

Project:2400 E Atlantic

Date: 05/13/2025

Flood Routing Description:Pre-Development Calculations

Client :Portman Holdings

Job Number: 14267.00

Design Engineer :Bryan Baldwin

Project Address / Location :2400 East Atlantic Blvd

City: Pompano Beach

County: Broward

State: Florida

Section/Township/Range:Section 05, Township 48S, Range 43E

Surfacewater License:

FEMA FIRM Information:12011X0376J

Project Description:A mixed-use building with ground floor commercial, approximately 350 units, and structured parking,

Total Drainage Basin: 0.238 Acres

Hydrogeologic Information :

Table 1.	1 Day Storm Event			3 Day Storm Event		
RAINFALL DATA	Rainfall Inches	Runoff Inches	Runoff Ac-Ft	Rainfall Inches	Runoff Inches	Runoff Ac-Ft
100 Year Return Period						
25 Year Return Period						
10 Year Return Period	9.5	0.13	0.002			
5 Year Return Period	7.8	5.42	0.107	10.6	8.07	0.160
3 Year Return Period						
5 Yr Return Period - 1 Hr	3.2	1.40	0.028			

Runoff estimation - USDA SCS formula

Runoff (in) $Q = \frac{(P-0.2S)^2}{P+0.8S}$

Where: P = accumulated rainfall (in.)
S = Soil Storage Value

Table 2. SUMMARY OF FLOOD ROUTING	Agency maps	SBUH Calculated with Q-1 Day Storm		SBUH Calculated with Q-3 Day Storm		SBUH Calculated *Zero Q-3 Day Storm		Calc. 5Yr 1 hour Peak Stage (ft)
		Peak Stage(ft)	Peak Q (CFS)	Peak Stage(ft)	Peak Q (CFS)	Peak Stage(ft)	Peak Q (CFS)	
100 Year Return Period								Zero Q (Water Budget)
25 Year Return Period								
10 Year Return Period		5.19	0.00					
5 Year Return Period		5.05	0.00	5.27	0.00	5.27	0.00	4.57
3 Year Return Period								

For 5 yr - 1 hr rainfall, Calculate 5 yr Vol by subtracting Exfil vol in inches from 5 yr 1 h rainfall, then calc Runoff using SCS formula. From stage storage table find Zero Discharge Stage. Uses Max. Elev of Lookup Stage or highest top of EXFIL trench. If exfil vol exceeds 5 year 1 hour vol. Uses Max. Elev of highest top of EXFIL trench.

* Zero Q indicates there is no offsite discharge included in the calculations (only Exfil Trench and Wells). Hypothetical stage calc. for PRE-POST Analysis.

Table 3. WATER QUALITY STORAGE REQUIREMENTS:

Based on Total Drainage Basin Acreage	Ac-Ft
1" x Basin Area	0.020
2.5" x WQPI x (Basin Area 1.41 Inches	0.028
Required Wet Detention (Total basin incl Offsite)	
0.5" Pretreatment-Com. Prjs,x(Basin Area - water area)	0.010
Credit for Inlets in Grass Areas, GAC=0.2" x (TDA	0.004
	N

Table 4. WATER QUALITY STORAGE SOURCE	Basin Storage Elev. (Ac-Ft)		WQ Eq WDV (Ac-Ft)	WQ Eq WDV Inches
Retention (RV) @				
Dry Det. (DDV) @				
Wet Det. (WDV) @				
Equiv WDV=WDV+RV/.5+DDV/.75)			0.000	
Exfil Trench Storage	0.000		0.000	
Total WQ EQ WDV - Provided			0.000	
Total WQ EQ WDV - Required			0.028	1.41

Exfil Vol. in Stage Storage =

(Ac-FT)	(Inches)
0.000	0.00

Routing Results from Analysis WITHOUT Offsite Discharge

Table 8. STAGE - DISCHARGE INFORMATION 10 - YEAR STORM - Zero Offsite Discharge

TIME STEP (HOUR)	Rain Fall RATIO	Rain C*P (IN)	Q Scs (IN)	Inst Q In (CFS)	Sbuh Q (CFS)	Tot Q In (AC-FT)	Sumq Out (AC-FT)	Stored Vol (AC-FT)	Stage Lk-Up (FEET)	Inst Q Lkup (CFS)	Avg. Q Out (CFS)	Step Qout (AC-FT)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
4.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
8.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
12.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
16.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
20.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
24.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
28.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
32.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
36.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
40.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
44.00	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
48.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
52.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
56.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
58.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
59.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
59.50	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
59.75	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
60.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
60.50	1.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
61.00	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
62.00	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
64.00	1.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
68.00	1.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
72.00	1.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
Peak stage						1.50	At hour	0.00				
Peak discharge						0.00	At hour	0.00				

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Pre-Development Calculations

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Routing Results from Analysis WITHOUT Offsite Discharge

Table 9. STAGE - DISCHARGE INFORMATION 5 - YEAR STORM - Zero Offsite Discharge

TIME STEP (HOUR)	Rain Fall RATIO	Rain C*P (IN)	Q Scs (IN)	Inst Q In (CFS)	Sbuh Q (CFS)	Tot Q In (AC-FT)	Sumq Out (AC-FT)	Stored Vol (AC-FT)	Stage Lk-Up (FEET)	Inst Q Lkup (CFS)	Avg. Q Out (CFS)	Step Qout (AC-FT)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
4.00	0.02	0.19	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
8.00	0.05	0.38	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00
12.00	0.07	0.57	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
16.00	0.10	0.75	0.02	0.00	0.00	0.00	0.00	0.00	4.01	0.00	0.00	0.00
20.00	0.12	0.95	0.07	0.00	0.00	0.00	0.00	0.00	4.03	0.00	0.00	0.00
24.00	0.15	1.14	0.13	0.01	0.00	0.00	0.00	0.00	4.06	0.00	0.00	0.00
28.00	0.18	1.42	0.25	0.01	0.01	0.00	0.00	0.00	4.12	0.00	0.00	0.00
32.00	0.22	1.69	0.38	0.01	0.01	0.01	0.00	0.01	4.20	0.00	0.00	0.00
36.00	0.25	1.96	0.54	0.01	0.01	0.01	0.00	0.01	4.29	0.00	0.00	0.00
40.00	0.29	2.24	0.71	0.01	0.01	0.01	0.00	0.01	4.39	0.00	0.00	0.00
44.00	0.32	2.52	0.90	0.02	0.01	0.02	0.00	0.02	4.50	0.00	0.00	0.00
48.00	0.36	2.79	1.10	0.01	0.01	0.02	0.00	0.02	4.52	0.00	0.00	0.00
52.00	0.40	3.14	1.36	0.02	0.02	0.03	0.00	0.03	4.56	0.00	0.00	0.00
56.00	0.50	3.86	1.93	0.05	0.04	0.03	0.00	0.03	4.62	0.00	0.00	0.00
58.00	0.57	4.45	2.42	0.07	0.06	0.04	0.00	0.04	4.67	0.00	0.00	0.00
59.00	0.63	4.89	2.79	0.10	0.08	0.05	0.00	0.05	4.71	0.00	0.00	0.00
59.50	0.68	5.27	3.13	0.16	0.11	0.05	0.00	0.05	4.73	0.00	0.00	0.00
59.75	0.85	6.59	4.32	1.14	0.23	0.06	0.00	0.06	4.76	0.00	0.00	0.00
60.00	1.02	7.90	5.53	1.16	0.43	0.07	0.00	0.07	4.82	0.00	0.00	0.00
60.50	1.09	8.46	6.06	0.25	0.44	0.09	0.00	0.09	4.95	0.00	0.00	0.00
61.00	1.13	8.76	6.34	0.13	0.33	0.10	0.00	0.10	5.03	0.00	0.00	0.00
62.00	1.18	9.16	6.72	0.08	0.18	0.12	0.00	0.12	5.11	0.00	0.00	0.00
64.00	1.24	9.64	7.18	0.05	0.07	0.14	0.00	0.14	5.18	0.00	0.00	0.00
68.00	1.31	10.20	7.71	0.03	0.03	0.15	0.00	0.15	5.24	0.00	0.00	0.00
72.00	1.36	10.57	8.07	0.02	0.02	0.16	0.00	0.16	5.27	0.00	0.00	0.00
Peak stage						5.27	At hour	72.00				
Peak discharge						0.00	At hour	72.00				

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Pre-Development Calculations
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Total Drainage Basin: 0.238 Acres
Water Table Elevation = 1.50 Feet
Time of Conc. (hr.) = 1.00
Calculated weighted soil (s) 2.50 Soil Storage Value (S) = Storage under pervious area / Total Area
Calculated CN value 80.0 Soil Storage under pavement and buildings is not considered in computations

Y	Y/N -Do you want to limit the Exfiltration Trench Vol. to a maximum of 3.28" over the site?
N	Y/N -Deduct EXFIL Vol. from Rainfall amount rather than include Vol. in Stage Storage table
Y	Y/N -Use EXFIL Vol. in Stage Storage, up to Water Quality Vol., without safety Factor of 2.

Table 16. STAGE STORAGE TABLE

Stage Elevation (feet)	Storage (Ac-ft)	Storage (CF)
1.50	0.000	0
2.00	0.000	0
2.50	0.000	0
3.00	0.000	0
3.50	0.000	0
4.00	0.000	0
4.50	0.017	733
5.00	0.093	4,058
5.50	0.212	9,242
6.00	0.331	14,425
6.50	0.450	19,609
7.00	0.569	24,793
7.50	0.688	29,976
8.00	0.807	35,160
8.50	0.926	40,344
9.00	1.045	45,527
9.50	1.164	50,711
10.00	1.283	55,895
10.50	1.402	61,078

Compacted Ground storage table				
Depth to water table (Ft)	1.00	2.00	3.00	4.00
Ground storage(In)	0.45	1.88	4.95	8.18
Mean depth to ground water table (ft)=	3.25 (Pervious Area)			
Soil Storage Type		Ground Storage Values (In Inches)		
Depth to Ground Water (Ft)	1	2	3	4
* Depressional	0.45	1.58	3.3	5.1
Flatwoods	0.45	1.88	4.05	6.75
Coastal Type	0.45	1.88	4.95	8.18

* (Low Flatwoods & Costal Lowlands)
Ground Storage Values reflect 25% reduction of Available Storage, to take into account compaction of native soils.

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Table 17. SITE ACREAGE INFORMATION

Input Information								Imperv. Paved Acres	Perv. Acres	Bldgs. Acres	Non Bldgs. Acres	Water Lake Acres	Perv. Area Avg. El.	perv. acres * avg el
LAND USES		Acres	High Elev.	Low Elev.	% Imperv. Paved	% Bldgs.	% Water							
BASIN TOTALS / AVERAGE		0.238	5.00	1.50	56.57	0.00	0.00	0.13	0.10	0.00	0.24	0.00	4.75	
1	Pervious	0.103	5.00	4.50	0	0	0	0.00	0.10	0.00	0.10	0.00	4.75	0.
2	Impervious	0.135	5.00	4.00	100	0	0	0.13	0.00	0.00	0.13	0.00	0.00	0.
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BASIN SUBTOTALS / AVG		0.238	5.00	4.00	56.57	0.00	0.00	0.13	0.10	0.00	0.24	0.00	4.75	0.

Table 18. UNDERGROUND STORAGE INFORMATION

Underground Storage	Area (SF)	Top Elev	Bottom Elev	% Voids
1 Underground Storage 1				
2 Underground Storage 2				
3 Underground Storage 3				
4 Underground Storage 4				
5 Underground Storage 5				
BASIN TOTALS / AVERAGE	0.238	5.00	1.50	56.57

Basin % Imper. for Water Quality Purposes = 56.57

Basin % Pervious (incl. Bldg., No lakes)= 56.57

P&Z

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Detail - Stage - Storage Information

Table 19. STAGE - STORAGE INFORMATION													
Surface storage (Ac-Ft)													
LAND USES	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.
	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Total Surface Storage	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.093	0.212	0.331	0.450	0.569	0.688
Underground Storage	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Exfil Trench Storage	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL Storage	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.093	0.212	0.331	0.450	0.569	0.688
1 Pervious	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026	0.078	0.129	0.181	0.233	0.284
2 Impervious	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.067	0.135	0.202	0.269	0.337	0.404
3													
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Total Surface Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.09	0.21	0.33	0.45	0.57	0.69
Underground Storage													
	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
1 Underground Storage 1													
2 Underground Storage 2													
3 Underground Storage 3													
4 Underground Storage 4													
5 Underground Storage 5													
Total Underground Storage	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Exfil Trench Storage	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL Storage	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.093	0.212	0.331	0.450	0.569	0.688
Stage Elevation	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50

Table 20. SOIL - STORAGE INFORMATION
Detail - Soil Storage Information

	LAND USES	Depth to Water Table	Ground Storage Under Pervious	
			Inches	Ac-Ft
	TOTAL/AVERAGE		5.76	0.05
1	Pervious	3.25	5.76	0.050
2	Impervious	0.00	0.00	0.000
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40				
	TOTAL/AVERAGE		5.76	0.050

Soil Storage Value (S) = Storage under pervious area / Total Area
Soil Storage under pavement and buildings is not considered in computations

S=	2.50019918
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