

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



# CITY OF PORTLAND BUILDING PERMIT



**This is to certify that**

Roosevelt Arms Condos Assoc./Netcom Wireless  
Facilities

**Located at**

226 STEVENS AVE

**PERMIT ID:** 2013-00182

**CBL:** 177 G002101

has permission to **Install fiber dist box w/ in lease area. Replace existing antenna's, equipment cabinets, coax cable w/ hybrid flex cables and replace local exchange carrier w/ fiber optics - on roof**

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise clsoed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be procured prior to occupancy.

**Fire Prevention Officer**

**Code Enforcement Officer / Plan Reviewer**

**THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY  
THERE IS A PENALTY FOR REMOVING THIS CARD**

**City of Portland, Maine - Building or Use Permit Application**

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 2013-00182	Issue Date:	CBL: 177 G002101
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<b>Location of Construction:</b> 226 STEVENS AVE	<b>Owner Name:</b> ROOSEVELT ARMS CONDOS ASSOC.	<b>Owner Address:</b> 218-232 STEVENS AVE PORTLAND, ME 04102	<b>Phone:</b>
<b>Business Name:</b> Roosevelt Arms Condo Association	<b>Contractor Name:</b> Netcom Wireless Facilities	<b>Contractor Address:</b> 10 Aevo Park Drive Unit 3 Plymouth MA 02360	<b>Phone:</b> (508) 732-0020
<b>Lessee/Buyer's Name:</b> SPRINT	<b>Phone:</b>	<b>Permit Type:</b> Radio/Telecommunications Equipment	<b>Zone:</b> R5
<b>Past Use:</b> 17 Residential Condominium units	<b>Proposed Use:</b> Same: 17 residential condominium units	<b>Permit Fee:</b> \$170.00	<b>Cost of Work:</b> \$15,000.00
<b>Proposed Project Description:</b> Install fiber dist box w/ in lease area. Replace existing antenna's, equipment cabinets, coax cable w/ hybrid flex cables and replace local exchange carrier w/ fiber optics - on roof of main Bldg		<b>FIRE DEPT:</b> <input type="checkbox"/> Approved <input type="checkbox"/> Denied <input checked="" type="checkbox"/> N/A	<b>INSPECTION:</b> Use Group: R-2 Type: Tele-Communications MUBEC 2009 Signature: JMB 2/28/13
		<b>PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)</b> Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Signature: _____ Date: _____	

<b>Permit Taken By:</b> LDOBSON	<b>Date Applied For:</b> 01/28/2013	<b>Zoning Approval</b>	
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<ol style="list-style-type: none"> <li>This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</li> <li>Building permits do not include plumbing, septic or electrical work.</li> <li>Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..</li> </ol>	<b>Special Zone or Reviews</b> <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/> Date: 2/4/13	<b>Zoning Appeal</b> <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date:	<b>Historic Preservation</b> <input checked="" type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date:
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**CERTIFICATION**

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHONE

**City of Portland, Maine - Building or Use Permit Application**

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

<b>Permit No:</b> 2013-00182	<b>Issue Date:</b>	<b>CBL:</b> 177 G002101
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<b>Business Name:</b> Roosevelt Arms Condo Association	<b>Contractor Name:</b> Netcom Wireless Facilities	<b>Contractor Address:</b> 10 Aevo Park Drive Unit 3 Plymouth MA 02360	<b>Phone:</b> (508) 732-0020
<b>Lessee/Buyer's Name:</b> SPRINT	<b>Phone:</b>	<b>Permit Type:</b> Radio/Telecommunications Equipment	<b>Zone:</b> R5
<b>Past Use:</b> 17 Residential Condominium units	<b>Proposed Use:</b> Same: 17 residential condominium units	<b>Permit Fee:</b> \$170.00	<b>Cost of Work:</b> \$15,000.00
<b>Proposed Project Description:</b> Install fiber dist box w/ in lease area. Replace existing antenna's, equipment cabinets, coax cable w/ hybrid flex cables and replace local exchange carrier w/ fiber optics - on roof of main Bldg		<b>FIRE DEPT:</b> <input type="checkbox"/> Approved <input type="checkbox"/> Denied <input checked="" type="checkbox"/> N/A	<b>INSPECTION:</b> Use Group: R-2 Type: Tele-Communications MUBEC 2009 Signature: DMB 2/28/13
		<b>PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)</b> Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Signature: _____ Date: _____	

<b>Permit Taken By:</b> LDOBSON	<b>Date Applied For:</b> 01/28/2013	<b>Zoning Approval</b>	
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<ol style="list-style-type: none"> <li>This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</li> <li>Building permits do not include plumbing, septic or electrical work.</li> <li>Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..</li> </ol>	<b>Special Zone or Reviews</b> <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input checked="" type="checkbox"/> Date: 2/4/13	<b>Zoning Appeal</b> <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date:	<b>Historic Preservation</b> <input checked="" type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date:
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SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHONE



# General Building Permit Application

BS43XC007

If you or the property owner owes real estate or personal property taxes or property within the City, payment arrangements must be made before permits

Location/Address of Construction: <u>226 Stevens Ave.</u>		
Total Square Footage of Proposed Structure/Area		Square Footage of Lot
Tax Assessor's Chart, Block & Lot Chart#      Block#      Lot#	Applicant * <u>must be owner, Lessee or Buyer</u>	
<u>177 6004</u>	Name <u>Sprint</u> Address <u>1 International Blvd Suite 800</u> City, State & Zip <u>Mahwah, NJ 07430</u>	<u>978-820-3201</u> <u>Kristen LeDuc</u> <u>Agent Sprint</u>
Lessee/DBA (If Applicable)	Owner (if different from Applicant)	Cost Of Work: \$ <u>15,000</u>
<u>17 Condos in this Bldg</u>	Name <u>Roosevelt Arms Condo</u> Address <u>218-232 Stevens Ave.</u> City, State & Zip <u>Portland, ME 04102</u>	C of O Fee: \$ <u>-</u> Total Fee: \$ <u>170.00</u>
Current legal use (i.e. single family) <u>Condo</u>		
If vacant, what was the previous use? <u>N/A</u>		
Proposed Specific use: <u>Wireless Communication Modification - Unmanned</u>		
Is property part of a subdivision? <u>N/A</u> If yes, please name _____		
Project description: <u>Install Fiber Dist. box w/in lease area. Replace existing antennas. Replace existing GPS antenna. Replace existing coax cable w/ Hybrid flex cables. Replace equipment cabinets. Replace local exchange carrier w/ Fiber Optics.</u>		
Contractor's name: <u>Charles B. Anti, Netcom Wireless Facilities 2</u>		
Address: <u>10 Aero Park Dr. Unit 3</u>		
City, State & Zip <u>Plymouth, MA 02360</u>		Telephone: <u>508-732-0020</u>
Who should we contact when the permit is ready: <u>Kristen LeDuc</u>		Telephone: <u>978-820-3264</u>
Mailing address: <u>B Brentwood Cr. Danvers, MA 01923</u>		

**Please submit all of the information outlined on the applicable Checklist. Failure to do so will result in the automatic denial of your permit.**

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information or to download copies of this form and other applications visit the Inspections Division on-line at [www.portlandmaine.gov](http://www.portlandmaine.gov), or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature: Kristen LeDuc Date: 1-7-13

**This is not a permit; you may not commence ANY work until the permit is issued**



472  
470

1-9  
CAROLINE ST  
2-10

460

458

456

454

452

450

448

446

451

445

242

435 - 481  
BRIGHTON AV  
434 - 482

*ontop of this  
Block*

231 - 289  
STEVENS AV  
234 - 278

301 - 433  
BRIGHTON AV  
300 - 432

428

Unit 1 - 10 226

213 - 231  
STEVENS AV  
214 - 232



**NETWORK BUILDING  
& CONSULTING, LLC**

January 24, 2013

Jeanie Bourke, CEO  
Building Department  
389 Congress Street  
Portland, ME 04101

RE: Sprint Site modification at 234 Stevens Ave., Portland, Maine

Jeanie,

Enclosed please find a Building Permit Application, site plans and related documents for Sprint's modification project at 234 Stevens Ave. Also, included is a copy of the check and the 1<sup>st</sup> page of the application could you kindly include a receipt for the check, and a "received" stamp on the 1<sup>st</sup> page of the application when the building permit is issued.

If you have any questions or comments, please feel free to contact me at the number or email listed below.

Thank you,

*Kristen LeDuc*

**Network Building & Consulting, LLC. an authorized representative of Sprint Nextel**

Kristen LeDuc  
978-828-3264 Office & Mobile  
[kleduc@nbcllc.com](mailto:kleduc@nbcllc.com)  
8 Brentwood Circle  
Danvers, MA 01923



# Certificate of Design Application

From Designer: \_\_\_\_\_

Date: \_\_\_\_\_

Job Name: \_\_\_\_\_

Address of Construction: \_\_\_\_\_

## 2003 International Building Code

Construction project was designed to the building code criteria listed below:

Building Code & Year \_\_\_\_\_ Use Group Classification (s) \_\_\_\_\_

Type of Construction \_\_\_\_\_

Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2003 IRC \_\_\_\_\_

Is the Structure mixed use? \_\_\_\_\_ If yes, separated or non separated or non separated (section 302.3) \_\_\_\_\_

Supervisory alarm System? \_\_\_\_\_ Geotechnical/Soils report required? (See Section 1802.2) \_\_\_\_\_

### Structural Design Calculations

\_\_\_\_\_ Submitted for all structural members (106.1 – 106.11)

### Design Loads on Construction Documents (1603)

Uniformly distributed floor live loads (7603.11, 1807)

Floor Area Use	Loads Shown
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

### Wind loads (1603.1.4, 1609)

- \_\_\_\_\_ Design option utilized (1609.1.1, 1609.6)
- \_\_\_\_\_ Basic wind speed (1809.3)
- \_\_\_\_\_ Building category and wind importance Factor,  $I_w$  table 1604.5, 1609.5)
- \_\_\_\_\_ Wind exposure category (1609.4)
- \_\_\_\_\_ Internal pressure coefficient (ASCE 7)
- \_\_\_\_\_ Component and cladding pressures (1609.1.1, 1609.6.2.2)
- \_\_\_\_\_ Main force wind pressures (7603.1.1, 1609.6.2.1)

### Earth design data (1603.1.5, 1614-1623)

- \_\_\_\_\_ Design option utilized (1614.1)
- \_\_\_\_\_ Seismic use group ("Category")
- \_\_\_\_\_ Spectral response coefficients,  $S_D$ s &  $S_{D1}$  (1615.1)
- \_\_\_\_\_ Site class (1615.1.5)

- \_\_\_\_\_ Live load reduction
- \_\_\_\_\_ Roof *live* loads (1603.1.2, 1607.11)
- \_\_\_\_\_ Roof snow loads (1603.7.3, 1608)
- \_\_\_\_\_ Ground snow load,  $P_g$  (1608.2)
- \_\_\_\_\_ If  $P_g > 10$  psf, flat-roof snow load  $P_f$
- \_\_\_\_\_ If  $P_g > 10$  psf, snow exposure factor,  $C_e$
- \_\_\_\_\_ If  $P_g > 10$  psf, snow load importance factor,  $I_s$
- \_\_\_\_\_ Roof thermal factor,  $C_t$  (1608.4)
- \_\_\_\_\_ Sloped roof snowload,  $P_s$  (1608.4)
- \_\_\_\_\_ Seismic design category (1616.3)
- \_\_\_\_\_ Basic seismic force resisting system (1617.6.2)
- \_\_\_\_\_ Response modification coefficient,  $R_f$  and deflection amplification factor  $C_d$  (1617.6.2)
- \_\_\_\_\_ Analysis procedure (1616.6, 1617.5)
- \_\_\_\_\_ Design base shear (1617.4, 1617.5.1)

### Flood loads (1803.1.6, 1612)

- \_\_\_\_\_ Flood Hazard area (1612.3)
- \_\_\_\_\_ Elevation of structure

### Other loads

- \_\_\_\_\_ Concentrated loads (1607.4)
- \_\_\_\_\_ Partition loads (1607.5)
- \_\_\_\_\_ Misc. loads (Table 1607.8, 1607.6.1, 1607.7, 1607.12, 1607.13, 1610, 1611, 2404)



# Commercial Interior & Change of Use Permit Application Checklist

All of the following information is required and must be submitted. Checking off each item as you prepare your application package will ensure your package is complete and will help to expedite the permitting process.

## One (1) complete set of construction drawings must include:

Note: Construction documents for costs in excess of \$50,000.00 must be prepared by a Design Professional and bear their seal.

- Cross sections w/framing details
- Detail of any new walls or permanent partitions
- Floor plans and elevations
- Window and door schedules
- Complete electrical and plumbing layout.
- Mechanical drawings for any specialized equipment such as furnaces, chimneys, gas equipment, HVAC equipment or other types of work that may require special review
- Insulation R-factors of walls, ceilings, floors & U-factors of windows as per the IECC 2003
- Proof of ownership is required if it is inconsistent with the assessors records.
- Reduced plans or electronic files in PDF format are required if originals are larger than 11" x 17".
- Per State Fire Marshall, all new bathrooms must be ADA compliant.

Separate permits are required for internal and external plumbing, HVAC & electrical installations.

For additions less than 500 sq. ft. or that does not affect parking or traffic, a site plan exemption should be filed including:

- The shape and dimension of the lot, footprint of the existing and proposed structure and the distance from the actual property lines.
- Location and dimensions of parking areas and driveways, street spaces and building frontage.
- Dimensional floor plan of existing space and dimensional floor plan of proposed space.

A Minor Site Plan Review is required for any change of use between 5,000 and 10,000 sq. ft. (cumulatively within a 3-year period)



## Fire Department requirements.

The following shall be submitted on a separate sheet:

- Name, address and phone number of applicant **and** the project architect.
- Proposed use of structure (NFPA and IBC classification)
- Square footage of proposed structure (total and per story)
- Existing and proposed fire protection of structure.
- Separate plans shall be submitted for
  - a) Suppression system
  - b) Detection System (separate permit is required)
- A separate Life Safety Plan must include:
  - a) Fire resistance ratings of all means of egress
  - b) Travel distance from most remote point to exit discharge
  - c) Location of any required fire extinguishers
  - d) Location of emergency lighting
  - e) Location of exit signs
  - f) NFPA 101 code summary
- Elevators shall be sized to fit an 80" x 24" stretcher.

For questions on Fire Department requirements call the Fire Prevention Officer at (207) 874-8405.

**Please submit all of the information outlined in this application checklist. If the application is incomplete, the application may be refused.**

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information or to download copies of this form and other applications visit the Inspections Division on-line at [www.portlandmaine.gov](http://www.portlandmaine.gov), or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

**Permit Fee: \$30.00 for the first \$1000.00 construction cost, \$10.00 per additional \$1000.00 cost**

**This is not a Permit; you may not commence any work until the Permit is issued.**



# Accessibility Building Code Certificate

**Designer:** \_\_\_\_\_

**Address of Project:** \_\_\_\_\_

**Nature of Project:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

The technical submissions covering the proposed construction work as described above have been designed in compliance with applicable referenced standards found in the Maine Human Rights Law and Federal Americans with Disability Act. Residential Buildings with 4 units or more must conform to the Federal Fair Housing Accessibility Standards. Please provide proof of compliance if applicable.

**(SEAL)**

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Firm: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone: \_\_\_\_\_

For more information or to download this form and other permit applications visit the Inspections Division on our website at [www.portlandmaine.gov](http://www.portlandmaine.gov)



# Certificate of Design

Date: \_\_\_\_\_

From: \_\_\_\_\_

These plans and / or specifications covering construction work on:

\_\_\_\_\_  
\_\_\_\_\_

Have been designed and drawn up by the undersigned, a Maine registered Architect / Engineer according to the *2003 International Building Code* and local amendments.

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Firm: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone: \_\_\_\_\_

**(SEAL)**

For more information or to download this form and other permit applications visit the Inspections Division on our website at [www.portlandmaine.gov](http://www.portlandmaine.gov)

Site Name: Roosevelt Arms (226 Stevens Avenue, Portland, ME)

Site I.D.: BS43XC807-A

1. **Premises and Use.** Owner leases to Sprint Spectrum L.P., a Delaware limited partnership ("SSLP"), the site described below:

[Check appropriate box(es)]

- Land consisting of approximately \_\_\_\_\_ square feet upon which SSLP will construct its  equipment base station and  antenna structure;
- Building interior space consisting of approximately 210 square feet;
- Building exterior space for attachment of antennas;
- Building exterior space for placement of base station equipment;
- Tower antenna space between the \_\_\_\_\_ foot and \_\_\_\_\_ foot level on the Tower;
- Space required for cable runs to connect PCS equipment and antennas,

In the location(s) shown on Exhibit A, together with a non-exclusive easement for reasonable access thereto and to the appropriate, in the discretion of SSLP, source of electric and telephone facilities (collectively, the "Site"). The Site will be used by SSLP for the purpose of installing, removing, replacing, modifying, maintaining and operating, at its expense, a personal communications service system facility ("PCS"), including, without limitation, antenna equipment, cable wiring, back-up power sources (including generators and fuel storage tanks), related fixtures and, if applicable to the Site, an antenna structure. SSLP will use the Site in a manner which will not unreasonably disturb the occupancy of Owner's other tenants. SSLP will have access to the Site 24 hours per day, 7 days per week.

2. **Term.** The term of this Agreement (the "Initial Term") is 5 years, commencing on the date ("Commencement Date") both SSLP and Owner have executed this Agreement. This Agreement will be automatically renewed for four additional terms (each a "Renewal Term") of five years each, unless SSLP provides Owner notice of intention not to renew not less than 90 days prior to the expiration of the Initial Term or any Renewal Term.

3. **Rent.** Until that date which is 60 days after the issuance of a building permit for the PCS, the rent will be a one-time aggregate payment of \_\_\_\_\_, the receipt of which Owner acknowledges. Thereafter, rent will be paid in equal monthly installments of \_\_\_\_\_ (until increased as set forth herein), partial months to be prorated, in advance. Rent for each Renewal Term will be the annual rent in effect for the final year of the Initial Term or prior Renewal Term, as the case may be, increased by \_\_\_\_\_.

4. **Title and Quiet Possession.** Owner represents and agrees (a) that it is the Owner of the Site; (b) that it has the right to enter into this Agreement; (c) that the person signing this Agreement has the authority to sign; (d) that SSLP is entitled to access to the Site at all times and to the quiet possession of the Site throughout the Initial Term and each Renewal Term so long as SSLP is not in default beyond the expiration of any cure period; and (e) that Owner shall not have unsupervised access to the Site or to the PCS equipment.

5. **Assignment/Subletting.** SSLP shall have the right to assign or transfer its rights under this Agreement or sublet all or any portion of the Site without notice to or the prior written consent of Owner.

6. **Notices.** All notices must be in writing and are effective only when deposited in the U.S. mail, certified and postage prepaid, or when sent via overnight delivery. Notices to SSLP are to be sent to Sprint PCS, Crossroads Corporate Center, Suite 800, One International Boulevard, Mahwah, NJ 07495, with a copy to Sprint Spectrum L.P., 4900 Main Street, Kansas City, MO 64112. Notices to Owner must be sent to the address shown underneath Owner's signature.

7. **Improvements.** SSLP may, at its expense, make such improvements on the Site as it deems necessary from time to time for the operation of the PCS system. Owner agrees to cooperate with SSLP with respect to obtaining any required zoning approvals for the Site and such improvements. Upon termination or expiration of this Agreement, SSLP may remove its equipment and improvements and will restore the Site to substantially the condition existing on the Commencement Date, except for ordinary wear and tear and casualty loss.

8. **Compliance with Laws.** Owner represents that Owner's property (including the Site), and all improvements located thereon, are in substantial compliance with building, life/safety, disability and other laws, codes and regulations of applicable governmental authorities. SSLP will substantially comply with all applicable laws relating to its possession and use of the Site.

9. **Interference.** SSLP will resolve technical interference problems with other equipment located at the Site on the Commencement Date or any equipment that becomes attached to the Site at any future date when SSLP desires to add additional equipment to the Site. Likewise, Owner will not permit or suffer the installation of any future equipment which (a) results in technical interference problems with SSLP's then existing equipment or (b) encroaches onto the Site.

10. **Utilities.** Owner represents that utilities adequate for SSLP's use of the Site are available. SSLP will pay for all utilities used by it at the Site. Owner will cooperate with SSLP in SSLP's efforts to obtain utilities from any location provided by Owner or the servicing utility, including signing any easement or other instrument reasonably required by the utility company.

11. **Termination.** SSLP may terminate this Agreement at any time by notice to Owner without further liability if SSLP does not obtain all permits or other approvals (collectively, "approval") required from any governmental authority or any easements required from any third party to operate the PCS system, or if any such approval is canceled, expires or is withdrawn or terminated, or if Owner fails to have proper ownership of the Site or authority to enter into this Agreement, or if SSLP, for any other reason, in its sole discretion, elects to terminate this Agreement. Upon termination, all prepaid rent will be retained by Owner unless such termination is due to Owner's failure of proper ownership or authority, or such termination is a result of Owner's default.

12. **Default.** If either party is in default under this Agreement for a period of (a) 15 days following receipt of notice from the non-defaulting party with respect to a default which may be cured solely by the payment of money, or (b) 30 days following receipt of notice from the non-defaulting party with respect to a default which may not be cured solely by the payment of money, then, in either event, the non-defaulting party may pursue any remedies available to it against the defaulting party under applicable law, including, but not limited to, the right to terminate this Agreement. If the non-monetary default may not reasonably be cured within a 30 day period, this Agreement may not be terminated if the defaulting party commences action to cure the default within such 30 day period and proceeds with due diligence to fully cure the default.

13. **Indemnity.** Owner and SSLP each indemnifies the other against and holds the other harmless from any and all costs (including reasonable attorneys' fees) and claims of liability or loss which arise out of the ownership, use and/or occupancy of the Site by the indemnifying party. This indemnity does not apply to any claims arising from the sole negligence or intentional misconduct of the indemnified party. The indemnity obligations under this Paragraph will survive termination of this Agreement.

14. **Hazardous Substances.** Owner represents that it has no knowledge of any substance, chemical or waste, oil or hazardous material (collectively, "Hazardous Substance") on the Site or any adjacent real estate owned by the Owner (collectively, "Premises") that is identified as hazardous, toxic or dangerous in any applicable federal, state or local law or regulation. Owner shall assess and remediate (if necessary) in compliance with all applicable laws and hereby indemnifies SSLP and holds SSLP harmless from any and all costs (including reasonable attorneys' fees) and claims of liability or loss which arise out of the presence of any Hazardous Substance on or migrating from the Premises at any time, other than those Hazardous Substances which were first released by SSLP upon the Premises. SSLP will not introduce or use any Hazardous Substance on the Site in violation of any applicable law. SSLP will assess and remediate (if necessary) in compliance with all applicable laws and hereby indemnifies Owner and holds Owner harmless from any and all costs (including reasonable attorneys' fees) and claims of liability or loss which arise out of the release of any Hazardous Substance by SSLP upon the Premises. Upon obtaining knowledge of a release or threat of release of any Hazardous Substance on the Premises, SSLP and the Owner shall each have the right to notify the applicable regulatory authorities thereof without the prior consent of the other party and to provide reasonable access to the Site to the employees, agents, and contractors of such agencies and all other persons conducting response actions in accordance with applicable law. The foregoing indemnifications shall survive any termination of this Agreement and shall be in addition to any other rights which Owner or SSLP may have under applicable law.

15. **Subordination and Non-Disturbance.** This Agreement is subordinate to any mortgage or deed of trust now of record against the

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER O'Grady Insurance Agency 117 Court Street Plymouth, MA 02360	CONTACT NAME:	
	PHONE (A/C No. Ext):	FAX (A/C No.):
	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	NAIC #
INSURED NETCOM WIRELESS FACILITIES 2, INC. 10 AERO PARK DR, UNIT 3 PLYMOUTH, MA 02360	INSURER A:	ESSEX INSURANCE CO
	INSURER B:	QUINCY MUTUAL
	INSURER C:	TORUS SPECIALTY INS. CO
	INSURER D:	LIBERTY MUTUAL FIRE INS CO
	INSURER E:	
	INSURER F:	

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSUR LTR	TYPE OF INSURANCE	ADD'L SUBR ENDR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-ECCT <input type="checkbox"/> LOC	Y Y	3DG5178	11/9/11	11/9/12	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Per occurrence) \$ 50,000 MED EXP (Any one person) \$ 1,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 1,000,000 \$
B	AUTOMOBILE LIABILITY  ANY AUTO ALLOWED AUTOS <input checked="" type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS	Y Y	AFV205857	2/22/12	2/22/13	COMBINED SINGLE LIMIT (Per accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
C	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR EXCESS LIAB CLAIMS-MADE  DED RETENTION S	Y Y	85215C120AL1	2/9/12	2/9/13	EACH OCCURRENCE \$ 4,000,000 AGGREGATE \$ 4,000,000 \$
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N N/A	WC5-31S-375622-022	2/18/12	2/18/13	WC STATUTORY LIMITS OTHER EL EACH ACCIDENT \$ 500,000 EL DISEASE - EA EMPLOYEE \$ 500,000 EL DISEASE - POLICY LIMIT \$ 500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)  
COSTROTTA CONSTRUCTION MANAGEMENT INC AND ALL OTHER PARTIES ARE REQUIRED BY CONTRACT ARE INCLUDED AS ADDITIONAL INSURED ON PRIMARY AND NONCONTRIBUTORY BASIS FOR ALL GENERAL LIABILITY AND AUTO LIABILITY. EXCESS LIABILITY FOLLOWS FORM OVER GENERAL LIABILITY, AUTO LIABILITY, AND EMPLOYER LIABILITY. A WAIVER OF SUBROGATION APPLIES TO ALL POLICIES IN FAVOR OF THE ADDITIONAL INSURED

CERTIFICATE HOLDER	CANCELLATION
	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE
	PATRICK O'GRADY

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Massachusetts - Department of Public Safety  
Board of Building Regulations and Standards

Construction Supervisor  
License: **CS-094261**



**CHARLES B ANTI**  
**100 BARNFIELD DRIVE**  
**PLYMOUTH MA 02360**

*Thomas D. Bligh*  
Commissioner

Expiration  
**10/29/2013**

# STRUCTURAL ANALYSIS REPORT

For

## BS43XC807

### ROOSEVELT ARMS PORTLAND

234 Stevens Avenue  
Portland, ME 04102

### Antennas inside a Ballasted FRP Chimney on the Roof; Equipment on the First Floor



Prepared for:

**Sprint**  
VISION

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MAHWAH, NJ 07495  
TEL: (800) 357-7641



**Alcatel-Lucent**

1 ROBBINS ROAD  
WESTFORD, MA 01886  
TEL: (978) 952-1600

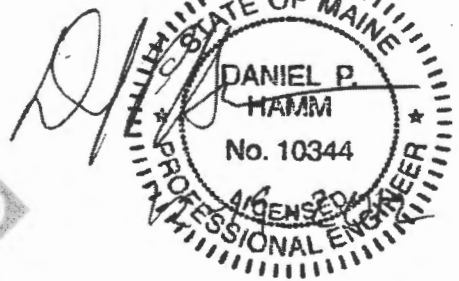
Dated:  
December 19, 2012

Prepared by:

**Hudson**  
Design Group LLC



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Dept. of Building Inspections  
City of Portland Maine





## SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by Sprint to conduct a structural evaluation of the structure supporting the proposed Sprint equipment located in the areas depicted in the latest HDG's construction drawings.

This report represents this office's findings, conclusions and recommendations pertaining to the support of Sprint's proposed equipment.

This office conducted an on-site visual survey of the above area on November 14, 2012. Attendees included Bradley Loeb (HDG-Associate).

## CONCLUSION SUMMARY:

Building Plans were not available and could not be obtained for our use. A previous set of construction drawings prepared by Bay State Design dated August 21, 2000 were available for our reference. A limited visual survey of the structure was completed in or near the areas of the Proposed Work.

*The structural analysis/PE certification completed by Hudson Design Group LLC (HDG) on behalf of ALU was inclusive of the equipment support structures, antenna masts, antenna mounts, and all other aspects of the structure applicable to the installation of the network vision antenna system and BTS and that the site will support the Sprint Network Vision Antennas and RRH's deployment for the interim and final equipment scenarios.*

### **Roof Structure:**

Based on our evaluation, we have determined that the roof **IS CAPABLE** of supporting the proposed antenna load.

**HDG was not able to confirm some of the roof support members at the time of our visit. No building plans or as-built drawings were available for our reference. HDG is under the assumption that the ballasted FRP chimney has been located over structurally adequate beams to support the existing/proposed loading. However, HDG recommends the client/contractor to verify the roof construction prior to any equipment installation**

**Reference sheet no. 5 of this report for additional limitations and assumptions. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible. Further design may be required.**

### **Equipment Support Floor:**

Based on our evaluation, we have determined that the existing equipment support floor **IS CAPABLE** of supporting the proposed Sprint equipment.

**HDG was not able to confirm the roof construction at the time of our visit. No building plans or as-built drawings were available for our reference. HDG is under the assumption that the existing hardwood floor was installed over a reinforced concrete slab. However, HDG recommends the client/contractor to verify the main floor construction prior to any equipment installation.**





A summary of the proposed support types and attachment locations are as follows:

**(3) New APXVSP18-C-A20 (800/1900 MHz) RFS antennas (One per sector) (Wt. = 57 lbs. /each)...**Mounted inside the existing FRP chimney.

**(3) FD-RRH-2x50-800 (1 per sector) (Wt. = 50 lbs. /each)...**Supported on a new ballasted frame.

**(3) FD-RRH-4x40-1900 (1 per sector) (Wt. = 50 lbs. /each)...**Supported on a new ballasted frame.

**(2) 60ECv2 Battery Back-Up Cabinet (Wt. = 2830 lbs. /each)...**Supported by the existing steel frame on the first floor.

**(1) Alcatel-Lucent 9928 Outdoor Cabinet (Wt. = 1390 lbs.)...**Supported by the existing steel frame on the first floor.

Referenced documents are attached.



**DESIGN CRITERIA:**

1. International Building Code 2009, ASCE 7-10 Minimum Design Loads for Buildings and Other Structures.

Wind Analysis:

Reference Wind Speed:	100 MPH	(FIG 26.5-1C; ASCE 7-10)
Category:	C	(26.7.3; ASCE 7 -10)
Gust Effect Factor (G):	0.85	(26.9.1; ASCE 7-10)
Force Coefficient (Cf):	Varies	(FIG 29.5-1 thru 29.5-3; ASCE 7-10)
$F = qz * G * Cf * Af:$		(Equation 29.5-1; ASCE 7-10)

Snow Loading:

Ground Snow Load (Pg):	50 psf	(FIG 7-1; ASCE 7-10)
Flat Roof Snow Load (Pf):	31.5 psf	
$Pf = 0.7 * Ce * Ct * I * Pg$		(Equation 7.3-1; ASCE 7-10).
$Ce=0.9; Ct=1.0; I=1.0$		

2. EIA/TIA -222- G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

County: Cumberland  
Wind Load: 100 mph

3. Approximate height above grade to antennas:

43.1' ±



#### **EXISTING ROOF CONSTRUCTION:**

The existing roof appears to consist of a roofing membrane and insulation over wood plank decking supported by a system of built-up knee walls, beams, columns and brick bearing walls. (Building plans were not available at the time of our site visit).

#### **ANTENNA SUPPORT RECOMMENDATIONS:**

HDG recommends the new antennas to be mounted inside the existing custom made non-penetrating ballast mount on the roof.

Roof reinforcement to support the antenna ballast mount was noted at the time of our site visit. HDG is under the assumption that these roof reinforcements were properly installed and adequately secured to the building structure.

#### **RRH SUPPORT RECOMMENDATIONS:**

HDG recommends that the new RRH's be mounted on new steel pipes secured to the proposed non-penetrating ballast mount.

Install the new ballast mount directly over the existing steel beam as shown in the attached sketch.

#### **EQUIPMENT CABINETS SUPPORT RECOMMENDATIONS:**

HDG recommends that the Alcatel-Lucent 9928 Outdoor Cabinet and Battery Back-Up Cabinets be supported by the existing steel frame on the first floor.

#### Limitations and assumptions:

1. Reference the latest HDG drawings for all equipment locations and details.
2. Mount all equipment per manufacturer's specifications.
3. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
4. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
5. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
6. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.
7. Mount all equipment per manufacturer's specifications.
8. HDG is under the assumption that roof reinforcements were properly installed and adequately secured to the building structure.

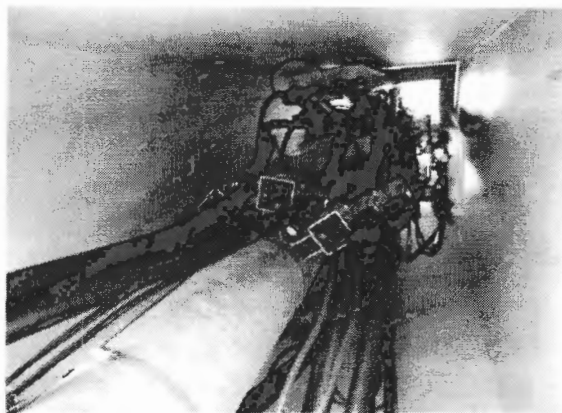
**ANTENNA LOCATIONS:**



**Photo 1:** Sample photo showing the existing ballasted chimney.



**Photo 2:** Sample photo showing the existing ballasted frame.

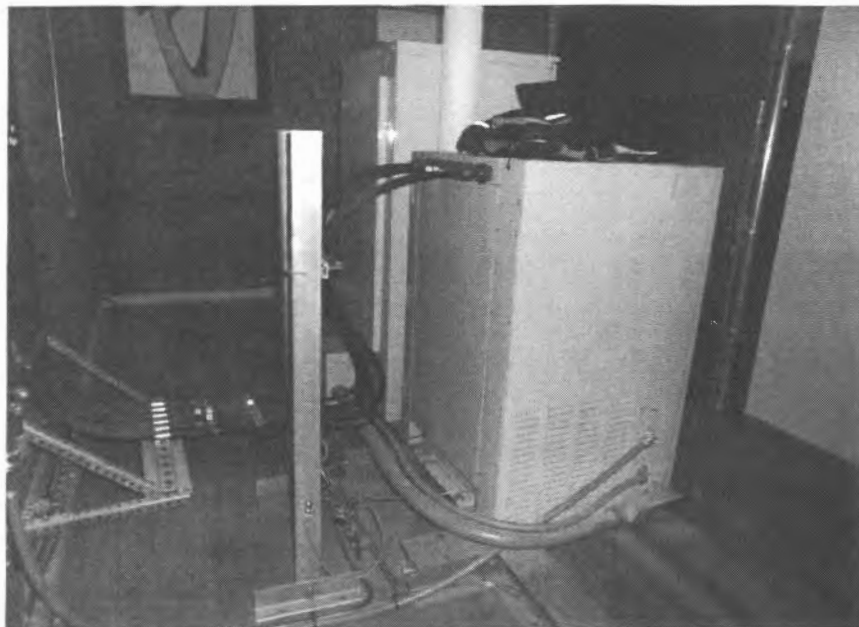


**Photo 3:** Sample photo showing the existing antennas.

**EXISTING EQUIPMENT:**



**Photo 4:** Sample photo showing the existing Sprint equipment platform.

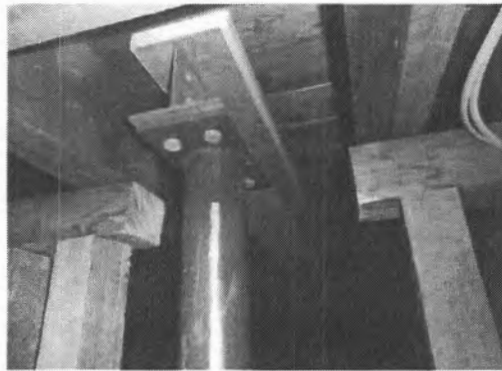


**Photo 5:** Sample photo showing the existing Sprint equipment.

**ROOF CONSTRUCTION:**



**Photo 6:** Sample photo showing the existing roof structure.



**Photo 7:** Sample photo showing the existing roof reinforcement.



**Photo 8:** Sample photo showing the existing roof reinforcement.



## Calculations

DATE: 12-18-12

Project Name: ROOSEVELT ARMS PORTLAND

Project No.: BS43XC 807

Design By: AA Chk'd By: MSC Page \_\_\_ of \_\_\_



• WIND LOAD ANALYSIS : → REFERENCE IBC 2009

- STRUCTURE CLASSIFICATION = CLASS II
- EXPOSURE CATEGORY = C
- BASIC WIND SPEED = 100 MPH

$$\begin{aligned} P_{net} &= q_s K_z C_{net} [I K_{zt}] \text{ (IBC 2009 - EQUATION 29.3-1)} \\ &= (0.00256)(100)^2 (1.055)(1.0452)(1)(1) \\ &= 28.23 \text{ PSF} \end{aligned}$$

• APPURTENANCE

- CHIMNEY = 18 FT x 3.5 FT → AREA = 63 FT<sup>2</sup>
- RRH 800 = 19.7" x 15" → AREA = 1.78 FT<sup>2</sup>
- RRH 1900 = 25.1" x 11.1" → AREA = 1.93 FT<sup>2</sup>

• WIND FORCE :  $F = P \times A$

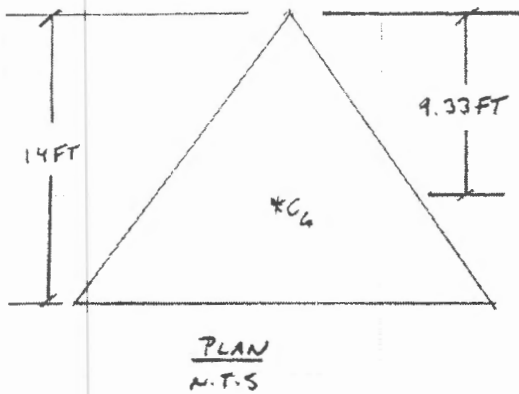
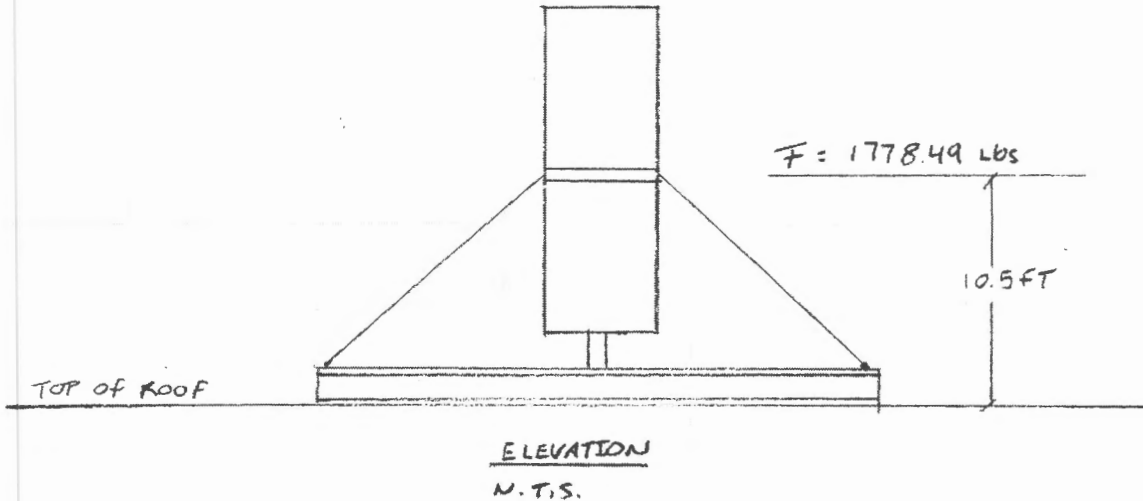
- CHIMNEY = 28.23 PSF x 63 FT<sup>2</sup> = 1778.49 lbs.
- RRH 800 = 28.23 PSF x 1.78 FT<sup>2</sup> = 112.14 lbs.
- RRH 1900 = 28.23 PSF x 1.93 FT<sup>2</sup> = 121.59 lbs.



DATE: 12-18-12  
 Project Name: ROOSEVELT ARMS PORTLAND  
 Project No.: BS 43YC 807  
 Design By: AA Chk'd By: MSC Page \_\_\_ of \_\_\_



• CHECK OVERTURNING MOMENT: → EXISTING CHIMNEY



$$M = 1778.49 \text{ Lbs} \times 10.5 \text{ FT}$$

$$= 18674.145 \text{ Lbs-FT}$$

$$\text{HOLD DOWN FORCE} = \frac{18674.145 \text{ Lbs-FT}}{9.33 \text{ FT}}$$

$$= 2001.53 \text{ Lbs/SIDE}$$

• BALLAST REQUIREMENTS:

• WEIGHT OF MOUNT:

- W8 X 21 (48 FT) = 1008 Lbs.
  - W6 X 20 (30 FT) = 600 LBS
  - (60) 8" X 8" X 16" SOLID BLOCKS = 4680 LBS.
  - (78 LBS/EA.):
  - MISCELLANEOUS = 200 LBS
- 
- = 6488 LBS

• 6488 LBS./3 SIDE = 2162.66 LBS/SIDE > 2001.53 LBS/SIDE ∴ O.K!

DATE: 12-18-12

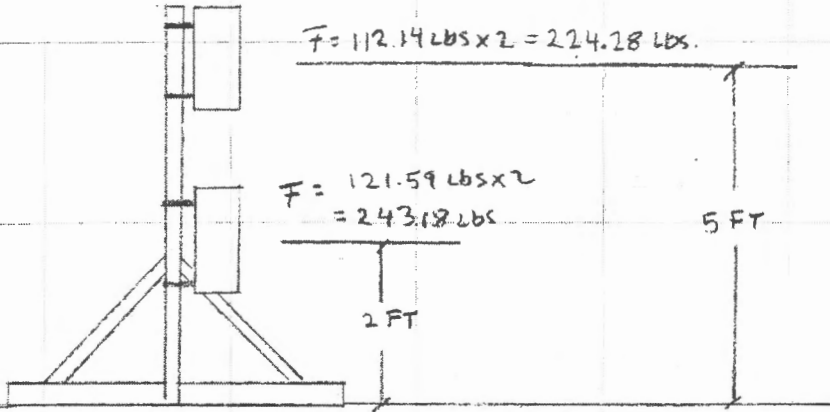
Project Name: ROOSEVELT ARMS PORTLAND

Project No.: BS43XC807

Design By: AA Chk'd By: MSC Page \_\_\_ of \_\_\_



• CHECK OVERTURNING MOMENT → (P) RRH BALLAST MOUNT



$$M = (243.18 \text{ lbs.} \times 2 \text{ FT}) + (224.28 \text{ lbs.} \times 5 \text{ FT})$$

$$= 1607.76 \text{ lbs-FT}$$

$$\text{HOLD DOWN FORCE} = \frac{1607.76 \text{ lbs-FT}}{5.5 \text{ FT}} = 292.32 \text{ lbs.}$$

• BALLAST REQUIREMENTS PER SIDE:

\* USE 4"X8"X16" SOLID BLOCKS ; 38 LBS./EA.

$$\frac{292.32 \text{ lbs.}}{38 \text{ lbs}} = 7.69$$

→ USE (8) BLOCKS PER SIDE.

→ TOTAL WEIGHT OF FRAME :

(16) 4"X8"X16" BLOCK (38 LBS./EA.)	= 608 lbs.
(6) RRH'S (50 LBS./EA.)	= 300 lbs.
FRAME	= 100 lbs.
	<u>= 1008 lbs.</u>



• CALCULATE LOAD ON ROOF:

- TOTAL WEIGHT OF FRAME = 6488 LBS.
  - PIPE MAST 6"  $\phi$  (18.97#/FT) = 341.46 LBS.
  - CHIMNEY = 1400 LBS.
- 
- = 7229.46 LBS.
- SAY 7600 LBS.

• CHECK ROOF SUPPORT BEAMS: → W12X26 A36 (ASSUMED)

- LIVE LOAD: → SNOW =  $\left(\frac{9.834 \text{ FT}}{2} + \frac{5.5 \text{ FT}}{2}\right) \times 31.5 \text{ PSF} = 241.5 \text{ PLF}$   
→ SAY 245 PLF
- DEAD LOAD: → ROOF =  $\left(\frac{9.834 \text{ FT}}{2} + \frac{5.5 \text{ FT}}{2}\right) \times 30 \text{ PSF} = 230 \text{ PLF}$

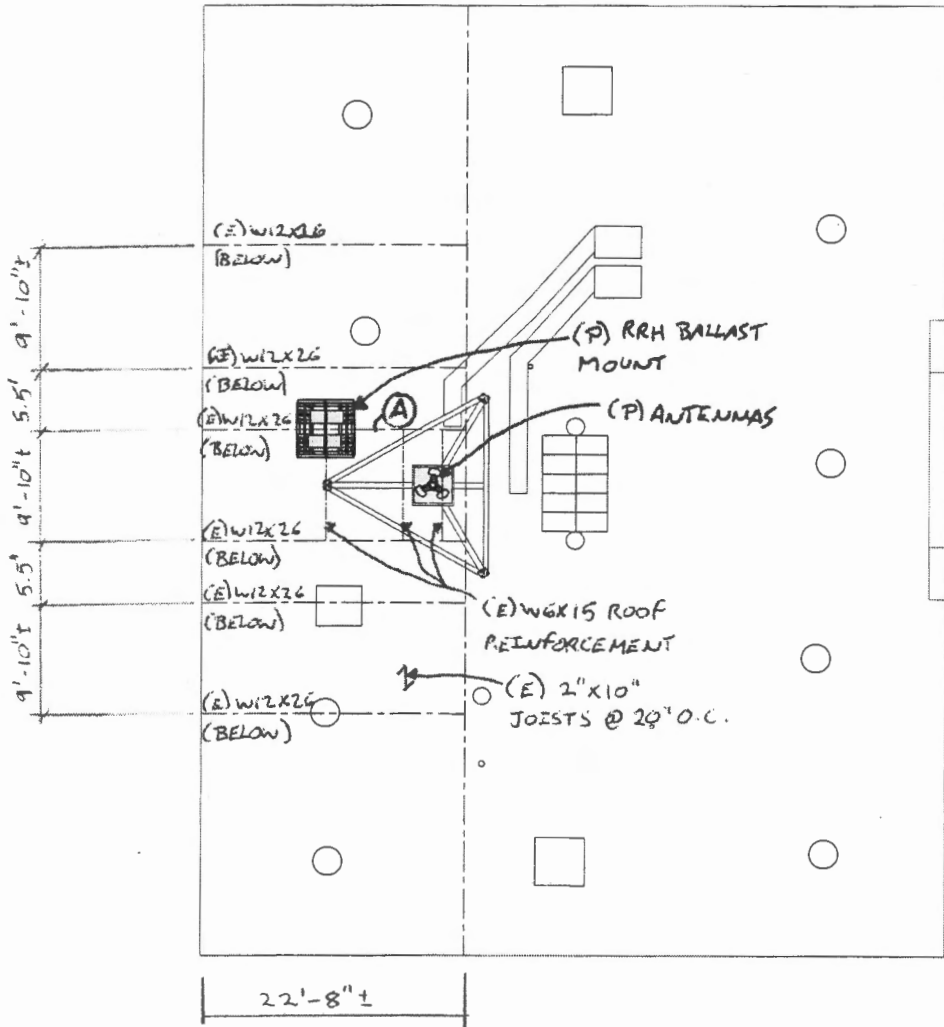
NOTES:

- (3) STEEL BEAMS WERE ADDED TO SUPPORT THE BALLASTED MOUNT. ASSUME THE TOTAL CALCULATED FRAME BE DIVIDED BY (6) POINT LOADS; (1) POINT LOAD AT EACH END

$$W_T = \frac{7600 \text{ LBS.}}{6} = 1266.66 \text{ LBS.}$$

- HDG COULD NOT VERIFY THE ABOVE MENTIONED ROOF BEAMS ATTACHMENTS. HDG IS UNDER THE ASSUMPTION THAT THESE BEAM ARE BEING SUPPORTED BY COLUMNS OR BEARING WALLS.

BS 43XC807  
12-19-12  
AA



1 PARTIAL ROOF FRAMING PLAN  
SK N.T.S.

Project: BS43XC807

Location: ROOF BEAM (ASSUMED) (A)

Multi-Loaded Multi-Span Beam

[2009 International Building Code(AISC 13th Ed ASD)]

A36 W12x26 x 22.83 FT

Section Adequate By: 48.6%

Controlling Factor: Moment

Andres Agudelo

Hudson Design Group LLC

1600 Osgood Street, Suite 3090, Bldg. 20N

North Andover, MA 01845

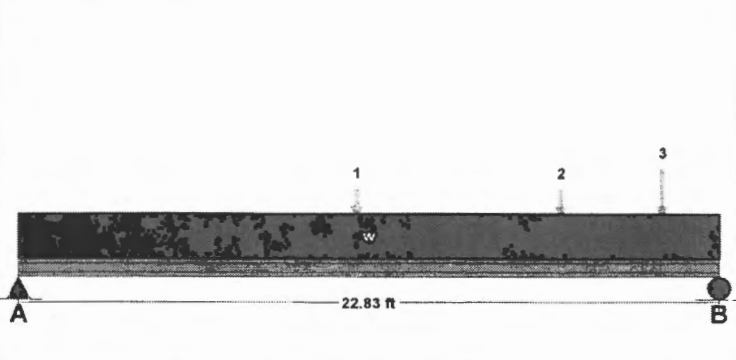
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**LOADING DIAGRAM**



DEFLECTIONS		Center
Live Load	0.25	IN L/1082
Dead Load	0.45	in
Total Load	0.71	IN L/388
Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240		

REACTIONS		A	B
Live Load	2797 lb	2797 lb	
Dead Load	4047 lb	6606 lb	
Total Load	6844 lb	9403 lb	
Bearing Length	0.68 in	0.68 in	

BEAM DATA		Center
Span Length	22.83	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	22.83	ft

**STEEL PROPERTIES**  
W12x26 - A36

Properties:

Yield Stress:	Fy =	36	ksi
Modulus of Elasticity:	E =	29000	ksi
Depth:	d =	12.2	in
Web Thickness:	tw =	0.23	in
Flange Width:	bf =	6.49	in
Flange Thickness:	tf =	0.38	in
Distance to Web Toe of Fillet:	k =	0.68	in
Moment of Inertia About X-X Axis:	Ix =	204	in4
Section Modulus About X-X Axis:	Sx =	33.4	in3
Plastic Section Modulus About X-X Axis:	Zx =	37.2	in3

Design Properties per AISC 13th Edition Steel Manual:

Flange Buckling Ratio:	FBR =	8.54
Allowable Flange Buckling Ratio:	AFBR =	10.79
Web Buckling Ratio:	WBR =	47.13
Allowable Web Buckling Ratio:	AWBR =	106.72
Controlling Unbraced Length:	Lb =	0 ft
Limiting Unbraced Length - for lateral-torsional buckling:	Lp =	6.29 ft
Nominal Flexural Strength w/ safety factor:	Mn =	66826 ft-lb
Controlling Equation:	F2-1	
Web height to thickness ratio:	h/tw =	47.13
Limiting height to thickness ratio for eqn. G2-2:	h/tw-limit =	63.58
Cv Factor:	Cv =	1
Controlling Equation:	G2-2	
Nominal Shear Strength w/ safety factor:	Vn =	40406 lb

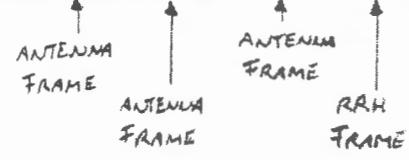
**Controlling Moment:** 44979 ft-lb  
 11.19 Ft from left support of span 2 (Center Span)  
 Created by combining all dead loads and live loads on span(s) 2

**Controlling Shear:** -9403 lb  
 23.0 Ft from left support of span 2 (Center Span)  
 Created by combining all dead loads and live loads on span(s)

Comparisons with required sections:	Req'd	Provided
Moment of Inertia (deflection):	126.26 in4	204 in4
Moment:	44979 ft-lb	66826 ft-lb
Shear:	-9403 lb	40406 lb

UNIFORM LOADS		Center
Uniform Live Load	245	plf
Uniform Dead Load	230	plf
Beam Self Weight	26	plf
Total Uniform Load	501	plf

POINT LOADS - CENTER SPAN				
Load Number	One	Two	Three	Four
Live Load	0 lb	0 lb	0 lb	0 lb
Dead Load	1267 lb	1267 lb	1267 lb	1008 lb
Location	11 ft	17.67 ft	21 ft	21 ft



**NOTES**

Project: BS43XC807

Location: SUPPORT MAST

Multi-Loaded Multi-Span Beam

[2009 International Building Code(AISC 13th Ed ASD)]

Pipe 6 Std. x 17.99 FT (8.2 + 9.8) / ASTM A53-GR.B

Section Adequate By: 67.5%

Controlling Factor: Deflection

Andres Agudelo

Hudson Design Group LLC

1600 Osgood Street, Suite 3090, Bldg. 20N

North Andover, MA 01845

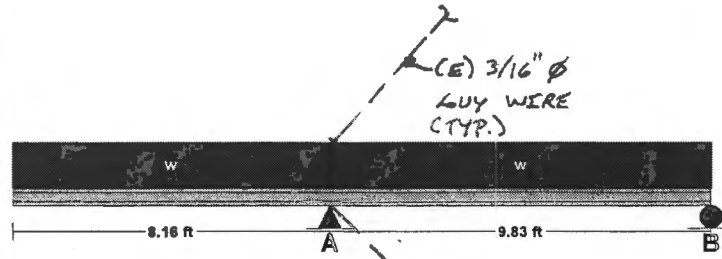
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**LOADING DIAGRAM**



**DEFLECTIONS**

	Left	Center
Live Load	0.32 IN 2L/604	-0.05 IN L/2542
Dead Load	0.05 in	0.00 in
Total Load	0.37 IN 2L/526	-0.05 IN L/2349
Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240		

**REACTIONS**

	A	B
Live Load	1646 lb	491 lb
Dead Load	314 lb	29 lb
Total Load	1961 lb	521 lb
Uplift (1.5 F.S)	0 lb	-319 lb
Bearing Length	0.52 in	0.52 in

**BEAM DATA**

	Left	Center
Span Length	8.16 ft	9.83 ft
Unbraced Length-Top	0 ft	0 ft
Unbraced Length-Bottom	8.16 ft	9.83 ft

**STEEL PROPERTIES**

Pipe 6 Std. - A53-GR.B

**Properties:**

Steel Yield Strength:	Fy =	42 ksi
Modulus of Elasticity:	E =	29000 ksi
Tube Steel Section (X Axis):	dx =	6.63 in
Tube Steel Section (Y Axis):	dy =	6.63 in
Tube Steel Wall Thickness:	t =	0.261 in
Area:	A =	5.22 in <sup>2</sup>
Moment of Inertia (X Axis):	Ix =	26.5 in <sup>4</sup>
Section Modulus (X Axis):	Sx =	7.99 in <sup>3</sup>
Plastic Section Modulus:	Z =	10.6 in <sup>3</sup>

**Design Properties per AISC 13th Edition Steel Manual:**

Flange Buckling Ratio:	FBR =	25.38
Allowable Flange Buckling Ratio:	AFBR =	48.33
Allowable Flange Buckling Ratio non-compact:	AFBR_NC =	214.05
Nominal Flexural Strength w/ Safety Factor:	Mn =	22216 ft-lb
Controlling Equation:	F8-1	
Shear Buckling Stress Coefficient Eqn. G6-2a:	Fcr =	25 ksi
Nominal Shear Strength w/ Safety Factor:	Vn =	39384 lb

**Controlling Moment:**

-3965 ft-lb

Over right support of span 1 (Left Span)

Created by combining all dead loads and live loads on span(s) 1, 2

**Controlling Shear:**

989 lb

At left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s)

**Comparisons with required sections:**

	Req'd	Provided
Moment of Inertia (deflection):	15.82 in <sup>4</sup>	26.5 in <sup>4</sup>
Moment:	-3965 ft-lb	22216 ft-lb
Shear:	989 lb	39384 lb

**UNIFORM LOADS**

	Left	Center
Uniform Live Load	100 plf	100 plf
Uniform Dead Load	0 plf	0 plf
Beam Self Weight	19 plf	19 plf
Total Uniform Load	119 plf	119 plf

LOAD BREAKDOWN:

LIVE LOAD

→ WIND = 3.5 FT X 28.23 PSF

= 98.8 PLF

SAY → 100 PLF

**NOTES**



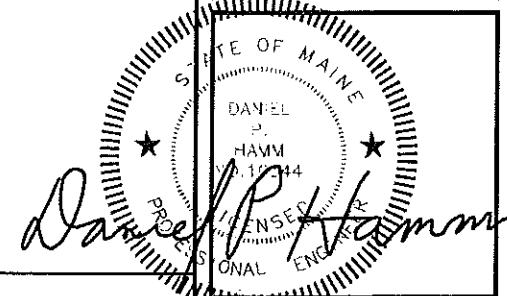
**NOTE:**  
OWNER AND TENANT MAY, FROM TIME TO TIME AT TENANT'S OPTION, REPLACE THIS EXHIBIT WITH AN EXHIBIT SETTING FORTH THE LEGAL DESCRIPTION OF THE SITE, OR WITH ENGINEERED OR AS-BUILT DRAWING DEPICTING THE SITE OR ILLUSTRATING STRUCTURAL MODIFICATIONS OR CONSTRUCTION PLANS OF THE SITE. ANY VISUAL OR TEXTUAL REPRESENTATION OF THE EQUIPMENT LOCATED WITHIN THE SITE CONTAINED IN THESE OTHER DOCUMENTS IS ILLUSTRATIVE ONLY, AND DOES NOT LIMIT THE RIGHTS OF SPRINT AS PROVIDED FOR IN THE AGREEMENT. THE LOCATIONS OF ANY ACCESS AND UTILITY EASEMENTS ARE ILLUSTRATIVE ONLY. ACTUAL LOCATIONS MAY BE DETERMINED BY TENANT AND/OR THE SERVICING UTILITY COMPANY IN COMPLIANCE WITH LOCAL LAWS AND REGULATIONS.

**Sprint**  
NETWORK VISION MMBTS LAUNCH  
1 INTERNATIONAL BLVD, SUITE 800  
MAHWAH, NJ 07475  
TEL: (800) 337-7441

**Alcatel-Lucent**  
1 ROSBANS ROAD  
WESTFORD, MA 01884  
TEL: (978) 932-1600

**Hudson Design Group**  
1600 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 3090  
N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

"NETWORK VISION MMBTS LAUNCH"  
"MARKET NAME:VT-NH-ME"  
SITE NUMBER:  
**BS43XC807**  
SITE NAME:  
**ROOSEVELT ARMS PORTLAND**  
SITE ADDRESS:  
**234 STEVENS AVENUE  
PORTLAND, ME 04102**



**SITE INFORMATION**

SITE NUMBER:	BS43XC807	LOCAL POWER COMPANY:	CENTRAL MAINE POWER CO. 162 CANCO RD. PORTLAND, ME 04103
SITE NAME:	ROOSEVELT ARMS PORTLAND	LOCAL TELCO COMPANY:	VERIZON 513 WARREN AVE. PORTLAND, ME 04103
SITE ADDRESS:	234 STEVENS AVENUE PORTLAND, ME 04102	APPLICANT:	SPRINT 1 INTERNATIONAL BLVD, SUITE 800 MAHWAH, NJ 07495
COUNTY:	CUMBERLAND	APPLICANT REPRESENTATIVE:	ALCATEL-LUCENT 1 ROBBINS ROAD WESTFORD, MA 01886 (978)952-1600
ZONING:	R5	SITE ACQUISITION CONSULTANT:	ALCATEL-LUCENT 1 ROBBINS ROAD WESTFORD, MA 01886 (978)952-1600
PARCEL ID:	177 G004	A&E CONSULTANT:	HUDSON DESIGN GROUP LLC 1600 OSGOOD STREET BLDG 20 NORTH, SUITE 3090 NORTH ANDOVER, MA 01845 TEL: (978) 557-5553 FAX: (978) 336-5586
COORDINATES:	43° 39' 58.69" N 70° 17' 46.57" W		
GROUND ELEV:	94'± (AMSL)		
STRUCTURE TYPE:	ROOFTOP		
STRUCTURE HEIGHT:	35'± (AGL)		
ANTENNA RAD CENTER:	43.1'± (AGL)		
PROPERTY/STRUCTURE OWNER:	ROOSEVELT ARMS CONDOS 218-232 STEVENS AVENUE PORTLAND, ME 04102		

**VICINITY MAP**



**DIRECTIONS FROM MAHWAH, NJ:**  
HEAD NORTH ON INTERNATIONAL BLVD/PARK ST TOWARD QUEENSLAND RD. CONTINUE TO FOLLOW INTERNATIONAL BLVD. TAKE THE 3RD RIGHT ONTO PARK LN CONTINUE STRAIGHT ONTO LEISURE LN. CONTINUE ONTO NJ-17 N. TAKE THE NEW JERSEY 17 INTERSTATE 287 N EXIT TOWARD INTERSTATE 87/NORTH NY THRUWAY. KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR I-287 N/NJ-17 N/N Y. THRUWAY AND MERGE ONTO I-287 N/NJ-17 ENTERING NEW YORK. KEEP RIGHT AT THE FORK, FOLLOW SIGNS FOR I-87 S/I-287/TAPPAN ZEE BR/NEW YORK CITY/NEW YORK THRUWAY AND MERGE ONTO I-287 E/I-87 S CONTINUE TO FOLLOW I-287 E. TAKE THE EXIT ONTO I-95 N ENTERING CONNECTICUT. TAKE EXIT 48 ON THE LEFT TO MERGE ONTO I-91 N TOWARD HARTFORD. TAKE EXIT 29 TO MERGE ONTO CT-15 NUS-5 N TOWARD I-84 E/E HARTFORD/BOSTON. CONTINUE ONTO CT-15 N. MERGE ONTO I-84 E. KEEP RIGHT AT THE FORK, FOLLOW SIGNS FOR I-90 E/N.H. - MAINE/BOSTON AND MERGE ONTO I-90 E. TAKE EXIT 10 TOWARD AUBURN/WORCESTER. FOLLOW SIGNS FOR I-290 E/WORCESTER AND MERGE ONTO I-290 E. TAKE EXIT 268 ON THE LEFT FOR INTERSTATE 495 N TOWARD LOWEL. MERGE ONTO I-495 N. MERGE ONTO I-95. TAKE EXIT 47 FOR RAND RD/ME-25 TOWARD WESTBROOK ARTERIAL. TURN RIGHT ONTO ME-25 E/RAND RD. TURN RIGHT ONTO BRIGHTON AVE. TURN RIGHT ONTO STEVENS AVE. DESTINATION WILL BE ON THE RIGHT

**SHEET INDEX**

SHEET NO.	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
A-1	ROOF PLAN AND EQUIPMENT PLANS
A-2	ELEVATION & ANTENNA SCENARIO
A-3	DETAILS
A-4	RF DATA SHEET
A-5	CABINET & ANTENNA WIRING DIAGRAM
S-1	STRUCTURAL DETAILS
E-1	TYPICAL POWER & GROUNDING ONE LINE DIAGRAM
AAV	SEE AAV SHEETS

**APPROVALS**

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

SPRINT:	DATE:
ALU CONSTRUCTION MANAGER:	DATE:
ALU LEASING/SITE ACQUISITION:	DATE:
ALU RF ENGINEER:	DATE:
LANDLORD/PROPERTY OWNER:	DATE:

**GENERAL NOTES**

- THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:  
- HANDICAPPED ACCESS NOT REQUIRED  
- POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED  
- NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED
- CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
- DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.  
BUILDING CODE: IBC 2009  
ELECTRICAL CODE: 2005 NATIONAL ELECTRICAL CODE  
STRUCTURAL CODE: TAVEIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS

**SCOPE OF WORK**

- INSTALL FIBER DISTRIBUTION BOX WITHIN EXISTING LEASE AREA. REPLACE EXISTING MOD CELL WITH (1) MM-BTS CABINET & REPLACE EXISTING DC PLANT WITH (2) BBU CABINETS.
- REMOVE (3) EXISTING CDMA ANTENNAS REPLACE WITH (3) NETWORK VISION ANTENNAS & (6) RRR'S.
- REMOVE EXISTING CDMA COAX CABLES & INSTALL (3) HYBRIFLEX CABLES FROM EQUIPMENT CABINET TO ANTENNA.
- REMOVE EXISTING GPS ANTENNA AND REPLACE WITH NEW GPS ANTENNA.
- EXISTING LOCAL EXCHANGE CARRIER LANDLINE BACKHAUL FACILITIES TO BE REPLACED WITH PROPOSED ALTERNATIVE ACCESS VENDOR (AAV) FIBER OPTIC FACILITIES INCLUDING PROPOSED OVERHEAD/UNDERGROUND CONDUITS AND NETWORK INTERFACE DEVICE.

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
2	01/23/13	FOR CONSTRUCTION	SF
1	12/27/12	ISSUED FOR REVIEW	MA

SITE NUMBER:  
**BS43XC807**  
SITE NAME:  
**ROOSEVELT ARMS  
PORTLAND**  
SITE ADDRESS:  
**234 STEVENS AVENUE  
PORTLAND, ME 04102**

SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER  
**T-1**



DIVISION 01000 - GENERAL REQUIREMENTS

PART 1 - GENERAL

REFER TO SPRINT STANDARD CONSTRUCTION SPECIFICATIONS. IN CASE OF A CONFLICT, SPRINT STANDARD CONSTRUCTION SPECIFICATIONS (LATEST EDITION) SHALL BE FOLLOWED.

PART 2 - GENERAL NOTES

- THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
- THE ARCHITECT/ENGINEER HAS MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
- THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) SPRINT'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.
- THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
- THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE THEMSELVES WITH THE FIELD CONDITIONS AND VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS.
- THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS / CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- THE CONTRACTOR SHALL MAINTAIN A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE OF ALL PERSONNEL INVOLVED WITH THE PROJECT.
- 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 THE CONTRACT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
- THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING SITE CONDITIONS DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
- THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE ALL UNNECESSARY MATERIAL.
- THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE STATE BASIC BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT/ENGINEER.
- THE CONTRACTOR SHALL NOTIFY SPRINT'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL THE CONFLICT IS RESOLVED BY SPRINT'S REPRESENTATIVE.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
- THE CONTRACTOR SHALL NOTIFY THE RF ENGINEER FOR ANTENNA AZIMUTH VERIFICATION (DURING ANTENNA INSTALLATION) PRIOR TO CONDUCTING SITE SWEEPING.
- THE GENERAL CONTRACTOR SHALL IN ALL INSTANCES CONFORM TO THE SPECIFICATIONS ISSUED BY SPRINT.
- PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS OR RISERS THROUGH THE BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT STRUCTURAL ENGINEER'S APPROVAL. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE PACKED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE STRUCTURE. FILL FOR FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.

CONCRETE

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION

WORK INCLUDES CONSTRUCTION OF CAST-IN-PLACED CONCRETE FOUNDATIONS, INCLUDING FURNISHING AND INSTALLING READY-MIX CONCRETE, REINFORCING, FORMWORK, AND ACCESSORY MATERIALS AS SHOWN ON THE DRAWINGS. CAST-IN-PLACED CONCRETE INCLUDES ALL SITE CONCRETE, INCLUDING FOUNDATIONS, SLABS ON GRADE, EQUIPMENT PADS, AND GUARD POST FOUNDATIONS.

1.02 RELATED WORK

- A. COORDINATE UNDER SLAB CONDUITS
- B. COORDINATE WITH GROUNDING

1.03 APPLICABLE STANDARDS

- A. ACI-301 - SPECIFICATIONS FOR STRUCTURAL CONCRETE BUILDINGS.
- B. ACI 347 - GUIDE TO FORMWORK FOR CONCRETE.
- C. ASTM C33 - CONCRETE AGGREGATES
- D. ASTM C94 - READY-MIXED CONCRETE
- E. ASTM C150 - PORTLAND CEMENT
- F. ASTM C260 - AIR-ENTRAINING ADMIXTURES FOR CONCRETE.
- G. ASTM C309 - LIQUID MEMBRANE FORMING COMPOUNDS FOR CURING CONCRETE.
- H. ASTM C494 - CHEMICAL ADMIXTURES FOR CONCRETE.
- I. ASTM A815 - DEFORMED STEEL BARS FOR CONCRETE REINFORCEMENT.
- J. ASTM A185 - STEEL WELDED WIRE FABRIC FOR CONCRETE REINFORCEMENT

1.04 QUALITY ASSURANCE

CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS DIRECTED BY SPRINT.

1.05 TESTS

CONCRETE TESTS SHALL BE AS DETAILED BELOW OR AS DIRECTED BY SPRINT. CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS THE WORK PROGRESSES. FAILURE TO DETECT ANY DEFECTIVE WORK OR MATERIAL SHALL NOT IN ANY WAY PREVENT LATER REJECTION WHEN SUCH DEFECT IS DISCOVERED NOR SHALL IT OBLIGATE THE ENGINEER FOR FINAL ACCEPTANCE.

A. THREE CONCRETE TEST CYLINDERS SHALL BE TAKEN OF THE TOWER PIER FOUNDATION. ONE SHALL BE TESTED @ THREE DAYS, ONE @ TWENTY-EIGHT DAYS. THE THIRD CYLINDER SHALL BE KEPT SEPARATELY. (IF REQUIRED TO BE USED IN THE FUTURE.)

B. ONE SLUMP TEST SHALL BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN. SLUMP SHALL NOT EXCEED 4" UNLESS OTHERWISE NOTED.

PART 2 - PRODUCT

2.01 CONCRETE MATERIALS

CONCRETE SHALL BE COMPOSED OF PORTLAND CEMENT, WATER, FINE AND COARSE AGGREGATES, AND ADMIXTURES AS SPECIFIED BELOW, ALL WELL MIXED AND BROUGHT TO PROPER CONSISTENCY, CLASS I, II, III, OR V.

- A. CEMENT: CEMENT SHALL BE TYPE II, GRAY COLOR, LOW-ALKALI PORTLAND CEMENT CONFORMING TO ASTM C150.
- B. FINE AND COARSE AGGREGATES: AGGREGATES FOR USE IN CONCRETE SHALL COMPLY WITH ASTM C33.
- C. WATER: WATER FOR MIXING AND CURING CONCRETE SHALL BE FREE FROM SEWAGE, OIL, ACID, ALKALI, AND SALTS AND SHALL BE FREE FROM OBJECTIONABLE QUANTITIES OF SILT, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES.

2.02 ADMIXTURES

A. CHEMICAL ADMIXTURE: ASTM C494, TYPE A - WATER REDUCING OR TYPE D - WATER REDUCING AND RETARDING.

2.03 CURING COMPOUND: ASTM C309, TYPE I, CLASS B; TRANSLUCENT.

2.04 ACCESSORIES

- A. NONSHRINK GROUT: PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS; CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE STRENGTH OF 7,000 PSI IN 28 DAYS.
- B. JOINT FILLER: BITUMINOUS TYPE, ASTM D1751 OR NON-BITUMINOUS TYPE ASTM D1752.
- C. ANCHOR BOLTS: ASTM A307, UNPRIMED.

2.05 CONCRETE MIX

- A. CONCRETE SHALL BE PROPORTIONED PER REQUIREMENTS OF ACI 301 & SPRINT CONSTRUCTION SPECIFICATIONS FOR DESIGN STRENGTH & WORKABILITY. CONCRETE SHALL BE DELIVERED WITHIN 45 MINUTES OF ADDITION OF WATER TO MIX.
- B. THE FOLLOWING STRENGTHS SHALL BE USED:
  - FENCE POST FOUNDATIONS - DESIGN COMPRESSIVE STRENGTH AT 28 DAYS OF 3,000 PSI.
  - EQUIPMENT FOUNDATION - DESIGN COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS UNLESS OTHERWISE NOTED. (CONTRACTOR FURNISH 4,000 PSI CONCRETE).
  - CONCRETE STRENGTH FOR MONOPILE OR TOWER FOUNDATION SHALL BE 1,000 PSI MORE THAN THE MANUFACTURER'S RECOMMENDATIONS, 4,000 PSI MINIMUM.

- C. USE ACCELERATING ADMIXTURES IN COLD WEATHER AND RETARDING ADMIXTURES IN HOT WEATHER ONLY WHEN APPROVED BY THE ENGINEER.
- D. TOTAL AIR CONTENT SHALL BE 5 PERCENT PLUS OR MINUS 1 PERCENT.

PART 3 - EXECUTION

3.01 INSPECTION

THE CONTRACTOR SHALL VERIFY ANCHORS, SEATS, PENETRATIONS, PLATES, REINFORCEMENT, AND OTHER ITEMS TO CAST INTO CONCRETE ARE ACCURATELY PLACED, HELD SECURELY, AND SHALL NOT CAUSE HARDSHIP IN PLACING CONCRETE.

3.02 PREPARATION

A. THE CONTRACTOR SHALL PREPARE PREVIOUSLY PLACED CONCRETE BY CLEANING WITH STEEL BRUSH AND APPLYING BONDING AGENT. APPLY BONDING AGENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

3.03 PLACING CONCRETE

A. THE ENGINEER SHALL BE NOTIFIED NOT LESS THAN 24 HOURS IN ADVANCE OF CONCRETE PLACEMENT. UNLESS INSPECTION IS WAIVED IN EACH CASE, PLACING OF CONCRETE SHALL BE PERFORMED ONLY IN THE PRESENCE OF THE ENGINEER.

CONCRETE SHALL NOT BE PLACED UNTIL ALL FORM WORK, EMBEDDED PARTS, STEEL REINFORCEMENT, FOUNDATION SURFACES, AND JOINTS INVOLVED IN THE PLACING HAVE BEEN APPROVED, AND UNTIL FACILITIES ACCEPTABLE TO THE SPRINT REPRESENTATIVE HAVE BEEN PROVIDED AND MADE READY FOR ACCOMPLISHMENT OF THE WORK AS SPECIFIED. CONCRETE MAY NOT BE ORDERED FOR PLACEMENT UNTIL ALL ITEMS HAVE BEEN APPROVED AND SPRINT HAS PERFORMED A FINAL INSPECTION AND GIVEN APPROVAL TO START PLACEMENT IN WRITING.

B. UNLESS SPECIFIED TO BE BEVELED, EXPOSED EDGES OF FLOATED OR TROWELED SURFACES SHALL BE EDGED WITH A TOOL HAVING A 1/4" CORNER RADIUS.

C. PLACEMENT OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301.

D. THE CONTRACTOR SHALL ENSURE THAT REINFORCEMENT, INSERTS, EMBEDDED PARTS, FORMED JOINTS AND VAPOR BARRIERS ARE NOT DISTURBED DURING CONCRETE PLACEMENT.

E. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
 

- CONCRETE CAST AGAINST EARTH.....3 IN.
- CONCRETE EXPOSED TO EARTH OR WEATHER:
  - #6 AND LARGER.....2 IN.
  - #5 AND SMALLER.....1 1/2 IN.
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND.
  - SLAB AND WALL.....3/4 IN.
  - BEAMS AND COLUMNS.....1 1/2 IN.

3.04 SURFACE FINISHES

A. SURFACES AGAINST WHICH BACK FILL OR CONCRETE SHALL BE PLACED REQUIRE NO TREATMENT EXCEPT REPAIR OF DEFECTIVE AREAS.

B. SURFACES THAT WILL BE PERMANENTLY EXPOSED SHALL PRESENT UNIFORM FINISH PROVIDED BY THE REMOVAL OF FINE AND THE FILING OF HOLES AND OTHER IRREGULARITIES WITH DRY PACK GROUT, OR BY SACKING WITH UTILITY OR ORDINARY GROUT.

C. SURFACES THAT WOULD NORMALLY BE LEVEL AND WHICH WILL BE PERMANENTLY EXPOSED TO THE WEATHER SHALL BE SLOPED FOR DRAINAGE. UNLESS ENGINEER'S DESIGN DRAWING SPECIFIES A HORIZONTAL SURFACE OR SHOWS THE SLOPE REQUIRED, THE TOPS OF NARROW SURFACES, SUCH AS STAIR TREADS, WALLS, CURBS, AND PARAPETS SHALL BE SLOPED APPROXIMATELY 3/8" / FT OF WIDTH. BROADER SURFACES SUCH AS WALKS, ROADS, PARKING AREAS AND PLATFORMS SHALL BE SLOPED APPROXIMATELY 1/4" / FT.

D. SURFACES THAT WILL BE COVERED BY BACKFILL OR CONCRETE SHALL BE SMOOTH SCREEDED.

E. EXPOSED SLAB SURFACES SHALL BE CONSOLIDATED, SCREEDED, FLOATED, AND "STEEL TROWELED." HAND OR POWER-DRIVEN EQUIPMENT MAY BE USED FOR FLOATINGS WHICH SHALL BE STARTED AS SOON AS THE SCREEDED SURFACE HAS ATTAINED A STIFFNESS TO PERMIT FINISHING OPERATIONS. ALL EDGES MUST HAVE A 3/4" CHAMFER. CONCRETE EXPANSION ANCHORS AND EPOXY ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS, SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. MANUFACTURER'S MINIMUM CONCRETE EDGE DISTANCE SHALL BE MAINTAINED DURING INSTALLATION.

3.05 PATCHING

THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON REMOVAL OF THE FORMS TO OBSERVE CONCRETE SURFACE CONDITIONS. IMPERFECTIONS SHALL BE PATCHED ACCORDING TO THE ENGINEER'S DIRECTION.

3.06 DEFECTIVE CONCRETE

THE CONTRACTOR SHALL MODIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LEVELS AND LINES, DETAILS, AND ELEVATIONS AS SPECIFIED IN ACI 301.

3.07 PROTECTION

- A. IMMEDIATELY AFTER PLACEMENT, THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY. FINISHED WORK SHALL BE PROTECTED.
- B. CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.

C. ALL CONCRETE SHALL BE WATER CURED PER ACCEPTABLE PRACTICES SPECIFIED BY ACI CODE.

METALS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. THE WORK CONSISTS OF THE FABRICATION AND INSTALLATION OF ALL MATERIALS TO BE FURNISHED, AND WITHOUT LIMITING THE GENERALITY THEREOF, INCLUDES ALL EQUIPMENT, LABOR AND SERVICES REQUIRED FOR ALL STRUCTURAL STEEL WORK, INCLUDING ALL ITEMS INCIDENTAL THERETO AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS. INCLUDING:

- 1. STEEL FRAMING INCLUDING BEAMS, ANGLES, CHANNELS AND PLATES.
- 2. WELDING AND BOLTING OF ATTACHMENTS.

1.02 REFERENCE STANDARDS

A. THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER CITED HEREIN:

- 1. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS, AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS IN BUILDING CODES"
- 2. AWS: AMERICAN WELDING SOCIETY INC., AS PUBLISHED IN "STANDARD D1.1-2008, STRUCTURAL WELDING CODE"
- 3. AISI: AMERICAN INSTITUTE FOR STEEL CONSTRUCTION, AS PUBLISHED IN "CODE FOR STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".

4. EIA/ITA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA SUPPORTING STRUCTURES.

PART 2 - STRUCTURAL NOTES

ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND SPRINT SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-A992-50 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION". MSO. STEEL TO BE A36.

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, ANS/ITA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA SUPPORTING STRUCTURES.

2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.

3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".

4. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE A, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.

5. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". UNLESS OTHERWISE NOTED, ALL BOLTS SHALL BE 5/8" DIA TYPE X.

6. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.

7. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.

8. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 85 PERCENT ZINC BY WEIGHT, ZINC BY DRYWEIGHT GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.

9. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING, ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 13TH EDITION.

10. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.

11. UNISTRUTS SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA. UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION FOR EXTERNAL USE APPLICATIONS.

12. UNLESS OTHERWISE NOTED, EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF 1/2" DIAMETER STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND AN EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HLT-HIT HY-20 AND OR HY-150 SYSTEMS (AS SPECIFIED ON DWG.) OR ENGINEERS APPROVED EQUAL WITH 4-1/4" MIN. EMBEDMENT DEPTH.

13. UNLESS OTHERWISE NOTED, EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4. CLASS I, HLT-KWK BOLT II OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE THREE AND ONE HALF (3 1/2) INCHES.

14. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY.

WOOD

- 1. PLYWOOD SHALL MEET THE RECOMMENDATIONS OF THE A.P.A.
- 2. ALL LUMBER SHALL BE SPRUCE-PINE-FIR (SPF) #1 GRADE.
- 3. ALL LUMBER SHALL BE PRESSURE TREATED WITH PRESERVATIVES. ALLOWABLE BENDING STRESS: fb min = 1,000 PSI. MODULUS OF ELASTICITY: 1.6x10<sup>6</sup> PSI
- 4. ALL JOIST HANGERS, CLIP ANGLES AND PLATES TO BE HEAVY GALVANIZED AS MANUFACTURED BY SIMPSON CO., OR APPROVED EQUAL.
- 5. ALL LUMBS TO BE MANUFACTURED BY BOSE CASCADE OR APPROVED EQUAL.

SPECIAL CONSTRUCTION ANTENNA INSTALLATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. ANTENNAS AND COAXIAL CABLES SHALL BE AS SPECIFIED ON THESE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND PROPERTY. STRICT ADHERENCE TO OSHA STANDARDS IS MANDATED.

B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND SPRINT SPECIFICATIONS.

C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.

D. INSTALL COAXIAL CABLES AND TERMINATION'S BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY POINT LOCATION UNLESS OTHERWISE STATED.

E. ANTENNA MOUNTS AND HARDWARE SHALL BE PAINTED TO MATCH EXISTING CONDITIONS.

F. ANTENNA AND COAXIAL CABLE GROUNDING:

- 1. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED.
- 2. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

ROOF WORK

1. IF ROOF WORK IS REQUIRED, CAUTION SHALL BE EXERCISED WHILE WORKING ON THE ROOF. EVERY EFFORT MUST BE MADE TO PRESERVE THE ROOF WARRANTY.

2. WHEN ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE THE WORK WITH THE BUILDING OWNER AND THE EXISTING ROOFING INSTALLER.

RELATED WORK (ROOF TOP SITES)

FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH OTHER TRADES PRIOR TO BID:

- 1. FLASHING OF OPENING INTO OUTSIDE WALLS
- 2. SEALING AND CAULKING ALL OPENINGS
- 3. PAINTING
- 4. CUTTING AND PATCHING

1.03 REQUIREMENTS OR REGULATOR AGENCIES

A. FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.

B. INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATION IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES, AND SPECIAL CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

- 1. EIA/ITA - ELECTRONIC INDUSTRIES ASSOCIATION RS - 222, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- 2. FAA - FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70/7460-11, OBSTRUCTION MARKING AND LIGHTING.
- 3. FCC - FEDERAL COMMUNICATIONS COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES AND FORM 715A, HIGH INTENSITY OBSTRUCTION LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES.
- 4. NEC - NATIONAL ELECTRICAL CODE
- 5. UL - UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.
- 6. IN ALL CASES, PART 77 OF THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.

IF ASSUMED EXISTING CONDITION DIFFERS, ENGINEER MUST BE INFORMED OF ACTUAL FIELD CONDITION. SUBCONTRACTOR TO VERIFY EXISTING DIMENSIONS PRIOR TO STEEL FABRICATION.

NETWORK VISION MARRIUS LAUNCH  
1 INTERNATIONAL BLVD, SUITE 800  
MAYHAW, MA 01915  
TEL: (800) 357-7641

1 ROSSB'S ROAD  
WESTFORD, MA 01886  
TEL: (978) 352-1600

1800 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 3090  
N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 535-5554

STATE OF MAINE  
DANIEL P. HAMM  
PROFESSIONAL ENGINEER  
LICENSE NO. 10144

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
2	01/23/13	FOR CONSTRUCTION	SF
1	12/27/12	ISSUED FOR REVIEW	MA

SITE NUMBER:  
BS43XC807

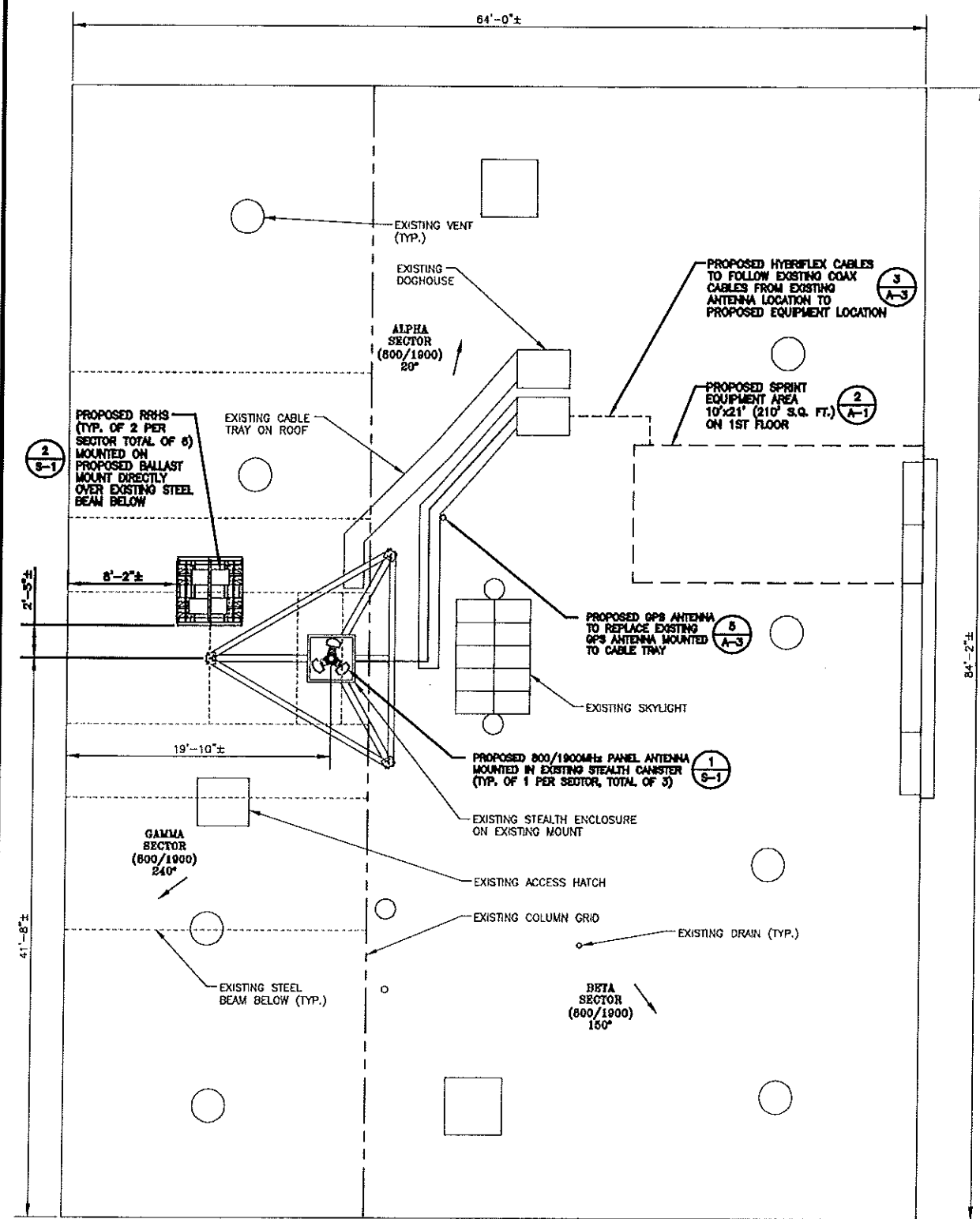
SITE NAME:  
ROOSEVELT ARMS  
PORTLAND

SITE ADDRESS:  
234 STEVENS AVENUE  
PORTLAND, ME 04102

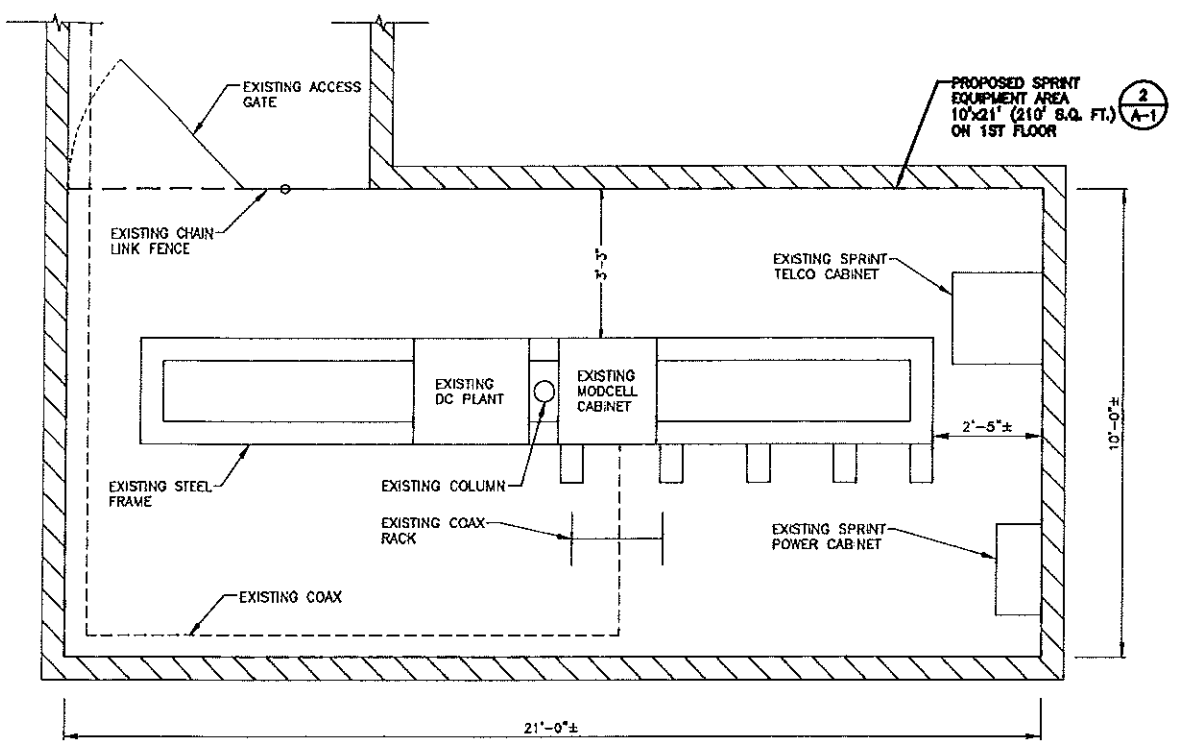
SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
GN-1

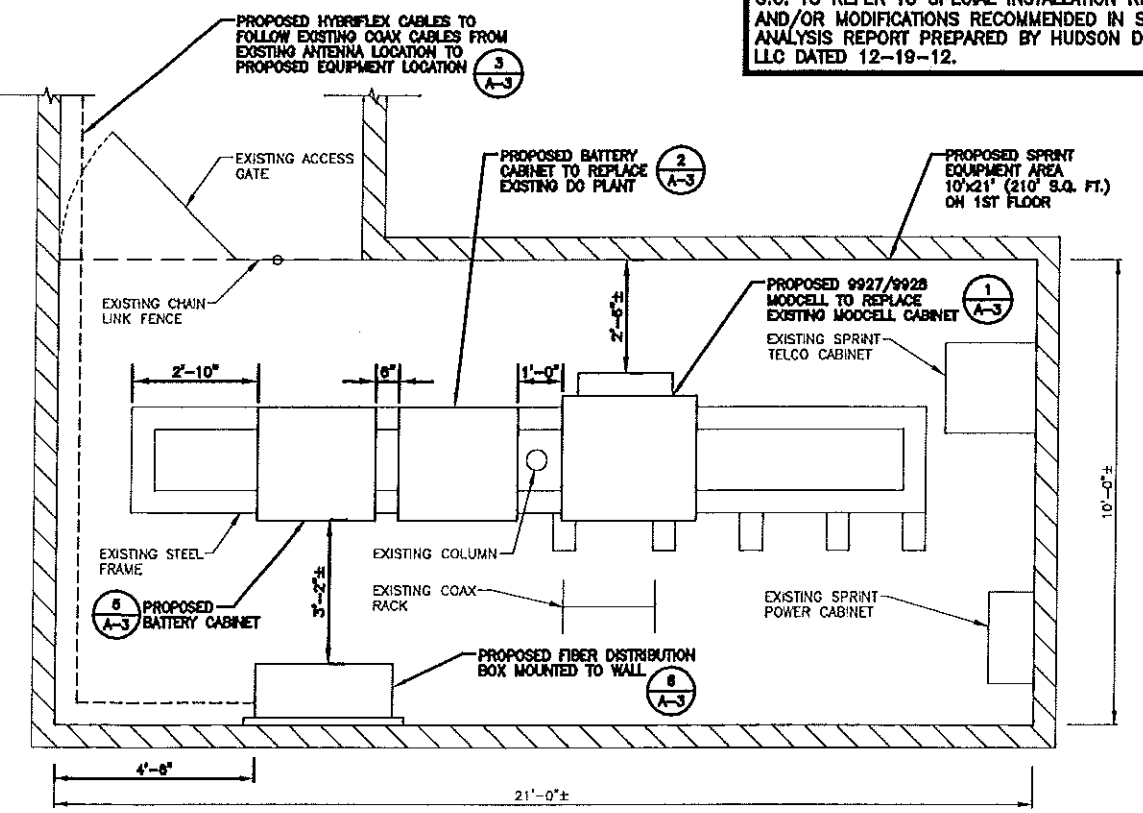




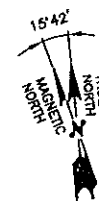
**ROOF PLAN**  
SCALE: 3/16"=1'-0"  
1  
A-1



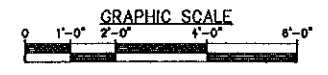
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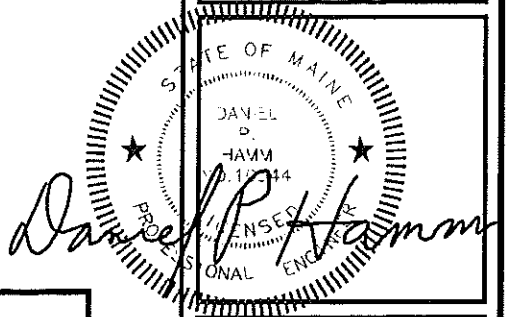
PROPOSED



**EQUIPMENT PLANS**  
SCALE: 1/2"=1'-0"  
2  
A-1



**STRUCTURAL NOTE:**  
G.C. TO REFER TO SPECIAL INSTALLATION REQUIREMENTS AND/OR MODIFICATIONS RECOMMENDED IN STRUCTURAL ANALYSIS REPORT PREPARED BY HUDSON DESIGN GROUP LLC DATED 12-19-12.



**Sprint**  
THE NETWORK VISION MOVES LAUNCH  
1 INTERNATIONAL BLVD, SUITE 800  
MAHWAH, NJ 07495  
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**Alcatel-Lucent**  
1 ROBBS ROAD  
WESTFORD, MA 01886  
TEL: (978) 952-1600

**Hudson Design Group, LLC**  
1600 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 3090  
N. ANDOVER, MA 01845  
TEL: (978) 557-5555  
FAX: (978) 336-5585

CHECKED BY: JX

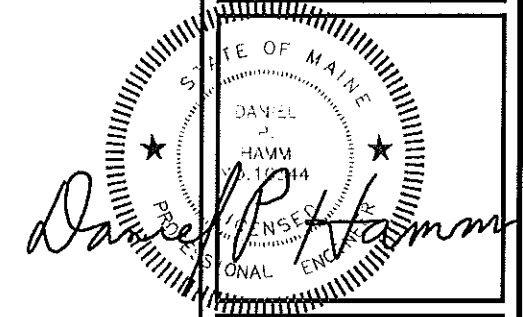
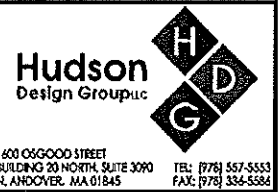
APPROVED BY: DPH

SUBMITTALS		
REV.	DATE	DESCRIPTION
2	01/23/13	FOR CONSTRUCTION
1	12/27/12	ISSUED FOR REVIEW

SITE NUMBER:  
BS43XC807  
SITE NAME:  
ROOSEVELT ARMS  
PORTLAND  
SITE ADDRESS:  
234 STEVENS AVENUE  
PORTLAND, ME 04102

SEE TITL  
**ROOF PLAN AND  
EQUIPMENT PLANS**

SEE NUMBER  
A-1



**STRUCTURAL NOTE:**  
G.C. TO REFER TO SPECIAL INSTALLATION REQUIREMENTS AND/OR MODIFICATIONS RECOMMENDED IN STRUCTURAL ANALYSIS REPORT PREPARED BY HUDSON DESIGN GROUP LLC DATED 12-19-12.

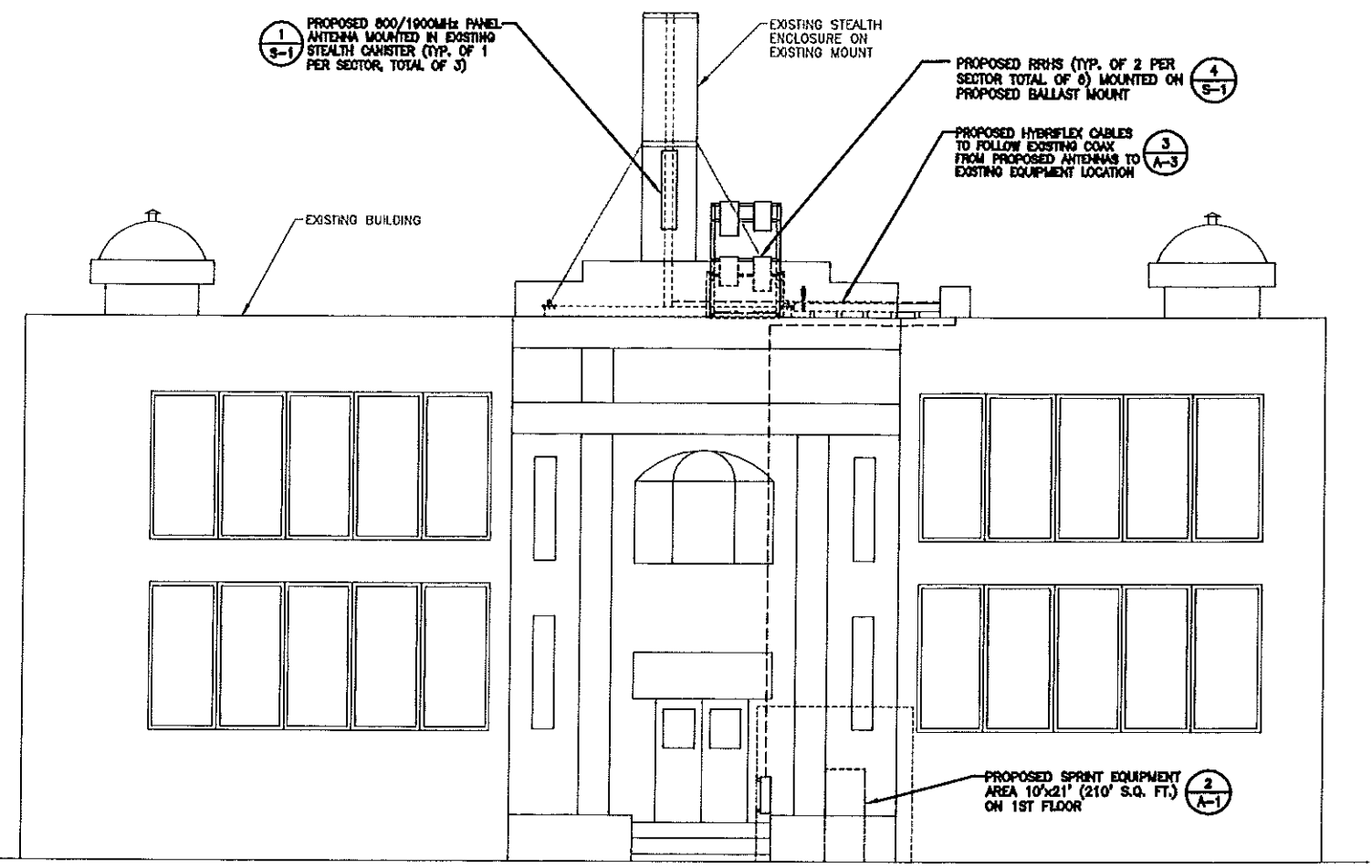
**NOTES:**  
1) VERIFY EXACT ANTENNA MODEL & AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.  
2) REMOVE EXISTING GPS ANTENNA AND REPLACE WITH NEW GPS ANTENNA.

TOP OF EXISTING STEALTH ENCLOSURE  
ELEV. 54'-5"± (AGL)

CL. OF PROPOSED SPRINT ANTENNAS  
ELEV. 43.1'± (AGL)

TOP OF EXISTING BUILDING  
ELEV. 38'-0"± (AGL)

GROUND LEVEL  
ELEV. 0'-0"± (AGL)

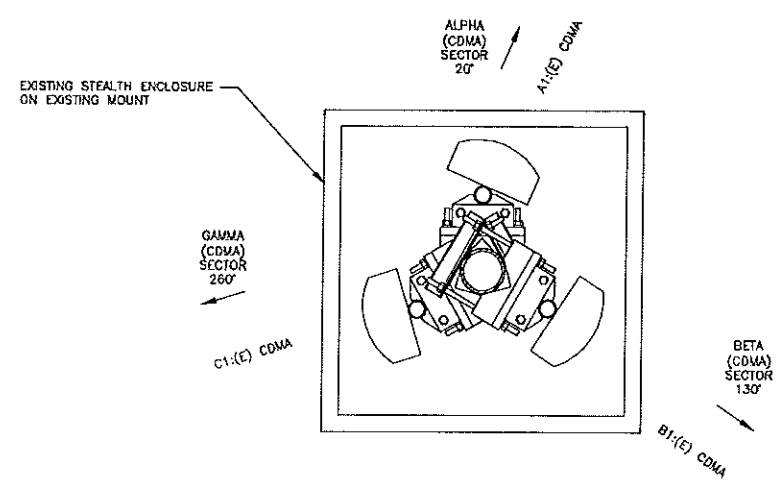


**EAST ELEVATION** 1 A-2  
SCALE: 3/16"=1'-0"  
GRAPHIC SCALE: 0 2'-5" 5'-4" 10'-3" 18'-0"

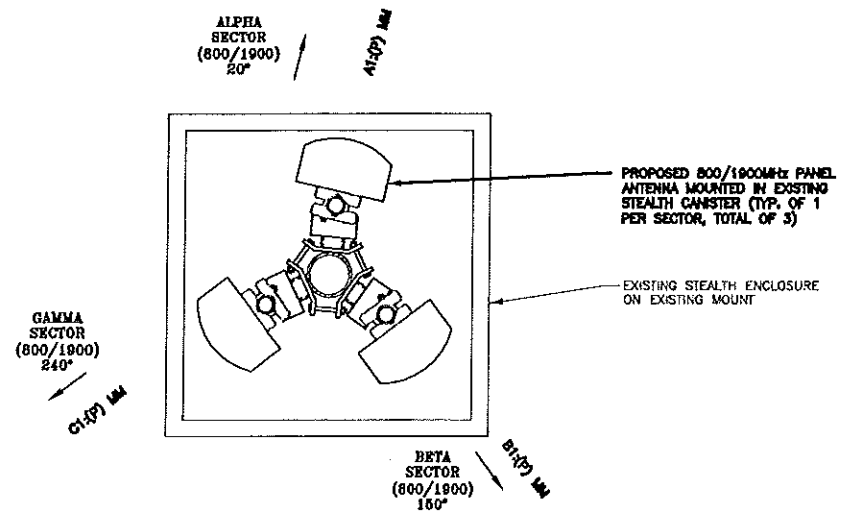
**ANTENNA STATUS LEGEND:**  
(E) - EXISTING CDMA - SPRINT ANTENNA  
(P) - PROPOSED MM - MULTIMODAL ANTENNA  
EMPTY - ANTENNA PIPE MAST TO REMAIN

**NOTE:**  
EXISTING ANTENNA AND PLATFORM ORIENTATIONS HAS BEEN TAKEN FROM NETWORK VISION 3G RAN PLANNING PLAYBOOK. G.C. TO VERIFY EXISTING ORIENTATIONS PRIOR TO PROPOSED INSTALLATION.

**NOTE:**  
THIS SITE REQUIRES A HOT SWAP TO CHANGE OUT THE EXISTING ANTENNAS FOR THE PROPOSED ANTENNAS.



**EXISTING ANTENNA PLAN** 2 A-2  
SCALE: N.T.S.



**FINAL ANTENNA PLAN** 3 A-2  
SCALE: N.T.S.

CHECKED BY: JX  
APPROVED BY: DPH

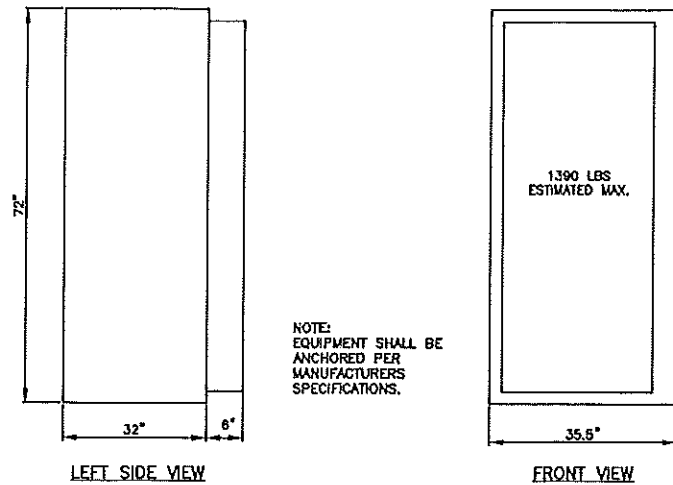
**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
2	01/23/13	FOR CONSTRUCTION	SF
1	12/27/12	ISSUED FOR REVIEW	MA

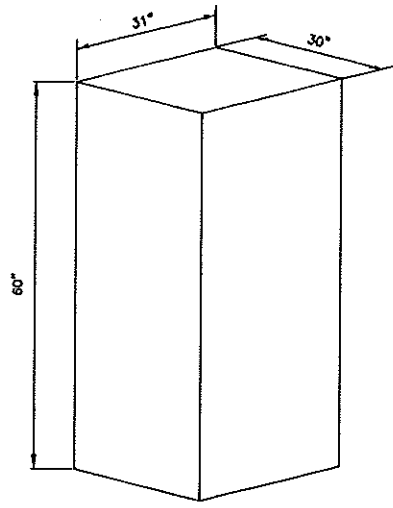
SITE NUMBER:  
BS43XC807  
SITE NAME:  
ROOSEVELT ARMS  
PORTLAND  
SITE ADDRESS:  
234 STEVENS AVENUE  
PORTLAND, ME 04102

SHEET TITLE  
ELEVATION &  
ANTENNA SCENARIO

SHEET NUMBER  
A-2

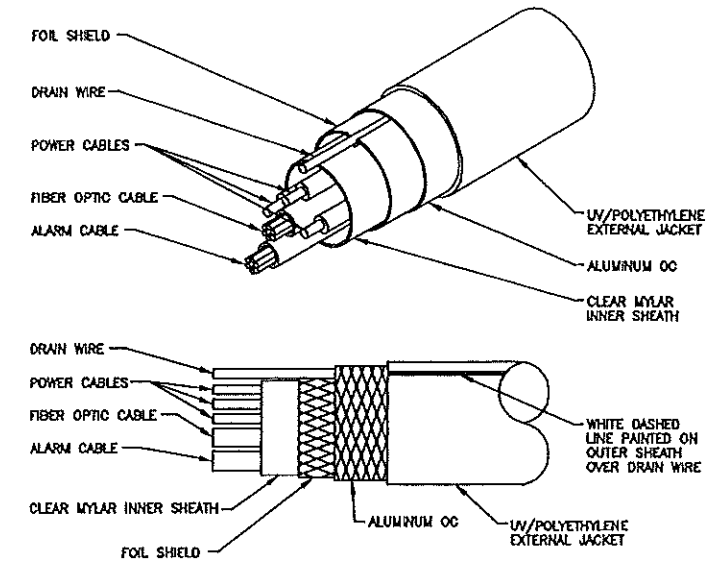


**ALCATEL-LUCENT 9928 OUTDOOR CABINET**  
SCALE: N.T.S.

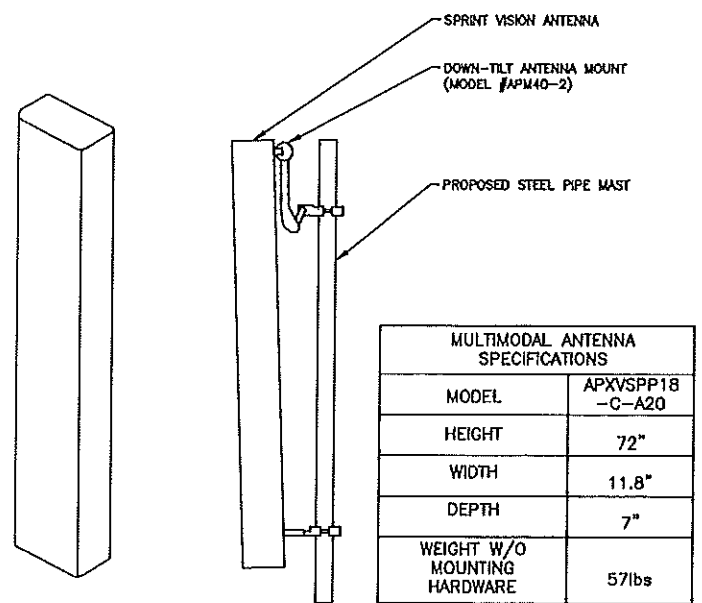


60ECv2 CABINET SPECIFICATIONS	
HEIGHT	60"
WIDTH	31"
DEPTH	30"
TYPICAL WEIGHT (3) BATTERY-STRINGS	1625 LBS.
MAX. WEIGHT (5) BATTERY-STRINGS	2830 LBS.

**BATTERY BACK-UP CABINET**  
SCALE: N.T.S.

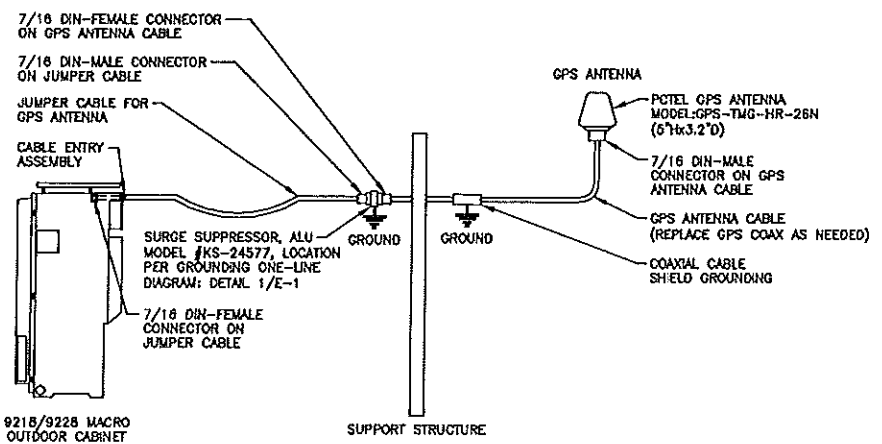


**HYBRIFLEX CABLE DETAIL**  
SCALE: N.T.S.

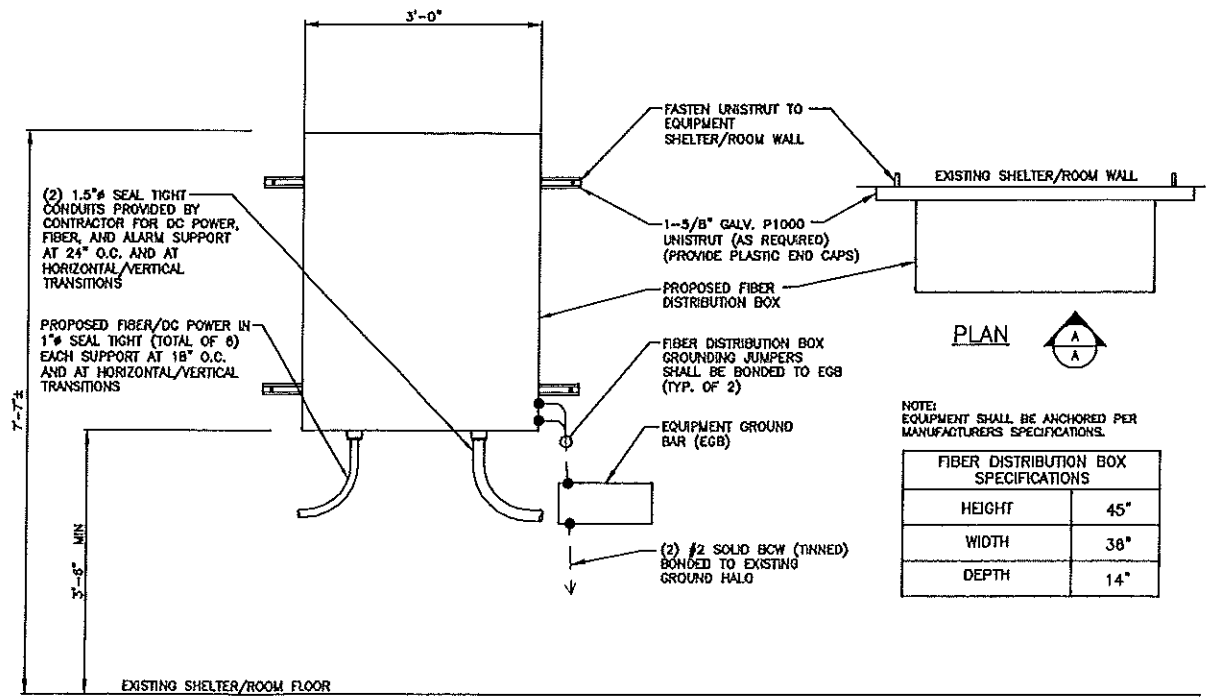


MULTIMODAL ANTENNA SPECIFICATIONS	
MODEL	APXVSP18 -C-A20
HEIGHT	72"
WIDTH	11.8"
DEPTH	7"
WEIGHT W/O MOUNTING HARDWARE	57lbs

**MULTIMODAL ANTENNA DETAIL**  
SCALE: N.T.S.

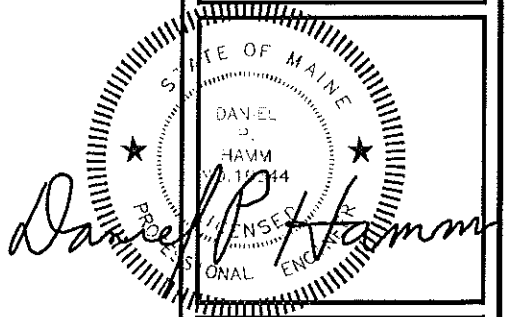


**GPS ANTENNA DETAIL**  
SCALE: N.T.S.



FIBER DISTRIBUTION BOX SPECIFICATIONS	
HEIGHT	45"
WIDTH	38"
DEPTH	14"

**FIBER DISTRIBUTION BOX**  
SCALE: N.T.S.



**Sprint**  
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**Alcatel-Lucent**  
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WESFORD, MA 01886  
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**Hudson Design Group LLC**  
1620 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 3090  
N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5556

CHECKED BY: JX  
APPROVED BY: DPH

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
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1	12/27/12	ISSUED FOR REVIEW	MA

SITE NUMBER:  
BS43XC807  
SITE NAME:  
ROOSEVELT ARMS  
PORTLAND  
SITE ADDRESS:  
234 STEVENS AVENUE  
PORTLAND, ME 04102

SHEET TITLE  
DETAILS

SHEET NUMBER  
A-3

THE GPS SURGE NEEDS TO BE INSTALLED AWAY FROM, AND SEPARATE FROM THE MVBIS CABINET. THE JUMPERS ARE DESIGNED TO BE INSTALLED BEFORE/AFTER THE GPS SURGE. THE GPS SURGE NEEDS TO BE CONNECTED TO THE GROUND SYSTEM, VIA A GROUND LEAD.

Market Cascade ID		YT-NH-ME BS43XC807	SECTOR 1	SECTOR 2	SECTOR 3
Split sector present		No	No	No	No
1900MHz_Azimuth		20	150	240	
1900MHz_No_of_Antennas		1	1	1	
1900MHz_RADCenter(ft)		43.1	43.1	43.1	
1900MHz_Antenna_Make		RFS	RFS	RFS	
1900MHz_Antenna_Model		APXVSP18-C-A20	APXVSP18-C-A20	APXVSP18-C-A20	
1900MHz_Horizontal_Beamwidth		65	65	65	
1900MHz_Vertical_Beamwidth		5.5	5.5	5.5	
1900MHz_Antenna_Height (ft)		6	6	6	
1900MHz_Antenna_Gain(dBd)		15.9	15.9	15.9	
1900MHz_E_Tilt		0	-4	-1	
1900MHz_M_Tilt		0	0	0	
1900MHz_Carrier_Forecast_Year_2013		2	2	2	
1900MHz_RRH_Manufacturer		ALU	ALU	ALU	
1900MHz_RRH_Model		RRH 1900 4X45 65MHz	RRH 1900 4X45 65MHz	RRH 1900 4X45 65MHz	
1900MHz_RRH_Count		1	1	1	
1900MHz_RRH_Location		Top of the Pole/Tower	Top of the Pole/Tower	Top of the Pole/Tower	
1900MHz_Combiner_Model		No Combiner Required	No Combiner Required	No Combiner Required	
1900MHz_Top_Jumper_#1_Length (RRH or Combiner-to-Antenna for TT or Main Coax to		10 (*)10	10 (*)10	10 (*)10	
1900MHz_Top_Jumper_#1_Cable_Model (RRH or Combiner-to-Antenna for TT or Main Coax		LCF12-50J	LCF12-50J	LCF12-50J	
1900MHz_Top_Jumper_#2_Length (RRH to Combiner for TT if applicable, ft)		N/A	N/A	N/A	
1900MHz_Top_Jumper_#2_Cable_Model (RRH to Combiner for TT if applicable)		N/A	N/A	N/A	
1900MHz_Main_Coax_Cable_Length (ft)		N/A (*)90	N/A (*)90	N/A (*)90	
1900MHz_Main_Coax_Cable_Model		N/A	N/A	N/A	
1900MHz_Bottom_Jumper_#1_Length (Ground based RRH to Combiner-OR-Main Coax, ft)		N/A	N/A	N/A	
1900MHz_Bottom_Jumper_#1_Cable_Model (Ground based RRH to Combiner-OR-Main Coax)		N/A	N/A	N/A	
1900MHz_Bottom_Jumper_#2_Length (Ground based-Combiner to Main Coax, ft)		N/A	N/A	N/A	
1900MHz_Bottom_Jumper_#2_Cable_Model (Ground based-Combiner to Main Coax)		N/A	N/A	N/A	
800MHz_Azimuth		20	150	240	
800MHz_No_of_Antennas		0	0	0	
800MHz_RADCenter(ft)		43.1	43.1	43.1	
800MHz_Antenna_Make		RFS	RFS	RFS	
800MHz_Antenna_Model		APXVSP18-C-A20 (Shared w/1900)	APXVSP18-C-A20 (Shared w/1900)	APXVSP18-C-A20 (Shared w/1900)	
800MHz_Horizontal_Beamwidth		65	65	65	
800MHz_Vertical_Beamwidth		11.5	11.5	11.5	
800MHz_Antenna_Height (ft)		6	6	6	
800MHz_Antenna_Gain (dBd)		13.4	13.4	13.4	
800MHz_E_Tilt		0	-8	-1	
800MHz_M_Tilt		0	0	0	
800MHz_RRH_Manufacturer		ALU	ALU	ALU	
800MHz_RRH_Model		800 MHz RRH 2x50W	800 MHz RRH 2x50W	800 MHz RRH 2x50W	
800MHz_RRH_Count		1	1	1	
800MHz_RRH_Location		Top of the Pole/Tower	Top of the Pole/Tower	Top of the Pole/Tower	
800_Top_Jumper_#1_Length (RRH to Antenna for TT or Main Coax to Antenna for GM)		10 (*)10	10 (*)10	10 (*)10	
800_Top_Jumper_Cable_Model (RRH to Antenna for TT or Main Coax to Antenna for GM)		LCF12-50J	LCF12-50J	LCF12-50J	
800MHz_Main_Coax_Cable_Length (ft)		N/A (*)90	N/A (*)90	N/A (*)90	
800MHz_Main_Coax_Cable_Model		N/A	N/A	N/A	
800_Bottom_Jumper_#1_Length (Ground based RRH to Main Coax)		N/A	N/A	N/A	
800_Bottom_Jumper_#1_Cable_Model (Ground based RRH to Main Coax)		N/A	N/A	N/A	
Plumbing Scenario *		124	124	124	

Comments  
\* If plumbing scenario does not match the material received, please contact your Construction Manager  
11/9/2012

**RF DATA SHEET**  
SCALE: N.T.S.

1  
A-4

**SPRINT CONSTRUCTION STANDARDS:**

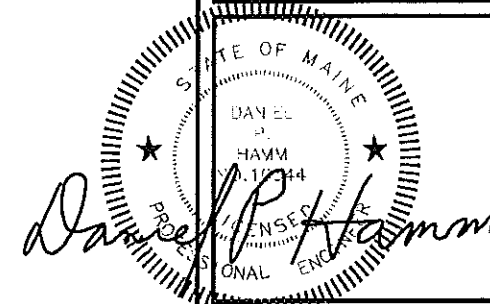
GENERAL CONTRACTOR SHALL ADHERE TO THE FOLLOWING SPRINT CONSTRUCTION STANDARDS (AS AMENDED FROM TIME TO TIME AND AVAILABLE ON THE ALU FST DATABASE):

- CONSTRUCTION STANDARDS: INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES - VERSION 4.0, INCLUDING EXHIBITS A-M.
- CONSTRUCTION SPECIFICATIONS: CONSTRUCTION STANDARDS EXHIBIT A - STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES (VERSION 4.0).
- GROUNDING STANDARDS: EXTERIOR GROUNDING SYSTEM DESIGN. GROUNDING STANDARDS (SUPPLEMENT): ANTI-THEFT UPDATE TO SPRINT GROUNDING 082412 AND SPRINT ENGINEERING LETTER EL-0504 DATED 04.20.12.
- WEATHER PROOFING STANDARDS: EXCERPT FROM CONSTRUCTION STANDARDS EXHIBIT A, SECTION 3.6 WEATHERPROOFING CONNECTORS AND GROUND KITS.
- COLOR CODING: SPRINT NEXTEL ANT AND LINE COLOR CODING (DRAFT) V3 09-08-11.

(\*) NOTE: ALU CM SHALL CONFIRM ALL JUMPER/HYBRIFLEX LENGTHS BEFORE PREPARING B.O.M. RECOMMENDED HYBRIFLEX LENGTHS SHOWN INCLUDE 20 FEET FOR 10-FOOT COILS AT EACH END OF THE FIBER TRUNK.

**IMPORTANT:**

GENERAL CONTRACTOR/TOWER CREW SHALL VERIFY THAT THE LATEST RF DATA SHEET ARE USED FOR EQUIPMENT INSTALLATION.



CHECKED BY: JX

APPROVED BY: DPH

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
2	01/23/13	FOR CONSTRUCTION	SF
1	12/27/12	ISSUED FOR REVIEW	NA

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BS43XC807

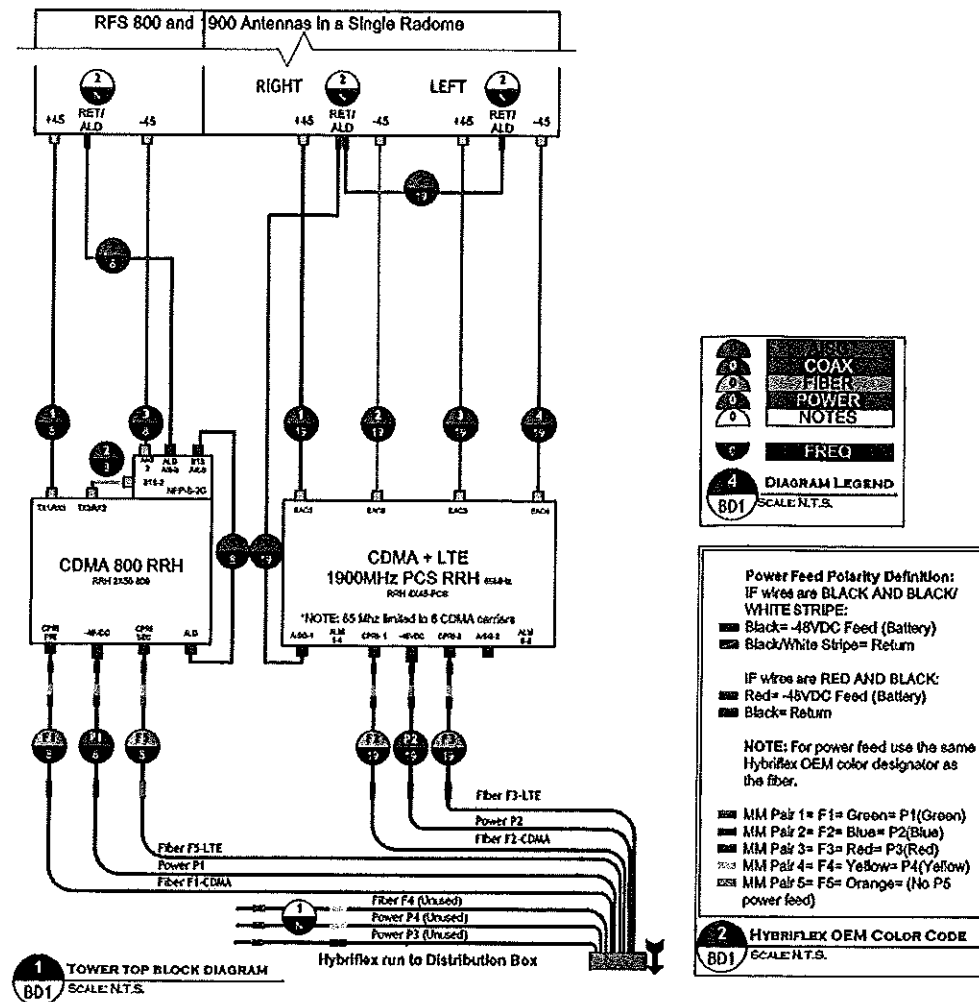
SITE NAME:  
ROOSEVELT ARMS  
PORTLAND

SITE ADDRESS:  
234 STEVENS AVENUE  
PORTLAND, ME 04102

SHEET TITLE  
RF DATA SHEET

SHEET NUMBER  
A-4

SCENARIO 124\_v2.0



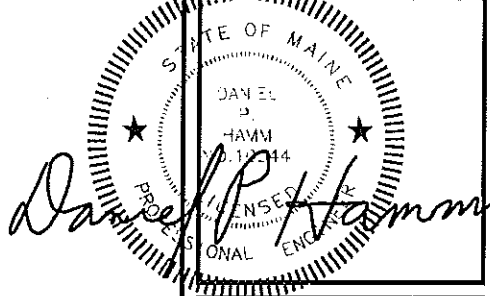
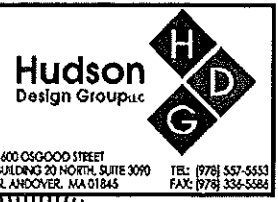
**1 TOWER TOP BLOCK DIAGRAM**  
SCALE: N.T.S.

19	DC Power Pair 3 Hybriflex, 1900 LTE RRH1 -48VDC port TO/FROM Distribution Box Breaker 3 (S1), 7 (S2), 11 (S3)
19	Fiber Pair 3, 1900 RRH2 CPRI PRI port TO/FROM Distribution Box, Top LC Bulkhead, Position 3-4 (S1), 9-10 (S2), Lower LC BH, Position 3-4 (S3)
19	DC Power Jumper, Power Pair 3 CTAP TO/FROM 1900 LTE RRH2 -48VDC port (42" Jumper)
19	Fiber Jumper, 1900 RRH1 CPRI SEC port TO/FROM 1900 RRH2 CPRI SEC port
19	AISG Cable Jumper, 1900 CDMA RRH1 AISG port TO/FROM 1900 Antenna RET/ADL port
19	AISG Cable Jumper, 1900 Antenna RET/ADL port TO/FROM 1900 Antenna RET/ALD port (RET Motors)
19	Coax Jumper, 1900 LTE RRH1 TX1/RX1 port TO/FROM Combiner Port G1
19	Coax Jumper, 1900 LTE RRH1 TX2/RX2 port TO/FROM Combiner Port G2
19	Coax Jumper, 1900 LTE RRH2 TX1/RX1(logical TX/RX3) port TO/FROM Combiner Port G3
19	Coax Jumper, 1900 LTE RRH2 TX2/RX2(logical TX/RX4) port TO/FROM Combiner Port G4
19	DC Power Pair 2 Hybriflex, 1900 CDMA RRH1 -48VDC port TO/FROM Distribution Box Breaker 2(S1), 6 (S2), 10 (S3)
19	Fiber Pair 2, 1900 CDMA RRH1 CPRI PRI port TO/FROM Distribution Box, Top LC Bulkhead, Position 13-14 (S1), 19-20 (S2), Lower LC BH, Position 13-14 (S3)
19	DC Power Jumper, Power Pair 2 CTAP TO/FROM 1900 CDMA RRH2 -48VDC port (42" Jumper)
19	Fiber Jumper, 1900 RRH1 CPRI SEC port TO/FROM 1900 RRH2 CPRI SEC port
19	Coax Jumper, 1900 CDMA RRH1 TX1/RX1 port TO/FROM Combiner Port A1B1
19	Coax Jumper, 1900 CDMA RRH1 TX2/RX2 port TO/FROM Combiner Port A2B2
19	Coax Jumper, 1900 CDMA RRH2 TX1/RX1(logical TX/RX3) port TO/FROM Combiner Port A3B3
19	Coax Jumper, 1900 CDMA RRH2 TX2/RX2(logical TX/RX4) port TO/FROM Combiner Port A4B4
19	Coax Jumper, 1900 Combiner COM 1 port TO/FROM Antenna +45 port
19	Coax Jumper, 1900 Combiner COM 2 port TO/FROM Antenna -45 port
19	Coax Jumper, 1900 Combiner COM 3 port TO/FROM Antenna +45 port
19	Coax Jumper, 1900 Combiner COM 4 port TO/FROM Antenna -45 port
19	Spare Fiber Pairs & DC Power terminated, weatherproofed, spooled and tie wrapped to side of 800MHz RRH. (cable management)
19	Notes
19	Alarm jumper cap connection. This alarm jumper must be in place to make the RRH # 2 of the pair. (# 2 is always the one farthest from the pipe)
19	Notes
19	Power Cable "Y" Jumper. C-Tap Jumper from Pair 3 to 1900 RRH2. Weatherproof C-Tap and leave 18-24" loop.
19	Notes

**CONNECTION LEGEND**  
SCALE: N.T.S.

**IMPORTANT:**  
GENERAL CONTRACTOR/TOWER CREW SHALL VERIFY THAT THE LATEST NETWORK VISION RAN CONNECTION DIAGRAMS ARE USED FOR EQUIPMENT INSTALLATION.

**IMPORTANT:**  
VELCRO STRAPS ONLY MAY BE USED ON FIBER. CABLE TIES OR TIE WRAP MUST NOT BE USED ON FIBER.



CHECKED BY: JX

APPROVED BY: DPH

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
2	01/23/13	FOR CONSTRUCTION	SF
1	12/27/12	ISSUED FOR REVIEW	NA

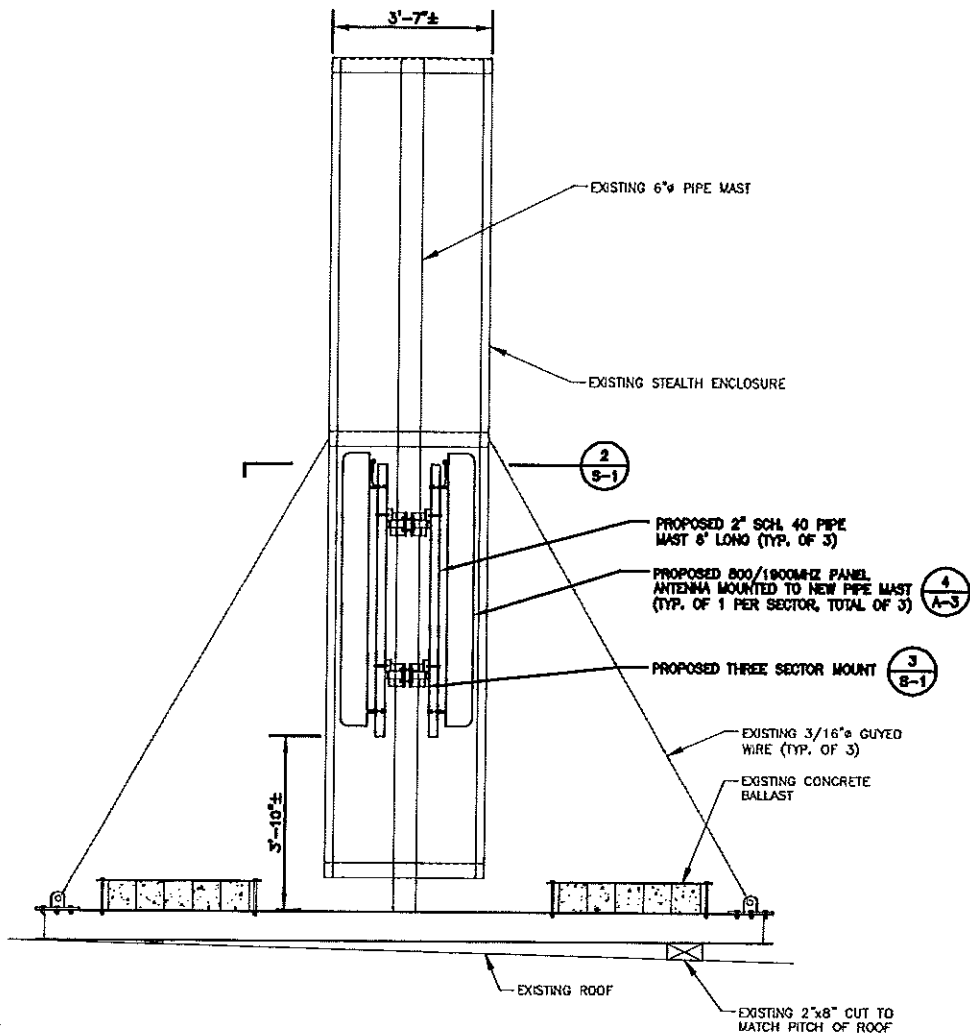
SITE NUMBER:  
BS43XC807

SITE NAME:  
ROOSEVELT ARMS  
PORTLAND

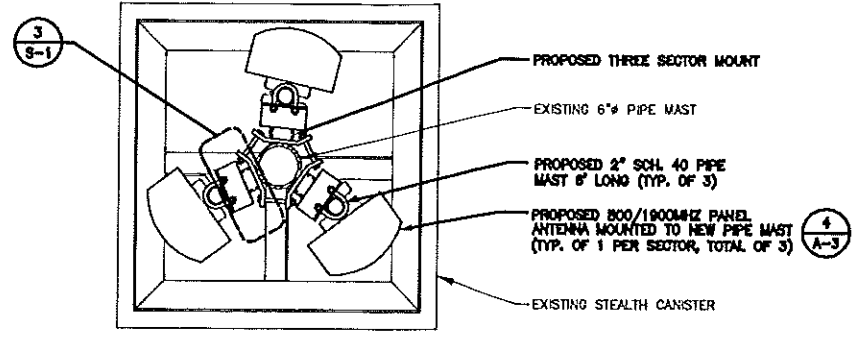
SITE ADDRESS:  
234 STEVENS AVENUE  
PORTLAND, ME 04102

SHEET TITLE  
CABINET &  
ANTENNA WIRING  
DIAGRAM

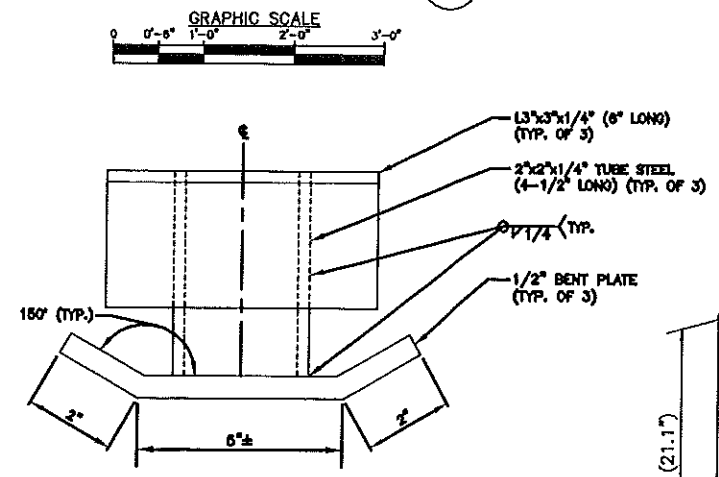
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A-5



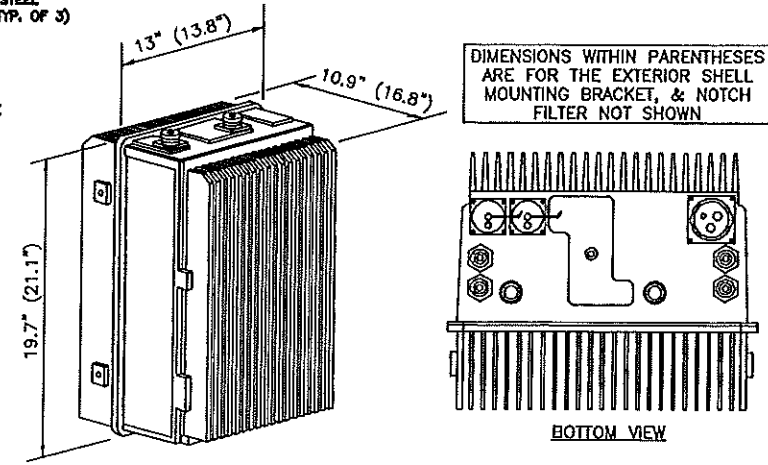
**ANTENNA MOUNTING DETAIL 1**  
SCALE: 1/2" = 1'-0"



**ANTENNA MOUNTING DETAIL 2**  
SCALE: 1" = 1'-0"

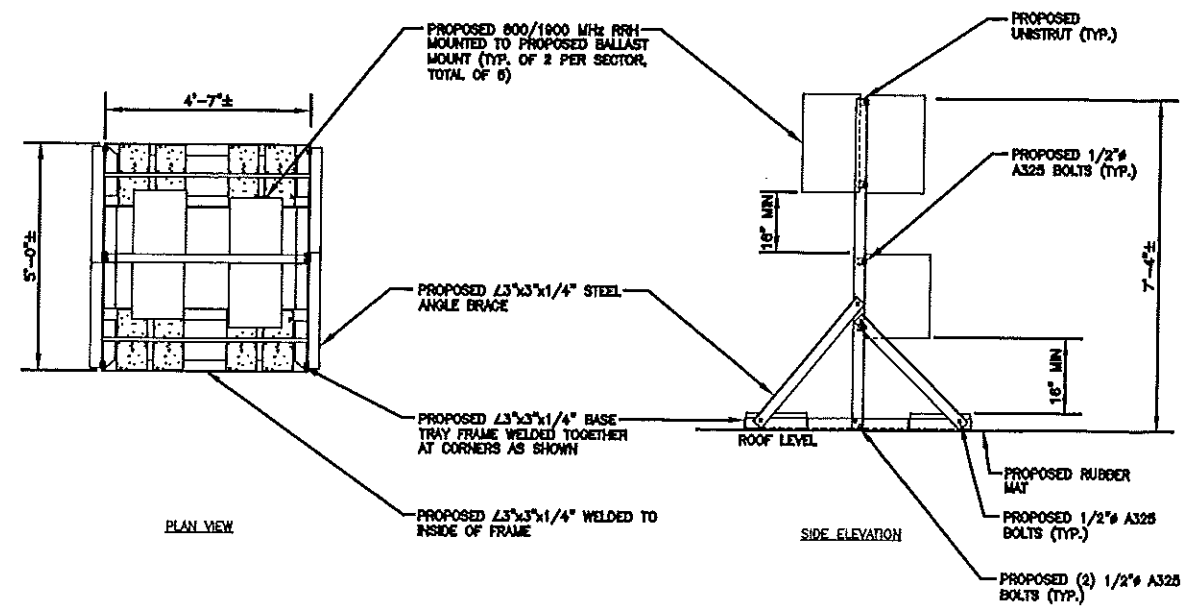


**PLATE DETAIL 3**  
SCALE: 6" = 1'-0"

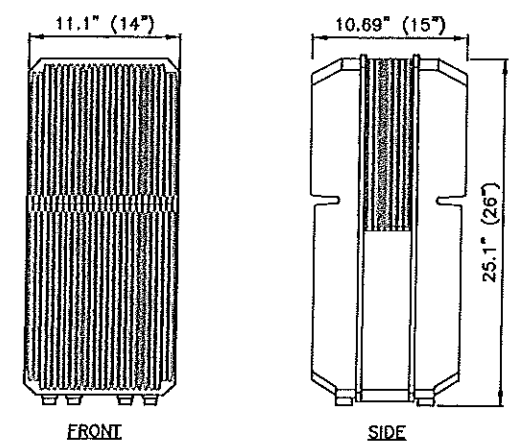


**FD-RRH-2x50-800**  
SCALE: N.T.S.

NUMBER OF BLOCKS PER SIDE	8
SIZE OF BLOCKS	4"x8"x16" (SOLID)
WEIGHT OF BLOCKS	38 lbs. EACH
TOTAL WEIGHT OF BLOCKS PER SIDE	304 lbs.
TOTAL NUMBER OF BLOCKS	16
TOTAL BALLAST WEIGHT	808 lbs.



**PROPOSED RRH BALLAST MOUNT 4**  
SCALE: 1/2" = 1'-0"



**FD-RRH-4x40-1900**  
SCALE: N.T.S.

**NOTES:**

- 1) CONTRACTOR TO VERIFY IN FIELD SIZE OF EXISTING MOUNTING PIPE TO BE 2" DIAMETER SCH. 40.
- 2) CONTRACTOR TO VERIFY THAT THERE IS SUFFICIENT ROOM BEHIND PROPOSED ANTENNAS FOR PROPOSED RRHS TO BE LOCATED WITHOUT CONFLICTING WITH OTHER PROPOSED RRHS/MOUNTING PIPES ON ADJACENT SECTORS.
- 3) VERIFY EXACT RRH AND ANTENNA MODEL & AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.
- 4) RRH LOCATION ONLY SHOWN AS REFERENCE. CONTRACTOR TO CONFIGURE RRHS AS NEED TO MEET PROPOSED REQUIREMENTS.

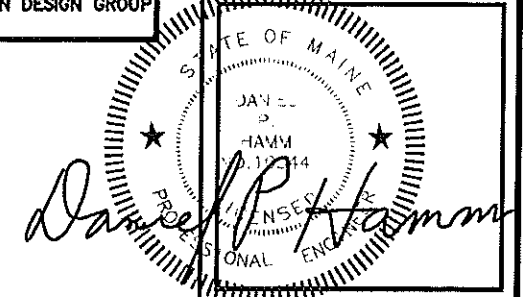
**STRUCTURAL NOTE:**

G.C. TO REFER TO SPECIAL INSTALLATION REQUIREMENTS AND/OR MODIFICATIONS RECOMMENDED IN STRUCTURAL ANALYSIS REPORT PREPARED BY HUDSON DESIGN GROUP LLC DATED 12-19-12.

**Sprint**  
NETWORK VISION AWAITS LAUNCH  
1 INTERNATIONAL BLVD, SUITE 800  
MAHWAH, NJ 07495  
TEL: (800) 357-7641

**Alcatel-Lucent**  
1 ROBBS ROAD  
WESTFORD, MA 01886  
TEL: (978) 952-1600

**Hudson Design Group**  
1600 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 300  
N ANDOVER, MA 01845  
TEL: (978) 557-5555  
FAX: (978) 335-5556



CHECKED BY: JX  
APPROVED BY: DPH

**SUBMITTALS**

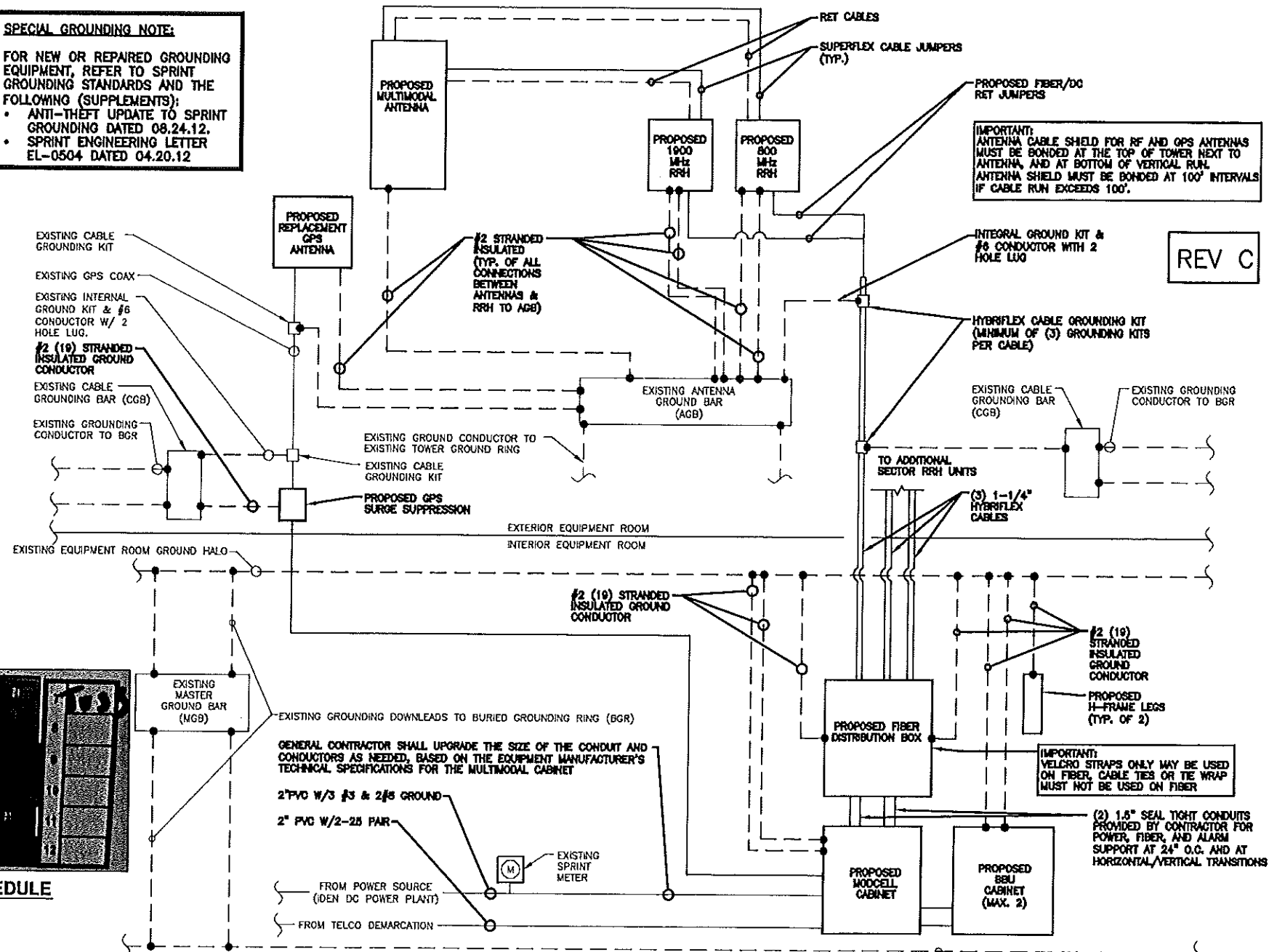
REV.	DATE	DESCRIPTION	BY
2	01/23/13	FOR CONSTRUCTION	SF
1	12/27/12	ISSUED FOR REVIEW	MA

SITE NUMBER:  
BS43XC807  
SITE NAME:  
ROOSEVELT ARMS  
PORTLAND  
SITE ADDRESS:  
234 STEVENS AVENUE  
PORTLAND, ME 04102

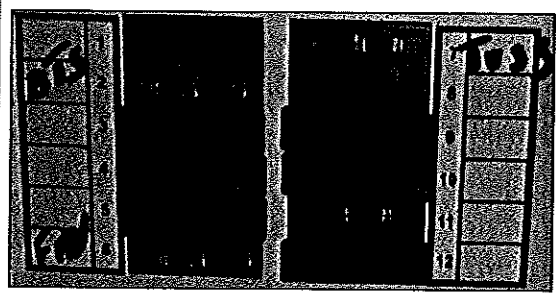
SHEET TITLE  
**STRUCTURAL DETAILS**

SHEET NUMBER  
S-1

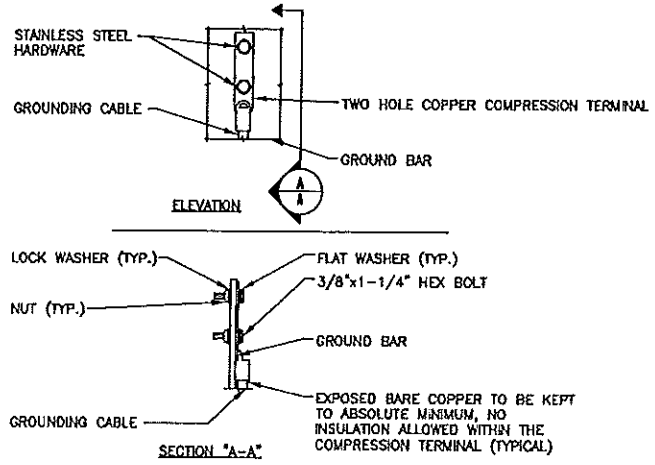
**SPECIAL GROUNDING NOTE:**  
 FOR NEW OR REPAIRED GROUNDING EQUIPMENT, REFER TO SPRINT GROUNDING STANDARDS AND THE FOLLOWING (SUPPLEMENTS):  
 • ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08.24.12.  
 • SPRINT ENGINEERING LETTER EL-0504 DATED 04.20.12



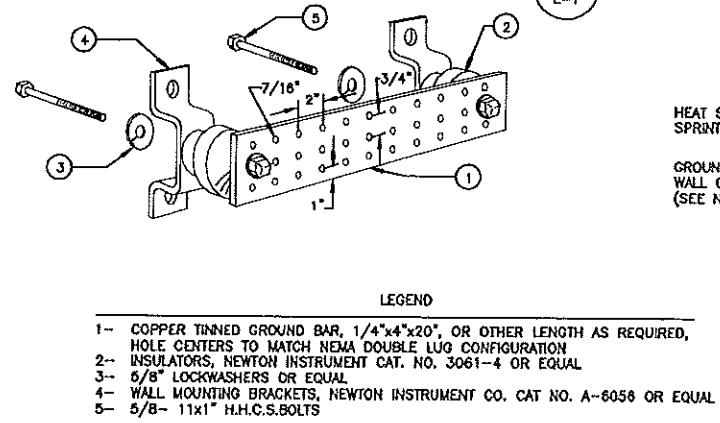
**TOWER TOP INTERIOR TYPICAL POWER & GROUNDING ONE LINE DIAGRAM**  
 SCALE: N.T.S.



**EXISTING PANEL SCHEDULE**

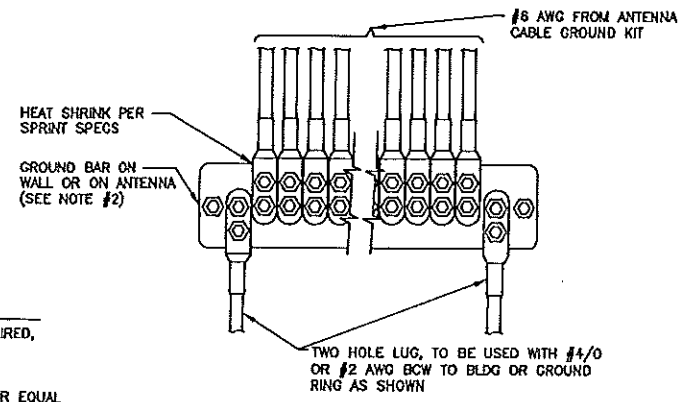


**TYPICAL GROUND BAR CONNECTION DETAIL**  
 SCALE: N.T.S.



- LEGEND**
- 1- COPPER TINNED GROUND BAR, 1/4"x4"x20", OR OTHER LENGTH AS REQUIRED, HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
  - 2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4 OR EQUAL
  - 3- 5/8" LOCKWASHERS OR EQUAL
  - 4- WALL MOUNTING BRACKETS, NEWTON INSTRUMENT CO. CAT NO. A-6058 OR EQUAL
  - 5- 5/8"-11x1" H.H.C.S. BOLTS
- NOTES:**
1. ALL BOLTS, NUTS, WASHERS AND LOCK WASHERS SHALL BE 18-8 STAINLESS STEEL.
  2. ALL GROUND BARS SHALL BE GALVANIZED WITH ANTI-THEFT HARDWARE.

**TYPICAL GROUND BAR DETAIL**  
 SCALE: N.T.S.



- NOTES:**
1. CONTRACTOR TO UTILIZE KOPR-SHIELD (THOMAS & BETTS) ON ALL LUG CONNECTIONS.
  2. ALL GROUND BARS SHALL BE GALVANIZED WITH ANTI-THEFT HARDWARE.

**TYPICAL INSTALLATION OF GROUND WIRE TO GROUND BAR DETAIL**  
 SCALE: N.T.S.

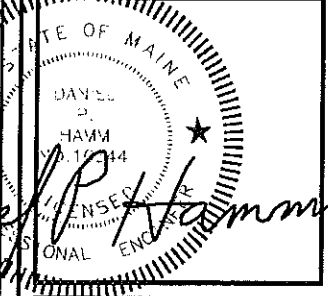
- ELECTRICAL NOTES**
- 1) ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
  - 2) THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT ROUTING WITH LOCAL UTILITY COMPANIES AND SPRINT CONSTRUCTION MANAGER.
  - 3) ALL CONDUITS ROUTED BELOW GRADE SHALL TRANSITION TO RIGID GALVANIZED ELBOWS WITH RIGID GALVANIZED STEEL CONDUIT ABOVE GRADE.
  - 4) ALL METAL CONDUITS SHALL BE PROVIDED WITH GROUNDING BUSHINGS.
  - 5) GENERAL CONTRACTOR SHALL PROVIDE ALL DIRECT BURIED CONDUITS WITH PLASTIC WARNING TAPE IDENTIFYING CONTENTS. TAPE COLORS SHALL BE ORANGE FOR TELEPHONE AND RED FOR ELECTRIC.
  - 6) ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
  - 7) THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIALS DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
  - 8) GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
  - 9) ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 40 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
  - 10) BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
  - 11) ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THINW, OR THIN INSULATION.
  - 12) RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPG AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
  - 13) RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
  - 14) ABOVE GROUND PORTION OF CONDUIT BETWEEN BTS AND PROJECT OWNER'S CELL SITE PPG SHALL BE RIGID CONDUIT.
  - 15) FOR NEW OR REPAIRED GROUNDING EQUIPMENT, REFER TO SPRINT GROUNDING STANDARDS AND THE FOLLOWING SUPPLEMENTS:  
 ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08.24.12  
 SPRINT ENGINEERING LETTER EL-0504 DATED 04.20.12

- GROUNDING NOTES**
- 1) ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
  - 2) ALL GROUND WIRE SHALL BE BARE COPPER #2 AWG UNLESS OTHERWISE NOTED.
  - 3) ALL GROUND WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
  - 4) EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER GROUND BAR (MGB) WITH #2 AWG INSULATED STRANDED COPPER WIRE. EQUIPMENT CABINETS SHALL EACH HAVE (2) CONNECTIONS.
  - 5) PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED AGB (TYP.).
  - 6) ANTENNA GROUND KITS SHALL BE FURNISHED BY SPRINT AND INSTALLED BY ELECTRICAL CONTRACTOR.
  - 7) COORDINATE NEW SPRINT GROUND SYSTEM WITH EXISTING SITE GROUND SYSTEM.
  - 8) GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH PROJECT OWNER'S BTS SITE GROUNDING STANDARDS.
  - 9) GROUND HYBRIFLEX CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS HYBRIFLEX CABLE GROUNDING KITS.
  - 10) ALL GROUND CONNECTIONS TO BE BURIED HYDRONUT COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
  - 11) ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
  - 12) CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
  - 13) APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.

**Sprint**  
 NETWORK VISION MOVES LAUNCH  
 1 INTERNATIONAL BLVD, SUITE 800  
 MAHWAH, NJ 07435  
 TEL: (800) 337-7441

**Alcatel-Lucent**  
 1 ROBESON ROAD  
 WESTFORD, MA 01886  
 TEL: (978) 932-1600

**Hudson Design Group**  
 1400 OSGOOD STREET  
 BUILDING 20 NORTH, SUITE 3000  
 N. ANDOVER, MA 01845  
 TEL: (978) 557-5553  
 FAX: (978) 334-5561



CHECKED BY: JX  
 APPROVED BY: DPH

**SUBMITTALS**

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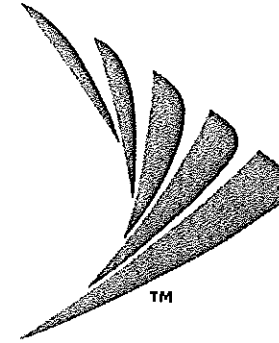
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 PORTLAND  
 SITE ADDRESS:  
 234 STEVENS AVENUE  
 PORTLAND, ME 04102

SHEET TITLE  
 TYPICAL POWER & GROUNDING ONE LINE DIAGRAM

SHEET NUMBER  
 E-1



# Sprint<sup>®</sup> VISION



SITE NUMBER:  
**BS43XC807**

SITE NAME:

## ROOSEVELT ARMS PORTLAND

SITE ADDRESS:  
**234 STEVENS AVE  
PORTLAND, ME 04102**

**Sprint<sup>®</sup>  
VISION**  
1 INTERNATIONAL BLVD, SUITE 800  
MAHWAH, NJ 07475  
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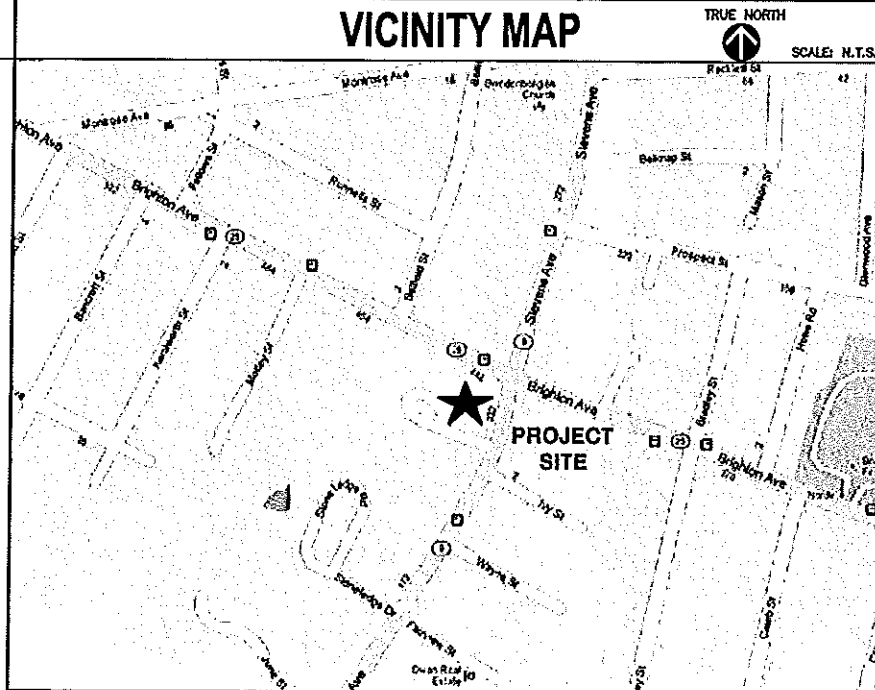
**Alcatel-Lucent**  
1 ROBBINS ROAD  
WESTFORD, MA 01886  
TEL: (978) 952-1600

**Hudson  
Design Group LLC**  
1600 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 2-101  
N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

### SITE INFORMATION

SITE NUMBER:	BS43XC807	LOCAL POWER COMPANY:	CENTRAL MAINE POWER CO.
SITE NAME:	ROOSEVELT ARMS PORTLAND	AAV PROVIDER:	FAIRPOINT
SITE ADDRESS:	234 STEVENS AVE PORTLAND, ME 04102	APPLICANT:	SPRINT 1 INTERNATIONAL BLVD, SUITE 600 MAHWAH, NJ 07495
COUNTY:	CUMBERLAND	APPLICANT REPRESENTATIVE:	ALCATEL-LUCENT 1 ROBBINS ROAD WESTFORD, MA 01886 TEL: (978) 952-1600
ZONING:	RESIDENTIAL	SITE ACQUISITION CONSULTANT:	ALCATEL-LUCENT 1 ROBBINS ROAD WESTFORD, MA 01886 TEL: (978) 952-1600
PARCEL ID:	177-6-002	A&E CONSULTANT:	HUDSON DESIGN GROUP LLC 1600 OSGOOD STREET BLDG 20 NORTH, SUITE 2-101 NORTH ANDOVER, MA 01845 TEL: (978) 557-5553 FAX: (978) 336-5586
COORDINATES(*):	N 43°39'58.80" W 70°17'46.93"		
GROUND ELEV.:	84½ (AMSL)		
STRUCTURE TYPE:	ROOFTOP		
STRUCTURE HEIGHT:	35' (AGL)		
ANTENNA RAD CENTER:	43½ (AGL)		
PROPERTY OWNER:	ROOSEVELT ARMS CONDOS 218-232 STEVENS AVENUE PORTLAND, ME 04102		

### VICINITY MAP



### SHEET INDEX

SHEET	DESCRIPTION	REV
T-1	TITLE SHEET	0
T-2	SITE PHOTOS	0
A-1	COMPOUND PLAN	0
A-2	DETAILS	0

### APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

ALCATEL-LUCENT REP: \_\_\_\_\_ DATE: \_\_\_\_\_  
 AAV REP: \_\_\_\_\_ DATE: \_\_\_\_\_  
 SITE ACQUISITION: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LANDLORD/  
 PROPERTY OWNER: \_\_\_\_\_ DATE: \_\_\_\_\_

### GENERAL NOTES

- THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:  
 -HANDICAPPED ACCESS NOT REQUIRED  
 - PORTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED  
 - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED
- CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
- DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.  
 BUILDING CODE: MASSACHUSETTS STATE BUILDING CODE 780 CMR - 8TH EDITION  
 ELECTRICAL CODE: 2008 NATIONAL ELECTRICAL CODE  
 STRUCTURAL CODE: TIA/EIA-222-G OR LATEST EDITION



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CHECKED BY: KB

APPROVED BY: DPH

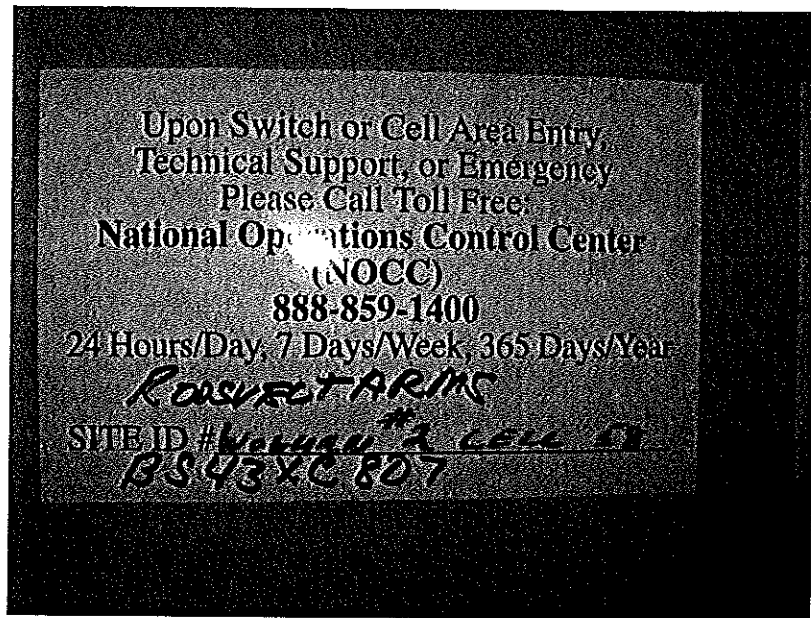
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REV.	DATE	DESCRIPTION	BY
0	08/20/12	FOR REVIEW	JG

SITE NUMBER:  
**BS43XC807**  
 SITE NAME:  
**ROOSEVELT ARMS  
PORTLAND**  
 SITE ADDRESS:  
**234 STEVENS AVENUE  
PORTLAND, ME 04102**

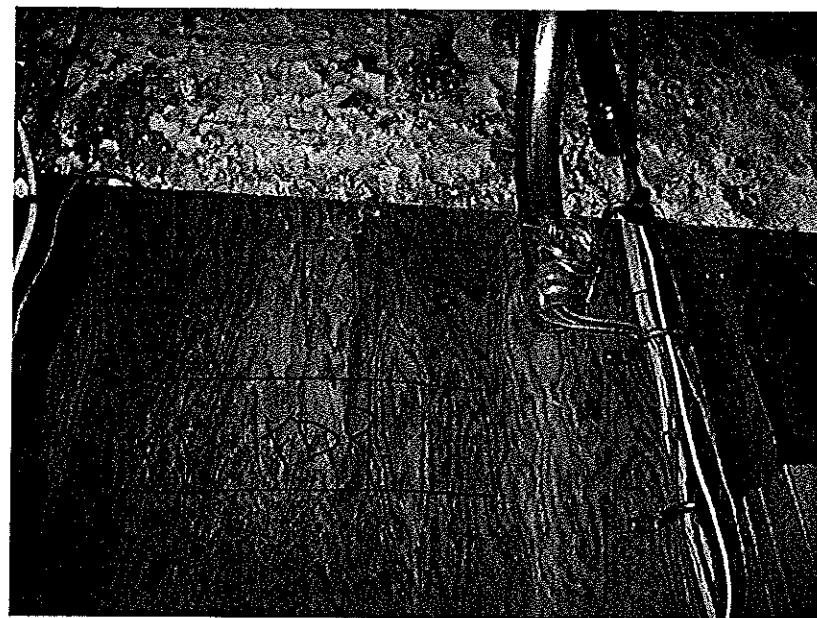
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**TITLE SHEET**

SHEET NUMBER  
**T-1**

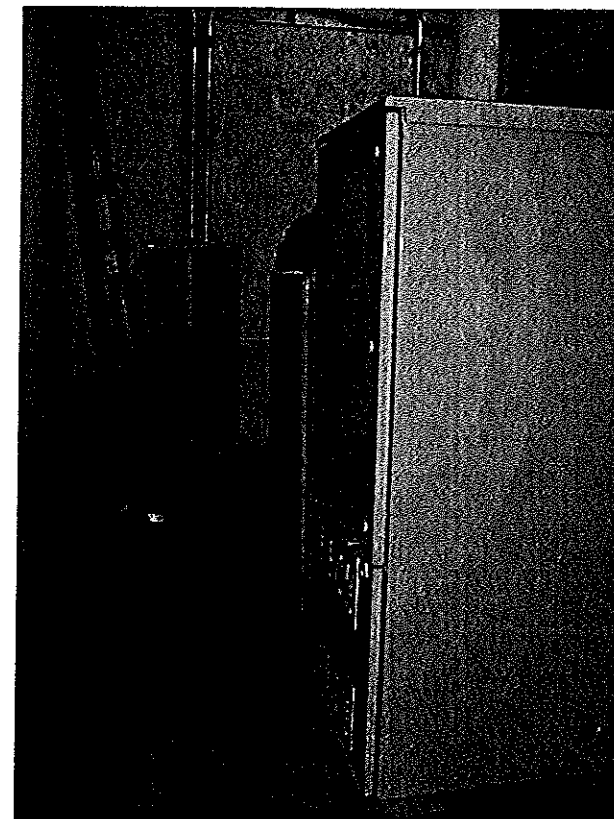




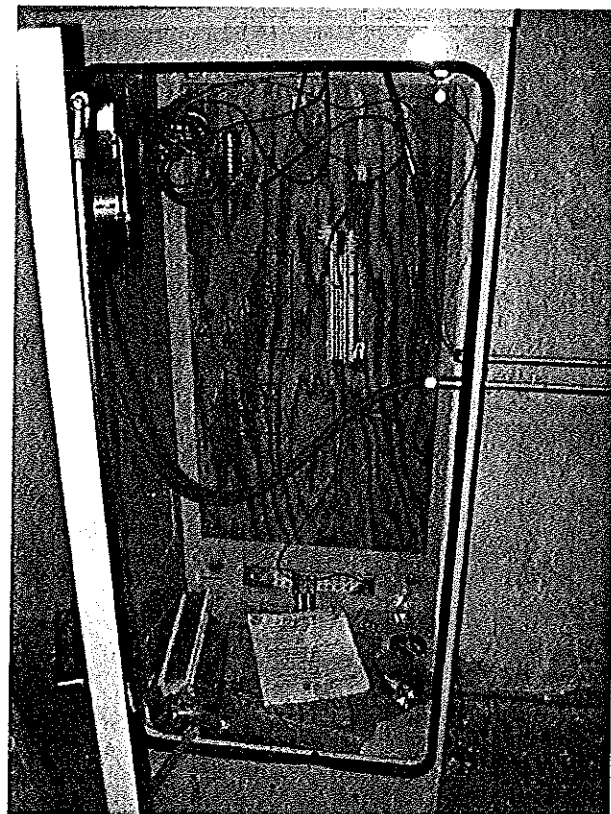
EXISTING SIGNAGE 1  
T-2



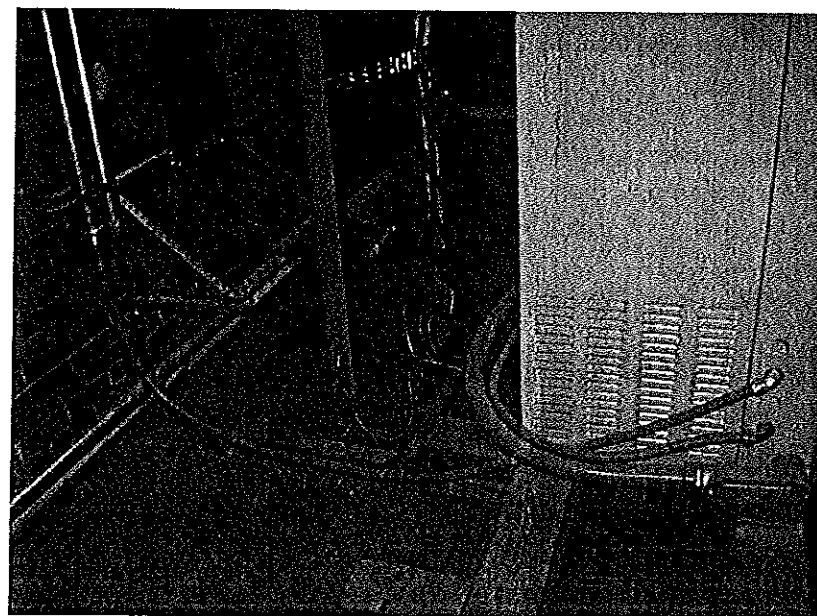
PROPOSED MEET POINT 2  
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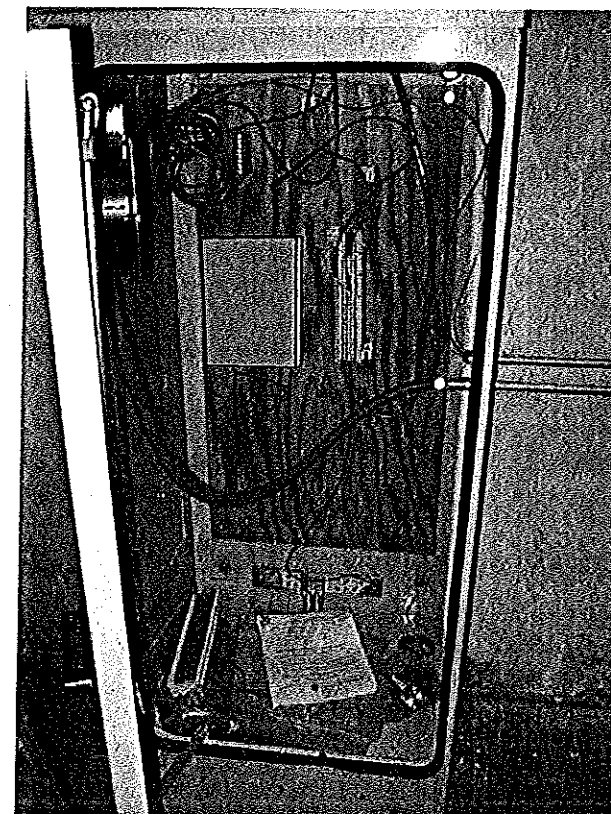
EXISTING EQUIPMENT AREA 3  
T-2



EXISTING TELCO CABINET 4  
T-2



EXISTING POWER SOURCE 5  
T-2



PROPOSED NID EQUIPMENT LOCATION 6  
T-2

**Sprint**  
VISION  
1 INTERNATIONAL BLVD, SUITE 600  
HAIRMAUL, NJ 07495  
TEL: (800) 357-7641

**Alcatel-Lucent**  
1 ROBBS ROAD  
WESTFORD, MA 01886  
TEL: (978) 552-1600

**Hudson**  
Design Group, Inc.  
1600 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 2-101  
N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 335-5555

CHECKED BY: KB

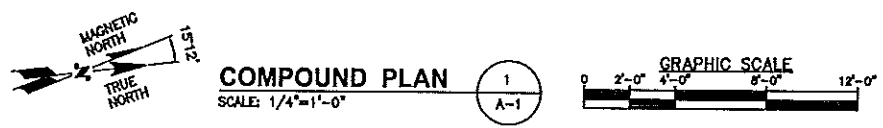
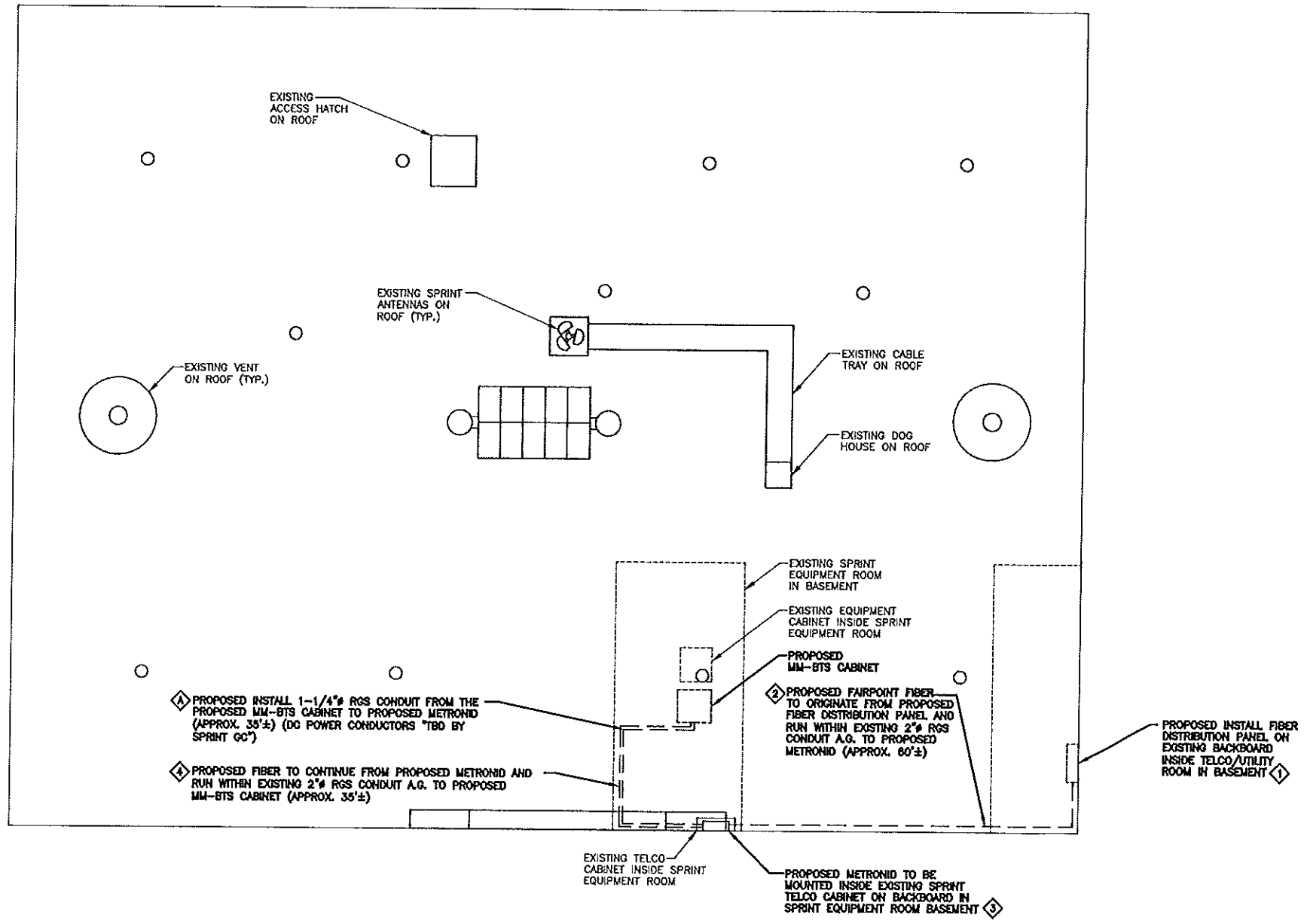
APPROVED BY: DPH

SUBMITTALS			
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SITE NUMBER:  
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PORTLAND  
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234 STEVENS AVENUE  
PORTLAND, ME 04102

SHEET TITLE  
SITE PHOTOS

SHEET NUMBER  
T-2



**COMPOUND PLAN**  
SCALE: 1/4"=1'-0"

**AAV SCOPE OF WORK NOTES:**

- ① FIBER RUN: PROPOSED INSTALL FIBER DISTRIBUTION PANEL ON EXISTING BACKBOARD INSIDE TELCO/UTILITY ROOM IN BASEMENT
- ② PROPOSED FAIRPOINT FIBER TO ORIGINATE FROM PROPOSED FIBER DISTRIBUTION PANEL AND RUN WITHIN EXISTING 2" RGS CONDUIT A.G. TO PROPOSED METRONID (APPROX. 60'±)
- ③ PROPOSED METRONID TO BE MOUNTED INSIDE EXISTING SPRINT TELCO CABINET IN SPRINT EQUIPMENT ROOM IN BASEMENT
- ④ PROPOSED FIBER TO CONTINUE FROM PROPOSED METRONID AND RUN IN EXISTING 2" RGS CONDUIT A.G. TO PROPOSED MM-BTS CABINET (APPROX. 35'±)
- ⑤ PROPOSED FIBER FROM PROPOSED FIBER DISTRIBUTION PANEL AT MEET POINT TO PROPOSED MM-BTS CABINET (APPROX. 95'± TOTAL)
- ⑥ POWER RUN: PROPOSED INSTALL 1-1/4" RGS CONDUIT FROM THE PROPOSED MM-BTS CABINET TO PROPOSED METRONID (APPROX. 35'±) (DO POWER CONDUCTORS "TBD BY SPRINT GC")

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SPRINT TO PROVIDE MULE TAPE AND INNERDUCT IN EXISTING/PROPOSED CONDUIT PATHS UNLESS OTHERWISE NOTED

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KAHAWA, NJ 07425  
TEL: (800) 357-7411

**Alcatel-Lucent**  
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WESTFORD, MA 01886  
TEL: (978) 952-1600

**Hudson Design Group, Inc.**  
1600 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 2-101  
N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

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SHEET TITLE  
**COMPOUND PLAN**

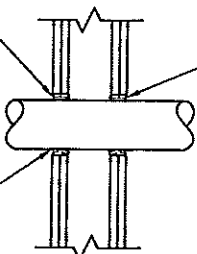
SHEET NUMBER  
**A-1**

MAXIMUM PIPE DIAMETER (%)	MAXIMUM EMT	ANNULAR SPACE (in.)	FORMING MATERIAL THICKNESS (in.)	MINIMUM SEALANT THICKNESS (in.)	F RATING (HOURS)	T RATING (HOURS)
1-1/2	-	3/8 TO 2-1/8	2-1/2	2	3	1
6	4	3/8 TO 3/4	3-1/2	1	3	0
6	4	3/8 TO 1	2-1/2	2	3	0

PACKING MATERIAL: MIN. 1 in. THICKNESS OF MIN. 3.5 pcf FIBERGLASS INSULATION SHALL BE WRAPPED AROUND THE THROUGH-PENETRANT AND SECURED TOGETHER BY MEANS OF NO. 24 AWG STEEL TIE WIRE. PACKING MATERIAL SHALL BE CENTERED AT MID-DEPTH OF OPENING AND RECESSED FROM BOTH SURFACES OF WALL ASSEMBLY REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.

FILL VOID OR CAVITY MATERIAL - CAULK OR PUTTY: IN 2 HR FIRE RATED ASSEMBLIES MIN 3/4 in. THICKNESS FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH BOTH SURFACES OF WALL. ADDITIONAL FILL MATERIAL TO BE INSTALLED SUCH THAT A MIN 1/4 in. CROWN IS FORMED AROUND THE PENETRATING ITEM. IN 1 HR FIRE RATED ASSEMBLIES, MIN 5/8 in. THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS ON BOTH SURFACES OF WALL. ADDITIONAL FILL MATERIAL TO BE INSTALLED SUCH THAT A MIN 3/8 in. CROWN IS FORMED AROUND THE PENETRATING ITEM AND LAPPING 1 in. BEYOND THE PERIPHERY OF THE OPENING.

SPECIFIED TECHNOLOGIES INC. SPECSEAL SERIES SSS SEALANT, SPECSEAL LCI SEALANT OR SPECSEAL PUTTY. UL SYSTEM NUMBER: W-L-1029 F RATING - 1 & 2 HR.



ONE 2" METALLIC PIPE OR CONDUIT TO BE CENTERED WITHIN FIRESTOP SYSTEM. PIPE SHALL BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL/FLOOR ASSEMBLY

PIPE AND CONDUIT PENETRATION  
DETAIL IN GYPSUM WALLBOARD

CONCRETE FLOOR OR WALL ASSEMBLY, MINIMUM 4-1/2 in. THICKNESS FLOOR/ MINIMUM 6-1/2 in. WALL.

TYPE AS OR TYPE SS. MINIMUM THICKNESS OF SEALANT AS SPECIFIED IN THE TABLE BELOW, APPLIED WITHIN THE OPENING, FLUSH WITH THE TOP SURFACE OF THE FLOOR OR BOTH SURFACES OF THE WALL.

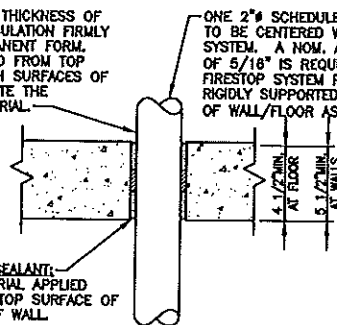
FORMING MATERIAL: MINERAL WOOL INSULATION (MINIMUM 4.0 pcf) FIRMLY PACKED INTO THE OPENING AS A PERMANENT FORM; SEE TABLE FOR MINIMUM REQUIRED THICKNESS

METALLIC PIPE: STEEL PIPE: 6" (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. CONDUIT: 4" (OR SMALLER) ELECTRICAL METALLIC TUBING (EMT) OR 6" RIGID STEEL CONDUIT.

UL SYSTEM NUMBER: C-AJ-1020  
F RATING - 3 HR.

PIPE AND CONDUIT PENETRATION  
DETAIL IN CONCRETE OR MASONRY

PACKING MATERIAL: MIN 1-1/2 in. THICKNESS OF MIN 8 pcf MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.



ALL CORES THROUGH ELECTRIC ROOMS TO BE FIRE-STOPPED. USE FULL CONDUIT RUNS THROUGH PENETRATIONS

NOTE: CORE HOLE 1 1/2" LARGER THAN THE DIAMETER OF THE CONDUIT. CORE DRILLS TO BE SEALED WITH ELASTOMERIC SEALANT.

PIPE AND CONDUIT PENETRATION  
DETAIL IN NON-RATED PARTITION

FILL VOID OR CAVITY MATERIAL - SEALANT: MIN 2 in. THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH THE TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL.

SPECIFIED TECHNOLOGIES INC. SPECSEAL SERIES SSS SEALANT OR SPECSEAL LCI SEALANT.

UL SYSTEM NUMBER: C-AJ-2057  
F RATING - 2 HR.

PVC CONDUIT PENETRATION  
DETAIL IN CONCRETE OR MASONRY

WALL HR	MAX DIAM OF THROUGH PENETRANT in.	T RATING HR
1	2	
1	1-1/4	
2	2	
2	1-1/4	1 1/2

THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.

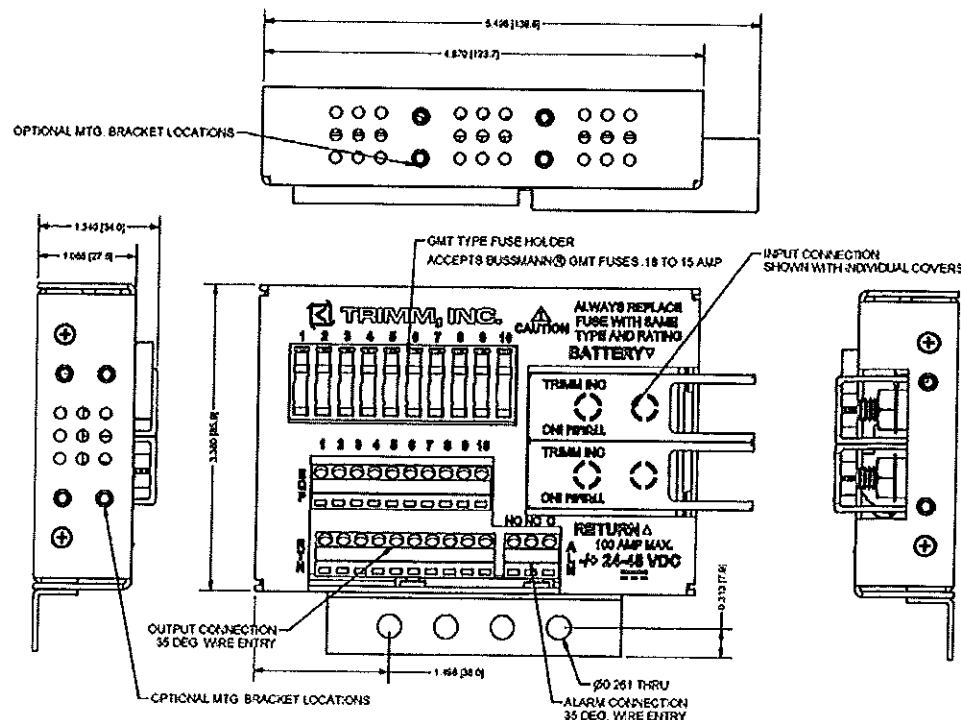
THROUGH PENETRANTS: ONE 2" NONMETALLIC PIPE, CONDUIT OR RACEWAY TO BE CENTERED WITHIN THE FIRESTOP SYSTEM. A NOM ANNULAR SPACE OF 5/16 in. IS REQUIRED WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR RACEWAY TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR OR WALL ASSEMBLY.

FILL VOID OR CAVITY MATERIAL - SEALANT: MIN 5/8 in. THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. ADDITIONAL FILL MATERIAL TO BE INSTALLED SUCH THAT A MIN 1/4 in. THICK CROWN IS FORMED AROUND THE PENETRATING ITEM AND LAPPING 1 in. BEYOND THE PERIPHERY OF THE OPENING.

SPECIFIED TECHNOLOGIES INC. SPECSEAL SERIES SSS SEALANT, SPECSEAL LCI SEALANT.

UL SYSTEM NUMBER: W-L-2093  
F RATING - 1 & 2 HR.

PVC CONDUIT PENETRATION  
DETAIL IN GYPSUM WALLBOARD

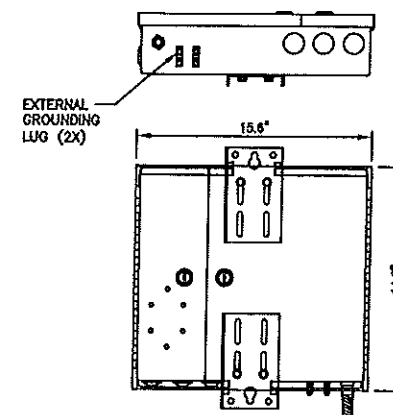
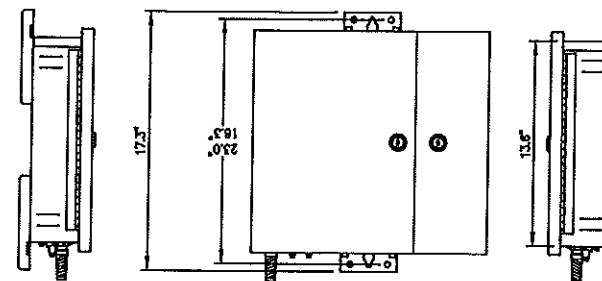
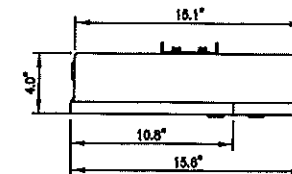


FUSE PANEL DETAIL

SCALE: N.T.S.

PENETRATION DETAILS

SCALE: N.T.S.



METRO NID CABINET DETAIL

SCALE: N.T.S.

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SHEET TITLE  
DETAILS

SHEET NUMBER  
A-2