EM-XM-049-001010

ROBINSON & COLE LLP

HARTFORD • STAMFORD • GREENWICH • NEW YORK • BOSTON

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Kenneth C. Baldwin
860-275-8345
Internet: kbaldwin@rc.com

October 6, 2000

Via Federal Express

Mr. Joel M. Rinebold
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RECEIVED
OCT 10 2000
CONNECTICUT
SITING COUNCIL

Re: Notice of Exempt Modification
Siting Council Docket No. 139
Oliver Road
Enfield, Connecticut

Dear Mr. Rinebold:

Crown Atlantic Company LLC ("Crown") holds the Siting Council certificate for the existing telecommunications tower and related facility in Enfield, Connecticut (Docket No. 139). Crown intends to allow XM Satellite Radio ("XM") to install antennas and related equipment at the existing facility in Enfield. Please accept this letter as notification, pursuant to R.C.S.A. § 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Enfield Town Manager, Scott A. Shanley.

The existing facility consists of a 150-foot self-supporting monopole tower and related equipment located off Oliver Road in Enfield. This facility was approved by the Connecticut Siting Council on September 18, 1991. The tower currently supports antennas of Cellco Partnership d/b/a Verizon Wireless ("Cellco"), Sprint PCS ("Sprint"), Nextel Communications ("Nextel"), and VoiceStream Wireless (formerly Omnipoint Communications, Inc.) ("VoiceStream"). The Council has also approved Crown's request to permit Pagenet to share this facility.

XM proposes to install a single whip-type antenna on the tower at the 95-foot level, and a 25.25 inch diameter, received only, dish antenna attached to the cable ice-bridge adjacent to the XM equipment cabinet. XM equipment will be located on a concrete pad adjacent to the Cellco equipment building within the site compound. (See Exhibit A.)

The planned modifications to the Enfield facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the overall height of the tower above the 163-foot height limitation imposed by the Council in their Docket No. 139 Decision and Order. The XM antenna will be mounted at the 95-foot level on the tower. The enclosed tower drawings confirm that the planned modifications will not increase the overall height of the tower.

2. The installation of the XM equipment cabinet on a concrete pad, as shown in Exhibit A, will not require an extension of the site boundaries.

3. The proposed modifications to the facility will not increase the noise levels at the existing facility by six decibels or more.

4. The operation of the additional antennas will not increase the total radio frequency (RF) power density, measured at the site boundary, to a level at or above the applicable standard. The "worst-case" RF power density calculation for a point at the site boundary for all existing service providers on the tower and Pagenet, as described in the Council's Petition No. 435, would be 16.27% of the FCC Standard for uncontrolled environments as calculated for a mixed frequency site. XM's operations at the Enfield site would add 0.011664 mW/cm^2 (1.166% of the standard). (See Exhibit B.) The calculated "worst-case" power density for the combined operations at the site would therefore be 17.436% of the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

Also attached is a copy of a structural analysis verifying that the tower can accommodate the XM antenna, and some additional information on XM Satellite Radio.

For the foregoing reasons, Crown respectfully submits that the proposed addition of antennas and equipment at the Fairfield facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

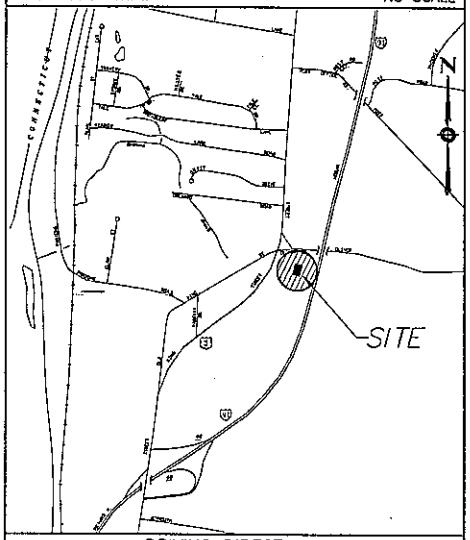
KCB/kmd
cc: Scott A. Shanley, Town Manager
Tara K. Rand, Crown Atlantic Company, LLC

SATELLITE RADIO

CROWN TOWER
4 OLIVER ROAD
ENFIELD, CONNECTICUT 06082
SITE ID: SPR011A

VICINITY MAP

NO SCALE



DRIVING DIRECTIONS

MERRIT PARKWAY TO EXIT 55,
GO SOUTH ON WHEELERS FARM ROAD,
BOYS VILLAGE IS ON THE LEFT 1/2 MILE DOWN,
TOWER IS LOCATED AT REAR OF PROPERTY.

PROJECT DESCRIPTION

1. THE PROPOSED SITE IS AN EXISTING COMPOUND WITH GROUND SPACE, ANTENNAS MOUNTED ON MONOPOLE IN ENFIELD, CONNECTICUT.
2. THE PROPOSED INSTALLATION CONSISTS OF THE FOLLOWING:
   (1)-OMNI ANTENNA
   (1)-SATELLITE DISH
   (1)-XM CABINET

ANTENNA DATA

TYPE:	AZIMUTH:	MODEL NO.:	TILT (D)	NUMBER
OMNI	0°	TA-2350-LCC	2°	1
DISH	198.2°	TA-2324-LHCP	0/UPTILT 39.9°	1

MANUFACTURER: TIL-TEK LTD.

TYPE:	OMNI	DISH
HEIGHT:	70"	-
DIAMETER:	2.25"	25.25"ø

APPROVALS

	BY	DATE
SITE ACQUISITION		
CONSTRUCTION		
R.F.		
ZONING		
OWNER		

SITE INFORMATION

CONTACT:	CROWN CASTLE INTERNATIONAL (860) 345-4602
LONGITUDE:	-72.69378
LATITUDE:	41.98025
SAR POWER TYPE:	LOW
SITE NAME:	CROWN TOWER
SITE ADDRESS:	4 OLIVER ROAD ENFIELD, CONNECTICUT
SITE NUMBER:	SPR011.A
CURRENT ZONING:	R-44 FAMILY RESIDENTIAL
JURISDICTION:	TOWN OF ENFIELD, CONNECTICUT
PROPERTY OWNER:	CROWN CASTLE INTERNATIONAL 2139 SILAS DEAN HIGHWAY SUITE 2212 ROCKY HILL CT 06067
APPLICANT:	XM SATELITE RADIO
A/E:	URS CORPORATION A.E.S. 500 ENTERPRISE DRIVE ROCKY HILL, CT 06067

DRAWING LIST

SHT. NO.	DESCRIPTION
T-1	TITLE SHEET
A-1	COMPOUND PLAN AND DETAILS
A-2	MONOPOLE ELEVATION, DETAILS
	AND ANTENNA SPECIFICATIONS
A-3	TYPICAL EQUIPMENT RISER DIAGRAM
E-1	EQUIPMENT GROUNDING PLAN, DETAILS
	AND SYMBOL LIST
E-2	ELECTRICAL RISER AND DETAILS
GN-1	GENERAL NOTES

MATERIAL LIST

ITEM NO.	DESCRIPTION	SIZE	QTY.	LENGTH	MODEL #	MANUFACTURER
1	DISH ANTENNA	25.25" DIAMETER	1	N/A	TA-2324-LHCP	TIL-TEK LTD
2	OMNI ANTENNA	70" H x 2.25" DIA.	1	N/A	TA-2350-DAB	TIL-TEK LTD
3	REPEATER CABINET	2'-7 1/2"x2'-3 9/16" x3'-6 5/32"	1	N/A		APW ELEC. LTD.
4	COAX CABLE FOR DISH	7/8"	1	70'	VXL3-50A	ANDREW CORP.
5	COAX CABLE FOR OMNI	1 5/8"	1	140'	LDF7-50A	ANDREW CORP.
6	JUMPER FOR OMNI CABLE TOP/BOTTOM	7/8"	2	6'	LDF3-50A	ANDREW CORP.
7	JUMPER FOR DISH CABLE TOP/BOTTOM	1/2"	2	6'	LDF4-50A	ANDREW CORP.
8	CONNECTOR FOR DISH BOTTOM JUMPER	1/2" N-MALE	1	N/A	L4PNM	ANDREW CORP.
9	CONNECTOR FOR DISH CABLE	7/16" DIN-FEMALE	2	N/A	L5PDF	ANDREW CORP.
10	CONNECTOR FOR OMNI CABLE	7/16" DIN-FEMALE	2	N/A	L7PDF	ANDREW CORP.
11	CONNECTOR FOR OMNI,BOTTOM/TOP JUMPER	7/16" D/N-MALE	4	N/A	L5PDM	ANDREW CORP.
12	CONNECTOR FOR DISH,TOP JUMPER	7/16" D/N-MALE	2		L4PDM	ANDREW CORP.
13	CONNECTOR FOR DISH,BOTTOM JUMPER	7/16" D/N-MALE	1		L4PDM	ANDREW CORP.

LCC
1792 MAIN STREET
SUITE D
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1-(860)-291-0627

SATELLITE RADIO
1200 20TH ST. NW, SUITE 57
WASHINGTON, DC 20037
PHONE (202) 969-7100
FAX (202) 969-7000

URS CORPORATION AES
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT

STATE OF CONNECTICUT
IGNACIO C. ARTAL
No. 9704
LICENSED ARCHITECT

PROJECT NO: F301960.15

DRAWN BY: DFG

CHECKED BY: ICA

ISSUED FOR	
9-25-00	REVIEW
9-27-00	PERMITTING

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO LCC IS STRICTLY PROHIBITED.

CROWN TOWER
SITE ID: SPR011A

4 OLIVER ROAD
ENFIELD, CONNECTICUT
06082

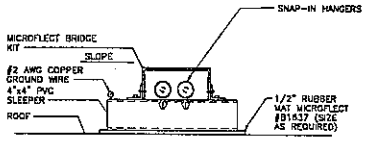
SCALE: AS NOTED

DATE: 9-25-00

TITLE SHEET

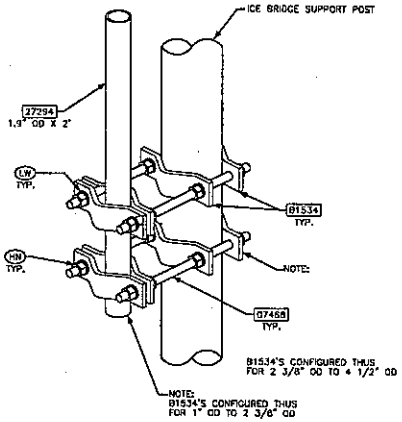
T-1

EXHIBIT A



5 / A-1 ROOF MOUNTED CABLE TRAY KIT DETAIL

SCALE: N.T.S.

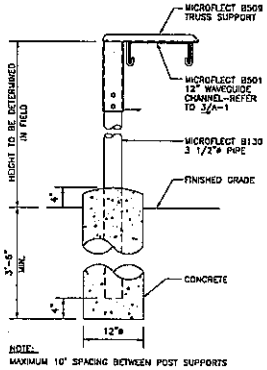


PARTS LIST			
DESIG	MARK	DESCRIPTION	QTY
--	07458	5/8"ø X 15 A36 THREADED ROD	4
--	27294	1.9"ø OD X 2'-0" PIPE	1
--	81534	3/8 X 2 FORMED PLATE	8
HN	--	5/8"ø A563 GR. A HEX NUT	16
LW	--	5/8"ø MED LOCKWASHER	16

TOTAL GALV. WEIGHT: 30#

4 / A-1 UNIVERSAL MOUNTING KIT DETAIL

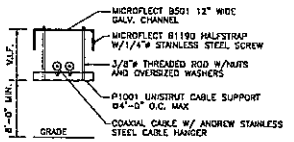
SCALE: N.T.S.



NOTE:
MAXIMUM 10' SPACING BETWEEN POST SUPPORTS

2 / A-1 ICE BRIDGE DETAIL

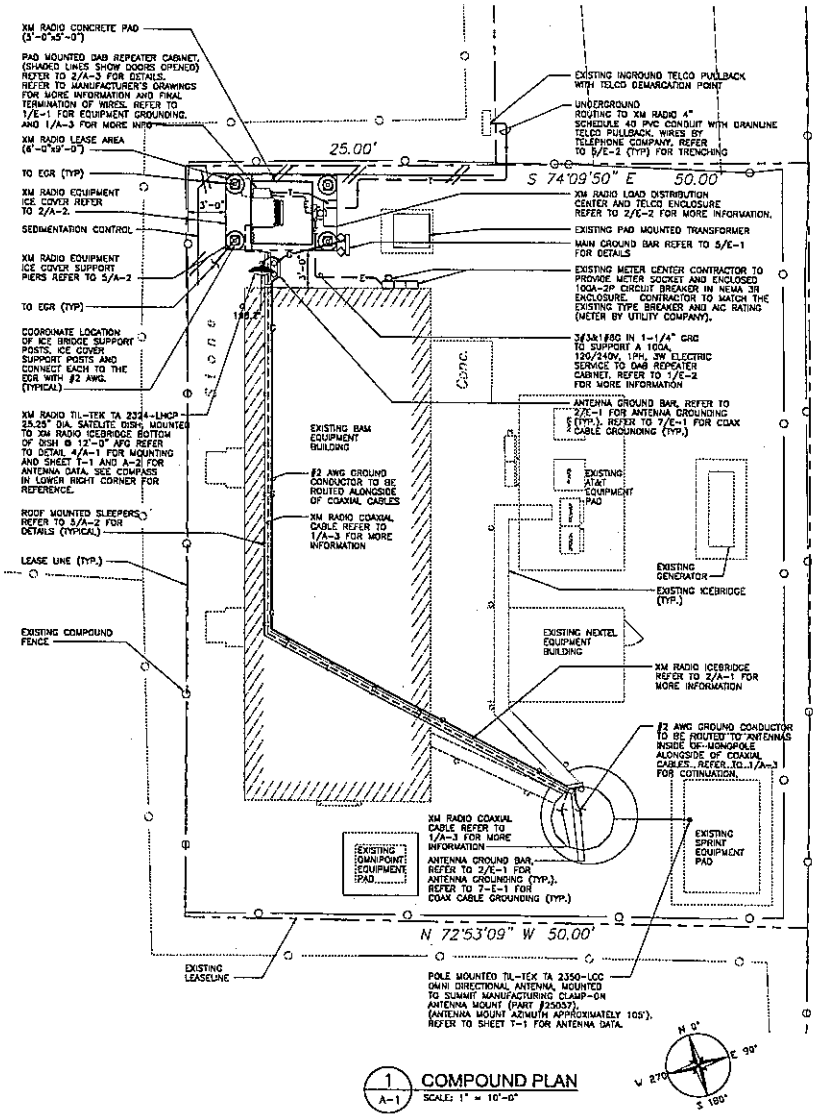
SCALE: N.T.S.



NOTE:
MOUNTING HEIGHT OF CABLE SHALL ALLOW FOR 8'-0" CLEAR HEIGHT BELOW

3 / A-1 CABLE SUPPORT DETAIL

SCALE: N.T.S.



1 / A-1 COMPOUND PLAN

SCALE: 1" = 10'-0"

INTERSTATE 91

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FAX (202) 969-7200

URS CORPORATION AES
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
1-(860)-529-0882

STATE OF CONNECTICUT
IGN. WAS. SEAL
No. 8704
LICENSED ARCHITECT

PROJECT NO:	F301960.15
DRAWN BY:	DFG
CHECKED BY:	

ISSUED FOR	
9-25-00	REVIEW
9-27-00	PERMITTING

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CROWN TOWER
SITE ID: SPR011A

4 OLIVER ROAD
ENFIELD, CONNECTICUT
06082

SCALE: AS NOTED

DATE: 9-25-00

COMPOUND PLAN AND DETAILS

A-1

OMNI ANTENNA SPECIFICATIONS

TIL-TEK TA-2350-LCC ELECTRICAL SPECIFICATIONS

FREQUENCY RANGE:	2330-2345 MHz
GAIN:	10 dBi
VSWR:	1.4:1 MAXIMUM
POLARIZATION:	LINEAR VERTICAL
POWER RATING:	200 watts AVERAGE 800 watts PEAK
H-PLANE BEAMWIDTH(-3 dB):	360 DEGREES
E-PLANE BEAMWIDTH(-3 dB):	8 DEGREES
CROSS-POLARIZATION DISCRIMINATION:	20 dB
ELECTRICAL DOWN-TILT:	2°
NULL FILL:	-20 dB (1st NULL)
IMPEDANCE:	50 ohms NOMINAL
TERMINATION:	7-16 DIN FEMALE

TIL-TEK TA-2350-LCC MECHANICAL SPECIFICATIONS

LENGTH:	70in.(1778 mm)
DIAMETER:	2.25in(57mm)
WEIGHT INCLUDING CLAMPS:	22 lb.(10kg)
RATED WIND VELOCITY:	125 mph (200 km/hr)
HORIZONTAL THRUST AT RATED WIND:	45 lb.(20.5kg)
MOUNTING:	MOUNTS TO A 1.75-4.0in.(44.5-102mm) O.D. PIPE

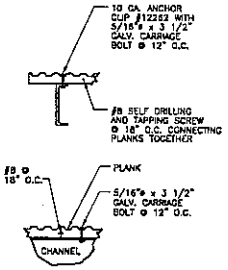
DISH SPECIFICATIONS

TIL-TEK TA-2324-LHCP ELECTRICAL SPECIFICATIONS

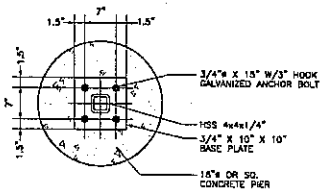
FREQUENCY RANGE:	2330-2345 MHz
GAIN:	21 dBi
VSWR:	1.3:1 MAXIMUM
POLARIZATION:	LEFT HAND CIRCULAR
POWER RATING:	2000 watts AVERAGE 6000 watts PEAK
H-PLANE BEAMWIDTH(-3 dB):	FIELD ADJUSTABLE 45°,60°,90°,120° OR 160°
E-PLANE BEAMWIDTH(-3 dB):	13.5 DEGREES
CROSS-POLARIZATION DISCRIMINATION:	25 dB
ELECTRICAL DOWN-TILT:	0°
NULL FILL:	NONE
IMPEDANCE:	50 ohms NOMINAL
TERMINATION:	7/16" DIN FEMALE

TIL-TEK TA-2324-LHCP MECHANICAL SPECIFICATIONS

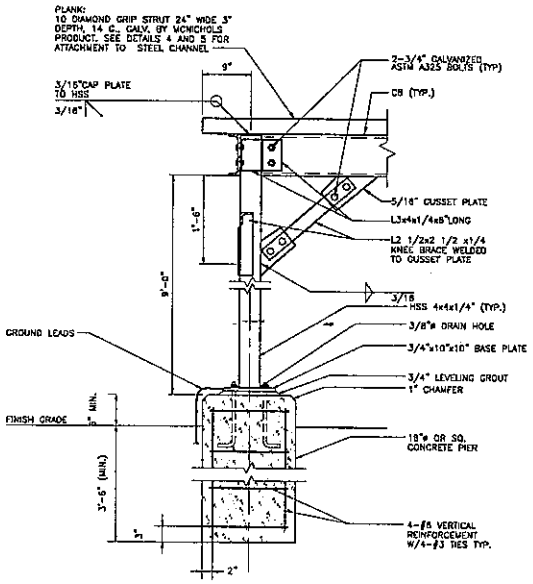
LENGTH:	N/A
DIAMETER:	26in.(641mm)
WEIGHT INCLUDING CLAMPS:	28 lb.(10kg)
RATED WIND VELOCITY:	125 mph (200 km/hr)
HORIZONTAL THRUST AT RATED WIND:	127 lb.(54.4kg)
MOUNTING:	MOUNTS TO A 1.75-4.5in.(44.5-102mm) O.D. PIPE



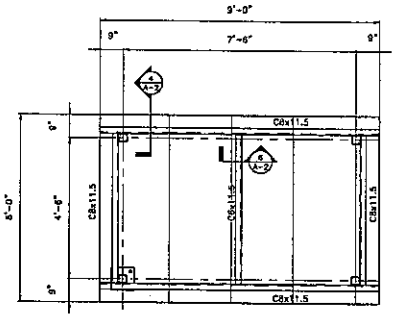
6 A-2 SECTION
SCALE: 1/2" = 1'-0"



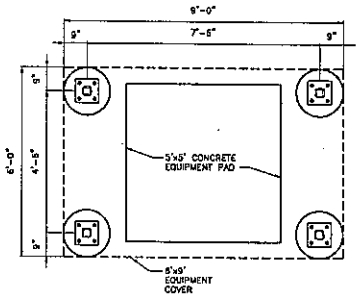
5 A-2 PIER DETAIL
SCALE: 1/2" = 1'-0"



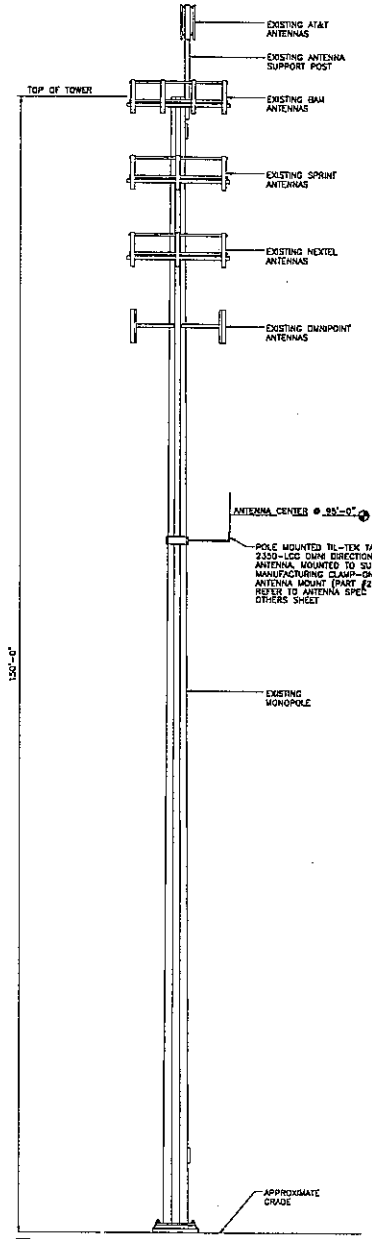
4 A-2 SECTION
SCALE: 1/2" = 1'-0"



3 A-2 EQUIPMENT ICE COVER DETAIL
SCALE: 1/4" = 1'-0"



2 A-2 EQUIPMENT ICE COVER DETAIL
SCALE: 1/4" = 1'-0"



1 A-2 MONOPOLE ELEVATION
SCALE: 1/16" = 1'-0"

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URS CORPORATION AES
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
1-(860)-529-6852

STATE OF CONNECTICUT
IGNACIO C. ARTAL
LICENSED PROFESSIONAL ENGINEER

PROJECT NO: F30060.15

DRAWN BY: DFG

CHECKED BY:

ISSUED FOR	
9-25-00	REVIEW
9-27-00	PERMITTING

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CROWN TOWER
SITE ID: SPR011A

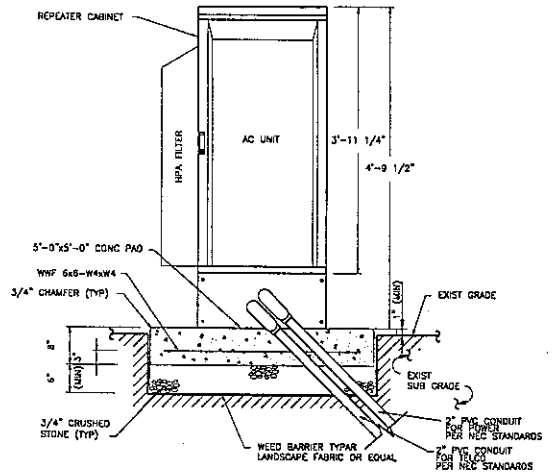
4 OLIVER ROAD
ENFIELD, CONNECTICUT
06082

SCALE: AS NOTED

DATE: 9-25-00

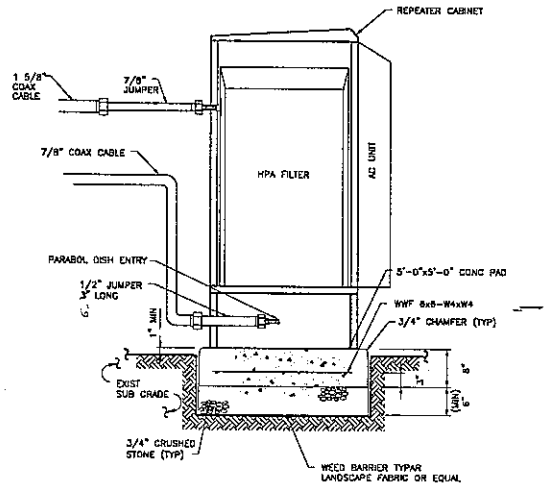
MONOPOLE ELEVATION DETAILS AND ANTENNA SPECS.

A-2



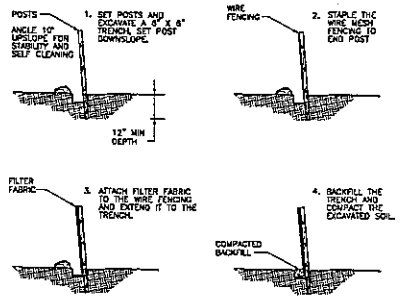
NOTE: CONTRACTOR TO PERFORM EXCAVATION WITHIN THE EXISTING SURFACE MATERIAL TO THE EXTENT NECESSARY TO ACCOMMODATE CONCRETE SLAB, CRUSHED STONE AND WEED BARRIER.

3/A-3 REPEATER ON CONCRETE SLAB (FRONT VIEW)
SCALE: N.T.S

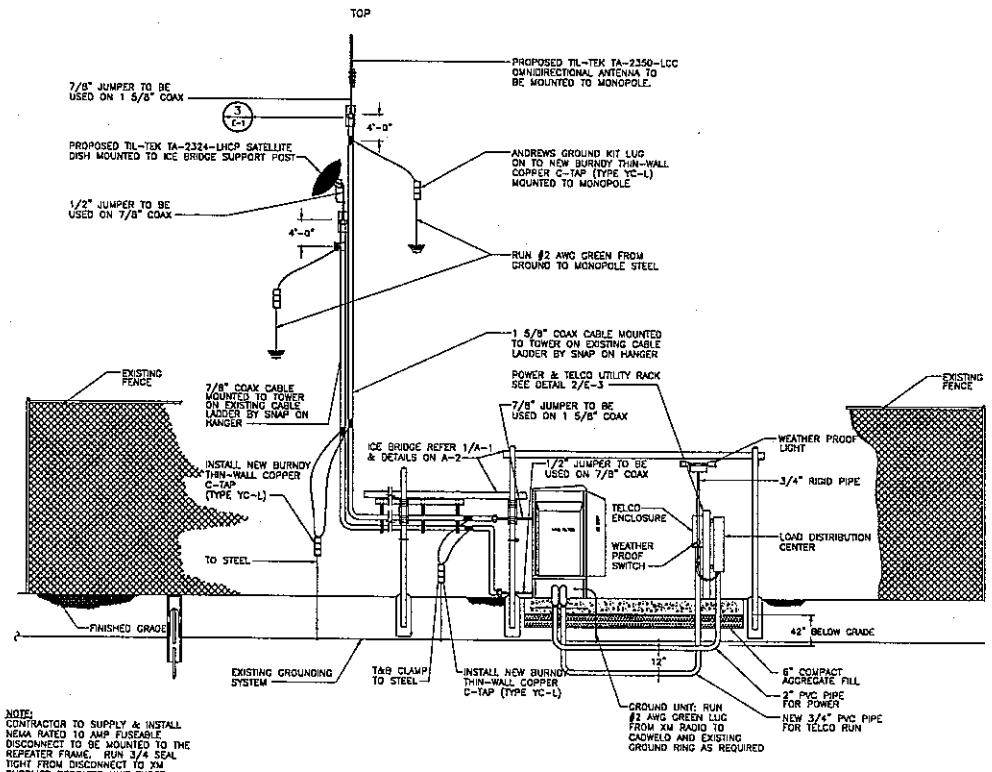


NOTE: CONTRACTOR TO PERFORM EXCAVATION WITHIN THE EXISTING SURFACE MATERIAL TO THE EXTENT NECESSARY TO ACCOMMODATE CONCRETE SLAB, CRUSHED STONE AND WEED BARRIER.

2/A-3 REPEATER ON CONCRETE SLAB (SIDE VIEW)
SCALE: N.T.S



4/A-3 SEDIMENTATION CONTROL BARRIER-SILT FENCE
SCALE: N.T.S.



NOTE:
CONTRACTOR TO SUPPLY & INSTALL NEMA RATED 10 AMP FUSEABLE DISCONNECT TO BE MOUNTED TO THE REPEATER FRAME. RUN 3/4 SEAL TIGHT FROM DISCONNECT TO XM SUPPLIED REPEATER UNIT THREE WIRES 12 AWG WIRE GREEN(GROUND) MOUNTED ON BLOCK IN REPEATER UNIT

1/A-3 TYPICAL EQUIPMENT RISER DIAGRAM
SCALE: N.T.S.

LCC
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ORS CORPORATION AES
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
(860) 529-6882

STATE OF CONNECTICUT
IGNACIO BARTALONI
No. 8704
LICENSED ARCHITECT

PROJECT No: 1R301960.15

DRAWN BY: DFG

CHECKED BY:

ISSUED FOR	
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CROWN TOWER
SITE ID: SPR011A

4 OLIVER ROAD
ENFIELD, CONNECTICUT
06082

SCALE: AS NOTED

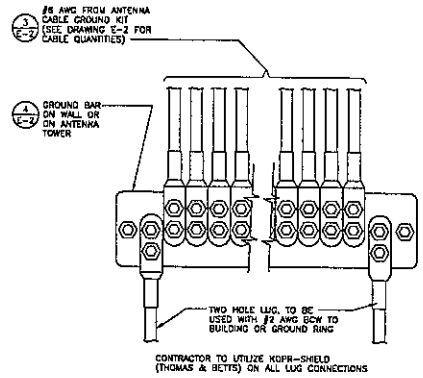
DATE: 9-25-00

TYPICAL EQUIPMENT RISER DIAGRAM

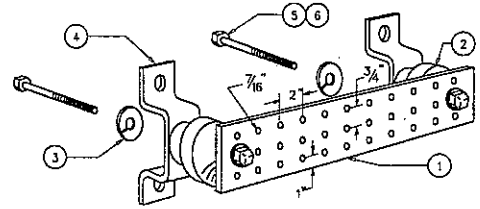
A-3

SYMBOL LIST

SYMBOL	DESCRIPTION
	DISCONNECT SWITCH, NON-FUSED, 600VAC (AMPERAGE AND POLES NOTED ON PLANS)
	DISCONNECT SWITCH, FUSED, 600VAC (AMPERAGE AND POLES NOTED ON PLANS)
—E—	ELECTRICAL CONDUIT AND CABLES
—G—	GROUND SYSTEM CONDUIT AND CABLE
—EGR—	EXTERIOR GROUND RING
MTS	MANUAL TRANSFER SWITCH
P	PULLBOX, 12" x 12" x 8", UNO
T	TRANSFORMER
	REVENUE METER AND BASE. COORDINATE WITH UTILITY COMPANY.
•	EXOTHERMIC WELD CONNECTION
	GROUND BAR
	GROUNDING ELECTRODE
	EXOTHERMIC WELD 'T' OF THRU' CONDUCTOR AND TAP CONDUCTOR. 'CADWELD TYPE TA'
AWG	AMERICAN WIRE GAGE
BCW	BARE COPPER WIRE
C	CONDUIT
C/B	CIRCUIT BREAKER
GRC	GALVANIZED RIGID CONDUIT
KWH	KILO-WATT-HOUR
NF	NON-FUSED
SA	SURGE ARRESTOR
TBR	TO BE REMOVED
UNO	UNLESS NOTED OTHERWISE
WP	WEATHERPROOF



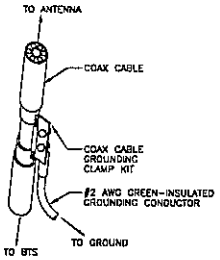
5 E-1 GROUNDING - INSTALLATION OF GROUND WIRE TO GROUND BAR
SCALE: NTS



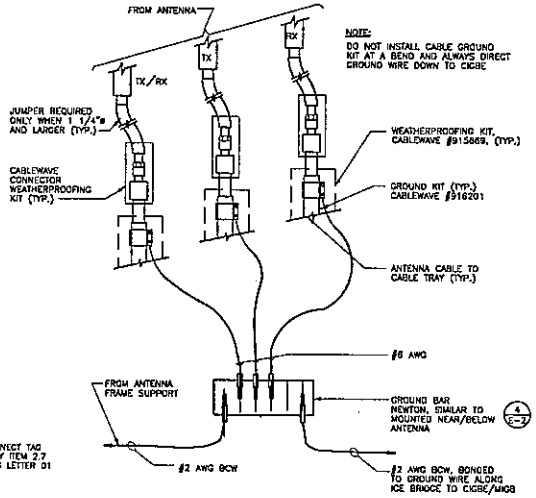
LEGEND

1- COPPER GROUND BAR, 1/4"X 4"X 20", NEWTON INSTRUMENT CO. CAT. NO. B-6142. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4
3- 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8
4- MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056. PROVIDE BAND CLAMP FOR FASTENING TO MONOPOLE
5- 5/8-11 X 1" H.H.C.S.BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1
6- WELDING OR DRILLING IS NOT PERMITTED ON TOWER.

4 E-1 GROUNDING - GROUND BAR DETAIL
SCALE: NTS

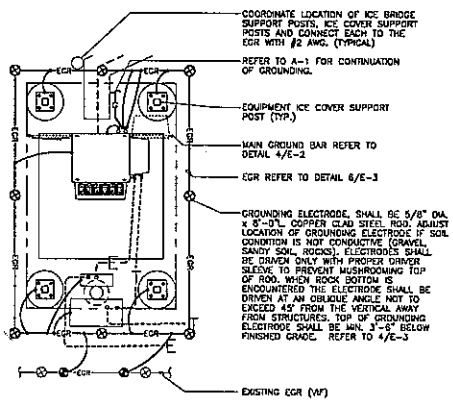


6 E-1 TYPICAL COAX CABLE GROUNDING DETAIL
SCALE: NTS



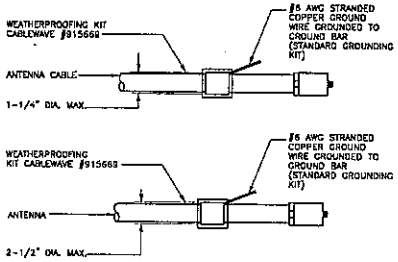
NOTE:
DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

1 E-1 GROUNDING - CONNECTION OF GROUND WIRES TO GROUNDING BAR
SCALE: NTS



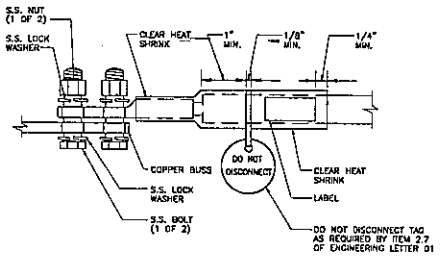
NOTE:
1. LOCATION OF THE MASTER GROUND BARS TO BE DETERMINED IN FIELD AND MAY BE LOCATED AND SUPPORTED AS CLOSE TO EQUIPMENT AS FEASIBLE AND PRACTICAL TO ACHIEVE THE DESIGNED CONFIGURATIONS.
2. SEE SHEET A-1 FOR ACTUAL EQUIPMENT ORIENTATION.

1 E-1 EQUIPMENT GROUNDING PLAN
SCALE: 1" = 5'-0"



NOTE: DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT THE GROUND WIRE DOWN TO THE GROUND BAR.

3 E-1 CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE
SCALE: NTS



NOTES:
1) ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2) FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH KOPR-SHIELD.

2 E-1 GENERAL LUG DETAIL
SCALE: NTS

LCC
1702 MAIN STREET
SUITE D
EAST HARTFORD, CT 06108
1-(860)-291-0627

SATELLITE RADIO
1250 23rd ST. NW, SUITE 57
WASHINGTON, DC 20037
PHONE (202) 969-7100
FAX (202) 969-7200

URS CORPORATION AES
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
1-(860)-529-8882

STATE OF CONNECTICUT
No.14749

PROJECT NO: 13018015

DRAWN BY: GPC

CHECKED BY:

ISSUED FOR	
9-25-00	REVIEW
9-27-00	PERMITTING

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO LCC IS STRICTLY PROHIBITED.

CROWN TOWER
SITE ID: SPR011A

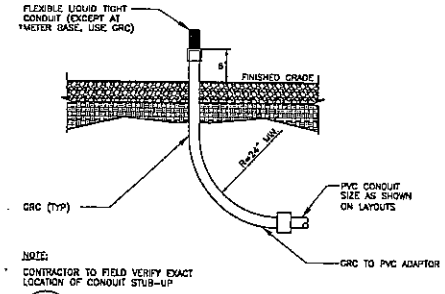
4 OLIVER ROAD
ENFIELD, CONNECTICUT
06082

SCALE: AS NOTED

DATE: 9-25-00

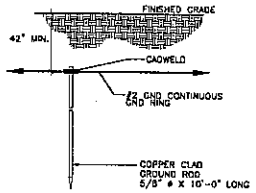
EQUIPMENT GROUNDING PLAN, DETAILS AND SYMBOL LIST

E-1

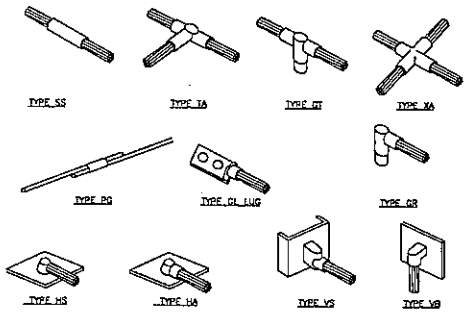


NOTE:
CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF CONDUIT STUB-UP

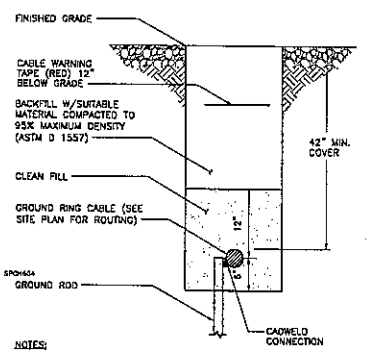
7 / E-2 UTILITY STUB UP DETAIL
SCALE: NTS



4 / E-2 TYP GRND ROD DETAIL
SCALE: N.T.S.

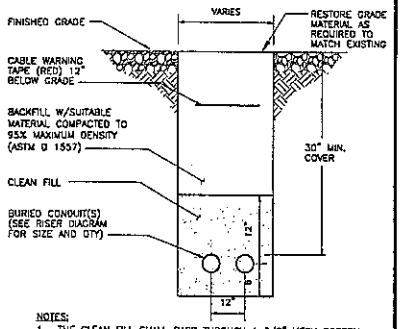


3 / E-2 STANDARD CADWELD DETAILS
SCALE: NTS



NOTES:
1. THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION. THE TRENCH SHALL BE BACKFILLED IMMEDIATELY FOLLOWING PLACEMENT OF THE CONDUITS.
2. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.

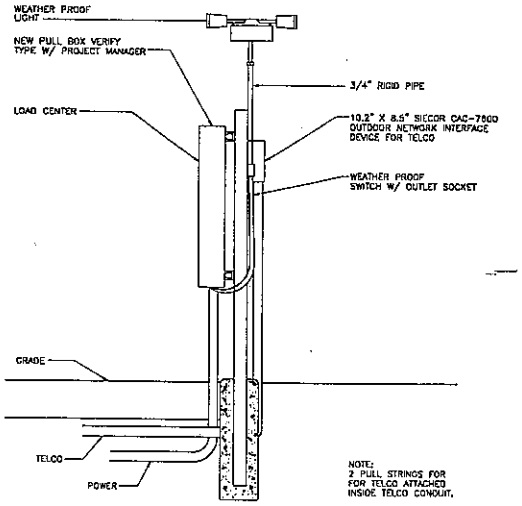
6 / E-2 EGR DETAIL
SCALE: N.T.S.



NOTES:
1. THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION. THE TRENCH SHALL BE BACKFILLED IMMEDIATELY FOLLOWING PLACEMENT OF THE CONDUITS.
2. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.

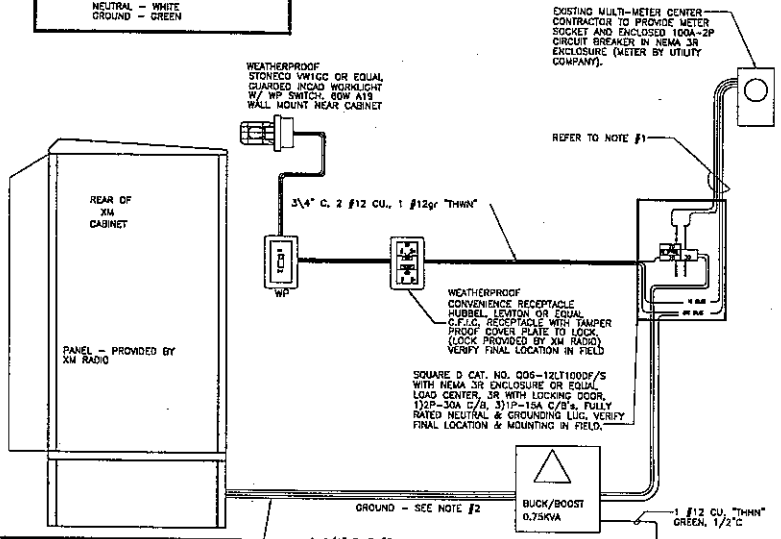
5 / E-2 TYPICAL ELECTRICAL/TELCO TRENCH DETAIL
SCALE: N.T.S.

NOTE: CONDUCTOR COLORS TO BE FOLLOWED:
A PHASE – BLACK
B PHASE – RED
C PHASE – BLUE
NEUTRAL – WHITE
GROUND – GREEN



NOTE:
2 PULL STRINGS FOR FOR TELCO ATTACHED INSIDE TELCO CONDUIT.

2 / E-2 POWER AND TELCO UTILITY RACK ELEVATION
SCALE: NTS



NOTE #1:
1-1/4" C, 3 #3 & 1 #8G "THHN" FOR RUNS UP TO 150'-0"
1-1/4" C, 3 #2 & 1 #8G "THHN" FOR RUNS OVER 150'-0"

NOTE #2
CONDUCTORS TO BE RUN CONTINUOUS FROM CIRCUIT BREAKERS TO TERMINATIONS IN XM RADIO PANEL. NO SPLICES WILL BE PERMITTED.

NOTE #3
FOR FURTHER INFORMATION REFER TO GENERAL ELECTRICAL PROVISION NOTES SHEET

NOTE #4
IF RECEPTACLES, ETC. ARE TO BE MOUNTED INDOORS, RECEPTACLES, SWITCHES, LIGHT FIXTURES, ETC MAY BE INDOOR GRADE RATHER THAN WP AND GFI.

1 / E-2 RISER DIAGRAM
SCALE: NTS

LCC
1792 MAIN STREET
SUITE D
EAST HARTFORD, CT 06108
1-(860)-291-0627

XM SATELLITE RADIO
1250 23rd ST. NW, SUITE 57
WASHINGTON, DC 20037
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FAX (202) 969-7050

UBS CORPORATION AES
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT

STATE OF CONNECTICUT
SUBHAS SOMAN
No. 14745
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO: 1301960.15

DRAWN BY: DFG

CHECKED BY:

ISSUED FOR	
9-25-00	REVIEW
9-27-00	PERMITTING

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO LCC IS STRICTLY PROHIBITED.

CROWN TOWER
SITE ID: SPR011A

4 OLIVER ROAD
ENFIELD, CONNECTICUT
06082

SCALE: AS NOTED

DATE: 9-25-00

ELETRICAL RISER DIAGRAM AND DETAILS

E-2

GENERAL CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL BUILDING CODE, THE LATEST EDITION AND ALL OTHER APPLICABLE CODES AND ORDINANCES.

2. CONTRACTOR SHALL VISIT THE JOB SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.

3. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT AND APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

4. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A "CLARIFICATION FROM AUTHORIZED REPRESENTATIVE OF LCCI OR THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK.

5. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.

6. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.

7. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND TO BE IN THE FIELD.

8. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.

9. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.

10. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE SUPERINTENDENT OF BUILDINGS & GROUNDS AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS.

11. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.

12. CONTRACTOR SHALL PROVIDE ACCESS TO THE SITE AND ASSIST THE RADIO EQUIPMENT VENDOR AND THE ANTENNA INSTALLATION CONTRACTOR AS THEY MAY REQUIRE.

13. PROVIDE 48 HOURS WRITTEN NOTICE TO THE ENGINEER, LCCI & OWNER PRIOR TO COMMENCEMENT OF WORK.

14. CONTRACTOR SHALL MAINTAIN LIABILITY INSURANCE TO PROTECT THE OWNER, AGENT & LCCI

15. PROVIDE A PORTABLE FIRE EXTINGUISHER WITH A RATING OF NOT LESS THAN 2-A OR 2-A/10-BC WITHIN 75 FEET TRAVEL DISTANCE TO ALL PORTIONS OF THE WORK AREA DURING CONSTRUCTION.

16. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

17. VERIFY FINAL EQUIPMENT LOCATIONS WITH THE RADIO EQUIPMENT VENDOR.

18. MAKE NECESSARY PROVISIONS TO PROTECT EXISTING SURFACES, EQUIPMENT, IMPROVEMENTS, PIPING ETC. AND IMMEDIATELY REPAIR ANY DAMAGE THAT OCCURS DURING CONSTRUCTION.

19. IN DRILLING HOLES INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., IT MUST BE CLEARLY UNDERSTOOD THAT REINFORCING STEEL SHALL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES (UNLESS OTHERWISE NOTED). LOCATIONS OF REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT.

20. REPAIR ALL EXISTING WALL SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND IN WITH ADJACENT SURFACES.

21. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH U.L. LISTED AND FIRE CODE APPROVED MATERIALS.

22. KEEP CONTRACT AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.

23. COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF ACCEPTANCE BY LCCI. ANY WORK, MATERIALS, OR EQUIPMENT FOUND TO BE DEFECTIVE DURING THAT PERIOD SHALL BE CORRECTED IMMEDIATELY UPON WRITTEN NOTIFICATION AT NO ADDITIONAL COST TO LCCI.

24. MINIMUM BEND RADIUS OF ANTENNA CABLES SHALL BE IN ACCORDANCE WITH CABLE MANUFACTURERS RECOMMENDATIONS.

GENERAL CONCRETE NOTES

1. DESIGN AND CONSTRUCTION SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" ACI 318.

2. ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE 3500 PSI.

3. CONCRETE WORK AND MATERIALS SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", ACI 301.

4. CEMENT SHALL BE PORTLAND CEMENT CONFORMING TO ASTM C150 TYPE 1.

5. CONCRETE SLUMP SHALL NOT EXCEED 5 INCHES UNLESS SPECIFICALLY AUTHORIZED BY THE ENGINEER. SLUMP SHALL BE DETERMINED IN ACCORDANCE WITH ASTM C143.

6. READY MIX CONCRETE SHALL COMPLY WITH ACI-304 AND ASTM C-94 WITH A MAXIMUM WATER CEMENT RATIO OF 0.50. TIME BETWEEN INTRODUCTION OF WATER AND THE PLACEMENT OF CONCRETE SHALL NOT EXCEED 1-1/2 HOURS.

7. PROVIDE AIR ENTRAINMENT IN EXTERIOR EXPOSED CONCRETE TO OBTAIN TOTAL AIR CONTENT OF 5% ± 1% IN ACCORDANCE WITH ACI 301.

8. CONCRETE COVER FOR REINFORCING SHALL BE 3 INCHES FOR CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH. AT ALL OTHER CONCRETE SURFACES, MINIMUM COVER SHALL BE 2 INCHES FOR #6 AND LARGER BARS, AND 1 1/2 INCHES FOR #5 AND SMALLER BARS.

9. REMOVE ALL LOOSE MATERIAL AND DEBRIS FROM SURFACE PRIOR TO PLACING CONCRETE.

10. EXTERIOR WALKING SURFACES SHALL RECEIVE A BROOM FINISH.

11. THROUGHOUT CONSTRUCTION, THE CONCRETE WORK SHALL BE ADEQUATELY PROTECTED AGAINST DAMAGE DUE TO EXCESSIVE LOADING, CONSTRUCTION EQUIPMENT, MATERIALS OR METHODS, ICE, RAIN, SNOW, EXCESSIVE HEAT AND FREEZING.

12. DRYING OUT OF CONCRETE, ESPECIALLY DURING THE FIRST 24 HOURS, SHALL BE CAREFULLY GUARDED AGAINST, ALL SURFACES SHALL BE MOIST CURED OR PROTECTED USING A MEMBRANE CURING AGENT APPLIED AS SOON AS FORMS ARE REMOVED. IF MEMBRANE CURING AGENT IS USED, EXERCISE CARE NOT TO DAMAGE SURFACE.

11. SUBMIT SHOP DETAIL DRAWINGS OF ALL STRUCTURAL AND MISCELLANEOUS STEEL TO THE ENGINEER FOR APPROVAL, AND INCORPORATE ALL COMMENTS PRIOR TO FABRICATION.

12. GRATING SHALL BE GALVANIZED SERRATED WELDED STEEL BAR GRATING WITH 1"x3/16" BEARING BARS AT 1-3/16" OC. FASTEN TO SUPPORTING MEMBERS WITH SADDLE-TYPE CLIPS AND BAND ALL EXPOSED EDGES.

13. SLEEVE ANCHORS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 3, CLASS 3, AS MANUFACTURED BY HILTI FASTENING SYSTEMS OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE THREE (3) INCHES.

14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS 1. HILTI KWIK BOLT II OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE FOUR (4) INCHES.

15. EPOXY ANCHORING SYSTEM SHALL BE THE HILTI HIT HY20 FOR MASONRY CONSTRUCTION WITH HOLLOW BRICK OR BLOCK & THE HILTY HIT HY150 INJECTION ADHESIVE ANCHOR FOR GROUT FILLED CONCRETE MASONRY UNITS AND CONCRETE. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF 1/2" STAINLESS STEEL ANCHOR ROD W/NUTS & WASHERS, AN INTERNALLY THREADED INSERT(OPTIONAL), A SCREEN TUBE FOR THE HY20 ONLY & AN EPOXY ADHESIVE (8" MIN EMBEDMENT U.N.O). THE INSTALLATION PROCEDURE SHALL BE AS FOLLOWS

A. DRILL THE HOLE USING MANUFACTURER RECOMMENDED DRILL BIT UP TO SPECIFIED DEPTH. HAMMERING IS NOT PERMITTED.

B. CLEAN THE HOLE USING NYLON BRUSH AND/OR COMPRESSED AIR. THE HOLE SHOULD BE CLEAR OF ANY LOOSE MATERIAL. IF WET, THE MASONRY SHOULD BE ALLOWED TO DRY FULLY BEFORE ANCHOR INSTALLATION.

C. INSERT SPECIFIED SCREEN TUBE INTO THE HOLE.

D. FILL THE SCREEN TUBE COMPLETELY WITH ADHESIVE, BEGINNING AT THE BOTTOM END.

E. INSERT ANCHOR ROD OR INTERNALLY THREADED INSERT INTO THE ADHESIVE-FILLED SCREEN TUBE, TWISTING SLIGHTLY.

F. LOAD FASTENER ONLY AFTER MANUFACTURER SPECIFIED CURE TIME HAS ELAPSED.

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

ANTENNA MOUNTING NOTES

1. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO ANSI/EIA/TIA- 222-F "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES" OR APPLICABLE LOCAL CODES. DESIGN WIND SPEED = 85 MPH. (85 MPH IN CONJUNCTION WITH 0.5 INCHES RADIAL ICE)

2. 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.

3. 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.

4. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.

5. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH DOUBLE NUTS AND SHALL BE INSTALLED SNUG TIGHT.

GENERAL ELECTRICAL NOTES

1. CONTRACTOR SHALL PERFORM ALL VERIFICATION OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ENGINEER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.

2. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.

3. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES (U.L.) AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION. AND SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU.

4. CONTRACTOR TO COORDINATE WITH BUILDING OWNER FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS TO BE PAID BY CONTRACTOR.

5. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.

6. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AS INDICATED BY UTILITY COMPANY AND A MINIMUM OF 22,000 A.I.C.

7. METER SOCKET AMPERES, VOLTAGE, AND NUMBER OF PHASES SHALL BE AS NOTED AND SHALL BE MANUFACTURED BY SQUARE "D" COMPANY, SANGAMO, OR APPROVED EQUAL. METER SOCKET SHALL BE APPROVED BY UTILITY COMPANY PRIOR TO INSTALLATION.

8. WIRE AND CABLE CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM WITH TYPE THWN INSULATION UNLESS SPECIFICALLY NOTED OTHERWISE.

9. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANELBOARD, PULLBOX, J-BOX, SWITCH BOX, ETC., IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT (O.S.H.A.)

10. CONDUIT:

A. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR.

B. ELECTRICAL METALLIC TUBING (EMT) SHALL HAVE U.L. LABEL. FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS. NO SET SCREW OR CRIMP TYPE FITTINGS SHALL BE USED.

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

D. PVC CONDUIT AND FITTINGS SHALL HAVE U.L. LABEL AND SHALL BE PVC SCHEDULE 40.

E. CONDUIT SHALL BE SIZED PER NEC OR ANY GOVERNING LOCAL CODE, AND AS SHOWN.

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

G. ALL CONDUIT ONLY (C.O.) RUNS SHALL HAVE A PULL WIRE OR ROPE.

11. REFER TO MANUFACTURERS MANUAL FOR RECOMMENDED FUSE AND WIRE SIZES.

12. ALL FINAL CONNECTIONS TO THE EQUIPMENT ARE TO BE OF FLEXIBLE WEATHERPROOF CONDUIT TO MEET APPLICABLE CODES.

13. PROVIDE LCCI WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH, GAINING APPROVALS AND PAYING ALL FEES ASSESSED BY UTILITY COMPANY FOR ELECTRICAL SERVICE.

15. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED AND CODE APPROVED MATERIALS.

16. TELCO CONDUIT RUN IN/ON BUILDINGS SHALL BE 2" DIA. AND HAVE MINIMUM 12" RADIUS BENDS & ELBOWS. CONDUIT RUNS SHALL HAVE ONE 18"x18"x8" PULL BOX AT DEMARC LOCATION. TWO (2) PULL ROPES SHALL BE INSTALLED IN TELCO CONDUIT.

17. CONTRACTOR TO INSTALL BRASS TAGS ON THE COAX CABLE AT THE ANTENNA END & AT THE EQUIPMENT END. THE TAGS MUST INCLUDE SECTOR NO.& AND CABLE LENGTH.

GENERAL GROUNDING NOTES

1. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.

2. ALL BUS CONNECTORS SHALL BE TWO-HOLE, LONG-BARREL TYPE COMPRESSION LUGS, T&B OR EQUAL, UNLESS OTHERWISE NOTED ON DRAWINGS. ALL LUGS SHALL BE ATTACHED TO BUSSES USING BOLTS, NUTS, AND LOCK WASHERS. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED.

3. ALL CONNECTORS SHALL BE CRIMPED USING HYDRAULIC CRIMPING TOOLS, T&B #TBM 8 OR EQUIVALENT.

4. ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FILED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON-OXIDIZING AGENT APPLIED PRIOR TO INSTALLATION.

5. ALL COPPER BUSSES SHALL BE CLEANED, POLISHED, AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.

6. ALL BENDS SHALL BE AS SHALLOW AS POSSIBLE, WITH NO TURN SHORTER THAN AN 8-INCH NOMINAL RADIUS.

7. GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND ANNEALED #2. ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS, OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.

8. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 10 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.

9. ALL ROOF TOP ANTENNA MOUNTS SHALL BE GROUNDED WITH A #2 GROUND WIRE CONNECTED TO THE NEAREST GROUND BUS. ALL CONNECTIONS ARE TO BE CAD-WELDED IF POSSIBLE.

10. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO THE PROJECT MANAGER.

11. GROUNDING CONNECTION TO TRAVEL IN A DOWNWARD DIRECTION.

12. ALL EXPOSED #2 WIRE MUST BE TINN HOT BOW.

13. MASTER GROUND BAR IS TO BE 4" X 1'-8". ALL OTHER GROUND BARS ARE TO BE 4" X 1'-4".

GENERAL NOTES

1. THIS FACILITY IS UNMANED AND NOT FOR HUMAN OCCUPANCY.

2. ALL WORK SHALL CONFORM TO THE LOCAL BUILDING CODE.

3. RIGGING OPERATIONS SHALL BE DONE IN ACCORDANCE WITH LOCAL AND FEDERAL SAFETY REGULATIONS (OSHA). TECTONIC, AND THE LANDLORD SHALL BE HELD HARMLESS IN THE EVENT THE CONTRACTOR DOES NOT FOLLOW SUCH SAFETY REGULATIONS.

TENANT PROTECTION NOTES

SPECIAL PRECAUTION SHALL BE TAKEN BY THE CONTRACTOR SO THAT THE EQUIPMENT ON THIS APPLICATION AND IT'S INSTALLATION WILL NOT AFFECT THE FOLLOWING:

1. TENANT EGRESS TO AND FROM THE BUILDING/SITE.

2. FIRE SAFETY OR CREATE A FIRE HAZARD.

3. STRUCTURAL SAFETY OF THE ADJACENT STRUCTURES.

4. ACCUMULATION OF DUST: THE CONTRACTOR SHALL LEAVE THE WORKSITE BROOM CLEAN EACH DAY. IN THE EVENT THAT ASBESTOS IS FOUND ON THE JOBSITE, NOTIFY THE LCC CONSTRUCTION MANAGER IMMEDIATELY. ANY REMOVAL SHALL TAKE PLACE IN ACCORDANCE WITH ALL THE APPLICABLE REGULATIONS OF OSHA SECTION 1910.1 INCLUDING STATE AND FEDERAL DUMPING GROUNDS.

5. THERE SHALL BE NO CREATION OF NOISE OUTSIDE THE NORMAL HOURS OF BUILDING OPERATION.

6. BUILDING SECURITY SHALL BE MAINTAINED IN ORDER TO PREVENT UNAUTHORIZED PERSONS FROM ENTERING THE PREMISES.

7. ELECTRICITY, GAS, WATER AND ANY OTHER UTILITIES WILL NOT BE INTERRUPTED DURING CONSTRUCTION.

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UBS CORPORATION AES
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT

STATE OF CONNECTICUT
IGNACIO BERNARDO
No. 8704
LICENSED ARCHITECT

PROJECT NO: F301960.15

DRAWN BY: DFG

CHECKED BY:

ISSUED FOR	
9-25-00	REVIEW
9-27-00	PERMITTING

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO LCC IS STRICTLY PROHIBITED.

CROWN TOWER
SITE ID: SPR01A

4 OLIVER ROAD
ENFIELD, CONNECTICUT
06082

SCALE: AS NOTED

DATE: 9-25-00

GENERAL NOTES

GN-1

Power Density Calculation for XM Radio's proposed installation on CrownCastle Tower @ Oliver Road, Enfield, CT

XM Radio Internal Site ID: **SPR-011A**

Power Density Calculation - Worst Case		
Base Station TX Output	100 *watts*	50 *dBm*
Number of Tx Channels	2	
Antenna Model	TA-2350-DAB *panels (3)*	
Antenna Gain	10 *dBi*	
Cable Type/Size	LDF7-50A *1-5/8" dia.*	
Cable Length	170 *ft*	
Jumper and Connector Loss	0.86 *dB*	
Cable Loss (per foot)	0.0137 *dB/ft*	
Total Cable Loss	2.33 *dB*	
Total Attenuation	3.19 *dB*	
Total EIRP Per Channel	56.81 *dBm*	480.06 *Watts*
Total EIRP	56.81 *dBm*	480.06 *Watts*
Ground Reflection	1.60	
Frequency	2337.49 *MHZ* 2340.02 *MHZ*	
Antenna Height	95 *ft*	2,895.60 *cm*
nsg	10.00	
Power Density (S)	0.011664 *mw/cm²*	
% MPE	1.1664%	

Equation Used:

Power Density (S) = (2.56*1000*EIRP)/4*(pi)*(R)²

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EXHIBIT B