



CITY OF SARATOGA SPRINGS

PLANNING BOARD

City Hall - 474 Broadway
Saratoga Springs, New York 12866
Tel: 518-587-3550 fax: 518-580-9480
www.saratoga-springs.org

MARK TORPEY, *Chair*
ROBERT F. BRISTOL, *Vice-Chair*
TOM L. LEWIS
CLIFFORD VAN WAGNER
HOWARD PINSLEY
JANET CASEY
JAMIN TOTINO
AMY DURLAND, *Alternate*
RUTH HORTON, *Alternate*

Planning Board Meeting City Council Room – 7:00 PM

Agenda

Planning Board Meeting – Tuesday, November 22, 2016

City Council Room – 7:00 PM

Workshop: Monday, November 21, 2016 At 5pm In The City Council Room

Salute To Flag

A. Applications Under Consideration

1. **16.041 Slack Chemical Company**

3 Unlimited Drive, Site plan review of 29,900SF additional of warehouse use within the Industrial- General (IND-G) District.

Documents:

16.041 SLACKCHEMCOEXPANSION_APP_REDACTED.PDF
16.041 SLACKCHEMCOEXPANSION_APPCORR_REDACTED.PDF
16.041 SLACKCHEMCOEXPANSION_COUNTYRESPONSE.PDF
16.041 SLACKCHEMCOEXPANSION_TRAFFIC_REDACTED.PDF

2. **16.047.1 Southern Subdivision**

124 York Ave, Advisory Opinion to ZBA on 2 lot residential subdivision within the Urban Residential-3 (UR-3) District.

Documents:

16.047.1 SOUTHERNSUBDIVISION_ZBAREQFORADVISOPIN.PDF
16.047.1 SOUTHERNRRESIDENCESUBDIVISION_ZBAAPP_REDACTED.PDF
16.047.1 SOUTHERNRRESIDENCESUB_MDILLONCORR_REDACTED.PDF

B. Approval Of Minutes: October 27, 2016, November 11, 2016.

Next Meeting: Thursday, December 8, 2016 (W/ December 5th Caravan & Workshop)



CITY OF SARATOGA SPRINGS

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[FOR OFFICE USE]

(Application #)

(Date received)

APPLICATION FOR: SITE PLAN REVIEW (INCLUDING PUD)
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(Rev: 12/2015)

*****Application Check List - All submissions must include completed application check list and all required items.**

Project Name: Slack Chemical Company Expansion

Property Address/Location: 3 Unlimited Dr

Tax Parcel #: 178.00-1-50 Zoning District: IND-G
(for example: 165.52-4-37)

Proposed Use: Warehousing/Manufacturing

Date special use permit granted (if any): _____ Date zoning variance granted (if any): _____

Is property located within (check all that apply)?: Historic District Architectural Review District
 500' of a State Park, city boundary, or county/state highway

	<u>APPLICANT(S)*</u>	<u>OWNER(S) (If not applicant)</u>	<u>ATTORNEY/AGENT</u>
Name	<u>Slack Chemical Co.</u>	_____	<u>Munter Enterprises, Inc.</u>
Address	<u>21 Grande Blvd</u> <u>Saratoga Springs, NY 12866</u>	_____	<u>881 Murray Rd</u> <u>Middle Grove, NY 12850</u>
Phone		_____	
Email		_____	

Identify primary contact person: Applicant Owner Agent

* An applicant must be the property owner, lessee, or one with an option to lease or purchase the property in question.

Application Fee: A check for the total amount below payable to: "Commissioner of Finance" MUST accompany this application.

<input type="checkbox"/>	<u>Sketch Plan</u> -	\$250	\$ _____
<input checked="" type="checkbox"/>	<u>Final Site Plan Approval</u>		
	Residential -	\$250 plus \$150/unit	\$ _____
	Non-Residential -	\$500 plus \$100/1,000 SQ. FT.	\$ <u>3490.00</u>
<input type="checkbox"/>	<u>Modification</u>		
	Residential -	\$250	\$ _____
	Non-Residential -	\$500	\$ _____
			Total \$ _____

Submission Deadline – Check City’s website (www.saratoga-springs.org) for application deadlines and meeting dates.

Does any City officer, employee or family member thereof have a financial interest (as defined by General Municipal Law Section 809) in this application? YES NO . If YES, a statement disclosing the name, residence, nature and extent of this interest must be filed with this application.

I, the undersigned owner, leasee or purchaser under contract for the property, hereby request Site Plan Review by the Planning Board for the identified property above. I agree to meet all requirements under Section 240-7.2 of the Zoning Ordinance of the City of Saratoga Springs.

Furthermore, I hereby authorize members of the Planning Board and designated City staff to enter the property associated with this application for purposes of conducting any necessary site inspections relating to this application.

Applicant Signature: Stuart Field Date: 10/19/2016

If applicant is not current owner, owner must also sign.

Owner Signature: Stuart Field POA for Bob Stortz Date: 10/19/2016



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[FOR OFFICE USE]

(Application #)

(Date received)

Rev. 12/2015

SITE PLAN REVIEW SUBMITTAL CHECKLIST

Project Name: Slack Chemical Co. Expansion

Listed below are the minimum submittal requirements for site plan review as set forth in The City of Saratoga Springs' Zoning Ordinance Appendix B. The Planning Board reserves the right to request additional information, as necessary, to support an application. The Board also reserves the right to reject the application if these minimum requirements are not met. Please complete the checklist below and provide with your submission.

REQUIRED ITEMS: *3 hard copies and 1 digital copy of ALL materials are required.

CHECK EACH ITEM	** HANDWRITTEN APPLICATIONS WILL NOT BE ACCEPTED**
<input checked="" type="checkbox"/>	1. Completed Site Plan Application (3 hard copies - *1 w/original signature - and 1 digital) and Fee
<input checked="" type="checkbox"/>	2. SEQR Environmental Assessment Form- short or long form as required by action.
<input checked="" type="checkbox"/>	3. Set of plans including: (3) large scale plans (sheets must be 24" x 36", drawn to a scale of not more than 1"=50 feet). One digital version of all submittal items (pdf) shall be provided.
<input checked="" type="checkbox"/>	4. Basic or Full Storm Water Pollution Prevention Plan as required per City Code Chapter 242.
<input type="checkbox"/>	5. Copy of signed DPW water connection agreement for all projects involving new water connections to the City system <i>N/A</i>
<input type="checkbox"/>	6. Engineering Report for Water and Sanitary <i>N/A</i>
<input type="checkbox"/>	7. Complete Streets Checklist <i>N/A</i>
<input checked="" type="checkbox"/>	8. Project Cost Estimate-Quantities of work items and estimate of costs

REQUIRED ITEMS ON SITE PLAN, AS APPLICABLE:

<input checked="" type="checkbox"/>	1. Property line survey prepared by a licensed land surveyor. Site plan must reference such survey with all corners set and marked on plan. A copy of the original property survey must also be included.
<input checked="" type="checkbox"/>	2. North arrow and map scale
<input checked="" type="checkbox"/>	3. Parcel tax map number
<input checked="" type="checkbox"/>	4. Site location map
<input checked="" type="checkbox"/>	5. Site vicinity map (all features within 300 feet of property)
<input checked="" type="checkbox"/>	6. Identification of zoning district with corresponding area requirements

617.20
Appendix B
Short Environmental Assessment Form

Instructions for Completing

Part 1 - Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 - Project and Sponsor Information			
Name of Action or Project: SLACK CHEMICAL BUILDING ADDITION			
Project Location (describe, and attach a location map): 3 UNLIMITED DRIVE, GRANDE INDUSTRIAL PARK, SARATOGA SPRINGS, NY			
Brief Description of Proposed Action: 29,900 SQUARE FOOT ADDITION TO EXISTING 26,100 SQUARE FOOT FACILITY. ADDITION INCLUDES ADDITIONAL TRUCK DOCKS AND SITWORK TO PROVIDE TRUCK ACCESS TO THOSE DOCKS.			
Name of Applicant or Sponsor: SLACK CHEMICAL COMPANY		Telephone: [REDACTED]	
		E-Mail:	
Address: 3 UNLIMITED DRIVE			
City/PO: SARATOGA SPRINGS		State: NY	Zip Code: 12866
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.			NO <input type="checkbox"/>
			YES <input type="checkbox"/>
2. Does the proposed action require a permit, approval or funding from any other governmental Agency? If Yes, list agency(s) name and permit or approval: NYSDEC - STORMWATER NOTICE OF INTENT			NO <input type="checkbox"/>
			YES <input checked="" type="checkbox"/>
3.a. Total acreage of the site of the proposed action?		6.2 acres	
b. Total acreage to be physically disturbed?		2.8 acres	
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor?		6.2 acres	
4. Check all land uses that occur on, adjoining and near the proposed action.			
<input type="checkbox"/> Urban <input type="checkbox"/> Rural (non-agriculture) <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Residential (suburban)			
<input type="checkbox"/> Forest <input type="checkbox"/> Agriculture <input type="checkbox"/> Aquatic <input type="checkbox"/> Other (specify): _____			
<input type="checkbox"/> Parkland			

18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)? If Yes, explain purpose and size: _____	NO	YES
	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe: _____	NO	YES
	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe: _____	NO	YES
	<input checked="" type="checkbox"/>	<input type="checkbox"/>

I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor name: Stack Chemical Date: 10/24/16
 Signature: [Handwritten Signature]

Part 2 - Impact Assessment. The Lead Agency is responsible for the completion of Part 2. Answer all of the following questions in Part 2 using the information contained in Part 1 and other materials submitted by the project sponsor or otherwise available to the reviewer. When answering the questions the reviewer should be guided by the concept "Have my responses been reasonable considering the scale and context of the proposed action?"

	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	<input type="checkbox"/>	<input type="checkbox"/>
2. Will the proposed action result in a change in the use or intensity of use of land?	<input type="checkbox"/>	<input type="checkbox"/>
3. Will the proposed action impair the character or quality of the existing community?	<input type="checkbox"/>	<input type="checkbox"/>
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	<input type="checkbox"/>	<input type="checkbox"/>
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	<input type="checkbox"/>	<input type="checkbox"/>
6. Will the proposed action cause an increase in the use of energy and it fails to incorporate reasonably available energy conservation or renewable energy opportunities?	<input type="checkbox"/>	<input type="checkbox"/>
7. Will the proposed action impact existing:		
a. public / private water supplies?	<input type="checkbox"/>	<input type="checkbox"/>
b. public / private wastewater treatment utilities?	<input type="checkbox"/>	<input type="checkbox"/>
8. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	<input type="checkbox"/>	<input type="checkbox"/>
9. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	<input type="checkbox"/>	<input type="checkbox"/>

	No, or small impact may occur	Moderate to large impact may occur
10. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	<input type="checkbox"/>	<input type="checkbox"/>
11. Will the proposed action create a hazard to environmental resources or human health?	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 - Determination of significance. The Lead Agency is responsible for the completion of Part 3. For every question in Part 2 that was answered "moderate to large impact may occur", or if there is a need to explain why a particular element of the proposed action may or will not result in a significant adverse environmental impact, please complete Part 3. Part 3 should, in sufficient detail, identify the impact, including any measures or design elements that have been included by the project sponsor to avoid or reduce impacts. Part 3 should also explain how the lead agency determined that the impact may or will not be significant. Each potential impact should be assessed considering its setting, probability of occurring, duration, irreversibility, geographic scope and magnitude. Also consider the potential for short-term, long-term and cumulative impacts.

<input type="checkbox"/>	Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action may result in one or more potentially large or significant adverse impacts and an environmental impact statement is required.
<input type="checkbox"/>	Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action will not result in any significant adverse environmental impacts.
_____	_____
Name of Lead Agency	Date
_____	_____
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
_____	_____
Signature of Responsible Officer in Lead Agency	Signature of Preparer (if different from Responsible Officer)

PRINT

Slack Expansion

Statement of Probable Construction Cost

15-Oct-16

Work within R.O.W.	0.00	@	25%	0.00
Work on the Site	\$ 161,687.00	@	25%	\$ 40,422

Total Letter of Credit \$ 40,422

No Work is Required within the R.O.W. for this Project

Site Work

Item	Unit	Unit Price	Cost
Erosion Control			
Sediment Control Fence	1220 lf @	\$ 1.50 =	\$ 1,830.00
Temporary Sediment Trap	2 ls @	\$ 900.00 =	\$ 1,800.00
Demolition and Site Clearing			
Caution Flagging	500 lf @	\$ 0.50 =	\$ 250.00
Clearing and Grubbing	1.5 ac @	\$ 2,000.00 =	\$ 3,000.00
Strip Topsoil and Stockpile	1540 cy @	\$ 3.00 =	\$ 4,620.00
Excavation and Site Grading			
Site Grading	13,370 sy @	\$ 1.50 =	\$ 20,055.00
Pavement Subbase Course	75 cy @	\$ 12.00 =	\$ 900.00
Spread Topsoil	960 cy @	\$ 3.00 =	\$ 2,880.00
Storm Drainage			
Eave Trench	3960 sf @	\$ 4.50 =	\$ 17,820.00
Catch Basin	2 ea @	\$ 600.00 =	\$ 1,200.00
Drywell 8' x 8'	7 ea @	\$ 1,500.00 =	\$ 10,500.00
12" HDPE	64 lf @	\$ 23.00 =	\$ 1,472.00
8" Infiltration Pipe	148 lf @	\$ 28.00 =	\$ 4,144.00
Paving and Curbs			
Segmental Retaining Wall	415 lf @	\$ 56.00 =	\$ 23,240.00
Stone Surface	4200 sy @	\$ 13.00 =	\$ 54,600.00
Asphalt Paving	225 sy @	\$ 18.00 =	\$ 4,050.00
Planting			
Fine Grade and Seed	5160 sy @	\$ 1.10 =	\$ 5,676.00
Transplant Tree	1 ea @	\$ 150.00 =	\$ 150.00
Survey			
As-Built Survey	1 ls @	\$ 3,500.00 =	\$ 3,500.00
Total On-Site			\$ 161,687.00

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Total On-Site			\$ 161,687.00

STORMWATER MANAGEMENT
REPORT
and
STORMWATER POLLUTION PREVENTION
PLAN NARATIVE
for

SLACK CHEMICAL COMPANY, INC.
PROPOSED EXPANSION

City of Saratoga
Saratoga County, New York
Planning Board #16.--



The image shows a circular official seal of the City of Saratoga, New York. The seal contains the text "STATE OF NEW YORK" at the top and "CITY OF SARATOGA" at the bottom. A signature is written across the seal in black ink.

Prepared by:

NACE ENGINEERING, P.C.
169 HAVILAND ROAD
QUEENSBURY, NY 12804

Thomas W. Nace, P.E.
October 24, 2016
File: #47618

STORMWATER MANAGEMENT REPORT
MUNTER ENTERPRISES
SLACK CHEMICAL COMPANY – PROPOSED EXPANSION

Site Location

The project site is a currently developed lot in the eastern portion of W.J. Grande Industrial Park, on the northeast side of Unlimited Drive. The 6.9 acre lot is owned by Slack Chemical Company and was developed two years ago.

Existing Conditions

Current development of the site includes office space, manufacturing space and warehouse space totaling 26,120 sq. ft. The existing building was positioned on the site so that expansion of the building could occur on both the east and west sides of the existing building. The area of the proposed additions is currently wooded.

The USDA Soil Survey of Saratoga County shows the soils to be Windsor, loamy sands (hydrologic soils group A), with rapid percolation and groundwater deeper than 6 feet (see attached USDA soils map). Soil testing done for the adjacent Unlimited Potential and SCA Tissue sites showed medium sands to a depth of 5 to 7 feet underlain by coarse sand. No indication of seasonal high water table was evident to a depth of over 8 feet. Percolation rates were slightly less than one minute. Additionally, excavations for the existing Slack Chemical building verified the soils to be well drained coarse sand to a depth of 12+ feet.

The existing site and drainage patterns are shown on the Existing Conditions Plan.

Existing Conditions Summary:

Parcel Area:	6.92 acres		
Building & Pavement Coverage:	1.52 acres	–	21.9 %
Pervious Surface:	5.40 acres	=	78.1 %

Proposed Development

The proposed project consists of additions on the east and west sides of the existing building totaling 29,900 sq. ft. The project also includes truck docks on the north side of the additions and modification of the existing truck access drive to provide access to the docks.

The proposed project will result in the following lot coverage:

Proposed Conditions Summary

Parcel Area:	6.92 acres		
Building & Pavement Coverage:	2.76 acres	=	39.9 %
Pervious Surface:	5.45 acres	=	60.1 %

The proposed development will result in an increase of impervious surface of 18.0%

Construction Phasing

The project will be constructed in a single phase.

Green Infrastructure Practices and Requirements

As stated in the *New York State Stormwater Management Design Manual*, Section 3.2 – *Green Infrastructure for Stormwater Management* “The objective is to replicate pre-development hydrology by maintaining pre-construction infiltration, peak runoff flow, discharge volume, as well as minimizing concentrated flow by using runoff control techniques to provide treatment in a distributed manner before runoff reaches the collection system”.

Due to the highly permeable nature of the existing site soil, there is the opportunity to use infiltration practices for runoff from all portions of the developed site.

Specific Green Infrastructure Practice goals are being addressed as follows:

Planning Practices for Preservation of Natural Features and Conservation

Preservation of undisturbed areas - This project is located in an industrial park which is substantially developed. However, a substantial natural buffer across the east and west sides of the site will remain undisturbed to preserve the natural woodland. Within the developed portion of the site a large area of existing trees will be maintained between the building and the truck access road to the rear of the building.

Reduction of clearing and grading – parking and site circulation roads kept to a minimum.

Locating development in less sensitive areas – all planned development has been located in the center of the site, retaining natural buffers around the perimeter. There are no environmentally sensitive areas within or adjacent to the site.

Open space design – as previously stated, wide perimeter buffers are being maintained.

Soil restoration – Existing soil on the site is very permeable. Soil restoration will be required only on lawn areas which have been compacted as a result of construction activities.

Planning Practices for Reduction of Impervious Cover

Sidewalk reduction – Sidewalk length has been kept to a minimum required for access.

Driveway reduction – Driveway length has been dictated by the necessity for truck and emergency vehicle access to the building.

Building footprint reduction – nature of project is not conducive to multi-story building.

Parking reduction – parking dictated by code requirement.

Green Infrastructure Techniques

Rain Gardens – mainly used for residential development, rain gardens are generally not appropriate for larger commercial or industrial projects.

Green Roofs – Green roofs are very expensive to construct and maintain. Additionally, they are only marginally suitable for cold climates. They were not considered for this project because better alternatives were available.

Stormwater Planters – Generally used for small areas of pavement, stormwater planters were not considered for this project due to the size of the hard surfaces to be accommodated.

Rain Barrels – Like stormwater planters, rain barrels are generally used for small roof areas unless there is a great need for the collected water. Additionally, they are generally unsuitable for cold climates.

Porous Pavement – On this project, porous pavement would only be considered appropriate for the parking lot. However, it is not in general use in this area and the special asphalt mixes and placement requirements, as well as maintenance requirements have ruled it out for this project.

Proposed Stormwater Management

To the maximum extent possible drainage patterns and facilities established and constructed with the initial site development will be maintained.

All runoff from existing and proposed development will be handled by infiltration into the sandy, well drained soils on the site.

Runoff from the building roof will be handled by 6 foot wide by 4 foot deep, stone filled eave trenches along the front and sides of the building.

Runoff from the entrance drive and parking lot on the south side of the building will remain as is, handled by an infiltration swale which overflows into a drywell.

Runoff from the truck entrance drive, loading dock area and remainder of the developed site will be directed to two depressions located in the rear of the site. The depressions will provide pretreatment and sediment collection. The eastern most depression will include two drywells located so that their inlets are 6" above the bottom of the depression. The western most depression will include a catch basin located so that its inlet is located 6" above the bottom of the depression. The outfall of the catch basin will be piped to a series of four drywells which are interconnected with infiltration/equalization trenches.

Calculations

For analysis purposes the project is broken into three stormwater management areas:

- Building roof (subcatchments #1, 2 & 3)

- Western rear portion of lot (subcatchment #4)
- Eastern rear portion of lot (subcatchment #5).
- South portion of lot (subcatchment #6)

Stormwater Management Worksheets for each of these stormwater management areas (SMA) are included in the appendices. These provide the calculations for Water Quality Volume (WQv), minimum Runoff Reduction Volume (RRv) required, and RRv provided. These calculations are summarized as follows:

Water Quality Control

The Water Quality Volume (WQv) as defined by $P \times R_v \times A / 12$ represents the anticipated runoff from the developed site during a 90% rainfall event. In accordance with the *New York State Stormwater Management Design Manual*, the WQv must be treated either through green infrastructure practices or through standard WQv treatment practices such as ponds and wetlands. The following table summarizes the required WQv and the provided WQv for each stormwater management area as derived in the Stormwater Management Worksheets in the appendices. (note that the WQv required is equal to the WQv provided because all runoff from the 90% storm -1" rainfall – is being infiltrated in the proposed infiltration facilities)

<u>Required WQv</u>		
Stormwater Management Area	WQv Required (cf)	WQv Provided (cf)
Building roof	4,966	4,966
Rear west	3,179	3,179
Rear east	1,231	1,231
South	935	935

Pretreatment is required prior to infiltration facilities. Since the native soils are in hydrologic soil group A, 100% of the WQv runoff must receive treatment. Pretreatment for the infiltration trenches and drywells is provided by a combination of grass filter strips adjacent to the paved surfaces and shallow grass swales conveying the runoff to the infiltration facilities.

<u>Pretreatment</u>					
Stormwater Management Area	Contributing WQv (cf)	Required % Treatment	Required Treatment (cf)	Pretreatment Type	Pretreatment Provided (cf)
Rear west	3,180	100%	3,180	Filter Strip / Grass Swale	3,180
Rear east	1,231	100%	1,231	Filter Strip / Grass Swale	1,231
South	935	100%	935	Filter Strip / Grass Swale	935

Runoff Reduction

The *New York State Stormwater Management Design Manual* requires that Area Reduction, Impervious Disconnection and Source Control Practices be utilized to achieve a Runoff Reduction Volume RRv that, if possible, equals the Water Quality Volume WQv. At a minimum, RRv must

meet a minimum value which is a % of WQv dependent on the hydrologic soil group. The complete RRv calculations for each stormwater management areas are provided in the Stormwater Management Worksheets included in the appendices. A summary of the results are provided in the table below.

Runoff Reduction Volumes

Stormwater Management Area	WQv (cf)	Min. RRv (cf)	RRv Provided (cf)	RRv % WQv
Building roof	4,966	2,731	4,902	99%
Rear west	3,180	1,669	5,131	307%
Rear east	1,231	626	1,736	141%
south	935	474	1,272	136%

HydroCAD Analysis

HydroCAD stormwater modeling software has been used to analyze the pre and post development stormwater runoff from the site. The developed site has been modeled as a series of subcatchments (discrete drainage areas), reaches and ponds as shown on the attached HydroCAD drainage diagram. As in the WQv and RRv analysis, the site has been divided into three stormwater management areas. All calculations are based upon the following:

- All computations SCS TR-20, HydroCAD
- 1 year, 24 hour storm - Type II rainfall = 2.2"
- 10 year, 24 hour storm - Type II rainfall = 3.8"
- 100 year, 24 hour storm - Type II rainfall = 6.4"
- Soils – Winsor Sands – hydrologic soil group A, infiltration rate = 60 in/hr
- Design infiltration rate = 45 in/hr (inc. safety factor of 1.5) for the drywells, infiltration swale and eave trenches.

The attached HydroCAD calculations show the stormwater routing for the site and results for each of the subcatchments and ponds.

Channel Protection Volume

Channel protection is required by the DEC Stormwater Management Design Manual. This requires 24 hour extended detention of the 1 year 24 hour storm which is obviously meet since all of the 1-year storm is infiltrated. The HydroCAD analysis of the developed site shows that the Channel Protection Volume (CPv) is as presented in the table below:

Required Channel Protection Volume

Stormwater Management Area	CPv Required (cf)	Detention Volume Provided (cf)
Building roof	9,627	9,627
Rear west	1,699	1,699
Rear east	348	348
South	218	218

Overbank Flood Control

Overbank flood control is required by the DEC Stormwater Management Design Manual. The overbank flood control requires that the peak discharge rate from the 10 year 24 hour storm be

reduced to pre-development rates. This requirement is obviously met since all of the 10-year storm is infiltrated. HydroCAD analysis shows the pre and post development discharges from each Stormwater Management Area to be as follows:

Overbank Flood Control

Stormwater Management Area	Predeveloped 10 yr storm (cfs)	Postdeveloped 10 yr storm (cfs)
Building roof	0	0
Rear west	0	0
Rear east	0	0
South	0	0

Extreme Storm Control

Extreme storm control is required by the DEC Stormwater Management Design Manual. The extreme storm control requires that the peak discharge from the 100 year storm be reduced to pre-development rates. HydroCAD analysis shows the pre and post development discharges from each Stormwater Management Area to be as follows:

Extreme Storm Control

Stormwater Management Area	Predeveloped 100 yr storm (cfs)	Postdeveloped 100 yr storm (cfs)
Building roof	0	0
Rear west	0	0
Rear east	0	0
South	0	0

Conclusions

The proposed stormwater management systems will contain and infiltrate all runoff, up through a 100-year storm. As shown in the calculations they meet all of the green infrastructure requirements as well as the water quality and peak discharge requirements.

Historical Places or Archaeological Resources

The proposed project will not adversely affect any properties listed or eligible to be listed on the National Register of Historic Places; nor will it affect any properties mapped as archaeologically sensitive by OPRHP. A copy of the OPRHP sensitivity map was submitted with the original project.

Temporary Erosion and Sediment Control Measures

Erosion and sediment control measures will be incorporated into the construction of the project. These practices will comply with the New York State Department of Environmental Conservation publication entitled "New York Guidelines for Urban Erosion and Sediment Control" (the blue book).

Separate erosion and sediment controls will be installed for each phase of construction. The following temporary erosion and sediment control devices will be utilized as shown on the Sediment and Erosion Control Plans.

Sediment Control Fence: Silt fence shall be used to control erosion from sheet flow on slopes not to exceed 3 on 1. Concentrated flows shall not be directed toward the silt fence. The silt fence must be installed parallel to the contour lines to eliminate drainage along the fence.

Temporary Seeding: Land that is stripped of vegetation will be seeded and planted as soon as possible. Any area that will remain cleared but not under construction for 10 days or longer will be seeded with a ryegrass mixture and mulched to stabilize soil until construction resumes.

Temporary Silt Basin: A Temporary Silt Basins shall be constructed at low points outside of the pavement area and discharge clean stormwater into the drainage swale which shall be protected from sedimentation.

Temporary Diversion Swales: Temporary diversion swales shall be constructed as required, either to divert clean stormwater runoff from newly graded areas or to direct sediment laden runoff to a sediment trapping device.

Stabilized Construction Entrance: Existing roads will be protected by installation of a crushed stone blanket for cleaning construction vehicle wheels. Blankets shall be placed at any intersection of a construction road with a paved or publicly owned road. Stabilized construction entrances shall be installed as shown on the plans.

Tree Protection: Trees to be preserved within areas of construction shall be protected by placing construction fencing around the drip lines. Construction workers will be directed to avoid storing equipment or soil under trees to be preserved. There shall be no parking of automobiles or construction vehicles under trees.

Dust Control: Measures for dust control during construction shall be implemented as needed (daily water sprays will be used during dry conditions. In addition to water sprays, temporary mulching, temporary seeding and covering stockpiles with tarps shall be implemented when necessary.

Rock Check Dam: Small stone check dams shall be constructed in any temporary drainage channels during construction. These dams shall be constructed in the locations shown on the plans and as

necessary to control any drainage from the construction site which concentrates in flow paths or channels. Dams shall be constructed as detailed on the Erosion and Sediment Control Plan. Dams shall be cleaned of any sediment after each rainfall as needed.

Control of Litter, Construction Debris and Construction Chemicals

During the course of infrastructure and home construction, the site shall be kept clear of debris and litter which could be transported by water or wind. This material shall be picked up daily and shall be stored in waste debris containers where it is securely held.

All petroleum products or other waste contaminants which are water soluble or could be dispersed and transported by stormwater shall be stored in covered containers and be regularly removed from the site and properly and legally disposed of. All petroleum or other hazardous materials shall be stored and handled in conformance with NYSDEC spill prevention and containment requirements.

Sequence of Construction

Construction sequencing is specified in detail on the Erosion and Sediment Control Plans.

Maintenance of Temporary Erosion and Sediment Control Devices

The sediment basins shall be inspected at least weekly and after every rain event by the Contractor. When 50% of the volume of the trap is full, The Contractor shall remove collected sediment and dispose of properly.

The Contractor shall inspect the sediment control fence weekly and after every rain event and remove trapped sediment and maintain the devices in good working order.

Permanent Erosion Control

All pervious areas shall be graded, topsoil installed and seeded or planted as soon as practical. Seed beds shall be mulched with straw or hydro-mulch with tackifier and plant beds shall be mulched with pine bark mulch. Seeded areas on slopes over 3:1 shall be stabilized with erosion control netting as specified on the plans.

Post-Construction Operation and Maintenance of Stormwater Control Devices

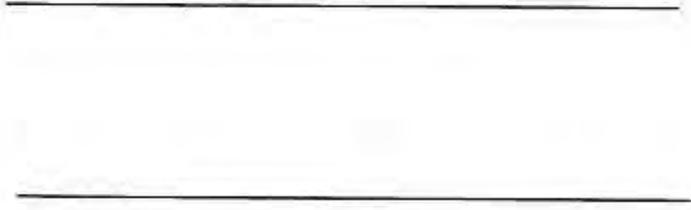
All portions of the stormwater control system shall be inspected on a periodic basis and shall be cleaned and/or repaired as appropriate.

- Roadside infiltration swales - Inspect and clean fall and spring; mow twice per year.
- Eave trenches - Inspect and clean surface fall and spring
- Infiltration basins / depressions - Inspect and remove leaves fall and spring.
- Drywells - Inspect and clean grates monthly; inspect and clean inside biannually.

Keep maintenance records showing dates and descriptions of all inspections and maintenance.

Appendix

- **Stormwater Management Worksheets**
- **Drainage Area Maps**
- **HydroCAD Drainage Diagram**
- **Post Developed Conditions – 1 Year Design Storm**
- **Post Developed Conditions – 10 Year Design Storm**
- **Post Developed Conditions – 100 Year Design Storm**



STORMWATER MANAGEMENT
WORKSHEETS

STORMWATER MANAGEMENT WORKSHEET

SLACK CHEMOICAL - ROOF STORMWATER MANAGEMENT AREA

Project: 47618- Slack Addition roof management area Date: 10/21/2016

Watershed Drainage Area: _____ Soils: _____
 DA: 1.44 (acres) HSG(s): A 90% Rain (P): 1 (inches)

WATER QUALITY VOLUME (before runoff reduction)

Rv = 0.05 + 0.009(I) where I is % Impervious Cover: Rv minimum = 0.2

I = Percent Impervious Cover

A = Area of Site In Acres (Contributing Area)

1. Water Quality Volume (WQv) = P*A*Rv/12

DA= 1.44 AI*= 1.44 acres Rv= 0.9500
 I = 100 Applied Rv = 0.9500

Original WQv=	<u>0.1140</u>	ac-ft
	<u>4965.84</u>	cf

**If soil restoration is not practiced, include construction compacted areas as impervious.*

2. Minimum RRv Requirements (when 100% WQv reduction cannot be achieved): RRv = P x 0.95 x S x AI / 12

with S= 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

P= 1 inches S= 0.55 AI= 1.44 acres

Min. RRv required=	<u>0.0627</u>	ac-ft
	<u>2731.21</u>	cf

AREA REDUCTION PRACTICES

3. Area Reduction Practices (complete for all applicable practices): (area includes practice and contributing area)

- Conservation of natural areas: (contributing AI = 0.00 ac.) Area = 0.00 ac.
- Riparian buffers/filter strips: (contributing AI = _____ ac.) Area = _____ ac.
- Tree planting/tree preservation: (contributing AI = _____ ac.) Area = _____ ac.
- Total area reduction: Total Area Reduced = 0.00 ac.
- Total impervious area within area reduction: AI in Reduced Area = 0.00 ac.

4. Subtract total area reduction from DA:

Remaining Drainage Area = 1.44 ac.
 Remaining AI = 1.44 ac.

5. Recalculate WQv for site area remaining after area reductions:

Remaining DA = 1.44 Remaining AI = 1.44 ac. Rv = 0.9500
 I = 100.00

Area Reduced WQv =	<u>0.1140</u>	ac-ft
	<u>4965.84</u>	cf
RRv =	<u>0.0000</u>	ac-ft
	<u>0</u>	cf

6. Runoff reduction volume (RRv) = original WQv - area reduced WQv

STORMWATER MANAGEMENT WORKSHEET

SLACK CHEMOICAL - ROOF STORMWATER MANAGEMENT AREA

IMPERVIOUS DISCONNECTION

7. Impervious Area Disconnection:

Total disconnected impervious area (now considered pervious for RV calculation(s))

Area =	0.00	ac.
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8. Recalculate WQv with RV modified for impervious disconnection:

DA = 1.44 ac. Remaining AI 1.44 ac. Rv = 0.95
 I = 100.00

Imperv. Disc. Reduced WQv =	0.1140	ac-ft
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4965.84	cf
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RRv =	0.0000	ac-ft
-------	--------	-------

0	cf
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9. Runoff reduction volume = area reduced WQv - Rv reduced WQv

SOURCE CONTROL WQv TREATMENT PRACTICES (from attached worksheet)

10a. Subtotal DA tributary to Source Control treatment practices = 1.440 acres

10b. Subtotal Source Control WQv Treatment Volume = 0.114 ac-ft

10c. Subtotal Runoff Reduction Volume (RRv):

Subtotal (Rv) RRv =	0.103	ac-ft
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10d. Subtotal AI = 1.4400

4469.26	cf
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TOTAL RUNOFF REDUCTION VOLUME (RRv)

11. Total drainage area treated with runoff reduction/source control practices = 1.44 acres

(Area reduction (#3) + total DA tributary to source control (#10a))

12. Total impervious area (AI) treated with area reduction or source control RRv = 1.44 ac-ft

(AI #3 + AI #7 + AI # 10d)

13. Total RRv provided (#6 + #9 + #10c) = Total (RRv) =

Total Provided RRv =	0.1026	ac-ft
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14. Is Total Provided RRv ≥ Original WQv? Yes ✓ No _____

If yes, skip to #19

4469.256	cf
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15. Is Total Provided RRv ≥ Minimum RRv? Yes ✓ No _____

If no, provide additional RRv and recalculate

STORMWATER MANAGEMENT WORKSHEET

SLACK CHEMICAL- NORTHWEST MANAGEMENT AREA

Project: 47618- Slack Addition northrear west management area Date: 10/21/2016

Watershed Drainage Area: _____ Soils: _____

DA: 1.68 (acres) HSG(s): A 90% Rain (P): 1 (inches)

WATER QUALITY VOLUME (before runoff reduction)

$R_v = 0.05 + 0.009(I)$ where I is % Impervious Cover: R_v minimum = 0.2

I = Percent Impervious Cover

A = Area of Site In Acres (Contributing Area)

1. Water Quality Volume (WQv) = P*A*Rv/12

DA= 1.68 AI*= 0.88 acres Rv= 0.5214
 I = 52.381 Applied Rv = 0.5214

Original WQv=	0.0730	ac-ft
	3179.88	cf

**If soil restoration is not practiced, include construction compacted areas as impervious.*

2. Minimum RRV Requirements (when 100% WQv reduction cannot be achieved): $RR_v = P \times 0.95 \times S \times AI / 12$

with S= 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

P= 1 inches S= 0.55 AI= 0.88 acres

Min. RRV required=	0.0383	ac-ft
	1669.07	cf

AREA REDUCTION PRACTICES

3. Area Reduction Practices (complete for all applicable practices): (area includes practice and contributing area)

- Conservation of natural areas: (contributing AI = 0.00 ac.) Area = 0.00 ac.
- Riparian buffers/filter strips: (contributing AI = _____ ac.) Area = _____ ac.
- Tree planting/tree preservation: (contributing AI = _____ ac.) Area = _____ ac.
- Total area reduction: Total Area Reduced = 0.00 ac.
- Total impervious area within area reduction: AI in Reduced Area = 0.00 ac.

Total Area Reduced =	0.00	ac.
----------------------	------	-----

AI in Reduced Area = 0.00 ac.

4. Subtract total area reduction from DA:

Remaining Drainage Area = 1.68 ac.

Remaining AI = 0.88 ac.

5. Recalculate WQv for site area remaining after area reductions:

Remaining DA = 1.68 Remaining AI = 0.88 ac. Rv = 0.5214
 I = 52.38

Area Reduced WQv =	0.0730	ac-ft
	3179.88	cf

6. Runoff reduction volume (RRv) = original WQv - area reduced WQv

RRv =	0.0000	ac-ft
	0	cf

STORMWATER MANAGEMENT WORKSHEET

SLACK CHEMICAL- NORTHWEST MANAGEMENT AREA

IMPERVIOUS DISCONNECTION

7. Impervious Area Disconnection:

Total disconnected impervious area (now considered pervious for RV calculation(s))

Area =	0.00	ac.
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8. Recalculate WQv with RV modified for impervious disconnection:

DA = 1.68 ac. Remaining AI 0.88 ac. Rv = 0.52143
 I = 52.38

Imperv. Disc. Reduced WQv =	0.0730	ac-ft
	3179.88	cf
RRv =	0.0000	ac-ft
	0	cf

9. Runoff reduction volume = area reduced WQv - Rv reduced WQv

SOURCE CONTROL WQv TREATMENT PRACTICES (from attached worksheet)

- 10a. Subtotal DA tributary to Source Control treatment practices = 1.680 acres
- 10b. Subtotal Source Control WQv Treatment Volume = 0.073 ac-ft
- 10c. Subtotal Runoff Reduction Volume (RRv):
- 10d. Subtotal AI = 0.8800

Subtotal (Rv) RRv =	0.066	ac-ft
	2861.89	cf

TOTAL RUNOFF REDUCTION VOLUME (RRv)

- 11. Total drainage area treated with runoff reduction/source control practices = 1.68 acres
 (Area reduction (#3) + total DA tributary to source control (#10a))
- 12. Total impervious area (AI) treated with area reduction or source control RRv = 0.88 ac-ft
 (AI #3 + AI #7 + AI # 10d)

13. Total RRv provided (#6 + #9 + #10c) = Total (RRv) =

Total Provided RRv =	0.0657	ac-ft
	2861.892	cf

- 14. Is Total Provided RRv ≥ Original WQv? Yes ✓ No _____ If yes, skip to #19
- 15. Is Total Provided RRv ≥ Minimum RRv? Yes ✓ No _____ If no, provide additional RRv and recalculate

STORMWATER MANAGEMENT WORKSHEET

 SLACK CHEMICAL - NORTHEAST MANAGEMENT AREA

Project: 47618- Slack Addition northeast management area Date: 10/21/2016

Watershed Drainage Area: _____ Soils: _____
 DA: 0.84 (acres) HSG(s): A 90% Rain (P): 1 (Inches)

WATER QUALITY VOLUME (before runoff reduction)

Rv = 0.05 + 0.009(I) where I is % Impervious Cover: Rv minimum = 0.2

I = Percent Impervious Cover

A = Area of Site In Acres (Contributing Area)

1. Water Quality Volume (WQv) = P•A•Rv/12

DA= 0.84 AI*= 0.33 acres Rv= 0.4036
 I = 39.2857 Applied Rv = 0.4036

Original WQv=	0.0283	ac-ft
	1230.57	cf

**If soil restoration is not practiced, include construction compacted areas as impervious.*

2. Minimum RRv Requirements (when 100% WQv reduction cannot be achieved): RRv = P x 0.95 x S x AI / 12

with S= 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

P= 1 inches S= 0.55 AI= 0.33 acres

Min. RRv required=	0.0144	ac-ft
	625.90	cf

AREA REDUCTION PRACTICES

3. Area Reduction Practices (complete for all applicable practices): (area includes practice and contributing area)

- Conservation of natural areas: (contributing AI = 0.00 ac.) Area = 0.00 ac.
- Riparian buffers/filter strips: (contributing AI = _____ ac.) Area = _____ ac.
- Tree planting/tree preservation: (contributing AI = _____ ac.) Area = _____ ac.
- Total area reduction: Total Area Reduced = 0.00 ac.
- Total impervious area within area reduction: AI in Reduced Area = 0.00 ac.

4. Subtract total area reduction from DA:

Remaining Drainage Area = 0.84 ac.
 Remaining AI = 0.33 ac.

5. Recalculate WQv for site area remaining after area reductions:

Remaining DA = 0.84 Remaining AI = 0.33 ac. Rv = 0.4036
 I = 39.29

Area Reduced WQv =	0.0283	ac-ft
	1230.57	cf
RRv =	0.0000	ac-ft
	0	cf

6. Runoff reduction volume (RRv) = original WQv - area reduced WQv

STORMWATER MANAGEMENT WORKSHEET

 SLACK CHEMICAL - NORTHEAST MANAGEMENT AREA

IMPERVIOUS DISCONNECTION

7. Impervious Area Disconnection:

Total disconnected impervious area (now considered pervious for RV calculation(s))

Area = 0.64 ac.

8. Recalculate WQv with RV modified for impervious disconnection:

DA = 0.84 ac. Remaining AI -0.31 ac. Rv = -0.2821
 I = -36.90

Imperv. Disc. Reduced WQv = -0.0198 ac-ft

-860.31 cf

RRv = 0.0480 ac-ft

2090.88 cf

9. Runoff reduction volume = area reduced WQv - Rv reduced WQv

SOURCE CONTROL WQv TREATMENT PRACTICES (from attached worksheet)

10a. Subtotal DA tributary to Source Control treatment practices = 0.840 acres

10b. Subtotal Source Control WQv Treatment Volume = 0.028 ac-ft

10c. Subtotal Runoff Reduction Volume (RRv):

Subtotal (Rv) RRv = 0.025 ac-ft

10d. Subtotal AI = 0.3300

1107.51 cf

TOTAL RUNOFF REDUCTION VOLUME (RRv)

11. Total drainage area treated with runoff reduction/source control practices = 0.84 acres

(Area reduction (#3) + total DA tributary to source control (#10a))

12. Total impervious area (AI) treated with area reduction or source control RRv = 0.97 ac-ft

(AI #3 + AI #7 + AI # 10d)

13. Total RRv provided (#6 + #9 + #10c) = Total (RRv) =

Total Provided RRv = 0.0734 ac-ft

14. Is Total Provided RRv ≥ Original WQv? Yes ✓ No _____ If yes, skip to #19

3198.393 cf

15. Is Total Provided RRv ≥ Minimum RRv? Yes ✓ No _____ If no, provide additional RRv and recalculate

STORMWATER MANAGEMENT WORKSHEET
SLACK CHEMICAL - SOUTH MANAGEMENT AREA

Project: 47618- Slack Addition south management area Date: 10/21/2016

Watershed Drainage Area: _____ Soils: _____
 DA: 0.65 (acres) HSG(s): A 90% Rain (P): 1 (inches)

WATER QUALITY VOLUME (before runoff reduction)

Rv = 0.05 + 0.009(I) where I is % Impervious Cover; Rv minimum = 0.2

I = Percent Impervious Cover

A = Area of Site In Acres (Contributing Area)

1. Water Quality Volume (WQv) = P•A•Rv/12

DA= 0.65 AI*= 0.25 acres Rv= 0.3962
 I = 38.4615 Applied Rv = 0.3962

Original WQv=	<u>0.0215</u>	ac-ft
	<u>934.73</u>	cf

**If soil restoration is not practiced, include construction compacted areas as impervious.*

2. Minimum RRv Requirements (when 100% WQv reduction cannot be achieved): RRv = P x 0.95 x S x AI / 12

with S= 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

P= 1 inches S= 0.55 AI= 0.25 acres

Min. RRv required=	<u>0.0109</u>	ac-ft
	<u>474.17</u>	cf

AREA REDUCTION PRACTICES

3. Area Reduction Practices (complete for all applicable practices): (area includes practice and contributing area)

- Conservation of natural areas: (contributing AI = 0.00 ac.)
- Riparian buffers/filter strips: (contributing AI = _____ ac.)
- Tree planting/tree preservation: (contributing AI = _____ ac.)
- Total area reduction:
- Total impervious area within area reduction:

Area = 0.00 ac.
 Area = _____ ac.
 Area = _____ ac.

Total Area Reduced =	<u>0.00</u>	ac.
AI in Reduced Area =	<u>0.00</u>	ac.

4. Subtract total area reduction from DA:

Remaining Drainage Area = 0.65 ac.
 Remaining AI = 0.25 ac.

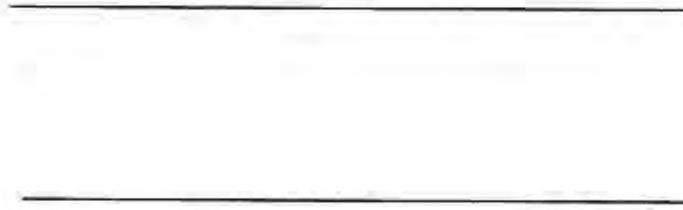
5. Recalculate WQv for site area remaining after area reductions:

Remaining DA = 0.65 Remaining AI = 0.25 ac. Rv = 0.3962
 I = 38.46

Area Reduced WQv =	<u>0.0215</u>	ac-ft
	<u>934.725</u>	cf
RRv =	<u>0.0000</u>	ac-ft
	<u>0</u>	cf

6. Runoff reduction volume (RRv) = original WQv - area reduced WQv

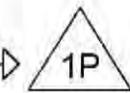
DRAINAGE AREA MAP



HydroCAD DRAINAGE DIAGRAM



WEST SECTION OF ROOF



WESTERN EAVE TRENCH



CENTER SECTION OF ROOF



CENTER EAVE TRENCH



EASTERN SECTION OF ROOF



EASTERN EAVE TRENCH



WEST SIDE AND REAR



4 DRYWELLS



EAST SIDE AND REAR



2 DRYWELLS



FRONT YARD & PARKING LOT



EXIST. INFILTRATION SWALE



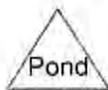
EXIST. DRYWELL



Subcat



Reach



Pond



Link

Drainage Diagram for 47618-Munter-Slack Addition
Prepared by {enter your company name here}, Printed 10/23/2016
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HydroCAD RESULTS

POST DEVELOPED CONDITIONS

1-YEAR DESIGN STORM

47618-Munter-Slack Addition

Type II 24-hr 1-YEAR Rainfall=2.20"

Prepared by {enter your company name here}

Printed 10/23/2016

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

Runoff by SCS TR-20 method, UH=SCS

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

Subcatchment 1S: WEST SECTION OF Runoff Area=24,693 sf 100.00% Impervious Runoff Depth>1.84"
Flow Length=190' Slope=0.0420 '/' Tc=1.7 min CN=98 Runoff=1.87 cfs 0.087 af

Subcatchment 2S: CENTER SECTION OF Runoff Area=25,563 sf 100.00% Impervious Runoff Depth>1.84"
Flow Length=100' Slope=0.0420 '/' Tc=1.0 min CN=98 Runoff=2.00 cfs 0.090 af

Subcatchment 3S: EASTERN SECTION Runoff Area=12,494 sf 100.00% Impervious Runoff Depth>1.84"
Flow Length=100' Slope=0.0420 '/' Tc=1.0 min CN=98 Runoff=0.98 cfs 0.044 af

Subcatchment 4S: WEST SIDE AND REAR Runoff Area=73,395 sf 52.52% Impervious Runoff Depth>0.28"
Flow Length=264' Tc=4.2 min CN=70 Runoff=0.82 cfs 0.039 af

Subcatchment 5S: EAST SIDE AND REAR Runoff Area=36,490 sf 39.44% Impervious Runoff Depth>0.11"
Flow Length=340' Tc=5.2 min CN=62 Runoff=0.06 cfs 0.008 af

Subcatchment 6S: FRONT YARD & Runoff Area=28,445 sf 37.78% Impervious Runoff Depth>0.09"
Flow Length=60' Slope=0.0300 '/' Tc=0.8 min CN=61 Runoff=0.04 cfs 0.005 af

Pond 1P: WESTERN EAVE TRENCH Peak Elev=0.17' Storage=100 cf Inflow=1.87 cfs 0.087 af
Discarded=1.52 cfs 0.087 af Primary=0.00 cfs 0.000 af Outflow=1.52 cfs 0.087 af

Pond 2P: CENTER EAVE TRENCH Peak Elev=0.03' Storage=30 cf Inflow=2.00 cfs 0.090 af
Discarded=1.97 cfs 0.090 af Primary=0.00 cfs 0.000 af Outflow=1.97 cfs 0.090 af

Pond 3P: EASTERN EAVE TRENCH Peak Elev=0.11' Storage=35 cf Inflow=0.98 cfs 0.044 af
Discarded=0.86 cfs 0.044 af Primary=0.00 cfs 0.000 af Outflow=0.86 cfs 0.044 af

Pond 4P: 4 DRYWELLS Peak Elev=0.87' Storage=129 cf Inflow=0.82 cfs 0.039 af
Outflow=0.50 cfs 0.039 af

Pond 5P: 2 DRYWELLS Peak Elev=0.04' Storage=2 cf Inflow=0.06 cfs 0.008 af
Outflow=0.06 cfs 0.007 af

Pond 6i: EXIST. INFILTRATION SWALE Peak Elev=0.00' Storage=1 cf Inflow=0.04 cfs 0.005 af
Discarded=0.04 cfs 0.005 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.005 af

Pond 6P: EXIST. DRYWELL Peak Elev=0.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 4.616 ac Runoff Volume = 0.272 af Average Runoff Depth = 0.71"
37.12% Pervious = 1.714 ac 62.88% Impervious = 2.903 ac

47618-Munter-Slack Addition

Type II 24-hr 1-YEAR Rainfall=2.20"

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Summary for Subcatchment 1S: WEST SECTION OF ROOF

Runoff = 1.87 cfs @ 11.91 hrs, Volume= 0.087 af, Depth> 1.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YEAR Rainfall=2.20"

Area (sf)	CN	Description
* 24,693	98	ROOF + EAVE TRENCH
24,693		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	190	0.0420	1.82		Sheet Flow, ACROSS ROOF TO EAVE Smooth surfaces n= 0.011 P2= 2.40"

Summary for Subcatchment 2S: CENTER SECTION OF ROOF

Runoff = 2.00 cfs @ 11.90 hrs, Volume= 0.090 af, Depth> 1.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YEAR Rainfall=2.20"

Area (sf)	CN	Description
* 25,563	98	ROOF + EAVE TRENCH
25,563		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0420	1.60		Sheet Flow, ACROSS ROOF TO EAVE Smooth surfaces n= 0.011 P2= 2.40"

Summary for Subcatchment 3S: EASTERN SECTION OF ROOF

Runoff = 0.98 cfs @ 11.90 hrs, Volume= 0.044 af, Depth> 1.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YEAR Rainfall=2.20"

Area (sf)	CN	Description
* 12,494	98	ROOF + EAVE TRENCH
12,494		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0420	1.60		Sheet Flow, ACROSS ROOF TO EAVE Smooth surfaces n= 0.011 P2= 2.40"

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Type II 24-hr 1-YEAR Rainfall=2.20"

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Summary for Subcatchment 4S: WEST SIDE AND REAR

Runoff = 0.82 cfs @ 11.97 hrs, Volume= 0.039 af, Depth> 0.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YEAR Rainfall=2.20"

Area (sf)	CN	Description
* 38,544	98	PAVEMENT
34,851	39	>75% Grass cover, Good, HSG A
73,395	70	Weighted Average
34,851		47.48% Pervious Area
38,544		52.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	24	0.0200	0.90		Sheet Flow, ACROSS PAVEMENT TO SWALE Smooth surfaces n= 0.011 P2= 2.40"
3.8	240	0.0050	1.06		Shallow Concentrated Flow, SHALLOW SWALE TO CB Grassed Waterway Kv= 15.0 fps
4.2	264	Total			

Summary for Subcatchment 5S: EAST SIDE AND REAR

Runoff = 0.06 cfs @ 12.02 hrs, Volume= 0.008 af, Depth> 0.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YEAR Rainfall=2.20"

Area (sf)	CN	Description
* 14,393	98	PAVEMENT
22,097	39	>75% Grass cover, Good, HSG A
36,490	62	Weighted Average
22,097		60.56% Pervious Area
14,393		39.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0200	1.19		Sheet Flow, ACROSS PAVEMENT TO SWALE Smooth surfaces n= 0.011 P2= 2.40"
3.8	240	0.0050	1.06		Shallow Concentrated Flow, SHALLOW SWALE TO CB Grassed Waterway Kv= 15.0 fps
5.2	340	Total			

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Type II 24-hr 1-YEAR Rainfall=2.20"

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Summary for Subcatchment 6S: FRONT YARD & PARKING LOT

Runoff = 0.04 cfs @ 11.97 hrs, Volume= 0.005 af, Depth> 0.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YEAR Rainfall=2.20"

Area (sf)	CN	Description
* 10,746	98	PAVEMENT & SIDEWALK
17,699	39	>75% Grass cover, Good, HSG A
28,445	61	Weighted Average
17,699		62.22% Pervious Area
10,746		37.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	60	0.0300	1.26		Sheet Flow, ACROSS PAVEMENT TO SWALE Smooth surfaces n= 0.011 P2= 2.40"

Summary for Pond 1P: WESTERN EAVE TRENCH

Inflow Area = 0.567 ac, 100.00% Impervious, Inflow Depth > 1.84" for 1-YEAR event
 Inflow = 1.87 cfs @ 11.91 hrs, Volume= 0.087 af
 Outflow = 1.52 cfs @ 11.95 hrs, Volume= 0.087 af, Atten= 19%, Lag= 2.4 min
 Discarded = 1.52 cfs @ 11.95 hrs, Volume= 0.087 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.17' @ 11.95 hrs Surf.Area= 1,433 sf Storage= 100 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 0.3 min (734.4 - 734.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,294 cf	Custom Stage Data (Conic) Listed below (Recalc) 5,734 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	1,433	0	0	1,433
4.00	1,434	5,734	5,734	1,970

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area
#2	Primary	3.90'	170.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

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Type II 24-hr 1-YEAR Rainfall=2.20"

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Discarded OutFlow Max=1.52 cfs @ 11.95 hrs HW=0.17' (Free Discharge)

↳1=Exfiltration (Exfiltration Controls 1.52 cfs)

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

↳2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 2P: CENTER EAVE TRENCH

Inflow Area = 0.587 ac, 100.00% Impervious, Inflow Depth > 1.84" for 1-YEAR event
 Inflow = 2.00 cfs @ 11.90 hrs, Volume= 0.090 af
 Outflow = 1.97 cfs @ 11.90 hrs, Volume= 0.090 af, Atten= 2%, Lag= 0.2 min
 Discarded = 1.97 cfs @ 11.90 hrs, Volume= 0.090 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.03' @ 11.90 hrs Surf.Area= 2,153 sf Storage= 30 cf

Plug-Flow detention time= 0.3 min calculated for 0.090 af (100% of inflow)
 Center-of-Mass det. time= 0.2 min (733.8 - 733.6)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	3,446 cf	Custom Stage Data (Conic) Listed below (Recalc) 8,614 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	2,153	0	0	2,153
4.00	2,154	8,614	8,614	2,811

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area
#2	Primary	3.90'	170.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=2.25 cfs @ 11.90 hrs HW=0.03' (Free Discharge)

↳1=Exfiltration (Exfiltration Controls 2.25 cfs)

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

↳2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 3P: EASTERN EAVE TRENCH

Inflow Area = 0.287 ac, 100.00% Impervious, Inflow Depth > 1.84" for 1-YEAR event
 Inflow = 0.98 cfs @ 11.90 hrs, Volume= 0.044 af
 Outflow = 0.86 cfs @ 11.93 hrs, Volume= 0.044 af, Atten= 11%, Lag= 1.7 min
 Discarded = 0.86 cfs @ 11.93 hrs, Volume= 0.044 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Type II 24-hr 1-YEAR Rainfall=2.20"

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Peak Elev= 0.11' @ 11.93 hrs Surf.Area= 780 sf Storage= 35 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.3 min (733.8 - 733.6)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,249 cf	Custom Stage Data (Conic) Listed below (Recalc) 3,122 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	780	0	0	780
4.00	781	3,122	3,122	1,176

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area
#2	Primary	3.90'	170.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.82 cfs @ 11.93 hrs HW=0.10' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.82 cfs)

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

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 4P: 4 DRYWELLS

Inflow Area = 1.685 ac, 52.52% Impervious, Inflow Depth > 0.28" for 1-YEAR event
 Inflow = 0.82 cfs @ 11.97 hrs, Volume= 0.039 af
 Outflow = 0.50 cfs @ 12.04 hrs, Volume= 0.039 af, Atten= 39%, Lag= 4.2 min
 Discarded = 0.50 cfs @ 12.04 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 0.87' @ 12.04 hrs Surf.Area= 432 sf Storage= 129 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 1.1 min (844.4 - 843.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	4,802 cf	10.00'D x 10.00'H Vertical Cone/Cylinder Z=1.0 x 4 13,614 cf Overall - 1,608 cf Embedded = 12,005 cf x 40.0% Voids
#2	1.00'	1,608 cf	8.00'D x 8.00'H Vertical Cone/Cylinder x 4 Inside #1
		6,411 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.50 cfs @ 12.04 hrs HW=0.85' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.50 cfs)

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Type II 24-hr 1-YEAR Rainfall=2.20"

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Summary for Pond 5P: 2 DRYWELLS

Inflow Area = 0.838 ac, 39.44% Impervious, Inflow Depth > 0.11" for 1-YEAR event
 Inflow = 0.06 cfs @ 12.02 hrs, Volume= 0.008 af
 Outflow = 0.06 cfs @ 12.04 hrs, Volume= 0.007 af, Atten= 2%, Lag= 1.3 min
 Discarded = 0.06 cfs @ 12.04 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.04' @ 12.04 hrs Surf.Area= 159 sf Storage= 2 cf

Plug-Flow detention time= 0.6 min calculated for 0.007 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (893.8 - 893.4)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,401 cf	10.00'D x 10.00'H Vertical Cone/Cylinder Z=1.0 x 2 6,807 cf Overall - 804 cf Embedded = 6,003 cf x 40.0% Voids
#2	1.00'	804 cf	8.00'D x 8.00'H Vertical Cone/Cylinder x 2 Inside #1
		3,205 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.17 cfs @ 12.04 hrs HW=0.03' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.17 cfs)

Summary for Pond 6i: EXIST. INFILTRATION SWALE

Inflow Area = 0.653 ac, 37.78% Impervious, Inflow Depth > 0.09" for 1-YEAR event
 Inflow = 0.04 cfs @ 11.97 hrs, Volume= 0.005 af
 Outflow = 0.04 cfs @ 11.98 hrs, Volume= 0.005 af, Atten= 10%, Lag= 0.7 min
 Discarded = 0.04 cfs @ 11.98 hrs, Volume= 0.005 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.00' @ 11.98 hrs Surf.Area= 390 sf Storage= 1 cf

Plug-Flow detention time= 0.2 min calculated for 0.005 af (100% of inflow)
 Center-of-Mass det. time= 0.2 min (900.2 - 900.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	624 cf	2.00'W x 195.00'L x 4.00'H Prismatic 1,560 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area
#2	Primary	3.90'	1.5" x 4.5" Horiz. Orifice/Grate X 18.00 C= 0.600 Limited to weir flow at low heads

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Type II 24-hr 1-YEAR Rainfall=2.20"

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Discarded OutFlow Max=0.41 cfs @ 11.98 hrs HW=0.00' (Free Discharge)

↳ **1=Exfiltration** (Exfiltration Controls 0.41 cfs)

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

↳ **2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 6P: EXIST. DRYWELL

Inflow Area = 0.653 ac, 37.78% Impervious, Inflow Depth = 0.00" for 1-YEAR event
 Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.00' @ 5.00 hrs Surf.Area= 79 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	425 cf	10.00'D x 6.00'H Vertical Cone/Cylinder Z=1.0 1,263 cf Overall - 201 cf Embedded = 1,062 cf x 40.0% Voids
#2	1.00'	201 cf	8.00'D x 4.00'H Vertical Cone/Cylinder Inside #1
		626 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area

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

↳ **1=Exfiltration** (Passes 0.00 cfs of 0.08 cfs potential flow)

HydroCAD RESULTS

POST DEVELOPED CONDITIONS
10-YEAR DESIGN STORM

47618-Munter-Slack Addition

Type II 24-hr 10-YEAR Rainfall=3.80"

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

Runoff by SCS TR-20 method, UH=SCS

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

Subcatchment 1S: WEST SECTION OF Runoff Area=24,693 sf 100.00% Impervious Runoff Depth>3.29"
Flow Length=190' Slope=0.0420 '/' Tc=1.7 min CN=98 Runoff=3.28 cfs 0.155 af

Subcatchment 2S: CENTER SECTION OF Runoff Area=25,563 sf 100.00% Impervious Runoff Depth>3.29"
Flow Length=100' Slope=0.0420 '/' Tc=1.0 min CN=98 Runoff=3.50 cfs 0.161 af

Subcatchment 3S: EASTERN SECTION Runoff Area=12,494 sf 100.00% Impervious Runoff Depth>3.29"
Flow Length=100' Slope=0.0420 '/' Tc=1.0 min CN=98 Runoff=1.71 cfs 0.079 af

Subcatchment 4S: WEST SIDE AND REAR Runoff Area=73,395 sf 52.52% Impervious Runoff Depth>1.08"
Flow Length=264' Tc=4.2 min CN=70 Runoff=3.73 cfs 0.152 af

Subcatchment 5S: EAST SIDE AND REAR Runoff Area=36,490 sf 39.44% Impervious Runoff Depth>0.67"
Flow Length=340' Tc=5.2 min CN=62 Runoff=1.04 cfs 0.047 af

Subcatchment 6S: FRONT YARD & Runoff Area=28,445 sf 37.78% Impervious Runoff Depth>0.63"
Flow Length=60' Slope=0.0300 '/' Tc=0.8 min CN=61 Runoff=0.85 cfs 0.034 af

Pond 1P: WESTERN EAVE TRENCH Peak Elev=1.32' Storage=758 cf Inflow=3.28 cfs 0.155 af
Discarded=1.68 cfs 0.156 af Primary=0.00 cfs 0.000 af Outflow=1.68 cfs 0.156 af

Pond 2P: CENTER EAVE TRENCH Peak Elev=0.45' Storage=386 cf Inflow=3.50 cfs 0.161 af
Discarded=2.32 cfs 0.163 af Primary=0.00 cfs 0.000 af Outflow=2.32 cfs 0.163 af

Pond 3P: EASTERN EAVE TRENCH Peak Elev=1.08' Storage=337 cf Inflow=1.71 cfs 0.079 af
Discarded=0.92 cfs 0.079 af Primary=0.00 cfs 0.000 af Outflow=0.92 cfs 0.079 af

Pond 4P: 4 DRYWELLS Peak Elev=4.26' Storage=1,516 cf Inflow=3.73 cfs 0.152 af
Outflow=1.45 cfs 0.152 af

Pond 5P: 2 DRYWELLS Peak Elev=2.48' Storage=335 cf Inflow=1.04 cfs 0.047 af
Outflow=0.45 cfs 0.047 af

Pond 6i: EXIST. INFILTRATION SWALE Peak Elev=0.54' Storage=83 cf Inflow=0.85 cfs 0.034 af
Discarded=0.63 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.63 cfs 0.034 af

Pond 6P: EXIST. DRYWELL Peak Elev=0.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 4.616 ac Runoff Volume = 0.627 af Average Runoff Depth = 1.63"
37.12% Pervious = 1.714 ac 62.88% Impervious = 2.903 ac

47618-Munter-Slack Addition

Type II 24-hr 10-YEAR Rainfall=3.80"

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Summary for Subcatchment 1S: WEST SECTION OF ROOF

Runoff = 3.28 cfs @ 11.91 hrs, Volume= 0.155 af, Depth> 3.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YEAR Rainfall=3.80"

Area (sf)	CN	Description
* 24,693	98	ROOF + EAVE TRENCH
24,693		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	190	0.0420	1.82		Sheet Flow, ACROSS ROOF TO EAVE Smooth surfaces n= 0.011 P2= 2.40"

Summary for Subcatchment 2S: CENTER SECTION OF ROOF

Runoff = 3.50 cfs @ 11.90 hrs, Volume= 0.161 af, Depth> 3.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YEAR Rainfall=3.80"

Area (sf)	CN	Description
* 25,563	98	ROOF + EAVE TRENCH
25,563		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0420	1.60		Sheet Flow, ACROSS ROOF TO EAVE Smooth surfaces n= 0.011 P2= 2.40"

Summary for Subcatchment 3S: EASTERN SECTION OF ROOF

Runoff = 1.71 cfs @ 11.90 hrs, Volume= 0.079 af, Depth> 3.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YEAR Rainfall=3.80"

Area (sf)	CN	Description
* 12,494	98	ROOF + EAVE TRENCH
12,494		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0420	1.60		Sheet Flow, ACROSS ROOF TO EAVE Smooth surfaces n= 0.011 P2= 2.40"

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Type II 24-hr 10-YEAR Rainfall=3.80"

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Summary for Subcatchment 4S: WEST SIDE AND REAR

Runoff = 3.73 cfs @ 11.95 hrs, Volume= 0.152 af, Depth> 1.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YEAR Rainfall=3.80"

Area (sf)	CN	Description
* 38,544	98	PAVEMENT
34,851	39	>75% Grass cover, Good, HSG A
73,395	70	Weighted Average
34,851		47.48% Pervious Area
38,544		52.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	24	0.0200	0.90		Sheet Flow, ACROSS PAVEMENT TO SWALE Smooth surfaces n= 0.011 P2= 2.40"
3.8	240	0.0050	1.06		Shallow Concentrated Flow, SHALLOW SWALE TO CB Grassed Waterway Kv= 15.0 fps
4.2	264	Total			

Summary for Subcatchment 5S: EAST SIDE AND REAR

Runoff = 1.04 cfs @ 11.98 hrs, Volume= 0.047 af, Depth> 0.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YEAR Rainfall=3.80"

Area (sf)	CN	Description
* 14,393	98	PAVEMENT
22,097	39	>75% Grass cover, Good, HSG A
36,490	62	Weighted Average
22,097		60.56% Pervious Area
14,393		39.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0200	1.19		Sheet Flow, ACROSS PAVEMENT TO SWALE Smooth surfaces n= 0.011 P2= 2.40"
3.8	240	0.0050	1.06		Shallow Concentrated Flow, SHALLOW SWALE TO CB Grassed Waterway Kv= 15.0 fps
5.2	340	Total			

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Type II 24-hr 10-YEAR Rainfall=3.80"

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Summary for Subcatchment 6S: FRONT YARD & PARKING LOT

Runoff = 0.85 cfs @ 11.92 hrs, Volume= 0.034 af, Depth> 0.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YEAR Rainfall=3.80"

Area (sf)	CN	Description
* 10,746	98	PAVEMENT & SIDEWALK
17,699	39	>75% Grass cover, Good, HSG A
28,445	61	Weighted Average
17,699		62.22% Pervious Area
10,746		37.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	60	0.0300	1.26		Sheet Flow, ACROSS PAVEMENT TO SWALE Smooth surfaces n= 0.011 P2= 2.40"

Summary for Pond 1P: WESTERN EAVE TRENCH

Inflow Area = 0.567 ac, 100.00% Impervious, Inflow Depth > 3.29" for 10-YEAR event
 Inflow = 3.28 cfs @ 11.91 hrs, Volume= 0.155 af
 Outflow = 1.68 cfs @ 11.99 hrs, Volume= 0.156 af, Atten= 49%, Lag= 5.2 min
 Discarded = 1.68 cfs @ 11.99 hrs, Volume= 0.156 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1.32' @ 11.99 hrs Surf.Area= 1,433 sf Storage= 758 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 1.6 min (730.3 - 728.7)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,294 cf	Custom Stage Data (Conic) Listed below (Recalc) 5,734 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	1,433	0	0	1,433
4.00	1,434	5,734	5,734	1,970

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area
#2	Primary	3.90'	170.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

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Type II 24-hr 10-YEAR Rainfall=3.80"

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Discarded OutFlow Max=1.67 cfs @ 11.99 hrs HW=1.30' (Free Discharge)

↳ **1=Exfiltration** (Exfiltration Controls 1.67 cfs)

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

↳ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: CENTER EAVE TRENCH

Inflow Area = 0.587 ac, 100.00% Impervious, Inflow Depth > 3.29" for 10-YEAR event
 Inflow = 3.50 cfs @ 11.90 hrs, Volume= 0.161 af
 Outflow = 2.32 cfs @ 11.96 hrs, Volume= 0.163 af, Atten= 34%, Lag= 3.5 min
 Discarded = 2.32 cfs @ 11.96 hrs, Volume= 0.163 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.45' @ 11.96 hrs Surf.Area= 2,153 sf Storage= 386 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 0.6 min (728.7 - 728.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	3,446 cf	Custom Stage Data (Conic) Listed below (Recalc) 8,614 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	2,153	0	0	2,153
4.00	2,154	8,614	8,614	2,811

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area
#2	Primary	3.90'	170.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=2.32 cfs @ 11.96 hrs HW=0.43' (Free Discharge)

↳ **1=Exfiltration** (Exfiltration Controls 2.32 cfs)

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

↳ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: EASTERN EAVE TRENCH

Inflow Area = 0.287 ac, 100.00% Impervious, Inflow Depth > 3.29" for 10-YEAR event
 Inflow = 1.71 cfs @ 11.90 hrs, Volume= 0.079 af
 Outflow = 0.92 cfs @ 11.97 hrs, Volume= 0.079 af, Atten= 46%, Lag= 4.5 min
 Discarded = 0.92 cfs @ 11.97 hrs, Volume= 0.079 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Peak Elev= 1.08' @ 11.97 hrs Surf.Area= 780 sf Storage= 337 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 1.3 min (729.5 - 728.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,249 cf	Custom Stage Data (Conic) Listed below (Recalc) 3,122 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	780	0	0	780
4.00	781	3,122	3,122	1,176

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area
#2	Primary	3.90'	170.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.92 cfs @ 11.97 hrs HW=1.04' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.92 cfs)

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

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 4P: 4 DRYWELLS

Inflow Area = 1.685 ac, 52.52% Impervious, Inflow Depth > 1.08" for 10-YEAR event
 Inflow = 3.73 cfs @ 11.95 hrs, Volume= 0.152 af
 Outflow = 1.45 cfs @ 12.06 hrs, Volume= 0.152 af, Atten= 61%, Lag= 6.4 min
 Discarded = 1.45 cfs @ 12.06 hrs, Volume= 0.152 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 4.26' @ 12.06 hrs Surf.Area= 1,078 sf Storage= 1,516 cf

Plug-Flow detention time= 7.4 min calculated for 0.151 af (100% of inflow)
 Center-of-Mass det. time= 7.3 min (815.8 - 808.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	4,802 cf	10.00'D x 10.00'H Vertical Cone/Cylinder Z=1.0 x 4 13,614 cf Overall - 1,608 cf Embedded = 12,005 cf x 40.0% Voids
#2	1.00'	1,608 cf	8.00'D x 8.00'H Vertical Cone/Cylinder x 4 Inside #1
		6,411 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=1.44 cfs @ 12.06 hrs HW=4.23' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 1.44 cfs)

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Type II 24-hr 10-YEAR Rainfall=3.80"

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Summary for Pond 5P: 2 DRYWELLS

Inflow Area = 0.838 ac, 39.44% Impervious, Inflow Depth > 0.67" for 10-YEAR event
 Inflow = 1.04 cfs @ 11.98 hrs, Volume= 0.047 af
 Outflow = 0.45 cfs @ 12.08 hrs, Volume= 0.047 af, Atten= 57%, Lag= 6.0 min
 Discarded = 0.45 cfs @ 12.08 hrs, Volume= 0.047 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 2.48' @ 12.08 hrs Surf.Area= 351 sf Storage= 335 cf

Plug-Flow detention time= 4.3 min calculated for 0.047 af (100% of inflow)
 Center-of-Mass det. time= 4.2 min (833.1 - 829.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,401 cf	10.00'D x 10.00'H Vertical Cone/Cylinder Z=1.0 x 2 6,807 cf Overall - 804 cf Embedded = 6,003 cf x 40.0% Voids
#2	1.00'	804 cf	8.00'D x 8.00'H Vertical Cone/Cylinder x 2 Inside #1
		3,205 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.45 cfs @ 12.08 hrs HW=2.46' (Free Discharge)
 1=Exfiltration (Exfiltration Controls 0.45 cfs)

Summary for Pond 6i: EXIST. INFILTRATION SWALE

Inflow Area = 0.653 ac, 37.78% Impervious, Inflow Depth > 0.63" for 10-YEAR event
 Inflow = 0.85 cfs @ 11.92 hrs, Volume= 0.034 af
 Outflow = 0.63 cfs @ 11.96 hrs, Volume= 0.034 af, Atten= 27%, Lag= 2.8 min
 Discarded = 0.63 cfs @ 11.96 hrs, Volume= 0.034 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.54' @ 11.96 hrs Surf.Area= 390 sf Storage= 83 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 0.5 min (829.4 - 828.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	624 cf	2.00'W x 195.00'L x 4.00'H Prismatic 1,560 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area
#2	Primary	3.90'	1.5" x 4.5" Horiz. Orifice/Grate X 18.00 C= 0.600 Limited to weir flow at low heads

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Type II 24-hr 10-YEAR Rainfall=3.80"

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Discarded OutFlow Max=0.61 cfs @ 11.96 hrs HW=0.50' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.61 cfs)

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

↑2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 6P: EXIST. DRYWELL

Inflow Area = 0.653 ac, 37.78% Impervious, Inflow Depth = 0.00" for 10-YEAR event
 Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 0.00' @ 5.00 hrs Surf.Area= 79 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

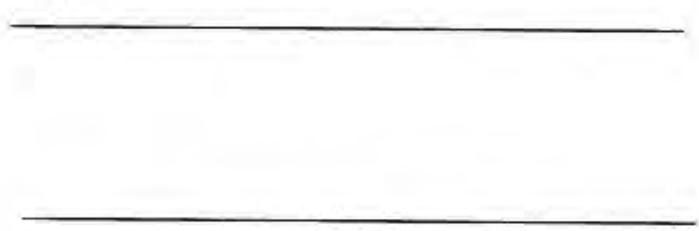
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	425 cf	10.00'D x 6.00'H Vertical Cone/Cylinder Z=1.0 1,263 cf Overall - 201 cf Embedded = 1,062 cf x 40.0% Voids
#2	1.00'	201 cf	8.00'D x 4.00'H Vertical Cone/Cylinder Inside #1
		626 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area

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

↑1=Exfiltration (Passes 0.00 cfs of 0.08 cfs potential flow)



HydroCAD RESULTS

POST DEVELOPED CONDITIONS
100-YEAR DESIGN STORM

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Type II 24-hr 100-YEAR Rainfall=6.40"

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

Subcatchment 1S: WEST SECTION OF Runoff Area=24,693 sf 100.00% Impervious Runoff Depth>5.63"
 Flow Length=190' Slope=0.0420 '/' Tc=1.7 min CN=98 Runoff=5.55 cfs 0.266 af

Subcatchment 2S: CENTER SECTION OF Runoff Area=25,563 sf 100.00% Impervious Runoff Depth>5.63"
 Flow Length=100' Slope=0.0420 '/' Tc=1.0 min CN=98 Runoff=5.93 cfs 0.275 af

Subcatchment 3S: EASTERN SECTION Runoff Area=12,494 sf 100.00% Impervious Runoff Depth>5.63"
 Flow Length=100' Slope=0.0420 '/' Tc=1.0 min CN=98 Runoff=2.90 cfs 0.134 af

Subcatchment 4S: WEST SIDE AND REAR Runoff Area=73,395 sf 52.52% Impervious Runoff Depth>2.88"
 Flow Length=264' Tc=4.2 min CN=70 Runoff=9.82 cfs 0.404 af

Subcatchment 5S: EAST SIDE AND REAR Runoff Area=36,490 sf 39.44% Impervious Runoff Depth>2.15"
 Flow Length=340' Tc=5.2 min CN=62 Runoff=3.53 cfs 0.150 af

Subcatchment 6S: FRONT YARD & Runoff Area=28,445 sf 37.78% Impervious Runoff Depth>2.07"
 Flow Length=60' Slope=0.0300 '/' Tc=0.8 min CN=61 Runoff=3.00 cfs 0.113 af

Pond 1P: WESTERN EAVE TRENCH Peak Elev=3.88' Storage=2,225 cf Inflow=5.55 cfs 0.266 af
 Discarded=2.04 cfs 0.266 af Primary=0.00 cfs 0.000 af Outflow=2.04 cfs 0.266 af

Pond 2P: CENTER EAVE TRENCH Peak Elev=1.92' Storage=1,654 cf Inflow=5.93 cfs 0.275 af
 Discarded=2.57 cfs 0.275 af Primary=0.00 cfs 0.000 af Outflow=2.57 cfs 0.275 af

Pond 3P: EASTERN EAVE TRENCH Peak Elev=3.28' Storage=1,023 cf Inflow=2.90 cfs 0.134 af
 Discarded=1.15 cfs 0.134 af Primary=0.00 cfs 0.000 af Outflow=1.15 cfs 0.134 af

Pond 4P: 4 DRYWELLS Peak Elev=8.80' Storage=5,131 cf Inflow=9.82 cfs 0.404 af
 Outflow=3.39 cfs 0.404 af

Pond 5P: 2 DRYWELLS Peak Elev=7.07' Storage=1,736 cf Inflow=3.53 cfs 0.150 af
 Outflow=1.28 cfs 0.150 af

Pond 6i: EXIST. INFILTRATION SWALE Peak Elev=3.94' Storage=615 cf Inflow=3.00 cfs 0.113 af
 Discarded=2.02 cfs 0.112 af Primary=0.23 cfs 0.001 af Outflow=2.25 cfs 0.113 af

Pond 6P: EXIST. DRYWELL Peak Elev=0.45' Storage=16 cf Inflow=0.23 cfs 0.001 af
 Outflow=0.11 cfs 0.001 af

Total Runoff Area = 4.616 ac Runoff Volume = 1.342 af Average Runoff Depth = 3.49"
37.12% Pervious = 1.714 ac 62.88% Impervious = 2.903 ac

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Type II 24-hr 100-YEAR Rainfall=6.40"

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Summary for Subcatchment 1S: WEST SECTION OF ROOF

Runoff = 5.55 cfs @ 11.91 hrs, Volume= 0.266 af, Depth> 5.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YEAR Rainfall=6.40"

Area (sf)	CN	Description
* 24,693	98	ROOF + EAVE TRENCH
24,693		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	190	0.0420	1.82		Sheet Flow, ACROSS ROOF TO EAVE Smooth surfaces n= 0.011 P2= 2.40"

Summary for Subcatchment 2S: CENTER SECTION OF ROOF

Runoff = 5.93 cfs @ 11.90 hrs, Volume= 0.275 af, Depth> 5.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YEAR Rainfall=6.40"

Area (sf)	CN	Description
* 25,563	98	ROOF + EAVE TRENCH
25,563		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0420	1.60		Sheet Flow, ACROSS ROOF TO EAVE Smooth surfaces n= 0.011 P2= 2.40"

Summary for Subcatchment 3S: EASTERN SECTION OF ROOF

Runoff = 2.90 cfs @ 11.90 hrs, Volume= 0.134 af, Depth> 5.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YEAR Rainfall=6.40"

Area (sf)	CN	Description
* 12,494	98	ROOF + EAVE TRENCH
12,494		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0420	1.60		Sheet Flow, ACROSS ROOF TO EAVE Smooth surfaces n= 0.011 P2= 2.40"

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Type II 24-hr 100-YEAR Rainfall=6.40"

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Summary for Subcatchment 4S: WEST SIDE AND REAR

Runoff = 9.82 cfs @ 11.95 hrs, Volume= 0.404 af, Depth> 2.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YEAR Rainfall=6.40"

Area (sf)	CN	Description
* 38,544	98	PAVEMENT
34,851	39	>75% Grass cover, Good, HSG A
73,395	70	Weighted Average
34,851		47.48% Pervious Area
38,544		52.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	24	0.0200	0.90		Sheet Flow, ACROSS PAVEMENT TO SWALE Smooth surfaces n= 0.011 P2= 2.40"
3.8	240	0.0050	1.06		Shallow Concentrated Flow, SHALLOW SWALE TO CB Grassed Waterway Kv= 15.0 fps
4.2	264	Total			

Summary for Subcatchment 5S: EAST SIDE AND REAR

Runoff = 3.53 cfs @ 11.97 hrs, Volume= 0.150 af, Depth> 2.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YEAR Rainfall=6.40"

Area (sf)	CN	Description
* 14,393	98	PAVEMENT
22,097	39	>75% Grass cover, Good, HSG A
36,490	62	Weighted Average
22,097		60.56% Pervious Area
14,393		39.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0200	1.19		Sheet Flow, ACROSS PAVEMENT TO SWALE Smooth surfaces n= 0.011 P2= 2.40"
3.8	240	0.0050	1.06		Shallow Concentrated Flow, SHALLOW SWALE TO CB Grassed Waterway Kv= 15.0 fps
5.2	340	Total			

47618-Munter-Slack Addition

Type II 24-hr 100-YEAR Rainfall=6.40"

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Summary for Subcatchment 6S: FRONT YARD & PARKING LOT

Runoff = 3.00 cfs @ 11.90 hrs, Volume= 0.113 af, Depth> 2.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YEAR Rainfall=6.40"

Area (sf)	CN	Description
10,746	98	PAVEMENT & SIDEWALK
17,699	39	>75% Grass cover, Good, HSG A
28,445	61	Weighted Average
17,699		62.22% Pervious Area
10,746		37.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	60	0.0300	1.26		Sheet Flow, ACROSS PAVEMENT TO SWALE Smooth surfaces n= 0.011 P2= 2.40"

Summary for Pond 1P: WESTERN EAVE TRENCH

Inflow Area = 0.567 ac, 100.00% Impervious, Inflow Depth > 5.63" for 100-YEAR event
 Inflow = 5.55 cfs @ 11.91 hrs, Volume= 0.266 af
 Outflow = 2.04 cfs @ 12.01 hrs, Volume= 0.266 af, Atten= 63%, Lag= 6.4 min
 Discarded = 2.04 cfs @ 12.01 hrs, Volume= 0.266 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.88' @ 12.01 hrs Surf.Area= 1,434 sf Storage= 2,225 cf

Plug-Flow detention time= 4.9 min calculated for 0.265 af (100% of inflow)
 Center-of-Mass det. time= 4.8 min (730.6 - 725.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,294 cf	Custom Stage Data (Conic) Listed below (Recalc) 5,734 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	1,433	0	0	1,433
4.00	1,434	5,734	5,734	1,970

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area
#2	Primary	3.90'	170.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

47618-Munter-Slack Addition

Type II 24-hr 100-YEAR Rainfall=6.40"

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Discarded OutFlow Max=2.03 cfs @ 12.01 hrs HW=3.82' (Free Discharge)

↳1=Exfiltration (Exfiltration Controls 2.03 cfs)

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

↳2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 2P: CENTER EAVE TRENCH

Inflow Area = 0.587 ac, 100.00% Impervious, Inflow Depth > 5.63" for 100-YEAR event
 Inflow = 5.93 cfs @ 11.90 hrs, Volume= 0.275 af
 Outflow = 2.57 cfs @ 11.99 hrs, Volume= 0.275 af, Atten= 57%, Lag= 5.5 min
 Discarded = 2.57 cfs @ 11.99 hrs, Volume= 0.275 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1.92' @ 11.99 hrs Surf.Area= 2,153 sf Storage= 1,654 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 2.4 min (727.7 - 725.4)

Volume	Invert	Avail. Storage	Storage Description
#1	0.00'	3,446 cf	Custom Stage Data (Conic) Listed below (Recalc) 8,614 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	2,153	0	0	2,153
4.00	2,154	8,614	8,614	2,811

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area
#2	Primary	3.90'	170.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=2.57 cfs @ 11.99 hrs HW=1.89' (Free Discharge)

↳1=Exfiltration (Exfiltration Controls 2.57 cfs)

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

↳2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 3P: EASTERN EAVE TRENCH

Inflow Area = 0.287 ac, 100.00% Impervious, Inflow Depth > 5.63" for 100-YEAR event
 Inflow = 2.90 cfs @ 11.90 hrs, Volume= 0.134 af
 Outflow = 1.15 cfs @ 12.00 hrs, Volume= 0.134 af, Atten= 60%, Lag= 5.9 min
 Discarded = 1.15 cfs @ 12.00 hrs, Volume= 0.134 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

47618-Munter-Slack Addition

Type II 24-hr 100-YEAR Rainfall=6.40"

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Peak Elev= 3.28' @ 12.00 hrs Surf.Area= 781 sf Storage= 1,023 cf

Plug-Flow detention time= 3.9 min calculated for 0.134 af (100% of inflow)
Center-of-Mass det. time= 3.8 min (729.2 - 725.4)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,249 cf	Custom Stage Data (Conic) Listed below (Recalc) 3,122 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	780	0	0	780
4.00	781	3,122	3,122	1,176

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area
#2	Primary	3.90'	170.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=1.15 cfs @ 12.00 hrs HW=3.26' (Free Discharge)
↑1=Exfiltration (Exfiltration Controls 1.15 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 4P: 4 DRYWELLS

Inflow Area = 1.685 ac, 52.52% Impervious, Inflow Depth > 2.88" for 100-YEAR event
Inflow = 9.82 cfs @ 11.95 hrs, Volume= 0.404 af
Outflow = 3.39 cfs @ 12.07 hrs, Volume= 0.404 af, Atten= 66%, Lag= 7.0 min
Discarded = 3.39 cfs @ 12.07 hrs, Volume= 0.404 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 8.80' @ 12.07 hrs Surf.Area= 2,392 sf Storage= 5,131 cf

Plug-Flow detention time= 13.4 min calculated for 0.402 af (100% of inflow)
Center-of-Mass det. time= 13.3 min (801.0 - 787.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	4,802 cf	10.00'D x 10.00'H Vertical Cone/Cylinder Z=1.0 x 4 13,614 cf Overall - 1,608 cf Embedded = 12,005 cf x 40.0% Voids
#2	1.00'	1,608 cf	8.00'D x 8.00'H Vertical Cone/Cylinder x 4 Inside #1
		6,411 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=3.36 cfs @ 12.07 hrs HW=8.74' (Free Discharge)
↑1=Exfiltration (Exfiltration Controls 3.36 cfs)

47618-Munter-Slack Addition

Type II 24-hr 100-YEAR Rainfall=6.40"

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Summary for Pond 5P: 2 DRYWELLS

Inflow Area = 0.838 ac, 39.44% Impervious, Inflow Depth > 2.15" for 100-YEAR event
 Inflow = 3.53 cfs @ 11.97 hrs, Volume= 0.150 af
 Outflow = 1.28 cfs @ 12.09 hrs, Volume= 0.150 af, Atten= 64%, Lag= 7.2 min
 Discarded = 1.28 cfs @ 12.09 hrs, Volume= 0.150 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 7.07' @ 12.09 hrs Surf.Area= 916 sf Storage= 1,736 cf

Plug-Flow detention time= 11.5 min calculated for 0.150 af (100% of inflow)
 Center-of-Mass det. time= 11.4 min (813.5 - 802.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,401 cf	10.00'D x 10.00'H Vertical Cone/Cylinder Z=1.0 x 2 6,807 cf Overall - 804 cf Embedded = 6,003 cf x 40.0% Voids
#2	1.00'	804 cf	8.00'D x 8.00'H Vertical Cone/Cylinder x 2 Inside #1
		3,205 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=1.28 cfs @ 12.09 hrs HW=7.05' (Free Discharge)
 ←**1=Exfiltration** (Exfiltration Controls 1.28 cfs)

Summary for Pond 6i: EXIST. INFILTRATION SWALE

Inflow Area = 0.653 ac, 37.78% Impervious, Inflow Depth > 2.07" for 100-YEAR event
 Inflow = 3.00 cfs @ 11.90 hrs, Volume= 0.113 af
 Outflow = 2.25 cfs @ 11.95 hrs, Volume= 0.113 af, Atten= 25%, Lag= 3.0 min
 Discarded = 2.02 cfs @ 11.96 hrs, Volume= 0.112 af
 Primary = 0.23 cfs @ 11.95 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.94' @ 11.96 hrs Surf.Area= 390 sf Storage= 615 cf

Plug-Flow detention time= 2.0 min calculated for 0.113 af (100% of inflow)
 Center-of-Mass det. time= 1.9 min (802.5 - 800.6)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	624 cf	2.00'W x 195.00'L x 4.00'H Prismatic 1,560 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area
#2	Primary	3.90'	1.5" x 4.5" Horiz. Orifice/Grate X 18.00 C= 0.600 Limited to weir flow at low heads

47618-Munter-Slack Addition

Type II 24-hr 100-YEAR Rainfall=6.40"

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Discarded OutFlow Max=1.99 cfs @ 11.96 hrs HW=3.85' (Free Discharge)↳ **1=Exfiltration** (Exfiltration Controls 1.99 cfs)**Primary OutFlow** Max=0.21 cfs @ 11.95 hrs HW=3.92' (Free Discharge)↳ **2=Orifice/Grate** (Weir Controls 0.21 cfs @ 0.50 fps)**Summary for Pond 6P: EXIST. DRYWELL**

Inflow Area = 0.653 ac, 37.78% Impervious, Inflow Depth = 0.02" for 100-YEAR event
 Inflow = 0.23 cfs @ 11.95 hrs, Volume= 0.001 af
 Outflow = 0.11 cfs @ 11.98 hrs, Volume= 0.001 af, Atten= 53%, Lag= 1.7 min
 Discarded = 0.11 cfs @ 11.98 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 0.45' @ 11.98 hrs Surf.Area= 93 sf Storage= 16 cf

Plug-Flow detention time= 2.0 min calculated for 0.001 af (100% of inflow)

Center-of-Mass det. time= 2.4 min (719.4 - 717.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	425 cf	10.00'D x 6.00'H Vertical Cone/Cylinder Z=1.0 1,263 cf Overall - 201 cf Embedded = 1,062 cf x 40.0% Voids
#2	1.00'	201 cf	8.00'D x 4.00'H Vertical Cone/Cylinder Inside #1
		626 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	45.000 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.10 cfs @ 11.98 hrs HW=0.39' (Free Discharge)↳ **1=Exfiltration** (Exfiltration Controls 0.10 cfs)

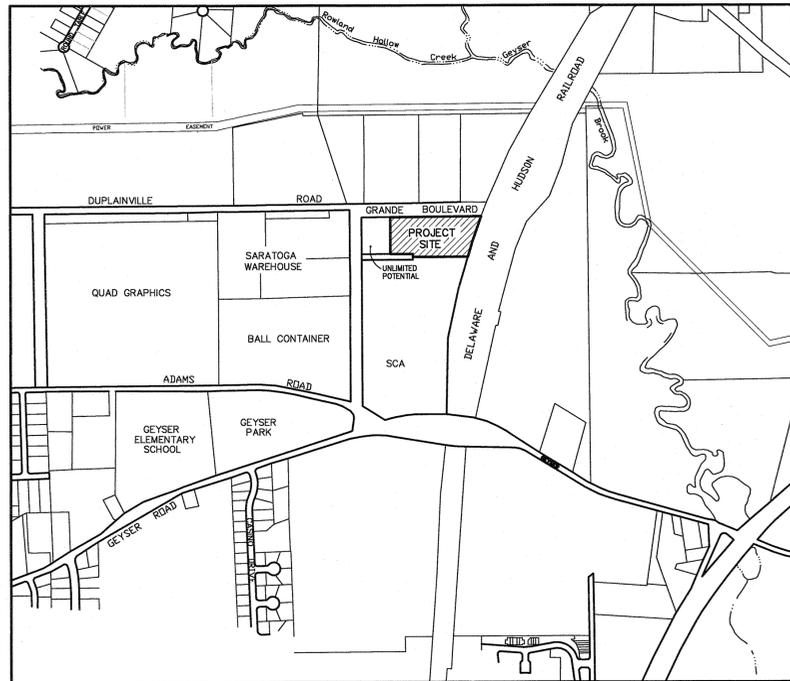


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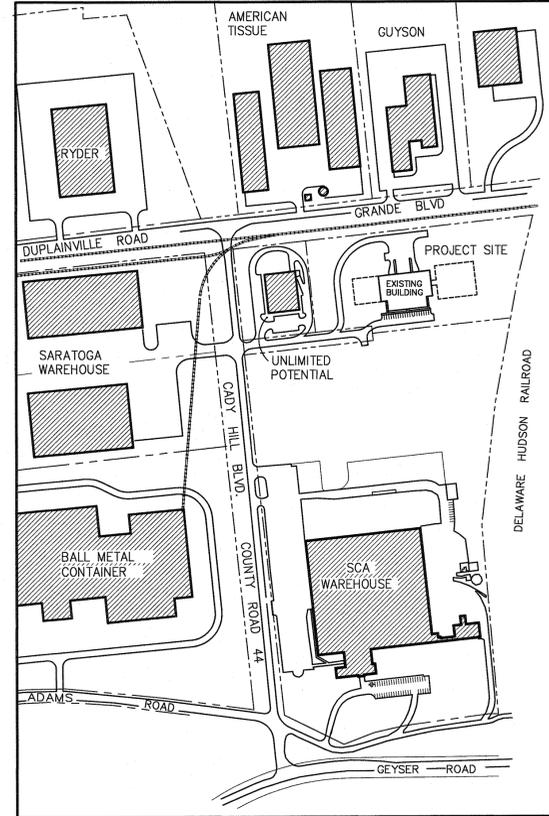
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Queensbury, NY 12804
(518) 745-4400
FAX (518) 792-8511

SLACK CHEMICAL COMPANY EXPANSION
3 Unlimited Drive, City of Saratoga Springs, Saratoga County, New York
Owner/Applicant: Slack Chemical Company
3 Unlimited Drive, Saratoga Springs NY 12866

SITE LOCATION PLAN



Location Plan Scale: 1" = 800'



Vicinity Plan Not to Scale

AREA REQUIREMENTS

	DISTRICT	MINIMUM LOT SIZE	MINIMUM MEAN WIDTH (FEET)	MAXIMUM PERCENTAGE OF LOT TO BE OCCUPIED		MINIMUM YARD DIMENSION (FEET)				PRINCIPAL BUILDINGS		ACCESSORY BUILDINGS MINIMUM DISTANCE TO (FEET)				MINIMUM % OF LOT TO BE PERMEABLE
				PRINCIPAL BUILDING	ACCESSORY BUILDING	FRONT	SIDE	TOTAL SIDE	REAR	MINIMUM 1st FLOOR AREA (SF)	MAXIMUM HEIGHT (FEET)	PRINCIPAL BUILDING	FRONT LOT LINE	SIDE LOT LINE	MINIMUM % OF LOT TO BE PERMEABLE	
REQUIRED	IND-G	40,000 SF	200'	40%	30%	40	15	30	15	-	50	10	40	40	10	30%
EXISTING		301,605 SF	819.1'	8.6%	0	70.1	304.5+263.5	569.6	167.4	26,120 SF	0	-	-	-	-	78.1%
PROPOSED		301,605 SF	819.1'	18.6%	0	70.1	163.5+139.2	302.7	152.4	56,020 sf	-	-	-	-	-	60.1%

SITE STATISTICS

TAX MAP PARCEL - 178.00-1-50.1
ZONING: IND-G - GENERAL INDUSTRIAL
PROPOSED USE: LIGHT INDUSTRIAL
SITE AREA: 6.9 ACRES (301,605 sf)

PROPOSED SITE UTILIZATION

BUILDING AREA: 56,020 sf = 18.6%
PAVEMENTS: 64,103 sf = 21.3%
PERMEABLE AREA: 181,482 sf = 60.1% (30% REQUIRED)

PROPOSED PARKING AND LOADING

-PROPOSED LOADING: 12 LOADING DOCKS AT REAR OF BUILDING PLUS 4 GRADE ACCESS VEHICLE DOORS AT REAR OF BUILDING
-REQUIRED PARKING: 1 per 2 EMPLOYEES (40) = 20 PLUS 1 per COMPANY VEHICLE (3) = 21 REQUIRED TOTAL
PROPOSED PARKING: 23 SPACES
1 ACCESSIBLE PARKING SPACE PROVIDED

NOTES

1. BASE INFORMATION FOR THIS PLAN WAS TAKEN FROM A BOUNDARY AND TOPOGRAPHIC SURVEY PREPARED BY AZIMUTH SURVEYING AND CARTOGRAPHY, JAMES WHITE LAND SURVEYOR, DATED MAY 2, 2005.
2. FOR PROPERTY LINE AND EXISTING CONDITIONS INFORMATION SEE "AS-BUILT 3 UNLIMITED DRIVE" MAP INCLUDED AT THE END OF THIS SET.
3. UTILITY LOCATIONS INDICATED ON THIS PLAN ARE APPROXIMATE. THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS PRIOR TO THE COMMENCEMENT OF WORK. THE CONTRACTOR SHALL VERIFY THE ACCURATE LOCATIONS IN THE FIELD AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
4. THE CONTRACTOR SHALL STAKEOUT ALL PROPOSED WORK, INCLUDING FINISHED GRADE ELEVATIONS, PRIOR TO THE START OF CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES. THE CONTRACTOR SHALL NOT PROCEED WITH THE WORK UNTIL THE STAKEOUT HAS MET THE SATISFACTION OF THE ENGINEER AND THE OWNER.
5. THE CONTRACTOR SHALL PROTECT EXISTING PAVEMENTS AND IMPROVEMENTS TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.

CITY OF SARATOGA SPRINGS STANDARD NOTES

1. ALL WORK MUST CONFORM TO ALL FEDERAL, STATE AND CITY CODES, SPECIFICATIONS, ORDINANCES, RULES AND REGULATIONS.
2. THE ELEVATION BASE FOR THE CONTOURS AND BENCHMARKS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM, 1929.
3. ALL REFUSE, DEBRIS AND MISCELLANEOUS ITEMS TO BE REMOVED SHALL BE LEGALLY DISPOSED OF OFF-SITE BY THE CONTRACTOR TO A LOCATION APPROVED BY THE CITY ENGINEER.
4. THE CONTRACTOR MUST SET UP A PRE-CONSTRUCTION MEETING WITH THE CITY ENGINEER PRIOR TO ANY CONSTRUCTION. CONSTRUCTION INSPECTIONS BY THE DESIGN PROFESSIONAL ARE REQUIRED. THE COST OF THE CONSTRUCTION INSPECTIONS IS THE RESPONSIBILITY OF THE APPLICANT/DEVELOPER.
5. THE CONTRACTOR MUST OBTAIN A BLASTING PERMIT FROM THE BUILDING INSPECTOR IF ANY BLASTING IS REQUIRED FOR THE PROJECT.
6. THE CONTRACTOR MUST OBTAIN A STREET OPENING PERMIT ISSUED BY THE DEPARTMENT OF PUBLIC WORKS FOR ANY WORK IN THE STREET OR RIGHT-OF-WAY OF ANY CITY STREET ROAD OR ALLEY.
7. ALL POINTS OF CONSTRUCTION INGRESS OR EGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT OR DEBRIS ONTO A PUBLIC ROAD.
8. A CERTIFICATE OF OCCUPANCY CANNOT BE ISSUED UNTIL ALL SITE WORK IS COMPLETED IN ACCORDANCE WITH THE APPROVED PLANS; AND AN AS-BUILT DRAWING HAS BEEN PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY ENGINEER.

NOTICE
CALL BEFORE YOU DIG
DIG SAFELY NEW YORK
1-800-962-7962
48 HOURS NOTICE REQUIRED

LIST OF DRAWINGS

- SP-1 SITE LOCATION PLAN AND SITE DATA
 - SP-2 SITE LAYOUT PLAN
 - SP-3 SITE GRADING AND DRAINAGE PLAN
 - SP-4 EROSION AND SEDIMENT CONTROL PLAN
- AS-BUILT - 3 UNLIMITED DRIVE

Planning Board No. 16.0

APPROVED UNDER AUTHORITY OF A RESOLUTION ADOPTED BY THE PLANNING BOARD OF THE CITY OF SARATOGA SPRINGS

DATE SIGNED _____ CHAIRMAN

Date: October 24, 2016

Revisions

SP-1

SHEET 1 OF 4

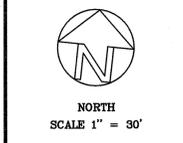


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CIVIL ENGINEERS

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(518) 745-4400
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SLACK CHEMICAL COMPANY EXPANSION
3 Unlimited Drive, City of Saratoga Springs, Saratoga County, New York
Owner/Applicant: Slack Chemical Company
3 Unlimited Drive, Saratoga Springs NY 12866

SITE LAYOUT PLAN

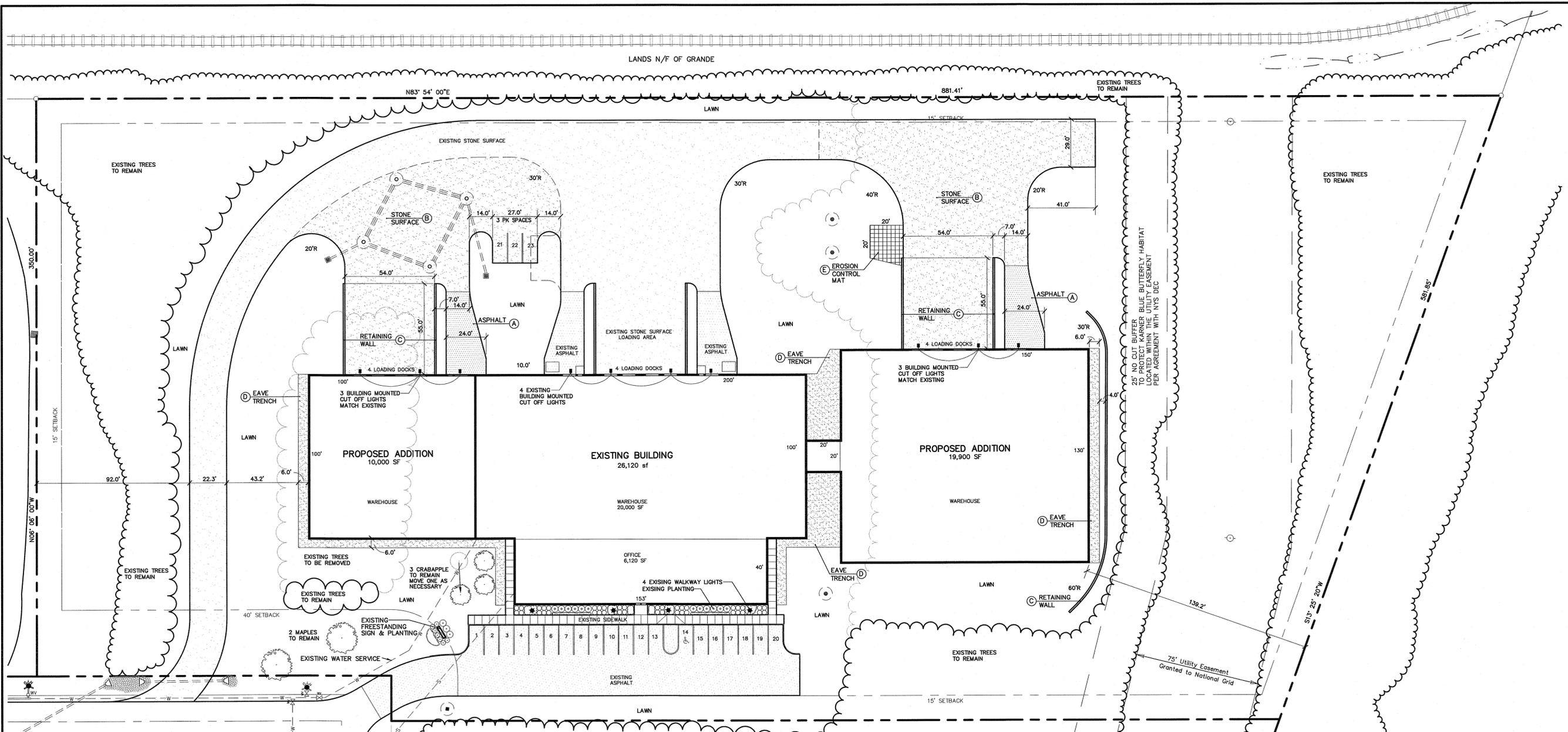


Date: October 24, 2016

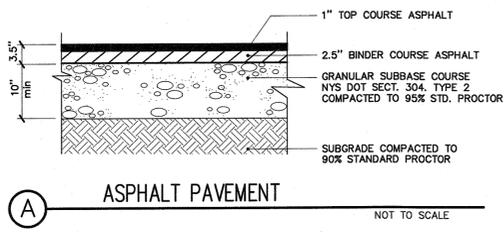
Revisions

APPROVED UNDER AUTHORITY OF A RESOLUTION ADOPTED BY THE PLANNING BOARD OF THE CITY OF SARATOGA SPRINGS

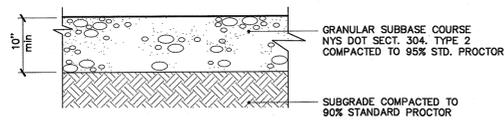
SP-2
SHEET 2 OF 4



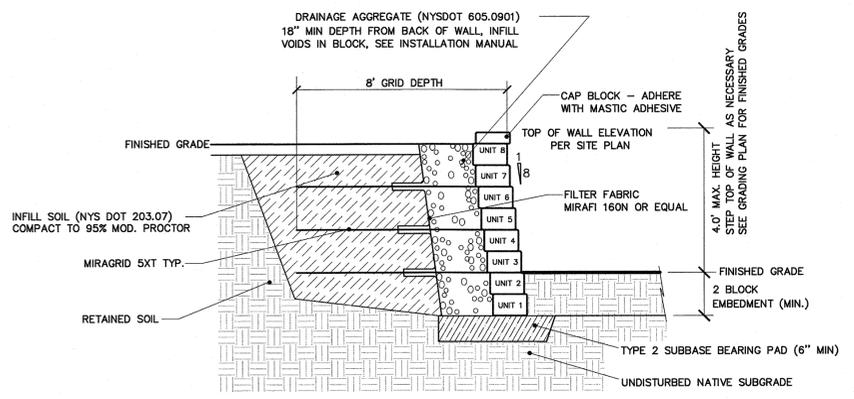
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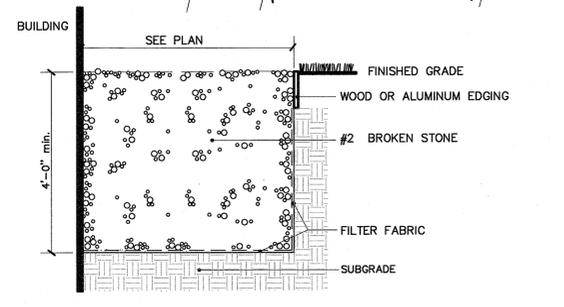
(A) ASPHALT PAVEMENT
NOT TO SCALE



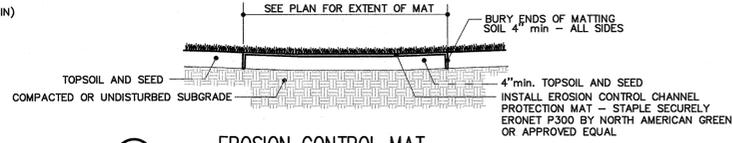
(B) STONE SURFACE
NOT TO SCALE



(C) SEGMENTAL RETAINING WALL
NOT TO SCALE



(D) EAVE TRENCH DETAIL
NOT TO SCALE



(E) EROSION CONTROL MAT
NOT TO SCALE

- Legend**
- EXISTING TREELINE
 - TREES TO BE CLEARED
 - EXISTING TREES
 - EXISTING SEWER MANHOLE
 - EXISTING SEWER MAIN
 - PROPERTY LINE
 - EXISTING HYDRANT
 - EXISTING WATER VALVE
 - EXISTING WATER MAIN
 - DETAIL SYMBOL
 - GRADING LIMIT LINE
 - LIMITS OF CONSTRUCTION

Planning Board No. 16.0

APPROVED UNDER AUTHORITY OF A RESOLUTION ADOPTED BY THE PLANNING BOARD OF THE CITY OF SARATOGA SPRINGS

CHAIRMAN
DATE SIGNED _____



Miller Associates
LANDSCAPE ARCHITECTS

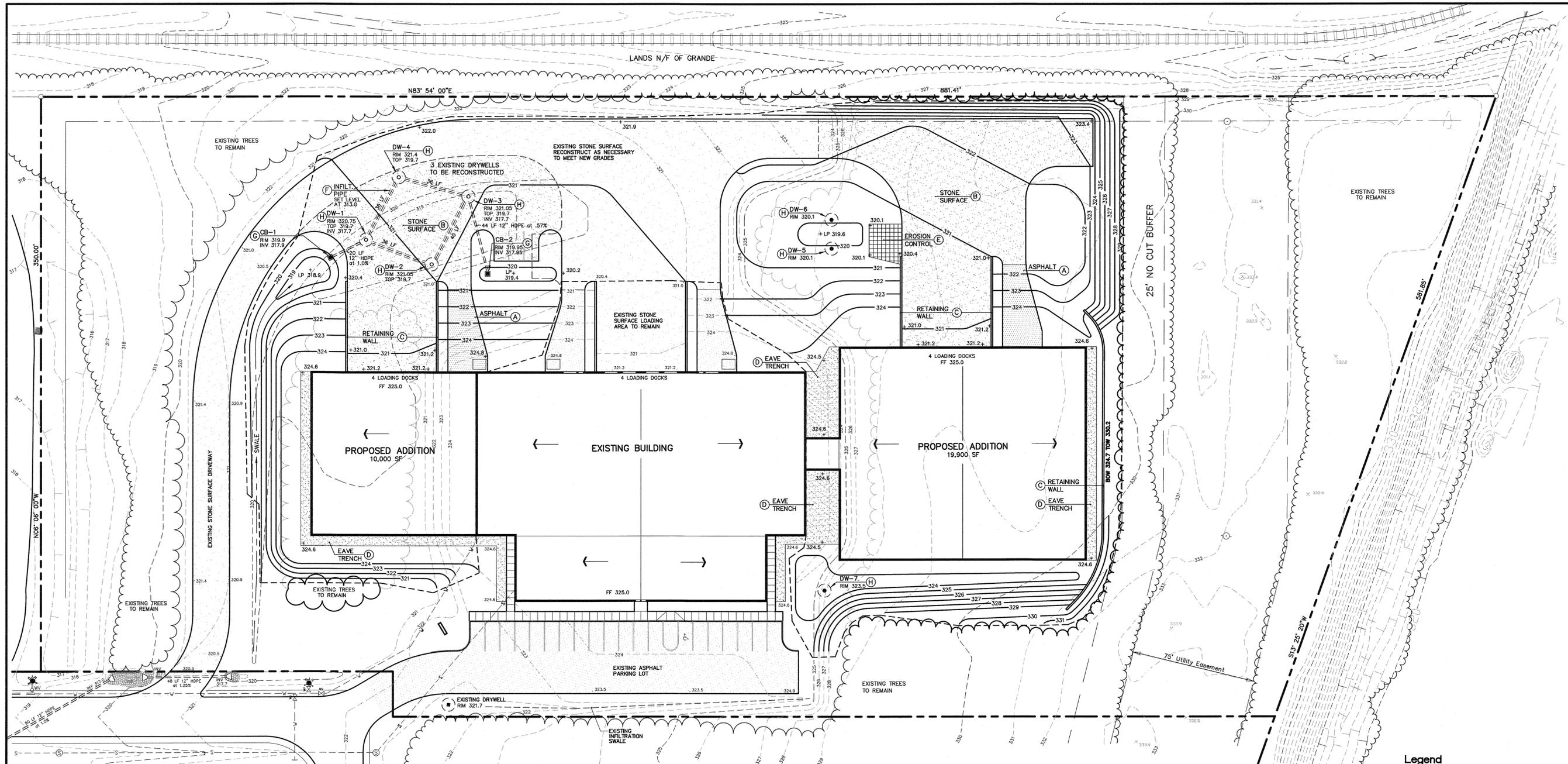
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SLACK CHEMICAL COMPANY EXPANSION
3 Unlimited Drive, City of Saratoga Springs, Saratoga County, New York

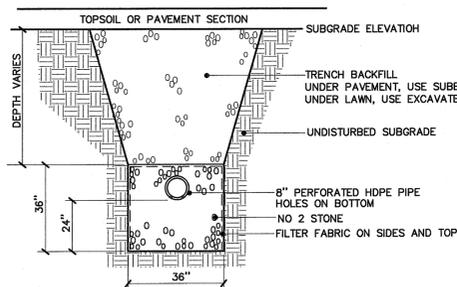
Owner/Applicant: Slack Chemical Company
3 Unlimited Drive, Saratoga Springs NY 12866

GRADING AND DRAINAGE PLAN

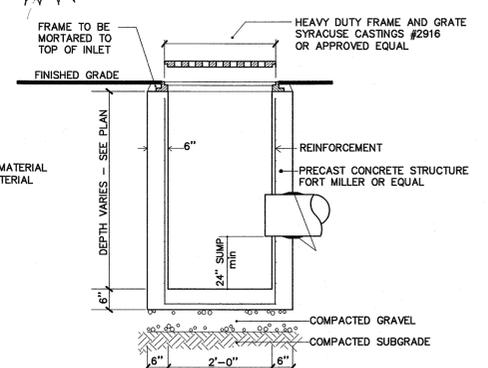


Legend

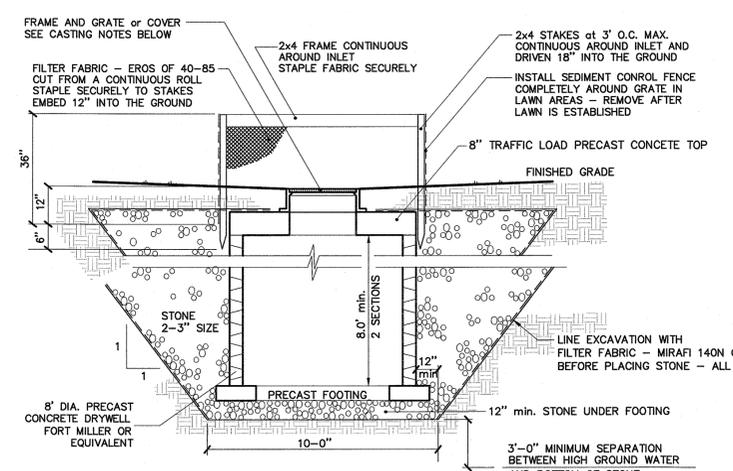
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- TREES TO BE CLEARED
- EXISTING TREES
- EXISTING SEWER MANHOLE
- EXISTING SEWER MAIN
- PROPERTY LINE
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING WATER MAIN
- DETAIL SYMBOL
- EXISTING CONTOUR LINE
- NEW FINISHED GRADE CONTOUR LINE
- EXISTING SPOT ELEVATION
- NEW FINISHED SPOT ELEVATION
- GRADING LIMIT LINE
- LIMITS OF CONSTRUCTION



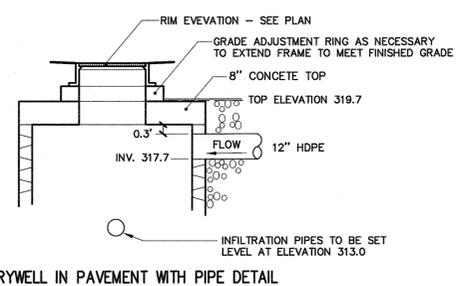
F INFILTRATION PIPE DETAIL
NOT TO SCALE



G CATCH BASIN - SQUARE
NOT TO SCALE



H 8' X 8' DEEP DRYWELL
NOT TO SCALE



DRYWELL IN PAVEMENT WITH PIPE DETAIL

CASTING NOTES
DRYWELLS NO. 1-4 TO RECEIVE A FRAME AND COVER NENNAH FOUNDRY MODEL R-1795-F OR APPROVED EQUAL
DRYWELLS NO. 5-7 TO RECEIVE A FRAME AND GRATE NENNAH FOUNDRY MODEL R-2554 OR APPROVED EQUAL

Planning Board No. 16.0

APPROVED UNDER AUTHORITY OF A RESOLUTION ADOPTED BY THE PLANNING BOARD OF THE CITY OF SARATOGA SPRINGS

DATE SIGNED _____ CHAIRMAN

Date: October 24, 2016

Revisions

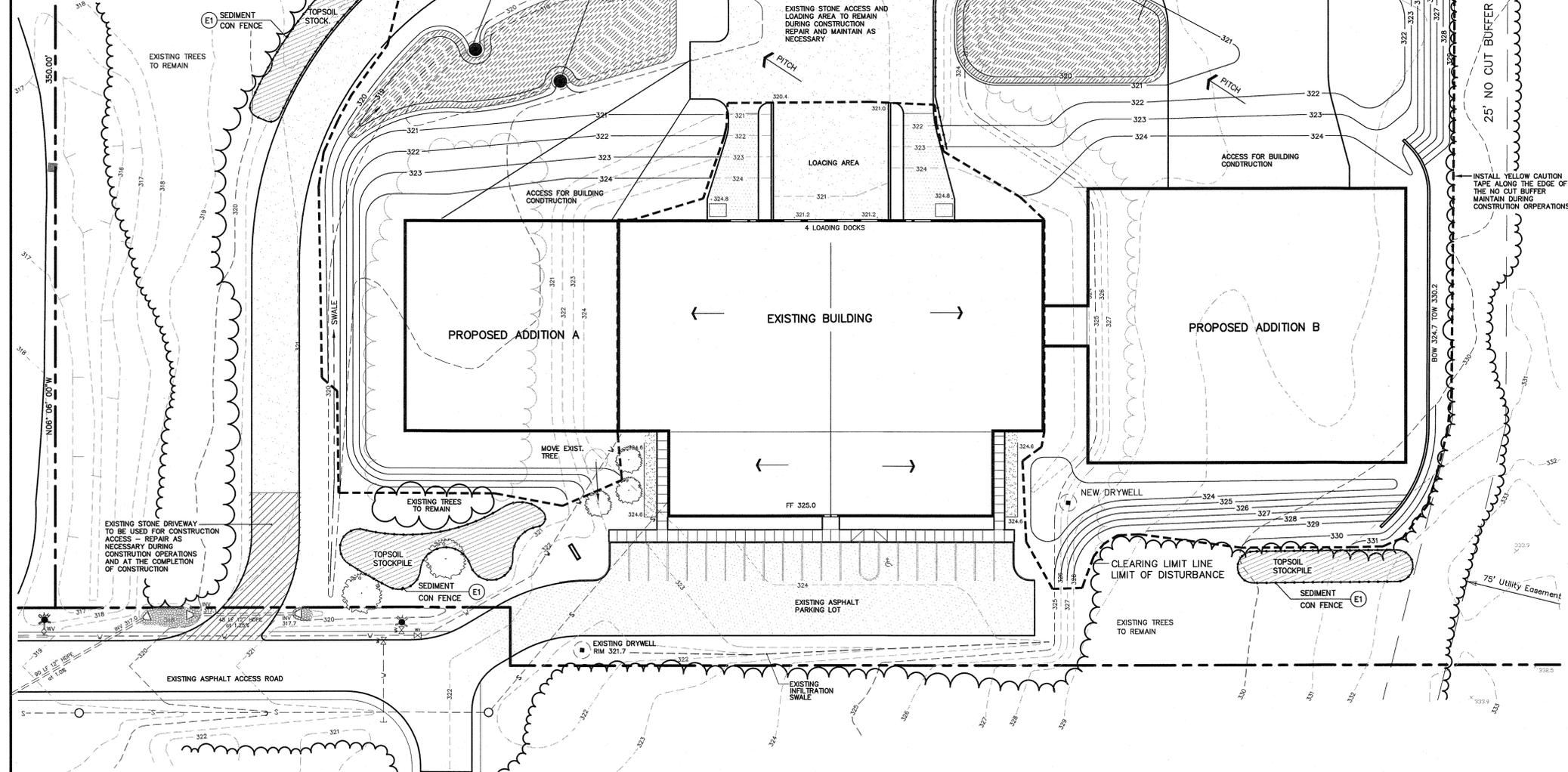
SP-3
SHEET 3 OF 4

LEGEND

- 93 --- EXISTING CONTOUR
- 309 --- PROPOSED CONTOUR
- SEDIMENT CONTROL FENCE
- TREE LINE - LIMITS OF CLEARING

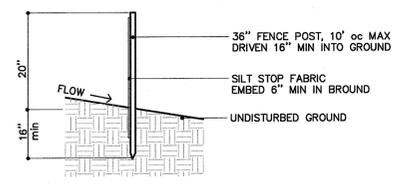
TEMPORARY SEDIMENT TRAP
 GRADE THE TEMPORARY SEDIMENT TRAP (BASIN) TO THE SIZE INDICATED TO COLLECT RUNOFF AND SEDIMENT FROM THE CONSTRUCTION SITE. REMOVE THE SEDIMENT TRAPS AND COLLECTED SEDIMENT WHEN PERMANENT STORMWATER BASINS ARE INSTALLED.

--- LIMITS OF DISTURBANCE

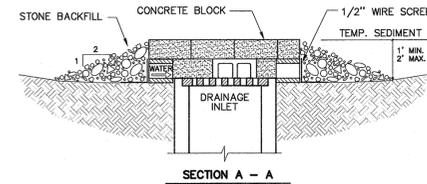


CONSTRUCTION SPECIFICATION

1. WOVEN WIRE FENCE TO BE FASTENED TO FENCE WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X STABILINKA T140N OR APPROVED EQUAL.
4. PREFABRICATED UNITS SHALL BE GEOTAB, ENVIROFENCE OR APPROVED EQUAL.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

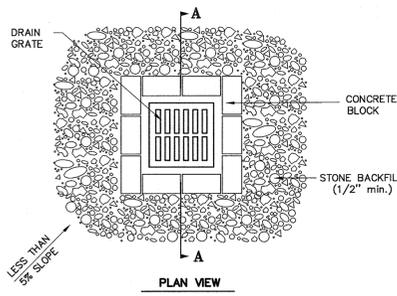


E1 SEDIMENT CONTROL FENCE
NOT TO SCALE



- NOTES:**
1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MIN. BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
 2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
 3. USE CLEAN STONE OR GRAVEL 1/2 - 3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 OR FLATTER SLOPE.

E2 STONE & BLOCK INLET PROTECTION
NOT TO SCALE



PLAN VIEW

EROSION CONTROL IMPLEMENTATION SCHEDULE		
PRACTICE	IMPLEMENTATION TIME	DURATION OF PRACTICE
SEDIMENT CONTROL FENCE	PRIOR TO CLEARING AND SOIL DISTURBANCE	ENTIRE PROJECT (REMOVE AFTER FINAL SITE STABILIZATION AND VEGETATION ESTABLISHMENT)
INLET PROTECTION	PRIOR TO INITIAL SOIL DISTURBANCE	ENTIRE PROJECT (REMOVE PRIOR TO FINAL DRIVEWAY FINISHING)
SEDIMENT TRAP	DURING INITIAL SITE GRADING & EXCAVATION	UNTIL FINAL SITE GRADING AND CONSTRUCTION OF STORMWATER BASINS
TEMPORARY SEEDING & MULCHING	AFTER INITIAL SITE GRADING	UNTIL FINAL GRADING AND VEGETATION ESTABLISHMENT
DRYWELLS AND INFILTRATION SWALES	AFTER FINAL SITE GRADING	PERMANENT
SEEDING & OTHER VEGETATION STABILIZATION	AFTER FINAL SITE GRADING	PERMANENT

NOTE: EROSION AND SEDIMENT CONTROLS DEPICTED HEREON ARE INTENDED TO PROVIDE A GENERAL UNDERSTANDING OF THE REQUIRED WORK. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED DURING CONSTRUCTION AND WILL BE EMPLOYED AS NECESSARY TO PREVENT EROSION AND SEDIMENTATION FROM DISCHARGING OFF SITE.

S.W.P.P. REQUIREMENTS

1. THE CONTRACTOR UNDERTAKING SITE CONSTRUCTION OF THIS PROJECT MUST SIGN THE CERTIFICATION IN THE SWPPP AND BE FAMILIAR WITH ALL REQUIREMENTS OF THE SWPPP AND REQUIREMENTS OF THE NYS DEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY - PERMIT No. GP-0-10-001.
2. THE CONTRACTOR IS SOLELY RESPONSIBLE TO COMPLY WITH THE TERMS OF THE NYS DEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY - PERMIT No. GP-0-10-001. COPIES OF THE GENERAL PERMIT ARE AVAILABLE BY CALLING DEC (518) 402-8109 AND ON LINE.
3. A NOTICE OF INTENT (NOI) MUST BE SUBMITTED TO DEC PRIOR TO INITIATING WORK.
4. THE SWPPP INCLUDES INFORMATION ON ALL DRAWINGS SP-1 TO SP-4 AND THE STORMWATER MANAGEMENT REPORT.
5. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL HAVE THE ENGINEER CONDUCT AN ASSESSMENT OF THE SITE AND CERTIFY IN AN INSPECTION REPORT THAT THE APPROPRIATE EROSION AND SEDIMENT CONTROLS HAVE BEEN ADEQUATELY INSTALLED. FOLLOWING COMMENCEMENT OF CONSTRUCTION, THE ENGINEER SHALL MAKE WEEKLY SITE INSPECTIONS AND INSPECTIONS AND PREPARE A REPORT AS REQUIRED BY THE GP-0-10-001. THE CONTRACTOR SHALL IMMEDIATELY REVIEW THE ENGINEER'S REPORT AND ADDRESS ALL ITEMS REQUIRING ATTENTION.
6. THE CONTRACTOR SHALL MAINTAIN A RECORD OF ALL INSPECTION REPORTS IN A SITE LOG BOOK, MAINTAINED ON SITE AND AVAILABLE TO THE PERMITTING AUTHORITY UPON REQUEST.
7. AT COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL PERFORM A FINAL INSPECTION TO CERTIFY THAT THE SITE HAS UNDERGONE FINAL STABILIZATION AND THAT ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS HAVE BEEN REMOVED. UPON CERTIFICATION OF COMPLETION A NOTICE OF TERMINATION (NOT) SHALL BE SUBMITTED TO NYS DEC.

MAINTENANCE

1. SEDIMENT SHALL BE REMOVED FROM SEDIMENT TRAPS WHENEVER THEIR CAPACITY HAS BEEN REDUCED BY 50%.
2. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSPECTED WITHIN 24 HOURS OF A STORM EVENT AND REPAIRED AND/OR MODIFIED AS REQUIRED TO BE GOOD WORKABLE CONDITION.
3. THE CONTRACTOR SHALL CONDUCT AN INSPECTION OF THE SITE ON A DAILY BASIS TO COLLECT LITTER AND CONSTRUCTION DEBRIS AND DISPOSE OF LEGALLY.
4. ANY STOCKPILES OF FILL, TOPSOIL, EXCAVATED MATERIAL SHALL BE COVERED OR CONTAINED BY SEDIMENT CONTROL FENCE TO PREVENT EROSION.

STABILIZATION

1. THE CONTRACTOR SHALL INITIATE STABILIZATION MEASURES AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS.
2. STABILIZATION OF GRASS AREAS INCLUDES HYDROSEEDING USING TACKIFIER ON SLOPES OVER 5:1 OR SEEDING AND INSTALLING A CONTINUOUS COVER OF STRAW MULCH WATERED INTO PLACE.
3. AREAS TO BE STABILIZED BY SEEDING SHALL BE SEEDED WITH AN ANNUAL RYEGRASS MIX OR OTHER APPROVED MIX, AT A RATE OF 5lbs PER 1000 sf, STARTER FERTILIZER (5-10-5) AT 40LBS PER 1,000 sf AND MULCHED WITH 3" MIN. STRAW OR HYDROSEEDED.

CONSTRUCTION SEQUENCING

1. THE PROJECT SITE IS TO BE DEVELOPED IN ONE PHASE.
2. THE LIMITS OF CLEARING AND GRADING SHALL BE STAKED BY A LAND SURVEYOR.
3. THE CONTRACTOR SHALL USE THE EXISTING STONE DRIVEWAY FOR THE CONSTRUCTION ROAD ENTRANCE. THE STONE DRIVEWAY MUST BE MAINTAINED AND REPAIRED AS NECESSARY DURING CONSTRUCTION AND AT THE END OF CONSTRUCTION.
4. THE CONTRACTOR SHALL CLEAR THE SITE AND REMOVE TIMBER AND DEBRIS.
5. PRIOR TO THE START OF GRADING OPERATIONS, THE CONTRACTOR SHALL INSTALL SEDIMENT CONTROL FENCING AND TEMPORARY INLET PROTECTION AS INDICATED.
6. THE CONTRACTOR SHALL COMPLETE GRUBBING OPERATIONS AND REMOVE STUMPS FROM THE SITE. TOPSOIL TO BE STRIPPED AND STOCKPILED FOR REUSE. EXCESS TOPSOIL IS TO BE REMOVED FROM THE SITE ASAP.
7. TEMPORARY SEDIMENT TRAP "A" SHALL BE GRADED AND COMPLETED TO ACCEPT RUNOFF FROM PROPOSED BUILDING AND PAVEMENT AREAS.
8. THE SITE SHALL BE ROUGH GRADED, CUT AND FILL OPERATIONS SHALL BE COMPLETED TO ESTABLISH ROUGH SUBGRADE ELEVATIONS. FILL SHALL BE PLACED IN LOW AREA AS INDICATED ON THE GRADING PLAN AND COMPACTED. THE SUBGRADE FOR BUILDING ADDITION "A" SHALL BE ESTABLISHED AND SURROUNDING SITE AREA GRADED TO ESTABLISH FINAL SUBGRADE ELEVATIONS.
9. INSTALL YELLOW CAUTION TAPE ALONG THE CLEARING/GRADING LIMITS ON THE EAST SIDE OF THE SITE ALONG THE NO CUT BUFFER AREA.
10. TEMPORARY SEDIMENT TRAP "B" IS TO BE GRADED TO ACCEPT STORMWATER RUNOFF FROM PROPOSED BUILDING AND PAVEMENT AREAS. THE TEMPORARY SEDIMENT TRAPS SHALL BE SEEDED WITH PERENNIAL RYEGRASS AT 5 lbs. PER 1,000 SF.
11. THE EAST SIDE OF THE SITE SHALL BE ROUGH GRADED. CUT OPERATIONS SHALL BE COMPLETED TO ESTABLISH ROUGH SUBGRADE ELEVATIONS. THE SUBGRADE FOR BUILDING ADDITION "B" SHALL BE ESTABLISHED AND SURROUNDING SITE AREA GRADED TO ESTABLISH FINAL SUBGRADE ELEVATIONS. INSTALL THE RETAINING WALL ON THE EAST SIDE. EXCESS OR UNACCEPTABLE SOIL SHALL BE REMOVED FROM THE SITE ASAP.
12. WHEN SUBGRADE FOR PAVED AREAS ARE COMPLETE AND THE BUILDING ROOFS AND SIDING ARE COMPLETE, THE CONTRACTOR SHALL INSTALL EAVE TRENCHES CATCH BASINS AND DRYWELLS. INSTALL PROTECTION AT INLETS.
13. ALL LAWN AREAS SHALL BE TOPSOILED AND SEEDDED. ALL DISTURBED AREAS SHALL BE SEEDDED OR PLANTED.
14. FOLLOWING COMPLETION ALL PLANTING AND THE ESTABLISHMENT OF ALL GRASS AREAS, REMOVE ANY COLLECTED SEDIMENT AND REMOVE THE SEDIMENT CONTROL. REMOVE ANY DEBRIS FROM THE PERIMETER OF THE SITE AND DISPOSE OF ALL WASTE MATERIAL IN A LEGAL MANNER.

AREA OF DISTURBANCE

SITE AREA: 301,605 SF = 6.9 ACRES
 TOTAL DISTURBANCE: 120,310 sf = 2.8 ACRES
 - NEW BUILDING AREA: 29,900 sf = 0.7 ACRES
 - NEW PAVEMENT AREA: 24,214 sf = 0.6 ACRES

Planning Board No. 16.0

APPROVED UNDER AUTHORITY OF A RESOLUTION ADOPTED BY THE PLANNING BOARD OF THE CITY OF SARATOGA SPRINGS

DATE SIGNED _____ CHAIRMAN



Miller Associates
 LANDSCAPE ARCHITECTS

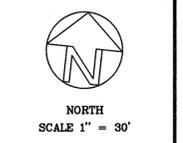
Nace Engineering, PC
 CIVIL ENGINEERS

169 Haviland Road
 Queensbury, NY 12804
 (518) 745-4400
 FAX (518) 792-8511

SLACK CHEMICAL COMPANY EXPANSION
 3 Unlimited Drive, City of Saratoga Springs, Saratoga County, New York

Owner/Applicant: Slack Chemical Company
 3 Unlimited Drive, Saratoga Springs NY 12866

EROSION AND SEDIMENT CONTROL PLAN



Date: October 24, 2016

Revisions

SP-4
 SHEET 4 OF 4



November 21, 2016

Ms. Kate Maynard
Principle Planner
City of Saratoga Springs
474 Broadway, Saratoga Springs, NY 21866

Ms. Maynard

The purpose of this letter is to respond to some of the questions raised as part of the review of our application to expand our building at 3 Unlimited Drive.

My responses/comments are as follows:

The proposed expansion(s) are being built to allow for increased storage of products that are currently in our product line or very similar to those in our product line. There are no production operations planned for the expansion areas.

Although parking areas are shown for employee parking, there are no additional employees anticipated at this time. Employees from our existing 21 Grande Boulevard facility will go to the new warehouse areas as needed for unloading and loading trucks and related intra-facility product transfers.

Any anticipated additional truck movements will be minimal; no more than 1-2 per day. It should be noted that Slack truck outbound movements typically take place in the 4:00 AM-6:00 AM timeframe and the inbound movements typically take place in the 2:00 PM-4:00 PM timeframe; timeframes when the Geysers Road corridor is lightly used.

Any tree removal associated with the East side expansion will be minimal and will be done in such a manner as to have no impact on the Karner Blue habitat under the National Grid power line easement that is located between the existing 3 Unlimited Drive building and the CP Rail depot. It should be noted that Slack Chemical Company has entered into an agreement with the NYS DEC and the U.S. Fish and Wildlife Service to make significant improvements to the existing Karner Blue habitat on the company's 21 Grande Boulevard property as well as the two National Grid power line easements that abut the Slack property on the West and the North.

Thank you for your consideration.

Stuart Field
Manager-Saratoga Division



SARATOGA COUNTY PLANNING BOARD

TOM L. LEWIS
CHAIRMAN

JASON KEMPER
DIRECTOR

November 21, 2016

Kate Maynard, Principal Planner
City of Saratoga Springs
City Hall 474 Broadway
Saratoga Springs, NY 12866

RE: SCPB Referral Review#16-197-Site Plan Review-Slack Chemical Co.
29,900 s.f. expansion on east and west ends of existing
warehousing/manufacturing facility (of 26,120 s.f.) for truck docks and
associated site work on a 6.3-acre site
Unlimited Drive off CR# 44 & 46 within Grande Industrial Park

Received from the City of Saratoga Springs Zoning Board of Appeals on
October 26, 2016.

Reviewed by the Saratoga County Planning Board on November 17, 2016.

Decision: Approve

Comment: The SCPB recognizes the proposed expansion as being planned within the original application and city approval. We note that the site plan proposes an increase in the site's impervious surface by 18% (w/40% being building and pavement). Plans indicate that the addition will not affect, but will follow the initial drainage patterns and that the existing facilities will be utilized and maintained.

A handwritten signature in purple ink that reads "Michael Valentine".

Michael Valentine, Senior Planner
Authorized Agent for Saratoga County

DISCLAIMER: Recommendations made by the Saratoga County Planning Board on referrals and subdivisions are based upon the receipt and review of a "full statement of such proposed action" provided directly to SCPB by the municipal referring agency as stated under General Municipal Law section 239. A determination of action is rendered by the SCPB based upon the completeness and accuracy of information presented by its staff. The SCPB cannot be accountable for a decision rendered through incomplete or inaccurate information received as part of the complete statement.

November 21, 2016

Mr. John Munter
Munter Enterprises, Inc.
881 Murray Road
Middle Grove, NY 12850

RE: Traffic Evaluation, Slack Chemical Company Expansion, WJ Grande Industrial Park, City of Saratoga Springs, Saratoga County, New York: CM Project 112-210

Dear Mr. Munter:

Creighton Manning Engineering, LLP (CM) has conducted a traffic assessment for the expansion of the *Slack Chemical Company* facility currently located in a 26,120 square foot (SF) building at 3 Unlimited Drive (southeast quadrant of the Cady Hill Boulevard/Grande Boulevard/Duplainville Road intersection) within the *WJ Grande Industrial Park*. The proposed project consists of a 29,990 SF expansion of the current facility in two attached structures. Access to the site will be maintained from Unlimited Drive via Cady Hill Boulevard.

A. Traffic Forecasts & Assessment

Site Generated Traffic

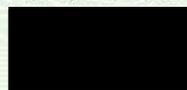
Trip generation determines the quantity of traffic expected to travel to/from a project site. The Institute of Transportation Engineers (ITE) *Trip Generation, 9th edition*, provides trip generation data for various land uses based upon studies of similar existing developments located across the country. Morning and afternoon peak hour trips were estimated for the proposed expansion using ITE land use code 150 for Warehousing as shown in Table 1. Table 1 also shows the trip generation at the existing 26, 120 SF facility to provide a summary of the peak hour trips for the total site after the expansion is complete.

Table 1 – Trip Generation Summary

Land Use	AM Peak Hour			PM Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
26,120 SF Existing Facility	6	2	8	2	6	8
29,990 SF Proposed Expansion (New Trips)	7	2	9	2	8	10
Total Trips	13	4	17	4	14	18

The trip generation summary shown in Table 1 indicates that expanded *Slack Chemical Company* facility will generate a total of 17 AM peak hour vehicle trips (13 entering and 4 exiting) and a total of 18 PM peak hour vehicle tips (4 entering and 14 exiting). The increase in peak hour traffic when compared to the current site traffic will be 9 AM peak hour vehicle trips (7 entering and 2 exiting) and 10 PM peak hour vehicle trips (2 entering and 8 exiting). The increase in trips equates to approximately one additional vehicle every six minutes during the peak hours and represents a level of change that is minor and will likely be unnoticed.

Previously collected traffic volume data by CM within the Industrial Park has indicated that volumes within the park on Cady Hill Boulevard are relatively low. Traffic counts conducted by



the New York State Department of Transportation (NYSDOT) on Cady Hill Boulevard in 2012 show two directional AM peak hour volumes of approximately 330 vehicles and PM peak hour volumes of 170 vehicles. The low traffic volumes illustrate that capacity exists to handle the traffic volumes associated with growth and occupancy of the vacant lands in the park; therefore, the additional traffic volumes generated by the proposed expansion of the *Slack Chemical Company* can be accommodated for by the existing roadway network in the Industrial Park. It is further noted that the magnitude of site generated traffic does not meet the 100 vehicle trip threshold established by ITE and the New York State Department of Transportation (NYSDOT) for requiring a detailed traffic impact assessment. This guidance was developed as a tool to identify locations where the magnitude of traffic generated has the potential to impact operations at off-site intersections and screen out locations from requiring detailed analysis that do not reach the 100 vehicle threshold and are unlikely to require mitigation. Based on the low trip generation, the low traffic volumes within the Industrial Park, and industry guidelines, detailed intersection analysis is not needed and the site traffic will be adequately serviced by the existing roadway network.

Industrial Park Volumes

Based on an evaluation of the worst case PM peak hour traffic volumes within the *WJ Grande Industrial Park* completed in September of 2014 by CM, the existing two-way traffic on Cady Hill Boulevard is 361 vehicles (based on traffic counts and additional volume from approved developments). An increase of 10 PM peak hour trips associated with the proposed expansion, traffic volumes on Cady Hill Boulevard will increase to 371 vehicles during the PM peak hour

The existing and anticipated future PM peak hour traffic volumes on Cady Hill Boulevard remain below the Capital District Transportation Committee (CDTC) level of service D threshold of 1,250 vehicles (625 vehicles per direction) for local roadways. Based on the above evaluation, Cady Hill Boulevard will continue to operate with traffic volumes below their capacity.

Adjacent Roadway Network

In previous studies conducted for businesses within the *WJ Grande Industrial Park*, the City identified concerns related to the NY Route 50/Geyser Road intersection. Improvements at this intersection and along Geyser Road are currently planned by the NYSDOT as part of three projects: *Geyser Road Safe Routes to School* (PIN 1759.59), *Geyser Road Bicycle/Pedestrian Trail* (PIN 1760.11), and *Geyser Road/Route 50 Intersection Improvements* (PIN 1759.83). The scope of these three projects includes the following:

- Constructing sidewalk connections related to the *Geyser Road Elementary School* including a signalized pedestrian crossing adjacent to the school (PIN 1759.59).
- Constructing pedestrian/bicycle accommodations from the Milton Town Line to the NY Route 50/Geyser Road intersection via a multi-use trail or sidewalk. This project includes a new traffic signal with pedestrian accommodations (push buttons and count down timers) at the Geyser Road/Cady Hill Boulevard intersection (PIN 1760.11).
- Improvements at the NY Route 50/Geyser Road intersection to include a new traffic signal with pedestrian accommodations (push buttons and count down timers) across Geyser Road and widening of Geyser Road to include a separate left-turn lane (PIN 1759.83).

The complete construction of these three projects will result in improved operations for pedestrians, bicyclists, and vehicles in the study area.

A review of available traffic volume data indicates that the traffic volumes generated by the proposed site represent less than one percent of the peak hour traffic at the NY Route 50/Geyser Road intersection which serves approximately 1,600 vehicles during the AM peak hour and 2,100 vehicles during the PM peak hour (based on 2012 traffic counts). Although site traffic at this intersection will benefit from improvements at the NY Route 50/Geyser Road intersection, they are not warranted or recommended as a result of the proposed expansion of the *Slack Chemical Company* facility within the Industrial Park.

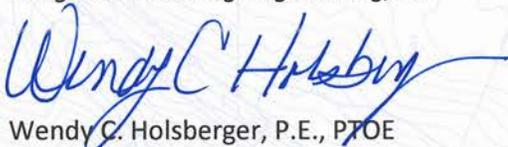
B. Conclusions

The proposed project consists of the expansion of the *Slack Chemical Company* facility currently located in a 26,120 SF building at 3 Unlimited Drive within the *WJ Grande Industrial Park*. The proposed project will consist of a 29,990 SF expansion of the current facility in two attached structures. Access to the site will be maintained from Unlimited Drive via Cady Hill Boulevard. The following is noted:

- The expansion of the *Slack Chemical Company* facility will generate an additional 9 vehicle trips during the AM peak hour and 10 vehicle trips during the PM peak hour, resulting in a total of approximately 17 AM peak hour trips and 18 PM peak hour trips traveling to and from the site. The increase in trips equates to approximately one additional vehicle every six minutes during the peak hours and represents a level of change that is minor and will likely be unnoticed.
- The existing and anticipated future PM peak hour traffic volumes on Cady Hill Boulevard will remain below the CDTC level of service D threshold of 1,250 vehicles (625 vehicles per direction) for local roadways indicating that the roadways within the Industrial Park will continue to operate with traffic volumes below their capacity.

If you have any questions, or if we can be of any further service, please do not hesitate to call our office.

Respectfully submitted,
Creighton Manning Engineering, LLP



Wendy C. Holsberger, P.E., PTOE
Associate



CITY OF SARATOGA SPRINGS

ZONING BOARD OF APPEALS

□
CITY HALL - 474 BROADWAY
SARATOGA SPRINGS, NEW YORK 12866
PH) 518-587-3550 FX) 518-580-9480
WWW.SARATOGA-SPRINGS.ORG

Bill Moore, *Chair*
Keith B. Kaplan, *Vice Chair*
Adam McNeill, *Secretary*
Gary Hasbrouck
George "Skip" Carlson
James Helicke
Susan Steer
Cheryl Grey, *alternate*
Oksana Ludd, *alternate*

November 9, 2016

Mark Torpey, Chair
Planning Board
City Hall - 474 Broadway
Saratoga Springs, NY 12866

Re: Recommendation request for Southern Subdivision – i 24 York Avenue

Dear Mark,

On November 7, 2016 the Zoning Board of Appeals (ZBA) heard the following application:

#2925 SOUTHERN SUBDIVISION, 124 York Avenue, area variance associated with a proposed two lot residential subdivision; seeking relief from the minimum lot size and minimum average lot width requirements for each of the lots in the Urban Residential – 3 District.

Per 8.4.6 of the City's Zoning Ordinance, "If a proposed subdivision plat contains one or more lots that do not comply with this Chapter and, therefore, require an area variance; the ZBA shall request that the Planning Board provide a written recommendation concerning the proposed variance".

Thank you for your consideration of this request and we look forward to your input.

Respectfully yours,

Bill Moore, Chair
Zoning Board of Appeals

KIMBERLY AND MICHAEL SOUTHERN

AREA VARIANCE APPLICATION

166.46-3-5

124 York Avenue

City of Saratoga Springs
Zoning Board of Appeals

Submission Date: September 26, 2016

Hearing Date: October 24, 2016

Prepared By:

M. Elizabeth Coreno, Esq.

Carter Conboy, PC

480 Broadway, Suite 250

Saratoga Springs, New York 12866



Carter Conboy
Attorneys at Law



CITY OF SARATOGA SPRINGS

City Hall - 474 Broadway
Saratoga Springs, New York 12866
Tel: 518-587-3550 fax: 518-580-9480

[FOR OFFICE USE]

(Application #)

(Date received)

APPLICATION FOR: APPEAL TO THE ZONING BOARD FOR AN INTERPRETATION, USE VARIANCE, AREA VARIANCE AND/OR VARIANCE EXTENSION

	<u>APPLICANT(S)*</u>	<u>OWNER(S) (If not applicant)</u>	<u>ATTORNEY/AGENT</u>
Name	Kimberly and Michael Southern		M. Elizabeth Coreno, Esq.
Address	[REDACTED]		Carter Conboy 480 Broadway, Suite 250
Phone	/	/	[REDACTED]
Email			

* An applicant must be the property owner, lessee, or one with an option to lease or purchase the property in question.

Applicant's interest in the premises: Owner Lessee Under option to lease or purchase

PROPERTY INFORMATION

1. Property Address/Location: 124 York Avenue, Saratoga Springs Tax Parcel No.: 166 46 3 5
(for example: 165.52 - 4 - 37)

2. Date acquired by current owner: 8/28/2014 3. Zoning District when purchased: UR3

4. Present use of property: Residential 5. Current Zoning District: UR3

6. Has a previous ZBA application/appeal been filed for this property?
 Yes (when? _____ For what? _____)
 No

7. Is property located within (check all that apply): Historic District Architectural Review District
 500' of a State Park, city boundary, or county/state highway?

8. Brief description of proposed action: _____
Applicants are seeking two small area variances for minimum lot size and minimum average width in order to subdivide the lot for a second buildable residential lot.

9. Is there a written violation for this parcel that is not the subject of this application? Yes No

10. Has the work, use or occupancy to which this appeal relates already begun? Yes No

11. Identify the type of appeal you are requesting (check all that apply):

INTERPRETATION (p. 2) VARIANCE EXTENSION (p. 2) USE VARIANCE (pp. 3-6) AREA VARIANCE (pp. 6-7)

FEES: Make checks payable to the "Commissioner of Finance". Fees are cumulative and required for each request below.

- Interpretation \$ 400
- Use variance \$1,000
- Area variance
- Residential use/property: \$ 150
- Non-residential use/property: \$ 500
- Extensions: \$ 150

INTERPRETATION – PLEASE ANSWER THE FOLLOWING (add additional information as necessary):

1. Identify the section(s) of the Zoning Ordinance for which you are seeking an interpretation:

Section(s) _____

2. How do you request that this section be interpreted? _____

3. If interpretation is denied, do you wish to request alternative zoning relief? Yes No

4. If the answer to #3 is "yes," what alternative relief do you request? Use Variance Area Variance

EXTENSION OF A VARIANCE – PLEASE ANSWER THE FOLLOWING (add additional information as necessary):

1. Date original variance was granted: _____ 2. Type of variance granted? Use Area

3. Date original variance expired: _____

5. Explain why the extension is necessary. Why wasn't the original timeframe sufficient?

When requesting an extension of time for an existing variance, the applicant must prove that the circumstances upon which the original variance was granted have not changed. Specifically demonstrate that there have been no significant changes on the site, in the neighborhood, or within the circumstances upon which the original variance was granted:

USE VARIANCE – PLEASE ANSWER THE FOLLOWING (add additional information as necessary):

A use variance is requested to permit the following: _____

For the Zoning Board to grant a request for a use variance, an applicant must prove that the zoning regulations create an unnecessary hardship in relation to that property. In seeking a use variance, New York State law requires an applicant to prove all four of the following “tests”.

- I. That the applicant cannot realize a reasonable financial return on initial investment for any currently permitted use on the property. “Dollars & cents” proof must be submitted as evidence. The property in question cannot yield a reasonable return for the following reasons:

A. Submit the following financial evidence relating to this property (attach additional evidence as needed):

1) Date of purchase: _____ Purchase amount: \$ _____

2) Indicate dates and costs of any improvements made to property after purchase:

<u>Date</u>	<u>Improvement</u>	<u>Cost</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

3) Annual maintenance expenses: \$ _____ 4) Annual taxes: \$ _____

5) Annual income generated from property: \$ _____

6) City assessed value: \$ _____ Equalization rate: _____ Estimated Market Value: \$ _____

7) Appraised Value: \$ _____ Appraiser: _____ Date: _____

Appraisal Assumptions: _____

B. Has property been listed for sale with the Multiple Listing Service (MLS)? Yes If "yes", for how long? _____ No

1) Original listing date(s): _____ Original listing price: \$ _____

If listing price was reduced, describe when and to what extent: _____

2) Has the property been advertised in the newspapers or other publications? Yes No

If yes, describe frequency and name of publications: _____

3) Has the property had a "For Sale" sign posted on it? Yes No

If yes, list dates when sign was posted: _____

4) How many times has the property been shown and with what results? _____

2. That the financial hardship relating to this property is unique and does not apply to a substantial portion of the neighborhood. Difficulties shared with numerous other properties in the same neighborhood or district would not satisfy this requirement. This previously identified financial hardship is unique for the following reasons:

AREA VARIANCE – PLEASE ANSWER THE FOLLOWING (add additional information as necessary):

2.3

The applicant requests relief from the following Zoning Ordinance article(s) _____

<u>Dimensional Requirements</u>	<u>From</u>	<u>To</u>
Lot 1: Minimum Lot Size	6,600 sq. ft.	5,319 sq. ft.
Lot 1: Minimum Average Width	60 ft.	48 ft.
Lot 2: Minimum Lot Size	6,600 sq. ft.	5,279 sq. ft.
Lot 2: Minimum Average Width	60 ft.	48 ft.
_____	_____	_____
_____	_____	_____

Other: _____

To grant an area variance, the ZBA must balance the benefits to the applicant and the health, safety, and welfare of the neighborhood and community, taking into consideration the following:

- 1. Whether the benefit sought by the applicant can be achieved by other feasible means. Identify what alternatives to the variance have been explored (alternative designs, attempts to purchase land, etc.) and why they are not feasible.

Please see attached Project Narrative.

- 2. Whether granting the variance will produce an undesirable change in the character of the neighborhood or a detriment to nearby properties. Granting the variance will not create a detriment to nearby properties or an undesirable change in the neighborhood character for the following reasons:

Please see attached Project Narrative.

DISCLOSURE

Does any City officer, employee, or family member thereof have a financial interest (as defined by General Municipal Law Section 809) in this application? No Yes If "yes", a statement disclosing the name, residence and nature and extent of this interest must be filed with this application.

APPLICANT CERTIFICATION

I/we, the property owner(s), or purchaser(s)/lessee(s) under contract, of the land in question, hereby request an appearance before the Zoning Board of Appeals.

By the signature(s) attached hereto, I/we certify that the information provided within this application and accompanying documentation is, to the best of my/our knowledge, true and accurate. I/we further understand that intentionally providing false or misleading information is grounds for immediate denial of this application.

Furthermore, I/we hereby authorize the members of the Zoning Board of Appeals and designated City staff to enter the property associated with this application for purposes of conducting any necessary site inspections relating to this appeal.

Kimberly R. Swartz
(applicant signature)

9/26/2016

Date: _____

9/26/2016

Date: _____

(applicant signature)

If applicant is not the currently the owner of the property, the current owner must also sign.

Owner Signature: _____

Date: _____

Owner Signature: _____

Date: _____

Short Environmental Assessment Form

Part 1 - Project Information

Instructions for Completing

Part 1 - Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 - Project and Sponsor Information			
Name of Action or Project: Kimberly and Michael Southern - Single Lot Subdivision			
Project Location (describe, and attach a location map): 124 York Avenue, Saratoga Springs, NY			
Brief Description of Proposed Action: Single lot subdivision which requires subdivision approval and two area variances of the minimum lot size and two 12 ft. area variances of the average lot width.			
Name of Applicant or Sponsor: Kimberly and Michael Southern		Telephone: [REDACTED]	
		E-Mail: [REDACTED]	
Address: [REDACTED]			
City/PO: [REDACTED]		State: [REDACTED]	Zip Code: [REDACTED]
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.		NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>
2. Does the proposed action require a permit, approval or funding from any other governmental Agency? If Yes, list agency(s) name and permit or approval: Saratoga Springs Planning Board Subdivision Approval		NO <input type="checkbox"/>	YES <input checked="" type="checkbox"/>
3.a. Total acreage of the site of the proposed action?		_____ 0.243 acres	
b. Total acreage to be physically disturbed?		_____ 0.121 acres	
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor?		_____ 0.243 acres	
4. Check all land uses that occur on, adjoining and near the proposed action. <input type="checkbox"/> Urban <input type="checkbox"/> Rural (non-agriculture) <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Residential (suburban) <input type="checkbox"/> Forest <input type="checkbox"/> Agriculture <input type="checkbox"/> Aquatic <input type="checkbox"/> Other (specify): _____ <input type="checkbox"/> Parkland			

<p>18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)? If Yes, explain purpose and size: _____ _____ _____</p>	<p>NO</p> <p><input checked="" type="checkbox"/></p>	<p>YES</p> <p><input type="checkbox"/></p>
<p>19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe: _____ _____ _____</p>	<p>NO</p> <p><input checked="" type="checkbox"/></p>	<p>YES</p> <p><input type="checkbox"/></p>
<p>20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe: _____ _____ _____</p>	<p>NO</p> <p><input checked="" type="checkbox"/></p>	<p>YES</p> <p><input type="checkbox"/></p>
<p>I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE</p> <p>Applicant/sponsor name: <u>Kimberly R Southern</u> Date: <u>9/26/16</u></p> <p>Signature: <u>Kimberly R Southern</u></p>		

**124 YORK AVENUE
MICHAEL AND KIMBERLY SOUTHERN
AREA VARIANCE APPLICATION**



PROJECT NARRATIVE

The applicants are seeking two area variances to permit a single lot subdivision in connection with a parcel of property known as 124 York Avenue (“Property”) which is located in the UR-3 of the Saratoga Springs Zoning Code (“Code”) (commonly known as Parcel ID 166.46-3-5) . The relief the applicants seeks is as follows:

1. Lot 1: 1,281 square feet from the minimum lot size of 6,600 square feet (19%) and 12 feet from the minimum average lot width of 60 feet (20%).
2. Lot 2: 1,321 square feet from the minimum lot size of 6,600 square feet (20%) and 12 feet from the minimum average lot width of 60 feet (20%).

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The applicants intend to place a small, single family home on the newly created lot in order for them to return to the area to care for aging parents. The existing home would be kept in the family for the applicants' children.

A. Parcel History

The furthest research in the chain of title for the Parcel is evidenced by an 1880 deed when two lots were created on one deed from the vast land holdings of the Estate of W.L.F. Warren who died in 1860. A home was erected on the extreme northeastern edge of the lands closest to York Avenue in 1875 according to the City Assessor's records. The land description in the deeds includes reference to two lots, namely "the west half of Lot No. 53 and a portion of the east half of lot No. 52." (A copy of the 1947 deed is attached as Exhibit A). However, the lots were never on separate deeds and have been sold pursuant to a single deed description since that time. As is clear from a review of the history of the neighborhood and is demonstrated by the average lot configuration (discussed below), the two lots described in the chain of title were estimated at 50ft x 110 ft. each. At some point between 1937 and 1947, two feet from the easterly side of the lots were sold to a neighbor which resulted in the current configuration of 48ft x 110ft. Taken together, the Property's lands total 48 ft. x 220 ft.

In 1947, the lots were purchased by Francis and Jean Southern, a married couple who moved from Woodlawn Avenue with their children following World War II. At that time, the City lacked zoning and, as such, there was no reason for Francis Southern to concern himself with the 48 ft. of lot width (now non-conforming) or the fact that his two lots appeared on a single deed would someday restrict his ability to subdivide as of right. Unaware of implications of keeping the two lots on a single deed, Francis Southern moved his family (including the

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applicant's father) into the home on York Avenue and worked every day as a Captain for the Saratoga Springs Fire Department on Lake Avenue – a job within walking distance of the house. Unfortunately for his family, Francis Southern was killed while on the job in 1975 and left his wife, Jean, behind to manage the affairs of the family alone. Incidentally, “Southern Place” off of Maple Avenue was named for Captain Southern to honor his memory and service.

In the years that followed, Jean resided in the home and likely remained unaware of the City's moves to impose zoning in the 1960's which would commence a decades-long process of ultimately limiting the family's ability to “sell off” the second lot recited in the deed which fronts on to Middle Avenue. Jean died in January of 2014 and the applicants, Michael Southern and his wife Kimberly, took title to the lands of his grandmother pursuant to an Executor's Deed dated August 28, 2014.

Since taking ownership, the Southernns rehabilitated the entire inside of the existing home while keeping the 1880s façade and historic character intact. They have rented the property to tenants as they reside in Massachusetts at the present time. Their current plans are to retire to Saratoga Springs if they are permitted to build a small, bungalow style retirement home on the second lot fronting onto Middle Avenue which would also house Michael's aging parents on the first floor. The new home and the existing home from 1875 would remain in the family for eventual ownership by the Southernns' children. The Southernns have no intention of parting with the lots which have been in the family for over 65 years.

B. Area Variance Standards and Applicants' Support for Relief

As mentioned, the Property is situated in the Urban Residential-3 zoning district and is subject to minimum lot size requirements of 6,600 square feet for 1-unit and 8,000 square feet

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for 2-units. The proposed subdivision would create two lots of 5,298 square feet (48ft x 110ft) with a 48-foot average lot width. The applicants seek relief from City Zoning Ordinance Section 2.3's minimum lot size requirements through two small 20% variances. As set forth in Section 8.3.1 of the City's Zoning Ordinance the test for an area variance is as follows:

1. Whether the benefit sought by the applicant can be achieved by other feasible means

Any additional land for the applicants' proposed lots to be conforming would necessarily have to come from their neighbors. However, the land to the southwest (Mark Dillon 166.46-3-3.1) is 52ft x 96ft (or 4,992 square feet) is already undersized and therefore any sale would only create further non-conformance of his lot. The land to the southeast (Anne Boyer 166.46-3-38) is 70ft x 100ft (or 7,000 feet), which means that there is only 400 feet available before there would be a resulting non-conformance. The land to the northeast (Robert and Eileen Christopher 166.46-3-4) is already significantly undersized at 5754 square feet with a two family residence (Code requires 8000 square feet) for which any sale would only compound the existing non-conformance. The land to the northwest (Geraldine Dorey 166.46-3-6) has a square footage of 7837 which leaves only 1,237 square feet available before the lot becomes non-conforming.

As noted above, the combined lots of the applicants require additional lands totaling 2,603 square feet for compliance and there is no neighbor (or combination of neighbors) with enough available lands for sale. The total available land solely based upon minimum lot size is 1637 before neighboring lots become non-conforming which is simply not sufficient for the proposal. Furthermore, the additional implications to existing improvements, setback

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limitations, and overall lot coverage would also have serious implications for any sale of neighboring land to the applicants.

As such, there is no other feasible alternative that will deliver the same benefits to the applicant.

2. Whether the variance is substantial

The relief the applicants seeks is as follows:

1. Lot 1: 1,281 square feet from the minimum lot size of 6,600 square feet (19%) and 12 feet from the minimum average lot width of 60 feet (20%).
2. Lot 2: 1,321 square feet from the minimum lot size of 6,600 square feet (20%) and 12 feet from the minimum average lot width of 60 feet (20%).

While there is no litmus test for a zoning board of appeals as to *de facto* substantiality, the applicants submit that, given the metrics of the surrounding neighborhood which is overwhelming out of conformance in amounts far in excess of 20%, the relief sought in this application is not substantial in nature.

3. Whether granting the variance will produce an undesirable change in the character of the neighborhood or a detriment to nearby properties.

In assessing the merits of a request for relief, the applicants undertook an exhaustive analysis of the properties within approximately 700 feet of the Property in order to empirically

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determine the “character of the neighborhood¹.” In all, the applicants reviewed records for 121 properties within study area and the results are as follows:

- a. Only 9 properties of 121 are conforming in both average lot width and minimum lot size or 7.44%. This results in a non-conformance rate of 92.56%.
- b. Only 9 properties of the 121 are conforming in minimum lot size (or 7.44%) which results in a non-conformance rate of 92.56%.
- c. 29 properties of the 121 examined are conforming in average lot width, thereby resulting in a non-conformance rate of approximately 76%.
- d. Lots with less than 5300 square feet in size totaled 52 (or 43%).

The character of the neighborhood is reflective of the subdivision design over the course of many, many years resulting in the most common lot configuration of 50 ft. of lot width. In fact, 66% of the homes have a frontage between 40 feet and 52 feet². As such, the relief the applicants seek is in no way out of character with the surrounding neighborhood and, as noted by the deed history, intentional in the description of two lot which would have been 50 ft. x 110 ft. in the original configuration.

As the applicants propose to keep the existing single-family home and erect one small bungalow on the new lot, there is nothing proposed which is outside the scope and impact of the

¹ The applicants have compiled data on 121 homes in and around the York Avenue property as demonstrative of the neighborhood in general. The area along Lake Avenue was not examined as that road is the primary east-west corridor through the City and reflective of a different character. The properties examined in the applicants’ analysis were largely taken from York Avenue, Middle Avenue, Avery Street, James Street, North Street, and Warren Street. The Average Lot Width, Lot Size, Frontage and Use were all examined as part of the data collection process. The information was taken directly from municipal records on www.saratogasprings.oarsystem.com or www.maphost.com/saratoga.

² This number increases significantly is the corner lots are removed, as they receive the benefit of lot width/frontage calculations which are different from interior lots.

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92% of non-conforming surrounding homes. The neighbors on two sides have significantly non-conforming lots which are consistent with the historic density of this neighborhood; dating back to the 1800s. In fact, the applicants posit that a home on the newly created lot will create uniformity in the neighborhood layout which presently has the absence of a home along Middle Avenue which looks “off” due to the appearance of an empty lot.

4. Whether the variance will have adverse physical or environmental effects on neighborhood or district

Due to the *de minimus* nature of the relief requested, there will be no adverse physical or environmental effects on the neighborhood.

5. Whether the alleged difficulty was self-created

As noted extensively above, the applicants cannot make the argument that their lots were on two separate deeds prior to the institution of zoning in the 1960s. As such, the argument of a pre-existing non-conforming lot is unavailable to them. However, the applicants submit compelling historical data which demonstrates the recitation of two lots on a single deed in the chain of title which is traced to the applicants’ grandfather and grandmother. Since 1947, the Property has not been outside the Southern family and was most recently conveyed as a result of Jean Southern’s death. While the applicants must acknowledge self-created hardship in the strictest reading of the law, they ask that the Board consider all the information as grounds to determine that such self-creation is not fatal to an application for these area variances.

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C. Recent Precedents

In 2015, the Board granted similar relief to an owner in similar circumstances at 10 Avery Street (#2385) in area variances for two substandard lots within this same neighborhood. Nearly identical relief is requested by the applicants for lot width as was granted for Avery Street at 17% (60ft to 50ft). However, the applicants acknowledge that the minimum lot size relief is more than was granted in the Avery Street variances, but do note for the Board that the reasoning for the relief is largely the same, i.e. unintended merger of lots on a single deed, neighborhood which is nearly 100% out of conformance with the zoning requirements, proposed lot sizes which are in conformance with nearly half of the residences, available municipal water and sewer, access onto Middle Avenue, and the inability to purchase land from adjoining neighbors. For all these reasons, we ask the Board to consider the precedential effect of the Avery Street variances for minimum lot size and average lot width.

D. Photographs

124 York Avenue (Southwest exposure):



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129 Middle Avenue: Southwest adjoining neighbor



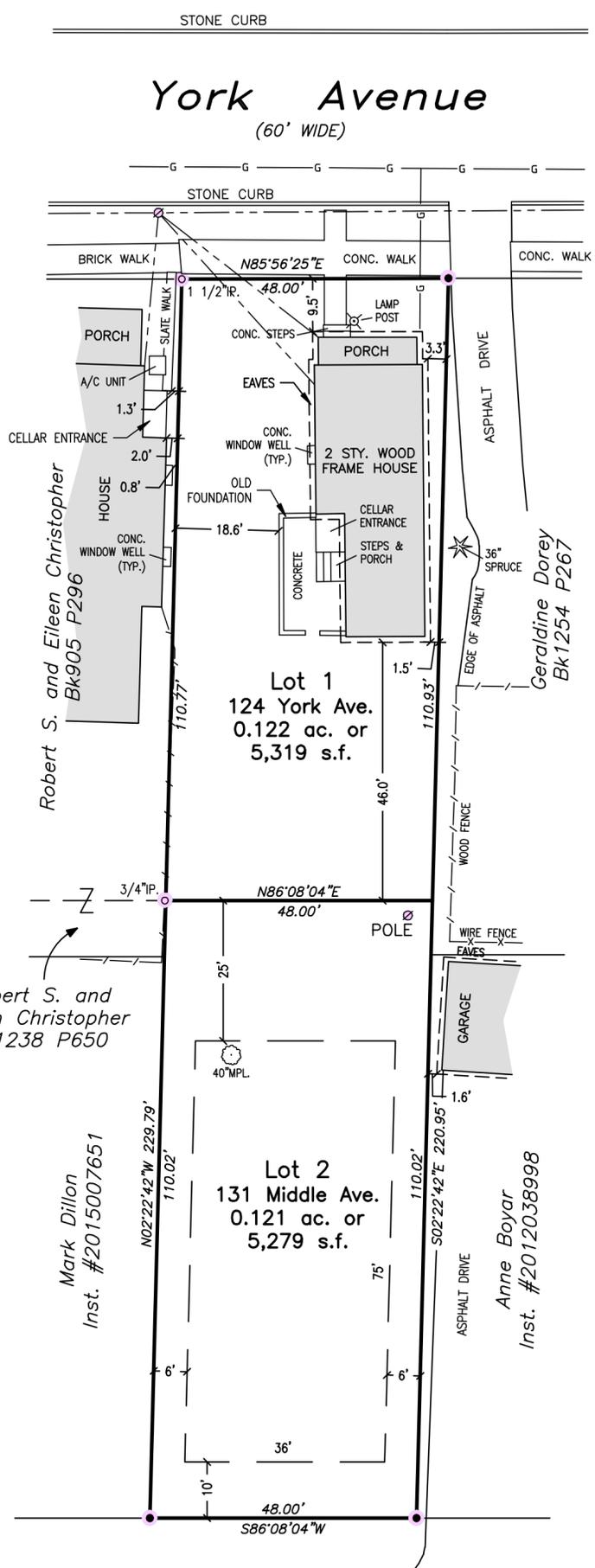
147 Middle Avenue: Southeast adjoining neighbor



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Middle Avenue View with proposed Lot 2:





Map Legend

- 5/8" steel rod set with a tag
- o marker found, labeled
- ∅ utility pole
- overhead wires
- - - - - wood fence

Map References:

1. "Map of Lands on New York and Lake Avenues belonging to William L.F. Warren" dated July 1, 1860 filed in the Saratoga County Clerk's Office in Map File Number W-58.
2. "Map of Lots Belonging To The Estate of Lucy C. Lester" filed April 1, 1922 prepared by Samuel Mott, CE filed in the Saratoga County Clerk's Office in Map File Number Card 1; Pocket 6; Folder 3.
3. "Survey of Lands of Wilbur L. and Rose Pratt" dated May 2, 1985 prepared by W. Bruce Hawks, L.S.
4. "Lands of Christopher, prepared for Robert S. and Eileen Christopher" dated December 7, 1978 prepared by Peter Kent Engineers.

Deed Reference:

Kimberly R. Southern and Michael P. Southern dated August 28, 2014 filed in the Saratoga County Clerk's Office in Instrument Number 2014027776.

Total Area= 0.243 ac. or 10,597 s.f.

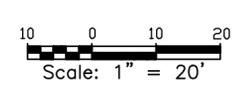
Middle Avenue (40' WIDE) UR-3 AREA REQUIREMENTS

Zoning District	Minimum Lot size Square Feet	Mean Average Width (feet)	Maximum Percent of Lot to be Occupied		Minimum Yard Dimensions				Principal Buildings		Accessory Building Minimum Distance to				
			Principal Building	Accessory Building	Front (feet)	Rear (feet)	Each Side (feet)	Total Side (feet)	Minimum First Floor Area (square feet)	Maximum Height (feet)	Principal Building (feet)	Front Lot Line (feet)	Side Lot Line (feet)	Rear Lot Line (feet)	Minimum Percent of Lot to be Permeable
UR-3	6,600 1-unit / 8,000 2-unit	60 1-unit / 80 2-unit	30	10	10	25	4	12	1 Story=1,200 2 Story=800	60	5	10	5	5	25

Unauthorized alteration or addition to a survey map bearing a licensed Land Surveyor's Seal is a violation of Section 7209 subdivision 2 of the New York State Education Law.

Only apparent easements (if any) are shown on this survey. No abstract of title was available.

DATE	REVISION



Proposed Subdivision
Kimberly R. and Michael P. Southern
Situate at
124 York Avenue
City of Saratoga Springs, Saratoga County NY

12 Lake Avenue
Saratoga Springs,
NY, 12866



DATE: Sept. 22, 2016
TAX MAP: 166.46-3-5
JOB NUMBER: S14-191.17

Variance for property 124 York Ave - #2925 SOUTHERN SUBDIVISION

From : mark dillon [REDACTED]

Fri, Nov 04, 2016 02:41 PM

Subject : Variance for property 124 York Ave - #2925 SOUTHERN SUBDIVISION**To :** lindsey gonzalez <lindsey.gonzalez@saratoga-springs.org>**Cc :** 'mark dillon' <mdillon@natek.com>, 'debbie dillon' <ddillon@natek.com>

Dear Zoning Board of Appeals:

My name is Mark Dillon and am the property owner of [REDACTED] Middle Avenue. I am writing in response to a Public Hearing Notification letter from Kimberly & Michael Southern who have applied for a variance on their property at 124 York Avenue. I understand that the public hearing on this application will be on Nov. 7th. I am submitting this written response in case I am unable to attend as I will be out of the area. It is my intention to attend if I am back in time for the meeting but would like the board know of my concerns if I am not.

My wife and I purchased the property at [REDACTED] Middle Avenue two years ago for many reasons: one being the location to the City and also due to the parcel next to us which is part of 124 York, was too small to build on or be subdivided. This is a property that has been this way since 1875.

We are not opposed to variances in general as they may necessary as to the special conditions to a particular piece of property that would create an undue hardship. I would hope that if I ever needed one I would be afforded the opportunity to seek one that was absolutely necessary.

The applicants have previously remodeled the existing house and now are seeking to add another structure/home to the premises. The proposed variance seeks to decrease the setbacks by 12ft on each lot and reduce the lot sizes by approximately 1,200 square feet. Such proposed lot sizes would be approximately 18% less than currently required. I certainly would have no issue if they were seeking a minimal variance due to the nature of the property. However, in this case the applicants are asking to split the parcels, add a new home and ask for a large variance both in setbacks and lot sizes, which is self-created.

We would be against the proposed two lot subdivision with the current plans for a new home to be constructed with the setbacks as proposed absent a showing of undue hardship.

Granting the variance as proposed would set a precedent that would allow for future property owners to squeeze in more than what is allowed and seeming only benefit said property owner.

Thank you for allowing me an opportunity to comment on the proposal.

*Regards,**Mark and Debbie Dillon**Property owner at [REDACTED] middle ave.*
[REDACTED]