

CITY OF LEWISTON
PLANNING BOARD MEETING
Monday, July 10, 2017 – 5:30 P.M.
City Council Chambers – First Floor
Lewiston City Building
27 Pine Street, Lewiston, ME

AGENDA

I. ROLL CALL

II. ADJUSTMENTS TO THE AGENDA: None

III. CORRESPONDENCE: None

IV. PUBLIC HEARINGS:

- a) A request by Stoneybrook Consultants on behalf of Eric Wing to construct a new 1,200 square foot building at 545 Pleasant Street to operate a tattoo establishment.

V. OTHER BUSINESS:

- a) Update on parking conditions in the vicinity of Bates College Housing at 55 & 65 Campus Avenue.
- b) Any other business Planning Board Members may have relating to the duties of the Lewiston Planning Board.

VI. READING OF THE MINUTES: Motion to adopt the June 26, 2017 draft minutes

VII. ADJOURNMENT



CITY OF LEWISTON

Department of Planning & Code Enforcement

TO: Planning Board
FROM: David Hediger, City Planner
DATE: June 6, 2017
RE: June 10, 2017 IV(a)

A request by Stoneybrook Consultants on behalf of Eric Wing to construct a new 1,200 square foot building at 545 Pleasant Street to operate a tattoo establishment.

Stoneybrook Consultants has submitted an application on behalf of Eric Wing to construct a new 1,200 square foot building at 545 Pleasant Street to operate a tattoo establishment. This vacant lot of 10,169 square feet is located in the Highway Business (HB) district in which said use is allowed as a conditional use. Therefore, in addition to addressing the development review criteria of Article XIII, Section 4 of the Zoning and Land Use Code, the applicant has addressed the conditional use criteria pursuant Article X, Sections 3, 4 and 5. The project is also subject to the modification criteria of Article IX, Section 3(10) and the locational criteria for tattoo establishments in Article XII, Section 9.

Staff has worked closely with the applicant and notes the following:

- 1) Given the grades of this small site and the proposed increase of 3,287 square feet of new impervious area, the applicant has provided a stormwater design to avoid creating and adverse impacts to abutting properties. The total proposed impervious area will be 0.52. The maximum impervious area allowed in the HB is 0.75. The stormwater design has been reviewed to the satisfaction of staff. The applicant has acknowledged an inspection of the storm water system shall be provided to the city by the designing engineer along with a final written statement indicating that the storm water system and all site improvements have been completed in accordance with the approved plans prior issuance of a certificate of occupancy. Staff recommends this be noted on the approved site plan.
- 2) Side and rear setback requirements in the HB district are 20'. Given the small size of the lot, the applicant has requested modifications to build 13.5' from the east property line, 12' from the rear property line, and 11' from the west property line. The applicants Response to Ordinance Requirements (pages 1-2) specifically addresses the provisions of Article IX, Section 3(10) that allow for the Board to grant the requested modifications.
- 3) Article XII, Section 9 of the aforementioned code references the density of adult business establishments, tattoo establishments, and drinking places. These provisions are intended to permit the location of such establishments within the community, yet ensure that they will not become overly concentrated in neighborhoods or areas to the detriment of other uses. The code requires that the minimum distance between an adult business establishment, tattoo establishment, and/or drinking place and any two other adult business establishments, tattoo establishments, and/or drinking places in the same or adjoining zoning district shall be 500 feet for businesses located in any other district as measured along the ordinary course of travel between the main entrance of each premises. The applicant currently operates his tattoo business within 500' of this site at 1384 Lisbon Street (Altered Image Tattoo). He will be relocating to this new site once the project is

completed. Regardless of his relocation, the operation of a tattoo establishment at this site meets the locational criterial of Article XII, Section 9.

- 4) The applicant has provided a total of eight parking spaces, plus three spaces for motorcycles. The tattoo establishment proposes to occupy the first floor of the structure (i.e. approximately 1,200 sf) with the daylight basement available as accessory space for storage. The parking provided exceeds the code's requirements for use of the first floor and provides enough spaces in event the applicant wants to expand operations to the daylight basement.
- 5) Tattoo establishments are subject to the conditional use criteria of Article X, Sections 3, 4 and 5. The applicant has addressed these criteria in their Response to Ordinance Requirements (pages 2-4).
- 6) The applicant has addressed the applicable development review criteria of Article XIII, Section 4 in their Response to Ordinance Requirements (pages 4-6).
- 7) A 6' stockade fence is proposed as a buffer to the abutting residential use along the northwesterly property, meeting code requirements.

Staff has no additional comments at this time. Staff recommends approval of the proposed project with the following condition:

- Prior to any certificate of occupancy being issued, evidence of a final inspection of the storm water system shall be provided to the city by the designing engineer along with a written statement indicating that the storm water system and all site improvements have been completed in accordance with the approved plans.

ACTION NECESSARY

Make a motion that the application submitted by Stoneybrook Consultants on behalf of Eric Wing to construct a new 1,200 square foot building at 545 Pleasant Street to operate a tattoo establishment meets all of the necessary criteria contained in the Zoning and Land Use Code, including but not limited to Article IX, Section 3(10), Article X, Sections 3, 4 and 5, Article XII, Section 9, and Article XIII, Section 4 of the Zoning and Land Use Code, and that approval be granted (including, if any, specific conditions raised by the Planning Board or staff).



Stoneybrook Consultants, Inc.

456 Buckfield Road
Turner, Maine 04282
(207) 514-7491 voice
(207) 514-7492 fax

June 8, 2017

David Hediger, City Planner
Department of Planning & Code Enforcement
City of Lewiston
27 Pine Street
Lewiston, ME 04240-7201

Re: Eric Wing
545 Pleasant Street

Dear David:

On behalf of Eric Wing, I am pleased to submit this information as his request for approvals to construct a new building for his existing Tattoo business, known as Altered Image Tattoo. The parcel selected for his new construction is located at 545 Pleasant Street and is adjacent to his current business location at 1384 Lisbon Street. The parcel is shown on your GIS mapping system as Tax Map 124, Lot 10 and is located in the Highway Business Zoning District where the proposed use is considered a conditional use.

The property is currently owned by Brian and Dawn Moore. The Moores also own the building in which Eric is currently operating. We have attached a copy of the Moore deed for this property and a letter of Authorization to Pursue Approvals signed by Mr. Moore. The intent is for Mr. Moore to construct all of the proposed improvements and, once complete, sell the property with these new improvements to Eric.

I have attached a survey of the property completed by Davis Land Surveying, LLC (Davis). I have also attached a full set of site plans for the project prepared by SJR Engineering, Inc. (SJR). The survey shows that the parcel has about 71' of frontage on Pleasant Street and contains about 10,100 square feet. The survey also

shows existing condition contours, but does not show the two buildings that were recently removed by the Moores. Based upon your GIS system, those buildings included a total of 1,261 square feet. Total impervious area on the property is 1,981 square feet when you add the existing driveway improvements.

Eric intends to construct a new building with a footprint of about 1,200 square feet. To take advantage of the existing site grades, the building will also have a full walk out basement. We have also shown a 10' by 20' deck on the rear of the building at both the first floor and basement levels. These building improvements can be seen on the attached SJR Plan Set. Given the size of the property, we are requesting reduced side and rear setbacks from 20' to accommodate these proposed improvements. We are requesting a 33% reduction (13.5' proposed) to the east property line, a 40% reduction (12' proposed) along the rear property line and a 45% reduction (11' proposed) along the west property line. Responses to the Ordinance Requirements are attached to support these reduction requests.

The project, as proposed, creates a total of 5,268 square feet of new impervious area which is an increase of about 3,287 square feet over existing conditions. With 1,181 square feet of building area, the Lot Coverage will be 0.12 where the ordinance allows a Lot Coverage of 0.50. Total impervious area proposed will be 5,268 square feet. Impervious Coverage will be 0.52 and your ordinance allows 0.75. The project will disturb 0.2 acres. There are no wetland areas on the property.

Your ordinance would require 1 parking space per 300 square feet of floor space for professional and business offices. This would require 4 parking spaces for this project. Eric intends to have four work stations in the new building to serve a total of four tattoo artists and four customers. We have provided 7 regular spaces, 1 compact space and 3 spaces for motorcycle parking.

Normal hours are posted as Monday through Saturday 9 AM to 7 PM, Sundays and some holidays by appointment only. Each artist will set their own schedule and are not available during all hours of operations posted. Peak use normally occurs between 2 PM and 4 PM. Traffic is expected to be less than 16 peak hour trips during the PM peak hour.

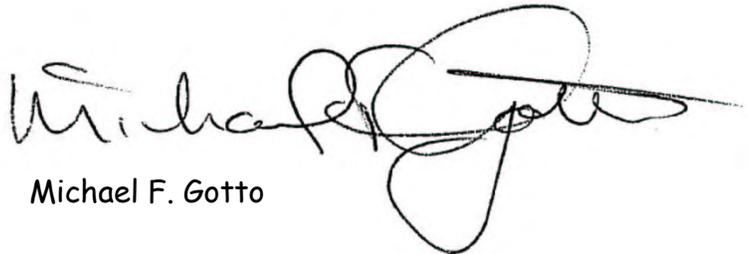
June 8, 2017
David Hediger
RE: 545 Pleasant Street
Page 3

We have attached a Stormwater Report prepared by SJR outlining the details of the stormwater controls proposed for this project. These proposed stormwater improvements have been designed to control the quantity of peak stormwater runoff from the increase in impervious areas proposed by this project. Stormwater quality treatment is not required, but the proposed improvements, specifically the stone drip edges, will provide some treatment at this site. The report also includes MS4 information, maintenance requirements and it outlines erosion and sediment control for the properties.

To support the application, we have included the application form, responses to several ordinance sections and several project graphics. Construction of the improvements are planned to begin as soon as the project is approved. This project is expected to cost about \$175,000. Construction will be funded by Mr. Moore with funds he has available. The building and new site improvements will be completed by Fall. We hope you find the attached information sufficient for approval of this use at this site. Should you have any questions, please call.

Respectfully yours,

STONEBROOK CONSULTANTS, INC.

A handwritten signature in black ink, appearing to read "Michael F. Gotto", with a long horizontal flourish extending to the right.

Michael F. Gotto

cc: Eric Wing
Brian Moore

PROJECT DATA

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

IMPERVIOUS SURFACE AREA/RATIO

Existing Total Impervious Area	<u>1,981</u> sq. ft.
Proposed Total Paved Area	<u>4,087</u> sq. ft.
Proposed Total Impervious Area	<u>5,268</u> sq. ft.
Proposed Impervious Net Change	<u>3,287</u> sq. ft.
Impervious surface ratio existing	<u>19.6</u> % of lot area
Impervious surface ratio proposed	<u>52.0</u> % of lot area

BUILDING AREA/LOT

COVERAGE

Existing Building Footprint	<u>1,261</u> sq. ft.
Proposed Building Footprint	<u>1,181</u> sq. ft.
Proposed Building Footprint Net change	<u>-80</u> sq. ft.
Existing Total Building Floor Area	<u>1,261</u> sq. ft.
Proposed Total Building Floor Area	<u>1,181</u> sq. ft.
Proposed Building Floor Area Net Change	<u>-80</u> sq. ft.
New Building	<u>Yes</u> (yes or no)
Building Area/Lot coverage existing	<u>12.5</u> % of lot area
Building Area/Lot coverage proposed	<u>11.6</u> % of lot area

ZONING

Existing	<u>Highway Business</u>
Proposed, if applicable	<u>N/A</u>

LAND USE

Existing	<u>Single Family Home</u>
Proposed	<u>Tattoo Business</u>

RESIDENTIAL, IF APPLICABLE

Existing Number of Residential Units	<u>N/A</u>
Proposed Number of Residential Units	<u>N/A</u>
Subdivision, Proposed Number of Lots	<u>N/A</u>

PARKING SPACES

Existing Number of Parking Spaces	<u>N/A</u>
Proposed Number of Parking Spaces	<u>8</u>
Required Number of Parking Spaces	<u>4</u>
Number of Handicapped Parking Spaces	<u>1</u>

ESTIMATED COST OF PROJECT

<u>\$175,000</u>

DELEGATED REVIEW AUTHORITY CHECKLIST

SITE LOCATION OF DEVELOPMENT AND STORMWATER MANAGEMENT

Existing Impervious Area	<u>1,981</u> sq. ft.
Proposed Disturbed Area	<u>10,120</u> sq. ft.
Proposed Impervious Area	<u>5,268</u> sq. ft.

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

TRAFFIC ESTIMATE

Total traffic estimated in the peak hour-existing (Since July 1, 1997)	<u>2</u> passenger car equivalents (PCE)
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Total traffic estimated in the peak hour-proposed (Since July 1, 1997)	<u>16</u> passenger car equivalents (PCE)
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If the proposed increase in traffic exceeds 100 one-way trips in the peak hour then a traffic movement permit will be required.

Zoning Summary

1. Property is located in the **Highway Business** zoning district.
 2. Parcel Area: _____ acres / **10,129** square feet(sf).

Regulations	Required/Allowed	Provided
Min Lot Area	None	/ 10,129 s.f.
Street Frontage	150'	/ 71'
Min Front Yard	15'	/ 15'
Min Rear Yard	20'	/ 12'
Min Side Yard	20'	/ 11'/13.5'
Max. Building Height	65'	/ 28'
Use Designation	Tattoo	/ Tattoo
Parking Requirement	1 space/ per 300 square feet of floor area	
Total Parking:	4	/ 8
Overlay zoning districts (if any):	_____ / _____ / _____	
Urban impaired stream watershed?	YES/NO If yes, watershed name Hartt Brook	

DEVELOPMENT REVIEW APPLICATION SUBMISSION

Submission shall include payment of fee and fifteen (15) complete packets containing the following materials:

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

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

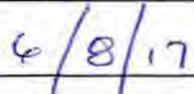
L/A's development review process and requirements have been made similar for convenience and to encourage development. Each City's ordinances are available online at their prospective websites:

Auburn: www.auburnmaine.org, under City Departments/ Planning and Permitting/Land Use Division/Zoning Ordinance.

Lewiston: <http://www.ci.lewiston.me.us/clerk/ordinances.htm>. Refer to Appendix A of the Code of Ordinances

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

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

Signature of Applicant: 	Date: 
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Development Review Checklist

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



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

PROJECT NAME: Eric Wing - Altered Image Tattoo

PROPOSED DEVELOPMENT ADDRESS and PARCEL #: 545 Pleasant Street 124-10

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

	Planting Schedule				
Stormwater & Erosion Control Plan					
	Compliance w/ chapter 500	✓			
	Show Existing Surface Drainage	✓			
	Direction of Flow	✓			
	Location of Catch Basins, etc.	✓			
	Drainage Calculations	✓			
	Erosion Control Measures	✓			
	Maine Construction General Permit				
	Bonding and Inspection Fees				
	Post-Construction Stormwater Plan	✓			
	Inspection/monitoring requirements	✓			
	Third Party Inspections (Lewiston only)				
Lighting Plan					
	Full cut-off fixtures	✓			
	Meets Parking Lot Requirements				
Traffic Information					
	Access Management				
	Signage				
	PCE - Trips in Peak Hour	✓			
	Vehicular Movements	✓			
	Safety Concerns				
	Pedestrian Circulation				
	Police Traffic				
	Engineering Traffic				
Utility Plan					
	Water	✓			
	Adequacy of Water Supply				
	Water main extension agreement				
	Sewer	✓			
	Available city capacity				
	Electric	✓			
	Natural Gas	✓			
	Cable/Phone	✓			
Natural Resources					
	Shoreland Zone				
	Flood Plain				
	Wetlands or Streams				
	Urban Impaired Stream	✓			
	Phosphorus Check				
	Aquifer/Groundwater Protection				
	Applicable State Permits				
	No Name Pond Watershed (Lewiston only)				

	Lake Auburn Watershed (Auburn only)				
	Taylor Pond Watershed (Auburn only)				
Right Title or Interest					
	Verify	✓			
	Document Existing Easements, Covenants, etc.				
Technical & Financial Capacity					
	Cost Est./Financial Capacity				
	Performance Guarantee				
State Subdivision Law					
	Verify/Check				
	Covenants/Deed Restrictions				
	Offers of Conveyance to City				
	Association Documents				
	Location of Proposed Streets & Sidewalks				
	Proposed Lot Lines, etc.				
	Data to Determine Lots, etc.				
	Subdivision Lots/Blocks				
	Specified Dedication of Land				
Additional Subdivision Standards					
	Single-Family Cluster (Lewiston only)				
	Multi-Unit Residential Development (Lewiston only)				
	Mobile Home Parks				
	Private Commercial or Industrial Subdivisions (Lewiston only)				
	PUD (Auburn only)				
A jpeg or pdf of the proposed site plan					
Final sets of the approved plans shall be submitted digitally to the City, on a CD or DVD, in AutoCAD format R 14 or greater, along with PDF images of the plans for archiving					



Stoneybrook Consultants, Inc.

456 Buckfield Road
Turner, Maine 04282
(207) 514-7491 voice
(207) 514-7492 fax

July 5, 2017

David Hediger, City Planner
Department of Planning & Code Enforcement
City of Lewiston
27 Pine Street
Lewiston, ME 04240-7201

Re: Eric Wing - Altered Image Tattoo
545 Pleasant Street

Dear David:

On behalf of Eric Wing and Altered Image Tattoo, please accept this letter in response to staff review comments. I have copied each comment below and have provided a response to each of them to help in your review of my responses.

Hediger June 28, 2017 review comments:

1. The project is located in an urbanized area. However, area of disturbance is less than one acre, and therefore, is not subject to the MS4 stormwater requirements of Article XIII, Section 15. Annual maintenance is required of the stormwater improvements; however post-construction stormwater management guarantee does not need to be recorded at the Registry of Deeds.

No response required.

2. Prior to any certificate of occupancy being issued evidence of a final inspection of the storm water system shall be provided to the city by the designing engineer along with a written statement indicating that the storm water system and all site improvements have been completed in accordance with the approved plans.

The Applicant will comply with these requirements.

3. Detail on exterior lighting is needed. Lighting must be shield/cut-off fixtures. Pole light should not exceed 20' in height. A photometric plan is not required, but the applicant should ensure exterior lighting is meeting the requirements of the 2009 International Building Code (i.e. that 1 foot-candle is provided from any means of egress from the building to Pleasant Street).

The lighting proposed will be shielded/cut-off fixtures mounted on poles that will not exceed 20' in height. Lighting will meet the 2009 International Building Code requirements for any means of egress from the building to Pleasant Street.

4. Please note on the plan areas that are being loamed and seeded. This is being required to avoid changes during construction were contractors mulch or rip-rap areas when the intent was for yards to be seeded.

These areas have been noted on the revised plans attached.

Barnes June 27, 2017 review comments:

1. A level lip spreader should be considered in place of the rip rap apron given in the nature of the grades at the proposed site.

The plans have been revised to show a level lip spreader as requested.

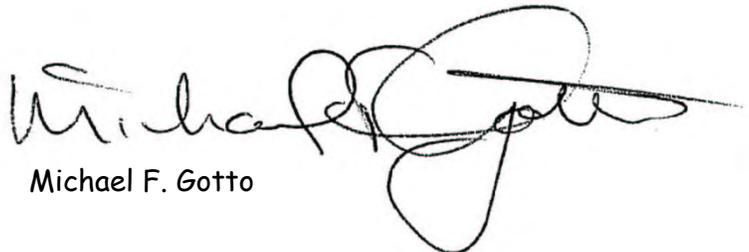
2. The plans referenced a detail for a Stabilized Construction Entrance but one is not included on the detail sheet.

The detail sheet has been revised to include a stabilized construction entrance.

I trust you will find that these responses address your review comments. Should you have any questions, please call.

Respectfully yours,

STONEBROOK CONSULTANTS, INC.



Michael F. Gotto

cc: Eric Wing
Brian Moore

**Eric Wing
32 Ivanhoe Drive
Topsham, ME 04086**

To Whom It May Concern:

The signature below authorizes Stoneybrook Consultants, Inc. to act as the applicant's agent in the processing of the enclosed application.



Eric Wing, applicant

ERIC A. WING

(print name)

Brian Moore
245 Old Webster Road
Lewiston, ME 04240

April 3, 2017

To Whom It May Concern:

On behalf of myself and my wife, Dawn Moore, with a mailing address of 245 Old Webster Road Lewiston, Maine 04240, being the current owners of property located at 545 Pleasant Street in Lewiston, Maine, said property being listed on the City of Lewiston Tax Map 124 as Lot 10, I authorize Eric Wing to file and pursue site plan review for construction of a new building with parking area improvements on my land and to secure approvals from the City of Lewiston for construction of those improvements.

Brian Moore

Brian Moore

Dawn Moore

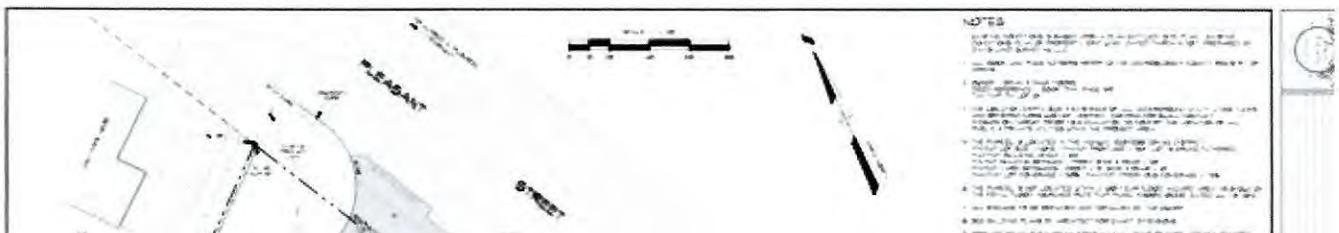
Dawn Moore

Brian Moore

(print name)

Dawn Moore

(print name)



June 8, 2017

Response to Ordinance Requirements

Article IX, Section 3. (10)

Under Article IX, Section 3. (10), the Planning Board is allowed to modify these setback requirements by more than 25% but less than 50%. The side and rear setback requirement are 20' and we have proposed to reduce these requirement by a 33% reduction (13.5' proposed) along the east property line, by a 40% reduction (12' proposed) along the rear property line and by a 45% reduction (11' proposed) along the west property line.

To support all of the modifications requested and in response to the requirements of Article IX, Section 3. (9) a.- d., we offer the following:

- (a) The structures proposed on this site will be constructed in accordance with the current building code.
- (b) The reductions requested will not result in undue impact to adjacent properties due to the location of the structure. Placement of the structure as shown with a full walkout basement takes advantage of the significant existing grade change on the site and locates the parking areas adjacent to the street frontage. Stormwater flow will be controlled and there is no outside storage proposed. The proposed location will not block solar access.
- (c) The modifications requested will not impede public safety services from reaching or providing service to this site or adjacent properties.
- (d) This is not a residential project or an existing service station, so these requirements are not applicable to this project.

Given the existing topography of the property, the proposed structure location cannot be changed and still have room for the parking necessary to support this project. Given the lot size and shape, the previous building had a 10' side setback along the east boundary and a 2' setback along the west boundary. It is not practical to replace the former building with a new

structure of similar size without relief from the side and rear setbacks required in this district for uses allowed in the Highway Business District.

The building cannot be relocated on this lot to meet the applicant's building space and parking needs. The site layout has considered optional layouts and made adjustments to the architectural design by adding a full walkout basement to create what will be an aesthetically pleasing project for this neighborhood.

Article X, Section 3

(1) Value

(a) The size of the proposed use is comparable with existing commercial and residential uses in the neighborhood. This new building is similar in size to the prior improvements.

(b) Hours of operations will be similar to other commercial activities in the neighborhood. There will be limited changes in the amount or type of traffic generated in this area. The proposed paved areas or parking spaces will not be comparable to surrounding uses.

(c) There will be no increase in noise, dust, odor, vibration, glare, smoke, litter or other nuisances with this project.

(d) There will be no impact on the quality or quantity of groundwater with this project.

(e) This site layout has been designed to fit the unusual physical characteristics of this site and will not aggravate impacts upon surrounding properties.

(2) Vehicular and pedestrian access

(a) Peak hour traffic is expected to be less than 16 PM trips. Customers visiting this new facility are already using the neighborhood street to visit the existing business location on the adjacent lot. Safe internal access movements have been provided in accordance with all City design standards.

(b) The new driveway meets all City design standards.

(c) The site design has considered safe pedestrian movements by and through the site.

(3) Municipal or other facilities

(a) This project will use the existing sewer and water services.

(b) Stormwater flow will not be changed by this project.

(c) Access to the site for the fire department is available.

(4) Soils

The soils at this site have adequate capacity and stability to support the improvements proposed. This project will not create erosion. The improvements are not located in a floodplain or shoreland area.

(5) Scale and design

The new structure will be similar in size and construction as the prior structure onsite and will be compatible with the surrounding buildings.

Article X, Section 4

This project is not located in a shoreland area. Therefore, this section is not applicable.

Article X, Section 5

With this submittal, we request that the conditional use requested be valid for a period of two years from the date of approval.

Article XII, Section 9

- (1) There is no adult business establishment, tattoo establishment or drinking place within 300' of this proposed project.
- (2) There is no adult business establishment, tattoo establishment or drinking place within 500' of this proposed project.
- (3) Not Applicable

Article XIII, Section 4

- (a) *Utilization of the site* - This project proposes to maximize development in the usable areas of the site and control stormwater runoff from that development before it flows over the property line onto adjacent property as it did in the predeveloped conditions. Development has been proposed in the most suitable areas of the site and there are no sensitive environmental areas on the parcel.
- (b) *Traffic Movements* - This project will create about 16 vehicle trips in the PM peak hour. The entrance location meets City design standards.
- (c) *Access to the site* - Access to the project will be from Pleasant Street at a safe and convenient location with a driveway designed to City standards.
- (d) *Internal vehicular circulation* - Safe movements through the site have been provided.

- (e) *Pedestrian circulation* - The site design provides for safe pedestrian movements through the site.
- (f) *Stormwater management* - Stormwater management has been designed to meet City stormwater standards.
- (g) *Erosion control* - All improvements for this project will be completed under the requirements outlined on the plan sheet submitted. All erosion control measures proposed meet or exceed all City and MDEP requirements.
- (h) *Water supply* - The site will use the existing water service.
- (i) *Sewer disposal* - The site will use the existing sewer service.
- (j) *Utilities* - This project will connect to the existing overhead utility services along Pleasant Street.
- (k) *Natural features* - There is only limited natural vegetation on the property but, given the proposed changes to the existing site grades, the natural vegetation cannot be retained.
- (l) *Groundwater protection* - There will be no impact to groundwater resources by this project.
- (m) *Water and air pollution* - There will be no water or air pollution with this project.
- (n) *Exterior lighting* - There will be exterior lighting proposed on the buildings in this project to maintain safe lighting limits for vehicle and pedestrian movements.
- (o) *Waste disposal* - Waste generated by this project will be collected by the owner and disposed of with existing commercial waste contracts.
- (p) *Lot layout* - Not Applicable.

- (q) *Landscaping* - One street tree is proposed.
- (r) *Shoreland relationship* - Not applicable.
- (s) *Open space* - Not applicable.
- (t) *Technical and financial capacity* - The applicant has hired a design team to help him with this project. The application and design plans have been prepared by professionals qualified to perform this work. Mr. Moore owns a number of buildings and has experience constructing projects of this size.
- (u) *Buffering* - A 6' high solid fence is proposed along the west boundary line. This fence will connect to the existing 6' high solid fence along the rear portion of the west property line and along the rear property line.
- (v) *Compliance with district regulations* - Development of this lot as proposed meets all of the requirements of Article XI, Section 12 with the exception of side and rear setbacks where waivers have been requested.
- (w) *Design consistent with performance standards* - The improvements proposed will comply with the performance standards of Article XII, insofar as they may be applicable.

WARRANTY DEED

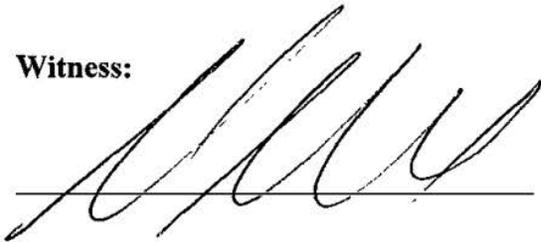
George J. Gendron of Lewiston, County of Androscoggin and State of Maine

("Grantor"), for consideration paid, grants to **Brian Moore** and **Dawn Moore** of said Lewiston ("Grantees"), as joint tenants, with **Warranty Covenants**, a certain lot or parcel of land, together with any buildings thereon, located in **Lewiston**, County of **Androscoggin** and State of **Maine**, as more fully described in Exhibit "A" attached hereto and made a part hereof.

In Witness Whereof, George J. Gendron has set his hand and seal this 30th day of August, 2007.

MAINE REAL ESTATE
TRANSFER TAX PAID

Witness:


George J. Gendron

STATE OF MAINE
ANDROSCOGGIN, SS.

August 30, 2007

Then personally appeared before me the above named **George J. Gendron** and acknowledged the foregoing instrument to be his free act and deed.

Before me,

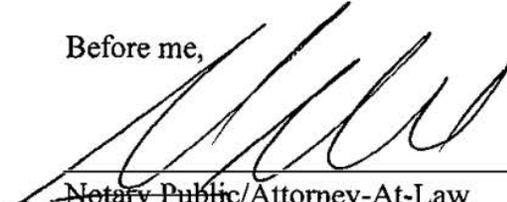

Notary Public/Attorney-At-Law
Print Name: Shawn K. Bell
My Commission Expires: 1/1A

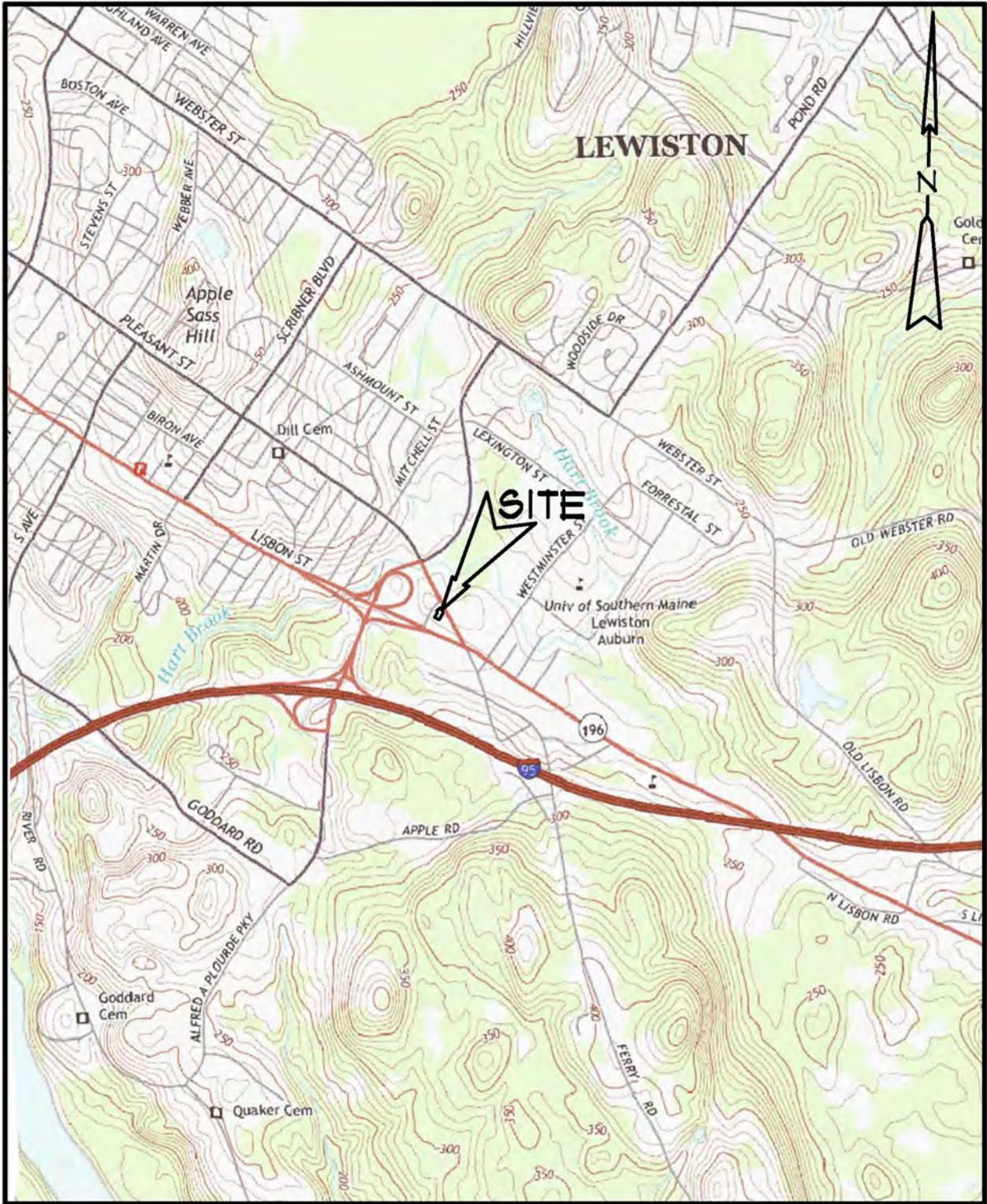
EXHIBIT "A"

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

Beginning at a point of the Westerly line of Pleasant Street as now located by the Androscoggin County Commissioners, said point being seventy-five (75) feet Southerly from the intersection of the said Westerly line of Pleasant Street with the Southerly line of Quimby Street; thence by a deflection angle to the right of seventy-seven degrees and twenty-five minutes ($77^{\circ} 25'$) and by land now or formerly of Ludger R. Deschenes, et al. seventy-six and six hundredths (76.06) feet to an angle; thence in a Southwesterly direction and by land now or formerly of said Deschenes to the Northeasterly line of Lot No. 106 as shown on a plan of Lisbon Street Gardens No. 1 and recorded in the Androscoggin County Registry of Deeds, at a point seventy-two (72) feet Southeasterly from the intersection of the said Northeasterly line of Lot No. 106 with the Southeasterly line of Quimby Street; thence in a Southeasterly direction by the said Northeasterly line of Lot No. 106 seventy and thirty-two hundredths (70.32) feet to the most Easterly corner of said Lot No. 106 and to the Northwesterly line of land now or formerly owned by Joseph and Alice Tourigny; thence in a Northeasterly direction by the said Northwesterly line of Tourigny's land to the said Westerly line of Pleasant Street; thence in a Northerly direction by the said Westerly line of Pleasant Street one and two tenths (1.2) feet to an angle in said street; thence in a Northerly direction by a deflection angle to the left of two degrees and twenty-eight minutes ($2^{\circ} 28'$) and by the said Westerly line of Pleasant Street seventy-one and two tenths (71.2) feet to land of said Deschenes and the point of beginning.

Being the same premises conveyed by Phillip M. Hall to George J. Gendron dated February 22, 2007, recorded in the Androscoggin County Registry of Deeds at Book 7063, Page 331.

ANDROSCOGGIN COUNTY
Tina M. Chaunard
REGISTER OF DEEDS



USGS LOCATION MAP

545 PLEASANT STREET - LEWISTON

APPLICANT: ERIC WING

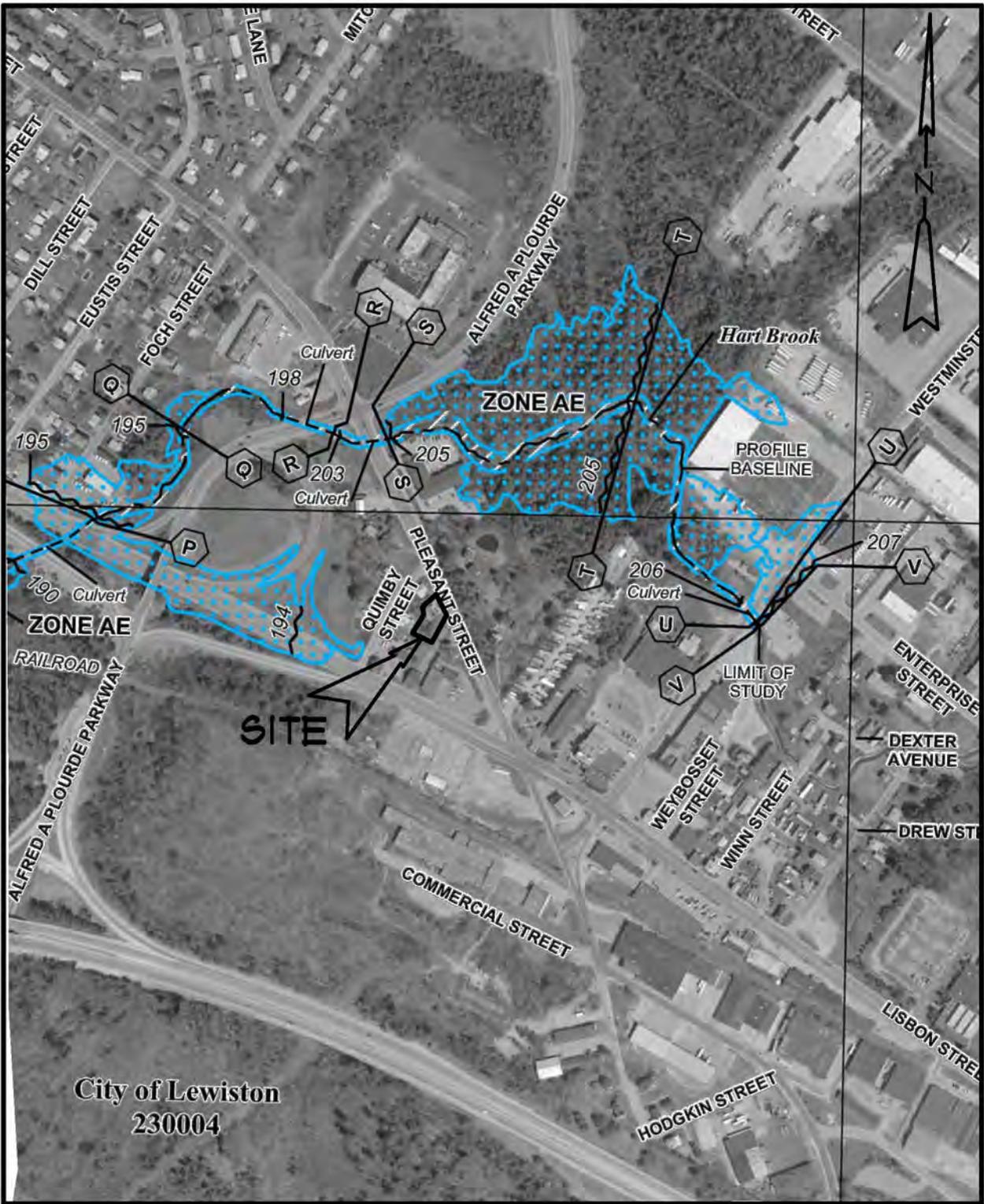
SCALE: 1" = 2,000'

DATE OF GRAPHIC: JUNE 5, 2017

SOURCE: MAINE OFFICE OF GIS

ORIGINAL PUBLICATION DATE: 1967

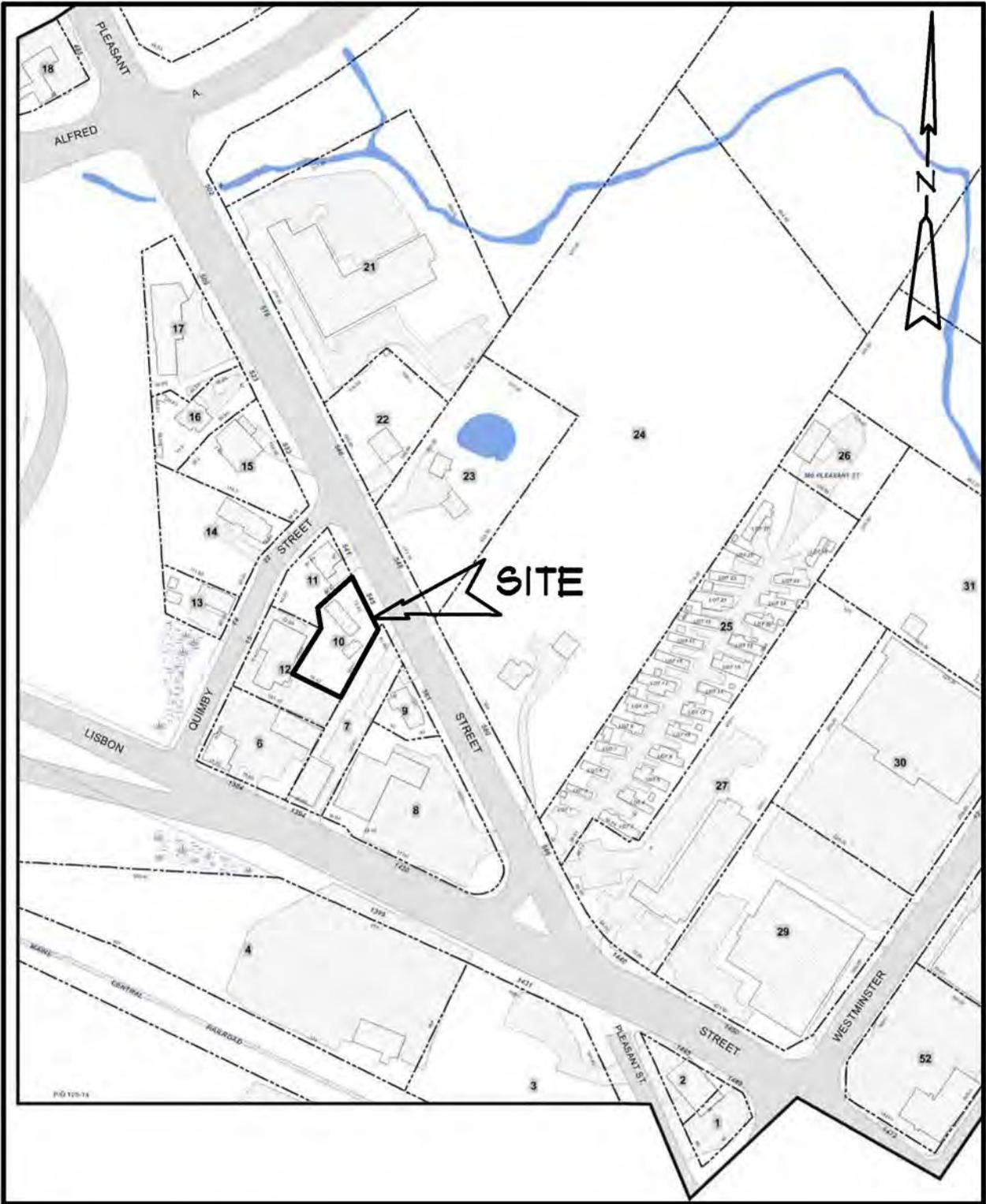
Stoneybrook
Consultants, Inc.



FLOOD MAP

545 PLEASANT STREET - LEWISTON
 APPLICANT: ERIC WING
 SCALE: 1" = 500'
 DATE OF GRAPHIC: JUNE 5, 2017
 SOURCE: FEMA FLOOD INSURANCE RATE MAP
 PUBLICATION DATE: JULY 8, 2013

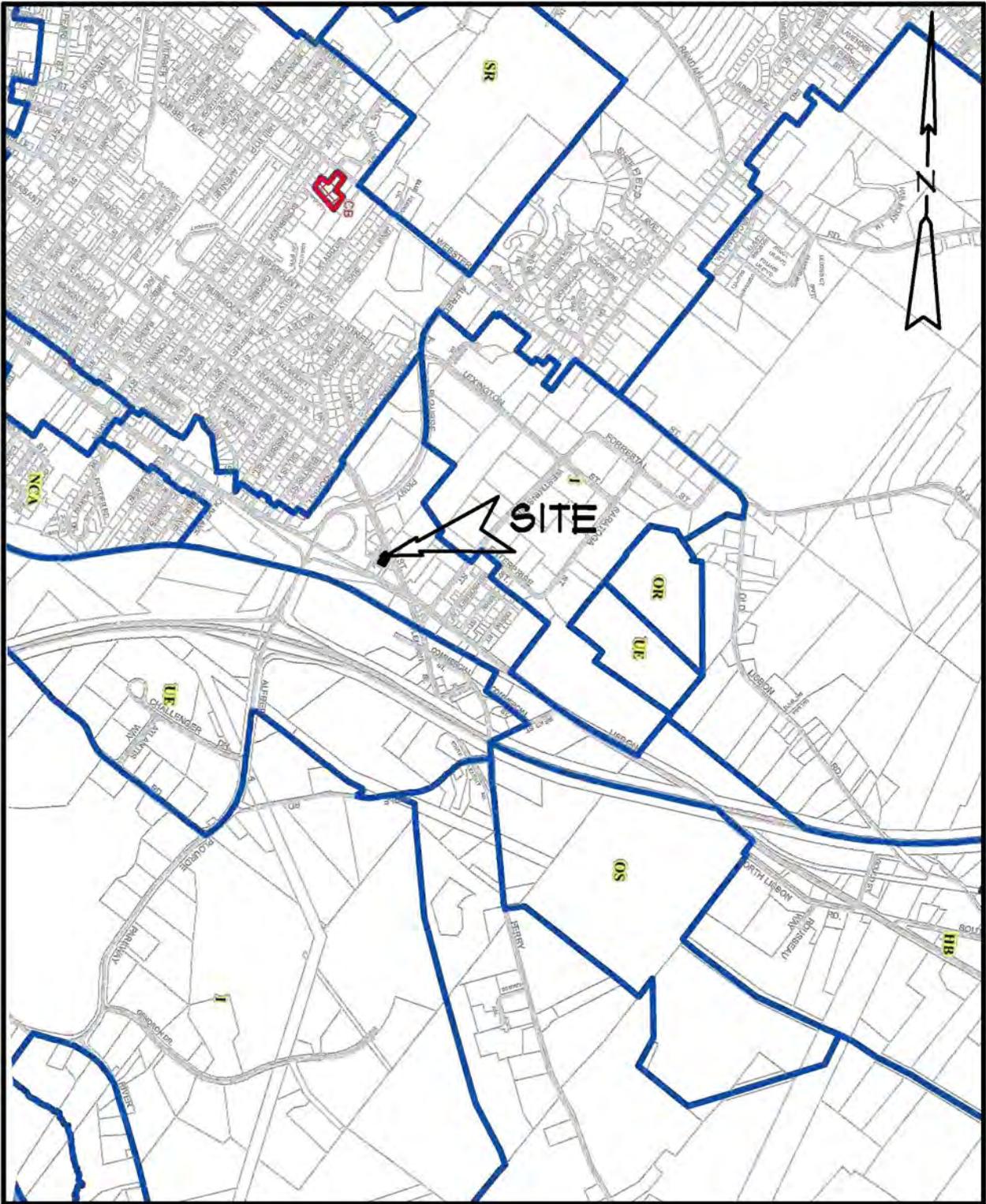
Stoneybrook
 Consultants, Inc.



TAX MAP

545 PLEASANT STREET - LEWISTON
APPLICANT: ERIC WING
SCALE: 1" = 200'
DATE OF GRAPHIC: JUNE 5, 2017
SOURCE: CITY OF LEWISTON TAX MAP
PUBLICATION DATE: APRIL 1, 2016

Stoneybrook
Consultants, Inc.



ZONING MAP

545 PLEASANT STREET - LEWISTON
APPLICANT: ERIC WING
SCALE: 1" = 2,000'
DATE OF GRAPHIC: JUNE 5, 2017
SOURCE: CITY OF LEWISTON ZONING MAP
PUBLICATION DATE: NOVEMBER 2015

Stoneybrook
Consultants, Inc.



AREA MAP

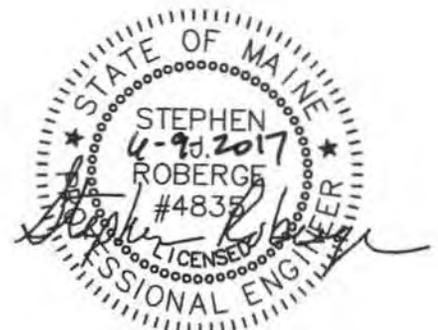
545 PLEASANT STREET - LEWISTON
APPLICANT: ERIC WING
SCALE: 1" = 300'
DATE OF GRAPHIC: JUNE 5, 2017
SOURCE: MAINE OFFICE OF GIS/CITY OF LEWISTON
PUBLICATION DATE: 2013/2015

Stoneybrook
Consultants, Inc.

Stormwater Analysis

545 Pleasant Avenue
Lewiston, Maine 04240

prepared by:
Steve Roberge
SJR Engineering Inc.
21 Mayflower Road
Augusta, Maine 04330
Tel/Fax: 1-207-622-1676



STORMWATER REPORT

545 PLEASANT AVENUE
LEWISTON, MAINE



This storm water report is prepared as part of a Development Review application for the construction of a new building and associated parking at property on 545 Pleasant Avenue Street.

This project will disturb a total of 10,129 sf including two new underground detention pond areas within the project area. The improvements to the site will result in 5,048 sf of impervious area. Erosion control information is included on the project plans and in this stormwater report.

Reference is made to the following site development drawings.

- Sheet 1 SITE PLAN
- Sheet 2 GRADING AND UTILITY PLAN
- Sheet 3 CONSTRUCTION DETAILS
- Sheet 4 CONSTRUCTION DETAILS
- Sheet WS-1 EXISTING CONDITIONS WATERSHED PLAN
- Sheet WS-2 PROPOSED CONDITIONS WATERSHED PLAN

Basic Standards

For this project, Basic Standards include the following elements.

- Erosion and Sedimentation Control Plan
 - General practices.
 - Temporary erosion and sedimentation control measures.
 - Temporary mulch/vegetation.
 - Permanent seeding.
 - Dust control.
- Inspection and maintenance
 - Inspection of Temporary E&S Control Measures.
 - Inspection of Permanent E&S Control Measures.
 - Emergency measures.
 - Annual maintenance.
 - General maintenance.
- Housekeeping

Information on each of these elements is presented in Appendix A. Included are inspection and maintenance forms for during construction and post construction, a City of Lewiston Annual Stormwater Management Facilities Certification Form, and a Post Construction Stormwater Management Plan performance guarantee document.

Flooding Standards

The flooding standards are met by the construction of underground and aboveground detention ponds.

The soil at this site is mapped primarily Charlton fine sandy loam which is classified as Hydrologic Soil Group B.

Pre-Development Flow Rates. For the purposes of this study, a total of 3 control points were established at the locations shown on sheet WS-1 of the plan set. Flows from the three design points exit the site at different locations.

The following table summarizes the peak runoff from the existing conditions.

PRE-DEVELOPED RUNOFF SUMMARY (cfs)			
Event	DP #A	DP#B	DP#C
2 yr	0.11	0.05	0.05
10 yr	0.20	0.14	0.14
25 yr	0.28	0.23	0.23

Detailed numbers are included in the Hydrocad Output in Appendix C.

Post Development Flow Rates.

The stormwater runoff from the site after construction of the site is shown on Sheet WS-2 in Appendix D. Stormwater flows are compared at the same Design Points as existing conditions.

Watershed 1: Flows draining towards Pleasant Street are generally cut in half by grading the site to other watershed areas (mostly to watershed 3).

Watershed 2: Flows within this watershed are captured and detained within an underground pipe that discharges into a lower detention pond. The upper pond has a 36" diameter pipe connection to the Catch Basin for the purposes of storing stormwater runoff during the 2, 10, and 25 year events. The 6" diameter outlet pipe from the catch basin has a capped inlet with a 2" diameter hole cut into the cap to limit the peak rate of flow leaving the catch basin. These detained flows are calculated in determining peak flow rates entering the lower detention pond at CB-2. The calculated ponded water height for each respective storm event is elevation 215.49, 216.23, and 216.81.

Watershed 3: Flows within this watershed are not detained by any structural methods. They are combined with other watersheds (areas 4 and 5) to determine allowable peak flow rates at Design Point C.

Watershed 4: Flows draining from the building/crushed stone mulched areas infiltrate into the ground and are captured within proposed underdrain systems and discharged into a lower pond area (CB-2). The upper pond has a 36" diameter pipe connection to the Catch Basin for the purposes of storing stormwater runoff during the 2, 10, and 25 year events. The 6" diameter outlet pipe from the catch basin has a capped inlet with a 2" diameter hole cut into the cap to limit the peak rate of flow leaving the catch basin. During a 25 year event, stormwater flows exceed the storage within the ponded area, allowing flows to enter watershed 3. These flows are calculated in determining peak flow rates at the design point. The calculated ponded water heights for each respective storm event is elevation 216.46, 217.84, and 219.99 (1" overflow).

Watershed 5: Flows within this watershed are captured and detained within CB-2 detention pond. Water enters the pond through a catch basin and is detained. A 45' long by 18" diameter pipe is to be installed to the catch basin for the purposes of storing stormwater runoff during the 2, 10, and 25 year events. The 6" diameter outlet pipe from the catch basin has a capped inlet with a 2" diameter hole cut into the cap to limit the peak flow rate leaving the catch basin. The calculated ponded water height for each respective storm event is elevation 209.19, 209.91, and 210.03. A 5' wide emergency spillway is provided for storm events larger than the 25 year event. The spillway will allow runoff water to enter into Design Point B for the 25 year storm and larger events.

The following is a summary of the post developed flowrates after detention.

POST-DEVELOPED RUNOFF SUMMARY (cfs)			
Event	DP #A	DP#B	DP#C
2 yr	0.06	0.00	0.16
10 yr	0.11	0.00	0.18
25 yr	0.16	0.21	0.21

The Hydrocad output for the Post Developed site model is included in Appendix C.

A comparison of the existing condition and post development peak flow rates is summarized in the appendix.

In all cases, except for the 2 and 10 year events in Design Point C, the post development flow rates are less than the "pre-development" flow rates. However, the existing and proposed condition increases are so insignificant, that a practical control is not feasible. It is our professional opinion that the 0.11 cfs increase will not affect the stability of the downstream runoff control features considering no increases are proposed at Design Point B.

MS4 Area

Stormwater discharge from the development will be into the City's MS4 Area.
A qualified Third Party Inspector will be engaged by the Owner:

Eric Wing
32 Ivanhoe Drive
Topsham, Maine 04086

at least annually to inspect the ponds and other stormwater features in accordance with the approved Post-Construction Stormwater Management Plan (PCSMP) for the two detention ponds and stormwater features for the developed areas. If the pond or other stormwater features requires maintenance to function as intended, the Qualified Third Party shall note the deficiencies and the remedies. The Owner shall take the required actions to address any deficiencies. The Qualified Third Party Inspector shall provide, on or by May 31 of each year, a completed and signed City of Lewiston Annual Stormwater Management Facilities Certification (SMF) Form, certifying that the SMF have been inspected, and that they are adequately maintained and functioning as intended by the PCSMP, or that they require maintenance or repair, in order to function as intended by the PCSMP. The Qualified Third Party shall provide a record of the required maintenance or deficiency and corrective actions taken.

A Post Construction Stormwater Management Performance guarantee will be executed and filed with the Registry of Deeds and will be included in the deed for each lot. A copy of the PCSMP is included at the end of Appendix A.

APPENDIX A
BASIC STANDARDS

1.0 EROSION AND SEDIMENT CONTROL

The following plans are included in the Site Review Application to satisfy the Basic Standards Submission requirements:

Sheet 1	SITE PLAN
Sheet 2	GRADING AND UTILITY PLAN
Sheet 3	CONSTRUCTION DETAILS
Sheet 4	CONSTRUCTION DETAILS
Sheet WS-1	EXISTING CONDITIONS WATERSHED PLAN
Sheet WS-2	PROPOSED CONDITIONS WATERSHED PLAN

The Basic Standards herein are for temporary and permanent measures directly associated with the construction activities at the site.

Erosion and sediment control onsite will be implemented in accordance with the "Maine Erosion and Sediment Control BMPs" published by the MDEP. The following are general guidelines and preventative measures to control erosion and sediment during construction activities.

General Practices

- Sediment barriers (e.g., silt fence) will be installed prior to beginning soil disturbance activities (e.g., grubbing, grading) at the perimeter of the property. Sediment barriers will be maintained until the disturbed area is permanently stabilized.
- Exposed soils that will not be worked for more than 7 days will be stabilized with mulch or other non-erodible cover
- Erosion and sediment control features will be inspected and repaired weekly and before and after every storm event.
- All temporary soil stockpiles will be surrounded by silt fence and otherwise protected from creating down-slope sediment issues
- Temporary erosion and sediment control measures will be removed within 30 days after permanent stabilization is attained.

Temporary Erosion and Sediment Control Measures

Temporary erosion and sediment control measures will be in-place prior to beginning construction activities and will be maintained for the duration of the construction project. Silt fencing (or erosion control mix) will be installed along the downslope property lines adjacent to all disturbed areas.

Temporary Mulch/Vegetation

Exposed soil areas that will not be worked for more than 7 days will be mulched. Mulch shall consist of hay or straw that is air-dried, free of undesirable seeds and coarse materials. Mulch will be applied at 2 bales (70-90 pounds) per 1,000 square feet to cover 75-90% of the ground surface. Mulch will be kept moist or anchored in-place to prevent wind disturbance. Erosion control mix and chemical mulches with binder can also be used on site if applied in accordance with MDEP's BMPs.

Temporary vegetation will be used in areas that will not be brought to final grade for a year or less. Preparation of the seedbed will be necessary to ensure sufficient vegetative growth. Soil tests are recommended to determine the appropriate application rate of lime and fertilizer. If soil testing is not feasible, then fertilizer will be applied at a rate of 15 pounds per 1,000 square feet of 10-10-10 (N-P205-K20) or equivalent. Apply limestone (equivalent to 50% calcium plus magnesium oxide) at a rate of 150 pounds per 1,000 square feet. If the soil has been compacted during construction then the soil should be loosened to a depth of approximately 2 inches. Seeding recommendations are provided in the table below.

TEMPORARY GROUND STABILIZATION		
Seed	Pounds per 1,000 sq ft	Recommended Seeding Dates
Winter Rye	2.5	August 30-October 1
Oats	2.0	April 1-July 1 August 30-September 30
Annual Ryegrass	1.0	April 1-July 1
Sudangrass	1.0	May 15-August 30
Perennial	1.0	August 30-September 30

Note: Mulch shall be applied at the rates previously specified following the seed application.

Permanent Stabilization

Areas that will not be worked for more than 3 months or have been final graded will be permanently stabilized within 7 days. Permanent stabilization at this site will include driveway/parking area sub-base/pavement, permanent seeding, and permanent landscaping. Permanent seeding will be performed upon completion of construction grading activities. The type of seeding mix to be used for permanent seeding is noted on the plans. All disturbed areas not otherwise stabilized shall be graded, smoothed, and prepared for final seeding. Four inches of loam (minimum) shall be spread over the disturbed areas and

smoothed to a uniform surface. Soil tests are recommended to determine the appropriate application rate of lime and fertilizer. If soil testing is not feasible, then fertilizer can be applied at a rate of 15 pounds per 1,000 square feet of 10-20-20 (N-P205-K20) or equivalent. Apply limestone (equivalent to 50% calcium plus magnesium oxide) at a rate of 150 pounds per 1,000 square feet. Both the lime and fertilizer should be worked into the ground to a depth of 4 inches as practical. The seedbed should be subsequently rolled to firm prior to seeding. Mulch will be applied at 2 bales (70-90 pounds) per 1,000 square feet to cover 75-90% of the ground surface. Mulch will be kept moist or anchored in-place to prevent wind disturbance. Erosion control mix and chemical mulches with binder can also be used on site if applied in accordance with MDEP's BMPs.

If hydro-seeding is used lime and fertilizer may be added with the seed and applied simultaneously. The use of straw mulch and adhesive material or 500 pounds of wood fiber mulch provides sufficient erosive protection. Seeding rates will be increased by 10% if hydro-seeding practices are employed.

All construction activities at the site are planned to be completed by or before the fall of 2017. In the event that construction occurs after 45 days prior to the first killing frost (October 15), dormant seeding will be performed. The seed mixture described in the construction plan set would be doubled. Mulch should be applied according to the temporary mulching practices discussed previously. Dormant seeding requires inspection in the Spring. All areas where cover is inadequate shall be immediately reseeded and mulched as soon as possible.

Erosion and sediment control features will not be removed until after all disturbed areas have been stabilized with permanent seeding exhibiting at least 90% vegetative cover.

Dust Control

Dust control methods will be employed on site to prevent movement of dust from exposed soil surfaces that could potentially create hazards to wildlife, humans, or plant life both onsite and offsite. Dust generated by activities at the Site, including dust associated with traffic to and from the Site, will be controlled by sweeping, paving, watering, or other Best Management Practices for control of fugitive emissions.

Preventive measures will include the following, as needed:

- Traffic will be restricted to predetermined routes (the existing driveway). Exit and entrance during construction will be limited to this location.
- Natural vegetation and existing paved areas will be maintained to the extent practical.

- Excavation activities will be conducted in phases to reduce the area of land disturbed at any one time.
- Mulching and vegetative practices (e.g., temporary and permanent mulching, temporary and permanent vegetative cover) will be employed to reduce the need for dust control.
- Paved surfaces and roadways will be swept (e.g., mechanical sweeper) where necessary to prevent dust buildup.

Construction will begin immediately following the receipt of all necessary permits. The anticipated construction timeframe is Summer 2017.

2.0 INSPECTION AND MAINTENANCE PLAN

2.1 Construction Inspection

Inspections and maintenance of erosion and sedimentation control measures and stormwater control facilities will be performed during construction. Inspections will include:

- Disturbed and impervious areas.
- Erosion Control Measures.
- Materials storage areas exposed to precipitation.
- Vehicle entry and exit locations.

These areas will be inspected at least once per week as well as before and after a storm event, and prior to completing permanent stabilization measures.

An inspection check list sheet is included at the end of this section. The Contractor will be responsible for maintaining and preserving all erosion and sediment control features associated with the Site during construction. Any problems, damage, or costs directly associated with the performance of or lack of erosion control measures and maintenance are the sole responsibility of the Contractor.

In addition to the above, the applicant will retain the services of a professional engineer to inspect the construction and stabilization of all stormwater management structures. If necessary, the inspecting engineer will interpret the pond's construction plan for the contractor. Once all stormwater management structures are constructed and stabilized, the inspecting engineer will notify the department in writing within 30 days to state that the pond has been completed.

2.2 Post-Construction Inspection

The Owner will be responsible for inspection and maintenance of erosion and sedimentation control measures, stormwater structures, and stormwater BMPs and/or ensuring that the inspection and maintenance tasks are completed after construction is completed. An inspection checklist is included at the end of this section.

The Owner shall pay for the services of the following qualified Third Party to conduct inspections of the site, as needed, for compliance with the provisions of the Erosion and Sedimentation Control Plan.

Eric Wing
32 Ivanhoe Drive
Topsham, Maine 04086

The Third Party inspector will provide to the City of Lewiston documentation on management of the stormwater facilities as required.

2.3 Housekeeping

During and after construction, good housekeeping practices will be employed to minimize potential environmental impacts, specifically:

- **Spill Prevention:** Both petroleum and non-petroleum products utilized during construction will be stored in compatible and properly labeled containers. When not in use, these containers will be closed and stored in a secure area. A spill kit will be kept in close proximity to the secured area. Temporary fuel storage tanks mobilized to the site for construction will be double-walled. Both preventative and routine maintenance will be conducted to minimize the potential for fuel releases.
- **Groundwater Protection:** Petroleum, non-petroleum, and other hazardous materials will not be handled on site.
- **Fugitive Sediment and Dust:** During construction, tracking of soil from construction vehicles into the public road will be minimized. During wet periods, the public road will be swept as necessary (weekly at a minimum), to control the amount of soil tracking onto Pleasant Street. During dry periods, fugitive sediment and dust will be controlled on site using a water truck, or similar, as necessary.
- **Debris and other Materials:** Litter, construction debris and chemicals will be stored in a manner such that the exposure to stormwater is minimized. Litter and construction debris will be separated and containerized, as necessary, for proper disposal. Chemicals will be stored in compatible and properly labeled containers and stored in a secure area equipped with a spill kit.

545 Pleasant St., Lewiston

CONSTRUCTION INSPECTION
AND
MAINTENANCE FORMS

CONSTRUCTION

EROSION AND SEDIMENTATION CONTROL MAINTENANCE LOG

545 Pleasant St., Lewiston, Maine

Inspections to be performed once per week, before and after storms, and prior to completing permanent stabilization.

ITEM	DEFECTS	DESCRIPTION OF DEFECTS AND REPAIRS/MAINTENANCE	
Vehicle Entrances and Exits	Yes No		
Disturbed Areas	Yes No		
Impervious Areas	Yes No		
Erosion and Sedimentation Control	Yes No		
DATE:	BY:	COMPANY:	QUALS/POSITION:

REMARKS:

-
-
- Disturbed Areas: Inspect mulched and temporary seed areas for rill erosion. Add additional mulch if less than 90% coverage is observed. Inspect nets after rain events for dislocation or failure.
- Impervious Areas: Sweep or wash pavement as necessary to keep dust levels to a minimum. Wash water should be directed to an approved sediment trap, such as a "Filter Sock". Accumulated sediment shall be removed and stored or disposed of appropriately.
- Erosion and Sedimentation Control: Inspect silt fence for erosion or sedimentation below them. Replace silt fence where evidence of undercutting or impounding of water behind the fence occur. Replace fabric that has decomposed. Remove sediment deposits behind silt fence when deposits reach ½ the height of the fence.
- Vehicle Entrances and Exits: Check for mudding and clogging of stone and replace as necessary. Sweep or wash pavement at exits where mud has been tracked onto the travelled way.

EROSION AND SEDIMENTATION CONTROL MAINTENANCE LOG

545 Pleasant St., Lewiston, Maine

Inspections to be performed twice per year, once in the spring and once in the fall and after each significant (>3") rainfall.

ITEM	DEFECTS	DESCRIPTION OF DEFECTS AND REPAIRS/MAINTENANCE	
Ditches	Yes / No		
Culverts	Yes / No		
Pond/Outlet Control	Yes / No		
Pond Slopes	Yes / No		
Pond Inlets	Yes / No		
Paved Areas	Yes / No		
Catch Basins	Yes / No		
DATE:	BY:	COMPANY:	QUALS/POSITION:

Ditches and Culverts: Inspect for debris that may impede flow. Control woody vegetation with mowing. Repair any erosion of ditch linings and culvert inlets and outlets.

Pond/Outlet Control: Remove accumulated sediment in the outlet control structure. Indicate where removed sediment was disposed.

Pond Slopes: Inspect for erosion, destabilization of side slopes, embankment settlement, and other signs of failure. Replant areas with sparse growth. Where rill erosion is observed armor the area with appropriate lining.

Pond Inlets: Confirm that flow structures are not blocked by debris and are operating properly. Clean out sediment at bottom of outlet structure.

Paved Areas: Remove accumulated winter sand and debris from all pavement areas annually. Wash water should be directed to an approved sediment trap, such as a "Filter Sock". Accumulated sediment shall be removed and stored or disposed of appropriately.

Catch Basins: Remove and legally dispose of accumulated debris and sediment from the bottom of the structure, inlet grates, inflow channels to the basin, and pipes between basins.

MS4 AREA REQUIREMENTS

Stormwater discharge from the project area will be into the City's MS4 Area.
A qualified Third Party Inspector will be engaged by the Owner:

Eric Wing
32 Ivanhoe Drive
Topsham, Maine 04086

at least annually to inspect the two detention ponds in accordance with the approved Post-Construction Stormwater Management Plan (PCSMP) for the project. If the pond requires maintenance to function as intended, the Qualified Third Party shall note the deficiencies and the remedies. The Owner shall take the required actions to address any deficiencies. The Qualified Third Party Inspector shall provide, on or by May 31 of each year, a completed and signed City of Lewiston Annual Stormwater Management Facilities Certification (SMF) Form, certifying that the SMF have been inspected, and that they are adequately maintained and functioning as intended by the PCSMP, or that they require maintenance or repair, in order to function as intended by the PCSMP. The Qualified Third Party shall provide a record of the required maintenance or deficiency and corrective actions taken.

A Post Construction Stormwater Management Performance guarantee will be executed and filed with the Registry of Deeds and will be included in the deed for each lot. A copy of the PCSMP is attached.

CITY OF LEWISTON

Annual Stormwater Management Facilities Certification

I, _____, certify the following:

1. I am making this Annual Stormwater Management Facilities Certification for the following property:

545 Pleasant Street, Lewiston, Maine

2. The owner of the Property is:

Eric Wing
32 Ivanhoe Drive
Topsham, Maine 04086

3. I am a Qualified Third-Party Inspector hired by the owner of the Property.

4. I have knowledge of erosion and sedimentation control and have reviewed approved Post-Construction Stormwater Management Plan for the property.

5. On _____, I inspected the Stormwater Management Facilities, including but not limited to, two detention ponds located at 545 Pleasant Street, Lewiston, Maine

6. At the time of my inspection of the Stormwater Management Facilities on the Property, I identified the following needs for routine maintenance or deficiencies in the Stormwater Management Facilities:

7. On _____, the Owner of the property took or had taken the following routine maintenance or the following corrective action(s) to address the deficiencies in the Stormwater Management Facilities stated in 5 above:

8. As of the date of this certification, the Stormwater Management Facilities are functioning as intended by the approved Post-Construction Stormwater Management Plan for the Property.

Date: _____

By: _____

Print Name: _____

Personally appeared the above-named _____,
of _____, and acknowledged the
foregoing Annual Certification to be said person's free act and deed in said capacity.

Before me, Notary Public, on this date: _____

Signature: _____

Mail this certification to the City of Lewiston at the following address:

Director of Planning and Code Enforcement
City Building
27 Pine Street
Lewiston, Maine 04240

Director of Public Works
103 Adams Avenue
Lewiston, Maine 04240

**POST CONSTRUCTION STORMWATER MANAGEMENT PERFORMANCE GUARANTEE
ALTERED IMAGE TATTOO, 545 PLEASANT STREET, LEWISTON, MAINE**

This performance guarantee is provided by Eric Wing located at 32 Ivanhoe Drive in Topsham, Maine. Eric Wing, his successors, heirs, and assigns hereby acknowledge their legal obligation to repair, maintain, and replace the Stormwater Management Facilities at the Altered Image Tattoo project located at 545 Pleasant Avenue property in accordance with the Construction Plans, Construction Notes, and Details, dated April 2017 and revised June 2017. This performance guarantee shall be valid until Eric Wing has legally relinquished ownership of the subject properties.

The City of Lewiston shall have the ability to establish a special assessment, district, or other means upon the parties responsible for the post construction stormwater management plan to ensure resources are available to perform the repairs, maintenance, and replacement of the Stormwater Management Facilities.

Stormwater management items at the subject property include new stormwater detention ponds (underground pipe and catch basins) including the outlet control structure and conveyances. The estimated costs of repair and replacement vary widely depending on the extent of repair or replacement necessary. Annual repairs could range between \$1,000 and \$10,000. Complete replacement of the ponds could range as high as \$30,000.

This document shall be recorded in the Androscoggin Registry of Deeds and be included in the deeds for each subdivision property.

Eric Wing, Owner

Date

Witness

APPENDIX B
FLOODING STANDARDS SUMMARY

545 Pleasant Street Stormwater Project Summary

Stormwater Flows at Design Point A

	<u>2 year</u>	<u>10 year</u>	<u>25 year</u>
Existing Conditions at Design Point	0.11 cfs	0.20 cfs	0.28 cfs
Proposed Conditions at Design Point	0.06 cfs	0.11 cfs	0.16 cfs

Stormwater Flows at Design Point B

	<u>2 year</u>	<u>10 year</u>	<u>25 year</u>
Existing Conditions at Design Point	0.05 cfs	0.14 cfs	0.23 cfs
Proposed Conditions at Design Point	0.00 cfs	0.00 cfs	0.21 cfs

Stormwater Flows at Design Point C

	<u>2 year</u>	<u>10 year</u>	<u>25 year</u>
Existing Conditions at Design Point	0.05 cfs	0.14 cfs	0.24 cfs
Proposed Conditions at Design Point	0.16 cfs	0.18 cfs	0.21 cfs

Stormwater Flows at Upper Detention Pond

	<u>2 year</u>	<u>10 year</u>	<u>25 year</u>
Soil filter Pond inflow/outflow	0.22/0.12 cfs	0.35/0.15 cfs	0.45/0.17 in pipe
Elevation height of detained water in soil filter pond	215.49	216.23	216.81

The detention pond is expected to operate as a sediment pond during construction for water quality purposes. The pond has a 15' long 36" diameter horizontal pipe into the Catch Basin for storage capacity. The outlet out of CB 1 is a 6" diameter culvert and flows into CB 2. The inlet end is capped with a 2" hole at elevation 213.90. The top of berm elevation is 220.0.

Stormwater Flows at Lower Detention Pond

	<u>2 year</u>	<u>10 year</u>	<u>25 year</u>
Soil filter Pond inflow/outflow	0.21/0.15 cfs	0.32/0.18 cfs	0.40/split 0.21 and 0.18 cfs
Elevation height of detained water in soil filter pond	209.19	209.91	210.03

The detention pond is expected to operate as a sediment pond during construction for water quality purposes. The pond has a 45' long 18" diameter horizontal pipe into the Catch Basin 2 for storage capacity. The outlet out of CB 2 is a 6" diameter culvert. The inlet end is capped with a 2" hole at elevation 207.0. Overflow from the Pond (0.21 cfs during 25 year event) travels into Design Point B. The top of berm elevation is 210.5. A five wide emergency spillway (elevation 209.95) is provided for storm events larger than the 25 year event.

Soil Map—Androscoggin and Sagadahoc Counties, Maine
(545 Pleasant St)



Soil Map may not be valid at this scale.

Map Scale: 1:720 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84



Soil Map—Androscoggin and Sagadahoc Counties, Maine
(545 Pleasant St)

MAP LEGEND

Area of Interest (AOI)			Spoil Area
	Area of Interest (AOI)		Stony Spot
Soils			Very Stony Spot
	Soil Map Unit Polygons		Wet Spot
	Soil Map Unit Lines		Other
	Soil Map Unit Points		Special Line Features
Special Point Features		Water Features	
	Blowout		Streams and Canals
	Borrow Pit	Transportation	
	Clay Spot		Rails
	Closed Depression		Interstate Highways
	Gravel Pit		US Routes
	Gravelly Spot		Major Roads
	Landfill		Local Roads
	Lava Flow	Background	
	Marsh or swamp		Aerial Photography
	Mine or Quarry		
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Androscoggin and Sagadahoc Counties, Maine
Survey Area Data: Version 17, Sep 15, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 20, 2010—Aug 29, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Androscoggin and Sagadahoc Counties, Maine (ME606)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CfB	Charlton fine sandy loam, 0 to 8 percent slopes	1.1	100.0%
Totals for Area of Interest		1.1	100.0%

APPENDIX C

PRE-DEVELOPMENT COMPUTATIONS



Design Point A



Design Point B



Design Point C



SW Existing Condition

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.218	61	>75% Grass cover, Good, HSG B (1S, 2S, 3S)
0.029	98	Gravel parking, HSG B (1S, 3S)
0.029	98	Roofs, HSG B (1S, 2S, 3S)

SW Existing Condition

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.218	0.000	0.000	0.000	0.218	>75% Grass cover, Good	1S, 2S, 3S
0.000	0.029	0.000	0.000	0.000	0.029	Gravel parking	1S, 3S
0.000	0.029	0.000	0.000	0.000	0.029	Roofs	1S, 2S, 3S

SW Existing Condition

Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Design Point A

Runoff Area=2,820 sf 51.52% Impervious Runoff Depth>1.15"
Flow Length=83' Tc=0.6 min CN=80 Runoff=0.11 cfs 0.006 af

Subcatchment 2S: Design Point B

Runoff Area=4,392 sf 10.13% Impervious Runoff Depth>0.45"
Flow Length=108' Tc=3.8 min CN=65 Runoff=0.05 cfs 0.004 af

Subcatchment 3S: Design Point C

Runoff Area=4,787 sf 12.76% Impervious Runoff Depth>0.48"
Flow Length=140' Tc=7.0 min CN=66 Runoff=0.05 cfs 0.004 af

SW Existing Condition

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Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Subcatchment 1S: Design Point A

Runoff = 0.11 cfs @ 12.01 hrs, Volume= 0.006 af, Depth> 1.15"

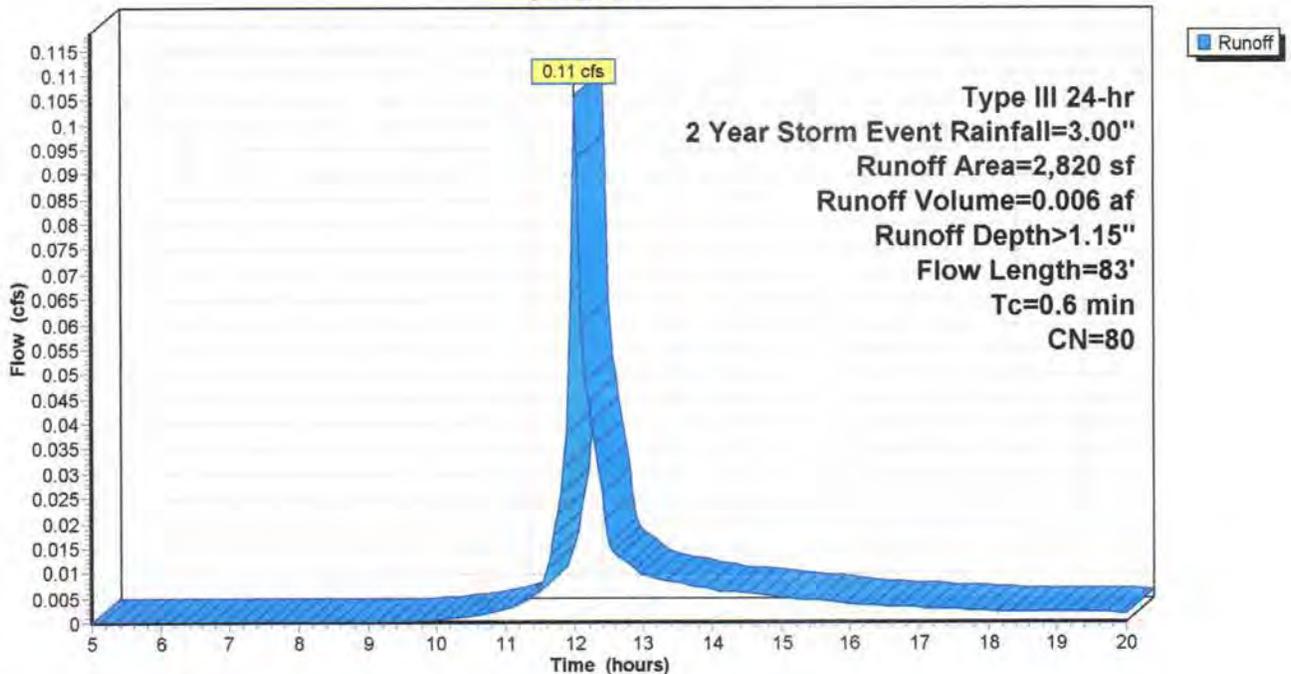
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2 Year Storm Event Rainfall=3.00"

Area (sf)	CN	Description
* 367	98	Roofs, HSG B
* 1,086	98	Gravel parking, HSG B
1,367	61	>75% Grass cover, Good, HSG B
2,820	80	Weighted Average
1,367		48.48% Pervious Area
1,453		51.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	8	0.3000	2.37		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.00"
0.5	75	0.0200	2.28		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	83	Total			

Subcatchment 1S: Design Point A

Hydrograph



SW Existing Condition

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Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Subcatchment 25: Design Point B

Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.45"

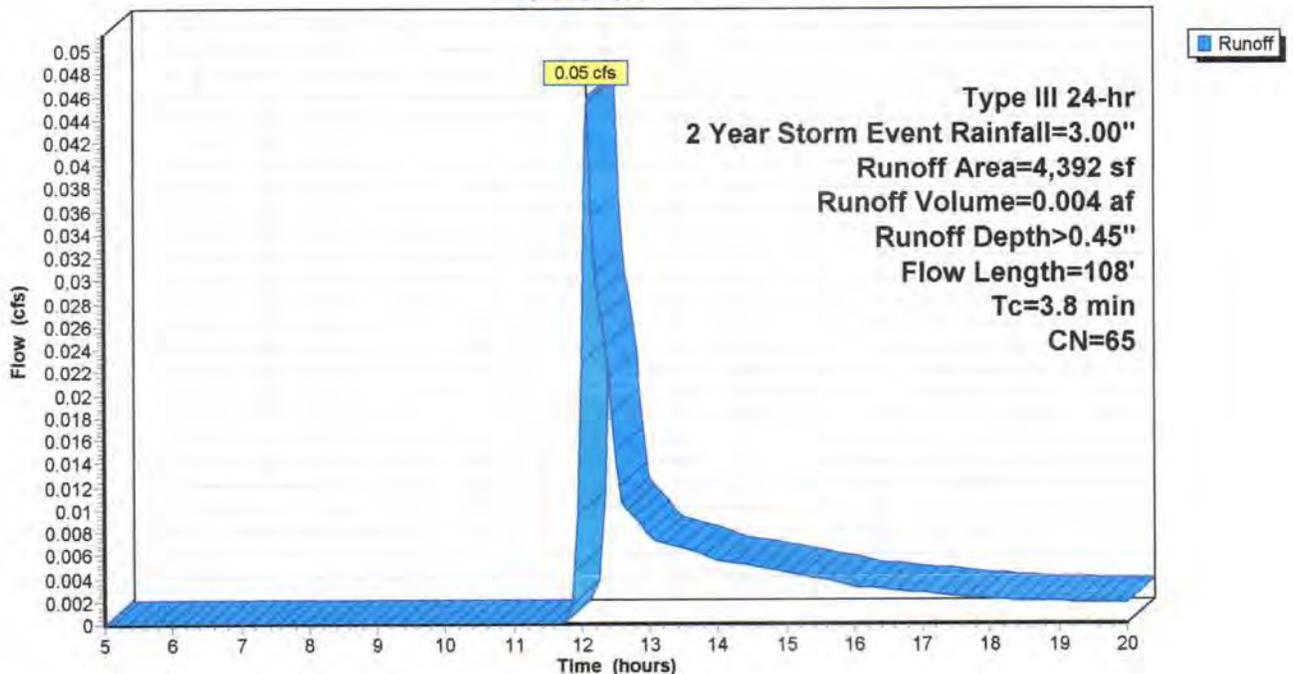
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2 Year Storm Event Rainfall=3.00"

Area (sf)	CN	Description
445	98	Roofs, HSG B
3,947	61	>75% Grass cover, Good, HSG B
4,392	65	Weighted Average
3,947		89.87% Pervious Area
445		10.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	8	0.3000	2.37		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.00"
2.2	15	0.0200	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
1.3	25	0.2000	0.31		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
0.2	60	0.1000	4.74		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
3.8	108	Total			

Subcatchment 25: Design Point B

Hydrograph



SW Existing Condition

Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Subcatchment 3S: Design Point C

Runoff = 0.05 cfs @ 12.13 hrs, Volume= 0.004 af, Depth> 0.48"

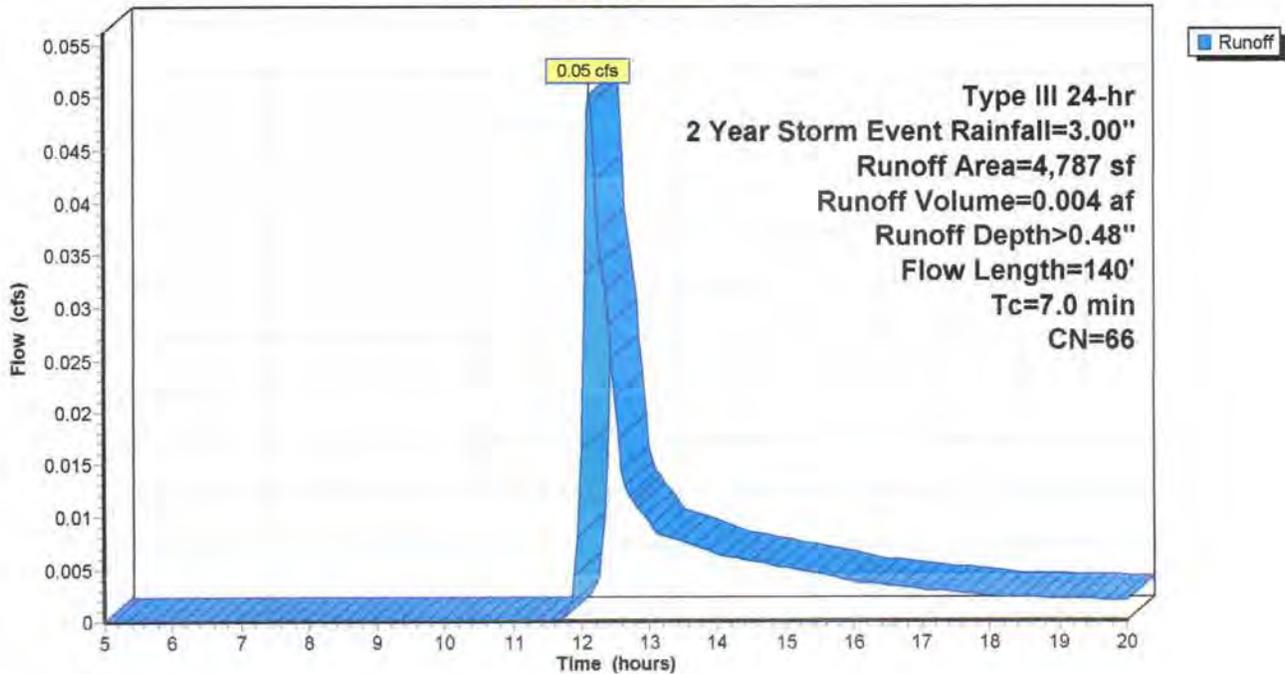
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Event Rainfall=3.00"

Area (sf)	CN	Description
451	98	Roofs, HSG B
* 160	98	Gravel parking, HSG B
4,176	61	>75% Grass cover, Good, HSG B
4,787	66	Weighted Average
4,176		87.24% Pervious Area
611		12.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	8	0.3000	2.37		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.00"
4.4	35	0.0200	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
2.3	35	0.1000	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
0.2	62	0.1300	5.41		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
7.0	140	Total			

Subcatchment 3S: Design Point C

Hydrograph



SW Existing Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Design Point A

Runoff Area=2,820 sf 51.52% Impervious Runoff Depth>2.14"
Flow Length=83' Tc=0.6 min CN=80 Runoff=0.20 cfs 0.012 af

Subcatchment 2S: Design Point B

Runoff Area=4,392 sf 10.13% Impervious Runoff Depth>1.09"
Flow Length=108' Tc=3.8 min CN=65 Runoff=0.14 cfs 0.009 af

Subcatchment 3S: Design Point C

Runoff Area=4,787 sf 12.76% Impervious Runoff Depth>1.15"
Flow Length=140' Tc=7.0 min CN=66 Runoff=0.14 cfs 0.011 af

SW Existing Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Subcatchment 15: Design Point A

Runoff = 0.20 cfs @ 12.01 hrs, Volume= 0.012 af, Depth> 2.14"

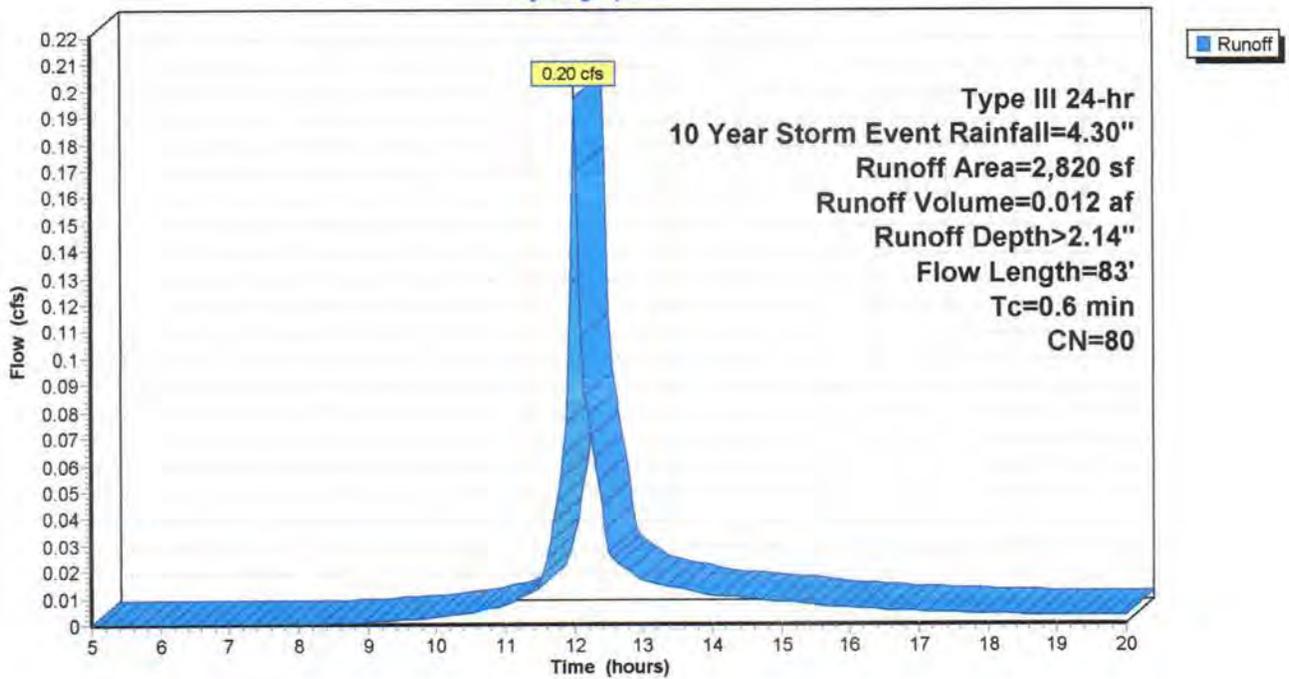
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Year Storm Event Rainfall=4.30"

Area (sf)	CN	Description
* 367	98	Roofs, HSG B
* 1,086	98	Gravel parking, HSG B
1,367	61	>75% Grass cover, Good, HSG B
2,820	80	Weighted Average
1,367		48.48% Pervious Area
1,453		51.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	8	0.3000	2.37		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.00"
0.5	75	0.0200	2.28		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	83	Total			

Subcatchment 15: Design Point A

Hydrograph



SW Existing Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Subcatchment 2S: Design Point B

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.009 af, Depth> 1.09"

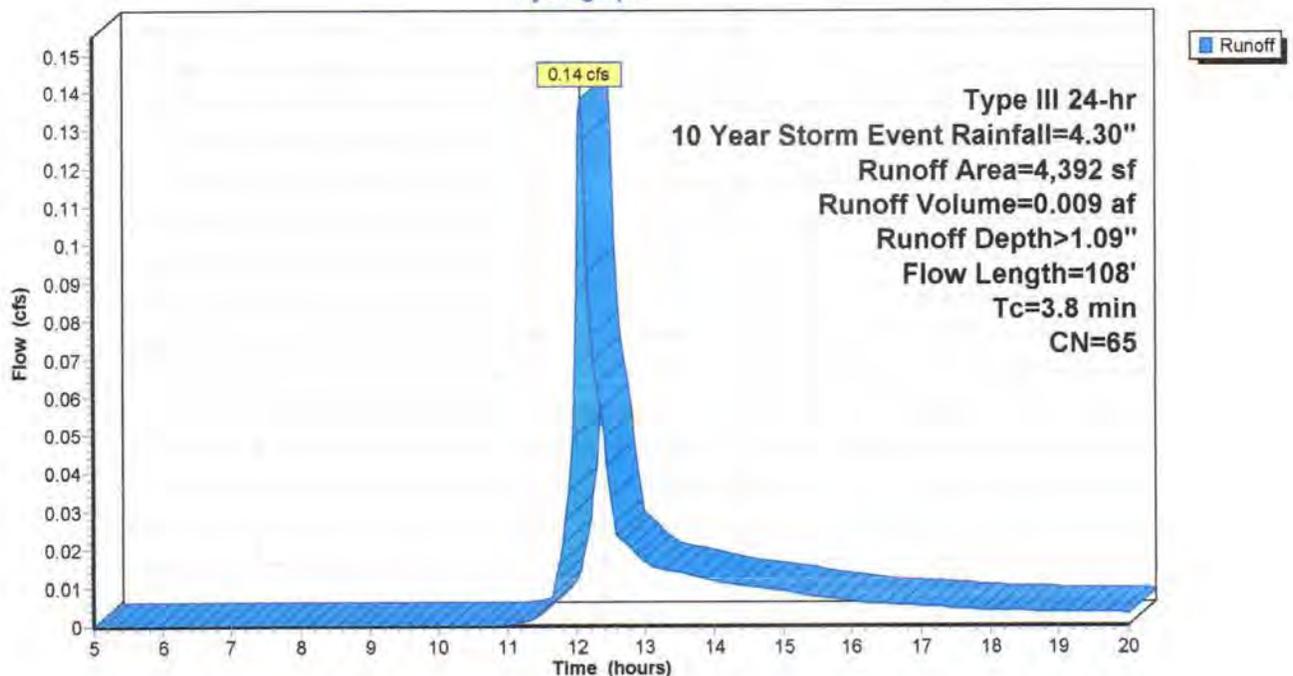
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Year Storm Event Rainfall=4.30"

Area (sf)	CN	Description
445	98	Roofs, HSG B
3,947	61	>75% Grass cover, Good, HSG B
4,392	65	Weighted Average
3,947		89.87% Pervious Area
445		10.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	8	0.3000	2.37		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.00"
2.2	15	0.0200	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
1.3	25	0.2000	0.31		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
0.2	60	0.1000	4.74		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
3.8	108	Total			

Subcatchment 2S: Design Point B

Hydrograph



SW Existing Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Subcatchment 3S: Design Point C

Runoff = 0.14 cfs @ 12.11 hrs, Volume= 0.011 af, Depth> 1.15"

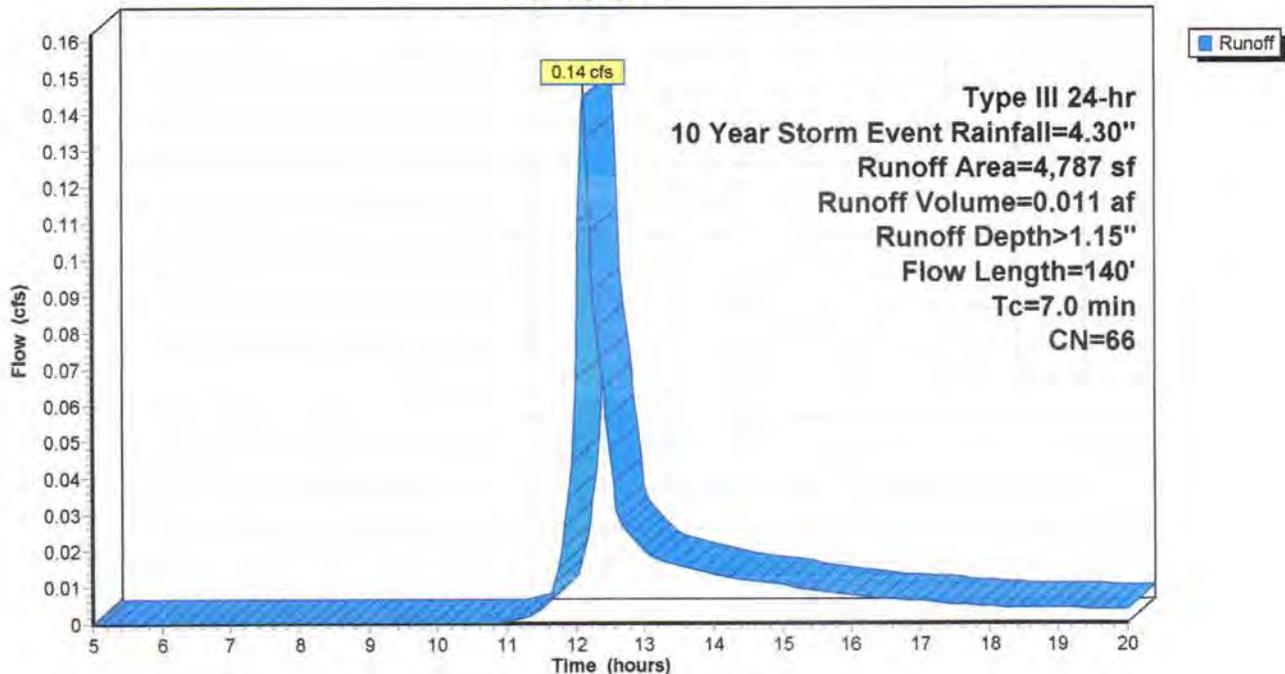
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Year Storm Event Rainfall=4.30"

Area (sf)	CN	Description
451	98	Roofs, HSG B
* 160	98	Gravel parking, HSG B
4,176	61	>75% Grass cover, Good, HSG B
4,787	66	Weighted Average
4,176		87.24% Pervious Area
611		12.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	8	0.3000	2.37		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.00"
4.4	35	0.0200	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
2.3	35	0.1000	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
0.2	62	0.1300	5.41		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
7.0	140	Total			

Subcatchment 3S: Design Point C

Hydrograph



SW Existing Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Design Point A

Runoff Area=2,820 sf 51.52% Impervious Runoff Depth>3.04"
Flow Length=83' Tc=0.6 min CN=80 Runoff=0.28 cfs 0.016 af

Subcatchment 2S: Design Point B

Runoff Area=4,392 sf 10.13% Impervious Runoff Depth>1.76"
Flow Length=108' Tc=3.8 min CN=65 Runoff=0.23 cfs 0.015 af

Subcatchment 3S: Design Point C

Runoff Area=4,787 sf 12.76% Impervious Runoff Depth>1.84"
Flow Length=140' Tc=7.0 min CN=66 Runoff=0.24 cfs 0.017 af

SW Existing Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Subcatchment 1S: Design Point A

Runoff = 0.28 cfs @ 12.01 hrs, Volume= 0.016 af, Depth> 3.04"

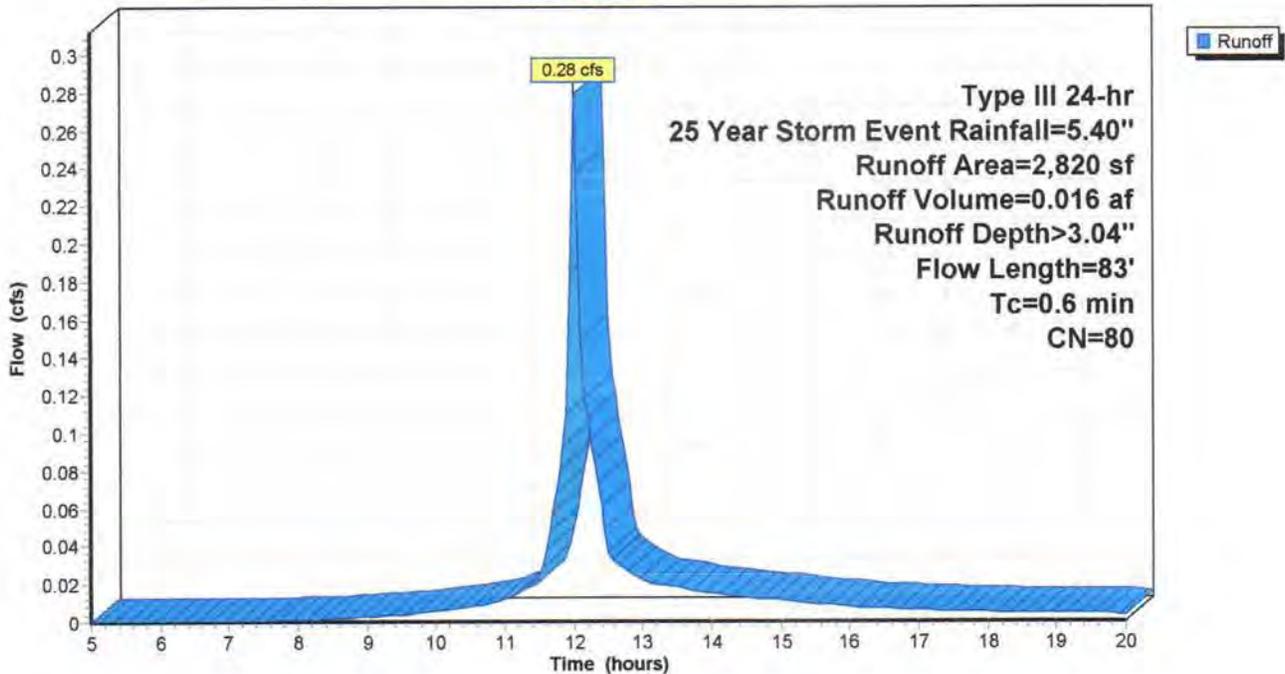
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 Year Storm Event Rainfall=5.40"

Area (sf)	CN	Description
* 367	98	Roofs, HSG B
* 1,086	98	Gravel parking, HSG B
1,367	61	>75% Grass cover, Good, HSG B
2,820	80	Weighted Average
1,367		48.48% Pervious Area
1,453		51.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	8	0.3000	2.37		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.00"
0.5	75	0.0200	2.28		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	83	Total			

Subcatchment 1S: Design Point A

Hydrograph



SW Existing Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Subcatchment 2S: Design Point B

Runoff = 0.23 cfs @ 12.06 hrs, Volume= 0.015 af, Depth> 1.76"

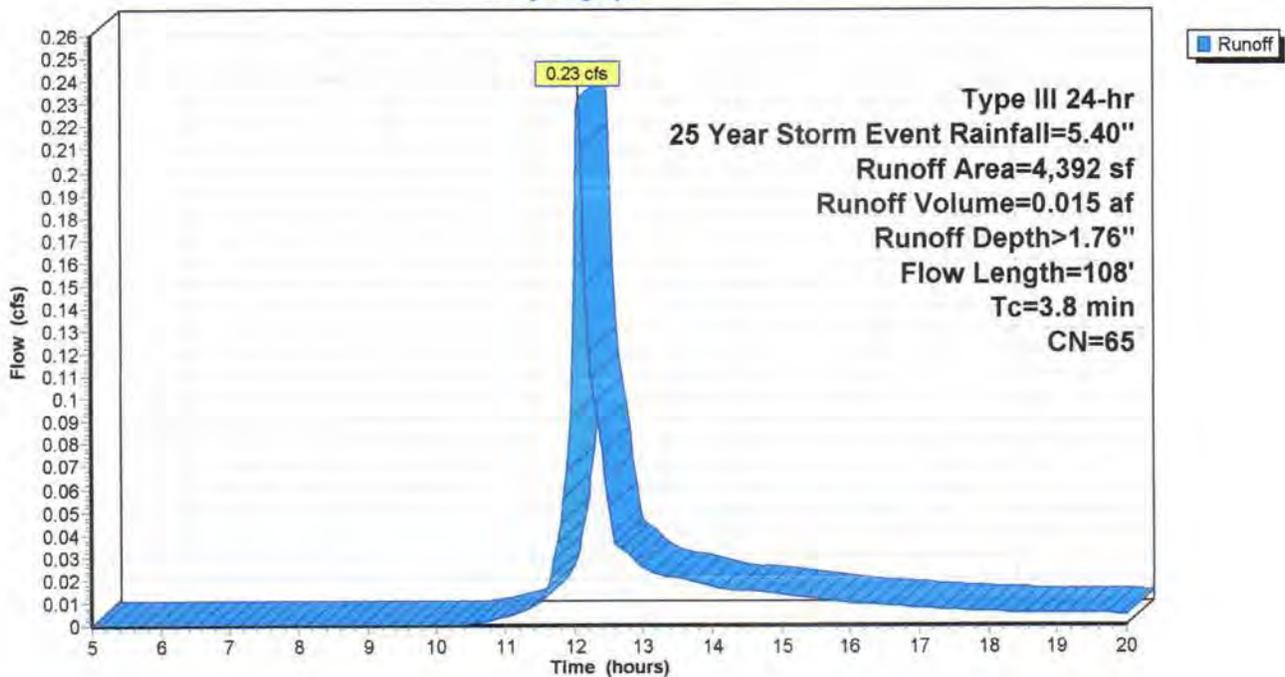
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 Year Storm Event Rainfall=5.40"

Area (sf)	CN	Description
445	98	Roofs, HSG B
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4,392	65	Weighted Average
3,947		89.87% Pervious Area
445		10.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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2.2	15	0.0200	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
1.3	25	0.2000	0.31		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
0.2	60	0.1000	4.74		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
3.8	108	Total			

Subcatchment 2S: Design Point B

Hydrograph



SW Existing Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Subcatchment 3S: Design Point C

Runoff = 0.24 cfs @ 12.11 hrs, Volume= 0.017 af, Depth> 1.84"

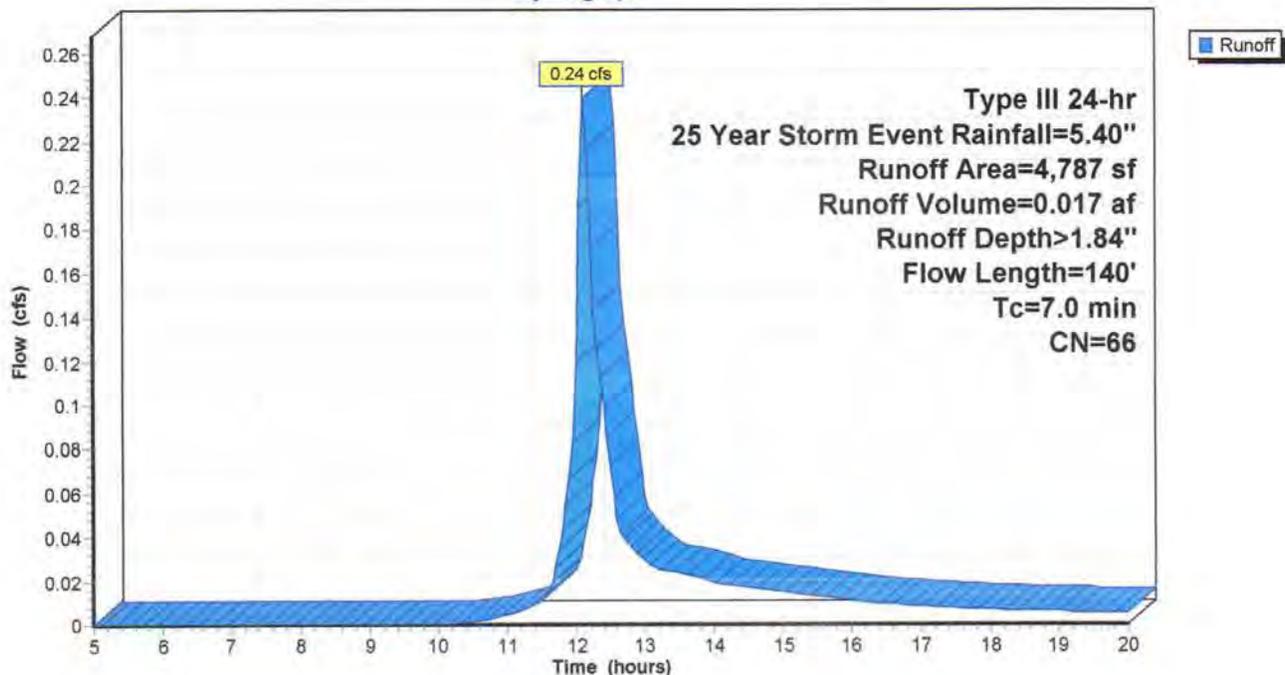
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 Year Storm Event Rainfall=5.40"

Area (sf)	CN	Description
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611		12.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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4.4	35	0.0200	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
2.3	35	0.1000	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
0.2	62	0.1300	5.41		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
7.0	140	Total			

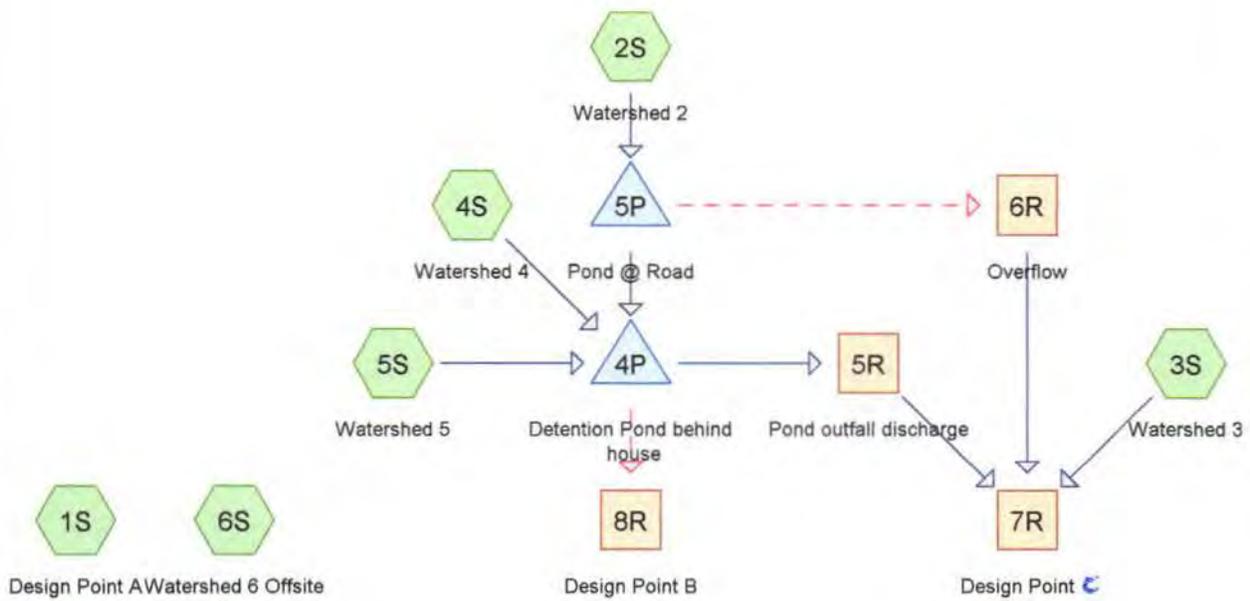
Subcatchment 3S: Design Point C

Hydrograph

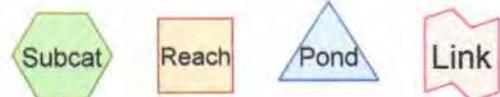


APPENDIX C

POST-DEVELOPMENT HYDROCAD OUTPUT



1S Design Point A Watershed 6 Offsite
6S



Routing Diagram for SW Proposed Condition
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SW Proposed Condition

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.113	61	>75% Grass cover, Good, HSG B (1S, 2S, 3S, 5S, 6S)
0.098	98	Paved parking, HSG B (1S, 2S, 5S)
0.045	98	Roofs to stone drip edge, HSG B (4S)

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.113	0.000	0.000	0.000	0.113	>75% Grass cover, Good	1S, 2S, 3S, 5S, 6S
0.000	0.098	0.000	0.000	0.000	0.098	Paved parking	1S, 2S, 5S
0.000	0.045	0.000	0.000	0.000	0.045	Roofs to stone drip edge	4S

SW Proposed Condition

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	4P	207.00	206.90	10.0	0.0100	0.013	6.0	0.0	0.0
2	5P	213.90	210.03	86.0	0.0450	0.012	6.0	0.0	0.0

SW Proposed Condition

Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Design Point A	Runoff Area=1,919 sf 47.47% Impervious Runoff Depth>1.09" Flow Length=89' Slope=0.0200 '/' Tc=5.8 min CN=79 Runoff=0.06 cfs 0.004 af
Subcatchment 2S: Watershed 2	Runoff Area=3,596 sf 81.45% Impervious Runoff Depth>1.95" Flow Length=76' Slope=0.0200 '/' Tc=0.9 min CN=91 Runoff=0.22 cfs 0.013 af
Subcatchment 3S: Watershed 3	Runoff Area=1,305 sf 0.00% Impervious Runoff Depth>0.32" Flow Length=120' Tc=3.9 min CN=61 Runoff=0.01 cfs 0.001 af
Subcatchment 4S: Watershed 4	Runoff Area=1,970 sf 100.00% Impervious Runoff Depth>2.59" Flow Length=63' Tc=24.6 min CN=98 Runoff=0.08 cfs 0.010 af
Subcatchment 5S: Watershed 5	Runoff Area=2,028 sf 20.51% Impervious Runoff Depth>0.60" Flow Length=109' Tc=14.1 min CN=69 Runoff=0.02 cfs 0.002 af
Subcatchment 6S: Watershed 6 Offsite	Runoff Area=350 sf 0.00% Impervious Runoff Depth>0.32" Flow Length=30' Slope=0.0600 '/' Tc=3.6 min CN=61 Runoff=0.00 cfs 0.000 af
Reach 5R: Pond outfall discharge	Avg. Flow Depth=0.10' Max Vel=1.12 fps Inflow=0.15 cfs 0.025 af n=0.025 L=1.0' S=0.0100 '/' Capacity=15.89 cfs Outflow=0.15 cfs 0.025 af
Reach 6R: Overflow	Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af n=0.025 L=120.0' S=0.0900 '/' Capacity=34.55 cfs Outflow=0.00 cfs 0.000 af
Reach 7R: Design Point C	Avg. Flow Depth=0.10' Max Vel=1.13 fps Inflow=0.16 cfs 0.026 af n=0.025 L=1.0' S=0.0100 '/' Capacity=15.89 cfs Outflow=0.16 cfs 0.026 af
Reach 8R: Design Point B	Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af n=0.025 L=1.0' S=0.0100 '/' Capacity=3.33 cfs Outflow=0.00 cfs 0.000 af
Pond 4P: Detention Pond behind house	Peak Elev=209.19' Storage=128 cf Inflow=0.21 cfs 0.025 af Primary=0.15 cfs 0.025 af Secondary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.025 af
Pond 5P: Pond @ Road	Peak Elev=215.49' Storage=53 cf Inflow=0.22 cfs 0.013 af Primary=0.12 cfs 0.013 af Secondary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.013 af

SW Proposed Condition

Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Subcatchment 1S: Design Point A

Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 1.09"

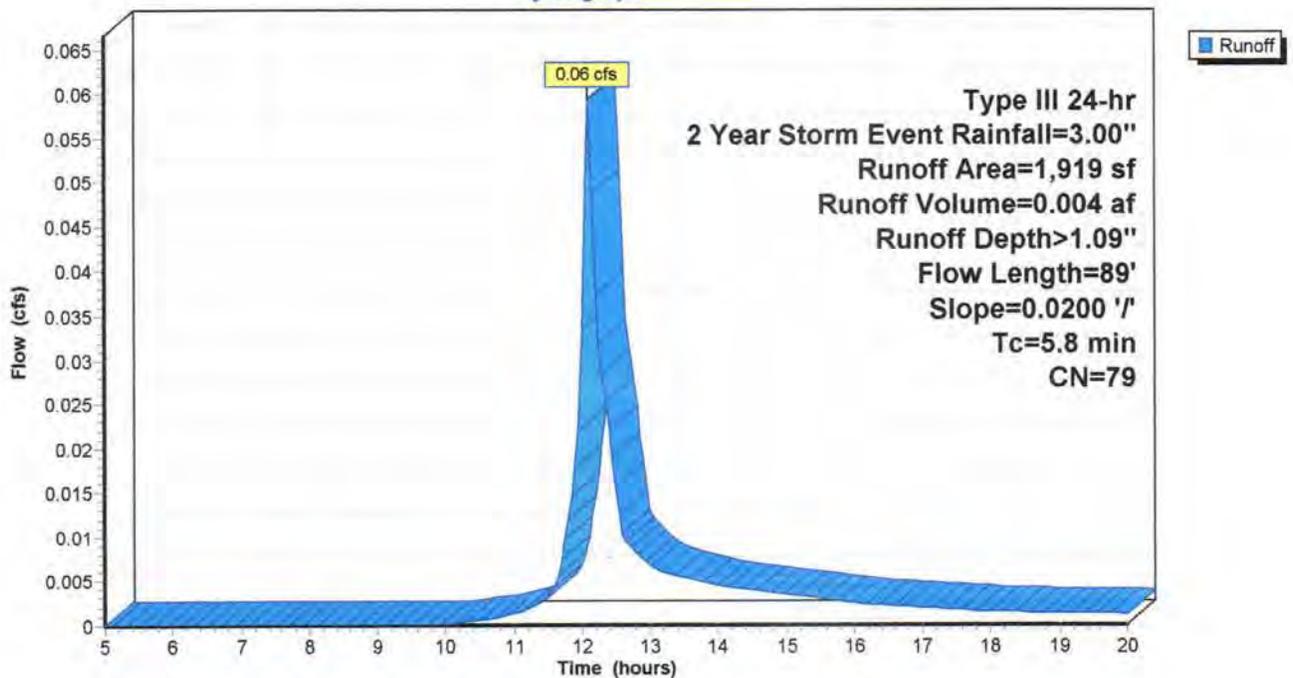
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2 Year Storm Event Rainfall=3.00"

Area (sf)	CN	Description
911	98	Paved parking, HSG B
1,008	61	>75% Grass cover, Good, HSG B
1,919	79	Weighted Average
1,008		52.53% Pervious Area
911		47.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	45	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
0.4	24	0.0200	1.00		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.00"
0.1	20	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.8	89	Total			

Subcatchment 1S: Design Point A

Hydrograph



SW Proposed Condition

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Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Subcatchment 2S: Watershed 2

Runoff = 0.22 cfs @ 12.01 hrs, Volume= 0.013 af, Depth> 1.95"

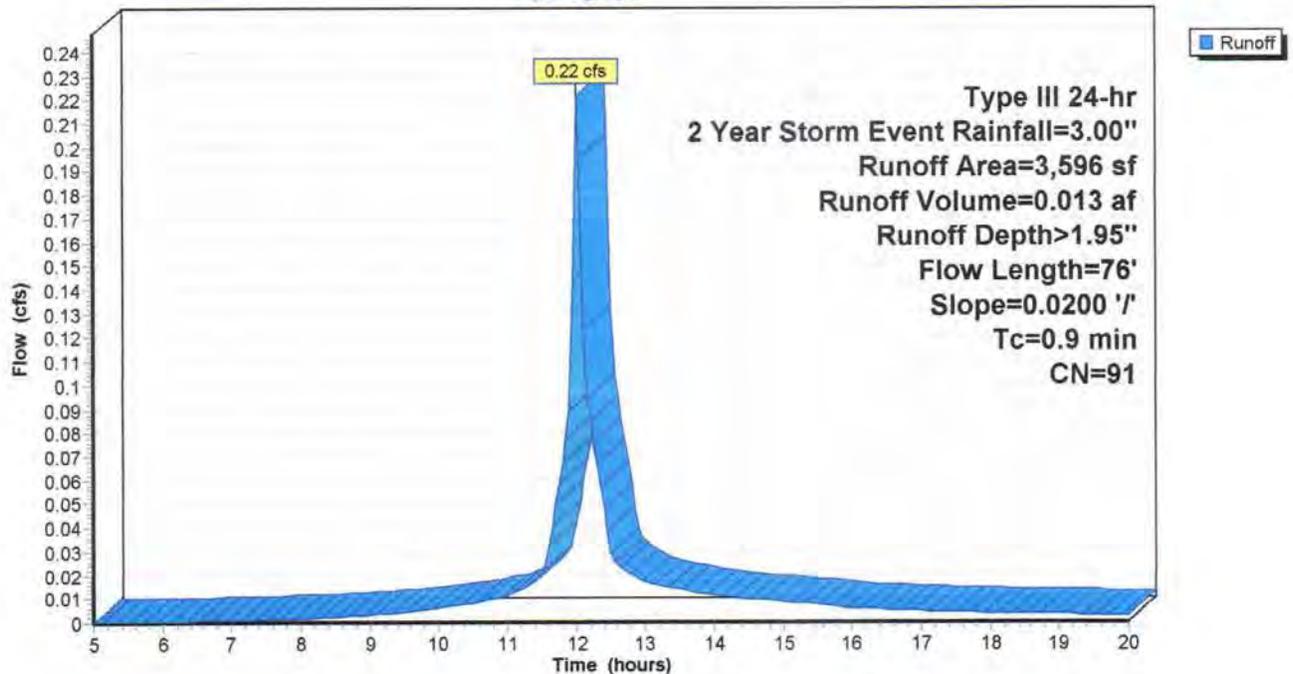
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2 Year Storm Event Rainfall=3.00"

Area (sf)	CN	Description
* 2,929	98	Paved parking, HSG B
667	61	>75% Grass cover, Good, HSG B
3,596	91	Weighted Average
667		18.55% Pervious Area
2,929		81.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	60	0.0200	1.20		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.00"
0.1	16	0.0200	2.12		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
0.9	76	Total			

Subcatchment 2S: Watershed 2

Hydrograph



SW Proposed Condition

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Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Subcatchment 3S: Watershed 3

Runoff = 0.01 cfs @ 12.11 hrs, Volume= 0.001 af, Depth> 0.32"

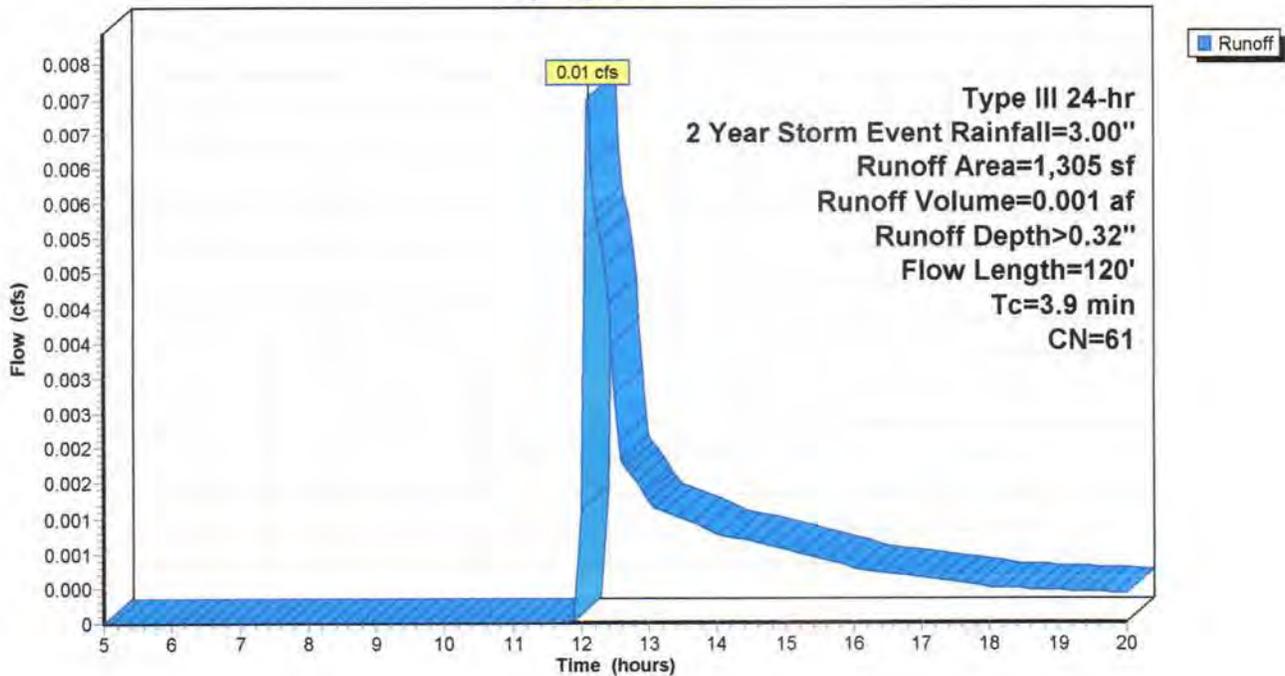
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2 Year Storm Event Rainfall=3.00"

Area (sf)	CN	Description
1,305	61	>75% Grass cover, Good, HSG B
1,305		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	60	0.0670	0.27		Sheet Flow, Range n= 0.130 P2= 3.00"
0.2	60	0.1330	5.47		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
3.9	120	Total			

Subcatchment 3S: Watershed 3

Hydrograph



SW Proposed Condition

Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Subcatchment 4S: Watershed 4

Runoff = 0.08 cfs @ 12.32 hrs, Volume= 0.010 af, Depth> 2.59"

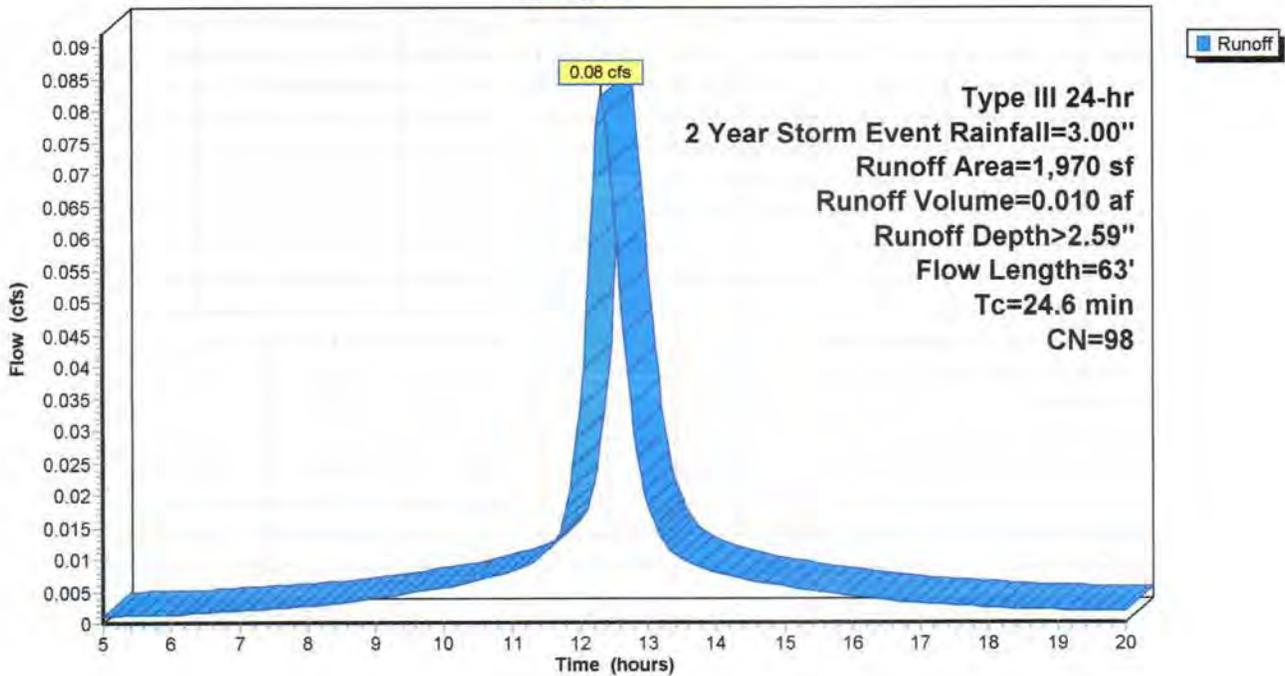
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2 Year Storm Event Rainfall=3.00"

Area (sf)	CN	Description
* 1,970	98	Roofs to stone drip edge, HSG B
1,970		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	23	0.2500	0.34		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
23.5	40	0.0010	0.03		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
24.6	63	Total			

Subcatchment 4S: Watershed 4

Hydrograph



SW Proposed Condition

Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Subcatchment 5S: Watershed 5

Runoff = 0.02 cfs @ 12.23 hrs, Volume= 0.002 af, Depth> 0.60"

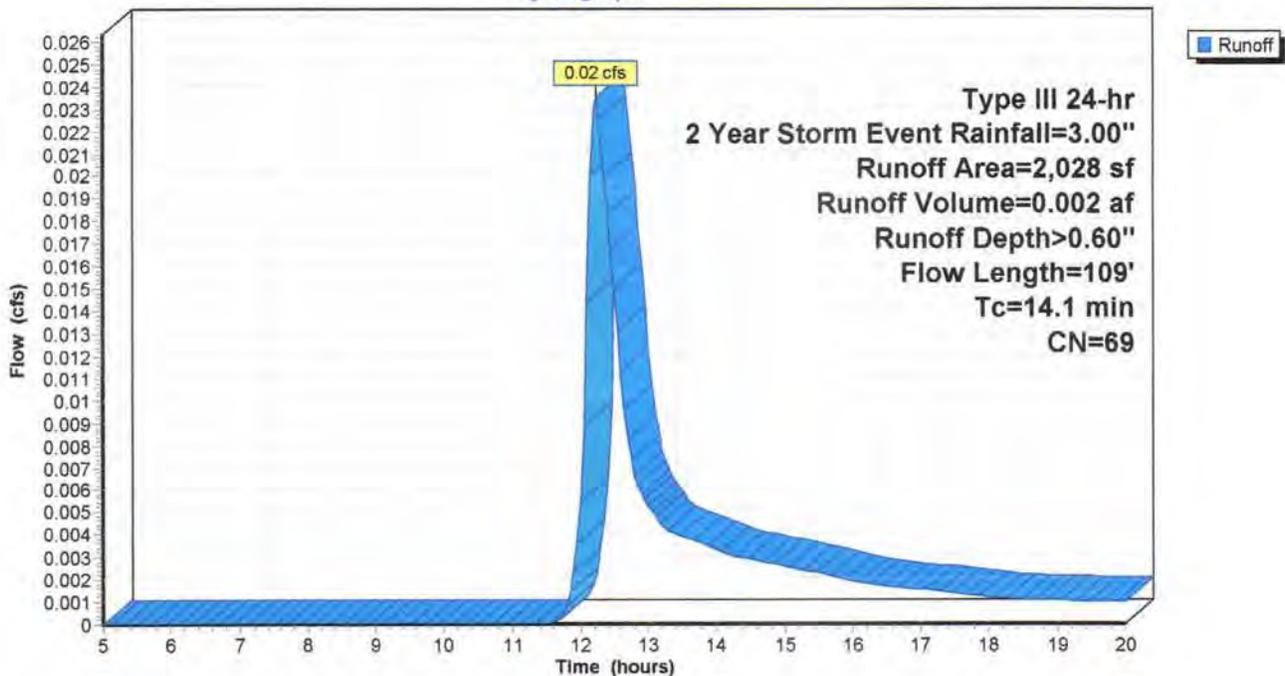
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Event Rainfall=3.00"

Area (sf)	CN	Description
416	98	Paved parking, HSG B
1,612	61	>75% Grass cover, Good, HSG B
2,028	69	Weighted Average
1,612		79.49% Pervious Area
416		20.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	23	0.2500	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
2.7	30	0.1300	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
9.7	56	0.0180	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
14.1	109	Total			

Subcatchment 5S: Watershed 5

Hydrograph



SW Proposed Condition

Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Reach 5R: Pond outfall discharge

Inflow Area = 0.174 ac, 69.99% Impervious, Inflow Depth > 1.75" for 2 Year Storm Event event
 Inflow = 0.15 cfs @ 12.47 hrs, Volume= 0.025 af
 Outflow = 0.15 cfs @ 12.47 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.12 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.49 fps, Avg. Travel Time= 0.0 min

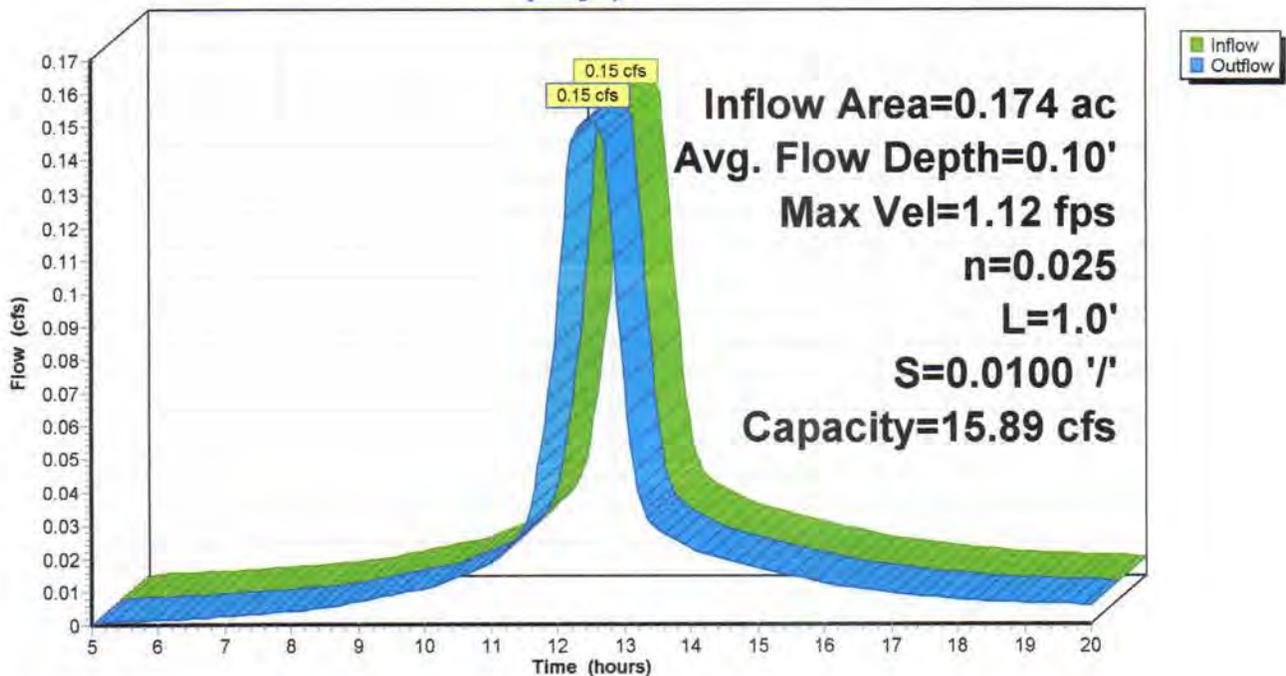
Peak Storage= 0 cf @ 12.47 hrs
 Average Depth at Peak Storage= 0.10'
 Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 15.89 cfs

1.00' x 1.00' deep channel, n= 0.025
 Side Slope Z-value= 3.0 '/' Top Width= 7.00'
 Length= 1.0' Slope= 0.0100 '/'
 Inlet Invert= 0.00', Outlet Invert= -0.01'



Reach 5R: Pond outfall discharge

Hydrograph



SW Proposed Condition

Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Reach 6R: Overflow

Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

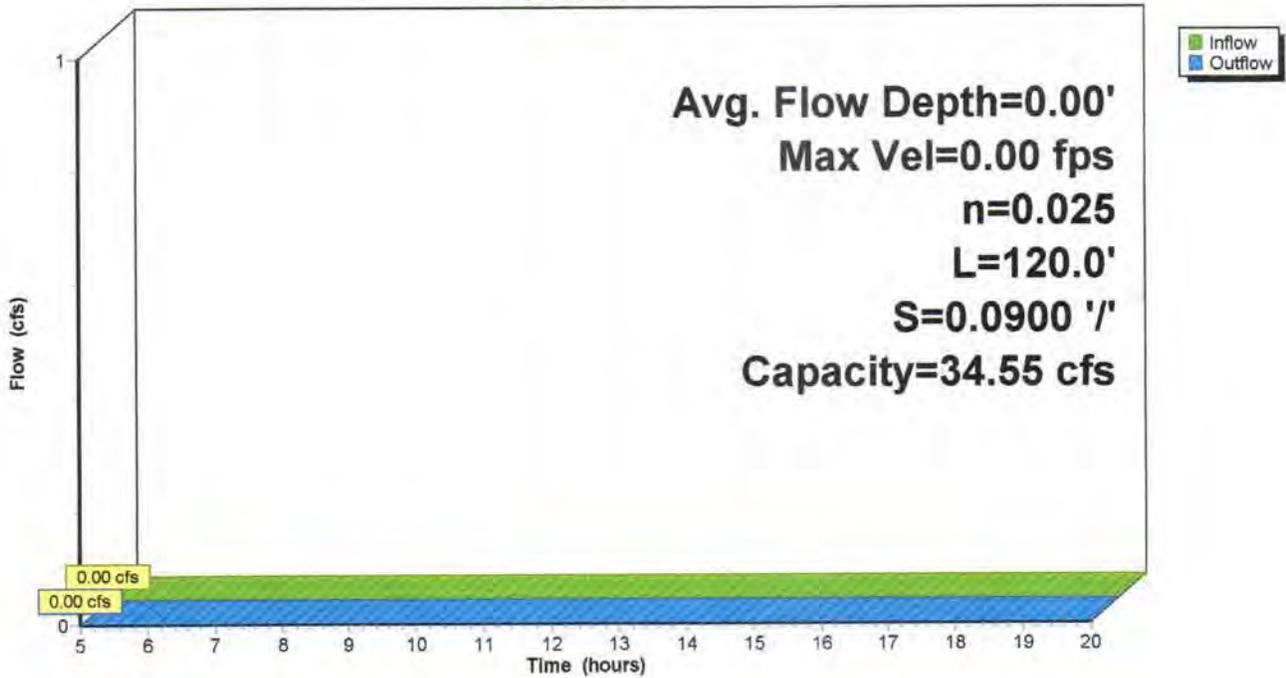
Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 3.8 sf, Capacity= 34.55 cfs

5.00' x 0.50' deep channel, n= 0.025
Side Slope Z-value= 5.0 '/' Top Width= 10.00'
Length= 120.0' Slope= 0.0900 '/'
Inlet Invert= 0.00', Outlet Invert= -10.80'



Reach 6R: Overflow

Hydrograph



SW Proposed Condition

Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Reach 7R: Design Point C

Inflow Area = 0.204 ac, 59.73% Impervious, Inflow Depth > 1.54" for 2 Year Storm Event event
 Inflow = 0.16 cfs @ 12.43 hrs, Volume= 0.026 af
 Outflow = 0.16 cfs @ 12.43 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.13 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.49 fps, Avg. Travel Time= 0.0 min

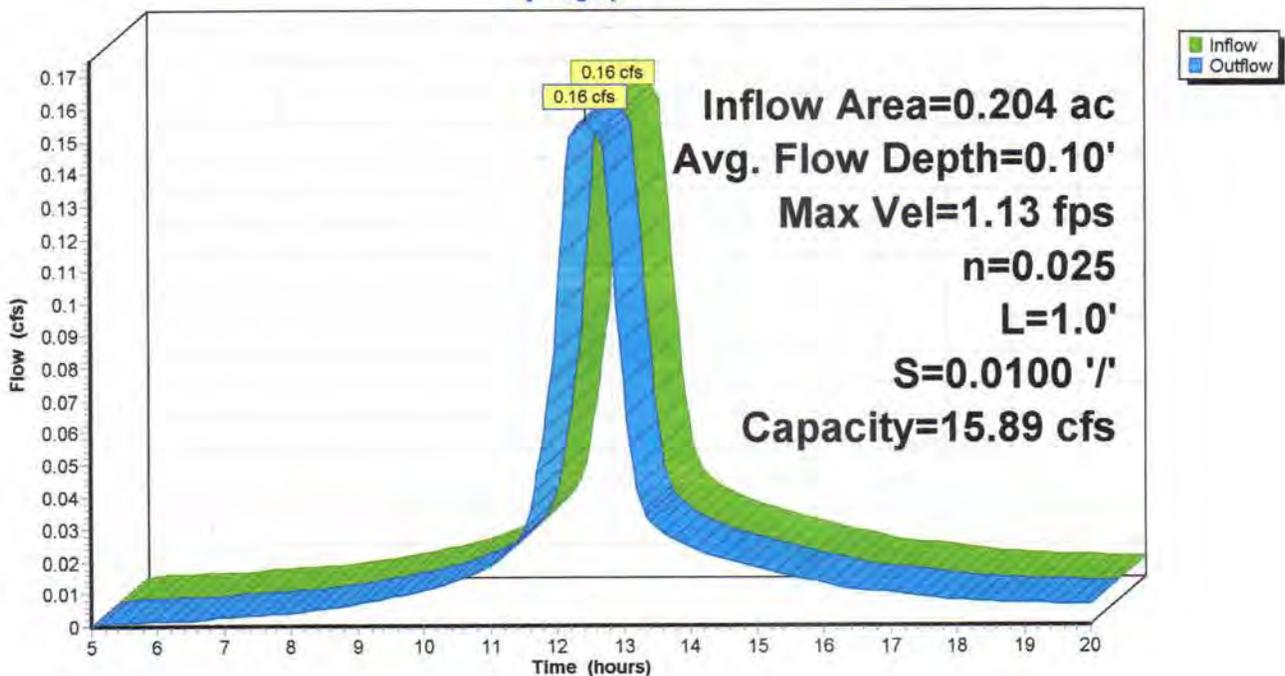
Peak Storage= 0 cf @ 12.43 hrs
 Average Depth at Peak Storage= 0.10'
 Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 15.89 cfs

1.00' x 1.00' deep channel, n= 0.025
 Side Slope Z-value= 3.0 '/' Top Width= 7.00'
 Length= 1.0' Slope= 0.0100 '/'
 Inlet Invert= 0.00', Outlet Invert= -0.01'



Reach 7R: Design Point C

Hydrograph



SW Proposed Condition

Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Reach 8R: Design Point B

Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity= 0.00 fps, Avg. Travel Time= 0.0 min

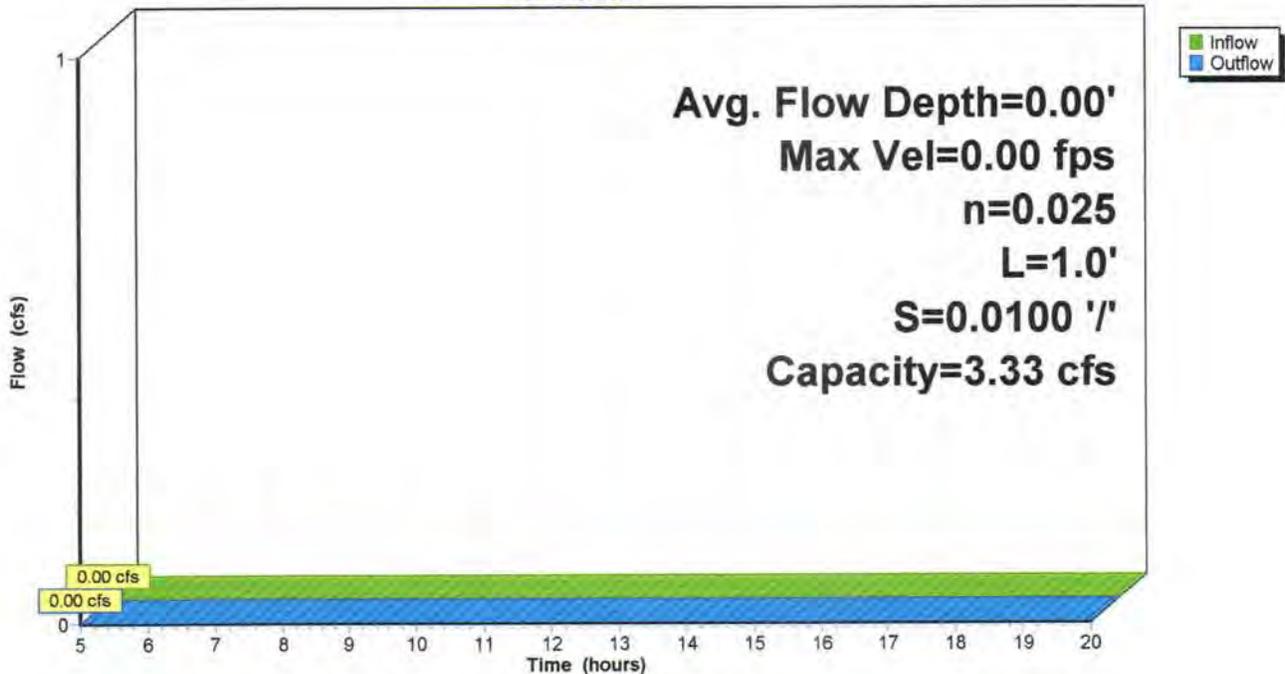
Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 1.3 sf, Capacity= 3.33 cfs

1.00' x 0.50' deep channel, n= 0.025
Side Slope Z-value= 3.0 '/' Top Width= 4.00'
Length= 1.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.01'



Reach 8R: Design Point B

Hydrograph



SW Proposed Condition

Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Pond 4P: Detention Pond behind house

Inflow Area = 0.174 ac, 69.99% Impervious, Inflow Depth > 1.75" for 2 Year Storm Event event
 Inflow = 0.21 cfs @ 12.25 hrs, Volume= 0.025 af
 Outflow = 0.15 cfs @ 12.47 hrs, Volume= 0.025 af, Atten= 29%, Lag= 13.2 min
 Primary = 0.15 cfs @ 12.47 hrs, Volume= 0.025 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 209.19' @ 12.47 hrs Surf.Area= 95 sf Storage= 128 cf

Plug-Flow detention time= 7.3 min calculated for 0.025 af (100% of inflow)
 Center-of-Mass det. time= 6.3 min (776.8 - 770.5)

Volume	Invert	Avail.Storage	Storage Description
#1	207.00'	599 cf	Custom Stage Data (Prismatic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
207.00	0	0	0
208.50	80	60	60
209.00	2	21	81
210.00	507	255	335
210.50	550	264	599

Device	Routing	Invert	Outlet Devices
#1	Primary	207.00'	6.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 207.00' / 206.90' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	207.00'	2.0" Vert. Orifice/Grate C= 0.600
#3	Secondary	209.95'	5.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.15 cfs @ 12.47 hrs HW=209.18' (Free Discharge)

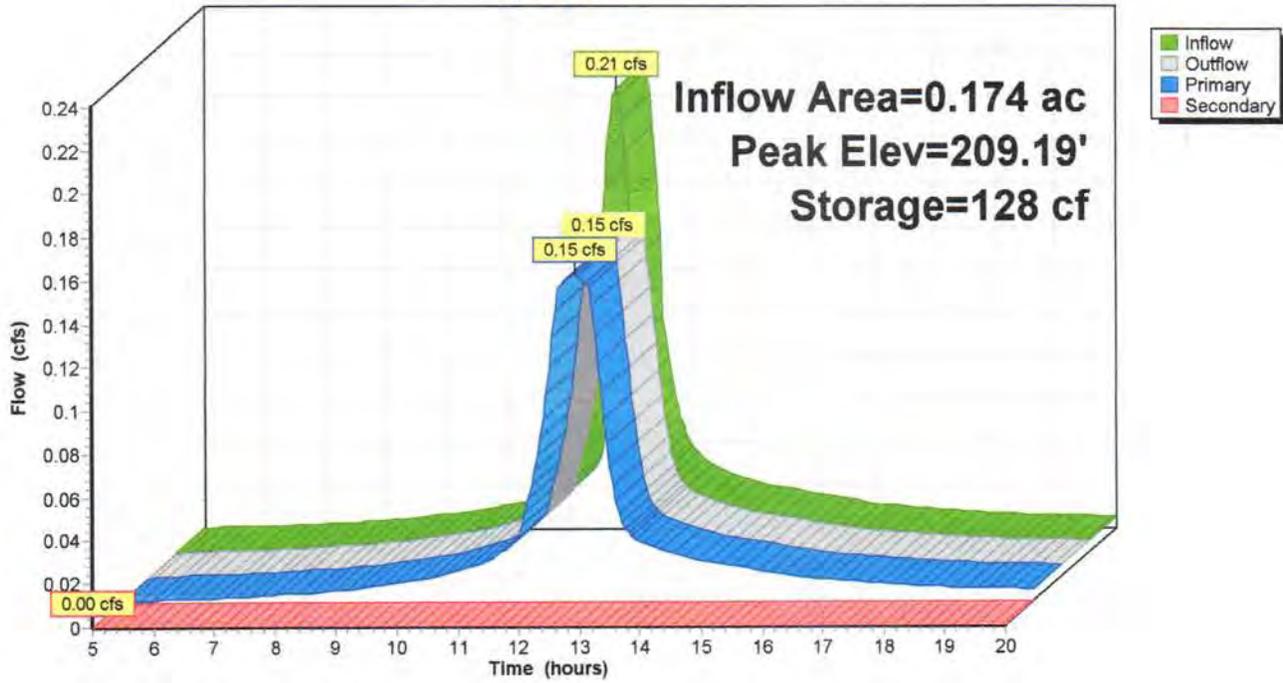
- └1=Culvert (Passes 0.15 cfs of 1.31 cfs potential flow)
- └2=Orifice/Grate (Orifice Controls 0.15 cfs @ 6.98 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=207.00' (Free Discharge)

- └3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 4P: Detention Pond behind house

Hydrograph



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Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Summary for Pond 5P: Pond @ Road

Inflow Area = 0.083 ac, 81.45% Impervious, Inflow Depth > 1.95" for 2 Year Storm Event event
 Inflow = 0.22 cfs @ 12.01 hrs, Volume= 0.013 af
 Outflow = 0.12 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 44%, Lag= 5.9 min
 Primary = 0.12 cfs @ 12.11 hrs, Volume= 0.013 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 215.49' @ 12.11 hrs Surf.Area= 72 sf Storage= 53 cf

Plug-Flow detention time= 2.1 min calculated for 0.013 af (100% of inflow)
 Center-of-Mass det. time= 2.1 min (770.9 - 768.8)

Volume	Invert	Avail.Storage	Storage Description
#1	214.00'	386 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.00	0	0	0
217.00	145	218	218
218.00	13	79	297
219.00	13	13	310
220.00	140	77	386

Device	Routing	Invert	Outlet Devices
#1	Primary	213.90'	6.0" Round Culvert L= 86.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 213.90' / 210.03' S= 0.0450 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	214.00'	2.0" Vert. Orifice/Grate C= 0.600
#3	Secondary	219.90'	5.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.12 cfs @ 12.11 hrs HW=215.47' (Free Discharge)

- ↑ 1=Culvert (Passes 0.12 cfs of 0.96 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 0.12 cfs @ 5.68 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=214.00' (Free Discharge)

- ↑ 3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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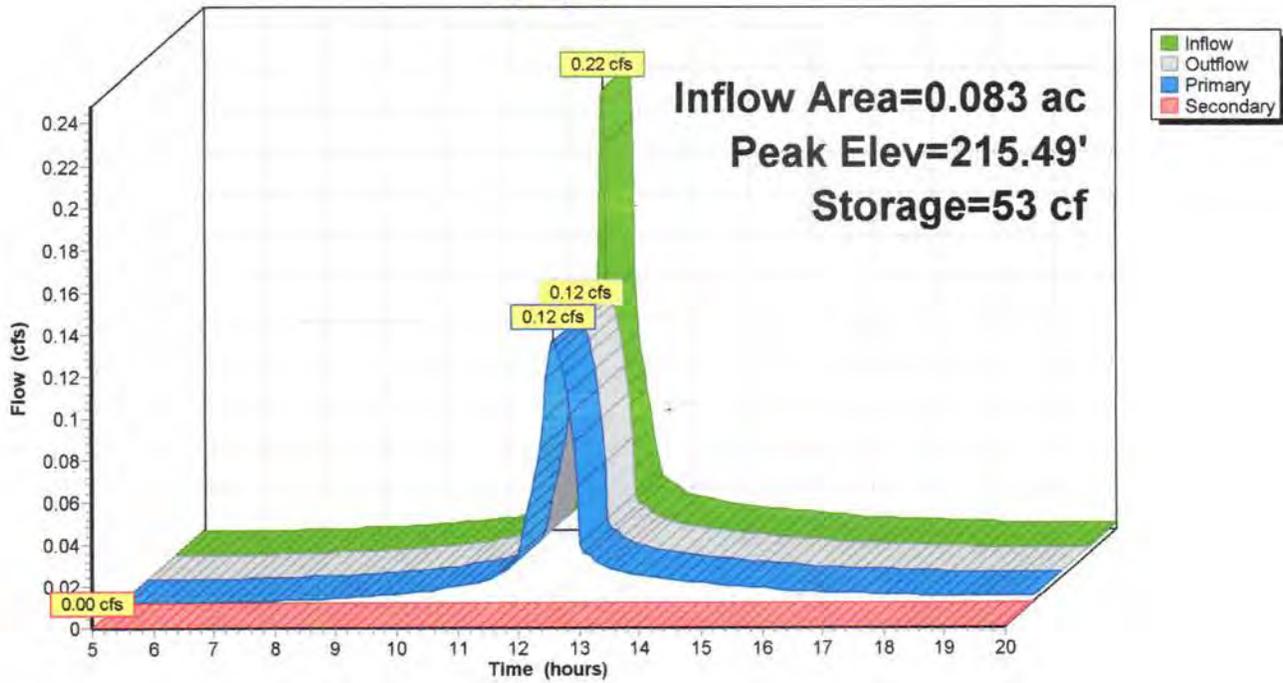
Type III 24-hr 2 Year Storm Event Rainfall=3.00"

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Pond 5P: Pond @ Road

Hydrograph



SW Proposed Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Design Point ARunoff Area=1,919 sf 47.47% Impervious Runoff Depth>2.05"
Flow Length=89' Slope=0.0200 '/' Tc=5.8 min CN=79 Runoff=0.11 cfs 0.008 af**Subcatchment 2S: Watershed 2**Runoff Area=3,596 sf 81.45% Impervious Runoff Depth>3.13"
Flow Length=76' Slope=0.0200 '/' Tc=0.9 min CN=91 Runoff=0.35 cfs 0.022 af**Subcatchment 3S: Watershed 3**Runoff Area=1,305 sf 0.00% Impervious Runoff Depth>0.87"
Flow Length=120' Tc=3.9 min CN=61 Runoff=0.03 cfs 0.002 af**Subcatchment 4S: Watershed 4**Runoff Area=1,970 sf 100.00% Impervious Runoff Depth>3.78"
Flow Length=63' Tc=24.6 min CN=98 Runoff=0.12 cfs 0.014 af**Subcatchment 5S: Watershed 5**Runoff Area=2,028 sf 20.51% Impervious Runoff Depth>1.33"
Flow Length=109' Tc=14.1 min CN=69 Runoff=0.06 cfs 0.005 af**Subcatchment 6S: Watershed 6 Offsite**Runoff Area=350 sf 0.00% Impervious Runoff Depth>0.87"
Flow Length=30' Slope=0.0600 '/' Tc=3.6 min CN=61 Runoff=0.01 cfs 0.001 af**Reach 5R: Pond outfall discharge**Avg. Flow Depth=0.11' Max Vel=1.18 fps Inflow=0.18 cfs 0.041 af
n=0.025 L=1.0' S=0.0100 '/' Capacity=15.89 cfs Outflow=0.18 cfs 0.041 af**Reach 6R: Overflow**Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.025 L=120.0' S=0.0900 '/' Capacity=34.55 cfs Outflow=0.00 cfs 0.000 af**Reach 7R: Design Point C**Avg. Flow Depth=0.11' Max Vel=1.19 fps Inflow=0.18 cfs 0.043 af
n=0.025 L=1.0' S=0.0100 '/' Capacity=15.89 cfs Outflow=0.18 cfs 0.043 af**Reach 8R: Design Point B**Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.025 L=1.0' S=0.0100 '/' Capacity=3.33 cfs Outflow=0.00 cfs 0.000 af**Pond 4P: Detention Pond behind house**Peak Elev=209.91' Storage=313 cf Inflow=0.32 cfs 0.041 af
Primary=0.18 cfs 0.041 af Secondary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.041 af**Pond 5P: Pond @ Road**Peak Elev=216.23' Storage=120 cf Inflow=0.35 cfs 0.022 af
Primary=0.15 cfs 0.022 af Secondary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.022 af

SW Proposed Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Subcatchment 1S: Design Point A

Runoff = 0.11 cfs @ 12.09 hrs, Volume= 0.008 af, Depth> 2.05"

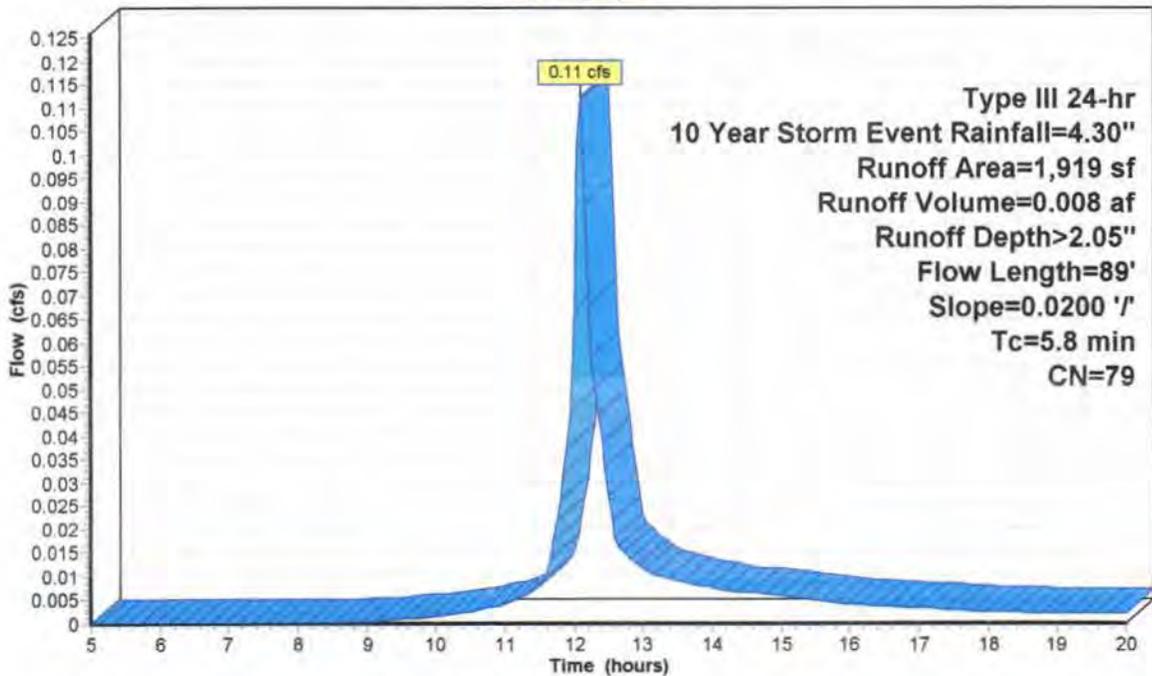
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Year Storm Event Rainfall=4.30"

Area (sf)	CN	Description
911	98	Paved parking, HSG B
1,008	61	>75% Grass cover, Good, HSG B
1,919	79	Weighted Average
1,008		52.53% Pervious Area
911		47.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	45	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
0.4	24	0.0200	1.00		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.00"
0.1	20	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.8	89	Total			

Subcatchment 1S: Design Point A

Hydrograph



SW Proposed Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Subcatchment 2S: Watershed 2

Runoff = 0.35 cfs @ 12.01 hrs, Volume= 0.022 af, Depth> 3.13"

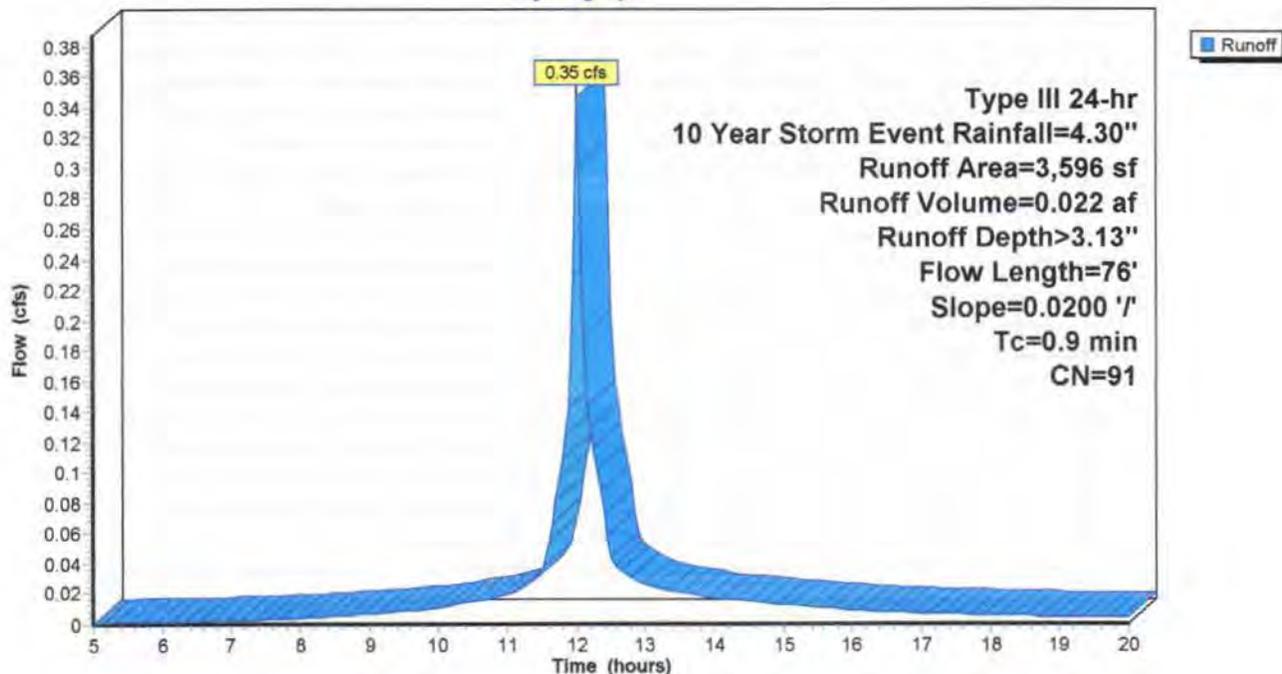
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Year Storm Event Rainfall=4.30"

Area (sf)	CN	Description
* 2,929	98	Paved parking, HSG B
667	61	>75% Grass cover, Good, HSG B
3,596	91	Weighted Average
667		18.55% Pervious Area
2,929		81.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	60	0.0200	1.20		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.00"
0.1	16	0.0200	2.12		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
0.9	76	Total			

Subcatchment 2S: Watershed 2

Hydrograph



SW Proposed Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Subcatchment 3S: Watershed 3

Runoff = 0.03 cfs @ 12.08 hrs, Volume= 0.002 af, Depth> 0.87"

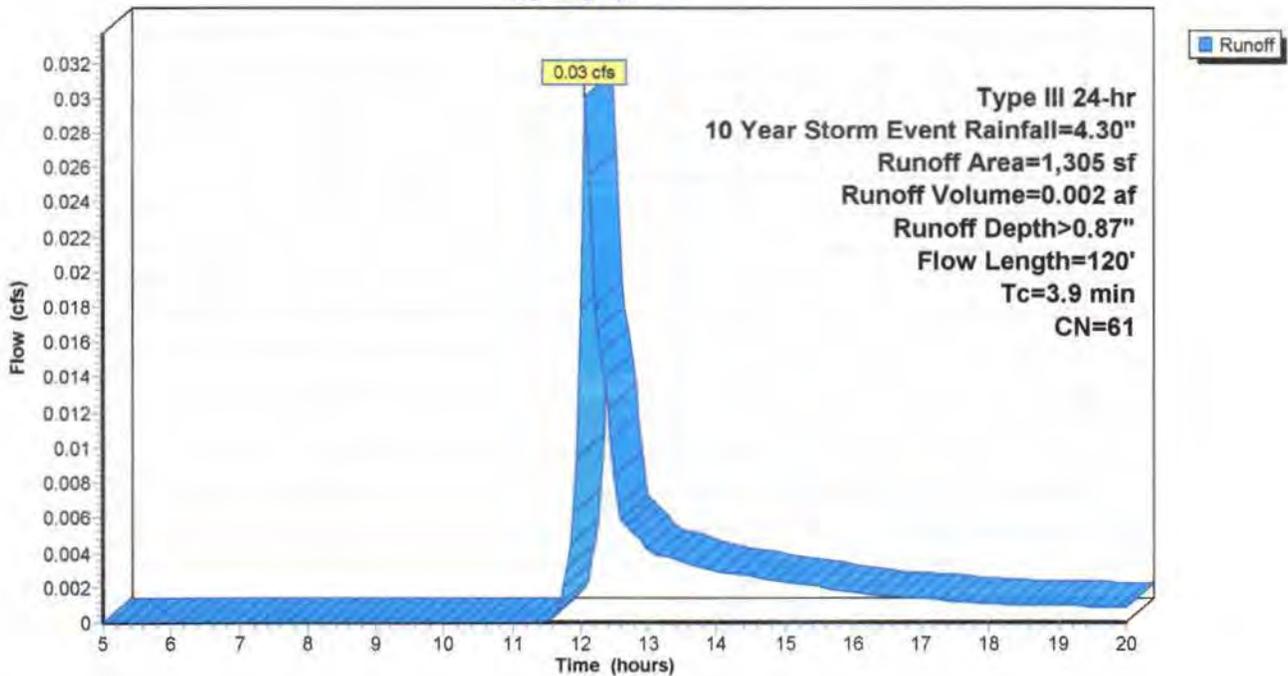
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Year Storm Event Rainfall=4.30"

Area (sf)	CN	Description
1,305	61	>75% Grass cover, Good, HSG B
1,305		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	60	0.0670	0.27		Sheet Flow, Range n= 0.130 P2= 3.00"
0.2	60	0.1330	5.47		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
3.9	120	Total			

Subcatchment 3S: Watershed 3

Hydrograph



SW Proposed Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Subcatchment 4S: Watershed 4

Runoff = 0.12 cfs @ 12.32 hrs, Volume= 0.014 af, Depth> 3.78"

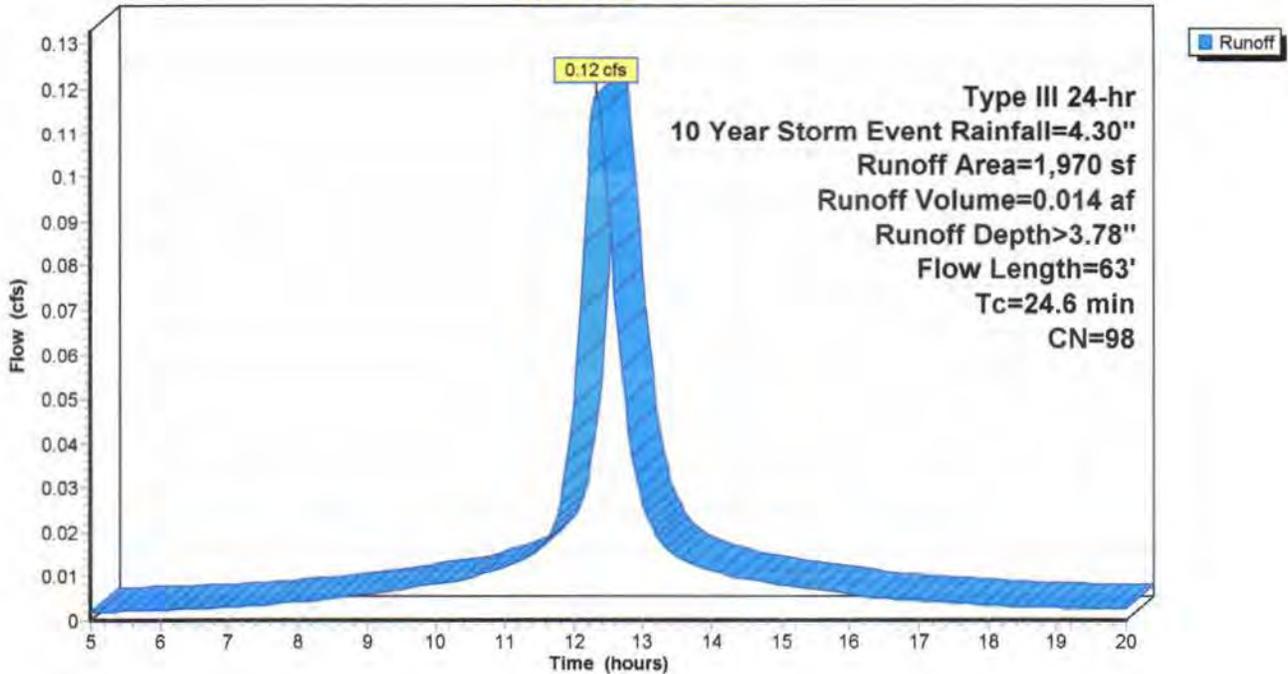
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Year Storm Event Rainfall=4.30"

Area (sf)	CN	Description
* 1,970	98	Roofs to stone drip edge, HSG B
1,970		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	23	0.2500	0.34		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
23.5	40	0.0010	0.03		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
24.6	63	Total			

Subcatchment 4S: Watershed 4

Hydrograph



SW Proposed Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Subcatchment 5S: Watershed 5

Runoff = 0.06 cfs @ 12.21 hrs, Volume= 0.005 af, Depth> 1.33"

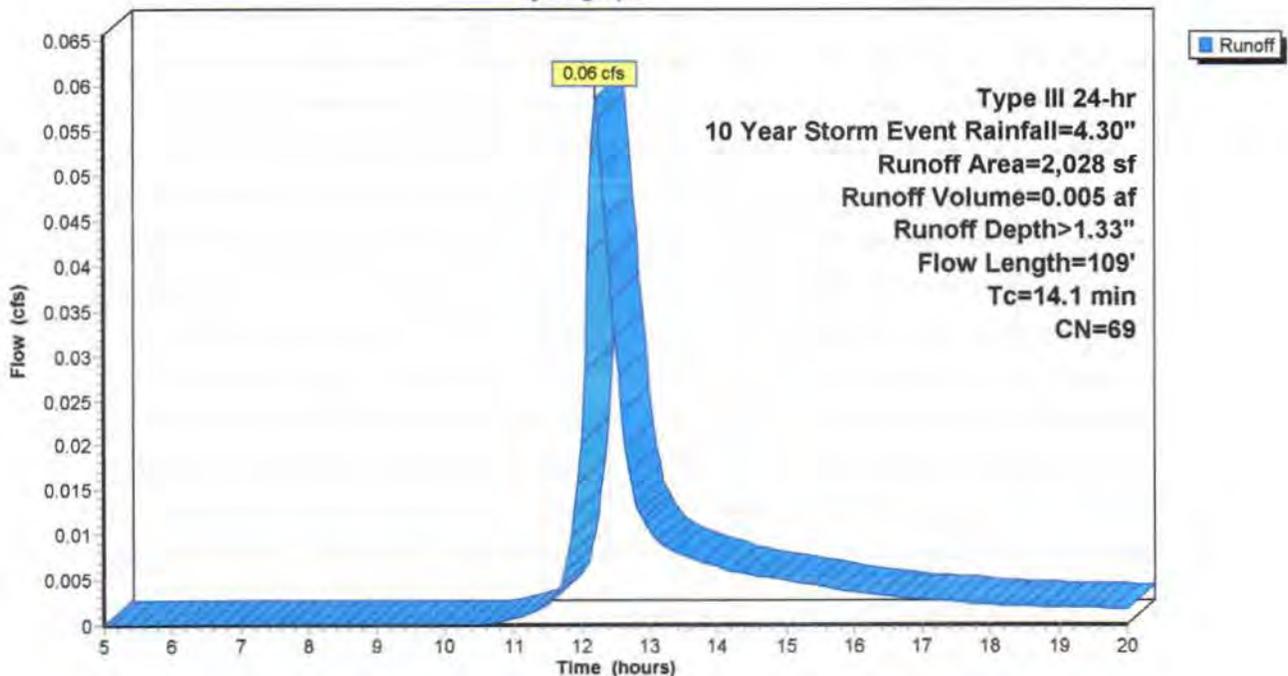
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Event Rainfall=4.30"

Area (sf)	CN	Description
416	98	Paved parking, HSG B
1,612	61	>75% Grass cover, Good, HSG B
2,028	69	Weighted Average
1,612		79.49% Pervious Area
416		20.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	23	0.2500	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
2.7	30	0.1300	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
9.7	56	0.0180	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
14.1	109	Total			

Subcatchment 5S: Watershed 5

Hydrograph



SW Proposed Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Subcatchment 6S: Watershed 6 Offsite

Runoff = 0.01 cfs @ 12.07 hrs, Volume= 0.001 af, Depth> 0.87"

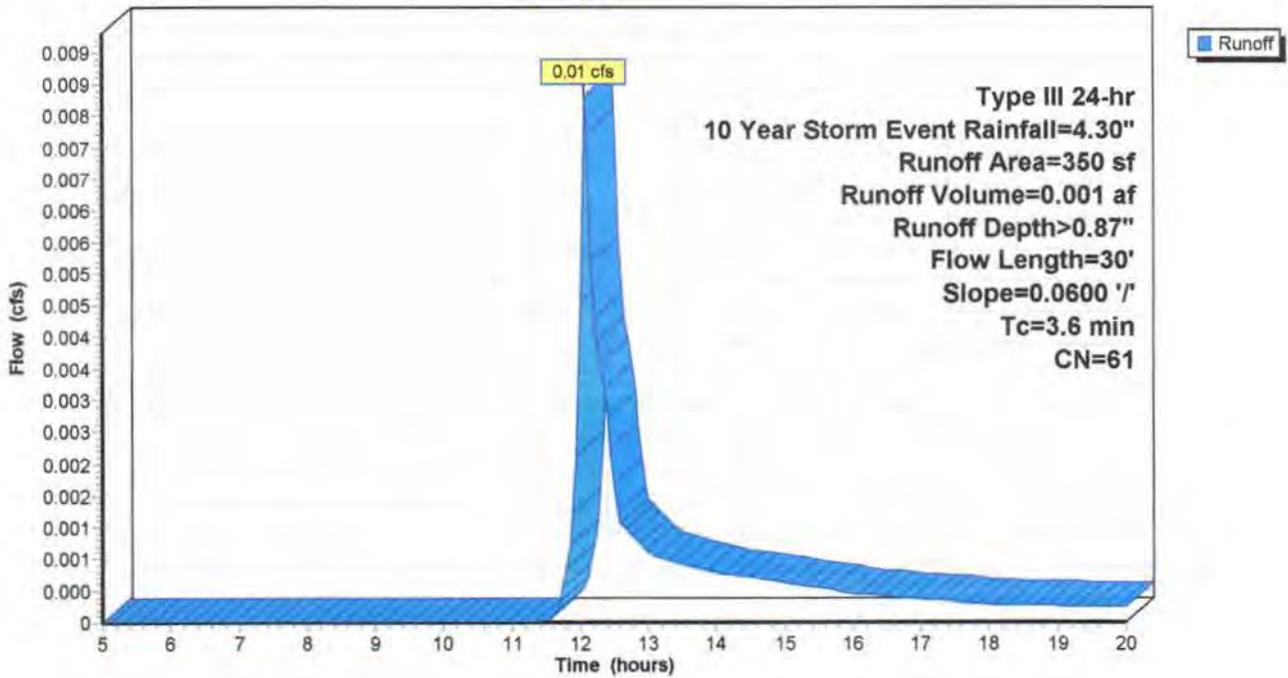
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Event Rainfall=4.30"

Area (sf)	CN	Description
350	61	>75% Grass cover, Good, HSG B
350		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	30	0.0600	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"

Subcatchment 6S: Watershed 6 Offsite

Hydrograph



SW Proposed Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Reach 5R: Pond outfall discharge

Inflow Area = 0.174 ac, 69.99% Impervious, Inflow Depth > 2.81" for 10 Year Storm Event event
Inflow = 0.18 cfs @ 12.65 hrs, Volume= 0.041 af
Outflow = 0.18 cfs @ 12.65 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.18 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.58 fps, Avg. Travel Time= 0.0 min

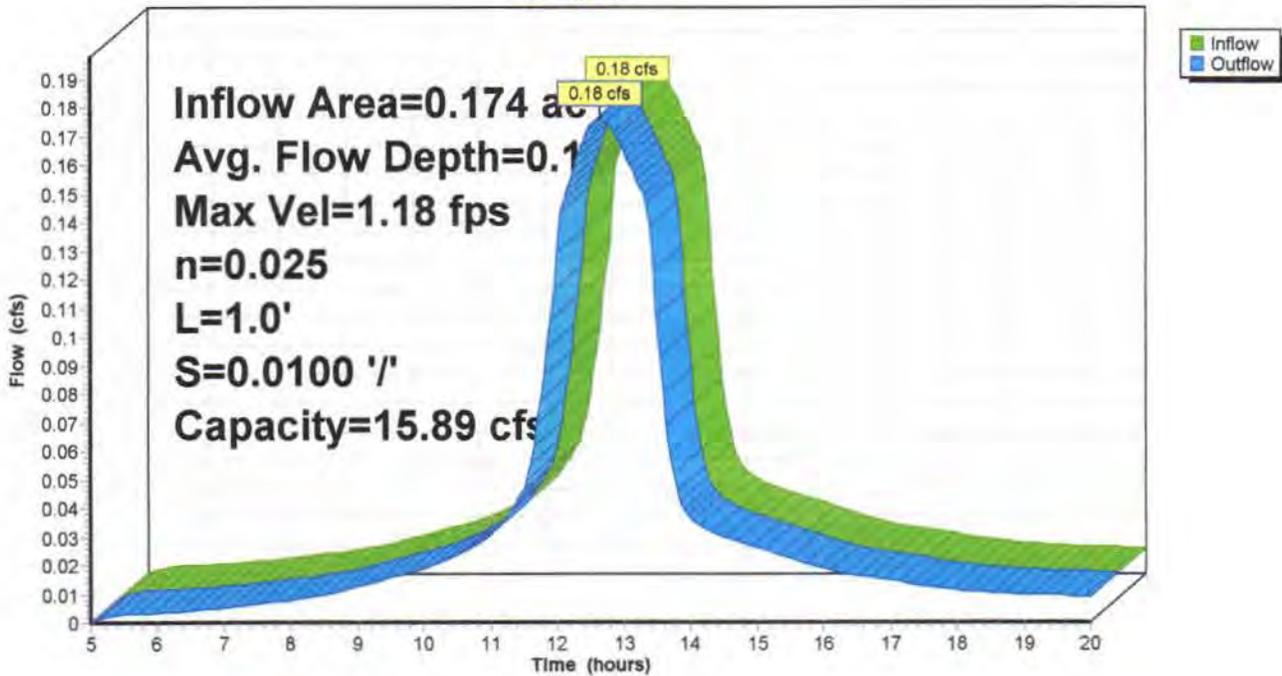
Peak Storage= 0 cf @ 12.65 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 15.89 cfs

1.00' x 1.00' deep channel, n= 0.025
Side Slope Z-value= 3.0 '/' Top Width= 7.00'
Length= 1.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.01'



Reach 5R: Pond outfall discharge

Hydrograph



SW Proposed Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Reach 6R: Overflow

Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity= 0.00 fps, Avg. Travel Time= 0.0 min

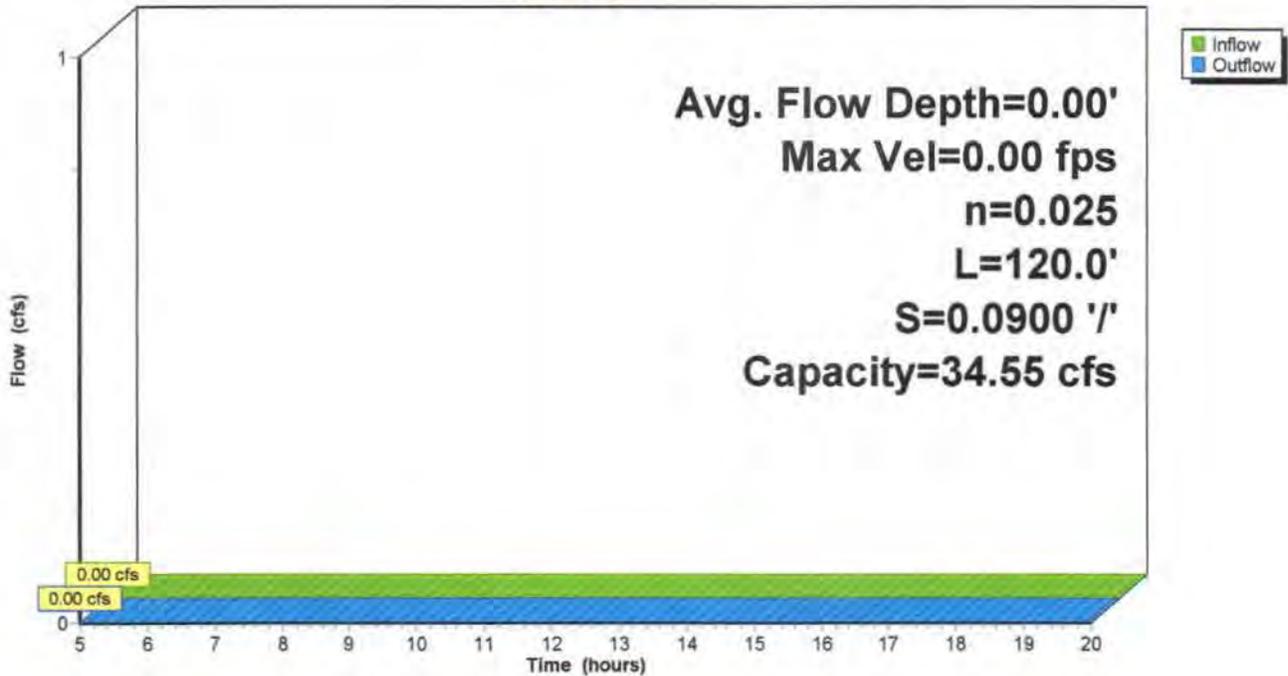
Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 3.8 sf, Capacity= 34.55 cfs

5.00' x 0.50' deep channel, n= 0.025
Side Slope Z-value= 5.0 '/' Top Width= 10.00'
Length= 120.0' Slope= 0.0900 '/'
Inlet Invert= 0.00', Outlet Invert= -10.80'



Reach 6R: Overflow

Hydrograph



SW Proposed Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Reach 7R: Design Point C

Inflow Area = 0.204 ac, 59.73% Impervious, Inflow Depth > 2.53" for 10 Year Storm Event event
Inflow = 0.18 cfs @ 12.49 hrs, Volume= 0.043 af
Outflow = 0.18 cfs @ 12.49 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.19 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.59 fps, Avg. Travel Time= 0.0 min

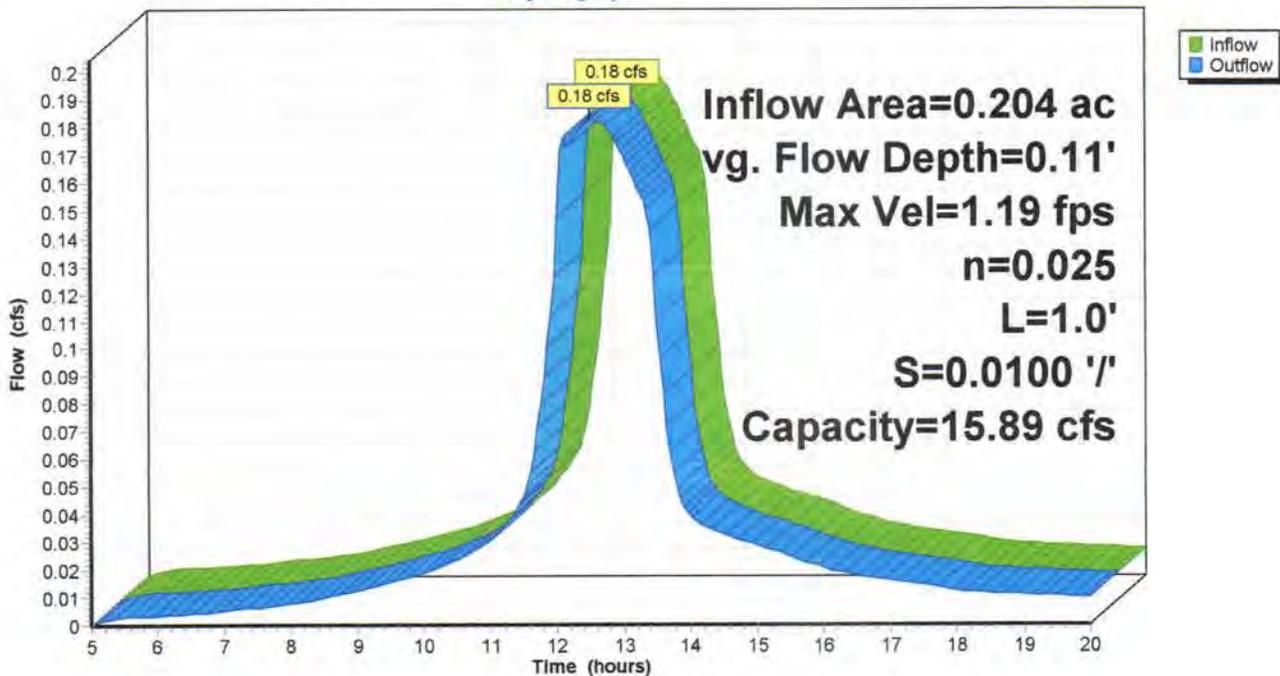
Peak Storage= 0 cf @ 12.49 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 15.89 cfs

1.00' x 1.00' deep channel, n= 0.025
Side Slope Z-value= 3.0 '/' Top Width= 7.00'
Length= 1.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.01'



Reach 7R: Design Point C

Hydrograph



SW Proposed Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Reach 8R: Design Point B

Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

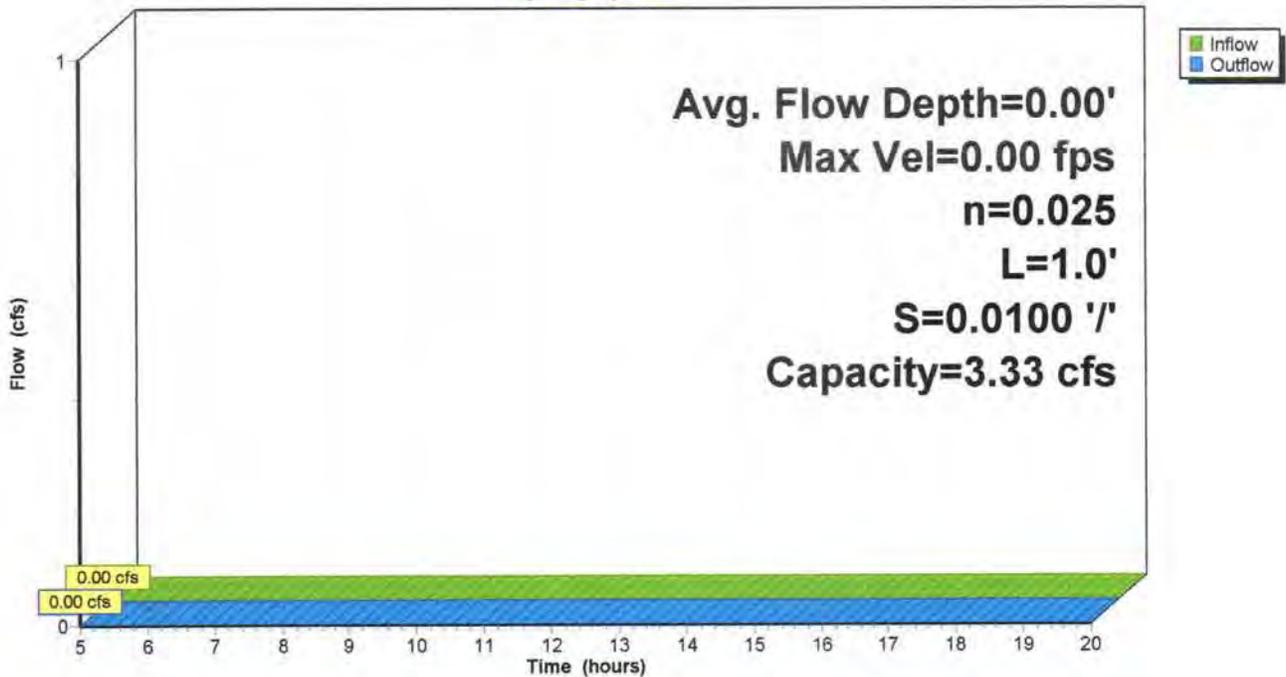
Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 1.3 sf, Capacity= 3.33 cfs

1.00' x 0.50' deep channel, n= 0.025
Side Slope Z-value= 3.0 '/' Top Width= 4.00'
Length= 1.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.01'



Reach 8R: Design Point B

Hydrograph



SW Proposed Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Pond 4P: Detention Pond behind house

Inflow Area = 0.174 ac, 69.99% Impervious, Inflow Depth > 2.82" for 10 Year Storm Event event
 Inflow = 0.32 cfs @ 12.26 hrs, Volume= 0.041 af
 Outflow = 0.18 cfs @ 12.65 hrs, Volume= 0.041 af, Atten= 45%, Lag= 23.3 min
 Primary = 0.18 cfs @ 12.65 hrs, Volume= 0.041 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 209.91' @ 12.65 hrs Surf.Area= 463 sf Storage= 313 cf

Plug-Flow detention time= 12.5 min calculated for 0.041 af (99% of inflow)
 Center-of-Mass det. time= 11.7 min (777.0 - 765.3)

Volume	Invert	Avail.Storage	Storage Description
#1	207.00'	599 cf	Custom Stage Data (Prismatic) Listed below
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
207.00	0	0	0
208.50	80	60	60
209.00	2	21	81
210.00	507	255	335
210.50	550	264	599

Device	Routing	Invert	Outlet Devices
#1	Primary	207.00'	6.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 207.00' / 206.90' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	207.00'	2.0" Vert. Orifice/Grate C= 0.600
#3	Secondary	209.95'	5.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.18 cfs @ 12.65 hrs HW=209.91' (Free Discharge)

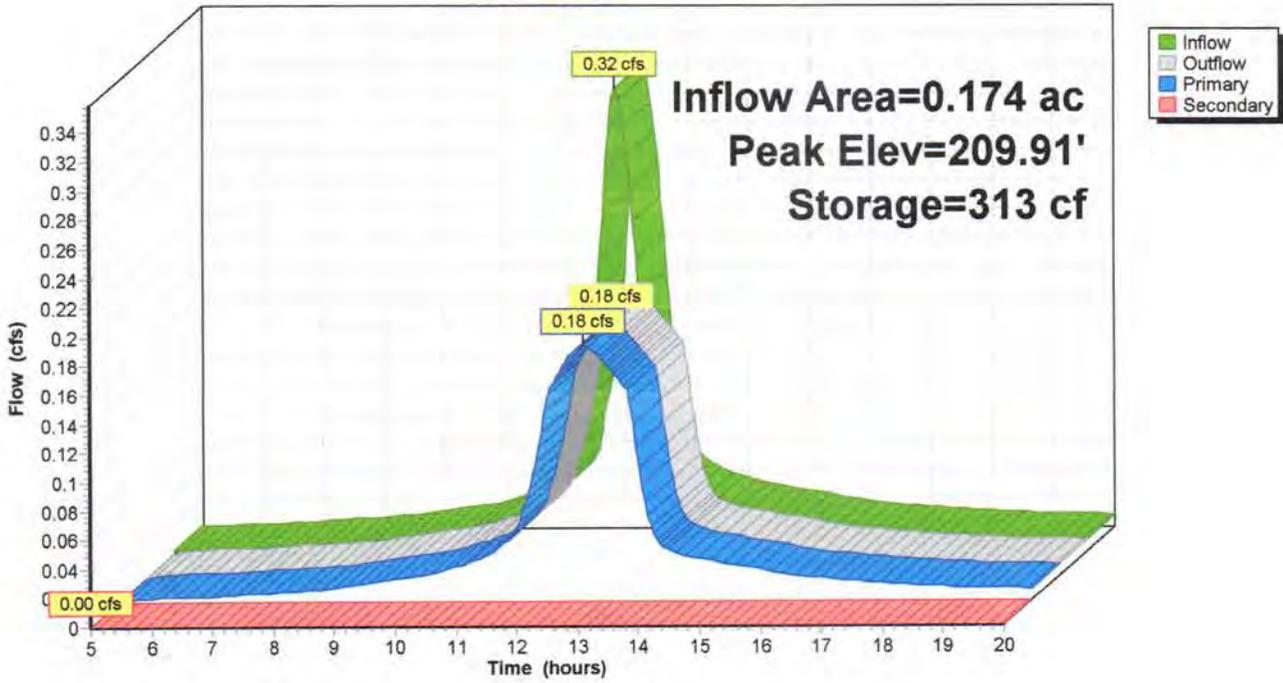
- ↑1=Culvert (Passes 0.18 cfs of 1.54 cfs potential flow)
- ↑2=Orifice/Grate (Orifice Controls 0.18 cfs @ 8.10 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=207.00' (Free Discharge)

- ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 4P: Detention Pond behind house

Hydrograph



SW Proposed Condition

Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Summary for Pond 5P: Pond @ Road

Inflow Area = 0.083 ac, 81.45% Impervious, Inflow Depth > 3.13" for 10 Year Storm Event event
 Inflow = 0.35 cfs @ 12.01 hrs, Volume= 0.022 af
 Outflow = 0.15 cfs @ 12.15 hrs, Volume= 0.022 af, Atten= 56%, Lag= 8.1 min
 Primary = 0.15 cfs @ 12.15 hrs, Volume= 0.022 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 216.23' @ 12.15 hrs Surf.Area= 108 sf Storage= 120 cf

Plug-Flow detention time= 4.2 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 4.2 min (761.9 - 757.7)

Volume	Invert	Avail.Storage	Storage Description
#1	214.00'	386 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.00	0	0	0
217.00	145	218	218
218.00	13	79	297
219.00	13	13	310
220.00	140	77	386

Device	Routing	Invert	Outlet Devices
#1	Primary	213.90'	6.0" Round Culvert L= 86.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 213.90' / 210.03' S= 0.0450 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	214.00'	2.0" Vert. Orifice/Grate C= 0.600
#3	Secondary	219.90'	5.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.15 cfs @ 12.15 hrs HW=216.23' (Free Discharge)
 ↑ 1=Culvert (Passes 0.15 cfs of 1.20 cfs potential flow)
 ↑ 2=Orifice/Grate (Orifice Controls 0.15 cfs @ 7.05 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=214.00' (Free Discharge)
 ↑ 3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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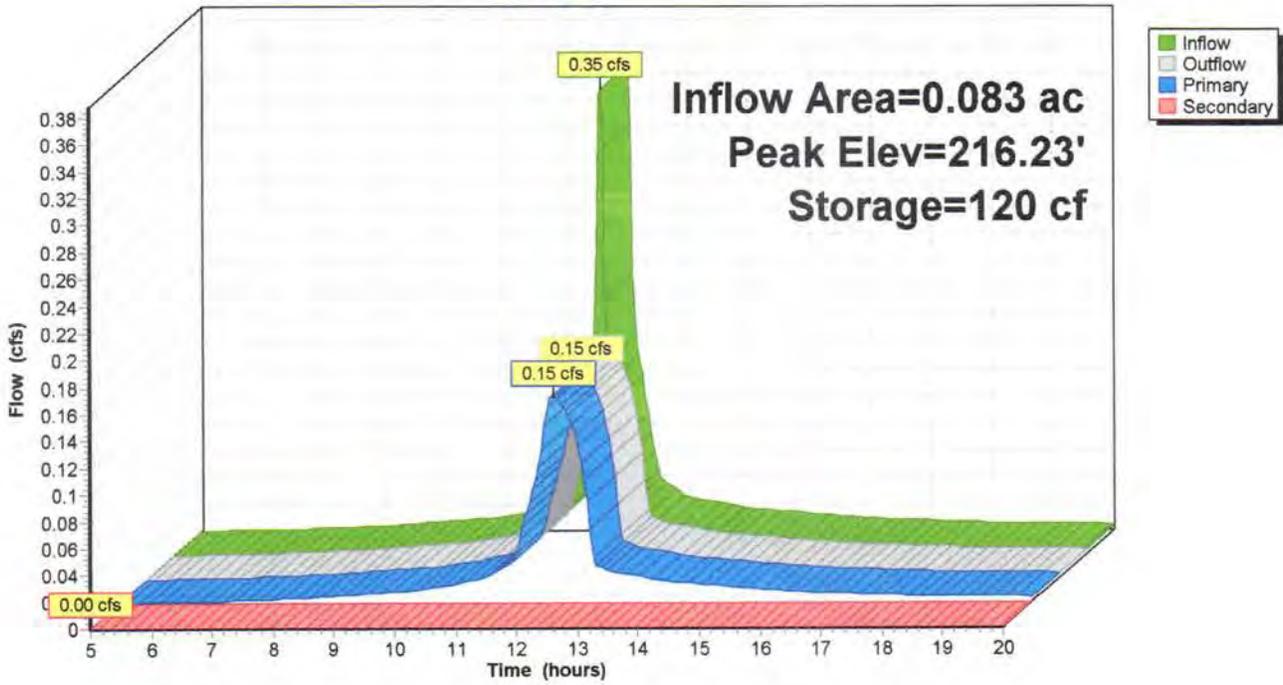
Type III 24-hr 10 Year Storm Event Rainfall=4.30"

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Pond 5P: Pond @ Road

Hydrograph



SW Proposed Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Design Point ARunoff Area=1,919 sf 47.47% Impervious Runoff Depth>2.94"
Flow Length=89' Slope=0.0200 '/' Tc=5.8 min CN=79 Runoff=0.16 cfs 0.011 af**Subcatchment 2S: Watershed 2**Runoff Area=3,596 sf 81.45% Impervious Runoff Depth>4.14"
Flow Length=76' Slope=0.0200 '/' Tc=0.9 min CN=91 Runoff=0.45 cfs 0.028 af**Subcatchment 3S: Watershed 3**Runoff Area=1,305 sf 0.00% Impervious Runoff Depth>1.47"
Flow Length=120' Tc=3.9 min CN=61 Runoff=0.06 cfs 0.004 af**Subcatchment 4S: Watershed 4**Runoff Area=1,970 sf 100.00% Impervious Runoff Depth>4.78"
Flow Length=63' Tc=24.6 min CN=98 Runoff=0.15 cfs 0.018 af**Subcatchment 5S: Watershed 5**Runoff Area=2,028 sf 20.51% Impervious Runoff Depth>2.07"
Flow Length=109' Tc=14.1 min CN=69 Runoff=0.09 cfs 0.008 af**Subcatchment 6S: Watershed 6 Offsite**Runoff Area=350 sf 0.00% Impervious Runoff Depth>1.47"
Flow Length=30' Slope=0.0600 '/' Tc=3.6 min CN=61 Runoff=0.02 cfs 0.001 af**Reach 5R: Pond outfall discharge**Avg. Flow Depth=0.11' Max Vel=1.18 fps Inflow=0.18 cfs 0.050 af
n=0.025 L=1.0' S=0.0100 '/' Capacity=15.89 cfs Outflow=0.18 cfs 0.050 af**Reach 6R: Overflow**Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.025 L=120.0' S=0.0900 '/' Capacity=34.55 cfs Outflow=0.00 cfs 0.000 af**Reach 7R: Design Point C**Avg. Flow Depth=0.12' Max Vel=1.23 fps Inflow=0.21 cfs 0.054 af
n=0.025 L=1.0' S=0.0100 '/' Capacity=15.89 cfs Outflow=0.21 cfs 0.054 af**Reach 8R: Design Point B**Avg. Flow Depth=0.13' Max Vel=1.22 fps Inflow=0.21 cfs 0.004 af
n=0.025 L=1.0' S=0.0100 '/' Capacity=3.33 cfs Outflow=0.21 cfs 0.004 af**Pond 4P: Detention Pond behind house**Peak Elev=210.01' Storage=342 cf Inflow=0.40 cfs 0.054 af
Primary=0.18 cfs 0.050 af Secondary=0.21 cfs 0.004 af Outflow=0.39 cfs 0.054 af**Pond 5P: Pond @ Road**Peak Elev=216.81' Storage=191 cf Inflow=0.45 cfs 0.028 af
Primary=0.17 cfs 0.028 af Secondary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.028 af

SW Proposed Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Subcatchment 1S: Design Point A

Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.011 af, Depth> 2.94"

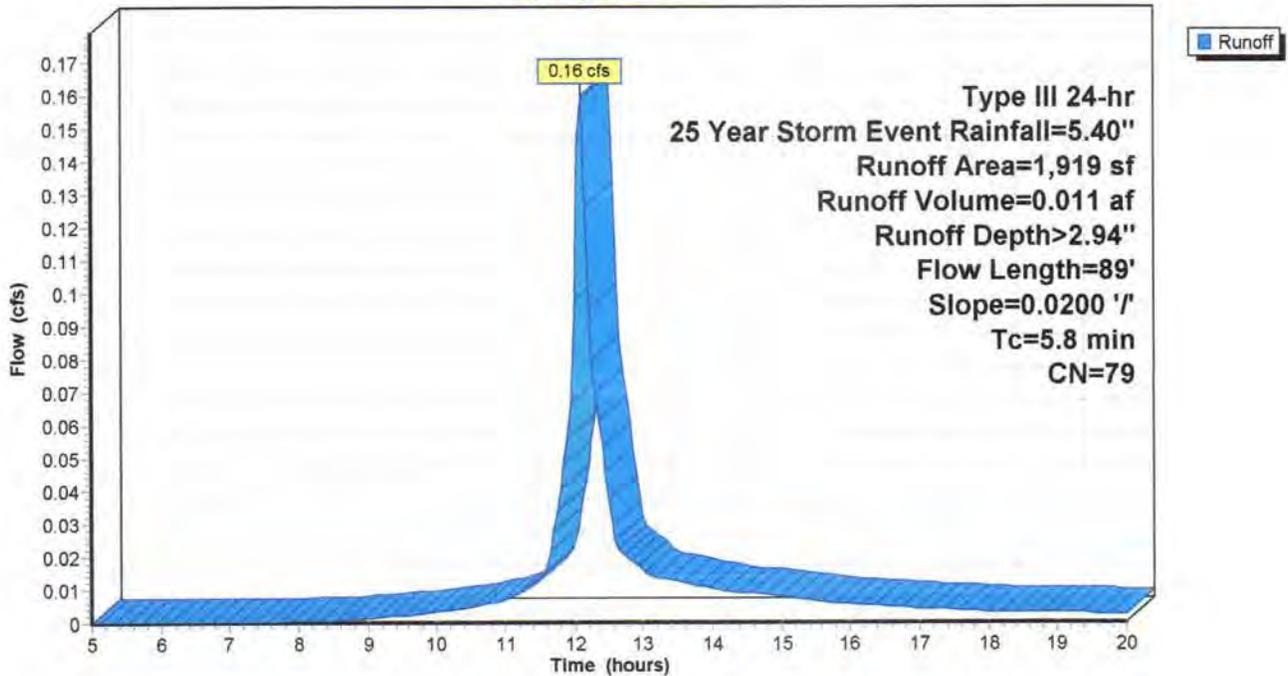
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 Year Storm Event Rainfall=5.40"

Area (sf)	CN	Description
911	98	Paved parking, HSG B
1,008	61	>75% Grass cover, Good, HSG B
1,919	79	Weighted Average
1,008		52.53% Pervious Area
911		47.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	45	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
0.4	24	0.0200	1.00		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.00"
0.1	20	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.8	89	Total			

Subcatchment 1S: Design Point A

Hydrograph



SW Proposed Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Subcatchment 2S: Watershed 2

Runoff = 0.45 cfs @ 12.01 hrs, Volume= 0.028 af, Depth> 4.14"

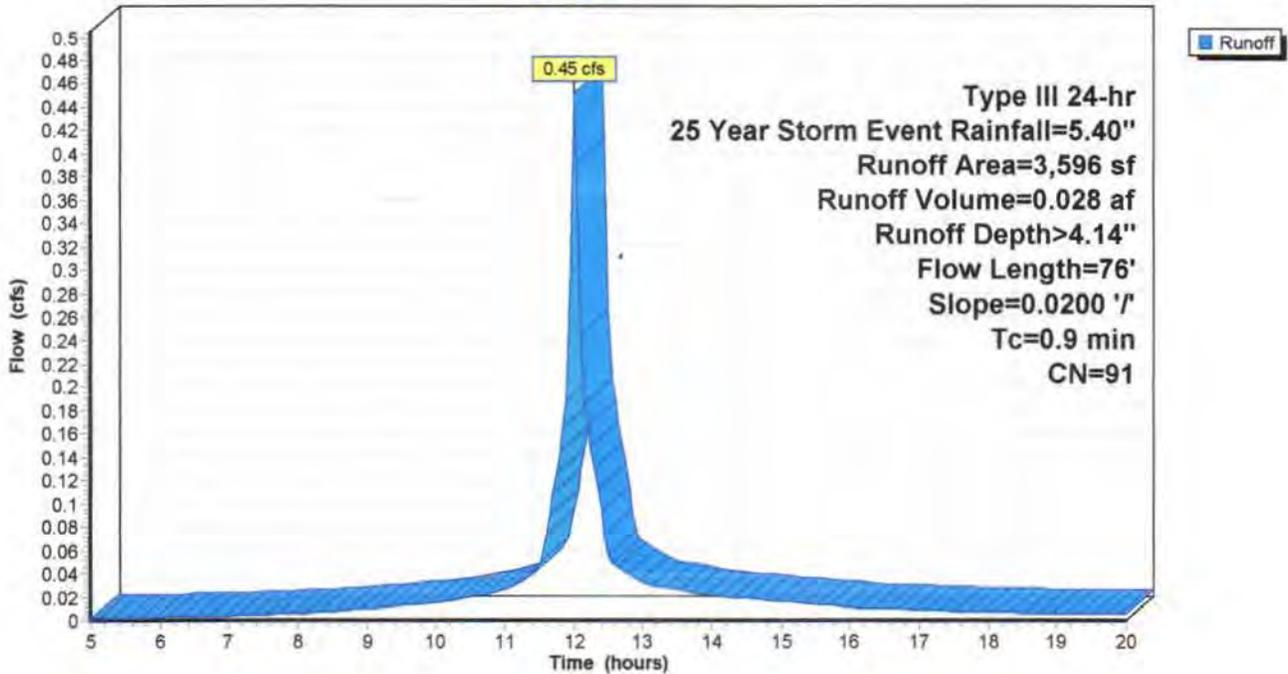
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 Year Storm Event Rainfall=5.40"

Area (sf)	CN	Description
* 2,929	98	Paved parking, HSG B
667	61	>75% Grass cover, Good, HSG B
3,596	91	Weighted Average
667		18.55% Pervious Area
2,929		81.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	60	0.0200	1.20		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.00"
0.1	16	0.0200	2.12		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
0.9	76	Total			

Subcatchment 2S: Watershed 2

Hydrograph



SW Proposed Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Subcatchment 3S: Watershed 3

Runoff = 0.06 cfs @ 12.07 hrs, Volume= 0.004 af, Depth> 1.47"

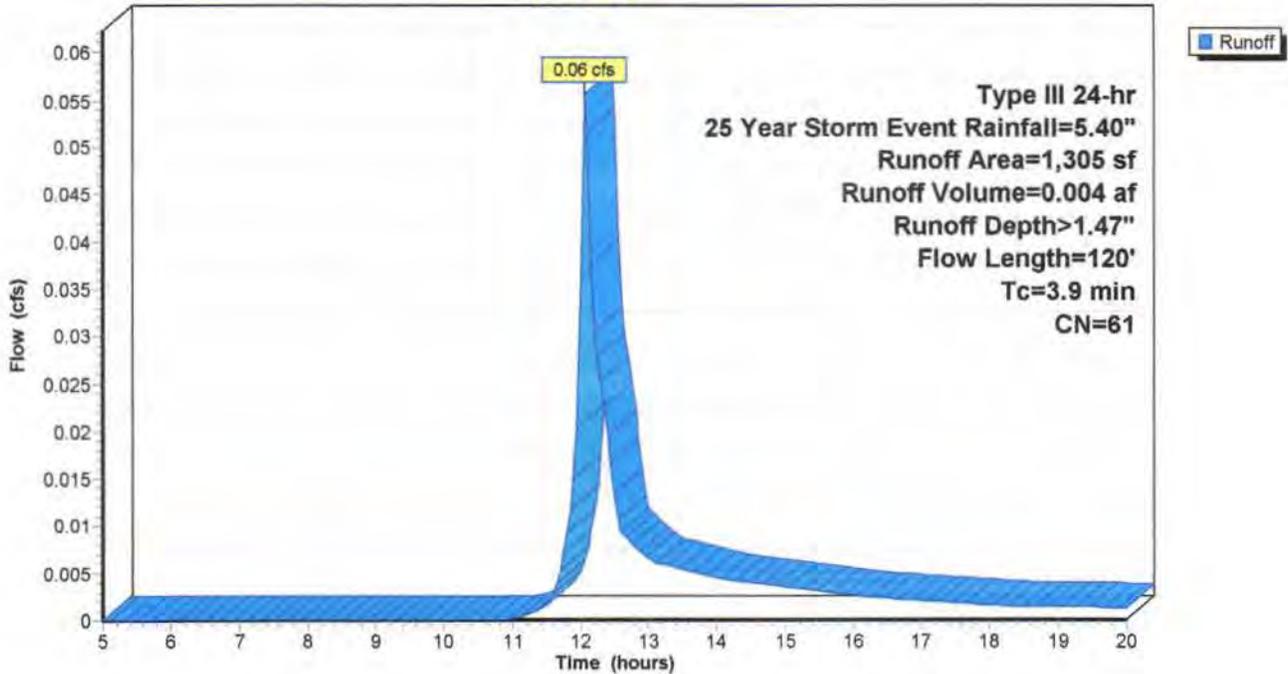
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 Year Storm Event Rainfall=5.40"

Area (sf)	CN	Description
1,305	61	>75% Grass cover, Good, HSG B
1,305		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	60	0.0670	0.27		Sheet Flow, Range n= 0.130 P2= 3.00"
0.2	60	0.1330	5.47		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
3.9	120	Total			

Subcatchment 3S: Watershed 3

Hydrograph



SW Proposed Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Subcatchment 4S: Watershed 4

Runoff = 0.15 cfs @ 12.32 hrs, Volume= 0.018 af, Depth> 4.78"

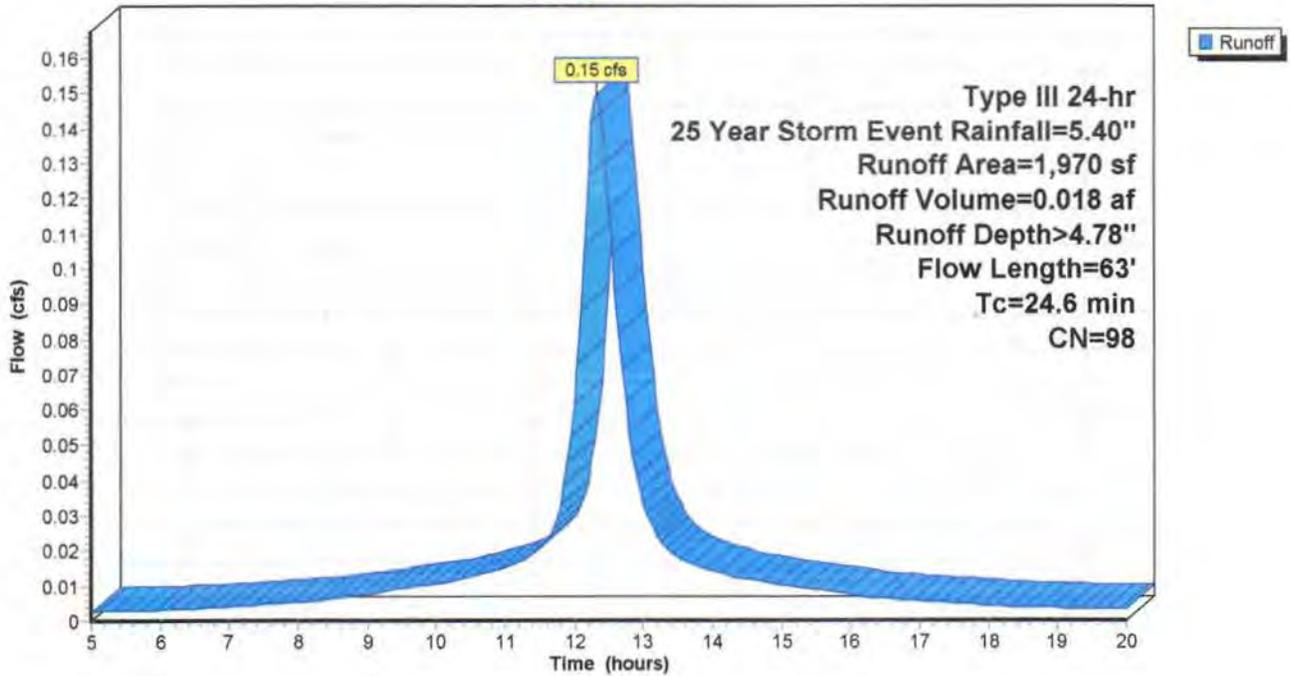
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 Year Storm Event Rainfall=5.40"

Area (sf)	CN	Description
* 1,970	98	Roofs to stone drip edge, HSG B
1,970		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	23	0.2500	0.34		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"
23.5	40	0.0010	0.03		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
24.6	63	Total			

Subcatchment 4S: Watershed 4

Hydrograph



SW Proposed Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Subcatchment 5S: Watershed 5

Runoff = 0.09 cfs @ 12.21 hrs, Volume= 0.008 af, Depth> 2.07"

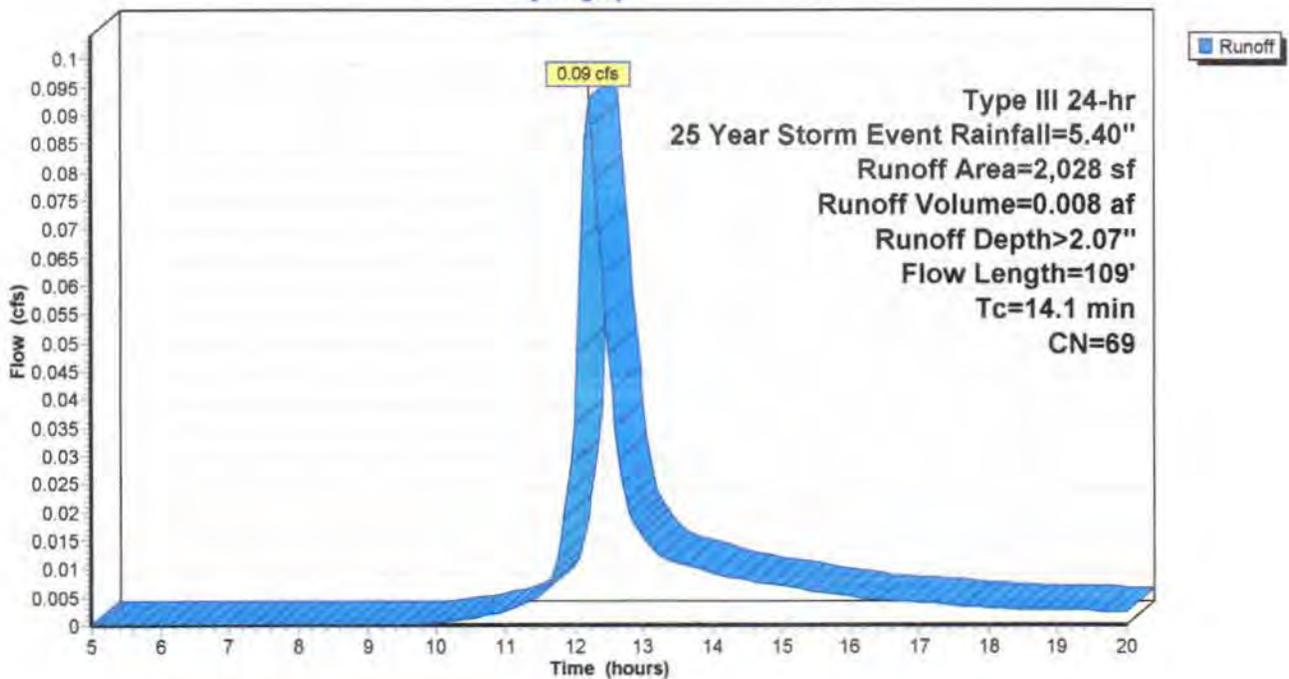
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Event Rainfall=5.40"

Area (sf)	CN	Description
416	98	Paved parking, HSG B
1,612	61	>75% Grass cover, Good, HSG B
2,028	69	Weighted Average
1,612		79.49% Pervious Area
416		20.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	23	0.2500	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
2.7	30	0.1300	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
9.7	56	0.0180	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
14.1	109	Total			

Subcatchment 5S: Watershed 5

Hydrograph



SW Proposed Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Subcatchment 6S: Watershed 6 Offsite

Runoff = 0.02 cfs @ 12.06 hrs, Volume= 0.001 af, Depth> 1.47"

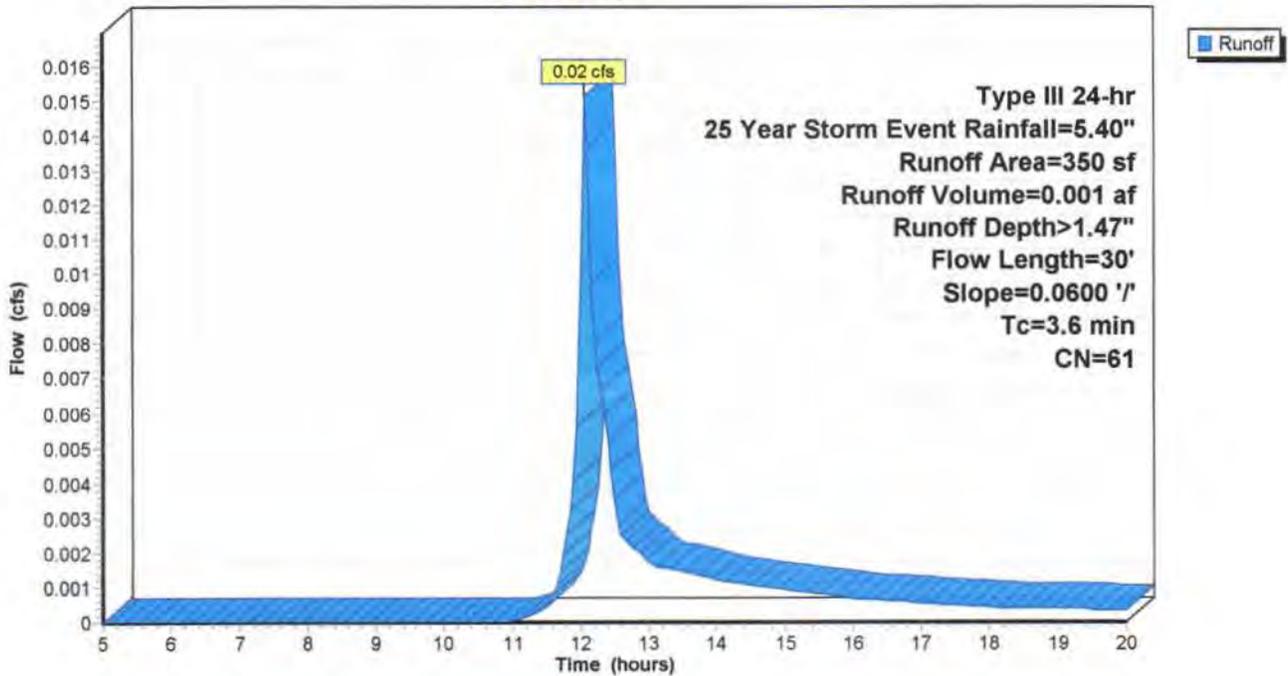
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Event Rainfall=5.40"

Area (sf)	CN	Description
350	61	>75% Grass cover, Good, HSG B
350		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	30	0.0600	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"

Subcatchment 6S: Watershed 6 Offsite

Hydrograph



SW Proposed Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Reach 5R: Pond outfall discharge

Inflow Area = 0.174 ac, 69.99% Impervious, Inflow Depth > 3.45" for 25 Year Storm Event event
Inflow = 0.18 cfs @ 12.40 hrs, Volume= 0.050 af
Outflow = 0.18 cfs @ 12.40 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.18 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.63 fps, Avg. Travel Time= 0.0 min

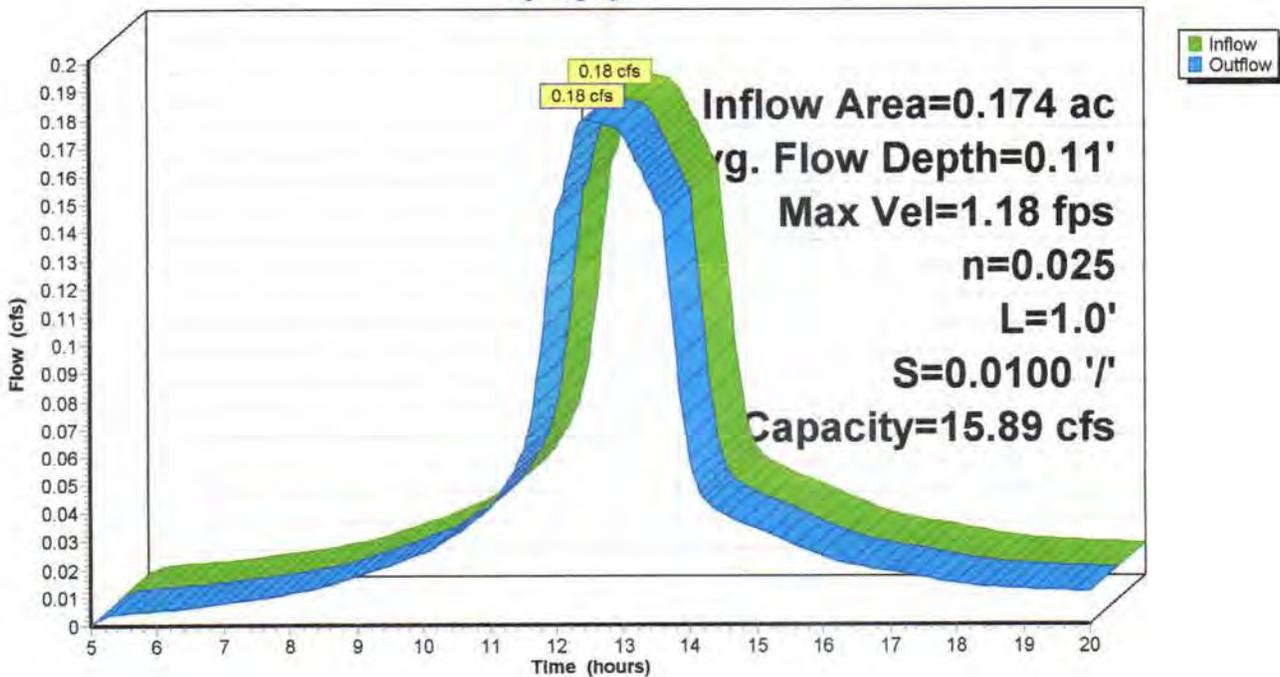
Peak Storage= 0 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 15.89 cfs

1.00' x 1.00' deep channel, n= 0.025
Side Slope Z-value= 3.0 '/' Top Width= 7.00'
Length= 1.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.01'



Reach 5R: Pond outfall discharge

Hydrograph



SW Proposed Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Reach 6R: Overflow

Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

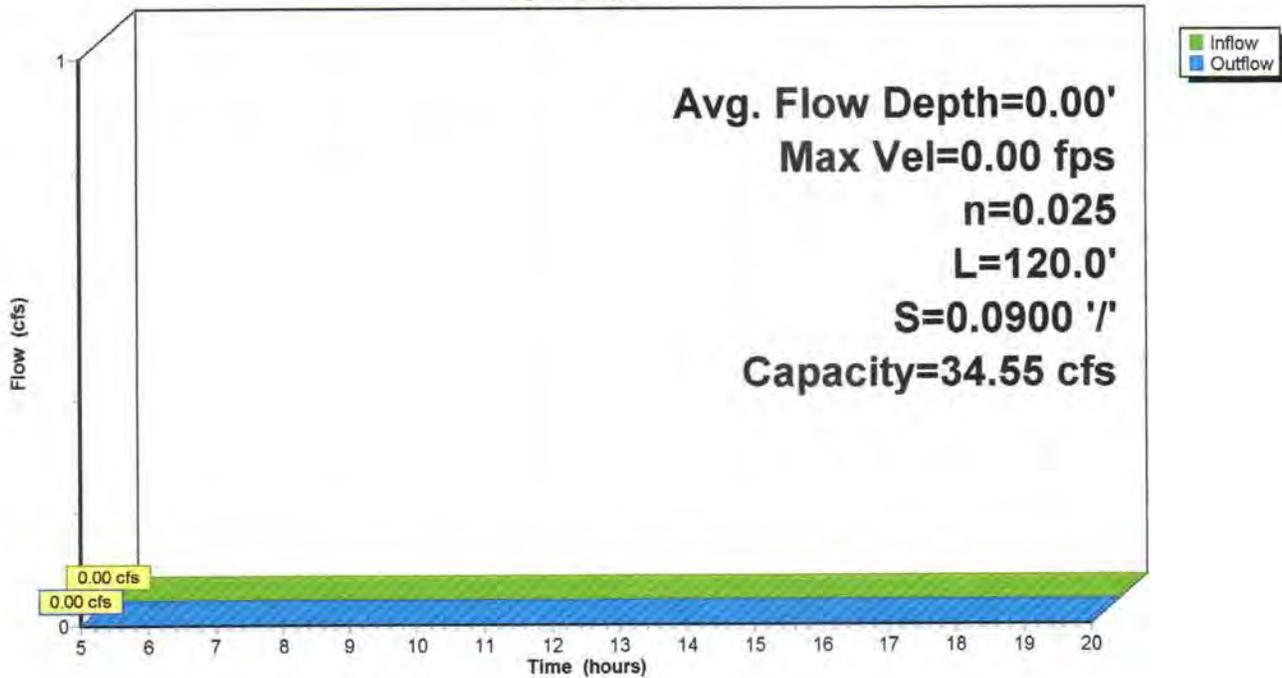
Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 3.8 sf, Capacity= 34.55 cfs

5.00' x 0.50' deep channel, n= 0.025
Side Slope Z-value= 5.0 '/' Top Width= 10.00'
Length= 120.0' Slope= 0.0900 '/'
Inlet Invert= 0.00', Outlet Invert= -10.80'



Reach 6R: Overflow

Hydrograph



SW Proposed Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Reach 7R: Design Point C

Inflow Area = 0.204 ac, 59.73% Impervious, Inflow Depth > 3.16" for 25 Year Storm Event event
 Inflow = 0.21 cfs @ 12.08 hrs, Volume= 0.054 af
 Outflow = 0.21 cfs @ 12.08 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.23 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.65 fps, Avg. Travel Time= 0.0 min

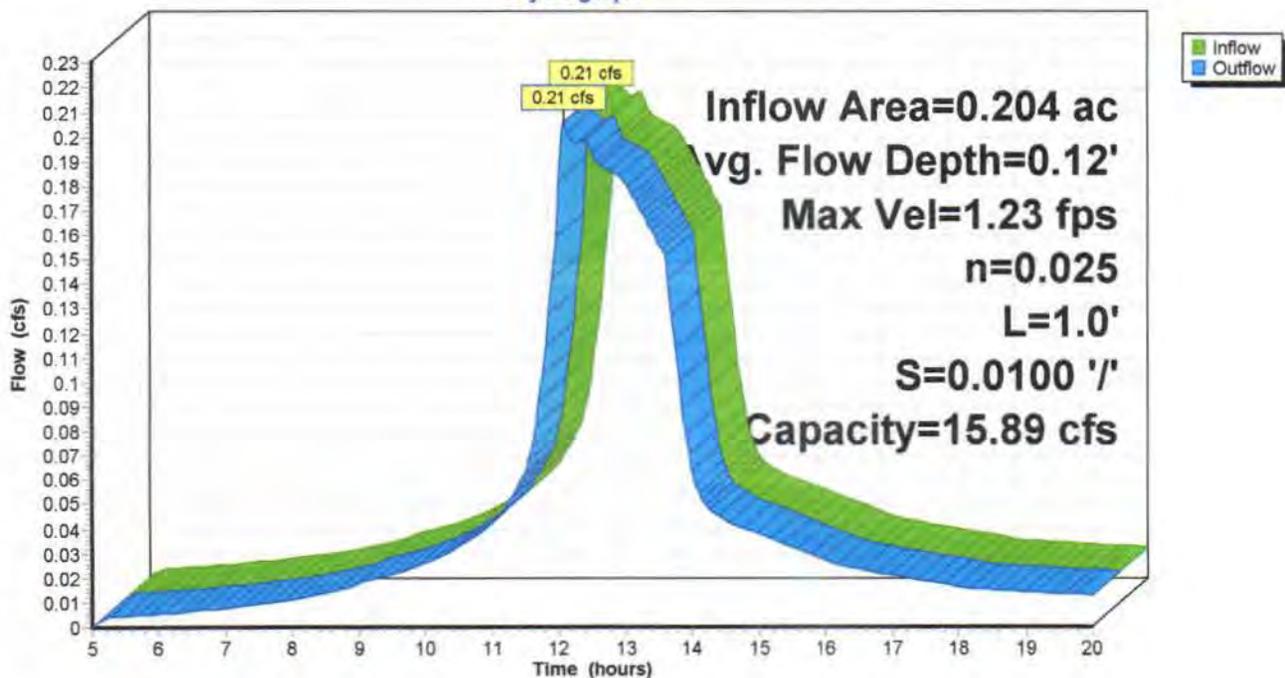
Peak Storage= 0 cf @ 12.08 hrs
 Average Depth at Peak Storage= 0.12'
 Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 15.89 cfs

1.00' x 1.00' deep channel, n= 0.025
 Side Slope Z-value= 3.0 '/' Top Width= 7.00'
 Length= 1.0' Slope= 0.0100 '/'
 Inlet Invert= 0.00', Outlet Invert= -0.01'



Reach 7R: Design Point C

Hydrograph



SW Proposed Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Reach 8R: Design Point B

Inflow = 0.21 cfs @ 12.42 hrs, Volume= 0.004 af
Outflow = 0.21 cfs @ 12.42 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.22 fps, Min. Travel Time= 0.0 min
Avg. Velocity= 0.87 fps, Avg. Travel Time= 0.0 min

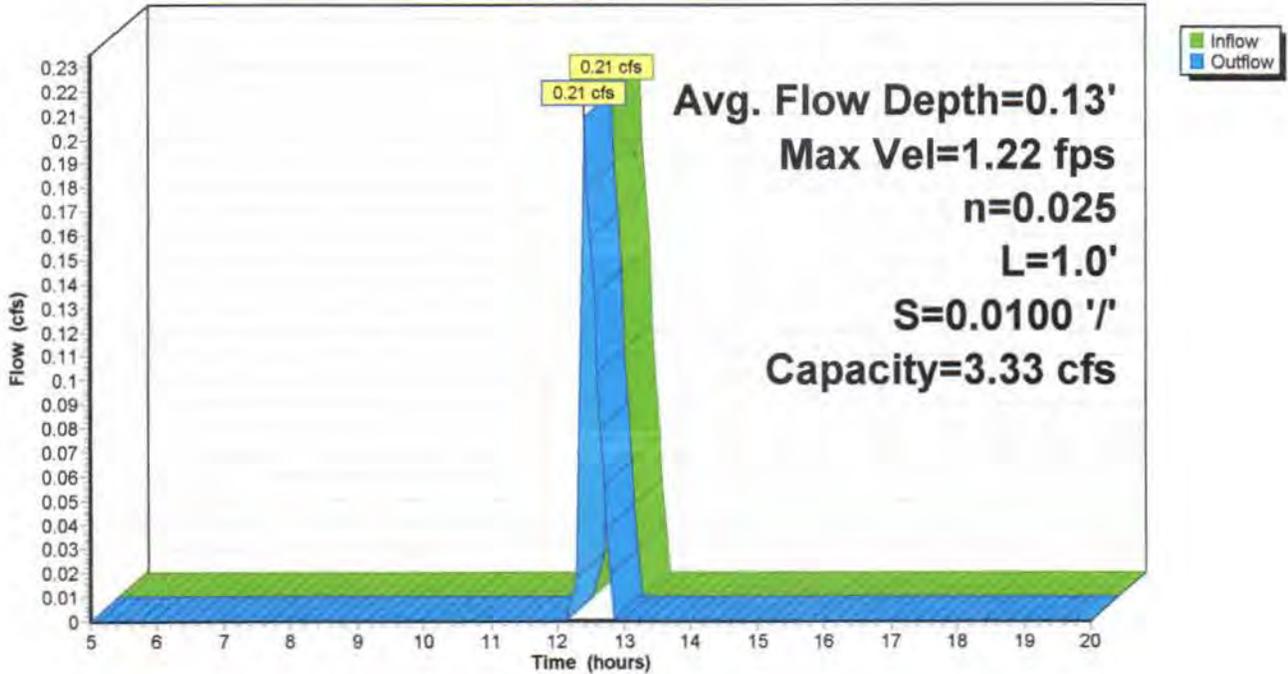
Peak Storage= 0 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 0.50' Flow Area= 1.3 sf, Capacity= 3.33 cfs

1.00' x 0.50' deep channel, n= 0.025
Side Slope Z-value= 3.0 '/' Top Width= 4.00'
Length= 1.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.01'



Reach 8R: Design Point B

Hydrograph



SW Proposed Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Pond 4P: Detention Pond behind house

Inflow Area = 0.174 ac, 69.99% Impervious, Inflow Depth > 3.75" for 25 Year Storm Event event
 Inflow = 0.40 cfs @ 12.26 hrs, Volume= 0.054 af
 Outflow = 0.39 cfs @ 12.42 hrs, Volume= 0.054 af, Atten= 3%, Lag= 9.5 min
 Primary = 0.18 cfs @ 12.40 hrs, Volume= 0.050 af
 Secondary = 0.21 cfs @ 12.42 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 210.01' @ 12.40 hrs Surf.Area= 508 sf Storage= 342 cf

Plug-Flow detention time= 12.7 min calculated for 0.054 af (100% of inflow)
 Center-of-Mass det. time= 12.0 min (774.8 - 762.8)

Volume	Invert	Avail.Storage	Storage Description
#1	207.00'	599 cf	Custom Stage Data (Prismatic) Listed below
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
207.00	0	0	0
208.50	80	60	60
209.00	2	21	81
210.00	507	255	335
210.50	550	264	599

Device	Routing	Invert	Outlet Devices
#1	Primary	207.00'	6.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 207.00' / 206.90' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	207.00'	2.0" Vert. Orifice/Grate C= 0.600
#3	Secondary	209.95'	5.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.18 cfs @ 12.40 hrs HW=210.01' (Free Discharge)

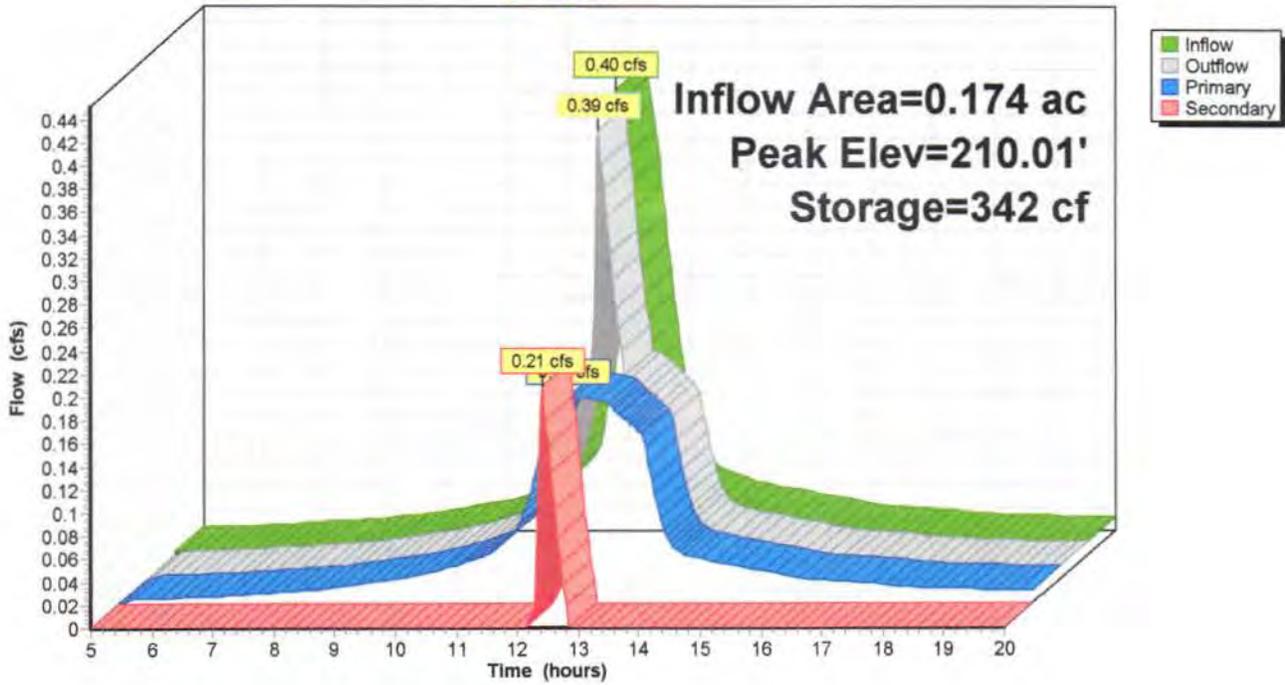
- ↑1=Culvert (Passes 0.18 cfs of 1.57 cfs potential flow)
- ↑2=Orifice/Grate (Orifice Controls 0.18 cfs @ 8.24 fps)

Secondary OutFlow Max=0.19 cfs @ 12.42 hrs HW=210.01' (Free Discharge)

- ↑3=Broad-Crested Rectangular Weir (Weir Controls 0.19 cfs @ 0.61 fps)

Pond 4P: Detention Pond behind house

Hydrograph



SW Proposed Condition

Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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Summary for Pond 5P: Pond @ Road

Inflow Area = 0.083 ac, 81.45% Impervious, Inflow Depth > 4.14" for 25 Year Storm Event event
 Inflow = 0.45 cfs @ 12.01 hrs, Volume= 0.028 af
 Outflow = 0.17 cfs @ 12.18 hrs, Volume= 0.028 af, Atten= 62%, Lag= 10.3 min
 Primary = 0.17 cfs @ 12.18 hrs, Volume= 0.028 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 216.81' @ 12.18 hrs Surf.Area= 136 sf Storage= 191 cf

Plug-Flow detention time= 6.2 min calculated for 0.028 af (100% of inflow)
 Center-of-Mass det. time= 6.1 min (758.0 - 751.8)

Volume	Invert	Avail.Storage	Storage Description
#1	214.00'	386 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.00	0	0	0
217.00	145	218	218
218.00	13	79	297
219.00	13	13	310
220.00	140	77	386

Device	Routing	Invert	Outlet Devices
#1	Primary	213.90'	6.0" Round Culvert L= 86.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 213.90' / 210.03' S= 0.0450 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	214.00'	2.0" Vert. Orifice/Grate C= 0.600
#3	Secondary	219.90'	5.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.17 cfs @ 12.18 hrs HW=216.81' (Free Discharge)

- ↑1=Culvert (Passes 0.17 cfs of 1.36 cfs potential flow)
- ↑2=Orifice/Grate (Orifice Controls 0.17 cfs @ 7.94 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=214.01' (Free Discharge)

- ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

SW Proposed Condition

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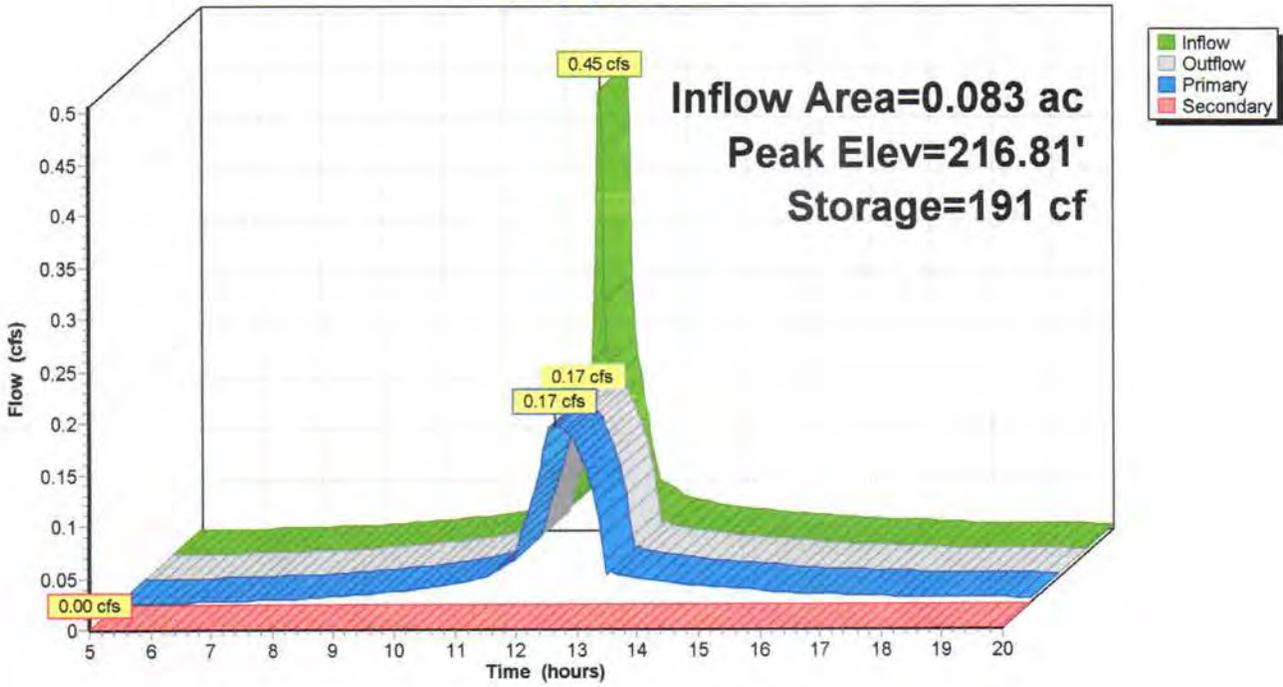
Type III 24-hr 25 Year Storm Event Rainfall=5.40"

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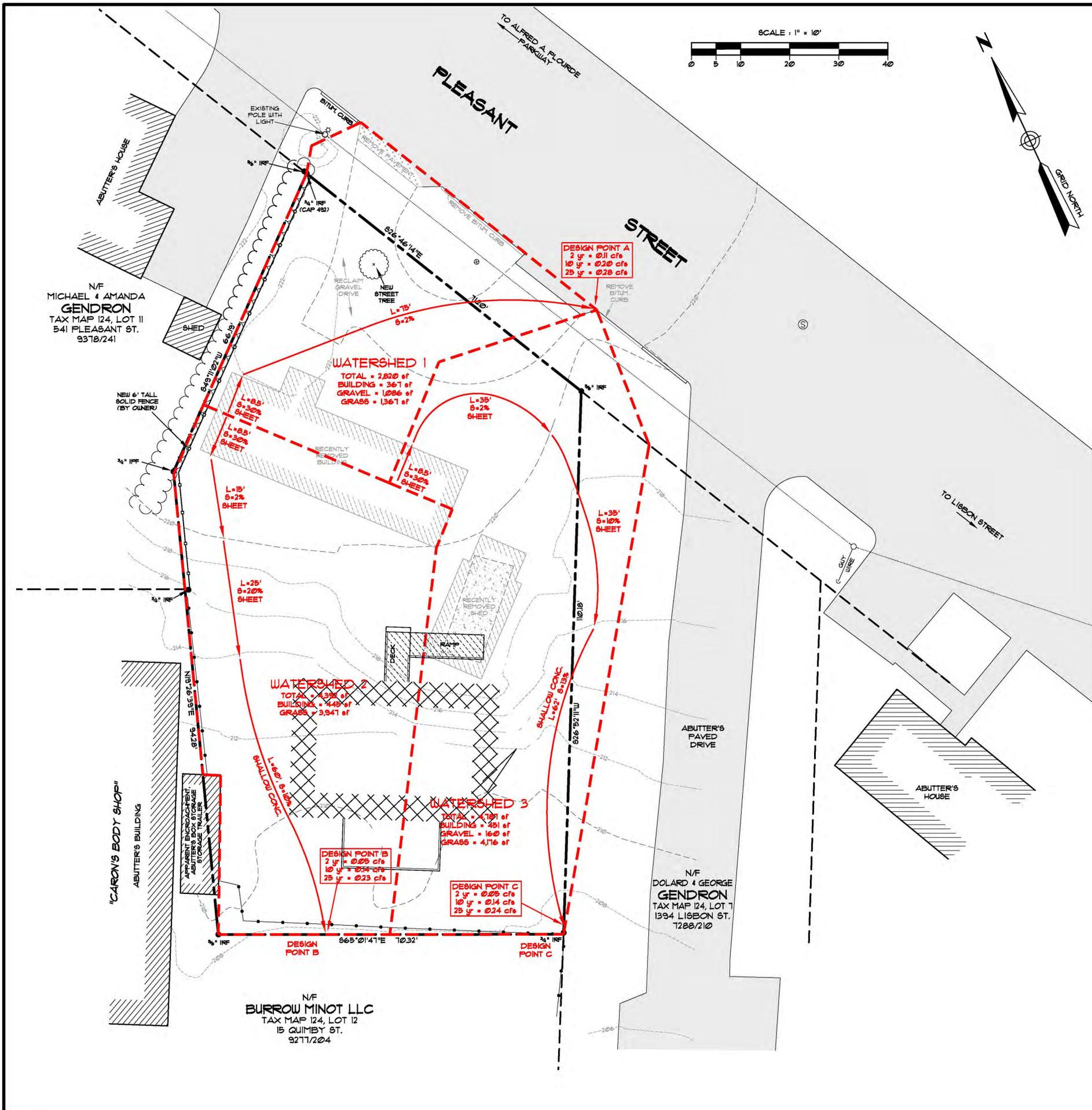
Pond 5P: Pond @ Road

Hydrograph



APPENDIX D

SHEETS WS-1 & WS-2 STORMWATER CONDITIONS

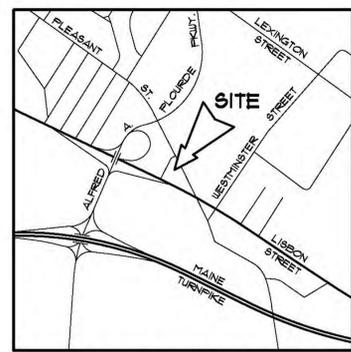


NOTES

- EXISTING CONDITIONS ARE BASED UPON A PLAN ENTITLED "SITE PLAN - EXISTING CONDITIONS, PLAN OF PROPERTY, ERIC WING", DATED MARCH 5, 2011, PREPARED BY DAVIS LAND SURVEYING LLC.
- ALL BOOK AND PAGE NUMBERS REFER TO THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS.
- OWNER - BRIAN & DAWN MOORE
 DEED REFERENCE - BOOK 1244, PAGE 169
 TAX MAP 124, LOT 10
- THE LOCATION, DEPTH, SIZE & EXISTENCE OF ALL UNDERGROUND UTILITY LINES, TANKS AND/OR STRUCTURES WAS NOT VERIFIED. CONTRACTOR SHALL CONTACT DIGSAFE/ON-TARGET PRIOR TO EXCAVATION TO CONFIRM THE LOCATION OF ALL PUBLIC & PRIVATE UTILITIES WITHIN THE PROJECT AREA.
- THE PARCEL IS LOCATED IN THE HIGHWAY BUSINESS ZONING DISTRICT.
 MINIMUM LOT SIZE = NONE, MINIMUM FRONTAGE = 150' (LOT IS GRANDFATHERED)
 MAXIMUM BUILDING HEIGHT = 65'
 MINIMUM BUILDING SETBACK - FRONT, SIDE & REAR = 20'
 MINIMUM YARD SETBACKS - FRONT = 15', SIDE & REAR = 10'
 MAXIMUM LOT COVERAGE = 50%, MAXIMUM IMPERVIOUS COVERAGE = 15%
- THE PARCEL IS NOT LOCATED WITHIN A 100-YEAR FLOOD HAZARD AREA AS SHOWN ON THE FEMA FLOOD INSURANCE RATE MAP, PANEL 23001C 0333E, DATED JULY 8, 2013.
- ALL SIGNAGE TO BE OBTAINED AND INSTALLED BY THE OWNER.
- SEE BUILDING PLANS BY ARCHITECT FOR EXACT DIMENSIONS.
- PROVIDE BITUMINOUS CURBING TIPDOWN AT ALL ENDS OF CURB. TIPDOWN TO MEET CITY OF LEWISTON SPECIFICATIONS.
- SIDE SETBACK REQUIREMENTS HAVE BEEN MODIFIED WITH THIS APPROVAL TO ALLOW A 10' SETBACK ALONG THE SOUTHEASTERLY BOUNDARY AND 12' ALONG THE WESTERLY BOUNDARY.

LEGEND

- BOUNDARY LINE (SUBJECT PARCEL)
- BOUNDARY LINE (OTHER)
- IRON ROD (IRF) OR PIPE (IPF) FOUND
- N/F NOW OR FORMERLY
- 2356/09 BOOK AND PAGE NUMBER
- ⊙ EXISTING SEWER MANHOLE
- ⊙ NEW SEWER MANHOLE
- ⊙ NEW POLE MOUNTED EXTERIOR LIGHT
- ⊙ NEW WALL MOUNTED BUILDING LIGHT
- ⊙ EXISTING WATER SHUT OFF VALVE
- EXISTING STOCKADE FENCE
- NEW 6' TALL SOLID FENCE (BY OWNER)
- UTILITY POLE WITH OVERHEAD WIRES
- EXISTING TREE LINE (TO REMAIN)
- EXISTING PAVEMENT TO BE REMOVED
- EXISTING BUILDING
- EXISTING PAVEMENT
- NEW BUILDING
- NEW PAVEMENT

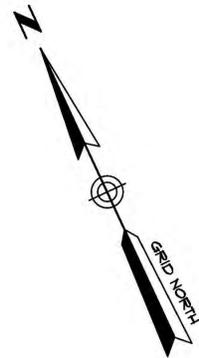
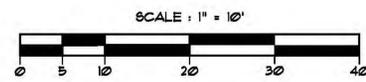
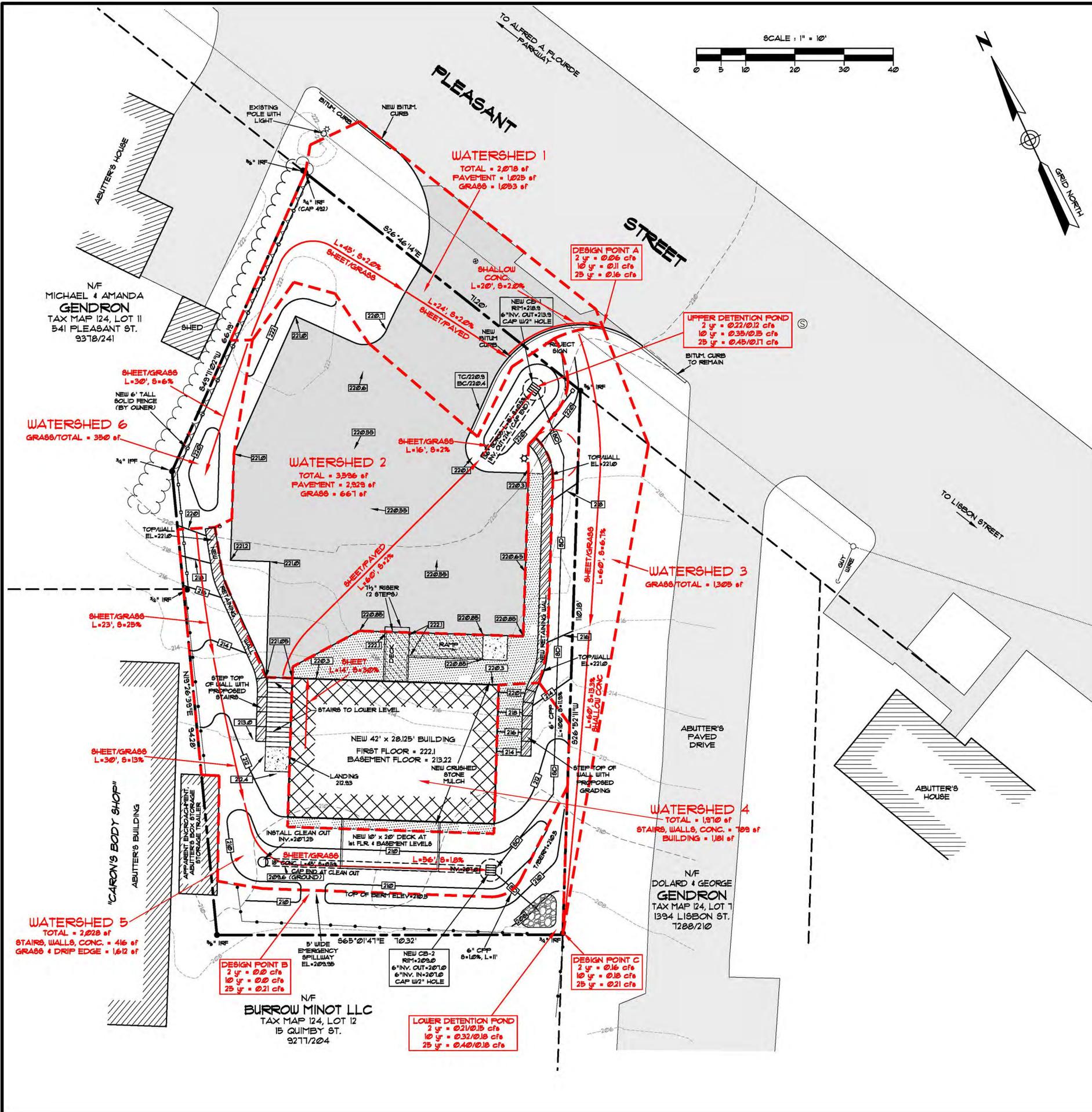


Stonebrook Consultants, Inc.
 456 Buckfield Road - Turner, Me 04282
 (207) 514-7491 Voice
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SJR ENGINEERING, INC.
 21 MAYFLOWER ROAD
 AUGUSTA, MAINE 04330
 (207) 622-1616 tel & fax
 steve@s.jreng.com

EXISTING CONDITIONS
 WATERSHED PLAN
 545 PLEASANT STREET
 LEWISTON, MAINE
 PREPARED FOR
ERIC WING

DATE	PROJECT
APRIL 2011	2011-01
DRAWN BY	SCALE
SJR	1" = 10'



NOTES

- EXISTING CONDITIONS IS BASED UPON A PLAN ENTITLED "SITE PLAN - EXISTING CONDITIONS, PLAN OF PROPERTY, ERIC WING", DATED MARCH 9, 2011, PREPARED BY DAVIS LAND SURVEYING LLC.
- ALL BOOK AND PAGE NUMBERS REFER TO THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS.
- OWNER - BRIAN & DAWN MOORE
DEED REFERENCE - BOOK T244, PAGE 169
TAX MAP 124, LOT 10
- THE LOCATION, DEPTH, SIZE & EXISTENCE OF ALL UNDERGROUND UTILITY LINES, TANKS AND/OR STRUCTURES WAS NOT VERIFIED. CONTRACTOR SHALL CONTACT DIGSAFE/ON-TARGET PRIOR TO EXCAVATION TO CONFIRM THE LOCATION OF ALL PUBLIC & PRIVATE UTILITIES WITHIN THE PROJECT AREA.
- THE PARCEL IS NOT LOCATED WITHIN A 100-YEAR FLOOD HAZARD AREA AS SHOWN ON THE FEMA FLOOD INSURANCE RATE MAP, PANEL 123001C 0333E, DATED JULY 9, 2013.
- ALL SIGNAGE TO BE OBTAINED AND INSTALLED BY THE OWNER.
- SEE BUILDING PLANS BY ARCHITECT FOR EXACT DIMENSIONS.
- PROVIDE BITUMINOUS CURBING TIPDOWN AT ALL ENDS OF CURBS. TIPDOWN TO MEET CITY OF LEWISTON SPECIFICATIONS.

LEGEND

- BOUNDARY LINE (SUBJECT PARCEL)
- BOUNDARY LINE (OTHER)
- IRON ROD (IRF) OR PIPE (IPF) FOUND NOW OR FORMERLY
- BOOK AND PAGE NUMBER
- EXISTING SEWER MANHOLE
- EXISTING WATER SHUT OFF VALVE
- EXISTING STOCKADE FENCE
- UTILITY POLE WITH OVERHEAD WIRES
- EXISTING TREE LINE (TO REMAIN)
- EXISTING CONTOUR
- NEW CONTOUR
- NEW SPOT GRADE
- EXISTING BUILDING
- EXISTING PAVEMENT
- NEW BUILDING
- NEW PAVEMENT



2	6-6-17	ADD WATERSHED 5
1	6-4-17	UPDATED WATERSHEDS
REV. I	DATE:	CHANGES:

DO NOT MODIFY PLAN WITHOUT WRITTEN PERMISSION FROM SJR ENG., INC.

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steve@sjreng.com

PROPOSED CONDITIONS
WATERSHED PLAN
545 PLEASANT STREET
LEWISTON, MAINE
PREPARED FOR
ERIC WING

DATE	PROJECT
APRIL 2011	2011-01
DRAWN BY	SCALE
SJR	1" = 10'

LEGEND

- ⊙ 5/8" CAPPED REBAR SET
- 5/8" REBAR - UNLESS OTHERWISE NOTED
- ⊕ WATER VALVE
- ⊙ POWER POLE
- ⊙ SEWER
- ⊙ RAILROAD SPIKE
- ⊙ STOCKADE FENCE
- ⊙ NOW OR FORMERLY
- ⊙ TREE LINE
- ⊙ RIGHT OF WAY/ABUTTING LOT LINES

NOTES:

- 1) BEARINGS ARE REFERENCED TO GRID NORTH AS REFERENCED ON PLAN REFERENCES 4 AND 5.
- 2) DEED REFERENCES ARE MADE TO THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS - AUBURN, MAINE.
- 3) PURPOSE OF THIS PLAN IS TO SHOW EXISTING CONDITIONS AND TOPOGRAPHY ON TAX MAP 124 LOT 10 AT 545 PLEASANT ST AS DESCRIBED IN BOOK 7244, PAGE 169.
- 4) PLEASANT STREET BEING 66 FEET WIDE - ANDROSCOGGIN COUNTY COMMISSIONERS RECORDS VOLUME 1 - PAGE 348 -- 1929.
- 5) QUIMBY STREET BEING 40 FEET WIDE - CITY OF LEWISTON CLERK RECORDS: BOOK 2, PAGE 146 -- 1937.

REFERENCES:

- 1) PLAN OF LISBON STREET GARDENS NO. 1 DATED 7-7-1917 RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS PLAN BOOK 3, PAGE 85.
- 2) PLAN SHOWING GARENT PROPERTY LINE DATED 7-30-1953 RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS PLAN BOOK 10, PAGE 530C.
- 3) MDOT RIGHT OF WAY PLAN LISBON & PLEASANT STS. DATED 12-1993 PROJ. NO. F-NH-017P(83) DOT FILE NO. 1-210 SHEET 1 OF 3 ~ ACRD PLAN BOOK 40, PAGE 13.
- 4) MDOT RIGHT OF WAY PLAN LISBON & PLEASANT STS. DATED 9-1995 PROJ. NO. M-STP-0003(6)X PART 2 DOT FILE NO. 1-115 SHEET 3 OF 18 ~ ACRD PLAN BOOK 42, PAGE 32.
- 5) MDOT RIGHT OF WAY PLAN LISBON & PLEASANT STS. DATED 9-1995 PROJ. NO. M-STP-0003(6)X PART 2 DOT FILE NO. 1-115 SHEET 4 OF 18 ~ ACRD PLAN BOOK 42, PAGE 33.
- 6) MAINE TURNPIKE AUTHORITY - SECTION 2 PORTLAND TO AUGUSTA DATED 9-1954, SHEET #6 ~ ACRD PLAN BOOK 12, PAGE 804.
- 7) CITY OF LEWISTON TAX MAP 124.
- 8) PLAN OF PROPERTY FOR FERNAND L. CHAREST DATED 5-25-2000 BY CULLENBERG LAND SURVEYING - UNRECORDED.
- 8) PLOT PLAN FOR CARON'S BODY SHOP DATED 12-28-2000 BY A.R.C.C. LAND SURVEYING - UNRECORDED.

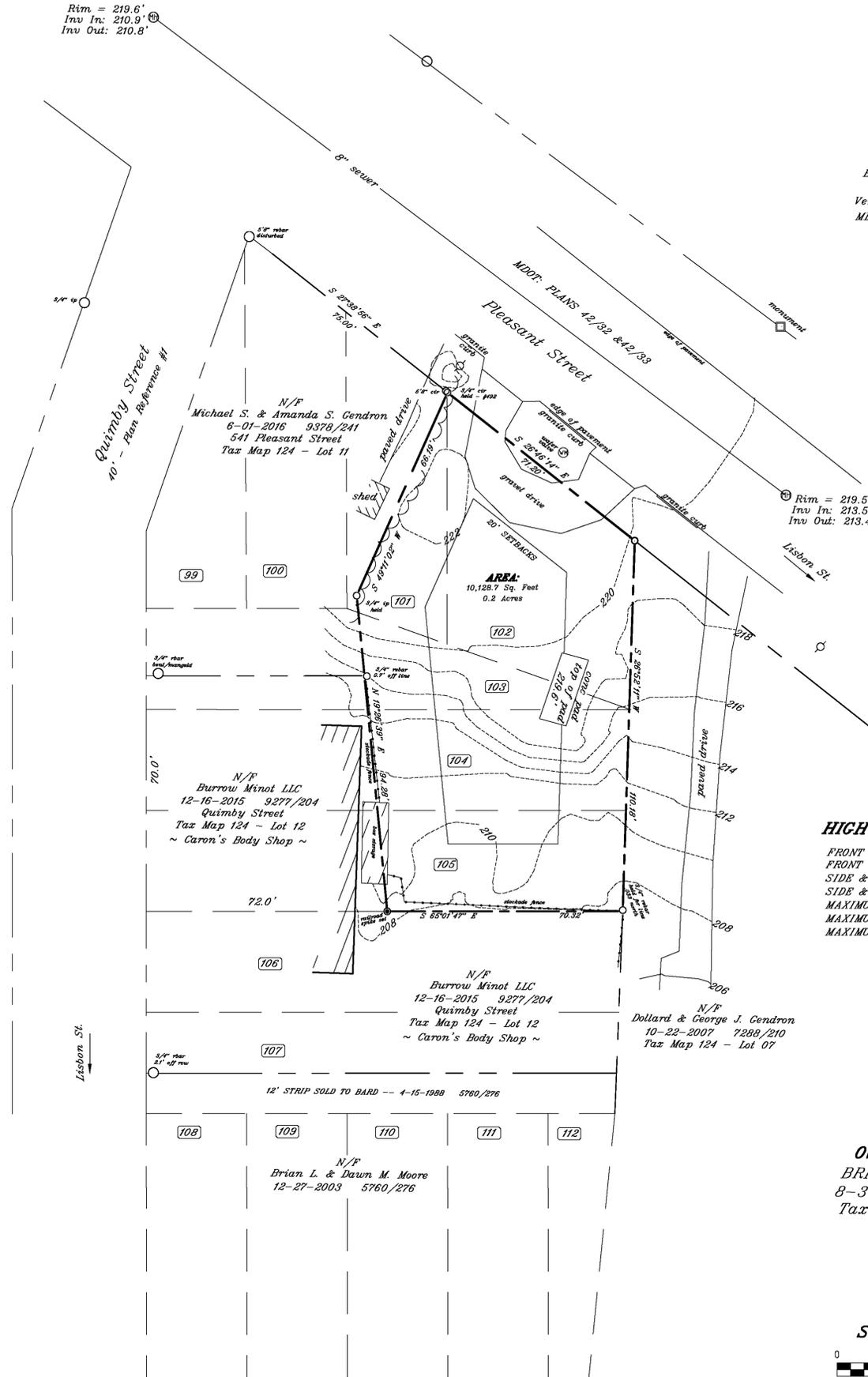
RECORDING INFORMATION:

ANDROSCOGGIN COUNTY REGISTRY OF DEEDS - STATE OF MAINE
 RECEIVED _____ AT _____ HOUR _____ MIN _____ M.
 AND RECORDED IN PLAN BOOK _____, PAGE _____
 ATTEST _____ REGISTRAR

Rim = 219.6'
 Inv In: 210.9'
 Inv Out: 210.8'



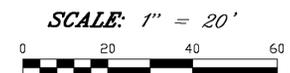
Bearings based on Grid North
 MSP-West Zone NAD83
 Vertical Datum: NAVD 1988
 MDOT: PLANS 42/32 & 42/33



HIGHWAY BUSINESS (HB)

- FRONT SETBACK: 20'
- FRONT YARD: 15'
- SIDE & REAR: 20'
- SIDE & REAR YARD: 15'
- MAXIMUM HEIGHT: 65'
- MAXIMUM LOT COVERAGE: 50%
- MAXIMUM IMPERVIOUS: 75%

OWNER OF RECORD:
 BRIAN & DAWN MOORE
 8-30-2007 7244/169
 Tax Map 124 - Lot 10



CERTIFICATION:

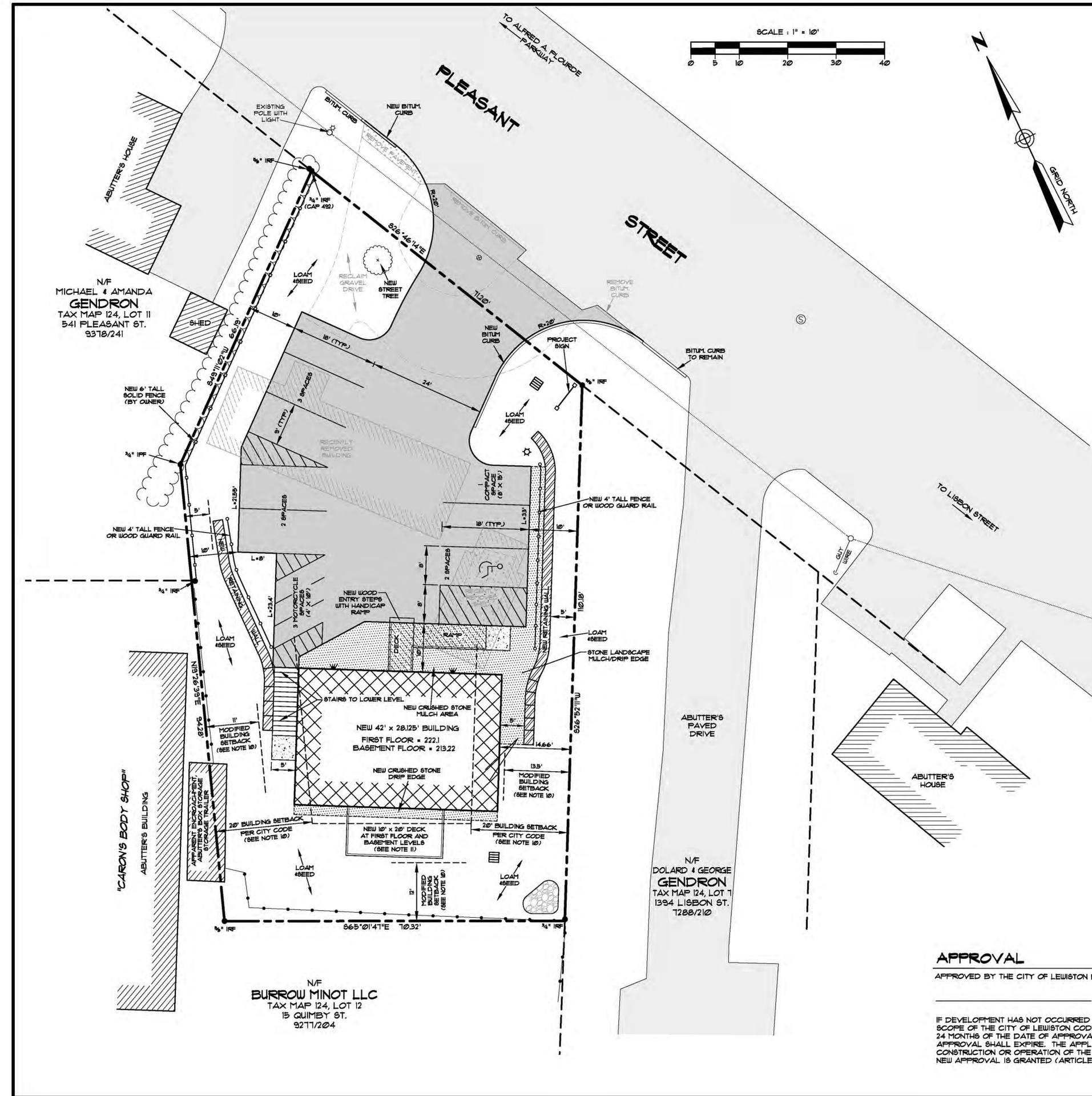
TO THE BEST OF MY KNOWLEDGE, I HAVE USED ORDINARY AND PRUDENT BUSINESS SENSE AND CARE IN THE PREPARATION OF THIS PLAN AND I AM NOT PROVIDING ANY GUARANTEE OR WARRANTY TO THE PUBLIC AS REQUIRED UNDER THE STANDARDS OF PRACTICE AS DEFINED BY THE BOARD OF LICENSING FOR PROFESSIONAL LAND SURVEYING (M.R.S. TITLE 26, CHAPTER 101, ARTICLE 400).
 I, Eric Wing,
 1) DO HEREBY CERTIFY TO DATE
 2) DO HEREBY DESCRIBE TO DATE
 PLAN PREPARED BY: S.A.B.
 PLAN CHECKED BY: S.A.B. THIS PLAN IS NOT VALID UNLESS EMBOSSED LAPSE

DAVIS LAND SURVEYING, LLC

64 OLD COUNTY ROAD
 OXFORD, MAINE 04270
 (207) 345-9991 office - (207) 782-9885 office - (207) 240-9949 cell
 EMAIL: svart@standardsurveying.net
 WEBSITE: www.davislandsurveying.net
 March 5, 2017
 FILE: 289 JOB NO.: 16080 DISC: SURVEY - 2017

EXISTING CONDITIONS
PLAN OF PROPERTY

545 Pleasant Street - Lewiston, Maine 04240
Eric Wing
 32 Ivanhoe Drive - Topsham, Maine 04086



N/F
MICHAEL & AMANDA
GENDRON
TAX MAP 124, LOT 11
541 PLEASANT ST.
9318/241

N/F
BURROW MINOT LLC
TAX MAP 124, LOT 12
15 QUIMBY ST.
9211/204

N/F
DOLARD & GEORGE
GENDRON
TAX MAP 124, LOT 1
1394 LISBON ST.
1288/210

NOTES

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- OWNER - BRIAN & DAUN MOORE
DEED REFERENCE - BOOK 1244, PAGE 169
TAX MAP 124, LOT 10
- THE LOCATION, DEPTH, SIZE & EXISTENCE OF ALL UNDERGROUND UTILITY LINES, TANKS AND/OR STRUCTURES WAS NOT VERIFIED. CONTRACTOR SHALL CONTACT DIGSAFE/ON-TARGET PRIOR TO EXCAVATION TO CONFIRM THE LOCATION OF ALL PUBLIC & PRIVATE UTILITIES WITHIN THE PROJECT AREA.
- THE PARCEL IS LOCATED IN THE HIGHWAY BUSINESS ZONING DISTRICT.
MINIMUM LOT SIZE = NONE, MINIMUM FRONTAGE = 150' (LOT IS GRANDFATHERED)
MAXIMUM BUILDING HEIGHT = 6.5'
MINIMUM BUILDING SETBACK - FRONT, SIDE & REAR = 20'
MINIMUM YARD SETBACKS - FRONT = 15', SIDE & REAR = 10'
MAXIMUM LOT COVERAGE = 50%, MAXIMUM IMPERVIOUS COVERAGE = 15%
- THE PARCEL IS NOT LOCATED WITHIN A 100-YEAR FLOOD HAZARD AREA AS SHOWN ON THE FEMA FLOOD INSURANCE RATE MAP, PANEL 230201C 0333E, DATED JULY 8, 2013.
- ALL SIGNAGE TO BE OBTAINED AND INSTALLED BY THE OWNER.
- SEE BUILDING PLANS BY ARCHITECT FOR EXACT DIMENSIONS.
- PROVIDE BITUMINOUS CURBING TIPPDOWN AT ALL ENDS OF CURB. TIPPDOWN TO MEET CITY OF LEWISTON SPECIFICATIONS.
- SIDE AND REAR SETBACK REQUIREMENTS HAVE BEEN MODIFIED WITH THIS APPROVAL TO ALLOW A 13.5' SETBACK ALONG THE SOUTHEASTERLY BOUNDARY, 11' ALONG THE WESTERLY BOUNDARY AND 12' ALONG THE SOUTHWESTERLY BOUNDARY.
- SUPPORT POSTS FOR NEW DECK BEHIND BUILDING SHALL BE NO FURTHER THAN 15' FROM BUILDING WALL TO AVOID CONFLICT WITH STORM WATER SYSTEM.
- LOAM & SEED ALL DISTURBED AREAS.

LEGEND

---	BOUNDARY LINE (SUBJECT PARCEL)
---	BOUNDARY LINE (OTHER)
●	IRON ROD (IRF) OR PIPE (IPF) FOUND NOW OR FORMERLY
N/F	NONE
2356/89	BOOK AND PAGE NUMBER
⊙	EXISTING SEWER MANHOLE
☆	NEW POLE MOUNTED EXTERIOR LIGHT
⊕	NEW WALL MOUNTED BUILDING LIGHT
⊖	EXISTING WATER SHUT OFF VALVE
—●—	EXISTING STOCKADE FENCE
—○—	NEW 6" TALL SOLID FENCE (BY OWNER)
—○—	UTILITY POLE WITH OVERHEAD WIRES
—○—	EXISTING TREE LINE (TO REMAIN)
—○—	EXISTING PAVEMENT TO BE REMOVED
▨	EXISTING BUILDING
▨	EXISTING PAVEMENT
▨	NEW BUILDING
▨	NEW PAVEMENT
○	NEW STREET TREE (MAPLE, 2 1/2" CALIPER)

SITE TABULATIONS

TOTAL PARCEL AREA = 10,129 sf

EXISTING CONDITIONS -

RECENTLY REMOVED BUILDINGS	- 1261 sf
GRAVEL DRIVEWAY	- 120 sf
IMPERVIOUS AREA	- 1,981 sf (19.6%)
LAWN AND WOODED AREAS	- 8,148 sf (80.4%)

PROPOSED CONDITIONS -

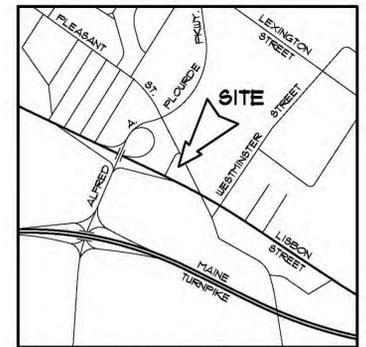
NEW BUILDING	- 1,181 sf
PAVEMENT, STAIRS, CONC., DECK, RAMP, RET. WALLS	- 4,021 sf
IMPERVIOUS AREA	- 5,268 sf (52.0%)
LAWN AND WOODED AREAS	- 4,861 sf (48.0%)

PROPOSED PARKING SPACES = 1 REGULAR, 1 COMPACT, 3 MOTORCYCLE

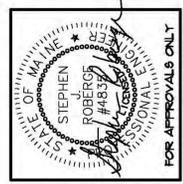
APPROVAL

APPROVED BY THE CITY OF LEWISTON PLANNING BOARD

IF DEVELOPMENT HAS NOT OCCURRED AS DEFINED WITHIN THE SCOPE OF THE CITY OF LEWISTON CODE OF ORDINANCES, WITHIN 24 MONTHS OF THE DATE OF APPROVAL, DEVELOPMENT REVIEW APPROVAL SHALL EXPIRE. THE APPLICANT MAY NOT BEGIN CONSTRUCTION OR OPERATION OF THE DEVELOPMENT UNTIL A NEW APPROVAL IS GRANTED (ARTICLE XIII, SECTION 11).



LOCATION MAP



NO.	DATE	DESCRIPTION
1	6-23-11	ADD LOAM & SEED NOTATIONS
2	6-23-11	CHANGES DUE TO PFG, BUILDING PLANS
REV.	DATE	CHANGES

DO NOT MODIFY PLAN WITHOUT WRITTEN PERMISSION FROM SJR ENR, INC.

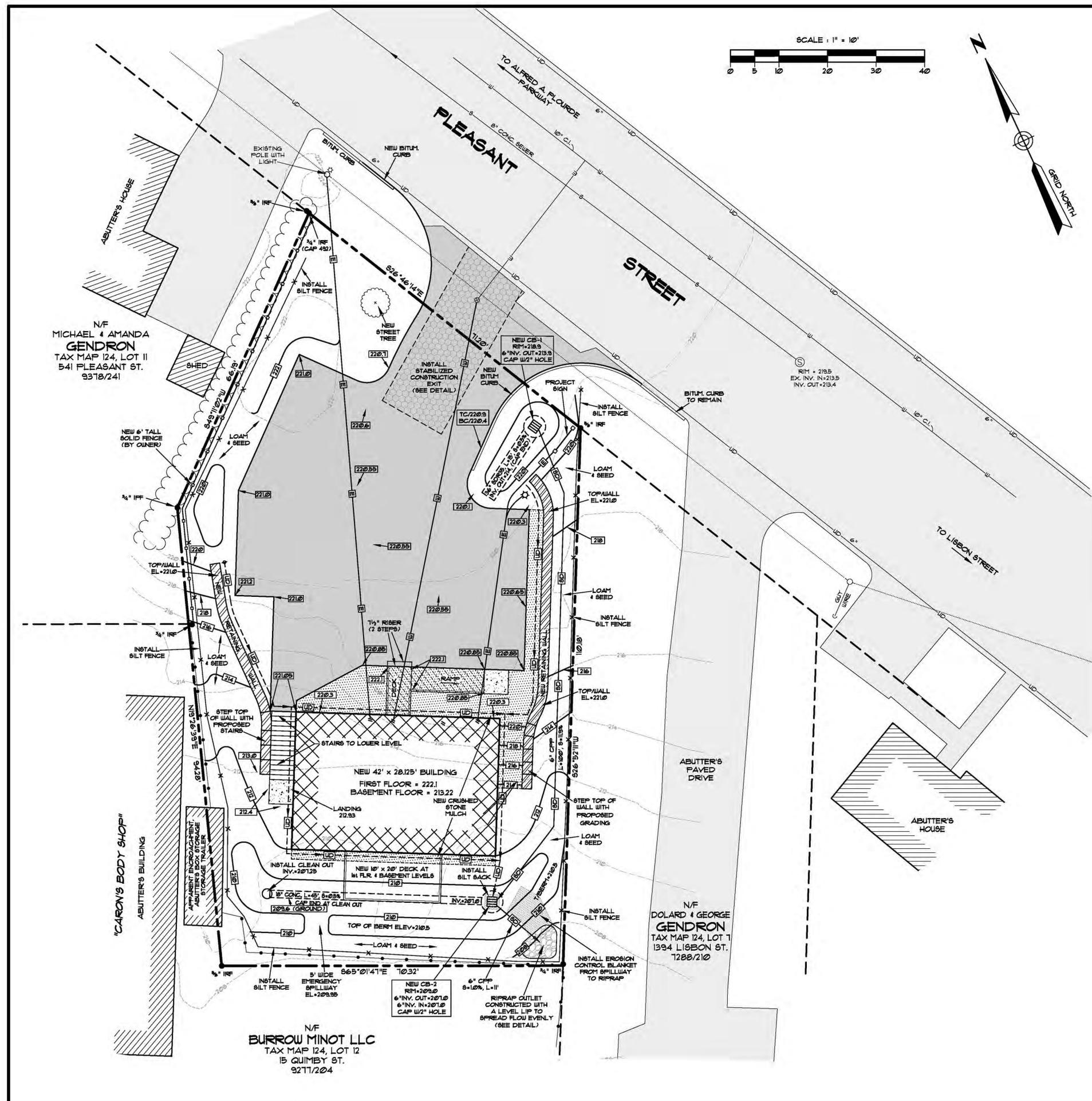
Stoneybrook Consultants, Inc.
456 Buckfield Road - Turner, Me 04282
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(207) 514-1492 Fax

SJR ENGINEERING, INC.
21 MATFLOWER ROAD
AUGUSTA, MAINE 04330
(207) 622-1616 tel & fax
steve@s.jreng.com

SITE PLAN
545 PLEASANT STREET
LEWISTON, MAINE
PREPARED FOR
ERIC WING
32 IVANHOE DRIVE - TOPSHAM, ME 04086

DATE	PROJECT
APRIL 2011	2011-01
DRAWN BY	SCALE
SJR	1" = 10'

SHEET 1



N/F
MICHAEL & AMANDA
GENDRON
TAX MAP 124, LOT 11
541 PLEASANT ST.
9378/241

N/F
BURROW MINOT LLC
TAX MAP 124, LOT 12
15 QUIMBY ST.
9211/204

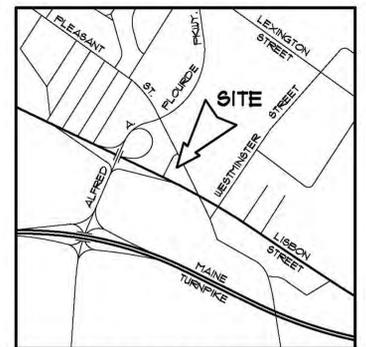
N/F
DOLARD & GEORGE
GENDRON
TAX MAP 124, LOT 7
1394 LISBON ST.
7288/210

NOTES

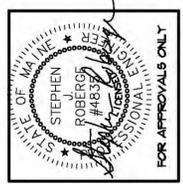
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DEED REFERENCE - BOOK T244, PAGE 169
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MAXIMUM BUILDING HEIGHT = 65'
MINIMUM BUILDING SETBACK - FRONT, SIDE & REAR = 20'
MINIMUM YARD SETBACKS - FRONT = 15', SIDE & REAR = 10'
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- ALL SIGNAGE TO BE OBTAINED AND INSTALLED BY THE OWNER.
- SEE BUILDING PLANS BY ARCHITECT FOR EXACT DIMENSIONS.
- PROVIDE BITUMINOUS CURBING TIPDOWN AT ALL ENDS OF CURB. TIPDOWN TO MEET CITY OF LEWISTON SPECIFICATIONS.
- CONTRACTOR SHALL LOCATE AND TIE INTO THE EXISTING SEWER SERVICE WITH A NEW LINE TO SERVICE THE PROPOSED BUILDING. CONNECTION & PIPE MATERIAL SHALL BE ACCORDING TO CITY OF LEWISTON SEWER STANDARDS. SIZE SHALL MATCH EXISTING SERVICE SIZE.
- SUPPORT POSTS FOR NEW DECK BEHIND BUILDING SHALL BE NO FURTHER THAN 15' FROM BUILDING WALL TO AVOID CONFLICT WITH STORM WATER SYSTEM.
- LOAM & SEED ALL DISTURBED SOILS.

LEGEND

---	BOUNDARY LINE (SUBJECT PARCEL)
---	BOUNDARY LINE (OTHER)
●	IRON ROD (IRF) OR PIPE (IPF) FOUND
N/F	NOW OR FORMERLY
2396/89	BOOK AND PAGE NUMBER
⊙	EXISTING SEWER MANHOLE
⊗	EXISTING WATER SHUT OFF VALVE
—○—	UTILITY POLE WITH OVERHEAD WIRES
~~~~~	EXISTING TREE LINE (TO REMAIN)
243	EXISTING CONTOUR
242	NEW CONTOUR
242.25	NEW SPOT GRADE
TC	TOP OF CURB
BC	BOTTOM OF CURB
—W—	EXISTING WATER LINE
—S—	EXISTING SEWER LINE
—UD—	EXISTING UNDERDRAIN LINE
—SD—	NEW STORM DRAIN LINE
—FD—	NEW FOUNDATION UNDERDRAIN
—W—	NEW WATER LINE
—E—	NEW UNDERGROUND ELECTRIC LINE
[Hatched Box]	EXISTING BUILDING
[Cross-hatched Box]	EXISTING PAVEMENT
[Diagonal-hatched Box]	NEW BUILDING
[Stippled Box]	NEW PAVEMENT
○	NEW STREET TREE (MAPLE, 2 1/2" CALIPER)



**LOCATION MAP**



3	6-25-11	ADD LOAM & SEED NOTATIONS & LEVEL LIP REF.
2	6-11-11	CONNECT UNDERDRAIN & STORM DRAIN TO CB-2
1	6-3-11	CHANGES DUE TO MFG. BUILDING PLANS
	REV. DATE:	CHANGES:

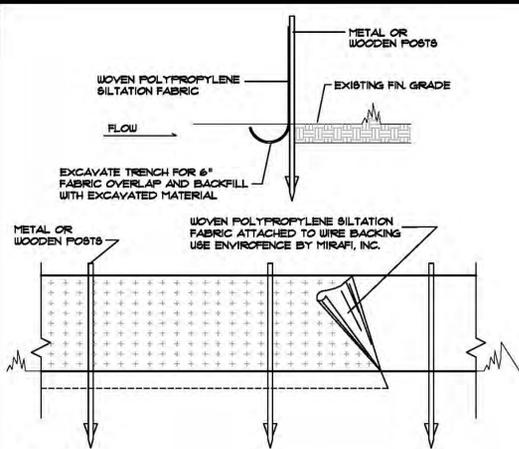
DO NOT MODIFY PLAN WITHOUT WRITTEN PERMISSION FROM SJR ENGR. INC.

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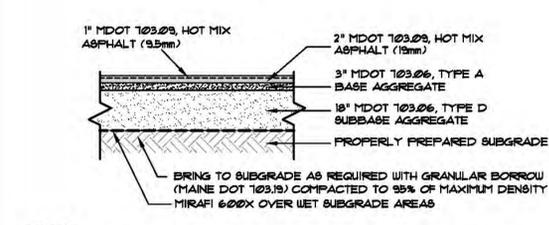
**GRADING & UTILITY PLAN**  
545 PLEASANT STREET  
LEWISTON, MAINE  
PREPARED FOR  
**ERIC WING**  
32 IVANHOE DRIVE - TOPSHAM, ME 04086

DATE	PROJECT
APRIL 2011	2011-01
DRAWN BY	SCALE
SJR	1" = 10'



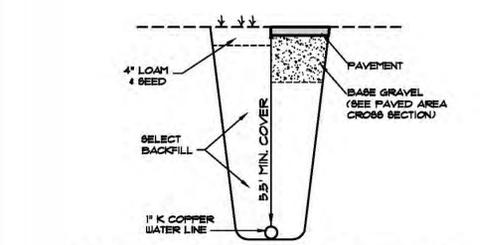
- NOTES**
- REFERENCE IS MADE TO THE BEST MANAGEMENT PRACTICE FOR EROSION AND SEDIMENT CONTROL: B-1 SEDIMENT BARRIERS.
  - SILTATION FABRIC WITH INTEGRAL MESH AND POSTS MAY BE USED.
  - EROSION CONTROL FILTER BERM IS AN ACCEPTABLE ALTERNATIVE TO SILT FENCING.

**SILT FENCE DETAIL**  
NOT TO SCALE

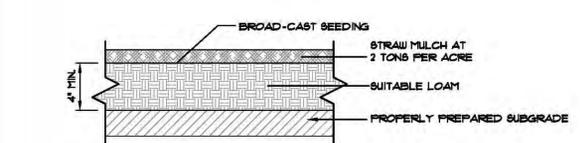


- NOTES**
- COMPACT GRAVEL SUBBASE, BASE COURSE TO 95% OF THEIR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557.
  - HOT MIX ASPHALT PAVEMENT MUST BE COMPACTED TO 92%-97% OF ITS THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM D-1541.
  - A TACK COAT MUST BE USED BETWEEN SUCCESSIVE LIFTS OF BITUMINOUS PAVEMENT.
  - PROVIDE NON-FROST SUSCEPTIBLE COMPACTED FILL GRANULAR BORROW (MDOT 103.19) BELOW PAVEMENT IN FILL AREAS.
  - CONTRACTOR SHALL SET GRADE STAKES MARKING SUBBASE AND FINISH GRADE ELEVATIONS FOR CONSTRUCTION REFERENCE.
  - REFERENCE IS MADE TO A GEOTECHNICAL REPORT PREPARED BY SUMMIT GEOTECHNICAL SERVICES FOR CONSTRUCTION RECOMMENDATIONS.

**PAVED AREA CROSS SECTION**  
NOT TO SCALE

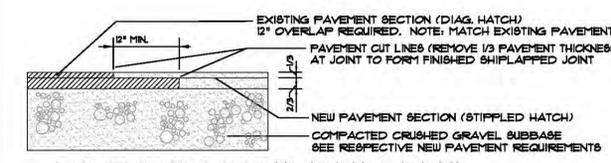


**WATER SERVICE TRENCH DETAIL**  
NOT TO SCALE

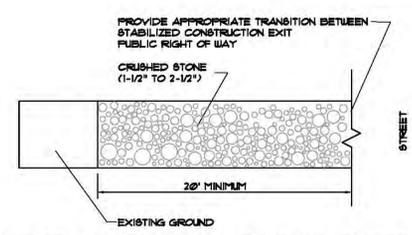


PERMANENT SEED MIX	APPLICATION RATE
KENTUCKY BLUEGRASS	40
CREeping RED FESCUE	1
PERENNIAL RYEGRASS	1
TOTAL SEED RATE	42

**LOAM & SEED DETAIL**  
NOT TO SCALE

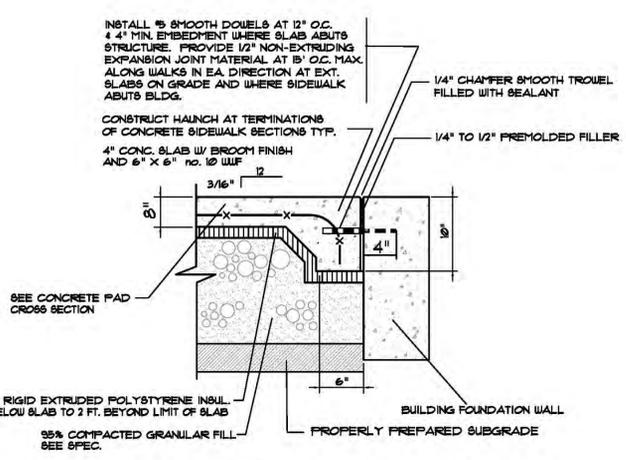


**PAVEMENT SAWCUT JOINT DETAIL**  
NOT TO SCALE



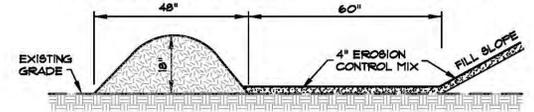
- STABILIZED CONSTRUCTION EXIT DETAIL**  
NOT TO SCALE
- STONE SIZE - AASHTO DESIGNATION M 43, SIZE 2 (1/2" - 1 1/2") USE CRUSHED STONE
  - LENGTH - AS EFFECTIVE BUT NOT LESS THAN 50'
  - THICKNESS - NOT LESS THAN 6"
  - WIDTH - NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS
  - WASHING - WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE THROUGH USE OF SAND BAGS, GRAVEL, BOARDS, OR OTHER APPROVED METHODS.
  - MAINTENANCE - THE STABILIZED CONSTRUCTION EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURED USERS TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHT OF WAY MUST BE REMOVED IMMEDIATELY.

**STABILIZED CONSTRUCTION EXIT DETAIL**  
NOT TO SCALE

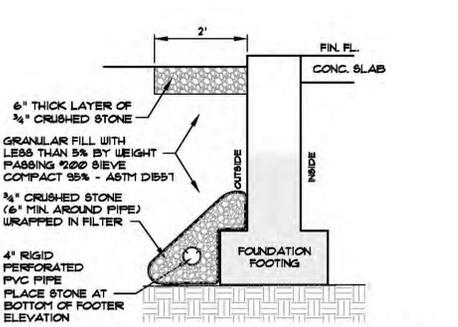


**CONCRETE PAD/FOUNDATION WALL JOINT DETAIL**  
NOT TO SCALE

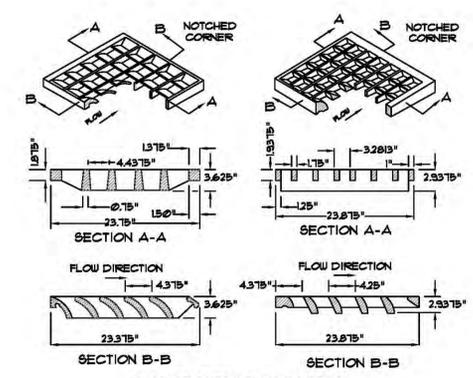
- NOTES**
- THE FILTER BERM SHALL CONSIST OF A WOOD WASTE COMPOST/BARK MULCH MIX OR RECYCLED COMPOSTED BARK FLUME GRIT AND FRAGMENTED WOOD GENERATED FROM WATER FLUME LOG HANDLING SYSTEMS. COMPARABLE COMPOSTED MIXES CAN BE USED UPON WRITTEN APPROVAL OF THE ENGINEER.
  - THE MIX SHALL CONFORM TO THE FOLLOWING: pH BETWEEN 5.0-8.0, PARTICLE SIZE - 100% PASSING THROUGH A 6" SCREEN AND 80% RETAINED ON A 3/4" SCREEN. SOLUBLE SALTS CONTENT SHALL BE LESS THAN 4.0 mg/lb/cu. ft.
  - THE COMPOSTED BERM SHALL BE PLACED, UNCOMPACTED, ALONG A RELATIVELY LEVEL CONTOUR.
  - THE BERM MAY BE USED IN COMBINATION WITH SILT FENCE TO IMPROVE SEDIMENT REMOVAL AND PREVENT CLOGGING OF THE BERM BY LARGER SEDIMENT PARTICLES (SILT FENCE PLACED ON THE UP-HILL SIDE OF BERM).



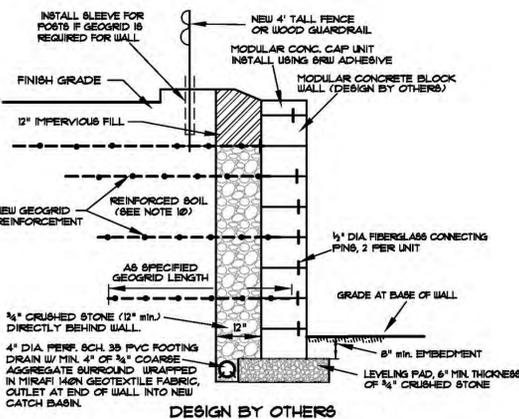
**EROSION CONTROL FILTER BERM**  
NOT TO SCALE



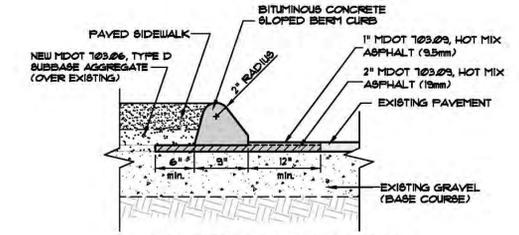
**FOUNDATION UNDERDRAIN DETAIL**  
STONE DRIF EDGE  
NOT TO SCALE



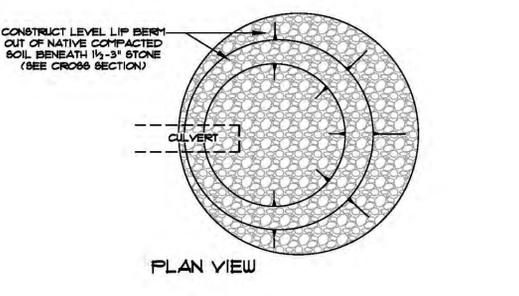
**CASCADE TYPE GRATES**  
NOT TO SCALE



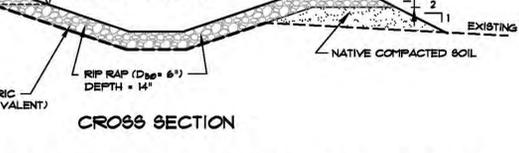
**WALL CROSS SECTION**  
NOT TO SCALE



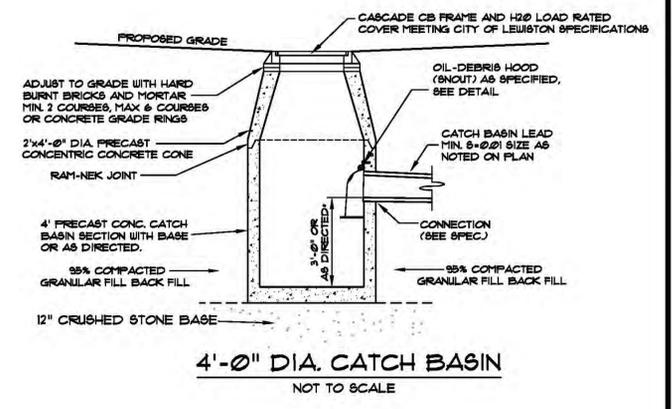
**BITUMINOUS CURBING**  
NOT TO SCALE



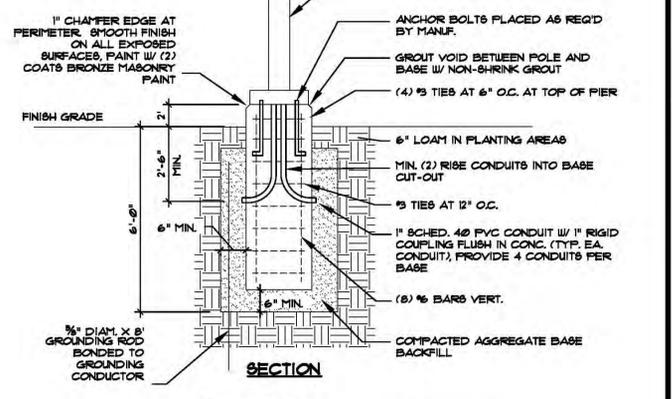
**CULVERT OUTLET WITH LEVEL LIP SPREADER DETAIL**  
NOT TO SCALE



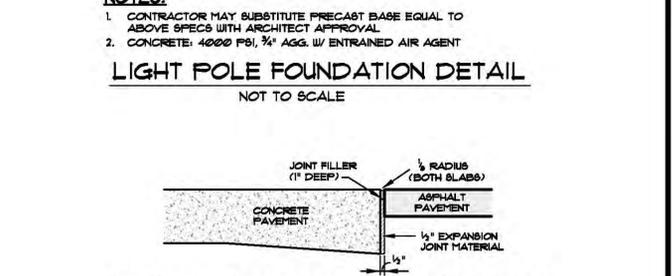
**STORM DRAIN / SEWER TRENCH DETAIL**  
NOT TO SCALE



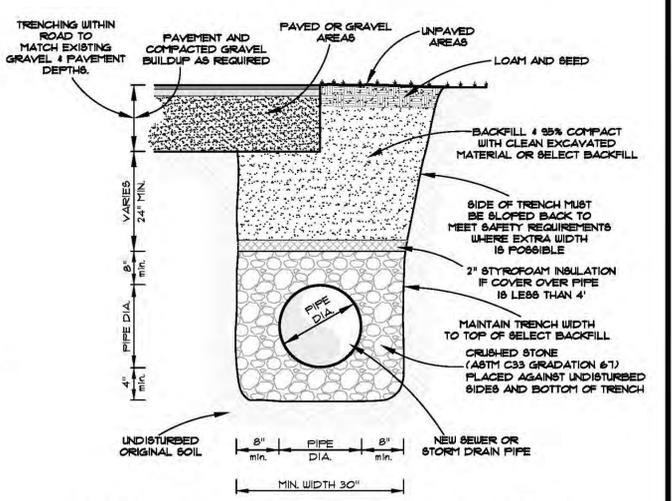
**4"-Ø" DIA. CATCH BASIN**  
NOT TO SCALE



**LIGHT POLE FOUNDATION DETAIL**  
NOT TO SCALE



**CONCRETE PAD / ASPHALT INTERFACE**  
NOT TO SCALE



**STORM DRAIN / SEWER TRENCH DETAIL**  
NOT TO SCALE



DATE	PROJECT
6-28-11	ADD LEVEL LIP SPREADER + CONST. EXIT
REV. DATE	CHANGES
1	DO NOT MODIFY PLAN WITHOUT WRITTEN PERMISSION FROM SJR ENG. INC.

**Stonebrook Consultants, Inc.**  
456 Buckfield Road - Turner, Me 04282  
(207) 514-1451 Voice  
(207) 514-1452 Fax

**SJR ENGINEERING, INC.**  
21 MAYFLOWER ROAD  
AUGUSTA, MAINE 04330  
(207) 622-1516 tel & fax  
steves@sjr.com

**CONSTRUCTION DETAILS**  
545 PLEASANT STREET  
LEWISTON, MAINE  
PREPARED FOR  
**ERIC KING**  
32 IVANHOE DRIVE - TOPSHAM, ME 04086

DATE	PROJECT
APRIL 2011	2011-01
DRAWN BY	SCALE
SJR	NTS





## CITY OF LEWISTON

### Department of Planning & Code Enforcement

**TO: Planning Board**  
**FROM: David Hediger, City Planner**  
**DATE: June 6, 2017**  
**RE: June 10, 2017 V(a)**

#### **Update on parking conditions in the vicinity of Bates College Housing at 55 & 65 Campus Avenue.**

On July 28, 2014 the Planning Board approved new student housing for Bates College at 55 and 65 Campus Avenue. The approval included nine conditions, eight of which been addressed accordingly. One remaining condition is that within 12 months of the date of issuance of the certificate of occupancy, Bates College would submit and report their findings on the parking conditions in the vicinity of this project at 55 and 65 Campus Avenue to City staff and the Planning Board. This condition was included by the Board due to concerns that the new housing project may result parking complaints by residents for Franklin and Bardwell Streets, along with potential impacts to Central Street and Campus Avenue.

Bates has provided an update on their findings indicating the parking created as part of this project is being utilized and could be improved upon. Student spaces in the lots were at or near full occupancy during their surveys, while the other types of spaces were more frequently unoccupied. A re-allocation of the available parking spaces is being implemented by the college in an effort to increase the usage of these lots.

Bates has also established a Transportation Committee composed of faculty, facilities staff, security staff, administration, and a representative of the Lewiston Police Department that meets 2-3 times a year to discuss transportation related topics and changes that may improve parking and transportation to, from, and around campus. Each meeting agenda includes an update from Bates Security and the LPD on any parking related complaints that have been received. No complaints have been identified in the vicinity of the project at 55 and 65 Campus Avenue.

# Bates

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*Facility Services*

6/30/2017

City of Lewiston  
Planning & Code Enforcement  
Attention: David Hediger  
27 Pine St., 3rd Floor  
Lewiston, ME 04240

**Re: 55 & 65 Campus Avenue – Bates College Housing Condition of Approval No. 6**

Mr. Hediger:

As you may recall, the approval of the Bates College 55 & 65 Campus Avenue project on July 28th, 2014 was accompanied by several Conditions of Approval. In particular, Condition No. 6 required a report to be submitted to City staff and the Planning Board regarding parking conditions in the vicinity of 55 and 65 Campus Avenue. The report was to be submitted within 12 months of the issuance of the Certificate of Occupancy for the project. The Certificate of Occupancy for the 55 and 65 Campus facilities was granted on July 14th, 2016.

Enclosed you will find the required report along with a copy of the Approval Letter dated July 31st, 2014. Do not hesitate to contact me with any questions or concerns. We request that a copy of this report be submitted to the Planning Board at the July 10th, 2017 meeting or as soon as is practicable.

It has been a pleasure working with City staff and the Planning Board on this project. The result has been a wonderful addition to the campus and community.

Sincerely,



Chris Streifel  
Project Manager

cc: PJW



# CITY OF LEWISTON

Planning & Code Enforcement



July 31, 2014

President and Trustees of Bates College  
Attn: Pam Wichroski  
2 Andrews Road  
Lewiston ME 04240

Sent by email to: [pwichros@bates.edu](mailto:pwichros@bates.edu)  
[cstreifel@bates.edu](mailto:cstreifel@bates.edu)

**Re: 55 & 65 Campus Avenue – Bates College Resident Housing**

Dear Mrs. Wichroski:

At the Planning Board meeting of July 28, 2014, the Board found that the application submitted by Ann Beha Architects on behalf of Bates College meets all of the necessary criteria contained in the Zoning and Land Use Code, including Article XIII, Section 4 of the Zoning and Land Use Code and granted approval for the construction of two 4-story residence halls that will provide 250-beds, the campus store and mail/print facilities at 55 and 65 Campus Avenue, subject to the following conditions:

1. Prior to a certificate of occupancy being issued, documentation regarding the maintenance and upkeep of the stormwater system pursuant to Lewiston MS4 stormwater requirement contained in Article XII, Section 15e(3) must be recorded in the Androscoggin Registry of Deeds.
2. No building permits will be issued and no site activity shall commence until the stormwater design has been reviewed to staff's satisfaction.
3. No certificate of occupancy shall be issued for this development until written verification by a professional engineer is provided to the city that all stormwater improvements have been completed in accordance with the approved plan.
4. No building permits will be issued and no site activity shall commence until the City and Bates secure easements for utilities, sidewalks, and street closings.
5. No building permits will be issued and no site activity shall commence until the City Council approves of the proposed bike/pedestrian striping and approval to eliminate on street parking and post no parking signs in select areas along city streets.

6. Within 12 months of the date of issuance of the certificate of occupancy, Bates College will submit and report their findings on the parking conditions in the vicinity of this project at 55 and 65 Campus Avenue to City staff and the Planning Board.
7. Bates must demonstrate to the City staff by October 31, 2014 their recommended parking policy changes have been implemented, including:
  - a) Requiring all students (and employees to the extent permitted by law) that are issued parking permits to park in college lots only or risk forfeiture of parking privileges.
  - b) Requiring any student bringing a vehicle to Bates College regardless of whether or not they have obtained a Bates College Parking Permit must register with security for the fall 2014 semester.
  - c) Working with the Lewiston Police Department to identify students who park on street in violation of the policy discussed above who are not tenants of off campus housing.
  - d) Updating the parking section of the Campus Security Webpage to consolidate Parking Policy and Information.
  - e) Creating a dedicated parking map that is easily accessible on Bates.edu
  - f) Eliminating student parking in the Smith, Olin and Bardwell lots where it is currently allowed.
  - g) Providing additional information and evidence clearly showing student, staff, and faculty parking lots.
  - h) Providing evidence that the transportation committee has been created.
8. If development has not occurred as defined within the scope of the Zoning and Land Use Code within two years, development review approval shall expire, pursuant to Article XIII, Section 11. This must be noted on the site plan.
9. That the Planning Board encourages and recommends to the City Council not to approve Bates College request for the closure of Franklin Street limited to pedestrian access and emergency vehicle access and that the street continues to be used and maintained as a city accepted street.

Please provide a minimum of one (1) mylar's and one (1) paper copy for the Planning Board Chairman's signature. In addition, to facilitate updates of City GIS, any plans submitted for development review are requested to be accompanied by a digital CAD plan data file on compact disc (AutoCAD 2011 or earlier).

Please be advised that you will need to obtain the proper building and related permits from the Lewiston Planning and Code Enforcement Office before starting any construction or site work. Specifically, a parking lot permit must be obtained from this office.

Please note that if development has not occurred as defined within the scope of this Code within two years, development review approval shall expire. The applicant may not begin construction or operation of the development until a new approval is granted. If necessary, an extension of development review approval must be made within two years of the initial granting of approval. The applicant must state the reasons why the development was not begun within two years from the granting of the initial approval and the reasons why the applicant will be able to begin the activity within two years from the granting of an extension, if granted. Extensions of approval

may include information submitted in the initial application by reference. Only one extension of the initial approval shall be allowed under these provisions.

Congratulations on the approval of your project. If you have any questions, please do not hesitate to give me a call at (207) 513-3125, Extension 3223.

Sincerely,



David R. Hediger, City Planner

cc: Lincoln Jeffers – Asst. to the City Adm.  
Gildace Arsenault – Director of Planning & Code Enf.  
David Chick – Police Dept.  
Paul Ouellette/Bruce McKay -Fire Dept.  
Rick Burnham/Ryan Barnes – Engineering, Public Services

6/30/2017

## POST PROJECT REPORT

### Parking Conditions In The Vicinity Of 55 & 65 Campus Avenue

**TO:** David Hediger, *Deputy Director / City Planner*  
**FROM:** Chris Streifel, *Project Manager*  
**CC:** Pam Wichroski, *Director of Capital Planning & Construction*

#### Introduction

On July 28th, 2014, the Lewiston Planning Board granted approval for the construction of two 4-story residence halls that provide space for 243-beds, the campus store, and mail/print facilities at 55 and 65 Campus Avenue. The project also incorporated several street improvement initiatives including storm & sewer infrastructure, hardscape and the new pavement that was installed by the City following the completion of the project. Construction of these residence halls was in keeping with the Bates Master Plan and implemented to improve the overall College housing stock – enrollment was not impacted by the project. Several conditions accompanied the Board’s approval including No. 6 which requires Bates College to “submit and report their findings on the parking conditions in the vicinity of this project at 55 and 65 Campus Avenue to City staff and the Planning Board” within 12 months of the date of issuance of the Certificate of Occupancy. Bates College engaged Gorrill-Palmer to conduct parking counts and analysis during the Fall 2016 and Winter 2017 terms. We have used their findings in the analysis presented below.

#### Parking Impacts near Campus Avenue Residence Halls

The construction of the two new residence halls located at 55 and 65 Campus Avenue did have an impact on both the 2014 on-campus and on-street parking supply. The construction replaced the previous Franklin Street lot and added a parking lot between Franklin Street and Central Avenue south of the residence hall. Additionally, the residence halls impacted the on-street parking on Bardwell Street, Franklin Street, and Central Avenue adjacent to the residence halls. The following table shows the impacts of the residence halls on the available parking spaces in the immediate area of the buildings based on a parking analysis provided by the College (attached):

**Table 1: Residence Hall Parking Supply Impact**

Lot / Street	2014 Supply	2016 / 2017 Supply	Change
Chu Lot	N/A	47	+47
Franklin Lot	50	N/A	-50
Kalperis Lot	N/A	27	+27
Campus Avenue	18	20	+2
Bardwell Street	15	21	+6
Franklin Street	24	6	-18
Central Avenue	13	9	-4
<b>TOTAL</b>	120	130	+10

The on-street parking on the north end of Bardwell Street and Franklin Street was utilized more frequently than the on-street parking on Central Avenue. On Bardwell Street and Franklin Street the vehicles were parked closer to Campus Avenue and the residence halls than Vale Street. The parking on Campus Avenue in front of the two residence halls was at or near fully occupied for the duration of the parking demand surveys. The following table shows the hourly occupancy for the two lots:

**Table 2: 2016 Hourly Occupancy of Chu and Kalperis Lots**

Lot	Spaces	2016 Parking Demand							
		9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM
Chu	47	34	33	38	38	41	42	40	37
Kalperis	27	15	14	14	14	18	17	14	15
<b>Total</b>	<b>74</b>	<b>49</b>	<b>47</b>	<b>52</b>	<b>52</b>	<b>59</b>	<b>59</b>	<b>54</b>	<b>52</b>

**Table 3: 2017 Hourly Occupancy of Chu and Kalperis Lots**

Lot	Spaces	2017 Parking Demand							
		9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM
Chu	47	38	40	39	35	36	38	40	39
Kalperis	27	22	20	22	21	16	20	19	19
<b>Total</b>	<b>74</b>	<b>60</b>	<b>60</b>	<b>61</b>	<b>56</b>	<b>52</b>	<b>58</b>	<b>59</b>	<b>58</b>

The available student parking spaces (32 of the spaces in the Chu Lot and 10 of the spaces in the Kalperis Lot) in the lots were at or near full occupancy during each survey. The additional vehicles parked in the lot were typically in faculty / staff parking spaces. In the Kalperis Lot, the five 30 minute parking spaces and the two electric vehicle spaces were often unoccupied.

**Summary of Parking Near the New Residence Halls**

The available parking in the immediate area of the new residence halls is 130 spaces, which is 10 spaces greater than the 2014 available parking of 120 spaces in the same area. There was a decrease in available on-street parking, but an increase in off-street parking due to the construction of the Kalperis and Chu Lots. GP observed that the on-street parking on Campus Avenue in front of the two residence halls was at or near fully occupied for the duration of the parking demand surveys and the on-street parking on the north end of Bardwell Street and Franklin Street was used more frequently than that on Central Avenue. GP determined that the 2016 peak demand in the two parking lots is approximately 59 spaces, and the 2017 peak demand in the two lots is approximately 61 spaces, both of which are less than the available number of spaces in the lots. However, the student spaces in the lots were at or near full occupancy during each

survey, while the other types of spaces were more frequently unoccupied. A re-allocation of the available parking spaces is being implemented by the college in an effort to increase the usage of these lots.

**Transportation Committee**

In 2014, Bates convened a Transportation Committee composed of faculty, facilities staff, security staff, administration, and a representative of the Lewiston Police Department. This committee meets 2-3 times a year to discuss transportation related topics and to recommend changes that can improve parking and transportation to, from, and around campus. Each meeting agenda includes an update from Bates Security and the LPD on any parking related complaints that have been received. It should be noted that no complaints have been identified in the vicinity of the project.

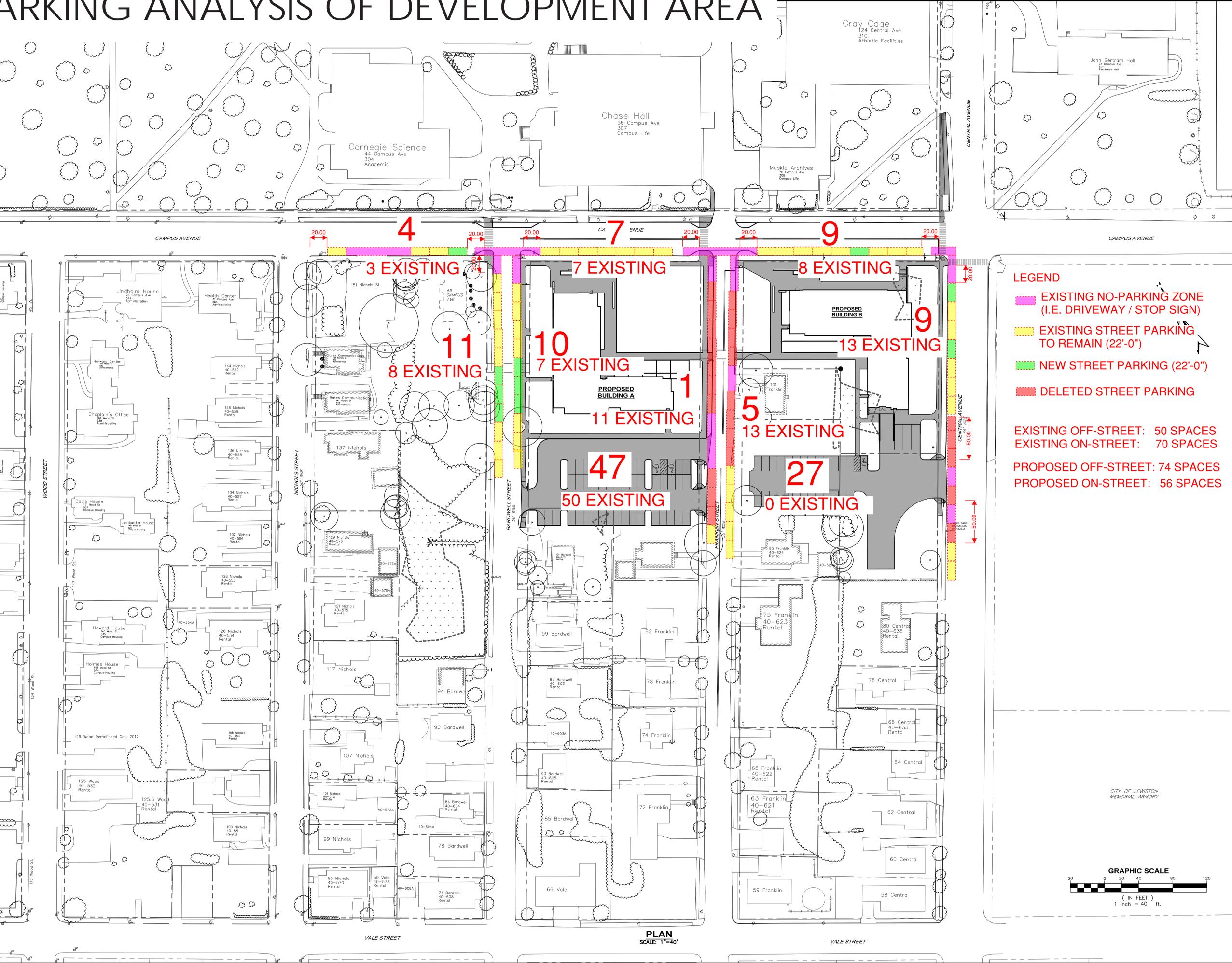
**END**

CJS

# PARKING ANALYSIS OF DEVELOPMENT AREA

LAST SAVED BY: MRL 8/26/14

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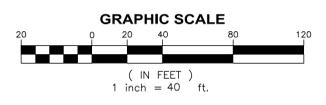


**LEGEND**

- EXISTING NO-PARKING ZONE (I.E. DRIVEWAY / STOP SIGN)
- EXISTING STREET PARKING TO REMAIN (22'-0")
- NEW STREET PARKING (22'-0")
- DELETED STREET PARKING

EXISTING OFF-STREET: 50 SPACES  
 EXISTING ON-STREET: 70 SPACES

PROPOSED OFF-STREET: 74 SPACES  
 PROPOSED ON-STREET: 56 SPACES



PLAN SCALE: 1"=40'

**BATES COLLEGE**  
 55 & 65 CAMPUS AVENUE HOUSING

LEWISTON, MAINE 04240

KEY PLAN

LEGEND

5	100% D.D. REVIEW	8-1-14
4	RESPONSE TO CITY COMMENTS	7-21-14
3	50% D.D. REVIEW	7-2-14
2	CITY OF LEWISTON REV.	6-20-14
1	DEP REVIEW	6-13-14
NO.	REVISION	DATE

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**AnnBeha Architects**  
 33 Kingston Street Boston, MA 02111  
 p:617.338.3000 f:617.482.9097

Job Number: 01313.01  
 Project: BATES COLLEGE  
 Drawn By: MRL Checked By: JBW  
 Date: 8/12/2014  
 Scale: 1" = 40'  
 Drawing Title: