

**PORTSMOUTH-KITTERY
16189B**

October 23, 2020

SPECIAL PROVISION

SECTION 677 – INTELLIGENT TRANSPORTATION SYSTEMS (ITS) EQUIPMENT

ANTENNA MOUNTING STRUCTURE

Description

- 1.1** This work shall consist of constructing the antenna mounting structure as shown on the plans. This work also consists of testing the antenna and the wireless communication equipment.

Materials

- 2.1** The antenna mounting structure shall be constructed to a height sufficient to provide 99.999% microwave path uptime annually to adjacent project microwave nodes at Hobbs Hill Water Tank, Pease and to the Sarah M. Long Bridge South Tower.
- 2.2** The mounting structure shall be climbable for the purposes of outfitting and servicing equipment that is mounted to the structure.
- 2.3** The mounting structure shall have sufficient mounting surfaces to support communications system design.
- 2.4** The mounting structure shall have an integrated ladder or climbing pegs.
- 2.5** The surface intended for authorized climbing shall start 12-feet from the ground level.
- 2.6** The antenna mounting structure shall have an integrated safety fall-arrest system for personnel that climb the structure. Safety attachment for body harnesses shall be provided.
- 2.7** The structure shall be galvanized steel.
- 2.8** All structure antenna mounts and hardware shall be similar galvanized steel.
- 2.9** Stainless steel banding may be used as needed. Dissimilar metals that promote oxidation including steel shall not be used.
- 2.10** The foundation of the mounting structure shall be designed to support; the structure, the structure as outfitted with wireless communications components as designated, designed and

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constructed, as well as two (2) climbers, and a certain amount of additional loading to be determined during design.

2.11 The microwave radio wires associated with a proposed lattice truss tower shall be supported and protected between the tower and shelter with standard wireless (site) industry materials.

2.12 Metallic materials that are used to support communication cables externally to the shelter shall be electrically bonded together and jointed to the facility central earth ground.

2.13 Communication cables that egress from a proposed pole shall be through conduit within foundation and buried conduit and make entrance to the shelter through the wall, not the shelter pad. Expansion joints shall be used as needed.

2.14 Conduits shall be sealed to prevent rodent and insect entry.

2.15 The proposed antenna mounting structure pole(s) that are not flush mounted to a foundation shall be outfitted with rodent cloth.

2.16 Microwave radio cables and wires shall run on the interior of the mounting structure in a wire minder.

2.17 The mounting structure shall have an exothermic welded earth terminal ground grid that is bonded to the co-located central earth ground of the communications shelter.

2.18 The mounting structure shall be outfitted with a ground air terminal that is mounted to the uppermost location of the structure.

2.19 The air terminal shall have a dedicated isolated ground rope bonded to the facility central earth ground.

2.20 The antenna mounting structure shall be constructed as authorized through coordination with the Federal Aviation Administration (FAA) and the Federal Communications Commission (FCC).

2.21 The structure shall be marked and outfitted with hazard lights as needed if deemed by the design height and location and required by an FAA aeronautical study.

Construction Requirements

3.1 The Contractor shall supply a free standing self-supported microwave antenna mounting structure within the project area.

3.2 A base line structural load analysis shall be provided for a structure as outfitted with a communication system as designed and constructed, that is the same as the foundation requirements.

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3.3 Structures of any height shall require the Federal Communication Commission (FCC) to assign an antenna registration number (ASR) due to the proximity to airfields.

3.4 The Contractor shall provide complete, accurate, and timely data to NHDOT that is associated with antenna mounting structures for inclusion in any FAA aeronautics study.

3.5 The Contractor shall provide complete, accurate, and timely data to NHDOT that is associated with antenna mounting structures for inclusion in any FCC ASR applications filed by others.

3.6 The Contractor shall be responsible for timely notification and responses to required construction notification deadlines associated with FAA and FCC applications and authorizations.