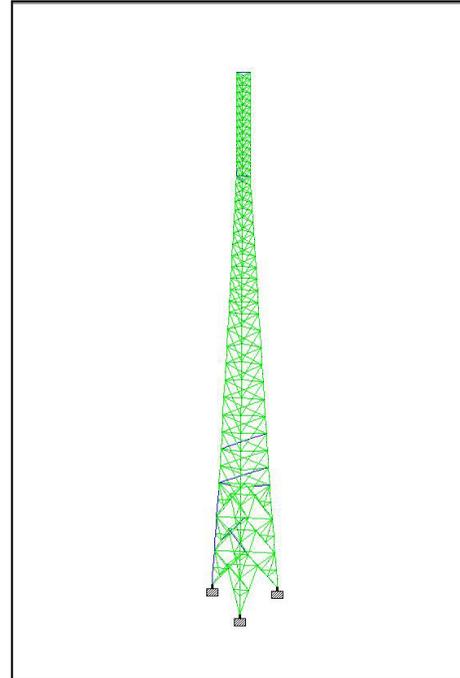


# Emergency Repair of the East New York Yard Bus Communications Tower



Garg Consulting  
Services, Inc.

The purpose of this project was to design a retrofit for the existing 300' bus radio tower at NYCT's East New York (ENY) facility. Garg provided rehabilitation and strengthening designs for the caissons and steel tower to address deterioration and additional loads related to new dishes and antennae. In order to address the caisson deterioration as quickly as possible, Garg provided a short-term repair solution design (Phase I). Garg was also tasked to design a permanent caisson repair along with the tower strengthening (Phase II). Garg provided construction support during the repairs to both the tower and caissons, both temporary and permanent (Phase III) as well as survey support during both design and construction.



Garg provided the following services:

- Design of the short-term caisson strengthening using a FRP Wrap as a mitigation measure for the tower caissons due to inadequate containment (spiral) steel causing bursting overstress of the caissons.
- Design of a tension retrofit for the existing tower anchor bolts to handle tower leg calculated tension loads as testing has shown the concrete fractured around the anchor bolts and reduced their pull-out strength. The retrofit will consist of a secondary base plate anchored to the caissons using tie rods and pins.
- A long-term repair to the existing caissons consisting of a steel sleeve with grout fill for the first 20' of the caisson, along with bracing between the caissons to control differential deflection.
- Strengthening of the existing tower using additional bracing to reduce member unbraced lengths and increase section load-carrying capacity. A load rating was performed to determine the capacity of the tower to take on future additional dishes and antennae.
- Services during construction included review of contractor means and methods, response to RFIs, and on-site construction inspection.

Organization Name	Location	Project Duration			Dollar Amount	Prime/Sub-Consultant
		Contract Date	Start Year	Completion Year	Project Cost	Sub-Consultant
MTA-NYCT	New York, NY	09/15/17	2017	2018	\$ N/A	Sub-Consultant