

National Park Service
U.S. Department of the Interior

Gateway NRA



Sandy Hook Infrastructure- IT Presentation

What we have currently:

- There is a Verizon owned microwave tower on the north end of the peninsula, almost all data and voice service coming into Sandy Hook comes through this microwave.
 - **Microwave communication** is the transmission of signals via radio using a series of microwave towers. Microwave communication is known as a form of "line of sight" communication, because there must be nothing obstructing the transmission of data between these towers for signals to be properly sent and received.

What we have currently:

- There is a large copper cable that runs from Verizon's microwave tower to NPS owned- building 26. This is where Verizon's Demarc (Demarc or "Demarcation Point" *the point at which the public switched telephone network ends and connects with the customer's wiring.*
- Almost all of the buildings in Ft. Hancock campus are connected via direct burial copper cable (varying sizes and capabilities) back to Verizon's demarc.
- Verizon has worked on the existing cable to restore some voice and data services, but they will not repair any copper that was destroyed.

Verizon Demarc

Pre-Sandy this frame was in the basement of B26. For a year after Sandy, Verizon worked on moving this frame to the first floor...they repaired it to the current state it is in today.



Verizon rebuilt frame in B26
(2013)

NPS Connectivity

- **This Verizon frame continues to service NPS assets within Ft. Hancock with copper data T1 circuits and plain old telephone service(POTS)**
- **POTS** is the voice-grade telephone service that is based on analog signal transmission.

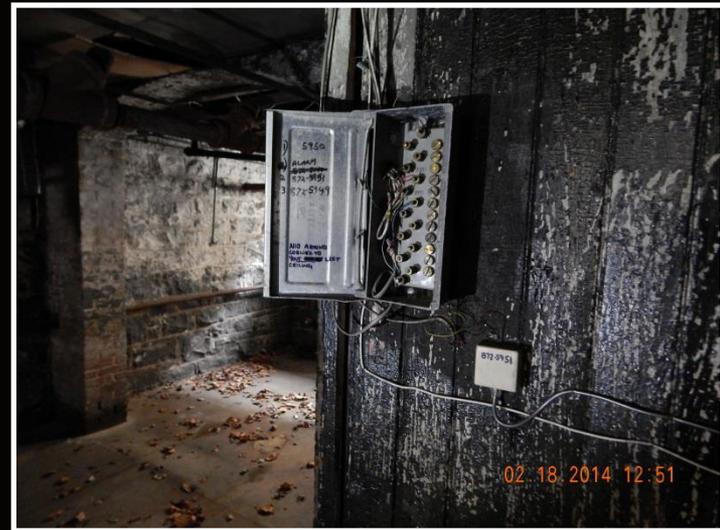
Ft. Hancock- Problems We Face:



Sandy Hook is comprised of buildings that predate modern infrastructure. Most buildings have some copper to them already, but we do not really know the state of this cable if the building was not occupied before.



Network Interface Device



Interior NID

Problems Faced

- Pre-Sandy conditions were not optimal but they worked for our needs.
- Since Sandy, Verizon has made it clear they are not supporting (repairing) the current infrastructure, though they will restore service, where feasible.
- They have used the viable cable to bring service back up, but a lot of this cable is failing and cannot be used.
- There is no telling how long the working copper will continue to work.

What the Park is Doing Now



What the Park is Doing Now

- NPS has hired an Architect-Engineer (A/E) firm to do an assessment report for the park to renew and repair the communications infrastructure for the Sandy Hook peninsula.
- One hope is that this assessment will bring us to the table with Verizon on expanding its fiber presence here on Sandy Hook.
- NPS has agreed to allow Verizon to build a 4G LTE tower, here on Sandy Hook. This will expand the cellular capabilities here immensely.
- We are working on a separate project to run the first leg of fiber from the Verizon microwave to B26.

Options for Voice and Data on Sandy Hook



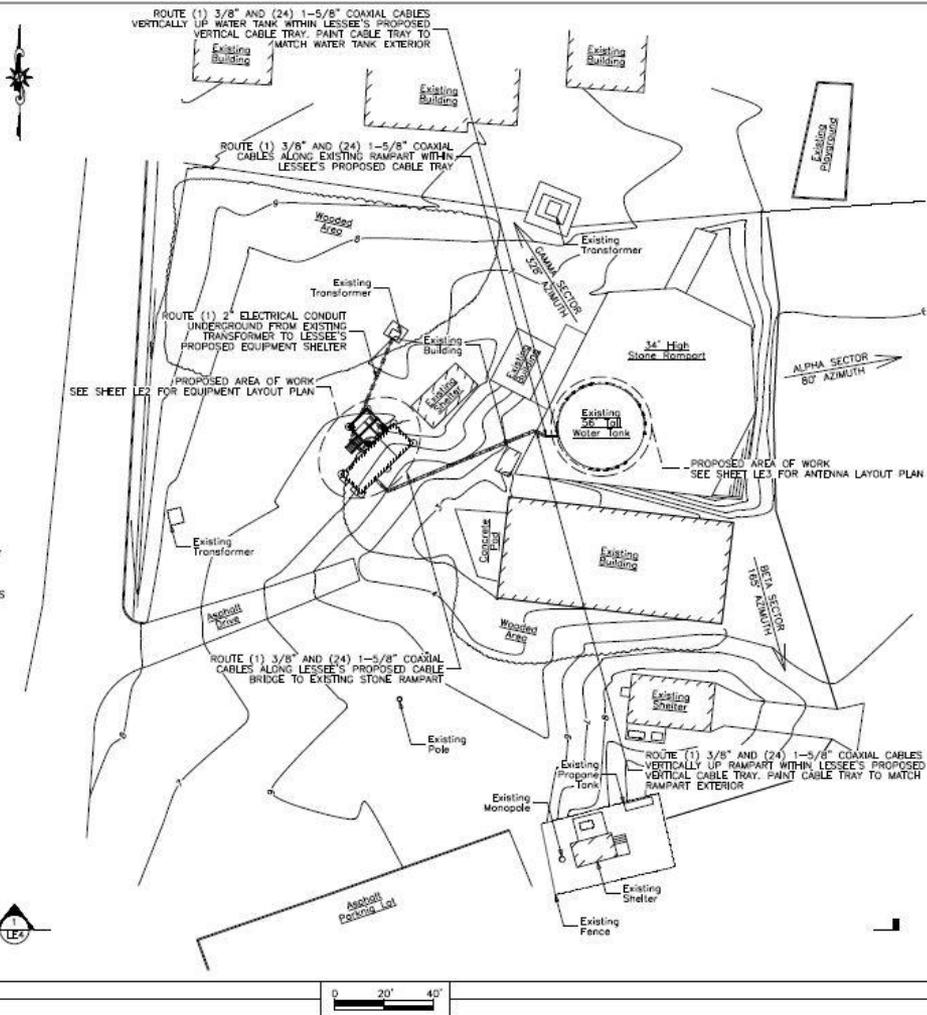
1 KEY MAP
11x17 SCALE: NTS 22x34 SCALE: NTS

GENERAL NOTES:

- 1) EXHIBIT "A" AS SUBMITTED IS A CONCEPTUAL REPRESENTATION OF THE LEASE AGREEMENT ONLY. FINAL CONSTRUCTION DRAWINGS MAY VARY TO COMPLY WITH APPLICABLE BUILDING CODES AND ZONING APPROVALS AND WILL SUPERSEDE EXHIBIT "A".
- 2) TRUE NORTH DETERMINATION, GROUND (AMSL) ELEVATION AND LATITUDE AND LONGITUDE COORDINATES ARE BASED ON USGS MAP INFORMATION.
- 3) THE LOCATIONS OF LESSEE'S PROPOSED UTILITIES ARE SUBJECT TO THE REVIEW AND APPROVAL OF THE RESPECTIVE UTILITY COMPANIES AND MAY NEED TO BE RELOCATED.
- 4) INFORMATION SHOWN ON THIS DRAWING IS BASED ON LIMITED FIELD MEASUREMENTS TAKEN BY M&S ON 04/15/13 AND SURVEY BY VS LAND DATA COMPLETED ON 05/01/13.

SITE INFORMATION:

- 1) PROPERTY OWNER/LESSOR: NATIONAL PARK SERVICE- DEPARTMENT OF INTERIOR 210 NEW YORK AVE STATEN ISLAND, NY 10305
- 2) CONTACT: BRIAN FORSETH (732) 872-3921
- 3) LESSEE: NEW YORK SMSA LIMITED PARTNERSHIP d/b/a VERIZON WIRELESS 141 INDUSTRIAL PARKWAY BRANCHBURG, NJ 08876
- 4) SITE ADDRESS: CRISPIN ROAD MIDDLETOWN, NJ 07732
- 5) BLOCK: N/A LOT(S): N/A
- ZONE: N/A
- COORDINATES: N 40°28'09.00" W 74°00'26.60" NAD83
- DATUM: NAD83
- 6) GROUND ELEVATION: 6' AMSL NAVD83



2 PARTIAL SITE PLAN
11x17 SCALE: 1" = 40' 22x34 SCALE: 1" = 20' 40'

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0E0003

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d/b/a

141 INDUSTRIAL PARKWAY
BRANCHBURG, NJ 08876

NO.	ISSUE OR REVISION	DATE	BY
C	VERIZON WIRELESS INTERNALLY APPROVED	06/04/13	ZNR
B	REVISED PER VERIZON WIRELESS	05/30/13	ZNR
A	ISSUED FOR REVIEW	05/23/13	ZNR

PROJECT TITLE:
EXHIBIT A
SITE NAME:
SANDY HOOK + FT HANCOCK
SITE ADDRESS:
CRISPIN ROAD
MIDDLETOWN, NJ 07732

M&S PROJECT #: 13VNUJ010
SCALE: AS NOTED DATE: 05/23/13
DRAWN BY: ZNR CHECKED BY: TS

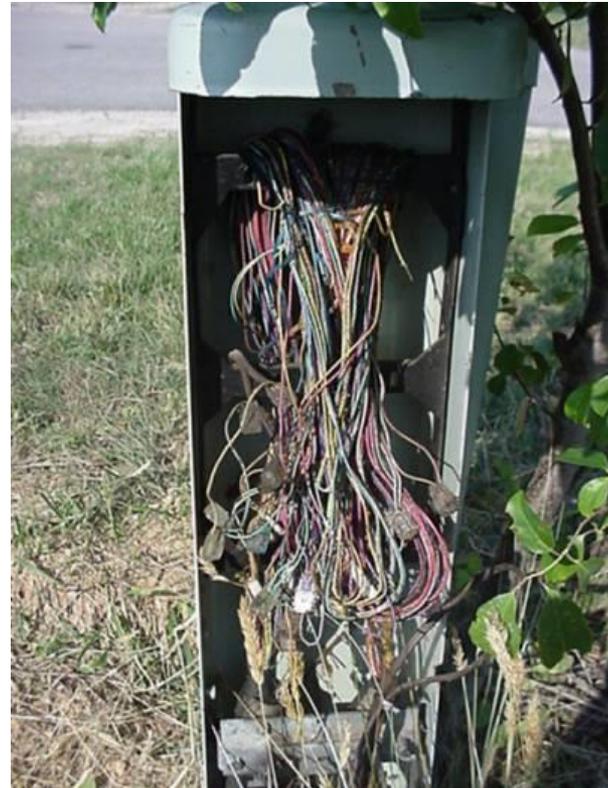
DRAWING TITLE:
PARTIAL SITE PLAN

DRAWING NO: LE1 PAGE NO: 1 of 4

Existing Copper Infrastructure

- If it exists to the building, T1 data service and “plain old telephone” (POTS lines) from Verizon
- Reliable where copper is in good shape.

*One disadvantage – reliability is an unknown in many of the locations throughout the peninsula.



Satellite

- Sandy Hook does currently use satellite for data communications at one site.
- NPS has in the past used “HughesNet” Satellites with excellent results.
- Many of the residential units here at Sandy Hook used “Direct TV” as their Internet and satellite TV provider, during pre-Sandy times.

*One disadvantage of Satellite is it can be affected by bad weather.



Cellular Broadband-Verizon/Sprint

- Up to 10x faster than T1(1.5MB) service
- Reliability and speed can only get better with the new 4G tower
- Routers equipped with wireless and wired capability, good for networking or setting up Wi-Fi hotspots
- Versatile enough to use “Magic Jack” or “OOMA” technology for phone service
- Relatively inexpensive.

* One disadvantage is that, it is only as good as it's coverage area.

Microwave

- Companies like TowerStream and Infinity install microwave technology completely independent of companies such as AT&T and Verizon.
- Microwave technology is a high capacity, cost effective, and reliable service.

*One disadvantage is that it depends heavily on line-of-sight, so not all areas will not have it available.



Upgrading to Fiber Infrastructure

- Best case scenario but could be years to complete
- Park Service plans to upgrade as much as possible to a fiber infrastructure.
- Part of plan is to put enough fiber or conduit in place for other entities to tie back to.

*Major disadvantage is cost and currently we do not have all information for the full scope of work involved.



QUESTIONS ?



Gateway NRA

Office of Information Management



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U.S. Department of the Interior