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**PROPOSED LOBBY ADDITION
BOLAND HALL – SETON HALL UNIVERSITY
400 SOUTH ORANGE AVENUE, SOUTH ORANGE, NJ**

STORMWATER MANAGEMENT REPORT

December 2020

1. Location

The project is located at Seton Hall University, 400 South Orange Avenue, South Orange, New Jersey.

2. Proposed Development

The project consists of the addition of 1,700 sq ft of roof and deletion of 700 sq ft of sidewalks, for a net impervious addition of 1,000 sq ft (0.023 Ac) of roof. There is no new pavement.

3. Seepage Pit

A seepage pit is provided for the runoff from the 1,000 sq ft addition. The soil at the project site is classified as URBOOB, Urban Boonton, which correspond to Hydrologic Group Type C. Conservatively, an infiltration rate of 0.50 in/hr is selected. The design infiltration rate will be 0.25 in/hr.

The attached calculations indicate that a 12'x12' pit with 3' water depth will be required. The seepage pit is designed using the Modified Rational Method, with a Runoff Coefficients (C) of 0.95:

A 12-inch diameter overflow connecting to an existing catch basin is provided for the seepage pit.

SETON HALL
SEEPAGE PITS

MODIFIED RATIONAL METHOD

Tributary Areas	Acres	C		
Impervious	0.023	0.95		
	0.023		Avg C = 0.95	A*C= 0.022
Infiltration Bed Surface - Each Pit				
No of Pits			144 SF	
Total Infiltration Bed Surface			1	
			144	
Infiltration Rate, In/hr			0.25	
Time of Concentration, min				6

SETON HALL
SEEPAGE PITS

Duration of Storm T_d , min	6	10	15	20	30	45	60	90	120	180	240
2-year Intensity, I , in/hr	5.10	4.30	3.70	3.00	2.40	1.80	1.50	1.10	0.87	0.64	0.51
Peak Inflow Q_i , cfs	0.11	0.09	0.08	0.07	0.05	0.04	0.03	0.02	0.02	0.01	0.01
Total Inflow Volume V_i , cf	40	56	73	79	94	106	118	130	137	151	160
Infiltration Outflow Volume, V_{io} , cf	4	6	9	12	18	27	36	54	72	108	144
Total Outflow Volume, V_o , cf	4	6	9	12	18	27	36	54	72	108	144
Required Volume V_r , cf	37	50	64	67	76	79	82	76	65	43	16
Available Volume V_a at $h_w = 1.20'$, cf	90	90	90	90	90	90	90	90	90	90	90

Duration of Storm T_d , min	6	10	15	20	30	45	60	90	120	180	240
10-year Intensity, I , in/hr	6.70	5.80	4.90	4.10	3.30	2.50	2.00	1.50	1.25	0.90	0.75
Peak Inflow Q_i , cfs	0.15	0.13	0.11	0.09	0.07	0.05	0.04	0.03	0.03	0.02	0.02
Total Inflow Volume V_i , cf	53	76	96	108	130	147	157	177	197	212	236
Infiltration Outflow Volume, V_{io} , cf	4	6	9	12	18	27	36	54	72	108	144
Total Outflow Volume, V_o , cf	4	6	9	12	18	27	36	54	72	108	144
Required Volume V_r , cf	49	70	87	96	112	120	121	123	125	104	92
Available Volume V_a at $h_w = 1.67'$, cf	125	125	125	125	125	125	125	125	125	125	125

SETON HALL
SEEPAGE PITS

Duration of Storm T_d , min	6	10	15	20	30	45	60	90	120	180	240
25-year Intensity, I , in/hr	7.70	6.60	5.60	4.70	3.80	2.95	2.40	1.80	1.45	1.05	0.85
Peak Inflow Q_p , cfs	0.17	0.14	0.12	0.10	0.08	0.06	0.05	0.04	0.03	0.02	0.02
Total Inflow Volume V_i , cf	61	87	110	123	149	174	189	212	228	248	267
Infiltration Outflow Volume, V_{io} , cf	4	6	9	12	18	27	36	54	72	108	144
Total Outflow Volume, V_{to} , cf	4	6	9	12	18	27	36	54	72	108	144
Required Volume V_r , cf	57	81	101	111	131	147	153	158	156	140	123
Available Volume V_a at $h_w = 2.13'$, cf	160	160	160	160	160	160	160	160	160	160	160

Duration of Storm T_d , min	6	10	15	20	30	45	60	90	120	180	240
100-year Intensity, I , in/hr	9.10	8.00	6.90	5.80	4.70	3.60	3.00	2.20	1.80	1.30	1.10
Peak Inflow Q_p , cfs	0.20	0.17	0.15	0.13	0.10	0.08	0.07	0.05	0.04	0.03	0.02
Total Inflow Volume V_i , cf	72	105	136	152	185	212	236	260	283	307	346
Infiltration Outflow Volume, V_{io} , cf	4	6	9	12	18	27	36	54	72	108	144
Total Outflow Volume, V_{to} , cf	4	6	9	12	18	27	36	54	72	108	144
Required Volume V_r , cf	68	99	127	140	167	185	200	206	211	199	202
Available Volume V_a at $h_w = 3.00'$, cf	225	225	225	225	225	225	225	225	225	225	225

SETON HALL
SEEPAGE PITS

NUMBER OF PITS = 1

WATER DEPTH, hw (ft)	VOLUME EACH PIT (CF)	TOTAL VOLUME (CF)
1	75	75
2	150	150
3	225	225

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