424-A-005001

41-41 True St, Portland, Maine

True Street Subdivision

Sniper Todd R.

September 27, 2005

Danielle D. Betts, P.E.
Sebago Technics, Inc.
P.O. Box 1339
Westbrook, Maine 04098

RE: Agent Authorization for Local, State and Federal Permitting
True Street Subdivision, Portland, Maine

Dear Danielle:

We hereby authorize Sebago Technics, Inc. to act in our behalf as agent in the processing of any required local, State or Federal permit applications and to furnish, upon request, supplemental information in support of these applications.

Sincerely,

Todd & Kelly Sniper

Marc Giguere

Nick & Amanda Kent

Stacey Dean & Royce Gould

AH.2

ATTACHMENT 2

PROJECT NARRATIVE

Project Narrative

Existing Condition

The True Street neighborhood is a small neighborhood located off Ocean Avenue, between Washington Avenue and Presumpscot Street, in Portland. It currently consists of six legally non-conforming lots owned by four families. The neighborhood is rural in character, reflecting its history as a farming community. The total parcel is approximately 2.89 acres, with existing lots range in size from 0.14 acre to 1.3 acres. For the most part, the houses are located around the perimeter of the property and the developed areas are minimal, leaving a large tract of natural vegetation and trees through the middle and along the south side of the project site.

A narrow gravel drive lined with mature 24" to 36" diameter maple trees serves the two houses on the north side of the site. This 380' long access drive is private and maintained by the residents of these two homes.

Running parallel and 50 feet south of this gravel drive, True Street provides access to the two houses along the south and east sides of the site. This gravel road is approximately 12' wide and has been snow plowed and maintained by the City of Portland for over 40 years. It currently extends approximately 400' from Ocean Avenue to where it dead ends at a resident's driveway. Historically, the City has utilized this resident's driveway as a turnaround for snow plows and other maintenance vehicles. Per the initial submittal to the City as a Sketch Plan, True Street exists as a "paper street" within the City of Portland.

There are no known encumbrances over the site unless shown on the Boundary Survey with Existing Conditions Plan.

Proposed Development

The residents of True Street have been working together to develop a subdivision plan which will incorporate roadway improvements for safety, while preserving the existing character of the neighborhood. Eight lots, ranging in size from 0.14 acre to 0.43 acre, will be created from the six existing lots. Since True Street is an existing public street, the Subdivision Plan was developed to include the existing street in a 50-foot right-of-way with a typical turnaround near the end. The eight lots were then configured in such a way as to provide for the required 50' of street frontage along the public right-of-way. As a result, the four lots with existing houses will now be conforming with respect to frontage, and the four new lots will be conforming in all respects to zoning. New lots, 2 & 7, have been created for 960 square feet footprint, 2 story building. New lots, 4 & 6, have been created for 1800 square feet footprint, 2 1/2 story building.

The True Street Neighborhood recognizes the need for further improvements to True Street to provide for safe vehicle and pedestrian access. At the same time, another important goal in the residents' development concept is to maintain the rural feeling of this small neighborhood. Currently, the narrow gravel drives are shared, and there are mature maple, poplar, and other trees with 24" to 56" diameter trunks and large canopies that surround the site and line the gravel driveways. It is the residents' intention that True Street be improved for safety without compromising the rural character of the site.

With these goals in mind, proposed roadway improvements include rebuilding True Street to meet City of Portland roadway standards, specifically a 28' road section with granite curb and a stormwater collection system. The driveway for Lot 1 will be relocated to True Street, and its curb cut on Ocean Avenue removed. As part of retaining the rural character and to minimize wetland impacts, we are requesting the waiver for construction of sidewalks.

It is assumed that construction of the project improvements will occur in the Spring of 2008 and coincide with the improvements proposed for Ocean Avenue. Construction for a project this size would normally be 4 to 6 months but may be longer depending on the contractor and the construction schedule of Ocean Avenue. Preliminary estimate of the cost for the project is approximately $132,000.00

Utilities and Services

Three of the existing single family buildings have municipal water and sewer service whereas the fourth single family building has municipal water service with an on-site sub-surface disposal service. As part of the True Street improvements, sanitary sewer and water will be extended along its length and all lots will have municipal water and sewer service. Solid waste service will be provided by the municipal waste service. The proposed True Street will provide for adjacent access to the proposed properties. Because of the minimal trips associated with 4 new single family lots, the existing abutting roadways have adequate capacity for the proposed project.

Stormwater Management

Stormwater management is detailed in attachment 5. There are no known drainage problems and the project has been designed to meet pre vs. post discharges for the design storm events.

Permitting

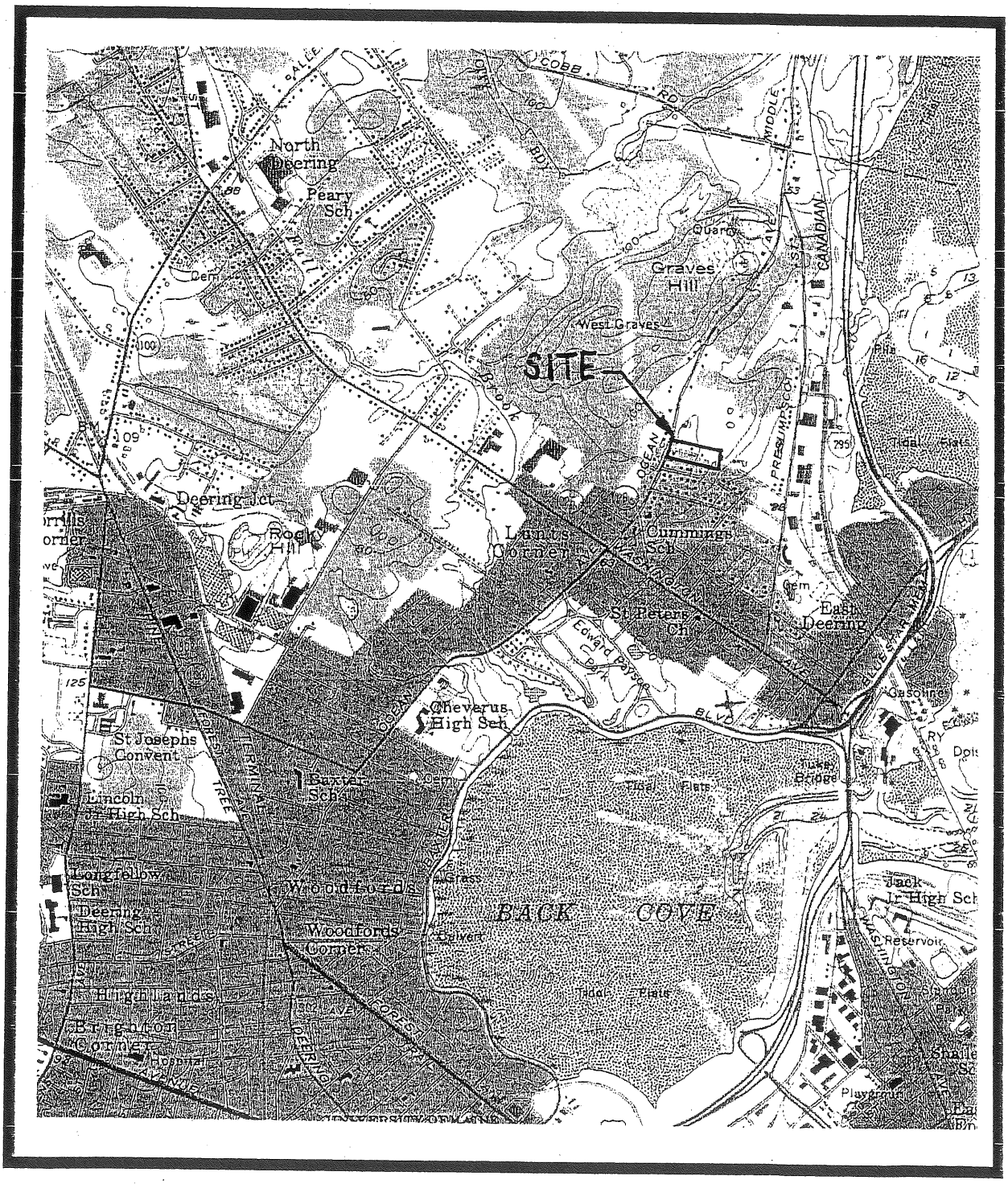
As detailed in the Stormwater Management Narrative, no state or federal permits are necessary.

Att. 3

ATTACHMENT 3

SITE LOCATION MAP

FIGURE 1



SITE LOCATION MAP

USGS TOPOGRAPHIC

7.5 MIN. QUADRANGLE

PORTLAND WEST

SCALE: 1"=2,000'

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

AH.4

ATTACHMENT 4

GENERAL REQUIREMENTS - SUBDIVISION

General Requirements - Subdivision

1. Will not result in undue water or air pollution. In making this determination it shall at least consider the elevation of land above sea level and its relation to the flood plains, the nature of soils and subsoils and their ability to adequately support waste disposal; the slope of the land and its effect on effluents; the availability of streams for disposal of effluents; the conformity to the applicable state and local health and water resources regulations;

   The project is proposing the addition of four single family residential lots which will have municipal water and sewer service and one existing subsurface waste system will be abandoned; therefore, the project will not result in undue water or air pollution.

2. Has sufficient water available for the reasonably foreseeable needs of the subdivision;

   The project is proposing the addition of four single family residential lots which will have municipal water service. See attached ability to serve letter from the Portland Water District.

3. Will not cause unreasonable burden on an existing water supply;

   The project will not cause a burden on the existing water system. See attached ability to serve letter from the Portland Water District.

4. Will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result;

   An Erosion control and Sedimentation Plan is submitted as part of this project. A continuous silt barrier and/or wood waste compost bark filter berm, will surround the construction areas. All hay bale and silt fence barriers will be in place prior to any development activity and will remain in place until final stabilization. Disturbed areas, which will not be worked for one month will be mulched with hay and anchored with erosion control mesh. Temporary mulching will be accomplished within three days of disturbance.

5. Will not cause unreasonable highway or public road congestion or unsafe conditions with respect to use of the highway or public roads existing or proposed;

   The project is proposing the addition of four single family residential lots which will not cause unreasonable highway or public road congestion. Proposed street meets the standard City of Portland dimensional requirements for local streets.

6. Will provide for adequate sanitary waste and storm water disposal and will not cause an unreasonable burden on municipal services if they are utilized;

   The proposed project will be served by municipal sewer. Project stormwater design meets the pre vs. post conditions for the design storms utilizing the site's existing discharge point. Therefore, project will provide for adequate sanitary waste and storm water disposal.

7. Will not cause an unreasonable burden on the ability of the city to dispose of solid waste and sewage if municipal services are to be utilized;

   The project is proposing the addition of four single family residential lots which will have municipal sewer and solid waste service and one existing single family lot that has a subsurface waste system will be abandoned which currently has municipal solid waste service; therefore, the project will not cause an unreasonable burden on the City to dispose of solid waste and sewage.

8. Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the department of inland fisheries and wildlife or by the city, or rare and irreplaceable natural areas or any public rights for physical or visual access to the shoreline. For subdivisions within historic districts designated pursuant to article IX of this chapter, the Planning Board shall apply the standards of section 14-651(c) of article IX. The Planning Board may request that the historic preservation committee prepare an evaluation of the proposed subdivision based upon the standards of section 14-651(c);

   No historical resources or significant wildlife habitats exist within the site. Letters have been requested from the appropriate State agencies. Project does not abut a shoreline. Therefore, project will not have an undue effect on the scenic or natural beauty of the area, aesthetics, historic sites or significant wildlife habitat.

9. Is in conformance with the land development plan or its successor;

   Project is within the R-5 zoning District. Project conforms to the applicable zoning requirements of the District.

10. The subdivider has adequate financial and technical capacity to meet the standards of this section;

    The project is the construction of approximately three hundred feet of local road. Applicant is proposing to fund construction from personal finances.

11. Whenever situated, in whole or in part, within the watershed of any pond or lake or within two hundred fifty (250) feet of any wetland, great pond or river as defined in Title 38, chapter 3, subchapter I, article 2-B, will not adversely affect

the quality of such body of water or unreasonably affect the shoreline of such body of water;

On-site wetlands are shown on the proposed plan. Applicant has proposed to fill the minimal amount of wetlands necessary to construct the project. The amount of filling does not exceed the Maine Department of Environmental Protection's threshold for review.

12. Will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater;

Based upon the nature of the project and the fact that the project will be served by municipal water and sewer service, the project will not affect the quality or quantity of groundwater.

13. Is or is not in a flood-prone area, based on the Federal Emergency Management Agency's Flood Boundary and Floodway Maps and Flood Insurance Rate Maps, and information presented by the applicant. If the subdivision, or any part of it, is in such an area, the subdivider shall determine the 100-year flood elevation and flood hazard boundaries within the subdivision. The proposed subdivision plan must include a condition of plan approval requiring that principal structures in the subdivision will be constructed with their lowest floor, including the basement, at least one (1) foot above the 100-year flood elevation;

Not applicable; project is not locate within a flood prone area.

14. All potential wetlands within the proposed subdivision shall be identified on any maps submitted as part of the application, regardless of the size of those wetlands. Any mapping of wetlands may be done with the help of the local soil and water conservation district; and

On-site wetlands are shown on the proposed plan. Applicant has proposed to fill the minimal amount of wetlands necessary to construct the project. The amount of filling does not exceed the Maine Department of Environmental Protection's threshold for review.

15. Any river, stream or brook within or abutting the proposed subdivision shall be identified on any maps submitted as part of the application. For purposes of this section, "river, stream or brook" has the same meaning as in Title 38 M.R.S.A. Section 480-B, subsection 9.

Not applicable; project is not locate within a within or adjacent to any river, stream or brook.

Att.5

ATTACHMENT 5

STORMWATER MANAGEMENT NARRATIVE

Stormwater Management Narrative
to
The City of Portland
for
The True Street Subdivision

prepared for

True Street Neighborhood

prepared by

Sebago Technics, Inc.
One Chabot Street
Westbrook, ME 04098

November 2007

STORMWATER MANAGEMENT NARRATIVE

True Street Subdivision
True Street
Portland, ME

General

The following Stormwater Management Plan has been prepared by Sebago Technics, Inc. in order to evaluate the pre- and post-development conditions for the proposed subdivision and road improvement project on True Street in Portland, Maine. Proposed site improvements include the creation of an eight (8) lot subdivision with improvements to the existing road, stormwater management facilities, and connections to public utilities.

The project is being proposed by a group of neighbors, all of whom currently live along True Street. The neighborhood is located in Residential Zone R-5, on the easterly side of Ocean Avenue, and is depicted on Tax Map 424 as Lots 3, 4, 5, 29, 30, and 40. Of the six existing parcels, four are currently developed. The scope of this project includes subdivision of the six existing parcels into eight parcels, and reconstruction of True Street (including the dedication of a 50 foot right-of-way to the City) to bring it up to City of Portland standards. Any possible future development of the four undeveloped lots will be done individually, as separate projects.

The total disturbed area associated with this project will be approximately 20,000 s.f. (0.46 ac.). Because this does not exceed the Maine Department of Environmental Protection (MDEP) threshold of one (1.0) acre, no MDEP stormwater permit will be required. Similarly, wetland impacts associated with this project will be approximately 3,834 s.f., less than the 4,300 s.f. threshold. Therefore, a wetland permit also is not a requirement.

Existing Conditions

The project site is approximately 2.89 acres. It is located on the easterly side of Ocean Avenue, between Grafton St. and the Wellstone Condominium complex. The site is bounded on the west by Ocean Avenue, on the north by the Wellstone Condominiums, on the east by the Ocean East Townhouses, and on the south by residences along Grafton Street. The site is made up of six (6) existing lots held by four (4) owners. Four of the lots currently have residences on them. These residences are accessed by True Street, a substandard unpaved road, as well as a long narrow private driveway, roughly parallel to True Street. The undeveloped areas of the site include woods and wooded wetlands. Exposed ledge is evident at several locations across the site.

Existing ground surface elevations within the site vary from approximately El. 92 at the easterly corner of the site to El. 75 at the outlet of the wetland at the westerly corner. Stormwater runoff from the majority of the site flows westerly to the wetland in the southwesterly corner of the site. Anecdotal evidence of ponding on the abutting parcel (677 Ocean Ave.) was reported. From here runoff is picked up in a 12 inch clay culvert and routed toward Grafton Street. Runoff from a small portion of the easterly side of the site flows overland easterly, downhill toward the Ocean East Townhomes development.

Soils

Soil information used in the stormwater analysis was obtained from the USDA/NRCS Soil Survey of Cumberland County, Web Soil Survey. The Hydrologic Soil Groups (HSG) of these soils are classified by Technical Release 55 (TR-55) of the Soil Conservation Service as follows:

Soil Type	Symbol	HSG
Hollis	HrB	C/D
Hollis	HrC	C/D

This soil is described generally as fine sandy loam, with low potential for erosion. Nevertheless, the details call for both temporary and permanent stabilization of all disturbed areas. Because of the prevalence of ledge evident throughout the site, all soils were assumed to be HSGD in the stormwater model.

Proposed Improvements

In addition to the creation of an eight (8) lot subdivision, proposed site improvements include reconstruction of True Street, to bring it up to City of Portland standards. Access to all lots will then be off True Street, and the existing private driveway will be removed. The road will be constructed with catch basins and culverts to collect stormwater runoff from the road and maintain the overall existing drainage pattern of the site. A low berm is proposed along part of the southerly property line so that the wetland in the southwesterly corner of the site will continue to act as a detention basin. The 12 inch clay outlet culvert will remain. The project will be served by public sewer, water, gas, and underground electric, telephone, and cable services.

Methodology

In order to evaluate drainage characteristics as a result of the proposed development activities, a quantitative analysis was performed to determine peak rates of runoff for the 2-, 10-, and 25-year storm events in the pre- and post-development conditions. The evaluation was performed using the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds - Technical Release #55 (TR-55)". HydroCAD (V. 8.00) computer software was utilized to perform the calculations.

Peak runoff rates were analyzed for the 2-, 10-, and 25-year frequency, 24-hour duration storm events. A Type III rainfall distribution was applied to these storms. The rainfall amounts used, based on data for Cumberland County, are as follows:

Storm Frequency	Precipitation (in./24 hr)
2-year	3.0
10-year	4.7
25-year	5.5

The HydroCAD Data output sheets from this analysis are appended to this report, along with pre- and post-development watershed maps.

Pre-Development Watershed Model

The pre-development watershed model contains three subcatchments labeled 1 through 5 in the HydroCAD model. Subcatchment 1 contains the majority of the site, mostly on the east side, and includes developed areas, brushy unmaintained area, woods, a wetland, and part of True Street. Runoff flows overland from the high point on easterly side of the site to the wetland near the southwesterly corner. The wetland acts as a detention pond, modeled as Pond 1P, with a 12 inch clay culvert outfall. The culvert routes stormwater toward Grafton Street, where it enters the Ocean Avenue storm drain network. Runoff leaving the site from the wetland is analyzed at SP1.

Subcatchment 2, adjacent to Subcatchment 1, is made up of roughly a third of the west side of the site. It includes developed area, brushy unmaintained area, part of True Street, most of the existing access driveway, and a smaller wetland along True Street to the north. Runoff from this subcatchment flows overland to the smaller wetland which also acts as a detention pond, modeled as Pond 2P. The outlet for the wetland is a 15 inch culvert, which routes runoff under True Street to the wetland/Pond 1P.

Subcatchment 3 lies to the north of Subcatchment 2, and is made up entirely of developed area. Although the design plans for the adjacent Wellstone Condominium project calls for a swale to route runoff to the on-site detention basin, a portion appears to have been improperly graded to drain toward the True Street neighborhood. Therefore, part of the Wellstone Condominium complex is included in this subcatchment also. The existing access driveway is raised in this area, creating a low area that routinely floods. This area is modeled as Pond 3P. The outlet to this pond is a 4 inch culvert which routes runoff under the driveway to Pond 2P.

The peak runoff rates from Subcatchments 1, 2, and 3 are analyzed at SP1.

Subcatchments 4 and 5 are located along the easterly side of the site. Subcatchment 4 is predominantly developed land, with some brushy unmaintained area. Runoff flows to a small depression near the easterly boundary, modeled as Pond 4P, which eventually overflows across the property line, downhill toward the Ocean East Townhomes. Subcatchment 5 is a wooded area. Runoff sheet flows across this subcatchment southerly, toward the Ocean East Townhomes. The peak runoff rates from Subcatchments 4 and 5 are analyzed together at SP2.

Post-Development Watershed Model

The post-development model includes six subcatchments labeled 1, 2A, 2B, and 3 through 5. The overall watershed area remains the same as in the pre-development condition; however, there is a small increase in impervious area due to the proposed site improvements. Although not part of this project, post-development analysis also includes development of the four currently undeveloped parcels, to represent full build-out conditions.

In general, subcatchment delineation and drainage patterns are roughly the same as in the pre-development condition. The minor changes are the result of grading and roadway construction. Subcatchment 1 again, contains the majority of the site. Runoff flows overland from the high point on the easterly side of the site to the wetland/Pond 1P near the southwesterly corner. A low berm is proposed along part of the southerly property line so that the wetland will continue to act

as a detention basin. Pond 1P will be connected to the 12 inch clay outfall via a yard drain in the abutting parcel, which will also help to alleviate the existing ponding problem on that parcel. Runoff leaving the site from the wetland is again analyzed at SP1.

Subcatchment 2 (pre-development) is divided into Subcatchments 2A and 2B due to the improvements to True Street. Subcatchment 2A represents the southerly half of True Street. Runoff flows along the curb to a low point in the road, where it is collected by catch basin CB 2, which then discharges to wetland/Pond 1P.

Subcatchment 2B represents the northerly half of True Street, some developed area, and some brushy unmaintained area. The existing access driveway will be removed and replanted as lawn. Runoff from this subcatchment flows overland to True Street. It then flows along the curb to the low point, where it is collected by catch basin CB1 and routed to CB2 and Pond 1P.

Subcatchment 3 is expanded in the post-development condition due to the removal of the existing access driveway. This subcatchment now includes wetland/Pond 2P. Pond 2P is reduced in size because of the reconstruction and grading of True Street. Runoff from this subcatchment flows overland to the wetland/Pond 2P, where culvert SD-1 routs it through the storm drain system and to wetland/Pond 1P.

The peak runoff rates from Subcatchments 1, 2A, 2B, and 3 are again analyzed at SP1.

Subcatchments 4 and 5 are located along the easterly side of the site. Subcatchment 4 is unchanged from the pre-development condition. Subcatchment 5 is assumed to be developed in the post-development condition. Runoff from these subcatchments continues to flow southeasterly, toward the Ocean East Townhomes. The peak runoff rates from Subcatchments 4 and 5 are again analyzed together at SP2.

Results

The following table presents the watershed data for pre- and post-development conditions, as delineated for the analysis.

Table 1: Watershed Data Summary

Subcatchment (Watershed)	Pre-Development			Post-Development		
	Area (Ac)	Cn	Tc (Min)	Area (Ac)	Cn	Tc (Min)
1	1.693	82	14.8	1.565	84	11.7
2(A)	0.593	82	10.6	0.095	98	5.0
2B	-	-	-	0.378	86	8.5
3	0.310	82	6.2	0.565	83	6.6
4	0.234	81	8.0	0.234	81	8.0
5	0.140	79	11.3	0.130	86	7.9
Total	2.970	-	-	2.967	-	-

The following table presents the results of the stormwater runoff calculations for the pre- and post-development conditions for the 2-, 10-, and 25-year storm events.

Table 2: Stormwater Runoff Summary

Study Point	Storm Event	Pre-Development (cfs)	Post-Development (cfs)	Difference (cfs)
SP1	2-year	2.13	1.69	-0.44
	10-year	2.92	2.39	-0.53
	25-year	3.19	2.64	-0.55
SP2	2-year	0.16	0.24	+0.08
	10-year	0.81	0.81	+0.00
	25-year	1.21	1.26	+0.05

The following tables present the detention pond storage calculations in the post-development condition for the 2-, 10-, and 25-year storm events.

Table 3: Detention Pond 1P Storage Summary

Storm Event	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Elevation (ft)	Spillway Elevation (ft)	Berm Elevation (ft)
2-year	3.96	1.69	75.08	-	76.5
10-year	7.69	2.39	75.74	-	76.5
25-year	9.44	2.64	76.04	-	76.5

Table 4: Detention Pond 2P Storage Summary

Storm Event	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Elevation (ft)	Spillway Elevation (ft)	Berm Elevation (ft)
2-year	0.93	0.84	76.04	78.16	-
10-year	1.88	1.64	76.31	78.16	-
25-year	2.34	1.98	76.43	78.16	-

Summary

As described in the above narrative, existing drainage patterns will remain essentially unaltered by the project. In addition, the tables above show that runoff discharging from the site will be below pre-development conditions for the 2-, 10-, and 25-year storm events at SP1. SP2 shows an insignificant increase in the 2- and 25-year events. The wetland/ detention pond SP1 will manage runoff from the majority of the developed area. It has been designed with a very simple outlet control structure. Specifically, a 10 inch culvert will be used to reduce the peak runoff rates.

In addition, an Erosion & Sedimentation Control Plan has been provided for construction and post-construction stabilization of the site. Temporary erosion control measures to be installed during construction will include the placement of sedimentation barriers (silt fence) along down gradient areas, together with specific requirements for the use of riprap, erosion control blanket

and temporary/permanent revegetation measures. These construction requirements have been placed directly on the design plans for construction reference.

Based on the modeling data, it is anticipated that stormwater runoff from the proposed site development will not cause a significant adverse affect to off-site receiving channels or downstream areas.

Prepared by:

SEBAGO TECHNICS, INC.

Patrick M. Martin
Project Engineer

Robert A. McSorley, P.E.
Senior Project Manager

PMM:RAM:pmm/cb

4-5-06

STATE OF MAINE
ROBERT A. McSORLEY
No. 8538
LICENSED PROFESSIONAL ENGINEER

Att. 6

ATTACHMENT 6

ABILITY TO SERVE LETTERS

Portland Water District
FROM SEBAGO LAKE TO CASCO BAY

CUSTOMER SERVICE
OFFICE HOURS
8:30 A.M. - 4:30 P.M.

November 26, 2007

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

Attn: Patrick Martin
Re: True Street Subdivision, Portland
Ability to serve with PWD water

Dear Mr. Martin:

We have received your letter dated September 19, 2007 requesting confirmation that the public water system can meet the water needs of the proposed 8-lot residential subdivision on True Street in Portland. This letter is to confirm that there should be an adequate supply of clean and healthful water to serve the needs of your project.

According to District records, there is a 12-inch diameter cast iron water main on the east side of the street as well as a hydrant located approximately 175 feet north of the proposed entrance to True Street.

The current data from the nearest hydrant, shown on the attached plan, is as follows:

Hydrant Location:	175 feet north of True Street
Hydrant Number:	POD-HYD01228
Static Pressure:	70 psi
Flow:	1233 gpm
Last Tested:	10/06/1989

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District

Rico Spugnardi, P.E.
Business Development Engineer
rspugnardi@pwd.org

225 DOUGLASS STREET P.O. BOX 3553 PORTLAND, MAINE 04104-3553
PHONE: 207.761.8310 FAX: 207.879.5837 E-MAIL: CUSTOMERHELP@PWD.ORG WEB: WWW.PWD.ORG

12 June 2008

Mr. Patrick M. Martin,
Project Engineer,
Sebago Technics, Inc.,
P. O. Box 1339,
Westbrook, Maine 04098-1339

RE: The Capacity to Handle the Anticipated Wastewater Flows, from a Proposed Eight Lot Residential Subdivision, on True Street, at 691 Ocean Avenue.

Dear Ms. Young:

The existing twelve-inch diameter polyvinyl chloride (P.V.C.) sanitary sewer pipe, located in Ocean Avenue, has adequate capacity to **transport**, while The Portland Water District sewage treatment facilities, located off Marginal Way, have adequate capacity to **treat** the anticipated net increase in wastewater flows of **1,800 G.P.D.**, from the proposed residential subdivision.

Anticipated Wastewater Flows from the Proposed Subdivision Project:	
8 Proposed Four-Bedroom Houses @ 360 G.P.D./House	= 2,880 GPD
Less 3 Existing Four Bedroom Houses @360 G.P.D./House	= (1,080 GPD)
Total Proposed Net Increase in Wastewater Flows for this Project	**= 1,800 GPD**

The City combined sewer overflow (C.S.O.) abatement consent agreement, with the U.S.E.P.A. and with the Maine D.E.P., requires C.S.O. abatement, as well as storm water mitigation, from all projects, in order to offset any increase in sanitary flows.

If The City can be of further assistance, please call 874-8832.

Sincerely,
CITY OF PORTLAND

Frank J Brancely, B.A., and M.A.
Senior Engineering Technician

FJB

cc: Alexander Q. Jaegerman, Director, Department of Planning, and Urban Development, City of Portland
Shukria Wiar, Planner, Department of Planning, and Urban Development, City of Portland
David Margolis-Pineo, P.E., Deputy City Engineer, City of Portland
Bradley A. Roland, P.E., Environmental Projects Engineer, City of Portland
Michael Farmer, P.E., Project Engineer, City of Portland
Stephen K. Harris, Assistant Engineer, City of Portland
John Emerson, Wastewater Coordinator, City of Portland
Jane Ward, Administrative Assistant, City of Portland
Desk file

O:\Engshare\FJB\Capacity Letters\Ocean Avenue 681, 693 and True Street 41 et alii
C:\Frank's\Capacity Letters\ Ocean Avenue 681, 693 and True Street 41 et alii

Att. 7

ATTACHMENT 7

LETTERS FROM STATE AGENCIES

STATE OF MAINE
DEPARTMENT OF CONSERVATION
17 ELKINS LANE
93 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0093

JOHN ELIAS BALDACCI
GOVERNOR

PATRICK K. McGOWAN
COMMISSIONER

December 3, 2007

Robert A. McSorley
Sebago Technics, Inc.
One Chabot Street
PO Box 1339
Westbrook, ME 04098-0277

Re: Rare and exemplary botanical features, Proposed True Street Subdivision, Project #05207, Portland, Maine.

Dear Mr. McSorley:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request of November 27, 2007 for information on the presence of rare or unique botanical features documented from the vicinity of the project site in the City of Portland, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as

MAINE NATURAL AREAS PROGRAM
MOLLY DOCHERTY, DIRECTOR

PHONE: (207) 287-8044
FAX: (207) 287-8040
TTY: (207) 287-2213

well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $75.00 for our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Lisa St. Hilaire
Information Manager
207-287-8046

Lisa.St.Hilaire@maine.gov

Enclosures

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JOHN ELIAS BALDACCI
GOVERNOR

EARLE G. SHETTLEWORTH, JR.
DIRECTOR

January 2, 2008

Mr. Robert A. McSorley, P.E.
Sr. Project Manager
Sebago Technics
P.O. Box 1339
Westbrook, ME 04098-1339

Project: MHPC #2149-07 - True Street Subdivision; east side of Ocean Avenue
Town: Portland, ME

Dear Mr. McSorley:

In response to your recent request, I have reviewed the information received December 18, 2007 to continue consultation on the above referenced project pursuant to the requirements of the City of Portland.

Based on the information submitted, I have concluded that the proposed project will have no effect upon historic properties [architectural or archaeological].

Please contact Robin Stancampiano of my staff if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
Deputy State Historic Preservation Officer

PHONE: (207) 287-2132

FAX: (207) 287-2335

AH.8

ATTACHMENT 8

RIGHT, INTEREST & TITLE

0030905 BK16270PG259

WARRANTY DEED

I, Royce A. Gould, of Portland, Cumberland County, Maine, for consideration paid, grant to Stacy L. Dean, whose mailing address is: 681 Ocean Avenue, Portland, Maine 04103, with WARRANTY COVENANTS, a certain lot or parcel of land with the buildings thereon, situated in Portland, Cumberland County, Maine, being bounded and described as follows:

Beginning at a stake standing on Ocean Avenue at the northeast corner of land owned by the heirs of the late George M. Adams; thence running on a line of Ocean Avenue, North 32° East Sixty (60) feet to a point; thence South 62° East One Hundred (100) feet to a point; thence South 32° West to land of Adams' heirs; thence North 58° West by said Adams' heirs land to point of beginning.

This conveyance is made subject to all encumbrances and mortgages of record.

Hereby conveying the same premises conveyed to Stacy L. Dean and Royce Gould by Stacy L. Dean, by deed dated April 5, 1999, and recorded in the Cumberland County Registry of Deeds in Book 13802, at Page 293.

WITNESS my hand and seal this 4th day of May, 2001.

WITNESS

Royce A. Gould

STATE OF MAINE
CUMBERLAND, ss

May 4, 2001.

Then personally appeared the above named Royce A. Gould and acknowledged the foregoing instrument to be her free act and deed.

Before me,

~~Notary Public~~ / Attorney at Law

ERNEST L. MANDERSON
Printed Name

c:\clients\dean\warranty.dee

RECEIVED
RECORDED REGISTRY OF DEEDS
2001 MAY -4 PM 1:27
CUMBERLAND COUNTY
John B O'Brien

BK12907PG330

02519

MAINE REAL ESTATE TAX PAID

Quitclaim Deed Without Covenant
(Maine Statutory Short Form)

KNOW ALL MEN BY THESE PRESENTS THAT Darryl A. Card of 41 True Street, Portland, Cumberland County, State of Maine , for one dollar and other valuable consideration paid, grant to Todd R. Sniper of 257 State Street, Portland, Cumberland County, State of Maine, the land in Portland, Cumberland County, State of Maine , bounded and described as follows:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF.

IN WITNESS WHEREOF, I have hereunto set my hand this 15th day of January, 1997.

Witness

Darryl A. Card

STATE OF Maine
COUNTY OF Cumberland

On this 15th day of January, 1997 , personally appeared before me the above-named Darryl A. Card , and acknowledged the foregoing to be his free act and deed.

Notary Public/Attorney at Law
Charles W. McKay

My Commission Expires:

CB-1506
(jms)

22115 BOOK 6863 PAGE 1.

WARRANTY DEED
Joint Tenancy
Maine Statutory Short Form

Know all Men by these Presents,

That we, Harold H. Rutter, Jr. and Virginia S. Rutter,

of Portland, County of Cumberland, State of Maine,
husband and wife
~~being unmarried~~ for consideration paid, grant to Amanda S. McQuiddy and Nicholas C. Kent,

of Portland, County of Cumberland, State of Maine,

whose mailing address is 35 Taylor Street, Portland, Maine,

with ~~warranty covenants~~ as joint tenants the land in Portland, County of Cumberland,

State of Maine, described as follows:

A certain lot or parcel of land with the buildings thereon situated on the southeasterly side of Ocean Avenue, in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows: Beginning on the southeasterly side of Ocean Avenue at the southwesterly corner of land conveyed by Sarah A. Sawyer to William R. Burke et al by deed dated October 27, 1908 and recorded in the Cumberland County Registry of Deeds in Book 831, Page 103; thence southwesterly by Ocean Avenue fifteen (15) feet, more or less, to land formerly of Andrew T. True and Frank E. True; thence southeasterly by said True land five hundred twelve (512) feet, more or less, to land conveyed by Daniel E. Burgess et al to Clifford R. Card et al by deed dated June 25, 1948 and recorded in said Registry of Deeds in Book 1942, Page 252; thence northeasterly by said Card land eighty one and two tenths (81.2) feet to an iron rod and land formerly of Samuel J. Knowles; thence northwesterly by said Knowles land three hundred sixty two (362) feet, more or less, to said Burke land; thence southwesterly by said Burke land forty (40) feet to a corner; thence northwesterly by said Burke land one hundred fifty (150) feet to said Ocean Avenue at the point of beginning.

The above described premises are conveyed subject to easements granted to Central Maine Power Company et al by deed recorded in the Cumberland County Registry of Deeds in Book 2064, Page 170 and to Portland Water District by deed recorded in said Registry of Deeds in Book 2159, Page 444.

Being the same premises conveyed to the Grantors herein by deed of Armand M. Slusser et al dated August 30, 1961 and recorded in the Cumberland County Registry of Deeds in Book 2627, Page 243.

This conveyance is made subject to real estate taxes for the current tax year which the Grantees, by acceptance of this deed, assume and agree to pay.

WARRANTY DEED

Maine Statutory Short Form

JOINT TENANCY

KNOW ALL MEN BY THESE PRESENTS

MAINE REAL ESTATE TAX PAID

THAT, WE, CLIFFORD A. CARD, of Sudbury, Massachusetts, and ANDREW T. CARD, of Billerica, Massachusetts,

for consideration paid, grant to TODD R. SNIPER and KELLY O. SNIPER, as joint tenants and not as tenants in common, and whose mailing address is: 41 True Street, Portland, Maine 04103

with warranty covenants, certain real estate situated in the City of Portland, County of Cumberland, State of Maine, described as follows:

Reference to Exhibit A attached hereto.

IN WITNESS WHEREOF, WE, CLIFFORD A. CARD and ANDREW T. CARD, hereby set our hands and seals this 16th day of June, 2004.

WITNESS:

CLIFFORD A. CARD

ANDREW T. CARD

State of Maine
Cumberland, ss.

Personally appeared the above-named CLIFFORD A. CARD and acknowledged the foregoing instrument to be his free act and deed.

Date: June 16, 2004

Before me,

Notary Public
Attorney at Law

Andrew Broaddus
Printed Name

Commonwealth of Massachusetts
Middlesex , ss.

Personally appeared the above-named ANDREW T. CARD and acknowledged the foregoing instrument to be his free act and deed.

Date: June 17, 2004

Before me,

Barbara M. Newman
Notary Public
~~Attorney at Law~~

Barbara M. Newman
Printed Name

My commission expires: 10/15/04

SEAL

EXHIBIT A

A certain lot or parcel of land being situated on the easterly side of Ocean Avenue, in Portland, County of Cumberland, State of Maine, and being depicted as "Lot 1, Land To Be Reserved By Card, 1.27 Acres" on plan entitled "Townhomes at Ocean East, Ocean Avenue & Presumpscot Street, Portland, Cumberland County, Maine", dated July 17, 2002 and prepared by Coffin Engineering & Surveying , LLC., and recorded in the Cumberland County Registry of Deeds in Plan Book 204, Page 48.

Being a portion of the same premises conveyed to the Grantors herein, Clifford A. Card and Andrew T. Card by deed recorded in the Cumberland County Registry of Deeds in Book 6739, Page 136.

Received
Recorded Register of Deeds
Jul 08,2004 11:45:35A
Cumberland County
John B OBrien

BK12400PG151

13617

SHORT FORM WARRANTY DEED

Marian D. Hicks, Frederick Hicks and Barbara Hicks Mainville of 693 Ocean Avenue, Portland, Maine 04103 FOR CONSIDERATION PAID, grants to Marc A. Giguere , with WARRANTY COVENANTS, the following described real property located in the City of Portland, County of Cumberland and State of Maine:

A certain lot or parcel of land with the buildings thereon, situated in the City of Portland, County of Cumberland and State of Maine described as follows:

Beginning on the southeasterly side of Ocean Avenue at the westerly corner of land now or formerly of Samuel J. Knowles; thence

Southeasterly by said Knowles land one hundred fifty (150) feet; thence

Southwesterly at right angles with said Knowles land forty (40) feet; thence

Northwesterly keeping the distance of forty (40) feet from said Knowles land a distance of one hundred fifty (150) feet to said Ocean Avenue; thence

Northeasterly by said Ocean Avenue forty (40) feet to the point of beginning. Being the premises formerly numbered 299 on said Ocean Avenue and now numbered 693 on said Avenue.

The premises are conveyed together with and subject to any and all easements or appurtenances of record, insofar as the same are in force and applicable.

This conveyance is made subject to unpaid real estate taxes for the current tax year, if any, which the Grantees herein, by acceptance of this deed, assume and agree to pay.

Meaning and intending to convey and hereby conveying the same premises conveyed to Grantors herein by deed of William B. Burke by deed dated July 25, 1946 and recorded in the Cumberland County Registry of Deeds in Book 1831, Page 321. Also by deed of Marion D. Hicks dated January 31, 1995 and recorded in the Cumberland County Registry of Deeds in Book 11808, Page 135.

WITNESS our hands and seals this 15th day of March, 1996

WITNESS

Marian D. Hicks by Frederick Hicks her Attorney in Fact

Marian D. Hicks by Frederick Hicks her Attorney in Fact

Witness

Frederick D. Hicks

Frederick Hicks

Witness

Barbara Hicks by Frederick D. Hicks her Attorney in Fact

Barbara Hicks Mainville

MAINE REAL ESTATE TAX PAID

BK12400PG152

STATE OF MAINE
Cumberland, ss.

March 15, 1996

Personally appeared the above named Frederick Hicks and Barbara Hicks Mainville and acknowledged the foregoing instrument to be their free act and deed.

Before me,

James R. Lemieux, Attorney at Law

RECEIVED
RECORDED REGISTRY OF DEEDS
96 MAR 15 PM 2:24
CUMBERLAND COUNTY
John B O'Brien

Att.9

ATTACHMENT 9

FINANCIAL CAPACITY

Financial Capacity

The applicant is proposing to personally fund the improvements for the project.

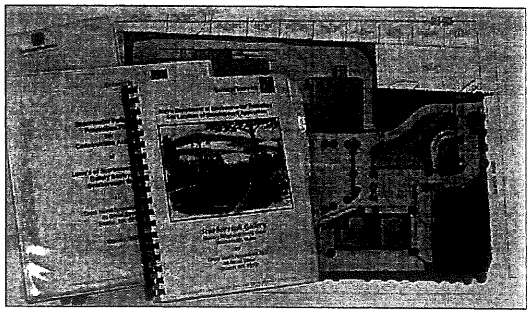
Att. 10

ATTACHMENT 10

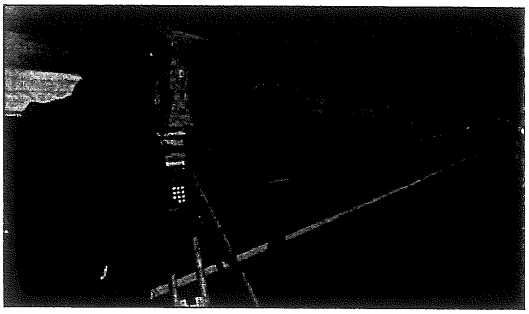
TECHNICAL CAPACITY

Sebago Technics, Inc.
Professional Services

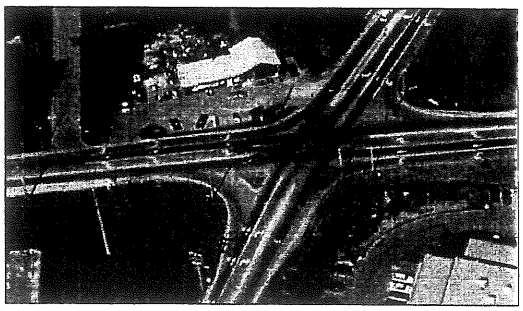
Civil Engineering:
Site grading / drainage / utility design
Erosion / sediment control design
Stormwater management planning
Subdivision design / permitting
Residential / commercial street design
Airport / municipal engineering
Technical review
Construction administration / inspection
Design-build



Environmental Engineering:
Regulatory permitting (state & federal)
Site assessments (ESA Phase I & II)
Water / wastewater engineering
Underground storage tank services
Combined Sewer Overflow (CSO) studies
Water supply / treatment system design
Subsurface wastewater disposal systems

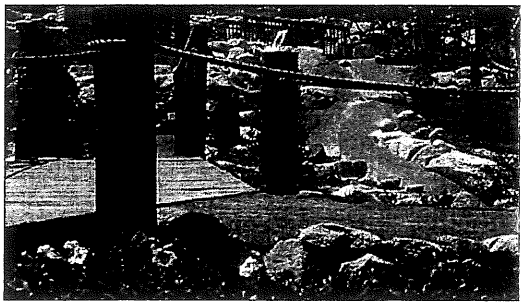


Land Surveying:
Boundary surveys
Topographic surveys
Global Positioning Surveys (GPS)
Construction layout
As-built record documentation
Hydrographic surveys
Land title surveys
Technical deed research



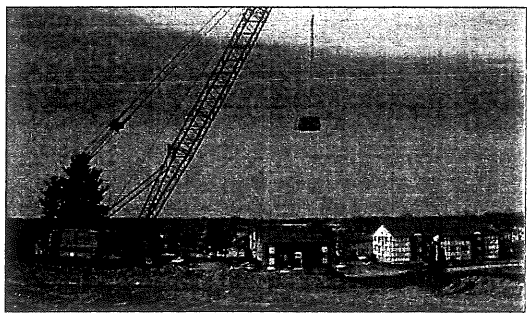
Transportation Engineering:
Highway design
Site location / alignment studies
Traffic analysis / signal design
Pedestrian / bike trail design
Intermodal facility planning / design
Right-of-way mapping
Environmental documentation / permitting
Construction administration

Sebago Technics, Inc.
Professional Services (con't.)



Landscape Architecture:
Master planning
Site selection / feasibility studies
Conceptual / site design
Site improvement / land planning
Urban redevelopment / streetscape design
Recreation / resort facilities design
Planting design

Natural Resources:
Medium / high intensity soil surveys
Soil mapping
Wetland delineation
Wetland mitigation planning / design
Septic system design
HHE-200 preparation
Federal / State permitting



Geotechnical Engineering:
Site characterization
Subsurface / foundation investigations
Earth / rock slope stability analysis
Technical specifications
Field instrumentation
Construction monitoring

Att. 11

ATTACHMENT 11

SITE/SUBDIVISION PLANS
TRUE STREET SUBDIVISION

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-12

June 4, 2008
05207

Barbara Barhydt, Development Review Services Manager
City of Portland
389 Congress Street
Portland, Maine 04101

Request for Waiver – Sidewalk Construction
Major Site Plan Review and Subdivision at True Street
Application #2005-0274; CBL 424 A005001

Dear Ms. Barhydt:

Pursuant to our meeting of May 19, this letter shall serve as our request for waiver of the Land Use Code, Chapter 14, Article 4, Section 14-498, Subsection 8 – Sidewalks and Curbs, Paragraph a. which requires the construction of sidewalks. The reasons for this request are as follows:

1. The True Street improvement is proposed as a 310 foot dead end street that provides no interconnection between existing sidewalk segments.
2. Only six lots are proposed to front on True Street.
3. The sidewalks would require the filling of additional wetlands which are proposed to be preserved.
4. The sidewalk will promote the trespassing of Lots 4, 5 & 6 by residents of the adjacent Ocean East Townhomes (currently occurring).

Please include this request as part of the True Street application.

Thank you for your time and consideration.

Sincerely,

SEBAGO TECHNICS, INC.

Robert M. McSorley, P.E.
Sr. Project Manager

RAM:ram/dlf

cc: Nicholas & Amanda Kent

Att. 13

Strengthening a Remarkable City, Building a Community for Life www.portlandmaine.gov

Planning and Development Department
Lee D. Urban, Director

Planning Division
Alexander Jaegerman, Director

May 2, 2008

Rob McSorely, P.E.
Senior Project Manager
Sebago Technics, Inc
PO Box 139
Westbrook, ME 04098-1339

Amanda Kent
True Street Neighborhood
691 Ocean Avenue
Portland, ME 04101

Re: Major Site Plan Review and Subdivision at True Street
Application #2005-0274; CBL 424 A005001

Dear Mr. McSorely,

Thank you for your letter of April 7, 2008 submitting an application for Site Plan and Subdivision review of the proposed eight lot residential subdivision on True Street.

As you and the applicants are aware, this proposal raises a number of unusual issues because of the history of the area and the other unique features as set out in the submission. However, the street design and need for emergency access to all lots present constraints that the proposals do not fully address and the following comments outline the City staff concerns.

Proposed redesign of True Street

The main concern is the design of True Street, which is proposed to be designed and constructed to serve the existing four homes and four additional lots). The proposed street design presents an unusual lot configuration and the turnaround is too far from the end of the road. The staff recommends that the street be revised, so that a reasonable lot layout and street access may be achieved. This could be accomplished by making the street longer and providing adequate street frontage for the lots. This would necessitate the relocation of, the garage for lot 5. Please see the attached sketch as a guide. A turnaround that is 30' from the end of the street will need to be provided. While the staff cannot predict the final decision of the Planning Board, these changes would bring the plan closer to compliance with the City's subdivision standards.

The project narrative states the curb cuts on Ocean Avenue will be removed but the site plan does not reflect this; this should be corrected on the site plan. This will address both the Fire Department and Planning Division issues and comments. Detailed concerns are:

1. Show vehicle access to lots 2 and 7.

2. There are no sidewalks being proposed, applicant will need to submit a cover letter asking for this waiver and addressing the specific criteria for sidewalk waiver (see attachment).

3. The project narrative indicates that the Lot 1 driveway and curb cut to Ocean Avenue will be removed. The plans should indicate the removal of the curb cut and the necessary repairs to Ocean that will be required.

4. A curb cut and driveway to Ocean Avenue is shown for Lot 8. The plans show a driveway entrance from True Street to Lot 8, so the removal of the Ocean Avenue curb cut should be indicated on the plans.

5. Existing and proposed utility connections should be clearly shown on the plans. Utility connections for the existing buildings on lots 1 and 8 are not shown. Each lot's sewer connection will require a separate permit. It is recommended that services be installed for each lot, including the ones not developed as part of this project, so that future street opening permits will not be required.

Zoning Comments:

6. Some of the lots do not meeting the current zoning setbacks; the following are the lots that have envelopes that are nonconforming:

    a. Lot #1 has been given that the front faces Ocean Avenue. The given envelope does not meet current zoning requirements.
    b. Lot #3 the envelope is wrong for front setback along the driveway of the abutting lot #4.
    c. Lot #8 the envelope is not showing a 15' side yard setback on a side Street for an existing building facing Ocean Ave.

7. Note 8B states that the applicant is requesting a waiver of a minimum space requirement. Could you please explain this note?

8. Note 8B also states that applicant is requesting a waiver for of all setbacks for the residential zone R-5 for the existing structures only. Marge Schmuckal has reviewed the plans the existing building in the proposal meet the zoning ordinance dimensional requirements of the R-5, therefore this section of the note can be removed.

Department of Public Works comments:

9. The applicant should confirm that the survey for the project coincides with approved City standards. The survey needs to be tied to the vertical datum of NGVD 1929. Also, the project needs to be tied to the Maine State Plane Coordinate System (2-zone projection), West Zone using the NAD 1983 (HARN) Datum and the U.S. Survey Foot as the unit of measure. This should be indicated on the survey.

10. Catch basins should have 3' sump depths. The current catch basin detail states that the sump depth "varies".

11. Casco traps are required on catch basins. A detail should be provided, and the installation of the casco trap should be included on the catch basin detail.

12. The manhole and catch basin details should indicate that adjustments to grade will be made with a minimum of 3 courses of brick and a maximum of 8 courses of brick, in conformance with City of Portland Standards.

13. The proposed curb tip down is not in conformance with City of Portland standards. A 6' minimum length should be used, and the tipdown reveal at the driveway should be modified to show a 1" reveal and driveway lip in conformance with City standards.

14. As it is shown, catch basin 3 will be installed outside of the Lot 8 boundary. Does an easement exist for the construction of this yard drain? If the applicant can not show rights to drain onto their neighbors property the applicant should connect in to the new storm drain system currently being installed in Ocean Avenue.

15. The applicant has proposed that the wetland in lot 8 will serve as a detention basin, connected to the existing 12" clay outfall. More grading information should be provided to show how water will be directed from the wetland area to the yard drain (CB3) at the 12" pipe.

Other Issues

The following information will be required in order to complete the Review (see Ordinance Sections 14-496 and 14-525):

16. A lighting plan has not been provided.

17. Submit a subdivision plat for review. The applicant proposes to reconfigure the existing four (4) lots at the site into an eight (8) lot subdivision. According to Section 14-493 of the City Code of Ordinances - Definitions, a subdivision is defined as:

    ... The division of a lot, tract or parcel of land into three (3) or more lots, including lots of forty (40) acres or more, within any five-year period whether accomplished by sale, lease, development, buildings or otherwise and as further defined in 30-A M.R.S.A. Section 4401. The term subdivision shall also include the division of a new structure or structures on a tract or parcel of land into three (3) or more dwelling units within a five-year period and the division of an existing structure or structures previously used for commercial or industrial use into three (3) or more dwelling units within a five-year period. The area included in the expansion of an existing structure is deemed to be a new structure for the purposes of this paragraph. A dwelling unit shall include any part of a structure, which, through sale or lease, is intended for human habitation, including single-family and multifamily housing condominiums, time-share units and apartments.

18. The City's Technical Standards regarding the provision of street trees has been applied in this type of subdivision to require two street trees per lot. For this proposal a total of sixteen (16) trees would be required. Please show this on the landscaping plan.

If you have any questions, please do not hesitate to contact me on (207) 756-8083 or at shukriaw@portlandmaine.gov

Sincerely,

Shukria Wiar
Planner

cc: Barbara Barhydt, Development Review Manager
Alexander Jaegerman, Director, Planning Division
Michael Farmer, Project Engineer
Marge Schmuckal, Zoning Administrator

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.14

June 4, 2008
05207

Shukria Wiar, Planner
City of Portland
Planning Department
389 Congress Street
Portland, ME 04101

Major Site Plan Review and Subdivision at True Street
Application #2005-0274; CBL 424 A005001

Dear Ms. Wiar:

Thank you for your letter dated May 2, 2008 providing us with City review comments on the above referenced project, and also for meeting with us (May 19, 2008) to discuss the project. After hearing your comments and concerns, and consulting with our clients, we have addressed these comments and revised our plans accordingly.

First, we have modified the roadway layout, based on City comments, as follows:

- The road has been lengthened by 20 feet.
- The hammerhead turnaround has been shifted easterly, to 60 feet from the end of the road.
- The property lines for Lots 3-7 have been modified to provide easier access for emergency vehicles.

We have also addressed your written comments as described below.

Responses:

1. **Show vehicle access to Lots 2 and 7.**

   Vehicle access to Lots 2 and 7 is currently shown on Sheet 4 of 9 and Sheet 5 of 9, the Grading & Drainage Plan and Utility Plan

2. **There are not sidewalks being proposed, applicant will need to submit a cover letter asking for this waiver and addressing the specific criteria for sidewalk waiver (see attachment).**

   A request for a waiver of this requirement is included on the Subdivision Plan (Sheet 3 of 9) as Note 8A. A separate letter will also be provided as part of the application.

3. **The project narrative indicates that the Lot 1 driveway and curb cut to Ocean Avenue will be removed. The plans should indicate the removal of the curb cut and the necessary repairs to Ocean that will be required.**

   The plans have been modified to reflect the removal of this curb cut. If the True Street Subdivision is approved prior to the completion of the Ocean Avenue Improvement project, the contractor has indicated that the removal of the curb cut will be completed in conjunction with that project.

4. **A curb cut and driveway to Ocean Avenue is shown for Lot 8. The plans show a driveway entrance from True Street to Lot 8, so the removal of the Ocean Avenue curb cut should be indicated on the plans.**

   The existing garage on Lot 8 faces Ocean Ave. Therefore the existing curb cut along Ocean Ave., and driveway to the garage, will remain. The proposed curb cut along True Street for Lot 8 provides access to an existing gravel parking/storage area behind the garage. This has been labeled for clarification.

5. **Existing and proposed utility connections should be clearly shown on the plans. Utility connections for the existing buildings on Lots 1 and 8 are not shown. Each lot's sewer connection will require a separate permit. It is recommended that services be installed for each lot, including the ones not developed as part of this project, so that future street opening permits will not be required.**

   The plans have been revised to show the approximate locations of the existing utility service lines for Lots 1 and 8. These lots are currently served from Ocean Avenue and no change is proposed. Locations of proposed utility service connections for the remainder of the lots are currently shown on the Utility Plan, Sheet 5 of 9. These will be installed during construction of True Street.

Zoning Comments:

6. **Some of the lots do not meet the current zoning schedule; the following are the lots that have envelopes that are nonconforming.**

   a. **Lot #1 has been given that the front faces Ocean Avenue. The given envelope does not meet current zoning requirements.**

      The setbacks for Lot 1 have been revised per telephone conversation between Marge Schmuckal and Rob McSorley on May 27, 2008. Front setback is along Ocean Avenue and side street setback is along True Street.

   b. **Lot #3 the envelope is wrong for front setback along the driveway of the abutting Lot #4.**

      The setbacks for Lot 3, 4 & 6 have been revised per telephone conversation between Marge Schmuckal and Rob McSorley on May 27, 2008. Front setback

for Lot 3 is along True Street frontage. Front setbacks for Lots 4 & 6 are along property line that would be adjacent to True Street right-of-way extension.

c. **Lot #8 the envelope is not showing a 15' side yard setback on a side street for an existing building facing Ocean Avenue.**

The setbacks for Lot 8 have been revised per telephone conversation between Marge Schmuckal and Rob McSorley on May 27, 2008. Side Street setback has been shown for Lot 8.

7. **Note 8B states that the applicant is requesting a waiver of a minimum space requirement. Could you please explain this note?**

This note has been removed and Note 13 relative to the existing structures has been added.

8. **Note 8B also states that applicant is requesting a waiver for all setbacks for the residential Zone R-5 for the existing structures only. Marge Schmuckal has reviewed the plans of the existing building in the proposal to meet the zoning ordinance dimensional requirements of the R-5, therefore this section of the note can be removed.**

This note has been removed and Note 13 relative to the existing structures has been added.

Department of Public Works Comments:

9. **The applicant should confirm that the survey for the project coincides with approved City standards. The survey needs to be tied to the vertical datum of NGVD 1929. Also, the project needs to be tied to the Maine State Plane Coordinate System (2-zone projection), West Zone using the NAD 1983 (HARN) Datum and the U.S. Survey Foot as the unit of measure. This should be indicated on the survey.**

The subdivision plat and plans conform to City of Portland requirements as requested.

10. **Catch basins should have 3' sump depths. The current catch basin detail states that the sump depth "varies".**

The detail has been revised as requested.

11. **Casco traps are required on catch basins. A detail should be provided, and the installation of the casco trap should be included on the catch basin detail.**

A casco trap detail has been added as requested.

12. **The man hole and catch basin details should indicate that adjustments to grade will be made with a minimum of 3 courses of brick and a maximum of 8 courses of brick, in conformance with City of Portland Standards.**

The detail has been revised as requested.

13. **The proposed curb tip down is not in conformance with City of Portland standards. A 6' minimum length should be used, and the tipdown reveal at the driveway should be modified to show a 1" reveal and driveway lip in conformance with City standards.**

The detail has been revised as requested.

14. **As it is shown, Catch Basin 3 will be installed outside of the Lot 8 boundary. Does an easement exist for the construction of this yard drain? If the applicant can not show rights to drain onto their neighbors property the applicant should connect into the new storm drain system currently being installed in Ocean Avenue.**

The storm drain system has been revised to connect into the new Ocean Ave. system as recommended by Mike Farmer, Portland Public Works, during a meeting with City staff on May 19, 2008.

15. **The applicant has proposed that the wetland in Lot 8 will serve as a detention basin, connected to the existing 12" clay outfall. More grading information should be provided to show how water will be directed from the wetland area to the yard drain (CB3) at the 12" pipe.**

The applicant is no longer proposing to use the wetland in Lot 8 as a detention basin. See response to Comment 14 above.

Other Issues:

16. **A light plan has not been provided.**

Two street lights will be provided along True St. and details has been added to the detail sheet.

17. **Submit a subdivision plat for review. The applicant proposes to reconfigure the existing four (4) lots at the site into an eight (8) lot subdivision. According to Section 14-493 of the City Code of Ordinances – Definitions, a subdivision is defined as:**

The division of a lot, tract or parcel of land into three (3) or more lots, including lots of forty (40) acres or more, within any five-year period whether accomplished by sale, lease, development, buildings or otherwise and as further defined in 30-A M.R.S.A. Section 4401. The term subdivision shall also include the division of a new structure or structures on a tract or parcel of land into three (3) or more dwelling units with a five-year period and the division of an existing structure or structures previously used for commercial or industrial use into three (3) or more dwelling units within a five-year period. The area included in the expansion of an existing structure is deemed to be a new structure for the purposes of this paragraph. A

dwelling unit shall include any part of a structure, which, through sale or leased, is intended for human habitation, including single-family and multi-family housing condominiums, time-share units and apartments.

The *Subdivision Plan has been relabeled as Subdivision Plat and additional required information has been added.*

18. **The City's Technical Standards regarding the provision of street trees has been applied in this type of subdivision to require two street trees per lot. For this proposal a total of sixteen (16) trees would be required. Please show this on the landscaping plan.**

The landscaping plan has been changed to indicate the proposed number of trees to be planted (10), trees to be preserved (14) and the total trees required (16).

Included in this re-submittal are seven (7) copies of the revised plans as well as one copy of a reduced copy of the plans (11" x 17"). Please proceed with scheduling this project for the Planning Board workshop of June 24, 2008 as discussed.

Sincerely,

SEBAGO TECHNICS, INC.

Robert A. McSorley, P.E.
Senior Project Manager

RAM:ram/dlf

cc: Amanda and Nicholas Kent
Mike Farmer, Portland Public Works Dept.
Captain Greg Cass, Portland Fire Dept.

From: Gregory Cass
To: Shukria Wiar
Date: Thu, Jun 19, 2008 4:57 PM
Subject: Re: True Street

The Fire dept. is all set with this project.

Captain Greg Cass
Portland Fire Dept.
Fire Prevention Officer

>>> Shukria Wiar 6/18/2008 3:50:40 PM >>>
Hello Greg,

The above project is going forward to a workshop hearing on the 24th of this month. I need you comments to have for the PB packet for Friday. Just let me know if all your comments were satisfied.

Thanks.

Shukria

AH.16a

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

MEMORANDUM

TO: Shukria Wiar

FROM: Dan Goyette, P.E.

DATE: June 18, 2008

RE: True Street Subdivision

Woodard & Curran has reviewed the Subdivision Plan Application for the True Street Subdivision, located off Ocean Avenue between Washington Avenue and Presumpscot Street. The applicant proposes to develop a subdivision plan for six legally non-conforming lots located on True Street. The project will include roadway improvements, while maintaining the existing neighborhood with eight separate lots.

Documents Reviewed

- Response to Comments Memo for the True Street Subdivision, prepared by Sebago Technics, Inc., on behalf of the True Street Neighborhood, dated June 4, 2008.
- Engineering plan sheets 1-9 for True Street Subdivision, prepared by Sebago Technics, Inc., on behalf of the True Street Neighborhood, dated June 4, 2008.

Comments

- The applicant has adequately addressed all comments from our previous memo.

Please contact our office if you have any questions.

DRG
203848.09

Att. 16b

From: "Dan Goyette" <DGoyette@woodardcurran.com>
To: "Shukria Wiar" <SHUKRIAW@portlandmaine.gov>
Date: 7/17/2008 3:48:19 PM
Subject: True Street Subdivision

Shukria,

On behalf of the Dept. of Public Services, we do not support the applicant's request for a complete waiver on the requirement of a sidewalk. We would agree to a waiver on the requirement to build a sidewalk on both sides of the street and limit the sidewalk to one side. We feel that this would create a suitable pedestrian network link for the neighborhood. Also, by limiting the sidewalk to one side, we would have less of an impact on the adjacent wetlands.

Daniel Goyette, PE

41 Hutchins Drive
Portland, Maine 04102
Phone: 800-426-4262
Fax: 207-871-0724
Email: dgoyette@woodardcurran.com

CC: "Katherine Earley" <KAS@portlandmaine.gov>, "David Margolis-Pineo" <DMP@portlandmaine.gov>

Att. 17

MEMORANDUM

To: FILE

From: Marge Schmuckal **Dept:** Zoning

Subject: Application ID: 2005-0274

Date: 6/11/2008

I reviewed the submitted drawings received on 6/11/08. The submittal is meeting the requirements of the R-5 residential Zone.

Separate permits shall be required for construction on any of the new lots prior to commencement of work. Of course any new construction on existing developed lots also must apply for the appropriate permits.

Marge Schmuckal
Zoning Administrator

Att. 18

From: "Errico, Thomas A" <TERRICO@wilbursmith.com>
To: "Shukria Wiar" <SHUKRIAW@portlandmaine.gov>
Date: 6/13/2008 12:38:38 PM
Subject: True Street Subdivision

Shukria - I have reviewed the most recent submittal package (June 4, 2008 prepared by Sebago Technics) and have no comments related to traffic engineering elements. Please contact me if you have any questions.

Thomas A. Errico, P.E.

Senior Transportation Engineer

Wilbur Smith Associates

59 Middle Street

Portland, Maine 04101

w: 207.871.1785 f: 207.871.5825

TErrico@WilburSmith.com

www.WilburSmith.com <http://www.wilbursmith.com/>

CC: "James Carmody" <JPC@portlandmaine.gov>, "Katherine Earley" <KAS@portlandmaine.gov>

CITY OF PORTLAND
DEPARTMENT OF PUBLIC SERVICES

M E M O

TO: Shukria Wiar
FROM: Michael Farmer, Project Engineer
DATE: May 13, 2008
RE: True Street Project

I am submitting the following comments on behalf of the Depart of Public Services (formerly Dept. of Public Works), based on a review of the plans revised on April 9, 2008.

The Department of Public Services would like to see the turnaround located closer to the end of the street. For reference, I have attached a copy of the City's design standard for a typical turnaround. This detail shows the preferred location of a turnaround with respect to the end of a street.

The DPS has no objection to the proposal to provide 12 feet at the end of True Street for snow storage, even though this aspect of the proposed design does not match the City's design standard.

From: Jeff Tarling
To: Shukria Wiar
Date: 7/17/2008 8:00:01 AM
Subject: True Street

Hi Shukria -

In review of the proposed True Street subdivision Landscape Plan,
I offer the following recommendations: all lots should have the 'two-trees' per lot trees located between the proposed building and street. Saving existing trees would be credited to this standard. Lot 7, for example should have the two trees in addition to those shown as buffering at the rear of the lot. The landscape plan shows a planting of 1 Metasequoia at 24" - 30" which should be 5-6' in height and not a shrub size measurement. 'Tree Save' areas shown on the plan should be protected as mentioned, but the note mentioning '...or replace with 2 1/2" cal tree typ. should be removed, as it infers that the large existing trees could be removed.
The large 56" poplar tree on the edge of lot 3 should be removed as it is a hazard.

Thanks,

Jeff Tarling
City Arborist

AH.21

PIONEER BANK

MEMBER FDIC

306 N. Pennsylvania • P.O. Box 130 • Roswell, New Mexico 88202-0130 • (505) 624-5200

EQUAL HOUSING LENDER

July 16, 2008

Lee Urban
Director of Planning & Development
City of Portland
389 Congress Street
Portland, ME 04101

Dear Mr. Urban:

RE: True Street Subdivision
True Street, Portland, ME

At the request of our valued customer, Mr. Arthur R. McQuiddy, I am pleased to confirm that Mr. McQuiddy has been a customer and director of Pioneer Bank since 1984 and has always handled his financial affairs in a satisfactory manner. We believe that Amanda McQuiddy Kent and Arthur R. McQuiddy have the credit, financial capacity and means to initiate the transaction indicated above, should they wish to do so.

In providing this Capability Letter, Pioneer Bank does not assume any financial liability or any contractual relationship with parties.

Sincerely,

PIONEER BANK

Jon E. Hitchcock
President

Att. 22

Neighborhood Meeting Certification

I, Amanda Kent, representing the True Street Development, hereby certify that a neighborhood meeting was held on July 10, 2008 at Washington Gardens Community Center, 66 Pembroke St., Portland, at 6:30 pm.

I also certify that on July 1, 2008, invitations were mailed to all addresses on the mailing list provided by the Planning Division, including property owners within 500 feet of the proposed development and the residents on the "interested parties" list.

Signed,

Amanda Kent 7/11/08

Attached to this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes

TRUE STREET SUBDIVISION PLAN
Neighborhood Meeting

Thursday July 10, 2008 • Washington Gardens 6:30 pm

ATTENDEE SIGN IN SHEET

Name & Address

TODD SNIPER 41 TRUE STREET TSNIPER@MAINE.RR.COM

NICK + AMANDA KEUT 691 OCEAN AVE APPLEYARD@MAINE.RR.COM

ROB MCSORLEY 2 CHESTNUT DR, SCARBOROUGH

Elizabeth Wise 20 ~~Grafton~~ St.

Catherine Chase 30 Grafton St

James B. Chase 30 Grafton St.

GRETCHEN DRONK 677 OCEAN AVE GRETCHENSD@AOL.COM

Royce Gould 681 Ocean Ave.

TRUE STREET SUBDIVISION PLAN
Neighborhood Meeting

Agenda
Thursday July 10, 2008
Washington Gardens 6:30pm

I. Introductions
Amanda & Nicholas Kent, Todd Sniper
Home Owners

II. Overview of Project
Rob McSorley
Project Engineer, Sebago Technics

III. Q & A

IV. Closing

Handout 7/10/08

TRUE STREET SUBDIVISION
Neighborhood Meeting Minutes
Thursday July 10, 2008, 6:30 pm
Washington Gardens, 66 Pembroke Street, Portland

Attending from the neighborhood: Elizabeth Wise, Catherine & James Chase, Gretchen Drown

Introductions
Todd Sniper introduced Amanda & Nicholas Kent, managers of the True Street subdivision project, Royce Gould, homeowner, and Rob McSorley, Project Engineer from Sebago Technics.

Overview of Project
Rob McSorley Gave a concise overview of the project, stating that the 4 homeowners have come together to clean up their existing neighborhood by creating a new city street, enabling the current homes to have simple access to utilities, enabling city services to have improved access to their homes, making current lots conforming, and creating three new building lots.

He went on to describe the previous submittal to the city of Portland (spring 2005), and the advances that have come from that initial workshop and subsequent interactions with planning staff and public services employees.

He also described the specific requirements for the new True Street, and the desire to retain as much of the neighborhood feeling as possible, via greenspace, tree coverage, and the implementation of underground utilities. He also stated that the new utility access and stormwater tie in will clean up a variety of difficult maintenance issues.

Also, Sebago Technics has worked hard with Storey Brothers, the road contractor of Ocean Avenue, to stub out utilities from Ocean Avenue while the road is currently open.

Questions & Answers
Q. (James Chase) Will there be street lights?
A. (Rob McSorley) Verified there will be two, of the hooded variety, and explained the spacing in the city guidelines.

Q. (Gretchen Drown) What is a nonconforming lot?
A. (Rob) Described the requirements of a conforming lot, and the concept of legally non-conforming grandfathered lots.

Q. (Ms. Drown) What is the construction timetable?
A. (Rob) Upon planning approval of the subdivision plan, the construction of True Street can begin, with expected completion before mid-November 2008.

Q. (Mr. Chase) Why does True Street have to have granite curbing, when Grafton Street doesn't?
A. (Rob) The Portland guidelines for new road construction were explained, and the utility of granite curbing for maintenance crews was described.

Q. (Ms. Drown) What happens when the new road is finished?
A. (Rob) The City of Portland will accept and maintain the new street, upon inspection approval.

Q. (Elizabeth Wise) Will there be houses constructed on the new lots? Have architects been hired?
A. (Amanda Kent) Lot 4 will be built upon by the Kents, and lot 7 is anticipated to have new construction. Lots 2 and 6 are not anticipated to have construction, and will be retained by the abutting owners (Giguere and Sniper, respectively). The time frame for these buildings was discussed. No architect or plans have been defined.

Q. (Catherine Chase) What will happen to the wetlands?
A. (Rob) Some of the wetlands will be filled to allow road construction, and will be within the allowable amount without permitting. The shallow pond on Mr. Gould's land will be retained.

Q. (Ms. Wise) Will there be blasting?
A. (Rob) Depending on the nature of the ledge encountered, there may be jack-hammering or blasting.

Q. (Ms. Drown) Where will the new trees be placed?
A. (Rob) The tree positions on the blueprints were pointed out, and input from the neighbors was solicited.

Q. (Mr. Chase) Will there be signs placed referring to True Street as "Not a Thru Street", "Dead End", or "Children at Play"?
A. (Rob) We will request placement of signage, indicating that it is not a thru street.

Ms. Drown and the Chases commended the neighbors for all of their hard work and cooperation in making this project happen. Mr. McSorley acknowledged that in his twenty years of experience, it is very unique and unusual.

Closing
In conclusion, the neighbors were invited to communicate with any of the parties involved via calling the Kents.

HANDOUT- 7/10/08

PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • www.portlandmaine.gov

Dear Neighbor:

Thank you for attending this evening's neighborhood meeting.

Applicants for major developments, zone changes, and subdivisions of more than five units/lots are required to hold a neighborhood meeting prior to the Planning Board's public hearing on the development proposal.

The purpose of these meetings is to improve communication between neighbors and applicants for development. We have found that neighbors raise questions and offer insight that often improves the design or compatibility of a proposed development.

The City code requires that property owners within 500 feet of the proposed development or within 1000 feet of a proposed development in an industrial zone and residents on an "interested parties list" be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board.

Should you wish to offer additional comments on this proposed development, you may send correspondence to:

Planning Division
Department of Planning and Development
City Hall
389 Congress Street
Portland, ME 04101;

or email:
bab@portlandmaine.gov;

or call 874-8699.

Thank you for taking the time to attend tonight's meeting.

Sincerely,

Barbara Barhydt
Development Review Services Manager

Att. 24

Outdoor Lighting — Look at the options!

Area and Street Lights

FIXTURE TYPE	LAMP TYPE	LAMP WATTS	RATED LUMENS	COMMENTS
 Open Light	HPS	70	5,670	Great for general lighting needs for business and homes, including roadside businesses and suburban or rural homes and yards.
 Mongoose	HPS HPS MH MH	250 400 250 400	25,600 45,000 17,000 28,800	Best for roadways and parking lots, and where light trespass could be a problem. Vector series can be set back up up to 50' from the area being illuminated.
 Decashield	HPS HPS HPS HPS MH MH MH MH	70 150 250 400 175 250 400 1000	5,670 14,400 25,600 45,000 10,500 17,000 28,800 88,000	Good for roadways and areas that are wider than they are long. Underground electric service required. Commonly used for parking and auto lots.
 Flood	HPS HPS HPS HPS MH MH MH MH	150 250 400 1000 175 250 400 1000	14,400 25,600 45,000 126,000 10,500 17,000 28,800 88,000	Ideal for parking lots, building security, building façades, storage yards, and other areas needing directional lighting.
 Cutoff Luminaire	HPS HPS HPS HPS HPS HPS MH MH MH	50 70 100 150 250 400 175 250 400	3,600 5,670 8,550 14,400 25,600 45,000 10,500 17,000 28,800	Best for roadways and parking lots, and where light trespass could be a problem.

Decorative Options

FIXTURE TYPE	LAMP TYPE	LAMP WATTS	RATED LUMENS	COMMENTS
 Town & Country	HPS HPS MH	100 150 175	8,550 14,400 10,500	Classic "colonial" design with modern street light performance. Requires underground electric service.
 Hallbrook	HPS HPS HPS MH MH MH	70 100 150 70 100 175	5,670 8,550 14,400 4,000 5,850 10,500	Sleekly-styled luminaire designed to meet the aesthetic and architectural qualities desired in decorative street and area lighting. Requires underground electric service.
 Radial Wave	HPS HPS HPS HPS	50 70 100 150	3,600 5,670 8,550 14,400	The ornamental radial wave fixture recaptures a tradition from decades ago. Note: Ability to attach to standard wood utility pole.
 Esplanade	HPS HPS HPS HPS MH MH MH MH	70 150 250 400 70 175 250 400	5,670 14,400 25,600 45,000 4,000 10,500 17,000 28,800	Styling from early in this century, with precision optical system for modern street lighting performance. Seventy watt MH available for a smaller sized pedestrian version of this style. Requires underground electric service. Can be attached to standard wood utility pole.
 Granville	HPS HPS HPS MH MH MH	70 100 150 70 100 175	5,670 8,550 14,400 4,000 5,850 10,500	Combines a distinctive architectural heritage with high-design standards and prismatic light control for maximum efficiency. Available with or without 5" finial. Requires underground electric service.

HPS = High Presure Sodium MH = Metal Halide

For underground services: The customer provides, at their expense, all necessary excavating, backfilling, duct lines, conduits, maintenance and repairs.

Outdoor Lighting

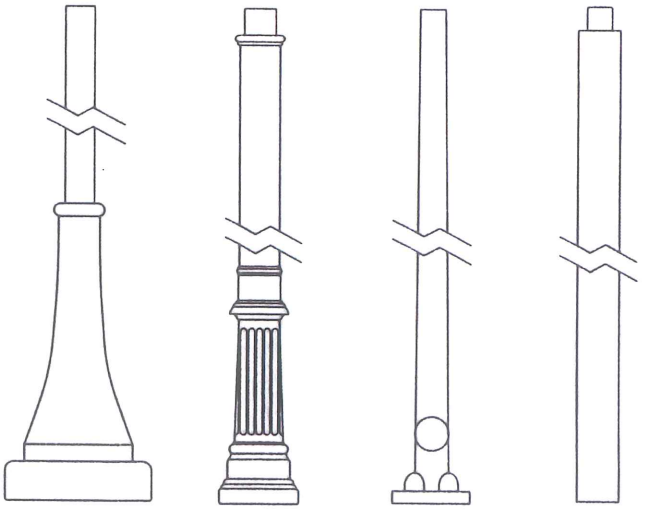
We have a wide variety of outdoor lighting fixture options to choose from. A CMP Customer Service Advisor can help you select the best lighting fixtures for your needs. Fixture installation and maintenance is included in monthly lease price.

Call 1-800-649-1169 to get in touch with the CMP Customer Service Advisor for your area.

Which area or street light is right for your application (non-decorative fixtures)?

	Open HPS	Mongoose Vector HPS	Mongoose Vector MH	Mongoose Close In HPS	Mongoose Close In MH	Decashield HPS	Decashield MH	Flood HPS	Flood MH	Cutoff HPS	Cutoff MH
Residential Security	X							X	X	X	
Commercial Security	X	X	X	X	X			X	X	X	X
Roadways	X	X	X	X	X					X	X
Parking Lots	X	X	X	X	X	X	X	X	X	X	X
Auto Sales Lots			X		X		X		X		X
Building Façades		X	X					X	X		
Walkways	X			X	X	X	X			X	X
Barnyards	X							X	X		
Outside Rec Areas	X					X	X	X	X		

Pole options: We also have a variety of poles to create just the look you desire.



Hallbrook Salem Tapered Laminated

Decorative pole options:

Hallbrook pole (black or dark green), 12', 15', or 18', with or without base cover, single or twin for use with Esplanade, or Hallbrook luminaires.

Salem Series aluminum pole (black or dark green), 8', 10', or 12' for use with Granville or Town and Country luminaires.

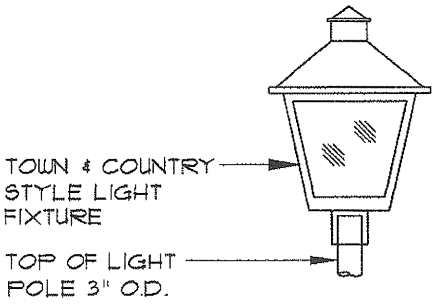
Basic pole options:

Tapered aluminum pole (black or dark green), 8', 10', or 12' for use with Granville or Town and Country luminaires.

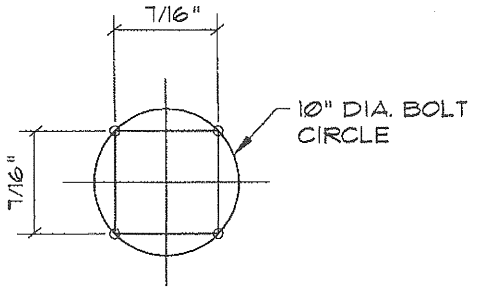
Laminated wood pole, 20' or 36', for use with Town and Country luminaires.

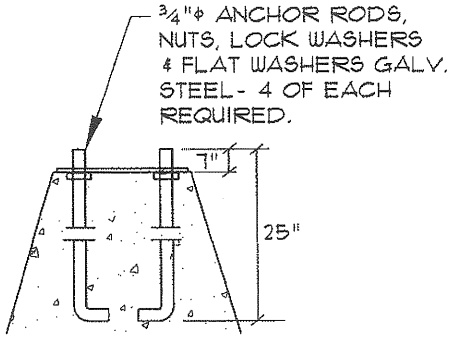
Central Maine Power
Your Electricity Delivery Company

An Energy East Company

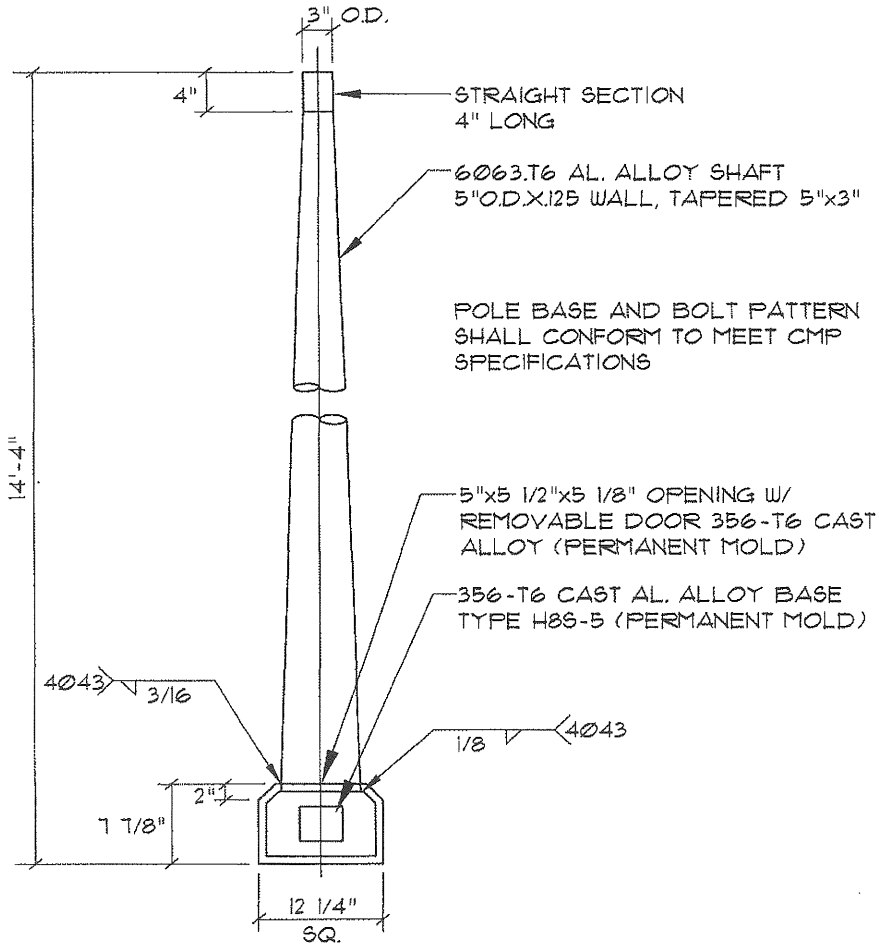


LIGHT FIXTURE





BOLT LAYOUT



NOTES

1. 6063 ASSEMBLY 250 WALL OR LESS TO BE HEAT TREATED AFTER WELDING.
2. ENTIRE ASSEMBLY TO HAVE BLACK DURANODIC FINISH #335-E.

INSTALLATION SPECIFICATIONS:

1. 18"ϕ x 4' CONCRETE BASE INSTALLED FLUSH TO GRADE
2. 2"-LONG SWEEP ELBOW-PVC CONDUIT
3. NEEDS TO BE GROUNDED WITH A 5/8"x8' GROUND ROD CAST INTEGRAL WITH THE BASE

TYPICAL LIGHT POLE

NOT TO SCALE

ATTACHMENT 4

SKETCH PLAN

ATTACHMENT 3

SUBDIVISION PLAN

ATTACHMENT 2

EXISTING CONDITIONS PLAN

ATTACHMENT 6

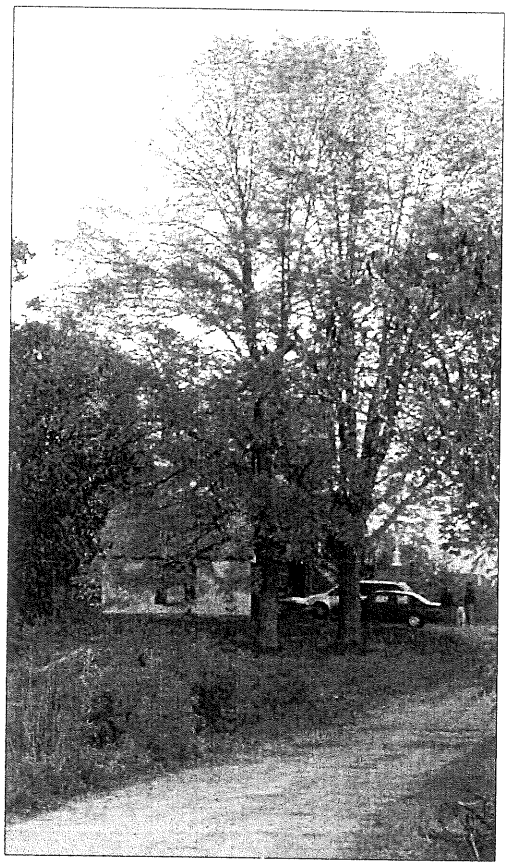
JENSEN BAIRD GARDNER & HENRY LETTER

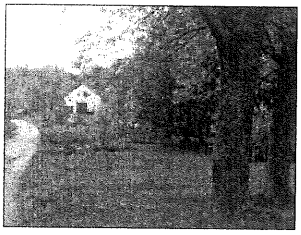
WITH ACCOMPANYING AFFIDAVITS

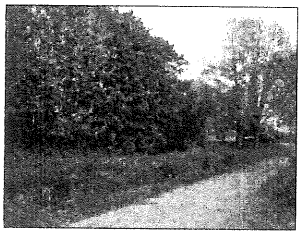
ATTACHMENT 5

TRUE STREET NEIGHBORHOOD

LETTER TO THE PLANNING BOARD







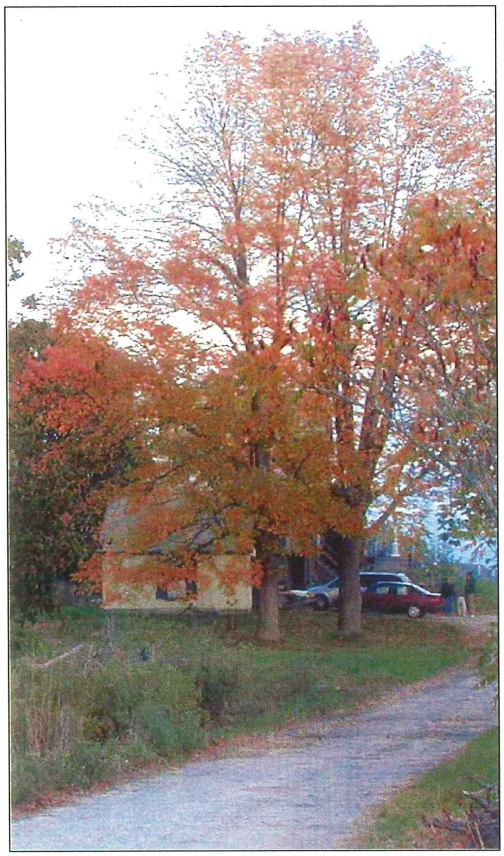
City of Portland
Subdivision Plan Application
Sketch Plan

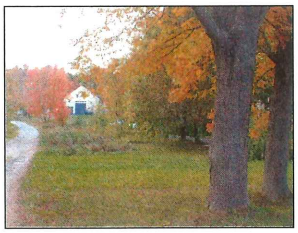
December 22, 2005

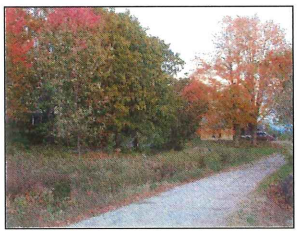
TRUE STREET SUBDIVISION

PREPARED FOR:
True Street Neighborhood
41 True Street, Portland, ME 04103

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







City of Portland
Subdivision Plan Application
Sketch Plan

April 7, 2008

TRUE STREET SUBDIVISION

PREPARED FOR:
True Street Neighborhood
41 True Street, Portland, Maine 04103

PREPARED BY:
Sebago Technics, Inc.
One Chabot Street, Westbrook, Maine 04098

Table of Contents

ATTACHMENT 1

SITE PLAN APPLICATION/CHECKLIST

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: 41 True Street		Zone: R-5
Total Square Footage of Proposed Structure: N/A	Square Footage of Lot: 2.89 Acres Total Parcel Area	
Tax Assessor's Chart, Block & Lot: Chart# Block# Lot# *See Attached*	Property owner's mailing address: *See Attached*	Telephone #: *See Attached*
Consultant/Agent, mailing address, phone # & contact person: Danielle D. Betts Sebago Technics, Inc. One Chabot St., PO Box 1339 Westbrook, ME 04098	Applicant's name, mailing address, telephone #/Fax#/Pager#: Same as owner	Project name: True Street Subdivision

Fee For Service Deposit (all applications) ___X___ ($200.00)

Proposed Development (check all that apply)

___ New Building ___ Building Addition ___ Change of Use _X_ Residential ___ Office ___ Retail
___ Manufacturing ___ Warehouse/Distribution ___ Parking lot
_X_ Subdivision ($500.00) + amount of lots_8_ ($25.00 per lot) $_200___ + 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

___ 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 & Amanda Kent
691 Ocean Ave.
Portland, ME 04101
207/775-7525

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 6 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:	Date:
(see attached agent authorization letter)	10.25.05

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

City of Portland, Maine Site Plan Checklist

TRUE STREET SUBDIVISION, TRUE STREET, PORTLAND
Project Name, Address of Project

Application Number

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
N/A	(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
N/A	(18)	Parking areas	g
N/A	(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
N/A	(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
SEE NOTE 1	(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

N/A	(44)	The status of any pending applications	8
N/A	(45)	Anticipated timeframe for obtaining such permits	h8
SEE NOTE 2	(46)	A letter of non jurisdiction	h8
SEE NOTE 3	(47)	Evidence of financial and technical capability to undertake and complete the development including a letter from a responsible financial institution stating that is has reviewed the planned development and would seriously consider financing it when approved.	

Note: Depending on the size and scope of the proposed development, the Planning Board or Planning Authority may request additional information, including (but not limited to):

- drainage patterns and facilities;
- erosion and sedimentation controls to be used during construction;
- a parking and/or traffic study;
- emissions; and
- a wind impact analysis.
- an environmental impact study;
- a sun shadow study;
- a study of particulates and any other noxious
- a noise study;

Other comments:

NOTE 1: The Portland Water District has provided a Capacity to Serve Letter. A letter was also requested from the Portland Sewer District, and will be provided upon receipt.

NOTE 2: Letters of Non-jurisdiction have been requested of the appropriate agencies and will be provided upon receipt

Note 3: The Applicant is proposing to personally fund the project

September 27, 2005

Danielle D. Betts, P.E.
Sebago Technics, Inc.
P.O. Box 1339
Westbrook, Maine 04098

RE: Agent Authorization for Local, State and Federal Permitting
True Street Subdivision, Portland, Maine

Dear Danielle:

We hereby authorize Sebago Technics, Inc. to act in our behalf as agent in the processing of any required local, State or Federal permit applications and to furnish, upon request, supplemental information in support of these applications.

Sincerely,

Todd & Kelly Sniper

Marc Giguere

Nick & Amanda Kent

Stacey Dean & Royce Gould

ATTACHMENT 2

PROJECT NARRATIVE

Project Narrative

Existing Condition

The True Street neighborhood is a small neighborhood located off Ocean Avenue, between Washington Avenue and Presumpscot Street, in Portland. It currently consists of six legally non-conforming lots owned by four families. The neighborhood is rural in character, reflecting its history as a farming community. The total parcel is approximately 2.89 acres, with existing lots range in size from 0.14 acre to 1.3 acres. For the most part, the houses are located around the perimeter of the property and the developed areas are minimal, leaving a large tract of natural vegetation and trees through the middle and along the south side of the project site.

A narrow gravel drive lined with mature 24" to 36" diameter maple trees serves the two houses on the north side of the site. This 380' long access drive is private and maintained by the residents of these two homes.

Running parallel and 50 feet south of this gravel drive, True Street provides access to the two houses along the south and east sides of the site. This gravel road is approximately 12' wide and has been snow plowed and maintained by the City of Portland for over 40 years. It currently extends approximately 400' from Ocean Avenue to where it dead ends at a resident's driveway. Historically, the City has utilized this resident's driveway as a turnaround for snow plows and other maintenance vehicles. Per the initial submittal to the City as a Sketch Plan, True Street exists as a "paper street" within the City of Portland.

There are no known encumbrances over the site unless shown on the Boundary Survey with Existing Conditions Plan.

Proposed Development

The residents of True Street have been working together to develop a subdivision plan which will incorporate roadway improvements for safety, while preserving the existing character of the neighborhood. Eight lots, ranging in size from 0.14 acre to 0.43 acre, will be created from the six existing lots. Since True Street is an existing public street, the Subdivision Plan was developed to include the existing street in a 50-foot right-of-way with a typical turnaround near the end. The eight lots were then configured in such a way as to provide for the required 50' of street frontage along the public right-of-way. As a result, the four lots with existing houses will now be conforming with respect to frontage, and the four new lots will be conforming in all respects to zoning. New lots, 2 & 7, have been created for 960 square feet footprint, 2 story building. New lots, 4 & 6, have been created for 1800 square feet footprint, 2 1/2 story building.

The True Street Neighborhood recognizes the need for further improvements to True Street to provide for safe vehicle and pedestrian access. At the same time, another important goal in the residents' development concept is to maintain the rural feeling of this small neighborhood. Currently, the narrow gravel drives are shared, and there are mature maple, poplar, and other trees with 24" to 56" diameter trunks and large canopies that surround the site and line the gravel driveways. It is the residents' intention that True Street be improved for safety without compromising the rural character of the site.

With these goals in mind, proposed roadway improvements include rebuilding True Street to meet City of Portland roadway standards, specifically a 28' road section with granite curb and a stormwater collection system. The driveway for Lot 1 will be relocated to True Street, and its curb cut on Ocean Avenue removed. As part of retaining the rural character and to minimize wetland impacts, we are requesting the waiver for construction of sidewalks.

It is assumed that construction of the project improvements will occur in the Spring of 2008 and coincide with the improvements proposed for Ocean Avenue. Construction for a project this size would normally be 4 to 6 months but may be longer depending on the contractor and the construction schedule of Ocean Avenue. Preliminary estimate of the cost for the project is approximately $132,000.00

Utilities and Services

Three of the existing single family buildings have municipal water and sewer service whereas the fourth single family building has municipal water service with an on-site sub-surface disposal service. As part of the True Street improvements, sanitary sewer and water will be extended along its length and all lots will have municipal water and sewer service. Solid waste service will be provided by the municipal waste service. The proposed True Street will provide for adjacent access to the proposed properties. Because of the minimal trips associated with 4 new single family lots, the existing abutting roadways have adequate capacity for the proposed project.

Stormwater Management

Stormwater management is detailed in attachment 5. There are no known drainage problems and the project has been designed to meet pre vs. post discharges for the design storm events.

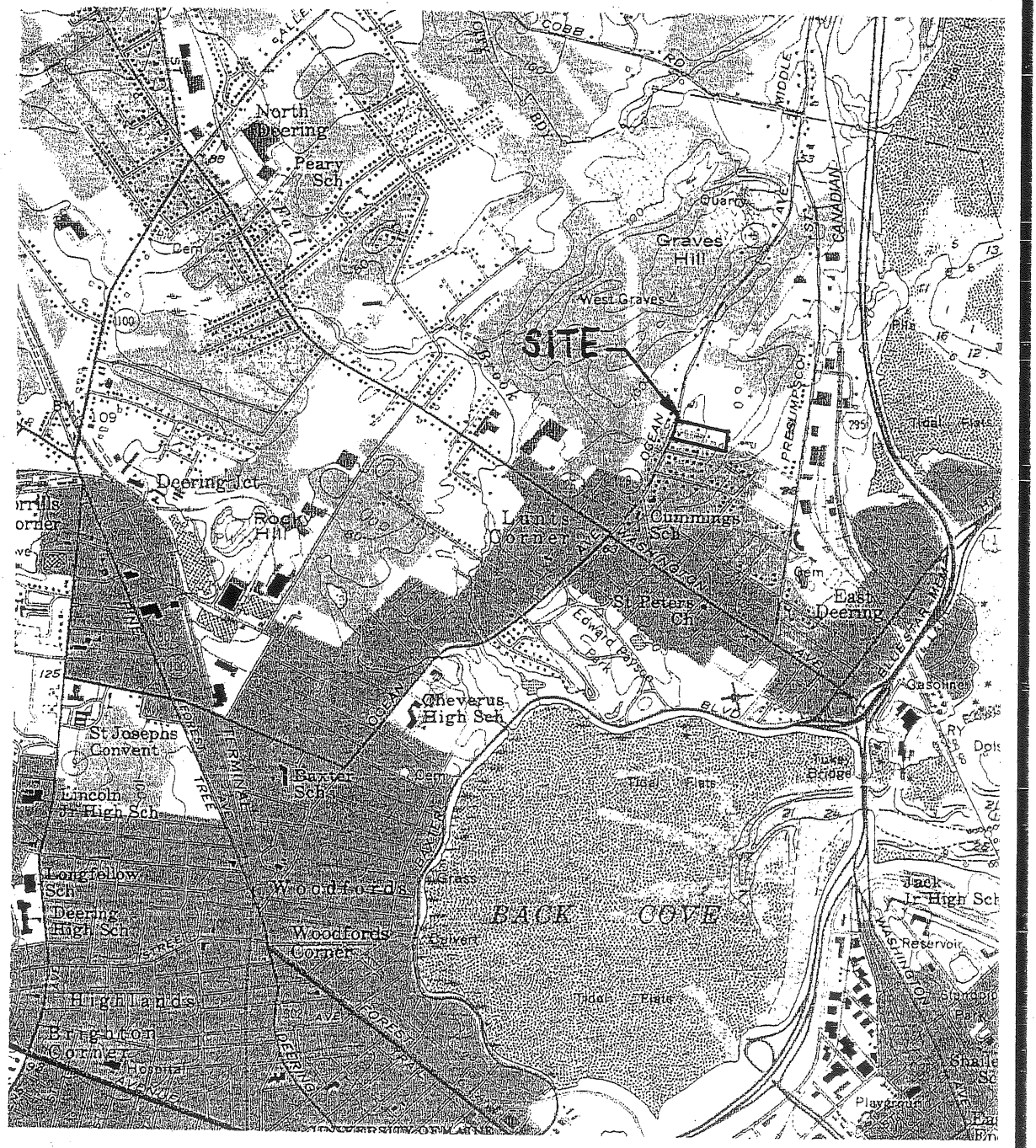
Permitting

As detailed in the Stormwater Management Narrative, no state or federal permits are necessary.

ATTACHMENT 3

SITE LOCATION MAP

FIGURE 1



SITE LOCATION MAP

USGS TOPOGRAPHIC

7.5 MIN. QUADRANGLE

PORTLAND WEST

SCALE: 1"=2,000'

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

ATTACHMENT 4

GENERAL REQUIREMENTS - SUBDIVISION

General Requirements - Subdivision

1. Will not result in undue water or air pollution. In making this determination it shall at least consider the elevation of land above sea level and its relation to the flood plains, the nature of soils and subsoils and their ability to adequately support waste disposal; the slope of the land and its effect on effluents; the availability of streams for disposal of effluents; the conformity to the applicable state and local health and water resources regulations;

   The project is proposing the addition of four single family residential lots which will have municipal water and sewer service and one existing subsurface waste system will be abandoned; therefore, the project will not result in undue water or air pollution.

2. Has sufficient water available for the reasonably foreseeable needs of the subdivision;

   The project is proposing the addition of four single family residential lots which will have municipal water service. See attached ability to serve letter from the Portland Water District.

3. Will not cause unreasonable burden on an existing water supply;

   The project will not cause a burden on the existing water system. See attached ability to serve letter from the Portland Water District.

4. Will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result;

   An Erosion control and Sedimentation Plan is submitted as part of this project. A continuous silt barrier and/or wood waste compost bark filter berm, will surround the construction areas. All hay bale and silt fence barriers will be in place prior to any development activity and will remain in place until final stabilization. Disturbed areas, which will not be worked for one month will be mulched with hay and anchored with erosion control mesh. Temporary mulching will be accomplished within three days of disturbance.

5. Will not cause unreasonable highway or public road congestion or unsafe conditions with respect to use of the highway or public roads existing or proposed;

   The project is proposing the addition of four single family residential lots which will not cause unreasonable highway or public road congestion. Proposed street meets the standard City of Portland dimensional requirements for local streets.

6. Will provide for adequate sanitary waste and storm water disposal and will not cause an unreasonable burden on municipal services if they are utilized;

   The proposed project will be served by municipal sewer. Project stormwater design meets the pre vs. post conditions for the design storms utilizing the site's existing discharge point. Therefore, project will provide for adequate sanitary waste and storm water disposal.

7. Will not cause an unreasonable burden on the ability of the city to dispose of solid waste and sewage if municipal services are to be utilized;

   The project is proposing the addition of four single family residential lots which will have municipal sewer and solid waste service and one existing single family lot that has a subsurface waste system will be abandoned which currently has municipal solid waste service; therefore, the project will not cause an unreasonable burden on the City to dispose of solid waste and sewage.

8. Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the department of inland fisheries and wildlife or by the city, or rare and irreplaceable natural areas or any public rights for physical or visual access to the shoreline. For subdivisions within historic districts designated pursuant to article IX of this chapter, the Planning Board shall apply the standards of section 14-651(c) of article IX. The Planning Board may request that the historic preservation committee prepare an evaluation of the proposed subdivision based upon the standards of section 14-651(c);

   No historical resources or significant wildlife habitats exist within the site. Letters have been requested from the appropriate State agencies. Project does not abut a shoreline. Therefore, project will not have an undue effect on the scenic or natural beauty of the area, aesthetics, historic sites or significant wildlife habitat.

9. Is in conformance with the land development plan or its successor;

   Project is within the R-5 zoning District. Project conforms to the applicable zoning requirements of the District.

10. The subdivider has adequate financial and technical capacity to meet the standards of this section;

    The project is the construction of approximately three hundred feet of local road. Applicant is proposing to fund construction from personal finances.

11. Whenever situated, in whole or in part, within the watershed of any pond or lake or within two hundred fifty (250) feet of any wetland, great pond or river as defined in Title 38, chapter 3, subchapter I, article 2-B, will not adversely affect

the quality of such body of water or unreasonably affect the shoreline of such body of water;

On-site wetlands are shown on the proposed plan. Applicant has proposed to fill the minimal amount of wetlands necessary to construct the project. The amount of filling does not exceed the Maine Department of Environmental Protection's threshold for review.

12. Will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater;

Based upon the nature of the project and the fact that the project will be served by municipal water and sewer service, the project will not affect the quality or quantity of groundwater.

13. Is or is not in a flood-prone area, based on the Federal Emergency Management Agency's Flood Boundary and Floodway Maps and Flood Insurance Rate Maps, and information presented by the applicant. If the subdivision, or any part of it, is in such an area, the subdivider shall determine the 100-year flood elevation and flood hazard boundaries within the subdivision. The proposed subdivision plan must include a condition of plan approval requiring that principal structures in the subdivision will be constructed with their lowest floor, including the basement, at least one (1) foot above the 100-year flood elevation;

Not applicable; project is not locate within a flood prone area.

14. All potential wetlands within the proposed subdivision shall be identified on any maps submitted as part of the application, regardless of the size of those wetlands. Any mapping of wetlands may be done with the help of the local soil and water conservation district; and

On-site wetlands are shown on the proposed plan. Applicant has proposed to fill the minimal amount of wetlands necessary to construct the project. The amount of filling does not exceed the Maine Department of Environmental Protection's threshold for review.

15. Any river, stream or brook within or abutting the proposed subdivision shall be identified on any maps submitted as part of the application. For purposes of this section, "river, stream or brook" has the same meaning as in Title 38 M.R.S.A. Section 480-B, subsection 9.

Not applicable; project is not locate within a within or adjacent to any river, stream or brook.

ATTACHMENT 5

STORMWATER MANAGEMENT NARRATIVE

Stormwater Management Narrative
to
The City of Portland
for
The True Street Subdivision

prepared for

True Street Neighborhood

prepared by

Sebago Technics, Inc.
One Chabot Street
Westbrook, ME 04098

November 2007

STORMWATER MANAGEMENT NARRATIVE

True Street Subdivision
True Street
Portland, ME

General

The following Stormwater Management Plan has been prepared by Sebago Technics, Inc. in order to evaluate the pre- and post-development conditions for the proposed subdivision and road improvement project on True Street in Portland, Maine. Proposed site improvements include the creation of an eight (8) lot subdivision with improvements to the existing road, stormwater management facilities, and connections to public utilities.

The project is being proposed by a group of neighbors, all of whom currently live along True Street. The neighborhood is located in Residential Zone R-5, on the easterly side of Ocean Avenue, and is depicted on Tax Map 424 as Lots 3, 4, 5, 29, 30, and 40. Of the six existing parcels, four are currently developed. The scope of this project includes subdivision of the six existing parcels into eight parcels, and reconstruction of True Street (including the dedication of a 50 foot right-of-way to the City) to bring it up to City of Portland standards. Any possible future development of the four undeveloped lots will be done individually, as separate projects.

The total disturbed area associated with this project will be approximately 20,000 s.f. (0.46 ac.). Because this does not exceed the Maine Department of Environmental Protection (MDEP) threshold of one (1.0) acre, no MDEP stormwater permit will be required. Similarly, wetland impacts associated with this project will be approximately 3,834 s.f., less than the 4,300 s.f. threshold. Therefore, a wetland permit also is not a requirement.

Existing Conditions

The project site is approximately 2.89 acres. It is located on the easterly side of Ocean Avenue, between Grafton St. and the Wellstone Condominium complex. The site is bounded on the west by Ocean Avenue, on the north by the Wellstone Condominiums, on the east by the Ocean East Townhouses, and on the south by residences along Grafton Street. The site is made up of six (6) existing lots held by four (4) owners. Four of the lots currently have residences on them. These residences are accessed by True Street, a substandard unpaved road, as well as a long narrow private driveway, roughly parallel to True Street. The undeveloped areas of the site include woods and wooded wetlands. Exposed ledge is evident at several locations across the site.

Existing ground surface elevations within the site vary from approximately El. 92 at the easterly corner of the site to El. 75 at the outlet of the wetland at the westerly corner. Stormwater runoff from the majority of the site flows westerly to the wetland in the southwesterly corner of the site. Anecdotal evidence of ponding on the abutting parcel (677 Ocean Ave.) was reported. From here runoff is picked up in a 12 inch clay culvert and routed toward Grafton Street. Runoff from a small portion of the easterly side of the site flows overland easterly, downhill toward the Ocean East Townhomes development.

Soils

Soil information used in the stormwater analysis was obtained from the USDA/NRCS Soil Survey of Cumberland County, Web Soil Survey. The Hydrologic Soil Groups (HSG) of these soils are classified by Technical Release 55 (TR-55) of the Soil Conservation Service as follows:

Soil Type	Symbol	HSG
Hollis	HrB	C/D
Hollis	HrC	C/D

This soil is described generally as fine sandy loam, with low potential for erosion. Nevertheless, the details call for both temporary and permanent stabilization of all disturbed areas. Because of the prevalence of ledge evident throughout the site, all soils were assumed to be HSGD in the stormwater model.

Proposed Improvements

In addition to the creation of an eight (8) lot subdivision, proposed site improvements include reconstruction of True Street, to bring it up to City of Portland standards. Access to all lots will then be off True Street, and the existing private driveway will be removed. The road will be constructed with catch basins and culverts to collect stormwater runoff from the road and maintain the overall existing drainage pattern of the site. A low berm is proposed along part of the southerly property line so that the wetland in the southwesterly corner of the site will continue to act as a detention basin. The 12 inch clay outlet culvert will remain. The project will be served by public sewer, water, gas, and underground electric, telephone, and cable services.

Methodology

In order to evaluate drainage characteristics as a result of the proposed development activities, a quantitative analysis was performed to determine peak rates of runoff for the 2-, 10-, and 25-year storm events in the pre- and post-development conditions. The evaluation was performed using the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds - Technical Release #55 (TR-55)". HydroCAD (V. 8.00) computer software was utilized to perform the calculations.

Peak runoff rates were analyzed for the 2-, 10-, and 25-year frequency, 24-hour duration storm events. A Type III rainfall distribution was applied to these storms. The rainfall amounts used, based on data for Cumberland County, are as follows:

Storm Frequency	Precipitation (in./24 hr)
2-year	3.0
10-year	4.7
25-year	5.5

The HydroCAD Data output sheets from this analysis are appended to this report, along with pre- and post-development watershed maps.

Pre-Development Watershed Model

The pre-development watershed model contains three subcatchments labeled 1 through 5 in the HydroCAD model. Subcatchment 1 contains the majority of the site, mostly on the east side, and includes developed areas, brushy unmaintained area, woods, a wetland, and part of True Street. Runoff flows overland from the high point on easterly side of the site to the wetland near the southwesterly corner. The wetland acts as a detention pond, modeled as Pond 1P, with a 12 inch clay culvert outfall. The culvert routes stormwater toward Grafton Street, where it enters the Ocean Avenue storm drain network. Runoff leaving the site from the wetland is analyzed at SP1.

Subcatchment 2, adjacent to Subcatchment 1, is made up of roughly a third of the west side of the site. It includes developed area, brushy unmaintained area, part of True Street, most of the existing access driveway, and a smaller wetland along True Street to the north. Runoff from this subcatchment flows overland to the smaller wetland which also acts as a detention pond, modeled as Pond 2P. The outlet for the wetland is a 15 inch culvert, which routes runoff under True Street to the wetland/Pond 1P.

Subcatchment 3 lies to the north of Subcatchment 2, and is made up entirely of developed area. Although the design plans for the adjacent Wellstone Condominium project calls for a swale to route runoff to the on-site detention basin, a portion appears to have been improperly graded to drain toward the True Street neighborhood. Therefore, part of the Wellstone Condominium complex is included in this subcatchment also. The existing access driveway is raised in this area, creating a low area that routinely floods. This area is modeled as Pond 3P. The outlet to this pond is a 4 inch culvert which routes runoff under the driveway to Pond 2P.

The peak runoff rates from Subcatchments 1, 2, and 3 are analyzed at SP1.

Subcatchments 4 and 5 are located along the easterly side of the site. Subcatchment 4 is predominantly developed land, with some brushy unmaintained area. Runoff flows to a small depression near the easterly boundary, modeled as Pond 4P, which eventually overflows across the property line, downhill toward the Ocean East Townhomes. Subcatchment 5 is a wooded area. Runoff sheet flows across this subcatchment southerly, toward the Ocean East Townhomes. The peak runoff rates from Subcatchments 4 and 5 are analyzed together at SP2.

Post-Development Watershed Model

The post-development model includes six subcatchments labeled 1, 2A, 2B, and 3 through 5. The overall watershed area remains the same as in the pre-development condition; however, there is a small increase in impervious area due to the proposed site improvements. Although not part of this project, post-development analysis also includes development of the four currently undeveloped parcels, to represent full build-out conditions.

In general, subcatchment delineation and drainage patterns are roughly the same as in the pre-development condition. The minor changes are the result of grading and roadway construction. Subcatchment 1 again, contains the majority of the site. Runoff flows overland from the high point on the easterly side of the site to the wetland/Pond 1P near the southwesterly corner. A low berm is proposed along part of the southerly property line so that the wetland will continue to act

as a detention basin. Pond 1P will be connected to the 12 inch clay outfall via a yard drain in the abutting parcel, which will also help to alleviate the existing ponding problem on that parcel. Runoff leaving the site from the wetland is again analyzed at SP1.

Subcatchment 2 (pre-development) is divided into Subcatchments 2A and 2B due to the improvements to True Street. Subcatchment 2A represents the southerly half of True Street. Runoff flows along the curb to a low point in the road, where it is collected by catch basin CB 2, which then discharges to wetland/Pond 1P.

Subcatchment 2B represents the northerly half of True Street, some developed area, and some brushy unmaintained area. The existing access driveway will be removed and replanted as lawn. Runoff from this subcatchment flows overland to True Street. It then flows along the curb to the low point, where it is collected by catch basin CB1 and routed to CB2 and Pond 1P.

Subcatchment 3 is expanded in the post-development condition due to the removal of the existing access driveway. This subcatchment now includes wetland/Pond 2P. Pond 2P is reduced in size because of the reconstruction and grading of True Street. Runoff from this subcatchment flows overland to the wetland/Pond 2P, where culvert SD-1 routs it through the storm drain system and to wetland/Pond 1P.

The peak runoff rates from Subcatchments 1, 2A, 2B, and 3 are again analyzed at SP1.

Subcatchments 4 and 5 are located along the easterly side of the site. Subcatchment 4 is unchanged from the pre-development condition. Subcatchment 5 is assumed to be developed in the post-development condition. Runoff from these subcatchments continues to flow southeasterly, toward the Ocean East Townhomes. The peak runoff rates from Subcatchments 4 and 5 are again analyzed together at SP2.

Results

The following table presents the watershed data for pre- and post-development conditions, as delineated for the analysis.

Table 1: Watershed Data Summary

Subcatchment (Watershed)	Pre-Development			Post-Development		
	Area (Ac)	Cn	Tc (Min)	Area (Ac)	Cn	Tc (Min)
1	1.693	82	14.8	1.565	84	11.7
2(A)	0.593	82	10.6	0.095	98	5.0
2B	-	-	-	0.378	86	8.5
3	0.310	82	6.2	0.565	83	6.6
4	0.234	81	8.0	0.234	81	8.0
5	0.140	79	11.3	0.130	86	7.9
Total	2.970	-	-	2.967	-	-

The following table presents the results of the stormwater runoff calculations for the pre- and post-development conditions for the 2-, 10-, and 25-year storm events.

Table 2: Stormwater Runoff Summary				
Study Point	**Storm Event**	**Pre-Development (cfs)**	**Post-Development (cfs)**	**Difference (cfs)**
SP1	2-year	2.13	1.69	-0.44
	10-year	2.92	2.39	-0.53
	25-year	3.19	2.64	-0.55
SP2	2-year	0.16	0.24	+0.08
	10-year	0.81	0.81	+0.00
	25-year	1.21	1.26	+0.05

The following tables present the detention pond storage calculations in the post-development condition for the 2-, 10-, and 25-year storm events.

Table 3: Detention Pond 1P Storage Summary					
Storm Event	**Peak Inflow (cfs)**	**Peak Outflow (cfs)**	**Peak Elevation (ft)**	**Spillway Elevation (ft)**	**Berm Elevation (ft)**
2-year	3.96	1.69	75.08	-	76.5
10-year	7.69	2.39	75.74	-	76.5
25-year	9.44	2.64	76.04	-	76.5

Table 4: Detention Pond 2P Storage Summary					
Storm Event	**Peak Inflow (cfs)**	**Peak Outflow (cfs)**	**Peak Elevation (ft)**	**Spillway Elevation (ft)**	**Berm Elevation (ft)**
2-year	0.93	0.84	76.04	78.16	-
10-year	1.88	1.64	76.31	78.16	-
25-year	2.34	1.98	76.43	78.16	-

Summary

As described in the above narrative, existing drainage patterns will remain essentially unaltered by the project. In addition, the tables above show that runoff discharging from the site will be below pre-development conditions for the 2-, 10-, and 25-year storm events at SP1. SP2 shows an insignificant increase in the 2- and 25-year events. The wetland/ detention pond SP1 will manage runoff from the majority of the developed area. It has been designed with a very simple outlet control structure. Specifically, a 10 inch culvert will be used to reduce the peak runoff rates.

In addition, an Erosion & Sedimentation Control Plan has been provided for construction and post-construction stabilization of the site. Temporary erosion control measures to be installed during construction will include the placement of sedimentation barriers (silt fence) along down gradient areas, together with specific requirements for the use of riprap, erosion control blanket

and temporary/permanent revegetation measures. These construction requirements have been placed directly on the design plans for construction reference.

Based on the modeling data, it is anticipated that stormwater runoff from the proposed site development will not cause a significant adverse affect to off-site receiving channels or downstream areas.

Prepared by:

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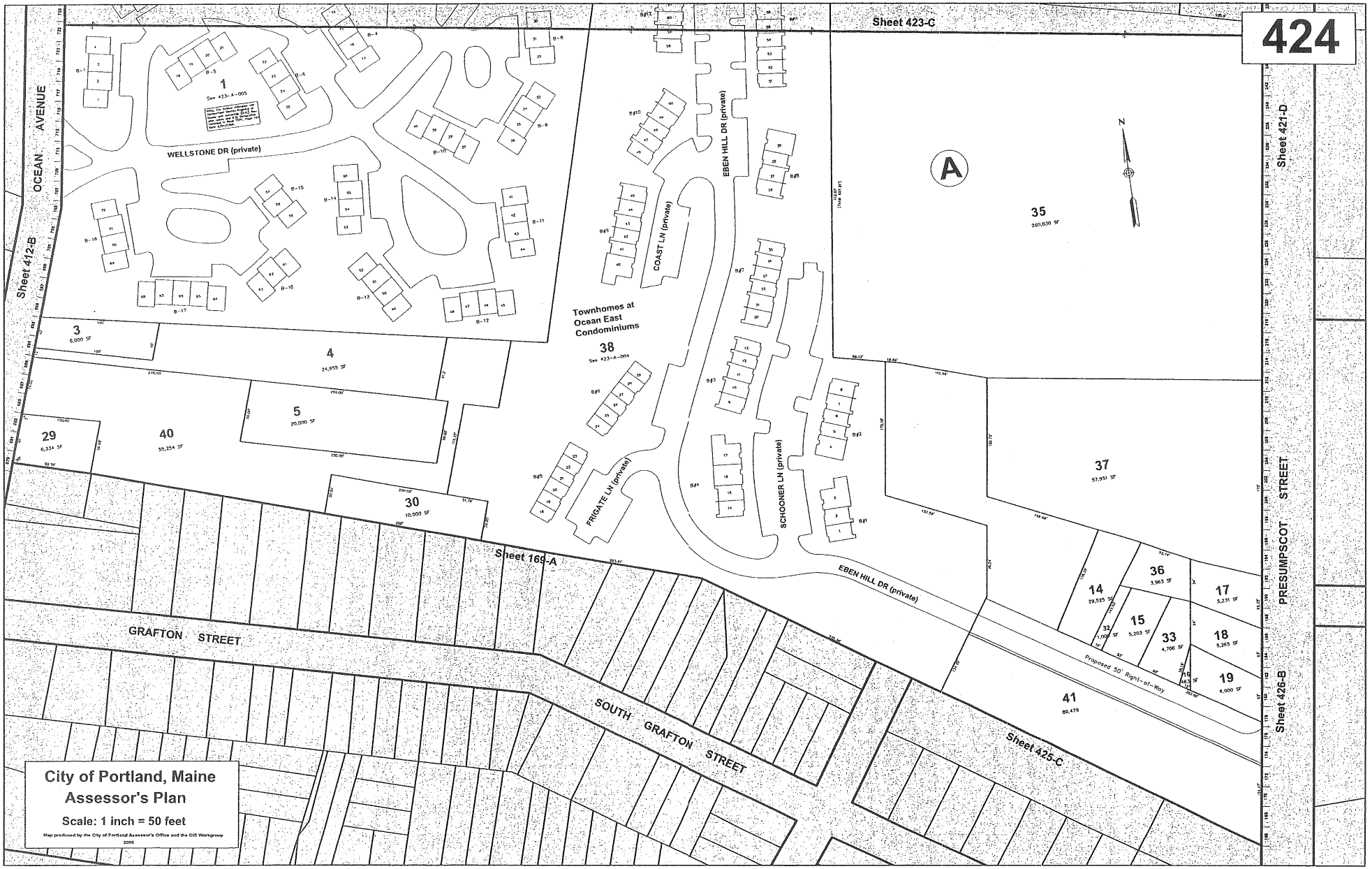
Senior Project Manager

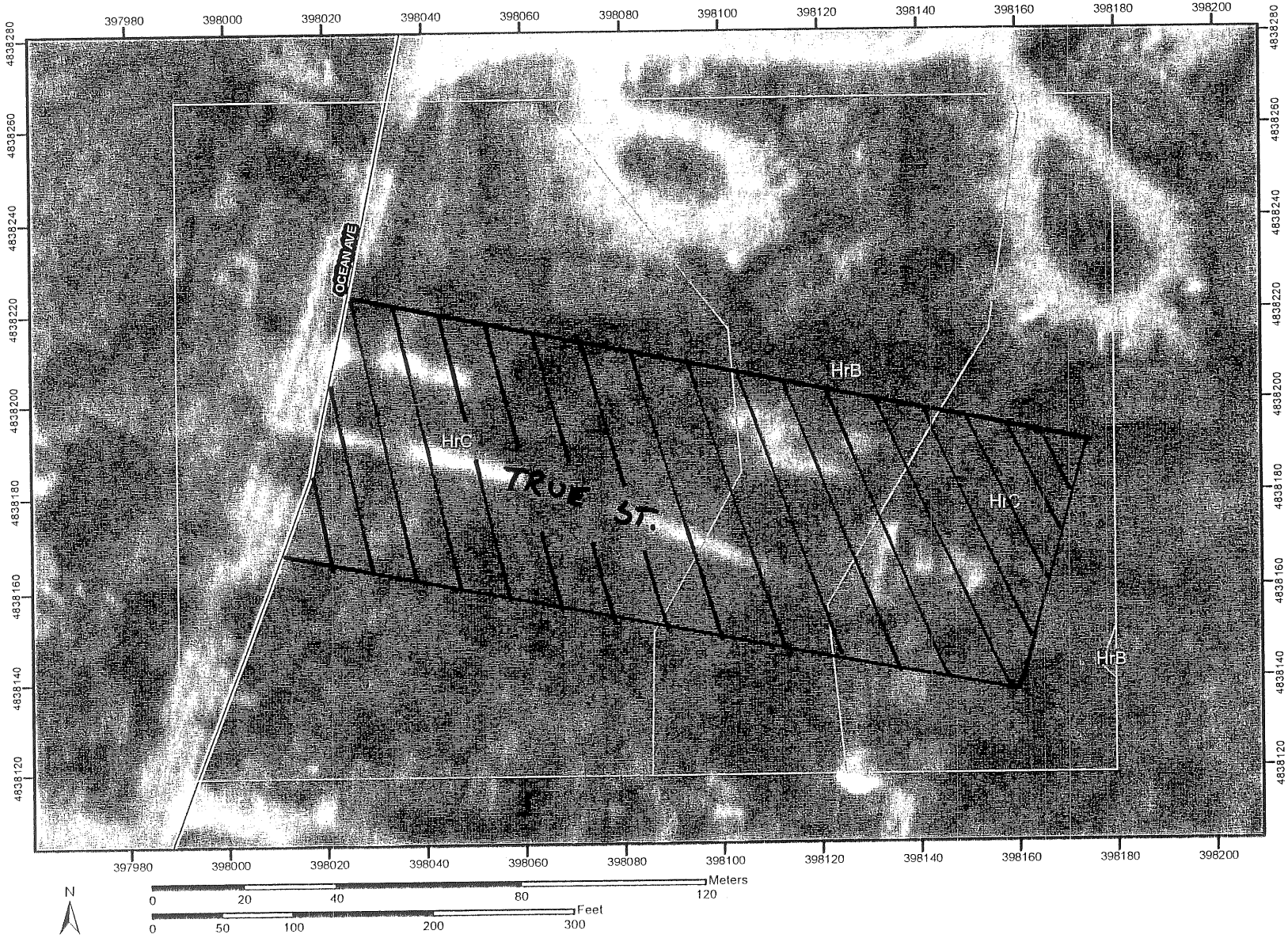
PMM:RAM:pmm/cb

4-8-06

STATE OF MAINE
ROBERT A. McSORLEY
No. 8588
LICENSED PROFESSIONAL ENGINEER


424
Sheet 423-C
Sheet 421-D
Sheet 412-B
Sheet 169-A
Sheet 425-C
Sheet 426-B
OCEAN AVENUE
PRESUMPSCOT STREET
WELLSTONE DR (private)
EBEN HILL DR (private)
COAST LN (private)
FRIGATE LN (private)
SCHOONER LN (private)
Townhomes at Ocean East Condominiums
GRAFTON STREET
SOUTH GRAFTON STREET
Proposed 50' Right-of-Way
A
1
See 423-A-005
35
260,030 SF
37
57,951 SF
38
See 423-A-004
3
6,000 SF
4
24,959 SF
5
20,000 SF
29
6,334 SF
40
55,254 SF
30
10,000 SF
41
89,479
14
29,525 SF
36
3,963 SF
17
5,231 SF
15
5,203 SF
32
1,000 SF
33
4,706 SF
18
5,265 SF
19
6,000 SF
City of Portland, Maine
Assessor's Plan
Scale: 1 inch = 50 feet
Map produced by the City of Portland Assessor's Office and the GIS Workgroup
2005

Soil Map–Cumberland County and Part of Oxford County, Maine
(True Street Subdivision)

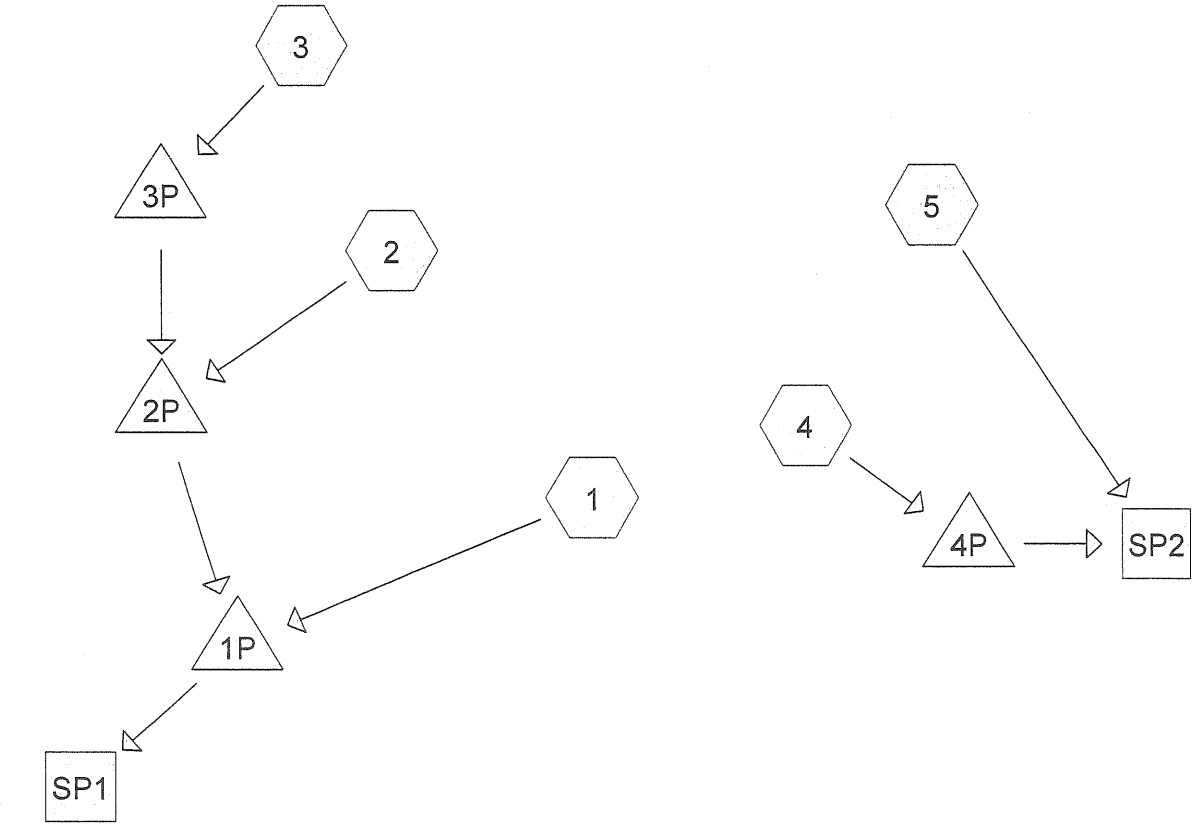


USDA Natural Resources Conservation Service

Web Soil Survey 2.0
National Cooperative Soil Survey

Map Unit Legend

Cumberland County and Part of Oxford County, Maine (ME005)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HrB HSG C/D	Hollis fine sandy loam, 3 to 8 percent slopes	2.0	26.5%
HrC HSG C/D	Hollis fine sandy loam, 8 to 15 percent slopes	5.4	73.5%
Totals for Area of Interest (AOI)		7.4	100.0%



To Grafton St.

Subcat Reach Pond Link

Drainage Diagram for 05207PRE
Prepared by Sebago Technics, Inc. 11/15/2007

Time span=6.00-36.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Runoff Area=1.693 ac Runoff Depth=1.38"
Flow Length=520' Tc=14.8 min CN=82 Runoff=2.06 cfs 0.195 af

Subcatchment 2: Runoff Area=0.593 ac Runoff Depth=1.38"
Flow Length=205' Tc=10.6 min CN=82 Runoff=0.81 cfs 0.068 af

Subcatchment 3: Runoff Area=0.310 ac Runoff Depth=1.38"
Flow Length=130' Tc=6.2 min CN=82 Runoff=0.49 cfs 0.036 af

Subcatchment 4: Runoff Area=0.234 ac Runoff Depth=1.31"
Flow Length=65' Slope=0.0150 '/' Tc=8.0 min CN=81 Runoff=0.33 cfs 0.026 af

Subcatchment 5: Runoff Area=0.140 ac Runoff Depth=1.19"
Flow Length=90' Tc=11.3 min CN=79 Runoff=0.16 cfs 0.014 af

Reach SP1: To Grafton St. Inflow=2.13 cfs 0.291 af
Outflow=2.13 cfs 0.291 af

Reach SP2: Inflow=0.16 cfs 0.024 af
Outflow=0.16 cfs 0.024 af

Pond 1P: Peak Elev=74.54' Storage=1,624 cf Inflow=2.99 cfs 0.297 af
12.0" x 100.0' Culvert Outflow=2.13 cfs 0.291 af

Pond 2P: Peak Elev=75.61' Storage=118 cf Inflow=0.98 cfs 0.103 af
15.0" x 19.0' Culvert Outflow=0.94 cfs 0.103 af

Pond 3P: Peak Elev=78.33' Storage=402 cf Inflow=0.49 cfs 0.036 af
4.0" x 25.0' Culvert Outflow=0.19 cfs 0.035 af

Pond 4P: Peak Elev=88.26' Storage=673 cf Inflow=0.33 cfs 0.026 af
Outflow=0.03 cfs 0.011 af

Total Runoff Area = 2.970 ac Runoff Volume = 0.338 af Average Runoff Depth = 1.36"
83.57% Pervious Area = 2.482 ac 16.43% Impervious Area = 0.488 ac

Subcatchment 1:

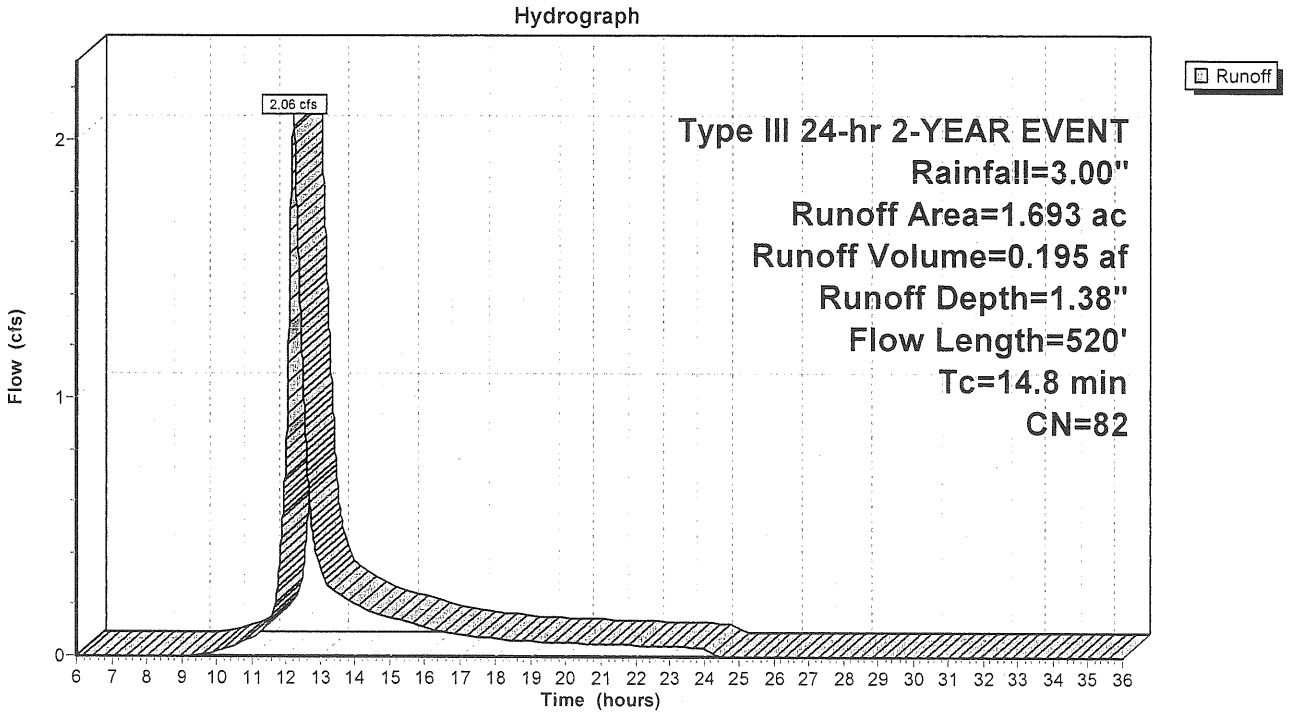
Runoff = 2.06 cfs @ 12.21 hrs, Volume= 0.195 af, Depth= 1.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR EVENT Rainfall=3.00"

Area (ac)	CN	Description
0.087	98	Roofs
0.157	98	Road, driveway, parking
1.026	80	>75% Grass cover, Good, HSG D
0.132	73	Brush, weeds, grass, Good, HSG D
0.291	79	Woods/grass comb., Good, HSG D
1.693	82	Weighted Average
1.449		Pervious Area
0.244		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	55	0.0400	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	75	0.0270	2.46		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
0.7	140	0.0550	3.52		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
2.9	150	0.0300	0.87		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
0.3	100	0.0130	5.00	9.99	**Trap/Vee/Rect Channel Flow, E-F** Bot.W=1.00' D=1.00' Z= 1.0 '/' Top.W=3.00' n= 0.022 Earth, clean & straight
14.8	520	Total			

Subcatchment 1:



Subcatchment 2:

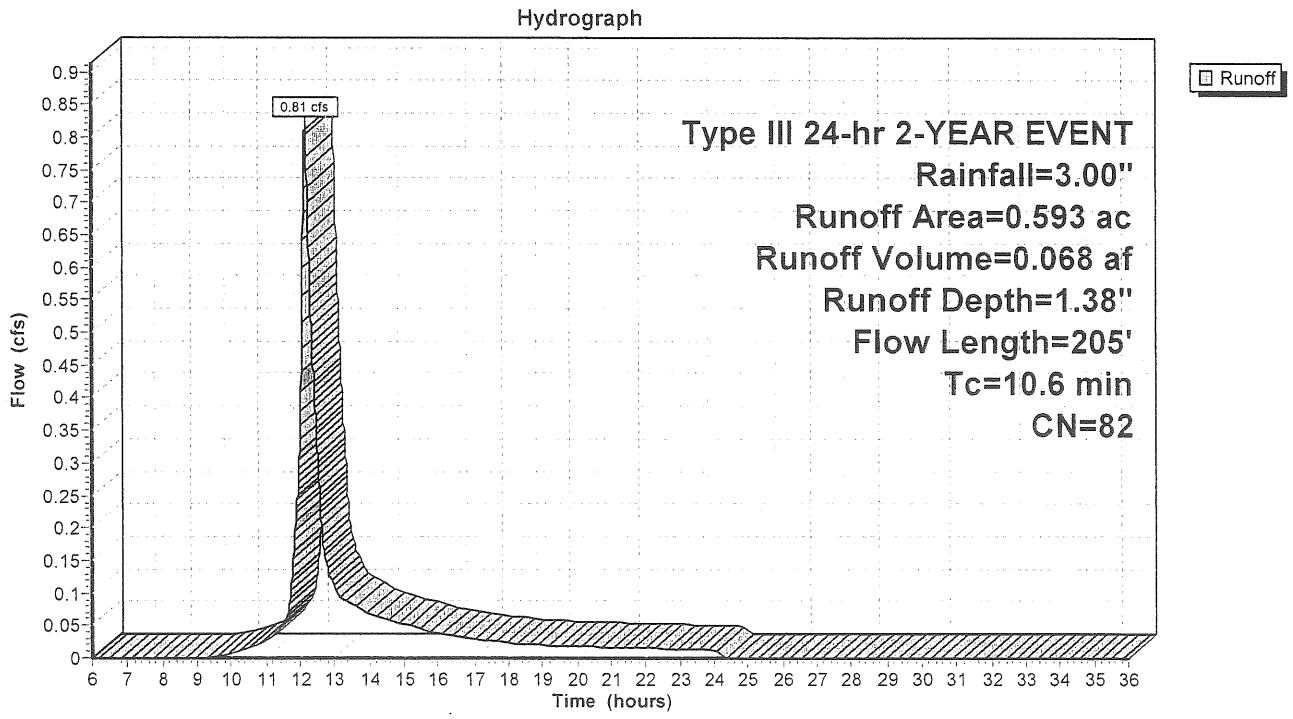
Runoff = 0.81 cfs @ 12.15 hrs, Volume= 0.068 af, Depth= 1.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR EVENT Rainfall=3.00"

Area (ac)	CN	Description
0.035	98	Roofs
0.144	98	Road, drivways & parking
0.099	80	>75% Grass cover, Good, HSG D
0.315	73	Brush, weeds, grass, Good, HSG D
0.593	82	Weighted Average
0.414		Pervious Area
0.179		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	45	0.0200	0.14		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.00"
0.1	15	0.0400	4.06		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
5.2	145	0.0350	0.47		**Shallow Concentrated Flow, C-D** Forest w/Heavy Litter Kv= 2.5 fps
10.6	205	Total			

Subcatchment 2:



Subcatchment 3:

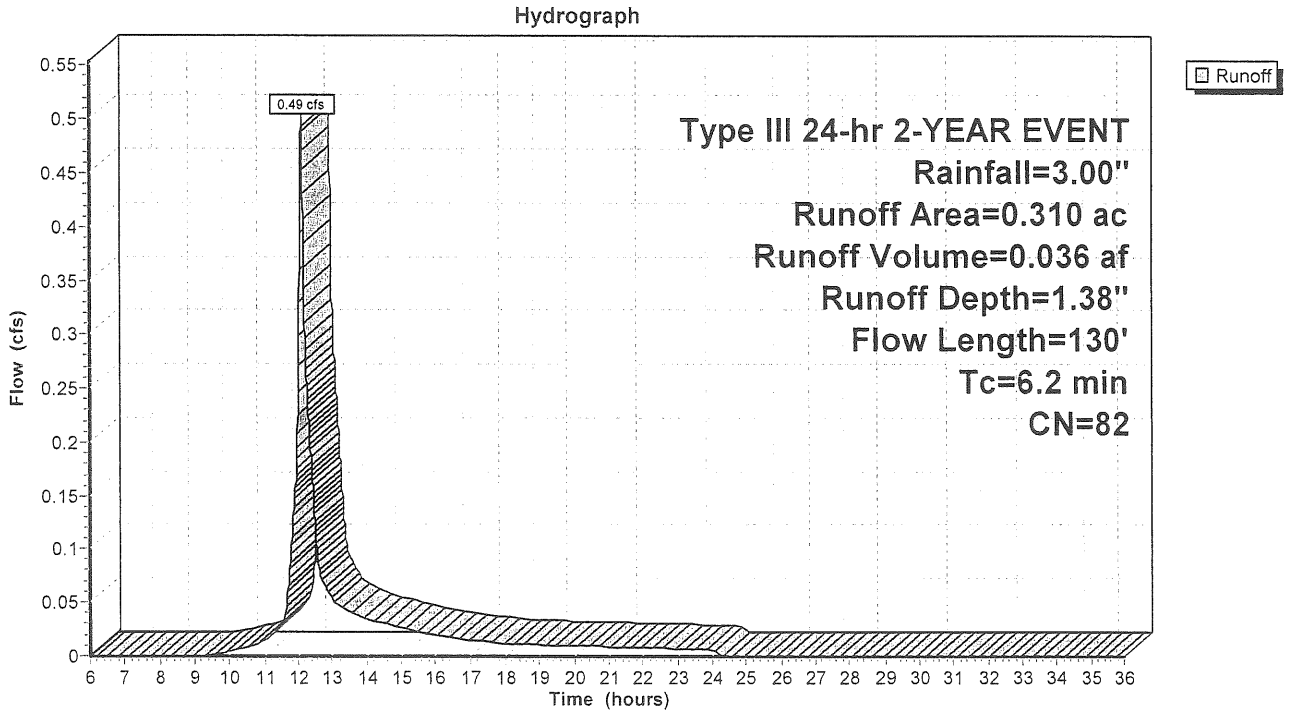
Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.036 af, Depth= 1.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR EVENT Rainfall=3.00"

Area (ac)	CN	Description
0.041	98	Roofs
0.269	80	>75% Grass cover, Good, HSG D
0.310	82	Weighted Average
0.269		Pervious Area
0.041		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.0200	0.14		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.00"
0.4	80	0.0400	3.00		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
6.2	130	Total			

Subcatchment 3:



Subcatchment 4:

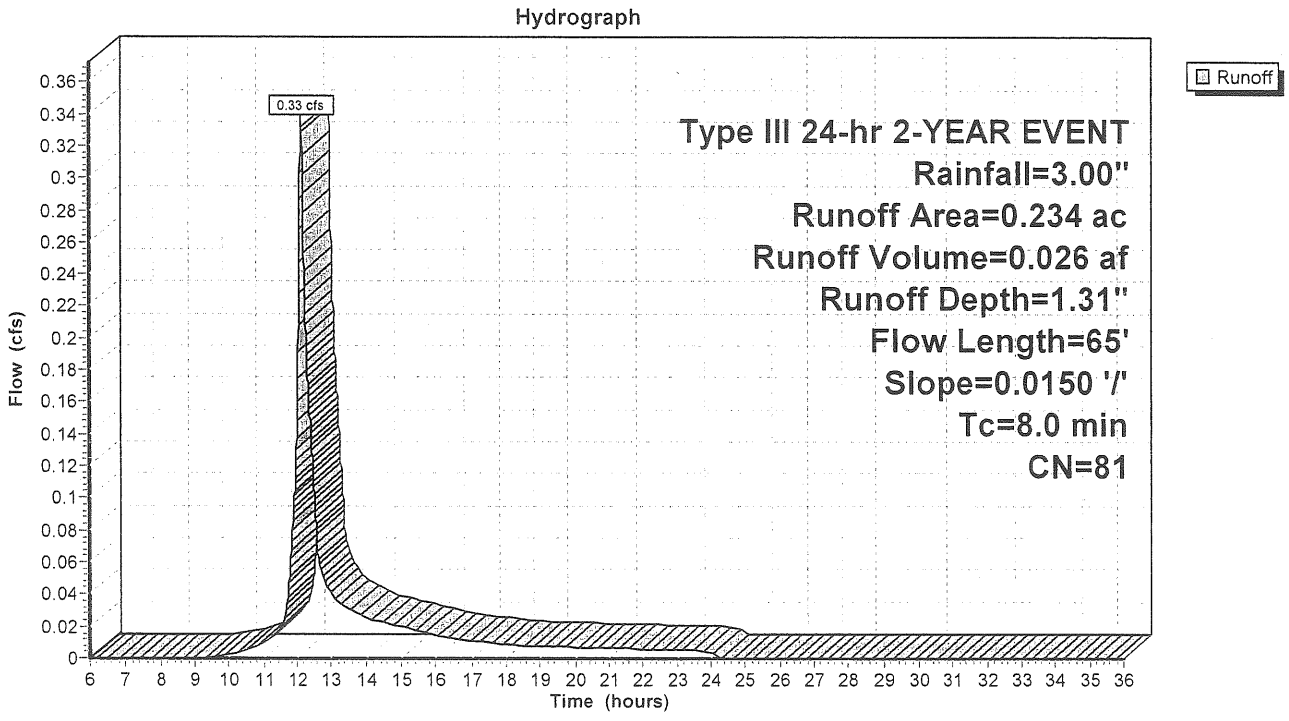
Runoff = 0.33 cfs @ 12.12 hrs, Volume= 0.026 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR EVENT Rainfall=3.00"

Area (ac)	CN	Description
0.024	98	Roofs
0.032	73	Brush, weeds, grass, Good, HSG D
0.178	80	>75% Grass cover, Good, HSG D
0.234	81	Weighted Average
0.210		Pervious Area
0.024		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	65	0.0150	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.00"

Subcatchment 4:



Subcatchment 5:

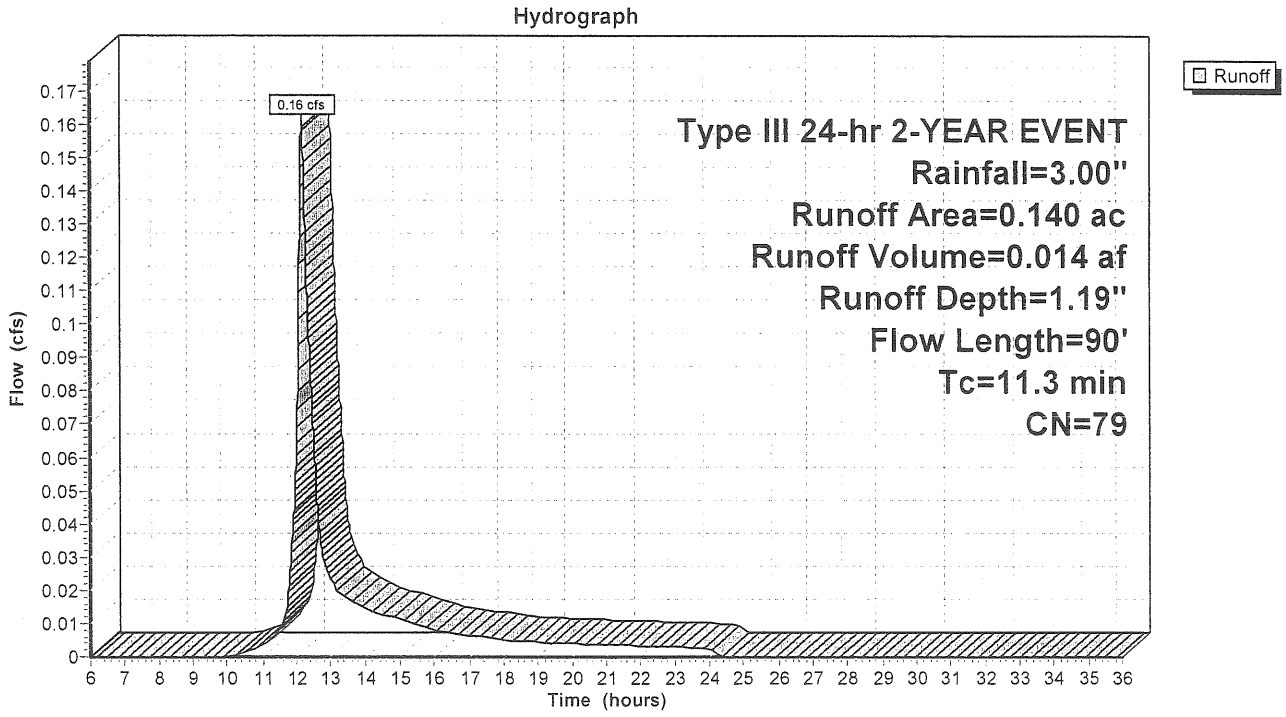
Runoff = 0.16 cfs @ 12.16 hrs, Volume= 0.014 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR EVENT Rainfall=3.00"

Area (ac)	CN	Description
0.118	79	Woods/grass comb., Good, HSG D
0.022	80	>75% Grass cover, Good, HSG D
0.140	79	Weighted Average
0.140		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	70	0.0570	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
0.3	20	0.0300	1.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
11.3	90	Total			

Subcatchment 5:

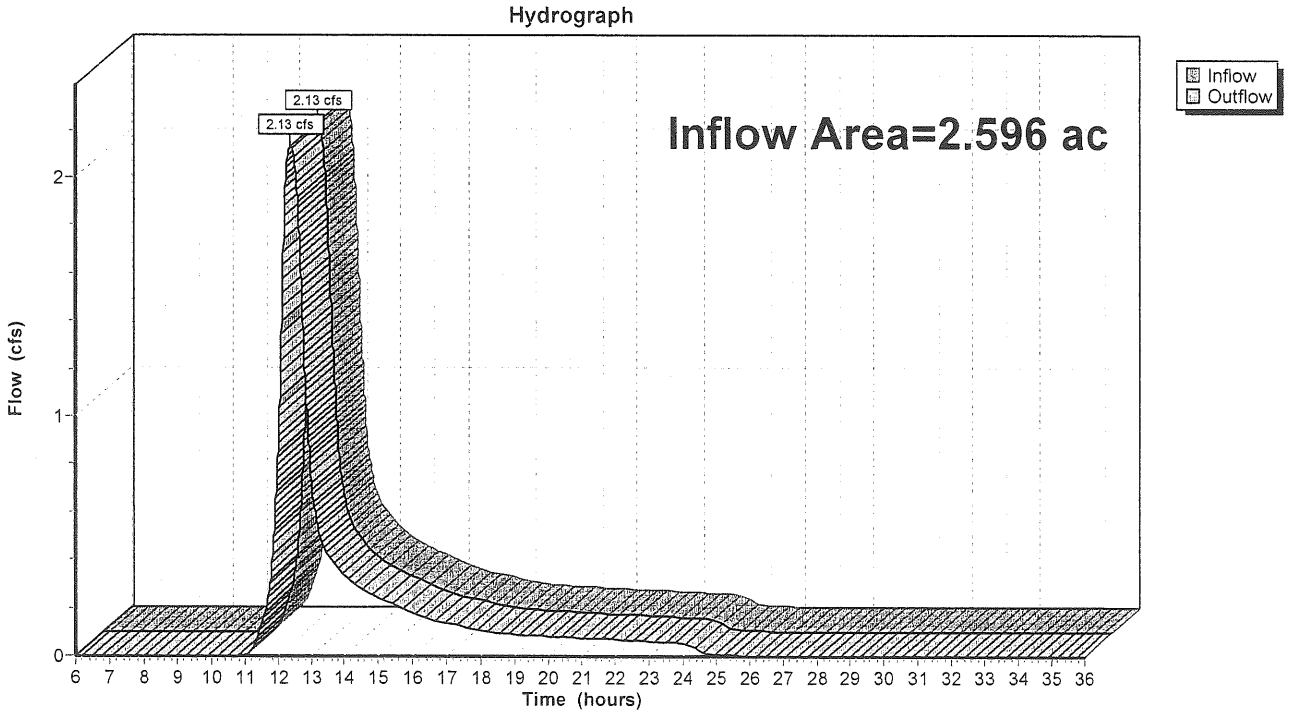


Reach SP1: To Grafton St.

Inflow Area = 2.596 ac, Inflow Depth = 1.35" for 2-YEAR EVENT event
Inflow = 2.13 cfs @ 12.38 hrs, Volume= 0.291 af
Outflow = 2.13 cfs @ 12.38 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs

Reach SP1: To Grafton St.

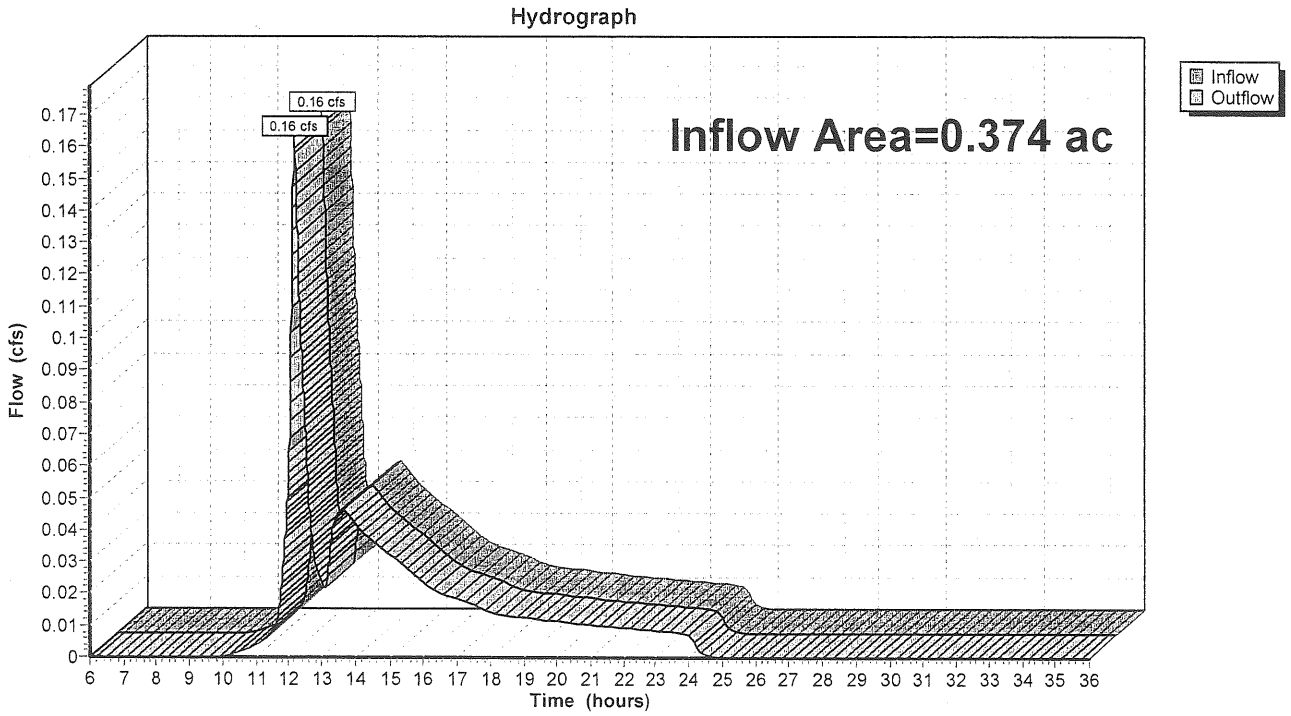


Reach SP2:

Inflow Area = 0.374 ac, Inflow Depth = 0.78" for 2-YEAR EVENT event
Inflow = 0.16 cfs @ 12.16 hrs, Volume= 0.024 af
Outflow = 0.16 cfs @ 12.16 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs

Reach SP2:



Pond 1P:

Inflow Area = 2.596 ac, Inflow Depth = 1.37" for 2-YEAR EVENT event
Inflow = 2.99 cfs @ 12.20 hrs, Volume= 0.297 af
Outflow = 2.13 cfs @ 12.38 hrs, Volume= 0.291 af, Atten= 29%, Lag= 10.6 min
Primary = 2.13 cfs @ 12.38 hrs, Volume= 0.291 af

Routing by Stor-Ind method, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 74.54' @ 12.38 hrs Surf.Area= 3,489 sf Storage= 1,624 cf

Plug-Flow detention time= 28.1 min calculated for 0.291 af (98% of inflow)
Center-of-Mass det. time= 16.4 min (867.2 - 850.8)

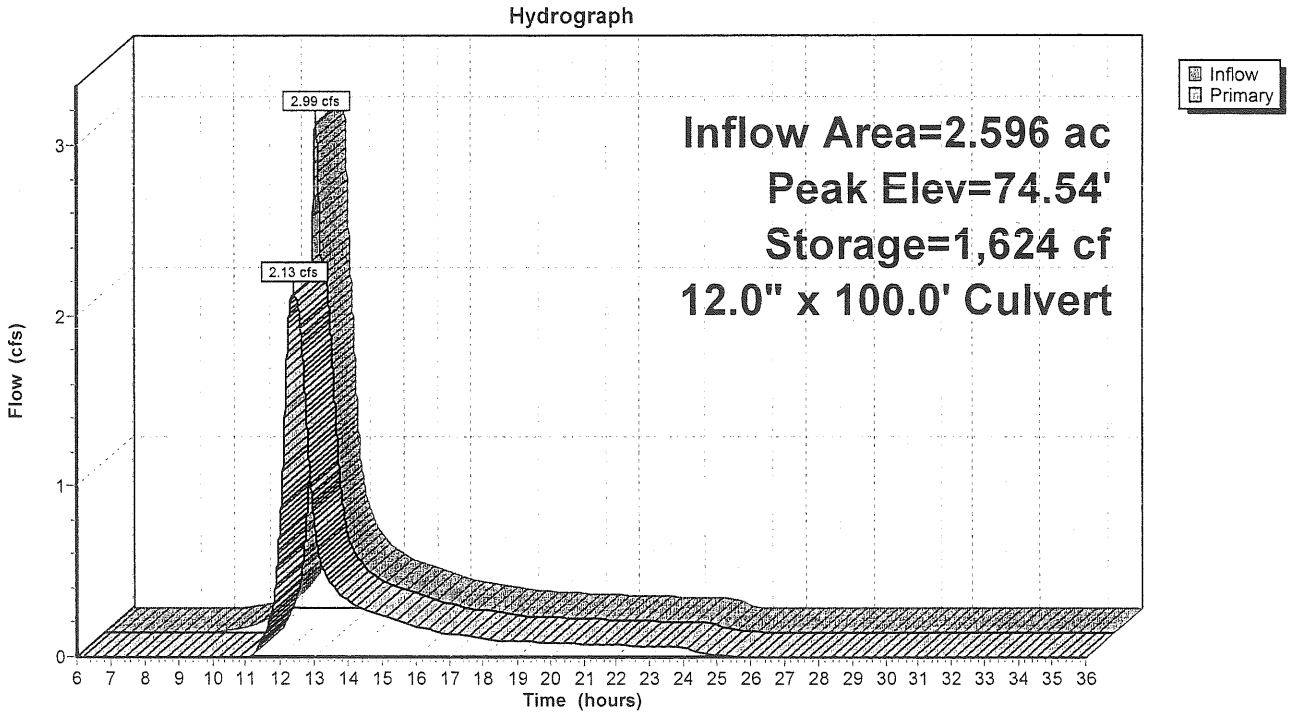
Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	16,604 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
73.00	405	105.0	0	0	405
74.00	750	140.0	569	569	1,098
75.00	7,400	655.0	3,502	4,071	33,682
76.00	18,500	650.0	12,533	16,604	34,516

Device	Routing	Invert	Outlet Devices
#1	Primary	73.53'	**12.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 73.00' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.13 cfs @ 12.38 hrs HW=74.54' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 2.13 cfs @ 2.72 fps)

Pond 1P:


Hydrograph
Inflow
Primary
2.99 cfs
2.13 cfs
Inflow Area=2.596 ac
Peak Elev=74.54'
Storage=1,624 cf
12.0" x 100.0' Culvert
Flow (cfs)
0
1
2
3
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Time (hours)

Pond 2P:

Inflow Area = 0.903 ac, Inflow Depth = 1.37" for 2-YEAR EVENT event
Inflow = 0.98 cfs @ 12.15 hrs, Volume= 0.103 af
Outflow = 0.94 cfs @ 12.20 hrs, Volume= 0.103 af, Atten= 5%, Lag= 2.5 min
Primary = 0.94 cfs @ 12.20 hrs, Volume= 0.103 af

Routing by Stor-Ind method, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 75.61' @ 12.20 hrs Surf.Area= 523 sf Storage= 118 cf

Plug-Flow detention time= 2.3 min calculated for 0.103 af (100% of inflow)
Center-of-Mass det. time= 2.0 min (857.0 - 854.9)

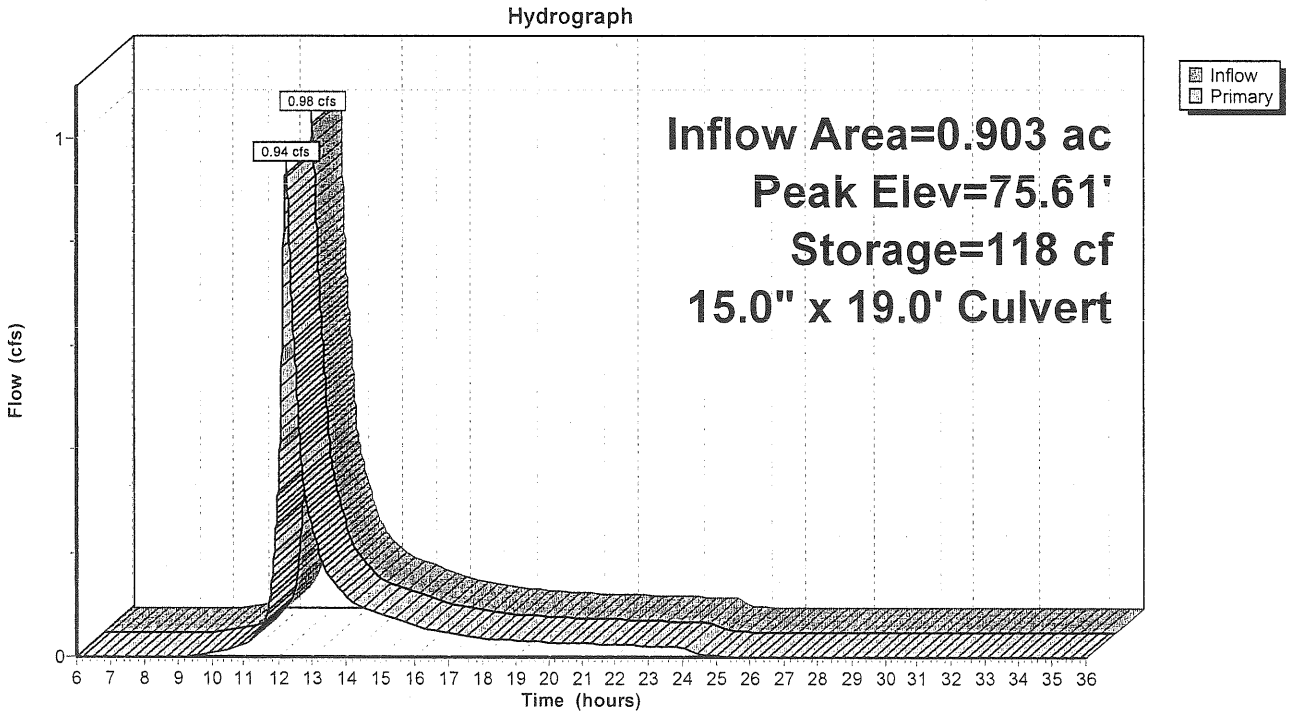
Volume	Invert	Avail.Storage	Storage Description
#1	75.00'	2,929 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
75.00	5	10.0	0	0	5
76.00	1,300	180.0	462	462	2,577
77.00	3,860	310.0	2,467	2,929	7,652

Device	Routing	Invert	Outlet Devices
#1	Primary	75.09'	**15.0" x 19.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 74.77' S= 0.0168 '/' Cc= 0.900 n= 0.013 Clay tile

Primary OutFlow Max=0.94 cfs @ 12.20 hrs HW=75.61' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.94 cfs @ 1.94 fps)

Pond 2P:


Hydrograph
Inflow
Primary
0.98 cfs
0.94 cfs
Inflow Area=0.903 ac
Peak Elev=75.61'
Storage=118 cf
15.0" x 19.0' Culvert
Flow (cfs)
0
1
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Time (hours)

Pond 3P:

Inflow Area = 0.310 ac, Inflow Depth = 1.38" for 2-YEAR EVENT event
Inflow = 0.49 cfs @ 12.09 hrs, Volume= 0.036 af
Outflow = 0.19 cfs @ 12.38 hrs, Volume= 0.035 af, Atten= 62%, Lag= 17.3 min
Primary = 0.19 cfs @ 12.38 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 78.33' @ 12.38 hrs Surf.Area= 1,194 sf Storage= 402 cf

Plug-Flow detention time= 53.2 min calculated for 0.035 af (97% of inflow)
Center-of-Mass det. time= 37.5 min (877.1 - 839.6)

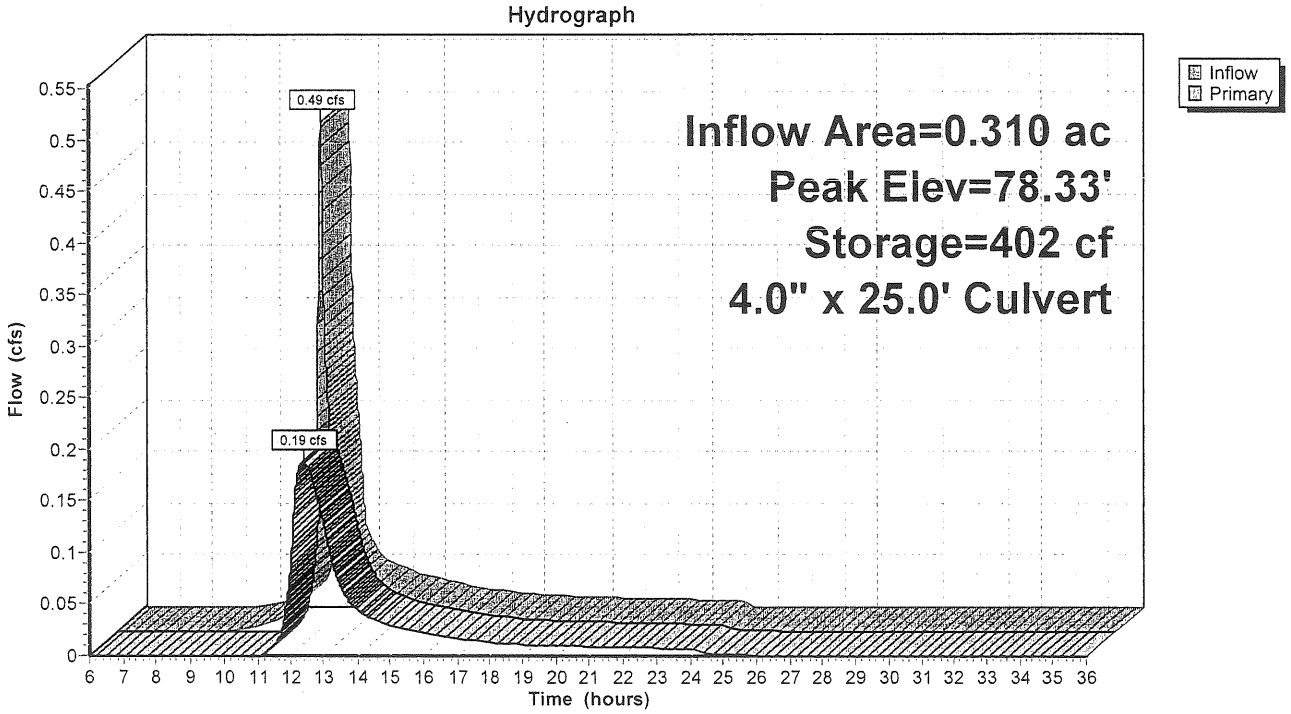
Volume	Invert	Avail.Storage	Storage Description
#1	77.50'	1,782 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
77.50	10	20.0	0	0	10
78.00	600	100.0	115	115	775
79.00	3,050	218.0	1,668	1,782	3,765

Device	Routing	Invert	Outlet Devices
#1	Primary	77.84'	**4.0" x 25.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 76.86' S= 0.0392 '/' Cc= 0.900 n= 0.013 Clay tile

Primary OutFlow Max=0.19 cfs @ 12.38 hrs HW=78.33' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.19 cfs @ 2.15 fps)

Pond 3P:


Hydrograph
Inflow
Primary
0.49 cfs
0.19 cfs
Inflow Area=0.310 ac
Peak Elev=78.33'
Storage=402 cf
4.0" x 25.0' Culvert
Flow (cfs)
0.55
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Time (hours)

Pond 4P:

Inflow Area = 0.234 ac, Inflow Depth = 1.31" for 2-YEAR EVENT event
Inflow = 0.33 cfs @ 12.12 hrs, Volume= 0.026 af
Outflow = 0.03 cfs @ 13.63 hrs, Volume= 0.011 af, Atten= 91%, Lag= 90.4 min
Primary = 0.03 cfs @ 13.63 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 88.26' @ 13.63 hrs Surf.Area= 1,823 sf Storage= 673 cf

Plug-Flow detention time= 301.2 min calculated for 0.011 af (41% of inflow)
Center-of-Mass det. time= 174.2 min (1,018.8 - 844.7)

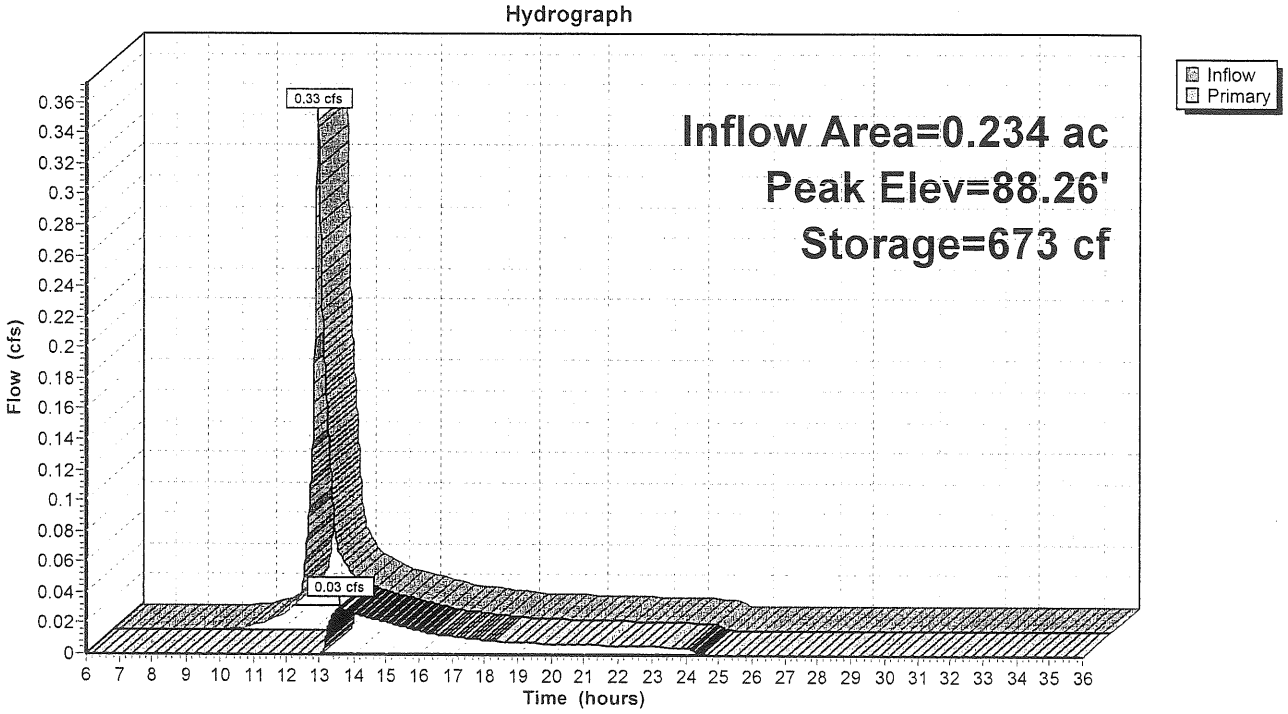
Volume	Invert	Avail.Storage	Storage Description
#1	87.50'	1,217 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
87.50	275	110.0	0	0	275
88.00	1,030	175.0	306	306	1,751
88.50	2,750	225.0	911	1,217	3,346

Device	Routing	Invert	Outlet Devices
#1	Primary	88.25'	**10.0' long x 15.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.03 cfs @ 13.63 hrs HW=88.26' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.03 cfs @ 0.28 fps)

Pond 4P:


Hydrograph
Inflow
Primary
0.33 cfs
0.03 cfs
Inflow Area=0.234 ac
Peak Elev=88.26'
Storage=673 cf
Flow (cfs)
0 0.02 0.04 0.06 0.08 0.1 0.12 0.14 0.16 0.18 0.2 0.22 0.24 0.26 0.28 0.3 0.32 0.34 0.36
Time (hours)
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

Time span=6.00-36.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Runoff Area=1.693 ac Runoff Depth=2.81"
Flow Length=520' Tc=14.8 min CN=82 Runoff=4.24 cfs 0.397 af

Subcatchment 2: Runoff Area=0.593 ac Runoff Depth=2.81"
Flow Length=205' Tc=10.6 min CN=82 Runoff=1.67 cfs 0.139 af

Subcatchment 3: Runoff Area=0.310 ac Runoff Depth=2.81"
Flow Length=130' Tc=6.2 min CN=82 Runoff=1.01 cfs 0.073 af

Subcatchment 4: Runoff Area=0.234 ac Runoff Depth=2.72"
Flow Length=65' Slope=0.0150 '/' Tc=8.0 min CN=81 Runoff=0.70 cfs 0.053 af

Subcatchment 5: Runoff Area=0.140 ac Runoff Depth=2.55"
Flow Length=90' Tc=11.3 min CN=79 Runoff=0.35 cfs 0.030 af

Reach SP1: To Grafton St. Inflow=2.92 cfs 0.601 af
Outflow=2.92 cfs 0.601 af

Reach SP2: Inflow=0.81 cfs 0.068 af
Outflow=0.81 cfs 0.068 af

Pond 1P: Peak Elev=75.08' Storage=4,680 cf Inflow=6.01 cfs 0.607 af
12.0" x 100.0' Culvert Outflow=2.92 cfs 0.601 af

Pond 2P: Peak Elev=75.83' Storage=278 cf Inflow=1.92 cfs 0.211 af
15.0" x 19.0' Culvert Outflow=1.77 cfs 0.211 af

Pond 3P: Peak Elev=78.67' Storage=948 cf Inflow=1.01 cfs 0.073 af
4.0" x 25.0' Culvert Outflow=0.27 cfs 0.072 af

Pond 4P: Peak Elev=88.32' Storage=785 cf Inflow=0.70 cfs 0.053 af
Outflow=0.48 cfs 0.038 af

Total Runoff Area = 2.970 ac Runoff Volume = 0.691 af Average Runoff Depth = 2.79"
83.57% Pervious Area = 2.482 ac 16.43% Impervious Area = 0.488 ac

Subcatchment 1:

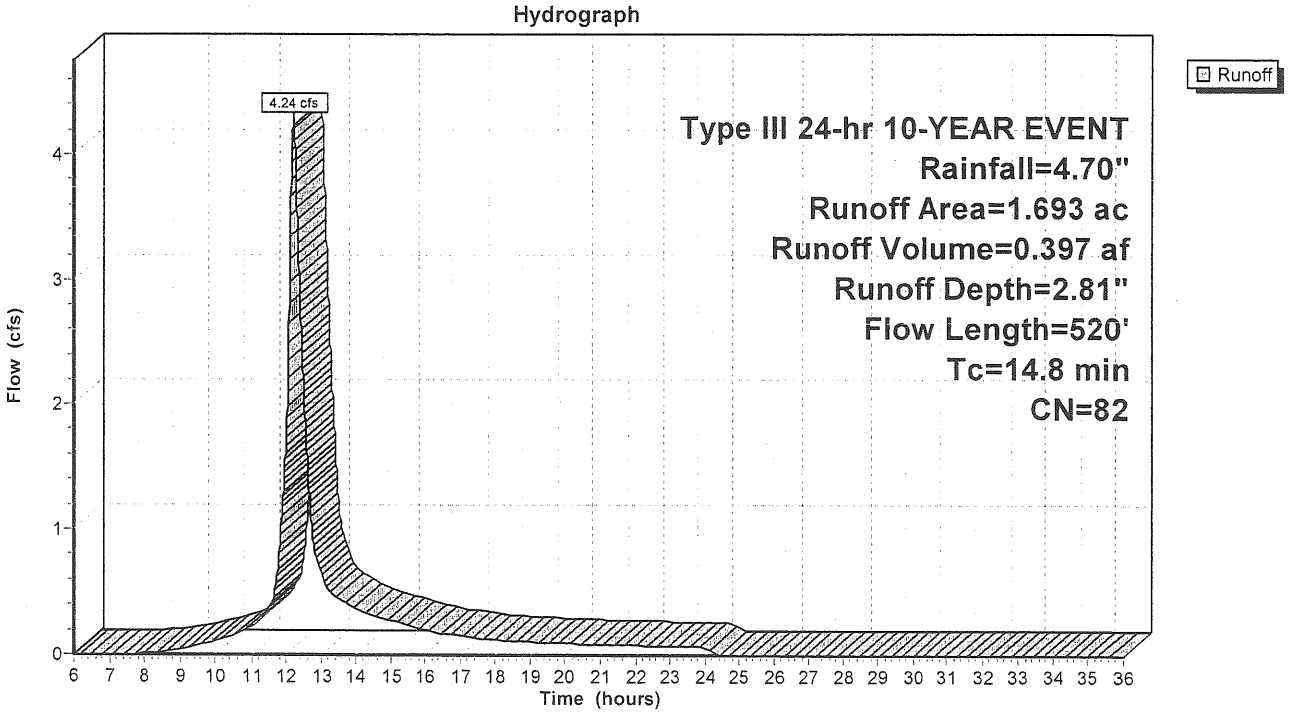
Runoff = 4.24 cfs @ 12.20 hrs, Volume= 0.397 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR EVENT Rainfall=4.70"

Area (ac)	CN	Description
0.087	98	Roofs
0.157	98	Road, driveway, parking
1.026	80	>75% Grass cover, Good, HSG D
0.132	73	Brush, weeds, grass, Good, HSG D
0.291	79	Woods/grass comb., Good, HSG D
1.693	82	Weighted Average
1.449		Pervious Area
0.244		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	55	0.0400	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	75	0.0270	2.46		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
0.7	140	0.0550	3.52		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
2.9	150	0.0300	0.87		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
0.3	100	0.0130	5.00	9.99	**Trap/Vee/Rect Channel Flow, E-F** Bot.W=1.00' D=1.00' Z= 1.0 '/' Top.W=3.00' n= 0.022 Earth, clean & straight
14.8	520	Total			

Subcatchment 1:



Subcatchment 2:

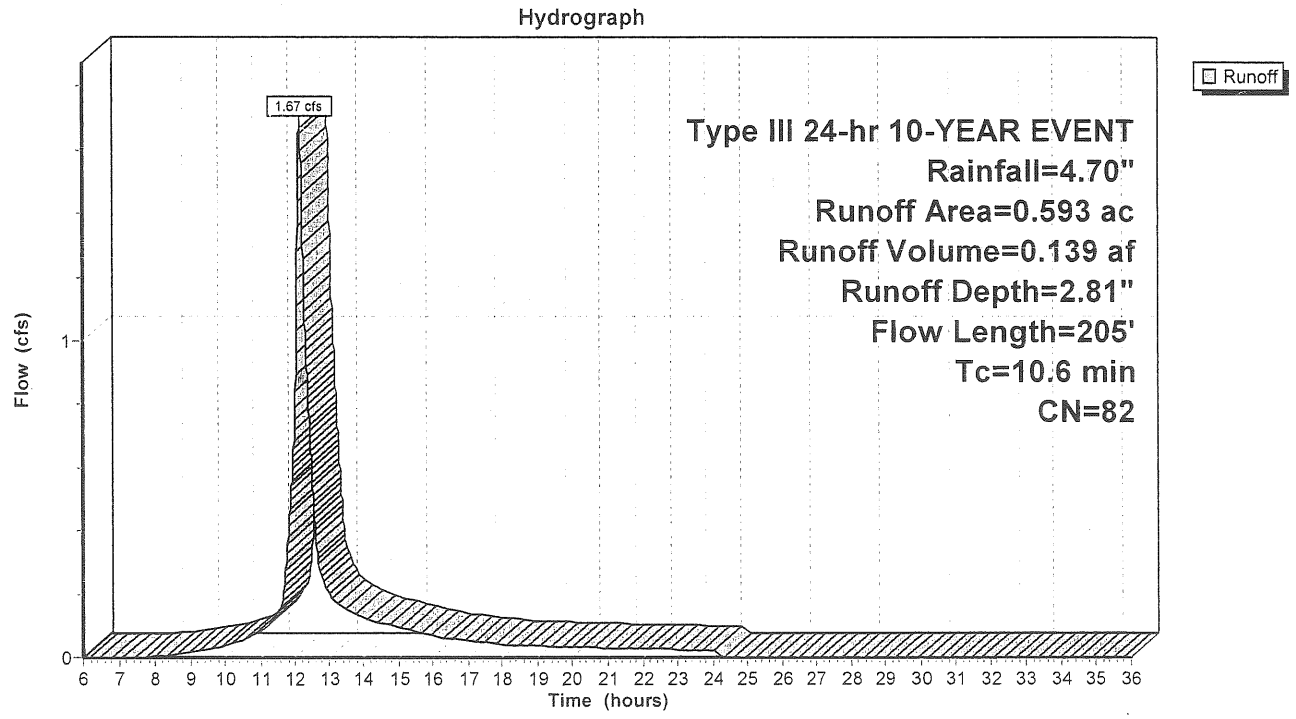
Runoff = 1.67 cfs @ 12.15 hrs, Volume= 0.139 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR EVENT Rainfall=4.70"

Area (ac)	CN	Description
0.035	98	Roofs
0.144	98	Road, drivways & parking
0.099	80	>75% Grass cover, Good, HSG D
0.315	73	Brush, weeds, grass, Good, HSG D
0.593	82	Weighted Average
0.414		Pervious Area
0.179		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	45	0.0200	0.14		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.00"
0.1	15	0.0400	4.06		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
5.2	145	0.0350	0.47		**Shallow Concentrated Flow, C-D** Forest w/Heavy Litter Kv= 2.5 fps
10.6	205	Total			

Subcatchment 2:



Subcatchment 3:

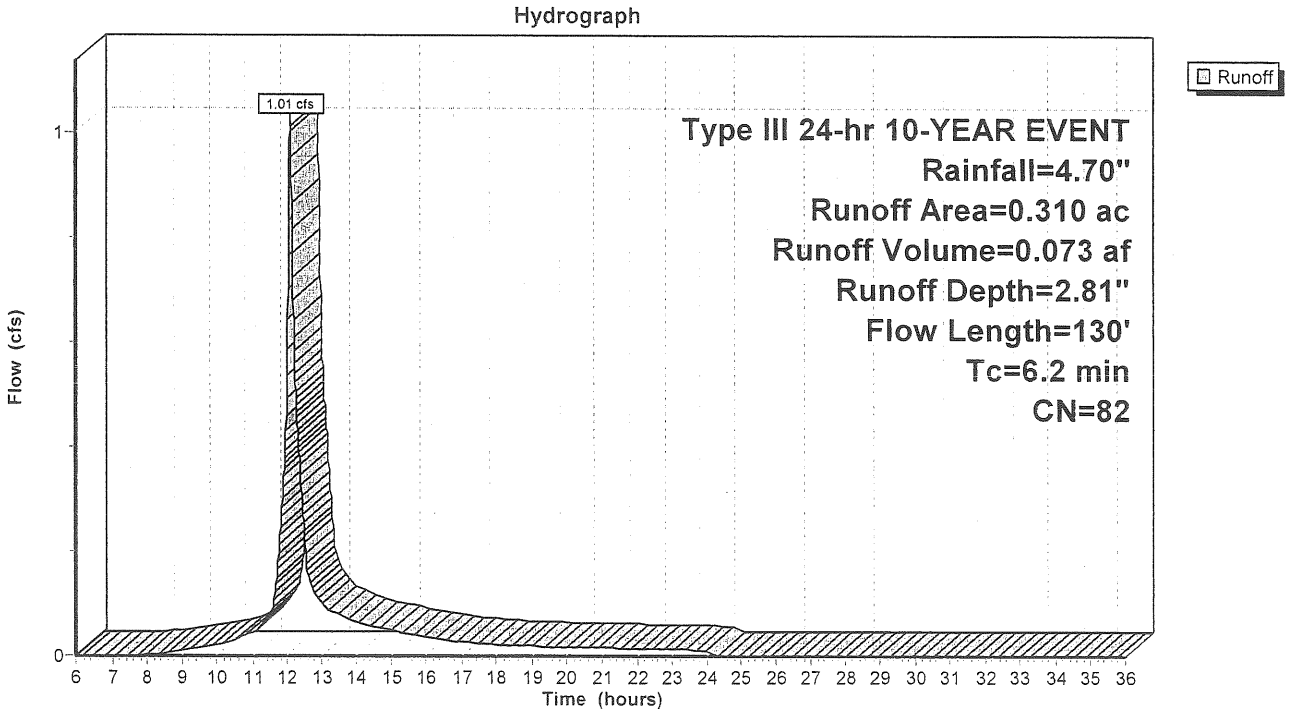
Runoff = 1.01 cfs @ 12.09 hrs, Volume= 0.073 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR EVENT Rainfall=4.70"

Area (ac)	CN	Description
0.041	98	Roofs
0.269	80	>75% Grass cover, Good, HSG D
0.310	82	Weighted Average
0.269		Pervious Area
0.041		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.0200	0.14		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.00"
0.4	80	0.0400	3.00		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
6.2	130	Total			

Subcatchment 3:



Subcatchment 4:

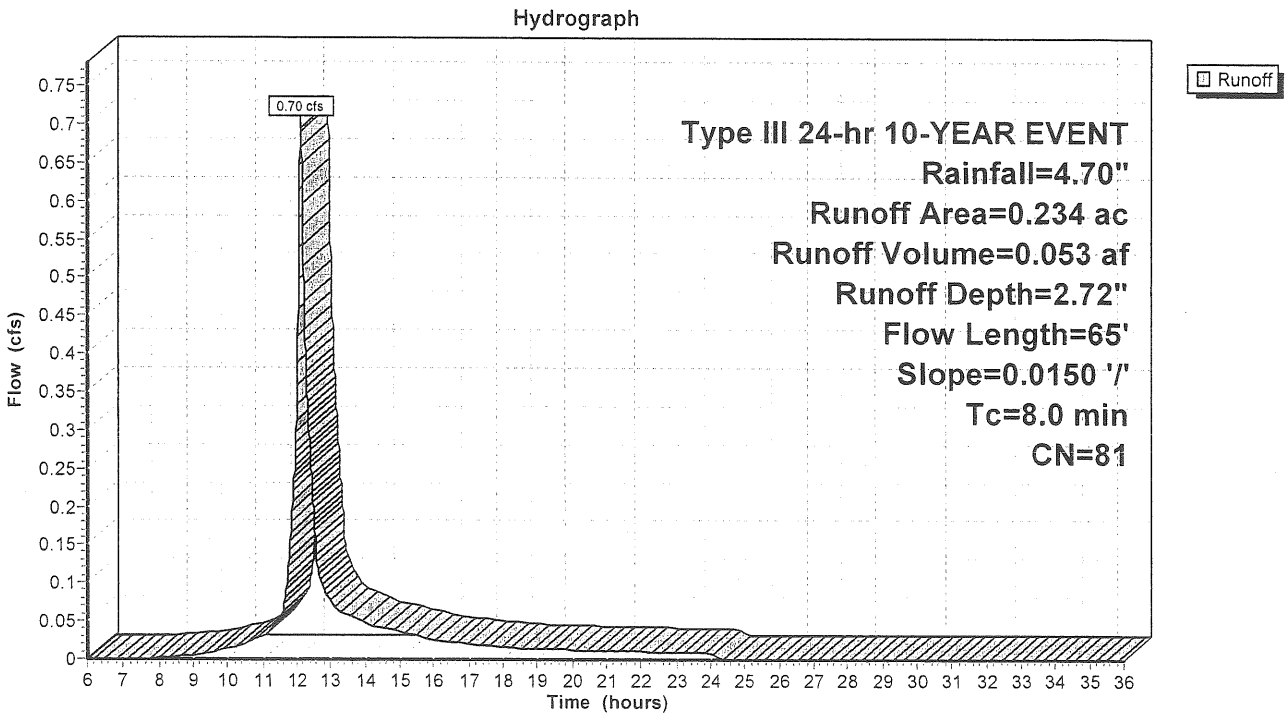
Runoff = 0.70 cfs @ 12.11 hrs, Volume= 0.053 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR EVENT Rainfall=4.70"

Area (ac)	CN	Description
0.024	98	Roofs
0.032	73	Brush, weeds, grass, Good, HSG D
0.178	80	>75% Grass cover, Good, HSG D
0.234	81	Weighted Average
0.210		Pervious Area
0.024		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	65	0.0150	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.00"

Subcatchment 4:



Subcatchment 5:

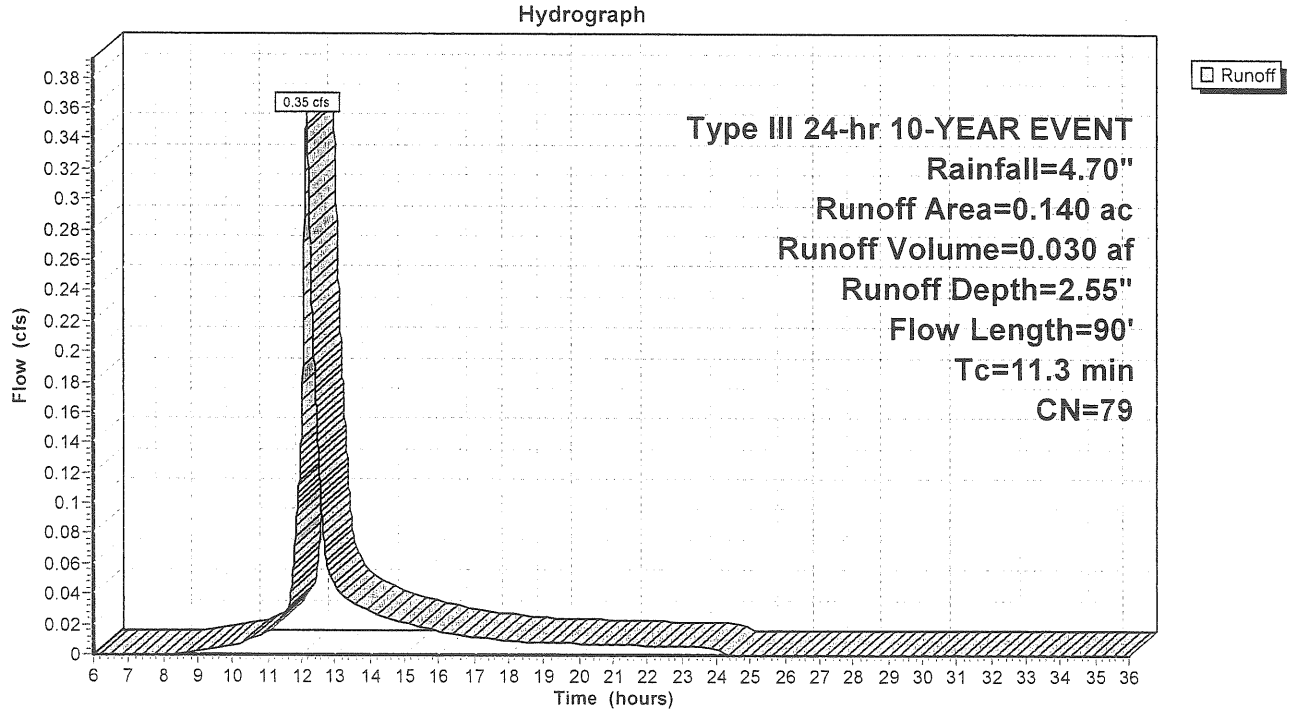
Runoff = 0.35 cfs @ 12.16 hrs, Volume= 0.030 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR EVENT Rainfall=4.70"

Area (ac)	CN	Description
0.118	79	Woods/grass comb., Good, HSG D
0.022	80	>75% Grass cover, Good, HSG D
0.140	79	Weighted Average
0.140		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	70	0.0570	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
0.3	20	0.0300	1.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
11.3	90	Total			

Subcatchment 5:

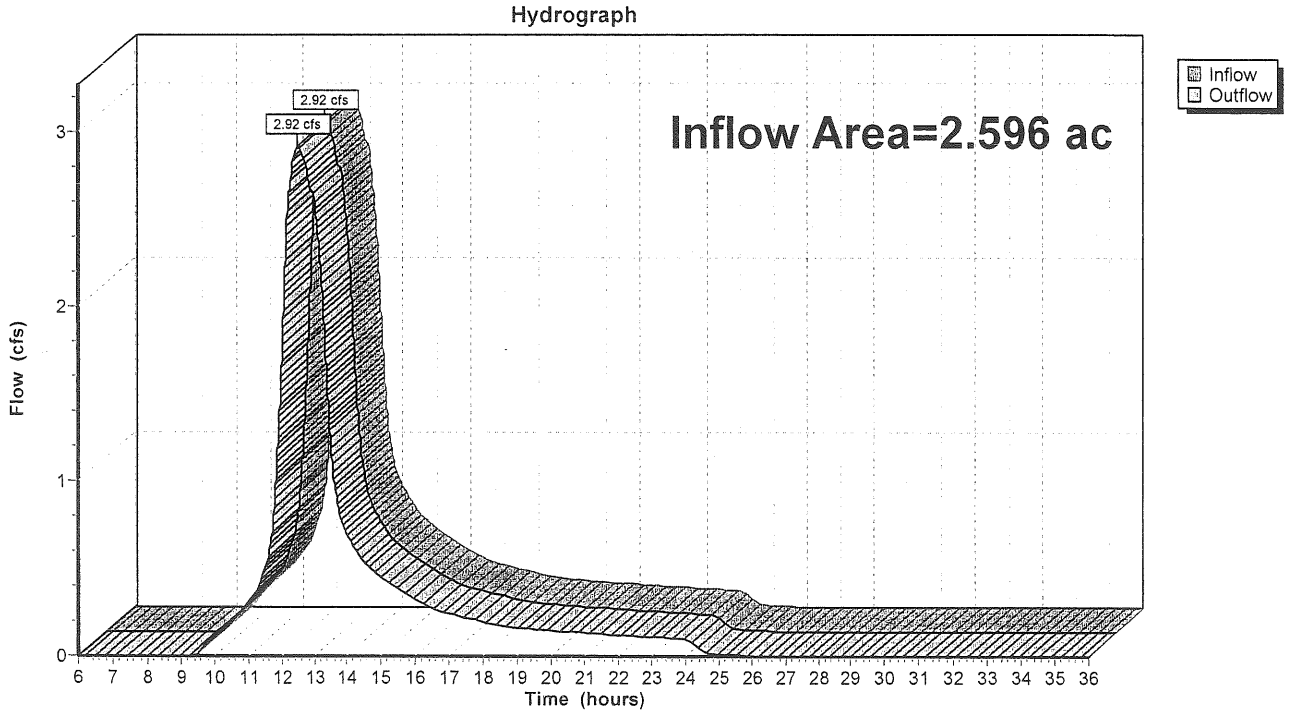


Reach SP1: To Grafton St.

Inflow Area = 2.596 ac, Inflow Depth = 2.78" for 10-YEAR EVENT event
Inflow = 2.92 cfs @ 12.52 hrs, Volume= 0.601 af
Outflow = 2.92 cfs @ 12.52 hrs, Volume= 0.601 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs

Reach SP1: To Grafton St.

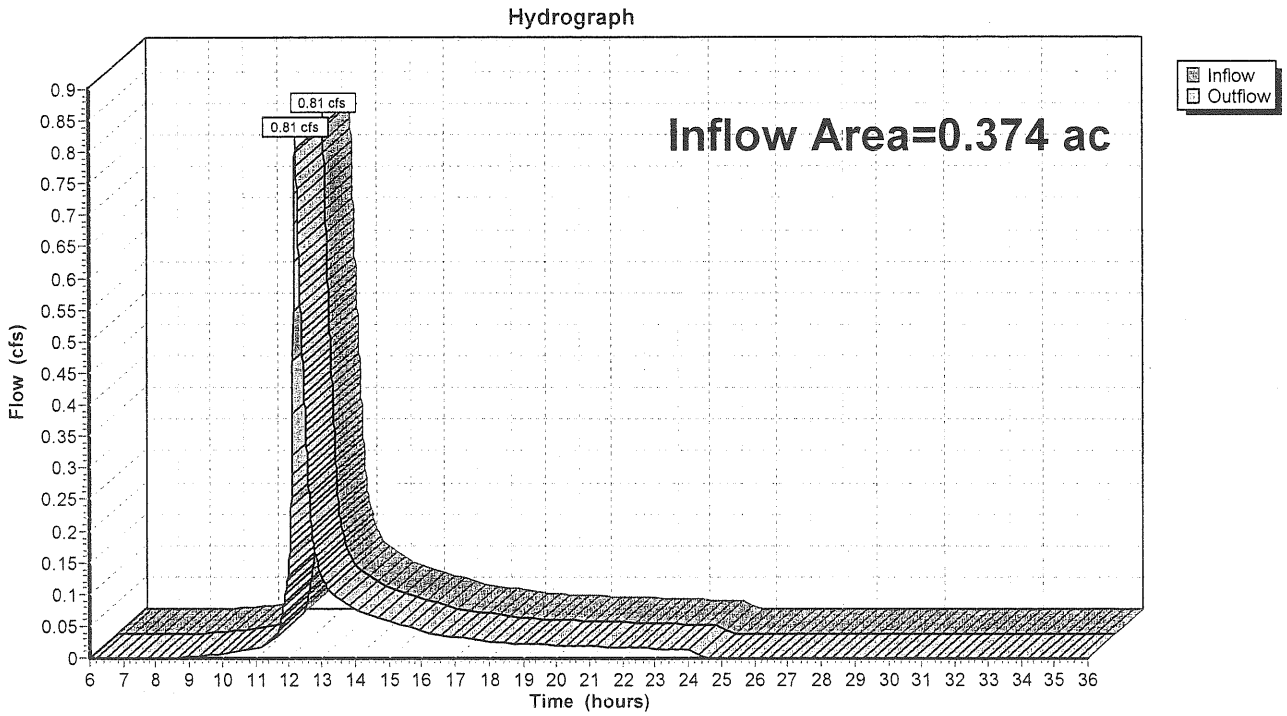


Reach SP2:

Inflow Area = 0.374 ac, Inflow Depth = 2.17" for 10-YEAR EVENT event
Inflow = 0.81 cfs @ 12.20 hrs, Volume= 0.068 af
Outflow = 0.81 cfs @ 12.20 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs

Reach SP2:



Pond 1P:

Inflow Area = 2.596 ac, Inflow Depth = 2.81" for 10-YEAR EVENT event
Inflow = 6.01 cfs @ 12.20 hrs, Volume= 0.607 af
Outflow = 2.92 cfs @ 12.52 hrs, Volume= 0.601 af, Atten= 51%, Lag= 19.1 min
Primary = 2.92 cfs @ 12.52 hrs, Volume= 0.601 af

Routing by Stor-Ind method, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 75.08' @ 12.52 hrs Surf.Area= 8,092 sf Storage= 4,680 cf

Plug-Flow detention time= 23.6 min calculated for 0.601 af (99% of inflow)
Center-of-Mass det. time= 17.7 min (848.5 - 830.8)

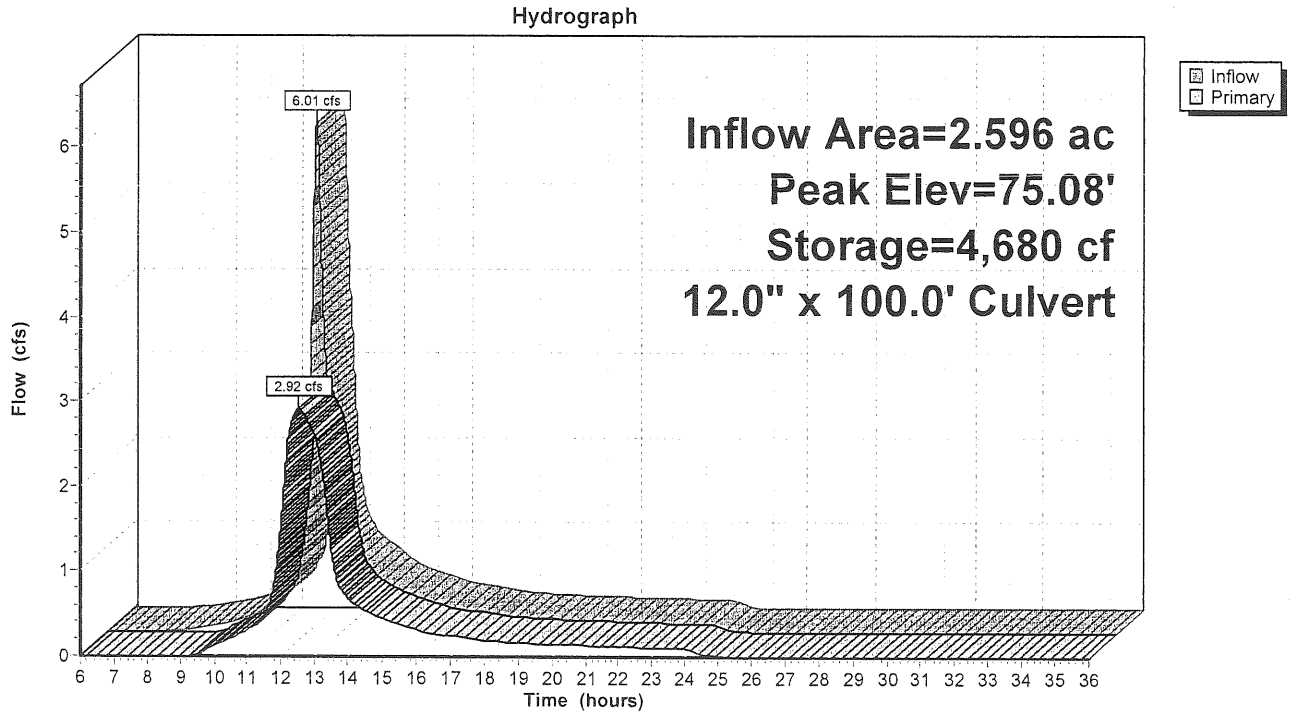
Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	16,604 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
73.00	405	105.0	0	0	405
74.00	750	140.0	569	569	1,098
75.00	7,400	655.0	3,502	4,071	33,682
76.00	18,500	650.0	12,533	16,604	34,516

Device	Routing	Invert	Outlet Devices
#1	Primary	73.53'	**12.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 73.00' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.92 cfs @ 12.52 hrs HW=75.08' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 2.92 cfs @ 3.71 fps)

Pond 1P:


Hydrograph
Inflow
Primary
6.01 cfs
2.92 cfs
Inflow Area=2.596 ac
Peak Elev=75.08'
Storage=4,680 cf
12.0" x 100.0' Culvert
Flow (cfs)
0
1
2
3
4
5
6
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Time (hours)

Pond 2P:

Inflow Area = 0.903 ac, Inflow Depth = 2.80" for 10-YEAR EVENT event
Inflow = 1.92 cfs @ 12.15 hrs, Volume= 0.211 af
Outflow = 1.77 cfs @ 12.20 hrs, Volume= 0.211 af, Atten= 8%, Lag= 3.1 min
Primary = 1.77 cfs @ 12.20 hrs, Volume= 0.211 af

Routing by Stor-Ind method, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 75.83' @ 12.20 hrs Surf.Area= 927 sf Storage= 278 cf

Plug-Flow detention time= 2.2 min calculated for 0.211 af (100% of inflow)
Center-of-Mass det. time= 2.1 min (837.9 - 835.8)

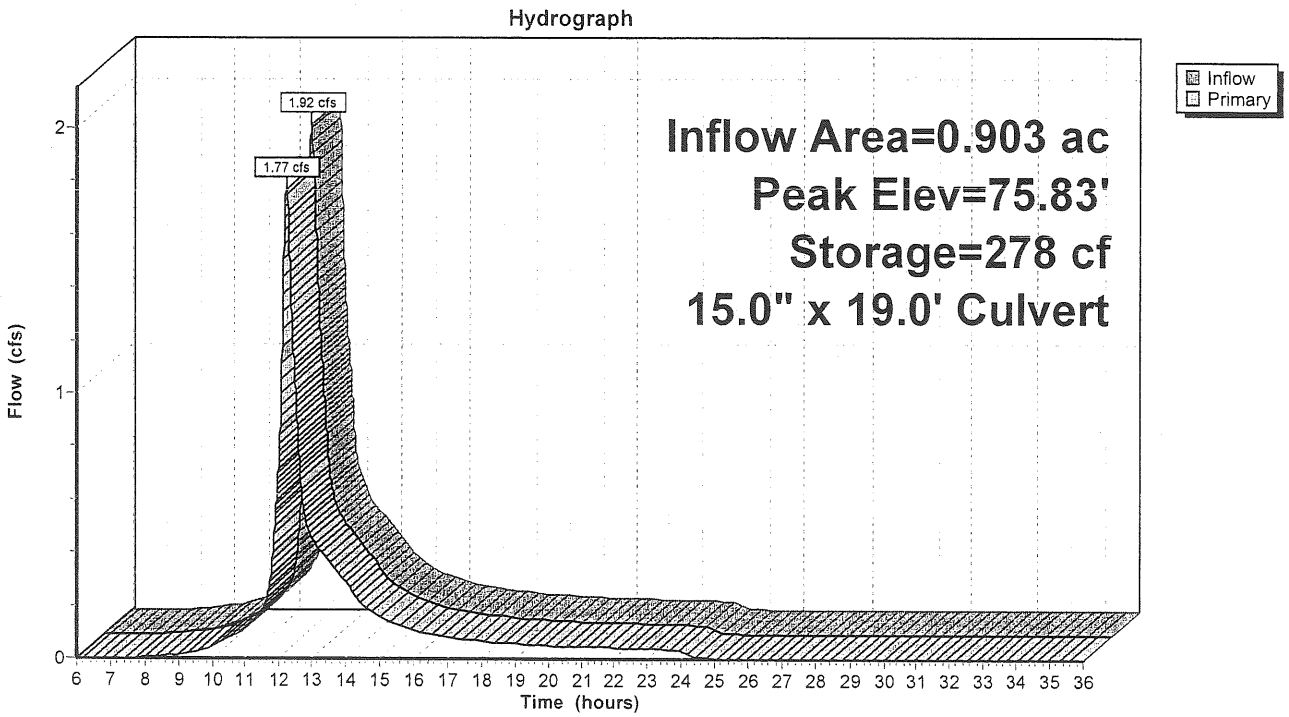
Volume	Invert	Avail.Storage	Storage Description
#1	75.00'	2,929 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
75.00	5	10.0	0	0	5
76.00	1,300	180.0	462	462	2,577
77.00	3,860	310.0	2,467	2,929	7,652

Device	Routing	Invert	Outlet Devices
#1	Primary	75.09'	**15.0" x 19.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 74.77' S= 0.0168 '/' Cc= 0.900 n= 0.013 Clay tile

Primary OutFlow Max=1.77 cfs @ 12.20 hrs HW=75.83' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 1.77 cfs @ 2.32 fps)

Pond 2P:


Hydrograph
Inflow
Primary
1.92 cfs
1.77 cfs
Inflow Area=0.903 ac
Peak Elev=75.83'
Storage=278 cf
15.0" x 19.0' Culvert
Flow (cfs)
0
1
2
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Time (hours)

Pond 3P:

Inflow Area = 0.310 ac, Inflow Depth = 2.81" for 10-YEAR EVENT event
Inflow = 1.01 cfs @ 12.09 hrs, Volume= 0.073 af
Outflow = 0.27 cfs @ 12.47 hrs, Volume= 0.072 af, Atten= 73%, Lag= 22.8 min
Primary = 0.27 cfs @ 12.47 hrs, Volume= 0.072 af

Routing by Stor-Ind method, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 78.67' @ 12.47 hrs Surf.Area= 2,031 sf Storage= 948 cf

Plug-Flow detention time= 49.6 min calculated for 0.072 af (99% of inflow)
Center-of-Mass det. time= 41.4 min (860.5 - 819.1)

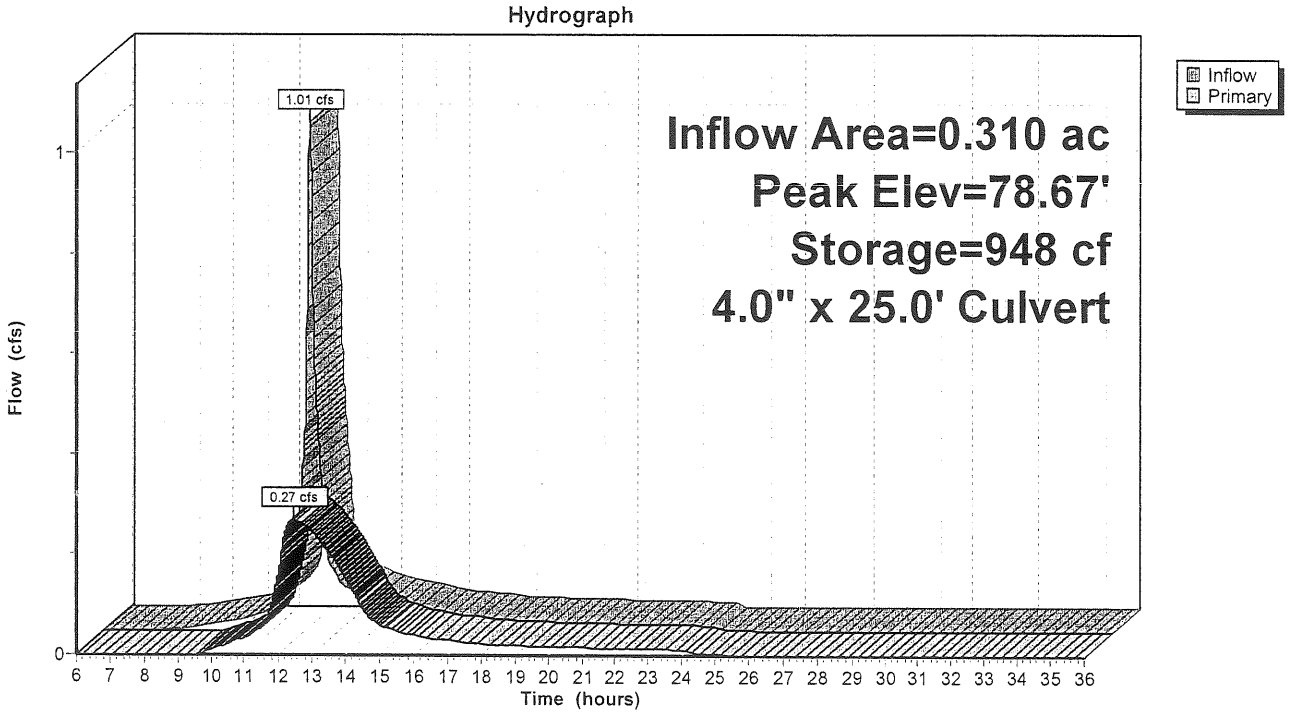
Volume	Invert	Avail.Storage	Storage Description
#1	77.50'	1,782 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
77.50	10	20.0	0	0	10
78.00	600	100.0	115	115	775
79.00	3,050	218.0	1,668	1,782	3,765

Device	Routing	Invert	Outlet Devices
#1	Primary	77.84'	**4.0" x 25.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 76.86' S= 0.0392 '/' Cc= 0.900 n= 0.013 Clay tile

Primary OutFlow Max=0.27 cfs @ 12.47 hrs HW=78.67' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.27 cfs @ 3.09 fps)

Pond 3P:


Hydrograph
Inflow
Primary
1.01 cfs
0.27 cfs
Inflow Area=0.310 ac
Peak Elev=78.67'
Storage=948 cf
4.0" x 25.0' Culvert
Flow (cfs)
0
1
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Time (hours)

Pond 4P:

Inflow Area = 0.234 ac, Inflow Depth = 2.72" for 10-YEAR EVENT event
Inflow = 0.70 cfs @ 12.11 hrs, Volume= 0.053 af
Outflow = 0.48 cfs @ 12.21 hrs, Volume= 0.038 af, Atten= 31%, Lag= 6.0 min
Primary = 0.48 cfs @ 12.21 hrs, Volume= 0.038 af

Routing by Stor-Ind method, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 88.32' @ 12.21 hrs Surf.Area= 2,030 sf Storage= 785 cf

Plug-Flow detention time= 154.0 min calculated for 0.038 af (72% of inflow)
Center-of-Mass det. time= 60.8 min (884.4 - 823.6)

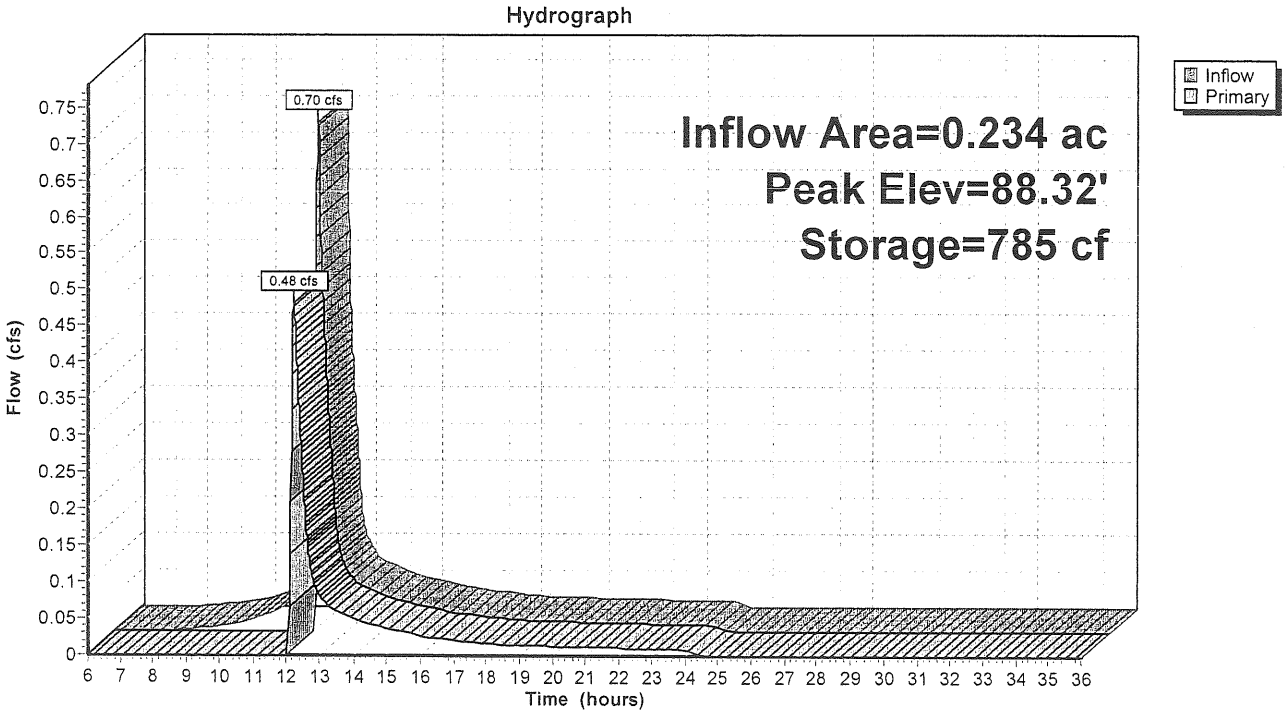
Volume	Invert	Avail.Storage	Storage Description
#1	87.50'	1,217 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
87.50	275	110.0	0	0	275
88.00	1,030	175.0	306	306	1,751
88.50	2,750	225.0	911	1,217	3,346

Device	Routing	Invert	Outlet Devices
#1	Primary	88.25'	**10.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.48 cfs @ 12.21 hrs HW=88.32' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.48 cfs @ 0.70 fps)

Pond 4P:


Hydrograph
Inflow
Primary
0.70 cfs
0.48 cfs
Inflow Area=0.234 ac
Peak Elev=88.32'
Storage=785 cf
Flow (cfs)
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5 0.55 0.6 0.65 0.7 0.75
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Time (hours)

Time span=6.00-36.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Runoff Area=1.693 ac Runoff Depth=3.53"
Flow Length=520' Tc=14.8 min CN=82 Runoff=5.31 cfs 0.498 af

Subcatchment 2: Runoff Area=0.593 ac Runoff Depth=3.53"
Flow Length=205' Tc=10.6 min CN=82 Runoff=2.10 cfs 0.174 af

Subcatchment 3: Runoff Area=0.310 ac Runoff Depth=3.53"
Flow Length=130' Tc=6.2 min CN=82 Runoff=1.27 cfs 0.091 af

Subcatchment 4: Runoff Area=0.234 ac Runoff Depth=3.43"
Flow Length=65' Slope=0.0150 '/' Tc=8.0 min CN=81 Runoff=0.88 cfs 0.067 af

Subcatchment 5: Runoff Area=0.140 ac Runoff Depth=3.24"
Flow Length=90' Tc=11.3 min CN=79 Runoff=0.45 cfs 0.038 af

Reach SP1: To Grafton St. Inflow=3.19 cfs 0.757 af
Outflow=3.19 cfs 0.757 af

Reach SP2: Inflow=1.21 cfs 0.090 af
Outflow=1.21 cfs 0.090 af

Pond 1P: Peak Elev=75.29' Storage=6,572 cf Inflow=7.45 cfs 0.763 af
12.0" x 100.0' Culvert Outflow=3.19 cfs 0.757 af

Pond 2P: Peak Elev=75.93' Storage=371 cf Inflow=2.36 cfs 0.265 af
15.0" x 19.0' Culvert Outflow=2.14 cfs 0.265 af

Pond 3P: Peak Elev=78.81' Storage=1,254 cf Inflow=1.27 cfs 0.091 af
4.0" x 25.0' Culvert Outflow=0.30 cfs 0.090 af

Pond 4P: Peak Elev=88.34' Storage=836 cf Inflow=0.88 cfs 0.067 af
Outflow=0.76 cfs 0.052 af

Total Runoff Area = 2.970 ac Runoff Volume = 0.868 af Average Runoff Depth = 3.51"
83.57% Pervious Area = 2.482 ac 16.43% Impervious Area = 0.488 ac

Subcatchment 1:

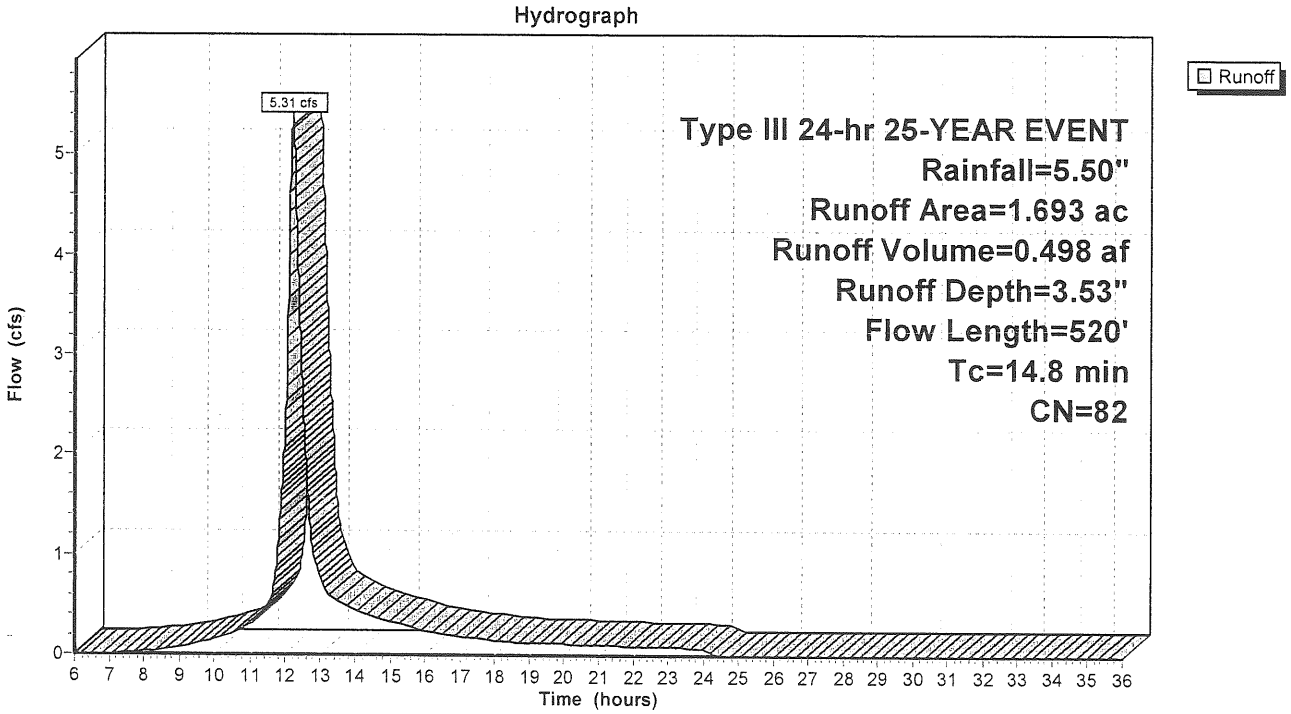
Runoff = 5.31 cfs @ 12.20 hrs, Volume= 0.498 af, Depth= 3.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR EVENT Rainfall=5.50"

Area (ac)	CN	Description
0.087	98	Roofs
0.157	98	Road, driveway, parking
1.026	80	>75% Grass cover, Good, HSG D
0.132	73	Brush, weeds, grass, Good, HSG D
0.291	79	Woods/grass comb., Good, HSG D
1.693	82	Weighted Average
1.449		Pervious Area
0.244		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	55	0.0400	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	75	0.0270	2.46		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
0.7	140	0.0550	3.52		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
2.9	150	0.0300	0.87		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
0.3	100	0.0130	5.00	9.99	**Trap/Vee/Rect Channel Flow, E-F** Bot.W=1.00' D=1.00' Z= 1.0 '/' Top.W=3.00' n= 0.022 Earth, clean & straight
14.8	520	Total			

Subcatchment 1:



Subcatchment 2:

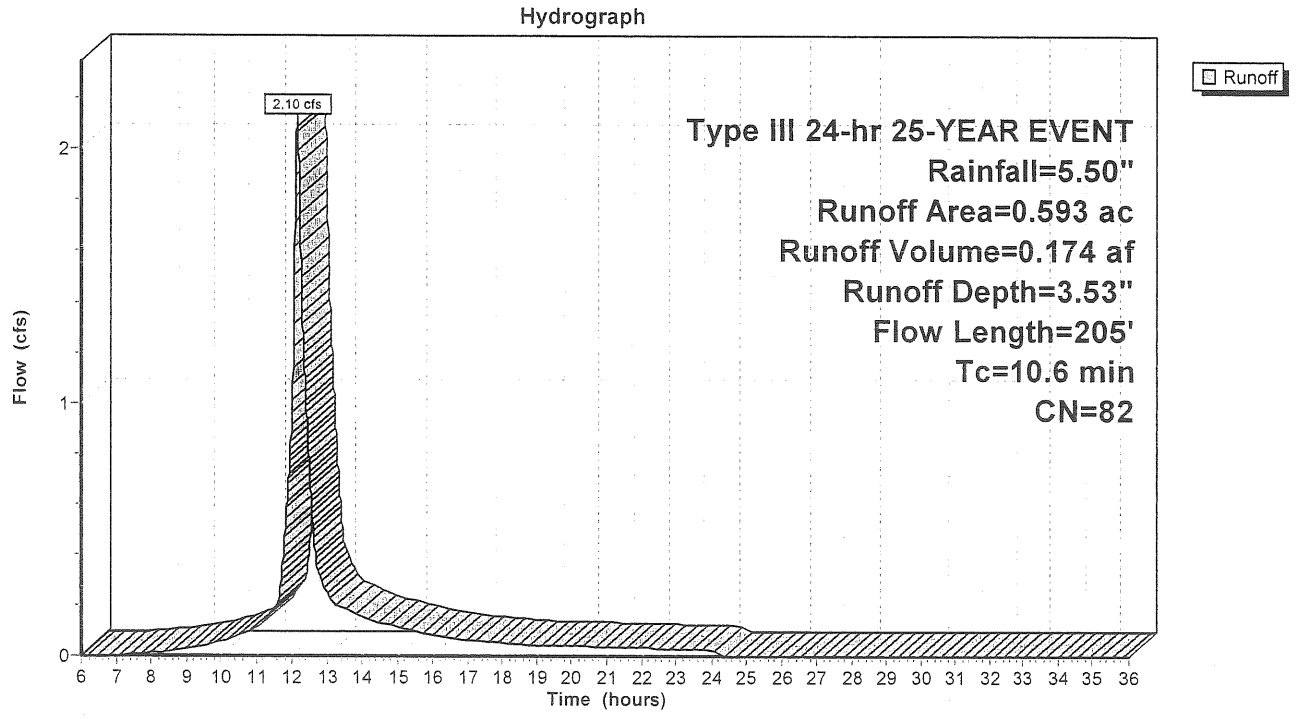
Runoff = 2.10 cfs @ 12.14 hrs, Volume= 0.174 af, Depth= 3.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR EVENT Rainfall=5.50"

Area (ac)	CN	Description
0.035	98	Roofs
0.144	98	Road, drivways & parking
0.099	80	>75% Grass cover, Good, HSG D
0.315	73	Brush, weeds, grass, Good, HSG D
0.593	82	Weighted Average
0.414		Pervious Area
0.179		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	45	0.0200	0.14		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.00"
0.1	15	0.0400	4.06		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
5.2	145	0.0350	0.47		**Shallow Concentrated Flow, C-D** Forest w/Heavy Litter Kv= 2.5 fps
10.6	205	Total			

Subcatchment 2:



Subcatchment 3:

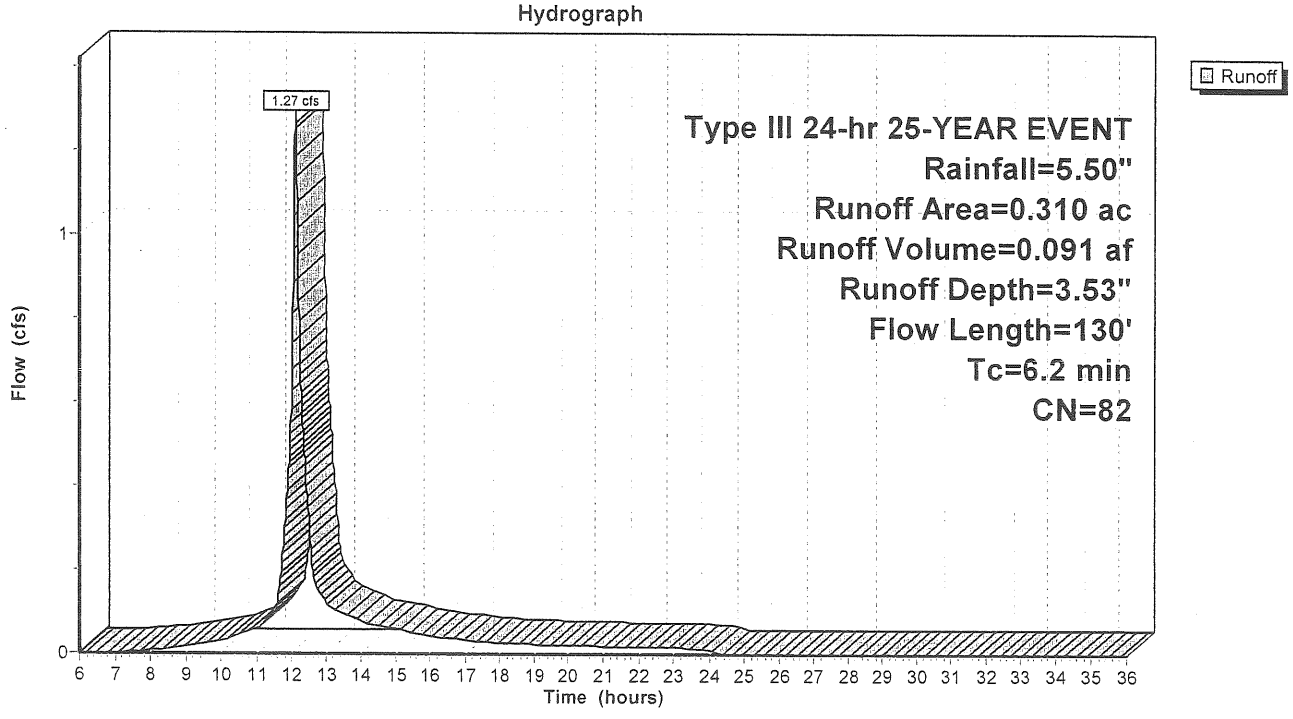
Runoff = 1.27 cfs @ 12.09 hrs, Volume= 0.091 af, Depth= 3.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR EVENT Rainfall=5.50"

Area (ac)	CN	Description
0.041	98	Roofs
0.269	80	>75% Grass cover, Good, HSG D
0.310	82	Weighted Average
0.269		Pervious Area
0.041		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.0200	0.14		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.00"
0.4	80	0.0400	3.00		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
6.2	130	Total			

Subcatchment 3:



Subcatchment 4:

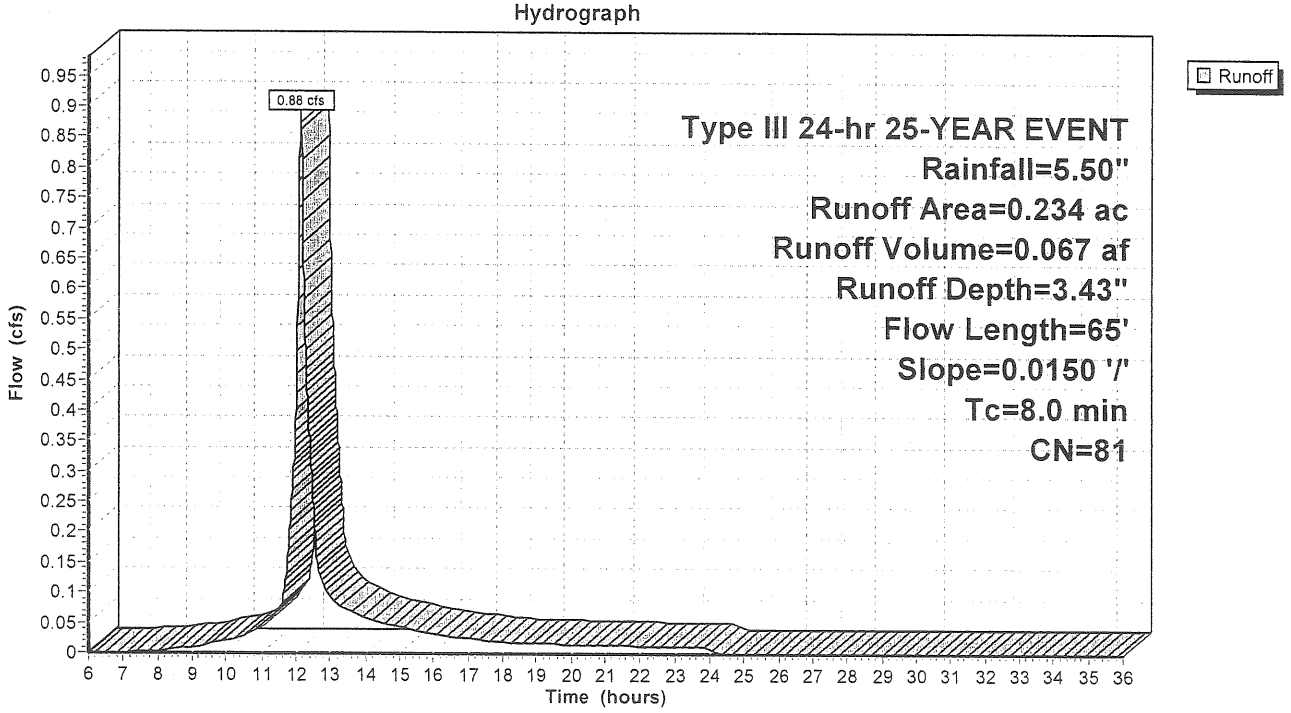
Runoff = 0.88 cfs @ 12.11 hrs, Volume= 0.067 af, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR EVENT Rainfall=5.50"

Area (ac)	CN	Description
0.024	98	Roofs
0.032	73	Brush, weeds, grass, Good, HSG D
0.178	80	>75% Grass cover, Good, HSG D
0.234	81	Weighted Average
0.210		Pervious Area
0.024		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	65	0.0150	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.00"

Subcatchment 4:



Subcatchment 5:

Runoff = 0.45 cfs @ 12.16 hrs, Volume= 0.038 af, Depth= 3.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR EVENT Rainfall=5.50"

Area (ac)	CN	Description
0.118	79	Woods/grass comb., Good, HSG D
0.022	80	>75% Grass cover, Good, HSG D
0.140	79	Weighted Average
0.140		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	70	0.0570	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
0.3	20	0.0300	1.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
11.3	90	Total			

Subcatchment 5: