VERIZON WIRELESS ANTENNA FACILITY CONDITIONAL USE PERMIT

CUP# 03-24

STAFF REPORT

December 11, 2024

SITE: 12 Groves Farm Road, Map 235 / Lot 012-001

ZONING: General-1 (G-1)

PURPOSE OF PLAN: to depict the proposed co-location of Verizon Wireless's antenna equipment at the Groves Farm Road Water Tank site.

PLANS UNDER REVIEW:

Conditional Use Permit Hudson 3 NH CUP# 03-24, Map 235 Lot 012-001, 12 Groves Farm Road, Hudson, New Hampshire; prepared by: Dewberry Engineers Inc., 99 Summer Street Suite 700, Boston, MA, 02110; prepared for: Cellco Partnership d/b/a Verizon Wireless, 51 Adler Street, Medway, MA 02053; consisting of sheets 1-13 and general notes 1-32 on Sheet GN-1; dated July 23, 2024; last revised October 22, 2024.

ATTACHMENTS:

1) Conditional Use Permit Narrative & Application, date received November 18, 2024 – Attachment "**A**".
2) Department Comments – Attachment "**B**".
3) RF Report and Study, prepared by C Squared Systems LLC, Dated October 30, 2024 – Attachment "**C**".
4) Structural Analysis & Certification, prepared by Dewberry Engineers, Inc., dated July 22, 2024 – Attachment "**D**".
5) Site Plan & Construction Drawings, dated July 23, 2024, last revised October 22, 2024.

APPLICATION TRACKING:

- November 18, 2024 – Original Application received.
- December 11, 2024 – Public hearing scheduled.

COMMENTS & RECOMMENDATIONS:

BACKGROUND

The site is a 1.5-acre town-owned lot in the G-1 district with a water tower on the property. A lease agreement between the Board of Selectmen and the applicants for communications equipment at the site was approved by Town Meeting in March of 2024 (Warrant Article 25). Access to the site is provided via a paved road located on an easement through 24 & 14 Dracut Road. The applicant

is proposing the co-location of antennae and related equipment as required under Zoning Ordinance **§334-96** for the expansion of cell service coverage in the southern portion of Hudson.

STAFF COMMENTS

Staff notes that this site is situated on Town property and appears to comply with the Zoning Ordinance's co-location requirements. Normal site-plan review requirements do not apply, however, a Conditional Use permit is required under Zoning Ordinance **§334-96.1.** The applicant has supplied an RF report (Attachment **C**) detailing the need for the antennae. Staff notes that a security bond is not required for co-located facilities as outlined in **§334-97**.

DEPARTMENT COMMENTS

No departments have submitted comments for this application.

RECOMMENDATIONS

Staff recommends accepting the conditional use permit application and holding a public hearing, followed by deliberation and consideration of approval. The Applicant has met all requirements and supplied the necessary studies. Staff has not identified any additional studies required at this time.

DRAFT MOTIONS:

DEFER the Conditional Use Permit Application:

I move to defer the public hearing for the Conditional Use Permit Application for Hudson 3 NH CUP# 03-24, Map 235 Lot 012-001, 12 Groves Farm Road, Hudson, New Hampshire, to date certain _____.

Motion by: _____Second: _____Carried/Failed: _____

ACCEPT the Conditional Use Permit Application:

I move to accept the Conditional Use Permit application for Hudson 3 NH CUP# 03-24, Map 235 Lot 012-001, 12 Groves Farm Road, Hudson, New Hampshire.

Motion by: _____Second: _____Carried/Failed: _____

CONTINUE the public hearing to date certain:

I move to continue the public hearing for the Conditional Use Permit Application for Hudson 3 NH CUP# 03-24, Map 235 Lot 012-001, 12 Groves Farm Road, Hudson, New Hampshire, to date certain _____.

Motion by: _____Second: _____Carried/Failed: _____

APPROVE the Conditional Use Permit Application:

I move to approve the Conditional Use Permit Application for the Conditional Use Permit Hudson 3 NH CUP# 03-24, Map 235 Lot 012-001, 12 Groves Farm Road, Hudson, New Hampshire; prepared by: Dewberry Engineers Inc., 99 Summer Street Suite 700, Boston, MA, 02110; prepared for: Cellco Partnership d/b/a Verizon Wireless, 51 Adler Street, Medway, MA 02053; consisting of sheets 1-13 and general notes 1-32 on Sheet GN-1; dated July 23, 2024; last revised October 22, 2024; subject to, and revised per, the following stipulations:

1. All stipulations of approval shall be incorporated into the Development Agreement, which shall be recorded at the HCRD, together with the Plan.
2. Prior to the Planning Board endorsement of the CUP, it shall be subject to final administrative review by the Interim Town Planner, Town Engineer, and Town Counsel.
3. Construction activities involving the subject lot shall be limited to the hours between 7:00 A.M. and 7:00 P.M, Monday thru Saturday. No exterior construction activities shall be allowed on Sundays.

Motion by: _____Second: _____Carried/Failed: _____

Attachment "A"

Town of Hudson
12 School Street
Hudson, NH 03501

CONDITIONAL USE PERMIT APPLICATION

Revised August 2024

The following information must be filed with the Planning Department ***at the time of filing a conditional use permit application, which shall be filed concurrently with application for subdivision and/or site plan approval***:

1. One (1) original completed application with original signatures.

2. One (1) original copy of the project narrative.

3. A list of direct abutters and a list of indirect abutters, and two (2) sets of mailing labels for abutter notifications.

4. All of the above application materials, including plans, shall also be submitted in electronic form as a PDF.

Note: Prior to filing an application, it is recommended to schedule an appointment with the Town Planner.

CONDITIONAL USE PERMIT APPLICATION

Date of Application: 11/1/24 Tax Map #: _____ Lot #: _____

Site Address: 12 Groves Farm Road

Name of Project: Verizon Wireless - Hudson 3, NH

Zoning District: G - 1 General CU#:_____
(For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:

Name: Town of Hudson

Address: 12 School Street

Address: Hudson, NH 03051

Telephone # _____

Email: _____

DEVELOPER:

Cellco Partnership d/b/a Verizon Wireless

Agent: Chip Fredette - SAI

12 Industrial Way, Salem, NH 03079

603 - 848 - 1461

cfredette@saigrp.com

PROJECT ENGINEER:

Name: Dewberry Engineers, Inc. - Ben Revette, P.E.

Address: 99 Summer Street - Suite 700

Address: Boston, MA 02110

Telephone # 617 - 695 - 3310

Email: mtilden@dewberry.com

SURVEYOR:

N/A

PURPOSE OF PLAN:

The purpose of this plan is to show the proposed co-location of Verizon Wireless's antenna equipment at the Groves Farm Road Water Tank site.

(For Town Use Only)

Routing Date: _____ Deadline Date: _____ Meeting Date: _____

_____ I have no comments _____ I have comments (attach to form)

_____ Title: _____ Date: _____
(Initials)

Department:

Zoning: ___ Engineering: ___ Assessor: ___ Police: ___Fire: ___ DPW: ___ Consultant: ___

CONDITIONAL USE PERMIT APPLICATION AUTHORIZATION

I hereby apply for *Conditional Use Permit* Review and acknowledge I will comply with all of the Ordinances of the Town of Hudson, New Hampshire State Laws, as well as any stipulations of the Planning Board, in development and construction of this project. I understand that if any of the items listed under the *Conditional Use Permit* specifications or application form are incomplete, the application will be considered rejected.

Pursuant to RSA 674:1-IV, the owner(s) by the filing of this application as indicated above, hereby given permission for any member of the Hudson Planning Board, the Town Planner, the Town Engineer, and such agents or employees of the Town or other persons as the Planning Board may authorize, to enter upon the property which is the subject of this application at all reasonable times for the purpose of such examinations, surveys, tests and inspections as may be appropriate. The owner(s) release(s) any claim to or right he/she (they) may now or hereafter possess against any of the above individuals as a result of any examinations, surveys, tests and/or inspections conducted on his/her (their) property in connection with this applications.

Signature of Owner: ELVIS DHIMA, PE (Town Engineer) Date: 11/1/24

Print Name of Owner: TOWN OF HUDSON (WATER UTILITY.

- If other than an individual, indicate name of organization and its principal owner, partners, or corporate officers.

Signature of Developer: Chip Fredette Date: 11/1/24

Print Name of Developer: Chip Fredette

- The developer/individual in charge must have control over all project work and be available to the Code Enforcement Officer/Building Inspector during the construction phase of the project. The individual in charge of the project must notify the Code Enforcement Officer/Building Inspector within two (2) working days of any change.

SCHEDULE OF FEES

A. REVIEW FEES:

1. Conditional Use Permit
   $100 Flat Fee $_ 100.00____

CONSULTANT REVIEW FEE: (If Applicable - Separate Check)

Total _____ acres @ $600.00 per acre, or $1,250.00, whichever is greater. $_____

This is an estimate for cost of consultant review. The fee is expected to cover the amount. A complex project may require additional funds. A simple project may result in a refund.

LEGAL FEE:

The applicant shall be charged attorney costs billed to the Town for the Town's attorney review of any application plan set documents.

B. POSTAGE:

_____ Direct Abutters Applicant, Professionals, etc. as required by RSA 676:4.1.d @$5.58 **(or Current Certified Mail Rate)** $_____

_____ Indirect Abutters (property owners within 200 feet) @$0.73 **(or Current First Class Rate)** $_____

TOTAL $_____

SCHEDULE OF FEES
(Continued)

(For Town Use)			
AMOUNT RECEIVED: $_____		DATE RECEIVED:	_____
RECEIPT NO.:	_____	RECEIVED BY:	_____

NOTE: fees below apply only upon plan approval, not collected at time of application.

F. RECORDING:

*****The applicant shall be responsible for the recording of the approved plan, and all documents as required by an approval, at the Hillsborough County Registry of Deeds (HCRD), located at 19 Temple Street, Nashua, NH 03061. Additional fees associated with recording can be found at HCRD.*****

G. COST ALLOCATION PROCEDURE AMOUNT CONTRIBUTION AND OTHER IMPACT FEE PAYMENTS:

To be determined by the Planning Board at time of plan approval and shall be paid by the applicant at the time of submittal of the Certificate of Occupancy Permit requests.

*****The applicant shall be responsible for all fees incurred by the town for processing and review of the applicant's application, plan and related materials.*****

Group 12 Industrial Way, Salem NH, 03079 ● 603-421-0470 (Office) ● 603-893-1104 (Fax)

CONDITIONAL USE PERMIT APPLICATION

WIRELESS COMMUNICATION FACILITY CO-LOCATION ON WATER TANK

Applicant:	Cellco Partnership, d/b/a Verizon Wireless
Property Owner:	Town of Hudson
Property Address:	12 Groves Farm Road
Map/ Lot:	235-12-01

Dear Ladies and Gentlemen of the Planning Board:

In accordance with the Article 334.96.2 of the zoning ordinance, Verizon Wireless ("VzW"), respectfully submits its Conditional Use Permit application for your review. It is our understanding that although the same article suggests an "*Application for a conditional use permit shall be made concurrently with application for subdivision and/or site plan approval*," there is no site plan approval of record for this parcel. That combined with the negligible impact of this proposal suggest an application for site plan review is not necessary.

I. PROJECT DESCRIPTION

VZW System Performance Engineers ("SPE") have identified a substantial gap in coverage in the southern area of Hudson. As with many NH municipalities, Hudson's zoning ordinance requires an applicant for a wireless communication facility to first seek opportunities to co-locate its equipment on existing structures before considering the construction of a new tower.

In accordance with Hudson's zoning and to fill this gap in coverage, VZW proposes to co-locate its antenna equipment on the Town of Hudson's water tank located at 12 Groves Farm Road. The Groves Farm Road tank is uniquely situated near the center of this gap in coverage. Thus, the deployment of a new antenna facility in this location will serve to fill that gap.

The purpose of the Facility is to improve VzW's network coverage to those living and working, in this area of Hudson. Because this is an unmanned facility, VzW can provide improved service with no impact on municipal utilities, schools, or traffic. A VZW Technician will visit the Property 1 time a month for maintenance purposes. No water, sewer, or other municipal services are required. The equipment will comply with all applicable FCC standards and regulations.

Group 12 Industrial Way, Salem NH, 03079 ● 603-421-0470 (Office) ● 603-893-1104 (Fax)

As with any other wireless communication facility, the equipment proposed for this installation consists of antennas, cables, and ground-based equipment. VzW's 3-sector antenna array will be mounted to a new steel frame atop the water tank at a centerline height of 73' with a total appurtenance height of 76'. The ground-based radios and emergency backup generator will be set on a proposed 12' x 20' concrete pad inside the Town's existing fenced compound.

II. ENCLOSED MATERIALS

A. Abutter list
B. Planning Board CUP Application
C. Site Plan and Construction Drawing prepared by Dewberry Engineers, Inc. titled "Hudson 3, NH"
D. Structural Analysis certifying proposed load atop water tank
E. VZW RF Report and Study

III. SUMMARY

VZW's existing network currently suffers from a substantial gap in coverage. As a result, the network needs to be augmented with a new site to fulfill the need. An antenna collocation on the Groves Farm Road water tank will serve to fulfill this need and offload the demand currently placed on nearby sites. VZW believes the proposal is in harmony with the spirit and intent of Hudson's zoning ordinance and looks forward to presenting the project to the Board at its next public hearing.

Respectfully Submitted,

Chip Fredette

Digitally signed by Chip Fredette
Date: 2024.11.01 09:26:05 -04'00'

Chip Fredette

CONDITIONAL USE PERMIT APPLICATION

Date of Application: 11/1/24 Tax Map #: 235 Lot #: 012-001

Site Address: 12 Groves Farm Road

Name of Project: Verizon Wireless - Hudson 3, NH

Zoning District: G - 1 General CU#: 03-24

(For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:

Name: Town of Hudson

Address: 12 School Street

Address: Hudson, NH 03051

Telephone # _____

Email: _____

DEVELOPER:

Cellco Partnership d/b/a Verizon Wireless

Agent: Chip Fredette - SAI

12 Industrial Way, Salem, NH 03079

603 - 848 - 1461

cfredette@saigrp.com

PROJECT ENGINEER:

Name: Dewberry Engineers, Inc. - Ben Revette, P.E.

Address: 99 Summer Street - Suite 700

Address: Boston, MA 02110

Telephone # 617 - 695 - 3310

Email: mtilden@dewberry.com

SURVEYOR:

N/A

PURPOSE OF PLAN:

The purpose of this plan is to show the proposed co-location of Verizon Wireless's antenna equipment at the Groves Farm Road Water Tank site.

(For Town Use Only)

Routing Date: 11/19/24 Deadline Date: 11/26/24 Meeting Date: 12/11/24

____ I have no comments ____ I have comments (attach to form)

____ Title: Chief Assessor Date: 11-22-24

(Initials)

Department:

Zoning: ___ Engineering: ___ Assessor: ___ Police: ___ Fire: ___ DPW: ___ Consultant: ___

Attachment "B"

Dubowik, Brooke

From: Twardosky, Jason
Sent: Wednesday, November 20, 2024 1:04 PM
To: Dubowik, Brooke
Subject: RE: Dept. Sign Off - Cellco dba Verizon Wireless CUP# 03-24

No comments.

CONDITIONAL USE PERMIT APPLICATION

Date of Application: 11/1/24 Tax Map #: 235 Lot #: 012-001

Site Address: 12 Groves Farm Road

Name of Project: Verizon Wireless - Hudson 3, NH

Zoning District: G - 1 General CU#: 03-24

(For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:

Name: Town of Hudson

Address: 12 School Street

Address: Hudson, NH 03051

Telephone # _____

Email: _____

DEVELOPER:

Cellco Partnership d/b/a Verizon Wireless

Agent: Chip Fredette - SAI

12 Industrial Way, Salem, NH 03079

603 - 848 - 1461

cfredette@saigrp.com

PROJECT ENGINEER:

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Address: 99 Summer Street - Suite 700

Address: Boston, MA 02110

Telephone # 617 - 695 - 3310

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SURVEYOR:

N/A

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(For Town Use Only)

Routing Date: 11/19/24 Deadline Date: 11/26/24 Meeting Date: 12/11/24

✓ I have no comments _____ I have comments (attach to form)

DRLt Title: Fire Marshal Date: 11/19/24

(Initials)

Department:

Zoning: ___ Engineering: ___ Assessor: ___ Police: ___ Fire: ✓ DPW: ___ Consultant: ___

CONDITIONAL USE PERMIT APPLICATION

Date of Application: 11/1/24 Tax Map #: 235 Lot #: 012-001

Site Address: 12 Groves Farm Road

Name of Project: Verizon Wireless - Hudson 3, NH

Zoning District: G - 1 General CU#: 03-24
(For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:

Name: Town of Hudson

Address: 12 School Street

Address: Hudson, NH 03051

Telephone # _____

Email: _____

DEVELOPER:

Cellco Partnership d/b/a Verizon Wireless

Agent: Chip Fredette - SAI

12 Industrial Way, Salem, NH 03079

603 - 848 - 1461

cfredette@saigrp.com

PROJECT ENGINEER:

Name: Dewberry Engineers, Inc. - Ben Revette, P.E.

Address: 99 Summer Street - Suite 700

Address: Boston, MA 02110

Telephone # 617 - 695 - 3310

Email: mtilden@dewberry.com

SURVEYOR:

N/A

PURPOSE OF PLAN:

The purpose of this plan is to show the proposed co-location of Verizon Wireless's antenna equipment at the Groves Farm Road Water Tank site.

(For Town Use Only)

Routing Date: 11/19/24 Deadline Date: 11/26/24 Meeting Date: 12/11/24

X I have no comments _____ I have comments (attach to form)

SCM Title: Captain Steve McElhinney Date: 11/20/24
(Initials)

Department:

Zoning: ___ Engineering: ___ Assessor: ___ Police: X Fire: ___ DPW: ___ Consultant: ___

Attachment "C"

C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
Phone: (603) 644 2800
support@csquaredsystems.com

RF Report

Proposed Wireless Facility
12 Groves Farm Road
Hudson, NH 03051

October 30, 2024

TABLE OF CONTENTS

LIST OF TABLES

ATTACHMENTS

1. Overview

This RF Report has been prepared on behalf of Verizon Wireless in support of its application to the Town of Hudson for the installation and operation of a wireless facility located on town property at 12 Groves Farm Road. The proposed facility would consist of ground-based equipment cabinets along with antennas and associated equipment mounted on the existing 67' tall water tank.

This report concludes that the proposed site will provide improved coverage and additional capacity to southern Hudson to improve deficient service areas along Route 3A, Dracut Road, and the surrounding roads, residences, businesses and recreational areas in the proximity of the proposed site.

Included in this report is: a brief summary of the site's objectives, maps showing Verizon Wireless' current network plan, and modeled Radio Frequency coverage of the subject site and the surrounding sites in Verizon Wireless' network.

2. Introduction

Verizon Wireless provides digital voice and data communications services using 4th Generation (4G) voice and data services over LTE technology in the 700 MHz, Cellular (800 MHz), PCS (1900 MHz), and AWS (2100 MHz) frequency bands as allocated by the FCC, along with the CBRS band (3.5-3.7 GHz). It is also deploying advanced 5th generation (5G) NR services in its cellular, C-band (3.7-3.98 GHz) and 28 GHz licensed frequency bands. These 4G and 5G networks are used to provide high-speed wireless connections used by mobile devices for fast web browsing, media streaming, video conferencing, and other applications that require broadband connections. The mobile devices that benefit from these advanced networks include typical smartphones, tablets, laptops, and Wi-Fi hot-spots. With the continual advancement of its networks, Verizon Wireless customers will enjoy even faster connections to people, information, and entertainment in a day and age when reliable wireless connectivity is an indispensable part of daily personal and business life.

As explained within this report, Verizon Wireless has identified the need to add a new facility to its existing network of sites to improve coverage and capacity to a significant gap in service that exists in Hudson, in order to support reliable communications and meet the growing demand in the area.

To maintain a reliable and robust communications system for the individuals, businesses, public safety workers and others who use its network, Verizon Wireless deploys a network of cell sites (also called wireless communications facilities) throughout the areas in which it is licensed to provide service. These cell sites consist of antennas mounted on structures, such as buildings and towers, supported by radio and power equipment. The receivers and transmitters at each of these sites process signals within a limited geographic area known as a "cell."

Mobile subscriber handsets and wireless devices operate by transmitting and receiving low power radio frequency signals to and from these cell sites. Handset signals that reach the cell site are transferred through land lines (or other means of backhaul transport) and routed to their destinations by sophisticated electronic equipment. In order for Verizon Wireless' network to function effectively, there must be adequate overlapping coverage between the "serving cell" and adjoining cells. This not only allows a user to access the network initially, but also allows for the transfer or "hand-off" of calls and data transmissions from one cell to another and prevents unintended disconnections or "dropped calls."

Verizon Wireless' antennas also must be located high enough above ground level to allow transmission (a.k.a. propagation) of the radio frequency signals above trees, buildings, and other natural or man-made structures that may obstruct or diminish the signals. Areas without adequate radio frequency coverage have substandard service, characterized by dropped and blocked calls, slow data connections, or no wireless service at all, and are commonly referred to as coverage gaps.

The size of the area potentially served by each cell site depends on several factors including the number of antennas used, the height at which the antennas are deployed, the topography of the surrounding land, vegetative cover, and natural or man-made obstructions in the area. The actual service area at any given time also depends on the number of customers who are on the network in range of that cell site. As customers move throughout the service area, the transmission from the phone or other device is automatically transferred to the Verizon Wireless facility with the best reception, without interruption in service, provided that there is overlapping coverage between the cells.

Each cell site must be primarily designed to strike a balance between the overall geographic coverage area it will serve, and the site's capacity to support the usage within the coverage footprint. In rural areas, cell sites are generally designed to have broader coverage footprints because the potential traffic is sparser and distributed over a larger area. In more densely populated suburban and urban environments, the capacity to handle calls and data transmissions is of increasing concern, and cell sites must limit their coverage footprint to an area where the offered network traffic can be supported by the radio equipment and resources. Due to the aggressive historical and projected growth of mobile usage, particularly for mobile data (more than quadrupled from 2017-2022 for mobile wireless data traffic in the U.S.[1]), instances arise where the usage demand can no longer be supported by the site(s) serving an area, and new facilities must be integrated to provide capacity relief to the overloaded sites.

We have concluded that with the existing water tank located at 12 Groves Farm Road at an antenna centerline height of 73' AGL (above ground level), Verizon Wireless will be able to provide improved coverage and additional capacity to southern Hudson that are currently located within a gap in service of Verizon Wireless' network.

[1] "2023 Annual Survey Highlights", July 25, 2023, CTIA.
https://www.ctia.org/news/2023-annual-survey-highlights

3. The Proposed Facility

Verizon Wireless' plan for this proposed facility consists principally of the following elements:

1) A 12' x 20' concrete pad within the existing fenced water tank compound to support telecommunications equipment cabinets, utility cabinets, and a 50 kW diesel-fueled back-up power generator.
2) Nine (9) panel antennas (3 sectors, 3 antennas per sector) mounted on top of the existing water tank at a centerline elevation of 73' AGL.
3) Remote Radio Heads (RRHs) with accessory junction boxes and surge suppressors, mounted nearby the antennas.
4) An 10' x 12' equipment canopy above Verizon's equipment cabinets and an ice bridge between the equipment pad and the existing water tank to protect cabling between the equipment cabinets and the existing caged climbing ladder. The proposed Verizon cabling will run vertically alongside the climbing ladder to the proposed equipment on top of the tank.

4. Coverage and Capacity Objectives

As mentioned above, Verizon Wireless is in the process of advancing its 4G LTE high-speed wireless broadband system in the 700 MHz, Cellular, PCS, AWS and CBRS frequency bands, in accordance with its applicable licenses from the FCC. Verizon is also deploying a 5G NR system in its licensed cellular, C-Band, and 28 GHz frequency bands. In order to expand and enhance its wireless services throughout New England, Verizon Wireless must fill in existing coverage gaps and address capacity, interference, and high-speed broadband issues. As part of this effort, Verizon Wireless has determined that significant gaps in service exist in and around sections of Hudson as described further below.

Verizon Wireless currently operates wireless facilities similar to the proposed facility within Hudson and the surrounding cities/towns. Due in large part to the distances between the existing sites, the intervening topography, and volume of user traffic in the area, these existing facilities do not provide sufficient coverage and capacity to portions of Hudson. Specifically, Verizon Wireless determined that much of southern Hudson is without reliable service in the following areas and town roads[2], including but not limited to:

- Route 3A (Lowell Road / River Road)
    - Serves ~22,000 vehicles per day as measured south of Rena Avenue (2023)
- Dracut Road
    - Serves ~ 14,000 vehicles per day as measured south of Pine Road (2023)
- Musquash Road
- Wason Road
- The surrounding roads, residences, businesses, and recreational areas

The proposed site located at 12 Groves Farm Road ("Hudson 3") is needed to fill in these targeted gaps in service, in order to improve network quality and reliability for Verizon Wireless subscribers traveling along these roads, as well as to the numerous residents, businesses, and visitors in this area.

[2] Traffic counts are sourced from the New Hampshire Department of Transportation, Transportation Data Management System. https://nhdot.public.ms2soft.com/tcds/tsearch.asp?loc=Nhdot&mod=TCDS

5. Site Search and Selection Process

To find a site that provides acceptable coverage, adequate capacity, and fills the gaps in service, computer modeling software is used to define a search area. The search ring identifies the area within which a site could be located (assuming sufficient height is considered) that would have a high probability of addressing the significant coverage gap and/or meeting the capacity objectives established by the Verizon Wireless RF (Radio Frequency) engineers.

Once a search ring is determined, Verizon Wireless' real estate specialists search within the proximity of the defined area for existing buildings, towers, and other structures of sufficient height that would meet the defined objectives. If none are found, then the focus shifts to "raw land" sites. A suitable site must satisfy the technical requirements identified by the RF engineers, must be available for lease, and must have access to a road and be otherwise suitable for constructing a cell site of the required size and height. Every effort is made to use existing structures before pursuing a "raw land" build to minimize the number of new towers throughout the cities and towns being served.

After the search of the area had been completed, Verizon Wireless concluded that proposing the collocated wireless communications facility on the existing water tank at 12 Groves Farm Road would be the most appropriate solution to address its targeted coverage and capacity objectives.

6. Pertinent Site Data

Table 1 below details the site-specific information for the on-air, and proposed Verizon Wireless macro-sites used to perform the coverage analysis and generate the coverage plots provided herein.

Site Name	Address	City/Town	Latitude	Longitude	Structure Type	Antenna Height (ft AGL)	Status
Dracut 3	91 Mill Street	Dracut	42.6826	-71.3504	Rooftop	102.3 (700) 109 (AWS)	On-Air
Dracut 7	13 Chuck Drive	Dracut	42.6858	-71.3132	Monopole	85	On-Air
Dunstable 2	516 Main Street	Dunstable	42.6741	-71.4823	Steeple	47.5	On-Air
Hudson	46 Trigate Road	Hudson	42.7353	-71.3928	Guyed	188	On-Air
Hudson C	193 Central Street	Hudson	42.7666	-71.4125	Monopole	107	On-Air
Hudson C	193 Central Street	Hudson	42.7666	-71.4125	Flagpole	107	On-Air
Hudson W	19 Sagamore Park Road	Hudson	42.7292	-71.4297	Monopole	70	On-Air
Lowell 9	Sherburne Avenue	Tyngsboro	42.6606	-71.3885	Monopole	147	On-Air
Nashua 2	237 Main Dunstable Road	Nashua	42.7434	-71.4944	Monopole	125	On-Air
Nashua 3	124 Ridge Road	Nashua	42.7090	-71.4869	Monopole	165	On-Air
Nashua 7	61 Spit Brook Road	Nashua	42.7089	-71.4471	Rooftop	64.3	On-Air
Nashua 9	840 W Hollis Street	Nashua	42.7281	-71.5105	Monopole	112	On-Air
Nashua 10	243 Daniel Webster Highway	Nashua	42.7096	-71.4420	Rooftop	54.6	On-Air
Nashua 11	71 Spit Brook Road	Nashua	42.7071	-71.4484	Monopole	146	On-Air
Nashua DT	57 Tyler Street	Nashua	42.7575	-71.4585	Rooftop	100	On-Air
Nashua DT 3	39 Orchard Avenue	Nashua	42.7413	-71.4538	Self-Support	70	On-Air
Pelham	12 Kirlin Road	Pelham	42.7261	-71.3036	Monopole	144	On-Air
Pelham 2	9 Rocky Hill Road	Pelham	42.7605	-71.3438	Monopole	115	On-Air
Pelham 3	34 Tower Hill Road formerly Gumpas Hill	Pelham	42.7260	-71.3602	Monopole	124	On-Air
Pelham S	60 Pulpit Rock Road	Pelham	42.7014	-71.3164	Monopole	130	On-Air
Tyngsboro	150 Westford Road	Tyngsboro	42.6510	-71.4299	Monopole	177	On-Air
Tyngsboro 3	56 Coburn Road	Tyngsborough	42.6795	-71.4031	Monopole	105.83 - 106.42 - 107.17	On-Air
Tyngsboro 5	54 Locust Street	Tyngsboro	42.6909	-71.4379	Monopole	145	On-Air
Tyngsboro North	86 Progress Avenue	Tyngsboro	42.6717	-71.4445	Self-Support	130	On-Air
Pelham	12 Kirlin Road	Pelham	42.7261	-71.3036	Monopole	144	On-Air
Hudson 3	**12 Groves Farm Road**	**Hudson**	**42.7206**	**-71.4133**	**Water Tank**	**73**	**Proposed**

Table 1: Verizon Wireless Site Information Used in Coverage Analysis [3]

[3] Some sites listed in this table are outside the plot view but are included for completeness of information.

7. Coverage Analysis and Propagation Plots

The signal propagation plots provided in this report were produced using deciBel Planner™, a Windows-based RF propagation computer modeling program and network planning tool. The software considers the topographical features of an area, land cover, antenna models, antenna heights, RF transmitting power and receiver thresholds to model coverage and other related RF parameters used in site design and network expansion.

The coverage plots included as attachments show coverage based on RSRP signal strengths of -105 dBm and above. All other areas (depicted in white) fall within coverage areas characterized by poor service quality, low data throughput, and the substantial likelihood of unreliable service. The shaded areas are categorized by the following thresholds: green indicates coverage greater than -85 dBm, yellow represents coverage between -85 dBm and -95 dBm, gray indicates coverage from -95 dBm to -105 dBm, and areas with coverage less than -105 dBm are shown in white.

Attachments A - G are discussed below:

Attachment A titled "*Hudson 3 NH – Existing 700 MHz LTE Coverage*" illustrates the current 700 MHz LTE coverage provided by the existing "On-Air" macro-sites listed in Table 1. As depicted in this plot and described in the Coverage and Capacity Objectives section of this report, portions of southern Hudson are in an area of deficient coverage. These deficiencies, particularly in the gray and white areas, highlight the areas in need for improved coverage to ensure reliable service.

Attachment B titled "*Hudson 3 NH - 700 MHz LTE Coverage with Proposed Site*" shows the composite 700 MHz LTE coverage with the proposed "Hudson 3" facility. As shown by the additional areas of coverage, the proposed facility will provide coverage to:

Incremental Coverage from Proposed Site (700 MHz)		
Category	**(≥ -85 dBm)**	**(≥ -95 dBm)**
Population:	~1,280	~820
Business:	~570	~690
Roadways (~ mi):		
Route 3A	1.0	0.2
Dracut Rd	1.2	0.2
Musquash Rd	0.8	0.1
Wason Rd	0.7	0.8

Table 2: Incremental Coverage [6] [7] (700 MHz)

[6] Residential population counts referenced here and elsewhere within this report are based upon the 2020 U.S. Census data.

[7] Employee population counts referenced here and elsewhere within this report are based upon the 2020 U.S. Census Bureau LEHD database.

Attachment C titled "*Hudson 3 NH – Existing 2100 MHz LTE Coverage*" illustrates the 2100 MHz coverage provided by the existing "On-Air" macro-sites listed in Table 1. Because of the inferior propagation characteristics of 2100 MHz relative to 700 MHz, the extent of the coverage gaps shown here impact a much larger area than depicted in Attachment A.

Attachment D titled "*Hudson 3 NH - 2100 MHz LTE Coverage with Proposed Site*" shows the composite 2100 MHz coverage with the proposed "Hudson 3" facility. As shown by the additional areas of coverage in this map, the proposed facility will provide coverage to:

Incremental Coverage from Proposed Site (2100 MHz)		
Category	**(≥ -85 dBm)**	**(≥ -95 dBm)**
Population:	~200	~1230
Business:	~60	~640
Roadways (~ mi):		
Route 3A	-	0.7
Dracut Rd	-	0.7
Musquash Rd	0.2	1.1
Wason Rd	0.1	0.9

Table 3: Incremental Coverage (2100 MHz)

Attachment E titled "*Hudson 3 NH – Existing 700 MHz LTE Sector Footprints"* depicts the areas primarily served by the sectors (a.k.a. signal "footprints") of the surrounding Verizon Wireless macro sites in the area, which are shown by the unique color for each particular sector of interest. For clarity, all other sectors of less interest with respect to the proposed site are shown in grey. As demand for wireless voice and data services continues to grow, Verizon Wireless manages the footprint of each sector so that it can support the demand within the area it is primarily serving. In addition to improving coverage to the area, the proposed site will also serve existing and anticipated demand in the vicinity and thereby offload some of the burden experienced by the surrounding sites. In that way, those sites will be able to more adequately serve the demand for service in the areas nearer to those surrounding sites. Please note that the outer parts of each sector footprint may include areas that presently have signal strength below the targeted value required for reliable service to Verizon Wireless' customers. The fact that low-level signal may reach these areas does not mean that these areas experience adequate coverage. These unreliable areas of low signal level can impose a significant capacity burden on the sites primarily serving the area.

Attachment F titled "*Hudson 3 NH - 700 MHz LTE Sector Footprints with Proposed Site*" shows the composite coverage with the overall footprint of the proposed facility in dark green. As shown in this map, the proposed "Hudson 3" facility is an effective solution to provide capacity relief to the area, particularly to the "Hudson" gamma sector (red). The proposed facility is centrally located in the area of deficient coverage making it particularly suited to distribute the traffic load across multiple sectors and provide a dominant server to this section of the town. Table 4 below details the capacity relief based on the sector footprints shown in Attachments E and F.

Sector	Current		With "Hudson 3 NH"		Offload Summary	
	Employee Pops	Residental Pops	Employee Pops	Residental Pops	Total Employee Pops Offloaded	Total Residential Pops Offloaded
Hudson Gamma	1073	2811	121	1256	*952 (88.7%)*	*1555 (55.3%)*
Nashua 10 Beta	821	445	560	239	*261 (31.8%)*	*206 (46.3%)*
Hudson West Beta	378	473	184	122	*194 (51.3%)*	*351 (74.2%)*

Table 4: Capacity Offload Summary

Attachment G titled "*Hudson 3 NH – Area Topography Map*" details the topographical features around the proposed "Hudson 3" site. These terrain features play a key role in dictating both the unique coverage areas served from a given location, and the coverage gaps within the network. This map is included to provide a visual representation of the terrain variations that must be considered when determining the appropriate location and design of a proposed wireless facility. The blue and green shades correspond to lower elevations, whereas the red, grey and white shades indicate higher elevations.

8. Certification of Non-Interference

Verizon Wireless certifies that the proposed facility will not cause interference to any lawfully operating emergency communication system, television, telephone or radio, in the surrounding area. The FCC has licensed Verizon Wireless to transmit and receive in specific frequency blocks of the 700 MHz band, the Cellular band, the PCS band, the AWS band, the CBRS band, the C-band, and 28 GHz band of the RF spectrum. As a condition of the FCC licenses, Verizon Wireless is prohibited from interfering with other licensed devices that are being operated in a lawful manner. Furthermore, no emergency communication system, television, telephone, or radio is licensed to operate on these frequencies, and therefore interference is highly unlikely.

Pursuant to its FCC licenses, Verizon is required to ensure that all radio equipment operating at the proposed communications facility and the resulting radiofrequency exposure levels are compliant with FCC requirements. Verizon has evaluated the proposed facility in accordance with the FCC's *OET Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields"* to ensure its operation will comply with the Code of Federal Regulations §1.1310 Radiofrequency radiation exposure limits.

9. Summary

In undertaking its build-out of 4G LTE and 5G NR service in Hillsborough County, Verizon Wireless has determined that an additional facility is needed to provide reliable service and additional capacity throughout areas of Hudson. The proposed wireless communications facility located at 12 Groves Farm Road in Hudson will provide additional coverage and capacity needed in the targeted coverage areas including key roadways such as Route 3A, Dracut Road and to the surrounding roads, residences, businesses and recreational areas in the proximity of the proposed site. Without the installation of the proposed site, Verizon Wireless will be unable to improve and expand its wireless communication services in this area of Hudson; therefore, Verizon Wireless respectfully requests that the Town of Hudson act favorably upon the proposed facility.

10. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate.

Keith Vellante

Keith Vellante
RF Engineer
C Squared Systems, LLC

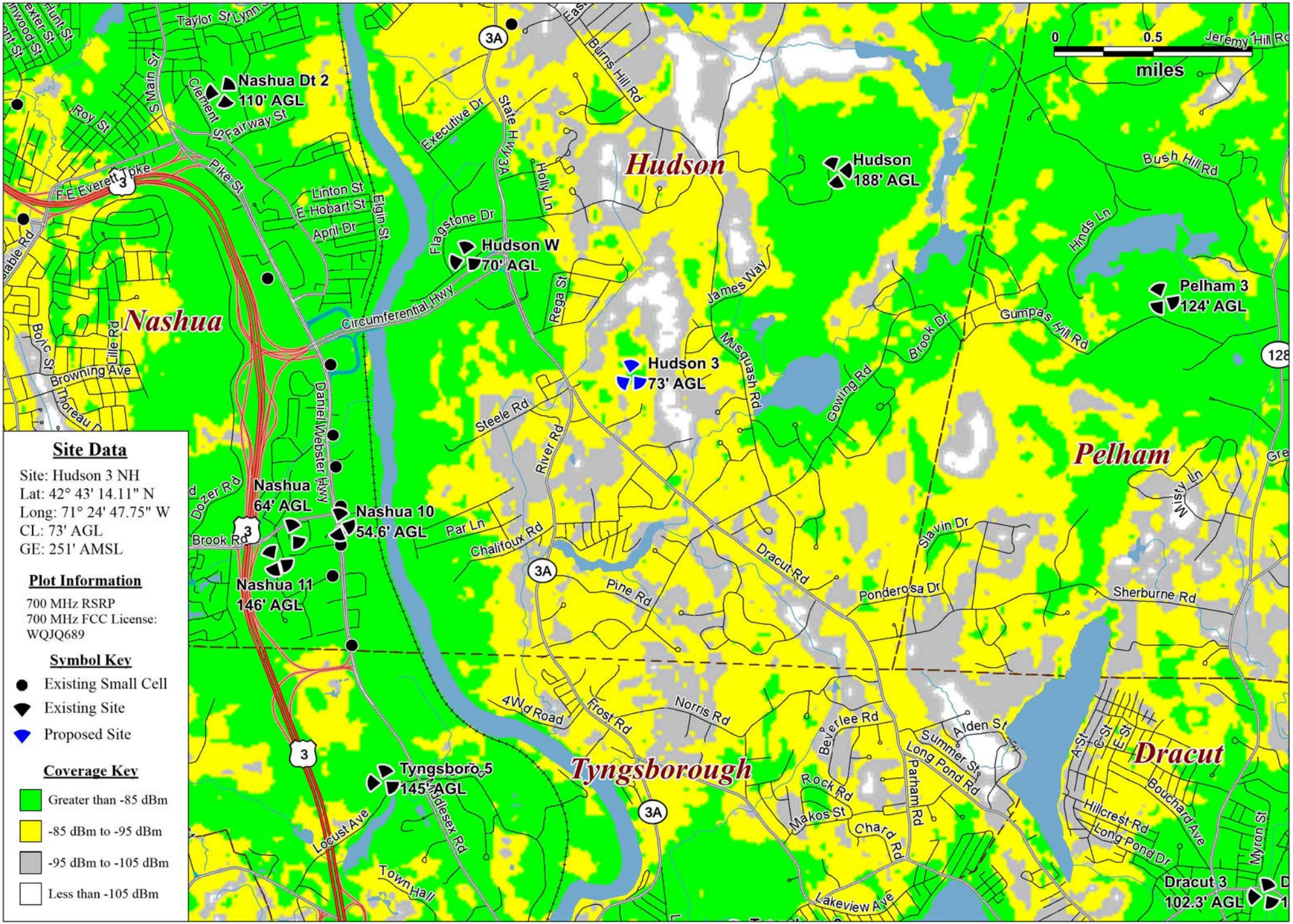
October 30, 2024
Date

11. Attachments

Attachment A:
Hudson 3 NH - Existing 700 MHz LTE Coverage

Attachment "C"

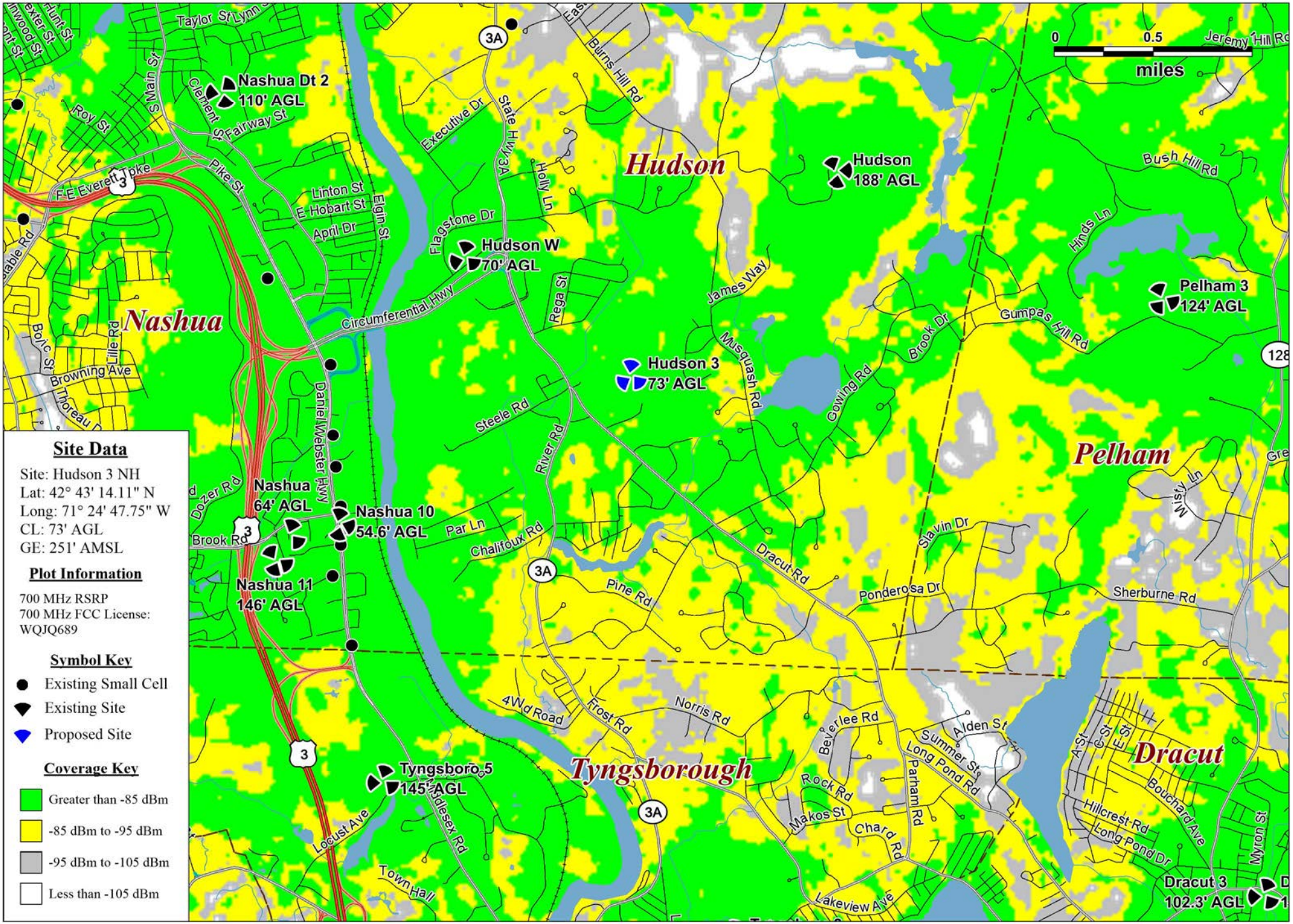
verizon



Attachment B:
Hudson 3 NH - 700 MHz LTE Coverage with Proposed Site

Attachment "C"

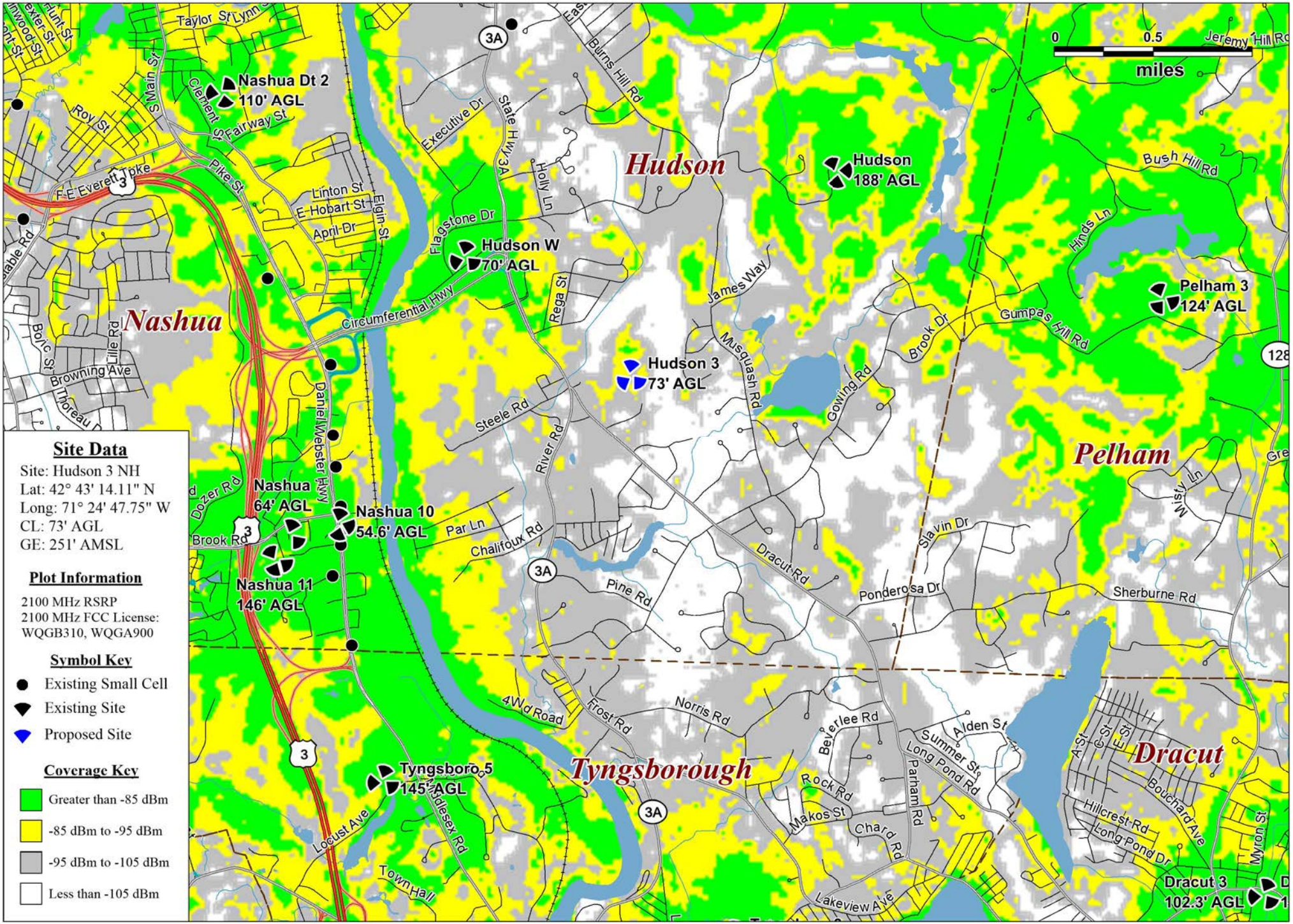
verizon



Attachment C:
Hudson 3 NH - Existing 2100 MHz LTE Coverage

Attachment "C"

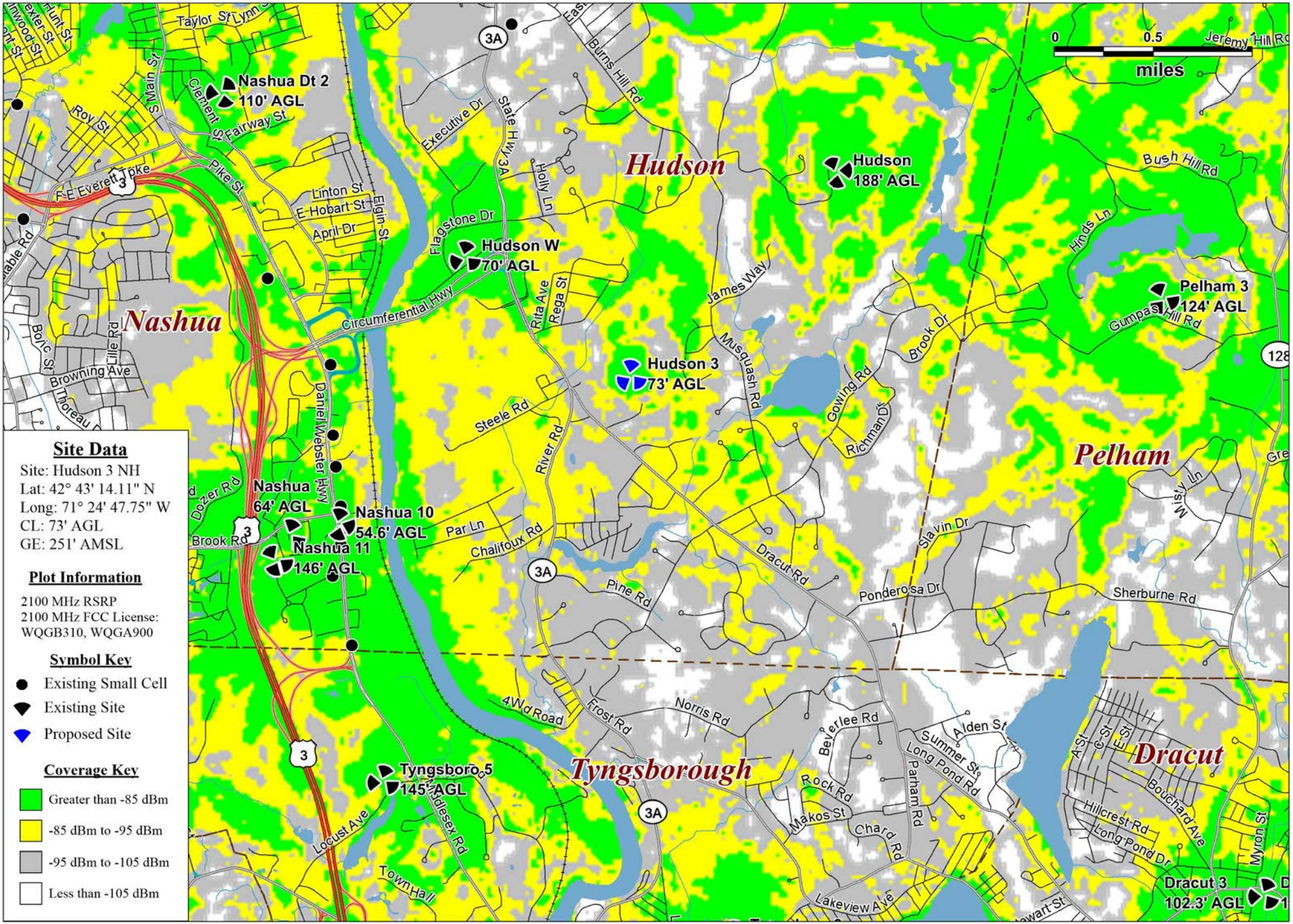
verizon



Attachment "C"

Attachment D:
Hudson 3 NH - 2100 MHz LTE Coverage with Proposed Site

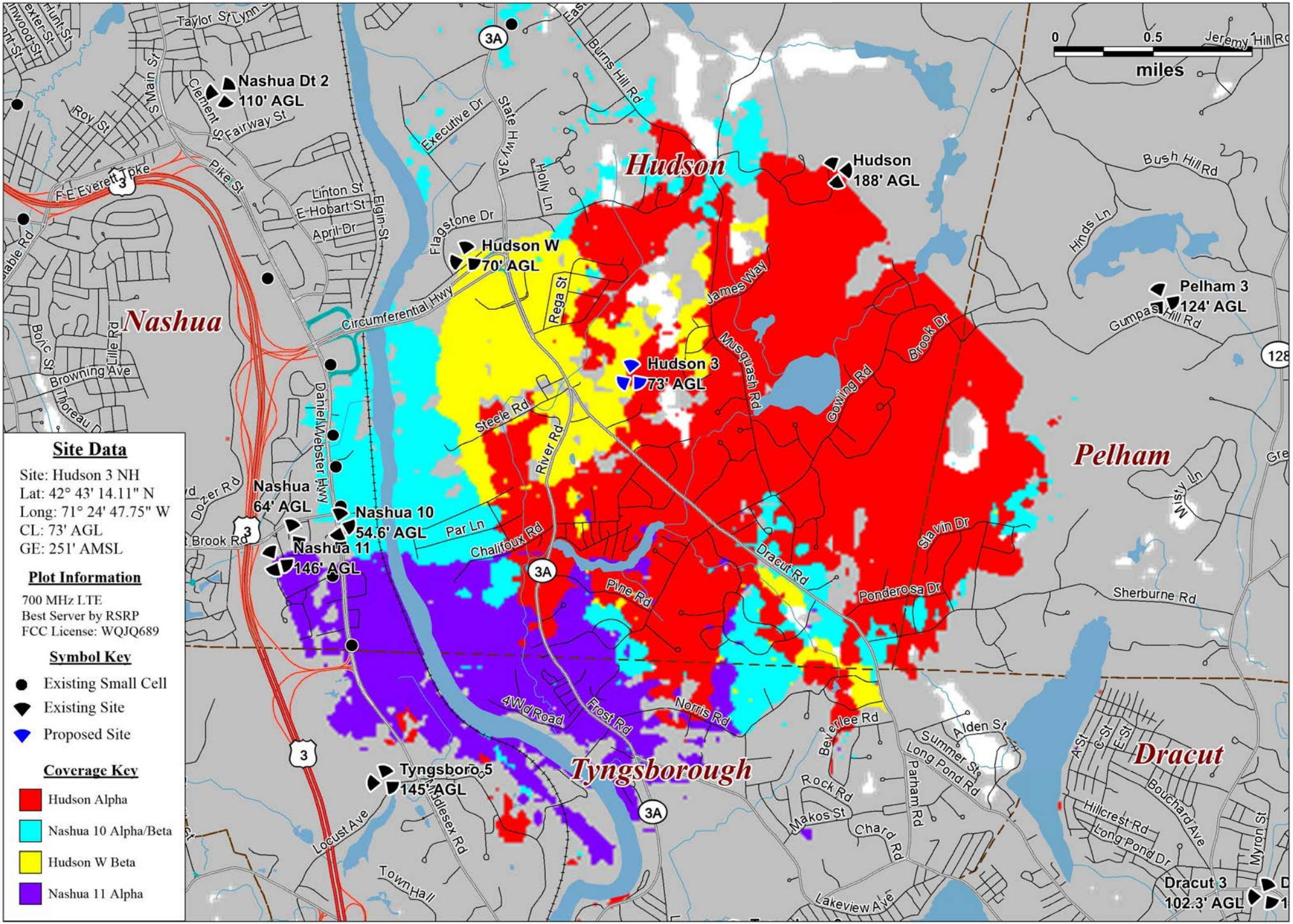
verizon



Attachment "C"

Attachment E:
Hudson 3 NH - Existing 700 MHz LTE Sector Footprints

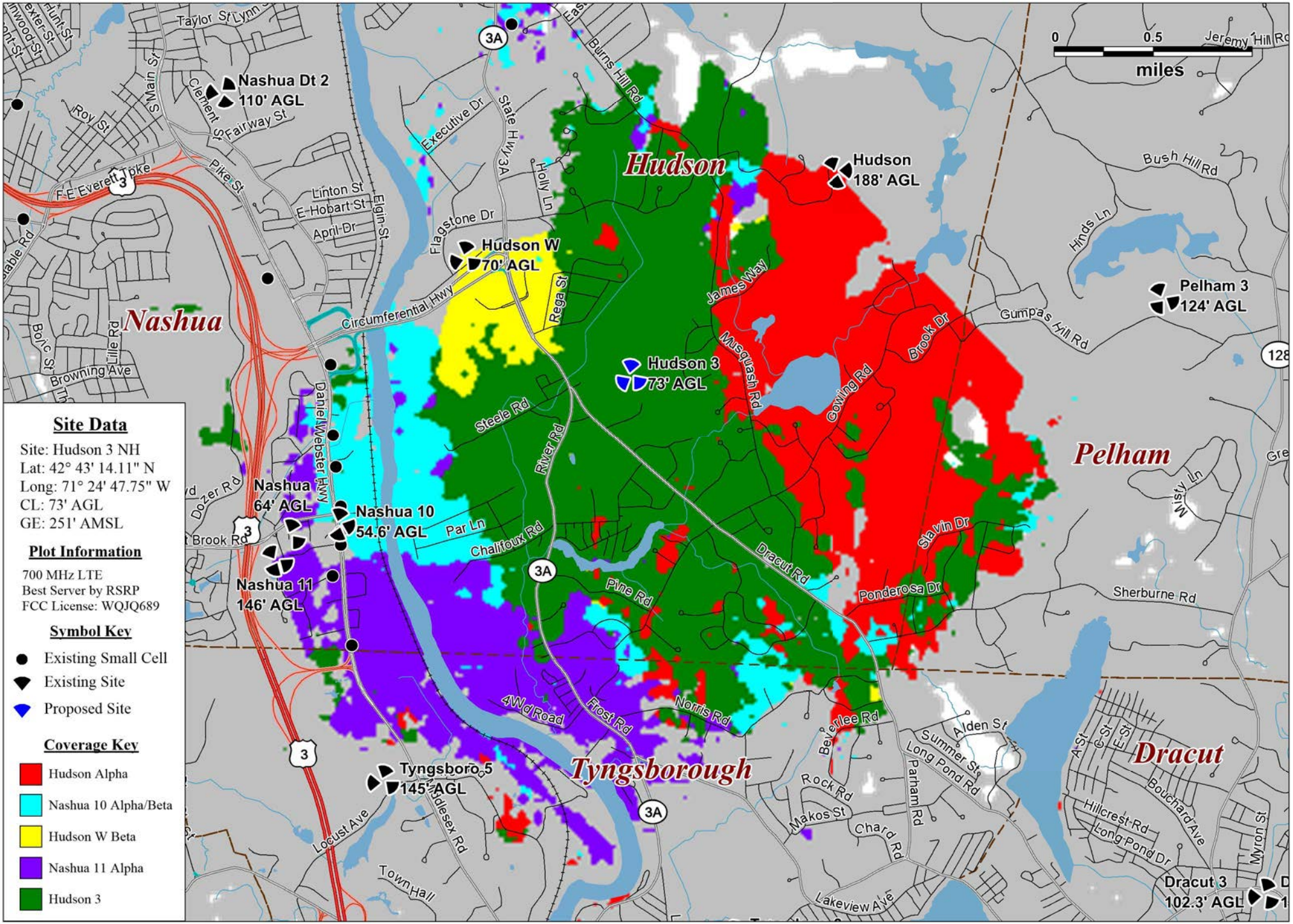
verizon



Attachment F:
Hudson 3 NH - 700 MHz LTE Sector Footprints with Proposed Site

Attachment "C"

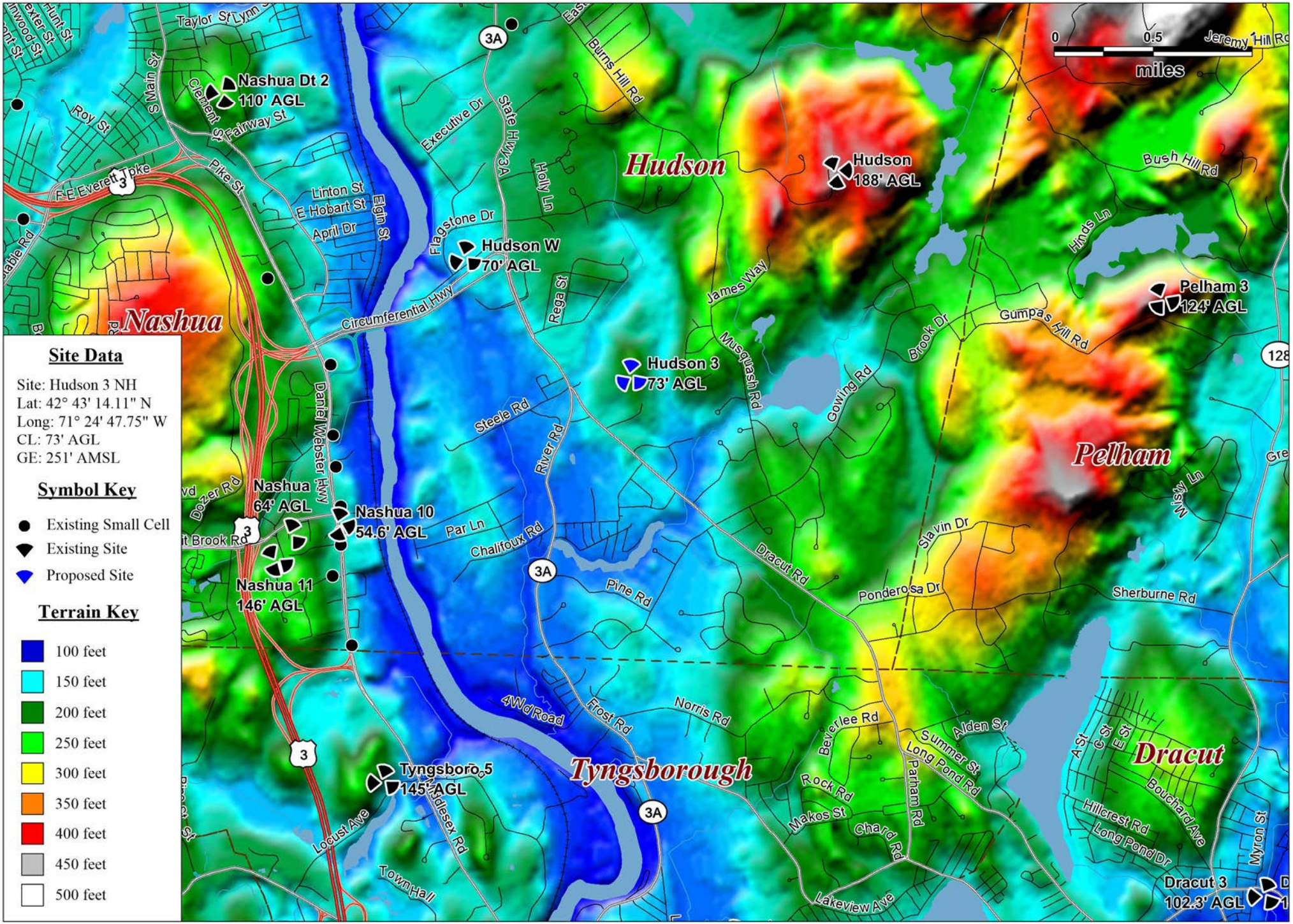
verizon



Attachment G:
Hudson 3 NH - Area Topography Map

Attachment "C"

verizon



Dewberry Engineers Inc.
99 Summer Street, Suite 700
Boston, MA 02110-1200

617.695.3400
617.695.3310 fax
www.dewberry.com

Dewberry

July 22, 2024

Verizon Wireless
51 Alder Street
Medway, MA 02053

Re: Hudson 3 NH
Site ID: 699369
Fuze #: 17242779
12 Groves Farm Road
Hudson, NH 03051

Dear Mr. Leone:

Verizon Wireless has proposed to install (3) new MT6413-77A antennas w/ integrated RRHs, (6) NHH-65B-R2B antennas, (3) RF4440d-13A RRHs, (3) RF4439d-25A RRHs, and (1) 12-OVPs on the water tank at the above referenced site. The proposed equipment will be mounted on proposed mast pipes on the proposed water tank antenna mount (Commscope P/N: WT-RTA12-6-96).

Dewberry Engineers Inc. (Dewberry) has reviewed the antenna design sheets (dated 10/25/23) provided by Verizon Wireless and has determined that the existing water tank structure has adequate capacity to support the proposed equipment configuration. Dewberry assumes that the new antennas, RRHs, OVPs and associated equipment are installed per the latest Construction Drawings by Dewberry. Please refer to the mount structural analysis report by Dewberry dated 07/22/24 for the analysis on the existing water tank catwalk and on the antenna mounting system.

Please note, our assessment is limited to the existing water tank. Our assessment is based on the assumption that the existing water tank is in good condition and was constructed in conformance with all applicable state and local building codes. If, during construction, any damage, deterioration, and/or discrepancies are noticed, Dewberry is to be notified to assess any deviation from the assumed condition. Any alteration in equipment loading described above and on the associated plans will void any conclusions expressed herein and will require further analysis and design. No structural qualification is made or implied by this structural letter for existing structural members not supporting the proposed installation.

If you have any questions, please do not hesitate to call me at 617-531-0744.

Sincerely,
Dewberry Engineers Inc.

STATE OF NEW HAMPSHIRE
BRANDON G KELSEY
No. 16354
LICENSED PROFESSIONAL ENGINEER

Brandon Kelsey, P.E.
Structural Project Engineer

07/24/2024

Attachment "D"

Dewberry

Prepared for:
Verizon Wireless
900 Chelmsford Street
Tower 2 Floor 5
Lowell, MA 01851

Prepared by:
Dewberry Engineers Inc.
99 Summer St. Suite 700
Boston, MA 02110
Project Number: 50164385

Mount Analysis Report and Design Calculations for a Wireless Telecommunications Upgrade

July 22, 2024
(Rev.0)

Carrier Information:	**Site Name**	Hudson 3 NH
	Site ID	699369
	Fuze ID	17242779
Analysis Criteria:	**Codes**	TIA-222-H, ASCE 7-16 & IBC 2018
	Parameters	115-mph (Ultimate 3-second gust) Risk Category: II, Exposure Cat: B, Topo Cat: 1.0 Topographic Method: 1
Site Data:	**Address**	12 Groves Farm Rd, Hudson, NH 03051
	Mount Type	Steel Mount (Commscope P/N: WT-RTA12-9-96)
	Tower Type	64-ft. tall concrete Water Tank

Dewberry Engineers Inc (Dewberry). is pleased to submit this *"Mount Analysis Report"* to determine the structural capacity of the proposed antenna mount. The objective of this report is to assess the proposed installation of new equipment as detailed in the analysis report.

Analysis Results:

Maximum Utilization: **53.7%** **Sufficient**

Prepared by:

Ashley Deuschle, E.I.T. (FL)
Staff Engineer

Approved by:

STATE OF NEW HAMPSHIRE
BRANDON G KELSEY
No. 16354
LICENSED PROFESSIONAL ENGINEER

07/24/2024

Brandon Kelsey, P.E.
Project Structural Engineer

HUDSON 3 NH

12 GROVES FARM ROAD
HUDSON, NH 03051

FUZE PROJECT ID: 17242779
PSLC: 699369

VICINITY MAP N.T.S.

ENGINEER

DEWBERRY ENGINEERS INC.
99 SUMMER ST.
SUITE 700
BOSTON, MA 02110

PHONE # (617) 531-0813

CONTACT: MATTHEW TILDEN

CONSTRUCTION

VERIZON WIRELESS
51 ALDER STREET
MEDWAY, MA 02053

PHONE # (603) 505-0700

CONTACT: TODD WHITE

PROJECT TEAM

SITE NAME:
HUDSON 3 NH

PROPERTY OWNER:
TOWN OF HUDSON
12 SCHOOL STREET
HUDSON, NH 03051

WATER TANK OWNER:
TOWN OF HUDSON
12 SCHOOL STREET
HUDSON, NH 03051

APPLICANT:
VERIZON WIRELESS
51 ALDER STREET
MEDWAY, MA 02053

ELECTRIC UTILITY:
EVERSOURCE
(800) 362-7764

TELEPHONE UTILITY:
CONSOLIDATED COMMUNICATIONS
(866) 984-3001

HORIZONTAL DATUM:
NORTH AMERICAN DATUM OF 1983 (NAD 83)

COORDINATES:
LATITUDE: 42° 43' 14.11" N (42.720586° N)
LONGITUDE: 71° 24' 47.75" W (71.413264° W)
GROUND ELEVATION: 251.0'

PROJECT SUMMARY

SITE ADDRESS:
12 GROVES FARM ROAD
HUDSON, NH 03051

PARCEL ID:
235-012-001

ZONING DISTRICT:
GENERAL 1 (G-1)

PROJECT DIRECTORY

THE SITE WILL CONSIST OF LOCATING THREE (3) SECTORS OF ANTENNAS (3 ANTENNAS/SECTOR) AND ASSOCIATED EQUIPMENT ON AN EXISTING WATER TANK. EQUIPMENT CABINETS AND DIESEL GENERATOR AND ICE CANOPY WILL BE INSTALLED AT GRADE ON A CONCRETE PAD WITHIN A FENCED COMPOUND. POWER WILL COME FROM EXISTING SOURCES ON SITE.

PROJECT DESCRIPTION

THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAIN. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.

A.D.A. COMPLIANCE:
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.

SHT. NO.	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES-I
GN-2	GENERAL NOTES-II
C-1	SITE PLAN
C-2	ELEVATION
C-3	CONSTRUCTION DETAILS-I
C-4	CONSTRUCTION DETAILS-II
C-5	CONSTRUCTION DETAILS-III
C-6	CONSTRUCTION DETAILS-IV
C-7	CONSTRUCTION DETAILS-V
E-1	RISER DIAGRAMS
G-1	GROUNDING SCHEMATIC & NOTES
G-2	GROUNDING DETAILS

SHEET INDEX

verizon

VERIZON WIRELESS
51 ALDER STREET
MEDWAY, MA 02053

HUDSON 3 NH

CONSTRUCTION DRAWINGS		
2	10/22/24	FOR SUBMITTAL
1	09/10/24	FOR SUBMITTAL
0	09/09/24	FOR SUBMITTAL
A	07/23/24	FOR COMMENT

Dewberry®

Dewberry Engineers Inc.
99 SUMMER STREET
SUITE 700
BOSTON, MA 02110
PHONE: 617.695.3400
FAX: 617.695.3310

STATE OF NEW HAMPSHIRE
BENJAMIN R. REVETTE
No.13830
LICENSED PROFESSIONAL ENGINEER
10/22/2024

DRAWN BY:	MR
REVIEWED BY:	MFT
CHECKED BY:	BBR
PROJECT NUMBER:	50121487
JOB NUMBER:	50164385

SITE LOCATION CODE

699369

SITE ADDRESS

12 GROVES FARM ROAD
HUDSON, NH 03051

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH VERIZON WIRELESS SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT "DIG SAFE" (888-344-7233) FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE OWNER'S REPRESENTATIVE, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
12. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE VERIZON WIRELESS CONSTRUCTION MANAGER.
13. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
14. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR WILL NOTIFY ENGINEER, VERIZON WIRELESS PROJECT CONSTRUCTION MANAGER, AND LANDLORD IMMEDIATELY.
15. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
16. ALL ROOF WORK SHALL BE DONE BY A QUALIFIED AND EXPERIENCED ROOFING CONTRACTOR IN COORDINATION WITH ANY CONTRACTOR WARRANTING THE ROOF TO ENSURE THAT THE WARRANTY IS MAINTAINED.
17. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
18. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
19. CONTRACTOR SHALL FURNISH VERIZON WIRELESS WITH THREE AS-BUILT SETS OF DRAWINGS UPON COMPLETION OF WORK.
20. ANTENNAS AND CABLES ARE TYPICALLY PROVIDED BY VERIZON WIRELESS. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH VERIZON WIRELESS PROJECT MANAGER TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED BY VERIZON WIRELESS. ALL ITEMS NOT PROVIDED BY VERIZON WIRELESS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED BY VERIZON WIRELESS.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR WILL COORDINATE WITH VERIZON WIRELESS PROJECT MANAGER TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY VERIZON WIRELESS. ALL REQUIRED PERMITS NOT OBTAINED BY VERIZON WIRELESS MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
22. GENERAL CONTRACTOR SHALL HAVE A LICENSED HVAC CONTRACTOR START THE HVAC UNITS, SYNCHRONIZE THE THERMOSTATS, ADJUST ALL SETTINGS ON EACH UNIT ACCORDING TO VERIZON WIRELESS CONSTRUCTION MANAGER'S SPECIFICATIONS, AND THOROUGHLY TEST AND BALANCE EACH UNIT TO ENSURE PROPER OPERATION PRIOR TO TURNING THE SITE OVER TO OWNER.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH VERIZON WIRELESS SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. UNLESS OTHERWISE NOTED VERIZON WIRELESS SHALL PROVIDE ALL REQUIRED RF MATERIAL FOR CONTRACTOR TO INSTALL, INCLUDING ANTENNAS, TMA'S, BIAS-T'S, COMBINERS, PDU, DC BLOCKS, SURGE ARRESTORS, GPS ANTENNA, GPS SURGE ARRESTOR, COAXIAL CABLE.
26. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL VERIFY ALL EQUIPMENT TO BE PROVIDED BY VERIZON WIRELESS FOR INSTALLATION BY CONTRACTOR.
27. CONTRACTOR SHALL FURNISH AND INSTALL ANTENNA PLATFORM.
28. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO VERIZON WIRELESS SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
29. SHELTER SHALL BE ANCHORED TO FOUNDATION PER MANUFACTURER'S SPECIFICATIONS AND IN ACCORDANCE WITH THE LOCAL STATE BUILDING CODE.
30. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT.
31. CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF 48 HOURS IN ADVANCE PRIOR TO CONSTRUCTION START, MORE SPECIFICALLY BEFORE; SEALING ANY FLOOR, WALL OR ROOF PENETRATION, FINAL UTILITY CONNECTIONS, POURING CONCRETE, BACKFILLING UTILITY TRENCHES AND STRUCTURAL POST OR MOUNTING CONNECTIONS, FOR ENGINEERING REVIEW AND INSPECTION.
32. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.

CONCRETE AND REINFORCING STEEL NOTES:

1. DESIGN AND CONSTRUCTION OF ALL CONCRETE ELEMENTS SHALL CONFORM TO THE LATEST EDITIONS OF ALL APPLICABLE CODES INCLUDING: ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", AND ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
2. MIX DESIGN SHALL BE APPROVED BY OWNER'S REPRESENTATIVE AND SUBMITTED TO ENGINEER PRIOR TO PLACING CONCRETE.
3. CONCRETE SHALL BE NORMAL WEIGHT, 6 % AIR ENTRAINED (+/- 1.5%) WITH A MAXIMUM 4" SLUMP AND HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI UNLESS OTHERWISE NOTED.
4. THE FOLLOWING MATERIALS SHALL BE USED:

PORTLAND CEMENT:	ASTM C-150, TYPE 1 OR 2
REINFORCEMENT:	ASTM A-185, PLAIN STEEL WELDED WIRE FABRIC
REINFORCEMENT BARS:	ASTM A615, GRADE 60, DEFORMED
NORMAL WEIGHT AGGREGATE:	ASTM C-43
WATER	DRINKABLE
ADMIXTURES:	NON-CHLORIDE CONTAINING

5. MINIMUM CONCRETE COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS (UNLESS OTHERWISE NOTED):
   a. CONCRETE CAST AGAINST EARTH: 3"
   b. ALL OTHER CONCRETE: 2"
6. A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE IN ACCORDANCE WITH ACI 301 SECTION 4.2.4, UNLESS NOTED OTHERWISE.
7. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL, OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE.
8. ADMIXTURES SHALL CONFORM TO THE APPROPRIATE ASTM STANDARD AS REFERENCED IN ACI 301.
9. DO NOT WELD OR TACK WELD REINFORCING STEEL.
10. ALL DOWELS, ANCHOR BOLTS, EMBEDDED STEEL, ELECTRICAL CONDUITS, PIPE SLEEVES, GROUNDS AND ALL OTHER EMBEDDED ITEMS AND FORMED DETAILS SHALL BE IN PLACE BEFORE START OF CONCRETE PLACEMENT.
11. REINFORCEMENT SHALL BE COLD BENT WHENEVER BENDING IS REQUIRED.
12. DO NOT PLACE CONCRETE IN WATER, ICE, OR ON FROZEN GROUND.
13. DO NOT ALLOW CONCRETE OR SUBBASE TO FREEZE DURING CONCRETE CURING AND SETTING PERIOD, OR FOR A MINIMUM OF 3 DAYS AFTER PLACEMENT.
14. FOR COLD-WEATHER AND HOT-WEATHER CONCRETE PLACEMENT, CONFORM TO APPLICABLE ACI CODES AND RECOMMENDATIONS. IN EITHER CASE, MATERIALS CONTAINING CHLORIDE, CALCIUM, SALTS, ETC. SHALL NOT BE USED. PROTECT FRESH CONCRETE FROM WEATHER FOR 7 DAYS, MINIMUM.
15. CONCRETE SHALL BE RUBBED TO A ROUGH GROUT FINISH. PADS SHALL BE SEALED BY STEEL TROWEL.
16. UNLESS OTHERWISE NOTED:
    a. ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTMA615, GRADE 60.
    b. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
17. SPLICING OF REINFORCEMENT IS PERMITTED ONLY AT LOCATIONS SHOWN IN THE CONTRACT DRAWINGS OR AS ACCEPTED BY THE ENGINEER. UNLESS OTHERWISE SHOWN OR NOTED REINFORCING STEEL SHALL BE SPLICED TO DEVELOP ITS FULL TENSILE CAPACITY (CLASS A) IN ACCORDANCE WITH ACI 318.
18. REINFORCING BAR DEVELOPMENT LENGTHS, AS COMPUTED IN ACCORDANCE WITH ACI 318, FORM THE BASIS FOR BAR EMBEDMENT LENGTHS AND BAR SPLICED LENGTHS SHOWN IN THE DRAWINGS. APPLY APPROPRIATE MODIFICATION FACTORS FOR TOP STEEL, BAR SPACING, COVER AND THE LIKE.
19. DETAILING OF REINFORCING STEEL SHALL CONFORM TO "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI 315).
20. ALL SLAB CONSTRUCTION SHALL BE CAST MONOLITHICALLY WITHOUT HORIZONTAL CONSTRUCTION JOINTS, UNLESS SHOWN IN THE CONTRACT DRAWINGS.
21. LOCATION OF ALL CONSTRUCTION JOINTS ARE SUBJECT TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, CONFORMANCE WITH ACI 318, AND ACCEPTANCE OF THE ENGINEER. DRAWINGS SHOWING LOCATION OF DETAILS OF THE PROPOSED CONSTRUCTION JOINTS SHALL BE SUBMITTED WITH REINFORCING STEEL PLACEMENT DRAWINGS
22. SPLICES OF WWF, AT ALL SPLICED EDGES, SHALL BE SUCH THAT THE OVERLAP MEASURED BETWEEN OUTERMOST CROSS WIRES OF EACH FABRIC SHEET IS NOT LESS THAN THE SPACING OF THE CROSS WIRE PLUS 2 INCHES, NOR LESS THAN 8".
23. BAR SUPPORTS SHALL BE ALL GALVANIZED METAL WITH PLASTIC TIPS.
24. ALL REINFORCEMENT SHALL BE SECURELY TIED IN PLACE TO PREVENT DISPLACEMENT BY CONSTRUCTION TRAFFIC OR CONCRETE. TIE WIRE SHALL BE 16 GAUGE CONFORMING TO ASTM A82.
25. SLAB ON GROUND
    a. COMPACT STRUCTURAL FILL TO 95% DENSITY AND THEN PLACE 6" GRAVEL BENEATH SLAB.
    b. PROVIDE VAPOR BARRIER BENEATH SLAB ON GROUND.

CODE SPECIFICATIONS:

1. ALL WORK SHALL COMPLY WITH THE FOLLOWING APPLICABLE CODES:

   2022 NEW HAMPSHIRE STATE BUILDING CODE WITH THE FOLLOWING APPLICABLE CODES:
   2018 INTERNATIONAL RESIDENTIAL CODE (IRC)
   2018 INTERNATIONAL BUILDING CODE (IBC)
   2018 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
   2018 INTERNATIONAL MECHANICAL CODE (IMC)
   2020 NATIONAL ELECTRICAL CODE (NEC)
   2018 INTERNATIONAL PLUMBING CODE (IPC)
   2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)

   IN THE EVENT OF CONFLICT, THE MOST RESTRICTIVE CODE SHALL PREVAIL.
2. ALL STRUCTURAL WORK TO BE DONE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL, 13TH EDITION (AISC 13TH ED.)
3. ALL CONCRETE WORK TO BE DONE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE (ACI 301) SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 318) AND BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
4. ALL REINFORCING STEEL WORK TO BE DONE IN ACCORDANCE WITH THE (ACI 315) MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES, AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:

ASTM A-992, GRADE 50	ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE.
ASTM A-36	ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
ASTM A-500, GRADE B	HSS SECTION (SQUARE, RECTANGULAR, ROUND)
ASTM A-325, TYPE SC OR N	ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS.
F1554, GRADE 36	ALL ANCHORS BOLTS, UNLESS NOTED OTHERWISE.
ASTM A-53, GRADE B	STEEL PIPE

3. ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1 WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 14TH EDITION. WHERE WELD LENGTH IS NOT INDICATED, USE FULL LENGTH WELD. AT THE COMPLETION OF ALL WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
4. BOLTED CONNECTIONS SHALL USE BEARING TYPE GALVANIZED ASTM A325 BOLTS (3/4" DIA.) SUPPLIED WITH A NUT AND WASHER UNDER TURNED END AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. GALVANIZED ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
7. USE PRECAUTIONS & PROCEDURES PER AWS D1.1 WHEN WELDING GALVANIZED METALS.
8. ALL EXISTING BEAM AND COLUMN DIMENSIONS SHALL BE FIELD VERIFY BY CONTRACTOR PRIOR TO FABRICATION. ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THOSE SHOWN SHALL BE REPORTED TO DEWBERRY ENGINEER IMMEDIATELY.
9. CONNECTION DESIGN BY FABRICATOR WILL BE SUBJECT TO REVIEW AND APPROVAL BY ENGINEER.
10. ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH SPECIFICATION ASTM A123/A123M-00 HOT-DIP GALVANIZED FINISH UNLESS OTHERWISE NOTED. GALVANIZING SHALL BE PERFORMED AFTER SHOP FABRICATION TO THE GREATEST EXTENT POSSIBLE. ALL DINGS, SCRAPES, MARS, AND WELDS IN THE GALVANIZED AREAS SHALL BE REPAIRED. REPAIR DAMAGED GALVANIZED COATINGS ON GALVANIZED ITEMS WITH GALVANIZED REPAIR PAINT ACCORDING TO ASTM A780 AND MANUFACTURER'S WRITTEN INSTRUCTIONS, PRIOR TO COMPLETION OF WORK. TOUCHUP ALL DAMAGED GALVANIZED STEEL WITH APPROVED COLD ZINC, "GALVANOX", "DRY GALV", "ZINC-IT", OR APPROVED EQUIVALENT, IN ACCORDANCE WITH MANUFACTURERS GUIDELINES. TOUCHUP DAMAGED NON GALVANIZED STEEL WITH SAME PAINT APPLIED IN SHOP OR FIELD.

FOUNDATION NOTES:

1. BEAR NEW FOUNDATION ON EXISTING SOIL. REMOVE ANY LOOSE FILL AND ORGANIC MATERIAL. PROOF COMPACT PREPARED FOOTING BOTTOM WITH MINIMUM OF 4 PASSES OF A VIBRATORY PLATE COMPACTOR. REMOVE ANY LOOSE OR SOFT AREAS AND REPLACE WITH STRUCTURAL FILL.
2. STRUCTURAL FILL MATERIAL BENEATH SLABS-ON-GRADE SHALL CONSIST OF WELL-GRADED GRANULAR SOIL WITH LESS THAN 15% NON-PLASTIC FINES AND A MAXIMUM PARTICLE SIZE OF 4-INCHES. FILL SHOULD BE PLACED IN MAXIMUM LIFT HEIGHTS OF 9-INCHES (LOOSE) AND COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY AT ±2% OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE MODIFIED PROCTOR TEST.
3. FOUNDATION SHALL BE LOCATED ON SOIL WITH A MINIMUM BEARING CAPACITY OF 3000 PSF (e.g., UNITED SOIL CLASSIFICATION SYSTEM [ASTM DESIGNATION D-2487] GROUP SYMBOLS: GW, GP, GM, GC, SW, SP, SM, SC). ENGINEER SHALL BE NOTIFIED IF SOIL BEARING CAPACITY IS LESS THAN 3000 PSF.

STRUCTURAL NOTES:

1. AS REQUIRED UNDER THE STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNA, ANSI/TIA-222-H, VERIZON WIRELESS SHALL PROVIDE A STRUCTURAL ANALYSIS OF THE TOWER PREPARED BY A LICENSED NEW HAMPSHIRE STRUCTURAL ENGINEER CERTIFYING THAT THE EXISTING TOWER AND ANY REQUIRED IMPROVEMENTS AND REINFORCEMENTS HAVE SUFFICIENT CAPACITY TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, SUPPORTS AND APPURTENANCES AND COMPLIES WITH THE CURRENT NEW HAMPSHIRE STATE BUILDING CODE AND EIA/TIA CRITERIA. THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY IMPROVEMENTS AND REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, SUPPORTS AND APPURTENANCES PROPOSED ON THESE DRAWINGS OR OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.
2. FOR STRUCTURAL MODIFICATIONS REQUIRING FIELD WELDING; THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS AND IMPLEMENTING ALL INDUSTRY STANDARDS FOR PROTECTION OF ALL EXISTING PROPERTY AND PERSONNEL FOR DAMAGE OR HARM. ALL PROPERTY DAMAGED DURING CONSTRUCTION OF THIS PROJECT SHALL BE REPLACED OR REPAIRED TO THE SATISFACTION OF THE OWNER.

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VERIZON WIRELESS
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HUDSON 3 NH

CONSTRUCTION DRAWINGS		
2	10/22/24	FOR SUBMITTAL
1	09/10/24	FOR SUBMITTAL
0	09/09/24	FOR SUBMITTAL
A	07/23/24	FOR COMMENT

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STATE OF NEW HAMPSHIRE
BENJAMIN B. REVETTE
No.13830
LICENSED
PROFESSIONAL ENGINEER
10/22/2024

DRAWN BY:	MR
REVIEWED BY:	MFT
CHECKED BY:	BBR
PROJECT NUMBER:	50121487
JOB NUMBER:	50164385

SITE LOCATION CODE

699369

SITE ADDRESS

12 GROVES FARM ROAD
HUDSON, NH 03051

SHEET TITLE

GENERAL NOTES-I

SHEET NUMBER

GN-1

GENERAL ELECTRICAL NOTES:

1. SUBMITTAL OF BID INDICATES CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
2. CONTRACTOR SHALL PERFORM ALL VERIFICATION OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
3. HEIGHTS SHALL BE VERIFIED WITH OWNER PRIOR TO INSTALLATION.
4. THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE.
5. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANEL BOARD, PULLBOX, J–BOX, SWITCH BOX, ETC., IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ACT (O.S.H.A.)
6. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
7. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORY AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY AND ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU.
8. ALL CONDUIT INSTALLED MAY BE SURFACE MOUNTED UNLESS OTHERWISE NOTED.
9. CONTRACTOR SHALL CARRY OUT HIS WORK IN ACCORDANCE WITH ALL GOVERNING STATE, COUNTY AND LOCAL CODES & O.S.H.A.
10. CONTRACTOR SHALL SECURE ALL NECESSARY BUILDING PERMITS AND PAY ALL REQUIRED FEES
11. COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE BY OWNER. ANY WORK, MATERIAL OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
12. ALL CONDUIT ONLY (C.O.) SHALL HAVE A PULL WIRE OR ROPE.
13. PROVIDE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.
14. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO OWNER AT JOB COMPLETION.
15. USE T–TAP CONNECTIONS ON ALL MULTI–CIRCUITS WITH COMMON NEUTRAL CONDUCTOR FOR LIGHTING FIXTURE.
16. ALL BUILDING WIRE #12 TO # 6 SHALL BE STRANDED COPPER TYPE THWN–THHN. CONDUCTORS #4 AND LARGER SHALL BE COPPER TYPE XHHW.
17. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED AND A MINIMUM OF 25,000 A.I.C. UNLESS OTHERWISE INDICATED.
18. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES
19. PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
20. IN DRILLING HOLES INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, M PIPE RUNS, ETC., IT MUST BE CLEARLY UNDERSTOOD THAT TENDONS AND/OR REINFORCING STEEL WILL NOT BE DRILLED INTO CUT OR DAMAGED UNDER ANY CIRCUMSTANCES.
21. LOCATION OF TENDONS AND/OR REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND, THEREFORE, MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT VIA X–RAY OR OTHER DEVICES THAT CAN ACCURATELY LOCATE THE REINFORCING AND/OR STEEL TENDONS.
22. PENETRATIONS IN FIRE RATED WALLS SHALL BE FIRE STOPPED IN ACCORDANCE WITH FIRESTOP DETAILS.
23. WIRE AND CABLE CONDUCTORS SHALL BE STRANDED COPPER #12 AWG MINIMUM UNLESS SPECIFICALLY STATED OTHERWISE ON DRAWINGS.
24. VERIFY ALL CONDUIT ROUTING W/OWNER REP. & VERIZON WIRELESS C.M. NO OTHER SURFACE MOUNTED CONDUITS WILL BE ALLOWED OTHER THAN IN CHASES AND ABOVE CEILINGS.
25. ALL MATERIALS SHALL BE U.L. LISTED.
26. CONDUIT:

a. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.

b. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.

c. FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE, SEAL TIGHT FLEXIBLE CONDUIT. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL HAVE FULL SIZE GROUND WIRE.

d. CONDUIT RUNS MAY BE SURFACE MOUNTED IN CEILINGS OR WALLS UNLESS INDICATED OTHERWISE. CONDUIT INDICATED SHALL RUN PARALLEL OR AT RIGHT ANGLES TO CEILING, FLOOR OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH ARCHITECT PRIOR TO INSTALLING.

27. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.
28. COORDINATE THE ELECTRICAL SERVICE WITH BUILDING OWNER.
29. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE OWNER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE. SUBMIT TEST REPORTS AND FURNISH TO DISPATCH COMMUNICATIONS ONE COMPLETE SET OF PRINTS SHOWING "INSTALLED WORK".
30. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, AND FALL POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
31. ALL WALL AND FLOOR PENETRATIONS SHALL BE FIRE STOPPED WITH FS–ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP BY HILTI OR APPROVED EQUAL. INSTALL PER MANUFACTURERS RECOMMENDATIONS.

POST-INSTALLED ANCHORS:

1. EXCEPT WHERE INDICATED ON THE DRAWINGS, POST–INSTALLED ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHOR TYPES OR APPROVED EQUAL AND INSTALLED IN ACCORDANCE WITH THEIR RESPECTIVE ICC–ES REPORT AND MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS (MPII):

APPLICATION	ANCHORING SYSTEM	ICC–ES REPORT
ANCHORAGE TO CONCRETE	HILTI HY 200 V3 ADHESIVE w SAFE SET HOLLOW DRILL BIT INSTALLATION	ESR–4868
	HILTI RE 500 V3 ADHESIVE w SAFE SET HOLLOW DRILL BIT INSTALLATION	ESR–3814
	HILTI KWIK–X DUAL ACTION ANCHOR	ESR–5065
	HILTI KWIK BOLT TZ 2	ESR–4266
	HILTI KWIK HUS EZ	ESR–3027
REBAR DOWELING	HILTI RE 500 V3 ADHESIVE w SAFE SET HOLLOW DRILL BIT INSTALLATION	ESR–3814
	HILTI HY 200 V3 ADHESIVE w SAFE SET HOLLOW DRILL BIT INSTALLATION	ESR–4868
ANCHORAGE TO SOLID GROUTED MASONRY	HILTI HY 270 ADHESIVE	ESR–4143
	HILTI KWIK BOLT TZ 2	ESR–4561
	HILTI KWIK HUS EZ	ESR–3027
ANCHORAGE TO HOLLOW / MULTI–WYTHE MASONRY	HILTI HY 270 ADHESIVE WITH SCREEN TUBE	ESR–4143, ESR–4144

2. ANCHOR CAPACITY USED IN DESIGN SHALL BE BASED ON THE TECHNICAL DATA PUBLISHED BY HILTI OR SUCH OTHER METHOD AS APPROVED BY THE STRUCTURAL ENGINEER OF RECORD. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT IN BOTH DRY AND WATER SATURATED CONCRETE, INCLUDING AN ICC–ES REPORT SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE, SEISMIC USE, LOAD RESISTANCE, INSTALLATION CATEGORY, IN–SERVICE TEMPERATURE, INSTALLATION TEMPERATURE, ETC.
3. DRILL HOLES WITH ROTARY IMPACT HAMMER DRILLS USING CARBIDE–TIPPED DRILL BIT, OR HOLLOW DRILL BIT WITH INTEGRAL VACUUM CLEAN AS PERMITTED BY ICC–ESR. USE OF DIAMOND CORE BIT WITH ROUGHENING TOOL SHALL BE PERMITTED AFTER ENGINEERS OF RECORD APPROVAL. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, ALL HOLES MUST BE DRILLED PERPENDICULAR TO THE CONCRETE SURFACE.
4. ADHESIVE ANCHORS INSTALLED IN A HORIZONTALLY OR UPWARDLY INCLINED ORIENTATION INTO CONCRETE AND SUPPORTING A SUSTAINED TENION LOAD SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER. INSTALLER SHALL BE CERTIFIED THROUGH THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM OR APPROVED EQUAL.
5. CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ON–SITE ANCHOR INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED. CONTRACTOR SHALL SUBMIT DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL INSTALLING ANCHORS HAVE RECEIVED THE REQUIRED TRAINING PRIOR TO THE COMMENCEMENT OF WORK.
6. ANCHOR CAPACITY IS DEPENDANT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.
7. CONTINUOUS OR PERIODIC SPECIAL INSPECTION FOR POST INSTALLED ANCHORS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 4.3/4.4 OF THE ICC–ES REPORT FOR THE INDIVIDUAL ANCHOR. SPECIAL INSPECTOR SHALL BE NOTIFIED PRIOR TO COMMENCEMENT OF WORK TO COORDINATE INSPECTION EFFORTS.
8. POST INSTALLED ADHESIVE ANCHORS ARE NOT PERMITTED TO BE INSTALLED IN MORTAR JOINTS. ALL ANCHORS TO BE INSTALLED WITHIN THE FACE OF MASONRY UNIT.
9. CONTRACTOR SHALL VERIFY EXISTING SLAB REINFORCEMENT WITH GPR PRIOR TO DRILLING. MAINTAIN AT LEAST 1" GAP BETWEEN ANCHORS AND EXISTING REINFORCEMENT AND MINIMUM 3" BETWEEN ANCHORS AND EXISTING PRESTRESSING TENDONS.

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VERIZON WIRELESS
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HUDSON 3 NH

CONSTRUCTION DRAWINGS		
2	10/22/24	FOR SUBMITTAL
1	09/10/24	FOR SUBMITTAL
0	09/09/24	FOR SUBMITTAL
A	07/23/24	FOR COMMENT

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STATE OF NEW HAMPSHIRE
BENJAMIN B. REVETTE No.13830 LICENSED PROFESSIONAL ENGINEER
10/22/2024

DRAWN BY:	MR
REVIEWED BY:	MFT
CHECKED BY:	BBR
PROJECT NUMBER:	50121487
JOB NUMBER:	50164385

SITE LOCATION CODE

699369

SITE ADDRESS

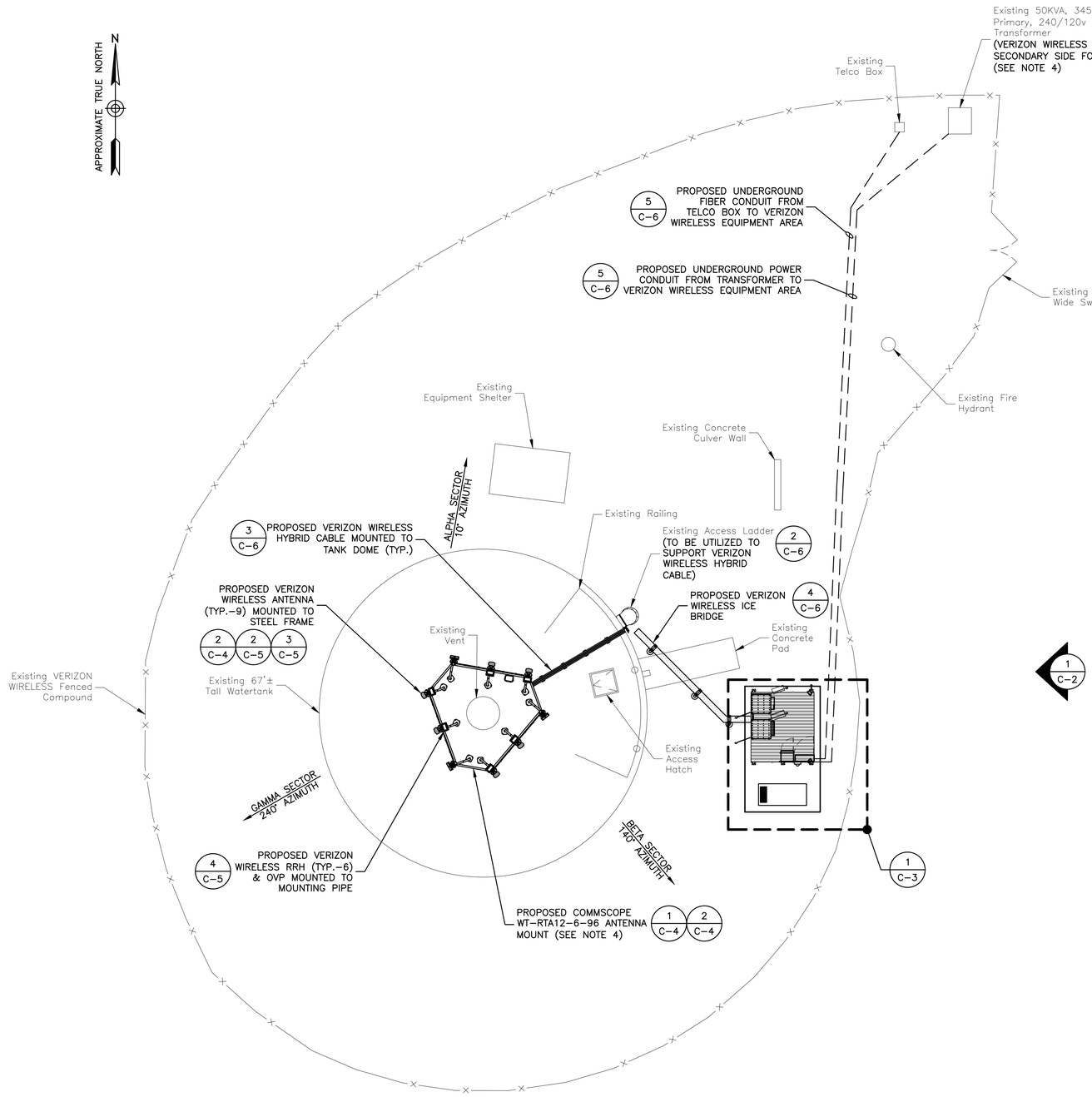
12 GROVES FARM ROAD
HUDSON, NH 03051

SHEET TITLE

GENERAL NOTES–II

SHEET NUMBER

GN–2



SITE PLAN

SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"

1

0' 10' 20'

NOTES:

1. SOME EXISTING & FUTURE INFORMATION NOT SHOWN FOR CLARITY.
2. NORTH ARROW SHOWN AS APPROXIMATE
3. INSTALLATIONS OF STEEL ANTENNA FRAME, ANTENNAS & ASSOCIATED EQUIPMENT PER STRUCTURAL ANALYSIS BY DEWBERRY ENGINEERS DATED 07/22/2024.
4. FINAL UTILITY ROUTING PENDING FINAL UTILITY DESIGN AND LANDOWNER APPROVAL.
5. CONTRACTOR TO COMPLETE GPR TESTING. ALL LOCATIONS FOR ANCHORS OF ANTENNA MOUNT AND HYBRID CABLE BRACKET SHALL BE SCANNED PRIOR TO ANCHORAGE. NO REBAR IS TO BE CUT DURING INSTALL.

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VERIZON WIRELESS
51 ALDER STREET
MEDWAY, MA 02053

HUDSON 3 NH

CONSTRUCTION DRAWINGS		
2	10/22/24	FOR SUBMITTAL
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A	07/23/24	FOR COMMENT

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STATE OF NEW HAMPSHIRE - BENJAMIN B. REVETTE No.13830 LICENSED PROFESSIONAL ENGINEER
10/22/2024

DRAWN BY:	MR
REVIEWED BY:	MFT
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SITE ADDRESS

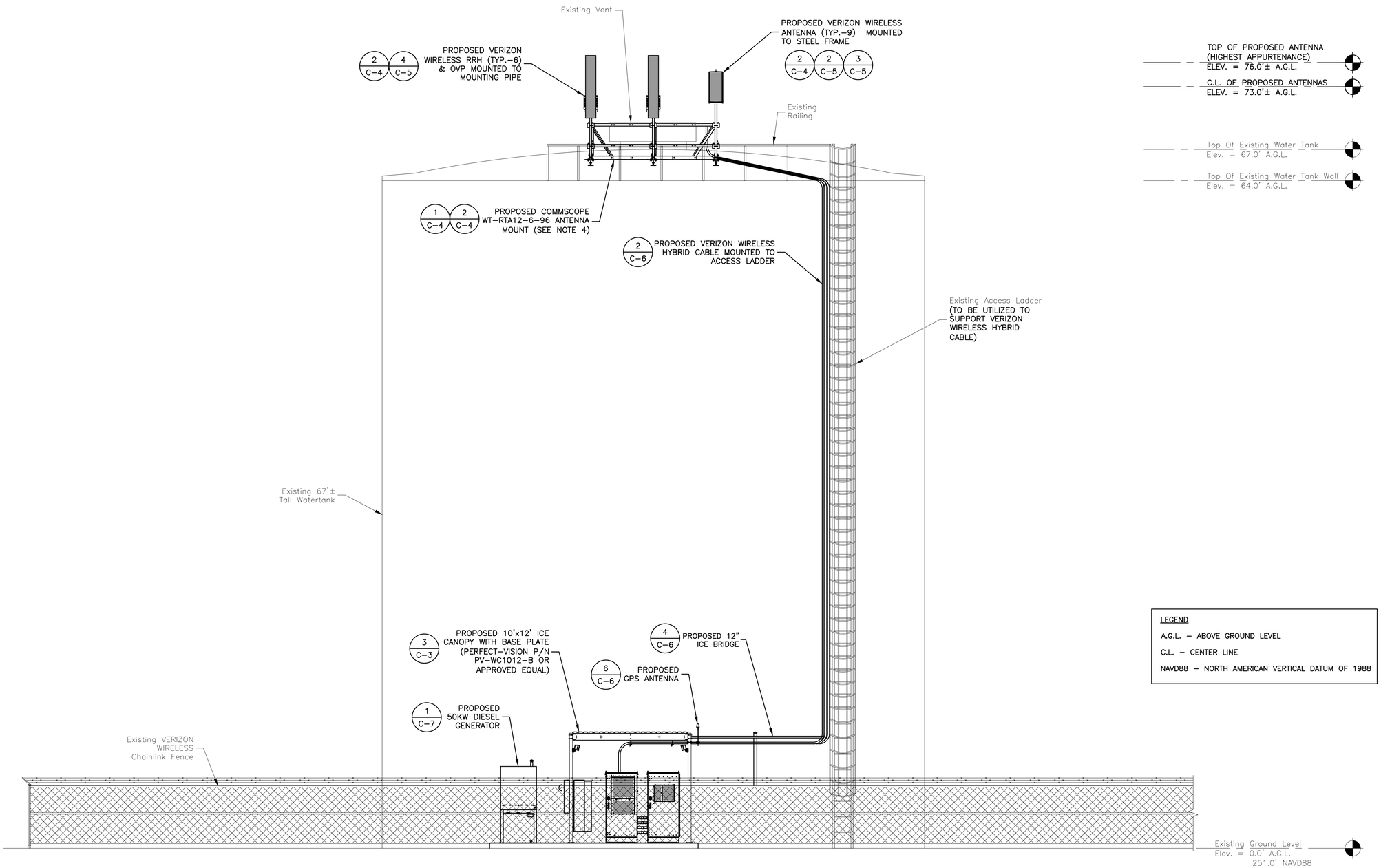
12 GROVES FARM ROAD
HUDSON, NH 03051

SHEET TITLE

SITE PLAN

SHEET NUMBER

C-1



LEGEND

A.G.L. – ABOVE GROUND LEVEL

C.L. – CENTER LINE

NAVD88 – NORTH AMERICAN VERTICAL DATUM OF 1988

NOTES:

1. SOME EXISTING & FUTURE INFORMATION NOT SHOWN FOR CLARITY.
2. ELEVATION SHOWN AS APPROXIMATE
3. INSTALLATIONS OF STEEL ANTENNA FRAME, ANTENNAS & ASSOCIATED EQUIPMENT PER STRUCTURAL ANALYSIS BY DEWBERRY ENGINEERS DATED 07/22/2024.
4. CONTRACTOR TO COMPLETE GPR TESTING. ALL LOCATIONS FOR ANCHORS OF ANTENNA MOUNT AND HYBRID CABLE BRACKET SHALL BE SCANNED PRIOR TO ANCHORAGE. NO REBAR IS TO BE CUT DURING INSTALL.

ELEVATION 1

SCALE: 1"=10' FOR 11"x17"
1"=5' FOR 22"x34"

0' 5' 10'

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VERIZON WIRELESS
51 ALDER STREET
MEDWAY, MA 02053

HUDSON 3 NH

CONSTRUCTION DRAWINGS		
2	10/22/24	FOR SUBMITTAL
1	09/10/24	FOR SUBMITTAL
0	09/09/24	FOR SUBMITTAL
A	07/23/24	FOR COMMENT

Dewberry®
Dewberry Engineers Inc.
99 SUMMER STREET
SUITE 700
BOSTON, MA 02110
PHONE: 617.695.3400
FAX: 617.695.3310

STATE OF NEW HAMPSHIRE – BENJAMIN B. REVETTE No.13830 LICENSED PROFESSIONAL ENGINEER
10/22/2024

DRAWN BY:	MR
REVIEWED BY:	MFT
CHECKED BY:	BBR
PROJECT NUMBER:	50121487
JOB NUMBER:	50164385

SITE LOCATION CODE

699369

SITE ADDRESS

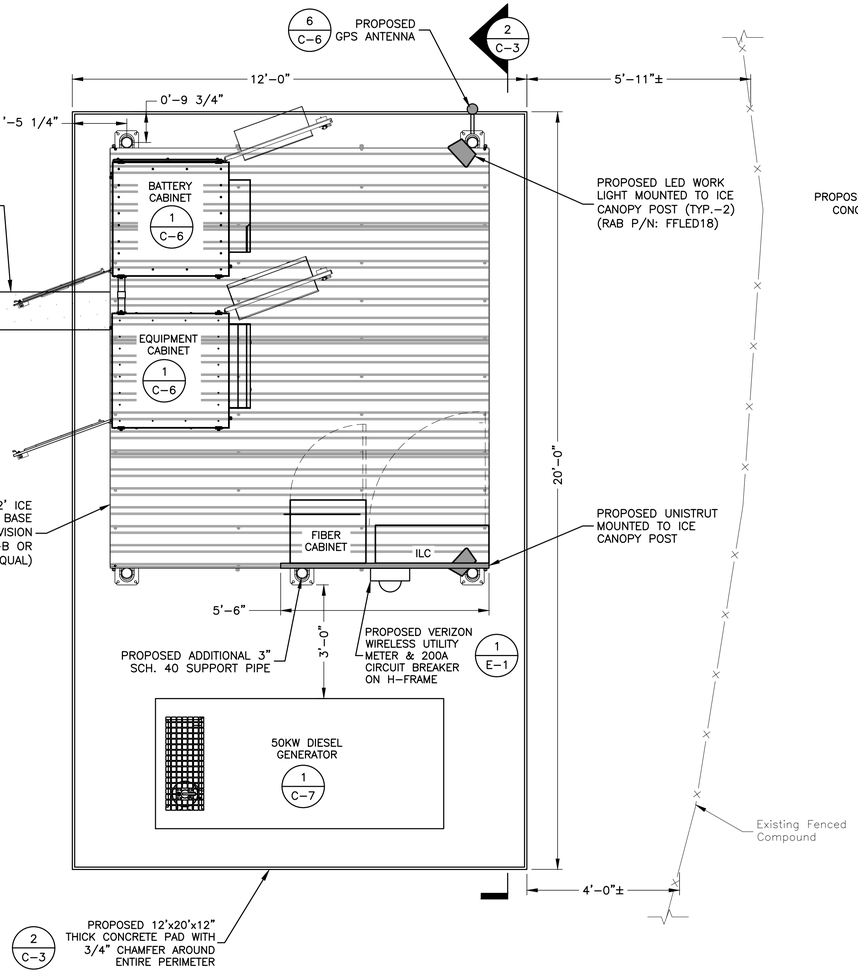
12 GROVES FARM ROAD
HUDSON, NH 03051

SHEET TITLE

ELEVATION

SHEET NUMBER

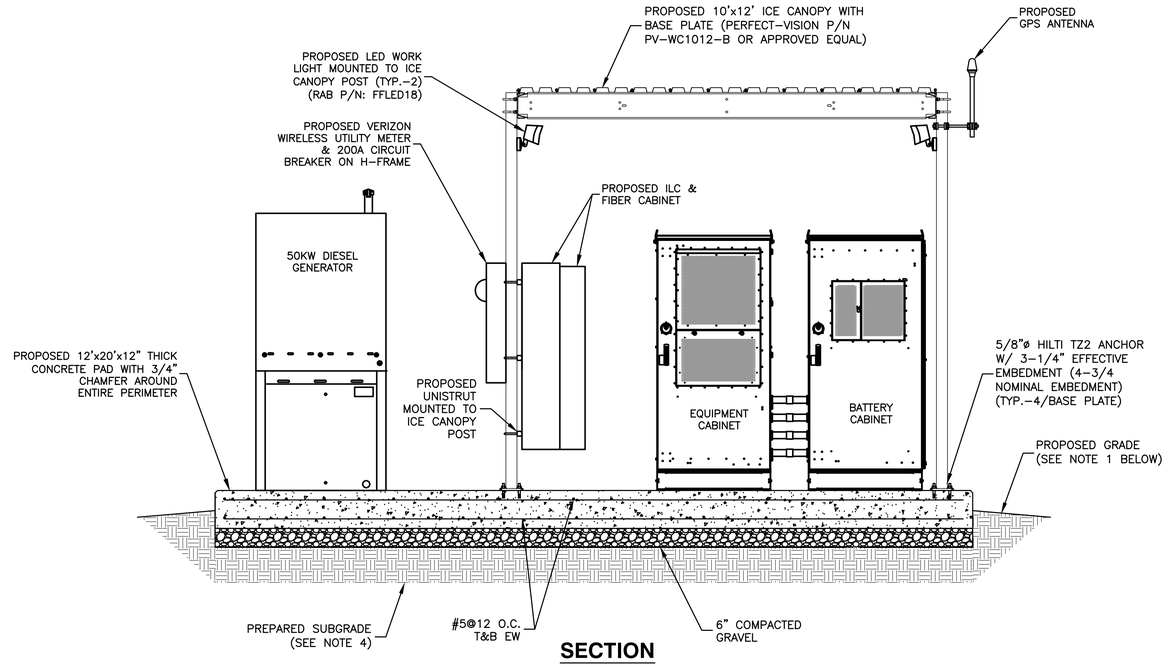
C–2



EQUIPMENT PLAN 1

SCALE: 1/4"=1' FOR 11"x17"
1/2"=1' FOR 22"x34"

0' 1' 2' 4'

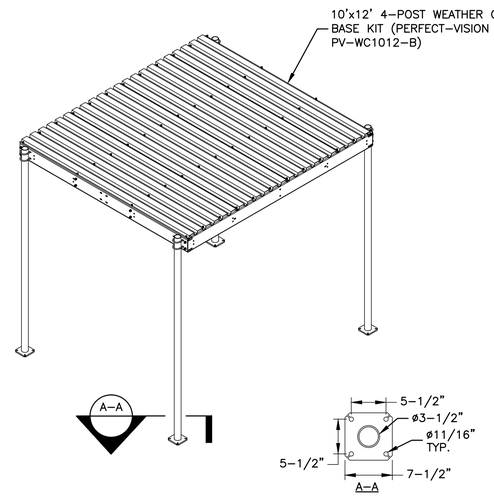


SECTION

EQUIPMENT & CONCRETE PAD SECTION 2

SCALE: 1/4"=1' FOR 11"x17"
1/2"=1' FOR 22"x34"

0' 1' 2' 4'



ICE CANOPY ISOMETRIC 3

SCALE: N.T.S.

CONCRETE PAD NOTES:

1. GRADE SHALL SLOPE AWAY FROM THE CONCRETE PAD TO ALLOW FOR WATER RUN OFF.
2. BEARING STRATA MEDIUM TO DENSE INSET GRANULAR MATERIAL OR COMPACTED GRAVEL FILL. 95% COMPACTION.
3. SUBGRADE AND FILL SHALL CONSIST OF CLEAN SOIL. NO DELETERIOUS MATERIALS OR ORGANICS TO BE USED.
4. FOUNDATION TO BE PLACED IN SUITABLE SOIL WITH A MINIMUM ALLOWABLE DESIGN BEARING CAPACITY OF 1500 P.S.F. IF SITE CONDITIONS VARY FROM THOSE STATED ABOVE CONTRACTOR TO NOTIFY THE CONSTRUCTION MANAGER AND THE ENGINEER.
5. FOUNDATION SHALL BE DETAILED, FABRICATED AND INSTALLED ACCORDING TO ACI-318.
6. COLD WEATHER/HOT WEATHER CONCRETE PLACEMENT SHALL BE IN ACCORDANCE WITH ACI 305 AND 306.
7. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
8. REINFORCING BARS SHALL CONFORM TO ASTM-A615 GRADE 60 SPECIFICATIONS AND BE DETAILED IN ACCORDANCE WITH AC1-318.
9. REMOVE ALL ORGANIC MATERIAL PRIOR TO PLACEMENT OF STONE. IF FILLING IS REQUIRED, BACKFILL AND COMPACT WITH WELL-DRAINING GRAVEL.
10. CONTRACTOR TO PROVIDE PHOTOS OF REBAR PRIOR TO FILLING CONCRETE.

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HUDSON 3 NH

CONSTRUCTION DRAWINGS		
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0	09/09/24	FOR SUBMITTAL
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10/22/2024

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PROJECT NUMBER:	50121487
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SITE LOCATION CODE

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SITE ADDRESS

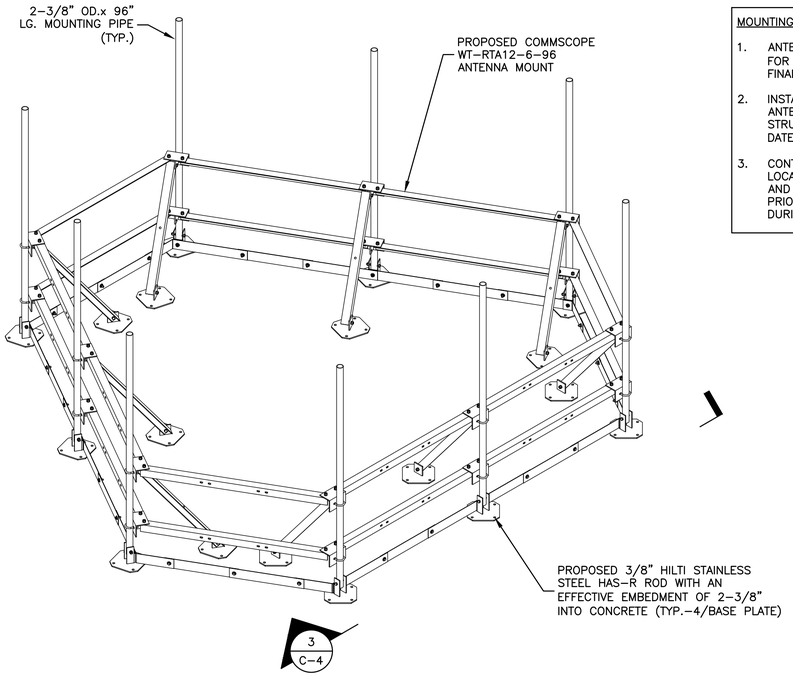
12 GROVES FARM ROAD
HUDSON, NH 03051

SHEET TITLE

CONSTRUCTION DETAILS-I

SHEET NUMBER

C-3



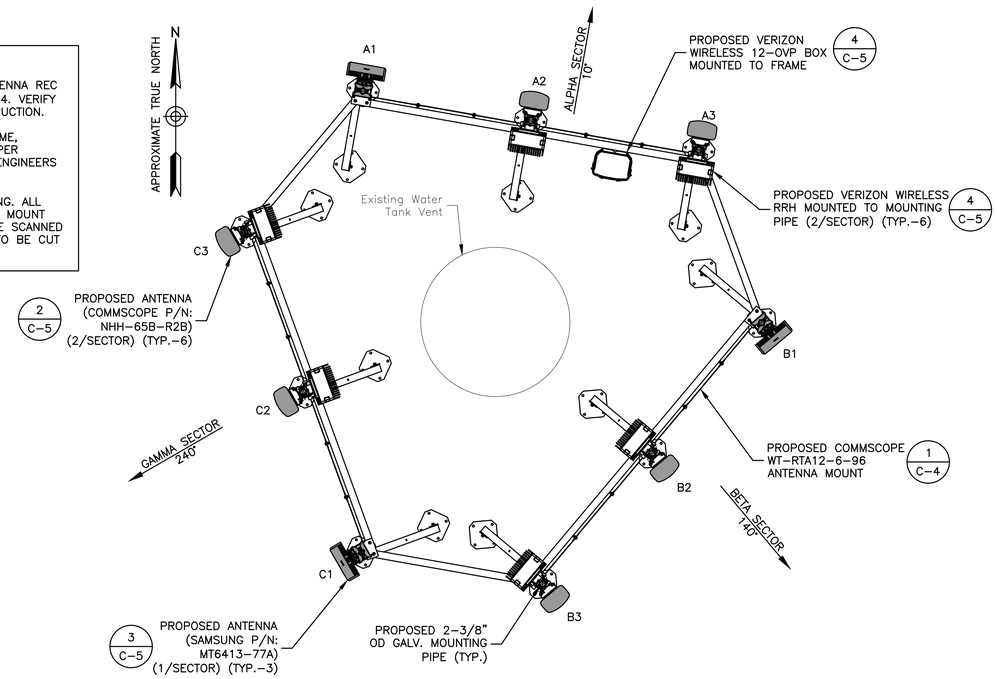
ANTENNA MOUNT ISOMETRIC

SCALE: N.T.S.

1

MOUNTING NOTES:

1. ANTENNA & RRH PLAN BASED ON ANTENNA REC FOR HUDSON 3 NH DATED 09/09/2024. VERIFY FINAL ANTENNA REC PRIOR TO CONSTRUCTION.
2. INSTALLATIONS OF STEEL ANTENNA FRAME, ANTENNAS & ASSOCIATED EQUIPMENT PER STRUCTURAL ANALYSIS BY DEWBERRY ENGINEERS DATED 07/22/2024.
3. CONTRACTOR TO COMPLETE GPR TESTING. ALL LOCATIONS FOR ANCHORS OF ANTENNA MOUNT AND HYBRID CABLE BRACKET SHALL BE SCANNED PRIOR TO ANCHORAGE. NO REBAR IS TO BE CUT DURING INSTALL.

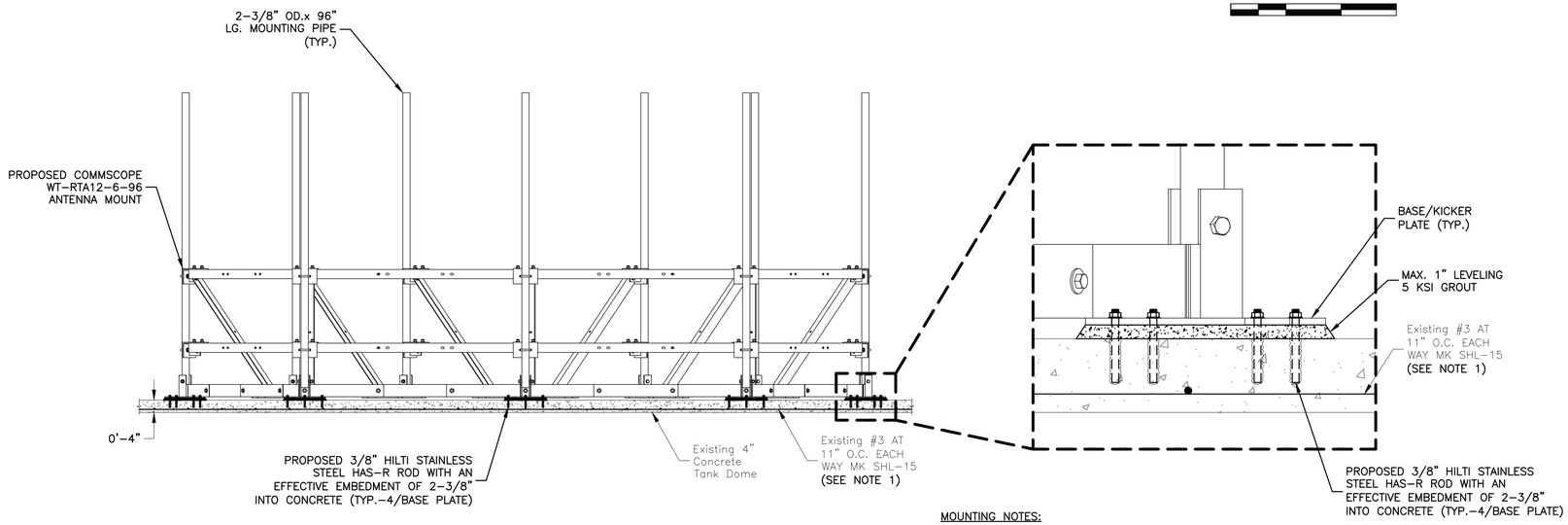


ANTENNA MOUNTING PLAN

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'

2



ANTENNA MOUNT ELEVATION

SCALE: 1/4"=1' FOR 11"x17"
1/2"=1' FOR 22"x34"

0' 1' 2' 4'

3

MOUNTING NOTES:

1. CONTRACTOR TO COMPLETE GPR TESTING. ALL LOCATIONS FOR ANCHORS OF ANTENNA MOUNT AND HYBRID CABLE BRACKET SHALL BE SCANNED PRIOR TO ANCHORAGE. NO REBAR IS TO BE CUT DURING INSTALL.
2. INSTALL MAXIMUM 1" LEVELING 5 KSI GROUT AS NEEDED BASED ON EXISTING SLOPE OF CONCRETE DOME ROOF. TYPICAL FOR A BASE PLATES AND KICKER PLATES.
3. CONTRACTOR TO ENSURE PROPOSED MOUNT FEET HAVE ENOUGH RANGE OF ROTATION TO ACCOMMODATE THE SLOPE OF THE TANK WITHOUT INTERFERING WITH THE PROPOSED KICK PLATE OF THE MOUNT.

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0	09/09/24	FOR SUBMITTAL
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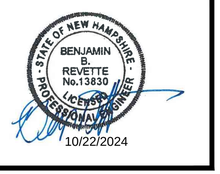

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REVIEWED BY:	MFT
CHECKED BY:	BBR
PROJECT NUMBER:	50121487
JOB NUMBER:	50164385

SITE LOCATION CODE

699369

SITE ADDRESS

12 GROVES FARM ROAD
HUDSON, NH 03051

SHEET TITLE

CONSTRUCTION DETAILS–II

SHEET NUMBER

C–4

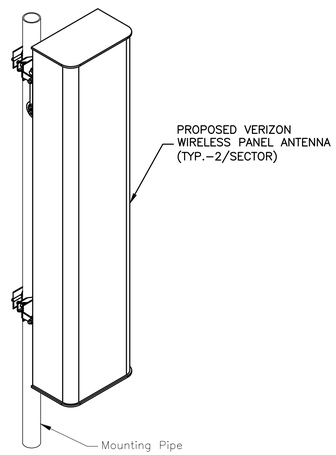
FINAL EQUIPMENT CONFIGURATION

SECTOR	POSITION	TECHNOLOGY	ANTENNA MODEL	VENDOR	RRH (QTY./MODEL)	CENTERLINE	AZIMUTH	OVP	HYBRID CABLE TYPE	FEED LINE LENGTH*
ALPHA	A1	5G	(P) MT6413-77A	SAMSUNG	–	73'	10°	(1) (P) 12-OVP	(2) (P) 6X12 LI HYBRID CABLE	220'±
	A2	LTE 700/850	(P) NHH-65B-R2B	COMMSCOPE	(1) (P) B5/B13 RF4461d-13A	73'	10°			
	A3	LTE 1900/AWS	(P) NHH-65B-R2B	COMMSCOPE	(1) (P) B2/B66A RF4439d-25A	73'	10°			
BETA	B1	5G	(P) MT6413-77A	SAMSUNG	–	73'	140°			
	B2	LTE 700/850	(P) NHH-65B-R2B	COMMSCOPE	(1) (P) B5/B13 RF4461d-13A	73'	140°			
	B3	LTE 1900/AWS	(P) NHH-65B-R2B	COMMSCOPE	(1) (P) B2/B66A RF4439d-25A	73'	140°			
GAMMA	C1	5G	(P) MT6413-77A	SAMSUNG	–	73'	240°			
	C2	LTE 700/850	(P) NHH-65B-R2B	COMMSCOPE	(1) (P) B5/B13 RF4461d-13A	73'	240°			
	C3	LTE 1900/AWS	(P) NHH-65B-R2B	COMMSCOPE	(1) (P) B2/B66A RF4439d-25A	73'	240°			

*CONTRACTOR TO FIELD VERIFY HYBRID CABLE LENGTHS PRIOR TO CONSTRUCTION. LENGTH IS ESTIMATED FROM THE BASE EQUIPMENT OVP TO SECTOR OVP WITH 15% BUFFER.

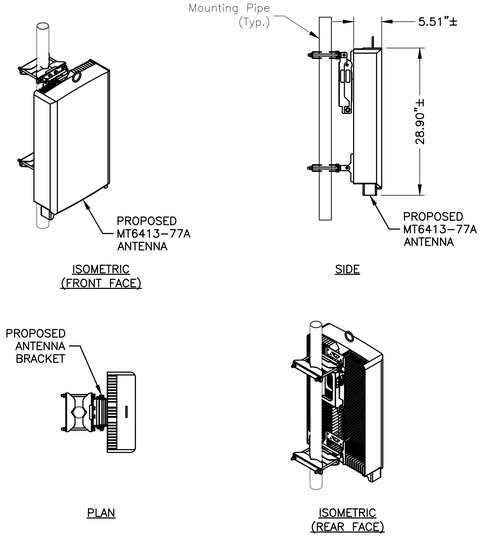
(E) = Existing
(P) = PROPOSED

FINAL EQUIPMENT CONFIGURATION 1
SCALE: N.T.S.



MANUFACTURER:	COMMSCOPE
PART NUMBER:	NHH-65B-R2B
DIMENSIONS:	72.0"H X 11.9"W X 7.1"D
WEIGHT:	43.7 LBS (WITHOUT MOUNTING KIT)

PANEL ANTENNA DETAIL 2
SCALE: N.T.S.

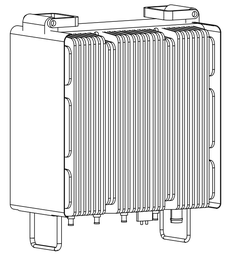


MODEL:	MT6413-77A
DIMENSIONS:	28.90"H X 15.75"W X 5.51"D
WEIGHT:	57.3 LBS

NOTE:

1. INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. USE APPROPRIATE MOUNTING HARDWARE FOR CONSTRUCTION TYPE.

MT6413-77A ANTENNA DETAILS 3
SCALE: N.T.S.



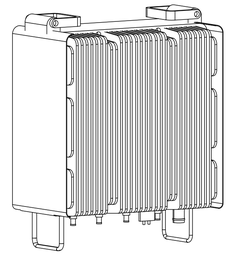
LTE 700/850

MANUFACTURER:	SAMSUNG
MODEL:	700/850MHZ MACRO RADIO RF4461d-13A
DIMENSIONS:	14.9"H X 14.9"W X 10.2"D
WEIGHT:	79.15 LBS (W/O BRACKET)

MOUNTING CLEARANCE

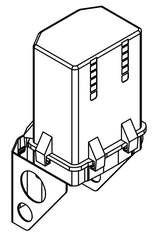
TOP:	⩾ 12"
SIDES:	⩾ 8"
BOTTOM:	⩾ 16"
FRONT:	⩾ 36"

SEE MANUFACTURER SPECIFICATIONS & RECOMMENDATIONS.



LTE PCS/AWS

MANUFACTURER:	SAMSUNG
MODEL:	AWS/PCS MACRO RADIO RF4439d-25A
DIMENSIONS:	14.9"H X 14.9"W X 10.0"D
WEIGHT:	74.7 LBS (W/O BRACKET)



SURGE

MANUFACTURER:	RAYCAP
MODEL:	LARGE JUNCTION BOX
DIMENSIONS:	28.9"H X 15.7"W X 10.3"D
WEIGHT:	32.0 LBS

NOTES:

1. CONTRACTOR TO VERIFY WITH CONSTRUCTION MANAGER FOR FINAL MANUFACTURER SPECIFICATIONS PRIOR TO CONSTRUCTION.

EQUIPMENT DETAILS 4
SCALE: N.T.S.

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MEDWAY, MA 02053

HUDSON 3 NH

CONSTRUCTION DRAWINGS		
2	10/22/24	FOR SUBMITTAL
1	09/10/24	FOR SUBMITTAL
0	09/09/24	FOR SUBMITTAL
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STATE OF NEW HAMPSHIRE - BENJAMIN B. REVETTE No.13830 LICENSED PROFESSIONAL ENGINEER
10/22/2024

DRAWN BY:	MR
REVIEWED BY:	MFT
CHECKED BY:	BBR
PROJECT NUMBER:	50121487
JOB NUMBER:	50164385

SITE LOCATION CODE

699369

SITE ADDRESS

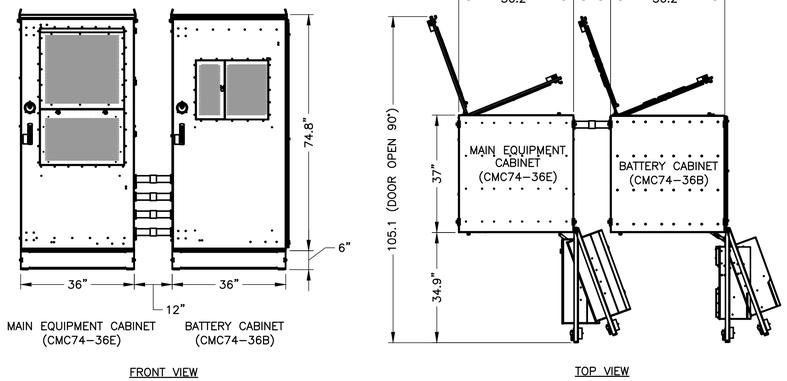
12 GROVES FARM ROAD
HUDSON, NH 03051

SHEET TITLE

CONSTRUCTION DETAILS-III

SHEET NUMBER

C-5



FRONT VIEW

TOP VIEW

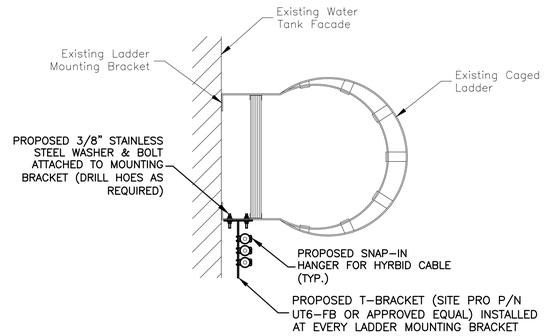
NOTE:

1. CONTRACTOR TO VERIFY WITH C.M. FOR FINAL MANUFACTURER SPECIFICATIONS PRIOR TO CONSTRUCTION.

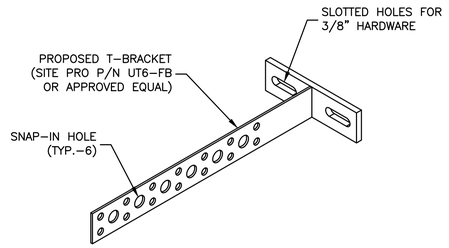
COMMSCOPE EQUIPMENT CABINETS — 1

SCALE: 1/4"=1' FOR 11"x17"
1/2"=1' FOR 22"x34"

0' 1' 2' 4'



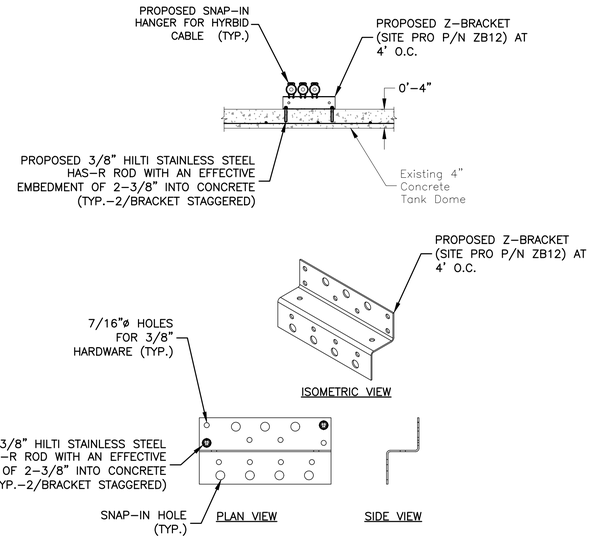
PLAN VIEW



ISOMETRIC VIEW

HYBRID MOUTING DETAIL - LADDER — 2

SCALE: N.T.S.



ISOMETRIC VIEW

PLAN VIEW

SIDE VIEW

NOTES:

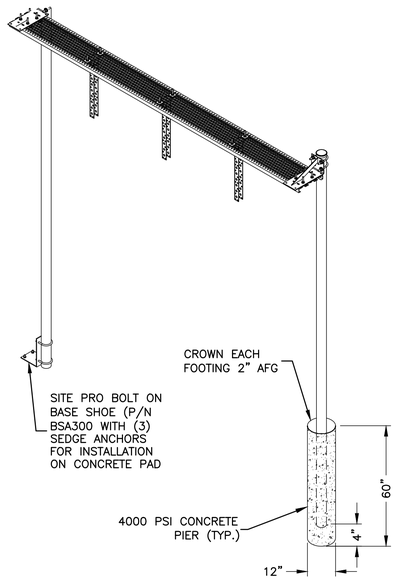
1. CONTRACTOR TO COMPLETE GPR TESTING. ALL LOCATIONS FOR ANCHORS OF ANTENNA MOUNT AND HYBRID CABLE BRACKET SHALL BE SCANNED PRIOR TO ANCHORAGE. NO REBAR IS TO BE CUT DURING INSTALL.

HYBRID MOUTING DETAIL - DOME — 3

SCALE: N.T.S.

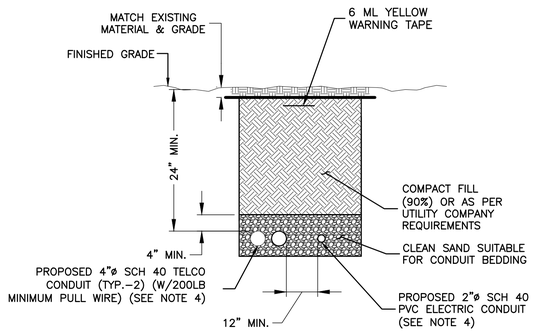
ICE BRIDGE NOTES:

1. INCLUDES (3) UNIVERSAL VERTICAL TRAPEZE KITS PER 10' SPAN.
2. ALL COMPONENTS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
3. CONTRACTOR SHALL DETERMINE REQUIRED QUANTITY OF ALL ICE BRIDGE COMPONENTS.
4. SNAP-IN HANGERS, SPLICE KITS, HINGE KITS, EXTENSION KITS, STIFFENERS, AND OTHER MISCELLANEOUS HARDWARE SHALL BE PROVIDED BY THE CONTRACTOR AS REQUIRED.
5. ICE BRIDGE SHALL BE ROUTED TO ACCOMMODATE THE MINIMUM BENDING RADIUS OF THE COAXIAL CABLE.
6. ICE BRIDGE COMPONENTS SHOWN ARE SCHEMATIC, CONSULT MANUFACTURER FOR EXACT AND CURRENT SPECIFICATIONS.
7. USE BASE SHOE FOR ANCHORING TO CONCRETE PAD.



ICE BRIDGE (SITE PRO P/N: IB12D-V) — 4

SCALE: N.T.S.

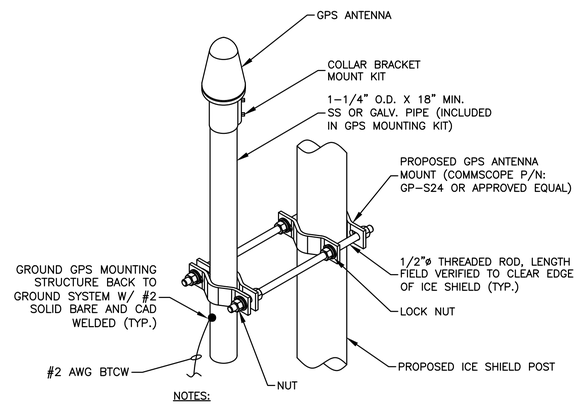


NOTES:

1. IF FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL, EXCAVATED MATERIAL MAY BE USED FOR BACKFILL.
2. IF NOT, PROVIDE CLEAN, COMPACTIBLE MATERIAL. COMPACT IN 8" LIFTS. REMOVE ANY LARGE ROCKS PRIOR TO BACKFILLING. CONTRACTOR TO VERIFY LOCATION OF EXISTING U/G UTILITIES PRIOR TO DIGGING.
3. IF CURRENT AS-BUILT DRAWINGS ARE NOT AVAILABLE CONTRACTOR SHALL HAND DIG U/G TRENCHING.
4. CONDUIT TO BE CONCRETE ENCASED UNDER TRAVEL WAY.

JOINT SERVICE TRENCH BURIED CONDUIT (ELECTRIC/TELEPHONE) — 5

SCALE: N.T.S.



NOTES:

1. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1-1/2"-3-1/2" O.D. GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END.
2. GROUND ANTENNA & COAX MOUNTING FRAMES PER VERIZON WIRELESS STANDARDS.

GPS MOUNT — 6

SCALE: N.T.S.

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51 ALDER STREET
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SITE LOCATION CODE

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SITE ADDRESS

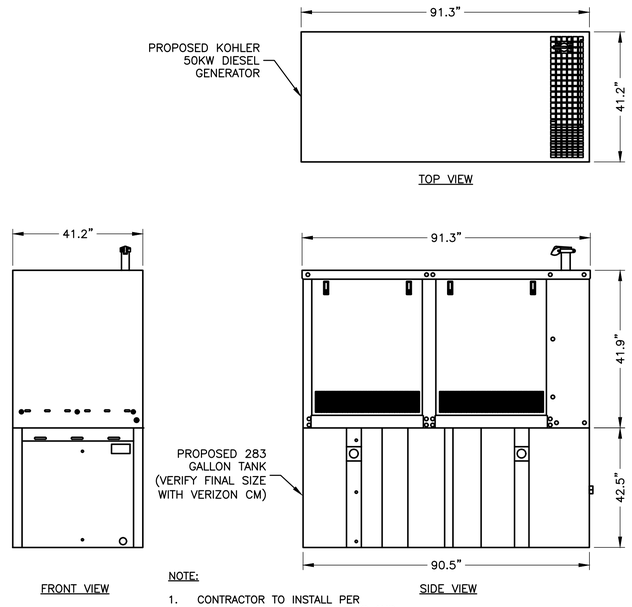
12 GROVES FARM ROAD
HUDSON, NH 03051

SHEET TITLE

CONSTRUCTION DETAILS-IV

SHEET NUMBER

C-6



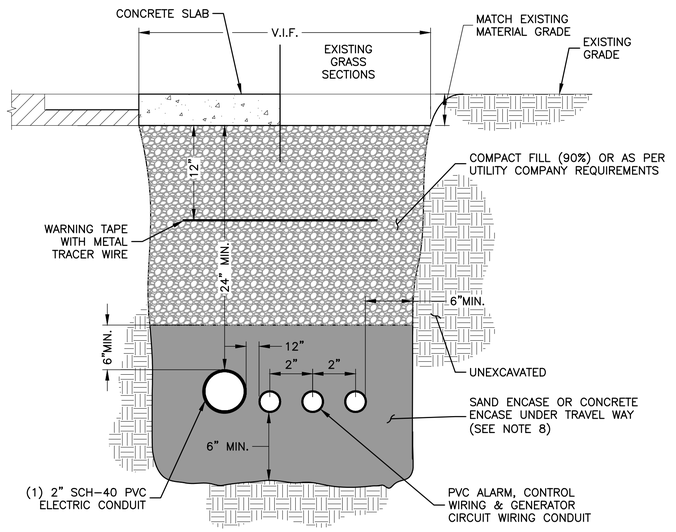
NOTE:

1. CONTRACTOR TO INSTALL PER MANUFACTURER SPECIFICATIONS AND LOCAL & STATE REQUIREMENTS.

50KW DIESEL GENERATOR 1

SCALE: 1/4"=1' FOR 11"x17"
1/2"=1' FOR 22"x34"

0' 1' 2' 4'



GENERATOR TRENCH DETAIL 2

SCALE: N.T.S.

NOTES:

1. IF FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL, EXCAVATED MATERIAL MAY BE USED FOR BACKFILL. IF NOT, PROVIDE CLEAN, COMPACTIBLE MATERIAL. COMPACT IN 8" LIFTS. REMOVE ANY LARGE ROCKS PRIOR TO BACKFILLING. CONTRACTOR TO VERIFY LOCATION OF EXISTING U/G UTILITIES PRIOR TO DIGGING.
2. ALL CONDUIT INSTALLATION SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS.
3. CONTRACTOR TO VERIFY LOCATION OF CONDUIT STUB UPS WITH GENERATOR MANUFACTURER PRIOR TO GENERATOR PLACEMENT.
4. PROPER PRECAUTIONS SHALL BE MADE TO PROTECT ANY EXISTING UNDERGROUND UTILITIES DURING TRENCHING, ESPECIALLY, BUT NO LIMITED TO, UNDERGROUND PIPES, AND DRAINAGE, ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY.
5. IF CURRENT AS-BUILT DRAWINGS ARE NOT AVAILABLE CONTRACTOR SHALL HAND DIG U/G TRENCHING.
6. ALL CONDUIT CROSSINGS SHALL BE CONCRETE ENCASED.

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51 ALDER STREET
MEDWAY, MA 02053

HUDSON 3 NH

CONSTRUCTION DRAWINGS		
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0	09/09/24	FOR SUBMITTAL
A	07/23/24	FOR COMMENT

Dewberry®
Dewberry Engineers Inc.
99 SUMMER STREET
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BOSTON, MA 02110
PHONE: 617.695.3400
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DRAWN BY:	MR
REVIEWED BY:	MFT
CHECKED BY:	BBR
PROJECT NUMBER:	50121487
JOB NUMBER:	50164385

SITE LOCATION CODE

699369

SITE ADDRESS

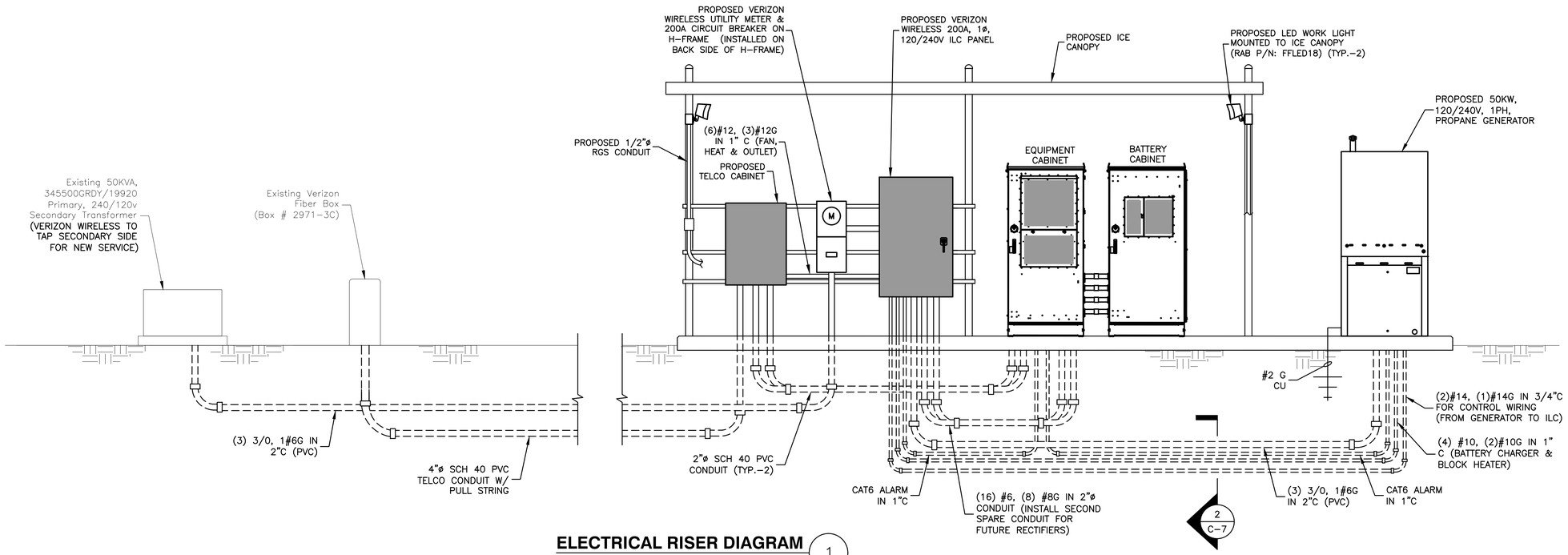
12 GROVES FARM ROAD
HUDSON, NH 03051

SHEET TITLE

CONSTRUCTION DETAILS-V

SHEET NUMBER

C-7



ELECTRICAL RISER DIAGRAM 1

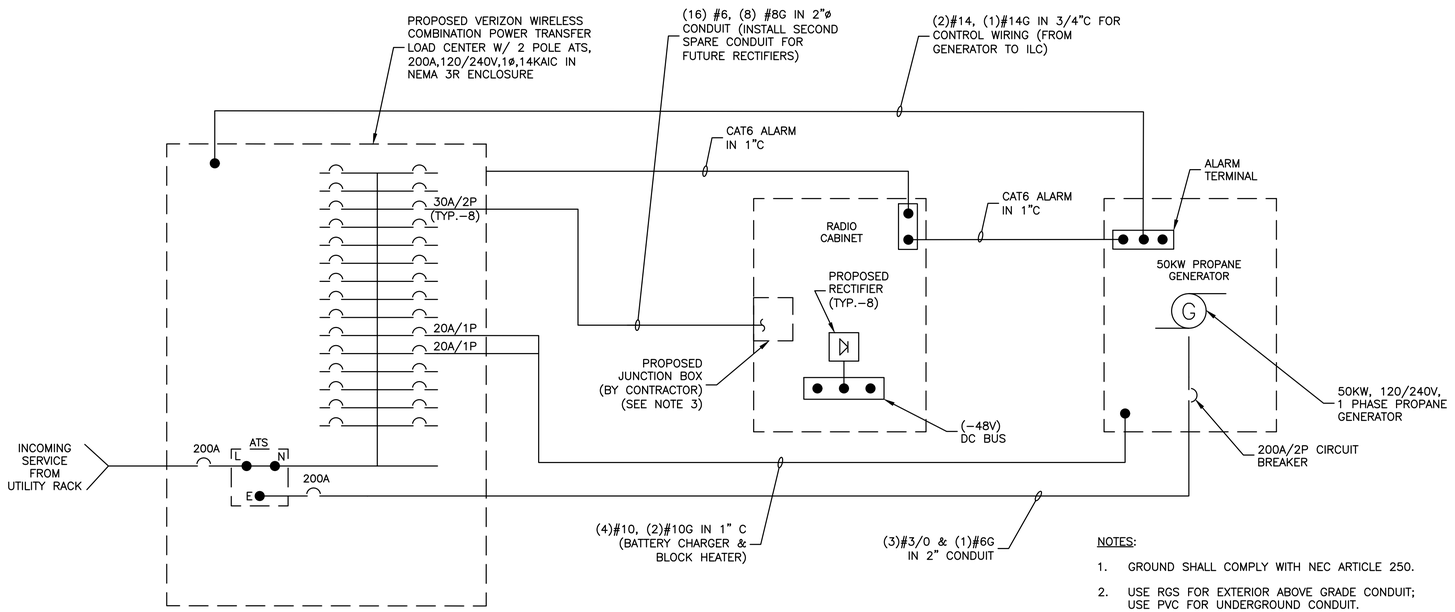
SCALE: N.T.S.

NEMA 3R — **PANEL SCHEDULE - ILC** — 42,000 A.I.C.

W/200A MAIN C/B							
CKT #	DESCRIPTION	KVA	AMP	AMP	KVA	DESCRIPTION	CKT #
1	RECTIFIER #1	3.1	30	30	3.1	RECTIFIER #2	2
3							4
5	RECTIFIER #3	3.1	30	30	3.1	RECTIFIER #4	6
7							8
9	RECTIFIER #5	3.1	30	30	3.1	RECTIFIER #6	10
11							12
13	RECTIFIER #7	3.1	30	30	3.1	RECTIFIER #8	14
15							16
17	COMMSCOPE GFI	0.72	20	20	0.72	TELCO GFI	18
19	GENERTOR RECEPTACLE	0.72	20	15	0.3	TELCO HEATER	20
21	BATTERY CHARGER	0.6	20	15	0.2	TELCO AC FAN	22
23	GENERATOR BLOCK HEATER	1.0	40	15	.24	LIGHTING	24
25	SPACE		-	-		SPACE	26
27	SPACE		-	-		SPACE	28
29	SPACE		-	-		SPACE	30

TOTAL KVA: 29.4

*VERIFY ALL BREAKER SIZES WITH THE CABINET MANUFACTURER AND VERIZON WIRELESS PRIOR TO CONSTRUCTION.



ONE-LINE RISER DIAGRAM 2

SCALE: N.T.S.

NOTES:

1. GROUND SHALL COMPLY WITH NEC ARTICLE 250.
2. USE RGS FOR EXTERIOR ABOVE GRADE CONDUIT; USE PVC FOR UNDERGROUND CONDUIT.
3. INSTALL 1" LIQUID TIGHT DROPS FROM JUNCTION BOX TO RECTIFIER CONNECTOR.

verizon

VERIZON WIRELESS
51 ALDER STREET
MEDWAY, MA 02053

HUDSON 3 NH

CONSTRUCTION DRAWINGS		
2	10/22/24	FOR SUBMITTAL
1	09/10/24	FOR SUBMITTAL
0	09/09/24	FOR SUBMITTAL
A	07/23/24	FOR COMMENT

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STATE OF NEW HAMPSHIRE - BENJAMIN B. REVETTE No.13830 LICENSED PROFESSIONAL ENGINEER
10/22/2024

DRAWN BY:	MR
REVIEWED BY:	MFT
CHECKED BY:	BBR
PROJECT NUMBER:	50121487
JOB NUMBER:	50164385

SITE LOCATION CODE

699369

SITE ADDRESS

12 GROVES FARM ROAD
HUDSON, NH 03051

SHEET TITLE

RISER DIAGRAMS

SHEET NUMBER

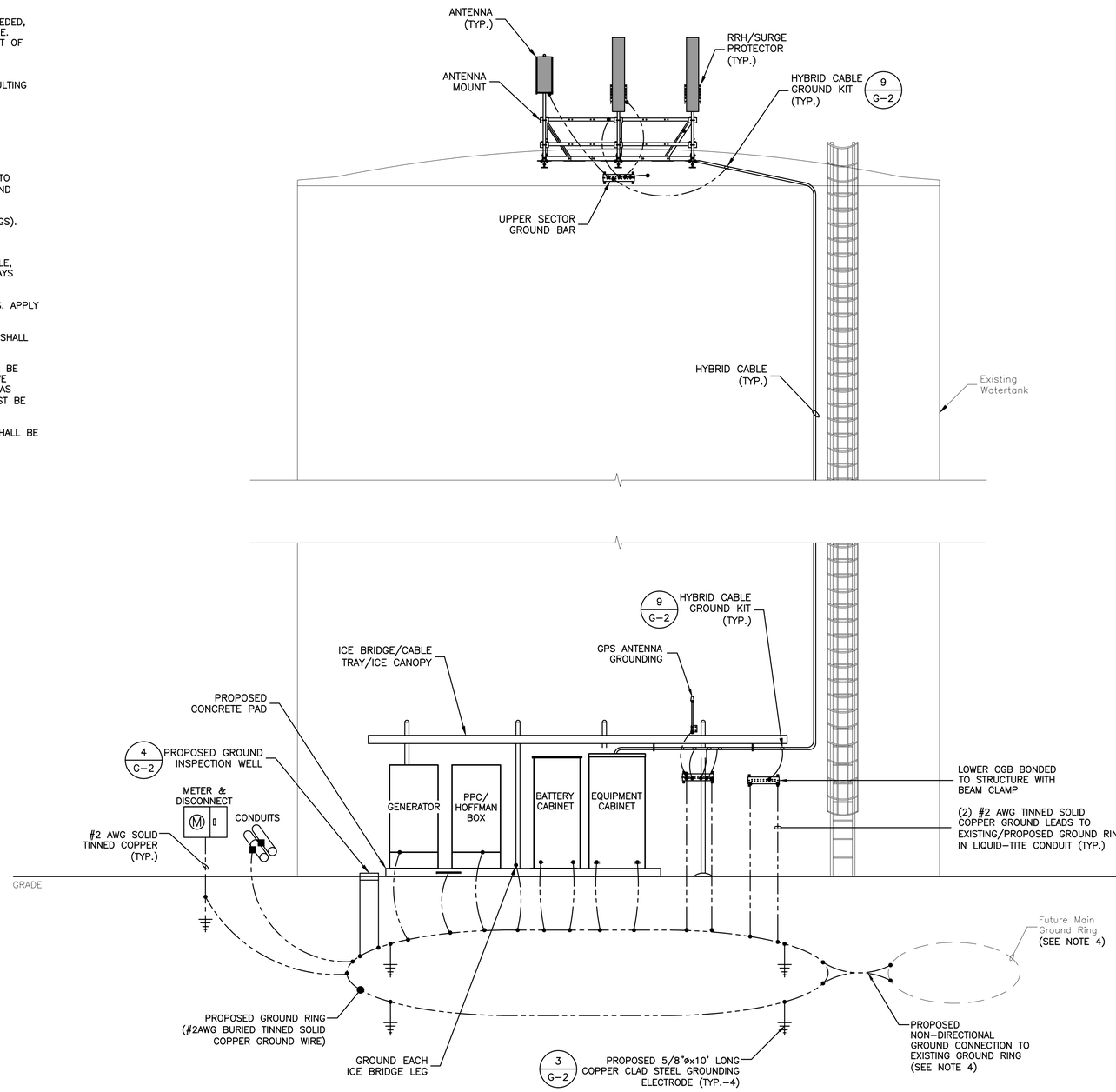
E-1

GROUNDING NOTES:

1. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE OWNER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE. CONTRACTOR SHALL SUBMIT TO THE PROJECT MANAGER ALL TEST REPORTS AND ONE COMPLETE SET OF PRINTS SHOWING "INSTALLED WORK".
2. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, AND FALL POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
3. CONTRACTOR SHALL NOT DISTURB EXISTING GROUNDING SYSTEM. ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY AT NO ADDITIONAL COST.
4. ALL ELEMENTS OF ICE BRIDGE AND VERIZON WIRELESS UTILITY BACKBOARD MUST BE BONDED AND JUMPERED TO GROUNDED COMPONENTS OF THESE SYSTEMS.
5. ALL GROUNDING ELECTRODE CONDUCTORS SHALL BE ROUTED DOWNWARDS FROM POINT OF ORIGIN TO TERMINATION POINT (GROUND BAR, GROUND RING, ETC.). CONNECTIONS TO OVERHEAD HALO GROUND SHALL BE THE ONLY EXCEPTION.
6. GROUNDING CONDUCTORS SHALL NOT REVERSE DIRECTION (EXCEPT HALO AND BURIED GROUND RINGS). OTHER EXCEPTIONS NEED TO BE APPROVED BY VERIZON WIRELESS PROJECT MANAGER PRIOR TO INSTALLATION.
4. ROUTE GROUNDING ELECTRODE CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NOT BE BENT AT RIGHT ANGLE. ALWAYS MAKE 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY.
5. CONNECTIONS TO GROUND BAR SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
5. ANY FENCE POST WITHIN 10' OF ANY VERIZON WIRELESS EQUIPMENT (SHELTER, ICE BRIDGE, ETC.) SHALL BE BONDED TO THE VERIZON WIRELESS GROUND RING OR COMPOUND GROUND RING.
6. PRIOR TO POURING CONCRETE, ALL REBAR LOCATED NEAR THE BOTTOM OF THE FOUNDATION SHALL BE BONDED TOGETHER TO FORM A SINGLE GROUNDING ELECTRODE, BY STEEL TIES OR OTHER EFFECTIVE MEANS APPROVED BY NEC 2020 AND STRUCTURAL ENGINEER, AND BONDED TO THE GROUND RING AS DETAILED IN THESE PLANS. (INSPECTION MAY BE REQUIRED PRIOR TO POURING CONCRETE AND MUST BE COORDINATED BY CONTRACTOR.)
7. IN ACCORDANCE WITH NEC 2020 REQUIREMENTS, ALL GROUNDING ELECTRODES PRESENT ON SITE SHALL BE BONDED TOGETHER (REFERENCE 2020 NEC ARTICLE 250.50)

GROUNDING LEGEND

	GROUND BAR
—·—·—·—·—	GROUND COPPER WIRE, SIZE AS NOTED
— — — — —	PROPOSED GROUND RING
	MECHANICAL GROUND CONNECTION
⊗	5/8"X10' COPPER CLAD STEEL GROUND ROD
	EXOTHERMIC (CADWELD) CONNECTION



NOTES:

1. GROUND UTILITY METER PER N.E.C.
2. CONTRACTOR TO VERIFY WITH VERIZON WIRELESS C.M. FOR FINAL GROUND METHOD.
3. GROUNDING RING IS SHOWN AS SCHEMATIC ONLY. IT IS DESIGNED WITHOUT BENEFIT OF RESISTIVITY TESTING AND DOES NOT NECESSARILY REPRESENT A GROUNDING SYSTEM TO MEET ANY SPECIFIC GROUND RESISTANCE.
4. CONTRACTOR TO VERIFY EXISTING GROUND RING LOCATION AND CONDITION PRIOR TO CONSTRUCTION AND PROVIDE NEW GROUND RING AS REQUIRED.

GROUNDING SCHEMATIC 1
SCALE: N.T.S.

verizon

VERIZON WIRELESS
51 ALDER STREET
MEDWAY, MA 02053

HUDSON 3 NH

CONSTRUCTION DRAWINGS		
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1	09/10/24	FOR SUBMITTAL
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BENJAMIN B. REVETTE No.13830 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE -
10/22/2024

DRAWN BY:	MR
REVIEWED BY:	MFT
CHECKED BY:	BBR
PROJECT NUMBER:	50121487
JOB NUMBER:	50164385

SITE LOCATION CODE

699369

SITE ADDRESS

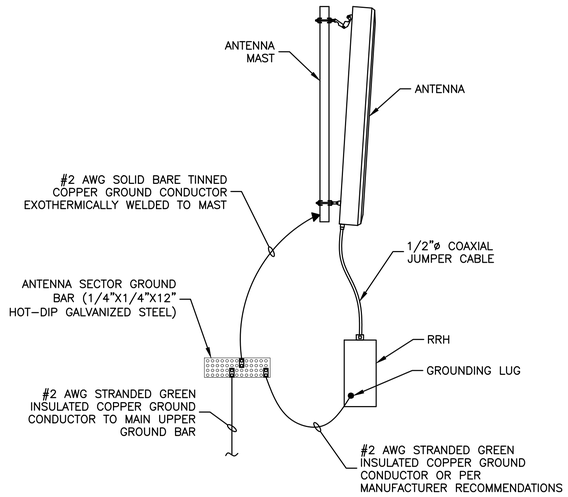
12 GROVES FARM ROAD
HUDSON, NH 03051

SHEET TITLE

GROUNDING SCHEMATIC & NOTES

SHEET NUMBER

G-1

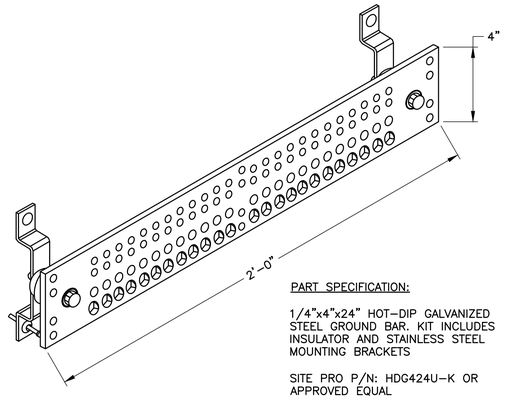


NOTES:

1. VERIFY EXISTING GROUNDING SYSTEM IS INSTALLED PER VERIZON STANDARDS.
2. BOND NEW EQUIPMENT INTO EXISTING GROUND SYSTEM IN ACCORDANCE WITH VERIZON WIRELESS STANDARDS & MANUFACTURER RECOMMENDATIONS.

TYPICAL ANTENNA/RRU GROUNDING DETAIL 1

SCALE: N.T.S.



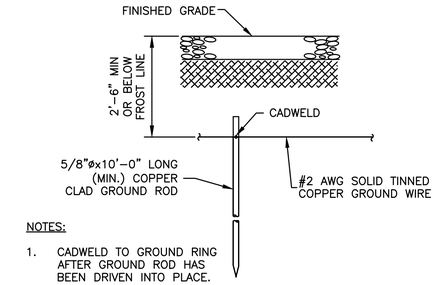
PART SPECIFICATION:

1/4"x4"x24" HOT-DIP GALVANIZED STEEL GROUND BAR. KIT INCLUDES INSULATOR AND STAINLESS STEEL MOUNTING BRACKETS

SITE PRO P/N: HDG424U-K OR APPROVED EQUAL

MASTER GROUND BAR DETAIL 2

SCALE: N.T.S.



NOTES:

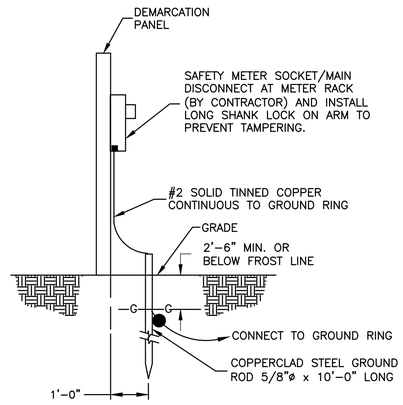
1. CADWELD TO GROUND RING AFTER GROUND ROD HAS BEEN DRIVEN INTO PLACE.
2. FROST LINE TO BE VERIFIED.

GROUND ROD 3

SCALE: N.T.S.

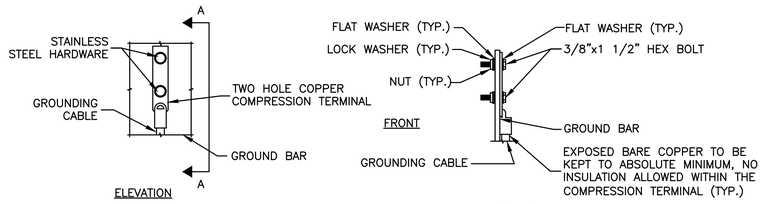
GROUND BOX DETAIL 4

SCALE: N.T.S.



METER SOCKET GROUNDING 5

SCALE: N.T.S.

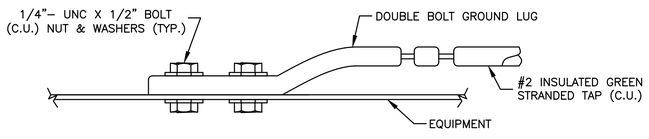


NOTES:

1. DOUBLING UP OR STACKING OF CONNECTIONS IS NOT PERMITTED
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

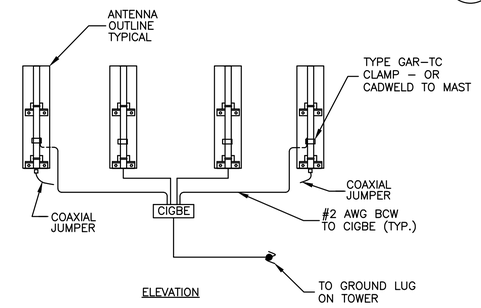
TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL 6

SCALE: N.T.S.



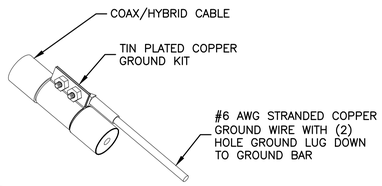
CONNECTION TO EQUIPMENT DETAIL 7

SCALE: N.T.S.



ANTENNA MOUNT GROUNDING DETAIL 8

SCALE: N.T.S.

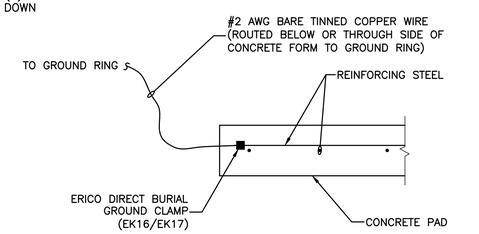


NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND. ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TIN PLATED COPPER WITH TWO-HOLE LUG, SIZE PER COAX DIAMETER.
3. WEATHER SEAL GROUND KIT PER CARRIER REQUIREMENTS.
4. COAX CABLE GROUND KIT LOCATION & QUANTITY SHALL BE PER CARRIER SPECIFICATIONS & STANDARDS.

COAX GROUNDING DETAIL 9

SCALE: N.T.S.



REBAR GROUNDING DETAIL 10

SCALE: N.T.S.

verizon

VERIZON WIRELESS
51 ALDER STREET
MEDWAY, MA 02053

HUDSON 3 NH

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HUDSON, NH 03051

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

G-2