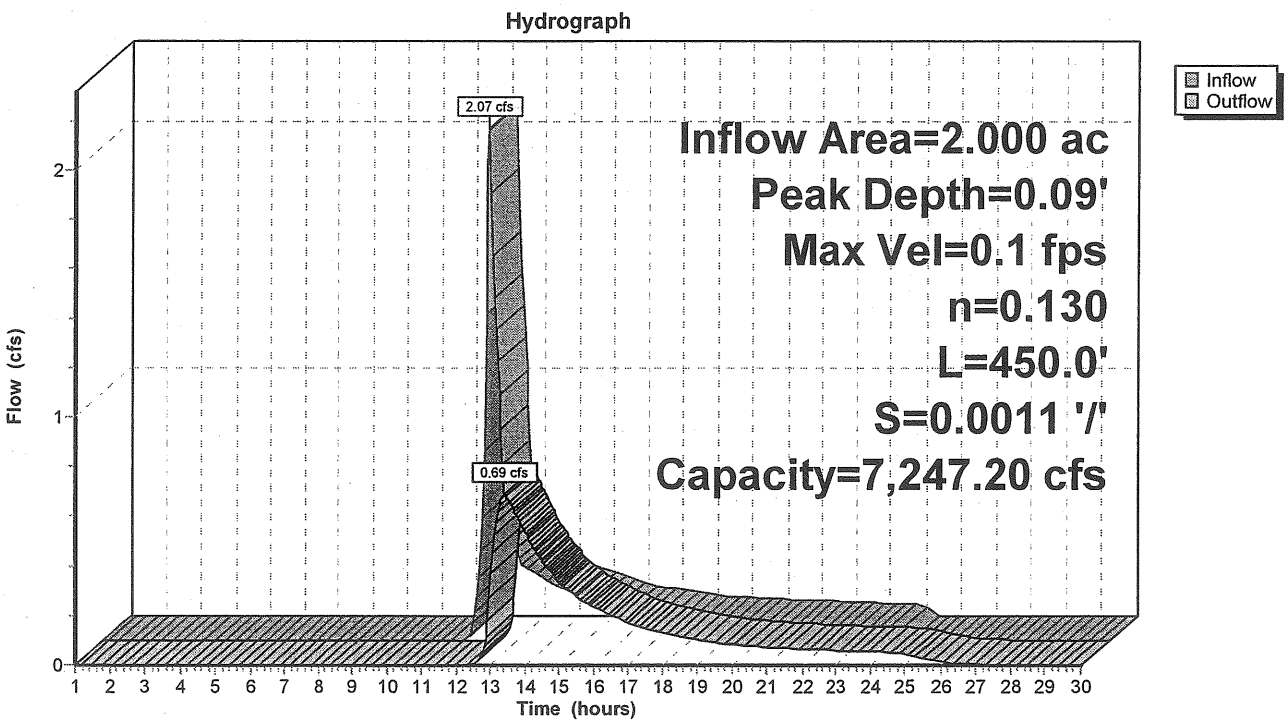
Reach 4R: REACH 4

Inflow Area = 2.000 ac, Inflow Depth = 1.13"
Inflow = 2.07 cfs @ 12.14 hrs, Volume= 0.188 af
Outflow = 0.69 cfs @ 13.40 hrs, Volume= 0.188 af, Atten= 67%, Lag= 75.3 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.1 fps, Min. Travel Time= 50.1 min
Avg. Velocity = 0.1 fps, Avg. Travel Time= 50.1 min

Peak Depth= 0.09' @ 12.56 hrs
Capacity at bank full= 7,247.20 cfs
Inlet Invert= 35.50', Outlet Invert= 35.00'
50.00' x 25.00' deep channel, n= 0.130 Length= 450.0' Slope= 0.0011 '/'
Side Slope Z-value= 3.0 '/'

Reach 4R: REACH 4



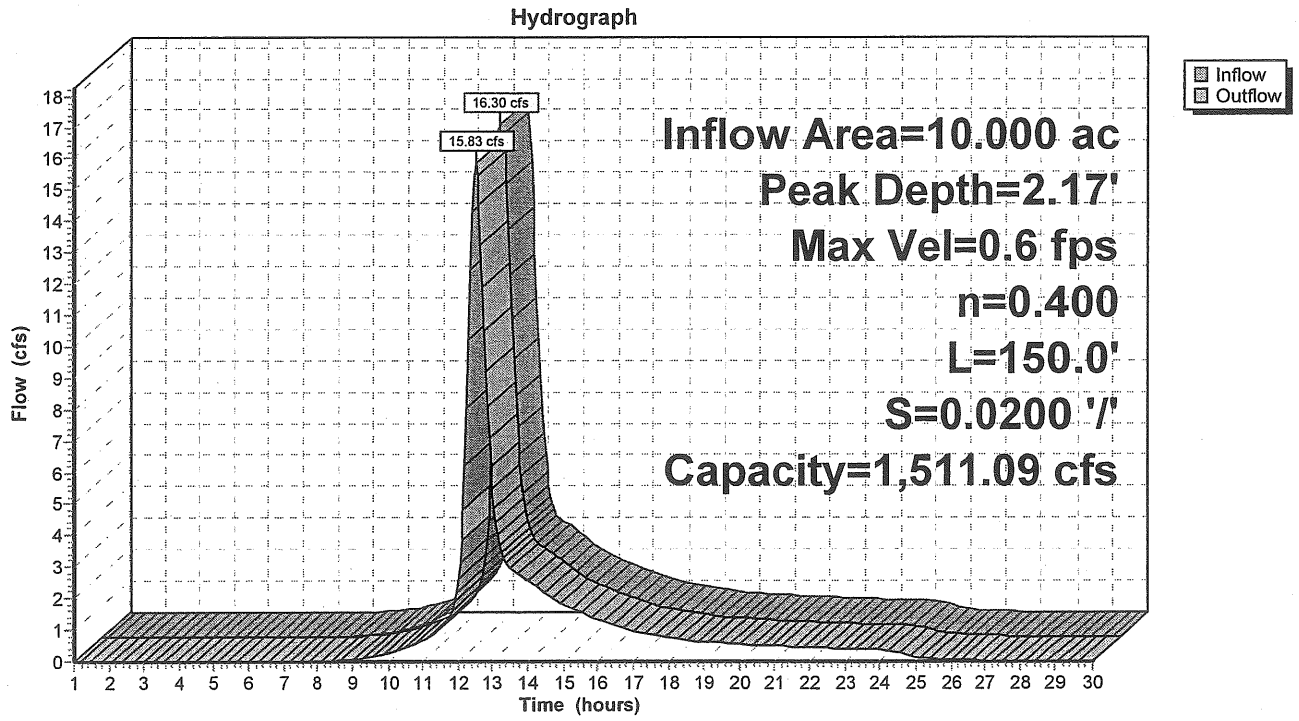
Reach 5R: SWALE TO PRESUMPSCOT RIVER

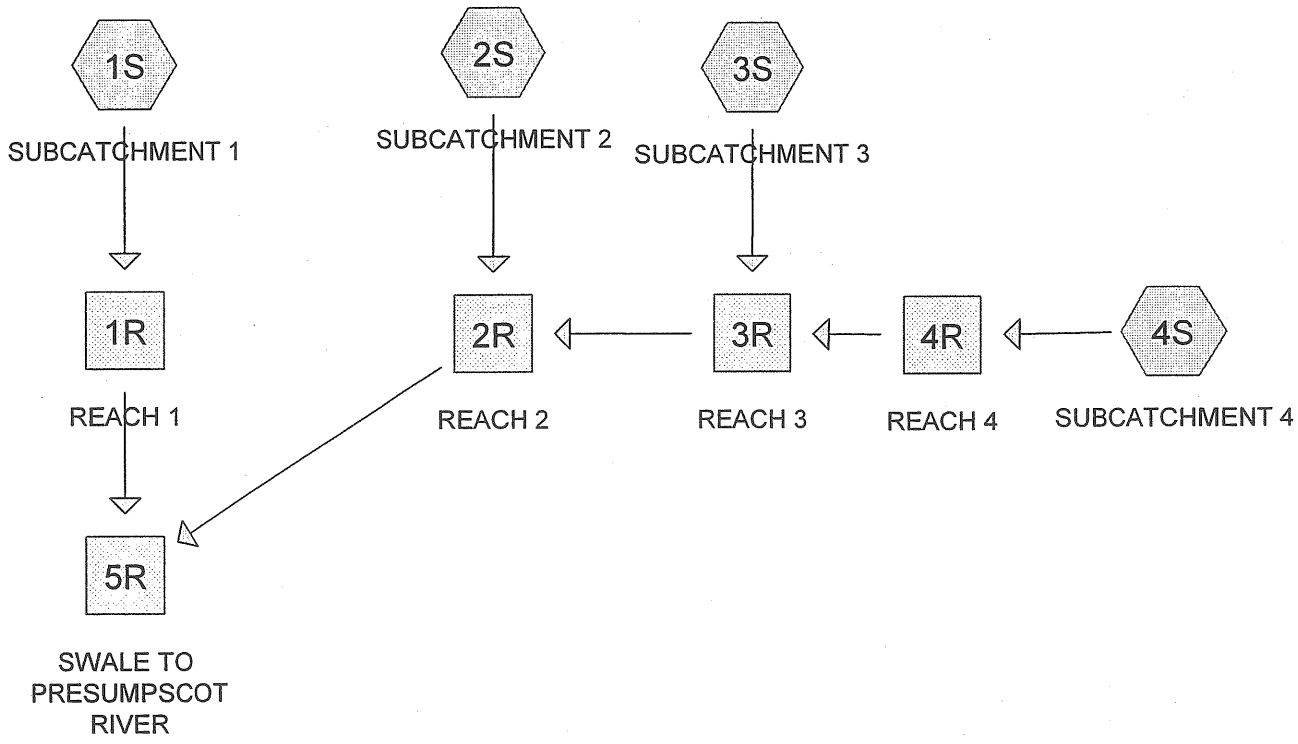
Inflow Area = 10.000 ac, Inflow Depth = 2.38"
Inflow = 16.30 cfs @ 12.38 hrs, Volume= 1.983 af
Outflow = 15.83 cfs @ 12.50 hrs, Volume= 1.983 af, Atten= 3%, Lag= 6.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.6 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 10.3 min

Peak Depth= 2.17' @ 12.43 hrs
Capacity at bank full= 1,511.09 cfs
Inlet Invert= 20.00', Outlet Invert= 17.00'
5.00' x 15.00' deep channel, n= 0.400 Length= 150.0' Slope= 0.0200 '/'
Side Slope Z-value= 3.0 '/'

Reach 5R: SWALE TO PRESUMPSCOT RIVER





Subcat Reach Pond Link

Drainage Diagram for LOT 4-400 Riverside Street Properties1
Prepared by {enter your company name here} 12/5/2005

Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SUBCATCHMENT 1 Runoff Area=3.000 ac Runoff Depth=3.43"
Flow Length=680' Tc=12.4 min CN=81 Runoff=9.72 cfs 0.858 af

Subcatchment 2S: SUBCATCHMENT 2 Runoff Area=0.750 ac Runoff Depth=2.50"
Flow Length=160' Tc=5.3 min CN=71 Runoff=2.18 cfs 0.156 af

Subcatchment 3S: SUBCATCHMENT 3 Runoff Area=4.250 ac Runoff Depth=3.53"
Flow Length=780' Tc=11.6 min CN=82 Runoff=14.48 cfs 1.250 af

Subcatchment 4S: SUBCATCHMENT 4 Runoff Area=2.000 ac Runoff Depth=1.60"
Flow Length=420' Tc=8.5 min CN=60 Runoff=3.11 cfs 0.267 af

Reach 1R: REACH 1 Peak Depth=1.20' Max Vel=0.9 fps Inflow=9.72 cfs 0.858 af
n=0.400 L=200.0' S=0.0750 '/' Capacity=1,058.98 cfs Outflow=9.02 cfs 0.858 af

Reach 2R: REACH 2 Peak Depth=1.64' Max Vel=0.8 fps Inflow=14.02 cfs 1.674 af
n=0.400 L=200.0' S=0.0450 '/' Capacity=820.28 cfs Outflow=13.29 cfs 1.674 af

Reach 3R: REACH 3 Peak Depth=1.88' Max Vel=0.7 fps Inflow=14.48 cfs 1.517 af
n=0.400 L=200.0' S=0.0300 '/' Capacity=570.91 cfs Outflow=13.04 cfs 1.517 af

Reach 4R: REACH 4 Peak Depth=0.14' Max Vel=0.1 fps Inflow=3.11 cfs 0.267 af
n=0.130 L=450.0' S=0.0011 '/' Capacity=7,247.20 cfs Outflow=1.04 cfs 0.267 af

Reach 5R: SWALE TO PRESUMPSCOT RIVE Peak Depth=2.44' Max Vel=0.7 fps Inflow=20.82 cfs 2.531 af
n=0.400 L=150.0' S=0.0200 '/' Capacity=1,511.09 cfs Outflow=20.26 cfs 2.531 af

Total Runoff Area = 10.000 ac Runoff Volume = 2.531 af Average Runoff Depth = 3.04"

Subcatchment 1S: SUBCATCHMENT 1

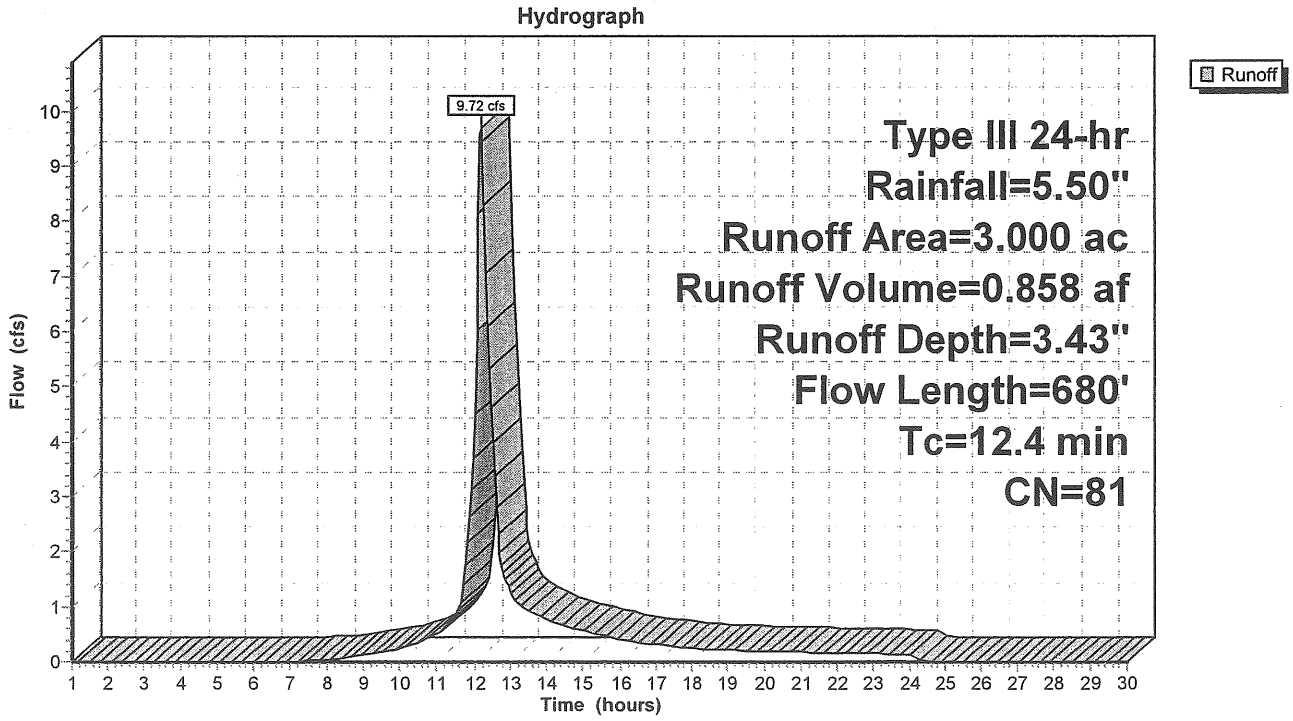
Runoff = 9.72 cfs @ 12.17 hrs, Volume= 0.858 af, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.750	98	IMPERVIOUS
0.750	77	WEEDS, LOW BRUSH, FAIR, HSG D
0.750	78	CONTINUOUS GRASS, HSG D
0.750	71	CONTINUOUS GRASS, HSG C
3.000	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0400	0.2		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.7	120	0.1670	2.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
0.5	260	0.0380	9.0	8,142.85	**Channel Flow, CHANNEL FLOW C-D** Area= 900.0 sf Perim= 110.0' r= 8.18' n= 0.130
3.5	200	0.0180	0.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED D TC** Short Grass Pasture Kv= 7.0 fps
12.4	680	Total			

Subcatchment 1S: SUBCATCHMENT 1



Subcatchment 2S: SUBCATCHMENT 2

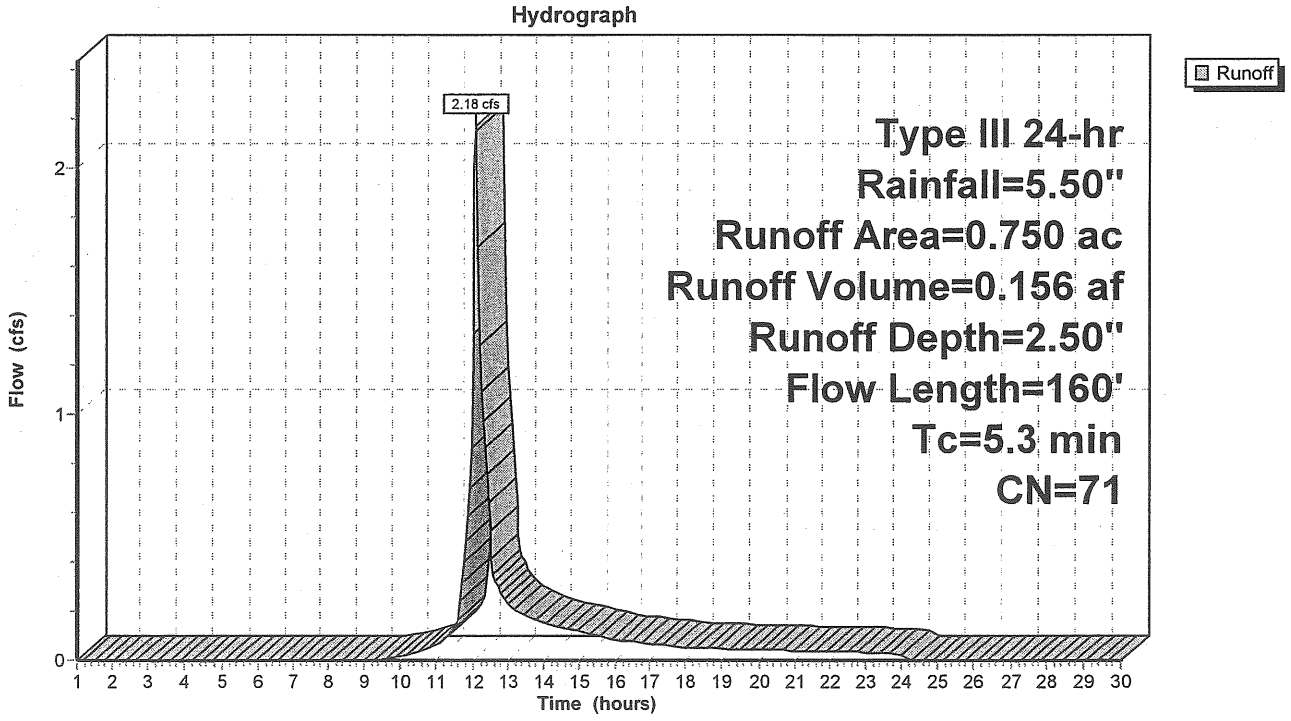
Runoff = 2.18 cfs @ 12.09 hrs, Volume= 0.156 af, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.150	56	BRUSH, WEEDS, FAIR, HSG B
0.150	58	CONTINUOUS GRASS, HSG B
0.150	71	CONTINOUS GRASS, HSG C
0.300	84	GRASSLAND, FAIR, HSG D
0.750	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.1200	0.3		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.4	60	0.1080	2.3		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
5.3	160	Total			

Subcatchment 2S: SUBCATCHMENT 2



Subcatchment 3S: SUBCATCHMENT 3

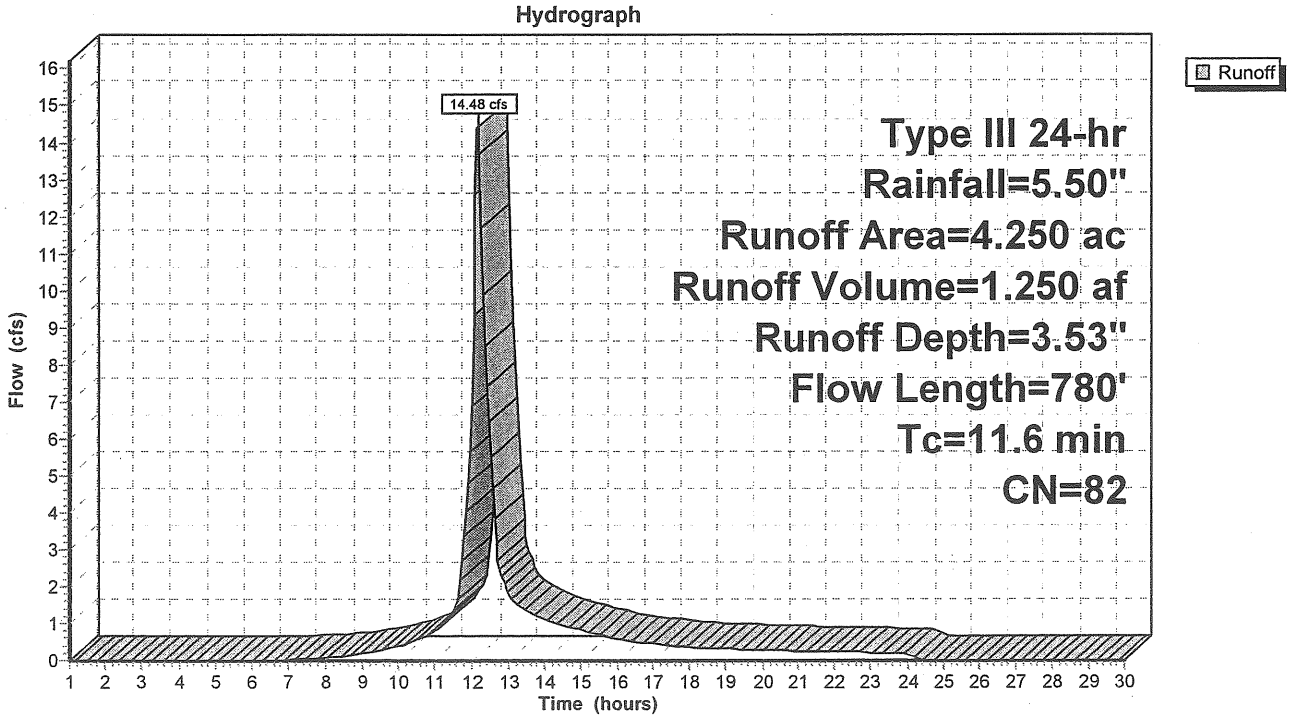
Runoff = 14.48 cfs @ 12.16 hrs, Volume= 1.250 af, Depth= 3.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
2.250	98	IMPERVIOUS
1.000	56	WEEDS, LOW BRUSH, FAIR, HSG B
1.000	71	CONTINOUS GRASS, HSG C
4.250	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	100	0.1700	0.4		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
2.7	200	0.0300	1.2		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
3.1	255	0.0078	1.4	169.13	**Channel Flow, CHANNEL FLOW C-D** Area= 125.0 sf Perim= 65.0' r= 1.92' n= 0.150
1.5	225	0.0580	2.5	569.17	**Channel Flow, CHANNEL FLOW D TO E** Area= 230.0 sf Perim= 50.0' r= 4.60' n= 0.400
11.6	780	Total			

Subcatchment 3S: SUBCATCHMENT 3



Subcatchment 4S: SUBCATCHMENT 4

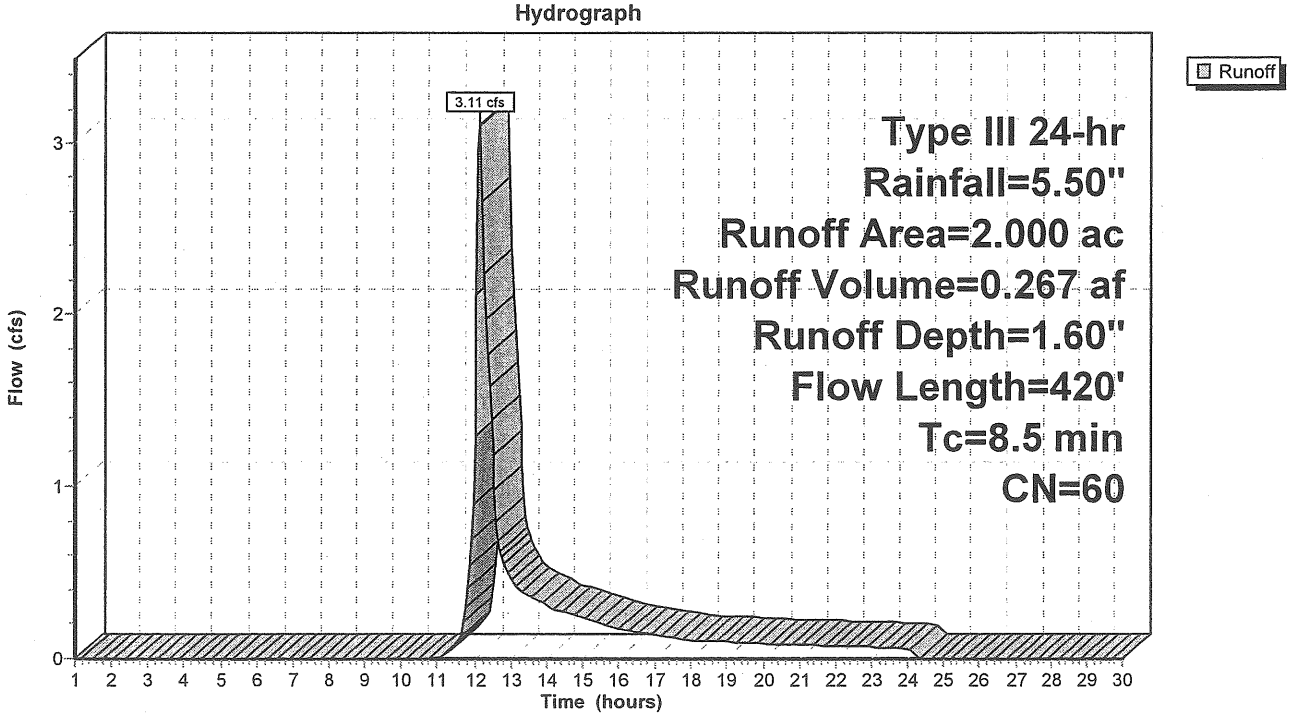
Runoff = 3.11 cfs @ 12.14 hrs, Volume= 0.267 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS
1.680	56	WEEDS, LOW BRUSH, FAIR, HSG B
0.170	71	CONTINUOUS GRASS. HSG C
2.000	60	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1400	0.4		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
3.0	200	0.0500	1.1		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Woodland Kv= 5.0 fps
0.9	120	0.0500	2.2	388.87	**Channel Flow, CHANNEL FLOW C-D** Area= 175.0 sf Perim= 40.0' r= 4.38' n= 0.400
8.5	420	Total			

Subcatchment 4S: SUBCATCHMENT 4



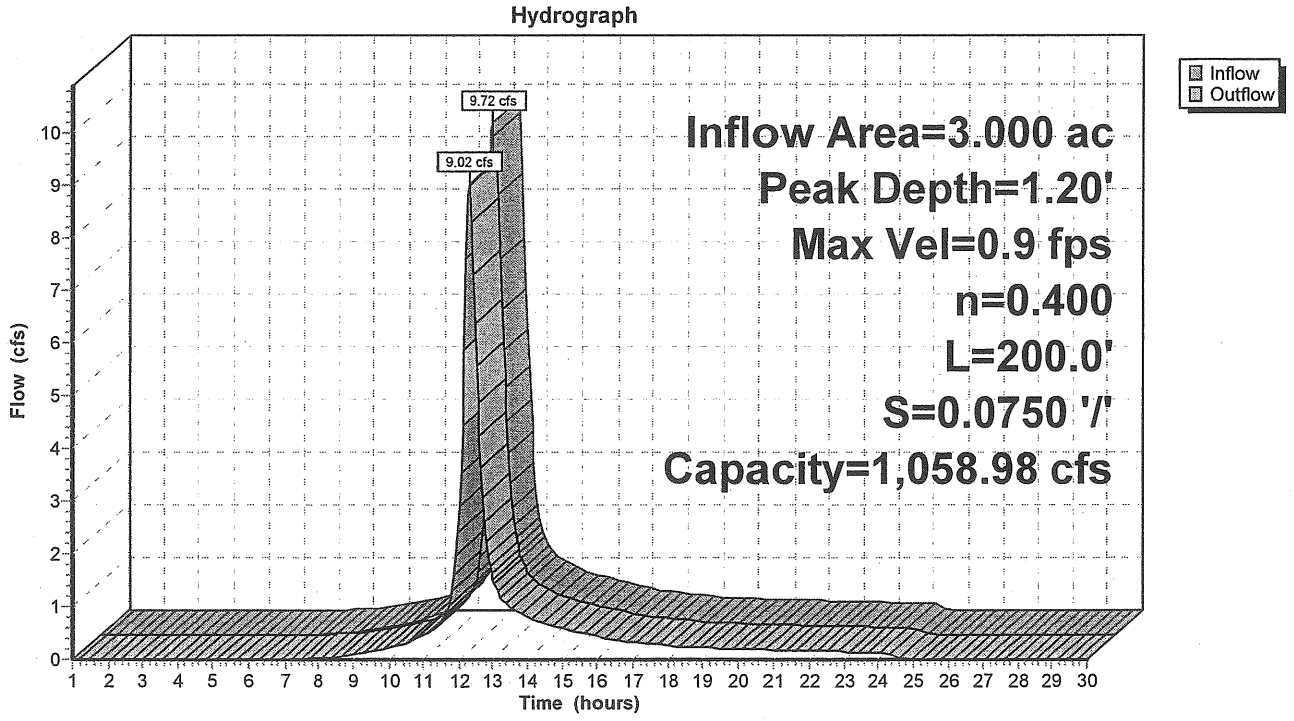
Reach 1R: REACH 1

Inflow Area = 3.000 ac, Inflow Depth = 3.43"
Inflow = 9.72 cfs @ 12.17 hrs, Volume= 0.858 af
Outflow = 9.02 cfs @ 12.28 hrs, Volume= 0.858 af, Atten= 7%, Lag= 6.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.9 fps, Min. Travel Time= 3.8 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 10.7 min

Peak Depth= 1.20' @ 12.22 hrs
Capacity at bank full= 1,058.98 cfs
Inlet Invert= 35.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0750 '/'
Side Slope Z-value= 3.0 '/'

Reach 1R: REACH 1



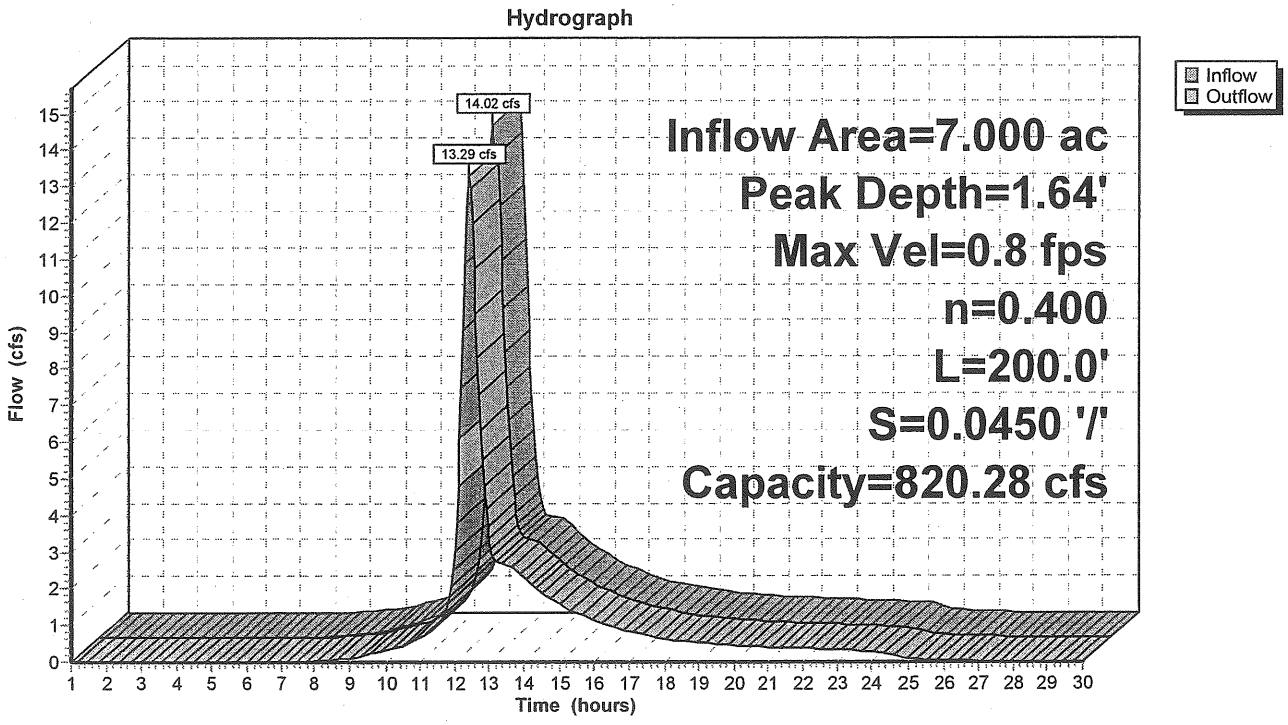
Reach 2R: REACH 2

Inflow Area = 7.000 ac, Inflow Depth = 2.87"
Inflow = 14.02 cfs @ 12.29 hrs, Volume= 1.674 af
Outflow = 13.29 cfs @ 12.41 hrs, Volume= 1.674 af, Atten= 5%, Lag= 7.1 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.8 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 11.2 min

Peak Depth= 1.64' @ 12.34 hrs
Capacity at bank full= 820.28 cfs
Inlet Invert= 29.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0450 '/'
Side Slope Z-value= 3.0 '/'

Reach 2R: REACH 2



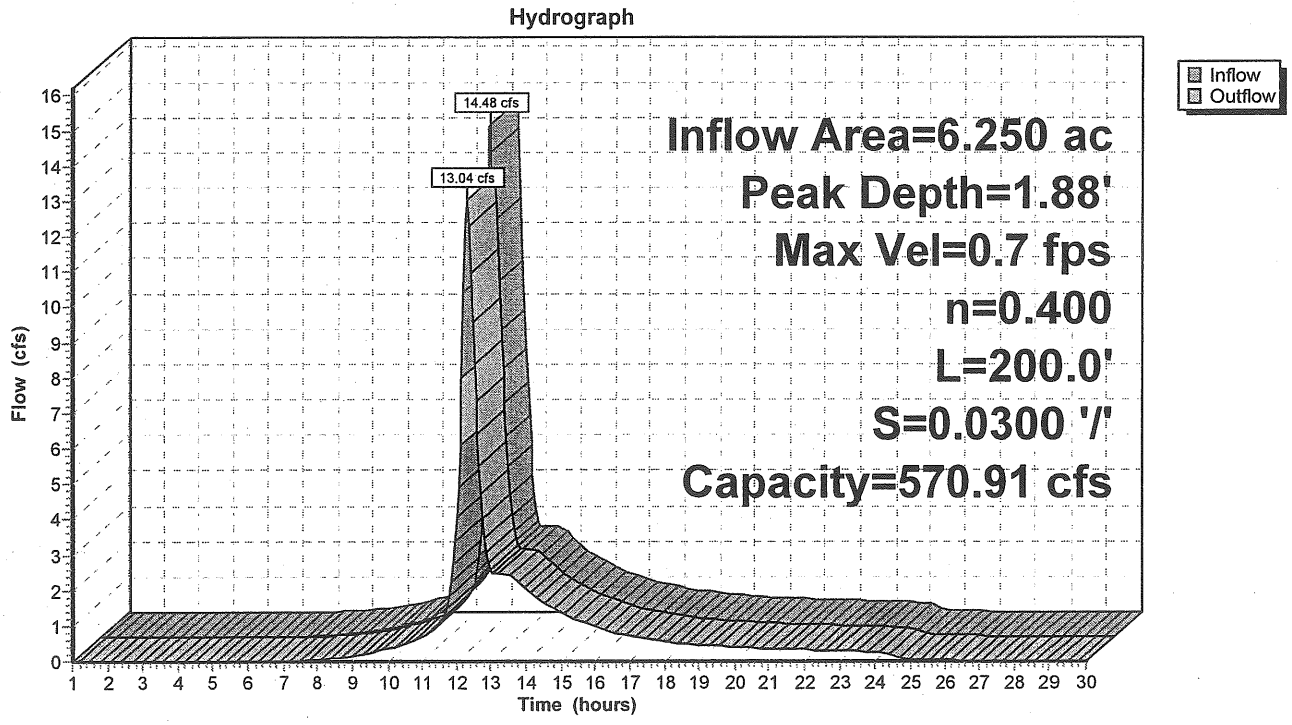
Reach 3R: REACH 3

Inflow Area = 6.250 ac, Inflow Depth = 2.91"
Inflow = 14.48 cfs @ 12.16 hrs, Volume= 1.517 af
Outflow = 13.04 cfs @ 12.30 hrs, Volume= 1.517 af, Atten= 10%, Lag= 8.2 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.7 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 13.1 min

Peak Depth= 1.88' @ 12.22 hrs
Capacity at bank full= 570.91 cfs
Inlet Invert= 35.00', Outlet Invert= 29.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0300 '/'
Side Slope Z-value= 2.0 3.0 '/'

Reach 3R: REACH 3



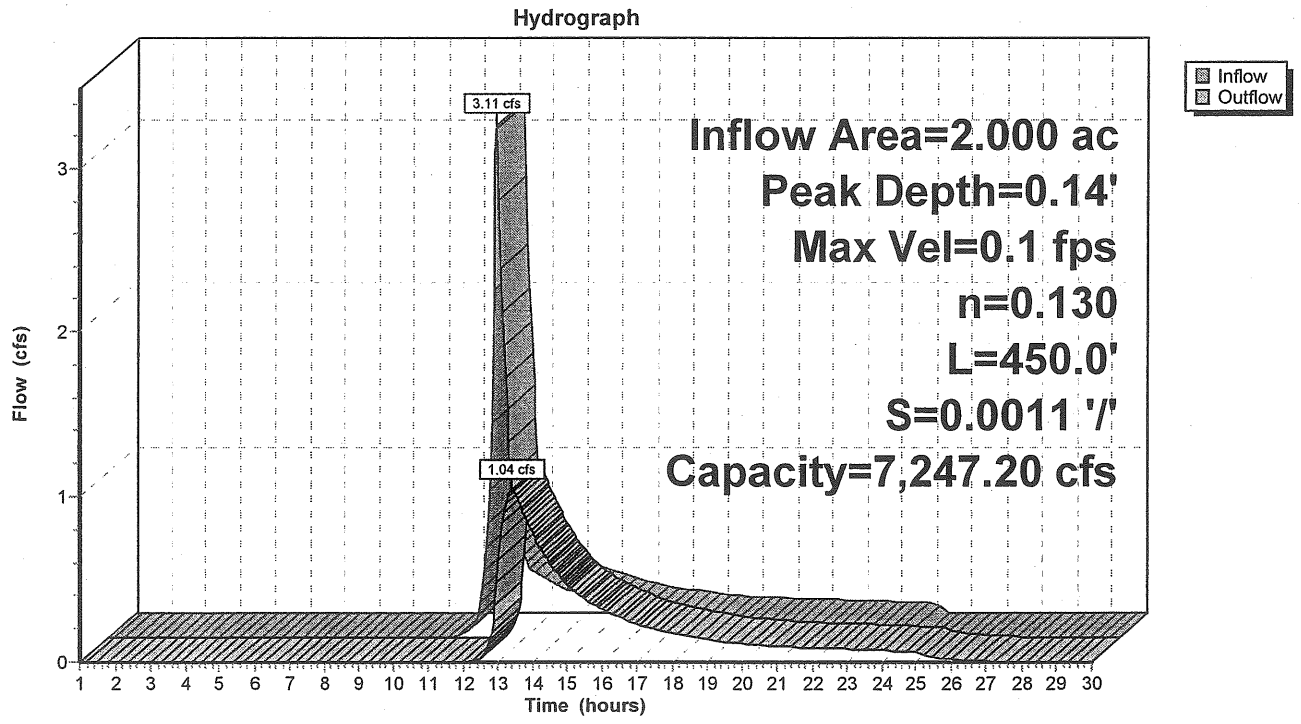
Reach 4R: REACH 4

Inflow Area = 2.000 ac, Inflow Depth = 1.60"
Inflow = 3.11 cfs @ 12.14 hrs, Volume= 0.267 af
Outflow = 1.04 cfs @ 13.37 hrs, Volume= 0.267 af, Atten= 67%, Lag= 74.2 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.1 fps, Min. Travel Time= 50.1 min
Avg. Velocity = 0.1 fps, Avg. Travel Time= 50.1 min

Peak Depth= 0.14' @ 12.54 hrs
Capacity at bank full= 7,247.20 cfs
Inlet Invert= 35.50', Outlet Invert= 35.00'
50.00' x 25.00' deep channel, n= 0.130 Length= 450.0' Slope= 0.0011 '/'
Side Slope Z-value= 3.0 '/'

Reach 4R: REACH 4



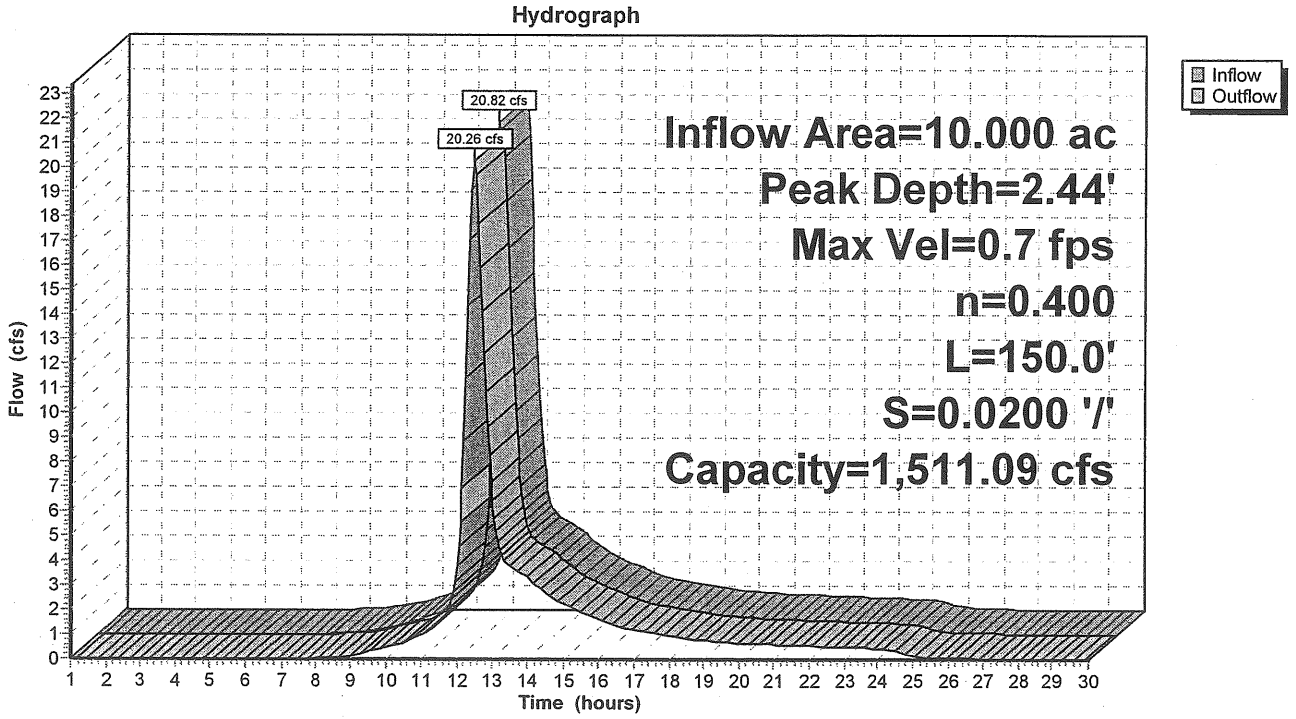
Reach 5R: SWALE TO PRESUMPSCOT RIVER

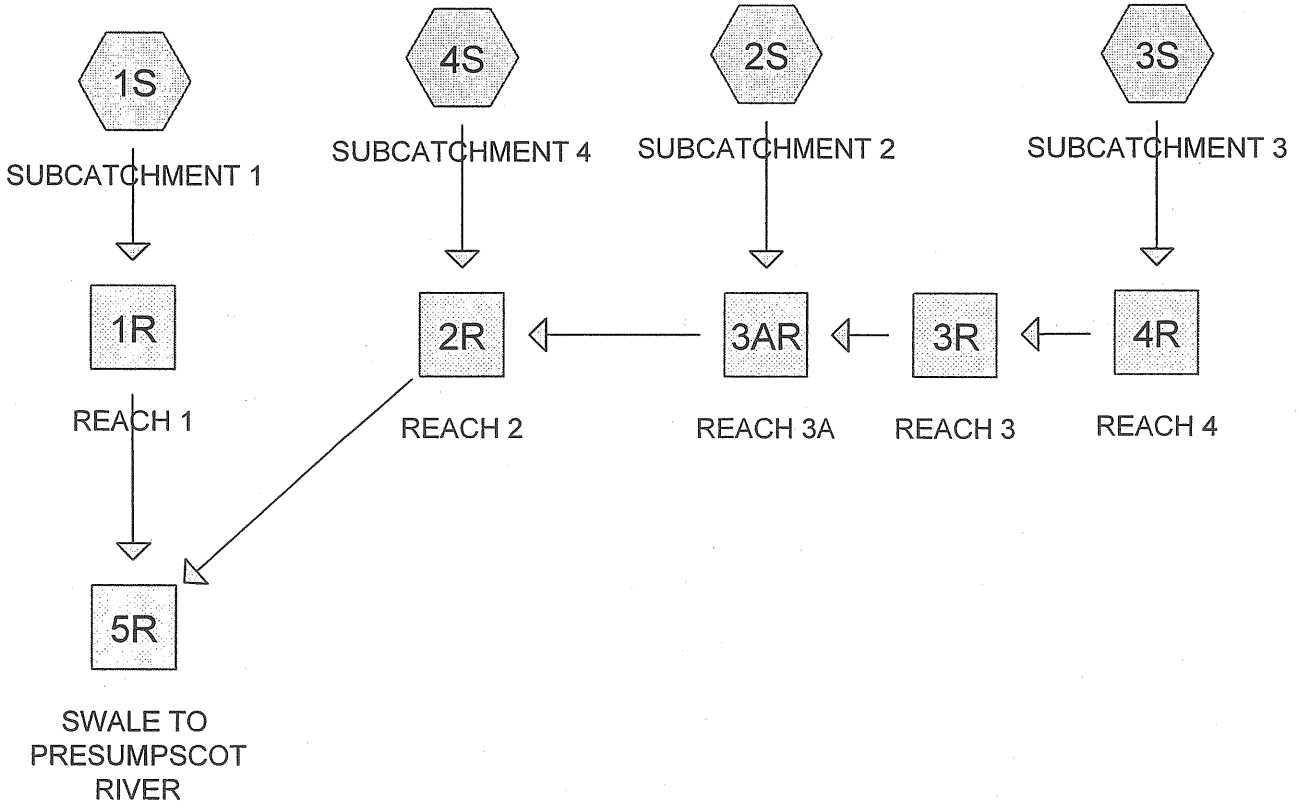
Inflow Area = 10.000 ac, Inflow Depth = 3.04"
Inflow = 20.82 cfs @ 12.37 hrs, Volume= 2.531 af
Outflow = 20.26 cfs @ 12.47 hrs, Volume= 2.531 af, Atten= 3%, Lag= 6.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.7 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 9.8 min

Peak Depth= 2.44' @ 12.41 hrs
Capacity at bank full= 1,511.09 cfs
Inlet Invert= 20.00', Outlet Invert= 17.00'
5.00' x 15.00' deep channel, n= 0.400 Length= 150.0' Slope= 0.0200 '/'
Side Slope Z-value= 3.0 '/'

Reach 5R: SWALE TO PRESUMPSCOT RIVER





Subcat Reach Pond Link

Drainage Diagram for LOT 4-400 Riverside Street Properties Post1
Prepared by {enter your company name here} 12/5/2005

Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SUBCATCHMENT 1 Runoff Area=3.000 ac Runoff Depth=1.31"
Flow Length=680' Tc=12.4 min CN=81 Runoff=3.65 cfs 0.328 af

Subcatchment 2S: SUBCATCHMENT 2 Runoff Area=1.330 ac Runoff Depth=1.25"
Flow Length=190' Tc=1.5 min CN=80 Runoff=2.11 cfs 0.139 af

Subcatchment 3S: SUBCATCHMENT 3 Runoff Area=4.670 ac Runoff Depth=1.25"
Flow Length=565' Tc=11.1 min CN=80 Runoff=5.63 cfs 0.486 af

Subcatchment 4S: SUBCATCHMENT 4 Runoff Area=1.000 ac Runoff Depth=2.66"
Flow Length=501' Tc=8.6 min CN=97 Runoff=2.59 cfs 0.222 af

Reach 1R: REACH 1 Peak Depth=0.71' Max Vel=0.7 fps Inflow=3.65 cfs 0.328 af
n=0.400 L=200.0' S=0.0750 '/' Capacity=1,058.98 cfs Outflow=3.31 cfs 0.328 af

Reach 2R: REACH 2 Peak Depth=0.86' Max Vel=0.6 fps Inflow=4.28 cfs 0.847 af
n=0.400 L=200.0' S=0.0450 '/' Capacity=820.28 cfs Outflow=3.72 cfs 0.847 af

Reach 3AR: REACH 3A Peak Depth=0.89' Max Vel=0.4 fps Inflow=2.57 cfs 0.625 af
n=0.400 L=100.0' S=0.0200 '/' Capacity=466.15 cfs Outflow=2.55 cfs 0.625 af

Reach 3R: REACH 3 Peak Depth=0.86' Max Vel=0.4 fps Inflow=2.47 cfs 0.486 af
n=0.400 L=200.0' S=0.0200 '/' Capacity=466.15 cfs Outflow=2.39 cfs 0.486 af

Reach 4R: REACH 4 Peak Depth=0.23' Max Vel=0.2 fps Inflow=5.63 cfs 0.486 af
n=0.130 L=450.0' S=0.0022 '/' Capacity=10,249.09 cfs Outflow=2.47 cfs 0.486 af

Reach 5R: SWALE TO PRESUMPSCOT RIVE Peak Depth=1.41' Max Vel=0.5 fps Inflow=7.00 cfs 1.175 af
n=0.400 L=150.0' S=0.0200 '/' Capacity=1,511.09 cfs Outflow=6.46 cfs 1.175 af

Total Runoff Area = 10.000 ac Runoff Volume = 1.175 af Average Runoff Depth = 1.41"

Subcatchment 1S: SUBCATCHMENT 1

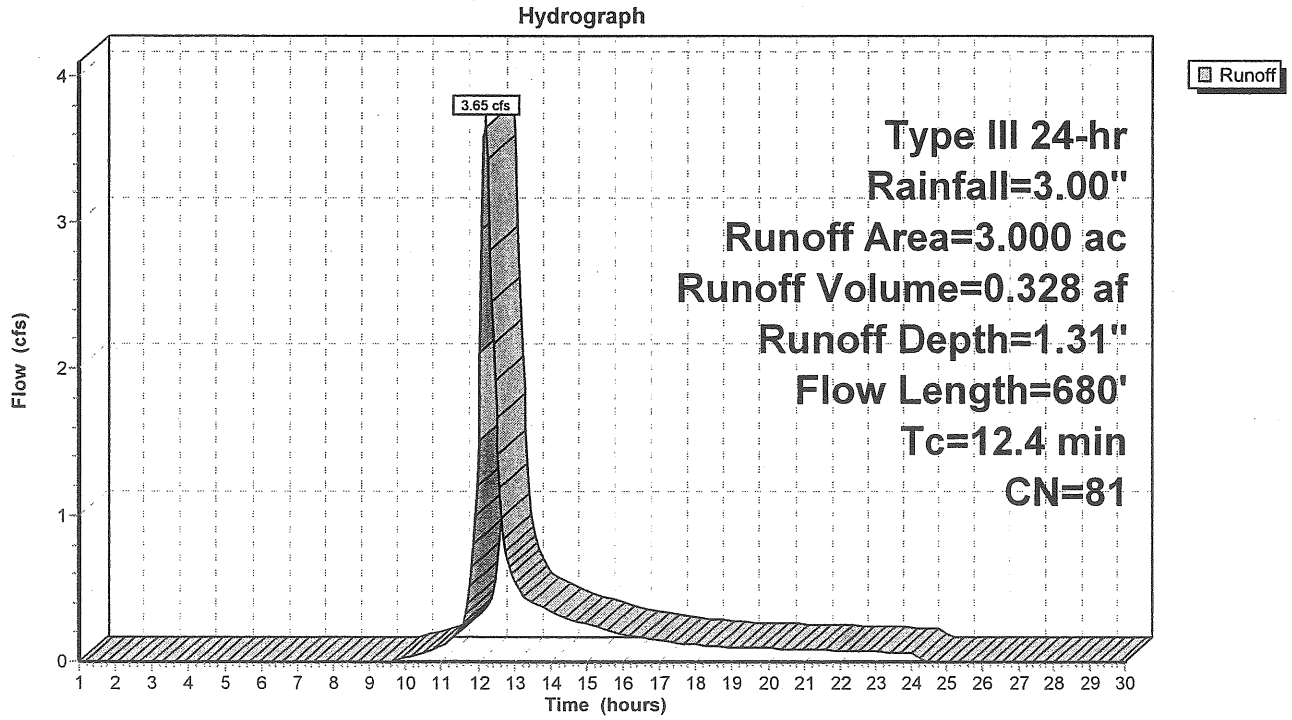
Runoff = 3.65 cfs @ 12.18 hrs, Volume= 0.328 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.750	98	IMPERVIOUS
0.750	77	WEEDS, LOW BRUSH, FAIR, HSG D
0.750	78	CONTINUOUS GRASS, HSG D
0.750	71	CONTINUOUS GRASS, HSG C
3.000	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0400	0.2		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.7	120	0.1670	2.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
0.5	260	0.0380	9.0	8,142.85	**Channel Flow, CHANNEL FLOW C-D** Area= 900.0 sf Perim= 110.0' r= 8.18' n= 0.130
3.5	200	0.0180	0.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED D TC** Short Grass Pasture Kv= 7.0 fps
12.4	680	Total			

Subcatchment 1S: SUBCATCHMENT 1



Subcatchment 2S: SUBCATCHMENT 2

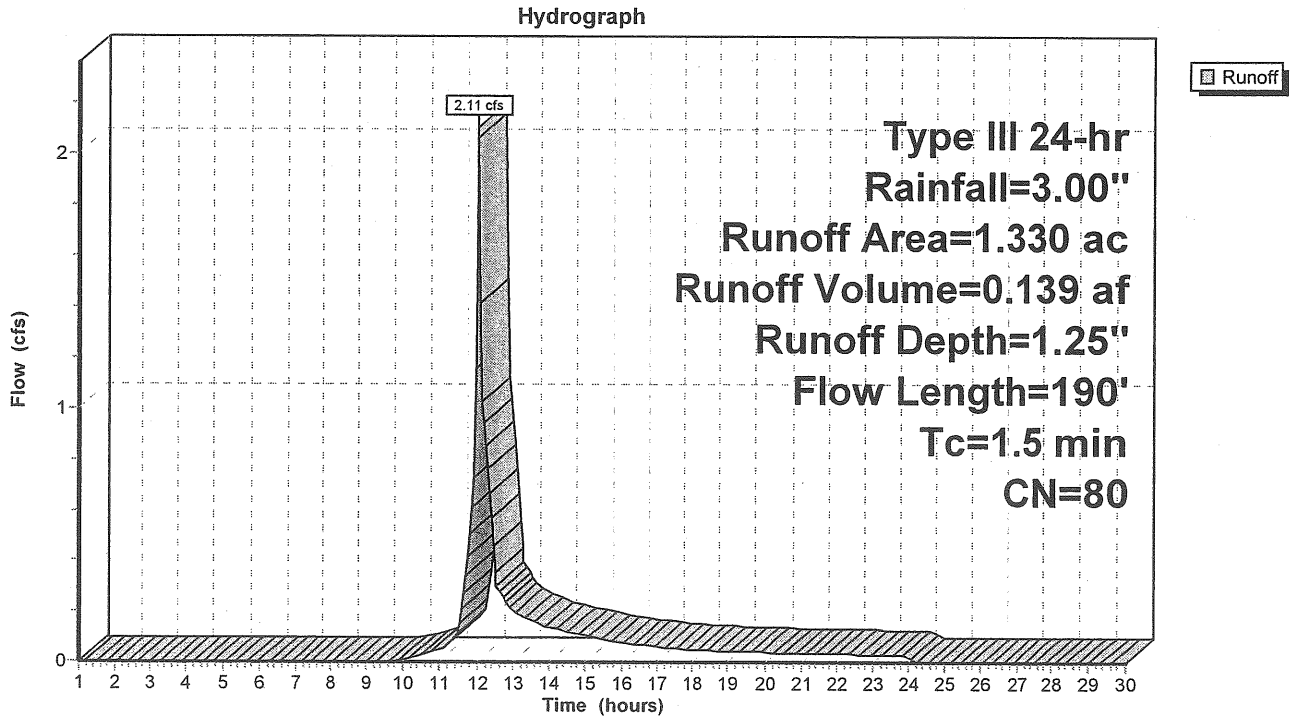
Runoff = 2.11 cfs @ 12.03 hrs, Volume= 0.139 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.400	56	BRUSH, WEEDS, FAIR, HSG B
0.530	98	IMPERVIOUS
0.150	71	CONTINUOUS GRASS, HSG C
0.250	84	GRASSLAND, FAIR, HSG D
1.330	80	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	20	0.2000	0.3		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.0	120	0.0586	55.5	36,058.34	**Channel Flow, CHANNEL B TO C** Area= 650.0 sf Perim= 120.0' r= 5.42' n= 0.020
0.4	50	0.1500	1.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED C TO** Woodland Kv= 5.0 fps
1.5	190	Total			

Subcatchment 2S: SUBCATCHMENT 2



Subcatchment 3S: SUBCATCHMENT 3

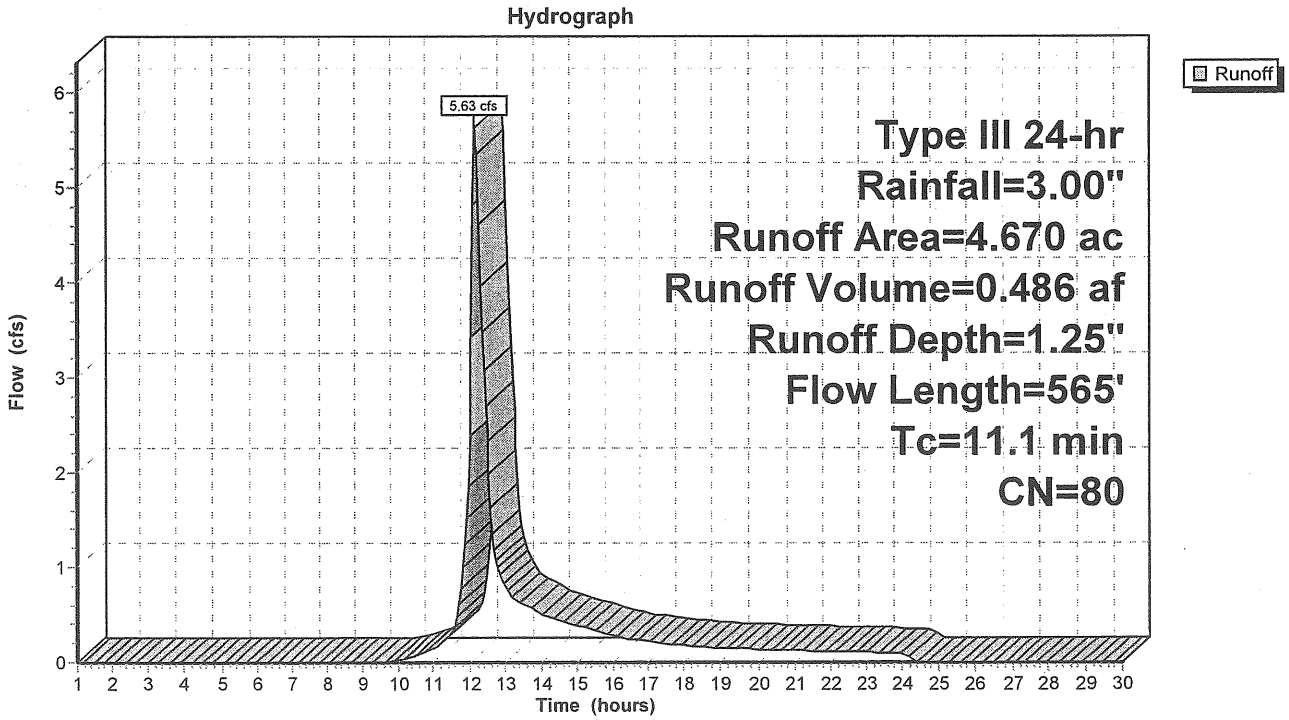
Runoff = 5.63 cfs @ 12.16 hrs, Volume= 0.486 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
2.400	98	IMPERVIOUS
1.520	56	WEEDS, LOW BRUSH, FAIR, HSG B
0.750	71	CONTINOUS GRASS, HSG C
4.670	80	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	100	0.1700	0.4		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
5.7	340	0.0200	1.0		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
0.3	75	0.1330	4.2	2,716.14	**Channel Flow, CHANNEL FLOW C-D** Area= 650.0 sf Perim= 120.0' r= 5.42' n= 0.400
0.8	50	0.0400	1.0		**Shallow Concentrated Flow, SHALLOW CONCENTRATED D TC** Woodland Kv= 5.0 fps
11.1	565	Total			

Subcatchment 3S: SUBCATCHMENT 3



Subcatchment 4S: SUBCATCHMENT 4

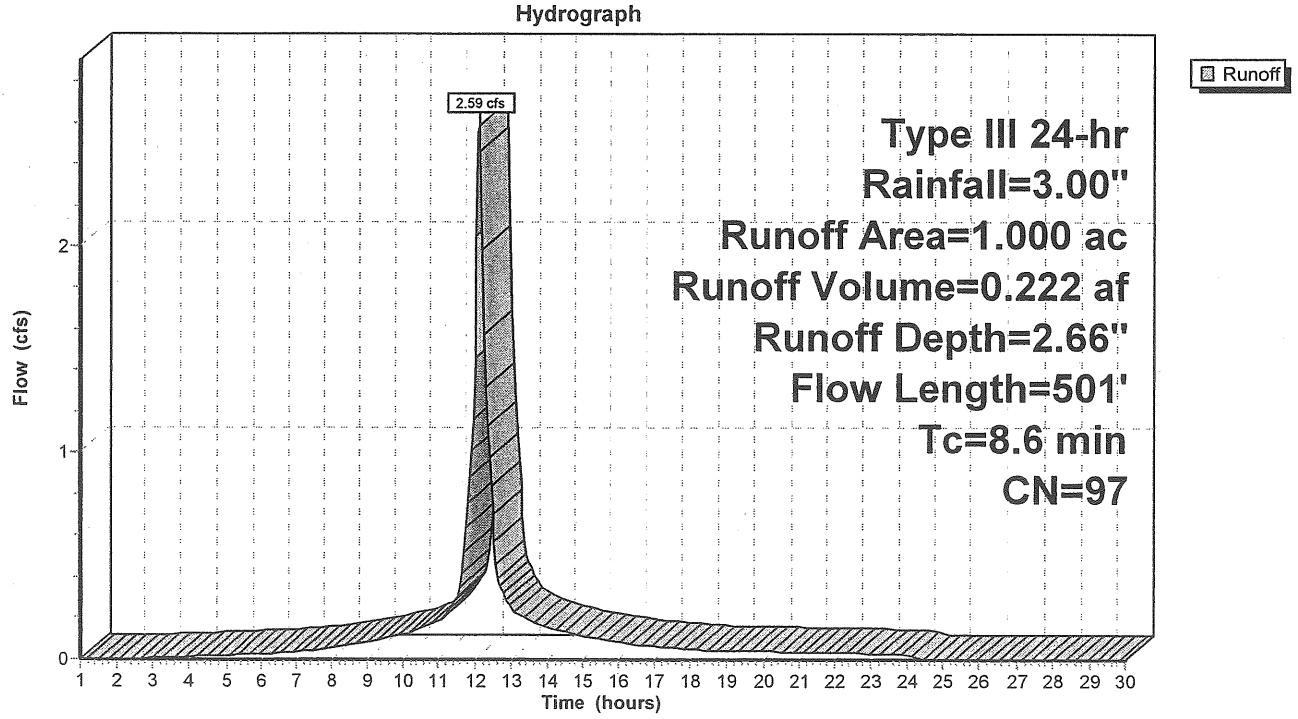
Runoff = 2.59 cfs @ 12.12 hrs, Volume= 0.222 af, Depth= 2.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.900	98	IMPERVIOUS
0.100	84	GRASSLAND, FAIR, HSG D
1.000	97	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	70	0.1000	0.3		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.9	160	0.0230	3.1		**Shallow Concentrated Flow, Shallow Concentrated B to C** Paved Kv= 20.3 fps
0.7	186	0.0035	4.2	7.34	**Circular Channel (pipe), Channel C to D** Diam= 18.0" Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
0.1	50	0.0058	6.5	20.36	**Circular Channel (pipe), Channel D to E** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
2.9	35	0.4000	0.2		**Sheet Flow, SHEET FLOW E to F** Woods: Light underbrush n= 0.400 P2= 3.00"
8.6	501	Total			

Subcatchment 4S: SUBCATCHMENT 4



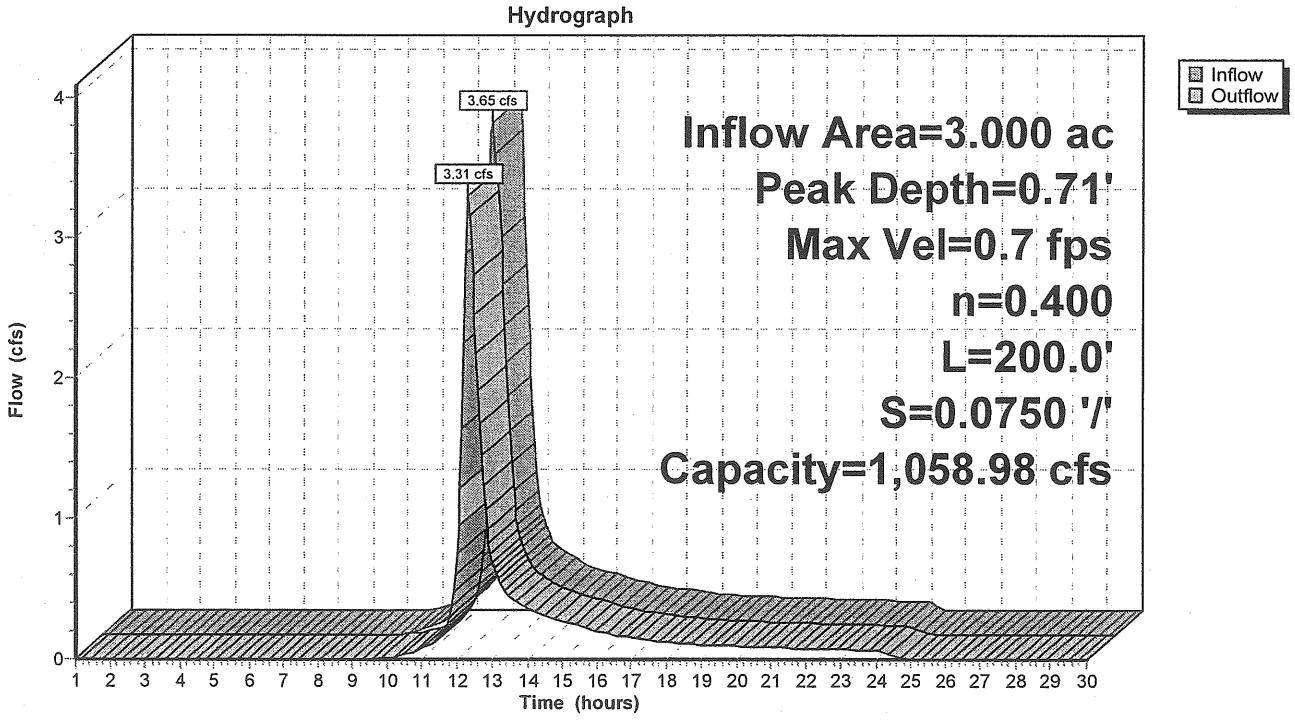
Reach 1R: REACH 1

Inflow Area = 3.000 ac, Inflow Depth = 1.31"
Inflow = 3.65 cfs @ 12.18 hrs, Volume= 0.328 af
Outflow = 3.31 cfs @ 12.33 hrs, Volume= 0.328 af, Atten= 9%, Lag= 8.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.7 fps, Min. Travel Time= 5.0 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 13.0 min

Peak Depth= 0.71' @ 12.24 hrs
Capacity at bank full= 1,058.98 cfs
Inlet Invert= 35.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0750 '/'
Side Slope Z-value= 3.0 '/'

Reach 1R: REACH 1



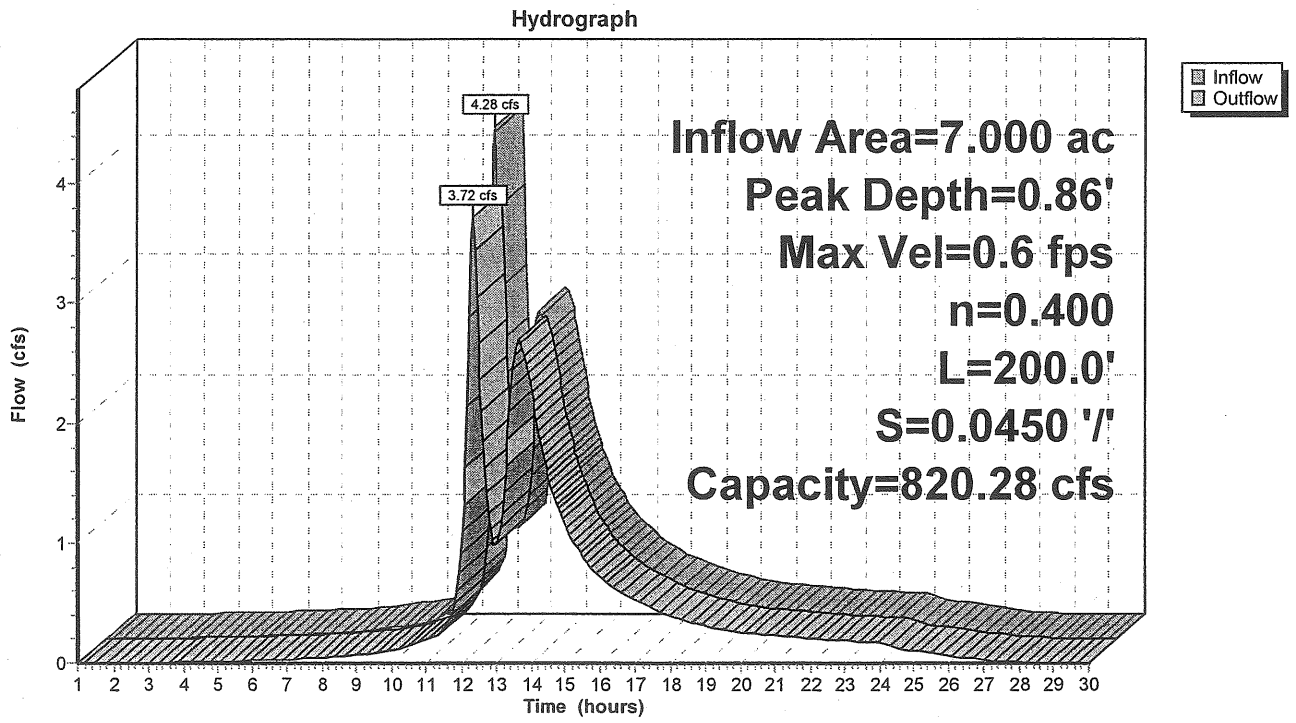
Reach 2R: REACH 2

Inflow Area = 7.000 ac, Inflow Depth = 1.45"
Inflow = 4.28 cfs @ 12.13 hrs, Volume= 0.847 af
Outflow = 3.72 cfs @ 12.29 hrs, Volume= 0.847 af, Atten= 13%, Lag= 9.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.6 fps, Min. Travel Time= 5.8 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 14.0 min

Peak Depth= 0.86' @ 12.20 hrs
Capacity at bank full= 820.28 cfs
Inlet Invert= 29.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0450 '/'
Side Slope Z-value= 3.0 '/'

Reach 2R: REACH 2



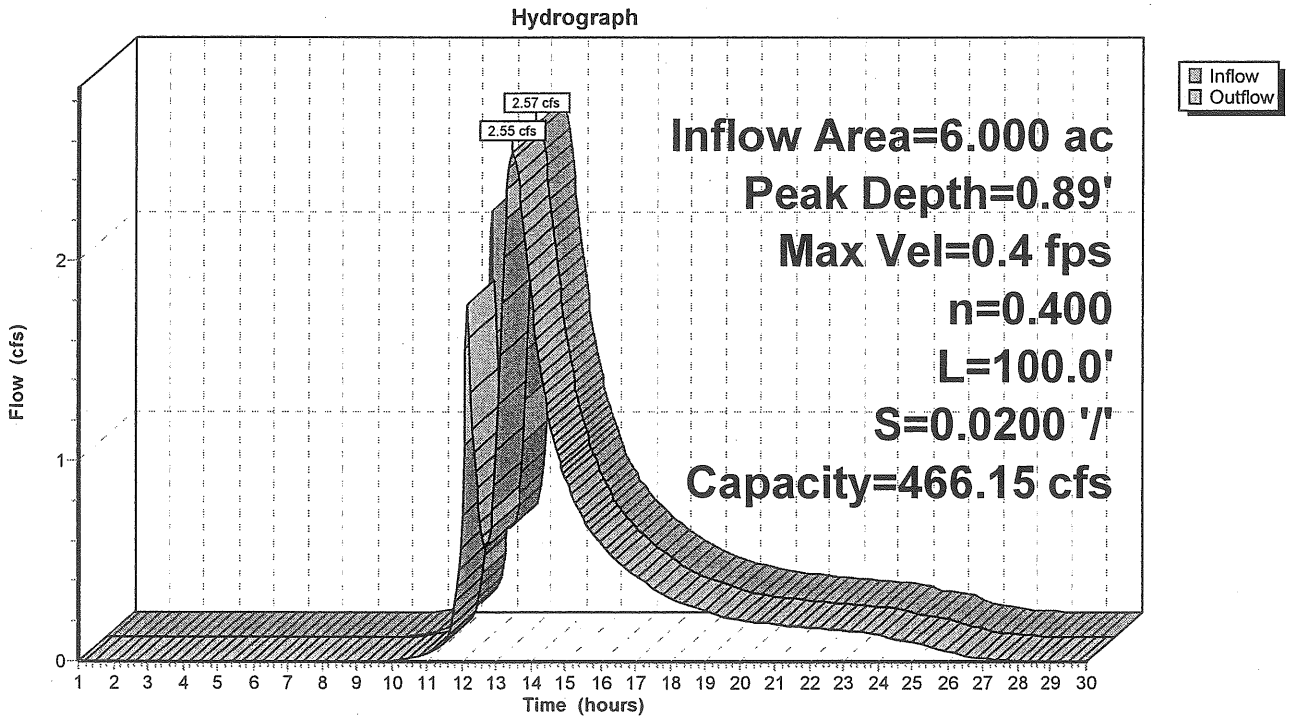
Reach 3AR: REACH 3A

Inflow Area = 6.000 ac, Inflow Depth = 1.25"
Inflow = 2.57 cfs @ 13.33 hrs, Volume= 0.625 af
Outflow = 2.55 cfs @ 13.46 hrs, Volume= 0.625 af, Atten= 1%, Lag= 7.6 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.4 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 9.1 min

Peak Depth= 0.89' @ 13.39 hrs
Capacity at bank full= 466.15 cfs
Inlet Invert= 31.00', Outlet Invert= 29.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 100.0' Slope= 0.0200 '/'
Side Slope Z-value= 2.0 3.0 '/'

Reach 3AR: REACH 3A



PLANNING REPORT #55-05

WAREHOUSE BUILDING
LOT 4 OF 400 RIVERSIDE STREET
SITE PLAN AND SITE LOCATION OF DEVELOPMENT REVIEW
RIST/BRUNET FAMILY TRUST, APPLICANT

Submitted to:
Portland Planning Board
Portland, Maine

Submitted by:
Kandice Talbot, Planner

October 20, 2005

I. INTRODUCTION

Rist/Brunet Family Trust is requesting major site plan review of a proposal to develop a 23,140 sq. ft. office/warehouse building on Lot 4 of the 400 Riverside Street Properties, formerly the Donald D. Butler Subdivision, at 400 Riverside Street.

Lot 4 of the 400 Riverside Street Properties is zoned I-M Industrial Moderate and is approximately 14.5 acres in size.

The applicant is proposing to construct a one (1) story, 23,140 sq. ft. office building/warehouse on Lot 4 of the 400 Riverside Street Properties. The site is currently developed and includes an existing 26-foot-wide paved access drive from Riverside Street, a two (2) story, 20,000 sq. ft. office building/warehouse, and a two (2) story 35,250 sq. ft. office building/warehouse.

90 notices were sent to neighborhood property owners. A neighborhood meeting was held, with one attendee. The neighborhood information is included as Attachment 10.

II. STAFF REVIEW

The proposed development has been reviewed by staff for conformance with the relevant review standards of the site plan ordinance and DEP Site Location of Development Act. Staff comments are highlighted in this report.

III. SITE PLAN REVIEW

1/2. Traffic

Lot 4 contains an existing 26 ft. wide paved access drive from Riverside Street. No changes are planned for this existing drive. Access to the site will be provided from an existing 30 ft. wide paved access drive within the development.

The site currently has 89 parking spaces. The applicant is proposing 45 new parking spaces for a total of 126 parking spaces.

Since the Presumpscot River borders Lot 4, staff is recommending that the applicant provide a pedestrian trail easement along the river. Portland Trails has acquired a trail easement from Lucas Tree and Sani Clean located at 470 Riverside Street, and this would allow for future connection of trails. A proposed condition of approval is:

- that the applicant provide a trail easement to the City along the rear of the property to connect to the trail easements, prior to issuance of a building permit.

3. Bulk, Location, Height of Proposed Buildings

The proposed structure will be typical metal-framed buildings similar in design to nearby buildings.

4. Sewers, Stormdrains, Water

The utility service for water to the proposed development will come from Riverside Street. Two existing 2-inch domestic water lines extend along the existing access drive to the 400 Riverside Street Properties from the 12-inch water main in Riverside Street. A water capacity letter has been submitted.

The applicant has requested that the Westbrook/Portland interlocal sewer agreement be amended to allow Lot 4 to connect into the sewer within Riverside Street. Wastewater flows from the existing and proposed buildings on Lot 4 will be conveyed by 8-inch gravity sewer laterals to a proposed private pump station. Discharge will be via a proposed 3-inch force main to the municipal sewer system on Riverside Street. Alternatively, each existing and proposed building may be serviced by individual low-pressure pump systems that each connect to the 3-inch force main to be installed and connected to the municipal sewer system on Riverside Street.

To amend the Westbrook/Portland interlocal agreement, Public Works must hold a public hearing to redefine the Westbrook Intermunicipal Sewer Service Area. Public Works will be recommending at this public hearing that Lot 4 be included within the Intermunicipal Sewer Service Area on Riverside Street. This service area has a total capacity of 150,000 gallons of wastewater that may be discharged to the City of Westbrook's Bridge Street Pump Station. However, due to the capacity limitation, Public Works is recommending that they be included in this service area with the condition that the wastewater generation be limited to the flows as defined in their current capacity letter request for sanitary flows and not be eligible to use these facilities for any high volume production discharge. A potential condition of approval is:

- that the wastewater generation from Lot 4, 400 Riverside Street shall be limited to the flows as defined in their current capacity letter request for sanitary flows and not be eligible to use these facilities for any high volume production discharge. In the event the City adopts an amendment to the Westbrook/Portland inter-local agreement, the applicant shall connect and discharge to the Westbrook system.

Electrical service will include the installation of underground electric service.

5. Landscaping and Existing Vegetation

The applicant is proposing that the existing mature trees will be maintained along the property lines of the project site to the extent practicable. Tree plantings and shrubs are being proposed adjacent to some of the paved area. The City Arborist has reviewed and approved the plans.

6. Soils and Drainage

A stormwater collection system will serve the planned development and will collect stormwater runoff from the site's impervious surfaces and convey it into two water quality treatment units prior to discharge to riprap plunge pools. The first riprap plunge pool will discharge adjacent to a natural marsh and the second will discharge to a natural tributary swale to the north. Both swales are tributary to the Presumpscot River.

The applicant had previously requested a waiver of the stormwater standards because there appeared to be an increase in the post development conditions. However, since the last workshop, new calculations were completed and there is no need for a waiver because the post development runoff is less than the pre development runoff.

The Development Review Coordinator has reviewed the plans and the review memo is included as Attachment 9. The DRC is recommending that the applicant revisit the site of a proposed level lip spreader and provide some clarification of the design of the Stormwater Treatment units. The DRC is also requesting additional information shall be provided regarding the Historic Sites standard of Site Location and additional information be provided for the maintenance and inspection of the facilities. A potential condition of approval is:

- that the developer address the Development Review Coordinator's memo dated September 27, 2005 regarding stormwater, historic sites and maintenance and inspection of facilities.

7. Exterior Lighting

The applicant is proposing pole-mounted shoebox fixtures and wall-pack units. Catalogue cuts of the lights are included as Attachment 7. A photometric plan has been submitted and the lighting appears to meet the lighting standards.

8. Fire

Sprinkler service will be provided by the development. There is also a hydrant proposed in the vicinity of the proposed building. The hydrant location will have to be approved by the Fire Department. A potential condition of approval is:

- that the hydrant location shall be reviewed and approved by the Fire Department prior to issuance of a building permit.

IV. STAFF RECOMMENDATION

This project, as proposed meets the Site Plan ordinance and the Site Location of Development Law. Staff is recommending that the Planning Board approve this proposal with conditions.

V. MOTIONS FOR THE BOARD TO CONSIDER

On the basis of plans and materials submitted by the applicant and on the basis of information contained in Planning Report 55-05 relevant to standards for site plan regulations, Site Location of Development Law and other findings as follows:

A. That the proposed development [is/is not] in conformance with the Site Location of Development Review.

   i. that the developer address the Development Review Coordinator's memo dated September 27, 2005 regarding stormwater, historic sites and maintenance and inspection of facilities.

B. That the plan [is/is not] in conformance with the site plan standards of the land use code.

   i. that the wastewater generation from Lot 4, 400 Riverside Street shall be limited to the flows as defined in their current capacity letter request for sanitary flows and not be eligible to use these facilities for any high volume production discharge. In the event the City adopts an amendment to the Westbrook/Portland inter-local agreement, the applicant shall connect and discharge to the Westbrook system.

   ii. that the developer address the Development Review Coordinator's memo dated September 27, 2005 regarding stormwater, historic sites and maintenance and inspection of facilities.

   iii. that the hydrant location shall be reviewed and approved by the Fire Department prior to issuance of a building permit.

Attachments:

1. Applicant's Submittal Letter dated June 20, 2005
2. Letter from Public Works regarding Riverside Street Sewer Service Area
3. Amended Hydrologic Computations
4. Stormwater Management System Inspection and Maintenance Manual
5. Tier 1 NRPA Application
6. Applicant's Submittal dated September 13, 2005
7. Lighting Catalogue Cuts
8. Typical Building Elevation
9. DRC's Memo dated September 27, 2005
10. Neighborhood Meeting Information
11. Plans

Att. 1

DeLUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

778 MAIN STREET
SUITE 8
SOUTH PORTLAND, MAINE 04106
TEL. 207 775 1121
FAX 207 879 0896

- SITE PLANNING AND DESIGN
- ROADWAY DESIGN
- ENVIRONMENTAL ENGINEERING
- PERMITTING
- AIRPORT ENGINEERING
- CONSTRUCTION ADMINISTRATION
- TRAFFIC STUDIES AND MANAGEMENT

June 20, 2005

Ms. Kandi Talbot
City of Portland
389 Congress Street
Portland, Maine 04101

Subject: Response to Peer Review Comments of November 22, 2004
Lot 4 of the 400 Riverside Street Properties
Applicant, Rist/Brunet Family Trust

Dear Kandi:

We offer the following responses to comments provided by Barry Sheff of Woodard and Curran regarding the proposed project at 400 Riverside Street. As you are aware, the Rist/Brunet Family Trust is no longer proposing development activity at Lot 6 of the McAlister Farm Drive Subdivision since they propose to transfer the property to Rio-Tierra LLC. On behalf of Rio-Tierra LLC, Mohr & Seredin has recently received Planning Board approval for development activity on the Lot 6 property. Therefore, the applicant is now only seeking Planning Board approval for the proposed 23,140 SF office/warehouse building on Lot 4 of the 400 Riverside Street Properties. Amended Site Plan drawings detailing the Lot 4 development activities are included with this submission package.

Our responses to the peer review comments are provided as they were presented in the summary section of Mr. Sheff's memorandum.

1. Wastewater – We understand that the City of Portland and the City of Westbrook have executed an Inter-municipal agreement whereby the remaining existing sewer collection system in Riverside Street has been activated and is now collecting and conveying wastewater flows to the Westbrook Pump Station located off Route 302. We are also in receipt of the attached letter from the City of Portland Public Works Department (PWD) confirming that a Public Hearing will be scheduled to allow public comment on the applicant's request that the 400 Riverside Street Properties be included within the Riverside Street sewer service area. Pending no significant public concern, we assume that the properties will be included within the service area and that the existing and proposed developments contained within the 400 Riverside Street Properties will be allowed connection for the discharge of wastewater to the Riverside Street sewer system. We understand that it is the PWD's intent to make a positive recommendation on this request. We also understand that the Lot 6 development was granted conditional approval by the Planning Authority based on similar circumstances.

2. Stormwater – DeLuca-Hoffman Associates, Inc. (DHAI) continues to request a variance from the regulatory stormwater quantity standard based on the planned development being located in the lower region of the overall watershed area comprising the Presumpscot River, and in the region proximate to where the Presumpscot River experiences tidal effects and ultimately discharges to Casco Bay. Our variance request is also based on previously submitted stormwater calculations that demonstrated that the existing tributary swale has sufficient capacity in the postdevelopment conditions to sufficiently handle the slight increase in flow and the fact that no downstream properties will be negatively impacted as a result of this proposal. In our opinion this waiver request is consistent with previous City reviews and approvals.

   We have also reviewed the drainage computations and specifically the subcatchment areas and made minor modifications to the hydrologic model to clarify the pre and postdevelopment data. Accompanying this letter, please find hydraulic computations and supporting documentation for the predevelopment and postdevelopment conditions in support of the analysis.

   Finally, we have reviewed the previously submitted Level Lip Spreader design computations and confirmed that the 10-year, 4.7-inch peak runoff rates used to size the BMP measures do, in fact, reflect the anticipated peak runoff rates discharging to the two (2) Level Lip Spreaders planned within the development site. Simply stated, the Level Lip Spreaders were sized based on the peak discharge rates generated from the portions of the existing and proposed impervious surfaces within the subcatchment areas that are actually tributary to the Level Lip Spreaders. Accompanying this letter, please find hydrologic computations and supporting documentation for the Level Lip Spreaders. Also enclosed, please find hydrologic computations and vendor sizing worksheets for the two (2) planned Water Quality Units tributary to the Level Lip Spreaders. We note that the Level Lip Spreaders were sized based on the 10-year, 4.7-inch storm even, while the Water Quality Units were sized based on vendor sizing criteria that included the 1-year, 2.5-inch storm event.

   In accordance with the design criteria for Level Lip Spreaders provided in the Maine Erosion and Sediment Control BMP Manual, we have included the previously submitted design calculations for the proposed Level Lip Spreaders. The calculations are as follows:

Summary of Level Lip Spreader Design Calculations		
Estimated Design Flow (10-yr, 24-hr storm)	**Length (0.25 CFS/LF)**	**Upstream Flow Area (4 X CFS)**
WQU No. 1 - 4.48 cfs	18.0 ft	18.0 sq. ft.
WQU No. 2 - 7.23 cfs	29.0 ft	29.0 sq. ft.

Additionally, DHAI has revised Sheet 10 – Erosion Control Details by replacing the reference for a 25-foot long Level Lip Spreader with "Refer to Sheet 5 – Grading, Drainage and Erosion Control Plan for Level Lip Spreader design information".

3. Historic Sites – We understand that the Maine Historic Preservation Commission has previously signed off on the Lot 6 property as part of the Rio-Tierra LLC application materials supplied by Mohr & Seredin. We assume no further action is necessary on this issue, since the Commission's concerns largely pertained to the undeveloped Lot 6 parcel and the applicant is only requesting approval on the partly developed Lot 4 parcel.

4. Existing Natural Resources – This 100' setback issue pertains to Lot 6 and is no longer applicable to the current proposal on Lot 4.

5. Maintenance and Inspection of Facilities – DHAI has modified the Maintenance Manual for Stormwater Management System and Common Facilities with the following specific measures:

    a. During construction, the general contractor will be responsible for regular inspection and monitoring of the stormwater facilities. Upon substantial completion of the construction and acceptance by the owner, these responsibilities will be transferred to the owner and their property management personnel. The Rist/Brunet Family Trust has managed the existing properties for several years and has the staff and contracted services currently in place to handle these responsibilities.

    b. A statement regarding the yearly inspection and maintenance for the buffer setbacks has been added to the manual.

    c. An Inspection and Maintenance log has been added to the manual for use as each site element is routinely inspected.

    d. The owner will maintain copies of any permits granted for the project within the manual with the intent that the Contractor will maintain the manual during construction and the owner and their property management personnel will maintain it after construction.

6. Grading – The planned development was located and sized to mitigate disturbances to natural resources found within the site. Several design considerations have been incorporated in the site development to mitigate the limits of disturbances to wetlands. These considerations included grading the slope to the north of the proposed building to minimize the encroachment into the nearby wetland. Turf reinforcement will be replaced by riprap on this slope and all slopes greater than 3:1.

7. Utilities – The lot 6 utilities layout has been revised based on the design drawings prepared by Mohr & Seredin on behalf of Rio-Tierra LLC; therefore, the concern regarding pipe cover no longer applies. DHAI will review the location of the pump station on Lot 4 with the owner/applicant.

We trust these responses will satisfy the Planning Authority and the project may be placed on the next available Planning Board Agenda for consideration of Final Approval. If you have any further questions, please call this office.

Sincerely,

DeLUCA-HOFFMAN ASSOCIATES, INC.

Stephen R. Bushey, PE
Senior Engineer

SRB/sq/JN2314/Talbot-6-8-05

Attachments:

- Amended Lot 4 Site Plans
- Letter from Portland Public Works concerning scheduling of a Public Hearing on the applicant's request that the 400 Riverside Street Properties be included within the Riverside Street sewer service area
- Amended Hydrologic Computations & Support Documentation
- Hydrologic Computations and Supporting Documentation for the Level Lip Spreaders and Hydrologic Computations and Water Quality Unit Vendor Sizing Worksheets and Supporting Documentation
- Stormwater Management System Inspection and Maintenance Manual for Stormwater Management Systems and Common Facilities

c: Marty Rist

2314/24

Att. 2

CITY OF PORTLAND, MAINE
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL ENGINEERING
MEMORANDUM

TO: Kandice Talbot, Planner
FROM: Stephen K. Harris, Assistant Engineer
DATE: April 28, 2005
SUBJECT: Re: Petition for inclusion of Lots 4, 5 & 6 in Intermunicipal Service Area

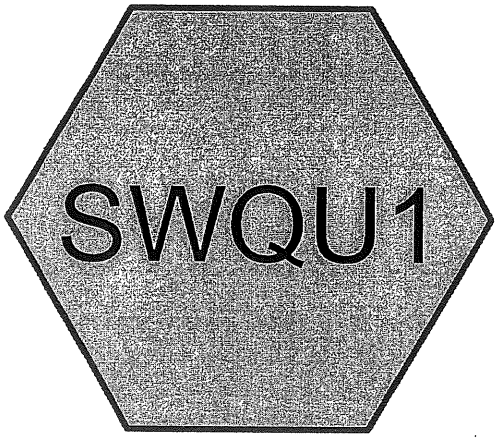
In order to accommodate the Petition Request from the Rist/Brunet Family Trust for Lot 6 of McAlister Farm Drive and Lots 4 & 5 of 400 Riverside Street Properties to be included within the Intermunicipal Sewer Service Area on Riverside Street, Public Works will be conducting a Public Hearing to redefine the Westbrook Intermunicipal Sewer Service Area as defined by the plan sheet labeled Attachment "A" in the City of Portland's Rules and Regulations for the Use of the Wastewater System. The Public Hearing will be conducted in the near future and the changes should be in place by mid-Summer barring adverse Public Comment.

Environmental Engineering is recommending that Lot 6 of McAlister Farm Drive (on an interim basis) and Lots 4 & 5 of 400 Riverside Street Properties be included within the Intermunicipal Sewer Service Area on Riverside Street. A a result of an Intermunicpal Agreement this service area has a total capacity of 150,000 gallons of wastewater that may be discharged to the City of Westbrook's Bridge Street Pump Station.

Due to the capacity limitation we would recommend that they be included in this Service Area with the condition that the wastewater generation be limited to the flows as defined in their current capacity letter request for sanitary flows and not be eligible to use these facilities for any high volume production discharge. We also shall recommend at the Public Hearing that as Lot 6 in the McAlister Farm Subdivision is in a distinctly different watershed, that when the McAlister Farm Subdivision is appropriately sewered in the future that Lot 6 be directed into the new sewer constructed to accommodate McAlister Farm Subdivision.

pc: Eric Labelle, PE, City Engineer
Bradley A. Roland, P.E., Project Engineer

Att. 3



WQU #1 SUBCATCHMENT AREA

Drainage Diagram for LOT 4-400 Riverside Street PropertiesWQU#1
Prepared by {enter your company name here} 5/26/2005

Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment SWQU1: WQU #1 SUBCATCHMENT AREA Runoff Area=1.000 ac Runoff Depth=4.35"
Flow Length=466' Tc=5.7 min CN=97 Runoff=4.48 cfs 0.362 af

Total Runoff Area = 1.000 ac Runoff Volume = 0.362 af Average Runoff Depth = 4.35"

Subcatchment SWQU1: WQU #1 SUBCATCHMENT AREA

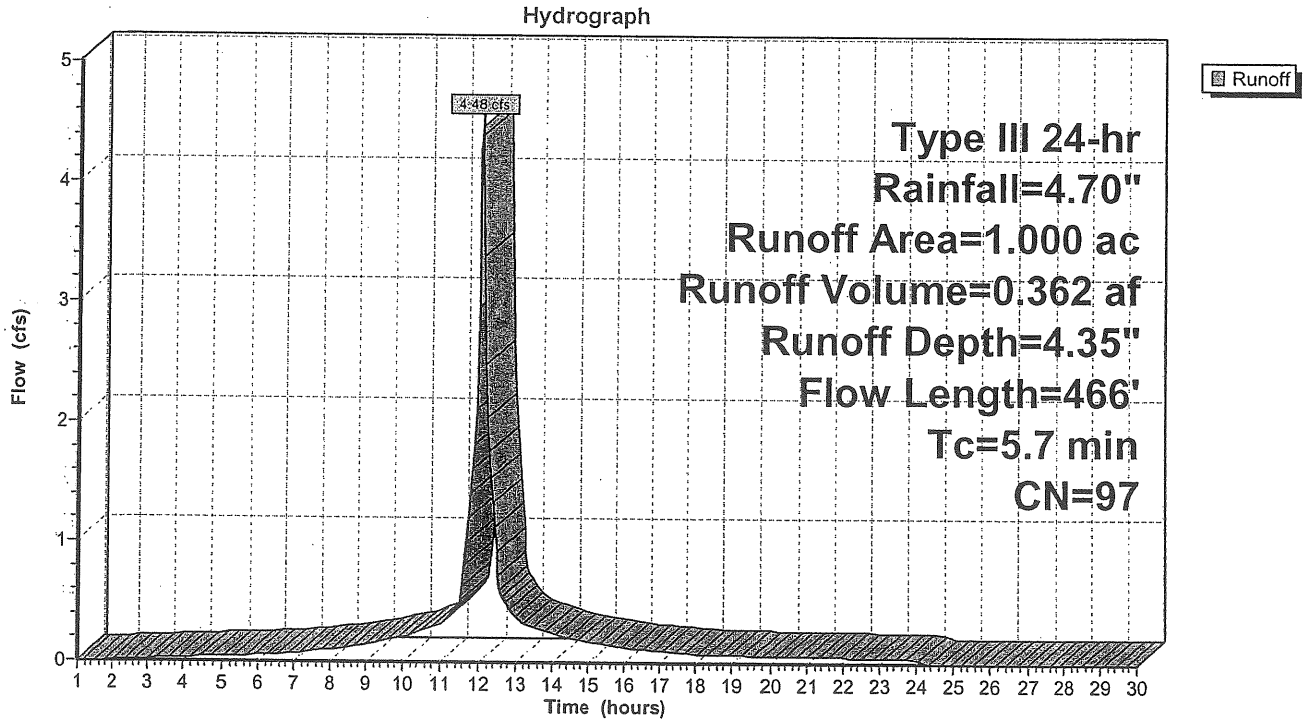
Runoff = 4.48 cfs @ 12.08 hrs, Volume= 0.362 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.900	98	IMPERVIOUS
0.100	84	Grassland HSG D
1.000	97	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	70	0.1000	0.3		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.9	160	0.0230	3.1		**Shallow Concentrated Flow, Shallow Concentrated B to C** Paved Kv= 20.3 fps
0.7	186	0.0035	4.2	7.34	**Circular Channel (pipe), Channel C to D** Diam= 18.0" Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
0.1	50	0.0058	6.5	20.36	**Circular Channel (pipe), Channel D to E** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
5.7	466	Total			

Subcatchment SWQU1: WQU #1 SUBCATCHMENT AREA



400 Riverside Street – Portland, ME (Continued)

Vortechs Stormwater Treatment System Design Confirmation and Sizing Calculations

WQU #1

Site and System Specifics

$Q_{1\text{-year}} = 2.31$ cfs
Specified System – Vortechs Model 4000
Treatment Capacity = 6.00 cfs
Grit Chamber Diameter = 6.00 ft

Vortechs System Swirl Chamber Surface Area Calculation

Surface Area = $(pi)r^2$ $= (3.14)(3.00 \text{ ft})^2$
$= 28.27$ sqft

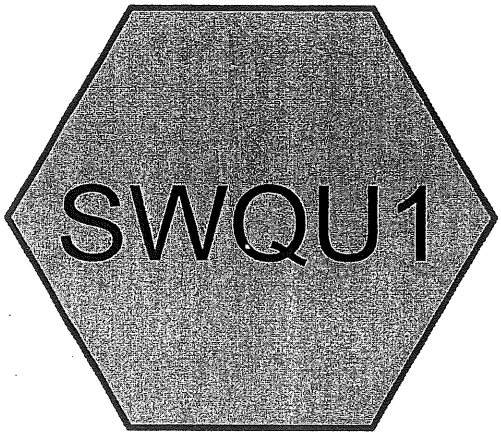
$Q_{1\text{-year}}$ Water Loading Rate Calculation

$Q_{1\text{-year}}$ Operating Rate $= Q_{1\text{-year}}$ /Grit Chamber Surface Area
$= (2.31 \text{ cfs} * 448.83 \text{ gpm/cfs})/28.27$ sqft
$= 36.67$ gpm/sqft

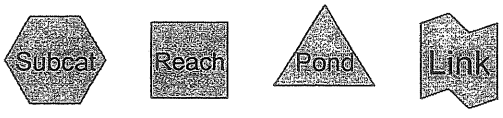
60% ME DEP Total Suspended Solids Removal Rating Verification

As stated in the attached letter from the ME DEP dated June 5, 2002, a removal rating of 60% will apply to Vortechs Systems, provided that the projected one year peak flow does not exceed a water loading rate of 36.8 gpm/sqft within the Vortechs System.

Since the calculated water loading rate 36.67 gpm/sqft for a one year flow does not exceed the upper limit of 36.8 gpm/sqft as set by the ME DEP, the Vortechs Model 4000 is sized appropriately for a 60% TSS removal rating.



WQU #1 SUBCATCHMENT AREA



Drainage Diagram for LOT 4-400 Riverside Street PropertiesWQU#1
Prepared by {enter your company name here} 5/26/2005

Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment SWQU1: WQU #1 SUBCATCHMENT AREA Runoff Area=1.000 ac Runoff Depth=2.16"
Flow Length=466' Tc=5.7 min CN=97 Runoff=2.31 cfs 0.180 af

Total Runoff Area = 1.000 ac Runoff Volume = 0.180 af Average Runoff Depth = 2.16"

Subcatchment SWQU1: WQU #1 SUBCATCHMENT AREA

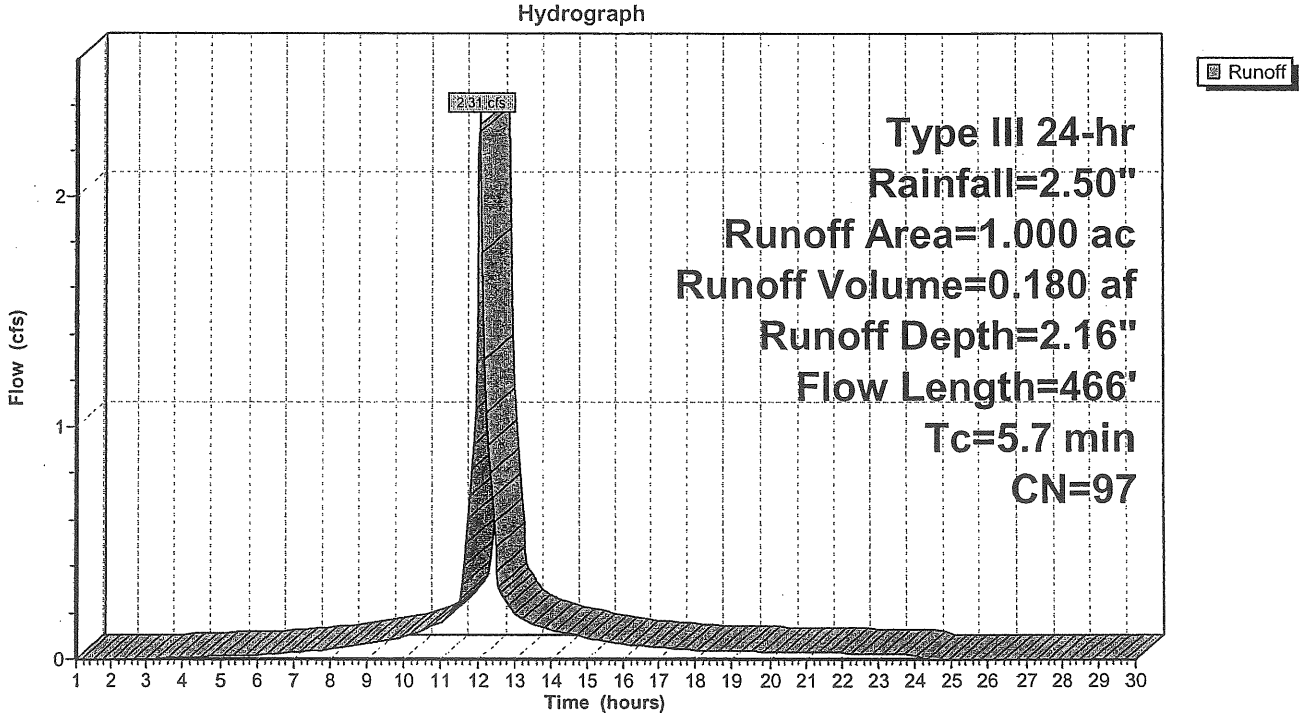
Runoff = 2.31 cfs @ 12.08 hrs, Volume= 0.180 af, Depth= 2.16"

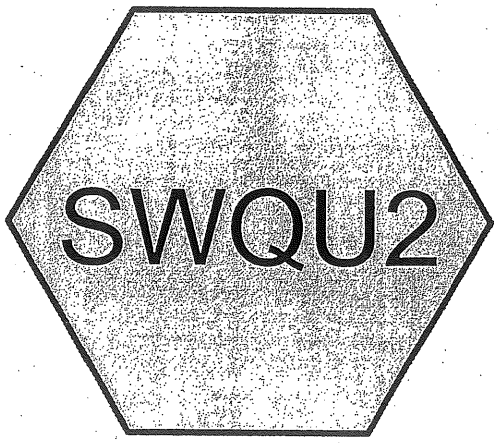
Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=2.50"

Area (ac)	CN	Description
0.900	98	IMPERVIOUS
0.100	84	Grassland HSG D
1.000	97	Weighted Average

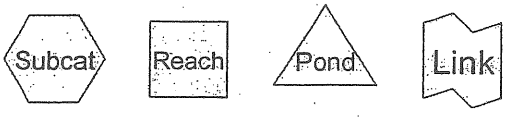
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	70	0.1000	0.3		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.9	160	0.0230	3.1		**Shallow Concentrated Flow, Shallow Concentrated B to C** Paved Kv= 20.3 fps
0.7	186	0.0035	4.2	7.34	**Circular Channel (pipe), Channel C to D** Diam= 18.0" Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
0.1	50	0.0058	6.5	20.36	**Circular Channel (pipe), Channel D to E** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
5.7	466	Total			

Subcatchment SWQU1: WQU #1 SUBCATCHMENT AREA





WQU #2 SUBCATCHMENT AREA



Drainage Diagram for LOT 4-400 Riverside Street Properties WQU#2
Prepared by {enter your company name here} 5/26/2005

Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: SUBCATCHMENT 3 Runoff Area=1.450 ac Runoff Depth=4.46"
Flow Length=280' Tc=2.7 min CN=98 Runoff=7.23 cfs 0.539 af

Total Runoff Area = 1.450 ac Runoff Volume = 0.539 af Average Runoff Depth = 4.46"

Subcatchment 3S: SUBCATCHMENT 3

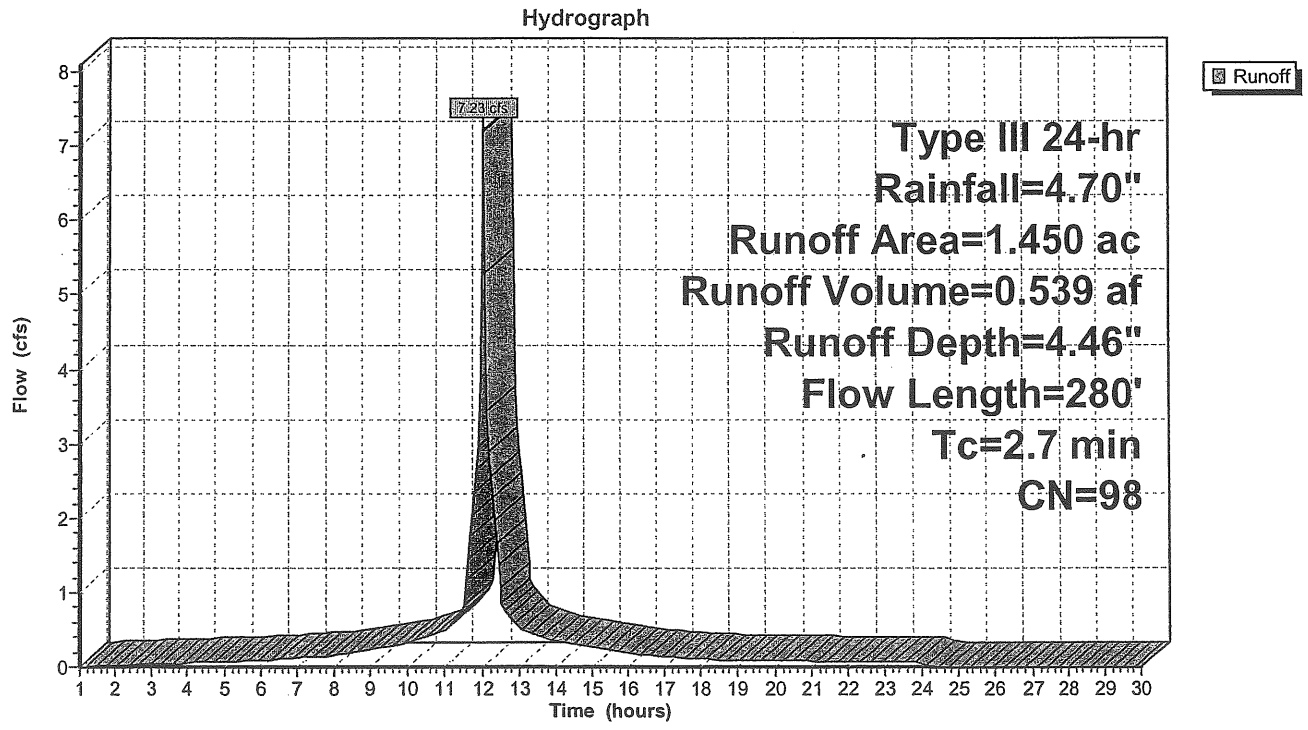
Runoff = 7.23 cfs @ 12.04 hrs, Volume= 0.539 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
1.450	98	IMPERVIOUS

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	30	0.0010	0.3		**Sheet Flow, SHEET FLOW A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	70	0.0140	2.4		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-(** Paved Kv= 20.3 fps
0.1	52	0.0115	7.5	13.31	**Circular Channel (pipe), Pipe C to D** Diam= 18.0" Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
0.1	33	0.0030	4.7	14.64	**Circular Channel (pipe), Pipe D to E** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
0.2	45	0.0030	4.7	14.64	**Circular Channel (pipe), Pipe E to F** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
0.2	50	0.0030	4.7	14.64	**Circular Channel (pipe), Pipe F to G** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
2.7	280	Total			

Subcatchment 3S: SUBCATCHMENT 3



400 Riverside Street – Portland, ME (Continued)

Vortechs Stormwater Treatment System Design Confirmation and Sizing Calculations

WQU #2

Site and System Specifics

$Q_{1\text{-year}} = 3.79$ cfs
Specified System – Vortechs Model 7000
Treatment Capacity = 11.00 cfs
Grit Chamber Diameter = 8.00 ft

Vortechs System Swirl Chamber Surface Area Calculation

Surface Area = $(pi)r^2$ $= (3.14)(4.00 \text{ ft})^2$
$= 50.27$ sqft

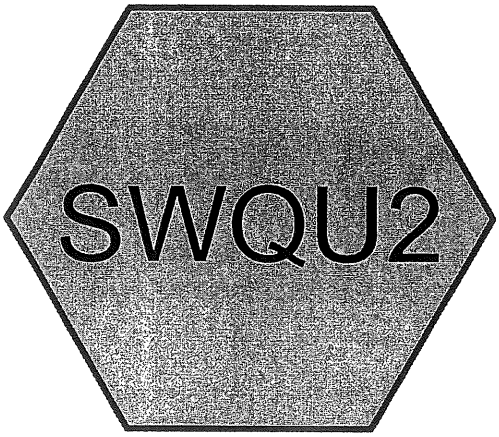
$Q_{1\text{-year}}$ Water Loading Rate Calculation

$Q_{1\text{-year}}$ Operating Rate $= Q_{1\text{-year}}$ /Grit Chamber Surface Area
$= (3.79 \text{ cfs} * 448.83 \text{ gpm/cfs})/50.27$ sqft
$= 33.84$ gpm/sqft

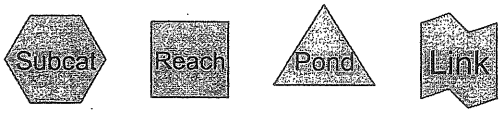
60% ME DEP Total Suspended Solids Removal Rating Verification

As stated in the attached letter from the ME DEP dated June 5, 2002, a removal rating of 60% will apply to Vortechs Systems, provided that the projected one year peak flow does not exceed a water loading rate of 36.8 gpm/sqft within the Vortechs System.

Since the calculated water loading rate 33.84 gpm/sqft for a one year flow does not exceed the upper limit of 36.8 gpm/sqft as set by the ME DEP, the Vortechs Model 7000 is sized appropriately for a 60% TSS removal rating.



WQU #2 SUBCATCHMENT AREA



Drainage Diagram for LOT 4-400 Riverside Street Properties WQU#2
Prepared by {enter your company name here} 5/26/2005

Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment SWQU2: WQU #2 SUBCATCHMENT AREA Runoff Area=1.450 ac Runoff Depth=2.27"
Flow Length=280' Tc=2.7 min CN=98 Runoff=3.79 cfs 0.274 af

Total Runoff Area = 1.450 ac Runoff Volume = 0.274 af Average Runoff Depth = 2.27"

Subcatchment SWQU2: WQU #2 SUBCATCHMENT AREA

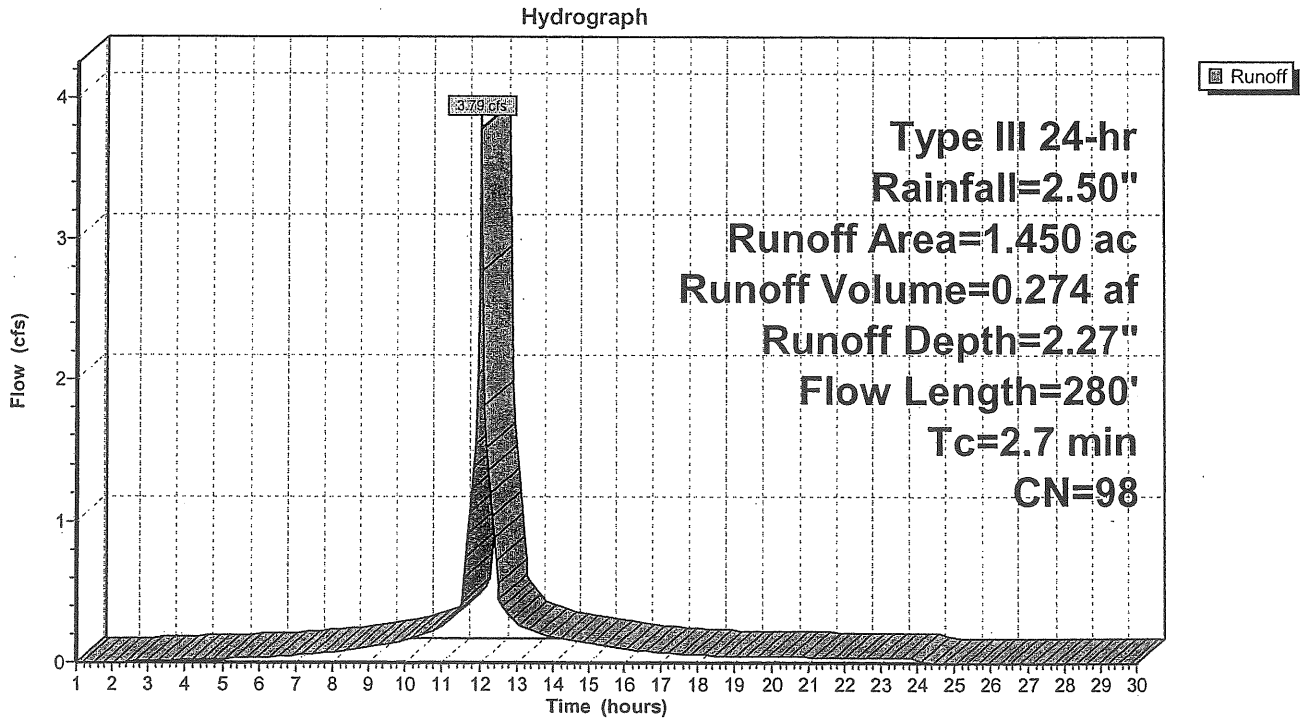
Runoff = 3.79 cfs @ 12.04 hrs, Volume= 0.274 af, Depth= 2.27"

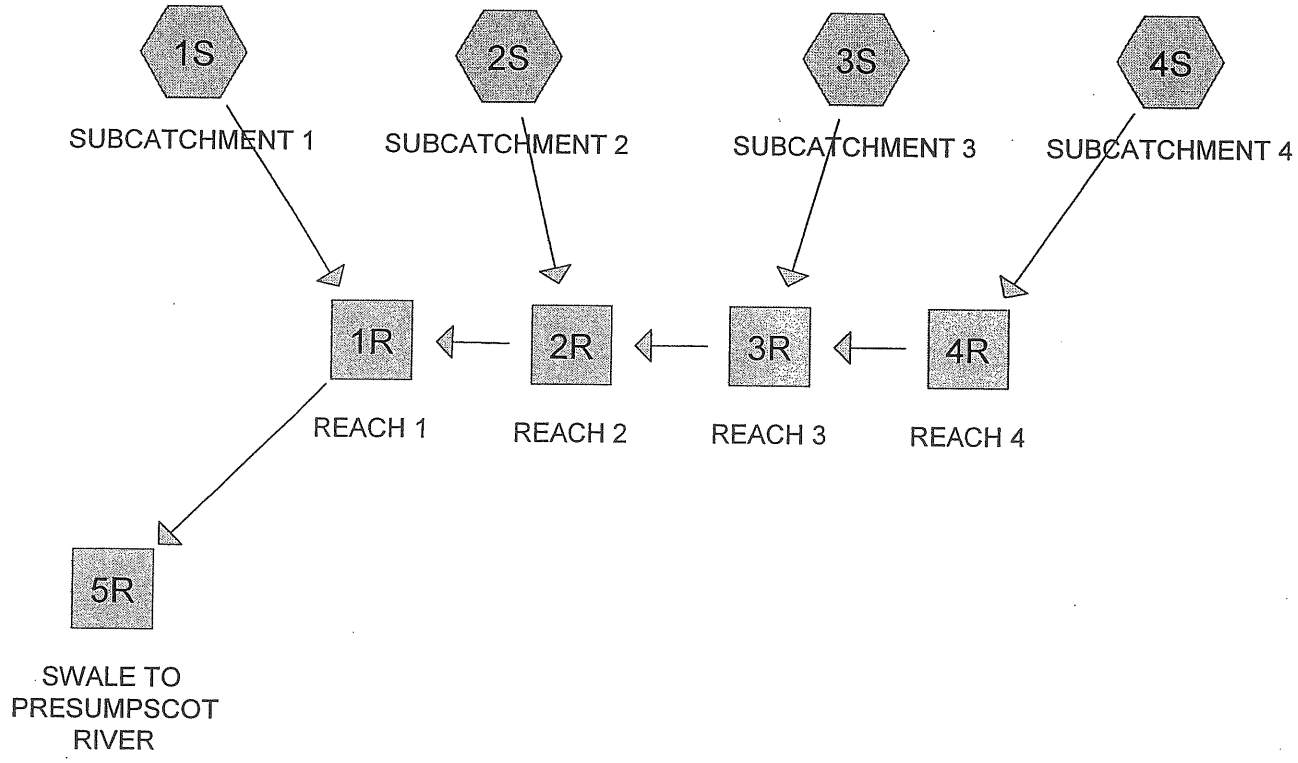
Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=2.50"

Area (ac)	CN	Description
1.450	98	IMPERVIOUS

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	30	0.0010	0.3		**Sheet Flow, SHEET FLOW A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	70	0.0140	2.4		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-(** Paved Kv= 20.3 fps
0.1	52	0.0115	7.5	13.31	**Circular Channel (pipe), Pipe C to D** Diam= 18.0" Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
0.1	33	0.0030	4.7	14.64	**Circular Channel (pipe), Pipe D to E** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
0.2	45	0.0030	4.7	14.64	**Circular Channel (pipe), Pipe E to F** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
0.2	50	0.0030	4.7	14.64	**Circular Channel (pipe), Pipe F to G** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
2.7	280	Total			

Subcatchment SWQU2: WQU #2 SUBCATCHMENT AREA





Subcat Reach Pond Link

Drainage Diagram for LOT 4-400 Riverside Street Properties
Prepared by DeLuca-Hoffman Associates, Inc. 3/29/2004

Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SUBCATCHMENT 1 Runoff Area=3.000 ac Runoff Depth=1.31"
Flow Length=680' Tc=12.4 min CN=81 Runoff=3.65 cfs 0.328 af

Subcatchment 2S: SUBCATCHMENT 2 Runoff Area=0.750 ac Runoff Depth=0.76"
Flow Length=160' Tc=5.3 min CN=71 Runoff=0.60 cfs 0.048 af

Subcatchment 3S: SUBCATCHMENT 3 Runoff Area=4.250 ac Runoff Depth=1.38"
Flow Length=780' Tc=11.6 min CN=82 Runoff=5.63 cfs 0.488 af

Subcatchment 4S: SUBCATCHMENT 4 Runoff Area=2.000 ac Runoff Depth=0.33"
Flow Length=420' Tc=8.5 min CN=60 Runoff=0.35 cfs 0.056 af

Reach 1R: REACH 1 Peak Depth=1.00' Max Vel=0.8 fps Inflow=6.63 cfs 0.920 af
n=0.400 L=200.0' S=0.0750 '/' Capacity=1,058.98 cfs Outflow=6.44 cfs 0.920 af

Reach 2R: REACH 2 Peak Depth=0.99' Max Vel=0.6 fps Inflow=5.22 cfs 0.591 af
n=0.400 L=200.0' S=0.0450 '/' Capacity=820.28 cfs Outflow=4.85 cfs 0.591 af

Reach 3R: REACH 3 Peak Depth=1.13' Max Vel=0.6 fps Inflow=5.63 cfs 0.544 af
n=0.400 L=200.0' S=0.0300 '/' Capacity=570.91 cfs Outflow=4.93 cfs 0.544 af

Reach 4R: REACH 4 Peak Depth=0.02' Max Vel=0.2 fps Inflow=0.35 cfs 0.056 af
n=0.130 L=250.0' S=0.0020 '/' Capacity=9,723.14 cfs Outflow=0.22 cfs 0.056 af

Reach 5R: SWALE TO PRESUMPSCOT RIVE Peak Depth=1.38' Max Vel=0.5 fps Inflow=6.44 cfs 0.920 af
n=0.400 L=150.0' S=0.0200 '/' Capacity=1,511.09 cfs Outflow=6.26 cfs 0.920 af

Total Runoff Area = 10.000 ac Runoff Volume = 0.920 af Average Runoff Depth = 1.10"

Subcatchment 1S: SUBCATCHMENT 1

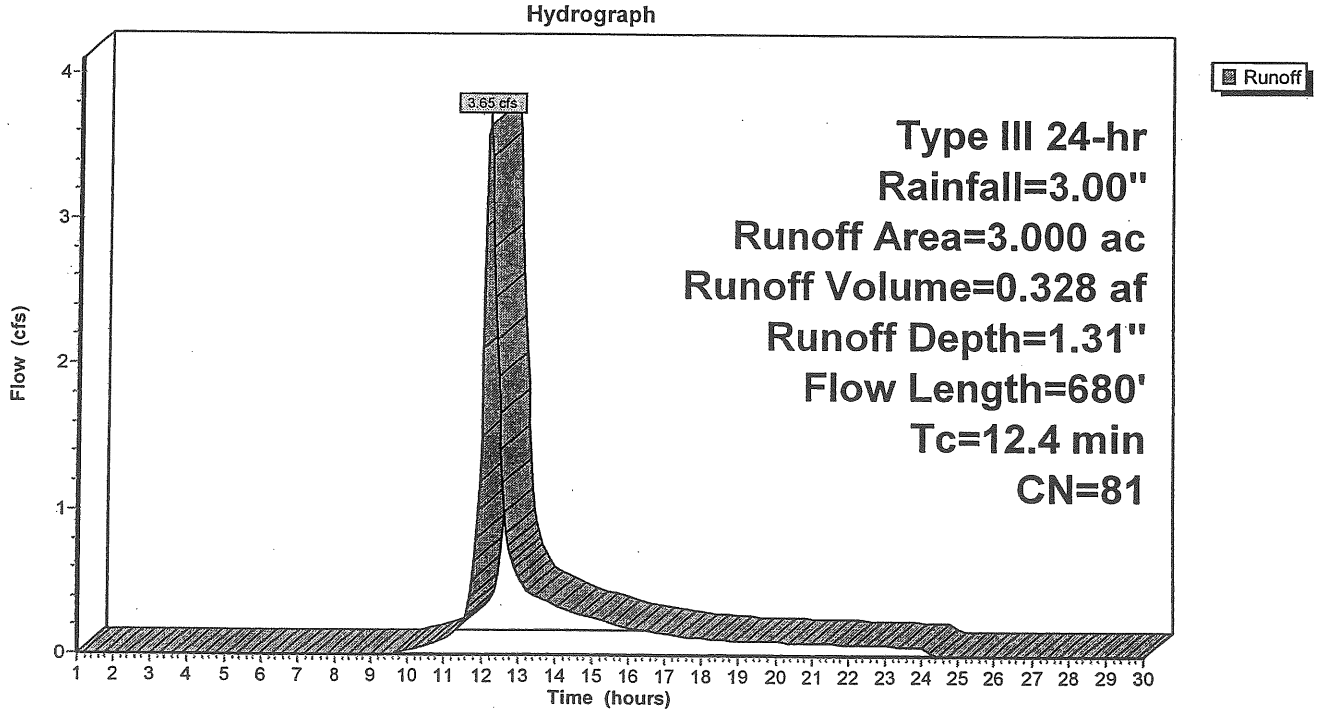
Runoff = 3.65 cfs @ 12.18 hrs, Volume= 0.328 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.750	98	IMPERVIOUS
0.750	77	WEEDS, LOW BRUSH, FAIR, HSG D
0.750	78	CONTINUOUS GRASS, HSG D
0.750	71	CONTINUOUS GRASS, HSG C
3.000	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0400	0.2		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.7	120	0.1670	2.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
0.5	260	0.0380	9.0	8,142.85	**Channel Flow, CHANNEL FLOW C-D** Area= 900.0 sf Perim= 110.0' r= 8.18' n= 0.130
3.5	200	0.0180	0.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED D TC** Short Grass Pasture Kv= 7.0 fps
12.4	680	Total			

Subcatchment 1S: SUBCATCHMENT 1



Subcatchment 2S: SUBCATCHMENT 2

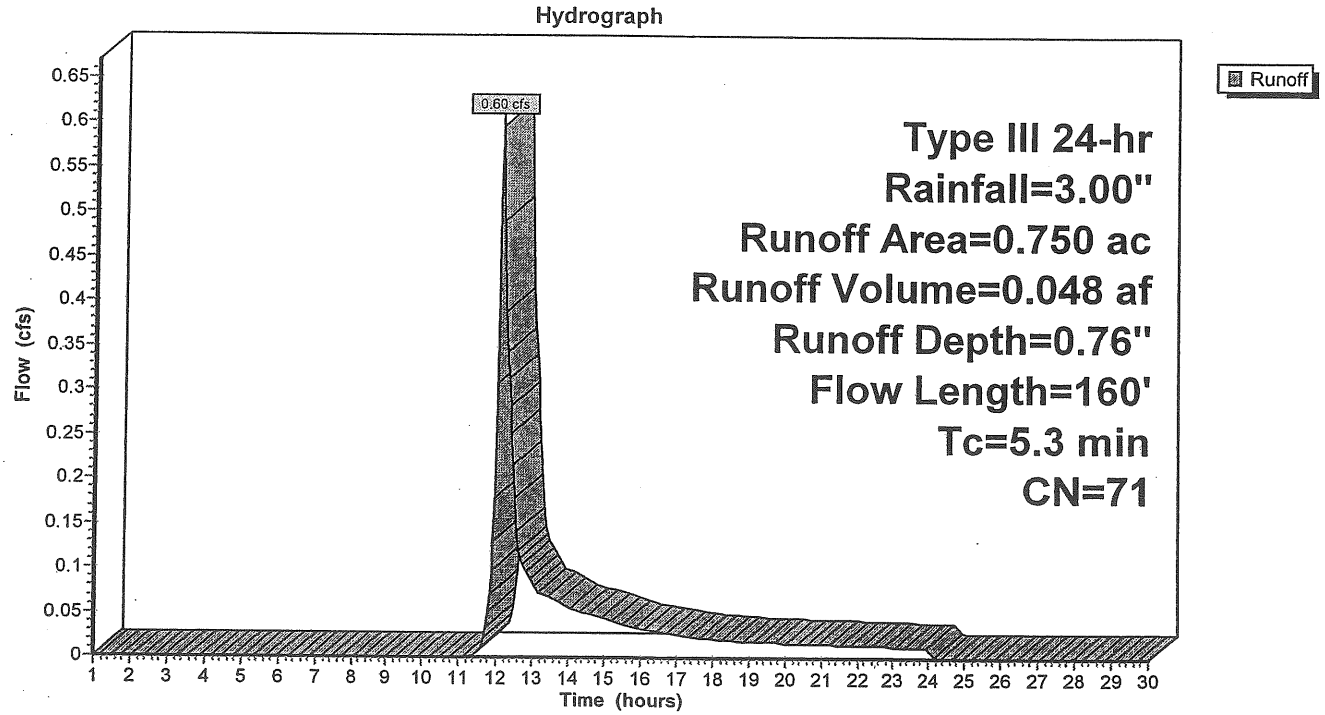
Runoff = 0.60 cfs @ 12.10 hrs, Volume= 0.048 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.150	56	BRUSH, WEEDS, FAIR, HSG B
0.150	58	CONTINUOUS GRASS, HSG B
0.150	71	CONTINOUS GRASS, HSG C
0.300	84	GRASSLAND, FAIR, HSG D
0.750	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.1200	0.3		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.4	60	0.1080	2.3		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
5.3	160	Total			

Subcatchment 2S: SUBCATCHMENT 2



Subcatchment 3S: SUBCATCHMENT 3

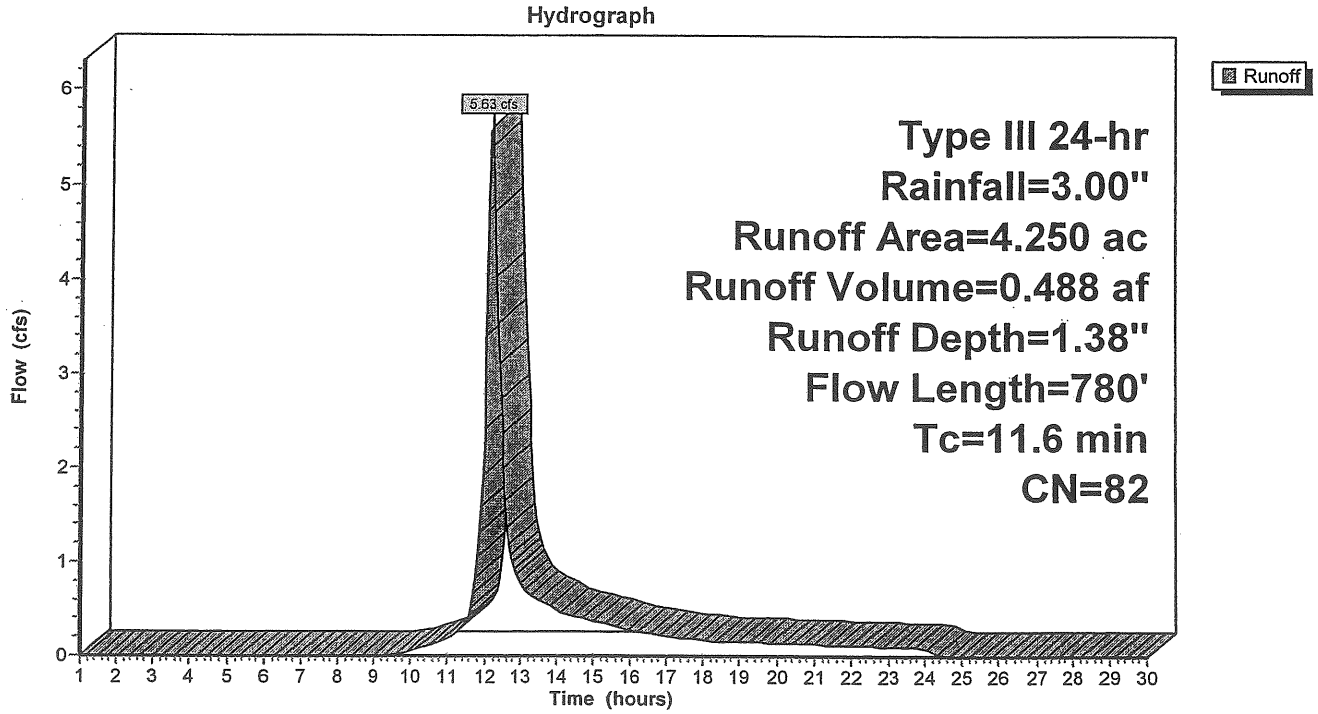
Runoff = 5.63 cfs @ 12.17 hrs, Volume= 0.488 af, Depth= 1.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
2.250	98	IMPERVIOUS
1.000	56	WEEDS, LOW BRUSH, FAIR, HSG B
1.000	71	CONTINOUS GRASS, HSG C
4.250	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	100	0.1700	0.4		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
2.7	200	0.0300	1.2		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
3.1	255	0.0078	1.4	169.13	**Channel Flow, CHANNEL FLOW C-D** Area= 125.0 sf Perim= 65.0' r= 1.92' n= 0.150
1.5	225	0.0580	2.5	569.17	**Channel Flow, CHANNEL FLOW D TO E** Area= 230.0 sf Perim= 50.0' r= 4.60' n= 0.400
11.6	780	Total			

Subcatchment 3S: SUBCATCHMENT 3



Subcatchment 4S: SUBCATCHMENT 4

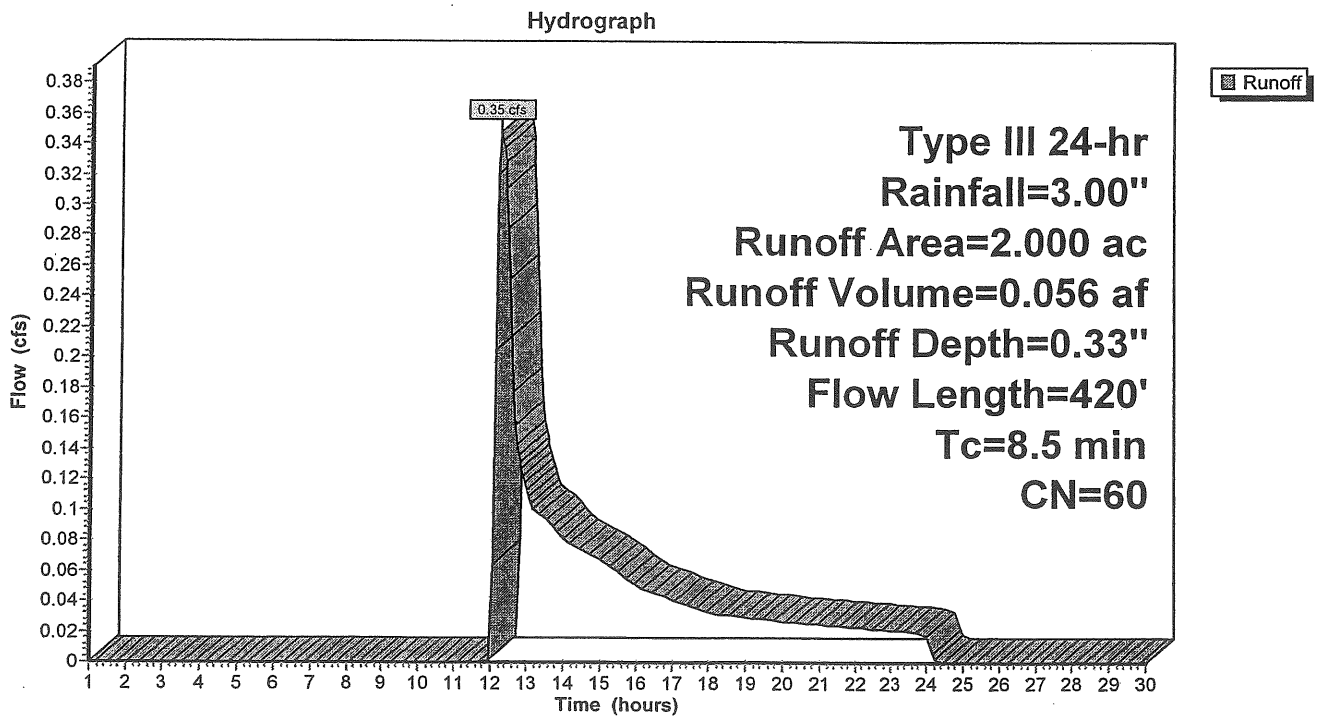
Runoff = 0.35 cfs @ 12.22 hrs, Volume= 0.056 af, Depth= 0.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS
1.680	56	WEEDS, LOW BRUSH, FAIR, HSG B
0.170	71	CONTINUOUS GRASS. HSG C
2.000	60	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1400	0.4		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
3.0	200	0.0500	1.1		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Woodland Kv= 5.0 fps
0.9	120	0.0500	2.2	388.87	**Channel Flow, CHANNEL FLOW C-D** Area= 175.0 sf Perim= 40.0' r= 4.38' n= 0.400
8.5	420	Total			

Subcatchment 4S: SUBCATCHMENT 4



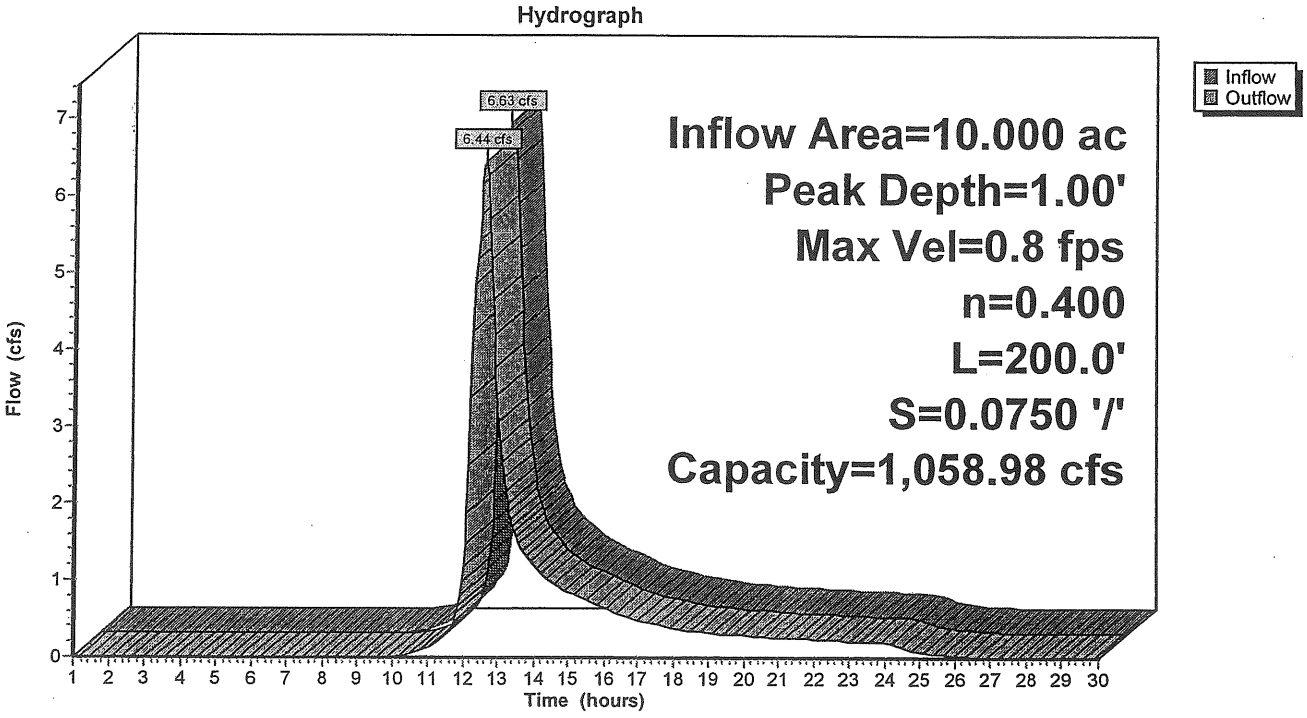
Reach 1R: REACH 1

Inflow Area = 10.000 ac, Inflow Depth = 1.10"
Inflow = 6.63 cfs @ 12.46 hrs, Volume= 0.920 af
Outflow = 6.44 cfs @ 12.58 hrs, Volume= 0.920 af, Atten= 3%, Lag= 6.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.8 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 10.3 min

Peak Depth= 1.00' @ 12.51 hrs
Capacity at bank full= 1,058.98 cfs
Inlet Invert= 35.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0750 '/'
Side Slope Z-value= 3.0 '/'

Reach 1R: REACH 1



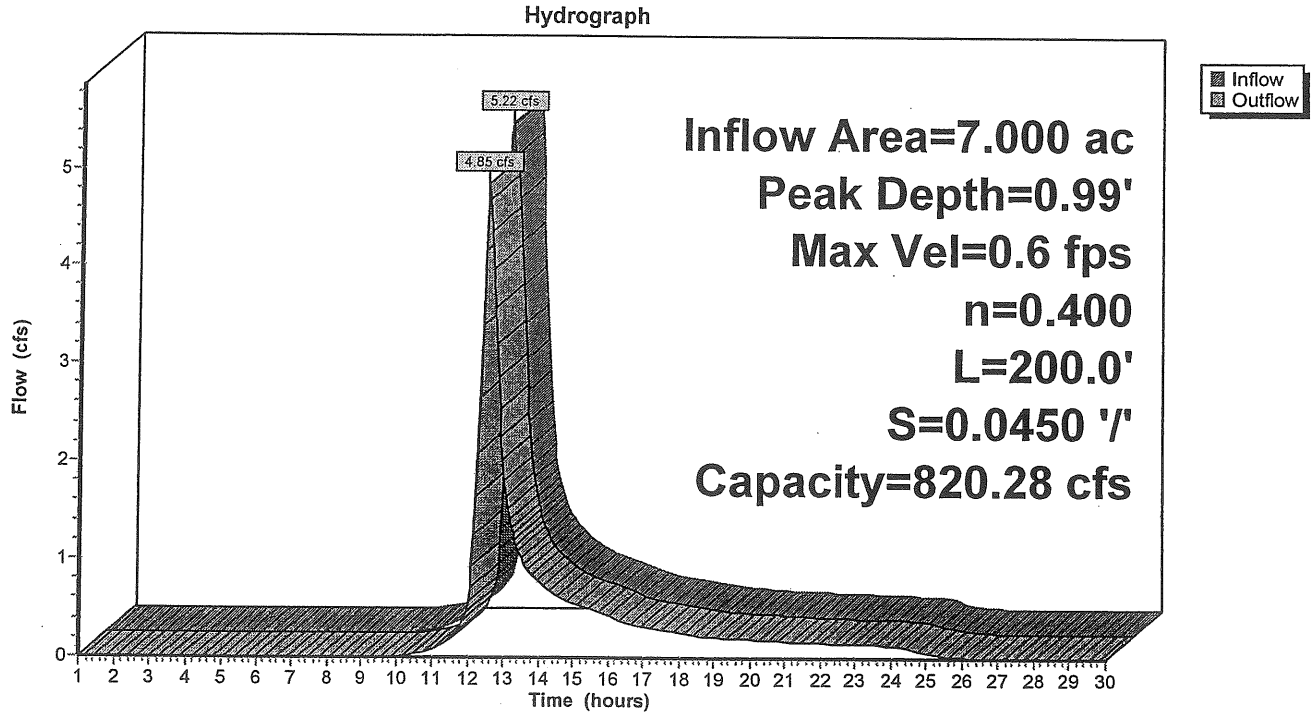
Reach 2R: REACH 2

Inflow Area = 7.000 ac, Inflow Depth = 1.01"
Inflow = 5.22 cfs @ 12.34 hrs, Volume= 0.591 af
Outflow = 4.85 cfs @ 12.50 hrs, Volume= 0.591 af, Atten= 7%, Lag= 9.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.6 fps, Min. Travel Time= 5.4 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 13.9 min

Peak Depth= 0.99' @ 12.41 hrs
Capacity at bank full= 820.28 cfs
Inlet Invert= 29.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0450 '/'
Side Slope Z-value= 3.0 '/'

Reach 2R: REACH 2



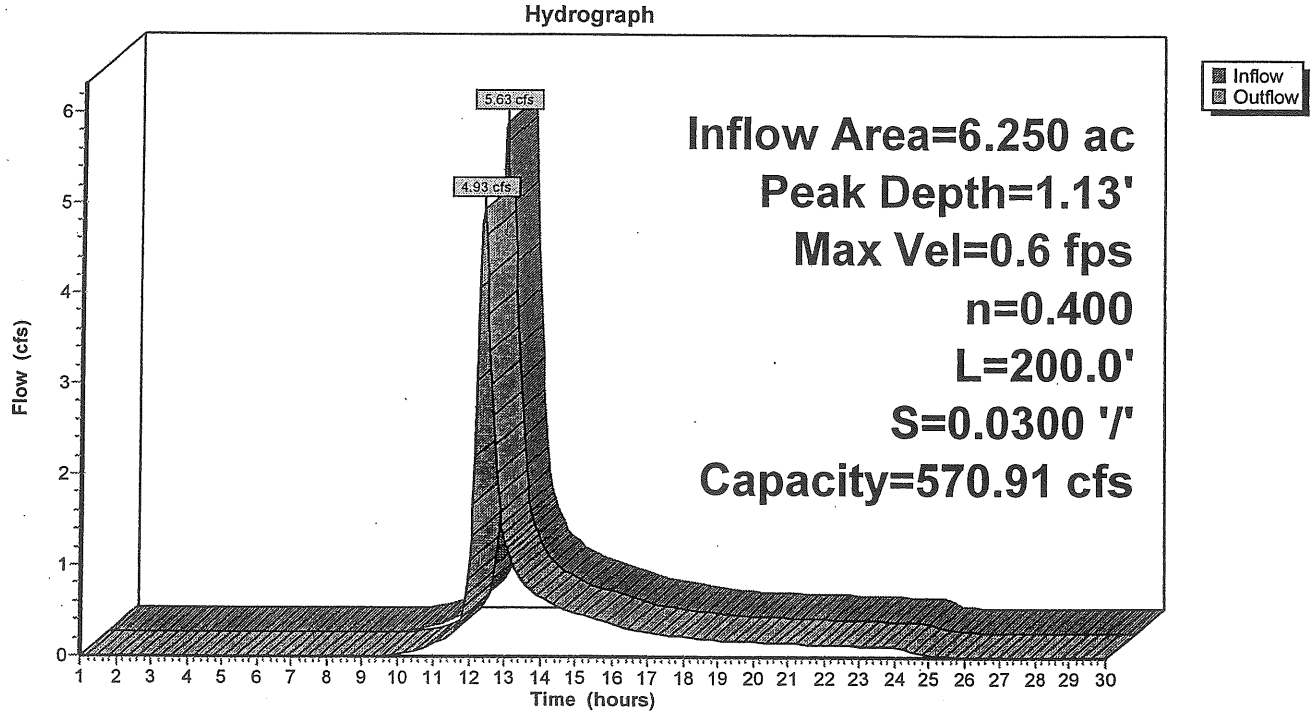
Reach 3R: REACH 3

Inflow Area = 6.250 ac, Inflow Depth = 1.04"
Inflow = 5.63 cfs @ 12.17 hrs, Volume= 0.544 af
Outflow = 4.93 cfs @ 12.34 hrs, Volume= 0.544 af, Atten= 12%, Lag= 10.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.6 fps, Min. Travel Time= 6.0 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 16.2 min

Peak Depth= 1.13' @ 12.24 hrs
Capacity at bank full= 570.91 cfs
Inlet Invert= 35.00', Outlet Invert= 29.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0300 '/'
Side Slope Z-value= 2.0 3.0 '/'

Reach 3R: REACH 3



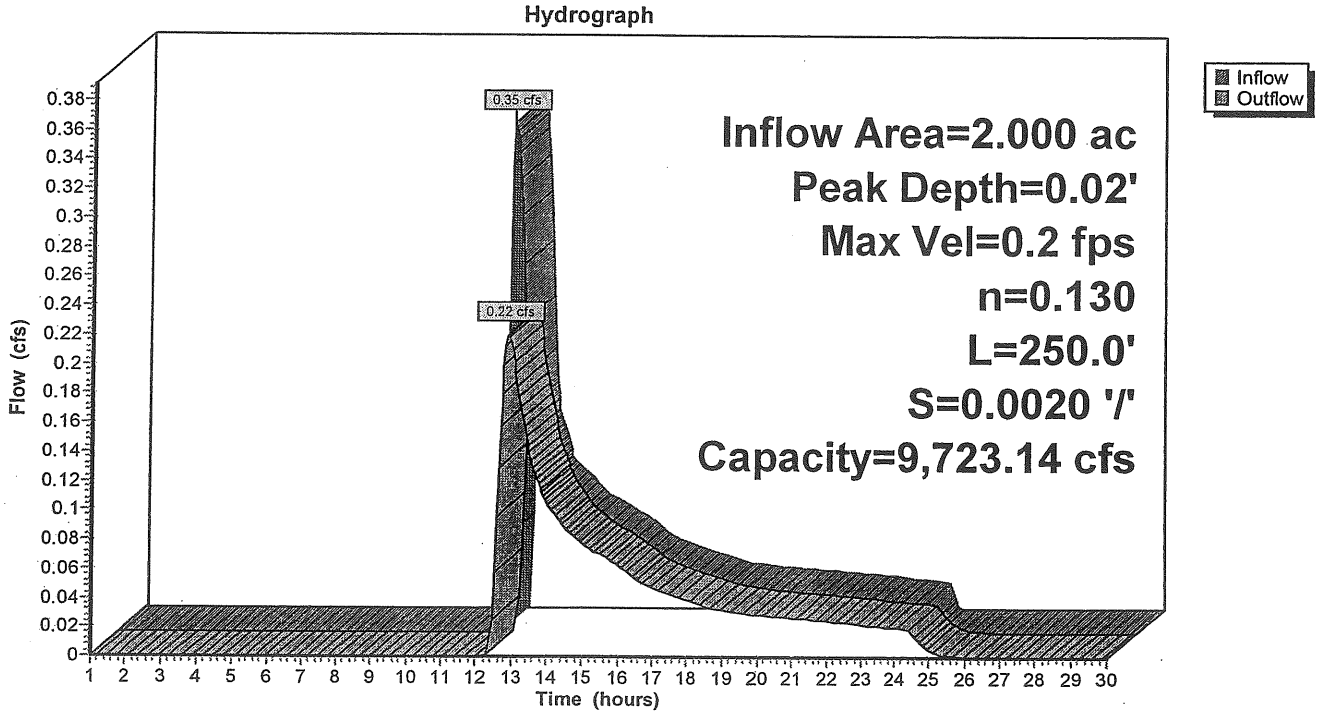
Reach 4R: REACH 4

Inflow Area = 2.000 ac, Inflow Depth = 0.33"
Inflow = 0.35 cfs @ 12.22 hrs, Volume= 0.056 af
Outflow = 0.22 cfs @ 12.89 hrs, Volume= 0.056 af, Atten= 37%, Lag= 40.2 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.2 fps, Min. Travel Time= 20.8 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 20.8 min

Peak Depth= 0.02' @ 12.54 hrs
Capacity at bank full= 9,723.14 cfs
Inlet Invert= 35.50', Outlet Invert= 35.00'
50.00' x 25.00' deep channel, n= 0.130 Length= 250.0' Slope= 0.0020 '/'
Side Slope Z-value= 3.0 '/'

Reach 4R: REACH 4



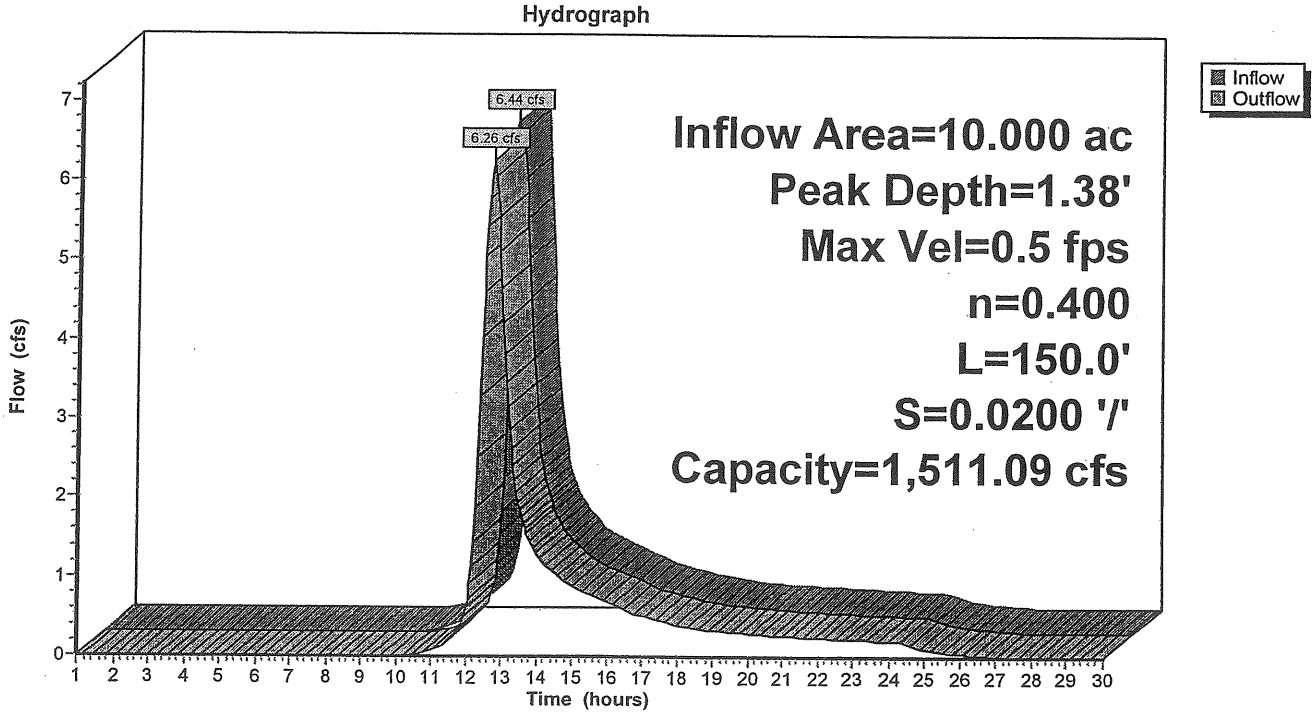
Reach 5R: SWALE TO PRESUMPSCOT RIVER

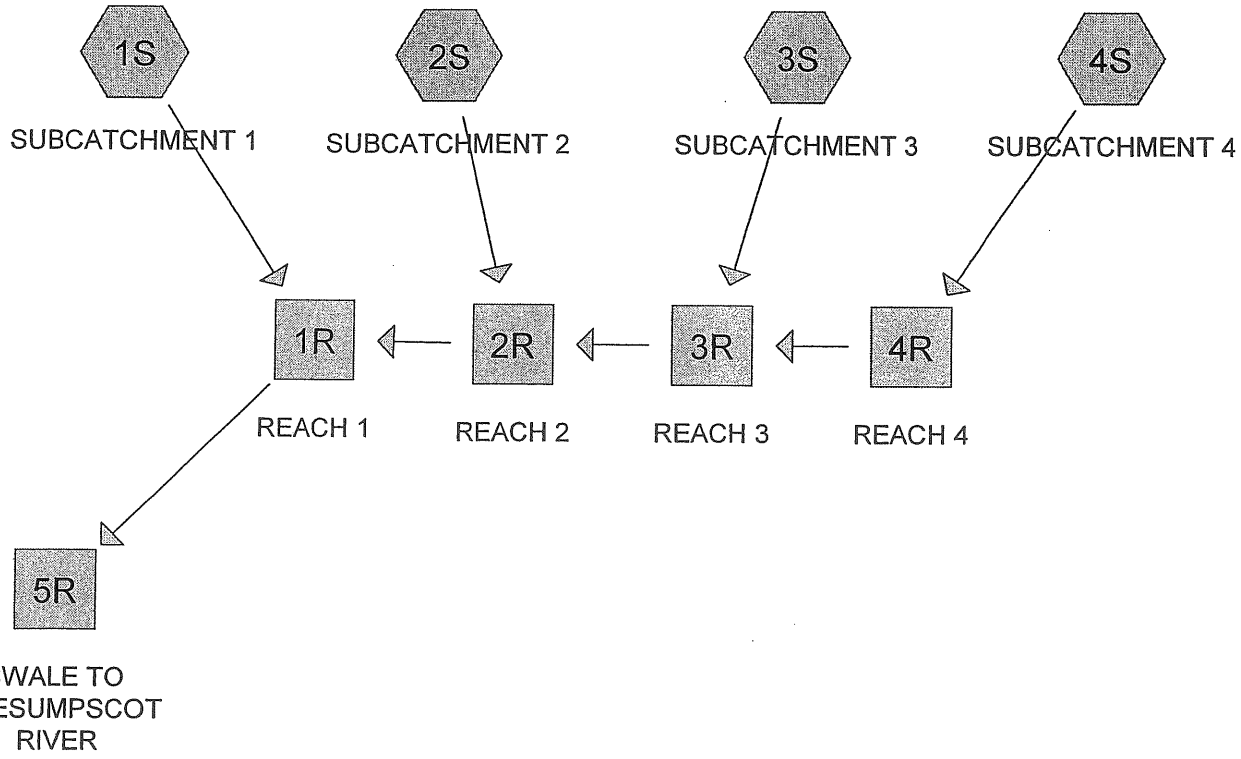
Inflow Area = 10.000 ac, Inflow Depth = 1.10"
Inflow = 6.44 cfs @ 12.58 hrs, Volume= 0.920 af
Outflow = 6.26 cfs @ 12.71 hrs, Volume= 0.920 af, Atten= 3%, Lag= 8.2 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.5 fps, Min. Travel Time= 5.0 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 12.1 min

Peak Depth= 1.38' @ 12.63 hrs
Capacity at bank full= 1,511.09 cfs
Inlet Invert= 20.00', Outlet Invert= 17.00'
5.00' x 15.00' deep channel, n= 0.400 Length= 150.0' Slope= 0.0200 '/'
Side Slope Z-value= 3.0 '/'

Reach 5R: SWALE TO PRESUMPSCOT RIVER





Subcat Reach Pond Link

Drainage Diagram for LOT 4-400 Riverside Street Properties
Prepared by DeLuca-Hoffman Associates, Inc. 3/29/2004

Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SUBCATCHMENT 1 Runoff Area=3.000 ac Runoff Depth=2.72"
Flow Length=680' Tc=12.4 min CN=81 Runoff=7.73 cfs 0.680 af

Subcatchment 2S: SUBCATCHMENT 2 Runoff Area=0.750 ac Runoff Depth=1.89"
Flow Length=160' Tc=5.3 min CN=71 Runoff=1.63 cfs 0.118 af

Subcatchment 3S: SUBCATCHMENT 3 Runoff Area=4.250 ac Runoff Depth=2.81"
Flow Length=780' Tc=11.6 min CN=82 Runoff=11.57 cfs 0.996 af

Subcatchment 4S: SUBCATCHMENT 4 Runoff Area=2.000 ac Runoff Depth=1.13"
Flow Length=420' Tc=8.5 min CN=60 Runoff=2.07 cfs 0.188 af

Reach 1R: REACH 1 Peak Depth=1.51' Max Vel=1.0 fps Inflow=14.67 cfs 1.983 af
n=0.400 L=200.0' S=0.0750 '/' Capacity=1,058.98 cfs Outflow=14.45 cfs 1.983 af

Reach 2R: REACH 2 Peak Depth=1.47' Max Vel=0.8 fps Inflow=11.16 cfs 1.303 af
n=0.400 L=200.0' S=0.0450 '/' Capacity=820.28 cfs Outflow=10.50 cfs 1.303 af

Reach 3R: REACH 3 Peak Depth=1.68' Max Vel=0.7 fps Inflow=11.62 cfs 1.184 af
n=0.400 L=200.0' S=0.0300 '/' Capacity=570.91 cfs Outflow=10.42 cfs 1.184 af

Reach 4R: REACH 4 Peak Depth=0.11' Max Vel=0.2 fps Inflow=2.07 cfs 0.188 af
n=0.130 L=250.0' S=0.0020 '/' Capacity=9,723.14 cfs Outflow=1.09 cfs 0.188 af

Reach 5R: SWALE TO PRESUMPSCOT RIVE Peak Depth=2.06' Max Vel=0.6 fps Inflow=14.45 cfs 1.983 af
n=0.400 L=150.0' S=0.0200 '/' Capacity=1,511.09 cfs Outflow=14.17 cfs 1.983 af

Total Runoff Area = 10.000 ac Runoff Volume = 1.983 af Average Runoff Depth = 2.38"

Subcatchment 1S: SUBCATCHMENT 1

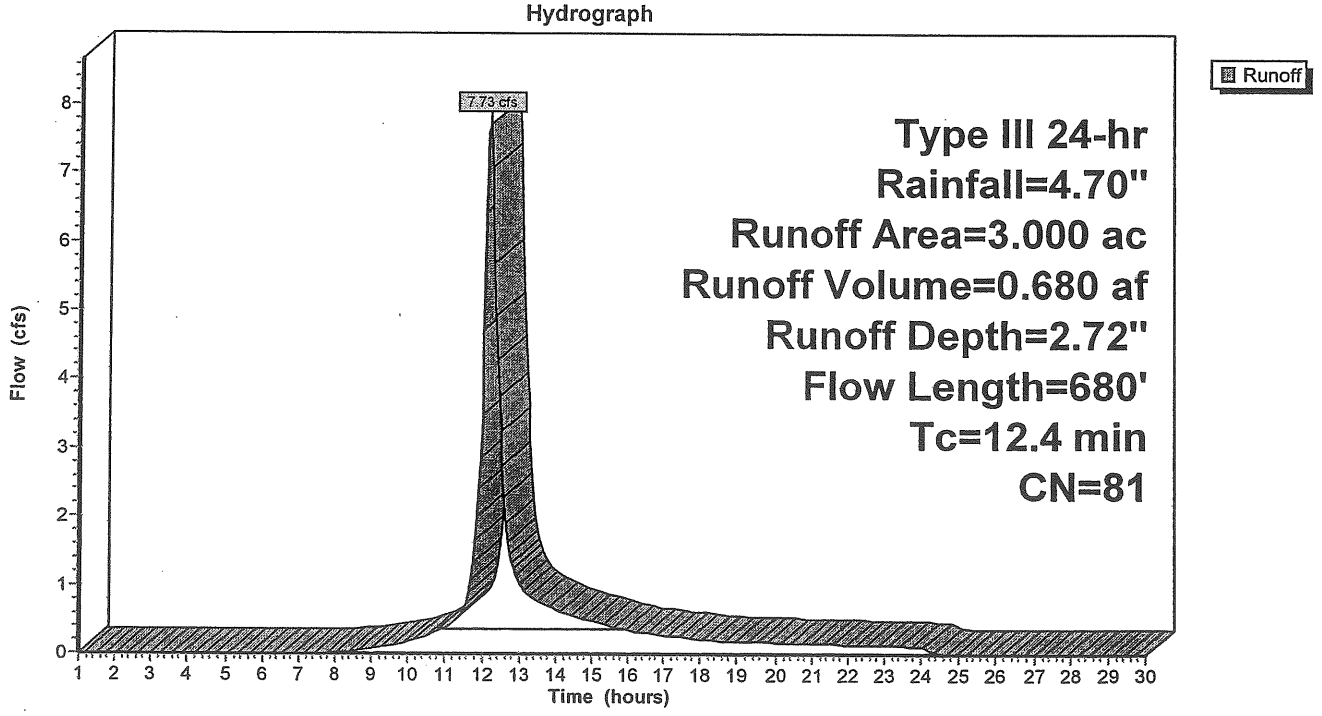
Runoff = 7.73 cfs @ 12.17 hrs, Volume= 0.680 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.750	98	IMPERVIOUS
0.750	77	WEEDS, LOW BRUSH, FAIR, HSG D
0.750	78	CONTINUOUS GRASS, HSG D
0.750	71	CONTINUOUS GRASS, HSG C
3.000	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0400	0.2		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.7	120	0.1670	2.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
0.5	260	0.0380	9.0	8,142.85	**Channel Flow, CHANNEL FLOW C-D** Area= 900.0 sf Perim= 110.0' r= 8.18' n= 0.130
3.5	200	0.0180	0.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED D T(** Short Grass Pasture Kv= 7.0 fps
12.4	680	Total			

Subcatchment 1S: SUBCATCHMENT 1



Subcatchment 2S: SUBCATCHMENT 2

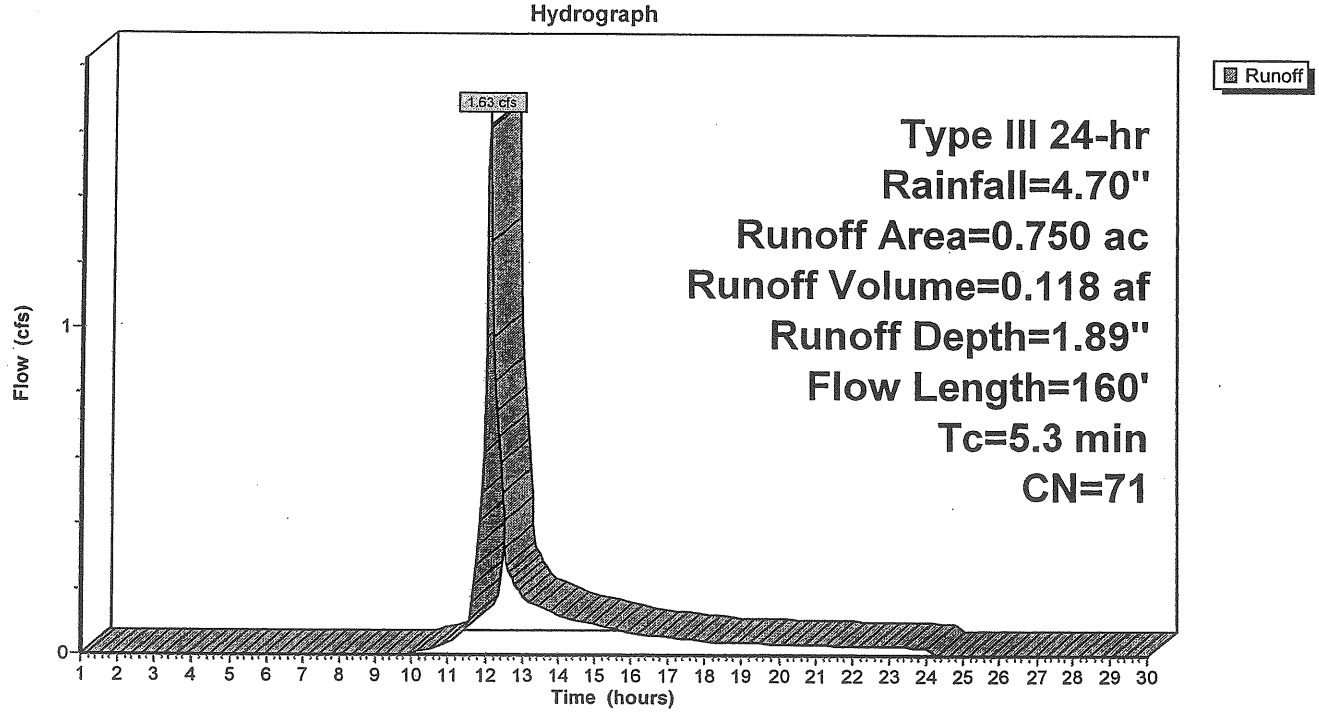
Runoff = 1.63 cfs @ 12.09 hrs, Volume= 0.118 af, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.150	56	BRUSH, WEEDS, FAIR, HSG B
0.150	58	CONTINUOUS GRASS, HSG B
0.150	71	CONTINOUS GRASS, HSG C
0.300	84	GRASSLAND, FAIR, HSG D
0.750	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.1200	0.3		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.4	60	0.1080	2.3		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
5.3	160	Total			

Subcatchment 2S: SUBCATCHMENT 2



Subcatchment 3S: SUBCATCHMENT 3

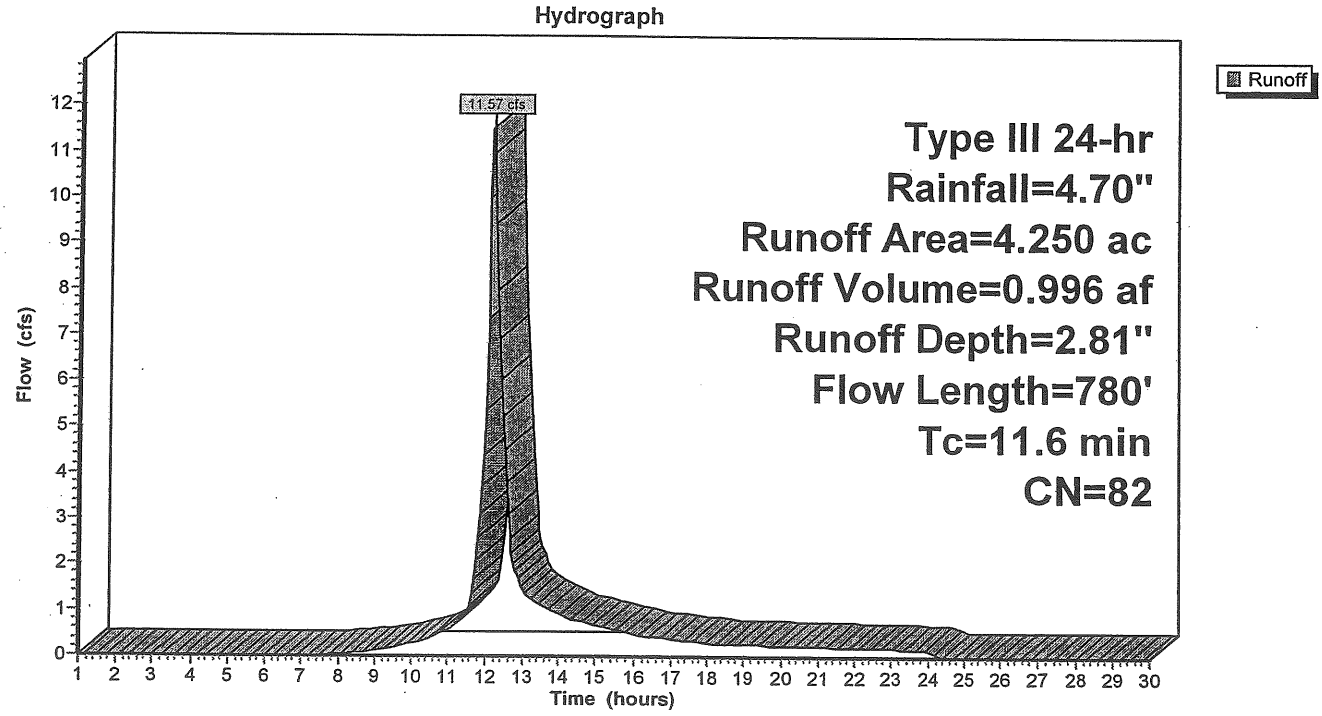
Runoff = 11.57 cfs @ 12.16 hrs, Volume= 0.996 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
2.250	98	IMPERVIOUS
1.000	56	WEEDS, LOW BRUSH, FAIR, HSG B
1.000	71	CONTINOUS GRASS, HSG C
4.250	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	100	0.1700	0.4		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
2.7	200	0.0300	1.2		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
3.1	255	0.0078	1.4	169.13	**Channel Flow, CHANNEL FLOW C-D** Area= 125.0 sf Perim= 65.0' r= 1.92' n= 0.150
1.5	225	0.0580	2.5	569.17	**Channel Flow, CHANNEL FLOW D TO E** Area= 230.0 sf Perim= 50.0' r= 4.60' n= 0.400
11.6	780	Total			

Subcatchment 3S: SUBCATCHMENT 3



Subcatchment 4S: SUBCATCHMENT 4

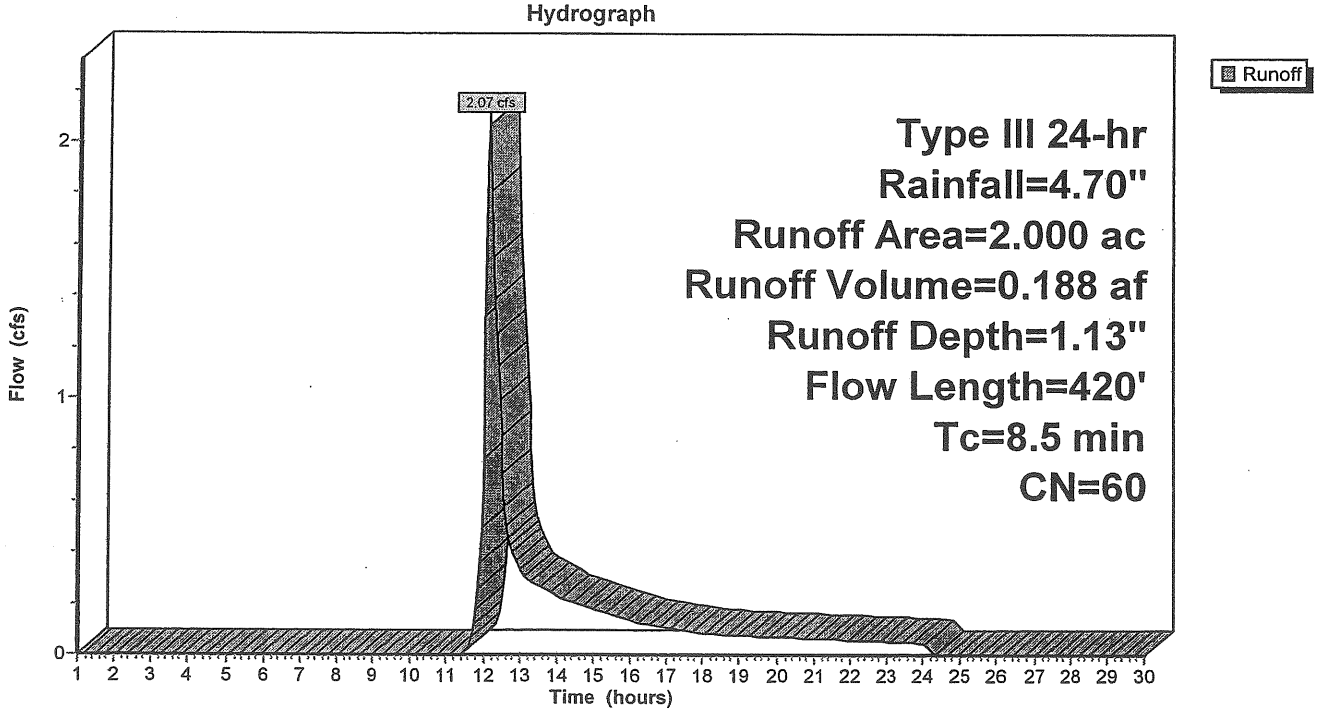
Runoff = 2.07 cfs @ 12.14 hrs, Volume= 0.188 af, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS
1.680	56	WEEDS, LOW BRUSH, FAIR, HSG B
0.170	71	CONTINUOUS GRASS. HSG C
2.000	60	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1400	0.4		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
3.0	200	0.0500	1.1		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Woodland Kv= 5.0 fps
0.9	120	0.0500	2.2	388.87	**Channel Flow, CHANNEL FLOW C-D** Area= 175.0 sf Perim= 40.0' r= 4.38' n= 0.400
8.5	420	Total			

Subcatchment 4S: SUBCATCHMENT 4



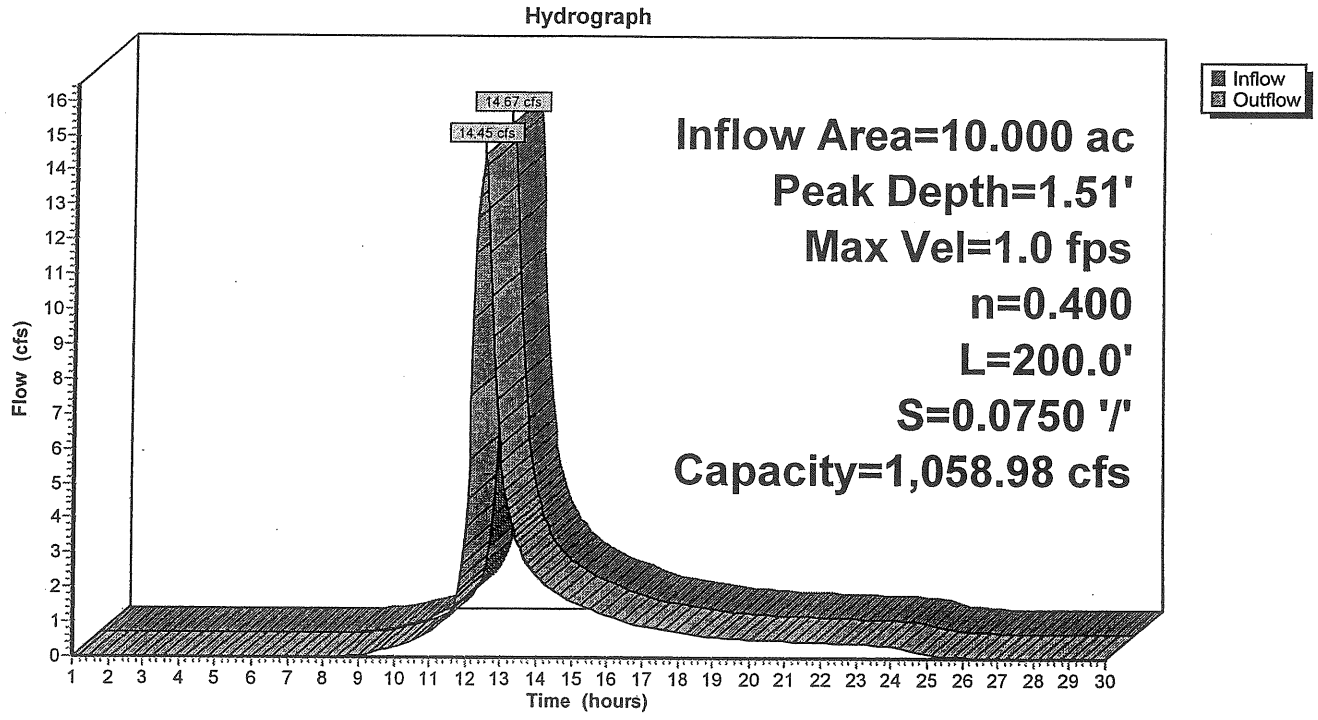
Reach 1R: REACH 1

Inflow Area = 10.000 ac, Inflow Depth = 2.38"
Inflow = 14.67 cfs @ 12.39 hrs, Volume= 1.983 af
Outflow = 14.45 cfs @ 12.48 hrs, Volume= 1.983 af, Atten= 2%, Lag= 5.3 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.0 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.4 fps, Avg. Travel Time= 8.8 min

Peak Depth= 1.51' @ 12.43 hrs
Capacity at bank full= 1,058.98 cfs
Inlet Invert= 35.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0750 '/'
Side Slope Z-value= 3.0 '/'

Reach 1R: REACH 1



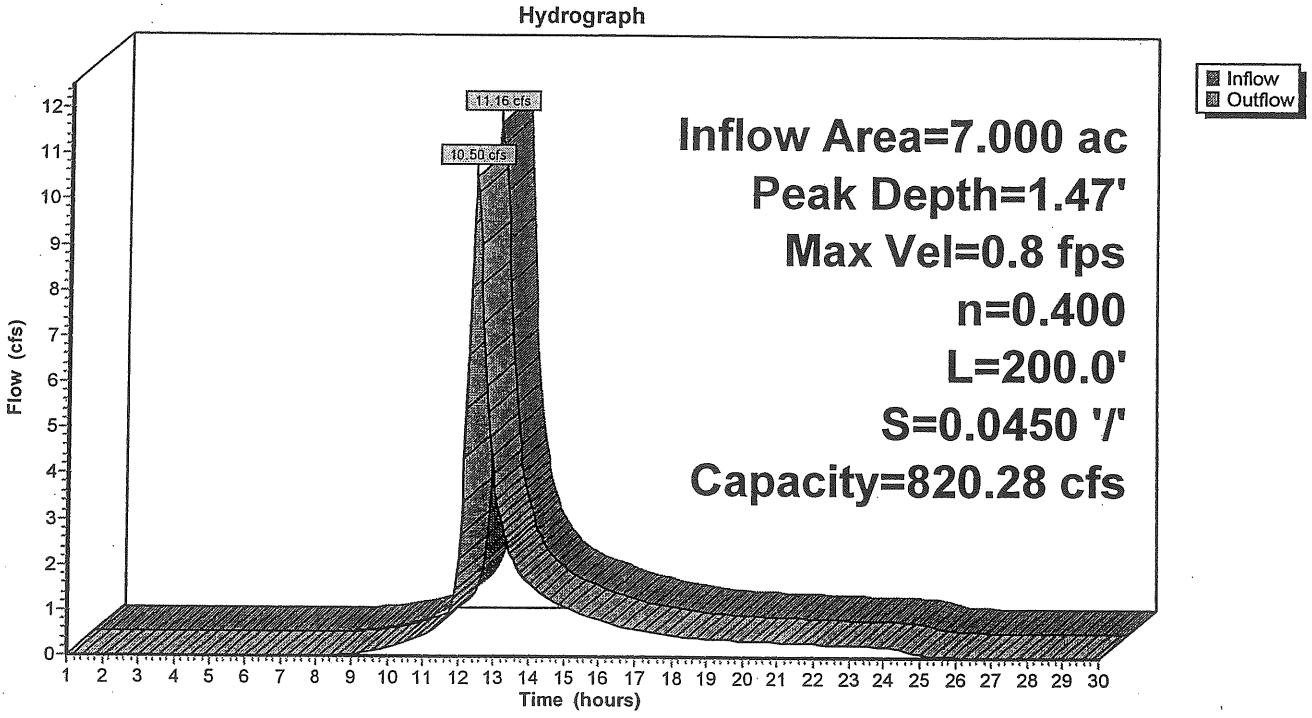
Reach 2R: REACH 2

Inflow Area = 7.000 ac, Inflow Depth = 2.23"
Inflow = 11.16 cfs @ 12.30 hrs, Volume= 1.303 af
Outflow = 10.50 cfs @ 12.43 hrs, Volume= 1.303 af, Atten= 6%, Lag= 7.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.8 fps, Min. Travel Time= 4.3 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 11.8 min

Peak Depth= 1.47' @ 12.36 hrs
Capacity at bank full= 820.28 cfs
Inlet Invert= 29.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0450 '/'
Side Slope Z-value= 3.0 '/'

Reach 2R: REACH 2



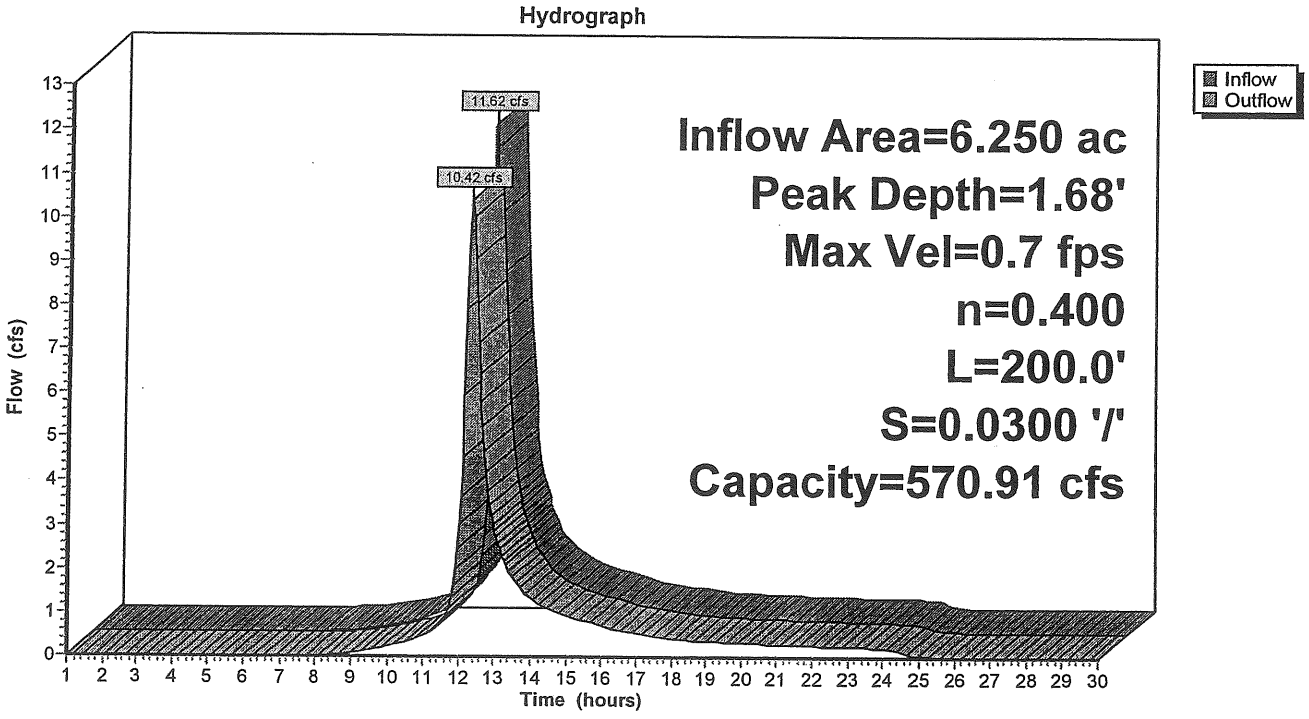
Reach 3R: REACH 3

Inflow Area = 6.250 ac, Inflow Depth = 2.27"
Inflow = 11.62 cfs @ 12.16 hrs, Volume= 1.184 af
Outflow = 10.42 cfs @ 12.31 hrs, Volume= 1.184 af, Atten= 10%, Lag= 8.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.7 fps, Min. Travel Time= 4.9 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 13.7 min

Peak Depth= 1.68' @ 12.22 hrs
Capacity at bank full= 570.91 cfs
Inlet Invert= 35.00', Outlet Invert= 29.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0300 '/'
Side Slope Z-value= 2.0 3.0 '/'

Reach 3R: REACH 3



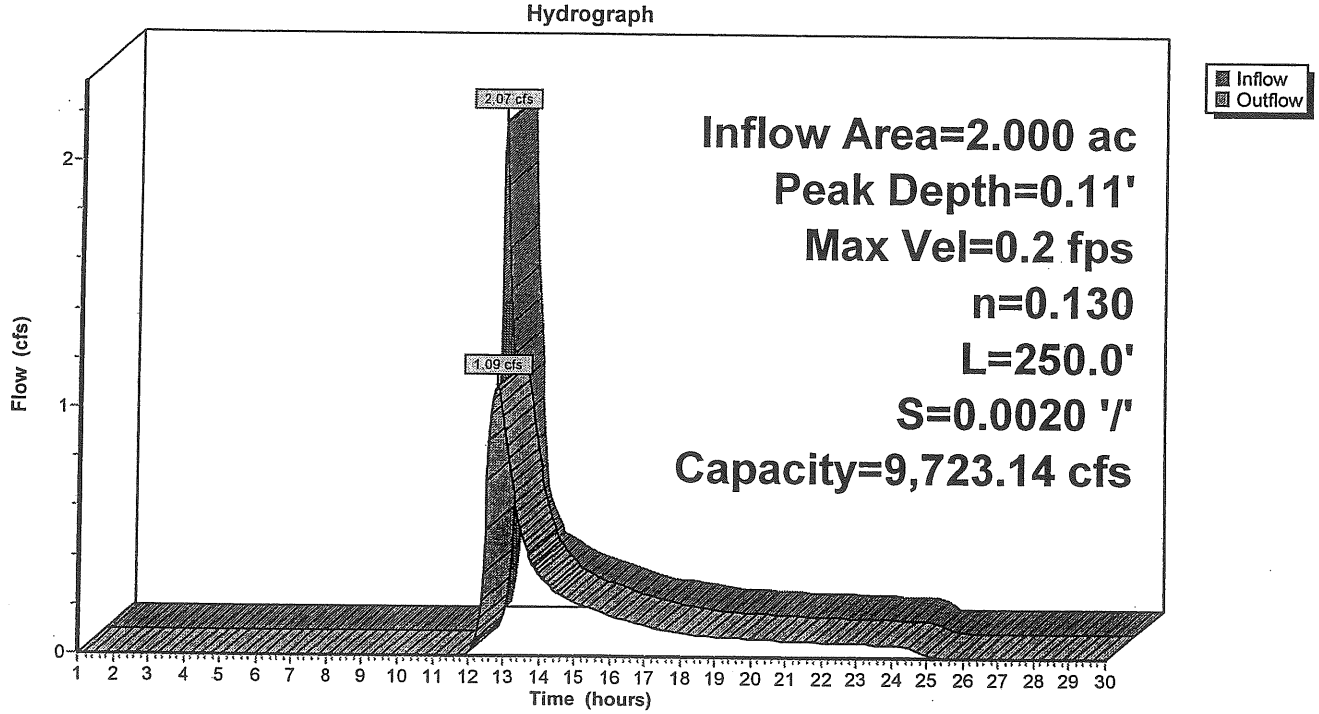
Reach 4R: REACH 4

Inflow Area = 2.000 ac, Inflow Depth = 1.13"
Inflow = 2.07 cfs @ 12.14 hrs, Volume= 0.188 af
Outflow = 1.09 cfs @ 12.76 hrs, Volume= 0.188 af, Atten= 47%, Lag= 37.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.2 fps, Min. Travel Time= 20.8 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 20.8 min

Peak Depth= 0.11' @ 12.41 hrs
Capacity at bank full= 9,723.14 cfs
Inlet Invert= 35.50', Outlet Invert= 35.00'
50.00' x 25.00' deep channel, n= 0.130 Length= 250.0' Slope= 0.0020 '/'
Side Slope Z-value= 3.0 '/'

Reach 4R: REACH 4



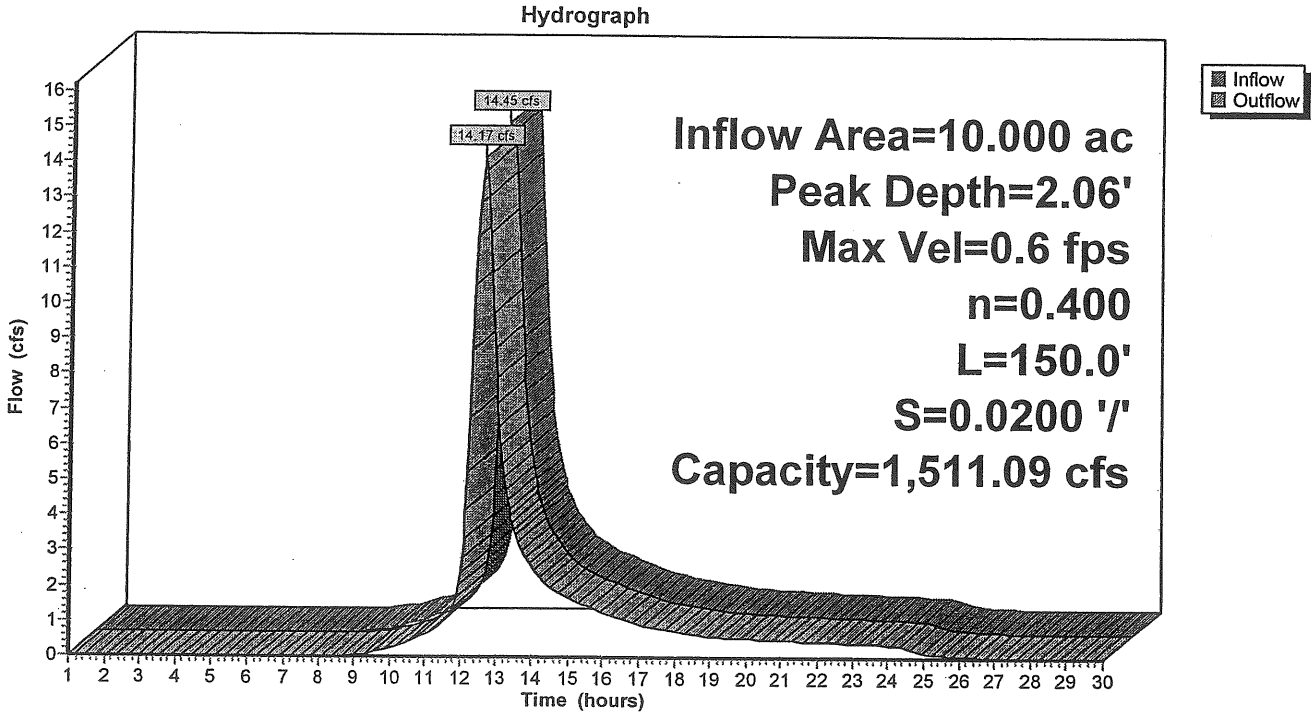
Reach 5R: SWALE TO PRESUMPSCOT RIVER

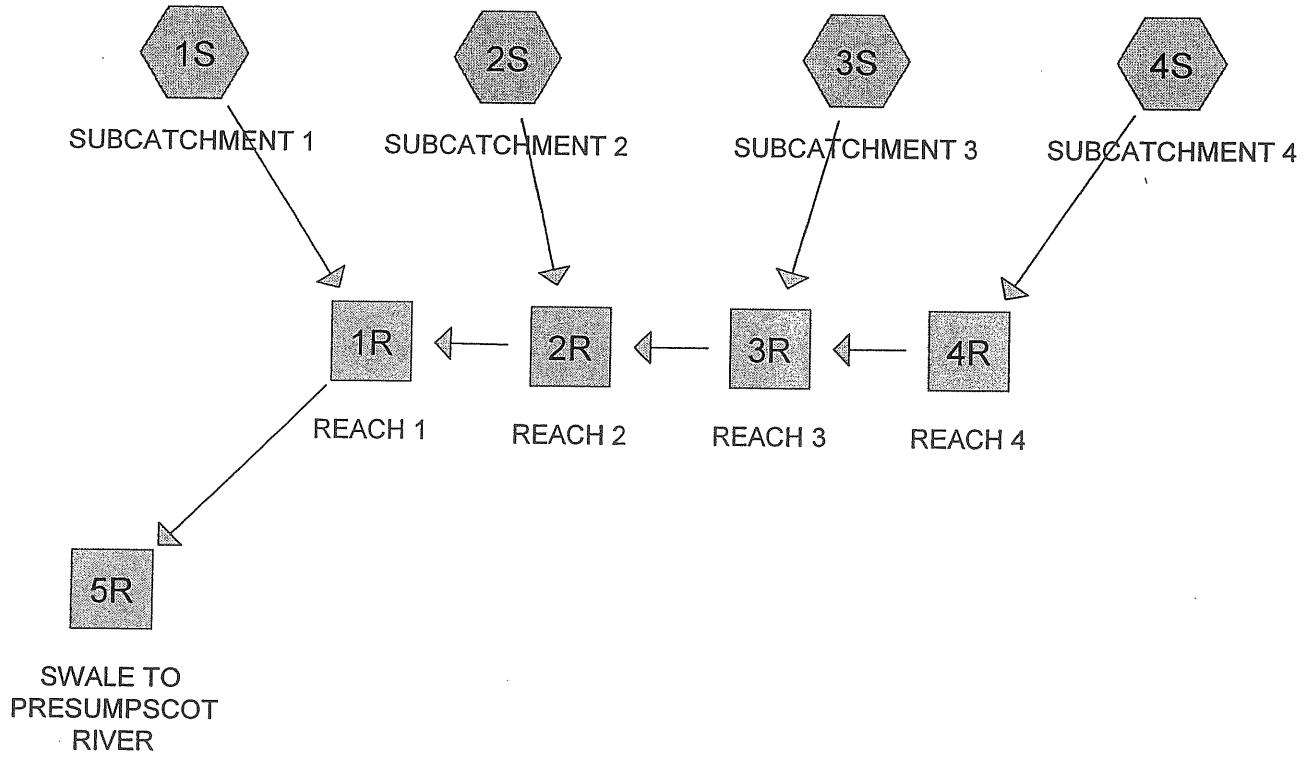
Inflow Area = 10.000 ac, Inflow Depth = 2.38"
Inflow = 14.45 cfs @ 12.48 hrs, Volume= 1.983 af
Outflow = 14.17 cfs @ 12.59 hrs, Volume= 1.983 af, Atten= 2%, Lag= 6.4 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.6 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 10.3 min

Peak Depth= 2.06' @ 12.53 hrs
Capacity at bank full= 1,511.09 cfs
Inlet Invert= 20.00', Outlet Invert= 17.00'
5.00' x 15.00' deep channel, n= 0.400 Length= 150.0' Slope= 0.0200 '/'
Side Slope Z-value= 3.0 '/'

Reach 5R: SWALE TO PRESUMPSCOT RIVER





Subcat Reach Pond Link

Drainage Diagram for LOT 4-400 Riverside Street Properties
Prepared by DeLuca-Hoffman Associates, Inc. 3/29/2004

Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SUBCATCHMENT 1 Runoff Area=3.000 ac Runoff Depth=3.43"
Flow Length=680' Tc=12.4 min CN=81 Runoff=9.72 cfs 0.858 af

Subcatchment 2S: SUBCATCHMENT 2 Runoff Area=0.750 ac Runoff Depth=2.50"
Flow Length=160' Tc=5.3 min CN=71 Runoff=2.18 cfs 0.156 af

Subcatchment 3S: SUBCATCHMENT 3 Runoff Area=4.250 ac Runoff Depth=3.53"
Flow Length=780' Tc=11.6 min CN=82 Runoff=14.48 cfs 1.250 af

Subcatchment 4S: SUBCATCHMENT 4 Runoff Area=2.000 ac Runoff Depth=1.60"
Flow Length=420' Tc=8.5 min CN=60 Runoff=3.11 cfs 0.267 af

Reach 1R: REACH 1 Peak Depth=1.71' Max Vel=1.1 fps Inflow=18.85 cfs 2.531 af
n=0.400 L=200.0' S=0.0750 '/' Capacity=1,058.98 cfs Outflow=18.62 cfs 2.531 af

Reach 2R: REACH 2 Peak Depth=1.65' Max Vel=0.8 fps Inflow=14.17 cfs 1.674 af
n=0.400 L=200.0' S=0.0450 '/' Capacity=820.28 cfs Outflow=13.45 cfs 1.674 af

Reach 3R: REACH 3 Peak Depth=1.89' Max Vel=0.7 fps Inflow=14.62 cfs 1.517 af
n=0.400 L=200.0' S=0.0300 '/' Capacity=570.91 cfs Outflow=13.19 cfs 1.517 af

Reach 4R: REACH 4 Peak Depth=0.16' Max Vel=0.2 fps Inflow=3.11 cfs 0.267 af
n=0.130 L=250.0' S=0.0020 '/' Capacity=9,723.14 cfs Outflow=1.65 cfs 0.267 af

Reach 5R: SWALE TO PRESUMPSCOT RIVE Peak Depth=2.32' Max Vel=0.7 fps Inflow=18.62 cfs 2.531 af
n=0.400 L=150.0' S=0.0200 '/' Capacity=1,511.09 cfs Outflow=18.31 cfs 2.531 af

Total Runoff Area = 10.000 ac Runoff Volume = 2.531 af Average Runoff Depth = 3.04"

Subcatchment 1S: SUBCATCHMENT 1

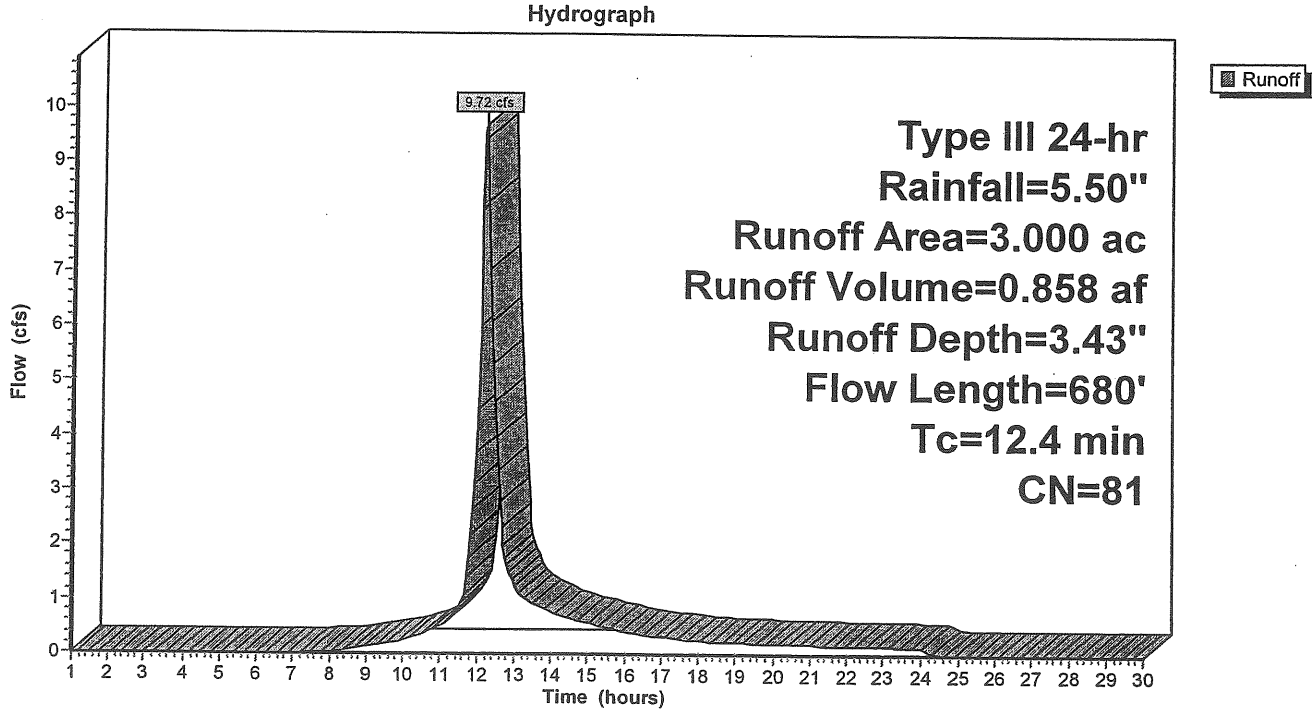
Runoff = 9.72 cfs @ 12.17 hrs, Volume= 0.858 af, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.750	98	IMPERVIOUS
0.750	77	WEEDS, LOW BRUSH, FAIR, HSG D
0.750	78	CONTINUOUS GRASS, HSG D
0.750	71	CONTINUOUS GRASS, HSG C
3.000	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0400	0.2		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.7	120	0.1670	2.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
0.5	260	0.0380	9.0	8,142.85	**Channel Flow, CHANNEL FLOW C-D** Area= 900.0 sf Perim= 110.0' r= 8.18' n= 0.130
3.5	200	0.0180	0.9		**Shallow Concentrated Flow, SHALLOW CONCENTRATED D TC** Short Grass Pasture Kv= 7.0 fps
12.4	680	Total			

Subcatchment 1S: SUBCATCHMENT 1



Subcatchment 2S: SUBCATCHMENT 2

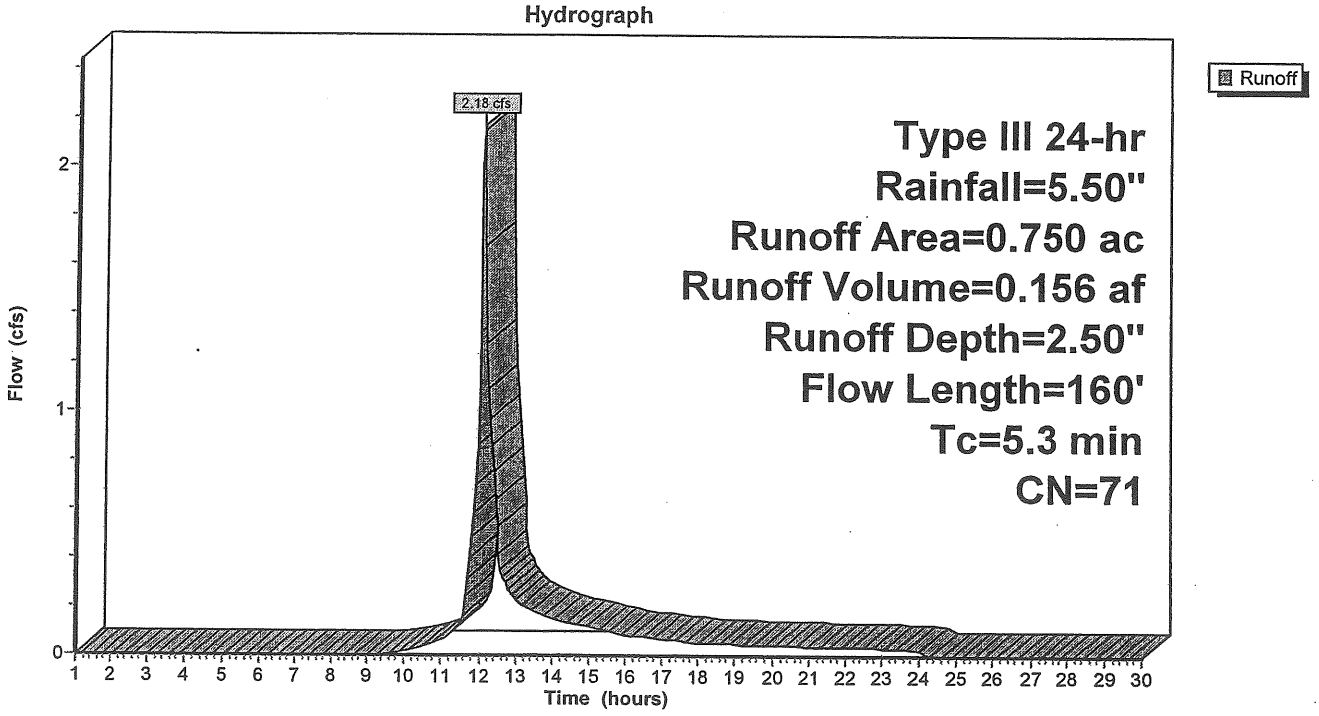
Runoff = 2.18 cfs @ 12.09 hrs, Volume= 0.156 af, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.150	56	BRUSH, WEEDS, FAIR, HSG B
0.150	58	CONTINUOUS GRASS, HSG B
0.150	71	CONTINOUS GRASS, HSG C
0.300	84	GRASSLAND, FAIR, HSG D
0.750	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.1200	0.3		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
0.4	60	0.1080	2.3		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
5.3	160	Total			

Subcatchment 2S: SUBCATCHMENT 2



Subcatchment 3S: SUBCATCHMENT 3

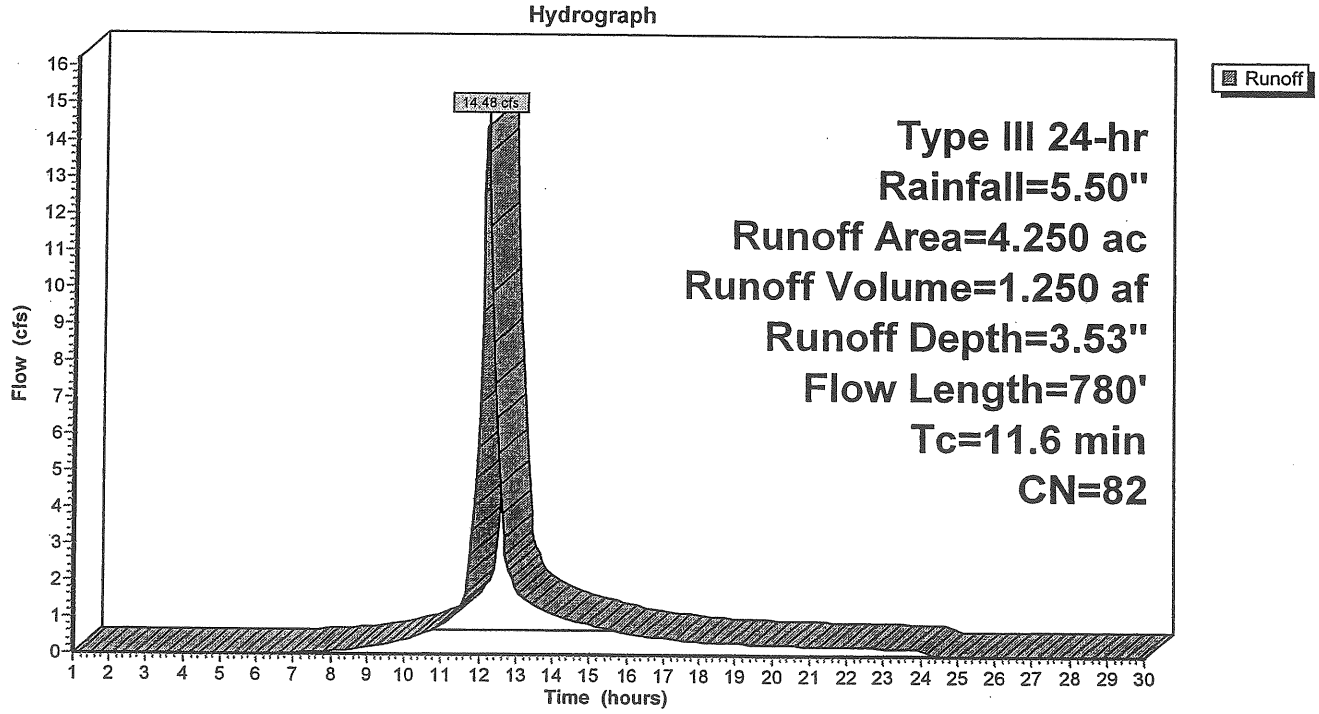
Runoff = 14.48 cfs @ 12.16 hrs, Volume= 1.250 af, Depth= 3.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
2.250	98	IMPERVIOUS
1.000	56	WEEDS, LOW BRUSH, FAIR, HSG B
1.000	71	CONTINOUS GRASS, HSG C
4.250	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	100	0.1700	0.4		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
2.7	200	0.0300	1.2		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Short Grass Pasture Kv= 7.0 fps
3.1	255	0.0078	1.4	169.13	**Channel Flow, CHANNEL FLOW C-D** Area= 125.0 sf Perim= 65.0' r= 1.92' n= 0.150
1.5	225	0.0580	2.5	569.17	**Channel Flow, CHANNEL FLOW D TO E** Area= 230.0 sf Perim= 50.0' r= 4.60' n= 0.400
11.6	780	Total			

Subcatchment 3S: SUBCATCHMENT 3



Subcatchment 4S: SUBCATCHMENT 4

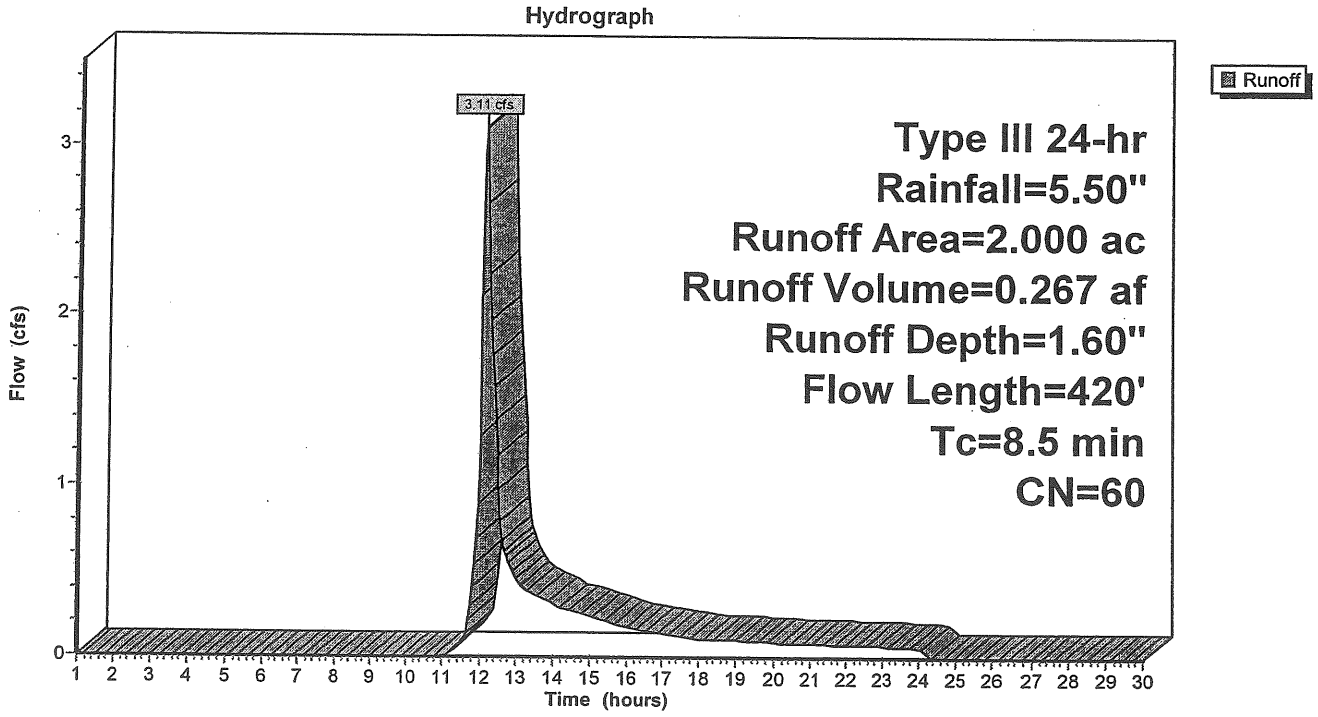
Runoff = 3.11 cfs @ 12.14 hrs, Volume= 0.267 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS
1.680	56	WEEDS, LOW BRUSH, FAIR, HSG B
0.170	71	CONTINUOUS GRASS. HSG C
2.000	60	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1400	0.4		**Sheet Flow, SHEET FLOW A-B** Grass: Short n= 0.150 P2= 3.00"
3.0	200	0.0500	1.1		**Shallow Concentrated Flow, SHALLOW CONCENTRATED B-C** Woodland Kv= 5.0 fps
0.9	120	0.0500	2.2	388.87	**Channel Flow, CHANNEL FLOW C-D** Area= 175.0 sf Perim= 40.0' r= 4.38' n= 0.400
8.5	420	Total			

Subcatchment 4S: SUBCATCHMENT 4



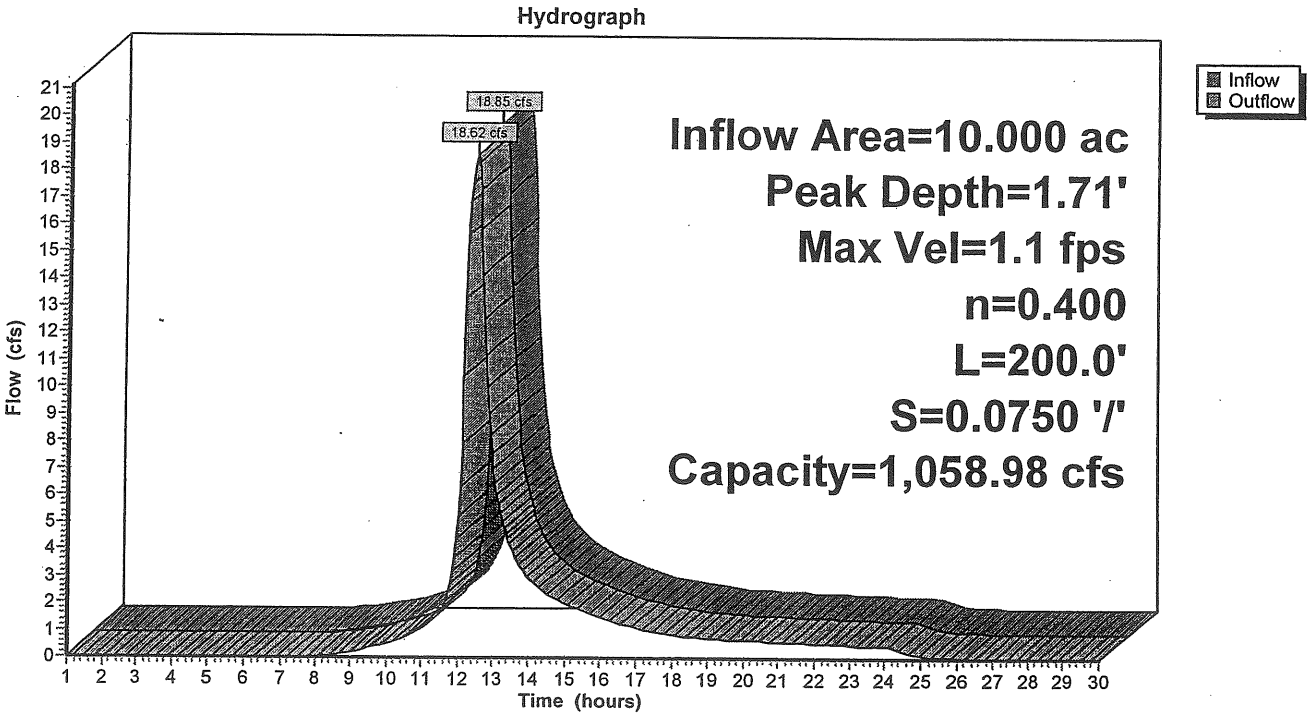
Reach 1R: REACH 1

Inflow Area = 10.000 ac, Inflow Depth = 3.04"
Inflow = 18.85 cfs @ 12.38 hrs, Volume= 2.531 af
Outflow = 18.62 cfs @ 12.46 hrs, Volume= 2.531 af, Atten= 1%, Lag= 4.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.1 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 0.4 fps, Avg. Travel Time= 8.3 min

Peak Depth= 1.71' @ 12.40 hrs
Capacity at bank full= 1,058.98 cfs
Inlet Invert= 35.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0750 '/'
Side Slope Z-value= 3.0 '/'

Reach 1R: REACH 1



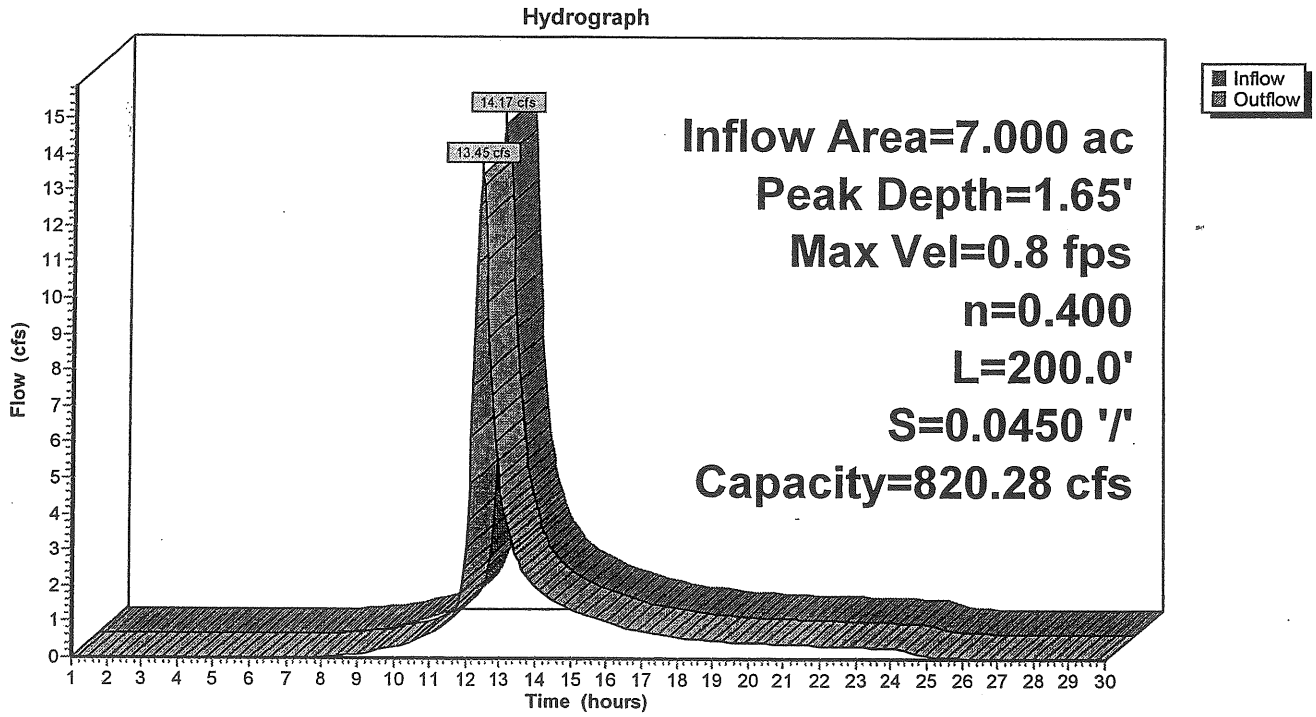
Reach 2R: REACH 2

Inflow Area = 7.000 ac, Inflow Depth = 2.87"
Inflow = 14.17 cfs @ 12.29 hrs, Volume= 1.674 af
Outflow = 13.45 cfs @ 12.41 hrs, Volume= 1.674 af, Atten= 5%, Lag= 7.1 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.8 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 11.2 min

Peak Depth= 1.65' @ 12.35 hrs
Capacity at bank full= 820.28 cfs
Inlet Invert= 29.00', Outlet Invert= 20.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0450 '/'
Side Slope Z-value= 3.0 '/'

Reach 2R: REACH 2



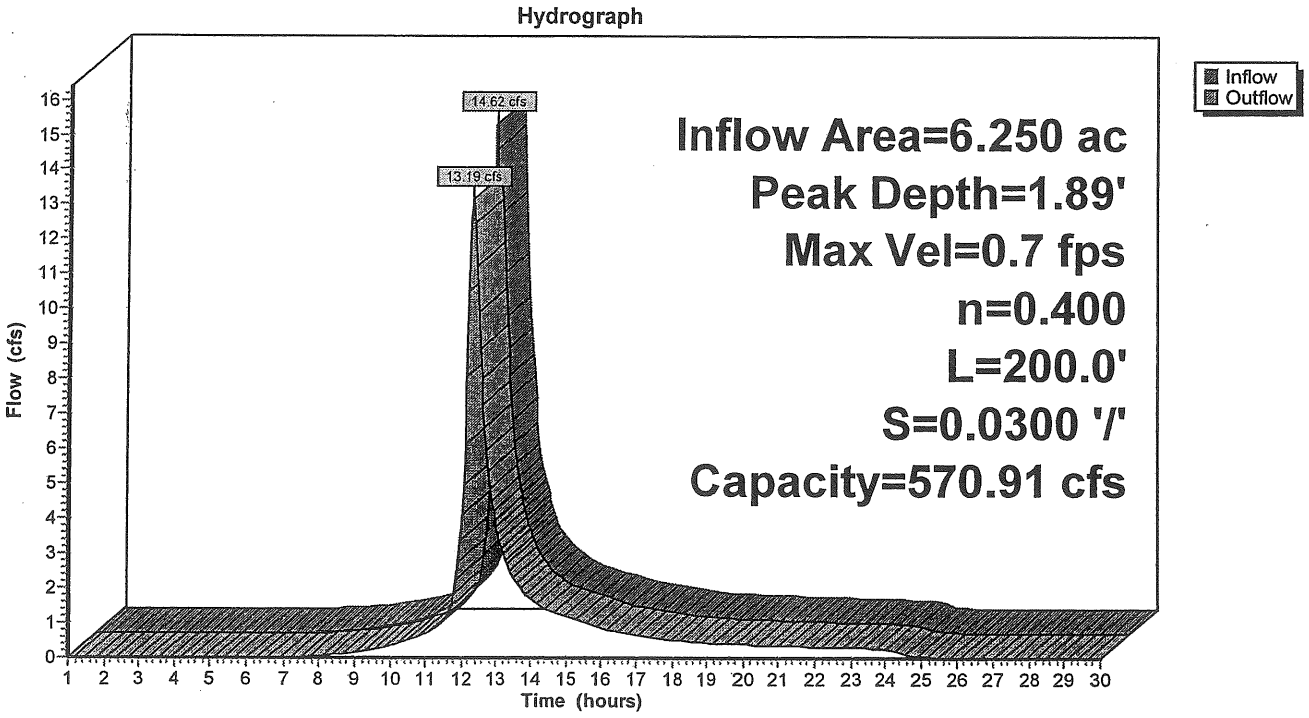
Reach 3R: REACH 3

Inflow Area = 6.250 ac, Inflow Depth = 2.91"
Inflow = 14.62 cfs @ 12.16 hrs, Volume= 1.517 af
Outflow = 13.19 cfs @ 12.30 hrs, Volume= 1.517 af, Atten= 10%, Lag= 8.2 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.7 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 12.9 min

Peak Depth= 1.89' @ 12.22 hrs
Capacity at bank full= 570.91 cfs
Inlet Invert= 35.00', Outlet Invert= 29.00'
5.00' x 10.00' deep channel, n= 0.400 Length= 200.0' Slope= 0.0300 '/'
Side Slope Z-value= 2.0 3.0 '/'

Reach 3R: REACH 3



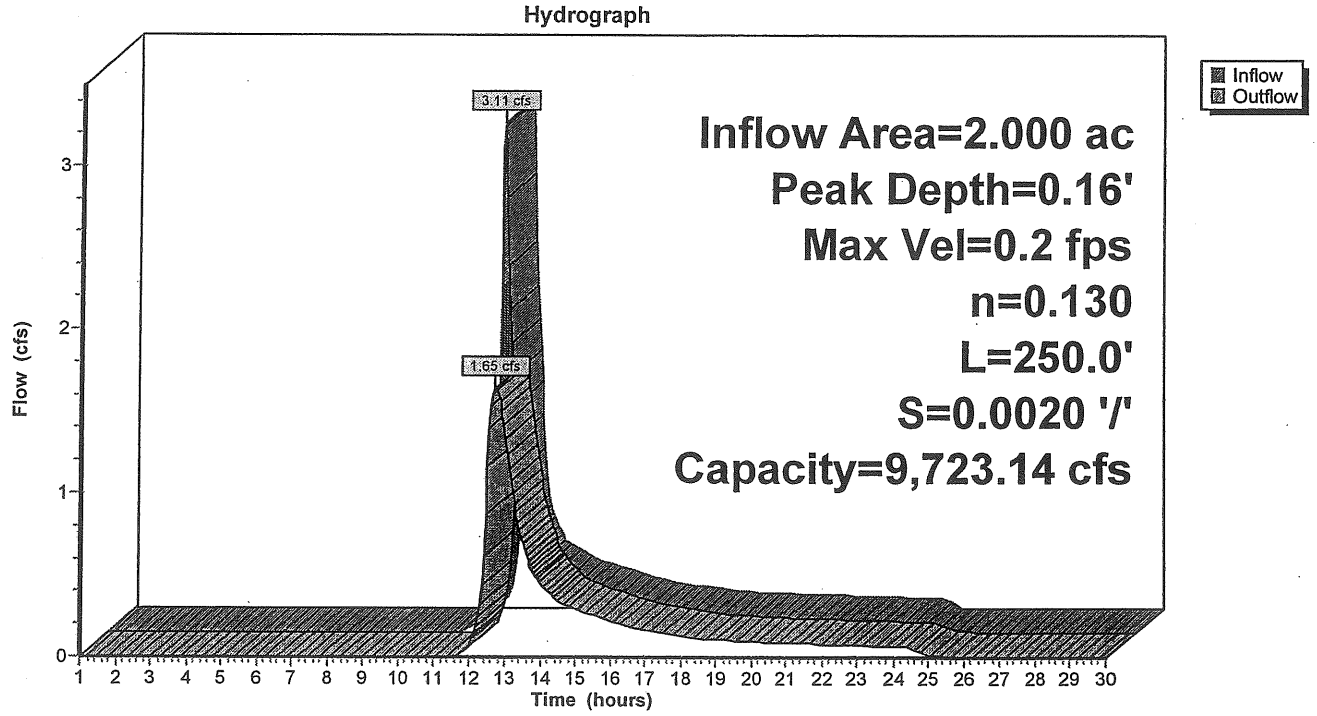
Reach 4R: REACH 4

Inflow Area = 2.000 ac, Inflow Depth = 1.60"
Inflow = 3.11 cfs @ 12.14 hrs, Volume= 0.267 af
Outflow = 1.65 cfs @ 12.73 hrs, Volume= 0.267 af, Atten= 47%, Lag= 35.6 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.2 fps, Min. Travel Time= 20.8 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 20.8 min

Peak Depth= 0.16' @ 12.38 hrs
Capacity at bank full= 9,723.14 cfs
Inlet Invert= 35.50', Outlet Invert= 35.00'
50.00' x 25.00' deep channel, n= 0.130 Length= 250.0' Slope= 0.0020 '/'
Side Slope Z-value= 3.0 '/'

Reach 4R: REACH 4



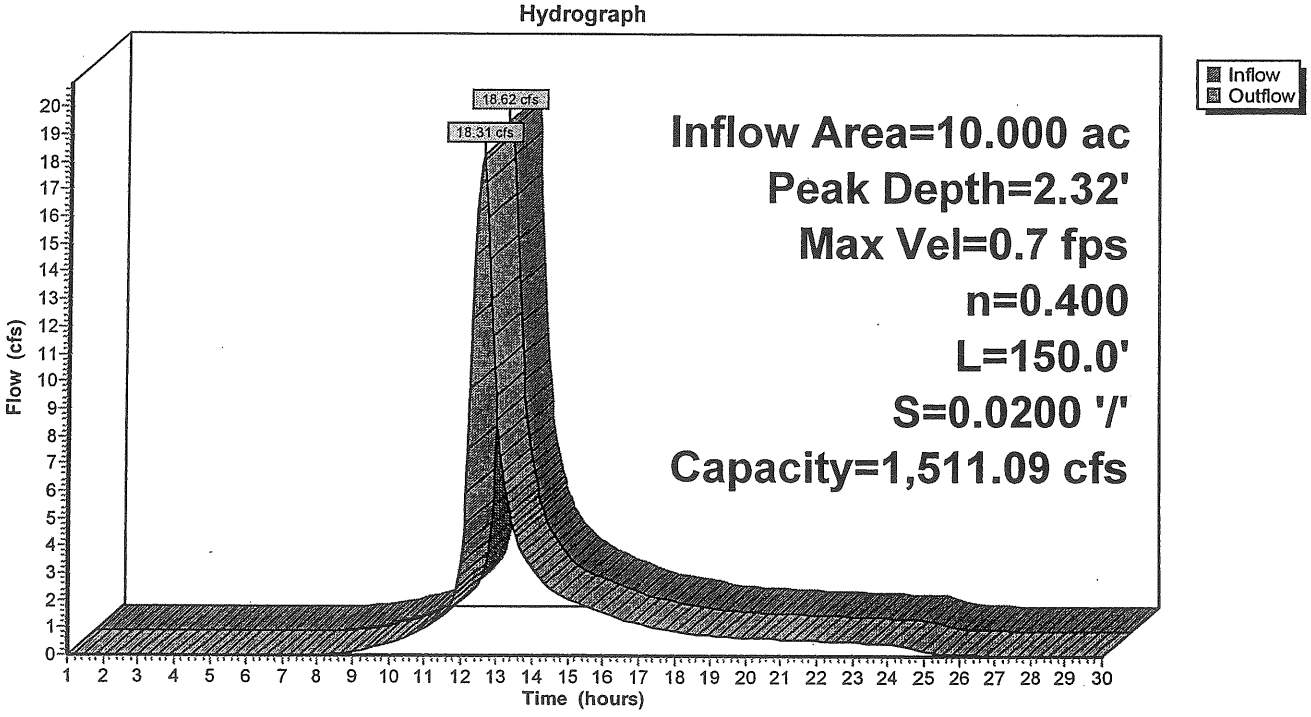
Reach 5R: SWALE TO PRESUMPSCOT RIVER

Inflow Area = 10.000 ac, Inflow Depth = 3.04"
Inflow = 18.62 cfs @ 12.46 hrs, Volume= 2.531 af
Outflow = 18.31 cfs @ 12.56 hrs, Volume= 2.531 af, Atten= 2%, Lag= 6.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.7 fps, Min. Travel Time= 3.8 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 9.8 min

Peak Depth= 2.32' @ 12.50 hrs
Capacity at bank full= 1,511.09 cfs
Inlet Invert= 20.00', Outlet Invert= 17.00'
5.00' x 15.00' deep channel, n= 0.400 Length= 150.0' Slope= 0.0200 '/'
Side Slope Z-value= 3.0 '/'

Reach 5R: SWALE TO PRESUMPSCOT RIVER



Att. 4

INSPECTION AND MAINTENANCE MANUAL FOR STORMWATER MANAGEMENT SYSTEM AND COMMON FACILITIES

For

Lot 4 of the 400 Riverside Properties

Prepared for:

Rist/Brunet Family Trust
400 Riverside Street
Portland, Maine 04103

Prepared by:

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South Portland, Maine 04106
(207) 775-1121
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June 2005

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APPENDICES

I. Introduction

Stormwater management systems are commonly installed in development projects such as the planned development at Lot 4 of the 400 Riverside Street Properties. The complexity and goals of these systems vary with the nature of the receiving water, as well as the type of development. Runoff from developed areas contains a number of contaminants. This runoff can contain a significant amount of non-point contaminants, which can have an adverse impact on the receiving waters. The installation of Erosion and Sediment Control Best Management Practices (BMPs) and water quality treatment measures can significantly reduce the non-point pollutant discharge from developed areas. These measures are particularly important to projects located adjacent to sensitive water bodies.

The effectiveness of stormwater management systems is dependent on their design, upkeep and maintenance to assure they meet their intended function, both during construction activities and over an extended period of time. It is critical that the stormwater management system is inspected on a regularly scheduled basis, both during construction activities and over an extended period of time, by persons knowledgeable of erosion and stormwater control and the standards and conditions of any permits, and that maintenance be performed on an as-needed basis.

The general contractor during construction will be responsible for regular inspection and monitoring of the stormwater facilities. Upon substantial completion of the construction and acceptance by the owner, these responsibilities will be transferred to the owner and their property management personnel. The Rist/Brunet Family Trust has managed the existing 400 Riverside Street Properties for several years and has the staff and the contracted services in place to handle these responsibilities.

It must also be recognized that the effectiveness of these systems, and their maintenance requirements, is related to the natural features found within a particular site, permanent stabilization measures in place, and the stormwater drainage infrastructure that transports the runoff flows to the water quality treatment measures. Thus, maintenance should be directed to the total system, not just the stormwater drainage infrastructure.

The purpose of this document is to define in detail the inspection and maintenance requirements for the planned development that are deemed necessary to assure that the stormwater management system functions as intended both during construction activities and on a long-term basis. Subsequent sections identify individual maintenance items, give a brief commentary on the function of and need for the item, a description of the work required, suggested frequency of accomplishment and documentation of the findings of the inspection and maintenance tasks performed, if any. While the suggested programs and schedules must be adapted to specific projects, the material presented should provide guidance for a successful long-term program.

Guidelines Layout

A summary of the individual items comprising the proposed stormwater management system for the development site has been prepared. The format used in the summary is as follows:

Preface: A general description of what function/benefit the item is intended to provide. This is a short summary and not intended to provide the design basis, which can be found in other sources.

Inspection: This section provides the inspection requirements for the individual item.

Maintenance: This section provides general information on the routine maintenance requirements of this item.

Frequency: This section outlines the best judgment of the designer of the item as to the frequency of maintenance.

Outcomes: Stormwater management system maintenance is performed to meet desired outcomes. Maintenance desired outcomes are specified for each item of the site contributing runoff to the stormwater management system and each drainage system item. They include maintaining performance and appearance of items of the stormwater management system, and the need to prevent maintenance work itself from becoming a pollutant source or damaging habitat.

The Water Quality Outcomes are:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources both during construction activities and over an extended period of time.
O3	Avoid and/or minimize vegetation removal
O4	Preserve native plants

The Infrastructure Maintenance Outcomes are:

O5	Protect public safety and health
O6	Prevent infrastructure and permanent stabilization measure failures
O7	Maintain and/or restore the intended infrastructure and permanent stabilization measure functions
O8	Prevent and/or reduce flooding
O9	Protect infrastructure
O10	Meet public expectations for aesthetics

Comments: This section provides comment on the site-specific features and general conditions of the stormwater management system. This is a summary only and provides a list of the items included in the inspection and maintenance checklist of items.

In addition to the inspection and maintenance checklist of items, a log report has been developed. The log report allows the inspector to document the date, description of findings and maintenance tasks performed for each inspection and maintenance checklist item.

The inspection and maintenance checklist and log report are discussed later in this report.

Special Facilities Maintenance Requirements

This manual provides a set of minimum standards and practices for maintaining stormwater facilities. Manufactured stormwater facilities such as water quality treatment units often have maintenance requirements and manuals specified or written by the manufacturer.

Manufacturer or Designer's Maintenance Manuals

Where the manufacturer's manuals or plans provide an equal or greater level of maintenance and water quality protection, the contractor, owner/operator and any third party maintenance contractor shall follow them. These individual maintenance plans, specifications, or manuals must be approved by the reviewing agencies.

II. Project Overview

Key permits issued, applied for, or intended to be applied for, for the Lot 4 development include:

1. NRPA Tier I Permit for wetlands disturbances less than 15,000 sq. ft.
2. MeDEP Permit By Rule for construction activities adjacent to protected natural resources.
3. Maine Construction General Permit for discharge of stormwater associated with construction activities.

A copy of these permits should be appended to this manual as Appendix C. The contractor, owner/operator and any third party maintenance contractor of the stormwater management system should review these permits for a general description and background of the project, as well as any specific permit conditions or requirements of the project.

The Rist/Brunet Family Trust has retained DeLuca-Hoffman Associates, Inc. for design of the planned development at Lot 4 of the 400 Riverside Street Properties. DeLuca-Hoffman Associates, Inc. prepared the designs for the stormwater management system for the development site and may be contacted at:

DeLuca-Hoffman Associates, Inc.
778 Main Street, Suite 8
South Portland, Maine 04106
(207) 775-1121

It is recommended that the preparer of the plans be contacted with any particular questions on the design intent or similar issues.

The applicable plans/design documents which apply to the projects are:

400 Riverside Properties – Lot 4, 400 Riverside Street
Civil/Site Drawings: Permit Set
Prepared by DeLuca-Hoffman Associates, Inc.

A copy of these documents should be retained with the manual.

The manual is intended for general guidance. However, any substituted deviations from the manual should be reviewed with respect to provisions of Appendix C.

Stormwater runoff for the planned development generally flows to the north with ultimate discharge to the Presumpscot River. Stormwater runoff from the Lot 4 development site discharges to a natural tributary swale discharging to the Presumpscot River. The proposed design will include construction of multiple riprap outlet plunge pools with level lip spreaders, permanent stabilization BMP measures, and directing runoff from the planned development's impervious surfaces to the plunge pools and buffers.

III. Standard Inspection/Maintenance Descriptions

During Construction

The following standards must be met during construction.

A. Inspection and Corrective Action

Inspect disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.

B. Maintenance

Maintain all measures in effective operating condition until areas are permanently stabilized. If best management practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within 7 calendar days and prior to any storm event (rainfall).

C. Documentation

Keep a log (report) summarizing the inspections and any corrective action taken. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and location(s) where additional

BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken.

The log must be made accessible to department staff and a copy must be provided upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

Post Construction

An effective inspection and maintenance plan should define in detail the inspection and maintenance requirements for the natural features found within the site, permanent stabilization measures in place, and the stormwater drainage infrastructure of the stormwater management system provided for the development site. Persons knowledgeable of erosion and stormwater control and the standards and conditions of any permits should conduct the inspection, identify deficiencies, and perform maintenance to assure that the stormwater management system functions as intended on a long-term basis.

The checklist of individual items comprising the proposed stormwater management system includes the following:

A. Riprap Outlet Plunge Pool

Preface: Riprap outlet plunge pools will be constructed at the outlet locations for two stormwater collection systems proposed for the development site prior to discharge to the natural tributary swales that discharge to the Presumpscot River.

The purpose of riprapped outlet plunge pools is to provide erosion control protection at the outlet locations for each stormwater drainage system by reducing the velocity of the stormwater runoff discharging from each stormwater collection system prior to discharging to the natural tributary swale that discharges to the Presumpscot River.

A second purpose for each riprapped outlet plunge pool is to collect and detain sediments which have entered the stormwater collection system and escaped from the sediment sumps provided for each stormwater catchbasin, and have been transported to the discharge location of the stormwater conveyance system.

Inspection: During periods of dry weather, each riprapped outlet plunge pool should be inspected to measure the sediment accumulation.

Maintenance: If a significant accumulation of sediment is recorded in the riprapped outlet plunge pool, the sediment should be removed. Depending on the size of the plunge pool, the amount of sediment collected, and its location, the sediment may be removed manually, by mechanical equipment such as a backhoe, or by other methods. The material removed from the plunge pool should be disposed of in accordance with local practice for disposing of catch basin cleanings.

Maintenance/Inspection Responsibility: 400 Riverside Street Property Manager.

Frequency: Each riprapped outlet plunge pool should be inspected semi-annually, (preferably in the early summer after spring runoff, and in the fall) and after significant storm events. The frequency of sediment cleaning will depend on the rate of sediment buildup.

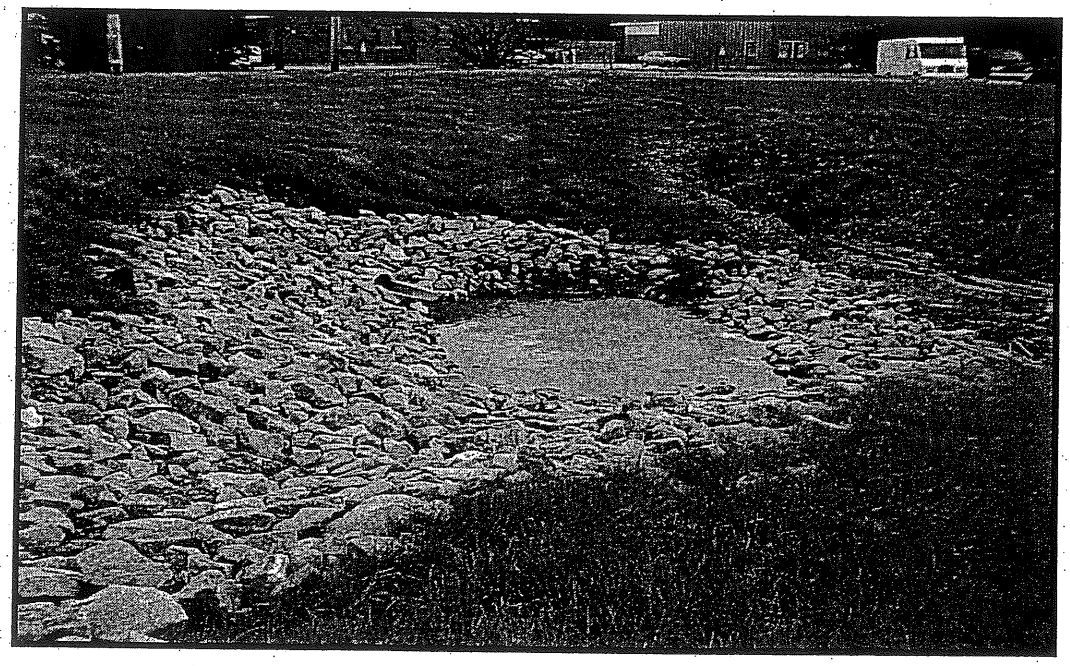
The rate of sediment buildup will depend on the make-up of upstream areas generating stormwater runoff and the frequency of inspection and maintenance of site elements.

Sediments will likely accumulate faster from stormwater runoff from open ditch transport systems and tributary drainage facilities with poorly maintained parking lots and sumped catch basins.

Comments: None.

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources both during construction activities and over an extended period of time
O7	Maintain and/or restore the intended infrastructure function



RIPPRAPPED OUTLET PLUNGE POOL PROVIDES EROSION CONTROL PROTECTION AND REDUCES VELOCITIES PRIOR TO DISCHARGE TO DOWNSTREAM AREAS

B. Level Lip Spreader

Preface: Level lip spreaders will be constructed at the outlet locations for the two riprap outlet plunge pools proposed for the development site prior to discharge to the natural tributary swale that discharges to the Presumpscot River.

The purpose of each level lip spreader is to provide erosion control protection at the outlet to the stormwater drainage system by changing concentrated flows into sheet flows with discharge to stable areas prior to discharging to the natural tributary swale that discharges to the Presumpscot River.

Inspection: Level lip spreaders should be inspected for erosion and sedimentation accumulation and debris.

Maintenance: Eroded or silted level lip spreaders need to be repaired when inspected. If erosion is a problem, the level lip spreader design should be examined. Likewise, if siltation is a continued problem, the up-gradient conditions should be assessed.

A good time to clean is during the growing season, when it's easiest to reestablish vegetation. This is generally April through June and September through October.

If feasible, remove small amounts of sediment by hand when performing routine site maintenance.

Vegetation should only be removed when it reduces free movement of water through the level lip spreaders. Never remove more vegetation than is absolutely needed.

Vegetate bare soils by hydroseeding or cover bare soils with an approved BMP measure. Hand seed for smaller areas.

Maintenance/Inspection Responsibility: 400 Riverside Street Property Manager.

Frequency: It is recommended that level lip spreaders be inspected quarterly until vegetation is established, and a year after installation. Thereafter, if no problems have been noticed, the frequency can be increased to once per year.

Design Guidelines: The level lip spreaders should be designed in accordance with the standard details and design criteria provided in the MeDEP Erosion and Sediment Control BMP handbook.

Applicability: 400 Riverside Street Properties will utilize level lip spreaders.

Comments: None.

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources both during construction activities and over an extended period of time
O3	Avoid and/or minimize vegetation removal
O4	Preserve native plants
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure

C. **Stormwater Inlets**

Preface: The success of any stormwater facility relies on the ability to intercept stormwater runoff at the design locations. Stormwater inlets may include open culverts, and field inlets. Inlets exist throughout a drainage catchment area at the points of stormwater collection and conveyance. This section is directed at maintenance of the actual inlet point. A later section addresses more substantive maintenance of the structures and conveyance facilities.

Inspection: The inspection of inlet points will need to be coordinated with other maintenance items. These include:

- Grounds maintenance and inspection
- Roadway maintenance
- Utility inspection and maintenance

The key element of the inspection is to assure the inlet entry point is clear of debris and will allow the intended water entry.

Maintenance: The key maintenance is the removal of any blockage that restricts the entry of stormwater to the inlet. The removed material should be taken out of the area of the inlet and placed where it will not re-enter the runoff collection system. Snow should be removed from inlets in parking lots/roadway areas.

Frequency: All inlets should be inspected on a monthly basis, and after/during significant storm events. A windshield survey is suitable for most inlets, but off-road inlets and pond structures require more rigorous inspection.

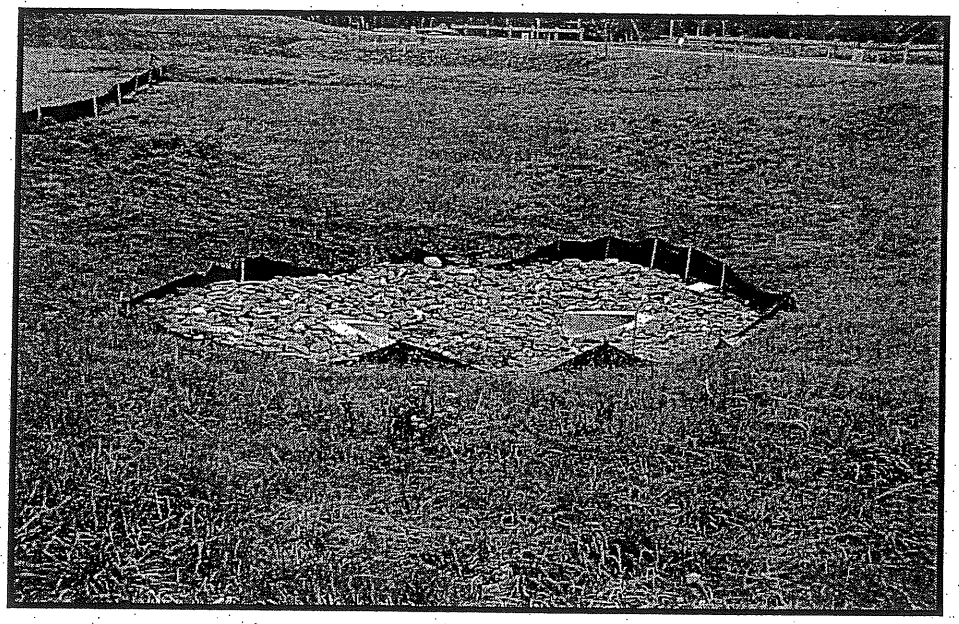
Maintenance/Inspection Responsibility: 400 Riverside Street Property Manager.

Comments: The planned development is located in the lower portion of the watershed area contributing stormwater runoff to the natural tributary swale that discharges to the Presumpscot River. Therefore, maintenance of inlets is recommended on this project to prevent possible flooding of site elements during significant storm events.

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources both during construction activities and over an extended period of time
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure

POORLY STABILIZED INLET ALLOWS ENTRANCE OF DEBRIS AND REDUCED CAPACITY



STABILIZED INLETS REDUCE DEBRIS ACCUMULATION AND MAINTAIN DESIGN CAPACITY

D. **Tributary Drainage System**

Preface: Stormwater from portions of the site is directed to stormwater drainage infrastructure, which transports the flows to mechanical devices prior to discharge to the natural tributary swale that discharges to the Presumpscot River. These conveyance systems can consist of open swales and ditches, piped drain system, or a combination of the two. Sediment that accumulates in the mechanical devices and riprapped outlet plunge pools is carried by the upstream tributary drainage system. Maintenance of these systems can play a major role in the long-term maintenance costs and the effectiveness of the drainage systems. Storm pipes are cleaned to remove sediment or blockages when problems are identified. Storm pipes must be clear of obstructions and breaks to prevent localized flooding.

Inspection: A tributary drainage system should be inspected periodically to assure that it is operating as intended, and that its carrying capacity has not been diminished by accumulation of debris and sediment or other hydraulic impediments. On piped systems, the inlets must be inspected to ensure the rims are set at the proper elevation to optimize flow entry and are not clogged with leaves or other debris. (See prior section for inlet location data.) The inlet basins are normally equipped with sumps, which will remove large sediment particles from the flow stream.

The level of sediment in the sumps should be checked to ensure their effectiveness. Pipelines connecting the inlets should be checked to determine if siltation is occurring. This will be most critical on drain lines laid at minimal slopes. This can usually be accomplished by a light and mirror procedure. Pipes are sometimes difficult to inspect, requiring special equipment and training. Usually, if a problem occurs the owner/400 Riverside Street Property

Manager needs to call a sewer or plumbing contractor to inspect, repair or clean pipelines.

In some projects most of the stormwater is carried in open swales, channels or ditches. These conveyance channels may be riprapped or vegetated, depending on the gradient and expected flow velocities. These facilities must be inspected to ensure debris or sedimentation does not reduce their carrying capacity. Excess vegetative growth must also be noted. The surface protection for the channels, either stone or vegetation, must be inspected to insure its integrity. Any areas subject to erosion should be noted.

Maintenance: Maintenance of a storm drainage system must assure that it continues to serve its design function on a long-term basis, and that its operation does not transport excessive sedimentation to any downstream stormwater facilities, or the receiving waters. Elevations on the rims of catch basins should be adjusted as needed to assure optimal water entry. Depending on the frost susceptibility of the soil, the rims may become elevated over time, causing flow to circumvent the inlet. When the sump in an inlet reaches two thirds of its volume, the sediment should be removed. This will typically be every 1 to 3 years, depending on the tributary drainage area and the amount of sand utilized for winter ice control. Catch basin cleaning would normally be accomplished with vacuum trucks under contract. The material removed must be disposed of at an approved site for such materials.

Generally, use mechanical methods to remove root obstructions from inside storm sewer pipes. Do not put root-dissolving chemicals in storm sewer pipes. If there is a problem, remove the vegetation over the line.

If sediment in the pipeline exceeds 20% of the diameter of the pipe, it should be removed. This may be accomplished by hydraulic flushing, or by mechanical means. If hydraulic flushing is used, the downstream conditions should be analyzed. In general, a sump or sediment trap should be used where it can be flushed into the riprapped outlet plunge pool, since it will hasten the time when it must be cleaned.

Vegetated ditches or swales should be mowed at least monthly during the growing season. Larger brush or trees must not be allowed to become established in the channel. Any vegetation cut in the ditch area should be removed from the site. Any areas where the vegetation fails will be subject to erosion and should be repaired and revegetated. Any riprap that becomes displaced should be replaced and chinked to assure its stability.

Sediment and debris from pipes should be disposed of as solid waste free of rocks.

Repair or replace pipes when a dent or break closes more than 20 percent of the pipe diameter.

Repair or replace pipes damaged by rust or deterioration.

Frequency: Piped drainage systems should be inspected on an annual basis. Adjustment of inlet rim elevations should be on an as-needed basis. Cleaning catch basin sumps and pipelines will depend on the rate of accumulation. Typically, catch basin sumps should be cleaned on a 1-to-3-year cycle. Pipeline cleaning schedules will be more variable. Open, vegetated swales should be mowed at least monthly during the growing season. Debris should be removed as required to maintain hydraulic capacity.

Maintenance/Inspection Responsibility: 400 Riverside Street Property Manager.

Special Services: The owner/400 Riverside Street Property Manager may elect to contract with an independent agent for cleaning of catch basins, sumps and pipelines. The owner/400 Riverside Street Property Manager or an outside service, depending upon the nature of the particular situation, may perform remedial source control measures.

Comments: Maintenance of inlets is critical on this project.

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources both during construction activities and over an extended period of time
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure

E. Vegetated Swales

Preface: Vegetated swales are often used to convey stormwater. Swales can be intended to be:

1. Mowed and maintained
2. Reverted to wetlands
3. Naturalized

Inspection: Swales should be inspected for erosion and sedimentation.

Maintenance: Eroded or silted channels need to be repaired when discovered. If erosion is a problem, the swale design should be examined. Likewise, if siltation is a continued problem, the upgradient conditions should be assessed.

A good time to clean is during the growing season, when it's easiest to reestablish vegetation. This is generally April through June and September through October.

If feasible, remove small amounts of sediment by hand when performing routine site maintenance.

Vegetation should only be removed when it reduces free movement of water through the ditch. Never remove more vegetation than is absolutely needed.

Only remove sediment when it reaches 20 percent of the ditch depth or affects the historic or designed hydraulic capacity.

Alternate cleaning areas with undisturbed areas, leaving undisturbed sections to act as sediment-trapping filters between worked areas.

Trap sediment that is generated by ditch maintenance to keep it from entering water bodies. Use sediment-trapping BMPs such as fabric fencing or filter bags at the lower end of each excavated area.

Prevent sediment from eroding when ditch work is performed. Perform work during dry weather unless there is an emergency such as property or road flooding.

Vegetate bare soils by hydroseeding or cover bare soils with an approved BMP. Hand seed for smaller areas.

Maintenance/Inspection Responsibility: 400 Riverside Street Property Manager.

Frequency: It is recommended vegetated swales be inspected quarterly until vegetation is established and a year after installation. Thereafter, if no problems have been noticed, the frequency can be increased to once per year.

Design Guidelines: The vegetated swale should consider channel cover at the time of concentration as well as several years after construction.

Design computations should state the assumed channel of vegetation and provide the basis for the Manning's or other roughness coefficient and for design.

Applicability: 400 Riverside Street Properties will utilize vegetated swales as well as open channel systems.

Comments: None

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources both during construction activities and over an extended period of time
O3	Avoid and/or minimize vegetation removal

O4	Preserve native plants
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure

VEGETATED SWALE WITH HAY BALE CHECK DAM TO REDUCE VELOCITIES UNDER CONSTRUCTION

A WELL STABILIZED VEGETATED SWALE SHOWS LITTLE SIGN OF EROSIVE VELOCITIES OR FLOWS. THIS SWALE ALSO FUNCTIONS AS A POND SPILLWAY.

E. Natural Buffers

Preface: Natural buffers are vegetated, undisturbed areas located downstream from a project site that serve to store and remove pollutants from stormwater runoff flows from a site.

Inspection: Natural buffers should be inspected for evidence of erosion, concentrated flows, and sedimentation accumulation.

Maintenance: If natural buffers show evidence of erosion, concentrated flows and sedimentation accumulation, then upstream stormwater management systems that include riprap outlet plunge pools, level lip spreaders and tributary vegetated swales should be inspected.

Eroded or silted riprap outlet plunge pools, level lip spreaders and swales should be repaired. If erosion is a problem, the system designs should be examined. Likewise, if siltation is a continued problem, the up-gradient conditions should be assessed.

If feasible, additional site grading and additional level lip spreaders upstream of the natural buffer may be warranted.

Maintenance/Inspection Responsibility: 400 Riverside Street Property Manager.

Frequency: It is recommended that natural buffers be inspected quarterly until the upstream stormwater management system has been installed and vegetation

established. Thereafter, if no problems have been noticed, the frequency can be increased to once per year.

Maintenance/Inspection Responsibility: 400 Riverside Street Property Manager.

Comments: N/A

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources both during construction activities and over an extended period of time
O3	Avoid and/or minimize vegetation removal
O4	Preserve native plants
O8	Prevent and/or reduce flooding

F. Catch Basins

Preface: Catch basins trap sediment and some oils that can pollute water bodies. They need to be inspected and cleaned annually to remove accumulated sediment, fluids, and trash.

Inspection: Inspect catch basins at least once per year.

Periodically inspect the catch basin and surrounding areas for pollutants such as leaks from dumpsters, minor spills, and oil dumping. Act to have the pollutant source removed.

Maintenance: Clean catch basins when they become one-third full to maintain sediment-trapping capacity. Catch basin and manhole cleaning should be performed in a manner that keeps removed sediment and water from being discharged back into the storm sewer.

Clean putrid materials from catch basins when discovered or reported.

Keep the inlet cleared of debris and litter.

Work inside underground structures requires special OSHA-required confined space equipment and procedures. The most practical option may be to contract with a sewer-cleaning contractor.

Disposal of waste from maintenance of drainage facilities shall be conducted in accordance with federal, state and local regulations.

Removed sediment must be disposed of as solid waste. Water should be disposed of in a sanitary sewer after oils are removed using oil-absorbent

materials or other mechanical means. Used oil absorbents should be recycled or disposed of according to the manufacturer's instructions.

Repair any damages that prevent the catch basin from functioning as designed. An example is a broken or missing outlet elbow.

Maintenance/Inspection Responsibility: 400 Riverside Street Property Manager.

Comments: N/A

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources both during construction activities and over an extended period of time
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure

G. Manholes

Preface: Manholes are large cylindrical vaults usually set at storm sewer pipe connections. Unless you have OSHA approved training and equipment, never enter a manhole. There is a considerable risk of poisonous gas and injury.

Inspection: Inspect the manhole once per year. Check the frame and lid for cracks and wear, such as rocking lids or lids moved by traffic.

Periodically inspect the manhole and surrounding areas for pollutants such as leaks from dumpsters, minor spills, and oil dumping. Take action to have the pollutant source removed.

Maintenance: Clean manholes when there is a blockage of a water flow path. Cleaning should be performed in a way that ensures removed sediment and water is not discharged back into the storm sewer.

Work inside underground structures requires special OSHA-required confined space equipment and procedures. The most practical option may be to contract with a sewer-cleaning contractor.

Disposal of waste from maintenance of drainage facilities shall be conducted in accordance with federal, state, and local regulations.

Removed sediment must be disposed of as solid waste. Water should be disposed of in a sanitary sewer after oils are removed using oil-absorbent

materials or other mechanical means. Used oil absorbents should be recycled or disposed of according to the manufacturer's instructions.

Repair all security and access features so they are fully functional. This includes locking lids, covers, and ladder rungs.

Replace broken parts or lids that rock or are moved by traffic.

Follow the practice described under the Activity: Installation, Repair and Replacement of Enclosed Drainage Systems.

Frequency: Structure should be monitored on a yearly basis.

Maintenance/Inspection Responsibility: 400 Riverside Street Property Manager.

Comments: N/A

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources both during construction activities and over an extended period of time
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure

H. Water Quality Treatment Units (WQUs)

Preface: A WQU is an underground vault that treats stormwater by mechanically separating oil and suspended solids from water. The oil rises to the surface and floats on the water and sediment settles to the bottom. Buried wet vaults are similar to oil/water separators in that they are subsurface vaults that separate sediment and floating materials from stormwater.

These facilities have special problems for maintenance and should be serviced by a professional knowledgeable in these services. The main issues are working in confined spaces and properly handling any sludge and oil cleaned from vaults or oil/water separators. All maintenance procedures must be completed in accordance with the manufacturer's recommendations.

Inspection: Periodically check stormwater flow out of the facility. It should be clear and not have a thick, visible oil sheen.

Annually check for cracks large enough to let soil enter the vault, broken or defective plates and baffles, and crushed or damaged pipes.

Periodically inspect the surrounding areas for pollutants such as leaks from dumpsters, minor spills, and oil dumping. Take action to have the pollutant source removed.

Inspect water levels after an extended dry period to check for leakage.

Maintenance: Remove trash and litter from the vault, inlet and piping.

Remove oil when it reaches one-inch thickness.

Remove sediment when it accumulates to 6 inches depth.

Work inside underground structures requires special OSHA-required confined space equipment and procedures. The most practical option may be to contract with a sewer-cleaning contractor.

Disposal of waste from maintenance of drainage facilities shall be conducted in accordance with federal, state and local regulations.

Removed sediment must be disposed of as solid waste. Water should be disposed of in a sanitary sewer after oils are removed using oil-absorbent materials or other mechanical means. Used oil absorbents should be recycled or disposed of according to the manufacturer's instructions.

Repair any cracked or defective plates or baffles. Cracks are repaired so that no cracks greater than ¼-inch are present. Repair any leaks that allow water levels to drop and cause oil to be washed from the unit.

Repair all security and access features so they are fully functional. This includes locking lids, covers, and ladder rungs.

Frequency: Water Quality Units should be monitored on a semi-annual basis or per the manufacturer's recommendations.

Maintenance/Inspection Responsibility: 400 Riverside Street Property Manager.

Comments: N/A

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources both during construction activities and over an extended period of time
O7	Maintain and/or restore the intended infrastructure function
O9	Protect infrastructure

I. Minor Culvert Repair (not in a stream)

Preface: This activity is the replacement or repair of culverts and inlets less than 6 feet in diameter. It applies only to structures that are in ditches, specifically for drainage, that do not carry water during dry weather.

Maintenance: Comply with stormwater and erosion control requirements of the Natural Resources Protection Act.

Avoid or minimize vegetation removal. If work is near a stream or wetland, there are likely regulatory requirements under the Maine Department of Environmental Protection Wetlands Protection Rules.

Other than to address a threat to public safety or property due to flooding, perform work during the dry season.

Minimize soil disturbance.

Use sediment controls to trap any sediment and prevent sediment from entering storm sewers and water bodies. Sediment trapping BMPs are used to the extent practical during emergencies.

Use cover BMPs to prevent erosion of bare soil. Vegetate bare soils.

Frequency: At least quarterly or after significant rainfall events.

Maintenance/Inspection Responsibility: 400 Riverside Street Property Manager.

Comments: N/A

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O3	Avoid and/or minimize vegetation removal
O7	Maintain and/or restore the intended infrastructure function
O8	Prevent and/or reduce flooding
O9	Protect infrastructure

J. Pavement Sweeping

Preface: Pavement sweeping is performed to remove sand and litter from access drives, parking lots, and curb gutters. Pavement sweeping also reduces dust during dry weather. Pavement sweeping is also a storm sewer maintenance practice because it limits sediment washed into stormwater facilities. Water quality practices for pavement sweeping focus on sediment disposal. Reducing the amount of sediment washed into catch basins and other facilities can save money because sweeping is generally cheaper than removing sediment from facilities. Pavement sweeping also helps protect facilities from clogging with sediment.

Maintenance: Sweep the site if it will help keep sediment from storm sewers or water bodies. Sweeping is especially useful for cleaning up work areas.

Disposal of waste from maintenance of drainage facilities shall be conducted in accordance with federal, state, and local regulations.

Sweepings should be disposed of as solid waste or under a program permitted by the MeDEP.

Frequency: Sweeping should occur every spring and when necessary as dust or sediments build up on the streets due to construction activity or individual lot development.

Maintenance/Inspection Responsibility: 400 Riverside Street Property Manager.

Comments: N/A

Outcomes:

O1	Avoid and/or minimize sediment and pollutant discharges from the work area during construction activities
O2	Prevent parking areas, roads, drainage systems, permanent stabilization measures, facilities and property from becoming pollutant sources both during construction activities and over an extended period of time
O5	Protect public safety and health
O10	Meet public expectations for aesthetics

K. Inspection and Maintenance Checklist

The above described inspection and maintenance items have been summarized on a checklist attached hereto as Appendix A. The checklist includes a general commentary on the inspection and maintenance objectives, and suggested frequency of item inspections. Persons knowledgeable of erosion and stormwater control and the standards and conditions of the permits should conduct the inspections and maintenance to assure that the stormwater management system is functioning as intended.

L. Documentation

The inspections, maintenance, and any actions taken during the inspection of the stormwater management system shall be summarized in a log report. The log report is provided with the list of the items included in the inspection and maintenance checklist. The log should summarize inspections, maintenance, and any actions taken during the inspection of the stormwater management system and is provided with line items that include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If maintenance tasks require the

cleanout of sediment or debris, then the log report shall indicate where the sediment or debris was disposed of after removal. Persons knowledgeable of erosion and stormwater control and the standards and conditions of the permits should maintain and update the log to assure that the stormwater management system functions as intended and on a long-term basis. The above described log report is attached hereto as Appendix B.

IV. Program Administration

A. General

A reliable inspection and maintenance program by the 400 Riverside Street Property Manager must be established to assure implementation of the maintenance programs described in the foregoing section. Key factors that must be considered in establishing a responsive property management structure include:

1. The property management personnel must be responsible for long-term operation and maintenance of the facilities.

2. The property management personnel have the financial resources to accomplish the inspection and maintenance program over the life of the facility.

3. The property management personnel must have a responsible administrator to manage the inspection and maintenance programs.

4. The property management personnel must have the staff to accomplish the inspection and maintenance programs, or must have authority to contract for the required services.

5. The property management personnel must have a management information system sufficient to file, retain, and retrieve all inspection and maintenance records associated with the inspection and maintenance programs.

If any of the above criteria cannot be met by the entity assigned inspection and maintenance responsibilities, it is likely that the system will fail to meet its water quality objectives at some point during its life. While each of the above criteria may be met by a variety of formats, it is critical to clearly establish the assigned property management personnel in a responsible and sustainable manner.

B. Record Keeping

Records of all inspections and maintenance work accomplished must be kept and maintained in the log report to document facility operations. These records should be filed and retained for a minimum 5-year time span. The filing system should be capable of ready retrieval of data for periodic reviews by appropriate regulatory bodies. Where possible, copies of such records should also be filed with the designated primary regulatory agency for their review for compliance with permit conditions.

C. Contract Services

In some instances or at specific times, the property management personnel may not have the staff to conduct the required inspection and/or maintenance programs as outlined in this document. In such cases the work should be accomplished on a contractual basis with a firm or organization that has the staff and equipment to accomplish the required work.

The service contract for inspection and maintenance should be a formal, well written legal document which clearly defines the services to be provided, the contractual conditions that will apply, and detailed payment schedules. Liability insurance should be required in all contracts.

Undoubtedly, the property manager and its representatives will prepare the actual service contract and procurement procedures to fit the needs for the project.

APPENDIX A

Summary Checklist
Inspection and Maintenance

Stormwater Management System Maintenance Program Summary Checklist					
Item	Commentary	Frequency			
		Monthly	Semi-Annual	Annual	Long-Term
Riprap Plunge Pool	Observe sediment accumulation in pool sump. Remove sediment from pool sump.		X		
Level Lip Spreader	Observe sediment accumulation in pool sump. Remove sediment from pool sump	X Quarterly until established		X	
Stormwater Inlets	Open culverts, field inlets. Inspect entry for debris accumulation. Remove debris to allow unimpeded entry. Inspect during/after significant storm events.	X			
Tributary Drainage System	Open swales/ditches, piped drain system or combined. Check for accumulation of debris/sediment or excess vegetation. Remove sediment when it exceeds 20% of pipe diameter.				X 1 to 3 years
Vegetated Swales	Swales or ditches are also used for stormwater conveyance. Inspect for debris accumulation, erosion and excessive vegetation. Mow monthly, remove debris, repair and vegetate any areas of erosion.	X Quarterly until established Mow		X At 1 year; annually	
Natural Buffers	Inspect resource and observe for evidence of erosion, concentrated flows, and encroachment of development.			X	
Catch Basins	Catch basins serve as the points of entry on a piped conveyance system. Sumps in the basins retain heavier sediment particles. Inspect to assure optimum water entry and accumulation of sediment in sumps. Clean sumps are required.			X	
Manholes	Requires OSHA-approved training. Inspect annually; check frame/lid for cracks/wear. Clean when water flow path is blocked.			X	
Water Quality Treatment Units	Check stormwater flow for oil sheen vs. clear water. Remove trash/litter. Remove oil at 1"; sediment at 6" depth. Serviced by contractors.			X	
Minor Culvert Repair	Inspect after large storms.		X		
Pavement Sweeping	Remove sand/litter from streets/gutters. As needed.			X	

APPENDIX B

Log Report

Stormwater Management System Maintenance Program Log Report Page 1 of 2					
Item	**Inspection & Maintenance Task**	**Date of Task**	**Description of Inspection finding and/or Maintenance Completed**	**Destination of Sediment or Debris Disposal if any**	**Name of Inspector**
Riprap Plunge Pool	Observe sediment accumulation in pool sump. Remove sediment from pool sump.				
Level Lip Spreader	Observe sediment accumulation in pool sump. Remove sediment from pool sump				
Stormwater Inlets	Open culverts, field inlets. Inspect entry for debris accumulation. Remove debris to allow unimpeded entry. Inspect during/after significant storm events.				
Tributary Drainage System	Open swales/ditches, piped drain system or combined. Check for accumulation of debris/sediment or excess vegetation. Remove sediment when it exceeds 20% of pipe diameter.				
Vegetated Swales	Swales or ditches are also used for stormwater conveyance. Inspect for debris accumulation, erosion and excessive vegetation. Mow monthly, remove debris, repair and vegetate any areas of erosion.				

Stormwater Management System Maintenance Program Log Report Page 2 of 2					
Item	**Inspection & Maintenance Task**	**Date of Task**	**Description of Inspection finding and/or Maintenance Completed**	**Destination of Sediment or Debris Disposal if any**	**Name of Inspector**
Natural Buffers	Inspect resource and observe for evidence of erosion, concentrated flows, and encroachment of development.				
Catch Basins	Catch basins serve as the points of entry on a piped conveyance system. Sumps in the basins retain heavier sediment particles. Inspect to assure optimum water entry and accumulation of sediment in sumps. Clean sumps are required.				
Manholes	Requires OSHA-approved training. Inspect annually; check frame/lid for cracks/wear. Clean when water flow path is blocked.				
Water Quality Treatment Units	Check stormwater flow for oil sheen vs. clear water. Remove trash/litter. Remove oil at 1"; sediment at 6" depth. Serviced by contractors.				
Minor Culvert Repair	Inspect after large storms.				
Pavement Sweeping	Remove sand/litter from streets/gutters. As needed.				
Pipelines	Pipelines carry flow from inlet structures to point of discharge. Inspect for sediment buildup in pipe. Clean as required.				

APPENDIX C

Permits for Project
To be added at a subsequent time

Sebago Technics
Engineering Expertise You Can Build On

sebagotechnics.com
One Chabot Street
P.O. Box 1339
Westbrook, Maine
04098-1339
Ph. 207-856-0277
Fax 856-2206

AH-5

July 13, 2004
01078

Ms. Marybeth Richardson
Department of Environmental Protection
312 Canco Road
Portland, ME 04103

Tier 1 Wetland Alteration Application, 400 Riverside Street, Portland

Dear Marybeth:

On behalf of The Galloway Group, we are submitting this Tier 1 Wetland Alteration Application for the alteration of approximately 8,531 square feet of freshwater wetlands. The subject property is shown as Lots 4 and 5 of the Donald O. Butler Subdivision.

The Galloway Group is proposing to add a 24,300 square foot office building/warehouse and parking area to their existing two buildings and parking area. The wetlands that are to be filled are classified as forested wetland. No wetlands of special significance will be altered by the proposed development.

Enclosed is the Tier 1 Wetland Alteration Application with required documents. I hope the information is sufficient for the processing of this application. Please contact me if you have any questions regarding this package.

Sincerely,

SEBAGO TECHNICS, INC.

Gary M. Fullerton, CSS, LSE
Certified Soil Scientist

GMF:gmf/jc/dlf
Enc.

cc: Marty Rist, The Galloway Group
Tim Michaud, DeLuca Hoffman Associates, Inc.
Earle G. Shettleworth, Jr., MHPC
City of Portland

Sebago Technics
Engineering Expertise You Can Build On

TIER 1 WETLAND ALTERATION APPLICATION

Prepared for:

RIST/BRUNET FAMILY TRUST
LOT 6 – McALISTER FARM SUBDIVISION and
400 RIVERSIDE STREET
McAlister Farm Road
Portland, Maine

Prepared by:

Sebago Technics, Inc.
One Chabot Street
P. O. Box 1339
Westbrook, ME 04098-1339

July 13, 2004

APPLICATION FOR A NATURAL RESOURCES PROTECTION ACT PERMIT

→PLEASE TYPE OR PRINT IN *BLACK INK ONLY*

1. Name of Applicant:	The Galloway Group	4. Name of Agent: (if applicable)	Sebago Technics, Inc.
2. Applicant's Mailing Address:	400 Riverside Street Portland, ME 04103	5. Agent's Mailing Address	P.O. Box 1339 Westbrook, ME 04098-1339
3. Applicant's Daytime Phone #:	(207) 878-6971	6. Agent's Daytime Phone #:	(207) 856-0277

7. Location of Project: (Nearest Road, Street, Rt.#)	McAllister Farm Road	8. Town:	Portland	9. County:	Cumberland

10. Type of Resource: (Check all that apply)	❑ River, stream or brook ❑ Great Pond ❑ Coastal Wetland X Freshwater Wetland ❑ Wetland Special Significance ❑ Significant Wildlife Habitat ❑ Fragile Mountain	11. Name of Resource:	unknown
		12. Amount of Impact (Sq.Ft.):	Fill: 8,531 (0.20 ac) Dredging/Veg Removal/Other:

13. Type of Wetland: (Check all that apply)	X Forested ❑ Scrub Shrub ❑ Emergent ❑ Wet Meadow ❑ Peatland ❑ Open Water ❑ Other_____	FOR FRESHWATER WETLANDS/ NOT OF SPECIAL SIGNIFICANCE ONLY: Tier 1	Tier 2/3
		❑ 0 - 4,999 sq. ft. X 5,000 – 9,999 sq. ft. ❑ 10,000 – 14,999 sq. ft.	❑ 15,000 – 19,999 sq. ft. ❑ 20,000 – 43,560 sq. ft. ❑ > 43,560 sq. ft.

14. Brief Project Description:	See attached report

15. Size of Lot or Parcel:	❑ square feet, or	16.37 acres			
16. Title, Right or Interest:	X own ❑ lease	❑ purchase option	❑ written agreement		
17. Deed Reference Numbers:	Book#: 197 Page: 115	18. Map and Lot Numbers:	Map #: 320	Block #: A Lot #: 2	
19. DEP Staff Previously Contacted:	Marybeth Richardson	20. Part of a larger project:	❑ Yes X No	After-the-Fact:	❑ Yes X No
21. Resubmission of Application?	❑ Yes→ X No	If yes, previous application #		Previous project manager:	
22. Written Notice of Violation?	❑ Yes → X No	If yes, name of DEP enforcement staff involved:		23. Previous Wetland Alteration:	❑ Yes ❑ No
24. Detailed Directions to the Project Site:	From exit 8 (I95), take a right onto Riverside Street. Go approximately 1/2 mile and McAllister Farm Road is on the left just past the intersection of Warren Avenue (across from the Handyman Rental sign).				

25. TIER 1	TIER 2/3 AND INDIVIDUAL PERMITS	
X Fee X Topographic Map X DEED X COPY TO MUNICIPALITY X Plan or Drawing (8 1/2" x 11") X Photos of Area X Statement of Avoidance & Minimization X Statement/Copy of cover letter to Maine Historic Preservation Commission	❑ Fee ❑ Topographic Map ❑ Photos of Area ❑ Plan or Drawing (8 1/2" x 11") ❑ Copy of Public Notice ❑ Professional Certification/Delineation ❑ Erosion Control Plan	❑ Alternatives Analysis, if required ❑ Description of Avoidance/Minimization ❑ Compensation Plan (if required) ❑ Description of Previously Mined Peatland (if required) ❑ Statement/Copy of cover letter to Maine Historic Preservation Commission ❑ Construction Plan, if required

26. FEES, Amount Enclosed:	$75.00

FOR DEP USE	L- ATS# Total FEES CK# Date Rec'd
FOR CORPS USE	App#: Office Code: Date Rec'd: Date Completed:

SIGNATURE PAGE

By signing below the applicant (or authorized agent), certifies that he or she has:

☒ Completed all of the public notice requirements listed on the next page of this application.

☒ Read and understood the following:

PRIVACY ACT STATEMENT

Authority: 33 USC 401, Section 10; 1413, Section 404. Principal Purpose: These laws require permits authorizing activities in, or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the Untied States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Routine Uses: Information provided on this form will be used in evaluating the application for a permit. Disclosure: Disclosure of requested information is voluntary. If information is not provided, however, the permit application can not be processed nor can a permit be issued.

CORPS SIGNATORY REQUIREMENT

USC Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry shall be fined not more than $10,000 or imprisoned not more than five years or both. I authorize the Corps to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

DEP SIGNATORY REQUIREMENT

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

"I hereby authorize the person named below to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application."

M Justin Kurt, Trustee — 7/6/04

SIGNATURE OF APPLICANT, *if agent involved* — DATE

"Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in the application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant."

[signature] — 7/6/04

SIGNATURE OF AGENT/APPLICANT — DATE

NOTE: Any changes in project plans must be submitted to the DEP and the Corps in writing and must be approved by both agencies prior to implementation. Failure to do so may result in enforcement action and/or the removal of the project changes.

PUBLIC NOTICE:
NOTICE OF INTENT TO FILE

Please take notice that

The Galloway Group
(*Name, Address and Phone of Applicant*)
400 Riverside Street

Portland, ME 04103 (207) 878-6971

is intending to file a Natural Resources Protection Act permit application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. §§ 480-A through 480-Z on or about July 13, 2004
(*anticipated filing date*)

The application is for

A proposed commercial development for a 24,300 square foot office building/ warehouse on Lot 4, 400 Riverside Street Properties.
(description of the project)

at the following location:

Lot 4, 400 Riverside Street Properties, Riverside Street
(*project location*)

A request for a public hearing or a request that the Board of Environmental assume jurisdiction over this application must be received by the Department, in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

For Federally licensed, permitted, or funded activities in the Coastal Zone, review of this application shall also constitute the State's consistency review in accordance with the Maine Coastal Program pursuant to Section 307 of the federal Coastal Zone Management Act, 16 U.S.C. §1456. (Delete if not applicable.)

The application will be filed for public inspection at the Department of Environmental Protection's office in (*Portland, Augusta or Bangor*)(circle one) during normal working hours. A copy of the application may also be seen at the municipal offices in

Portland, Maine.
(*town*)

Written public comments may be sent to the Department of Environmental Protection, Bureau of Land and Water Quality, 17 State House Station, Augusta, Maine 04333-0017.

Abutters – 400 Riverside Street Project

Map	Lot	Owner
319	2	Dirigo Drywall Associates 225 Riverside Street Portland, ME 04103
320	3	Maine Turnpike Authority 430 Riverside Street Portland, ME 04103
320	5	Crockett Riverside LLC 35 Graystone Lane Portland, ME 04103
321	4	Pende Associates, Inc. 42 South Street Yarmouth, ME 04096
322	1	Lucas Tree Expert Co., Inc. 636 Riverside Street Portland, ME 04103