# NYISO Fault Current Assessment 2018

## A Report by the
## New York Independent System Operator

April 2018

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## ATTACHMENTS

## INTRODUCTION

The following report highlights the significant results of the fault current screening analysis completed for the 2018 period. The purposes of this analysis is to document significant changes in fault current levels statewide, identify selected critical substations with potentially overdutied circuit breakers, refer these substations to the respective owners, and recommend remedial actions.

## SUMMARY OF FINDINGS AND RECOMMENDATIONS

Fault current assessments are intended to be conservative in nature in order to provide an adequate margin of design safety and reliability. For example, this assessment has assumed that all generation and transmission facilities are in-service, while in actual operations it is highly likely that some generation and transmission facilities are out-of-service due to transmission constraints, economic generation dispatch, or forced outages. For this assessment the NYISO has not taken into account other factors such as reclosing, circuit breaker age, or fault current asymmetry which may lower breaker ratings or increase fault levels interrupted by the circuit breakers. Facility owners have the responsibility for rating their equipment correctly, and as such shall routinely evaluate the interrupting capability of their circuit breakers using their own methods and industry standards. The following findings and recommendations are presented based on the analysis and results documented in this report:

The NYISO performed a sensitivity analysis for various possible Astoria configurations. The sensitivity analysis shows that when Astoria 3 and 5 dual yard steam units are operating on the Astoria East bus together with all other Astoria East units running, the Astoria East 138 kV circuit breakers 6W, 7W, 8W, 2E, 3E, 7E, and 8E would be overdutied.

The NYISO recommends the continued application of the Interim Operating Protocol for Astoria East and West Stations Fault Current Mitigation approved by the Operating Committee on May 6, 2010 to prevent overduty conditions at the Astoria East 138 kV station. The Interim Operating Protocol indicates that the acceptable Astoria West station configuration will be all three (3) units of the NYPA 500 MW combined cycle plant, two (2) Astoria Generating Company L.P. dual yard units (Astoria 3, 4 or 5), and the NRG GT 10-13 units, and the acceptable Astoria East station configuration will be all three (3) units of the Astoria East Energy 500 MW combined cycle plant, one (1) Astoria Generating Company L.P. dual yard unit (Astoria 3, 4 or 5), the Astoria Generating Company L.P. Astoria 2 unit, and the NRG GT 2, 3, 4, 5, 7 and 8 units, unless for reliability reasons a different configuration for each station is required.

Astoria 4, NRG GT10-13 and NRG GT 5, 7 and 8 has deactivated or mothballed since the approval of the Interim Operating Protocol. These generator deactivations were included in the base case and sensitivity case described in this report.

## SYSTEM REPRESENTATION AND BASE STUDY ASSUMPTIONS

### I. System Representation

The NYISO 2018 Statewide Short Circuit representation is captured in the Aspen Oneliner file, NYISO_SPRING_UPDATE_2018_SC_REV-10.OLR, dated April 20, 2018, and was used as the model for this study. This representation includes all system changes through the Summer Capability Period[1] ending October 31, 2018. The starting point for this representation was the NYISO 2017 Statewide Short Circuit representation, with updates to reflect the planned system listed in the NYISO 2018 Load and Capacity Data Report ("Gold Book"), as well as other updates provided by the New York Transmission Owners to appropriately reflect the conditions expected for the 2018 Summer Capability Period.

The adjacent control area data for PJM, ISO-NE, and Ontario used in this representation is the latest available data as of April 20, 2018.

Significant changes in the 2018 NYISO Statewide Short Circuit Representation from 2017 include:

- CPV Valley in-service
- Q510 (Bayonne) in-service
- 2nd Eastover 230 kV transformer
- Northport bus tie par correction
- National Grid Line 3 Porter-Yahnundasis 115 kV series reactor
- National Grid Line 7 Oneida-Porter 115 kV series reactor
- NYSEG South Perry project
- Q513 Stony Creek Energy in-service

### II. Base Study Assumptions

The short circuit levels for the initial screening analysis were calculated using the ASPEN OneLiner® program and the "NYISO Guideline for Fault Current Assessment." The short circuit levels presented have been determined for all facilities scheduled in-service during 2018.

### III. Operating Guidelines

Attachment II contains the operating guidelines for the operation of series reactors required for fault current mitigation, as provided by the Transmission Owner of the equipment that the series reactors protect.

## DISCUSSION AND RESULTS

### I. Fault Current Calculation

[1] Capitalized terms not otherwise defined herein have the meaning set forth in the NYISO's Tariffs – NYISO's Market Administration and Control Area Services Tariff (Services Tariff) and NYISO's Open Access Transmission Tariff (OATT).

As stated above, the baseline fault levels were calculated in accordance with the methodology in the "NYISO Guideline for Fault Current Assessment" (Guideline #4-1) set forth in the NYISO Transmission Expansion and Interconnection Manual, version 3, Attachment I.

Consistent with generally accepted practices for short circuit studies, Guideline #4-1 requires that transmission lines and transformers be modeled in their normal operating condition, with all generating units modeled as in-service. This configuration, regardless of whether or not the system can actually be operated in such a manner, provides an adequate design margin of safety and reliability by yielding the worst case and most conservative fault levels.

## II. Circuit Breaker Rating

The lowest circuit breaker ratings for each of the selected substations were obtained from the applicable transmission and generation owners. The ratings are the nameplate symmetrical rating, the de-rated symmetrical value as determined by the owner, or the approximate symmetrical value converted from a total current basis.

Circuit breakers rated on a total current basis were converted to an approximate symmetrical current rating by using the nominal voltage of the substation.

Advanced circuit breaker rating techniques such as asymmetrical current analyses, de-rating for reclosing and de-rating for age were not considered by the NYISO for this screening analysis, although each circuit breaker owner should consider these techniques when performing their own analysis.

## III. Analysis

### A. Bus Fault Summary

The first step in the procedure for identifying potentially overdutied circuit breakers is to generate a bus fault summary. The bus fault summary yielded the three-line-to-ground (3LG), double-line-to-ground (2LG), and single-line-to-ground (SLG) fault values at each selected substation. The results of the bus fault summary were compared to the lowest rated breaker within the substations, and if any of the bus faults exceeded the lowest rated breaker, an individual breaker analysis (IBA) was performed to determine if any circuit breakers were actually overdutied.

In many situations, a high fault duty does not automatically mean that each circuit breaker at that bus rated lower than the bus fault will be over-duty. Only an IBA can provide the true fault current at a particular breaker. The NYISO does not have a universal IBA methodology defined; therefore, each Transmission Owner uses its own internal IBA methodology. When no internal IBA methodology is defined, the NYISO uses the standard, conservative methodology in which the breaker in question is the last breaker opened to clear the fault regardless of the voltage level.

The complete results of the bus fault summary for the 142 stations that the NYISO studied are shown in Attachment 1. Of the 142 stations, one (1) was identified as having a bus fault

in excess of the lowest circuit breaker rating, and required a more detailed analysis as outlined in the next section.

B. Detailed Analysis of Stations Identified in the Bus Fault Summary

The next step in the procedure for identifying potentially overdutied circuit breakers is to share the results of the screening study for buses exceeding the station's lowest circuit breaker rating with the facility owners to perform an IBA at each of the substations to determine if any of the circuit breakers were indeed overdutied.

The results of the IBA showed zero (0) of the one (1) stations with bus fault levels greater than their lowest breaker rating had any overdutied circuit breakers.

NYISO performed a sensitivity analysis for various possible Astoria configurations. The sensitivity analysis shows that when Astoria 3 and 5 dual yard steam units are operating on the Astoria East bus together with all other Astoria East units running, the Astoria East 138 kV circuit breakers 6W, 7W, 8W, 2E, 3E, 7E, and 8E would be overdutied.

The Interim Operating Protocol for Astoria East and West Stations Fault Current Mitigation approved by the Operating Committee on May 6, 2010 prevents overduty conditions at Astoria East 138 kV stations.

## CONCLUSIONS AND RECOMMENDATIONS

The 2018 Fault Current Assessment has identified the following significant changes in fault current, statewide, in comparison to 2017:

- Fault currents significantly decreased at the Athens and Leeds 345 kV substations due to Athens GSU modeling correction
- Fault currents significantly decreased at the Elbridge 345 kV substation due to a modeling correction of the Elbridge 345/115 kV transformer
- Fault currents significantly decreased at the S. Ripley 230 kV substation due to a PJM project withdrawing from the queue
- Fault currents significantly increased at the Fresh Kills, Goethals, and Gowanus 345 kV substations due to PJM updates (Marion reconfiguration) and the addition of Q#510 Bayonne Energy Center II
- Fault currents significantly increased at the Coopers Corners, Ramapo, Rock Tavern, S. Mahwah, and Ladentown 345 kV substations due to PJM updates and the addition of CPV
- Fault currents significantly increased at the Buchanan 138 kV substation due to Indian Point generator and plant configuration modeling corrections
- Fault currents significantly increased at the Elwood, North Port and Pilgrim 138 kV substations due to a modeling correction for the North Port bus tie Phase Angle Regulator (PAR)
- Fault currents significantly increased at the Vernon East 138 kV substation due to the Ravenswood G1, G2, G4 ST, and G4 GT modeling corrections

Fault current assessments are intended to be conservative in nature in order to provide an adequate margin of design safety and reliability. No breakers were found overdutied.

The NYISO recommends continued application of the Interim Operating Protocol for Astoria East and West Fault Current Mitigation approved by the Operating Committee on May 6, 2010 to prevent overduty conditions at Astoria East station for certain Astoria East and West configurations.

## Attachment 1 – 2018 Bus Fault Summary

| Substation Name | Nominal kV | Lowest Rated CB (kA) | TO | 2018 Max Bus Fault (kA) | 2017 Max Bus Fault (kA) | 2018-2017 Delta (kA) | IBA Required | Breaker(s) Overdutied |
|---|---|---|---|---|---|---|---|---|
| MARCY | 765 | 63 | NYPA | 9.8 | 9.8 | 0.0 | N | N |
| MASSENA | 765 | 63 | NYPA | 7.8 | 7.8 | 0.0 | N | N |
| ACADEMY | 345 | 63 | CE | 32.5 | 32.4 | 0.1 | N | N |
| AES SOMERSET | 345 | 40 | NYSEG | 18.5 | 17.7 | 0.8 | N | N |
| ALPS | 345 | 40 | N Grid | 18.0 | 17.6 | 0.4 | N | N |
| ASTORIA ANNEX | 345 | 63 | NYPA | 45.9 | 45.6 | 0.3 | N | N |
| ATHENS | 345 | 48.8 | N Grid | 33.1 | 34.1 | -1.0 | N | N |
| BOWLINE 2 | 345 | 40 | O R | 27.6 | 27 | 0.6 | N | N |
| BOWLINE 1 | 345 | 40 | O R | 27.7 | 27.2 | 0.5 | N | N |
| BUCHAN N | 345 | 63 | CE | 29.8 | 29.3 | 0.5 | N | N |
| BUCHAN S | 345 | 63 | CE | 39.5 | 38.8 | 0.7 | N | N |
| CLARKS CORNERS | 345 | 40 | NYSEG | 11.8 | 11.8 | 0.0 | N | N |
| CLAY | 345 | 49.1 | N Grid | 33.1 | 33.3 | -0.2 | N | N |
| COOPERS CORNERS | 345 | 40 | NYSEG | 19.0 | 18.1 | 0.9 | N | N |
| DEWITT | 345 | 40 | N Grid | 18.9 | 19.2 | -0.3 | N | N |
| DUNWOODIE | 345 | 63 | CE | 50.6 | 50.4 | 0.2 | N | N |
| E FISHKILL | 345 | 63 | CE | 40.0 | 39.6 | 0.4 | N | N |
| EDIC | 345 | 40 | N Grid | 33.1 | 33.3 | -0.2 | N | N |
| E GARDEN CITY | 345 | 63 | NYPA | 25.3 | 25.2 | 0.1 | N | N |
| ELBRIDGE | 345 | 40 | N Grid | 16.0 | 17.5 | -1.5 | N | N |
| FARRAGUT | 345 | 63 | CE | 59.5 | 58.6 | 0.9 | N | N |
| FITZPATRICK | 345 | 37 | GEN OWNER | 41.2 | 41.5 | -0.3 | Y | N |
| FRASER | 345 | 40 | NYSEG | 19.2 | 19.1 | 0.1 | N | N |
| FRESHKILLS | 345 | 63 | CE | 27.8 | 26.7 | 1.1 | N | N |
| GILBOA | 345 | 50 | NYPA | 24.9 | 25.5 | -0.6 | N | N |
| GOETHALS | 345 | 63 | CE | 30.6 | 29.1 | 1.5 | N | N |
| GOWANUS | 345 | 63 | CE | 29.8 | 27.8 | 2.0 | N | N |
| HURLEY | 345 | 40 | CHG&E | 17.2 | 17.2 | 0.0 | N | N |
| INDEPENDENCE | 345 | 41.9 | N Grid | 38.4 | 38.6 | -0.2 | N | N |
| LADENTOWN | 345 | 63 | O R | 40.9 | 39.9 | 1.0 | N | N |
| LAFAYETTE | 345 | 40 | N Grid | 17.8 | 18.4 | -0.6 | N | N |
| LEEDS | 345 | 40 | N Grid | 33.7 | 34.7 | -1.0 | N | N |
| MARCY 345 | 345 | 63 | NYPA | 32.3 | 32.5 | -0.2 | N | N |
| MIDDLETOWN TP | 345 | 63 | O R | 19.2 | 18.8 | 0.4 | N | N |

| Substation Name | Nominal kV | Lowest Rated CB (kA) | TO | 2018 Max Bus Fault (kA) | 2017 Max Bus Fault (kA) | 2018-2017 Delta (kA) | IBA Required | Breaker(s) Overdutied |
|---|---|---|---|---|---|---|---|---|
| MILLWOOD | 345 | 63 | CE | 45.2 | 44.6 | 0.6 | N | N |
| MOTT HAVEN | 345 | 63 | CE | 48.8 | 48.8 | 0.0 | N | N |
| NEWBRIDGE | 345 | 58.6 | LIPA | 8.6 | 8.6 | 0.0 | N | N |
| NIAGARA | 345 | 63 | NYPA | 32.1 | 32.1 | 0.0 | N | N |
| NINE MILE PT #1 | 345 | 50 | GEN OWNER | 43.2 | 43.6 | -0.4 | N | N |
| N SCOTLAND 77B | 345 | 40 | N Grid | 31.0 | 31.4 | -0.4 | N | N |
| N SCOTLAND 99B | 345 | 40 | N Grid | 31.0 | 31.4 | -0.4 | N | N |
| OAKDALE | 345 | 40 | NYSEG | 12.8 | 12.7 | 0.1 | N | N |
| OSWEGO | 345 | 40.6 | N Grid | 32.2 | 32.7 | -0.5 | N | N |
| PLEASANT VALLEY | 345 | 63 | CE | 41.2 | 40.9 | 0.3 | N | N |
| PLEASANTVILLE-2 | 345 | 63 | CE | 21.9 | 21.8 | 0.1 | N | N |
| RAINEY | 345 | 63 | CE | 55.2 | 55.1 | 0.1 | N | N |
| RAMAPO | 345 | 63 | CE | 46.5 | 45 | 1.5 | N | N |
| REYNOLDS | 345 | 40 | N Grid | 15.6 | 14.8 | 0.8 | N | N |
| ROCK TAVERN | 345 | 63 | CHG&E | 34.3 | 31.8 | 2.5 | N | N |
| ROSETON | 345 | 63 | CHG&E | 36.6 | 35.8 | 0.8 | N | N |
| S.MAHWAH-A | 345 | 40 | O R | 35.7 | 34.7 | 1.0 | N | N |
| S.MAHWAH-B | 345 | 40 | O R | 35.4 | 34.4 | 1.0 | N | N |
| S080 345KV | 345 | 40 | RGE | 16.7 | 17.2 | -0.5 | N | N |
| S122 | 345 | 40 | RGE | 16.8 | 17.4 | -0.6 | N | N |
| SCRIBA | 345 | 48.3 | N Grid | 46.6 | 47 | -0.4 | N | N |
| SHORE RD | 345 | 63 | LIPA | 27.7 | 27.6 | 0.1 | N | N |
| SPRAIN BROOK | 345 | 63 | CE | 52.0 | 51.7 | 0.3 | N | N |
| STOLLE ROAD | 345 | 40 | NYSEG | 4.7 | 4.7 | 0.0 | N | N |
| VOLNEY | 345 | 44.8 | N Grid | 36.1 | 36.7 | -0.6 | N | N |
| W 49 ST | 345 | 63 | CE | 50.7 | 50.4 | 0.3 | N | N |
| WATERCURE | 345 | 40 | NYSEG | 8.6 | 8.4 | 0.2 | N | N |
| ADIRONDACK | 230 | 25 | N Grid | 9.4 | 9.4 | 0.0 | N | N |
| CANANDAIGUA | 230 | 40 | NYSEG | 6.4 | 6.3 | 0.1 | N | N |
| CHASES LAKE | 230 | 40 | N Grid | 8.9 | 8.9 | 0.0 | N | N |
| DULEY | 230 | 40 | NYPA | 7.6 | 7.6 | 0.0 | N | N |
| DUNKIRK | 230 | 29.6 | N Grid | 9.2 | 9.6 | -0.4 | N | N |
| GARDENVILLE 1 | 230 | 32.2 | N Grid | 18.6 | 18.7 | -0.1 | N | N |
| HIGH SHELDON | 230 | 40 | NYSEG | 9.6 | 9.6 | 0.0 | N | N |
| HILLSIDE | 230 | 35.86 | NYSEG | 13.1 | 12.7 | 0.4 | N | N |
| HUNTLEY 70 | 230 | 35.8 | N Grid | 17.1 | 17.1 | 0.0 | N | N |

| Substation Name | Nominal kV | Lowest Rated CB (kA) | TO | 2018 Max Bus Fault (kA) | 2017 Max Bus Fault (kA) | 2018-2017 Delta (kA) | IBA Required | Breaker(s) Overdutied |
|---|---|---|---|---|---|---|---|---|
| MEYER | 230 | 40 | NYSEG | 7.0 | 6.9 | 0.1 | N | N |
| NIAGRA E | 230 | 63 | NYPA | 53.0 | 52.9 | 0.1 | N | N |
| NIAGRA W | 230 | 63 | NYPA | 53.0 | 52.9 | 0.1 | N | N |
| PACKARD 6 | 230 | 50 | N Grid | 39.6 | 39.5 | 0.1 | N | N |
| PATNODE | 230 | 63 | NYPA | 10.6 | 10.6 | 0.0 | N | N |
| PORTER | 230 | 21.1 | N Grid | 19.4 | 19.5 | -0.1 | N | N |
| ROBINSON RD. | 230 | 43 | NYSEG | 13.7 | 14 | -0.3 | N | N |
| ROTTERDAM66H | 230 | 40 | N Grid | 13.5 | 14.2 | -0.7 | N | N |
| ROTTERDAM77H | 230 | 23.6 | N Grid | 13.4 | 14.2 | -0.8 | N | N |
| ROTTERDAM99H | 230 | 23.2 | N Grid | 13.5 | 14.2 | -0.7 | N | N |
| RYAN | 230 | 40 | NYPA | 10.8 | 10.8 | 0.0 | N | N |
| S RIPLEY | 230 | 40 | N Grid | 8.7 | 10.3 | -1.6 | N | N |
| ST LAWRN 230 | 230 | 33.1 | NYPA | 32.0 | 32 | 0.0 | N | N |
| STOLLE ROAD | 230 | 40 | NYSEG | 13.0 | 13.1 | -0.1 | N | N |
| STONEYRIDGE | 230 | 40 | NYSEG | 7.1 | 7 | 0.1 | N | N |
| STONY CREEK | 230 | 40 | NYSEG | 8.2 | 8.2 | 0.0 | N | N |
| WATERCURE | 230 | 40 | NYSEG | 12.9 | 12.6 | 0.3 | N | N |
| WETHERSFIELD | 230 | 40 | NYSEG | 7.9 | 7.9 | 0.0 | N | N |
| WILLIS | 230 | 33.1 | NYPA | 13.5 | 13.5 | 0.0 | N | N |
| AST-EAST-E | 138 | 63 | CE | 53.4 | 53.1 | 0.3 | N | N |
| AST-WEST-N | 138 | 63 | CE | 43.9 | 44.3 | -0.4 | N | N |
| BARRETT 2 | 138 | 63 | LIPA | 48.3 | 48.3 | 0.0 | N | N |
| BROOK HAVEN | 138 | 37 | LIPA | 26.8 | 26.4 | 0.4 | N | N |
| BUCHANAN | 138 | 40 | CE | 17.0 | 15.8 | 1.2 | N | N |
| CORONA N. | 138 | 63 | CE | 52.3 | 52.2 | 0.1 | N | N |
| DUNWOODIE N | 138 | 40 | CE | 35.1 | 34.3 | 0.8 | N | N |
| DUNWOODIE S | 138 | 40 | CE | 30.5 | 30.4 | 0.1 | N | N |
| E 13 ST | 138 | 63 | CE | 49.7 | 49.6 | 0.1 | N | N |
| E 179 ST | 138 | 63 | CE | 48.5 | 48.4 | 0.1 | N | N |
| E 75 ST TAP | 138 | 63 | CE | 8.1 | 9 | -0.9 | N | N |
| EASTVIEW | 138 | 63 | CE | 36.9 | 36.7 | 0.2 | N | N |
| E GARDEN CITY-1 | 138 | 80 | LIPA | 69.5 | 69.4 | 0.1 | N | N |
| ELWOOD 1 | 138 | 63 | LIPA | 39.1 | 38.1 | 1.0 | N | N |
| ELWOOD 2 | 138 | 63 | LIPA | 38.7 | 37.8 | 0.9 | N | N |
| FOX HILLS 2 | 138 | 40 | CE | 34.1 | 33.2 | 0.9 | N | N |
| FREEPORT | 138 | 63 | LIPA | 35.7 | 35.6 | 0.1 | N | N |
| FRESHKILLS | 138 | 40 | CE | 36.5 | 36 | 0.5 | N | N |

| Substation Name | Nominal kV | Lowest Rated CB (kA) | TO | 2018 Max Bus Fault (kA) | 2017 Max Bus Fault (kA) | 2018-2017 Delta (kA) | IBA Required | Breaker(s) Overdutied |
|---|---|---|---|---|---|---|---|---|
| GREENLWN | 138 | 63 | LIPA | 28.9 | 28.8 | 0.1 | N | N |
| GRENWOOD | 138 | 63 | CE | 50.2 | 49.6 | 0.6 | N | N |
| HAUPAGUE | 138 | 63 | LIPA | 21.9 | 21.8 | 0.1 | N | N |
| HELLGATE 6 | 138 | 63 | CE | 40.6 | 40.8 | -0.2 | N | N |
| HOLBROOK | 138 | 63 | LIPA | 48.3 | 47.9 | 0.4 | N | N |
| HOLTSGT-NYPA | 138 | 63 | LIPA | 44.6 | 44.2 | 0.4 | N | N |
| HUDSON E | 138 | 63 | CE | 38.3 | 39.2 | -0.9 | N | N |
| JAMAICA | 138 | 63 | CE | 49.0 | 49.2 | -0.2 | N | N |
| LAKE SUCCESS | 138 | 63 | LIPA | 38.3 | 38.2 | 0.1 | N | N |
| MILLWOOD | 138 | 40 | CE | 19.9 | 19.3 | 0.6 | N | N |
| MOTT HAVEN | 138 | 50 | CE | 13.7 | 13.7 | 0.0 | N | N |
| NEWBRIDGE | 138 | 80 | LIPA | 68.2 | 68.1 | 0.1 | N | N |
| NORTH PORT1 | 138 | 63 | LIPA | 61.7 | 59.1 | 2.6 | N | N |
| OAKWOOD | 138 | 63 | LIPA | 28.0 | 27.9 | 0.1 | N | N |
| PILGRIM | 138 | 63 | LIPA | 59.7 | 58.7 | 1.0 | N | N |
| PT JEFFERSON | 138 | 63 | LIPA | 32.0 | 31.8 | 0.2 | N | N |
| QUEENS BRIDGE | 138 | 63 | CE | 42.2 | 42.6 | -0.4 | N | N |
| RIVERHEAD | 138 | 63 | LIPA | 18.0 | 17.6 | 0.4 | N | N |
| RULAND RD | 138 | 63 | LIPA | 45.1 | 45.1 | 0.0 | N | N |
| SPRAIN BROOK TR N7 | 138 | 63 | CE | 26.8 | 26.7 | 0.1 | N | N |
| SPRAIN BROOK TR S6 | 138 | 63 | CE | 29.5 | 29 | 0.5 | N | N |
| SHERMAN CREEK | 138 | 63 | CE | 45.6 | 45.4 | 0.2 | N | N |
| SHORE RD1 | 138 | 57.8 | LIPA | 47.8 | 47.7 | 0.1 | N | N |
| SHOREHAM1 | 138 | 52.2 | LIPA | 27.8 | 27.1 | 0.7 | N | N |
| SYOSSET | 138 | 63 | LIPA | 33.9 | 33.8 | 0.1 | N | N |
| TREMONT11 | 138 | 63 | CE | 42.6 | 42.5 | 0.1 | N | N |
| TREMONT12 | 138 | 63 | CE | 42.5 | 42.5 | 0.0 | N | N |
| VERNON E | 138 | 63 | CE | 46.6 | 43.9 | 2.7 | N | N |
| VERNON W | 138 | 63 | CE | 34.0 | 34.7 | -0.7 | N | N |
| VALLEY STRM2 | 138 | 63 | LIPA | 53.4 | 53.3 | 0.1 | N | N |
| WADING RIVER1 | 138 | 56.4 | LIPA | 25.6 | 24.9 | 0.7 | N | N |
| WILDWOOD | 138 | 63 | LIPA | 27.8 | 27.1 | 0.7 | N | N |
| CLAY | 115 | 44.4 | N Grid | 37.6 | 38.4 | -0.8 | N | N |
| PORTER | 115 | 55.6 | N Grid | 40.7 | 41.4 | -0.7 | N | N |
| E RIVER | 69 | 50 | CE | 49.2 | 49.7 | -0.5 | N | N |