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ROBIN

STORMWATER MANAGEMENT & ENGINEERS REPORT

MIXED-USE APARTMENT BUILDING

337 JOHNSTON AVENUE

BLOCK 19002, LOT 1

CITY OF JERSEY CITY, HUDSON COUNTY, NJ, 07304

DRESDNER ROBIN PROJECT NO.: 11132-010

PREPARED FOR
VREELAND PROJECTS, LLC
186 OCEAN AVENUE
JERSEY CITY, NJ 07305

PREPARED BY
DRESDNER ROBIN
ONE EVERTRUST PLAZA, SUITE 901
JERSEY CITY, NJ 07302

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STATE OF NEW JERSEY
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DATE
August 2022

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1.0 INTRODUCTION

The Mixed-Use Apartment Building development project consists of a 6-story residential building including retail space, amenity space and a residential lobby on the ground floor and an amenity deck on the roof. The roof will also be partially covered by landscaped greenspace. The project site is located at the intersection of Johnston Avenue and Whiton Street in Jersey City's Morris Canal Redevelopment Plan. The development is to contain 30 residential units with the residential lobby situated along Whiton Street and the retail entrance situated at the north corner of the building, which forms the southern corner of the intersection of Johnston Avenue and Whiton Street. The development does not include an internal parking garage, although on-street parking space will be available along both project frontages to Johnston Avenue and Whiton Street.

The project site contains 4,750 square-feet (0.109 acres), the entirety of which is to be disturbed during construction. The existing site is currently vacant, with sparce vegetation and mostly gravel coverage. The existing site also includes various overhead utility lines and chain-link fencing. The entirety of the project site will be disturbed by the construction and ancillary improvements discussed above. The applicant is seeking Preliminary and Final Site Plan approval for the proposed development at 337 Johnston Avenue. The project plans have been prepared in compliance with the provisions of the Morris Canal Redevelopment Plan adopted by the City of Jersey City on December 16th, 2020.

2.0 UTILITY SERVICES

The Project Site will be serviced by new utility infrastructure on Whiton Street.

Gas service will be provided via PSE&G's gas main along Whiton Street. Sanitary sewage collection and water service is handled by the Jersey City Municipal Utilities Authority (JCMUA). Telephone and digital broadband services are provided by Verizon, among other available providers. Electrical utility service is provided by PSE&G.

3.0 POTABLE WATER SERVICE

Potable water service for the project will be provided by way of connection to an existing 20-inch water main on Whiton Street. The proposed building will be serviced by one 4-inch lateral entering the building underneath the lobby and amenity space fronting Whiton. An isolation valve is proposed at the existing 20-inch water main between the proposed service line for added resiliency in the event of an outage.

The estimated average total water demand for the development is 3,259 gallons per day with an anticipated peak water demand of 9,777 gallons per day. Residential potable water demand is based upon the requirements of the New Jersey Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21-5.2 and the distribution of unit types in the building. Nonresidential potable

water demand is based upon New Jersey's Safe Drinking Water Act which is codified at N.J.A.C. 7:10-12.6 – TABLE 1. See Appendix A for the Water Demand Estimate which has been prepared for this application.

4.0 SANITARY SEWER SERVICE

Anticipated sewage flows from the proposed building will be handled by an existing 30" combined sewer pipe on Whiton Street via a 6-inch SDR-35 PVC lateral at the northern edge of the proposed building. Based upon the New Jersey Department of Environmental Protection (NJDEP) Treatment Works Regulations at N.J.A.C. 7:14A-23.3 and the current architectural design of the building, the estimated new daily sewage flow to be generated by the project is 5,457 gallons per day. Based on the analysis provided in Appendix B, a proposed 6" SDR-35 PVC sanitary sewer laterals will have capacity for this demand. Since the anticipated new sewage flow from the proposed development does not exceed 8,000 gallons per day, NJDEP Treatment Works Approval will not be required.

5.0 STORMWATER MANAGEMENT

The proposed development at 337 Johnston Avenue will disturb 4,750 square feet or 0.109 acres. Because the project is disturbing less than 5,000 square-feet, the project is not classified as a Major Development by the New Jersey Residential Site Improvement Standards (RSIS) Stormwater Regulations at N.J.A.C. 5:21-7 and the Jersey City Stormwater Control Ordinance.

Additionally, because the project's disturbance is below 5,000 square-feet, the project does not meet the threshold for a Minor Development as outlined in the Jersey City Stormwater Control Ordinance. Because the project is not classified as a Major Development, requirements for Water Quality, Water Quantity, and Groundwater Recharge outlined in N.J.A.C 5:21-7 are not applicable. Because the project is not classified as a Minor Development, no drainage detention measures are required.

In the present condition, the project site is mostly vacant, with gravel and space vegetation coverage. The proposed development includes the proposed building, covering the majority of the site, along with various concrete paved areas to provide a seamless transition to sidewalks along Whiton Street and Johnston Avenue. Drainage from the roof will be collected and routed internally, and shall be discharged into the existing 30" combined sewer in Whiton Street. Stormwater discharge will be combined with sanitary sewer discharge before being routed to the existing combined main, as shown in the Preliminary and Final Site Plan engineering set.

5.1 Water Quality

Per NJDEP, "Stormwater management measures shall only be required for water quality control if an additional one-quarter acre of impervious surface is being proposed on a development site." (N.J.A.C. 7:8-5.5). Water quality treatment measures are not necessary

for compliance with this requirement, because there is less than one-quarter acre of impervious surface is being proposed, and because the project is not qualified as a Major Development. The proposed onsite impervious surface coverage consists of the building rooftop. No new impervious surface areas on the project site are subject to vehicular traffic. Runoff generated over rooftops and areas not subject to vehicular traffic is considered clean and need not be treated.

5.2 Water Quantity

Runoff Peak Flow Reduction: The site does not require peak runoff reduction because the increase in impervious surface coverage is less than one-quarter acre, and because the project is not classified as a Major Development.

5.3 Groundwater Recharge

The site is exempt from groundwater recharge requirements because it is located within New Jersey's designated Metropolitan Planning Area (PA1) based on the State Planning Policy Map (SPPM), and because the project is not classified as a Major Development. The applicable regulation reads: "This groundwater recharge requirement does not apply to projects that qualify as within the urban redevelopment area" (N.J.A.C. 7:8-5.4(a)2ii). An "Urban Redevelopment Area" is defined as: "delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes" (N.J.A.C. 7:8-1.2).

6.0 CONCLUSION

This report has been prepared as required by the municipality and demonstrates the proposed development will meet the objectives of minimizing impacts to environmentally sensitive areas, stormwater quality, stormwater quantity and flood-related matters at the source by land management and source control whenever possible.

APPENDIX 1 –

WATER DEMAND CALCULATIONS

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WATER DEMAND CALCULATIONS

MIXED-USE APARTMENT BUIDLING
337 JOHNSTON AVENUE
BLOCK 19002; LOT 1
CITY OF JERSEY CITY, NEW JERSEY 07304

Residential Demand[1]

Type of Establishment	Measurement	# Units	GPD/Unit	Daily Demand (GPD)	Daily Demand (MGD)	Peaking Factor	Peak Daily Demand (GPD)	Peak Daily Demand (MGD)
Studio	Per Dwelling	10	65	650	0.001	3	1,950	0.002
1-Bedroom	Per Dwelling	10	95	950	0.001	3	2,850	0.003
2-Bedroom	Per Dwelling	10	140	1,400	0.001	3	4,200	0.004
3-Bedroom	Per Dwelling	0	215	0	0.000	3	0	0.000
Total Units		30						
Total Residential Demand				3,000	0.003		9,000	0.009

Non-Residential Demand[2]

Type of Establishment	Measurement	# Units	GPD/Unit	Daily Demand (GPD)	Daily Demand (MGD)	Peaking Factor	Peak Daily Demand (GPD)	Peak Daily Demand (MGD)
Retail	SF	2,073	0.125	259	0.000	3	777	0.001
Total Non-Residential Demand				259	0.000		777	0.001

Total Site Demand	Daily Demand (GPD)	Daily Demand (MGD)		Peak Daily Demand (GPD)	Peak Daily Demand (MGD)
	3,259	0.003		9,777	0.010

Notes:

[1] *Residential demand as per N.J.A.C. 5:21-5.2*

[2] *Non-residential demand as per N.J.A.C. 7:10-12.6 (Table 1)*

APPENDIX 2 –

SANITARY SEWER CALCULATIONS

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SANITARY SEWER CALCULATIONS

MIXED-USE APARTMENT BUIDLING
337 JOHNSTON AVENUE
BLOCK 19002; LOT 1
CITY OF JERSEY CITY, NEW JERSEY 07304
DR PROJECT N0. 11132-010

Type of Establishment	Measurement	# Units	GPD/Unit	GPD
Studio	Per Dwelling	10	150	1,500
1 Bedroom	Per Dwelling	10	150	1,500
2 Bedroom	Per Dwelling	10	225	2,250
3 Bedroom	Per Dwelling	0	300	0
Retail	Sq. Ft.	2,073	0.100	207
Average Resturant	Seat	0	35	0

Projected Estimates per N.J.A.C. 7:14A-23.3

Flow Received	100%
Total Flow (GPD) ($Q_{projected}$)	5,457
Total Flow (CFS) ($Q_{projected}$)	0.008

Pipe	Length (ft)	n*	Slope	Diameter (in)
6" PVC	31	0.013	2.00%	6

Half Flow Pipe Capacity	
Depth of Flow, h (in)	3
h/D	0.500
Pipe Radius, r (ft)	0.250
Circ. Segment Height, h (ft)	0.250
Central Angle, θ (radians)	3.142
Cross-Sectional Area, A (ft^2)	0.098
Wetted Perimeter, P (ft)	0.785
Hydraulic Radius, R (ft)	0.125
Discharge, Q (cfs)	0.398
$Q_{projected}$ (x2) (cfs)	0.017
Pipe % Full [$(A/A_{full})*100\%$]	50.00%
Average Velocity, V (ft/sec)	4.052
Max. Capacity (MGD)	0.214
$Q_{pipe} > 2xQ_{projected}$	**TRUE**
V ≥ 2.2 ft/sec	**TRUE**
Therefore, design is	**ADEQUATE**

Actual Pipe Velocity	
**Depth of Flow, h (in)	2.930
Pipe Radius, r (ft)	0.250
Circ. Segment Height, h (ft)	0.244
Central Angle, θ (radians)	3.095
Cross-Sectional Area, A (ft^2)	0.095
Wetted Perimeter, P (ft)	0.774
Hydraulic Radius, R (ft)	0.123
Pipe % Full [$(A/A_{full})*100\%$]	48.51%
Actual Velocity, V (ft/sec)	4.011

***Must have h < r*

Compare	
Discharge, Q (cfs)	0.382
$Q_{projected}$, (cfs)	0.008

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Equations used for calculations:

Manning's Formula:

$$Q = \left(\frac{1.49}{n}\right) AR^{2/3}\sqrt{S}$$

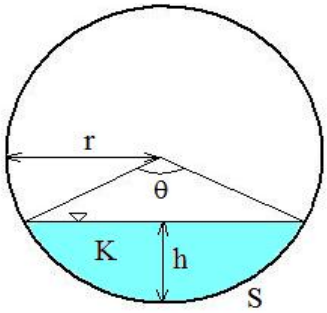
Q = Flow Rate, (ft^3/s)

n = Manning's Coefficient

A = Flow Area, (ft^2)

R = Hydraulic Radius, (ft)

S = Channel Slope, (ft/ft)



$$\theta = 2\arccos\left(\frac{r-h}{r}\right)$$

$$A = \frac{r^2(\theta - sin\theta)}{2}$$

$$P = r\theta$$