

SEWER ENGINEER'S REPORT

66 State Street Apartment Conversion

66 State Street

CITY OF ALBANY
COUNTY OF ALBANY
STATE OF NEW YORK

Applicant:
Redburn Development, Inc.

Prepared by:

Hershberg & Hershberg
Consulting Engineers and Land Surveyors

18 Locust Street
Albany, NY 12203-2908
(518) 459-3096
Fax (518) 459-5683
hhershberg@aol.com

May 18, 2021

INTRODUCTION:

Hershberg & Hershberg, Consulting Engineers and Land Surveyors, were retained by Redburn Development, Inc. (hereinafter the "Applicant") to review water usage of the proposed 66 State Street Apartment Conversion. This report is for the consideration of the Department of Water & Water Supply and the City of Albany Planning Board.

DESCRIPTION OF EXISTING SITE:

PARCEL AREA

The existing parcel is Tax Map Parcel #76.42-3-6 known as No. 66 State Street with a site area of 10,261 SF or 0.24 Acres.



Fig. No. 1 - Aerial Photo of Site

DESCRIPTION OF INTENDED SITE DEVELOPMENT AND USE

Under the current application the Applicant is proposing to convert floors 2 through 4 from office space to 27 apartments which would have 36 bedrooms. The 10,261 first floor would be used for commercial space with the potential for a 1,000 SF coffee shop.

SEWAGE GENERATION

To establish the sewage generation from the site as redeveloped the *New York State Design Standards for Intermediate Sized Wastewater Treatment Systems (March 5, 2014)* is used to compute the Average Daily Flow. Based upon 50 GPD per bed (Method 3 Water Usage Data Hydraulic Loading Rates)¹ based upon the computation below from 132 apartments at 16-30 Sheridan Avenue by the same developer.

Computation of Average Water Use at 16-30 Sheridan Avenue
Data from bill from City of Albany Department of Water & Water Supply

<u>Period</u>		<u>Water Used (CF)</u>
3/4/20 to 7/1/20		97,100
		97,100
Total Days	118	
Daily Use (CF)		822.88
Daily Use (Gallons)		6,163
Usage in GPD per Apt (132)		46.69
For Report Value (GPD)		50

Fig. No. 1 – Establishing per Bedroom Use

In addition to the residential usage, the 1,000 SF for a potential coffee shop would be primarily for takeout but an allowance of 10 seats at 35 GPD² per

¹ *New York State Design Standards for Intermediate Sized Wastewater Treatment Systems (March 5, 2014), Pg. B-16*

² *Ibid., Page B-19*

seat and the balance of the first floor (9,261 SF) at 0.1 G/SF/Day³.

The average sewage generation is computed utilizing *New York State Design Standards for Intermediate Sized Wastewater Treatment Works* as 2,726 GPD. Peak sewage generation is estimated at 400% of average sewage generation which is 10,194 GPD or 0.017 CFS. The pipe capacity of the 4'-6" diameter brick sewer of 182.53 CFS. (see Appendix No. 2). The peak flow from this project represents and insignificant 0.009% of the flowing full capacity of this pipe.

**Sewage Generation
66 State Street**

<u>Use</u>	<u>Unit</u>	<u>Value</u>	<u>Usage Per Unit per day(GPD) See Notes 1-3</u>	<u>Daily Use (GPD)</u>
Apartments- Note 1	Bed	50	36	1800
Coffee Shop - Note 2	Seats	35	10	350
Retail/Commercial- Note 3	SF	0.1	9261	926.1
TOTAL ESTIMATED SEWAGE GENERATION				2726
Average Daily Sewage Generation in GPD		2726		
Peak Sewage Generation in GPD at 400%		10904		
Average Daily Sewage Generation in CFS		0.004		
Peak Sewage Generation in CFS		0.017		

1) Source: New York State Design Standards for Intermediate Sized Wastewater Treatment Systems
NYSDEC March 5, 2014 Method 3 (Page B-16)

2) Ibid, Table B-3, Page B-19

3) Ibid., Table B-3, Page 20

Fig. No. 2 – Sewage Generation`

³ Ibid., Page B-20

SEWER SYSTEM

The sanitary sewage from this site is tributary to a Central Area Sewer District as shown on the portion Sewer Atlas Sheet 31 reproduced below.

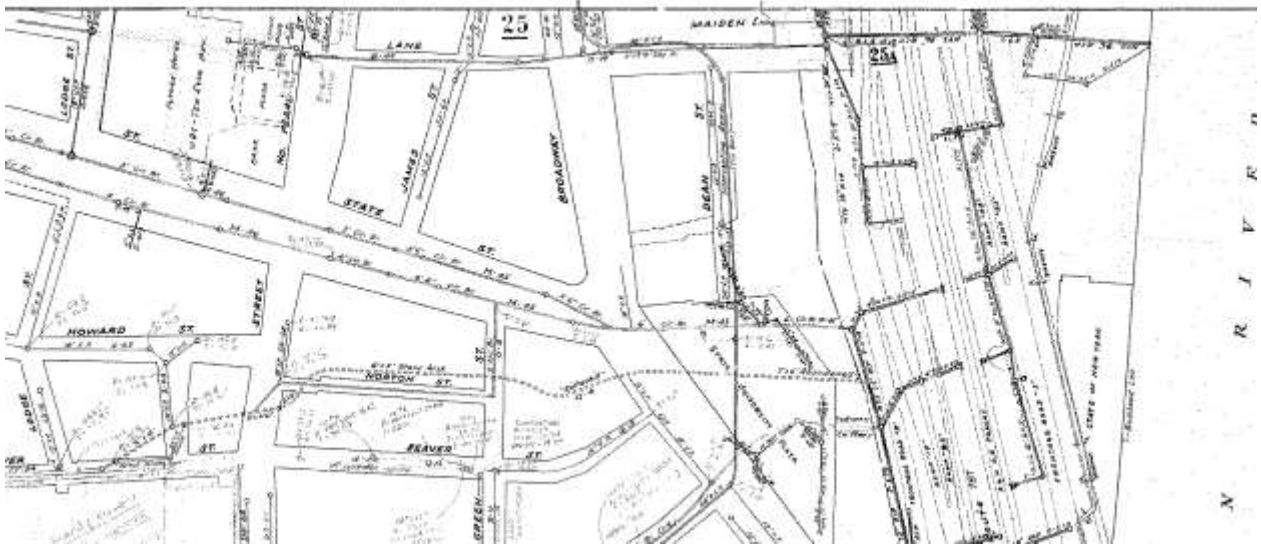


Fig. No. 3 – Portion of Sewer Atlas Sheet 31

The 4'6" diameter sewer is tributary to a 6' diameter sewer before entering a regulating chamber which control flows to the Intercepting Sewer. When the set amount of flow is exceeded the combined sewer discharges into a system constructed by New York State in connection with the construction of Interstate 787. When the system overflows it creates a Combined Sewer Overflow to the Hudson River.

DRY WEATHER FLOWS

In connection with another project, a flow meter was set at Dean Street and data recorded from February 16, 2018 through February 22, 2018. The tabular results are included in Appendix 3. They show that the average height of flow is 5.671 inches and the average flow is 2.505 MGD. Information provided by the Department indicates that the top of the dam is 1.6 feet (19.2 inches) above the pipe invert where the flow meter was set. The peak flow of 10,904 GPD represents

an insignificant 0.4% of the measured dry weather flow which would increase the dry weather flow to 5.893 inches.

CONCLUSION:

It is the Engineer's opinion that this project can be served by existing public sewer system with no negative on this system capacity during storm conditions and with no negative impact during dry weather flow conditions.



Prepared by:

A handwritten signature in black ink, appearing to read "D. Hershberg", written over a horizontal line.

HERSHBERG & HERSHBERG
Daniel R. Hershberg, P.E. & L.S.

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APPENDIX 1

EXISTING CONDITIONS AND SITE PLAN

APPENDIX 2

PIPE CAPACITY CALCULATIONS

Q MAX = DISCHARGE FOR PIPE FLOWING FULL IN C.F.S.
 Q MAX GPD= DISCHARGE FOR PIPE FLOWING FULL IN G.P.D.
 Q_p = DISCHARGE AT MEASURED OR ESTIMATED FLOW IN CFS
 Q_p GPD = DISCHARGE AT MEASURED OR ESTIMATED FLOW IN GPD
 n = COEFFICIENT OF ROUGHNESS
 A = CROSS SECTIONAL AREA OF FLOW IN SQUARE FEET
 R = HYDRAULIC RADIUS IN FT.
 S = SLOPE IN FT./FT.
 Vm = VELOCITY OF PIPE FLOWING FULL IN FT./SEC.
 D = PIPE DIAMETER IN INCHES
 Vp = PROJECTED VELOCITY IN FT./SEC.

Flow through 54" Pipe Flowing Full

Q MAX GPD	Q MAX	n	A	R	S	Vp	D	Vm
1,968,685	182,5290	0.015	15,898	1.125	0.0115	11.5	54	11.8

APPENDIX 3

TABLE OF DRY WEATHER FLOWS

**Albany State St
Flowlink 5**

Date/Time	Level (in)	Velocity (ft/s)	Flow Rate (gpm)	Total Flow (mgal)
	Average	Average	Average	Summary
2/16/2018 12:...	5.732	6.791	2367.67	1.630
2/17/2018 12:...	6.182	4.773	2289.67	3.297
2/18/2018 12:...	5.264	4.448	1683.25	2.424
2/19/2018 12:...	5.430	4.501	1784.36	2.569
2/20/2018 12:...	5.747	4.248	1865.78	2.687
2/21/2018 12:...	5.575	4.059	1672.37	2.408
2/22/2018 12:...	5.767	4.043	1750.45	2.521
	Average Level 5.671 (in)	Average Velocity 4.695 (ft/s)		Average Total Flow 2.505 (mgal)
			Total 19.316 mgal	Total 17.536 mgal

APPENDIX 4

GRAPH OF DRY WEATHER FLOWS

Albany State St

Level, Velocity, & Flow Rate

