

TITUS SURVEYING AND ENGINEERING, P.C.

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P.P. LIC. NO. LI03789

RICHARD G. TITUS, P.L.S. LIC. NO. GS33181

P.P. LIC. NO. LI04148

**618 SOMERSET STREET
NORTH PLAINFIELD, N.J. 07060**

DRAINAGE REPORT

LOT 5, BLOCK 249

CITY OF PLAINFIELD

UNION COUNTY, NEW JERSEY

JULY 12, 2022

**W. LELAND TITUS, P.E.
N.J.P.E. LIC. NO. GE31635**

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INTRODUCTION

The property is located generally Northwest of West Front Street and contains 4,047 square feet (0.093 acres) of land. The property is located in the business district between Madison Avenue and Park Avenue. The property to the West is also vacant land. The property to the East is a three story brick building.

The property is vegetated in short grass in poor condition with some worn dirt pathways. The property is relatively level, however there is a high point towards the center of the property. The front of the property slopes from the high point, very gently in a Southeasterly direction towards West Front Street. While the rear of the property also slopes very gently Northwesterly towards a City of Plainfield parking facility. Any runoff from the Southeasterly portion (front) of the property would flow over the side walk and into the gutter line along West Front Street. There is storm drainage in West Front Street. Any runoff from the Northwesterly portion of the property would flow across the municipal parking lot and eventually into the brook to the North. There is no storm drainage in the municipal parking lot.

Historically the property contained two buildings. The property on the left (with respect to West Front Street) was the lobby entrance of a three story brick building. This building was a theater and was eventually eventually demolished, and the rear portion of this theater building, containing the bulk of the theater, was acquired by the Plainfield Parking Authority. The building on the right was a brick building that went from front to back. These buildings comprised the store fronts along West Front Street and covered the entirety of Lot 6 with buildings. These buildings likely fell into disrepair and were demolished.

SOILS

The property is shown as Urban Land (UR) on the USDA Natural Resources Conservation Service Web Soil Survey. More than likely it is rubble mixed with whatever fill material was available compacted and capped with topsoil and seeded. There may even be old foundations in this material.

PROPOSED CONSTRUCTION

The proposed construction will be a three story building with a basement. The first floor will be retail, while the second and third floors will each contain two apartments. The slope of the roof will be generally towards the rear of the building.

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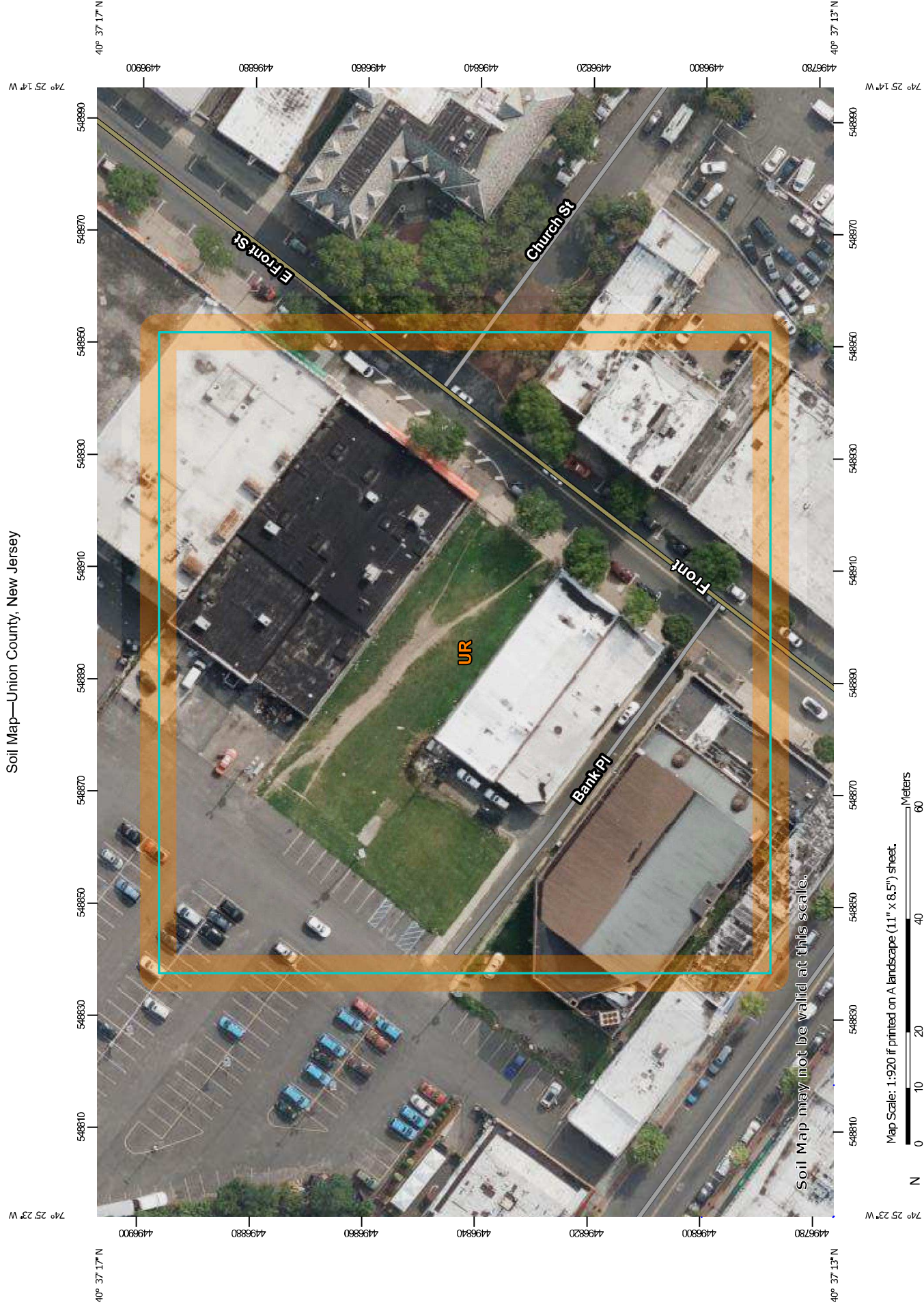
DEVELOPED RUNOFF

The runoff from the proposed building will be directed from several downspouts across the parking lot in the rear of the building. A hydrocad model for the entire 0.093 acre site shows the following peak flow rates:

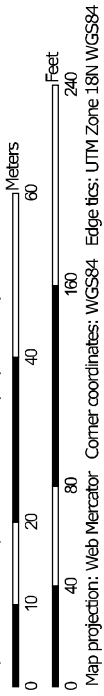
2 year storm	0.33 cubic feet per second
10 year storm	0.50 cubic feet per second
100 year storm	0.85 cubic feet per second

CONCLUSION

On a site this small there is very little room to construct a stormwater recharge facility. Such a facility would be very close to the proposed basement, and also very close to old existing basements on adjoining buildings. A concern arises about short circuiting the stormwater from a recharge basin into the proposed basement, as well as the adjoining property



Map Scale: 1:920 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Union County, New Jersey
Survey Area Data: Version 15, Aug 31, 2021

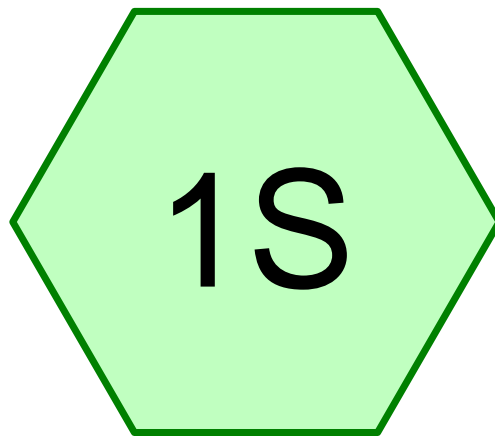
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 14, 2020—Oct 3, 2020

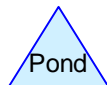
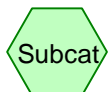
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
UR	Urban land	3.1	100.0%
Totals for Area of Interest		3.1	100.0%



(new Subcat)



Routing Diagram for KWOK

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KWOK

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Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 6619 NJ Union-D

KWOK

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NOAA 24-hr	D	Default	24.00	1	3.39	2
2	10-Year	NOAA 24-hr	D	Default	24.00	1	5.17	2
3	100-Year	NOAA 24-hr	D	Default	24.00	1	8.69	2

KWOK

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.093	98	Paved parking, HSG B (1S)
0.093	98	TOTAL AREA

KWOK

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	1S
0.093	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.093		TOTAL AREA

KWOK

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.093	0.000	0.000	0.000	0.093	Paved parking	1S
0.000	0.093	0.000	0.000	0.000	0.093	TOTAL AREA	

KWOK

NOAA 24-hr D 2-Year Rainfall=3.39"

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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, Weighted-CN

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

Subcatchment 1S: (new Subcat)

Runoff Area=4,047 sf 100.00% Impervious Runoff Depth>2.89"

Tc=0.0 min CN=98 Runoff=0.33 cfs 0.022 af

Total Runoff Area = 0.093 ac Runoff Volume = 0.022 af Average Runoff Depth = 2.89"

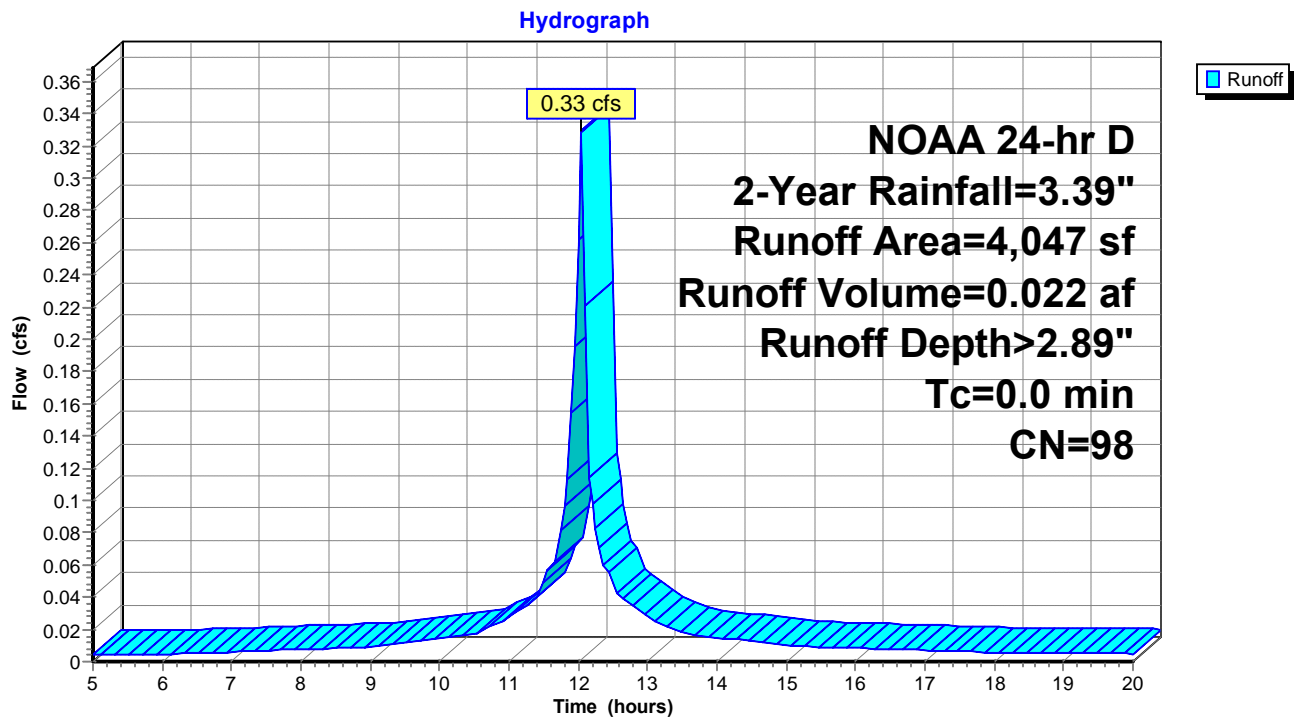
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.093 ac

Summary for Subcatchment 1S: (new Subcat)[46] Hint: $T_c=0$ (Instant runoff peak depends on dt)

Runoff = 0.33 cfs @ 12.04 hrs, Volume= 0.022 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, $dt= 0.05$ hrs
NOAA 24-hr D 2-Year Rainfall=3.39"

Area (sf)	CN	Description
4,047	98	Paved parking, HSG B
4,047		100.00% Impervious Area

Subcatchment 1S: (new Subcat)

KWOK

NOAA 24-hr D 10-Year Rainfall=5.17"

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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, Weighted-CN

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

Subcatchment 1S: (new Subcat)

Runoff Area=4,047 sf 100.00% Impervious Runoff Depth>4.48"

Tc=0.0 min CN=98 Runoff=0.50 cfs 0.035 af

Total Runoff Area = 0.093 ac Runoff Volume = 0.035 af Average Runoff Depth = 4.48"

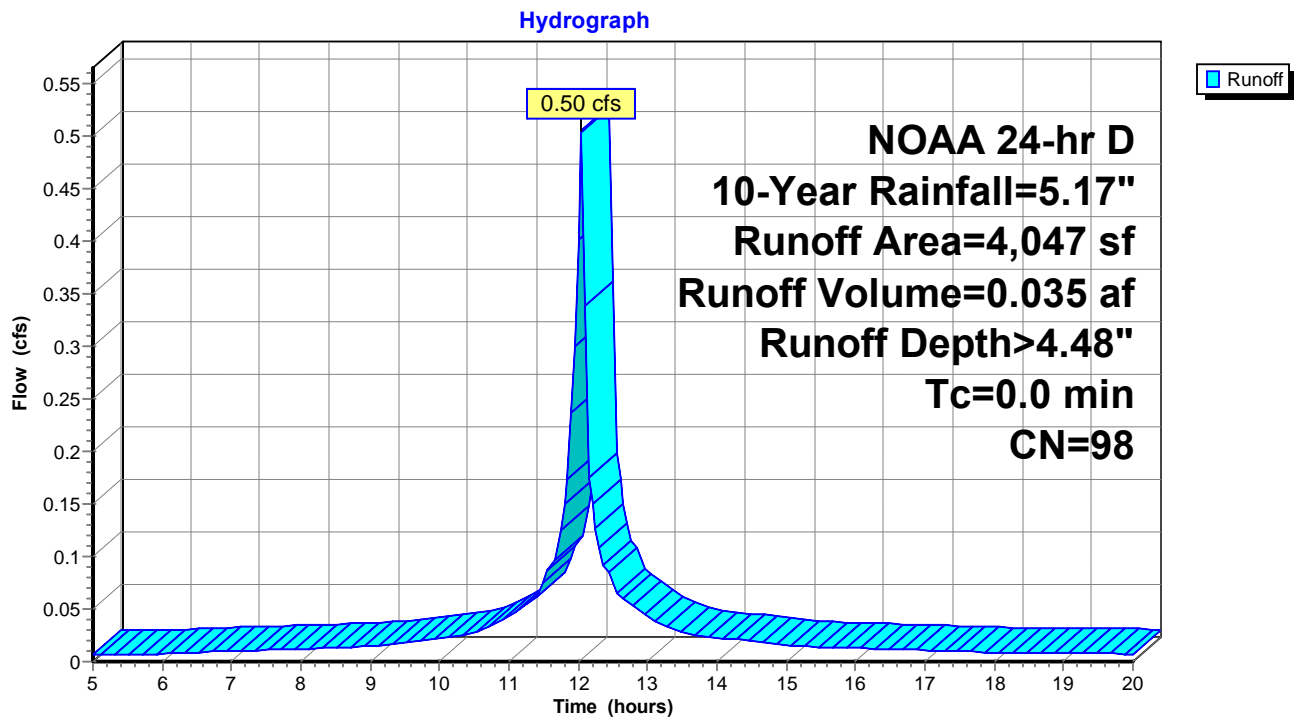
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.093 ac

Summary for Subcatchment 1S: (new Subcat)[46] Hint: $T_c=0$ (Instant runoff peak depends on dt)

Runoff = 0.50 cfs @ 12.04 hrs, Volume= 0.035 af, Depth> 4.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, $dt= 0.05$ hrs
NOAA 24-hr D 10-Year Rainfall=5.17"

Area (sf)	CN	Description
4,047	98	Paved parking, HSG B
4,047		100.00% Impervious Area

Subcatchment 1S: (new Subcat)

KWOK

NOAA 24-hr D 100-Year Rainfall=8.69"

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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, Weighted-CN

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

Subcatchment 1S: (new Subcat)

Runoff Area=4,047 sf 100.00% Impervious Runoff Depth>7.60"

Tc=0.0 min CN=98 Runoff=0.85 cfs 0.059 af

Total Runoff Area = 0.093 ac Runoff Volume = 0.059 af Average Runoff Depth = 7.60"

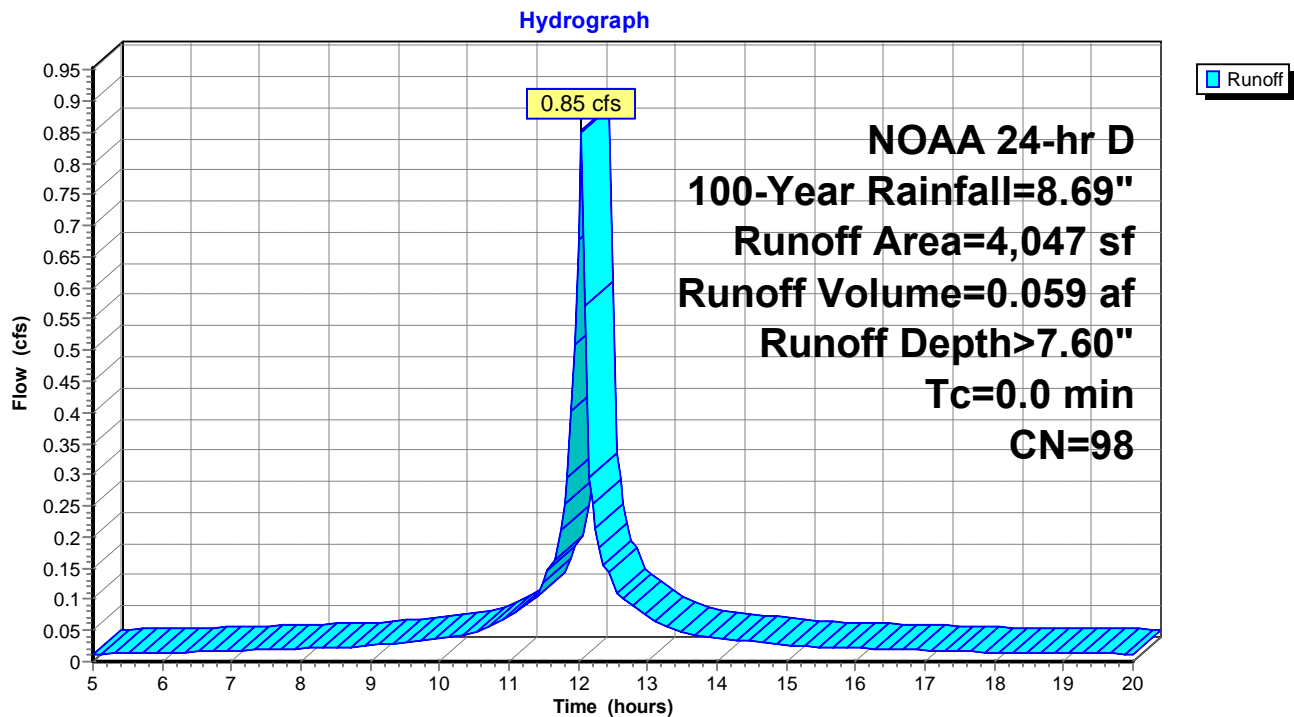
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.093 ac

Summary for Subcatchment 1S: (new Subcat)[46] Hint: $T_c=0$ (Instant runoff peak depends on dt)

Runoff = 0.85 cfs @ 12.04 hrs, Volume= 0.059 af, Depth> 7.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, $dt= 0.05$ hrs
NOAA 24-hr D 100-Year Rainfall=8.69"

Area (sf)	CN	Description
4,047	98	Paved parking, HSG B
4,047		100.00% Impervious Area

Subcatchment 1S: (new Subcat)

GREEN

N. 45° 09' E
100.0

BROOK

N. 46° 19' E.
59.82

N. 46° 14' E.
35.64

N. 45° 14' W.
14.48

N. 46° W.
20.59

N. 55° 47' E.
8.0

N. 48° 13' W.
157.66

RETAINING WALL

ONE
STORY
BRICK
BUILDING

THREE
STORY
BRICK
THEATER
BUILDING

33.19
N. 45° 51' E.

RETAINING WALL
N. 44° 37' W.
80.73

WALL

RETAINING

ALLEY

N. 42° 26' W.
206.14

N. 47° 05' E. 70.94

DRIFTWAY

N. 47° 05' E. 53.57

BRICK BUILDING

N. 47° 05' E. 12.89
N. 47° 05' E. 8.85
N. 47° 05' E. 7.25

BRICK BUILDING
N. 42° 11' W. 94.73
THREE STORY BRICK
BUILDING - LOBBY
N. 42° 12' W. 96.82

BRICK
BUILDING

BRICK
BUILDING

Decds say alq
rear of wall.

THIS SURVEY IS
CERTIFIED TO THE
PLAINFIELD PARKING
AUTHORITY.

Edward S. Lewis
(E.S.L.)

PROPERTY IN THE
CITY OF
PLAINFIELD
UNION COUNTY
NEW JERSEY

SCALE: 1 IN = 20 FT.
MAY 28, 1956

MADISON AVENUE

COMPTON

WEST

FRONT

STREET

64

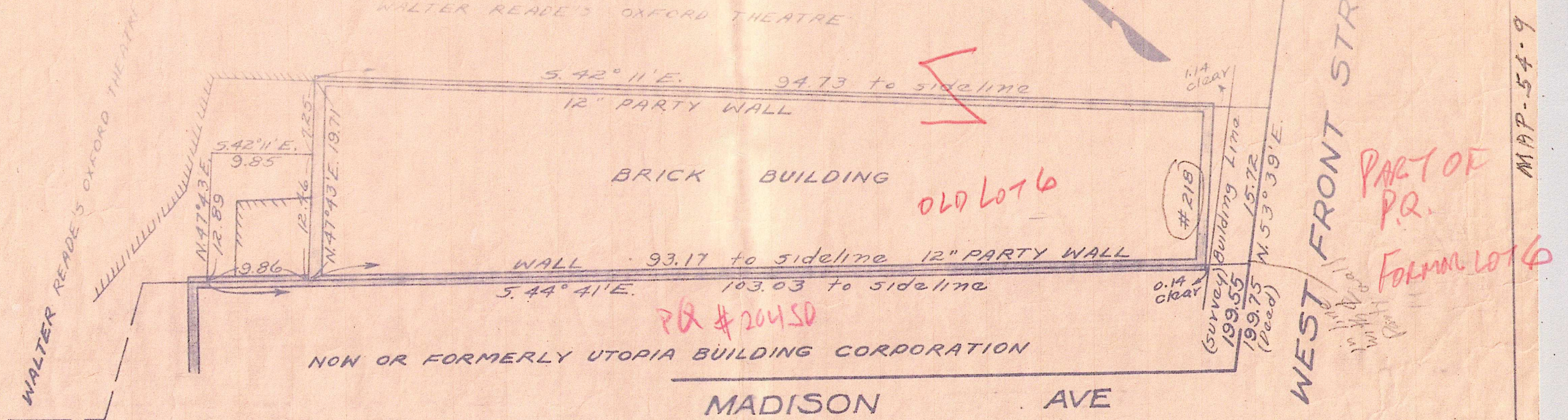
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F. A. DUNHAM CO.
PROFESSIONAL ENGINEERS
AND LAND SURVEYORS
317 W. FRONT ST. PLAINFIELD, N.J.

29521 Map 54-9

29521-A

MAP-54-9

EDWARD S. LEWIS T/A
F. A. DUNHAM COMPANY
PROFESSIONAL ENGINEERS & LAND SURVEYORS
811 W. FRONT ST. PLAINFIELD, NEW JERSEY



THIS SURVEY IS CERTIFIED TO
PHILIP HEYMAN AND IDA
HEYMAN, HIS WIFE, AS OWNERS
AND THE PLAINFIELD NATIONAL
BANK AS MORTGAGEE.

Edward S. Lewis

23293-A Map 54-9

28986

MAP-54-9