

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK CITY OF PORTLAND

Please Read
Application And
Notes, If Any,
Attached

SECTION PERMIT

Permit Number: 041319

This is to certify that Carye Raymond A Etal/KJK Wireless

has permission to add 3 Antenna's 3 cables to existing Tower & Ground Equip. To existing 14'x17' pad

AT 1361 Washington Ave

401 A005001

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

Apply to Public Works for street line and grade if nature of work requires such information.

Notification of inspection must be given and when permission is procured before this building or part thereof is altered or closed-in. 24 HOUR NOTICE IS REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

OTHER REQUIRED APPROVALS

Fire Dept. _____

Health Dept. _____

Appeal Board _____

Other _____

Department Name

William H. Smith
Director - Building & Inspection Services

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: 04-1319		Issue Date:		CBL: 401 A005001	
Location of Construction: 1361 Washington Ave		Owner Name: Carye Raymond A Etal		Owner Address: 15 Monsignor O'brien Hwy	
Business Name:		Contractor Name: KJK Wireless		Contractor Address: 148 Witchtrot Road S. Berwick	
Lessee/Buyer's Name		Phone:		Permit Type: Radio/Telecommunications Tower	
Past Use: Communications Facility		Proposed Use: Comm. Facility / add 3 Antenna's 3 cables to existing Tower & Ground Equip. To a existing 14'x17' pad		Permit Fee: \$267.00	
Proposed Project Description: add 3 Antenna's 3 cables to existing Tower & Ground Equip. To a existing 14'x17' pad <i>needs exemption</i>		FIRE DEPT: <input type="checkbox"/> Approved <input type="checkbox"/> Denied Signature:		Cost of Work: \$19,000.00	
				CEO District: 4	
		INSPECTION: Use Group: U Type: JC 10/08/04 <i>Chad</i>		Signature:	
				Signature:	
		PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.) Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Signature: Date:			
Permit Taken By: ldobson		Date Applied For: 09/03/2004		Zoning Approval	
<ol style="list-style-type: none">This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.Building permits do not include plumbing, septic or electrical work.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..		Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan <i>Exemption Applied for</i> Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/> <i>ok</i> Date: 10/11/04		Zoning Appeal <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:	
		Historic Preservation <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:			

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

Permit No: 04-1319	Date Applied For: 09/03/2004	CBL: 401 A005001
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Location of Construction: 1361 Washington Ave	Owner Name: Carye Raymond A Etal	Owner Address: 15 Monsignor O'brien Hwy	Phone:
Business Name:	Contractor Name: KJK Wireless	Contractor Address: 148 Witchtrot Road S. Berwick	Phone (207) 384-5650
Lessee/Buyer's Name	Phone:	Permit Type: Radio/Telecommunications Tower	

Proposed Use: Comm. Facility / add 3 Antenna's 3 cables to existing Tower & Ground Equip. To a existing 14'x17' pad	Proposed Project Description: add 3 Antenna's 3 cables to existing Tower & Ground Equip. To a existing 14'x17' pad
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Dept: Zoning	Status: Approved	Reviewer: Marge Schmuckal	Approval Date: 10/01/2004
Note: 10/01/04 I had to make out a site plan exemption for the applicant - they did not follow-thru on that step			Ok to Issue: <input checked="" type="checkbox"/>
Dept: Building	Status: Approved with Conditions	Reviewer: Mike Nugent	Approval Date: 10/08/2004
Note: 1) Must have a final inspection from a structural engineer, and compliance certification prior to closure			Ok to Issue: <input checked="" type="checkbox"/>

Comments: 10/7/2004-gg: received approved exemption from site plan. /gg

All Purpose Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

Location/Address of Construction: <u>WGME-13 TOWER</u> <u>1335 WASHINGTON AVE., PORTLAND, ME</u>		
Total Square Footage of Proposed Structure <u>98 SQ. FT. PAD</u>	Square Footage of Lot	
Tax Assessor's Chart, Block & Lot Chart# Block# Lot# <u>401</u> <u>A</u> <u>005</u>	Owner: <u>RAYMOND CARVE</u> <u>15 MONSIGNOR OBRIEN HWY.</u> <u>CAMBRIDGE, MA 02141</u>	Telephone: <u>207-797-1313</u>
Lessee/Buyer's Name (If Applicable) <u>US CELLULAR</u>	Applicant name, address & telephone: <u>207-384-5650</u> <u>BOB GASHLIN</u> <u>KJK WIRELESS</u> <u>148 WITCHTROT RD.</u> <u>S. BERWICK, ME 03908</u>	Cost Of Work: \$ <u>19,000.00</u> Fee: \$ <u>267.00</u> <div style="text-align: right; font-size: 1.2em;">192.00</div>
Current use: <u>COMMUNICATIONS FACILITY</u>		
If the location is currently vacant, what was prior use: <u>N/A</u>		
Approximately how long has it been vacant: <u>N/A</u>		
Proposed use: <u>COMMUNICATIONS FACILITY</u>		
Project description: <u>ADD 3 ANTENNAS, 3 CABLES TO EXISTING TOWER AND GROUND EQUIPMENT TO 14'X7' PAD AT BASE OF TOWER. SEE ATTACHED DESCRIPTION FOR DETAILS.</u>		
* THIS IS AN UNMANNED FACILITY WITH NO BUILDINGS PROPOSED.		
Contractor's name, address & telephone:		
Who should we contact when the permit is ready: <u>BOB GASHLIN</u>		
Mailing address: <u>KJK WIRELESS</u> <u>148 WITCHTROT RD.</u> <u>S. BERWICK, ME 03908</u>		
We will contact you by phone when the permit is ready. You must come in and pick up the permit and review the requirements before starting any work, with a Plan Reviewer. A stop work order will be issued and a \$100.00 fee if any work starts before the permit is picked up. PHONE: <u>207-384-5650 (OFFICE)</u> <u>603-498-3860 (MOBILE)</u>		

IF THE REQUIRED INFORMATION IS NOT INCLUDED IN THE SUBMISSIONS THE PERMIT WILL BE AUTOMATICALLY DENIED AT THE DISCRETION OF THE BUILDING/PLANNING DEPARTMENT, WE MAY REQUIRE ADDITIONAL INFORMATION IN ORDER TO APPROVE THIS PERMIT.

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 of applicant: 	Date: <u>9/2/04</u>
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This is NOT a permit, you may not commence ANY work until the permit is issued.
If you are in a Historic District you may be subject to additional permitting and fees with
Planning Department on the 4th floor of City Hall

KJK WIRELESS

148 Witchtrot Road
S. Berwick, ME 03908

Site Acquisition, Leasing and Zoning

Phone: 207-384-5650 (office)
603-498-3860 (mobile)
Fax: 603-299-0387

September 1, 2004

City of Portland
Building Code Department
389 Congress St.
Portland, ME 04101

RE: US Cellular Proposed Building Permit Application / 1335 Washington Ave.

Dear Sir or Madam:

KJK Wireless represents US Cellular's permitting interests on this project.

US Cellular has leased space at 1335 Washington Avenue to add antennas and associated electronics equipment to the existing WGME-13 tower facility. Specifically, US Cellular proposes the following:

- Add three (3) antennas to the existing tower @ 150'. The antennas are 5' tall and weigh 9.1 pounds each.
- Add one (1) 14' x 7' concrete pad at the base of the tower for three (3) equipment cabinets. The pad and cabinets will be located inside an existing fenced compound.
- Add three (3) 1 5/8" cables to connect the antennas to the equipment cabinets.

It is my understanding that a building permit is required for this project. I have enclosed a building permit application, application fee in the amount of ~~\$267.00~~, site plan drawing, structural analysis, and antenna specification for your review. — \$192.00

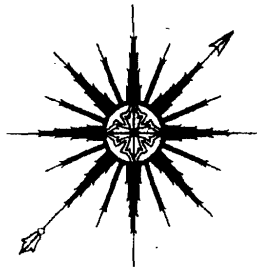
Please direct all questions and correspondence to my attention.

Sincerely,



Bob Gashlin

401 AS



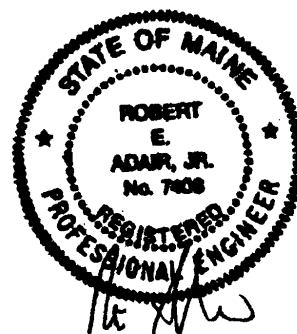
ALL-POINTS TECHNOLOGY CORPORATION, P.C.

**STRUCTURAL ANALYSIS REPORT
230' ROHN SELF-SUPPORTING TOWER
WASHINGTON AVENUE
PORTLAND, MAINE**

Prepared for
U.S. Cellular

USCC Site #853408

August 9, 2004



APT Project #ME101840

☐ 3 SADDLEBROOK DRIVE • KILLINGWORTH, CONNECTICUT 06419 • PHONE: 860-663-1697 • FAX: 860-663-0935

☒ 150 OLD WESTSIDE ROAD • NORTH CONWAY, NEW HAMPSHIRE 03860 • PHONE/FAX: 603-356-5214

**STRUCTURAL ANALYSIS REPORT
230' ROHN SELF-SUPPORTING TOWER
PORTLAND, MAINE
prepared for
U.S. Cellular**

EXECUTIVE SUMMARY:

All-Points Technology Corporation, P.C. (APT) performed a condition assessment and structural analysis of this 230-foot ROHN Model SSVMW self-supporting tower. The analysis was performed with the addition of six Antel BSA185065 panel antennas on three 12' sector mounts at 150'.

Waveguide cables are to be six 1-5/8" cables. Waveguide cables must be installed in a 3-wide by 2-deep stacked arrangement. APT recommends that unused waveguide cables be removed from the tower to minimize unnecessary wind load. A small section of ladder used for changing light bulbs on the top-mounted beacon should be more securely fixed to the tower.

Our analysis indicates the tower and foundations are capable of supporting the proposed antennas.

INTRODUCTION:

A condition assessment and structural analysis was performed on the above-mentioned communications tower by APT for U.S. Cellular. The tower is located at the WGME offices on Washington Avenue in Portland, Maine.

Robert E. Adair, P.E. visited the tower site on August 4, 2004 to record information regarding physical and dimensional properties of the structure and its appurtenances. Mr. Adair climbed the structure in its entirety to compile data necessary to perform the structural analysis. The analysis also relied on information provided by WGME, which included ROHN tower and foundation drawings.

The structure is a 230-foot ROHN Model SSVMW three-legged, galvanized steel, self-supporting tower. The tower was apparently erected in 1977.

The analysis was performed in accordance with EIA/TIA-222-F using the following antenna inventory (proposed antennas shown in **bold text**):

All-Points Technology Corporation

150 Old Westside Road
North Conway, NH 03860
(603) 356-5214

3 Saddlebrook Drive
Killingworth, CT 06419
(860) 663-1697

Antenna	Elev.	Mount	Coax.
Beacon	236'	Pipe extension	1" conduit
Rotatable grid	233'	Pipe extension	7/8", 3/8"
Rotatable grid	230'	Pipe	7/8", 3/8"
8' dish with radome	225'	Pipe on leg	EW-63
18" yagi	224'	Pipe	1-5/8"
8' grid dish	222'	Pipe on leg	7/8"
8' dish with radome	191'	Pipe on leg	EW-63
8' grid dish	177'	Leg	7/8"
15' omnidirectional	158'	3' sidearm	3/8"
(6) BSA 185065 panels	150'	(3) 12' sector mounts	(6) 1-5/8"
Empty 3' sidearm	142'	N.A.	N.A.
(2) obstruction lights	115'	Legs	1" conduit
6' dish with radome	101'	Pipe on leg	EW-63
(2) ground plane omnidirectionals	86'	Pipes on rest platform	(2) 1/4"
8-bay dipole	86'	3' sidearm	7/8"
4' yagi	86'	On above sidearm	1/2"
6' dish with radome	83'	Pipe on leg	EW-63
4' dish	82'	Pipe on leg	7/8"
3' yagi	30'	Pipe on bracing	1/2"

CONDITION ASSESSMENT:

- **General Observations:** The tower, a galvanized steel structure, appeared to be in very good condition. No signs of movement or overstress of the tower were observed. A small section of ladder, presumably used to access the top-mounted beacon, was observed to be attached to the tower with rope and hose clamps. APT recommends this ladder section be securely fixed to the tower.
- **Legs:** Leg member sizes were verified by ultrasonic thickness measurements. Legs are comprised of 50 ksi steel, according to ROHN specifications. Leg members appeared to be in good condition.
- **Bracing:** Bracing connections were visually inspected to the maximum extent practicable. All connections that were observed appeared to be sound, with no loose or missing bolts noted.
- **Antenna Connections:** Antenna mounting hardware was in fair condition, with rusting observed on some antenna mounts.

All-Points Technology Corporation

150 Old Westside Road
 North Conway, NH 03860
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3 Saddlebrook Drive
 Killingworth, CT 06419
 (860) 663-1697

- **Splice Connections:** Observed splice bolts and connections were in good condition. No loose or missing bolts or nuts were observed.

STRUCTURAL ANALYSIS:

Methodology:

The structural analysis was done in accordance with EIA/TIA-222-F, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures (EIA); and the American Institute of Steel Construction (AISC), Manual of Steel Construction, Allowable Stress Design, Ninth Edition.

The analysis was conducted using a wind speed of 80 miles per hour and one-half inch of radial ice over the entire structure and all appurtenances. The EIA/TIA Standard requires a basic wind speed of 80 miles per hour for Cumberland County, Maine. The tower was analyzed by applying the wind and ice loading and calculating the resultant maximum bending moments, shear forces, and axial loads. The moments and forces were used to calculate stresses in leg and bracing members, which were compared to allowable stresses according to AISC.

Two loading conditions were evaluated in accordance with EIA/TIA-222-F to determine the tower's capacity. The more demanding of the two cases is used to calculate the tower capacity:

- Case 1 = Wind Load (without ice) + Tower Dead Load
- Case 2 = 0.75 Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits a one-third increase in allowable stresses for towers less than 700-feet tall. Allowable stresses of tower members were increased by one-third when computing the load capacity values shown below.

Analysis Results:

Analysis of the tower was conducted in accordance with the criteria outlined herein with antenna changes as previously described.

The following table summarizes the results of the analysis based on stresses of individual leg and bracing members:

All-Points Technology Corporation

150 Old Westside Road
North Conway, NH 03860
(603) 356-5214

3 Saddlebrook Drive
Killingworth, CT 06419
(860) 663-1697

Elevation	Legs	Bracing
220'-230'	5%	29%
200'-220'	19%	40%
180'-200'	39%	87%
160'-180'	54%	69%
140'-160'	59%	78%
120'-140'	58%	99%
100'-120'	64%	61%
80'-100'	56%	52%
60'-80'	67%	63%
40'-60'	47%	37%
20'-40'	53%	37%
0'-20'	59%	38%

Base Foundations:

Evaluation of the existing base foundations, reinforced concrete piers with drilled rock anchors, was performed from ROHN drawings provided by WGME. Our evaluation indicates the existing foundations are capable of supporting the proposed loads.

Base reactions imposed with the additional antennas were calculated as follows:

Uplift:	136.7 kips
Compression:	174.5 kips
Total Shear:	37.3 kips
Overturning Moment:	4585 ft-kips

CONCLUSIONS AND RECOMMENDATIONS:

Our structural analysis indicates that WGME's 230-foot ROHN self-supporting tower located on Washington Avenue in Portland, Maine is capable of supporting the proposed antennas. Waveguide cables must be installed in a 3-wide by 2-deep stacked arrangement.

APT recommends that all unused waveguide cables be removed from the tower to minimize unnecessary wind loads. APT recommends the small ladder section at the top of the tower, apparently used to access the tower's beacon, be securely fastened to the tower.

All-Points Technology Corporation

150 Old Westside Road
North Conway, NH 03860
(603) 356-5214

3 Saddlebrook Drive
Killingworth, CT 06419
(860) 663-1697

LIMITATIONS:

This report is based on the following:

1. Tower is properly installed and maintained.
2. All members are in new condition.
3. All required members are in place.
4. All bolts are in place and are properly tightened.
5. Tower is in plumb condition.
6. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.

All-Points Technology Corporation, P.C. (APT) is not responsible for modifications completed prior to or hereafter which APT is not or was not directly involved. Modifications include but are not limited to:

1. Replacing or strengthening bracing members.
2. Reinforcing vertical members in any manner.
3. Adding or relocating torque arms or guys.
4. Installing antenna mounting gates or side arms.

APT hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon the information contained and set forth herein. If you are aware of any information which is contrary to that which is contained herein, or you are aware of any defects arising from the original design, material, fabrication and erection deficiencies, you should disregard this report and immediately contact APT. APT disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

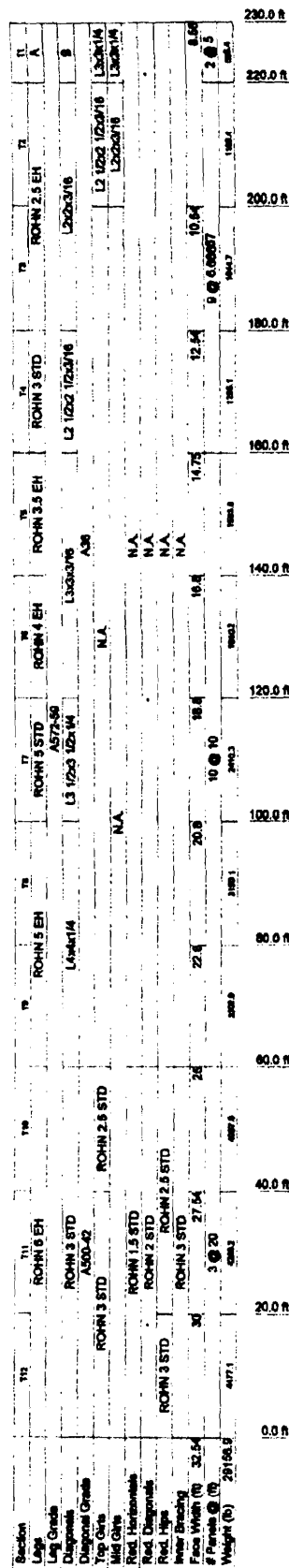
All-Points Technology Corporation

150 Old Westside Road
North Conway, NH 03860
(603) 356-5214

3 Saddlebrook Drive
Killingworth, CT 06419
(860) 663-1697

Appendix A

Tower Schematic



APPURTENANCES

TYPE	ELEVATION	TYPE	ELEVATION
Flash Beacon Lighting	230	12' T-frame APT	150
Rotatable grid	230	12' T-frame APT	150
Rotatable grid	230	12' T-frame APT	150
8' dish with radome	225	Obstruction lights	115
18" yagi	224	6' dish with radome	101
8' grid dish	222	(2) omnis on rest platform	88
8' dish with radome	191	8-bay dipole	88
8' grid dish	177	4' yagi	88
15' omni	158	6' dish with radome	83
(2) BSA-185085/12	150	4' dish	82
(2) BSA-185085/12	150	3' yagi	30
(2) BSA-185085/12	150		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 2.5 STD	B	L1 3/4x1 3/4x1/8

MATERIAL STRENGTH

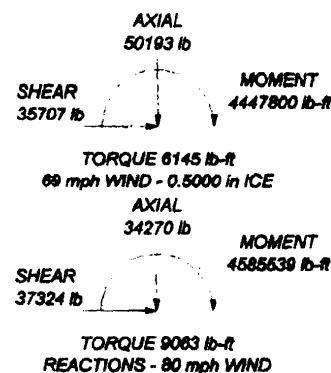
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A500-42	42 ksi	58 ksi
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in Cumberland County, Maine.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 103%

MAX PIER FORCES:

DOWN: 174510 lb
 UPLIFT: -130685 lb
 SHEAR: 22583 lb



All-Points Technology Corp.
 150 Old Westside Road
 North Conway, NH 03860
 Phone: 603-486-5853
 FAX: 603-356-5214

Job: **230' ROHN SSVNW**
 Project: **ME101880 Portland WGME**
 Client: **US Cellular, Site #**
 Code: **TIA/EIA-222-F**
 Date: **08/09/04**
 Scale: **NTS**
 Dwg No. **E-1**

Appendix B

Photographs

U.S. CELLULAR
230' SELF-SUPPORTING TOWER
WGME 13
PORTLAND, MAINE

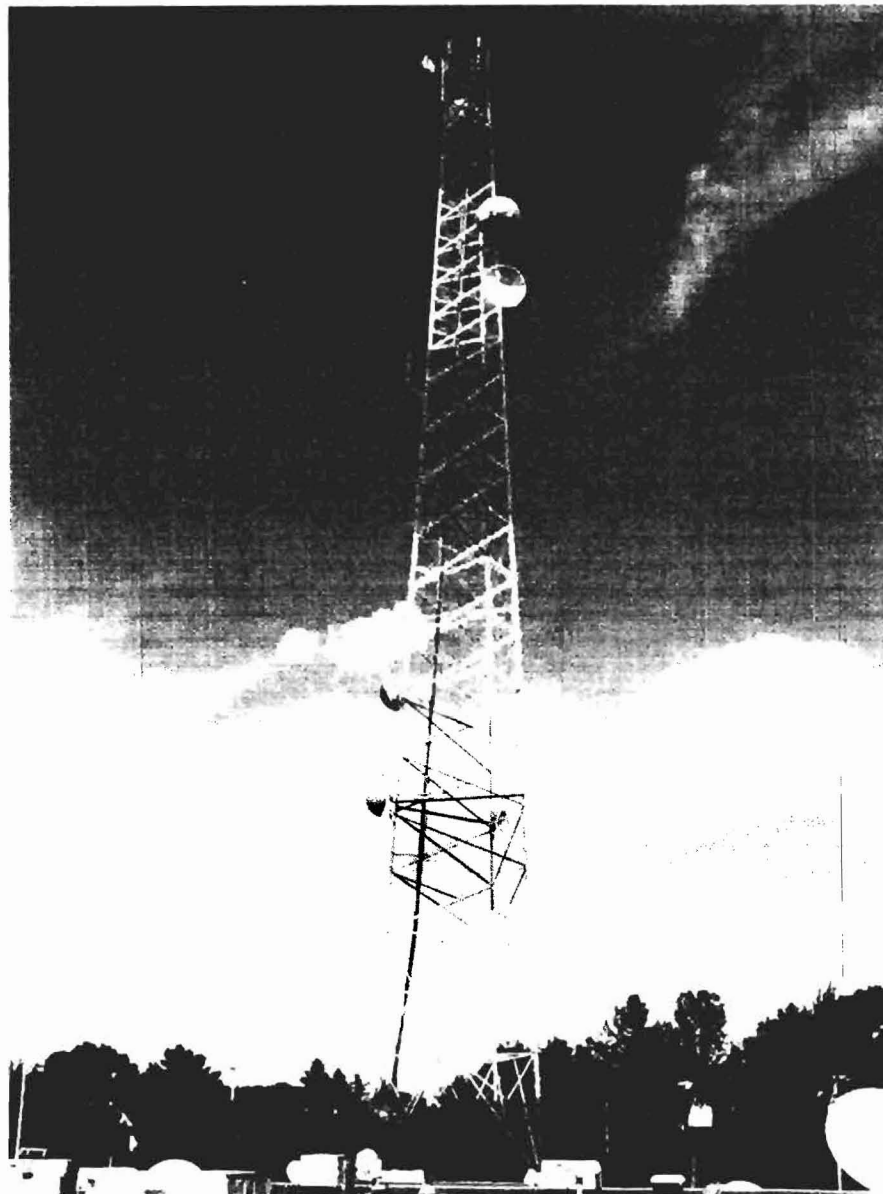
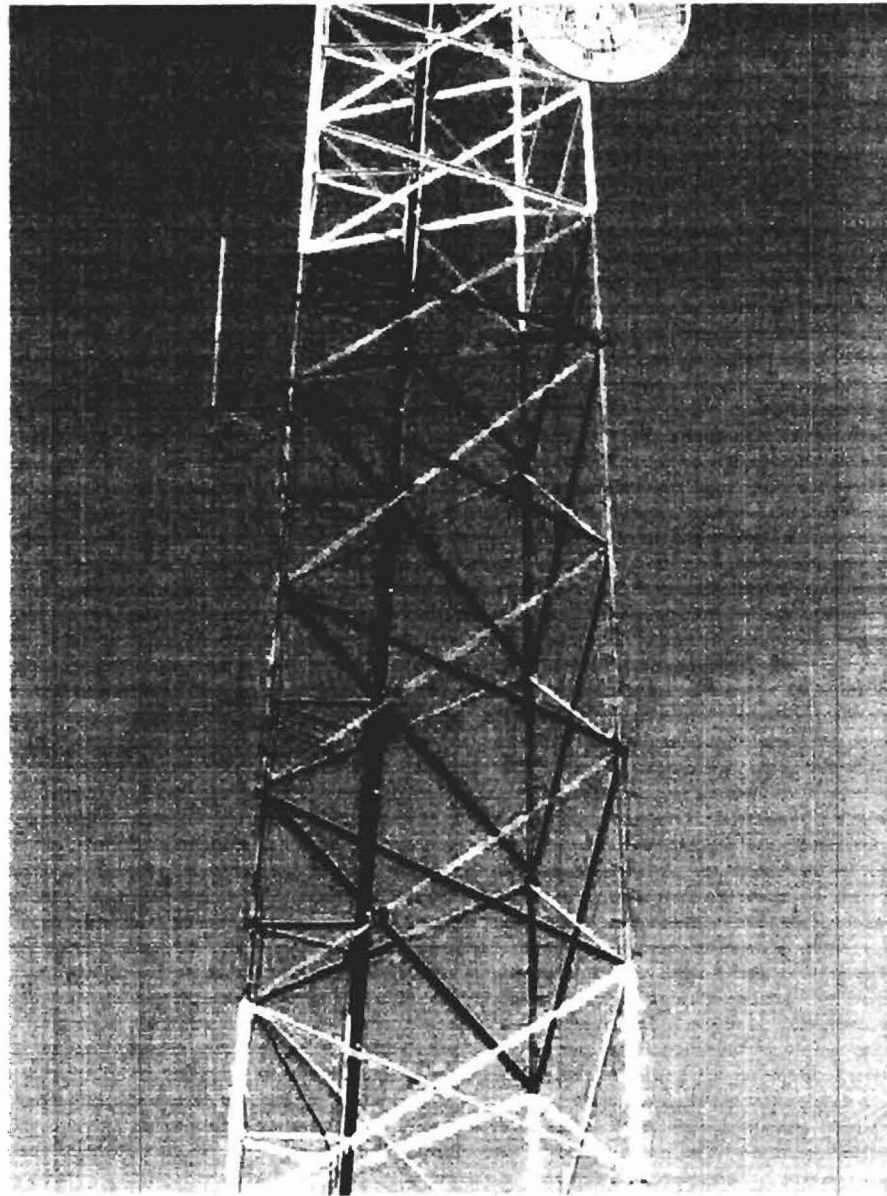


Photo showing overview of 230' ROHN SSVMW self-supporting tower.

Photos taken by All-Points Technology Corporation on August 4, 2004

U.S. CELLULAR
230' SELF-SUPPORTING TOWER
WGME 13
PORTLAND, MAINE



Telephoto view showing existing antennas from 120' to 180' on the tower.

Photos taken by All-Points Technology Corporation on August 4, 2004

Appendix C

Calculations

ERITower All-Points Technology Corp. 150 Old Westside Road North Conway, NH 03860 Phone: 603-496-5853 FAX: 603-356-5214	Job	230' ROHN SSVMW	Page 1 of 1
	Project	ME101860 Portland WGME	Date 14:59:10 08/09/04
	Client	US Cellular; Site #	Designed by REA

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 230.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 8.56 ft at the top and 32.54 ft at the base.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

- Tower is located in Cumberland County, Maine.
- Basic wind speed of 80 mph.
- Nominal ice thickness of 0.5000 in.
- Ice density of 56 pcf.
- A wind speed of 69 mph is used in combination with ice.
- Deflections calculated using a wind speed of 50 mph.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.333.

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	230.00-220.00			8.56	1	10.00
T2	220.00-200.00			8.56	1	20.00
T3	200.00-180.00			10.54	1	20.00
T4	180.00-160.00			12.54	1	20.00
T5	160.00-140.00			14.75	1	20.00
T6	140.00-120.00			16.80	1	20.00
T7	120.00-100.00			18.80	1	20.00
T8	100.00-80.00			20.80	1	20.00
T9	80.00-60.00			22.80	1	20.00
T10	60.00-40.00			25.00	1	20.00
T11	40.00-20.00			27.54	1	20.00
T12	20.00-0.00			30.00	1	20.00

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	230.00-220.00	5.00	X Brace	No	No	0.0000	0.0000
T2	220.00-200.00	6.67	X Brace	No	No	0.0000	0.0000
T3	200.00-180.00	6.67	X Brace	No	No	0.0000	0.0000
T4	180.00-160.00	6.67	X Brace	No	No	0.0000	0.0000
T5	160.00-140.00	10.00	X Brace	No	No	0.0000	0.0000
T6	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T7	120.00-100.00	10.00	X Brace	No	No	0.0000	0.0000
T8	100.00-80.00	10.00	X Brace	No	No	0.0000	0.0000
T9	80.00-60.00	10.00	X Brace	No	No	0.0000	0.0000
T10	60.00-40.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T11	40.00-20.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T12	20.00-0.00	20.00	K1 Down	No	Yes	0.0000	0.0000

ERITower All-Points Technology Corp. 150 Old Westside Road North Conway, NH 03860 Phone: 603-496-5853 FAX: 603-356-5214	Job	230' ROHN SSVMW	Page	2 of 2
	Project	ME101860 Portland WGME	Date	14:59:10 08/09/04
	Client	US Cellular; Site #	Designed by	REA

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 230.00-220.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x1/8	A36 (36 ksi)
T2 220.00-200.00	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T3 200.00-180.00	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T4 180.00-160.00	Pipe	ROHN 3 STD	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 160.00-140.00	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T6 140.00-120.00	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T7 120.00-100.00	Pipe	ROHN 5 STD	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T8 100.00-80.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)
T9 80.00-60.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)
T10 60.00-40.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-42 (42 ksi)
T11 40.00-20.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-42 (42 ksi)
T12 20.00-0.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-42 (42 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 230.00-220.00	Equal Angle	L3x3x1/4	A36 (36 ksi)			
T2 220.00-200.00	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)			
T10 60.00-40.00	Pipe	ROHN 2.5 STD	A500-42 (42 ksi)			
T11 40.00-20.00	Pipe	ROHN 3 STD	A500-42 (42 ksi)			
T12 20.00-0.00	Pipe	ROHN 3 STD	A500-42 (42 ksi)			

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 230.00-220.00	1	Equal Angle	L3x3x1/4	A36 (36 ksi)			A572-50 (50 ksi)
T2 220.00-200.00	2	Equal Angle	L2x2x3/16	A36 (36 ksi)			A572-50 (50 ksi)
T10 60.00-40.00	None			A36 (36 ksi)	Pipe	ROHN 1.5 STD	A500-42 (42 ksi)
T11 40.00-20.00	None			A36 (36 ksi)	Pipe	ROHN 1.5 STD	A500-42 (42 ksi)
T12 20.00-0.00	None			A36 (36 ksi)	Pipe	ROHN 1.5 STD	A500-42 (42 ksi)

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Tower Section Geometry (cont'd)

Tower Elevation	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
<i>ft</i>						
T10 60.00-40.00			A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-42 (42 ksi)
T11 40.00-20.00			A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-42 (42 ksi)
T12 20.00-0.00			A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-42 (42 ksi)

Tower Elevation	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
<i>ft</i>					
T10 60.00-40.00	A36 (36 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 2.5 STD	1
T11 40.00-20.00	A36 (36 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 2.5 STD	1
T12 20.00-0.00	A36 (36 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 3 STD	1

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number	Number Per Row	Clear Spacing	Width or Diameter	Perimeter	Weight
				<i>ft</i>			<i>in</i>	<i>in</i>	<i>in</i>	<i>plf</i>
7/8	A	Yes	Ar (CfAe)	230.00 - 8.00	2	2	0.0000	1.1100		0.54
EW63	B	Yes	Af (CfAe)	230.00 - 8.00	3	3	0.0000	1.5742	5.0668	0.51
1/2	A	Yes	Ar (CfAe)	86.00 - 8.00	2	2	0.0000	0.5800		0.25
3/8	B	Yes	Ar (CfAe)	225.00 - 8.00	3	3	0.0000	0.4400		0.08
1 5/8	C	Yes	Ar (CfAe)	150.00 - 6.00	6	3	0.0000	1.9800		1.04

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _A A ₁ Front	C _A A ₁ Side	Weight
			<i>ft</i> <i>ft</i> <i>ft</i>	<i>°</i>	<i>ft</i>	<i>ft</i> ²	<i>ft</i> ²	<i>lb</i>
Flash Beacon Lighting	B	From Leg	0.00	0.0000	230.00	No Ice		50.00
			0.00			1/2" Ice	3.10	70.00
			6.00					
Rotatable grid	A	From Leg	0.00	0.0000	230.00	No Ice	0.60	40.00
			0.00			1/2" Ice	1.20	60.00
			3.00					
Rotatable grid	A	From Leg	0.00	0.0000	230.00	No Ice	0.60	40.00
			0.00			1/2" Ice	1.20	60.00

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A ₁ Front ft ²	C _A A ₁ Side ft ²	Weight lb
18" yagi	A	None	0.00	0.0000	224.00	No Ice 1/2" Ice	0.19 0.48	0.19 0.48	15.00 25.00
15' omni	C	From Leg	3.00 0.00 0.00	0.0000	158.00	No Ice 1/2" Ice	1.57 2.91	1.57 2.91	75.00 125.00
Obstruction lights	C	From Face	0.00 0.00 0.00	0.0000	115.00	No Ice 1/2" Ice	1.69 3.13	1.69 3.13	25.00 40.00
(2) omnis on rest platform	A	None	0.00	0.0000	86.00	No Ice 1/2" Ice	1.90 3.38	1.90 3.38	150.00 225.00
8-bay dipole	A	From Leg	3.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice	4.31 6.56	4.31 6.56	125.00 200.00
4' yagi	A	From Leg	3.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice	0.50 1.50	0.50 1.50	25.00 40.00
3' yagi	A	None	0.00	0.0000	30.00	No Ice 1/2" Ice	1.39 2.80	1.39 2.80	35.00 50.00
(2) BSA-185065/12	A	From Leg	2.50 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	4.78 5.23	1.97 2.65	10.60 32.68
(2) BSA-185065/12	B	From Leg	2.50 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	4.78 5.23	1.97 2.65	10.60 32.68
(2) BSA-185065/12	C	From Leg	2.50 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	4.78 5.23	1.97 2.65	10.60 32.68
12' T-frame APT	A	None	0.00	0.0000	150.00	No Ice 1/2" Ice	5.80 8.17	2.90 4.08	350.00 450.00
12' T-frame APT	B	None	0.00	0.0000	150.00	No Ice 1/2" Ice	5.80 8.17	2.90 4.08	350.00 450.00
12' T-frame APT	C	None	0.00	0.0000	150.00	No Ice 1/2" Ice	5.80 8.17	2.90 4.08	350.00 450.00

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight lb
8' dish with radome	A	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	30.0000		225.00	8.00	No Ice 1/2" Ice	0.00 0.00
8' grid dish	B	Grid	From Leg	1.00 0.00 0.00	-40.0000		222.00	8.00	No Ice 1/2" Ice	0.00 0.00
8' dish with radome	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	30.0000		191.00	8.00	No Ice 1/2" Ice	0.00 0.00
8' grid dish		Grid	None	0.00	0.0000		177.00	8.00	No Ice 1/2" Ice	0.00 0.00
6' dish with radome	A	Paraboloid w/Radome	From Leg	1.00 0.00	40.0000		101.00	6.00	No Ice 1/2" Ice	0.00 0.00

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Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft²	Weight lb
6' dish with radome	A	Paraboloid w/Radome	From Leg	0.00 1.00 0.00 0.00	10.0000		83.00	6.00	No Ice 1/2" Ice	0.00 0.00 500.00
4' dish	A	Paraboloid w/o Radome	From Leg	0.00 1.00 0.00 0.00	90.0000		82.00	4.00	No Ice 1/2" Ice	0.00 0.00 150.00 250.00

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	230 - 220	12.507	2	0.4724	0.0355
T2	220 - 200	11.508	2	0.4704	0.0319
T3	200 - 180	9.530	2	0.4527	0.0149
T4	180 - 160	7.655	2	0.4138	0.0135
T5	160 - 140	5.972	2	0.3540	0.0097
T6	140 - 120	4.518	2	0.3073	0.0072
T7	120 - 100	3.247	2	0.2599	0.0061
T8	100 - 80	2.215	2	0.2029	0.0076
T9	80 - 60	1.393	2	0.1582	0.0075
T10	60 - 40	0.757	2	0.1094	0.0055
T11	40 - 20	0.346	2	0.0741	0.0032
T12	20 - 0	0.093	2	0.0376	0.0014

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load Allowable	Allowable Ratio	Criteria
T1	230	Leg	A325N	0.6250	4	14.64	13499.00	0.001 ✓	1.333	Bolt Tension
T2	220	Leg	A325N	0.6250	4	610.09	13499.00	0.045 ✓	1.333	Bolt Tension
T3	200	Leg	A325N	0.7500	4	2692.77	19438.60	0.139 ✓	1.333	Bolt Tension
T4	180	Leg	A325N	0.8750	4	5210.43	26457.90	0.197 ✓	1.333	Bolt Tension
T5	160	Leg	A325N	0.8750	4	8353.58	26458.10	0.316 ✓	1.333	Bolt Tension
T6	140	Leg	A325N	1.0000	4	11581.30	34557.50	0.335 ✓	1.333	Bolt Tension
T7	120	Leg	A325N	1.0000	4	14956.20	34557.50	0.433 ✓	1.333	Bolt Tension
T8	100	Leg	A325N	1.0000	4	18335.90	34557.50	0.531 ✓	1.333	Bolt Tension
T9	80	Leg	A325N	1.0000	6	14529.80	34557.50	0.420 ✓	1.333	Bolt Tension
T10	60	Leg	A325N	1.0000	6	16168.60	34557.40	0.468 ✓	1.333	Bolt Tension
T11	40	Leg	A325N	1.0000	6	18106.00	34557.20	0.524 ✓	1.333	Bolt Tension
T12	20	Leg	A325N	1.0000	6	20039.00	34557.20	0.580 ✓	1.333	Bolt Tension

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Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P lb	Allow. P _a lb	Ratio P P _a
T1	230 - 220	ROHN 2.5 STD	10.00	5.00	63.3 K=1.00	22.141	1.7040	-2433.65	37729.30	0.065 ✓
T2	220 - 200	ROHN 2.5 EH	20.03	6.68	86.7 K=1.00	17.636	2.2535	-10054.00	39743.20	0.253 ✓
T3	200 - 180	ROHN 2.5 EH	20.03	6.68	86.7 K=1.00	17.635	2.2535	-20647.50	39741.80	0.520 ✓
T4	180 - 160	ROHN 3 STD	20.04	6.68	68.9 K=1.00	21.142	2.2285	-33869.10	47114.10	0.719 ✓
T5	160 - 140	ROHN 3.5 EH	20.03	10.02	92.0 K=1.00	16.505	3.6784	-47637.70	60710.30	0.785 ✓
T6	140 - 120	ROHN 4 EH	20.03	10.02	81.4 K=1.00	18.731	4.4074	-64018.70	82556.10	0.775 ✓
T7	120 - 100	ROHN 5 STD	20.03	10.02	64.0 K=1.00	22.021	4.2999	-81157.50	94688.30	0.857 ✓
T8	100 - 80	ROHN 5 EH	20.03	10.02	65.4 K=1.00	21.782	6.1120	-99767.90	133128.00	0.749 ✓
T9	80 - 60	ROHN 5 EH	20.04	10.02	65.4 K=1.00	21.777	6.1120	-118359.00	133103.00	0.889 ✓
T10	60 - 40	ROHN 6 EH	20.05	10.03	54.8 K=1.00	23.582	8.4049	-123117.00	198206.00	0.621 ✓
T11	40 - 20	ROHN 6 EH	20.05	10.03	54.8 K=1.00	23.584	8.4049	-139025.00	198218.00	0.701 ✓
T12	20 - 0	ROHN 6 EH	20.05	10.03	54.8 K=1.00	23.582	8.4049	-155140.00	198206.00	0.783 ✓

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P lb	Allow. P _a lb	Ratio P P _a
T1	230 - 220	L1 3/4x1 3/4x1/8	9.91	4.82	166.7 K=1.00	5.374	0.4219	-887.81	2266.96	0.392 ✓
T2	220 - 200	L2x2x3/16	12.20	6.15	187.4 K=1.00	4.254	0.7150	-1618.64	3041.60	0.532 ✓
T3	200 - 180	L2x2x3/16	13.91	7.01	213.5 K=1.00	3.278	0.7150	-2711.58	2343.44	1.157 ✓
T4	180 - 160	KL/R > 200 (C) - 56 L2 1/2x2 1/2x3/16	15.85	7.97	193.2 K=1.00	4.001	0.9020	-3333.96	3609.23	0.924 ✓
T5	160 - 140	L3x3x3/16	19.11	9.66	194.5 K=1.00	3.946	1.0900	-4469.85	4300.60	1.039 ✓

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Section No.	Elevation ft	Size	L ft	L _u ft	KL/r	F _a ksi	A in ²	Actual P lb	Allow. P _a lb	Ratio P P _a
T6	140 - 120	L3x3x3/16	20.86	10.50	211.4 K=1.00	3.342	1.0900	-4784.65	3642.42	1.314 ✓
T7	120 - 100	KL/R > 200 (C) - 113 L3 1/2x3 1/2x1/4	22.63	11.34	196.0 K=1.00	3.887	1.6900	-5293.14	6568.69	0.806 ✓
T8	100 - 80	L4x4x1/4	24.44	12.24	184.8 K=1.00	4.374	1.9400	-5848.58	8486.33	0.689 ✓
T9	80 - 60	L4x4x1/4	26.42	13.26	200.1 K=1.00	3.730	1.9400	-6080.36	7236.41	0.840 ✓
T10	60 - 40	KL/R > 200 (C) - 161 ROHN 3 STD	24.29	12.15	125.3 K=1.00	9.516	2.2285	-9710.16	21207.20	0.458 ✓
T11	40 - 20	ROHN 3 STD	25.01	12.51	129.0 K=1.00	8.979	2.2285	-9860.89	20008.60	0.493 ✓
T12	20 - 0	ROHN 3 STD	25.79	12.90	133.0 K=1.00	8.442	2.2285	-9462.95	18813.10	0.503 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P _{allow} lb	% Capacity	Pass Fail
T1	230 - 220	Leg	ROHN 2.5 STD	3	-2433.65	50293.16	4.8	Pass
		Diagonal	L1 3/4x1 3/4x1/8	13	-887.81	3021.86	29.4	Pass
		Top Girt	L3x3x1/4	4	-42.59	10077.08	0.4	Pass
		Mid Girt	L3x3x1/4	7	-289.20	10077.08	2.9	Pass
T2	220 - 200	Leg	ROHN 2.5 EH	24	-10054.00	52977.68	19.0	Pass
		Diagonal	L2x2x3/16	34	-1618.64	4054.45	39.9	Pass
		Top Girt	L2 1/2x2 1/2x3/16	26	-60.37	4413.12	1.4	Pass
		Mid Girt	L2x2x3/16	37	-112.07	1902.50	5.9	Pass
T3	200 - 180	Leg	ROHN 2.5 EH	54	-20647.50	52975.82	39.0	Pass
		Diagonal	L2x2x3/16	56	-2711.58	3123.81	86.8	Pass
T4	180 - 160	Leg	ROHN 3 STD	75	-33869.10	62803.09	53.9	Pass
		Diagonal	L2 1/2x2 1/2x3/16	77	-3333.96	4811.10	69.3	Pass
T5	160 - 140	Leg	ROHN 3.5 EH	96	-47637.70	80926.83	58.9	Pass
		Diagonal	L3x3x3/16	98	-4469.85	5732.70	78.0	Pass
T6	140 - 120	Leg	ROHN 4 EH	111	-64018.70	110047.28	58.2	Pass
		Diagonal	L3x3x3/16	113	-4784.65	4855.35	98.5	Pass
T7	120 - 100	Leg	ROHN 5 STD	126	-81157.50	126219.49	64.3	Pass
		Diagonal	L3 1/2x3 1/2x1/4	128	-5293.14	8756.06	60.5	Pass
T8	100 - 80	Leg	ROHN 5 EH	141	-99767.90	177459.62	56.2	Pass
		Diagonal	L4x4x1/4	146	-5848.58	11312.28	51.7	Pass
T9	80 - 60	Leg	ROHN 5 EH	156	-118359.00	177426.29	66.7	Pass
		Diagonal	L4x4x1/4	161	-6080.36	9646.13	63.0	Pass
T10	60 - 40	Leg	ROHN 6 EH	171	-123117.00	264208.59	46.6	Pass
		Diagonal	ROHN 3 STD	188	-9710.16	28269.20	34.3	Pass
		Top Girt	ROHN 2.5 STD	174	-5170.80	14048.22	36.8	Pass
		Redund Horz 1	ROHN 1.5 STD	189	-1851.19	11688.57	15.8	Pass
		Bracing						
		Redund Diag 1	ROHN 2 STD	186	-1699.31	7603.32	22.3	Pass
		Bracing						
		Redund Hip 1	ROHN 2.5 STD	194	-14.73	35090.56	0.2	Pass
		Bracing						
		Inner Bracing	ROHN 3 STD	197	-95.93	26692.92	0.4	Pass

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Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P _{allow} lb	% Capacity	Pass Fail
T11	40 - 20	Leg	ROHN 6 EH	201	-139025.00	264224.58	52.6	Pass
		Diagonal	ROHN 3 STD	218	-9860.89	26671.46	37.0	Pass
		Top Girt	ROHN 3 STD	204	-5533.41	22905.34	24.2	Pass
		Redund Horz 1 Bracing	ROHN 1.5 STD	215	-2096.14	9807.68	21.4	Pass
		Redund Diag 1 Bracing	ROHN 2 STD	216	-1792.54	7220.83	24.8	Pass
		Redund Hip 1 Bracing	ROHN 2.5 STD	224	-14.53	33013.61	0.2	Pass
		Inner Bracing	ROHN 3 STD	227	-103.22	21996.23	0.5	Pass
		Leg	ROHN 6 EH	231	-155140.00	264208.59	58.7	Pass
		Diagonal	ROHN 3 STD	238	-9462.95	25077.86	37.7	Pass
		Top Girt	ROHN 3 STD	234	-5637.50	19238.39	29.3	Pass
T12	20 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	245	-2332.51	8208.84	28.4	Pass
		Redund Diag 1 Bracing	ROHN 2 STD	246	-1887.03	6783.14	27.8	Pass
		Redund Hip 1 Bracing	ROHN 3 STD	247	-9.55	34870.70	0.2	Pass
		Inner Bracing	ROHN 3 STD	257	-105.60	18536.83	0.6	Pass
								Summary
								Leg (T9)
								66.7
								Diagonal (T6)
								98.5
								Top Girt (T10)
								36.8
								Mid Girt (T2)
								5.9
								Redund Horz 1 Bracing (T12)
								28.4
								Redund Diag 1 Bracing (T12)
								27.8
								Redund Hip 1 Bracing (T12)
								0.2
								Inner Bracing (T12)
								0.6
								Bolt Checks
								43.5
								RATING = 98.5
								Pass

401A5
Vertically Polarized, Panel 65° / 18 dBi

BSA-185065/10CF __ 2°

When ordering, replace " __ " with connector type.

Mechanical specifications

Length	1530 mm	60.2 in
Width	160 mm	6.3 in
Depth	50 mm	2.0 in
⁴⁾ Weight	4.13 kg	9.1 lbs
Wind Area		
Front	0.2295 m ²	2.470 ft ²
Side	0.0765 m ²	0.823 ft ²
Rated Wind Velocity (Safety factor 2.0)		
	>277 km/hr	>172 mph
Wind load @ 100 mph (161 km/hr)		
Front	364 N	81.9 lbs
Side	112 N	25.19 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting & Downtilting:

Wall mounted or pole tower mount with mounting brackets.

Mounting bracket kit #26799997

Downtilt bracket kit #26799999

The downtilt bracket kit includes the mounting bracket kit.

Electrical specifications

Frequency Range	1850-1990 MHz
Impedance	50Ω
³⁾ Connector	NE, E-DIN
¹⁾ VSWR	≤1.4:1
Polarization	Vertical
¹⁾ Gain	18 dBi
²⁾ Power Rating	250 W
¹⁾ Half Power Angle	
H-Plane	65°
E-Plane	6°
¹⁾ Lobe Tilt	2°
¹⁾ Null Fill	10%
Lightning Protection	Direct Ground

¹⁾ Typical Values

²⁾ Power Rating limited by connector only.

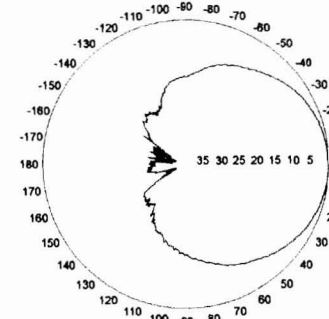
³⁾ NE indicates an elongated N Connector.

E-DIN indicates an elongated DIN Connector.

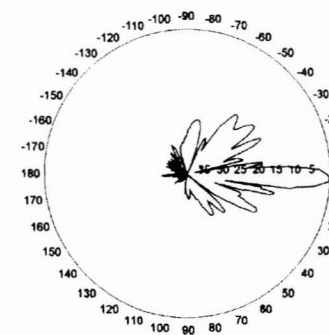
⁴⁾ The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation-pattern¹⁾



Horizontal



Vertical

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back Ratio.

CF Denotes a Center-Fed Connector.



1850-1990 MHz



**Amphenol Antel's
Exclusive 3T (True
Transmission Line
Technology)
Antenna Design:**

- Watercut brass feedline assembly for consistent performance.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad bandwidth and superior performance.
- Air as insulation for virtually no internal signal loss.

Every Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna can be ordered with center-fed or bottom-fed connector. For bottom-fed connector, order model number BSA-185065/10 + connector (NE, E-DIN) 2°.

Example: BSA-185065/10 E-DIN 2°

**Amphenol
Antel, Inc.**
The Antenna Technology Company

Revision Date: 1/26/04

1300 Capital Drive Rockford, IL 61109 Toll-Free (888) 417-9562 Tel. (815) 399-0001
Fax. (815) 399-0156 Email: antel@antelinc.com www.antelinc.com



APPLICATION FOR EXEMPTION FROM SITE PLAN REVIEW

Applicant

140 WILSON RD - S. Berwick ME

Applicant's Mailing Address

13908
1325-1323
Washington Ave

Consultant/Agent/Phone Number

Application Date

1/1/04

Project Name/Description

1405 WASH AVE

Address of Proposed Site

CBL:

401-1-005.310

Description of Proposed Development:

Add 3 Antenna Scaffolding to Existing Tower
Add Grounding System to 14' x 21' p/B on ground

Please Attach Sketch/Plan of Proposal/Development

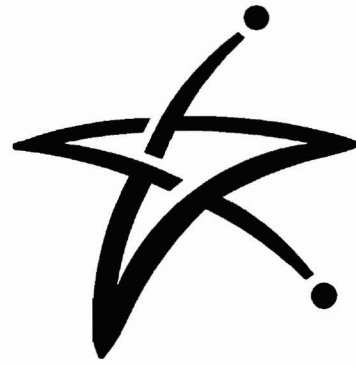
Criteria for Exemptions:

See Section 14-523 (4) on back side of form

- a) Within Existing Structures; No New Buildings, Demolitions or Additions
- b) Footprint Increase Less Than 500 Sq. Ft.
- c) No New Curb Cuts, Driveways, Parking Areas
- d) Curbs and Sidewalks in Sound Condition/Comply with ADA
- e) No Additional Parking/ No Traffic Increase
- f) No Stormwater Problems
- g) Sufficient Property Screening
- h) Adequate Utilities

Applicant's Assessment
(Yes, No, N/A)

Planning Office
Use Only

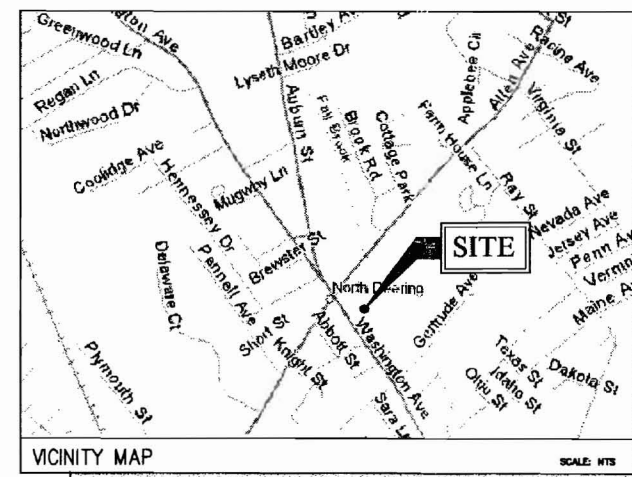


U.S. Cellular

The way people talk around here.™

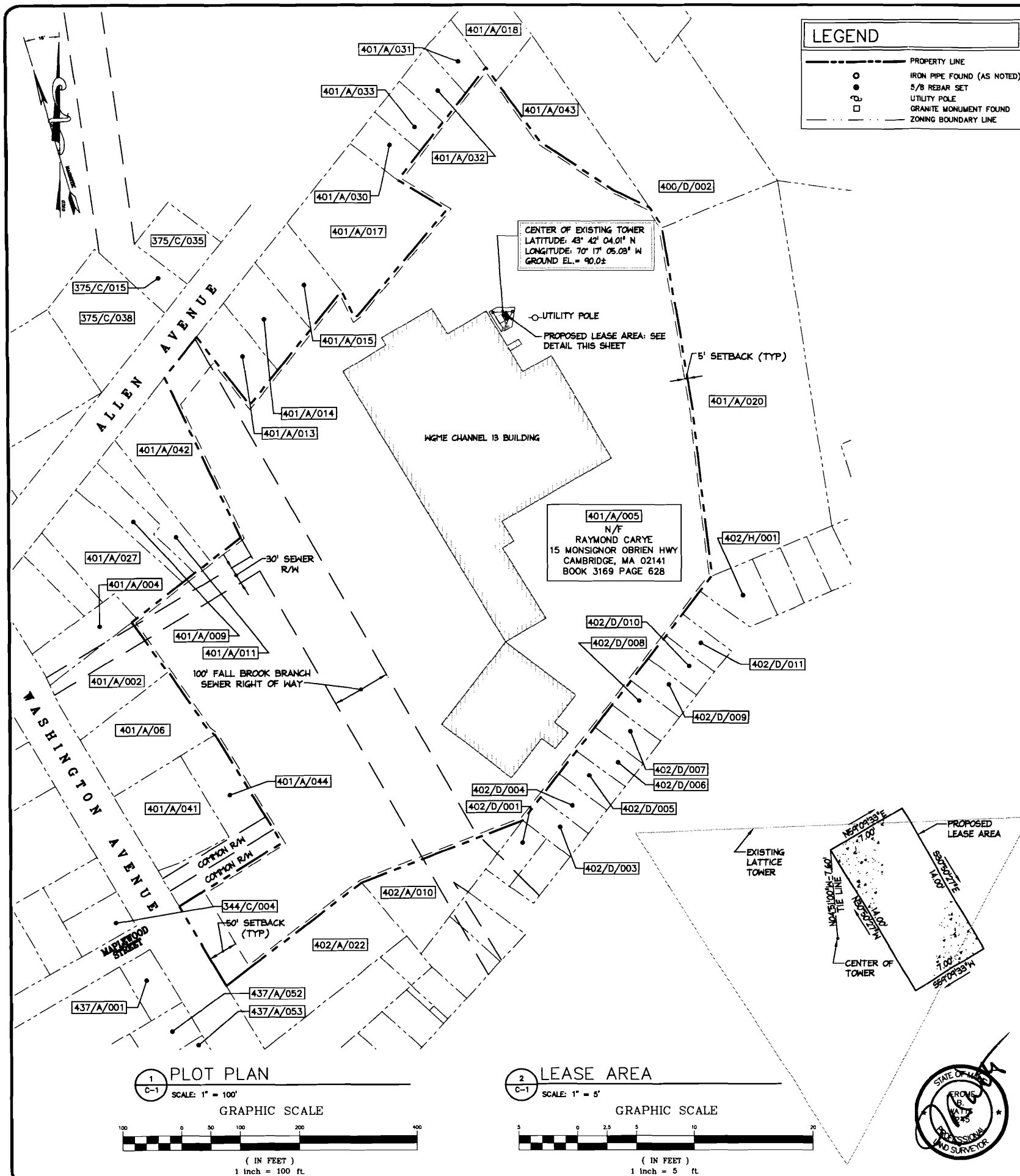
SITE NAME: WGME-13
SITE NO. 853408
LATITUDE: 43°42'04.01"
LONGITUDE: 70°17'05.03"

SITE NUMBER:	WGME-13
SITE NAME:	853408
TOWER TYPE:	230' LATTICE TOWER (EXISTING)
SITE ADDRESS:	1335 WASHINGTON AVE PORTLAND, ME 04103
PROPERTY OWNER:	RAYMOND A. CARYE 15 MONSIGNOR OBRIEN HWY CAMBRIDGE, MA 02141
MAP/BLOCK/LOT:	401/A/005
APPLICANT:	U.S. CELLULAR c/o CLARENCE LEIST 288 ROUTE 101 BEDFORD, NH 03110
PROJECT SUMMARY	



401 A 5

-2

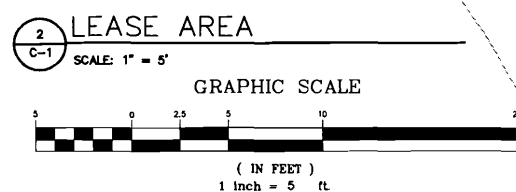
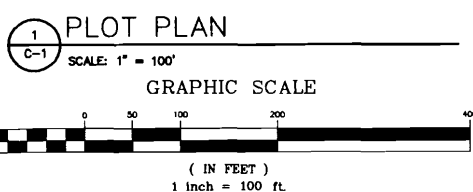


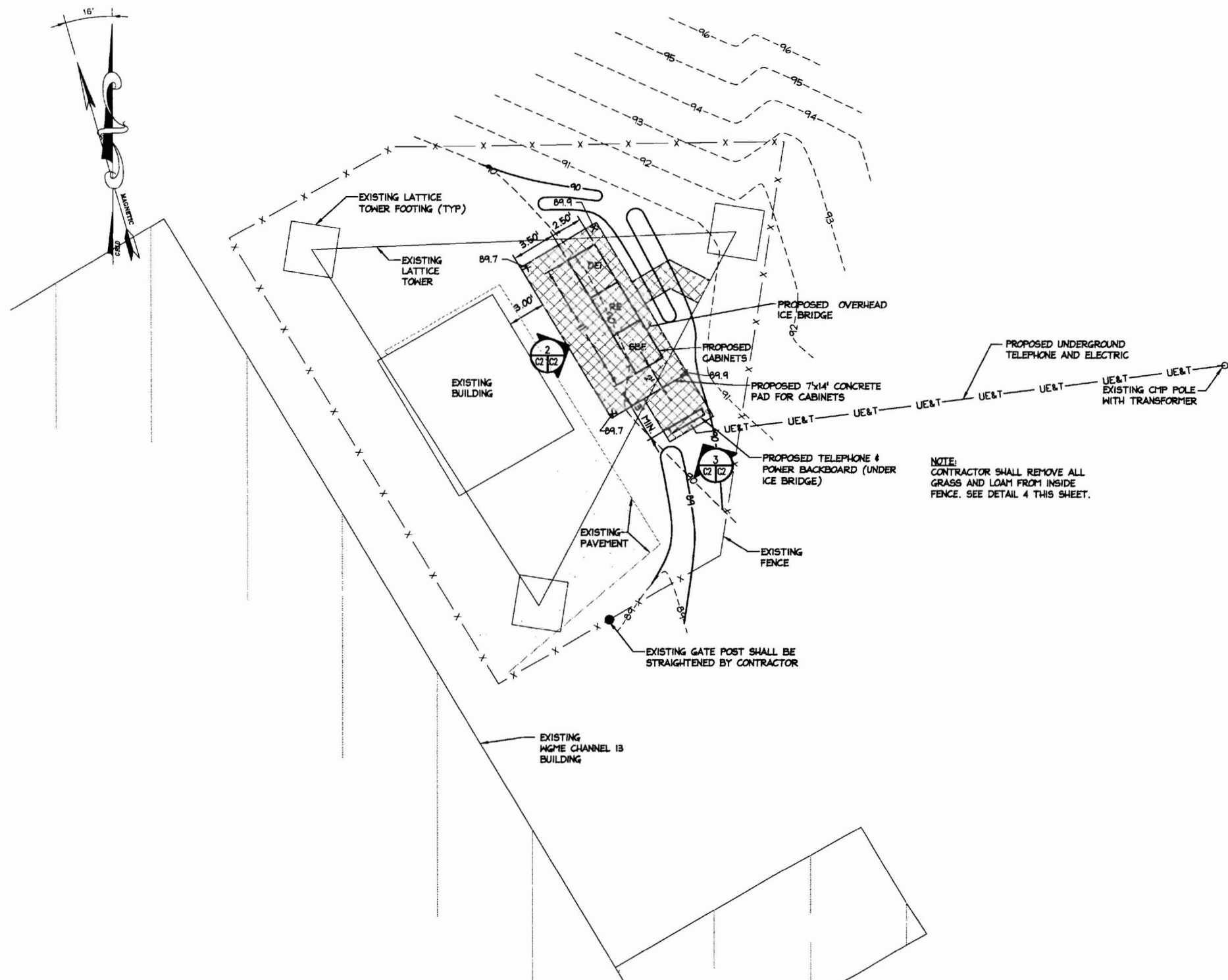
LEGEND	
---	PROPERTY LINE
○	IRON PIPE FOUND (AS NOTED)
●	S/B REBAR SET
□	UTILITY POLE
□	GRANITE MONUMENT FOUND
---	ZONING BOUNDARY LINE

LIST OF ABUTTERS	
CITY OF PORTLAND	
MAP/LOT	RECORD OWNER
344/C/004	TERI L. LEASURE
375/C/015	A&D REALTY, LLC
375/C/035	C/O WINSLOW PROPERTY MGMT
375/C/038	NORTHGATE PLAZA ASSOCIATES, LLC.
400/D/002	CITY OF PORTLAND
401/A/002	THE RESIDENCES CONDO ASSOCIATION
401/A/002	CHAU TSAN
401/A/004	RITE AID OF MAINE INC
401/A/008	
401/A/011	
401/A/027	
401/A/006	MICHAEL S. ORR
401/A/013	EDWARD F. CARYE TRUSTEE ETAL
401/A/014	RAYMOND & BARBARA CARYE TRS
401/A/017	
401/A/015	RAYMOND A & EDWARD F. CARYE TRS
401/A/018	ROBERTA R. ANDERSON
401/A/030	DAVID R. WWII VET & PHYLLIS R. MARLEY
401/A/031	ROSE & CHARLES WINTERS JTS
401/A/032	JEAN F. CRANOON
401/A/033	CLIFTON L. KW VET & MADALYN I. BROWN
401/A/041	PORTLAND REGIONAL FEDERAL CREDIT UNION
401/A/042	RAYMOND A. CARYE ETALS
401/A/044	
402/D/003	
402/D/004	
402/D/005	
402/A/010	
402/A/022	
401/A/043	EDWARD F. CARYE TRUSTEES ETAL
402/H/001	WILLIAM R. UMBEL
402/D/001	PHILIP H. CURTIS VN VET TD
402/D/006	CAROL A. & STEPHEN A. MACKENZIE
402/D/007	
402/D/008	
402/D/009	
402/D/011	
402/D/010	THE MINAT CORPORATION
437/A/001	1334 WASHINGTON AVENUE ASSOCIATES
437/A/052	JOHN E & CHERYL A. CARROLL
437/A/053	GREENLEAF ROBERT E WWII VET & JULIETTE G GREENLEAF TRUSTEES R & J GREENLEAF REV TRUST

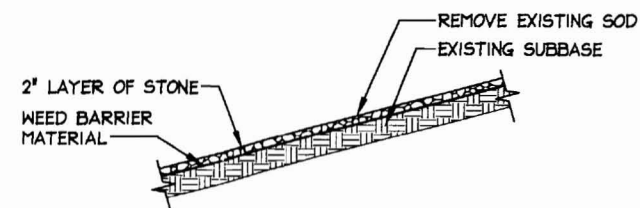
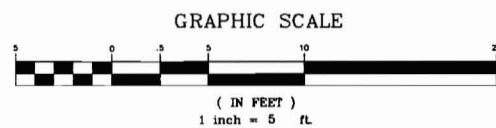
ZONING INFORMATION	
ZONING DISTRICT:	COMM1
MINIMUM STREET FRONTAGE:	50 FE
FRONT YARD SETBACK:	50 FE
SIDE YARD SETBACK:	5 FE
REAR YARD SETBACK:	5 FE
MINIMUM LOT SIZE:	10,000

DESCRIPTION OF LEA	
LEGAL DESCRIPTION - LEASE PARCEL	
A CERTAIN PARCEL OF LAND LOCATED E AVENUE, IN THE CITY OF PORTLAND, CUI LYING WITHIN LAND OF THE GRANTOR(S), PAGE 628, BOUNDED AND DESCRIBED AS	
BEGINNING AT A POINT MARKING THE NC FOLLOWING DESCRIBED LEASE, LOCATED THE CENTER OF AN EXISTING 230 FOOT	
THENCE, N59°09'33"E, 7.00 FEET TO A C	
THENCE, S30°50'27"E, 14.00 FEET TO A	
THENCE, S59°09'33"W, 7.00 FEET TO A C	
THENCE, N30°50'27"W, 14.00 FEET TO TH	
THE ABOVE DESCRIBED PARCEL CONTAIN	
BEARINGS ARE BASED ON MAINE STATE WEST ZONE, (NAD 83).	

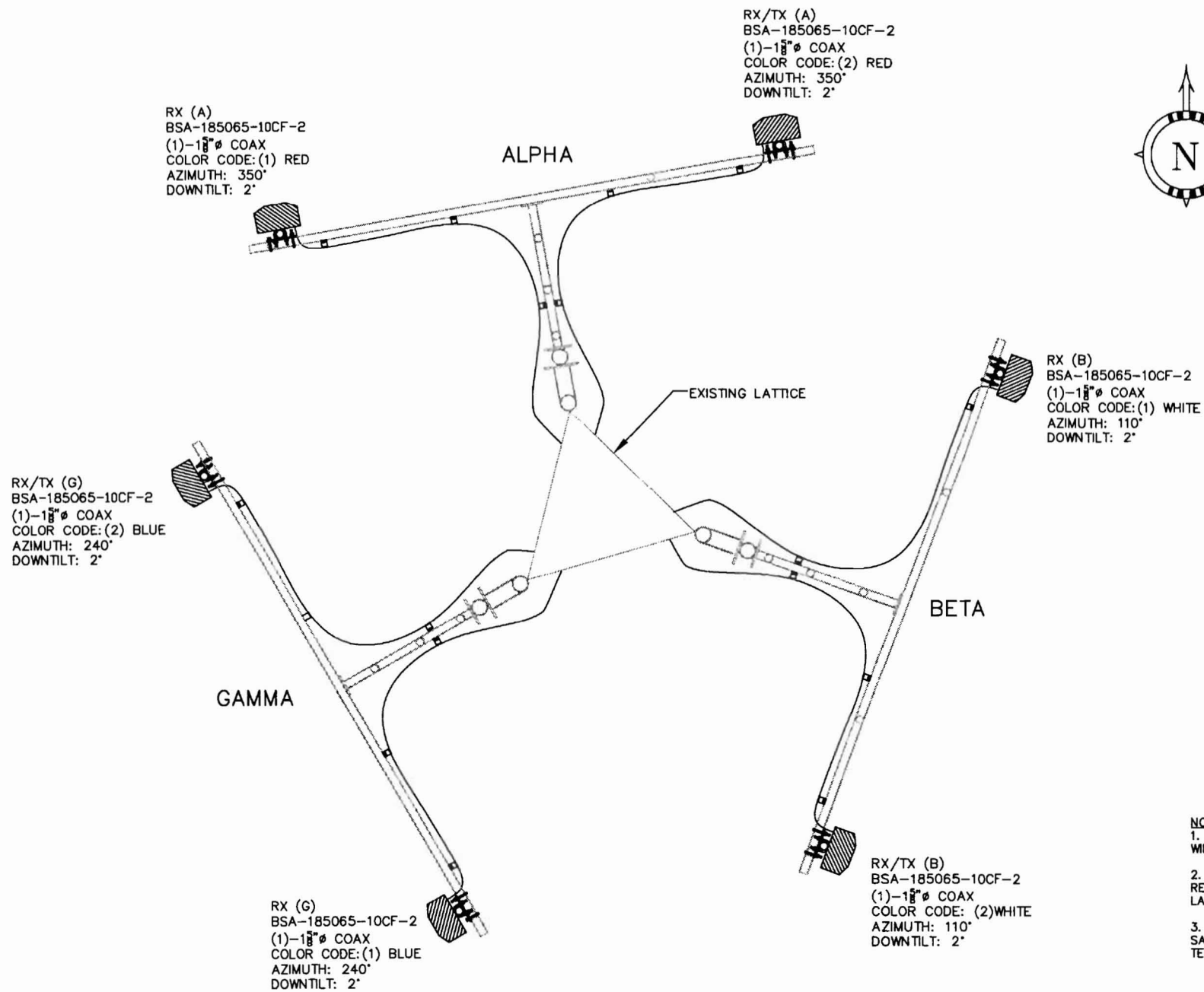




1 SITE PLAN
C-2 SCALE: 1"=5'



4 DETAIL
C-2 SCALE: N.T.S.

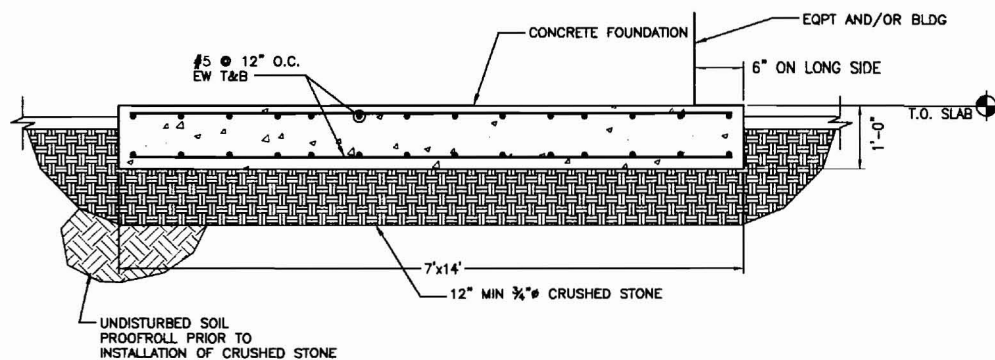


NOTES:

1. WAVEGUIDE CABLES SHALL BE RUN UP TOWER IN WIDE TWO DEEP CONFIGURATION.
2. EXISTING WAVEGUIDE CABLES NOT BEING USED & REMOVED BY CONTRACTOR AFTER COORDINATION W/ LANDLORD AND US CELLULAR PERSONNEL.
3. EXISTING LADDER SHALL BE TIGHTENED TO TOWERS SATISFY STRUCTURAL REPORT CREATED BY ALL-PC TECHNOLOGY CORPORATION DATED AUGUST 9, 2004

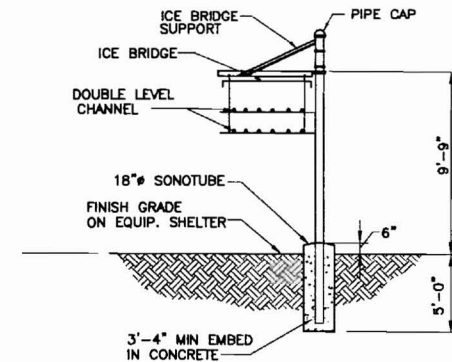
1 ANTENNA LOCATION PLAN
C-3 SCALE: N.T.S.

Michael S. Detering
MICHAEL S. DETERING
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA
NO. 44522
9-1-04



TYPICAL EQUIPMENT SHELTER FOUNDATION DETAIL

N.T.S.



NOTES:
1. TYPICAL HANGER KIT SHOWN. CONTRACTOR APPROVED BY CONSTRUCTION MANAGER.

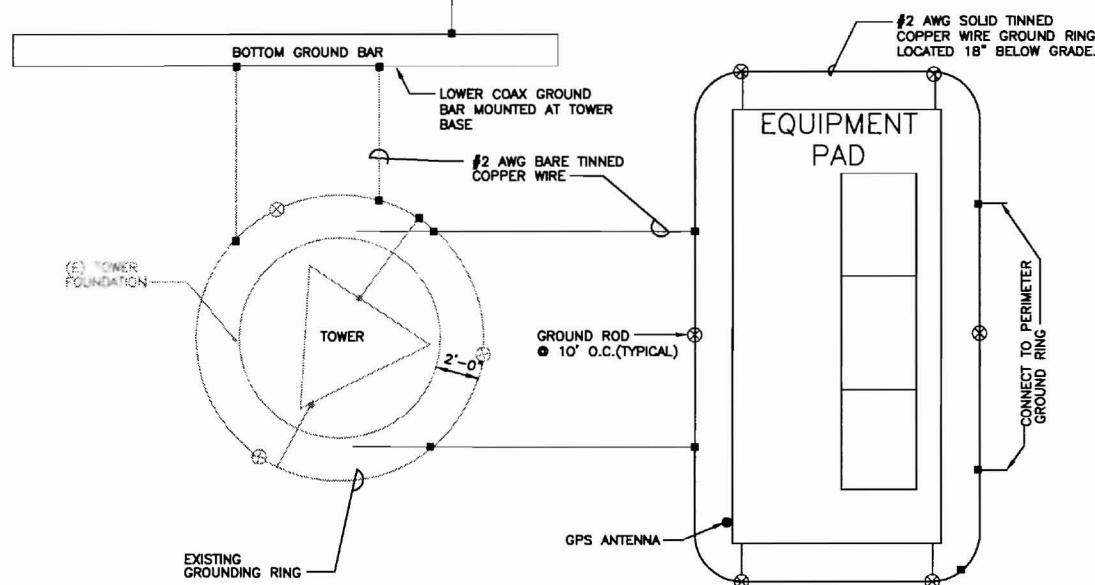
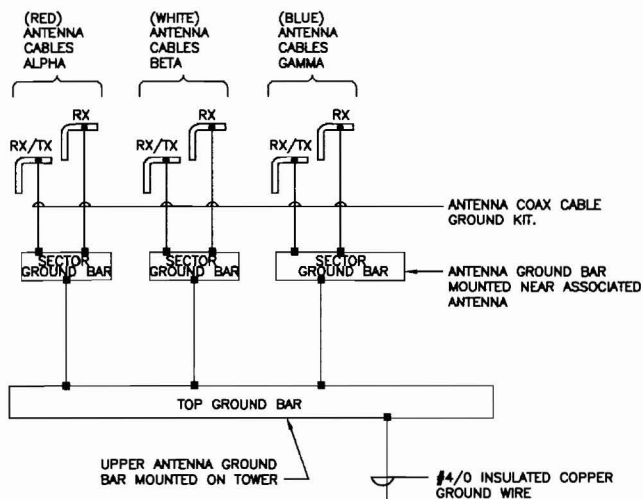
2. SEE COAXIAL CABLE BRIDGE NOTES SHEET (

3. FOR BURIED LEDGE AT LESS THAN 3'-6", C

HOLES & GROUT. #3 REINFORCING STEEL WITH

ICE BRIDGE DET

N.T.S.



GROUND RISER DIAGRAM

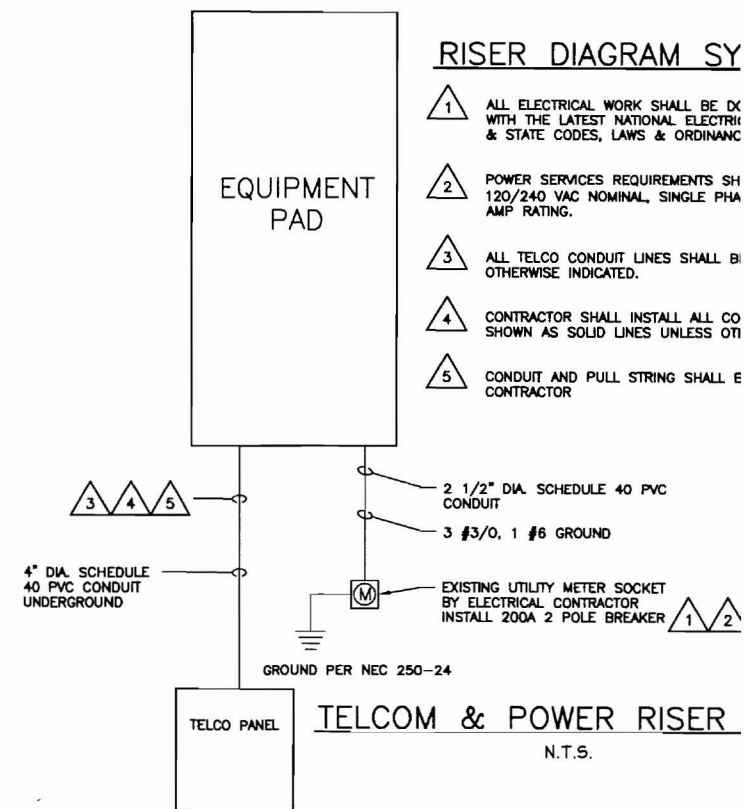
N.T.S.

■ — GROUND CONNECTION

ELECTRICAL

RISER DIAGRAM SYMBOLS

1. ALL ELECTRICAL WORK SHALL BE DONE WITH THE LATEST NATIONAL ELECTRICAL & STATE CODES, LAWS & ORDINANCES.
2. POWER SERVICES REQUIREMENTS SHALL BE 120/240 VAC NOMINAL, SINGLE PHASE AMP RATING.
3. ALL TELCO CONDUIT LINES SHALL BE OTHERWISE INDICATED.
4. CONTRACTOR SHALL INSTALL ALL CONDUIT SHOWN AS SOLID LINES UNLESS OTHERWISE INDICATED.
5. CONDUIT AND PULL STRING SHALL BE OTHERWISE INDICATED.



TELCOM & POWER RISER

N.T.S.

GENERAL

- 1 COORDINATE THE STRUCTURAL WORK WITH THE ARCHITECTURAL, CIVIL, MECHANICAL, ELECTRICAL AND PIPING WORKS.
- 2 VERIFY ALL DIMENSIONS IN THE FIELD. DURING ERECTION AND CONSTRUCTION PHASES, PROVIDE ADEQUATE SHORING AND TEMPORARY BRACING OF ALL STRUCTURAL COMPONENTS AND ASSEMBLAGES. NOTIFY OEST OF ALL FIELD CHANGES OR DIMENSION DISCREPANCIES PRIOR TO FABRICATION OR ERECTION.

CODES

- 1 ALL DESIGN AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE IBC 2000.
- 2 ADDITIONAL REFERENCED STANDARDS:
 - A. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION – ALLOWABLE STRESS DESIGN 1989, 9TH EDITION
 - B. METAL BUILDING MANUFACTURES ASSOCIATION (MBMA) 1986 LOW RISE BUILDING SYSTEMS MANUAL
 - C. AMERICAN CONCRETE INSTITUTE ACI 318-95 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE
 - D. AMERICAN IRON AND STEEL INSTITUTE (AISI) SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS
 - E. AMERICAN SOCIETY OF CIVIL ENGINEERS ASCE 7-98 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
- 3 ALL APPLICABLE FEDERAL DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND THE AMERICANS WITH DISABILITIES ACT (ADA).

CONCRETE AND REINFORCING STEEL

- 1 ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE REMOVED FROM BENEATH FOUNDATION AREAS.
- 2 SUBGRADE BELOW FOUNDATIONS SHALL BE COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY FROM ASTM D698 (STANDARD PROCTOR).
- 3 CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301 AND ACI 318. CONCRETE STRENGTHS SHALL BE VERIFIED BY STANDARD 28-DAY CYLINDER TESTS. UNLESS AN ALTERNATE CONCRETE MIX DESIGN IS APPROVED, CONCRETE MIXES SHALL BE AS FOLLOWS:
 - A. CONCRETE SHALL HAVE 4000 PSI MINIMUM 28 DAY COMPRESSIVE STRENGTH.
 - B. MAXIMUM AGGREGATE SIZE SHALL BE 3/4" (ASTM C33/467).
 - C. CEMENT SHALL BE ASTM C150 TYPE I OR TYPE II
 - D. ALL STRUCTURAL CONCRETE SHALL BE AIR ENTRAINED (5.5 +/- 1.5%).
 - E. SLUMP SHALL BE 2" TO 4".
- 4 REINFORCING STEEL SHALL HAVE MINIMUM COVER PROTECTION AS FOLLOWS:
 - A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
 - B. CONCRETE EXPOSED TO EARTH OR WEATHER: 2"
 - C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:

SLABS	1 1/2"
WALLS, JOISTS – #11 BAR AND SMALLER	3/4"
BEAMS, COLUMNS:	
PRIMARY REINFORCEMENT, TIES,	
STIRRUPS, SPIRALS	1 1/2"

STRUCTURAL AND MISCELLANEOUS STEEL

- 1 STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH AISC – SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS – ALLOWABLE STRESS DESIGN, JUNE 1, 1989 (9TH EDITION).
- 2 HIGH STRENGTH BOLTS SHALL BE IN ACCORDANCE WITH AISC – SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR 490 BOLTS, NOVEMBER 13, 1985.
- 3 WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 USE AWS PREQUALIFIED JOINT DETAILS.
- 4 STRUCTURAL STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING:
 - A. CONNECTION MATERIAL, EMBEDDED ITEMS, HOT ROLLED STRUCTURAL SHAPES, BASE PLATES AND MIS. STEEL ASTM A36
 - B. STRUCTURAL TUBES ASTM A500 GRADE B
 - C. STEEL PIPE ASTM A53, GRADE B
 - D. STRUCTURAL BOLTS ASTM A325-W U.N.O.
 - E. ANCHOR BOLTS ASTM A307 OR ASTM A36
 - F. THREADED RODS ASTM A36 OR ASTM A307
 - G. WELDING ELECTRODES E70XX

GROUNDING NOTES:

1. ALL DETAILS ARE SHOWN DIAGRAMATICALLY. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.
2. ALL GROUND WIRE SHALL BE BARE TINNED 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. ELECTRICAL CONTRACTOR SHALL COORDINATE CONNECTIONS TO EXISTING GROUND RINGS WITH SITE CONSTRUCTION MANAGER.
5. ANTENNA GROUND KITS SHALL BE FURNISHED BY US CELLULAR AND INSTALLED BY CONTRACTOR.
6. GROUND SYSTEM SHALL BE TESTED AND SHALL HAVE A RESISTANCE OF 5 OHMS OR LESS.

EROSION AND SEDIMENT CONTROL PLAN

THIS PLAN HAS BEEN DEVELOPED TO PROVIDE A STRATEGY FOR CONTROLLING SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION OF THE PROPOSED DEVELOPMENT.

GENERAL CONSTRUCTION DETAILS

THE EQUIPMENT ANTICIPATED TO BE USED FOR THE CONSTRUCTION INCLUDES THE FOLLOWING: BACKHOES, BULLDOZERS, LOADERS, TRUCKS, CRANES, COMPACTORS, AND GRADERS. THE FOLLOWING MEASURES WILL BE UNDERTAKEN TO PROVIDE MAXIMUM PROTECTION TO THE SOIL, WATER, AND ADJUTING LANDS:

1. PRIOR TO GRUBBING OR ANY EARTHMOVING OPERATION, SILTATION FENCE WILL BE INSTALLED ACROSS THE SLOPE ON THE CONTOUR AT THE DOWNHILL LIMIT OF THE WORK AS PROTECTION AGAINST CONSTRUCTION RELATED EROSION.
2. STONE CHECK DAMS WILL BE INSTALLED IN THE DRAINAGE SWALES TO PREVENT EROSION PRIOR TO THE STABILIZATION OF THE CHANNELS. EROSION CONTROL MESH WILL ALSO BE INSTALLED IN ALL DITCH TO BE REVEGETATED.
3. PERMANENT SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA WILL BE COMPLETED WITHIN FIFTEEN CALENDAR DAYS AFTER FINAL GRADING HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE OR PRACTICAL TO PERMANENTLY STABILIZE DISTURBED LAND, TEMPORARY EROSION CONTROL MEASURES WILL BE IMPLEMENTED WITHIN THIRTY CALENDAR DAYS OF EXPOSURE OF SOIL. ALL DISTURBED AREAS WILL BE MULCHED FOR EROSION CONTROL UPON COMPLETION OF ROUGH GRADING.

SEEDING AND REVEGETATION PLAN

UPON COMPLETION OF SITE CONSTRUCTION, ALL AREAS PREVIOUSLY DISTURBED WILL BE TREATED AS STATED BELOW. THESE AREAS WILL BE CLOSELY MONITORED BY THE CONTRACTOR UNTIL SUCH TIME AS A SATISFACTORY GROWTH OF VEGETATION IS ESTABLISHED.

1. LOAM WILL BE SPREAD OVER ALL DISTURBED AREAS AND GRADED TO A UNIFORM DEPTH OF 4 INCHES.
2. THE FOLLOWING WILL BE INCORPORATED INTO THE SOIL PRIOR TO SEEDING: AGRICULTURAL LIMESTONE AT THE RATE OF 130 POUNDS PER 1,000 SQUARE FEET, FOLLOWED BY 10-10-10 FERTILIZER AT THE RATE OF 14 POUNDS PER 1,000 SQUARE FEET.
3. DISTURBED AREAS WILL BE SEEDED AT THE RATE OF 100 LBS/ACRE OF MDOT PORK MIXTURE AND 20 LBS/ACRE OF CROWN VETCH.
4. SEEDING WILL BE COMPLETED BETWEEN THE DATES OF APRIL 1 AND SEPTEMBER 15. WATERING MAY BE REQUIRED DURING DRY PERIODS.
5. HAY MULCH WILL BE APPLIED AT THE RATE OF 100 LBS. PER 1,000 SQ. FT. FOLLOWING SEEDING.
6. ALL SEDIMENT CONTROL STRUCTURES WILL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED. ESTABLISHED MEANS A MINIMUM OF 75% OF THE AREA IS VEGETATED WITH VIGOROUS GROWTH.

COAXIAL-CABLE BRIDGE NOTES

1. ALL BRIDGE KITS SHALL BE INSTALLED AS PER THE MANUFACTURERS RECOMMENDATIONS.
2. STRUCTURAL STEEL SHALL BE ASTM A36. PIPE SHALL BE ASTM A53, GRADE B (SEAMLESS)
3. EXTERIOR STEEL SHALL BE HOT-DIP GALVANIZED, AFTER FABRICATION AND WELDING, TO ASTM A123. HARDWARE SHALL BE EITHER A325 STEEL, GALVANIZED TO ASTM A153, OR 18-8 STAINLESS.
4. SIZE, NUMBER AND POSITION OF COAXIAL CABLES MAY VARY.
5. POSITION BRIDGE ASSEMBLY SO THAT COAXIAL CABLES INTERSECT AT LADDER CENTERLINE. HEIGHT ABOVE GROUND MAY VARY ACCORDING TO SITE LAYOUT.
6. FOUNDATION SHALL BE 18" DIAM. SONOTUBE 60" DEEP BELOW GRADE AND 6" ABOVE GRADE FILLED WITH 4000 psi CONCRETE WITH 3/4" MAXIMUM AGGREGATE.