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Level III - Preliminary Site Plan Development Review Application

97 Cumberland Avenue

Portland, Maine

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Preliminary Site Plan Application

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Portland, Maine Yes. Life's good here.

Jeff Levine, AICP, Director
Planning & Urban Development Department

Electronic Signature and Fee Payment Confirmation

Notice: Your electronic signature is considered a legal signature per state law.

By digitally signing the attached document(s), you are signifying your understanding this is a legal document and your electronic signature is considered a ***legal signature*** per Maine state law. You are also signifying your intent on paying your fees by the opportunities below.

I, the undersigned, intend and acknowledge that no Site Plan or Historic Preservation Applications can be reviewed until payment of appropriate application fees are ***paid in full*** to the Inspections Office, City of Portland Maine by method noted below:

☐ Within 24-48 hours, once my complete application and corresponding paperwork has been electronically delivered, I intend to **call the Inspections Office** at 207-874-8703 and speak to an administrative representative and provide a credit/debit card over the phone.

☐ Within 24-48 hours, once my application and corresponding paperwork has been electronically delivered, I intend to **call the Inspections Office** at 207-874-8703 and speak to an administrative representative and provide a credit/debit card over the phone.

☑ I intend to deliver a payment method through the U.S. Postal Service mail once my application paperwork has been electronically delivered.

Applicant Signature: Timothy Lock Digitally signed by Timothy Lock DN: cn=Timothy Lock, o=GO Logic, ou, email=tim@gologic.us, c=US Date: 2016.02.23 15:15:43 -05'00' Date:

I have provided digital copies and sent them on: Date:

NOTE: All electronic paperwork must be delivered to buildinginspections@portlandmaine.gov or by physical means i.e. a thumb drive or CD to the Inspections Office, City Hall, 3rd Floor, Room 315.

Level III – Preliminary and Final Site Plans
Development Review Application
Portland, Maine

Planning and Urban Development Department
Planning Division

Portland's Planning and Urban Development Department coordinates the development review process for site plan, subdivision and other applications under the City's Land Use Code. Attached is the application form for a Level III: Preliminary or Final Site Plan. Please note that Portland has delegated review from the State of Maine for reviews under the Site Location of Development Act, Chapter 500 Stormwater Permits, and Traffic Movement Permits.

Level III: Site Plan Development includes:

- New structures with a total floor area of 10,000 sq. ft. or more except in Industrial Zones.
- New structures with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- New temporary or permanent parking area(s) or paving of existing unpaved parking areas for more than 75 vehicles.
- Building addition(s) with a total floor area of 10,000 sq. ft. or more (cumulatively within a 3 year period) except in Industrial Zones.
- Building addition(s) with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- A change in the use of a total floor area of 20,000 sq. ft. or more in any existing building (cumulatively within a 3 year period).
- Multiple family development (3 or more dwelling units) or the addition of any additional dwelling unit if subject to subdivision review.
- Any new major or minor auto business in the B-2 or B-5 Zone, or the construction of any new major or minor auto business greater than 10,000 sq. ft. of building area in any other permitted zone.
- Correctional prerelease facilities.
- Park improvements: New structures greater than 10,000 sq. ft. and/or facilities encompassing 20,000 sq. ft. or more (excludes rehabilitation or replacement of existing facilities); new nighttime outdoor lighting of sports, athletic or recreation facilities not previously illuminated.
- Land disturbance of 3 acres or more (includes stripping, grading, grubbing, filling or excavation).

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14) which is available on our website:

Land Use Code: http://me-portland.civicplus.com/DocumentCenter/Home/View/1080
Design Manual: http://me-portland.civicplus.com/DocumentCenter/View/2355
Technical Manual: http://me-portland.civicplus.com/DocumentCenter/View/2356

Planning Division
Fourth Floor, City Hall
389 Congress Street
(207) 874-8719

Office Hours
Monday thru Friday
8:00 a.m. – 4:30 p.m.

Updated: October 6, 2015

PROJECT NAME: 97 Cumberland

PROPOSED DEVELOPMENT ADDRESS:

97 Cumberland Ave, Portland, ME 04101

PROJECT DESCRIPTION:

See attached description

CHART/BLOCK/LOT: 13/C/25

PRELIMINARY PLAN _____ (date)
FINAL PLAN _____ (date)

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: Peter Dugas Business Name, if applicable: Address: 243 State St. City/State : Portland, ME Zip Code: 04101	**Applicant Contact Information** Work # Home# 207-899-2409 Cell # Fax# e-mail: dugas3@gmail.com
Owner – (if different from Applicant) Name: Same as Applicant Address: City/State : Zip Code:	**Owner Contact Information** Work # Home# Cell # Fax# e-mail:
Agent/ Representative Name: Timothy Lock (GO Logic) Address: P.O. Box 567 City/State : Belfast, ME Zip Code: 04915	**Agent/Representative Contact information** Work # 338-1566 x250 Cell # e-mail: tim@gologic.us
Billing Information Name: Timothy Lock (GO Logic) Address: P.O. Box 567 City/State : Belfast, ME Zip Code: 04915	**Billing Information** Work # 338-1566 x250 Cell # Fax# e-mail: tim@gologic.us

Engineer Sebago Technics Name: Robert McSorley Address: 75 John Roberts Road, Suite 1A City/State : So Portland, ME Zip Code: 04106	**Engineer Contact Information** Work # 207-200-2100 Cell # Fax# e-mail: rmcsorley@sebagotechnics.com
Surveyor Owen Haskell Inc. Name: John Swan Address: 3900 Route One City/State : Falmouth, ME Zip Code: 04015	**Surveyor Contact Information** Work # 774-0424 Cell # Fax# e-mail: jswan@owenhaskell.com
Architect GO Logic Name: Timothy Lock Address: P.O. Box 567 City/State : Belfast, ME Zip Code: 04915	**Architect Contact Information** Work # 338-1566 x250 Cell # Fax# e-mail: tim@gologic.us
Attorney Name: Address: City/State : Zip Code:	**Attorney Contact Information** Work # Cell # Fax# e-mail:

APPLICATION FEES:

Check all reviews that apply. (Payment may be made by Cash or Check payable to the City of Portland.)

Level III Development (check applicable reviews)

X Less than 50,000 sq. ft. ($500.00)
___ 50,000 - 100,000 sq. ft. ($1,000)
___ 100,000 – 200,000 sq. ft. ($2,000)
___ 200,000 – 300,000 sq. ft. ($3,000)
___ over $300,00 sq. ft. ($5,000)
___ Parking lots over 11 spaces ($1,000)
___ After-the-fact Review ($1,000.00 plus applicable application fee)

Plan Amendments (check applicable reviews)

___ Planning Staff Review ($250)
___ Planning Board Review ($500)

The City invoices separately for the following:

- Notices ($.75 each)
- Legal Ad (% of total Ad)
- Planning Review ($40.00 hour)
- Legal Review ($75.00 hour)

Third party review fees are assessed separately. Any outside reviews or analysis requested from the Applicant as part of the development review, are the responsibility of the Applicant and are separate from any application or invoice fees.

Other Reviews (check applicable reviews)

___ Traffic Movement ($1,000)
___ Stormwater Quality ($250)
X Subdivisions ($500 + $25/lot)
# of Lots 5 x $25/lot = 125
___ Site Location ($3,000, except for residential projects which shall be $200/lot)
# of Lots ___ x $200/lot = _____
___ Other _____
___ Change of Use
___ Flood Plain
___ Shoreland
___ Design Review
___ Housing Replacement
___ Historic Preservation

APPLICATION SUBMISSION:

1. **All site plans and written application materials must be submitted electronically on a CD or DVD with each plan submitted as separate files, with individual file names (see submittal requirements document attached).**
2. **In addition, one (1) paper set of the plans (full size), one (1) paper set of plans (11 x 17), paper copy of written materials, and the application fee must be submitted to the Planning Division Office to start the review process.**

The application must be complete, including but not limited to the contact information, project data, application checklists, wastewater capacity, plan for fire department review, and applicant signature. The submissions shall include one (1) paper packet with folded plans containing the following materials:

1. **One (1) full size site plans** that must be **folded.**
2. One (1) copy of all written materials or as follows, unless otherwise noted:
   a. Application form that is completed and signed.
   b. Cover letter stating the nature of the project.
   c. All Written Submittals (Sec. 14-525 2. (c), including evidence of right, title and interest.
3. A stamped standard boundary survey prepared by a registered land surveyor at a scale not less than one inch to 50 feet.
4. Plans and maps based upon the boundary survey and containing the information found in the attached sample plan checklist.
5. One (1) set of plans reduced to 11 x 17.

Refer to the application checklist for a detailed list of submission requirements.
Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), which includes the Subdivision Ordinance (Section 14-491) and the Site Plan Ordinance (Section 14-521). Portland's Land Use Code is on the City's web site http://www.portlandmaine.gov/citycode/chapter014.pdf

APPLICANT SIGNATURE:

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Planning Authority and Code Enforcement'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 a Level II Site Plan review. It is not a permit to begin construction. An approved site plan, a Performance Guarantee, Inspection Fee, Building Permit, and associated fees will be required prior to construction. Other Federal, State or local permits may be required prior to construction, which are the responsibility of the applicant to obtain.

Signature of Applicant:	**Date:**
Timothy Lock Digitally signed by Timothy Lock DN: cn=Timothy Lock, o=GO Logic, ou, email=tim@gologic.us, c=US Date: 2016.02.23 15:16:48 -05'00'	

PROJECT DATA

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

Total Area of Site	5500	sq. ft.
Proposed Total Disturbed Area of the Site	4070	sq. ft.
If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland		
Impervious Surface Area		
Impervious Area (Total Existing)	N/A	sq. ft.
Impervious Area (Total Proposed)	4070	sq. ft.
Building Ground Floor Area and Total Floor Area		
Building Footprint (Total Existing)	N/A	sq. ft.
Building Footprint (Total Proposed)	1820	sq. ft.
Building Floor Area (Total Existing)	N/A	sq. ft.
Building Floor Area (Total Proposed)	6936	sq. ft.
Zoning		
Existing	R6	
Proposed, if applicable	R6	
Land Use		
Existing	Residential	
Proposed	Residential	
Residential, If applicable		
# of Residential Units (Total Existing)	N/A	
# of Residential Units (Total Proposed)	5	
# of Lots (Total Proposed)	1	
# of Affordable Housing Units (Total Proposed)		
Proposed Bedroom Mix		
# of Efficiency Units (Total Proposed)	N/A	
# of One-Bedroom Units (Total Proposed)	4	
# of Two-Bedroom Units (Total Proposed)	0	
# of Three-Bedroom Units (Total Proposed)	1	
Parking Spaces		
# of Parking Spaces (Total Existing)	N/A	
# of Parking Spaces (Total Proposed)	5	
# of Handicapped Spaces (Total Proposed)	N/A	
Bicycle Parking Spaces		
# of Bicycle Spaces (Total Existing)	N/A	
# of Bicycle Spaces (Total Proposed)	Per technical manual requirements	
Estimated Cost of Project	$900,000	

PRELIMINARY PLAN (Optional) - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST**
X		1	Completed Application form
X		1	Application fees
X		1	Written description of project
X		1	Evidence of right, title and interest
		1	Evidence of state and/or federal approvals, if applicable
X		1	Written assessment of proposed project's compliance with applicable zoning requirements
X		1	Summary of existing and/or proposed easement, covenants, public or private rights-of-way, or other burdens on the site
		1	Written requests for waivers from site plan or technical standards, if applicable.
		1	Evidence of financial and technical capacity
X		1	Traffic Analysis (may be preliminary, in nature, during the preliminary plan phase)
Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST**
X		1	Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
X		1	**Preliminary Site Plan including the following: (information provided may be preliminary in nature during preliminary plan phase)**
X		Proposed grading and contours;	
X		Existing structures with distances from property line;	
X		Proposed site layout and dimensions for all proposed structures (including piers, docks or wharves in Shoreland Zone), paved areas, and pedestrian and vehicle access ways;	
X		Preliminary design of proposed stormwater management system in accordance with Section 5 of the Technical Manual (note that Portland has a separate applicability section);	
X		Preliminary infrastructure improvements;	
X		Preliminary Landscape Plan in accordance with Section 4 of the Technical Manual;	
		Location of significant natural features (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features) located on the site as defined in Section 14-526 (b) (1);	
		Proposed buffers and preservation measures for significant natural features, as defined in Section 14-526 (b) (1);	
X		Location , dimensions and ownership of easements, public or private rights of way, both existing and proposed;	
X		Exterior building elevations.	

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Introduction + Project Team

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Introduction
The proposed new multi-family building at 97 Cumberland Ave. requires planning board approval given the subdivision of more than two units. The property owner is electing to proceed with a Preliminary Level III Site plan review as suggested by the Planning Department. In addition to the standard requirements of a Level III Site Plan the owner requests that the proposed design be assessed under the Alternate Design Review provision of the R-6 zoning district Design Manual. GO Logic LLC, an Architecture and Construction firm (ME Licensed Architect, Lic #3810), has been hired by the property owner to provide design services to develop the planning for the house and the garage, and has prepared this application on their behalf.

A schematic design and siting of the building have been determined. The bulk and height of the proposed building are in compliance with the R-6 zoning district limitations. In addition, all setbacks have been met along with total lot coverage limitations

Project Description
The property is a 5500 square foot parcel (.12 acre) located at 97 Cumberland Ave. The nearest major intersection is with Washington Ave. The existing use of the property is single-family residential; a vacant single-family house has been demolished by the property owner.

The property shares an access easement with the neighboring properties of 93 Cumberland Ave. and 93 Rear Cumberland Ave. The easement is disclosed in the deed to the property and survey included with this submittal.

No accessory structures are currently planned on the property.

Project Team

Property Owner – Peter & Annie Dugas
Architect – GOL Logic, LLC; Timothy Lock, Project Architect
Surveyor – Owen Haskell
Civil Engineer – Sebago Technics
Structural Engineer – Albert Putnam, PE
Mechanical Engineer – Andrew McPartland, PE

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Code + Zoning Assesment

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Lot Information

Address: 97 Cumberland St.
Block: 013

Summary Of Zoning and Code Regulations

Zoning Restrictions – Based On Portland Zoning Ordinance

Zoning District – R6

Minimum Setback Requirements

Principal Structure

Front:	5 feet (or even with neighboring buildings)
Side:	3 stories – 5 feet
Rear:	10 feet

Lot Restrictions

Gross Area	4500 SF
Minimum Street Frontage:	40 feet
Lot Coverage:	50% maximum up to 20 dwelling units – 2750 SF
Open Space Requirement:	20% of lot area – 1100 SF

Lot Compliance

Gross Area:	5500 SF
Street Frontage:	43 feet
Lot Coverage (Building):	1820 SF
Total Impervious Surface:	4070 SF

Building Bulk

Principal Structure

Floor Area Ratio (FAR):	N/A
Building Height Limit:	45 ft. (above average finished grade at fronting street)
Number of Stories:	3 plus Basement
Overall Building Size:	6936 SF
Total Number of Dwelling Units:	5

Use Restrictions and Requirements

Principal Structure

Proposed use: Multi-family housing
Permitted uses:

- Multi-family housing
- Single-family house
- Temporary lodging (hotel, etc.)

- Conditional uses:
  - Professional offices and similar business use types

Parking
Required Off-street Parking: 1 space per dwelling unit – 5 spaces provided

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Project Description

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97 Cumberland Ave.

Occupying a thin, infill property on the edge of the R-6 district in Munjoy Hill near the intersection of Cumberland Ave. and Washington Avenue, 97 Cumberland Avenue is a proposed small, five-unit multi-family development setting. The property owner is a Portland resident looking to construct a high-performance multi-family building. GO Logic is a Belfast based architecture and construction firm specializing in thermally efficient buildings based on the German Passive House standard. With all of our projects we believe there is an inherent synergy between designing for human comfort and long-term sustainability. If the building's design is based on specific and local climactic conditions well integrated with the building's function, the comfort of occupant and interaction with the site and surrounding buildings will be optimized. When the building envelope is designed and executed well the building will require almost no supplemental heating energy and will provide a stable and comfortable interior environment. The relationship between thermal performance and human comfort results in an inherently compelling architectural response, as climate, form and function work in unison.

Technically, we set a goal for all of our projects to have the energy demand for space heating and cooling reduced to almost zero, allowing for the installation of renewable energy systems to create more energy than is consumed. Our design approach starts with a highly-insulated building shell that makes use of passive solar gain to lower space heating demands, allowing the cost and complexity of the mechanical systems to be minimized. Our target level of energy performance for the building as a whole is the German Passive House standard for space heating and air infiltration, which represents a 90% improvement on the buildings' space heating loads from typical code-complaint construction. These improvements over conventional construction, in conjunction with heat recovery ventilation, result in a building with an extremely small energy demand. Furthermore, due to the minimized heat load, a solar electric system can cover the building's space and domestic water heating demands in most climate regions, resulting in a cost-effective, grid-tied, Energy-Plus building as measured on an annual basis. While all of our projects are designed and built to these standards, we have had officially certified four single-family residences in Maine, Connecticut, Michigan and Massachusetts and one dormitory for Unity College in Unity, Maine. In addition, we have recently completed the first certified Passive House laboratory in North America for the University of Chicago. We are bringing this design approach to a multi-family building, for the first time, at 97 Cumberland Avenue. It is on track to be the first certified multi-family Passive House in the state of Maine.

The constrained site and solar orientation of 97 Cumberland poses thermal performance challenges. While we would typically take advantage of the sunny Maine winter to provide additional passive solar heating, we have taken different approach here, resulting a more compact building, in keeping with the mass of the surrounding buildings and scale of typical fenestration in the neighborhood. In order to increase the thermal performance for the larger building, the building is divided into two parts by an enclosed common stair allowing each structure to minimize the ratio of exterior wall to enclosed volume. Four one-bedroom apartments and one two-story three-bedroom are spread between the two structures effectively reducing the perceived scale of building as a whole. The site slopes down to the rear of the property allowing covered parking under the back building and reducing the building height along the street front. The roofs of both structures are pitched on an angle toward the southwest to accommodate a photovoltaic array and screen wall supporting climbing vines encloses the common stair. We are proposing and exterior finish in keeping with the neighboring industrial buildings along Washington Avenue. We are applying for an Alternative Design Review on this project.

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Design Principles + Standards

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Overall Context

The neighborhood surrounding 97 Cumberland Avenue is unique in that it is a hinge-point between the large-scale, masonry industrial aesthetic of the buildings lining the north side of Washington Avenue and the two and three story clapboard-sided residential buildings of Cumberland Avenue.

While the property is accessed only from Cumberland Avenue, the surrounding topography and grade of Cumberland Avenue allows the West side façade to be fully visible from Washington Street above a gas station and convenience store at 21 Washington Ave.

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The proposed design attempts to negotiate this divide by establishing an industrial-scale west façade facing Washington Avenue. The South façade, facing Cumberland Avenue, takes advantage of the rise in grade toward Cumberland Ave. effectively reducing the height of the building along this more residential street to three stories keeping it consistent with other multi-family buildings to the east.

Additionally, the proposed fenestration coordinates the scale of masonry openings along Washington Avenue with smaller, residential scale openings while maintaining a proportion of un-fenestrated wall consistent with surrounding buildings. We have included several examples of buildings in the surrounding neighborhood with similar features to those described in our proposal below.

Site viewed from Washington Ave - Existing

Site viewed from Washington Ave - Proposed

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63 Washington Ave


5 Washington Ave


129 Washington Ave

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97 Cumberland Ave: Rendering

96 Sheridan St

59 Cumberland Ave

97 Cumberland Ave

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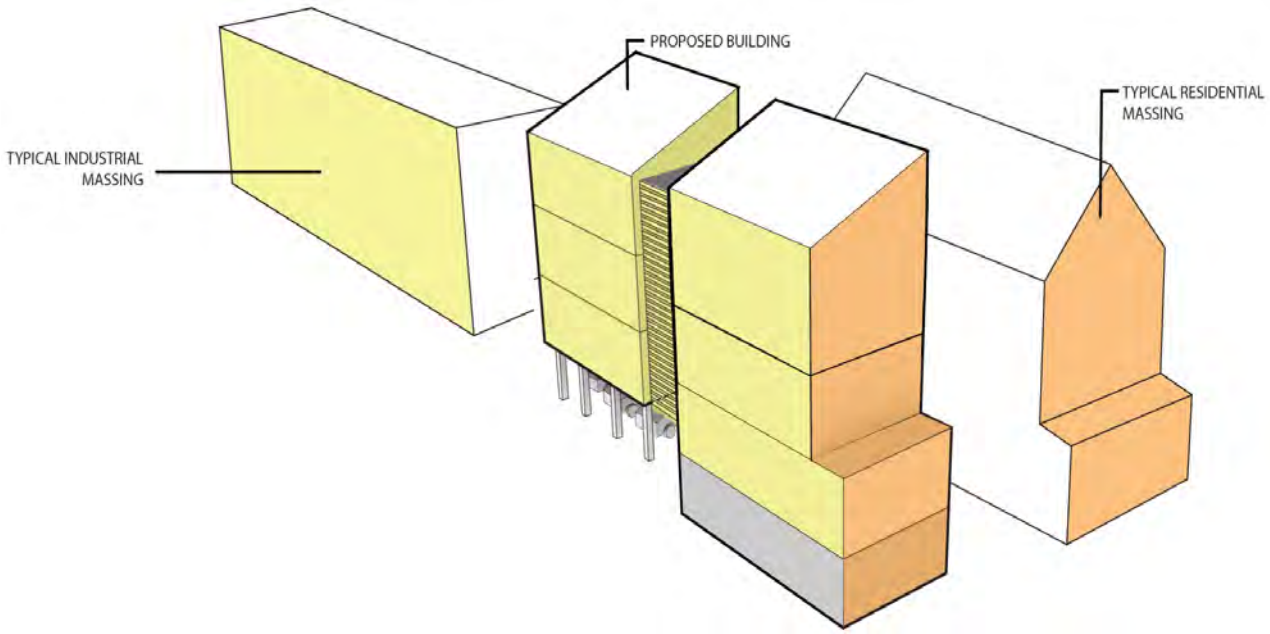
Massing

The intent of the proposed massing of the new building at 97 Cumberland Ave. is, as noted above, to maintain the size and scale of the residential buildings along Cumberland Ave. when viewed from the Northeast while responding to the form and of industrial masonry buildings when viewed from the West along Washington Avenue.



By dividing the building into two structures with a common stair the impression of the overall mass is reduced. The separation between the structures is mitigated by a planted wall of climbing vines, providing shade to the enclosed common stair and a further break in the overall building mass. Further breaking down the mass of the building as viewed along Cumberland Ave., the ground floor dwelling unit extends to the front yard set back providing a recessed and covered ground floor entry and a balcony for the 2nd floor dwelling unit. This serves to further minimize the mass at the street and reduce the impact of the three-story height by reflecting the mass of traditional porch structures and extended bay windows in the surrounding neighborhood.

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Both the north and south buidings have single pitched shed roofs oriented toward the southwest, creating a roof form designed to allow electricity production via roof mounted photovoltaic panels. The resulting roof area is sufficient to power the heating and cooling systems for both structures. Several instances of single pitched shed roofs are present in the surrounding neighborhood.

97 Cumberland Ave. - Proposed

96 Sheridan St.

3 Greenleaf St.

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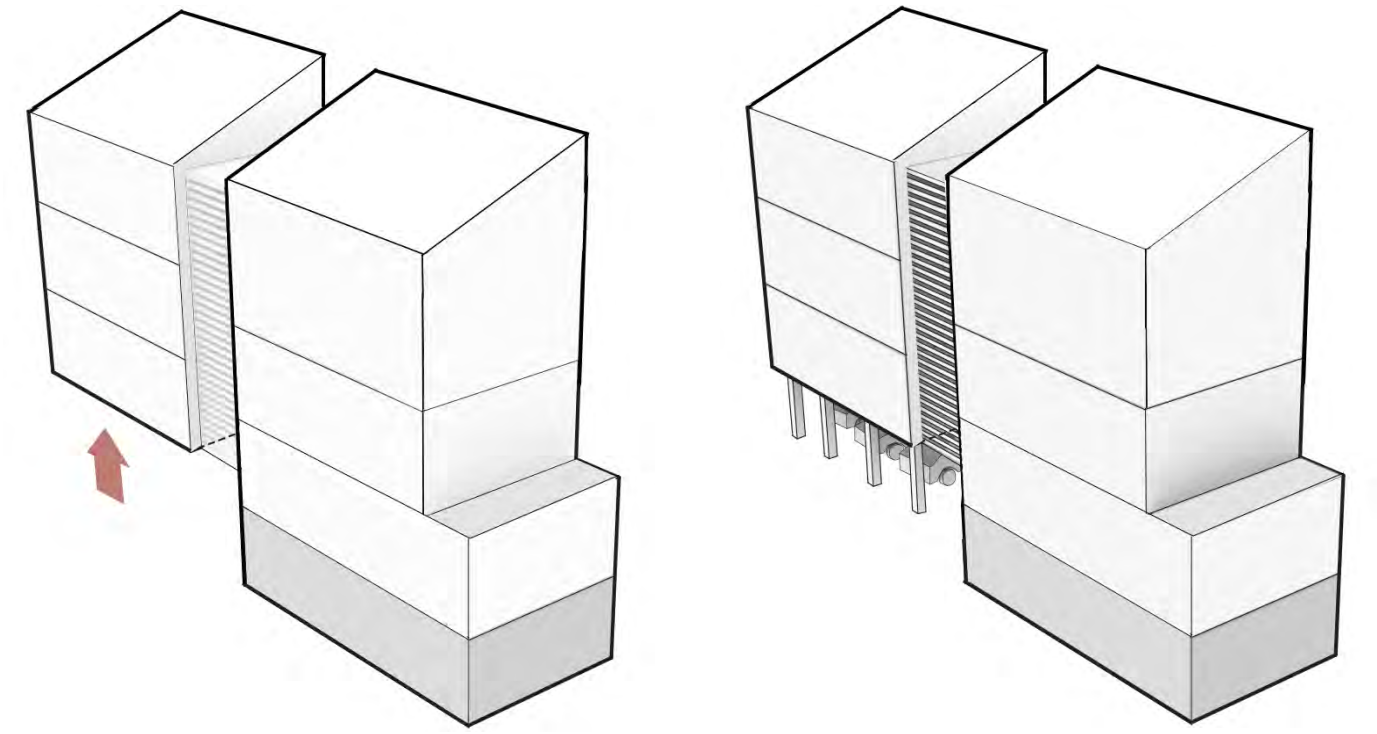
Again, utilizing the natural grade of the site, we have situated an accessory garage under the north structure providing discrete parking concealed from view from the street.



Parking Diagram

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Orientation To Street

We have situated the building to provide clear entry from the street frontage along Cumberland Avenue. The first floor dwelling has direct access to the front yard through a covered and recessed entry deck providing privacy from the street. The finished floor elevation of the street level unit is a foot above the highest portion of public sidewalk, further separating it from the street. The main access to the common enclosed stair follows an elevated walkway deck beyond the street level dwelling unit. Stretching along the west wall, the walkway is located opposite the vehicular access point at the east side of the building.

97 Cumberland Ave. - Propsoed Front Entry

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97 Cumberland Ave. - Plan Diagram at Entry

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Proportions and Scale

The proposed building attempts to replicate the proportions and scale of the surrounding residential buildings in height and width. We have paired this compact building scale with fenestration along the façade reflecting the proportions and scale of the glazed openings of the industrial buildings along Washington Avenue.

The surrounding residential buildings lining Cumberland Avenue are, in general, three stories in height and approximately twenty to twenty five feet wide. We have maintained these proportions on the façade facing Cumberland Avenue.

Balance and Articulation

The proposed design strives to maintain a consistency of fenestration throughout within a contemporary architectural language. The openings consist of a repetition of two window sizes. The window heights are consistent on each façade. Further, all window openings are aligned along horizontal datum lines delineating floors.

To reduce total building heat loss, the windows on the North and East facades are smaller, but consistent in size.


63 Washington Ave. - Fenestration


97 Cumberland Ave. - Proposed Fenestration


59 Cumberland Ave. - Fenestration


97 Cumberland Ave. - Proposed Fenestration

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While the building is contemporary in architectural language, we have included modern versions of classic building articulations. All windows are trimmed to the exterior finish in a contrasting finish to the building cladding. The roof fascia provides delineation to the roof line, yet is matched in material to the façade. We have been careful to limit the material palette to the cladding and contrasting trim throughout. Porches (both the entry porch to the first floor dwelling unit along Cumberland Avenue and the main entry porch to the common stair are carefully fit within the overall building volume.
Materials

Given the position of the property within the existing local urban context, we feel it is important to establish a visual and

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material relationship with the industrial buildings along Washington Avenue. We have chosen a metal panel exterior cladding in a rust-red finish to reflect the color and texture of the surrounding masonry buildings.

63 Washington Ave. - Red Brick Material Finish

97 Cumberland Ave. - Proposed Rust-Red Metal Panel Finish

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Evidence of Right, Title and Interest

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Return to:

Peter C. Dugas and Anastasia Antonacos
97 Cumberland Avenue
Portland, ME 04101

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS: That **I, John A. Edwards**, of 97 Cumberland Avenue, Portland, Maine for consideration paid, grant to **Peter C. Dugas and Anastasia Antonacos**, of 243 State Street, Portland, ME 04101, as joint tenants with rights of survivorship with WARRANTY COVENANTS:

SEE ATTACHED EXHIBIT A.

MEANING and INTENDING to describe and convey all and the same of the premises conveyed to the grantor herein by deed of Robert A. Arnold and Thuong Arnold dated 5/5/2006 recorded at Book 23929, Page 301 in the Cumberland County Registry of Deeds.

Executed this 12 day of MARCH, 2013

John A. Edwards

State of Oregon
County of Clackamas 03/12/2013

Then personally appeared before me the said John A. Edwards and acknowledged the foregoing to be his voluntary act and deed.

Notary Public/Attorney at Law
Commission expiration: May 22, 2016

OFFICIAL SEAL
JAMI S MEHRER
NOTARY PUBLIC-OREGON
COMMISSION NO. 468672
MY COMMISSION EXPIRES MAY 22, 2016

PD AA

EXHIBIT A

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

Beginning at an iron pin set in the ground at the southwesterly corner of lot numbered three (3) as shown on a certain plot plan of property of Walter A. Gerry at 93 and 97 Cumberland Avenue, Portland, Maine as drawn by Varney Engineering Company, North Windham, Maine, October 8, 1946, a copy of which plot plan is recorded in the Cumberland County Registry of Deeds in Plan Book 32, Page 28, and reference to which plot plan is hereby made; thence northeasterly by Cumberland Avenue forty- three (43) feet to another iron pin set in the ground at the point where lot numbered three (3) and lot numbered one (1) meet; thence northwesterly by the line of lot numbered one (1) one hundred twenty-five and six tenths (125.6) feet to land formerly of Homan; thence westerly by said Homan land forty-two and seventy-five hundreds (42.75) feet to a stake; thence southeasterly one hundred forty-two and five tenths (142.5) feet to Cumberland Avenue at the point of beginning;

Being lot numbered three (3) as shown on said plan.

Together with a right of way over, along and upon said lot numbered one (1) as shown on said plot plan, easterly of and adjacent to the premises herein described.

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Existing and Proposed Easements, Covenants and Rights-of-way

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WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS, THAT I, **CAROL S. PIKE,** of Portland, County of Cumberland and State of Maine, FOR CONSIDERATION PAID, grant to **CAROL S. PIKE AND JAMES F. PIKE**, both of Portland, County of Cumberland and State of Maine, as joint tenants with WARRANTY COVENANTS, the following described real property located in the City of Portland, County of Cumberland and State of Maine:

A certain lot of parcel of land together with the buildings thereon, situated in Portland, County of Cumberland and State of Maine, and being Lot #1 as delineated on the plan recorded in the Cumberland County Registry of Deeds in Plan Book 32, Page 28, being a Portland of the premises conveyed by deed recorded in said Registry of Deeds in Book 1831, Page 423, and more particularly bounded and described as follows:

Beginning on the Northwesterly sideline of Cumberland Avenue in said Portland at the Southeasterly corner of the premises conveyed by Walter A. Gerry et al to Robert E. McInnis by deed dated October 16, 1946 and recorded in said Registry of Deeds in Book 1848, Page 165; thence Northeasterly by Cumberland Avenue forty seven (47) feet to a point; thence Northerly forty eight and eight tenths (48.8) feet to a point thence Westerly forty one and seven tenths (41.7) feet to a point; thence Southerly seventy one and five tenths (71.5) feet to the point of beginning.

This conveyance is made subject to a right of way over the Westerly portion of the above described premises.

Being the same premises as described in a deed from Citicorp Mortgage, inc. to Carol S. Pike dated June 10, 1996 and recorded in the Cumberland County Registry of Deeds in Book 12557, Page 204.

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

Received
Recorded Register of Deeds
Aug 04,2009 11:02:36A
Cumberland County
Pamela E. Lovley

WITNESS my hand(s) and seal(s) this 31st day of July, 2009.

Witness

Carol S. Pike

STATE OF MAINE
COUNTY OF Cumberland, ss. July 31st, 2009

Personally appeared the above-named Carol S. Pike, and acknowledged the foregoing instrument to be her free act and deed.

Before me,

Notary Public/Attorney-at-Law

JENNIFER J. JIPSON
NOTARY PUBLIC, STATE OF MAINE
MY COMMISSION EXPIRES
JULY 13, 2014

EXHIBIT A
97 Cumberland Avenue, Portland, Maine

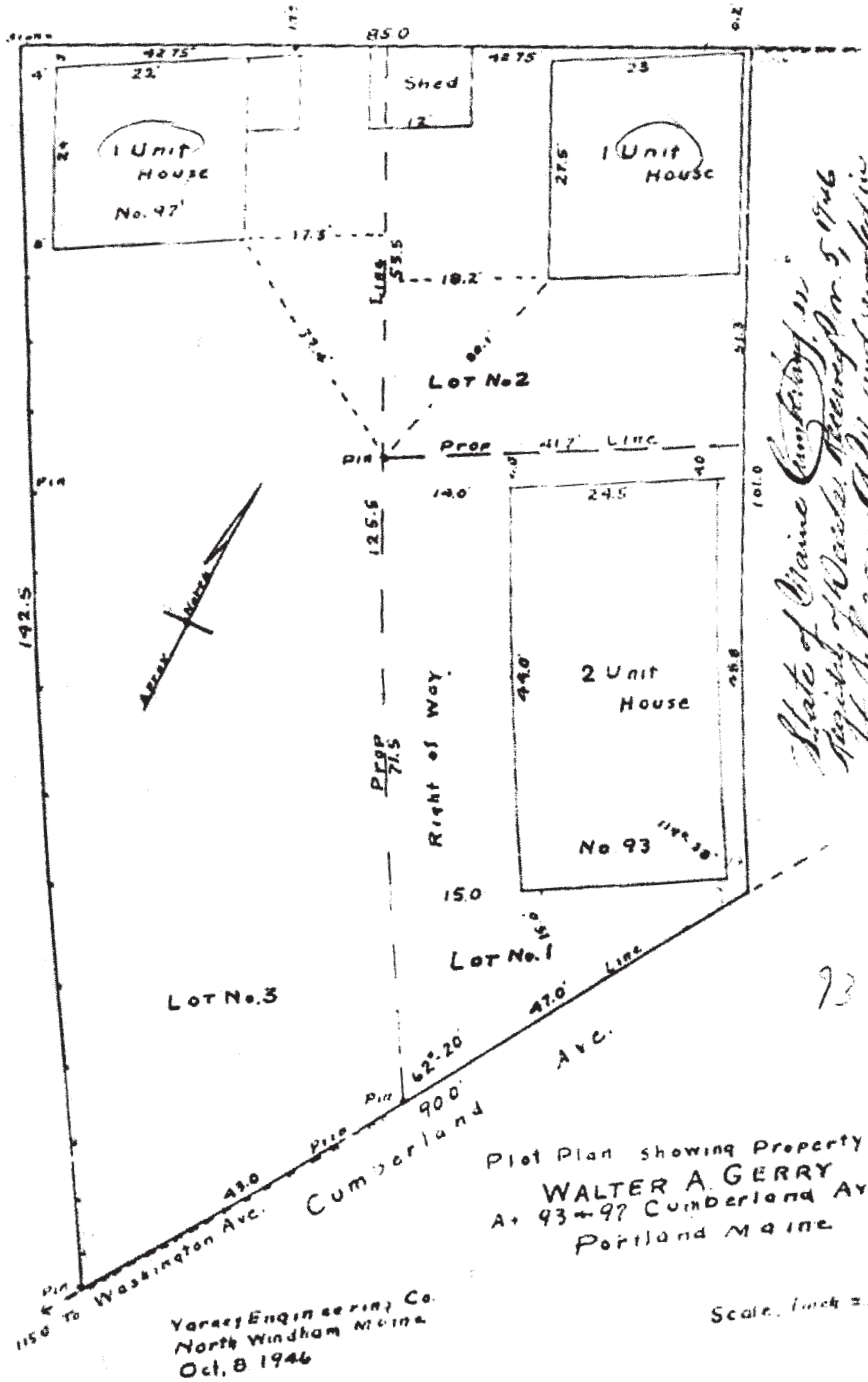
A certain lot or parcel of land, with the buildings thereon, situated on the northwesterly side of Cumberland Avenue in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at an iron pin set in the ground at the southwesterly corner of lot numbered three (3) as shown on a certain plot plan of property of Walter A. Gerry at 93 and 97 Cumberland Avenue, Portland, Maine as drawn by Varney Engineering Company, North Windham, Maine, October 8, 1946, a copy of which plot plan is recorded in the Cumberland County Registry of Deeds in Plan Book 32, Page 28, and reference to which plot plan is hereby made for more particular description of the premises hereby conveyed: thence northeasterly by Cumberland Avenue forty-three (43) feet to another iron pin set in the ground at the point where lot numbered three (3) and lot numbered one (1) meet; thence northwesterly by the line of lot numbered one (1) one hundred twenty-five and six tenths (125.6) feet to land formerly of Homan; thence westerly by said Homan land forty-two and seventy-five hundreds (42.75) feet to a stake; thence southeasterly one hundred forty-seven and five tenths (147.5) feet to Cumberland Avenue at the point of beginning; being lot numbered three (3) as shown on said plan.

Together with a right of way over, along and upon said lot numbered one (1) as shown on said plot plan, easterly of and adjacent to the premises herein conveyed.

Being the same premises conveyed by warranty deed from Edna L. Granholm to Robert A. Arnold and Thuong Arnold dated March 31, 1976 and recorded in the Cumberland County Registry of Deeds in Book 3827, Page 149.

Received
Recorded Register of Deeds
May 05,2006 02:38:13P
Cumberland County
John B OBrien


85.0
42.75
22'
Shed
12'
42.75
23'
1 Unit House
No. 97
1 Unit House
27.5'
17.5'
Lies 53.5
18.2'
Lot No. 2
Prop 41.7' Line
Pin
14.0'
24.5'
125.5
142.5
101.0
2 Unit House
No 93
Prop 71.5
Right of Way
15.0'
Lot No. 1
Lot No. 3
47.0' Line
62.20'
90.0'
Cumberland Ave.
43.0'
Washington Ave.
115.0' To
Plot Plan Showing Property of
WALTER A. GERRY
At 93-97 Cumberland Ave.
Portland Maine
Varney Engineering Co.
North Windham Maine
Oct. 8 1946
Scale. Inch = 10 feet

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Traffic Analysis

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Memorandum

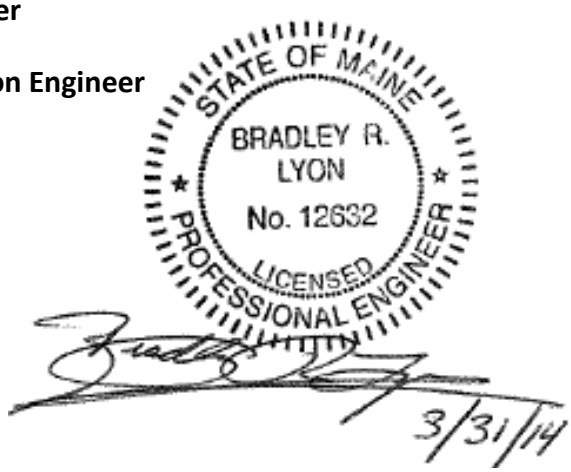
To: **Steven A. Groves, CPSWQ, Sr. Design Engineer**

From: **Bradley R. Lyon, P.E., PTOE, Sr. Transportation Engineer**

Date: **March 31st, 2014**

Project #: **14073**

Subject: **97 Cumberland Avenue, Portland, Maine**



The proposed development of 97 Cumberland Avenue in Portland, Maine is located between Washington Avenue and Romasco Lane. It is our understanding that this development is proposed to be a 3 story, 5 unit apartment building. Per your request, we have reviewed the proposed trip generation as well as existing crash data provided to us by MaineDOT near the vicinity of the site.

Trip Generation

Proposed trip generation has been calculated utilizing the 7th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual for Land Use Code (LUC) 223, Mid-Rise Apartment. Table 1, below, summarizes the calculations.

Table 1
Proposed Trip Generation
Land Use Code 223, Mid-Rise Apartment

By Units	Units	Rate (Trips / Dwelling Unit)	Total Trips
Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 AM	5	0.30	2
Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 PM	5	0.39	2
Weekday AM Peak Hour of Generator	5	0.35	2
Weekday PM Peak Hour of Generator	5	0.44	2

Overall, the proposed development will produce a very low volume of trips and therefore will not meet the minimum threshold of 100 peak hour trips and thus will not require a Traffic Movement Permit from the MaineDOT.

Crash Data

Crash data between 2010-2012 from the MaineDOT was reviewed in the project vicinity with no High Crash Locations (HCL's) being identified. HCL's are defined by MaineDOT as locations having a minimum of eight accidents in a three-year period and a critical rate factor greater than one. The crash summary reports as provided by MaineDOT have been attached at the end of this memorandum.

Conclusions

Based on our traffic assessment, we offer the following conclusions:

- The proposed development of 97 Cumberland Avenue in Portland, Maine will generate a very low volume of traffic, with 2 trips in the AM and PM peak hours and therefore will not require a Traffic Movement Permit from the MaineDOT.

- The immediate project vicinity was reviewed and found to not be a High Crash Location using the latest three year period as provided by the MaineDOT (2010-2012).

Enclosures

1. MaineDOT Crash Summary Reports

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I - Single Node	☐ Section Detail	☑ Crash Summary II	☐ 1320 Public	☐ 1320 Private	☐ 1320 Summary

REPORT DESCRIPTION

Romasco Ln. @ Cumberland Ave.

REPORT PARAMETERS

Year 2010, Start Month 1 through Year 2012 End Month: 12

Route: 0560428	Start Node: 18873	Start Offset: 0	☐ Exclude First Node
	End Node: 18873	End Offset: 0	☐ Exclude Last Node

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
18873	0560428 - 0	Int of CUMBERLAND AV ROMASCO ST	2	0	0	0	0	0	0	0.0	1.392	0.00	0.49	0.00
												Statewide Crash Rate:	0.14	
Study Years:	3.00	NODE TOTALS:		0	0	0	0	0	0	0.0	1.392	0.00	0.49	0.00

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM												
	Hour of Day																								
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	0
2-(Sport) Utility Vehicle	0
3-Passenger Van	0
4-Cargo Van (10K lbs or Less)	0
5-Pickup	0
6-Motor Home	0
7-School Bus	0
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	0
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	0
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	0
23-Bicyclist	0
24-Witness	0
25-Other	0
Total	0

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	0	0	0	0	0	0	0
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	0	0	0	0	0	0	0
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	0	0	0	0	0	0	0
Improper Turn	0	0	0	0	0	0	0
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	0	0	0	0	0	0	0
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	0	0	0	0	0	0	0
Physically Impaired or Handicapped	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-39	0	0	0	0	0	0
40-49	0	0	0	0	0	0
50-59	0	0	0	0	0	0
60-69	0	0	0	0	0	0
70-79	0	0	0	0	0	0
80-Over	0	0	0	0	0	0
Unknown	0	0	0	0	0	0
Total	0	0	0	0	0	0

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	0
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	0		
14-Parked Motor Vehicle	0		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post Pole or Support	0		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	
A	0	
B	0	
C	0	
PD	0	0
Total	0	0

Road Character

Road Grade	Total
1-Level	0
2-On Grade	0
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	0

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	0
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	0
14-Other	0
Total	0

Light

Light Condition	Total
1-Daylight	0
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	0
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	0

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2010	2011	2012	Total
JANUARY	0	0	0	0
FEBRUARY	0	0	0	0
MARCH	0	0	0	0
APRIL	0	0	0	0
MAY	0	0	0	0
JUNE	0	0	0	0
JULY	0	0	0	0
AUGUST	0	0	0	0
SEPTEMBER	0	0	0	0
OCTOBER	0	0	0	0
NOVEMBER	0	0	0	0
DECEMBER	0	0	0	0
Total	0	0	0	0

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End / Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Head-on / Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I - Single Node ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Cumberland Ave. @ Washington Ave

REPORT PARAMETERS

Year 2010, Start Month 1 through Year 2012 End Month: 12

Route: 0026X	Start Node: 19042	Start Offset: 0	☐ Exclude First Node
	End Node: 19042	End Offset: 0	☐ Exclude Last Node

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
19042	0026X - 0	Int of CUMBERLAND AV WASHINGTON AV	9	12	0	0	1	3	8	33.3	4.890	0.82	1.14	0.00
												Statewide Crash Rate:	0.64	
Study Years:	3.00	NODE TOTALS:		12	0	0	1	3	8	33.3	4.890	0.82	1.14	0.71

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM												
	Hour of Day																								
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	3
MONDAY	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
WEDNESDAY	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	3
FRIDAY	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Totals	0	1	0	0	0	0	0	1	1	1	0	0	0	2	1	0	0	1	2	0	0	0	1	1	0	12

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	15
2-(Sport) Utility Vehicle	3
3-Passenger Van	2
4-Cargo Van (10K lbs or Less)	0
5-Pickup	1
6-Motor Home	0
7-School Bus	0
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	0
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	1
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	0
23-Bicyclist	1
24-Witness	5
25-Other	0
Total	28

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	2	4	0	0	0	0	6
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	0	2	0	0	0	0	2
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	1	0	0	0	0	0	1
Drove Too Fast For Conditions	2	0	0	0	0	0	2
Improper Turn	0	0	0	0	0	0	0
Improper Backing	0	0	0	0	0	0	0
Improper Passing	1	0	0	0	0	0	1
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	0	1	0	0	0	0	1
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0
Total	6	7	0	0	0	0	13

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	11	10	0	0	0	1	22
Physically Impaired or Handicapped	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	11	10	0	0	0	1	22

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	1	0	0	0	0	1
20-24	2	0	0	0	0	2
25-29	5	0	0	0	0	5
30-39	6	0	0	0	0	6
40-49	3	0	0	0	0	3
50-59	3	0	0	0	0	3
60-69	0	0	0	0	0	0
70-79	1	0	0	0	0	1
80-Over	0	0	0	0	0	0
Unknown	1	1	0	0	0	2
Total	22	1	0	0	0	23

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	10
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	1		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	9		
14-Parked Motor Vehicle	0		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post Pole or Support	0		

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	10
2-Traffic Signals (Flashing)	2
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	0
14-Other	0
Total	12

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	1	1
C	3	3
PD	8	0
Total	12	4

Road Character

Road Grade	Total
1-Level	9
2-On Grade	2
3-Top of Hill	0
4-Bottom of Hill	1
5-Other	0
Total	12

Light

Light Condition	Total
1-Daylight	6
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	6
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	12

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2010	2011	2012	Total
JANUARY	0	1	0	1
FEBRUARY	2	0	1	3
MARCH	0	0	0	0
APRIL	0	0	0	0
MAY	0	0	0	0
JUNE	0	0	2	2
JULY	1	0	0	1
AUGUST	0	0	1	1
SEPTEMBER	0	0	0	0
OCTOBER	1	1	0	2
NOVEMBER	0	0	0	0
DECEMBER	1	0	1	2
Total	5	2	5	12

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End / Sideswipe	0	0	0	5	0	0	0	0	0	0	0	0	0	5
Head-on / Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	5	0	0	0	0	0	0	0	0	0	5
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	1	0	0	0	0	0	0	0	0	0	1
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	12	0	0	0	0	0	0	0	0	0	12

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	2	0	0	0	0	0	0	0	0	0	0	2
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	5	0	0	0	0	0	0	0	0	0	0	5
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	1	0	0	0	0	0	0	0	0	0	0	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	2	2
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	1	1
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	1	0	0	0	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	8	0	0	0	0	0	0	1	0	0	0	12

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I - Single Element	☐ Section Detail	☑ Crash Summary II	☐ 1320 Public	☐ 1320 Private	☐ 1320 Summary

REPORT DESCRIPTION

link

REPORT PARAMETERS

Year 2010, Start Month 1 through Year 2012 End Month: 12

Route: 0561238	Start Node: 19042	Start Offset: 0	☑ Exclude First Node
	End Node: 18873	End Offset: 0	☑ Exclude Last Node

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18873	19042	194519	0 - 0.07	0561238 - 1.04	0.07	2	1	0	0	0	0	1	0.0	0.00096	347.53	1043.65	0.00
Int of CUMBERLAND AV ROMASCO ST				RD INV 05 61238											Statewide Crash Rate: 336.50		
Study Years: 3.00				Section Totals:	0.07		1	0	0	0	0	1	0.0	0.00096	347.53	1043.64	0.33

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
18873	19042	194519	0 - 0.07	0561238 - 1.04	1	0	0	0	0	1	2012-45905	12/02/2012	1.05	PD
				Totals:	1	0	0	0	0	1				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												Hour of Day	PM											
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	1
2-(Sport) Utility Vehicle	0
3-Passenger Van	0
4-Cargo Van (10K lbs or Less)	0
5-Pickup	0
6-Motor Home	0
7-School Bus	0
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	0
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	0
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	0
23-Bicyclist	0
24-Witness	0
25-Other	0
Total	1

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	0	0	0	0	0	1
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	0	0	0	0	0	0	0
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	0	0	0	0	0	0	0
Improper Turn	0	0	0	0	0	0	0
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	0	0	0	0	0	0	0
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	1

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	1	0	0	0	0	0	1
Physically Impaired or Handicapped	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	1

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-39	0	0	0	0	0	0
40-49	1	0	0	0	0	1
50-59	0	0	0	0	0	0
60-69	0	0	0	0	0	0
70-79	0	0	0	0	0	0
80-Over	0	0	0	0	0	0
Unknown	0	0	0	0	0	0
Total	1	0	0	0	0	1

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	1
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	0		
14-Parked Motor Vehicle	1		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post Pole or Support	0		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	0	0
C	0	0
PD	1	0
Total	1	0

Road Character

Road Grade	Total
1-Level	1
2-On Grade	0
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	1

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	0
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	1
14-Other	0
Total	1

Light

Light Condition	Total
1-Daylight	0
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	0
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	1
7-Unknown	0
Total	1

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2010	2011	2012	Total
JANUARY	0	0	0	0
FEBRUARY	0	0	0	0
MARCH	0	0	0	0
APRIL	0	0	0	0
MAY	0	0	0	0
JUNE	0	0	0	0
JULY	0	0	0	0
AUGUST	0	0	0	0
SEPTEMBER	0	0	0	0
OCTOBER	0	0	0	0
NOVEMBER	0	0	0	0
DECEMBER	0	0	1	1
Total	0	0	1	1

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End / Sideswipe	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Head-on / Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	0	0	0	0	0	0	0	1

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	1	0	0	0	0	0	0	0	0	0	1
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	1	0	0	0	0	0	0	0	0	0	1

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Waste Water Capacity Application

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CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Department of Public Services,
55 Portland Street,
Portland, Maine 04101-2991

Date: 3/17/14

Mr. Frank J. Brancely,
Senior Engineering Technician
Phone #: (207) 874-8832,
Fax #: (207) 874-8852,
E-mail:fjb@portlandmaine.gov

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 97 Cumberland Ave

(Regarding addressing, please contact Leslie Kaynor, either at 756-8346, or at LMK@portlandmaine.gov)

Chart Block Lot Number:

Proposed Use: 5-Unit Residential Building

Previous Use: Single Family -7 bedroom

Existing Sanitary Flows: 270 to 360 gpd

Existing Process Flows: None

Description and location of City sewer, at proposed building sewer lateral connection:
See previously attached plans

Clearly, indicate the proposed connection, on the submitted plans.

Site Category

Commercial	
Industrial *(complete part 4 below)*	
Governmental	
Residential	X
Other *(specify)*	

2. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: 5-units with total 7 bedrooms 630 GPD

Peaking Factor/ Peak Times: Peaking Factor 7 assume 6-8:30am and 5-9:00pm

Specify the source of design guidelines: *(i.e.__"Handbook of Subsurface Wastewater Disposal in Maine," __ "Plumbers and Pipe Fitters Calculation Manual," __ Portland Water District Records, _ Other (specify)*

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

3. Please, Submit Contact Information.

Owner/Developer Name: Mr. Peter Dugus

Owner/Developer Address: 243 State Street

Phone: 207-899-2409 Fax: E-mail:dugas3@gmail.com

Engineering Consultant Name: Sebago Technics, Inc.

Engineering Consultant Address: Suite 1A 75 John Roberts Rd. South Portland

Phone: 200-2064 Fax:856-2206 E-mail:

City Planner's Name: Barbara Barhydt Phone: 207 874 8699

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

4. Please, Submit Industrial Process Wastewater Flow Calculations

Estimated Industrial Process Wastewater Flows Generated: N/A GPD

Do you currently hold Federal or State discharge permits? Yes ___ No ___

Is the process wastewater termed categorical under CFR 40? Yes ___ No ___

OSHA Standard Industrial Code (SIC): *(http://www.osha.gov/oshstats/sicser.html)*

Peaking Factor/Peak Process Times: _____

Note: On the submitted plans, please show the locations, where the building's sanitary, and process water sewer laterals, exit the facility, where they enter the city's sewer, the location of any control manholes, wet wells, or other access points, and the locations of any filters, strainers, or grease traps.

Notes, Comments, or Calculations:

Daily Flow Rate:
90gpd x 7 bedroom = 630gpd

Peak Flow Rate:
630/(24hrs x60m) = 0.44gpm x 7(peaking factor) = 3.1gpm

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Storm Water Management Plan

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STORMWATER MANAGEMENT PLAN

For

97 Cumberland Avenue
Portland, Maine

Prepared for

Peter Dugas
243 State Street
Portland, ME 04101

February 2016

75 John Roberts Road – Suite 1A, South Portland, ME 04106-6963 • 207.856.0277 • 207.856.2206

TABLE OF CONTENTS

STORMWATER MANAGEMENT PLAN

97 Cumberland Avenue
Portland, Maine

March 2014
Revised February 2016

I. Introduction

This Stormwater Management Plan has been prepared to address the potential impacts associated with this project due to the proposed modification in stormwater runoff characteristics. The stormwater management controls that are outlined in this plan have been designed based on commonly accepted engineering methods and to comply with applicable regulatory requirements.

II. Existing Conditions

The site is located at 97 Cumberland Avenue and behind the 7-Eleven Convenience Store on Washington Ave. The lot has been occupied as a residential house for many years until it was recently demolished due to the declining condition of the structure. The pre-existing home was located in the far northwest corner of the lot. The home was accessed from an existing gravel driveway which is also shared by 93-95 Cumberland Ave. The land cover is mostly lawn and driveway. The topography slopes steeply from east to west towards 7-Eleven. The only other vegetation is evasive plants growing along the fence & retaining wall separating parcel from the 7-Eleven.

A. Surface Water Features

There is no surface water features.

B. Site Topography

The topography slopes steeply at 20% to 30% from east to west at the southerly end and moderately at 3% to 6% central portion of the site. The existing driveway slopes 12% away from Cumberland Ave.

C. Soils

Soil characteristics were obtained from the Soil Conservation Service (SCS) Medium Intensity Soil Survey of Cumberland County. Soils identified on the site

are identified below in Table 1. These soil boundaries have been identified on the attached Watershed Maps.

Table 1 – Proximity Soil Types and Characteristics		
Soil Type	Symbol	HSG
Hinckley gravelly Sandy Loam		A

The hydrologic soil group (HSG) designation is based on a rating of the relative permeability of a soil, with Group "A" being extremely permeable such as coarse sand, to Group "D" having low permeability such as clay.

D. Historic Flooding

There are no apparent flooding problems associated with this site. Additionally, the Federal Emergency Management Agency (FEMA) has not identified a flood hazard area on the project site.

III. Proposed Development

The applicant plans to construct a new 5-Unit residential building. Associated work will include a new paved access drive, concrete block retaining wall and an Infiltration Basin.

A. Alterations to Land Cover

The proposed development will include a new three story residential building with five living units. The proposed development has approximately 4,403 sf of impervious including approximately 3,792 sf of new impervious area footprint of which 1,820 sf is building foot print and 1,400 sf is new driveway.

V. Regulatory Requirements

A. City of Portland, Maine

This project is required to meet Chapter 500 standards to the regulations of Maine DEP Chapter 500 Stormwater Management Rules, including Basic, General and Flooding standards:

The Stormwater standards will require treatment for runoff from the new impervious area less the existing impervious (prior to November 2005). The net treatment area is approximately 3,792 sf. Based upon site configuration, a small portion of the new pavement and proposed sidewalk discharges offsite. In lieu of

treatment of these areas, the pond will treatment 611 sf of existing impervious area, the building and a majority of the new driveway for a total treated area of 3735 sf.

VI. Stormwater Management Best Management Practices (BMPs)

Stormwater runoff from the project site will receive water quality treatment and attenuation of peak runoff management through the construction of stormwater BMPs consisting of an Infiltration Basin.

A. Infiltration Basin

The Infiltration Basin will receive stormwater runoff from the access driveway and off-site residential block area up to Romasco Lane (see enclosed watershed map). Stormwater runoff that is collected in Infiltration Basin will pond-up temporarily and filter through the soil media. In larger storms once the surface runoff exceeds basin capacity, runoff will discharge over a rip rap spillway. Overflow Stormwater runoff from the infiltration basin eventually will drain west across the adjacent to the parking lot to Washington Avenue storm drain system. This is similar to the pre-development drainage pattern.

VII. Water Quality Analysis

In accordance with City of Portland Technical Design Manual and Maine DEP Chapter 500 we have provided stormwater quality treatment. We have provided stormwater quality treatment for approximately 2,735 s.f. of impervious surfaces (See Attachment C for Calculations).

VIII. Peak Flow Analysis

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

The results of the stormwater runoff calculations for the pre-development and post-development conditions are summarized in the tables below.

Pre-development vs. Post-development Peak Flow Summary			
Analysis Point(s)	**2-year Peak Flow (cfs)**	**10-year Peak Flow (cfs)**	**25-year Peak Flow (cfs)**
Pre-development (Reach 2)	0.50	1.03	1.48
Post-development (Reach 2 & Reach 3)	0.52	1.09	1.53
Change	0.02	0.06	0.05

Because of the small watershed area, there are insignificant increases in the design storm events on the order of less than 0.1 cfs, which is below the order of accuracy of the modelling.

IX. Conclusions

This Stormwater Management Plan has been designed with erosion and sedimentation controls, inspection and maintenance procedures and general housekeeping requirements to prevent unreasonable impacts to the surrounding environment and to provide a long-term plan for management of stormwater runoff from the site. Stormwater runoff should be adequately managed for the project if carried out in accordance with the design plans.

Prepared by,

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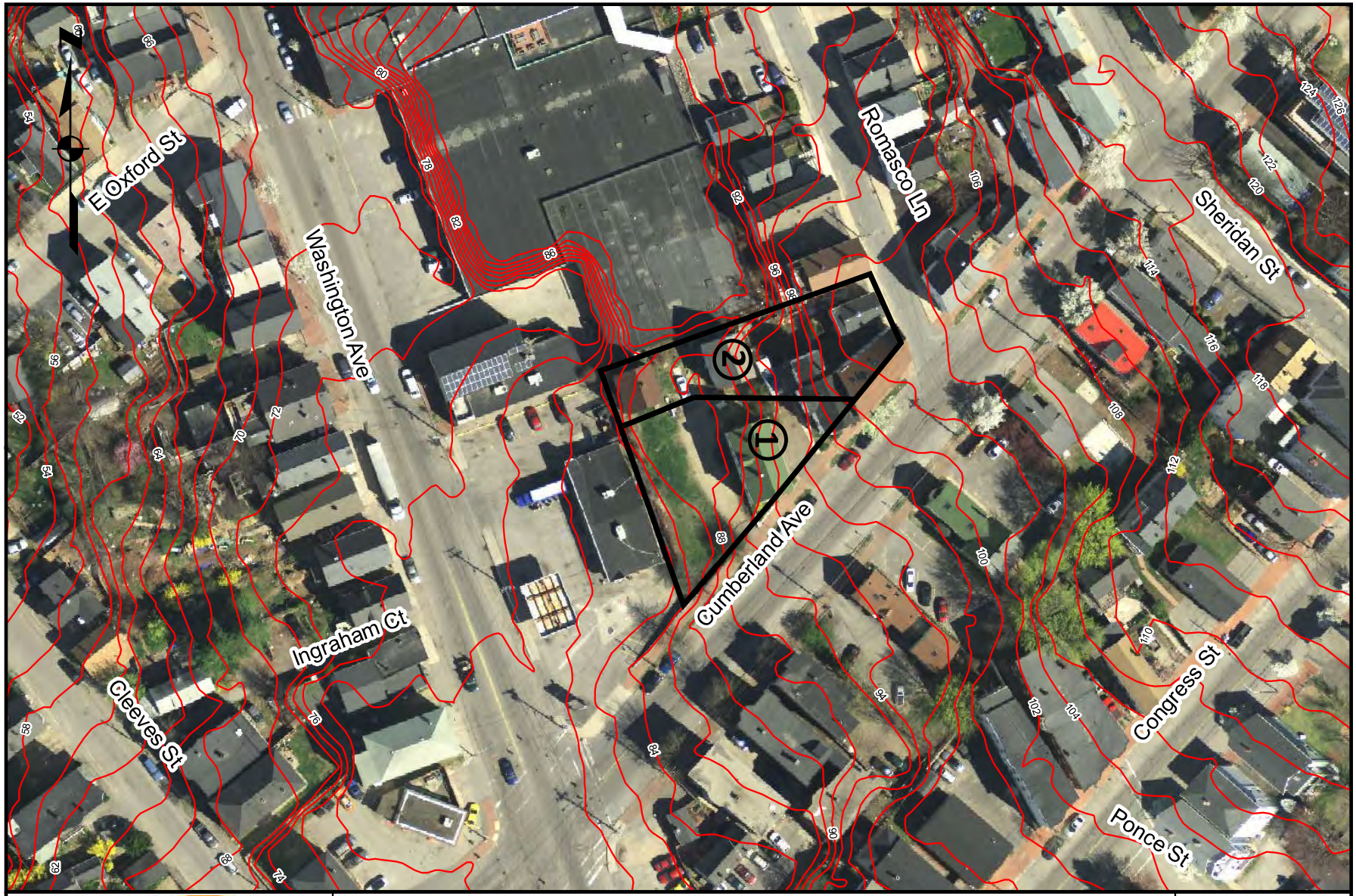
RAM/CCA:llg

February 2016

Robert A. McSorley 2016.02.16 11:08:42 -05'00'



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WATERSHED MAP - PRE
OF 97 CUMBERLAND AVENUE

SCALE: 1 " = 80 '
DATE: 02/04/16

LOCATION:
97 CUMBERLAND AVENUE
PORTLAND, MAINE

FOR:
PETER DUGAS

INFORMATION:
IMAGERY ACQUIRED SPRING 2012
GIS DATA FROM THE CITY OF PORTLAND
AND MAINE GIS

14073GIS.mxd

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WATERSHED MAP - POST
OF 97 CUMBERLAND AVENUE

SCALE: 1 " = 80 '

DATE: 02/04/16

LOCATION:
97 CUMBERLAND AVENUE
PORTLAND, MAINE

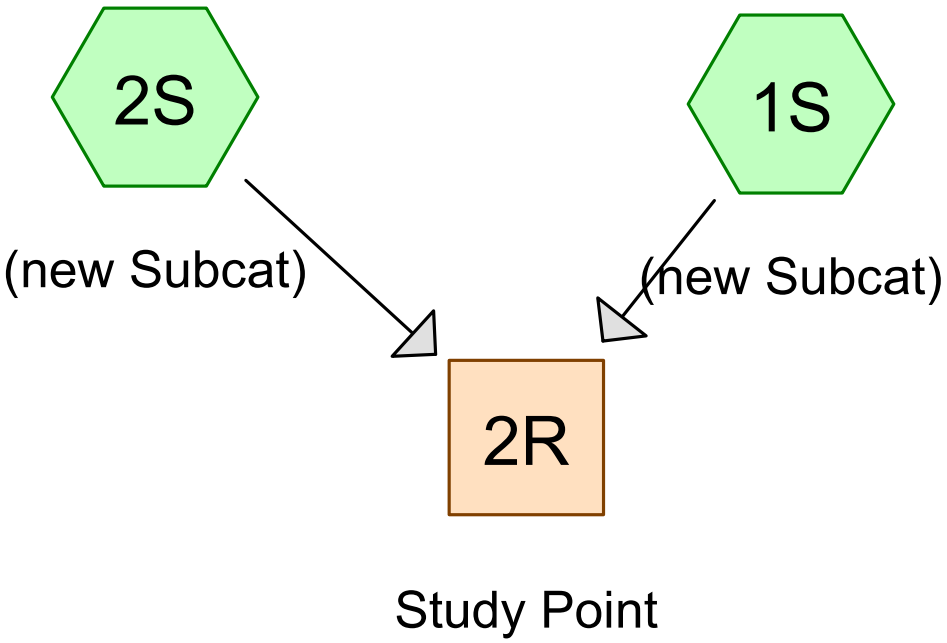
FOR:
PETER DUGAS

INFORMATION:
IMAGERY ACQUIRED SPRING 2012
GIS DATA FROM THE CITY OF PORTLAND
AND MAINE GIS

14073GIS.mxd

Attachment A

Hydrocad Output
Pre- and Post-Development Tr-20 Model



Subcat Reach Pond Link

Routing Diagram for 14073-Pre-Development Watershed
Prepared by {enter your company name here}, Printed 2/12/2016

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.371	77	1/8 acre lots, 65% imp, HSG A (1S, 2S)
0.371	**77**	**TOTAL AREA**

Time span=5.00-20.00 hrs, dt=0.03 hrs, 501 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: (new Subcat) Runoff Area=8,580 sf 65.00% Impervious Runoff Depth>1.05"
Tc=5.0 min CN=77 Runoff=0.26 cfs 0.017 af

Subcatchment 2S: (new Subcat) Runoff Area=7,590 sf 65.00% Impervious Runoff Depth>1.05"
Tc=5.0 min CN=77 Runoff=0.23 cfs 0.015 af

Reach 2R: Study Point Inflow=0.50 cfs 0.032 af
Outflow=0.50 cfs 0.032 af

Total Runoff Area = 0.371 ac Runoff Volume = 0.032 af Average Runoff Depth = 1.05"
35.00% Pervious = 0.130 ac 65.00% Impervious = 0.241 ac

Summary for Subcatchment 1S: (new Subcat)

Runoff = 0.26 cfs @ 12.08 hrs, Volume= 0.017 af, Depth> 1.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2yr Rainfall=3.10"

Area (sf)	CN	Description
8,580	77	1/8 acre lots, 65% imp, HSG A
3,003		35.00% Pervious Area
5,577		65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S: (new Subcat)

Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.015 af, Depth> 1.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2yr Rainfall=3.10"

Area (sf)	CN	Description
7,590	77	1/8 acre lots, 65% imp, HSG A
2,657		35.00% Pervious Area
4,934		65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach 2R: Study Point

Inflow Area = 0.371 ac, 65.00% Impervious, Inflow Depth > 1.05" for 2yr event
Inflow = 0.50 cfs @ 12.08 hrs, Volume= 0.032 af
Outflow = 0.50 cfs @ 12.08 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Time span=5.00-20.00 hrs, dt=0.03 hrs, 501 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: (new Subcat) Runoff Area=8,580 sf 65.00% Impervious Runoff Depth>2.13"
Tc=5.0 min CN=77 Runoff=0.54 cfs 0.035 af

Subcatchment 2S: (new Subcat) Runoff Area=7,590 sf 65.00% Impervious Runoff Depth>2.13"
Tc=5.0 min CN=77 Runoff=0.48 cfs 0.031 af

Reach 2R: Study Point Inflow=1.03 cfs 0.066 af
Outflow=1.03 cfs 0.066 af

Total Runoff Area = 0.371 ac Runoff Volume = 0.066 af Average Runoff Depth = 2.13"
35.00% Pervious = 0.130 ac 65.00% Impervious = 0.241 ac

Summary for Subcatchment 1S: (new Subcat)

Runoff = 0.54 cfs @ 12.08 hrs, Volume= 0.035 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10yr Rainfall=4.60"

Area (sf)	CN	Description
8,580	77	1/8 acre lots, 65% imp, HSG A
3,003		35.00% Pervious Area
5,577		65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S: (new Subcat)

Runoff = 0.48 cfs @ 12.08 hrs, Volume= 0.031 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10yr Rainfall=4.60"

Area (sf)	CN	Description
7,590	77	1/8 acre lots, 65% imp, HSG A
2,657		35.00% Pervious Area
4,934		65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach 2R: Study Point

Inflow Area = 0.371 ac, 65.00% Impervious, Inflow Depth > 2.13" for 10yr event
Inflow = 1.03 cfs @ 12.08 hrs, Volume= 0.066 af
Outflow = 1.03 cfs @ 12.08 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Time span=5.00-20.00 hrs, dt=0.03 hrs, 501 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: (new Subcat) Runoff Area=8,580 sf 65.00% Impervious Runoff Depth>3.09"
Tc=5.0 min CN=77 Runoff=0.79 cfs 0.051 af

Subcatchment 2S: (new Subcat) Runoff Area=7,590 sf 65.00% Impervious Runoff Depth>3.09"
Tc=5.0 min CN=77 Runoff=0.70 cfs 0.045 af

Reach 2R: Study Point Inflow=1.48 cfs 0.095 af
Outflow=1.48 cfs 0.095 af

Total Runoff Area = 0.371 ac Runoff Volume = 0.095 af Average Runoff Depth = 3.09"
35.00% Pervious = 0.130 ac 65.00% Impervious = 0.241 ac

Summary for Subcatchment 1S: (new Subcat)

Runoff = 0.79 cfs @ 12.08 hrs, Volume= 0.051 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25yr Rainfall=5.80"

Area (sf)	CN	Description
8,580	77	1/8 acre lots, 65% imp, HSG A
3,003		35.00% Pervious Area
5,577		65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S: (new Subcat)

Runoff = 0.70 cfs @ 12.08 hrs, Volume= 0.045 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25yr Rainfall=5.80"

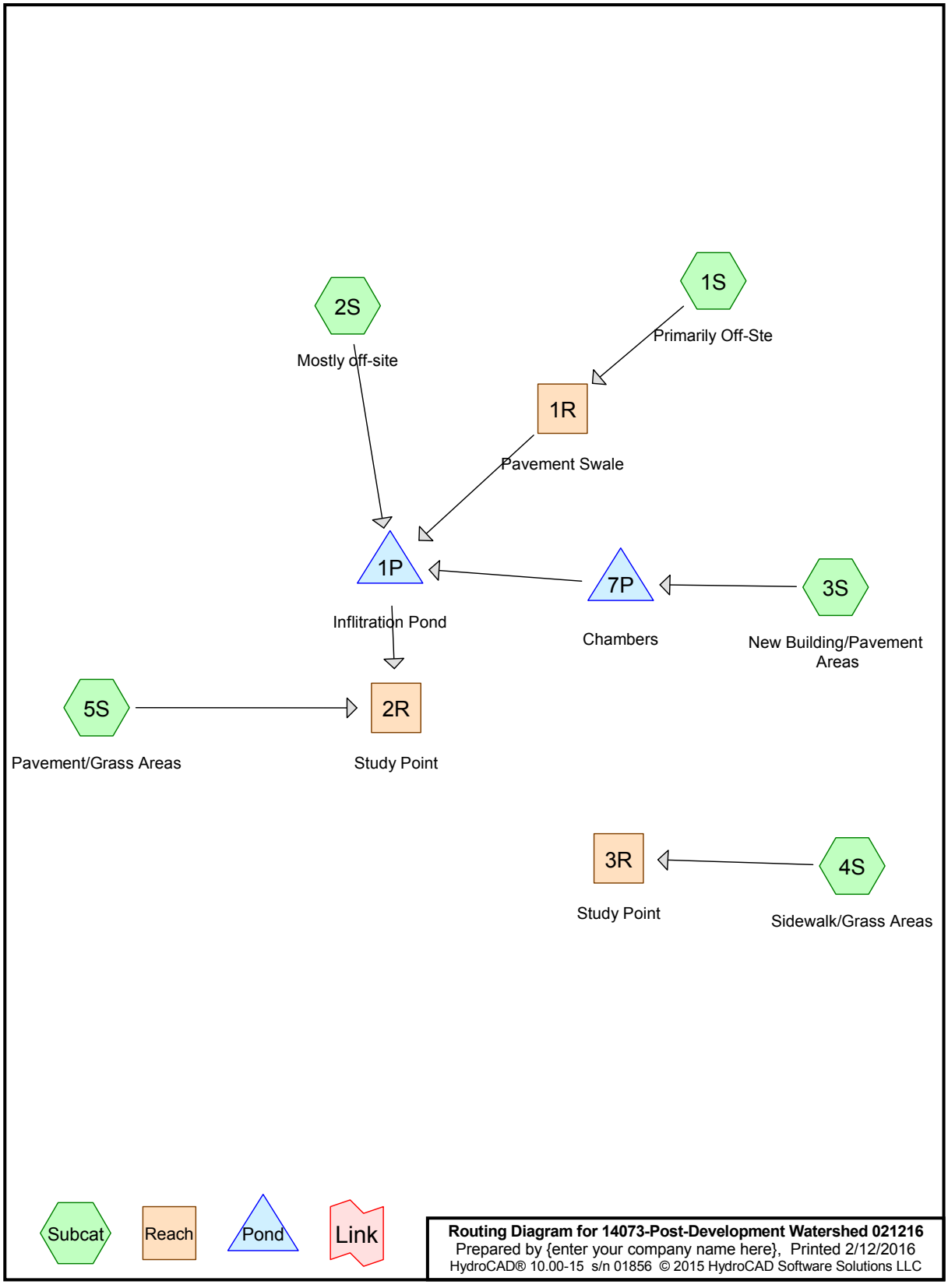
Area (sf)	CN	Description
7,590	77	1/8 acre lots, 65% imp, HSG A
2,657		35.00% Pervious Area
4,934		65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach 2R: Study Point

Inflow Area = 0.371 ac, 65.00% Impervious, Inflow Depth > 3.09" for 25yr event
Inflow = 1.48 cfs @ 12.08 hrs, Volume= 0.095 af
Outflow = 1.48 cfs @ 12.08 hrs, Volume= 0.095 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs



Routing Diagram for 14073-Post-Development Watershed 021216
Prepared by {enter your company name here}, Printed 2/12/2016
HydroCAD® 10.00-15 s/n 01856 © 2015 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.272	77	1/8 acre lots, 65% imp, HSG A (1S, 2S)
0.012	39	>75% Grass cover, Good, HSG A (4S, 5S)
0.030	98	Paved Driveway (3S)
0.002	98	Paved parking, HSG A (5S)
0.007	98	Retaining Wall (4S)
0.042	98	Roof (3S)
0.006	98	Sidewalks (4S)
0.371	**81**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Primarily Off-Ste Runoff Area=6,704 sf 65.00% Impervious Runoff Depth>1.14"
Tc=5.0 min CN=77 Runoff=0.21 cfs 0.015 af

Subcatchment 2S: Mostly off-site Runoff Area=5,134 sf 65.00% Impervious Runoff Depth>1.14"
Tc=5.0 min CN=77 Runoff=0.16 cfs 0.011 af

Subcatchment 3S: New Runoff Area=3,124 sf 100.00% Impervious Runoff Depth>2.87"
Tc=5.0 min CN=98 Runoff=0.22 cfs 0.017 af

Subcatchment 4S: Sidewalk/Grass Areas Runoff Area=752 sf 76.06% Impervious Runoff Depth>1.60"
Tc=5.0 min CN=84 Runoff=0.03 cfs 0.002 af

Subcatchment 5S: Pavement/Grass Areas Runoff Area=456 sf 21.05% Impervious Runoff Depth>0.13"
Tc=0.0 min CN=51 Runoff=0.00 cfs 0.000 af

Reach 1R: Pavement Swale Avg. Flow Depth=0.05' Max Vel=1.26 fps Inflow=0.21 cfs 0.015 af
n=0.013 L=65.0' S=0.0100 '/' Capacity=0.75 cfs Outflow=0.20 cfs 0.015 af

Reach 2R: Study Point Inflow=0.49 cfs 0.016 af
Outflow=0.49 cfs 0.016 af

Reach 3R: Study Point Inflow=0.03 cfs 0.002 af
Outflow=0.03 cfs 0.002 af

Pond 1P: Inflitration Pond Peak Elev=84.64' Storage=327 cf Inflow=0.53 cfs 0.035 af
Discarded=0.02 cfs 0.017 af Primary=0.49 cfs 0.016 af Outflow=0.51 cfs 0.033 af

Pond 7P: Chambers Peak Elev=84.66' Storage=72 cf Inflow=0.22 cfs 0.017 af
Discarded=0.00 cfs 0.007 af Primary=0.17 cfs 0.010 af Outflow=0.18 cfs 0.017 af

Total Runoff Area = 0.371 ac Runoff Volume = 0.045 af Average Runoff Depth = 1.47"
28.96% Pervious = 0.108 ac 71.04% Impervious = 0.264 ac

Summary for Subcatchment 1S: Primarily Off-Ste

Runoff = 0.21 cfs @ 12.08 hrs, Volume= 0.015 af, Depth> 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2yr Rainfall=3.10"

Area (sf)	CN	Description
6,704	77	1/8 acre lots, 65% imp, HSG A
2,346		35.00% Pervious Area
4,358		65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S: Mostly off-site

Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.011 af, Depth> 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2yr Rainfall=3.10"

Area (sf)	CN	Description
5,134	77	1/8 acre lots, 65% imp, HSG A
1,797		35.00% Pervious Area
3,337		65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 3S: New Building/Pavement Areas

Runoff = 0.22 cfs @ 12.07 hrs, Volume= 0.017 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2yr Rainfall=3.10"

	Area (sf)	CN	Description
*	1,820	98	Roof
*	1,304	98	Paved Driveway
	3,124	98	Weighted Average
	3,124		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 4S: Sidewalk/Grass Areas

Runoff = 0.03 cfs @ 12.08 hrs, Volume= 0.002 af, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2yr Rainfall=3.10"

	Area (sf)	CN	Description
*	260	98	Sidewalks
	180	39	>75% Grass cover, Good, HSG A
*	312	98	Retaining Wall
	752	84	Weighted Average
	180		23.94% Pervious Area
	572		76.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 5S: Pavement/Grass Areas

Runoff = 0.00 cfs @ 12.37 hrs, Volume= 0.000 af, Depth> 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2yr Rainfall=3.10"

Area (sf)	CN	Description
360	39	>75% Grass cover, Good, HSG A
96	98	Paved parking, HSG A
456	51	Weighted Average
360		78.95% Pervious Area
96		21.05% Impervious Area

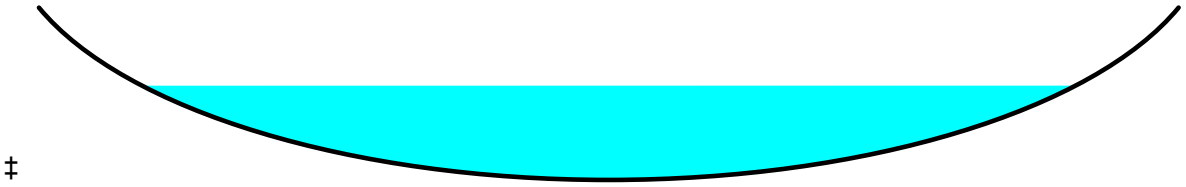
Summary for Reach 1R: Pavement Swale

Inflow Area = 0.154 ac, 65.00% Impervious, Inflow Depth > 1.14" for 2yr event
Inflow = 0.21 cfs @ 12.08 hrs, Volume= 0.015 af
Outflow = 0.20 cfs @ 12.09 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.26 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 0.46 fps, Avg. Travel Time= 2.3 min

Peak Storage= 11 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 0.10' Flow Area= 0.4 sf, Capacity= 0.75 cfs

6.00' x 0.10' deep Parabolic Channel, n= 0.013 Asphalt, smooth
Length= 65.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.65'



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Summary for Reach 2R: Study Point

Inflow Area = 0.354 ac, 70.79% Impervious, Inflow Depth > 0.55" for 2yr event
Inflow = 0.49 cfs @ 12.12 hrs, Volume= 0.016 af
Outflow = 0.49 cfs @ 12.12 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Reach 3R: Study Point

Inflow Area = 0.017 ac, 76.06% Impervious, Inflow Depth > 1.60" for 2yr event
Inflow = 0.03 cfs @ 12.08 hrs, Volume= 0.002 af
Outflow = 0.03 cfs @ 12.08 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Pond 1P: Inflitration Pond

Inflow Area = 0.343 ac, 72.31% Impervious, Inflow Depth > 1.24" for 2yr event
Inflow = 0.53 cfs @ 12.09 hrs, Volume= 0.035 af
Outflow = 0.51 cfs @ 12.12 hrs, Volume= 0.033 af, Atten= 3%, Lag= 1.9 min
Discarded = 0.02 cfs @ 12.12 hrs, Volume= 0.017 af
Primary = 0.49 cfs @ 12.12 hrs, Volume= 0.016 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 84.64' @ 12.12 hrs Surf.Area= 338 sf Storage= 327 cf

Plug-Flow detention time= 108.0 min calculated for 0.033 af (93% of inflow)
Center-of-Mass det. time= 71.0 min (894.1 - 823.1)

Volume	Invert	Avail.Storage	Storage Description
#1	83.00'	461 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.00	77	0	0
84.00	220	149	149
85.00	405	313	461

Device	Routing	Invert	Outlet Devices
#1	Discarded	83.00'	**2.400 in/hr Exfiltration over Surface area**
#2	Primary	84.50'	**4.0' long x 4.0' 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 5.00 5.50
			Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.02 cfs @ 12.12 hrs HW=84.64' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.48 cfs @ 12.12 hrs HW=84.64' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 0.48 cfs @ 0.88 fps)

Summary for Pond 7P: Chambers

Inflow Area = 0.072 ac,100.00% Impervious, Inflow Depth > 2.87" for 2yr event
Inflow = 0.22 cfs @ 12.07 hrs, Volume= 0.017 af
Outflow = 0.18 cfs @ 12.11 hrs, Volume= 0.017 af, Atten= 20%, Lag= 2.5 min
Discarded = 0.00 cfs @ 8.28 hrs, Volume= 0.007 af
Primary = 0.17 cfs @ 12.11 hrs, Volume= 0.010 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 84.66' @ 12.14 hrs Surf.Area= 81 sf Storage= 72 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 38.4 min (794.1 - 755.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	83.00'	63 cf	**4.83'W x 16.68'L x 2.33'H Field A**
			188 cf Overall - 30 cf Embedded = 158 cf x 40.0% Voids
#2A	83.50'	30 cf	**ADS_StormTech SC-310** x 2 Inside #1
			Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
			Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
			Row Length Adjustment= +0.44' x 2.07 sf x 1 rows
		93 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	83.50'	**6.0" Round Culvert**
			L= 15.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 83.50' / 83.25' S= 0.0167 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Discarded	83.00'	**2.400 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 8.28 hrs HW=83.03' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.03 cfs @ 12.11 hrs HW=84.64' TW=84.63' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.03 cfs @ 0.17 fps)

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Primarily Off-Ste Runoff Area=6,704 sf 65.00% Impervious Runoff Depth>2.29"
Tc=5.0 min CN=77 Runoff=0.42 cfs 0.029 af

Subcatchment 2S: Mostly off-site Runoff Area=5,134 sf 65.00% Impervious Runoff Depth>2.29"
Tc=5.0 min CN=77 Runoff=0.32 cfs 0.022 af

Subcatchment 3S: New Runoff Area=3,124 sf 100.00% Impervious Runoff Depth>4.36"
Tc=5.0 min CN=98 Runoff=0.33 cfs 0.026 af

Subcatchment 4S: Sidewalk/Grass Areas Runoff Area=752 sf 76.06% Impervious Runoff Depth>2.90"
Tc=5.0 min CN=84 Runoff=0.06 cfs 0.004 af

Subcatchment 5S: Pavement/Grass Areas Runoff Area=456 sf 21.05% Impervious Runoff Depth>0.58"
Tc=0.0 min CN=51 Runoff=0.00 cfs 0.001 af

Reach 1R: Pavement Swale Avg. Flow Depth=0.08' Max Vel=1.57 fps Inflow=0.42 cfs 0.029 af
n=0.013 L=65.0' S=0.0100 '/' Capacity=0.75 cfs Outflow=0.42 cfs 0.029 af

Reach 2R: Study Point Inflow=1.03 cfs 0.046 af
Outflow=1.03 cfs 0.046 af

Reach 3R: Study Point Inflow=0.06 cfs 0.004 af
Outflow=0.06 cfs 0.004 af

Pond 1P: Inflitration Pond Peak Elev=84.73' Storage=357 cf Inflow=1.06 cfs 0.069 af
Discarded=0.02 cfs 0.019 af Primary=1.03 cfs 0.045 af Outflow=1.05 cfs 0.064 af

Pond 7P: Chambers Peak Elev=84.82' Storage=77 cf Inflow=0.33 cfs 0.026 af
Discarded=0.00 cfs 0.008 af Primary=0.32 cfs 0.017 af Outflow=0.32 cfs 0.025 af

Total Runoff Area = 0.371 ac Runoff Volume = 0.083 af Average Runoff Depth = 2.67"
28.96% Pervious = 0.108 ac 71.04% Impervious = 0.264 ac

Summary for Subcatchment 1S: Primarily Off-Ste

Runoff = 0.42 cfs @ 12.08 hrs, Volume= 0.029 af, Depth> 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10yr Rainfall=4.60"

Area (sf)	CN	Description
6,704	77	1/8 acre lots, 65% imp, HSG A
2,346		35.00% Pervious Area
4,358		65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S: Mostly off-site

Runoff = 0.32 cfs @ 12.08 hrs, Volume= 0.022 af, Depth> 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10yr Rainfall=4.60"

Area (sf)	CN	Description
5,134	77	1/8 acre lots, 65% imp, HSG A
1,797		35.00% Pervious Area
3,337		65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 3S: New Building/Pavement Areas

Runoff = 0.33 cfs @ 12.07 hrs, Volume= 0.026 af, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10yr Rainfall=4.60"

	Area (sf)	CN	Description
*	1,820	98	Roof
*	1,304	98	Paved Driveway
	3,124	98	Weighted Average
	3,124		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 4S: Sidewalk/Grass Areas

Runoff = 0.06 cfs @ 12.07 hrs, Volume= 0.004 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10yr Rainfall=4.60"

	Area (sf)	CN	Description
*	260	98	Sidewalks
	180	39	>75% Grass cover, Good, HSG A
*	312	98	Retaining Wall
	752	84	Weighted Average
	180		23.94% Pervious Area
	572		76.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 5S: Pavement/Grass Areas

Runoff = 0.00 cfs @ 12.04 hrs, Volume= 0.001 af, Depth> 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10yr Rainfall=4.60"

Area (sf)	CN	Description
360	39	>75% Grass cover, Good, HSG A
96	98	Paved parking, HSG A
456	51	Weighted Average
360		78.95% Pervious Area
96		21.05% Impervious Area

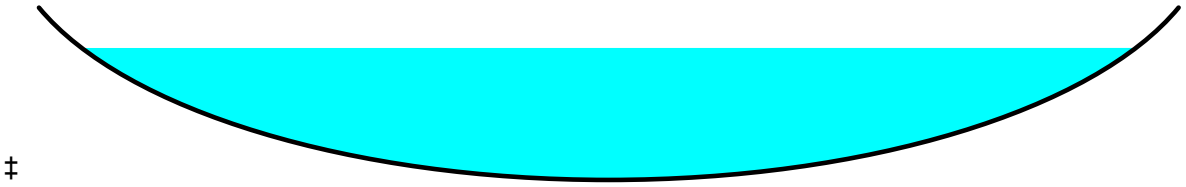
Summary for Reach 1R: Pavement Swale

Inflow Area = 0.154 ac, 65.00% Impervious, Inflow Depth > 2.29" for 10yr event
Inflow = 0.42 cfs @ 12.08 hrs, Volume= 0.029 af
Outflow = 0.42 cfs @ 12.09 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.57 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 0.55 fps, Avg. Travel Time= 2.0 min

Peak Storage= 17 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 0.10' Flow Area= 0.4 sf, Capacity= 0.75 cfs

6.00' x 0.10' deep Parabolic Channel, n= 0.013 Asphalt, smooth
Length= 65.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.65'



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Summary for Reach 2R: Study Point

Inflow Area = 0.354 ac, 70.79% Impervious, Inflow Depth > 1.55" for 10yr event
Inflow = 1.03 cfs @ 12.10 hrs, Volume= 0.046 af
Outflow = 1.03 cfs @ 12.10 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Reach 3R: Study Point

Inflow Area = 0.017 ac, 76.06% Impervious, Inflow Depth > 2.90" for 10yr event
Inflow = 0.06 cfs @ 12.07 hrs, Volume= 0.004 af
Outflow = 0.06 cfs @ 12.07 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Pond 1P: Inflitration Pond

Inflow Area = 0.343 ac, 72.31% Impervious, Inflow Depth > 2.41" for 10yr event
Inflow = 1.06 cfs @ 12.08 hrs, Volume= 0.069 af
Outflow = 1.05 cfs @ 12.10 hrs, Volume= 0.064 af, Atten= 1%, Lag= 0.9 min
Discarded = 0.02 cfs @ 12.10 hrs, Volume= 0.019 af
Primary = 1.03 cfs @ 12.10 hrs, Volume= 0.045 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 84.73' @ 12.10 hrs Surf.Area= 354 sf Storage= 357 cf

Plug-Flow detention time= 64.4 min calculated for 0.064 af (93% of inflow)
Center-of-Mass det. time= 30.3 min (840.3 - 810.0)

Volume	Invert	Avail.Storage	Storage Description
#1	83.00'	461 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.00	77	0	0
84.00	220	149	149
85.00	405	313	461

Device	Routing	Invert	Outlet Devices
#1	Discarded	83.00'	**2.400 in/hr Exfiltration over Surface area**
#2	Primary	84.50'	**4.0' long x 4.0' 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 5.00 5.50
			Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.02 cfs @ 12.10 hrs HW=84.72' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.02 cfs @ 12.10 hrs HW=84.72' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 1.02 cfs @ 1.13 fps)

Summary for Pond 7P: Chambers

Inflow Area = 0.072 ac,100.00% Impervious, Inflow Depth > 4.36" for 10yr event
Inflow = 0.33 cfs @ 12.07 hrs, Volume= 0.026 af
Outflow = 0.32 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 4%, Lag= 0.6 min
Discarded = 0.00 cfs @ 6.63 hrs, Volume= 0.008 af
Primary = 0.32 cfs @ 12.08 hrs, Volume= 0.017 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 84.82' @ 12.10 hrs Surf.Area= 81 sf Storage= 77 cf

Plug-Flow detention time= 42.8 min calculated for 0.025 af (96% of inflow)
Center-of-Mass det. time= 16.7 min (764.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	83.00'	63 cf	**4.83'W x 16.68'L x 2.33'H Field A**
			188 cf Overall - 30 cf Embedded = 158 cf x 40.0% Voids
#2A	83.50'	30 cf	**ADS_StormTech SC-310** x 2 Inside #1
			Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
			Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
			Row Length Adjustment= +0.44' x 2.07 sf x 1 rows
		93 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	83.50'	**6.0" Round Culvert**
			L= 15.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 83.50' / 83.25' S= 0.0167 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Discarded	83.00'	**2.400 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 6.63 hrs HW=83.03' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.28 cfs @ 12.08 hrs HW=84.81' TW=84.72' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.28 cfs @ 1.43 fps)

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Primarily Off-Ste Runoff Area=6,704 sf 65.00% Impervious Runoff Depth>3.30"
Tc=5.0 min CN=77 Runoff=0.61 cfs 0.042 af

Subcatchment 2S: Mostly off-site Runoff Area=5,134 sf 65.00% Impervious Runoff Depth>3.30"
Tc=5.0 min CN=77 Runoff=0.47 cfs 0.032 af

Subcatchment 3S: New Runoff Area=3,124 sf 100.00% Impervious Runoff Depth>5.56"
Tc=5.0 min CN=98 Runoff=0.42 cfs 0.033 af

Subcatchment 4S: Sidewalk/Grass Areas Runoff Area=752 sf 76.06% Impervious Runoff Depth>4.01"
Tc=5.0 min CN=84 Runoff=0.08 cfs 0.006 af

Subcatchment 5S: Pavement/Grass Areas Runoff Area=456 sf 21.05% Impervious Runoff Depth>1.12"
Tc=0.0 min CN=51 Runoff=0.01 cfs 0.001 af

Reach 1R: Pavement Swale Avg. Flow Depth=0.09' Max Vel=1.76 fps Inflow=0.61 cfs 0.042 af
n=0.013 L=65.0' S=0.0100 '/' Capacity=0.75 cfs Outflow=0.61 cfs 0.042 af

Reach 2R: Study Point Inflow=1.45 cfs 0.073 af
Outflow=1.45 cfs 0.073 af

Reach 3R: Study Point Inflow=0.08 cfs 0.006 af
Outflow=0.08 cfs 0.006 af

Pond 1P: Inflitration Pond Peak Elev=84.78' Storage=376 cf Inflow=1.48 cfs 0.099 af
Discarded=0.02 cfs 0.021 af Primary=1.44 cfs 0.072 af Outflow=1.46 cfs 0.093 af

Pond 7P: Chambers Peak Elev=84.94' Storage=81 cf Inflow=0.42 cfs 0.033 af
Discarded=0.00 cfs 0.008 af Primary=0.40 cfs 0.024 af Outflow=0.41 cfs 0.032 af

Total Runoff Area = 0.371 ac Runoff Volume = 0.115 af Average Runoff Depth = 3.71"
28.96% Pervious = 0.108 ac 71.04% Impervious = 0.264 ac

Summary for Subcatchment 1S: Primarily Off-Ste

Runoff = 0.61 cfs @ 12.08 hrs, Volume= 0.042 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25yr Rainfall=5.80"

Area (sf)	CN	Description
6,704	77	1/8 acre lots, 65% imp, HSG A
2,346		35.00% Pervious Area
4,358		65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S: Mostly off-site

Runoff = 0.47 cfs @ 12.08 hrs, Volume= 0.032 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25yr Rainfall=5.80"

Area (sf)	CN	Description
5,134	77	1/8 acre lots, 65% imp, HSG A
1,797		35.00% Pervious Area
3,337		65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 3S: New Building/Pavement Areas

Runoff = 0.42 cfs @ 12.07 hrs, Volume= 0.033 af, Depth> 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25yr Rainfall=5.80"

	Area (sf)	CN	Description
*	1,820	98	Roof
*	1,304	98	Paved Driveway
	3,124	98	Weighted Average
	3,124		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 4S: Sidewalk/Grass Areas

Runoff = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af, Depth> 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25yr Rainfall=5.80"

	Area (sf)	CN	Description
*	260	98	Sidewalks
	180	39	>75% Grass cover, Good, HSG A
*	312	98	Retaining Wall
	752	84	Weighted Average
	180		23.94% Pervious Area
	572		76.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 5S: Pavement/Grass Areas

Runoff = 0.01 cfs @ 12.01 hrs, Volume= 0.001 af, Depth> 1.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25yr Rainfall=5.80"

Area (sf)	CN	Description
360	39	>75% Grass cover, Good, HSG A
96	98	Paved parking, HSG A
456	51	Weighted Average
360		78.95% Pervious Area
96		21.05% Impervious Area

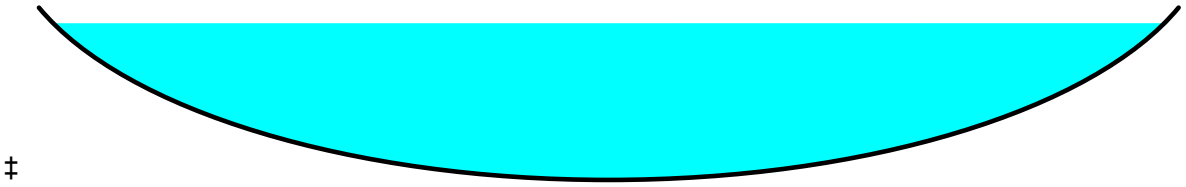
Summary for Reach 1R: Pavement Swale

Inflow Area = 0.154 ac, 65.00% Impervious, Inflow Depth > 3.30" for 25yr event
Inflow = 0.61 cfs @ 12.08 hrs, Volume= 0.042 af
Outflow = 0.61 cfs @ 12.08 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.76 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.60 fps, Avg. Travel Time= 1.8 min

Peak Storage= 23 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.09'
Bank-Full Depth= 0.10' Flow Area= 0.4 sf, Capacity= 0.75 cfs

6.00' x 0.10' deep Parabolic Channel, n= 0.013 Asphalt, smooth
Length= 65.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.65'



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Summary for Reach 2R: Study Point

Inflow Area = 0.354 ac, 70.79% Impervious, Inflow Depth > 2.46" for 25yr event
Inflow = 1.45 cfs @ 12.09 hrs, Volume= 0.073 af
Outflow = 1.45 cfs @ 12.09 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Reach 3R: Study Point

Inflow Area = 0.017 ac, 76.06% Impervious, Inflow Depth > 4.01" for 25yr event
Inflow = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af
Outflow = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Pond 1P: Inflitration Pond

Inflow Area = 0.343 ac, 72.31% Impervious, Inflow Depth > 3.44" for 25yr event
Inflow = 1.48 cfs @ 12.08 hrs, Volume= 0.099 af
Outflow = 1.46 cfs @ 12.09 hrs, Volume= 0.093 af, Atten= 1%, Lag= 0.8 min
Discarded = 0.02 cfs @ 12.09 hrs, Volume= 0.021 af
Primary = 1.44 cfs @ 12.09 hrs, Volume= 0.072 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 84.78' @ 12.09 hrs Surf.Area= 364 sf Storage= 376 cf

Plug-Flow detention time= 48.7 min calculated for 0.093 af (94% of inflow)
Center-of-Mass det. time= 18.2 min (821.4 - 803.2)

Volume	Invert	Avail.Storage	Storage Description
#1	83.00'	461 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.00	77	0	0
84.00	220	149	149
85.00	405	313	461

Device	Routing	Invert	Outlet Devices
#1	Discarded	83.00'	**2.400 in/hr Exfiltration over Surface area**
#2	Primary	84.50'	**4.0' long x 4.0' 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 5.00 5.50
			Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.02 cfs @ 12.09 hrs HW=84.78' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.43 cfs @ 12.09 hrs HW=84.78' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.43 cfs @ 1.29 fps)

Summary for Pond 7P: Chambers

Inflow Area = 0.072 ac,100.00% Impervious, Inflow Depth > 5.56" for 25yr event
Inflow = 0.42 cfs @ 12.07 hrs, Volume= 0.033 af
Outflow = 0.41 cfs @ 12.08 hrs, Volume= 0.032 af, Atten= 3%, Lag= 0.6 min
Discarded = 0.00 cfs @ 5.13 hrs, Volume= 0.008 af
Primary = 0.40 cfs @ 12.08 hrs, Volume= 0.024 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 84.94' @ 12.10 hrs Surf.Area= 81 sf Storage= 81 cf

Plug-Flow detention time= 36.0 min calculated for 0.032 af (96% of inflow)
Center-of-Mass det. time= 11.0 min (755.3 - 744.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	83.00'	63 cf	**4.83'W x 16.68'L x 2.33'H Field A**
			188 cf Overall - 30 cf Embedded = 158 cf x 40.0% Voids
#2A	83.50'	30 cf	**ADS_StormTech SC-310** x 2 Inside #1
			Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
			Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
			Row Length Adjustment= +0.44' x 2.07 sf x 1 rows
		93 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	83.50'	**6.0" Round Culvert**
			L= 15.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 83.50' / 83.25' S= 0.0167 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Discarded	83.00'	**2.400 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 5.13 hrs HW=83.02' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.37 cfs @ 12.08 hrs HW=84.93' TW=84.77' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.37 cfs @ 1.89 fps)

Attachment B

Inspection and Maintenance

General Maintenance Criteria

Infiltration Basin

Preventive maintenance is vital for the long-term effectiveness of an infiltration system.

1. Fertilization: Fertilization of the area over the infiltration bed should be avoided unless absolutely necessary to establish vegetation.

2. Snow Storage Prohibited: Snow removed from any on-site or off-site areas may not be stored over an infiltration area

3. Mowing: A basin with a turf lining should have its side-slopes and floor mowed at least twice a year to prevent woody growth. Mowing operations may be difficult since the basin floor may remain wet for extended periods. If a low maintenance vegetation is used, basin mowing can be performed in the normally dry months. Clippings should be removed to minimize the amount of organic material accumulating in the basin.

4. Monitoring and Inspections: Inspect the infiltration system several times in the first year of operation and at least annually thereafter. Conduct the inspections after large storms to check for surface ponding at the inlet that may indicate clogging. Water levels in the observation well should be recorded over several days after the storm to ensure that the system drains within 72 hours after filling.

4. Sediment Removal and Maintenance of System Performance: Sediment must be removed from the system at least annually to prevent deterioration of system performance. The pre-treatment inlets should be checked periodically and cleaned out when accumulated sediment occupies more than 10% of available capacity. The system must be rehabilitated or replaced if its performance is degraded to the point that applicable stormwater standards are not met.

Stormtech Chambers

- Stormtech Chambers shall be inspected and maintained according to manufacturer's recommendations.
- Recommended maintenance includes, but not limited to, visual inspection of accumulated sediment within isolator row and jet-vac flushing when required.
- Outlet to infiltration basin needs to be inspected and cleaned.

Attachment C

Treatment Calculations

SEBAGO TECHNICS, INC.
75 John Roberts Road
Suite 1A
South Portland Maine 04106
(207) 200-2100 FAX (207) 856-2206

JOB	14073- 97 Cumberland Ave		
SHEET NO.	1	OF	1
CALCULATED BY	CCA	DATE	2/10/2016
CHECKED BY	RAM	DATE	2/12/2016
FILE NAME	14073-WQC	SCALE	N.T.S.

Determination of Water Quality Volume Calculations

Calculation of Minimum Required Water Quality Volume for Treatment

Maine DEP Stormwater regulations require the treatment of 95% of impervious area, and 80% developed area.

so;

Proposed impervious area is = 4,403 sf

Existing impervious area to remain impervious is = 611 sf

95% treatment of new Impervious area = (4,403 s.f. - 611 sf)x 95% = 3,602 sf

80% treatment of developed area = 0 sf. No change the site is 100% developed.

Additional areas outside of pavement will revert back to natural conditions and are not considered landscape/developed area

Based on the calculations above, treatment would be required on 3,602 sf of impervious area. A majority of the more intensely used pavement areas are discharging to the treatment pond.

Proposed Treatment Volume

Area to drain to proposed treatment **Infiltration Basin** = 3,735 s.f. impervious (drives/parking/building), and 0 landscaped area

3,602 s.f. x 1" = **300.2 c.f.** water quality volume required

Storage of pond at 84.50 =	283.0	c.f.
Storage of chmabers at 84.50 = 2 x 22.47 c.f. =	44.9	c.f.
Treatment volume provided =	**327.9**	**c.f.**

Attachment D

Soil Map

Soil Map—Cumberland County and Part of Oxford County, Maine
(97 Cumberland Ave)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: http://websoilsurvey.nrcs.usda.gov
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: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 8, Nov 27, 2013

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

Date(s) aerial images were photographed: Jul 31, 2013—Aug 11, 2013

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

Cumberland County and Part of Oxford County, Maine (ME005)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
HIB	Hinckley gravelly sandy loam, 3 to 8 percent slopes	0.1	100.0%
Totals for Area of Interest		**0.1**	**100.0%**