

SEWER ENGINEER'S REPORT

90 State Street Apartment Conversion

90 State Street

CITY OF ALBANY
COUNTY OF ALBANY
STATE OF NEW YORK

Applicant: Harmony Mill South, LLC

Prepared by:

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October 31, 2017

INTRODUCTION:

Hershberg & Hershberg, Consulting Engineers and Land Surveyors, were retained by Harmony Mill South, LLC (hereinafter the “Applicant”) to review sewer generation from the proposed 90 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 #76.42-1-5 listed as No. 90 State Street with a site area of 16,976 SF or 0.39 Acres.

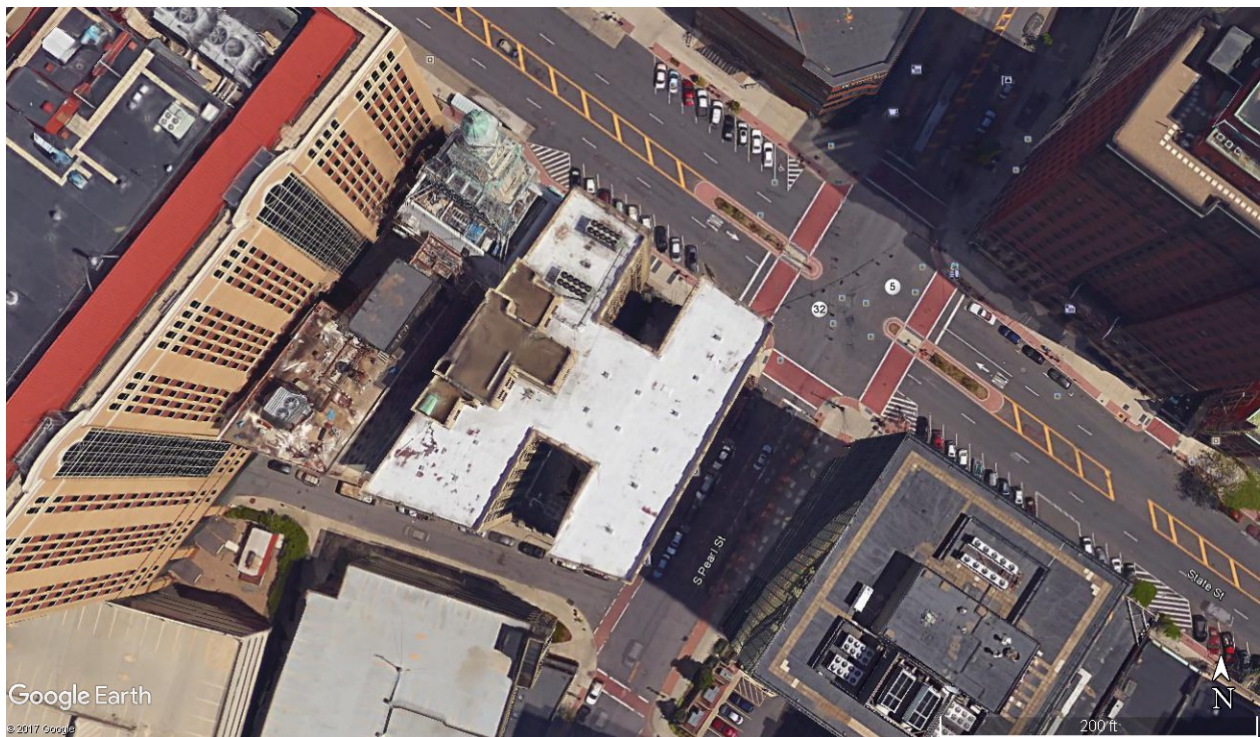


Fig. No. 1 - Aerial Photo of Site

DESCRIPTION OF INTENDED SITE DEVELOPMENT AND USE

Under the current application the Applicant is proposing to convert floors 4 through 12, 14 & 15 from office space to 154 apartments which would have 176 bedrooms. The existing uses on the Ground floor through the 3rd floor will remain. They include a banquet hall, fast food, retail, personal services and offices as outlined in Figure No. 2 below.

SEWAGE GENERATION

To establish the sewer generation for the site as previously occupied, water records would not be appropriate since 90 State Street has not been at full occupancy for a number of years. Instead usage from *New York State Design Standards for Intermediate Sized Wastewater Treatment Works* are computed. These figures are included in in Figure No. 2 below and tend to be conservative. The estimated sanitary sewage generation from the building at full occupancy as currently configured is 20,241 GPD or an average flow of 0.031 CFS. This project is estimated potable water requirement after conversion is 24,646 GPD or an average flow of 0.038 CFS. See Fig. No. 2 below. The residential water use is based (based upon 110 GPD per Bed in Apartment Units¹). Sewer service is currently provided to the property by the Albany Water Board. An existing 12" combined sewer lateral is connected to a 4-foot diameter brick sewer in State Street. Peak sewage generation prior to conversion is estimated at 450% of average sewage generation which is 63.5 GPM or 0.141 CFS. Peak sewage generation after conversion is estimated at 450% of average sewage generation which is 77.0 GPM or 0.172 CFS. Therefore, the increase in sanitary flow is 0.031 CFS. The pipe capacity of the 4-foot diameter brick sewer of 75.95 CFS. (see

¹ New York State Design Standards for Intermediate Sized Wastewater Treatment Works, NYSDEC. March 5, 2014

(Appendix 2). The impact of the increase in the flow is 0.03% of the pipe capacity of the receiving sewer.

Sewage Generation
90 State Street Apartment Conversion

| Floor/Use | Area/SF | Basis (unit per SF) | Unit | Value | Water Use Per Unit per | |
|--|---------|---------------------|----------|-------|------------------------|-----------------|
| | | | | | day(GPD) See Note 1 | Water Use (GPD) |
| Existing Condition | | | | | | |
| Ground Floor, Fast Food | 1946 | 0.02 | Seats | 39 | 25 | 975 |
| Ground Floor, Personal Service | 3583 | 0.00667 | Employee | 24 | 15 | 360 |
| Ground Floor, Retail | 4910 | 0.00333 | Employee | 16 | 15 | 240 |
| Ground Floor, Office | 760 | 0.00667 | Worker | 5 | 25 | 125 |
| First Floor, Fast Food | 720 | 0.02 | Seats | 14 | 25 | 350 |
| First Floor, Retail | 3583 | 0.00333 | Employee | 12 | 15 | 180 |
| First Floor, Banquet (see Note 3) | 17984 | 0.01333 | Seats | 240 | 10 | 2400 |
| Floor 2 - Office | 4242 | 0.00667 | Worker | 28 | 15 | 424 |
| Floor 3 - Office | 2321 | 0.00667 | Worker | 15 | 15 | 232 |
| Floor 4 - Office | 15999 | 0.00667 | Worker | 107 | 15 | 1,605 |
| Floor 5-12, 14 & 15 Office | 133490 | 0.00667 | Worker | 890 | 15 | <u>13,350</u> |
| Total Estimated Existing Water Use at Full Occupancy | | | | | | 20241 |
| Proposed Condition | | | | | | |
| Ground Floor, Fast Food | 1946 | 0.02 | Seats | 39 | 25 | 975 |
| Ground Floor, Personal Service | 3583 | 0.00667 | Employee | 24 | 15 | 360 |
| Ground Floor, Retail | 4910 | 0.00333 | Employee | 16 | 15 | 240 |
| Ground Floor, Office | 760 | 0.00667 | Worker | 5 | 25 | 125 |
| First Floor, Fast Food | 720 | 0.02 | Seats | 14 | 25 | 350 |
| First Floor, Retail | 3583 | 0.00333 | Employee | 12 | 15 | 180 |
| First Floor, Banquet (see Note 3) | 17984 | 0.01333 | Seats | 240 | 10 | 2400 |
| Floor 2 - Office | 4242 | 0.00667 | Worker | 28 | 15 | 424 |
| Floor 3 - Office | 2321 | 0.00667 | Worker | 15 | 15 | 232 |
| Floor 4-12, 14 & 15 Residential | | | Bedroom | 176 | 110 | <u>19,360</u> |
| Total Estimated Existing Water Use at Full Occupancy | | | | | | 24646 |

- 1) Source: New York State Design Standards for Intermediate Sized Wastewater Treatment Works, NYSDEC, March 5, 2014
 2) Sewage Generation is equivalent to potable water use
 3) Banquet Use includes 3,792 SF on Second Floor and 14,192 SF on First Floor

Fig. No. 2 – Sewage Generation`

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.

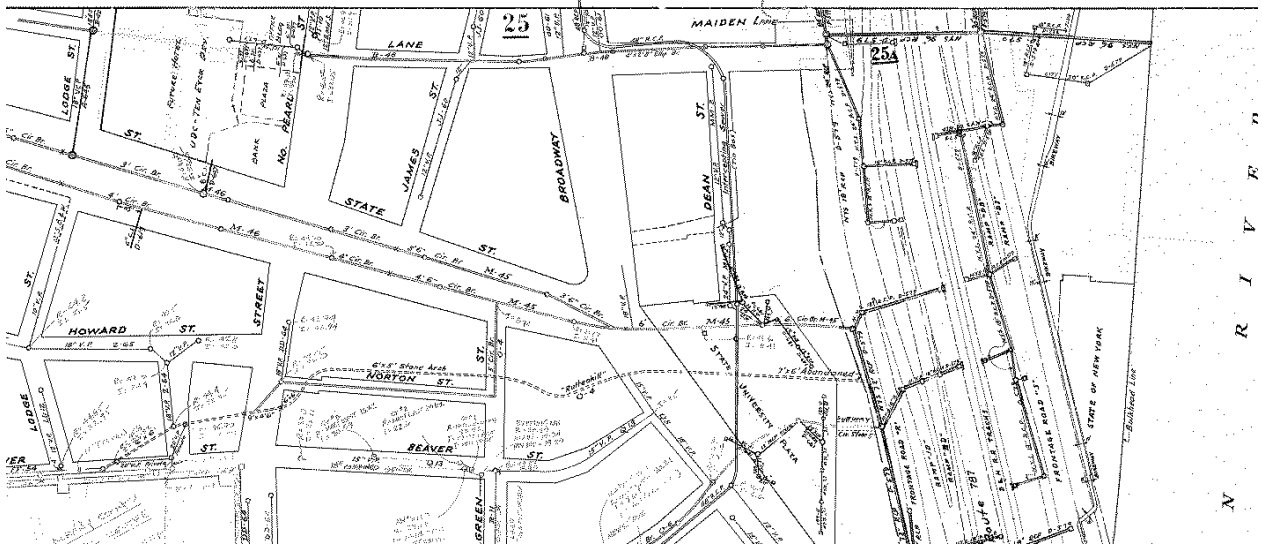


Fig. No. 3 – Portion of Sewer Atlas Sheet 31

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.

The sewer system is well equipped to accommodate dry-weather flows. The Applicant proposes to use slow release roof drains to control the outfall generated by roof drainage. This is the "blue roof" solution considered as an acceptable method according to the Uniform Sustainable Development Ordinance.

In the order to determine the net impact of adding sanitary flow while reducing storm sewer from the one-year storm has been analyzed. Compared to the site in its totally unpaved condition the discharge from the developed site is reduced from 0.26 CFS to 0.19 CFS which is reduction of 0.07 CFS which is 226% of the increase in sanitary flow of 0.031 CFS. For the 10-year storm the change in storm flow from the site in its totally unpaved condition to the discharge from the developed site is reduced from 1.04 CFS to 0.47 CFS which is reduction of 0.57 CFS which is 1,839% of the increase in sanitary flow of 0.031 CFS.

It should be noted that the actual reduction in flow from the existing condition is from 1.25 CFS to 0.19 CFS for the one-year storm and from 2.42 CFS to 0.47 CFS for the 10-year storm.

CONCLUSION:

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



Prepared by:

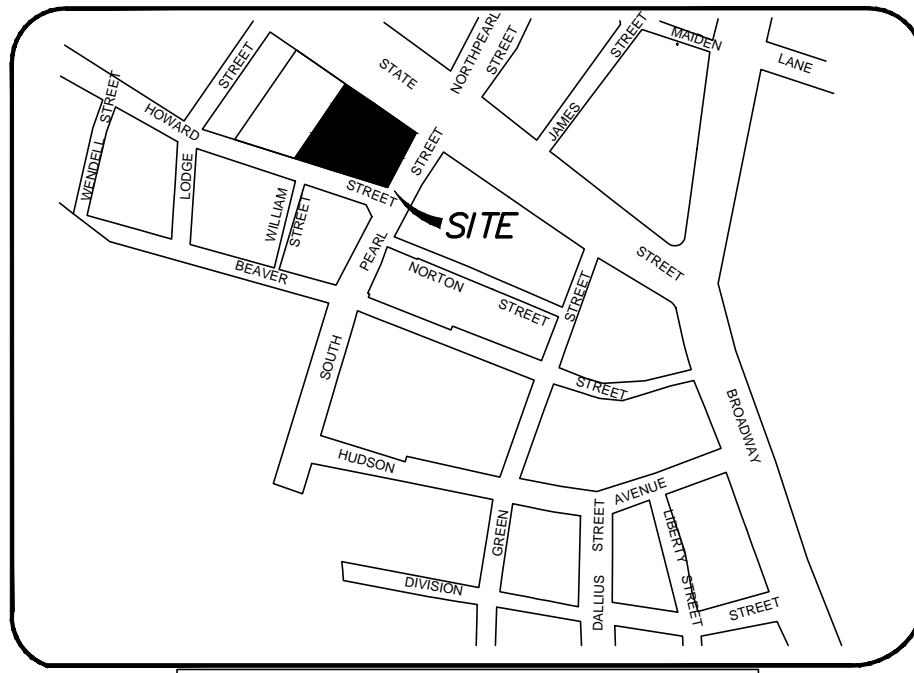
A handwritten signature in black ink, appearing to read "D. Hershberg", written over a horizontal line.

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

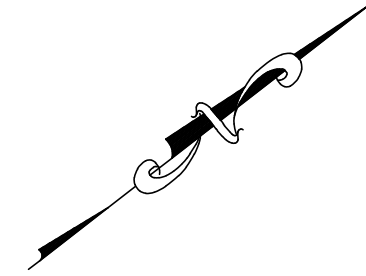
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APPENDIX A

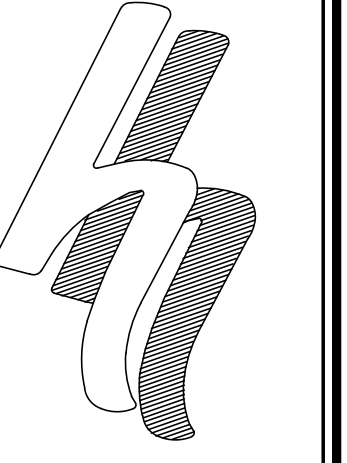
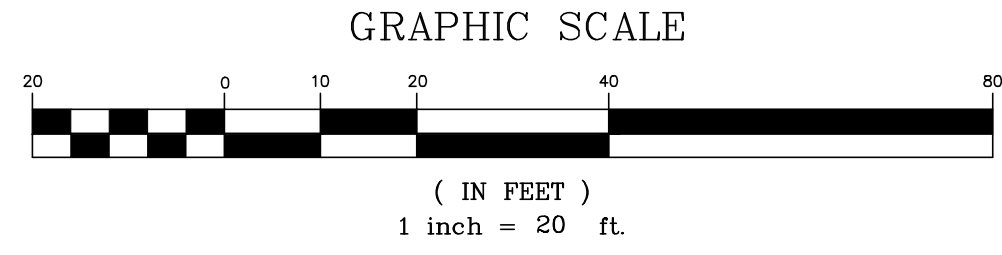
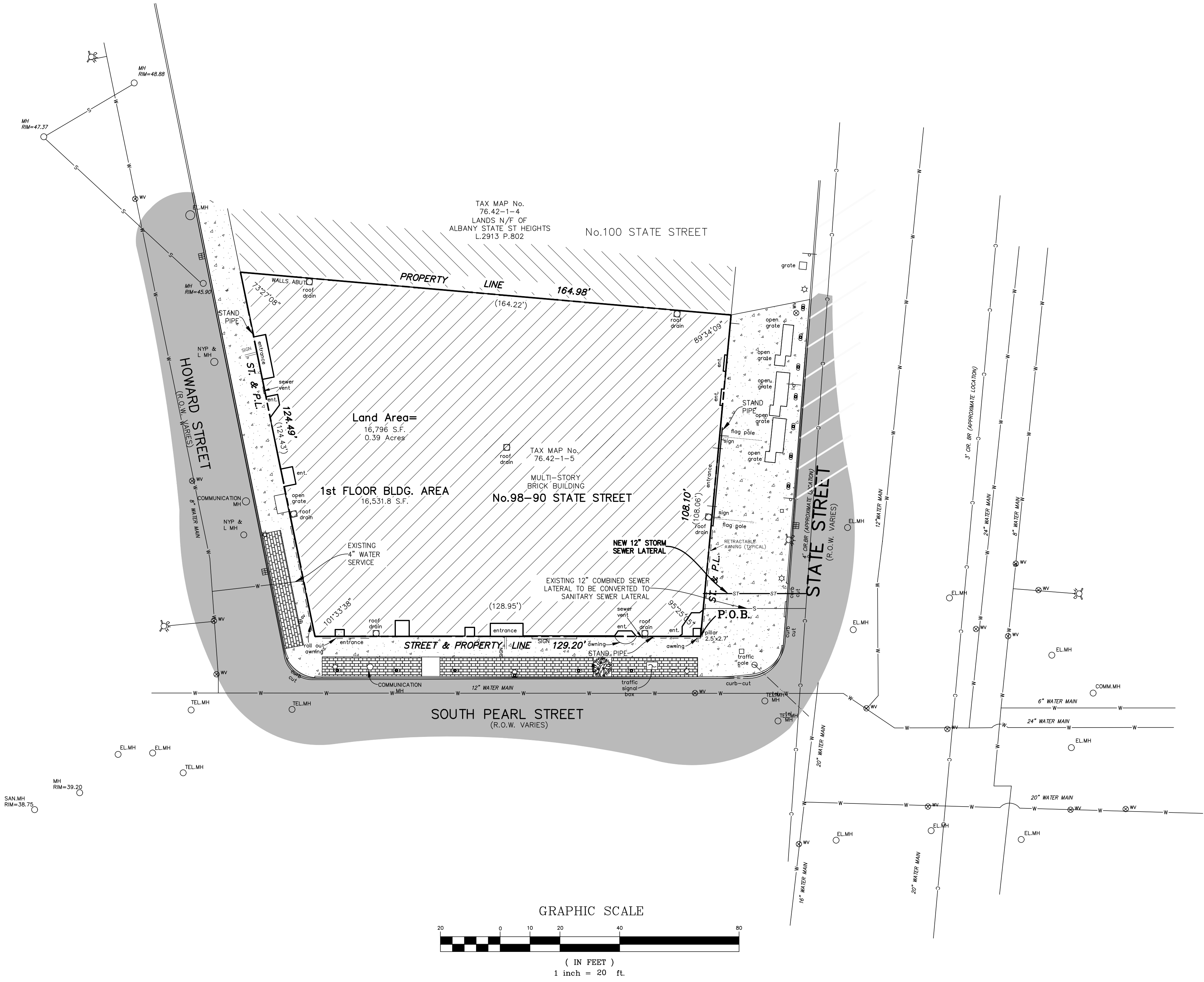
EXISTING CONDITIONS AND SEWER CONNECTION PERMIT PLAN



SITE LOCATION MAP
MAP NOT TO SCALE



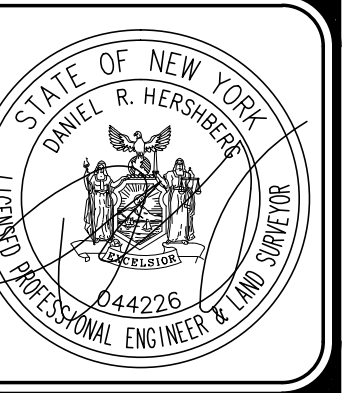
| LEGEND | | | |
|--------|--------------------|---|--|
| R.O.W. | RIGHT OF WAY | ○ | PARKING METER |
| No. | NUMBER | ○ | MANHOLE |
| P.O.B. | POINT OF BEGINNING | ⊞ | CATCHBASIN |
| S.F. | SQUARE FEET | — | SIGN |
| N/F | NOW OR FORMERLY | — | OVERHEAD WIRE, UTILITY POLE & GUY WIRE |
| N | NORTH | ☆ | LIGHT POLE |
| S | SOUTH | ⊙ | WATER VALVE |
| E | EAST | ⊙ | GAS VALVE |
| W | WEST | ⊙ | HYDRANT |
| L | LIBER | □ | ROOF DRAIN |
| P | PAGE | ▨ | CONCRETE |
| ☆ | STREET LIGHT | ▨ | PAVEMENT |
| | | ▨ | PAVERS |



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Consulting Engineers and Land Surveyors

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EXISTING CONDITIONS AND SEWER CONNECTION PERMIT PLAN
No. 90 STATE STREET
CITY OF ALBANY, NEW YORK STATE
COUNTY OF ALBANY, NEW YORK STATE

FILE: 170316
SCALE: 1"=20'
CHK: DRH
DATE: 9/22/17
170316-1.DWG

FOR MUNICIPAL APPROVAL ONLY-NOT INTENDED FOR CONSTRUCTION

C1

APPENDIX 2

PIPE CAPACITY CALCULATIONS

Existing Sewer Analysis for 90 State Street

THE FOLLOWING IS THE CALCULATION FOR THE PIPE FLOWING FULL AS STATED IN THE CHEZY-MANNING FORMULA, WHERE:

Q MAX = DISCHARGE FOR PIPE FLOWING FULL IN C.F.S.

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

| LOCATION | Q MAX | n | A | R | S | Vm | D |
|--|-------|-------|--------|-------|--------|-----|----|
| Combined Sewer 4' Brick Sewer State Street | 75.95 | 0.012 | 12.560 | 1.000 | 0.0024 | 6.0 | 48 |
| | | | | | | | |