kratzert, jones & associates, inc.

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AN EQUAL OPPORTUNITY EMPLOYER - M - F

STORMWATER MANAGEMENT REPORT 3/17/23

Prepared for:

ELENI REAL ESTATE LLC

1615 West Street
Southington, CT

James N. Sakonchick

James N. Sakonchick, P.E.

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EXECUTIVE SUMMARY

This report summarizes the hydrologic changes and management of stormwater associated with additional processed stone and the relocation of an existing building. The existing land coverage of the relocated building is impervious bituminous pavement. The additional processed stone will be in an area of pervious grass. The Stormwater Management Plan will include measures to control increases in runoff and address water quality concerns associated with the development of the site. A groundwater recharge trench is proposed to achieve ZIRO.

Model Formulation

The post-development site is described by two watersheds: "PR-1" which drains northwesterly to a proposed groundwater recharge trench and "PR-2", which drains to an existing drainage system that outlets to an existing detention pond to the north. PR-2 is routed through the detention pond to achieve ZIRO. The coverage of PR-2 has a smaller C value than the previous layout for which the detention pond was designed.

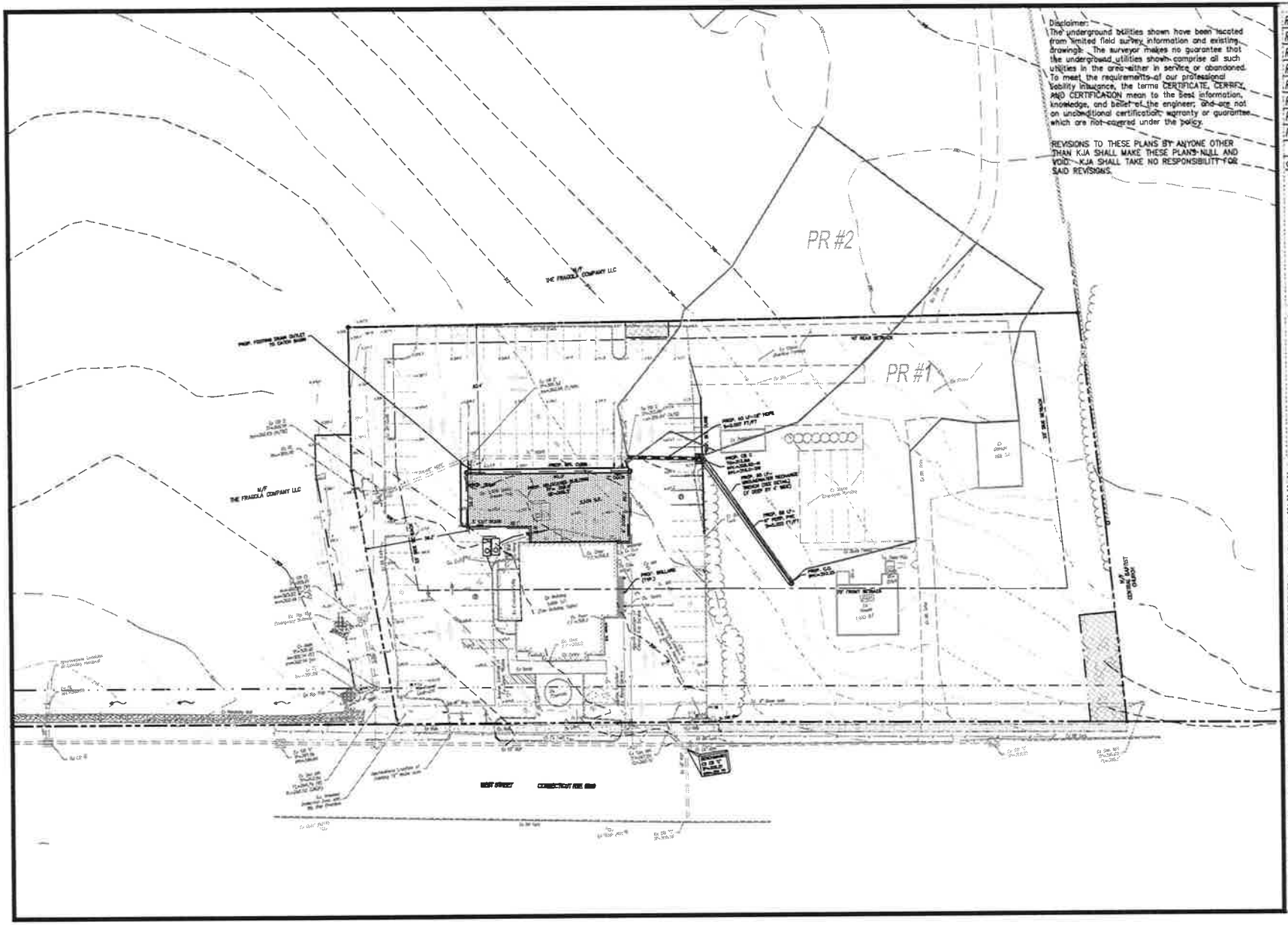
Pre-development and post-development hydrographs were developed for PR-1 using the Rational Method. C values were derived based on land cover. Time of concentration values were computed based upon engineering judgment.

The attached calculations demonstrate that by storing the additional runoff volume the resulting overflow will not be more than pre-development condition for the site as a whole. A groundwater recharge trench has been sized to provide the required storage. The drainage design is intended to satisfy the Town of Southington ZIRO (Zero Increase in Runoff) calculations.

Erosions and Sedimentation Control

The goal of the erosion and sedimentation controls on the site is to maintain water quality to runoff, which flows to wetland areas and to minimize erosion to areas both on and off site. In order to accomplish these goals, several erosion control measures are proposed. The plans have been developed in accordance with the 2004 Sedimentation and Erosion Control Guidelines and the Stormwater Quality Manual.

Water quality of the runoff will be provided through the use of **Best Management Practice (BMP)** erosion controls during construction. First, the project has been designed with grading and clearing kept to a minimum. During construction, all catch basins shall have inlet protection and silt fences are proposed around the project perimeter.



Disclaimer:
The underground utilities shown have been located from limited field survey information and existing drawings. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area either in service or abandoned. To meet the requirements of our professional liability insurance, the terms CERTIFICATE, CERTIFY, AND CERTIFICATION mean to the best information, knowledge, and belief of the engineer, and are not an unconditional certification, warranty or guarantee which are not covered under the policy.

REVISIONS TO THESE PLANS BY ANYONE OTHER THAN KJA SHALL MAKE THESE PLANS NULL AND VOID. KJA SHALL TAKE NO RESPONSIBILITY FOR SAID REVISIONS.

REVISION-7:
REVISION-6:
REVISION-5:
REVISION-4:
REVISION-3:
REVISION-2:
REVISION-1:
PROJECT:

DR:---	SR:---	DR:---

SEAL:

James R. Sakondhla
CT P.E. & L.S. #13302

kratzert, jones & associates, inc.
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POST-DEVELOPMENT WATERSHED MAP

for

ELENI REAL ESTATE LLC

#1615 WEST STREET
SOUTHINGTON, CT

SCALE: 1" = 50'
DATE: MARCH 17, 2023
HALF | ONE INCH
INCHES ON ORIGINAL

KJA FILE NO.:	DRAWING NO.:
43-45	WS-1

ELENI REAL ESTATE LLC
#1615 WEST STREET
SOUTHINGTON, CT

Date: 3/17/23

HYDROLOGIC CONDITIONS:

	PRE-DEVELOPMENT			POST-DEVELOPMENT		
	AREA		'C'	AREA		'C'
	(s.f.)	(Acres)		(s.f.)	(Acres)	
Impervious Areas:						
Pavement	182	0.00	0.90	402	0.01	0.90
Gravel	0	0.00	0.75	8,633	0.20	0.75
House/Buildings	0	0.00	0.90	0	0.00	0.90
Subtotal	182	0.00	0.90	9,035	0.21	0.76
Unimproved Areas:						
Open, Lawn	14,366	0.33	0.30	5,514	0.13	0.30
Forest	0	0.00	0.20	0	0.00	0.20
Subtotal	14,366	0.33	0.30	5,514	0.13	0.30
TOTAL	**14,548**	**0.33**	**0.31**	**14,549**	**0.33**	**0.58**

TIME OF CONCENTRATION (MINS.) **15** **10**

STORAGE COMPUTATIONS:

Design Storm: 100 Year Storm Event

Q = CiA	**PRE-DEVELOPMENT**	**POST-DEVELOPMENT**
C	0.31	0.58
i (inches)	5.50	6.50
A (Acres)	0.33	0.33
Q (cfs)	**0.57**	**1.26**

Allowable discharge Q = Pre-Development Q: **0.57 cfs**

Time to the allowable Q on the Post-Development Hydrograph:

Ascending Limb	**4.5**	**mins.**
Descending Limb	**21.0**	**mins.**
Descending Limb Factor	**2**	
Total time for Q greater than allowable	**16.4**	**mins.**

Store increase in Q: $Q_{POST} - Q_{PRE}$ **1.26 - 0.57 = 0.69 cfs**

REQUIRED STORAGE VOLUME = 1/2 b h = 1/2 △Q T = **340 cf**

PROVIDED STORAGE VOLUME = **408 cf**

PROP. RECHARGE TRENCH (85'L X 3'D X 4'W) = 1,020 x 0.4 (VOIDS) = 408