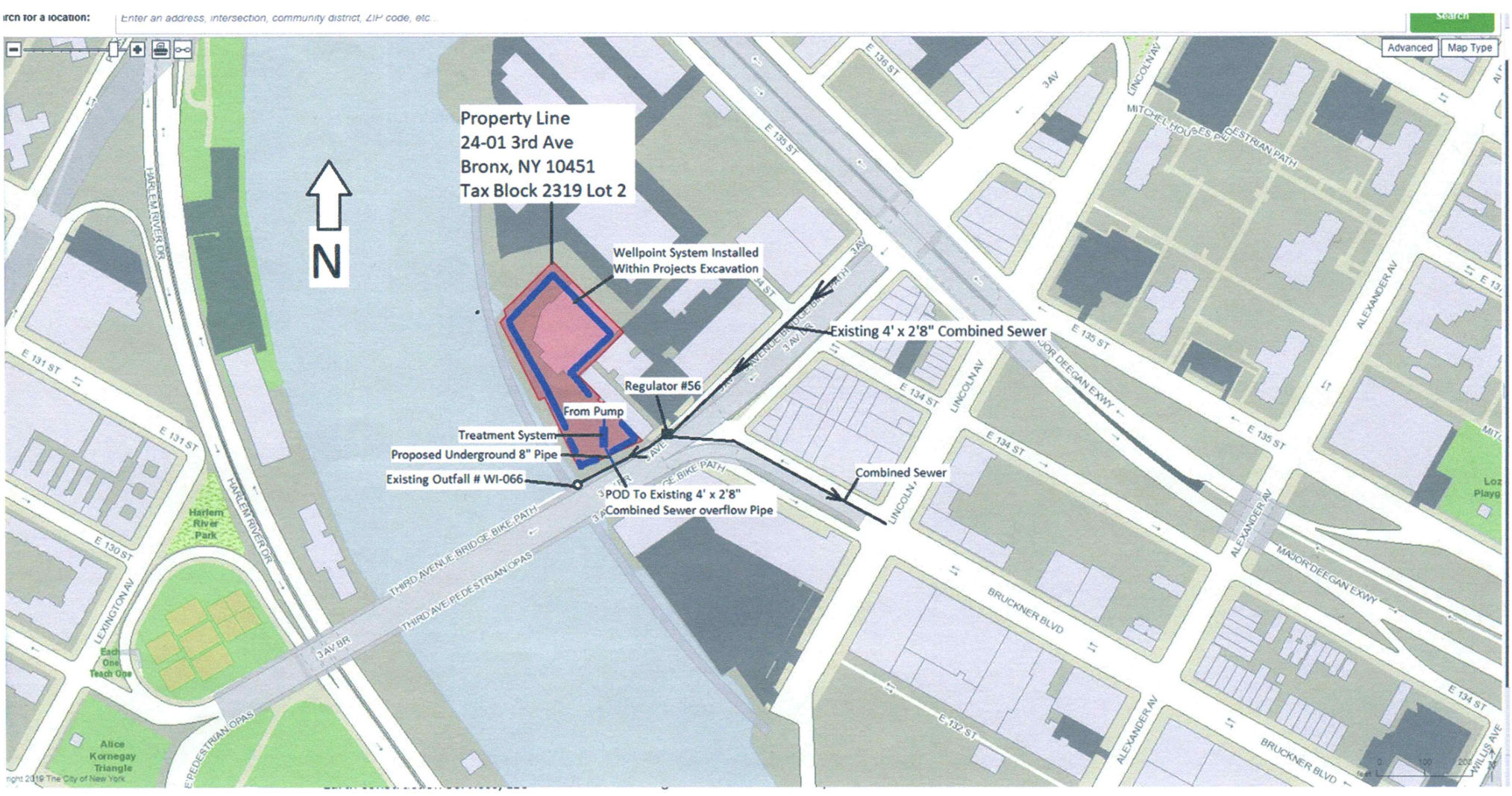

SUMMARY OF DEWATERING SYSTEM	
Scope of Work	Temporary dewatering for the construction of new multi-story buildngs in the Bronx, NY
Project Name:	24-01 3rd Ave
Dewatering System : Approximately 120 Wellpoints	
Total Quantity of Discharge:	400 GPM = 576,000 GPD = 77,005 CFD = 0,.89 CFS
Duration of Discharge:	6 - 10 Months in Duration
Flow Meter:	MW500 manufactured by McCrometer
Pretreatment Equipment:	Treatment System
Discharge Pipe Location:	**Proposed underground 8" pipe connected to the existing 4' x 2'8" combined sewer overflow pipe located on 3rd Ave in the Bronx, NY.**

Flow Rate Inside The Existing 48"H X 32"W Combined Sewer

Slope		
Invert Elevation At Mh At West End	-3.1	
Invert Elevation At Mh At East End	-2.24	
Distance between manholes (ft)	247	
s=Slope of sewer		0.003482
Flow Velocity		
V=Flow Velocity	(1.486/n)*(Rh)^2/3 *(s)^1/2	
Rh=Hydraulic Radius	$\pi(A*B)/[2\pi(0.5(A^2+B^2))^{0.5}]$	**0.78**
n=	0.014	
V=Flow Velocity	1.486/0.014*0.78^2/3*0.003482^1/2	**5.31 Ft/sec**
Max Flow Rate Through 48"H X 32"W Combined Sewer		
Area=A	πAB	**8.38 SF**
Flow Rate	Q=V*A	**44.46 CFS**
Max Flow Rate through Sewer		**19,954 GPM**

Flow Rate Ratio = (Dewatering Flow Rate)/(Max flow Rate in Sewer)

Total Pump capacity	0.890	CFS	
48"H X 32"W sewer capacity	44.46	CFS	0.89/44.46

% Capacity Of Dewatering System Into Existing Sewer Pipe **2.00%**

Flowrate Inside the Proposed 6" Pipe

Inv Ele Before Elbow to Combined Sewer		**-2.65**
Inv Ele at 11:00 Connection		**0.32**
Approximate Length Of Discharge Pipe To 48"H X 32"W Sewer		**20 ft**
S=Slope Of 8" Proposed Discharge Pipe		**0.03**
Flow Velocity		
V=Flow Velocity	(1.486/n)*(Rh)^2/3 *(s)^1/2	
Rh=Hydraulic Radius	r/2	**0.17**
n=	0.014	
V=Flow Velocity	1.486/0.014*0.167^2/3*0.03^1/2	**5.58 Ft/sec**
Max Flow Rate Through 8" Discharge Pipe		
Area=A	(Pi*D^2)/4	**0.35 SF**
Flow Rate	Q=V*A	**1.95 CFS**
Max Flow Rate Through 8" Pvc Pipe		**873 GPM**

Flow Rate Ratio = (Dewatering Flow Rate)/(Max Rate in Discharge Pipe)

Total Pump capacity	0.89	CFS	
Discharge Pipe capacity	1.95	CFS	0.89/1.95

% Capacity Of Dewatering System Into Proposed Pvc Discharge Pipe **45.73%**

STATE OF NEW YORK * MATTHEW J CICHETTI * 090160 * LICENSED PROFESSIONAL ENGINEER

Matthew Cichetti P.E.

The purpose of this drawing is to show dewatering capacity and tie-in to existing sewer. Existing sewer information orientation and inverts are provided by DEP
Based upon the information provided this drawing represents a reasonable sewer connection design.

Earth Construction Services, LLC

DRAWING NO: 2

Scale: NTS
Date: 2/20/2019