

STORMWATER MANAGEMENT PLAN

Prepared for:

KASINATHAN INTERNATIONAL GROUP
540 N. STATE ROAD, SUITE 7
BRIARCLIFF MANOR, NEW YORK 10510

Prepared by:

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1.0 NARRATIVE REPORT

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The site is located at 540 N. State Road in Briarcliff Manor, Westchester County, New York. The site is comprised of 0.47 Acres which is zoned C-20 Commercial, Use General Business.

The existing site is presently comprised of a 2 story office building and parking area for various business uses.

The proposed development consists of redesigning the parking area to accommodate more cars for parking, new landscaping, and providing updated storm water management practices to the latest NYSDEC Standards.

This Storm water Management Report is being prepared to evaluate the storm effects on the immediate areas of the site and to provide mitigation techniques that will control the storm water runoff as required by the redesign of the parking area as required by redevelopment activity. The total study area contains the immediate water shed comprised of approximately 0.47 Ac. which is intended to be redeveloped with revised parking facilities, landscaping, signage, and curbing.

2.0 SITE LOCATION MAP



SITE LOCATION MAP

N.T.S



3.0 NEW YORK STATE STORM WATER DESIGN MANUAL
Chapter 9 Redevelopment Activity

3.0 NEW YORK STATE STORMWATER DESIGN MANUAL

Chapter 9 Redevelopment Activity

The proposed project is subject to storm water practices during redevelopment activities as stated above Chapter 9 Section 9.1 through 9.4.

Section 9.2.1 I states that if the activities result in no change to hydrology that increases the discharge rate from the project site the ten and hundred –year criteria do not apply. Furthermore, if the hydrology and hydraulic analysis for the project site shows that the post construction activity 1-year 24 hour discharge rate and velocity are less than or equal to the pre-construction discharge rate, providing 24 hour detention of the 1 year storm to meet the channel protection criteria is not required. Refer to Section 7 of the Storm Water Management Report which indicates that the 1-year 24 hour discharge demonstrates that there is no net increase in the post development activities.

In order to comply with the Chapter 9 the plan proposes that a minimum of 25 % of the water quality (WV) from the disturbed, impervious area is captured and treated by the implementation of standard SMP or reduced by application of green structure techniques.

The performance criteria of selected SMPs for redevelopment activities fall under three categories. The applicant has selected to utilize wet vaults which are water tight “boxes” that include a permanent pool and promote settling of particulates through detention and use of internal baffles and other proprietary modifications.

Refer to Section 5 and 6 of the report for the calculations concerning the sizing and type of wet vault that will be utilized at the site.

4.0 SCOPE OF REPORT

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The study contains the analysis of the 1-year 24 hour pre-developed and post-developed discharge rate to demonstrate that no net increase in the post-development scenario has occurred.

Furthermore, the study contains the analysis of the (WQv) Water Quality and proposes that a minimum of the 25% of the water quality volume (WQv) from the disturbed area is captured and treated by alternative storm water management practices as depicted in Chapter 9, Section 9.4 of the New York State Stormwater Management Design Manual.

5.0 WATER QUALITY CALCULATIONS

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Water Quality Volume (wQv)

Impervious area (acre) - 0.284 Ac.

Total area (acres) - 0.47 Ac.

Impervious coverage - 60.42%

Calculation Runoff Coefficient (Rv)

$$Rv = 0.05 + (1) (0.009)$$

$$0.05 + (60.42) (0.009) = 0.593$$

Water Quality Volume Calculation (WQv)

$$WQv = [(P) (Rv / 12) (A)]$$

$$P = (\text{in}) \quad 1.50 (90\% \text{ rainfall in N.Y.S.})$$

$$\frac{(1.50) (0.593)}{12} \times 0.47$$

$$1.50 \times 0.0494 \times 0.47 = 0.03482 \text{ Ac. ft.}$$

$$1517.064 \text{ Cu. ft.}$$

$$\times .25 \text{ treatment required}$$

$$379.25 \text{ Cu. ft.} \quad -$$

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379.25 Cu. Ft. 25% of WQv that must be treated from the impervious area.

25% of WQv = 379. Cu. Ft.

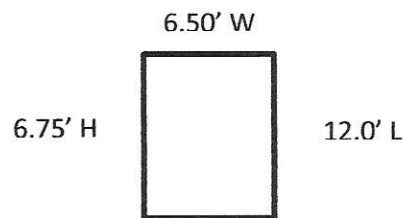
$$6.50 \times 12.0 \times 5.25 =$$

409.50 Cu. Ft.

379.25 Cu. Ft.

7.481 Gal/Cu.Ft

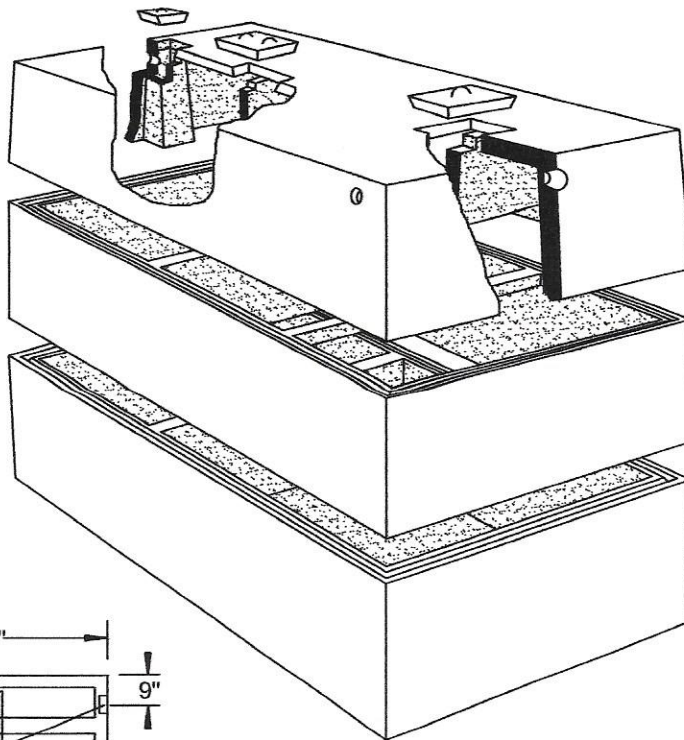
2, 837.16 Gallons



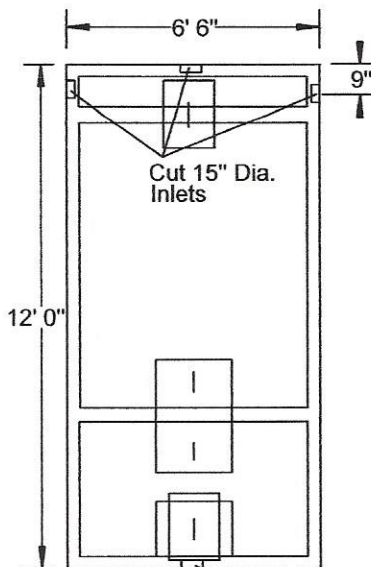
Refer to Section 7 for Detail of Wet Vault

Required : 3,000 Gallon Wet Vault to be placed at the West side of the building.

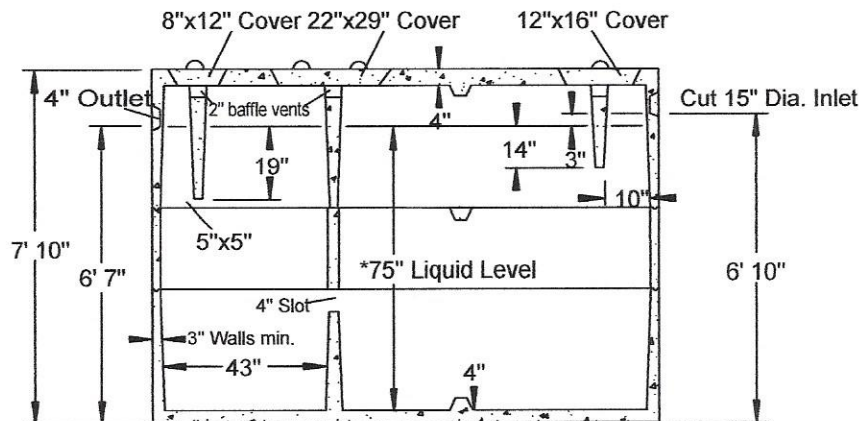
6.0 DETAILS FOR WET VAULT



Inlet note: Use a sanitary tee with pipe extension to meet the NYSDOH requirement for baffle 16" below liquid level.



Top View 4" Dia. Outlet



Side View

*Tank Capacity Note: NYS 60" maximum liquid level gives you 2,530 gallons in this tank. Additional depth does not add to the recognized capacity.

SPECIFICATIONS	WET VAULT PRECAST SEPTIC TANKS MODEL ST-3000 / 3000 GALLONS
Concrete Min. Strength: 4,000 psi at 28 days Reinforcement: #3 Rebar, 6x6x10ga. WWM Air Entrainment: 5% Construction Joint: Butyl Rubber Sealant Pipe Connection: Polylok Seal (patented) Weight = 18,000 lbs Load Rating: 300 psf	Woodard's Concrete Products, Inc. 629 Lybolt Road, Bullville, NY 10915 (845) 361-3471 / Fax 361-1050 Page 7A 7/19/12

www.woodardsconcrete.com



7.0 CALCULATIONS FOR PRE AND POST DEVELOPMENT

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1yr. Storm 2.90 inches

Pre-developed

			<u>Area S.f.</u>		<u>Coefficient</u>		<u>Adj. Area ft.²</u>	
(Bldg)	-	Roofs	-	4,977	x	0.95	=	4728.15
	-	Pavement	-	11,557	x	0.80	=	9245.60
	-	Lawn/Trees	-	3,939	x	0.35	=	1378.65
				<u>20,423 S.F =</u>		<u>2.10</u> = 0.70		15,352.40 ft ²
				43560		3		

$$\frac{15,352.40}{43,560} = 0.352 \text{ Ac. (Adjusted Ac.)}$$

Q = ACi

1 = 2.90

$$0.352 \times 0.70 \times 2.90 = 0.714 \text{ cfs}$$

Post-development

			<u>Area S.f.</u>		<u>Coefficient</u>		<u>Adj. Area ft.²</u>	
(Bldg)	-	Roofs	-	4,977	x	0.95	=	4728.15
	-	Pavement	-	9,685	x	0.80	=	7748
	-	Lawn/Trees	-	5,811	x	0.35	=	2033
				<u>20,473 S.F</u>	=0.469Ac.	0.70		14,509.15 ft ²
				43560				

$$\frac{14,509.15}{43,560} = 0.33 \text{ Ac. (Adjusted Ac.)}$$

Q = ACi

$$0.33 \times 0.70 \times 2.90 = 0.66 \text{ cfs}$$

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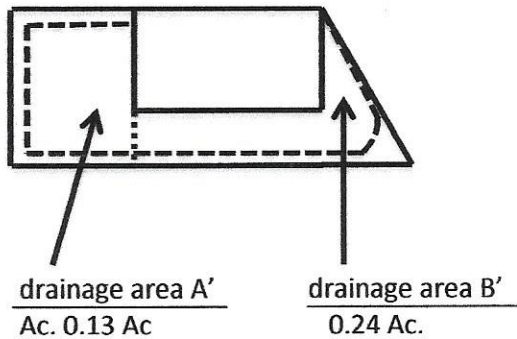
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25 yr. Storm 7.5 lph



Drainage Area A'

	<u>Area ft.²</u>		<u>C</u>	<u>Ft.²</u>
Parking area -	3,230	x	0.95	3,068.50
Lawns -	1,345	x	0.35	470.75
Roof -	2,400	x	0.95	2280
			0.75	5,819.25
				43,560 =
				0.13Ac.

$$Q = ACL$$

$$Q = 0.13 \times 0.75 \times 7.5 \text{ lph} = 0.73 \text{ cfs}$$

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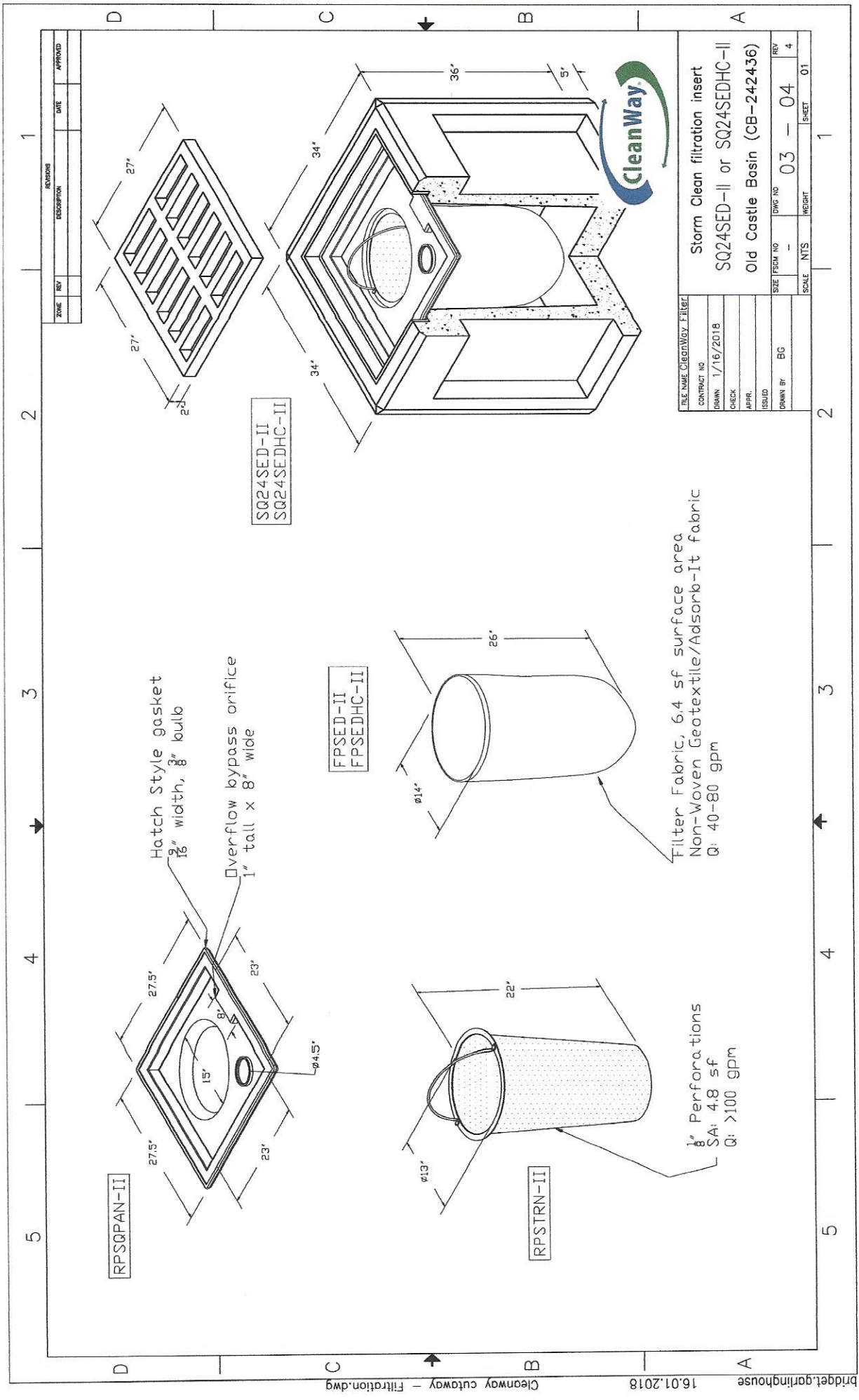
Drainage Area B'

	<u>Area ft.²</u>		<u>C</u>	<u>Ft.²</u>
Parking area -	3,230	x	0.95	3,068.50
Lawns -	1,345	x	0.35	470.75
Roof -	2,400	x	<u>0.95</u>	2280
			0.75	<u>5,819.25</u>
				43,560 =
				0.24 Ac.

$$Q = ACi$$

$$Q = 0.24 \times 0.75 \times 7.5 \text{ lph} = 1.35 \text{ cfs.}$$

8.0 STORM CLEAN FILTRATION INSERT



FILE NAME: CleanWay Filter		Storm Clean filtration insert	
CONTRACT NO.		SQ24SED-II or SQ24SEDHC-II	
DRAWN	1/16/2018	Old Castle Basin (CB-242436)	
CHECK			
APPR.			
ISSUED			
DRAWN BY	BG		
SIZE	1/8" x 1/4"	DWG NO.	03 - 04
SCALE	NTS	WEIGHT	01
		SHEET	01

8.1 CONCLUSIONS AND RECOMMENDATIONS

8.1 CONCLUSION AND RECOMMENDATIONS

The redevelopment of the 540 North State Road project in the Town of Ossining will consist of redesign of the parking area, new plantings, installation of storm water systems such as the wet vault, level spreader, and a basket installation of a new CB#2 at the Easterly side of the building due to the fact that there was no sump in the catch basin. There will also be a storm clean filtration insert installed in CB#2 to capture sediment and debris which could occur during various rainfall events. Refer to Section 8.0 A Storm Clean Filtration Insert.

In conclusion the proposed Storm Water Management Plan should be sufficient at this time to mitigate rainfall events that would potentially impact the wetland area which is located behind the building and mitigate potential to downstream locations.