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BROADWAY AND 405

2211 S.W. 4th AVENUE
PORTLAND, OREGON 97201

PD53 FA: 10133717

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WORK IN
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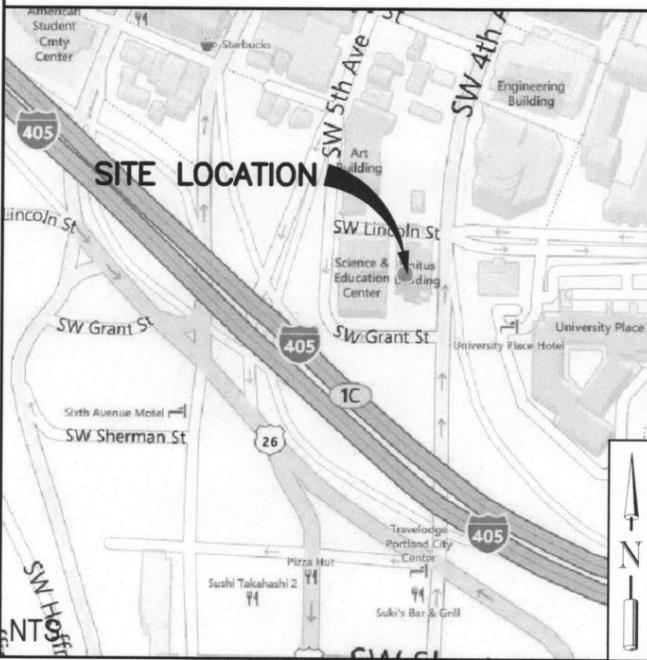


4004 KRUSE WAY PLACE
BLDG. 4004, SUITE #220
LAKE OSWEGO, OR 97035
503-636-2500 (MAIN)
503-636-2501 (FAX)

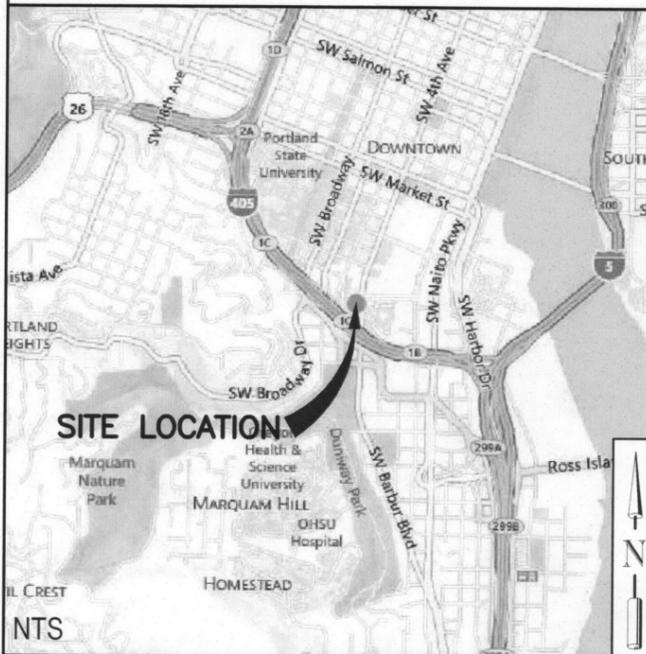
PROPRIETARY INFORMATION

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO THE AT&T MOBILITY SERVICES IS STRICTLY PROHIBITED.

VICINITY MAP



GENERAL LOCATION MAP



PROJECT INFORMATION

APPLICANT:
AT&T MOBILITY
LEXCOM DEVELOPMENT - AGENT
JEFFREY S. SMITH
615 SOUTH 8TH AVENUE SOUTH
SEATTLE, WA 98104
(208) 255-9905
JEFFREY.SMITH@LEXCOMCORP.COM

PROPERTY OWNER:
SCHLESINGER COMPANY
610 S.W. ALDER, SUITE 1221
PORTLAND, OREGON 97205
PHONE: (503) 223-4128
CONTACT: JOSH SCHLESINGER

PROJECT ENGINEER:
VELOCITEL INC.
4004 KRUSE WAY PL., STE. #220
LAKE OSWEGO, OR 97035
PAUL TIBBOT, P.E.
OFFICE: (503) 636-2500 x228

CONSTRUCTION MANAGER:
KEN OWEN
PH: (503) 636-2500

ZONING CONSULTANT:
LEXCOM DEVELOPMENT
JEFFREY S. SMITH
615 SOUTH 8TH AVE SOUTH
SEATTLE, WA 98104
PH: (208) 255-9905
JEFFREY.SMITH@LEXCOMCORP.COM

CODE INFORMATION:
ZONING CLASSIFICATION: CXD
BUILDING CODE: IBC 2009
CONSTRUCTION TYPE: IIB
OCCUPANCY: S-2
JURISDICTION: CITY OF PORTLAND

SITE LOCATION: (BASED ON NAD 83)
PARCEL #: R12891
LATITUDE: N 45° 30' 27.87" (45.507742)
LONGITUDE: W 122° 40' 56.43" (-122.682342)
TOP OF (E) STRUCTURE AGL: 81'-8"
BASE OF STRUCTURE AMSL: 160'± AMSL

PROJECT AREA:
APPROXIMATE LEASE AREA: 400 SQ. FT.

GENERAL INFORMATION:
1. PARKING REQUIREMENTS ARE UNCHANGED.
2. TRAFFIC IS UNAFFECTED.
3. NO SIGNAGE IS PROPOSED.

PROJECT DESCRIPTION:

AT&T MOBILITY PROPOSES TO INSTALL EQUIPMENT TO AN EXISTING UNSTAFFED RADIO TELECOMMUNICATIONS FACILITY CONSISTING OF A (3) SECTOR ANTENNA ARRAY ON A ROOFTOP EQUIPMENT PLATFORM. AT&T WILL INSTALL (1) LTE ANTENNA PER SECTOR, (3) ANTENNAS TOTAL. AT&T WILL INSTALL (1) NEW LTE CABINET ON TOP OF EXISTING FIBER CABINET. AT&T WILL INSTALL (1) NEW DC SURGE PROTECTOR PER SECTOR, (3) TOTAL, AND (1) NEW DC TO DC CONVERTER. AT&T WILL INSTALL (3) NEW 700 MHz RRH'S AND (3) NEW AWS RRH'S. AT&T WILL REPLACE EXISTING GENERATOR PLUG WITH CAM-LOCK STYLE GENERATOR PLUG.

DRAWING INDEX

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T-1	TITLE SHEET
G-1	GENERAL NOTES
A-1	COMPOUND LAYOUT PLANS
A-2	EQUIPMENT LAYOUT PLANS
A-3	ELEVATIONS
A-4	EQUIPMENT DETAILS
A-5.1	RF SIGNAGE DETAILS
A-5.2	RF SIGNAGE DETAILS
RF-1	ANTENNA CONFIGURATIONS
RF-2	ANTENNA NOTES
RF-3	RF DETAILS
RF-4	RF DETAILS
E-1	GROUNDING PLAN
E-2	SCHEMATIC GROUNDING PLAN
E-3	ELECTRICAL DETAILS

SITE ID #: PD53 BROADWAY & 405

2211 S.W. 4th AVENUE
PORTLAND, OREGON 97201

PROJECT:
LTE

ISSUED FOR:
REVIEW

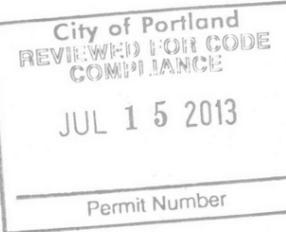
REV.	DATE	DESCRIPTION	BY
A	11/6/12	PRELIM CD'S	SP
0	1/2/13	ISSUED FOR CONST. LG	
1	4/25/13	RF COMPLIANCE	SP
2	5/10/13	FCD DETAILS REV2	SP

FA#: 10133717
DRAWN BY: SP
CHECKED BY: PT
CURRENT ISSUE DATE:
5-10-13

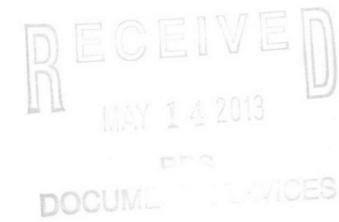
LEGAL DESCRIPTION

REAL PROPERTY IN THE COUNTY OF MULTNOMAH, STATE OF OREGON, DESCRIBED AS FOLLOWS:

PARCEL 1:
LOTS 1 AND 2, EXCEPT THE WEST 1 FOOT THEREOF AND ALL OF LOTS 3 AND 4, BLOCK 22, CARUTHERS ADDITION TO THE CITY OF PORTLAND, IN THE CITY OF PORTLAND, COUNTY OF MULTNOMAH AND THE STATE OF OREGON.



RENEWS: 06/30/2014



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SHEET TITLE:
TITLE SHEET

SHEET NUMBER: **T-1** REV: **2**

DRIVING DIRECTIONS

FROM THE TUALATIN OFFICE, START OUT GOING SOUTH ON SW 72ND AVE TOWARD SW SAGERT ST. TURN LEFT ONTO SW SAGERT ST. TURN LEFT ONTO SW 65TH AVE. SW 65TH AVE BECOMES SW NYBERG RD. MERGE ONTO I-5 N TOWARD PORTLAND. TRAVEL 4.2 MI. KEEP RIGHT TO TAKE I-5 TRUCK N TOWARD TRUCK LANE. I-5 TRUCK N BECOMES I-5 N. TRAVEL 5.2 MI. TAKE THE OR-43 E/MACADAM AVE. EXIT, EXIT 299A, TOWARD US-26 E/ROSS IS. BR.. TURN SLIGHT LEFT ONTO SW MACADAM AVE/OR-43 N. CONTINUE TO FOLLOW OR-43 N. TURN SLIGHT RIGHT ONTO SW KELLY AVE/US-26. CONTINUE TO FOLLOW US-26 W. TURN RIGHT ONTO SW 4TH AVE. 2121 SW 4TH AVE IS ON THE LEFT.

APPROVAL/SIGN OFF OF CONSTRUCTION DRAWINGS

	DATE	SIGNATURE		DATE	SIGNATURE
CONSULTANT GROUP SIGN OFF			AT&T SIGN OFF		
CONSTRUCTION COORDINATOR			COMPLIANCE		
LANDLORD'S REPRESENTATIVE			CONSTRUCTION MANAGER		
PROJECT MANAGER			DEPLOYMENT MANAGER		
SITE ACQUISITION			EQUIPMENT ENGINEER		
ZONING			INTERCONNECT		
SITE ACQUISITION MANAGER			OPERATIONS		
PERMITS			RF ENGINEER		
			RF ENGINEER MANAGER		

REVIEWERS SHALL CLEARLY PLACE INITIALS ADJACENT TO EACH REDLINE NOTE AS DRAWINGS ARE BEING REVIEWED

DRAFTED BY: PTD.SP CM: KO

GENERAL NOTES:

- VERIFY AND CONFIRM ALL DIMENSIONS AND CONDITIONS. NOTIFY AT&T AND ARCHITECT OF ANY DISCREPANCIES PRIOR TO START OF WORK.
- DRAWINGS ARE NOT TO BE SCALED, WRITTEN DIMENSIONS TAKE PRECEDENCE. THIS SET OF DOCUMENTS IS INTENDED TO BE USED FOR DIAGRAMMATIC PURPOSES ONLY, UNLESS NOTED OTHERWISE. THE GENERAL CONTRACTOR'S SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR, AND ANY REQUIREMENTS DEEMED NECESSARY TO COMPLETE PROJECT AS DESCRIBED IN THE DRAWINGS AND OWNER'S PROJECT MANUAL.
- PRIOR TO THE SUBMISSION OF BIDS, CONTRACTORS INVOLVED SHALL VISIT THE JOB SITE TO FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THE PROPOSED PROJECT. CONTRACTORS SHALL VISIT THE CONSTRUCTION SITE WITH THE CONSTRUCTION/CONTRACT DOCUMENTS TO VERIFY FIELD CONDITIONS AND CONFIRM THAT THE PROJECT WILL BE ACCOMPLISHED AS SHOWN. PRIOR TO PROCEEDING WITH CONSTRUCTION, ANY ERRORS, OMISSIONS, OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER VERBALLY AND IN WRITING.
- AT&T, AND THE ARCHITECTS/ENGINEERS HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. CONTRACTORS BIDDING THE JOB ARE NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS. THE BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) AT&T, AND THE ARCHITECT/ENGINEER OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO SUBMISSION OF CONTRACTOR'S PROPOSAL. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED OTHERWISE.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- ALL WORK PERFORMED ON THE PROJECT AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK.
- CONTRACTOR SHALL PROVIDE, AT THE PROJECT SITE, A FULL SET OF CONSTRUCTION DOCUMENTS UPDATED WITH THE LATEST REVISIONS AND ADDENDA OR CLARIFICATIONS FOR USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
- THE STRUCTURAL COMPONENTS OF ADJACENT CONSTRUCTION OR FACILITIES ARE NOT TO BE ALTERED BY THIS CONSTRUCTION PROJECT UNLESS NOTED OTHERWISE. ENSURE THAT EXCAVATION DOES NOT AFFECT ADJACENT STRUCTURES.
- SEAL ALL PENETRATIONS THROUGH FIRE-RATED AREAS WITH U.L. LISTED OR FIRE MARSHALL APPROVED MATERIALS IF APPLICABLE TO THIS FACILITY AND OR PROJECT SITE.
- CONTRACTOR TO PROVIDE A PORTABLE FIRE EXTINGUISHER WITH A RATING OF NOT LESS THAN 2-A OR 2-A10BC WITHIN 75 FEET TRAVEL DISTANCE TO ALL PORTIONS OF PROJECT AREA DURING CONSTRUCTION.
- CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
- CONTRACTOR SHALL KEEP GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, AND RUBBISH. CONTRACTOR SHALL REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OR PREMISES. SITE SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
- THE CONTRACTOR SHALL RECEIVE WRITTEN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL PERFORM WORK DURING OWNER'S PREFERRED HOURS TO AVOID DISTURBING NORMAL BUSINESS.
- THE CONTRACTOR SHALL PROVIDE AT&T. PROPER INSURANCE CERTIFICATES NAMING AT&T. AS ADDITIONAL INSURED, AND AT&T. PROOF OF LICENSE(S) AND PE & PD INSURANCE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING AND COORDINATING ALL INSPECTIONS.
- CAUTION! CALL BEFORE YOU DIG! BURIED UTILITIES EXIST IN THE AREA AND UTILITY INFORMATION SHOWN MAY NOT BE COMPLETE. CONTACT THE ONE-CALL UTILITY LOCATE SERVICE A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION. IN OREGON CALL 1-800-332-2344
- CONTRACTOR TO DOCUMENT ALL WORK PERFORMED WITH PHOTOGRAPHS AND SUBMIT TO AT&T. ALONG WITH REDLINED CONSTRUCTION SET.
- CONTRACTOR TO DOCUMENT ALL CHANGES MADE IN THE FIELD BY MARKING UP (REDLINING) THE APPROVED CONSTRUCTION SET AND SUBMITTING THE REDLINED SET TO AT&T. UPON COMPLETION.
- FOR COLLOCATION SITES: CONTACT TOWER OWNER REPRESENTATIVE FOR PARTICIPATION IN BID WALK.
- CONTRACTOR IS TO COORDINATE ALL POWER INSTALLATION WITH POWER COMPANY AS REQUIRED. CONTRACTOR TO REPORT POWER INSTALLATION COORDINATION SOLUTION(S) TO NETWORK CARRIER REPRESENTATIVE, PROJECT CONSTRUCTION MANAGER AND ARCHITECT.
- ANY SUBSTITUTIONS OF MATERIALS AND/OR EQUIPMENT, MUST BE APPROVED BY AT&T CONSTRUCTION MANAGER.
- WHERE ANCHORING TO A CONCRETE ROOF SLAB, CONTRACTOR SHALL CONFIRM (PRIOR TO SUBMITTING BID) WITH CONSULTING CONSTRUCTION COORDINATOR AND ARCHITECT THE PRESENCE OF POST TENSION TENDONS. CONTRACTOR SHALL INCLUDE PROVISIONS FOR X-RAY PROCEDURES TO LOCATE THE TENDONS.

GENERAL NOTES (CONT'D):

- CONTRACTOR SHALL USE STAINLESS STEEL METAL LOCKING TIES FOR ALL CABLE TRAY TIE DOWNS AND ALL OTHER GENERAL TIE DOWNS (WHERE APPLICABLE). PLASTIC ZIP TIES SHALL NOT BE PERMITTED FOR USE ON AT&T PROJECTS. RECOMMENDED MANUFACTURER SHALL BE: PANDUIT CORP. METAL LOCKING TIES MODEL NO. MLT45-CP UNDER SERIES-304 (OR EQUAL), PANDUIT PRODUCT DISTRIBUTED BY TRIARC OF TACOMA, WA.
- MAINTAIN THE INTEGRITY OF THE BUILDING ENVELOP AND CONSTRUCT BARRIERS IN THE AREA OF WORK TO PREVENT DAMAGE FROM WEATHER AND CONSTRUCTION DUST AND DEBRIS.

SITE NOTES:

- CLEAR AND GRUB SITE OF ALL VEGETATION, PAVING, GRAVEL BASE AND OTHER DEBRIS NOT TO REMAIN. SUBGRADES ARE TO BE SET PRIOR TO LANDSCAPE INSTALLATION.
- ELEVATION OF SUBGRADE TO BE WITHIN .10 FOOT OF ELEVATIONS SHOWN ON PLAN MINUS DEPTH OF TOPSOIL, FILL, AND MULCH.
- ALL AREAS SHALL BE ROUGH GRADED WITHIN FOOT OF ELEVATIONS INDICATED BEFORE PLANTING. ALL GRADES SHALL PRODUCE POSITIVE DRAINAGE AWAY FROM EQUIPMENT SLABS, BUILDINGS AND THROUGH ALL PLANTER AREAS TO AVOID LOW SPOTS AND STANDING WATER.
- NEW GRADES SHALL BLEND NATURALLY INTO EXISTING GRADES.
- IN LANDSCAPE AREAS, FINISH GRADES ARE TO FOLLOW THE GRADES AND EDGE DETAILS INDICATED AND BE MOUNDING 6 INCHES IN THE CENTER OF THE BED ABOVE THE EDGE OF THE LANDSCAPE AREA.
- NOTIFY AT&T AND THE ARCHITECT IF MODIFICATIONS TO THE SHOWN GRADING SEEM NECESSARY AND OBTAIN APPROVAL PRIOR TO START OF WORK.
- FOOTINGS SHALL BEAR ON FIRM, NATURAL, UNDISTURBED SOIL, OR ON ENGINEERED FILL (COMPACTED TO 95%). ENSURE THAT EXCAVATIONS ARE FREE OF ORGANIC MATERIAL, DEBRIS, OR OTHER FOREIGN MATERIAL. NOTIFY ARCHITECT IF ANY UNUSUAL CONDITIONS ARE ENCOUNTERED.
- FILL AND SLAB BASE MATERIAL SHALL BE 3/4" MINUS CRUSHED ROCK PLACED IN 8" (MAXIMUM) LOOSE LIFTS AND COMPACTED TO 98% ASTM D1557 OR AASHTO T-180.
- SPECIAL INSPECTION SHALL BE PERFORMED AS REQUIRED BY THE OSSC SECTION 1704 BY AN INDEPENDENT SPECIAL INSPECTOR APPROVED BY THE LOCAL JURISDICTION.

SPECIAL INSPECTIONS:

- CONTRACTOR SHALL PROVIDE REQUIRED SPECIAL INSPECTIONS PERFORMED BY AN INDEPENDENT INSPECTOR, APPROVED BY AT&T AND THE LOCAL JURISDICTION, AS REQUIRED BY THE OSSC SECTION 1704 FOR THE FOLLOWING:
 - CONCRETE: PROVIDE SPECIAL INSPECTION PER 1704.4
 - TAKE CONCRETE TEST SPECIMENS DURING THE PLACING OF STRUCTURAL REINFORCING AND STRUCTURAL CONCRETE. EXTERIOR AND INTERIOR SLABS ON GRADE ARE NOT STRUCTURAL ELEMENTS.
 - VERIFY REINFORCING SIZE, PLACEMENT, AND GRADE.
 - BOLTS AND ANCHORS IN CONCRETE:
 - HOLDDOWN ANCHORS BOLTS: INSPECT SIZE, LENGTH, HOOK AND TIE TO REINFORCING.
 - ADHESIVE ANCHORS: INSPECT HOLE SIZE, DEPTH, CLEANLINESS, AND INSTALLATION PER MANUFACTURER'S RECOMMENDATIONS.
 - WELDING:
 - VISUALLY INSPECT ALL STRUCTURAL FIELD AND SHOP WELDING.
 - THE SPECIAL INSPECTOR NEED NOT BE CONTINUOUSLY PRESENT DURING WELDING, PROVIDED THE MATERIALS, QUALIFICATIONS OF WELDING PROCEDURES AND WELDERS ARE VERIFIED PRIOR TO THE START OF WORK; PERIODIC INSPECTIONS ARE MADE OF WORK IN PROGRESS; AND A VISUAL INSPECTION OF ALL WELDS IS MADE AFTER COMPLETION OR PRIOR TO SHIPMENT OF SHOP WELDING.
- PROVIDE SPECIAL INSPECTIONS FOR OTHER ITEMS NOTED ON DRAWINGS TO CONFIRM COMPLIANCE WITH CONTRACT DOCUMENTS.
- THE SPECIAL INSPECTOR SHALL PROVIDE A COPY OF THE REPORT TO THE OWNER, ARCHITECT, STRUCTURAL ENGINEER, CONTRACTOR, AND BUILDING OFFICIAL.

CONCRETE NOTES:

- ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI-318.
- CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED AND PLACED IN ACCORDANCE WITH CHAPTER 19 OF THE OSSC. STRENGTHS AT 28 DAYS AND MIX RATIO SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED.

28 DAY STRENGTHS (f'c)	W/C RATIO	MINIMUM CEMENT CONTENT PER CUBIC YARD
2,500 PSI	≤ .45	5 1/2 SACKS

 CEMENT SHALL BE ASTM C150, PORTLAND CEMENT TYPE II U.N.O.
- THE GENERAL CONTRACTOR SHALL SUPERVISE AND BE RESPONSIBLE FOR THE METHODS AND PROCEDURES OF CONCRETE PLACEMENT.
- ALL CONCRETE WITH SURFACES EXPOSED TO WEATHER SHALL BE AIR-ENTRAINED WITH AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260, C494, C618, C989 AND C1017. CONCRETE EXPOSED TO FREEZING AND THAWING WHILE MOIST SHALL BE AIR ENTRAINING IN ACCORDANCE WITH ACI 318, SECTION 4.4.1.
- REINFORCING STEEL SHALL CONFORM TO ASTM A615 (INCLUDING SUPPLEMENT S1), GRADE 60, fy=60,000 PSI. EXCEPTIONS: ANY BARS SPECIFICALLY SO NOTED ON THE DRAWINGS SHALL BE GRADE 40, fy=40,000 PSI. GRADE 60 REINFORCING BARS INDICATED ON DRAWINGS TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING COMPLYING WITH ASTM A615(S1) MAY BE WELDED ONLY IF MATERIAL PROPERTY REPORTS INDICATING CONFORMANCE WITH WELDING PROCEDURES SPECIFIED IN A.W.S. D14 ARE SUBMITTED.
- REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 315 AND 318. LAP ALL CONTINUOUS REINFORCEMENT AT LEAST 30 BAR DIAMETERS OR A MINIMUM OF 2'-0". PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. LAP CORNER BARS AT LEAST 30 BAR DIAMETERS OR A MINIMUM OF 2'-0". LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.

CONCRETE NOTES (CONT'D):

- WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185.
- SPIRAL REINFORCEMENT SHALL BE PLAIN WIRE CONFORMING TO ASTM A615, GRADE 60, fy=60,000 PSI.
- REINFORCING PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE CONSULTANT.
- CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

FOOTINGS AND OTHER UNFORMED SURFACES, EARTH FACE	3"
FORMED SURFACES EXPOSED TO EARTH OR WEATHER (#6 BARS OR LARGER)	2"
(#5 BARS OR SMALLER)	1 1/2"
SLABS AND WALLS (INTERIOR FACE)	3/4"
- BARS SHALL BE SUPPORTED ON CHAIRS OR DOBIE BRICKS.
- ANCHOR BOLTS TO CONFORM TO ASTM A307.
- NON-SHRINK GROUT SHALL BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. GROUT STRENGTH SHALL BE AT LEAST EQUAL TO THE MATERIAL ON WHICH IT IS PLACED (3,000 PSI MINIMUM).
- ALL EXPANSION ANCHORS TO BE HILTI BRAND. ADHESIVE ANCHORS REQUIRE TESTING TO CONFIRM CAPACITY UNLESS WAIVED BY ENGINEER AND LOCAL JURISDICTION.

STRUCTURAL STEEL NOTES:

- SHOP DRAWINGS FOR STRUCTURAL STEEL SHALL BE SUBMITTED TO AT&T AND THE CONSULTANT FOR REVIEW PRIOR TO FABRICATION.
- STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION (INCLUDING FIELD WELDING, HIGH STRENGTH FIELD BOLTING, EXPANSION BOLTS, AND THREADED EXPANSION ANCHORS) SHALL BE BASED ON THE A.I.S.C. "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" LATEST EDITION. SUPERVISION SHALL BE IN ACCORDANCE WITH 2003 IBC CHAPTER 22, BY A QUALIFIED TESTING AGENCY DESIGNATED BY THE CONSULTANT. THE CONSULTANT SHALL BE FURNISHED WITH A COPY OF ALL INSPECTION REPORTS AND TEST RESULTS.
- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

TYPE OF MEMBER

A. WIDE FLANGE SHAPES	ASTM A992, GRADE 50
B. OTHER SHAPES, PLATES, ANGLES, AND RODS	ASTM A36, Fy 36 KSI
C. SPECIAL SHAPES AND PLATES	ASTM A572, Fy 50 KSI
D. PIPE COLUMNS	ASTM A53, Fy 35 KSI
E. STRUCTURAL TUBING	ASTM A500, Fy 46 KSI
F. ANCHOR BOLTS	ASTM A307
G. CONNECTION BOLTS	ASTM A325 TWIST-OFF-TYPE
- HOT DIP GALVANIZE AFTER FABRICATION PER A123/A123M-00 ALL STEEL EXPOSED TO WEATHER AND WHERE NOTED.
- ALL WELDING SHALL BE IN CONFORMANCE WITH A.I.S.C. AND AWS STANDARDS AND SHALL BE PERFORMED BY ANSI/AWS D1.1 CERTIFIED WELDERS USING E70 XX ELECTRODES. ONLY PRE-QUALIFIED WELDS (AS DEFINED BY AWS) SHALL BE USED. WELDING OF GRADE 60 REINFORCING BARS (IF REQUIRED) SHALL BE PERFORMED USING LOW HYDROGEN ELECTRODES. WELDING OF GRADE 40 REINFORCING BARS (IF REQUIRED) SHALL BE PERFORMED USING E70 XX ELECTRODES. WELDING WITHIN 4" OF COLD BENDS IN REINFORCING STEEL IS NOT PERMITTED. SEE REINFORCING NOTE FOR MATERIAL REQUIREMENTS OF WELDED BARS.
- COLD-FORMED STEEL FRAMING MEMBERS SHALL BE OF THE SHAPE, SIZE, AND GAGE SHOWN ON THE PLANS. PROVIDE MINIMUM SECTION PROPERTIES INDICATED. ALL COLD-FORMED STEEL FRAMING SHALL CONFORM TO THE A.I.S.C. "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS."
- BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (3/4" DIA.) AND SHALL HAVE A MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
- NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
- (UNLESS NOTED OTHERWISE), PREPARATION AND PAINTING SHALL BE IN ACCORDANCE WITH THE SPECIFICATION AND IN ACCORDANCE WITH THE PAINT MANUFACTURER'S WRITTEN INSTRUCTIONS.
- ALL WELDS TO BE 1/4" FILLET UNLESS NOTED OTHERWISE.
- TOUCH UP ALL FIELD DRILLING, WELDING AND CUT SURFACES WITH 2 COATS OF GALVACON (ZINC RICH PAINT) OR APPROVED EQUAL.

TOWER/POLE NOTES:

- VERIFICATION THAT THE EXISTING TOWER/POLE CAN SUPPORT THE PROPOSED ANTENNA LOADING IS TO BE DONE BY OTHERS.
- PROVIDE SUPPORTS FOR THE ANTENNA COAX CABLES TO THE ELEVATION OF ALL INITIAL AND FUTURE ANTENNAS. ANTENNA COAX CABLES ARE TO BE SUPPORTED AND RESTRAINED AT THE CENTERS SUITABLE TO THE MANUFACTURER'S REQUIREMENTS.

NOTE:
STRUCTURAL DRAWINGS AND NOTES SHALL TAKE PRECEDENCE OVER ALL DRAWINGS AND NOTES.

SAFETY PROCEDURES

FALL PROTECTION METHODS TO BE PER FEDERAL, STATE, LOCAL, OSHA, AT&T AND OWNER REQUIREMENTS.

SYMBOLS AND ABBREVIATIONS

A/C APPROX.	AIR CONDITIONING ABOVE FINISH GRADE APPROXIMATELY	HORZ HR HT HVAC	HORIZONTAL INCH HEIGHT HEATING VENTILATION AIR CONDITIONING	PLYWD PROJ FT REQ RM RO	PLYWOOD PROJECT PROPERTY PRESSURE TREATED REQUIRED ROOM ROUGH OPENING
BLDG. BLK	BUILDING BLOCKING	CLG CLR CONC CONST CONT	CEILING CLEAR CONCRETE CONSTRUCTION CONTINUOUS	ID IN INFO INSUL INT INTC	INSIDE DIAMETER INCH INFORMATION INSULATION INTERIOR INTERNATIONAL BUILDING CODE
DBL DIA DIAG DN DET DWG	DOUBLE DIAMETER DIAGONAL DOWN DETAIL DRAWING	EA ELEV ELEC ED EQUIP EXT	EACH ELEVATION ELECTRICAL EQUAL EQUIPMENT EXTERIOR	LBS MAX MECH MTL MFR MGR MIN MISC	POUNDS MAXIMUM MECHANICAL METAL MANUFACTURE MANAGER MINIMUM MISCELLANEOUS
FIN FLUOR FLR FT	FINISH FLUORESCENT FLOOR FOOT	GA GALV GC GRND GYP BD	GALVE GALVANIZED GENERAL CONTRACTOR GROUND GYPSUM WALL BOARD	NA NIC NTS	NOT APPLICABLE NOT IN CONTRACT NOT TO SCALE
OC OD	ON CENTER OUTSIDE DIAMETER	GA GALV GC GRND GYP BD	GALVE GALVANIZED GENERAL CONTRACTOR GROUND GYPSUM WALL BOARD	ANTENNA	ANTENNA
TEL	TELEPHONE	POW	POWER	G	GROUND WIRE
COAX	COAXIAL CABLE	ANTENNA	ANTENNA	CL	CENTERLINE
EX	EXISTING	NEW	NEW	DN	DETAIL NUMBER
SN	SHEET NUMBER				



AT&T MOBILITY CORP.
16221 N.E. 72nd WAY
REDMOND, WA 98052



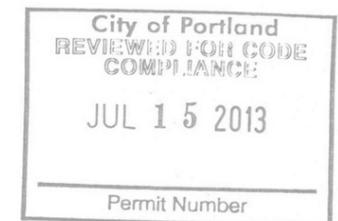
4004 KRUSE WAY PLACE
BLDG. 4004, SUITE #220
LAKE OSWEGO, OR 97035
503-636-2500 (MAIN)
503-636-2501 (FAX)

SITE ID #: PD53
BROADWAY & 405
2211 S.W. 4th AVENUE
PORTLAND, OREGON 97201

PROJECT: **LTE**
ISSUED FOR: **REVIEW**

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
A	11/6/12	PRELIM CD's	SP
0	1/2/13	ISSUED FOR CONST. LG	
1	4/25/13	RF COMPLIANCE SP	
2	5/10/13	FCD DETAILS REV2	SP

FA#: 10133717
DRAWN BY: SP
CHECKED BY: PT
CURRENT ISSUE DATE: **5-10-13**



05/10/13
RENEWS: 06/30/2014

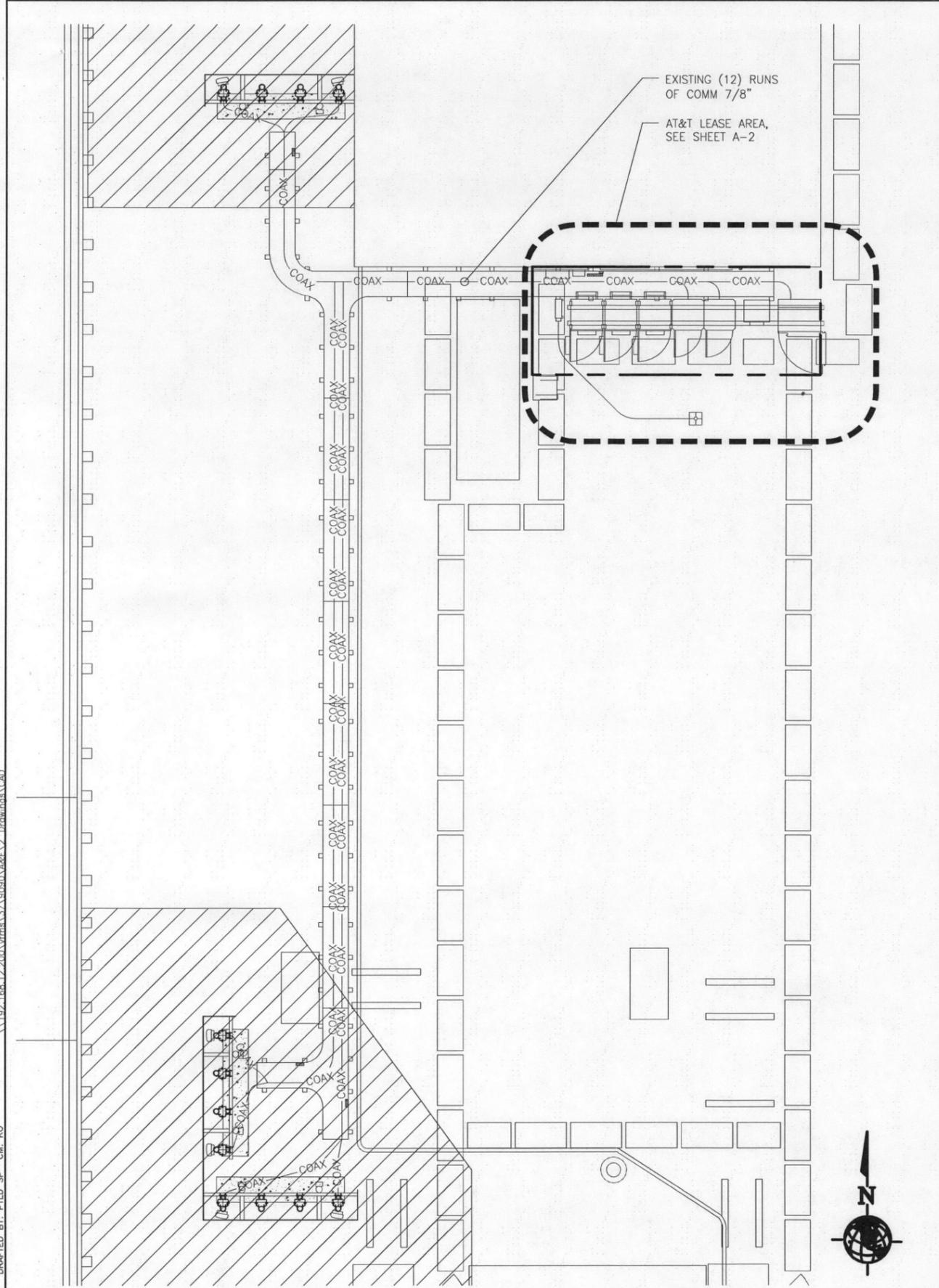


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SHEET TITLE: **GENERAL NOTES**
SHEET NUMBER: **G-1** REV: **2**

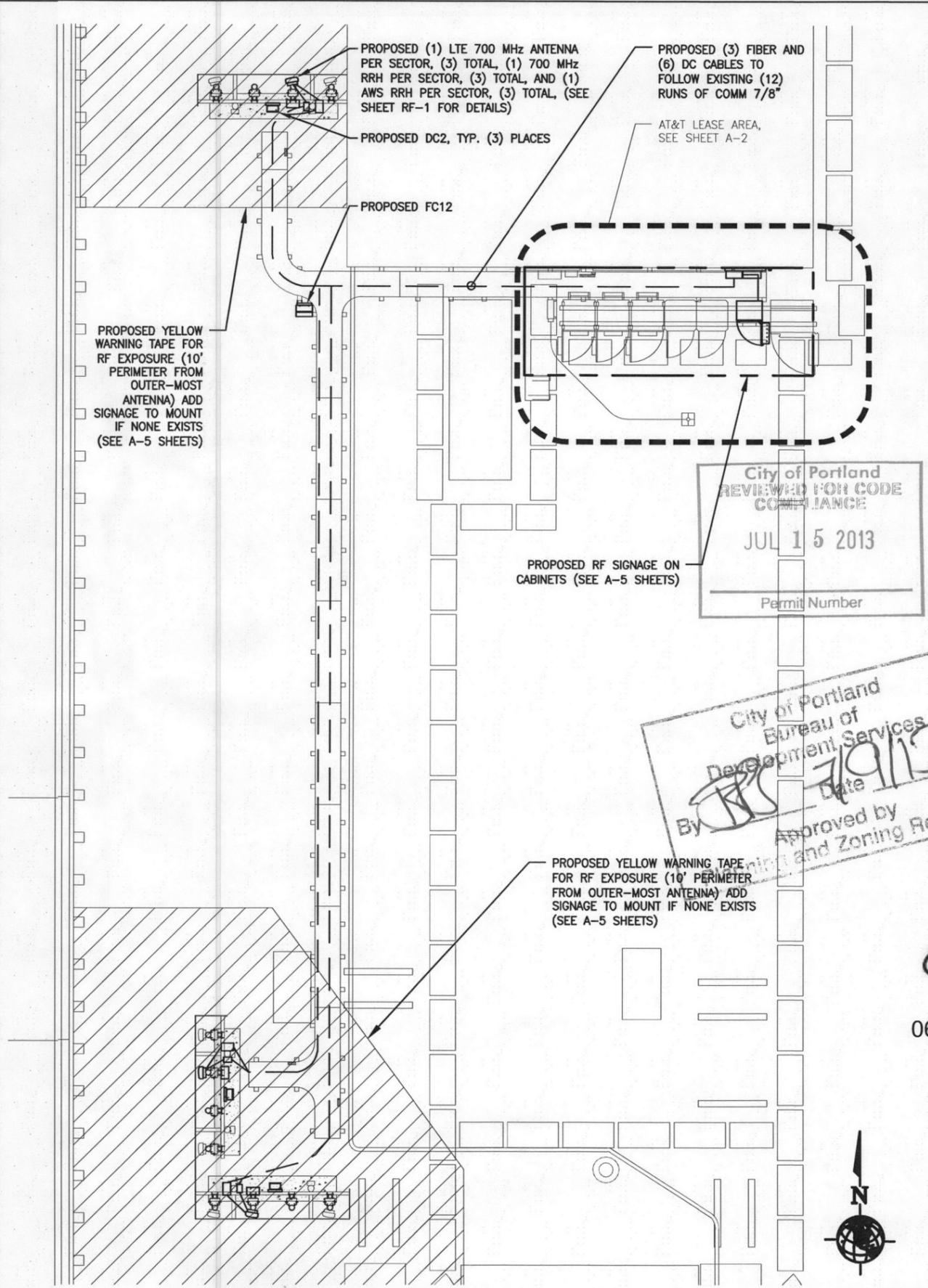
DRAFTED BY: PTDL SP CM: KO

DRAFTED BY: PTL.D.SP. CM: KO \\192.168.12.200\vfma\371\9090\A&E\2 - Drawings\A&E



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

EXISTING EQUIPMENT LAYOUT 1



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

PROPOSED EQUIPMENT LAYOUT 2



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503-636-2500 (MAIN)
503-636-2501 (FAX)

SITE ID #: PD53
BROADWAY & 405
2211 S.W. 4th AVENUE
PORTLAND, OREGON 97201

PROJECT: **LTE**

ISSUED FOR: **REVIEW**

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
A	11/6/12	PRELIM CD's	SP
0	1/2/13	ISSUED FOR CONST.	LG
1	4/25/13	RF COMPLIANCE	SP
2	5/10/13	FCD DETAILS REV2	SP
3	5/23/13	FCD DETAILS REV3	RB

FA# 10133717
DRAWN BY: SP
CHECKED BY: PT
CURRENT ISSUE DATE: **5-23-13**

City of Portland
REVIEWED FOR CODE
COMPLIANCE
JUL 15 2013
Permit Number

City of Portland
Bureau of
Development Services
By *[Signature]* Date **7/9/13**
Approved by Planning and Zoning Review



RENEWS: 06/30/2014

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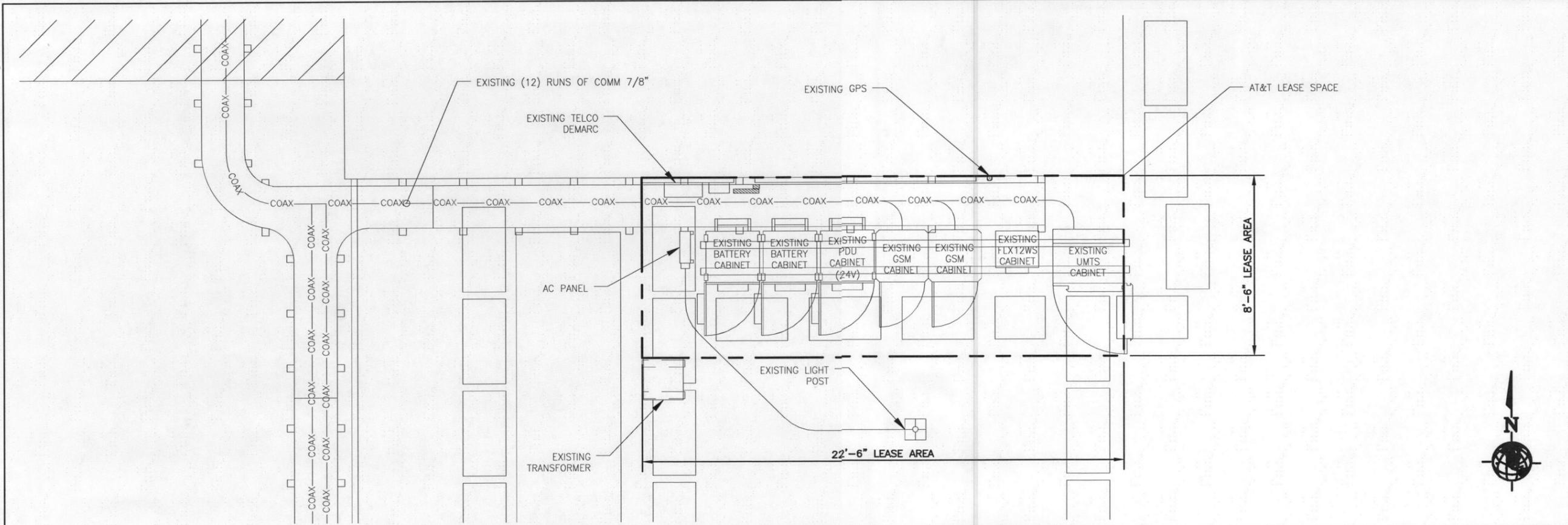
SHEET TITLE:
COMPOUND LAYOUT PLANS

SHEET NUMBER: **A-1** REV. **3**

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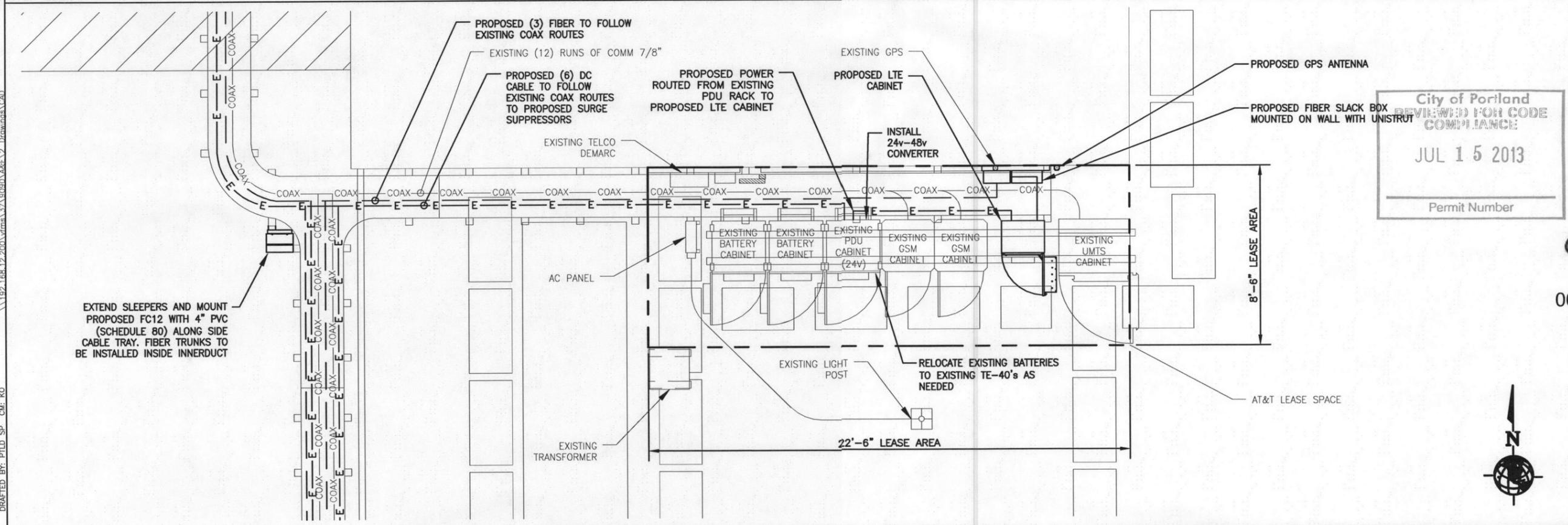
SHEET TITLE:
COMPOUND LAYOUT PLANS

SHEET NUMBER: **A-1** REV. **3**



22"x34" SCALE: 1" = 2.5'
11"x17" SCALE: 1" = 5'

EXISTING EQUIPMENT LAYOUT 1



22"x34" SCALE: 1" = 2.5'
11"x17" SCALE: 1" = 5'

PROPOSED EQUIPMENT LAYOUT 2

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BLDG. 4004, SUITE #220
LAKE OSWEGO, OR 97035
503-636-2500 (MAIN)
503-636-2501 (FAX)

SITE ID #: PD53
BROADWAY & 405
2211 S.W. 4th AVENUE
PORTLAND, OREGON 97201

PROJECT: **LTE**
ISSUED FOR: **REVIEW**

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
A	11/6/12	PRELIM CD's	SP
0	1/2/13	ISSUED FOR CONST.	LG
1	4/25/13	RF COMPLIANCE	SP
2	5/10/13	FCD DETAILS REV2	SP
Δ	5/23/13	FCD DETAILS REV3	RB

FA#: 10133717
DRAWN BY: SP
CHECKED BY: PT
CURRENT ISSUE DATE:
5-23-13

City of Portland
REVIEWED FOR CODE COMPLIANCE
JUL 15 2013
Permit Number

06/21/13
RENEWS: 06/30/2014

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SHEET TITLE:
EQUIPMENT LAYOUT PLANS
SHEET NUMBER: **A-2** REV. **3**

DRAFTED BY: PILD SP CM, KO



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503-636-2500 (MAIN)
503-636-2501 (FAX)

SITE ID #: PD53
BROADWAY & 405
2211 S.W. 4th AVENUE
PORTLAND, OREGON 97201

PROJECT: **LTE**

ISSUED FOR: **REVIEW**

SUBMITTALS				
REV.	DATE	DESCRIPTION	BY	
A	11/6/12	PRELIM CD's	SP	
0	1/2/13	ISSUED FOR CONST.	LG	
1	4/25/13	RF COMPLIANCE	SP	
2	5/10/13	FCD DETAILS REV2	SP	
3	5/23/13	FCD DETAILS REV3	RB	
4	7/1/13	FCD DETAILS REV4	SP	

FA#: 10133717
DRAWN BY: SP
CHECKED BY: PT
CURRENT ISSUE DATE: **7-1-13**

STAMP:



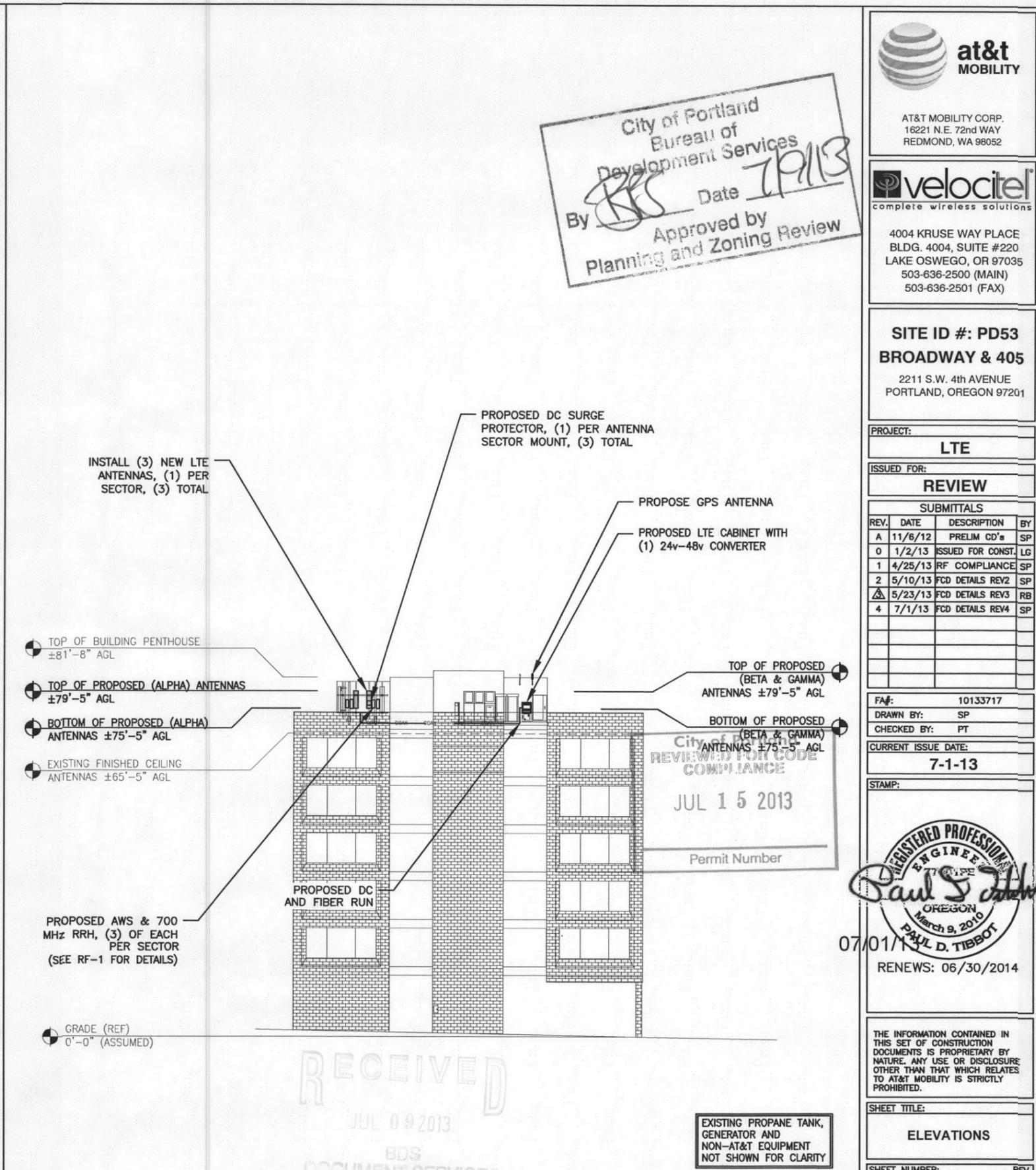
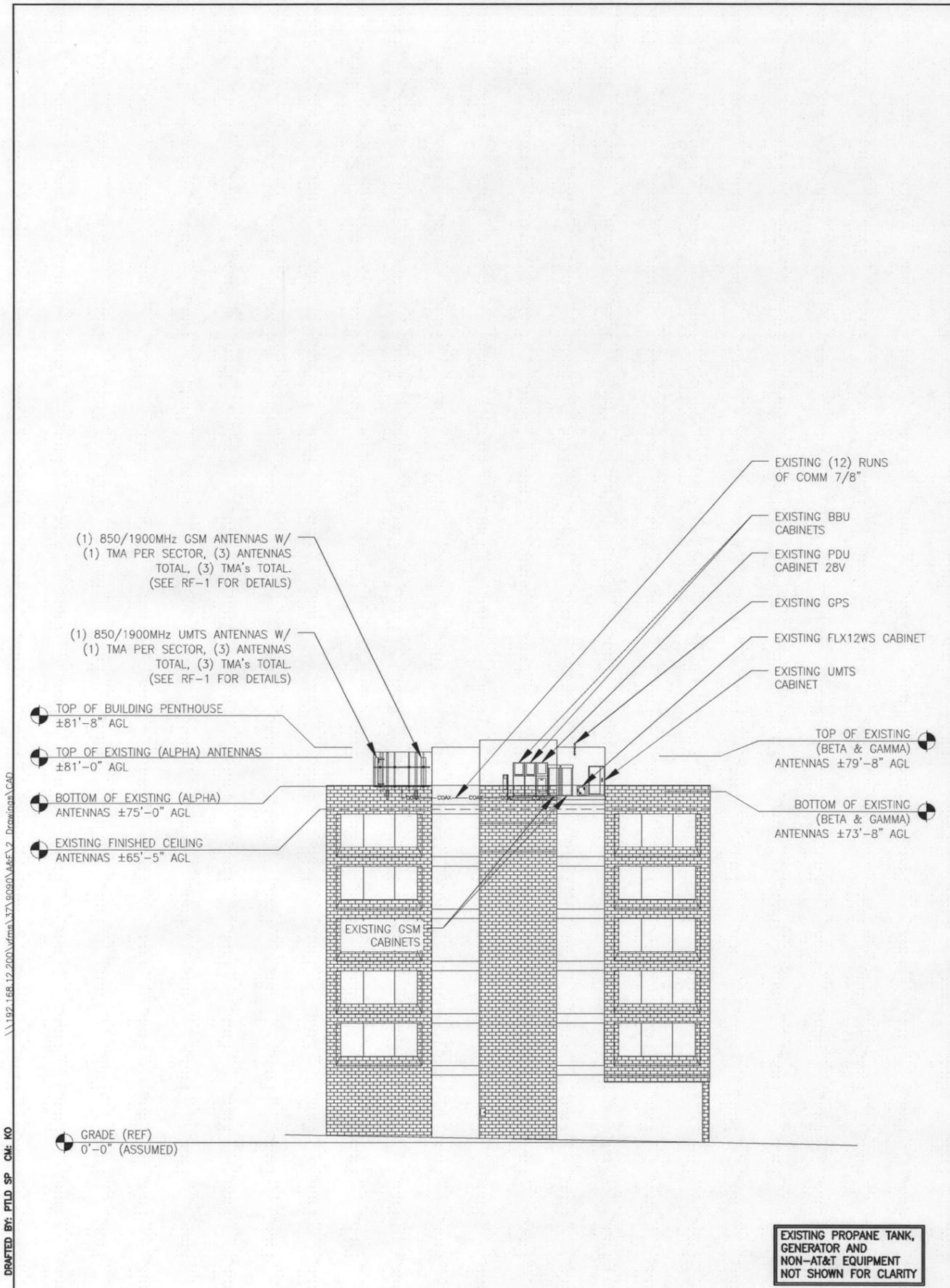
07/01/13
RENEWS: 06/30/2014

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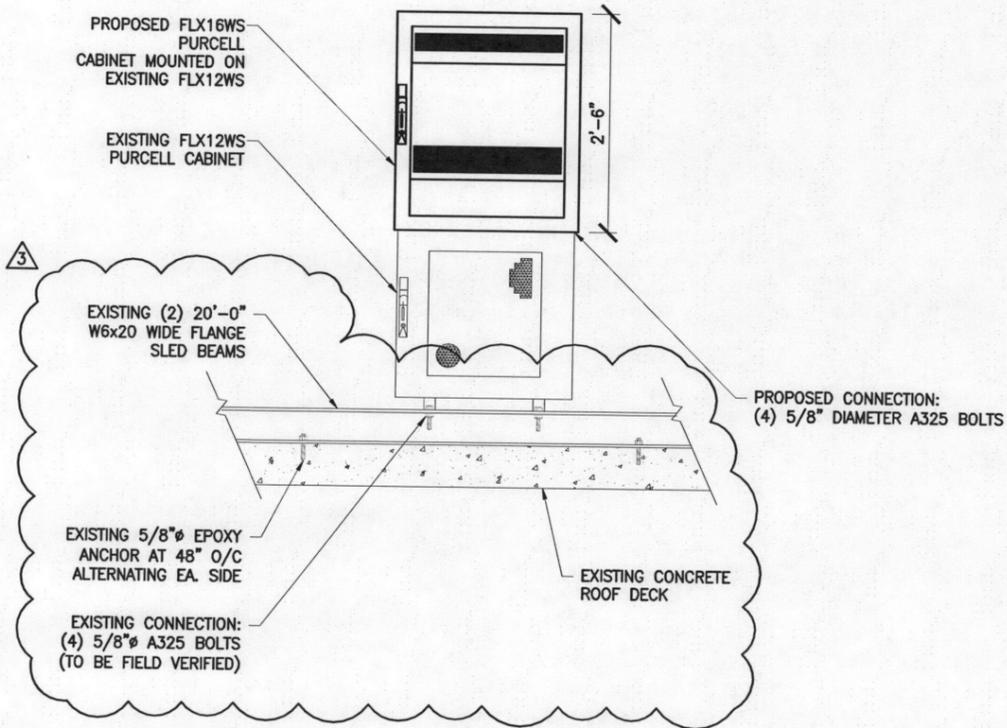
SHEET TITLE: **ELEVATIONS**

SHEET NUMBER: **A-3** REV: **4**

City of Portland
Bureau of
Development Services
By *[Signature]* Date *7/9/13*
Approved by
Planning and Zoning Review

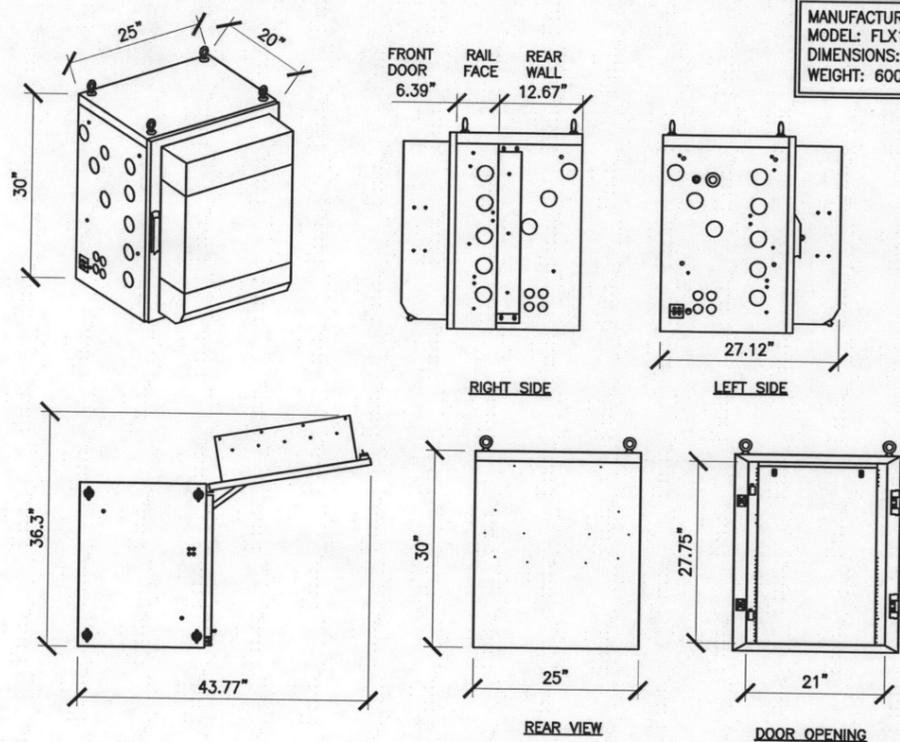


PURCELL FLX16WS TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS BY VELOCITEL DATED 5/6/13



24"x36" SCALE: NTS
11"x17" SCALE: NTS

PURCELL MOUNT DETAIL 6



24"x36" SCALE: NTS
11"x17" SCALE: NTS

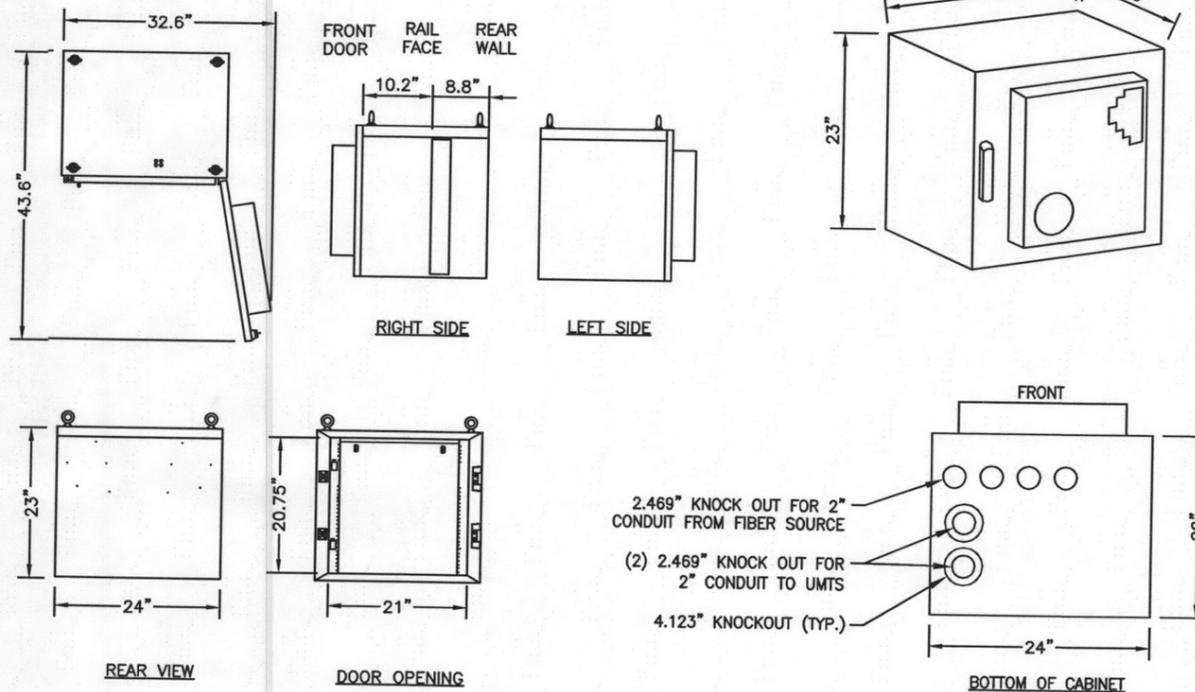
FLX16WS PURCELL CABINET DETAIL 3

RECEIVED
JUN 25 2013

BDS
DOCUMENT SERVICES

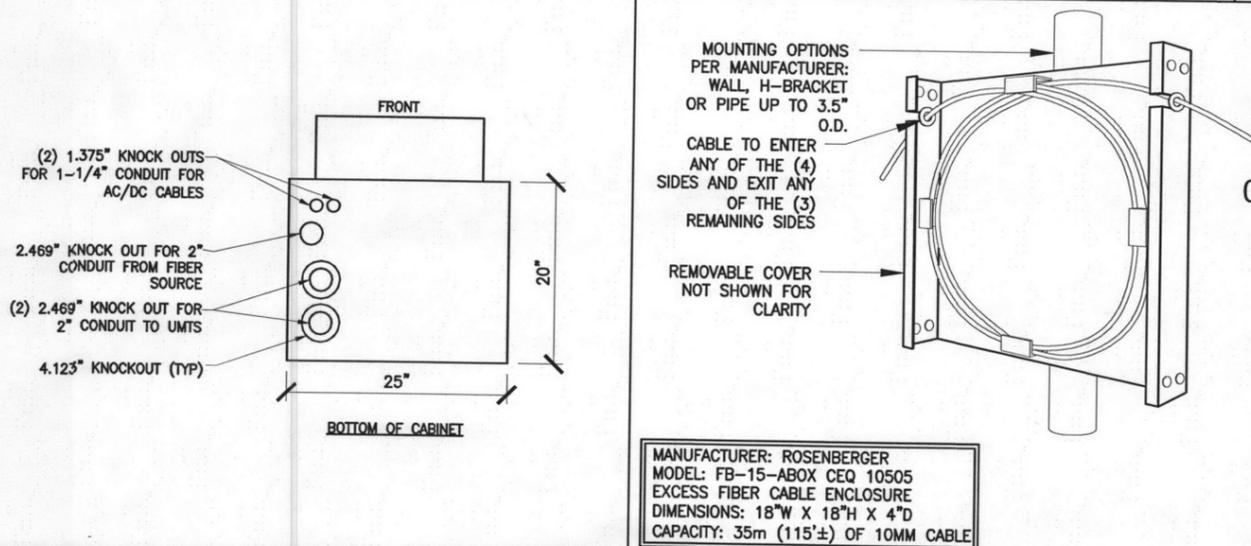
MANUFACTURER: PURCELL
MODEL: FLX12WS
DIMENSIONS: 24"W X 23"H X 20"D
WEIGHT: 211 lb (MAX)

City of Portland
REVIEWED FOR CODE COMPLIANCE
JUL 15 2013
Permit Number



24"x36" SCALE: NTS
11"x17" SCALE: NTS

EXISTING FLX12WS PURCELL CABINET DETAILS 7



24"x36" SCALE: NTS
11"x17" SCALE: NTS

FLX16WS CABINET KNOCK OUTS 2

FIBER LOOP ENCLOSURE 1



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503-636-2500 (MAIN)
503-636-2501 (FAX)

SITE ID #: PD53
BROADWAY & 405
2211 S.W. 4th AVENUE
PORTLAND, OREGON 97201

PROJECT: **LTE**

ISSUED FOR: **REVIEW**

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
A	11/6/12	PRELIM CD's	SP
0	1/2/13	ISSUED FOR CONST.	LG
1	4/25/13	RF COMPLIANCE	SP
2	5/10/13	FCD DETAILS REV2	SP
3	5/23/13	FCD DETAILS REV3	RB

FA#: 10133717
DRAWN BY: SP
CHECKED BY: PT
CURRENT ISSUE DATE: **5-23-13**

STAMP:



RENEWS: 06/30/2014

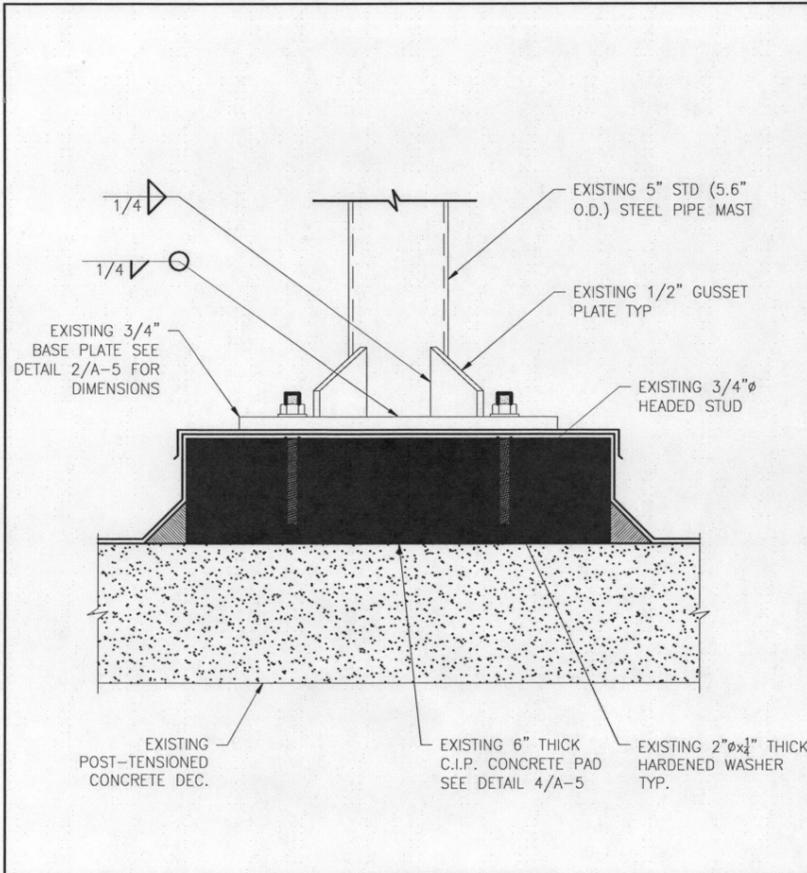
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SHEET TITLE: **EQUIPMENT DETAILS**

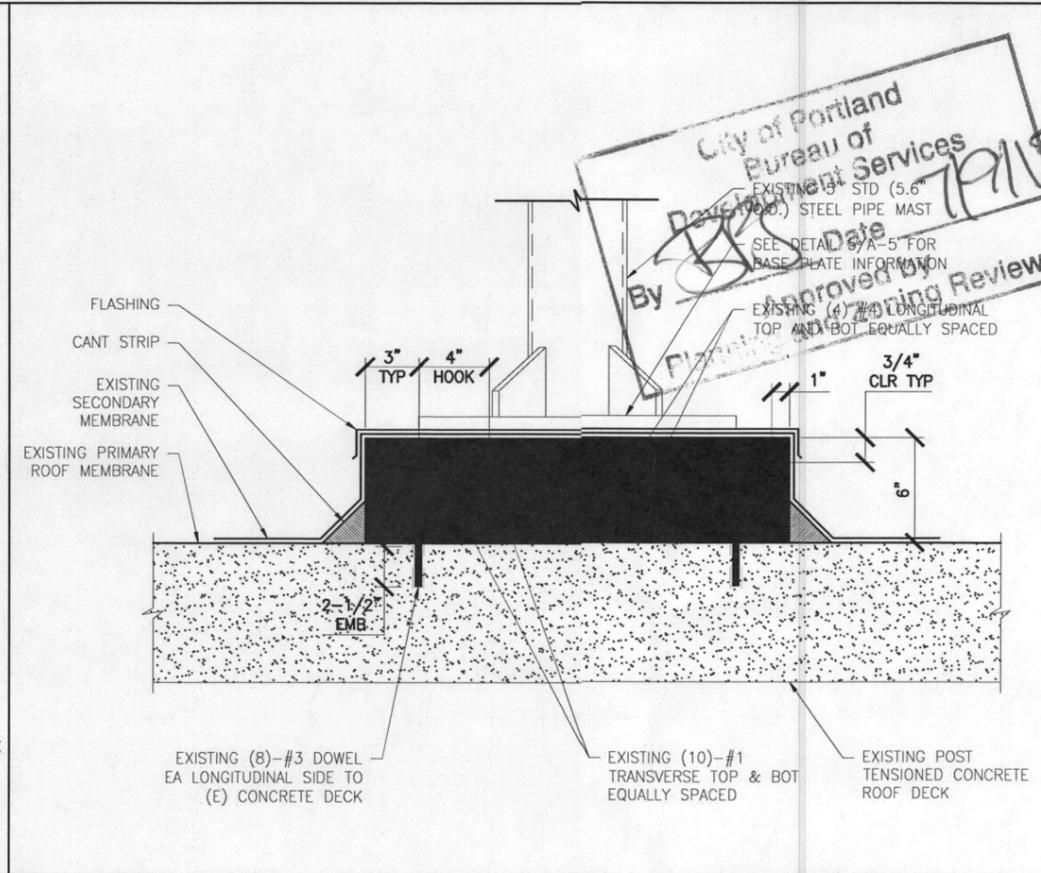
SHEET NUMBER: **A-4**

REV. **3**

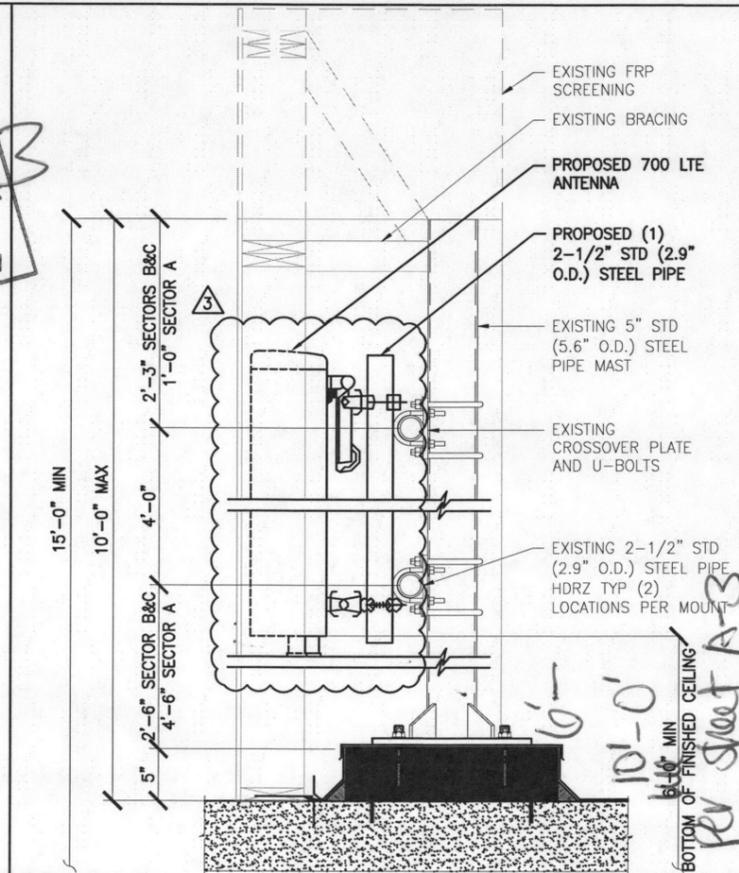
DRAFTED BY: FTLD.SP CM.KO 192.168.12.200\vtmas_37290901_A&E_V2_Drafting\CA04



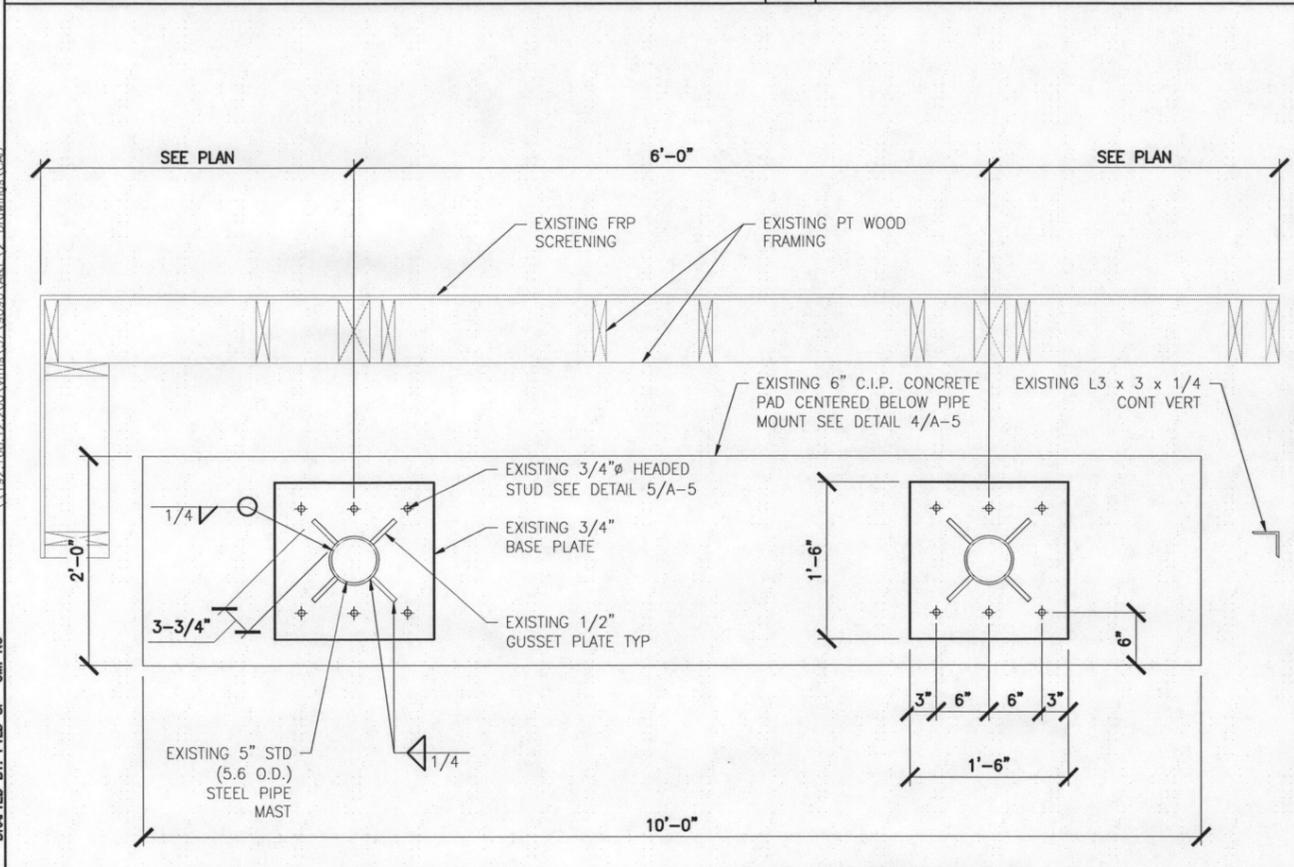
24"x36" SCALE: NTS
11"x17" SCALE: NTS
EXISTING BASE PLATE DETAIL 5



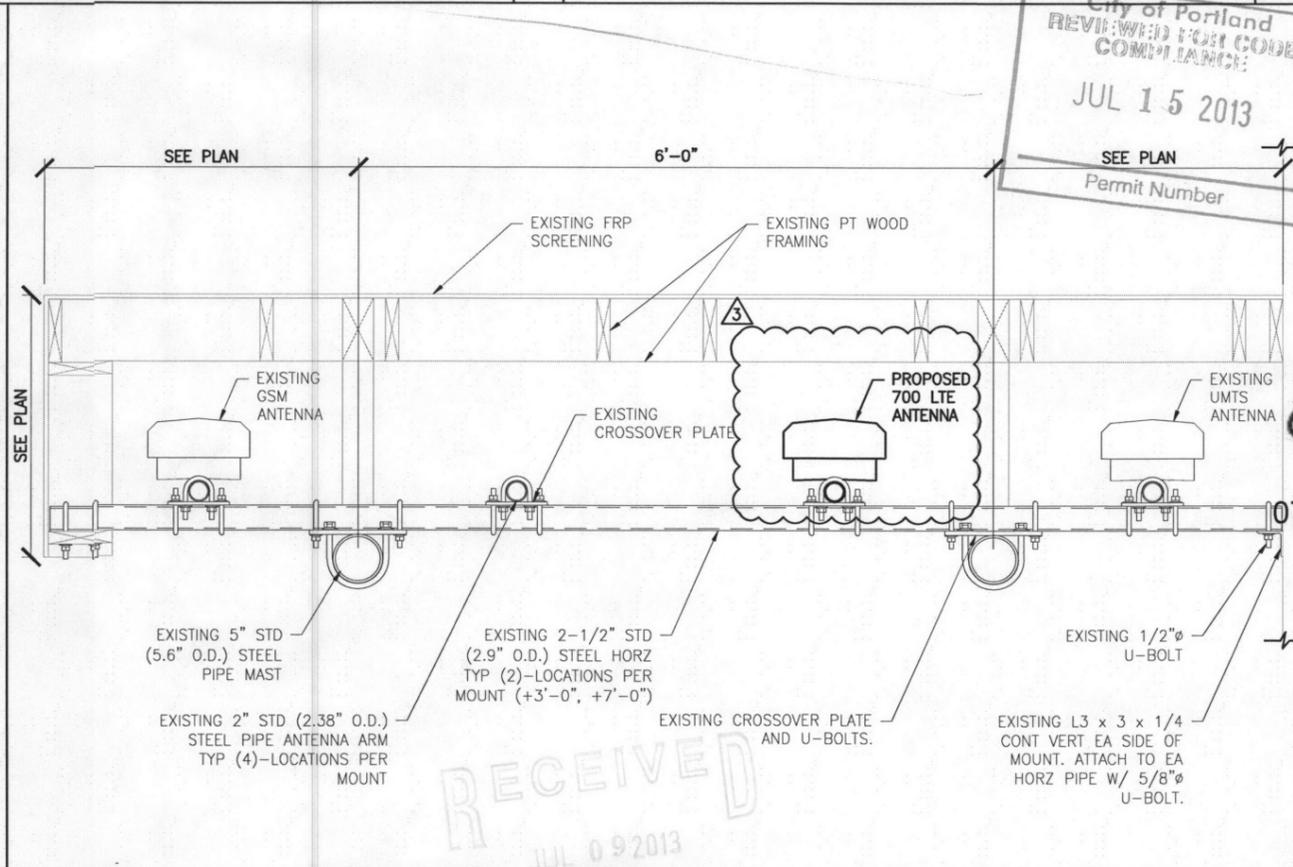
24"x36" SCALE: NTS
11"x17" SCALE: NTS
EXISTING CONCRETE PAD DETAIL 4



24"x36" SCALE: NTS
11"x17" SCALE: NTS
EXISTING ANTENNA MOUNT DETAIL 3



24"x36" SCALE: NTS
11"x17" SCALE: NTS
EXISTING ANTENNA MOUNT BASE PLAN 2



24"x36" SCALE: NTS
11"x17" SCALE: NTS
EXISTING ANTENNA MOUNT DETAIL 1

City of Portland
Bureau of
Development Services
By *SS Date*
Approved by *TP/B*
Permit Review

City of Portland
REVIEWED FOR CODE
COMPLIANCE:
JUL 15 2013
SEE PLAN
Permit Number

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BLDG. 4004, SUITE #220
LAKE OSWEGO, OR 97035
503-636-2500 (MAIN)
503-636-2501 (FAX)

SITE ID #: PD53
BROADWAY & 405
2211 S.W. 4th AVENUE
PORTLAND, OREGON 97201

PROJECT: **LTE**

ISSUED FOR: **REVIEW**

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
A	11/6/12	PRELIM CD'S	SP
0	1/2/13	ISSUED FOR CONST.	LG
1	4/25/13	RF COMPLIANCE	SP
2	5/10/13	FCO DETAILS REV2	SP
3	5/23/13	FCO DETAILS REV3	RB
4	7/1/13	FCO DETAILS REV4	SP

FA#: 10133717

DRAWN BY: SP

CHECKED BY: FT

CURRENT ISSUE DATE: **7-1-13**

STAMP:

RENEWS: 06/30/2014

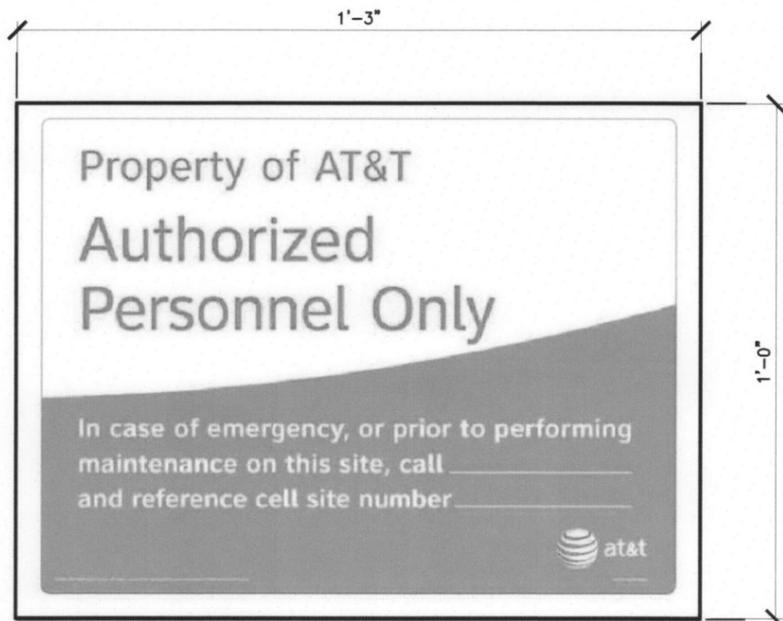
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SHEET TITLE: **ANTENNA MOUNT DETAILS**

SHEET NUMBER: **A-5** REV: **4**

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BUS DOCUMENT SERVICES

DRAFTED BY: PFLD SP CM: KO



- NOTES:
1. PLACE SIGN ON ROOM, SHELTER OR CABINET DOOR.
 2. SEE SIGN PLACEMENT TABLE FOR ADDITIONAL INFORMATION.

24"x36" SCALE: NTS
11"x17" SCALE: NTS

DOOR SIGN 5

AT&T ABOVEGROUND FUEL STORAGE SYSTEMS
SIGNS AND LABELING REQUIREMENTS



- DIESEL**
- COMBUSTIBLE**
- FLAMMABLE**
- NO SMOKING**

Signs must be of durable material with lettering on a white background. Letters shall not be less than 3 inches (76.2 mm) in height and 1/2 inch (12.7 mm) in stroke. Signs shall not be obscured or removed and shall be in English as appropriate language. Consultable Sign may also be white letters on a red background.

- NOTES:
1. PLACE AT DOOR OR TANK.
 2. SEE SIGN PLACEMENT TABLE FOR ADDITIONAL INFORMATION.

24"x36" SCALE: NTS
11"x17" SCALE: NTS

FUEL STORAGE SIGNAGE 4

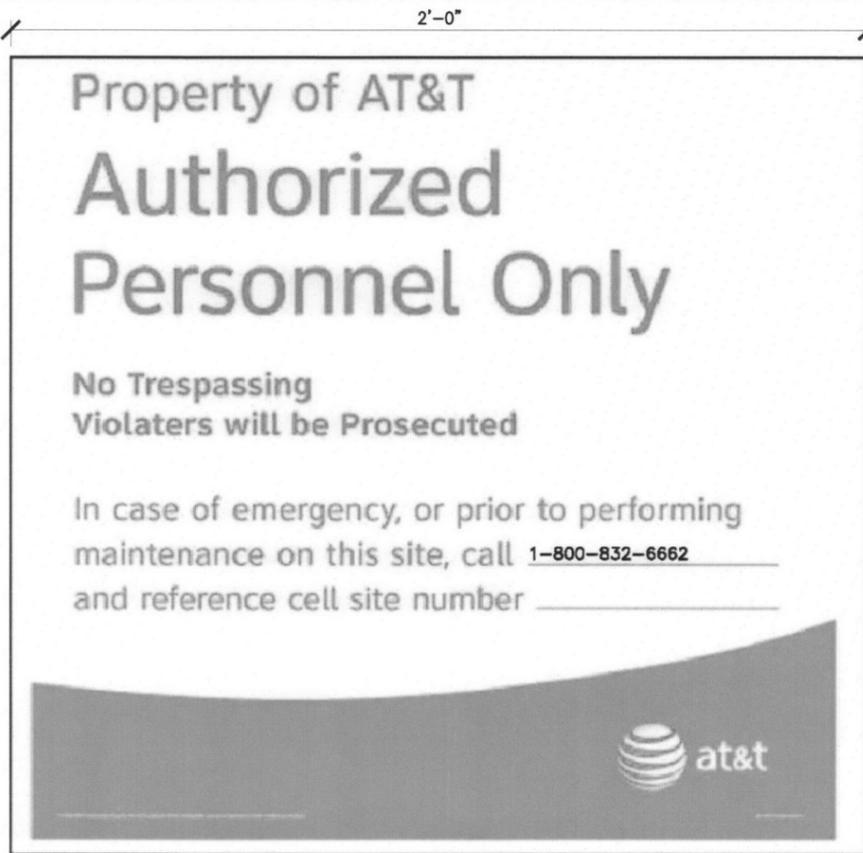


- NOTES:
1. 12" x 8" ALUMINUM.
 2. REQUIREMENT IS SPECIFIED IN SECTION 4 OF CHAPTER 15.010.
 3. POSTED AT BASE OF TOWER AND AT EACH ENTRANCE POINT.
 4. SEE SIGN PLACEMENT TABLE FOR ADDITIONAL INFORMATION.

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24"x36" SCALE: NTS
11"x17" SCALE: NTS

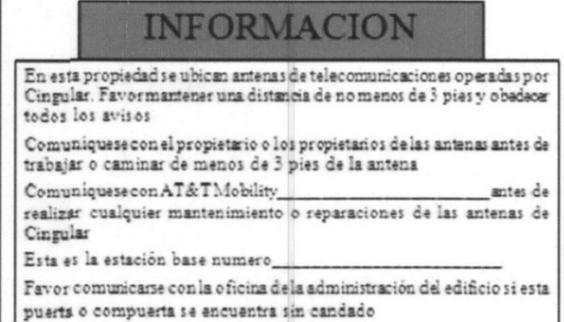
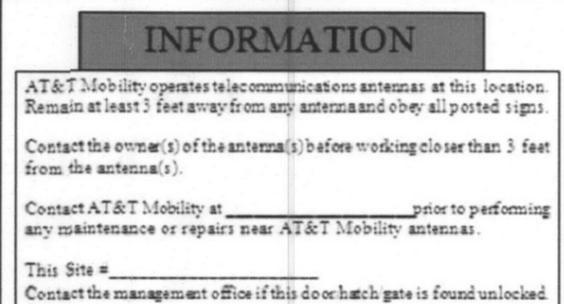
FCC TOWER REG. (ASRN) 3



- NOTES:
1. ALUMINUM SIGN.
 2. PLACE AT MAIN ENTRANCE GATES TO COMPOUND.
 3. SEE SIGN PLACEMENT TABLE FOR ADDITIONAL INFORMATION.

24"x36" SCALE: NTS
11"x17" SCALE: NTS

GATE SIGN 2



- INFORMATION SIGN 1:
1. 8" X 12" ALUMINUM.
 2. PLACE AT ENTRANCE (GATE, DOOR, HATCHWAY, ETC).
 3. POSTED ADJACENT TO CAUTION (YELLOW) SIGN.
 4. BUILDING OWNER MAY HAVE LIMITATIONS ON WHERE CAN BE POSTED.
 5. SEE SIGN PLACEMENT TABLE FOR ADDITIONAL INFORMATION.

24"x36" SCALE: NTS
11"x17" SCALE: NTS



- INFORMATION SIGN 2:
1. NON-METALLIC (VINYL OR SIMILAR WEATHERPROOF MATERIAL) LABEL WITH AN ADHESIVE BACKING.
 2. APPROXIMATELY 5 X 7 INCHES.
- POSTING:
1. ACTIVE ANTENNAS BEHIND A RADIO TRANSPARENT PANEL. A NON-METALLIC VERSION WITH AN ADHESIVE BACKING SHOULD BE AFFIXED TO THE FACE OF THE RADIO TRANSPARENT PANEL CONCEALING THE ANTENNAS.
 2. ANTENNAS MOUNTED ON THE OUTSIDE FACE OF A BUILDING. A METALLIC OR NON-METALLIC VERSION SHOULD BE MOUNTED ON THE PARAPETS INSIDE WALL DIRECTLY ABOVE THE ANTENNA.
 3. ROOFTOP ANTENNAS MOUNTED ON SUPPORT STRUCTURES. A METALLIC OR NON-METALLIC VERSION (DEPENDING UPON MOUNTING CONDITIONS) SHOULD BE MOUNTED ON THE SUPPORT STRUCTURE, OR VERY NEAR IT, IN SUCH A MANNER THAT THE SIGN IS CLEARLY ASSOCIATED WITH THE STRUCTURE.
 4. ANTENNAS THAT ARE STAND-ALONE (E.G., LAMP POSTS, STADIUMS) IN AREAS WHERE THERE IS LITTLE POTENTIAL FOR EXCEEDING THE GENERAL POPULATION/UNCONTROLLED MPE EXCEPT, PERHAPS, VERY CLOSE TO THE ANTENNA. IN THIS CASE, THE INFORMATION SIGN 2 WOULD BE MOUNTED CLOSE TO THE ANTENNA IN ORDER TO ALERT MAINTENANCE WORKERS.
 5. SEE SIGN PLACEMENT TABLE FOR ADDITIONAL INFORMATION.

RF INFORMATION SIGN 1



SITE ID #: PD53
BROADWAY & 405
2211 S.W. 4th AVENUE
PORTLAND, OREGON 97201

PROJECT: **LTE**

ISSUED FOR: **REVIEW**

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
A	11/6/12	PRELIM CD's	SP
0	1/2/13	ISSUED FOR CONST. LG	LG
1	4/25/13	RF COMPLIANCE	SP
2	5/10/13	FCD DETAILS REV2	SP

FA#: 10133717
DRAWN BY: SP
CHECKED BY: PT
CURRENT ISSUE DATE:
5-10-13



05/10/13
RENEWS: 06/30/2014

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SHEET TITLE: **RF SIGNAGE DETAILS**

SHEET NUMBER: **A-5.1** REV. **2**

DRAFTED BY: PTL/D SP CM: KO



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16221 N.E. 72nd WAY
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4004 KRUSE WAY PLACE
BLDG. 4004, SUITE #220
LAKE OSWEGO, OR 97035
503-636-2500 (MAIN)
503-636-2501 (FAX)

SITE ID #: PD53
BROADWAY & 405

2211 S.W. 4th AVENUE
PORTLAND, OREGON 97201

PROJECT:

LTE

ISSUED FOR:

REVIEW

SUBMITTALS				
REV.	DATE	DESCRIPTION	BY	
A	11/6/12	PRELIM CD's	SP	
0	1/2/13	ISSUED FOR CONST.	LG	
1	4/25/13	RF COMPLIANCE	SP	
2	5/10/13	FCD DETAILS REV2	SP	

FA#: 10133717
DRAWN BY: SP
CHECKED BY: PT

CURRENT ISSUE DATE:
5-10-13

STAMP:



RENEWS: 06/30/2014

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SHEET TITLE:
RF SIGNAGE DETAILS

SHEET NUMBER: **A-5.2** REV. **2**

RED

WARNING

Beyond This Point you are entering a controlled area where RF Emissions *exceed* the FCC Controlled Exposure Limits
Failure to obey all posted signs and site guidelines could result in serious injury

Ref: FCC 47CFR 1.1307(b) AT&T Mobility

NOTES:

- 8" X 12" ALUMINUM.
- ONLY USED WHERE AT&T RF SURVEY INDICATES THAT LIMITS ARE EXCEEDED.
- SEE SIGN PLACEMENT TABLE FOR ADDITIONAL INFORMATION.

BLUE

NOTICE

Beyond This Point you are entering an area where RF Emissions *may exceed* the FCC General Population Exposure Limits
Follow all posted signs and site guidelines for working in an RF environment

Ref: FCC 47CFR 1.1307(b) AT&T Mobility

NOTES:

- 8" X 12" ALUMINUM.
- POSTED AT EACH ENTRANCE (GATE, DOOR, HATCHWAY, ETC).
- BUILDING OWNER MAY HAVE RESTRICTIONS ON WHERE CAN BE POSTED.
- SEE SIGN PLACEMENT TABLE FOR ADDITIONAL INFORMATION.

YELLOW

CAUTION

Beyond This Point you are entering a controlled area where RF Emissions *may exceed* the FCC Occupational Exposure Limits
Obey all posted signs and site guidelines for working in an RF environment

Ref: FCC 47CFR 1.1307(b) AT&T Mobility

NOTES:

- 8" X 12" ALUMINUM.
- POSTED AT EACH ANTENNA ARRAY ON ROOFTOP SITE.
- BUILDING OWNER MAY HAVE RESTRICTIONS ON WHERE CAN BE POSTED.
- SEE SIGN PLACEMENT TABLE FOR ADDITIONAL INFORMATION.

YELLOW

CAUTION

On this tower:
Radio frequency fields near some antennas may exceed FCC rules for human exposure.
Personnel climbing this tower should be trained for working in radio frequency environments and use a personal RF monitor if working near active antennas.

Ref: FCC 47CFR 1.1307(b) AT&T Mobility

NOTES:

- 8" X 12" ALUMINUM.
- POSTED AT BASE OF TOWER.
- SEE SIGN PLACEMENT TABLE FOR ADDITIONAL INFORMATION.

NOTES:
EITHER CAUTION SIGN MAY BE USED BE "TOWER" VERSION IS PREFERRED ON TOWERS.

City of Portland
REVIEWED FOR CODE
COMPLIANCE
JUL 15 2013
Permit Number

City of Portland
REVIEWED FOR CODE
COMPLIANCE
JUL 10 2013

SWEEP TEST REQUIREMENTS:

AT&T MOBILITY
PORTLAND, OR
ANTENNA AND TRANSMISSION REQUIREMENTS

REQUIRED EQUIPMENT:

- (1) WILTRON/ANRITSU SITE MASTER S331A/B/C OR EQUIVALENT
- (1) OPEN, SHORT, LOAD
- (1) DIN FEMALE TO N TYPE MALE ADAPTER (LOW LOSS)
- (1) DIN MALE TO N TYPE MALE ADAPTER (LOW LOSS)
- (2) DIN FEMALE TO DIN FEMALE ADAPTER (LOW LOSS)
- (1) PHASE STABLE CABLE
- (1) TRUE-RMS MULTIMETER

FREQUENCIES TO BE USED:

PCS FREQUENCY BAND 1850MHZ-1990MHZ
TRANSMIT FREQUENCY 1930MHZ-1940MHZ
RECEIVE FREQUENCY 1850MHZ -1860MGZ

TRANSMISSION LINE AND ANTENNA SYSTEM TEST

- (1) INSERTION LOSS / CABLE LOSS
- (2) ANTENNA/TRANSMISSION LINE DISTANCE TO FAULT (RL)
- (3) ANTENNAS SYSTEM RETURN LOSS (4)
- (4) ANTENNA SYSTEM WITH DUPLEXER/TMA/ANTENNA RETURN LOSS
- (5) TRANSMISSION LINE CONTINUITY TEST

INSERTION LOSS

THIS TEST WILL MEASURE THE CABLE LOSS OF THE TRANSMISSION LINE AND JUMPERS BETWEEN THE CABINET AND ANTENNA.
TEST FREQUENCIES: F1=1850 F2=1990

1. ENTER THE FREQUENCIES TO BE USED IN F1 AND F2
2. RE-CALIBRATE TEST EQUIPMENT
3. CONNECT THE TWO JUMPERS GOING TO ANTENNA (BYPASS TMA) AND THE CABINET (BYPASS DUPLEXER) USING THE DIN (F) TO DIN (F) CONNECTORS
4. CONNECT A SHORT AT THE END OF THE LAST JUMPER BEFORE THE ANTENNA OF THE LINE UNDER TEST.
5. CONNECT TEST EQUIPMENT TO THE LAST TX JUMPER (YELLOW/RED) BEFORE THE CABINET, OF THE LINE UNDER TEST.
6. PERFORM MEASUREMENT, THEN DUE STEP 10 THROUGH 12
7. DISCONNECT TX JUMPER, THEN CONNECT THE RX JUMPER (YELLOW/GREEN) TO DIN (F) ADAPTER
8. CONNECT TEST EQUIPMENT TO THE LAST RX JUMPER (YELLOW/GREEN) BEFORE THE CABINET, OF THE LINE UNDER TEST.
9. PERFORM MEASUREMENT, THEN DUE STEP 10 THROUGH 13
10. ADD THE MAX PEAK TO MIN VALLEY THIS VALUE SHOULD NOT BE GREATER THAN -40dB
11. PEAK MAX (M1) + (M2)/2 = CABLE INSERTION LOSS
12. RECORD CALCULATED/MEASURED VALUE ON SWEEP DATA SHEET, THEN SAVE SWEEP TO MEMORY LOCATION
13. REPEAT STEPS 1 THROUGH 12 FOR THE REST OF THE TRANSMISSION

ANTENNA TRANSMISSION LINE DISTANCE TO FAULT (RL):

THIS TEST IS A PERFORMANCE VERIFICATION AND FAILURE ANALYSIS TOOL FOR ANTENNA, TRANSMISSION LINES AND CONNECTORS.
TEST FREQUENCIES: F1=1850 F2=1990

1. ENTER THE FREQUENCIES TO BE USED IN F1 AND F2
2. RE-CALIBRATE TEST EQUIPMENT
3. CONNECT THE TWO JUMPERS GOING TO ANTENNA (BYPASS TMA) AND THE CABINET (BYPASS DUPLEXER) USING THE DIN (F) TO DIN (F) CONNECTORS
4. CONNECT THE ANTENNA TO THE LINE UNDER TEST
5. CONNECT TEST EQUIPMENT TO THE LAST TX JUMPER (YELLOW/RED) BEFORE THE CABINET OF THE LINE UNDER TEST
6. PERFORM MEASUREMENT, THEN DO STEP 10 THROUGH 12
7. DISCONNECT TX JUMPER, THEN CONNECT THE RX JUMPER (YELLOW/GREEN) TO DIN (F) ADAPTER
8. CONNECT TEST EQUIPMENT TO THE LAST RX JUMPER YELLOW/GREEN BEFORE THE CABINET, OF THE LINE UNDER TEST
9. PERFORM MEASUREMENT, VERIFY RESULTS WITH STEP 10 THROUGH 13
10. VERIFY EACH DIN CONNECTOR HAS A RL LESS THAN -32DB, N TYPE -28DB
11. VERIFY THE TRANSMISSION LINE HAS A RL LESS THAN -45dB
12. VERIFY THE ANTENNA HAS A RL LESS THAN -17dB
13. RECORD PASS/FAIL ON SWEEP DATA SHEET, THEN SAVE SWEEP TO A MEMORY LOCATION.
14. REPEAT STEPS 1 THROUGH 13 FOR THE REST OF THE ANTENNAS AND TRANSMISSION LINES.

ANTENNA SYSTEM RETURN LOSS:

THIS TEST MEASURES THE RL OF THE TRANSMISSION LINE TERMINATING INTO THE ANTENNA W/O TMA AND DUPLEXER.

1. ENTER THE FREQUENCIES TO BE USED IN F1 AND F2
2. RE-CALIBRATE EQUIPMENT
3. CONNECT THE TWO JUMPERS GOING TO ANTENNA (BYPASS TMA) AND THE CABINET (BYPASS DUPLEXER) USING THE DIN (F) TO DIN (F) CONNECTORS
4. CONNECT THE ANTENNA TO THE LINE UNDER TEST
5. CONNECT TEST EQUIPMENT TO THE LAST TX JUMPER (YELLOW/RED) BEFORE THE CABINET, OF THE LINE UNDER TEST.
6. PERFORM MEASUREMENT, VERIFY RESULTS WITH STEP 10 THROUGH 13
7. DISCONNECT TX JUMPER, THEN CONNECT THE RX JUMPER (YELLOW/GREEN) TO DIN (F) ADAPTER
8. CONNECT TEST EQUIPMENT TO THE LAST RX JUMPER (YELLOW/GREEN) BEFORE THE CABINET, OF THE LINE UNDER TEST
9. PERFORM MEASUREMENT VERIFY RESULTS WITH STEP 10 THROUGH 13
10. VERIFY ANTENNA SYSTEM USING 1 5/8" WAVE-GUIDE HAS A RL LESS THEN -17DB, 200 FT. MAX.
11. VERIFY ANTENNA SYSTEM USING 7/8" WAVE-GUIDE HAS A RL LESS THEN -16DB, 200 FT. MAX.
12. FOR SYSTEMS ABOVE 200 FT. 1 5/8" RL -15.5DB, 7/8"RL -14DB.
13. RECORD TEST RESULTS ON SWEEP DATA SHEET, THEN SAVE SWEEP TO A MEMORY LOCATION.
14. REPEAT STEPS 1 THROUGH 13 FOR THE REST OF THE ANTENNA SYSTEMS

ANTENNA SYSTEM WITH DUPLEXER AND TMA RETURN LOSS:

THIS TEST MEASURES THE RL OF THE COMPLETE ANTENNA NETWORK ON THE RX PATH. REMINDER THE TEST EQUIPMENT WILL TERMINATE INTO THE TMA ON THE RX PATH.
RX TEST FREQUENCIES: F1=1850 F2=1860

1. ENTER THE FREQUENCIES TO BE USED IN F1 AND F2
2. RE-CALIBRATE TEST EQUIPMENT
3. REMOVE DIN (F) TO DIN (F) CONNECTORS FROM BOTH TOP AND BOTTOM JUMPERS.
4. CONNECT TOP JUMPERS TO TMA AND CONNECT BOTTOM JUMPERS TO DUPLEXER
5. CONNECT TEST EQUIPMENT TO THE LAST TX JUMPER (YELLOW/RED)
6. PERFORM MEASUREMENT
7. VERIFY ANTENNA SYSTEM USING 1-5/8" WAVE-GUIDE HAS A RL LESS THAN -16.5dB, 200 FT. MAX
8. VERIFY ANTENNA SYSTEM USING 7/8" WAVE-GUIDE HAS A RL LESS THAN -15.5dB, 200 FT. MAX
9. FOR ANTENNA NETWORK ABOVE 200 FT. 1 5/8" RL-14dB 7/8" RL-13.5dB
10. RECORD TEST RESULTS ON SWEEP DATA SHEET, THEN SAVE SWEEP TO A MEMORY LOCATION
11. REPEAT STEPS 1 THROUGH 10 FOR THE REST OF THE ANTENNA NETWORKS

ANTENNA SYSTEM WITH DUPLEXER AND TMA RETURN LOSS:

THIS TEST MEASURES THE RL OF THE COMPLETE ANTENNA NETWORK ON THE RX PATH. REMINDER THE TEST EQUIPMENT WILL TERMINATE INTO THE TMA ON THE RX PATH.
RX TEST FREQUENCIES: F1=1930 F2=1940

1. ENTER THE FREQUENCIES TO BE USED IN F1 AND F2
2. RE-CALIBRATE TEST EQUIPMENT
3. REMOVE DIN (F) TO DIN (F) CONNECTORS FROM BOTH TOP AND BOTTOM JUMPERS.
4. CONNECT TOP JUMPERS TO TMA AND CONNECT BOTTOM JUMPERS TO DUPLEXER
5. CONNECT TEST EQUIPMENT TO THE LAST TX JUMPER (YELLOW/RED)
6. PERFORM MEASUREMENT
7. VERIFY ANTENNA SYSTEM USING 1-5/8" WAVE-GUIDE HAS A RL LESS THAN -15.5dB, 200 FT. MAX
8. VERIFY ANTENNA SYSTEM USING 7/8" WAVE-GUIDE HAS A RL LESS THAN -14.5dB, 200 FT. MAX
9. FOR ANTENNA NETWORK ABOVE 200 FT. 1 5/8" RL-14dB 7/8" RL-12.5dB
10. RECORD TEST RESULTS ON SWEEP DATA SHEET, THEN SAVE SWEEP TO A MEMORY LOCATION
11. REPEAT STEPS 1 THROUGH 10 FOR THE REST OF THE ANTENNA NETWORKS.

TRANSMISSION LINE CONTINUITY TEST:

THIS TEST WILL VERIFY THE CONTINUITY OF THE RX PATH BETWEEN THE BTS AND THE TMA FOR THE 15 VDC NETWORK

1. CONNECT A SHORT AT THE END OF THE LAST JUMPER BEFORE THE TMA OF THE LINE UNDER TEST
2. CONNECT MULTIMETER TO THE LAST JUMPER BEFORE THE BTS RX 1 (YELLOW/GREEN) PLACE THE BLACK LEAD ON THE OUTER PART OF THE CONNECT AND THE RED LEAD ON THE CENTER PIN OF THE CONNECTORS
3. VERIFY THE METER READS A SHORT
4. REMOVE SHORT AND VERIFY METER READS OPEN
5. RECORD PASS/FAIL ON SWEEP TEST DATA SHEET
6. RECONNECT JUMPERS TO THE TMA AND BTS
7. REPEAT STEPS 1 THROUGH 6 FOR THE REMAINING RECEIVE PATHS

CABLE MARKING TAGS

TO PROVIDE ADDITIONAL IDENTIFICATION EACH RF CABLE SHALL BE IDENTIFIED WITH A METAL TAG MADE OF STAINLESS STEEL OR BRASS AND STAMPED AS SHOWN. THE ID MARKING LOCATIONS SHOULD BE AS PER "CABLE MARKING LOCATIONS TABLE". THE TAG SHOULD BE ATTACHED WITH CORROSION PROOF WIRE AROUND THE CABLE.

THE FOLLOWING ARE 3 DIFFERENT FORMATS TO BE USED FOR THE BRASS TAGS.

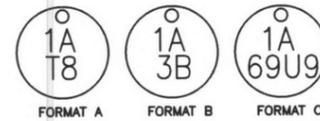
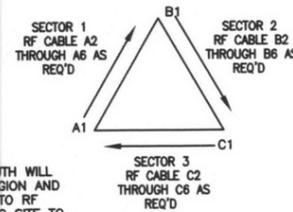


DIAGRAM OF BRASS TAG FORMATS

FORMAT A IS TO BE USED WHEN THERE IS ONLY ONE TECHNOLOGY BEING CARRIED ON A CABLE. FORMAT B IS USED WHEN TWO TECHNOLOGIES HAVE BEEN DUPLEXED ONTO ONE CABLE AND WILL BE BROKEN OUT THROUGH A DUPLEXOR AT THE TOP OF THE TOWER. FORMAT C IS USED WHEN TWO TECHNOLOGIES HAVE BEEN QUADRAPLEXED ONTO ONE CABLE FOR ANTENNA PORT SHARING AT THE TOP OF THE TOWER.

THE FIRST NUMBER DESIGNATES THE ANTENNA POSITION, THE SECOND CHARACTER DESIGNATES THE PORT ON THE ANTENNA, THE THIRD CHARACTER DESIGNATES THE TECHNOLOGY TYPE, AND THE LAST NUMBER DESIGNATES THE FREQUENCY BAND OF THE TECHNOLOGY.



NOTE: SECTOR ORIENTATION/AZIMUTH WILL VARY FROM REGION TO REGION AND IS SITE SPECIFIC. REFER TO RF REPORT FOR EACH SPECIFIC SITE TO DETERMINE THE SECTOR ORIENTATION.

ALL RF CABLE SHALL BE MARKED AS PER CABLE MARKING LOCATIONS TABLE BELOW:

CABLE MARKING LOCATIONS		
NO.	TAG	LOCATIONS
1.	X	END OF THE MAIN COAX RUN WHERE THE COAXIAL CABLE AND JUMPER TO THE ANTENNA ARE CONNECTED
2.	X	CABLE ENTRY PORT ON THE INTERIOR OF THE SHELTER (AS APPLICABLE).
3.	X	END OF JUMPER AT BTS CABINET

CABLE COLOR MARKING

IN ADDITION TO THE IMPLEMENTATION OF BRASS TAGS, CONTRACTORS SHALL USE ONE BAND OF COLOR TYPE PER CABLE SECTOR DESIGNATION LABELING.

THE COLORS SHALL BE AS FOLLOWS:

- SECTOR A: RED
- SECTOR B: BLUE
- SECTOR C: GREEN

THE SECTOR DESIGNATIONS SHALL BE MARKED AS DESCRIBED ON THE CURRENT RF DATA SHEET (RFD) AT TIME OF INSTALLATION. RF DATA SHEET IS TO REMAIN POSTED AT EVERY SITE.

COAX BOOT SPECIFICATION

ENTRY BOOTS TO SEAL COAX WITHIN 6" CONDUITS SHALL BE: ROXTEC H SEAL H3-150/3X(28-54)/20 SEE COAX CONDUIT EXIT SEAL DETAIL (WHEN APPLICABLE)

CONTRACTOR SHALL USE THE ABOVE PRODUCTS OR APPROVED EQUAL.



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BLDG. 4004, SUITE #220
LAKE OSWEGO, OR 97035
503-636-2500 (MAIN)
503-636-2501 (FAX)

**SITE ID #: PD53
BROADWAY & 405**

2211 S.W. 4th AVENUE
PORTLAND, OREGON 97201

PROJECT:

LTE

ISSUED FOR:

REVIEW

SUBMITTALS				
REV.	DATE	DESCRIPTION	BY	
A	11/6/12	PRELIM CD's	SP	
0	1/2/13	ISSUED FOR CONST. LG		
1	4/25/13	RF COMPLIANCE	SP	
2	5/10/13	FCD DETAILS REV2	SP	

FA#: 10133717

DRAWN BY: SP

CHECKED BY: PT

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5-10-13

STAMP:



05/10/13
RENEWS: 06/30/2014

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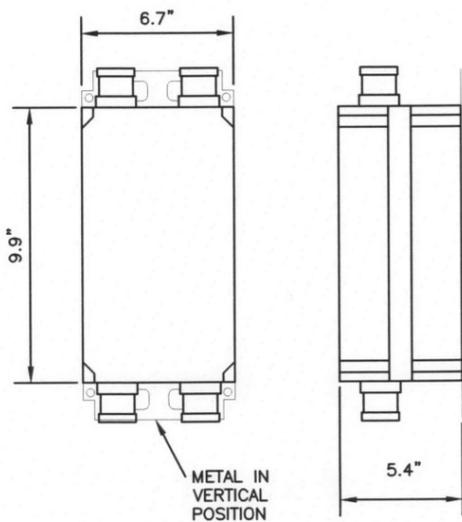
SHEET TITLE:

ANTENNA NOTES

SHEET NUMBER: REV.

RF-2 2

MANUFACTURER: POWERWAVE
 PART #: TT19-08BP111-001
 HEIGHT: 9.9"
 WIDTH: 6.7"
 DEPTH: 5.4"
 WEIGHT: <16 lbs.



24"x36" SCALE: NTS
 11"x17" SCALE: NTS

TMA DETAIL 7

24"x36" SCALE: NTS
 11"x17" SCALE: NTS

NOT USED 6

24"x36" SCALE: NTS
 11"x17" SCALE: NTS

NOT USED 5

City of Portland
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 JUL 15 2013
 Permit Number

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1	4/25/13	RF COMPLIANCE	SP
2	5/10/13	FCD DETAILS REV2	SP

FA#: 10133717
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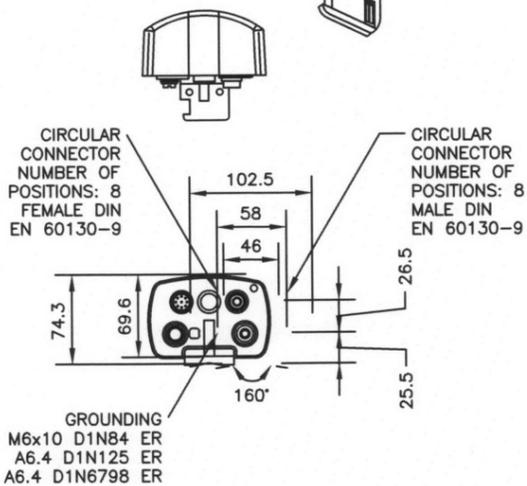
REGISTERED PROFESSIONAL ENGINEER
 PAUL D. TIBBOT
 OREGON
 March 9, 2010
 05/10/13
 RENEWS: 06/30/2014

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SHEET TITLE:
RF DETAILS

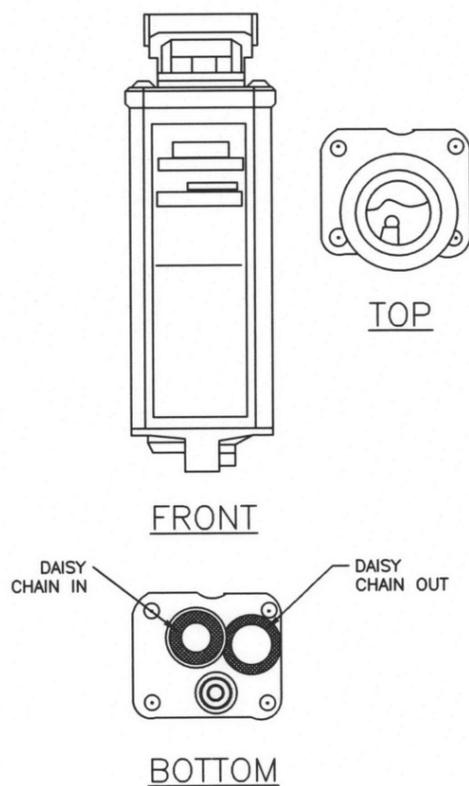
SHEET NUMBER: **RF-3** REV. **2**

MANUFACTURER KATHREIN
 PART #: 880 10030
 LENGTH: 4.1"
 WIDTH: 3.6"
 DEPTH: 2.8"
 WEIGHT: .55 lbs.



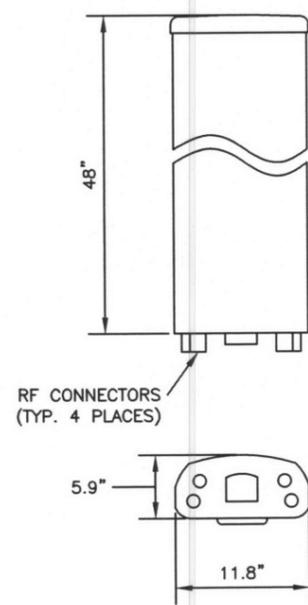
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 11"x17" SCALE: NTS

RET LPD DETAIL 4

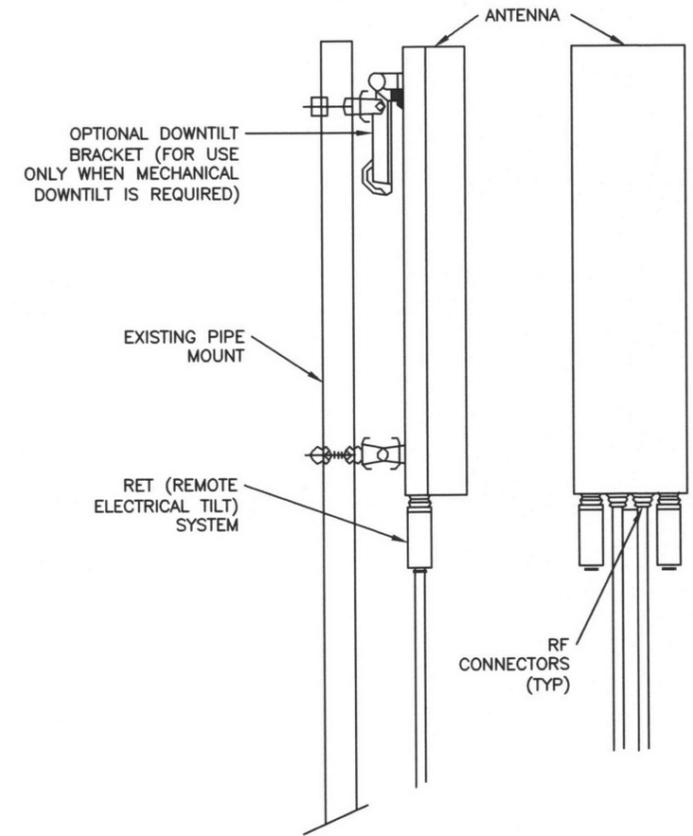


REMOTE ELECTRICAL TILT (RET) 3

MANUFACTURER: KMW
 PART #: AM-X-CD-14-65-00T-RET
 LENGTH: 48"
 WIDTH: 11.8"
 DEPTH: 5.9"
 WEIGHT: 36.4 lbs.



ANTENNA DETAIL 2



ANTENNA MOUNT DETAIL 1

DRAFTED BY: PTLD.SP CM.KO



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SUBMITTALS			
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A	11/6/12	PRELIM CD's	SP
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1	4/25/13	RF COMPLIANCE	SP
2	5/10/13	FCD DETAILS REV2	SP

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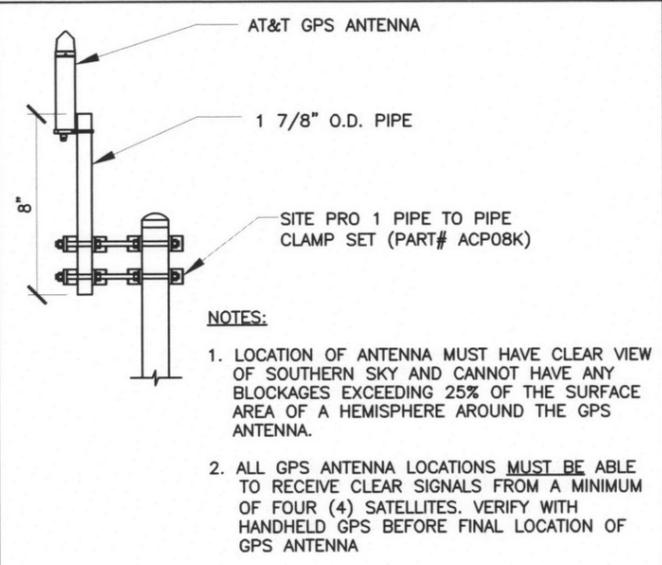
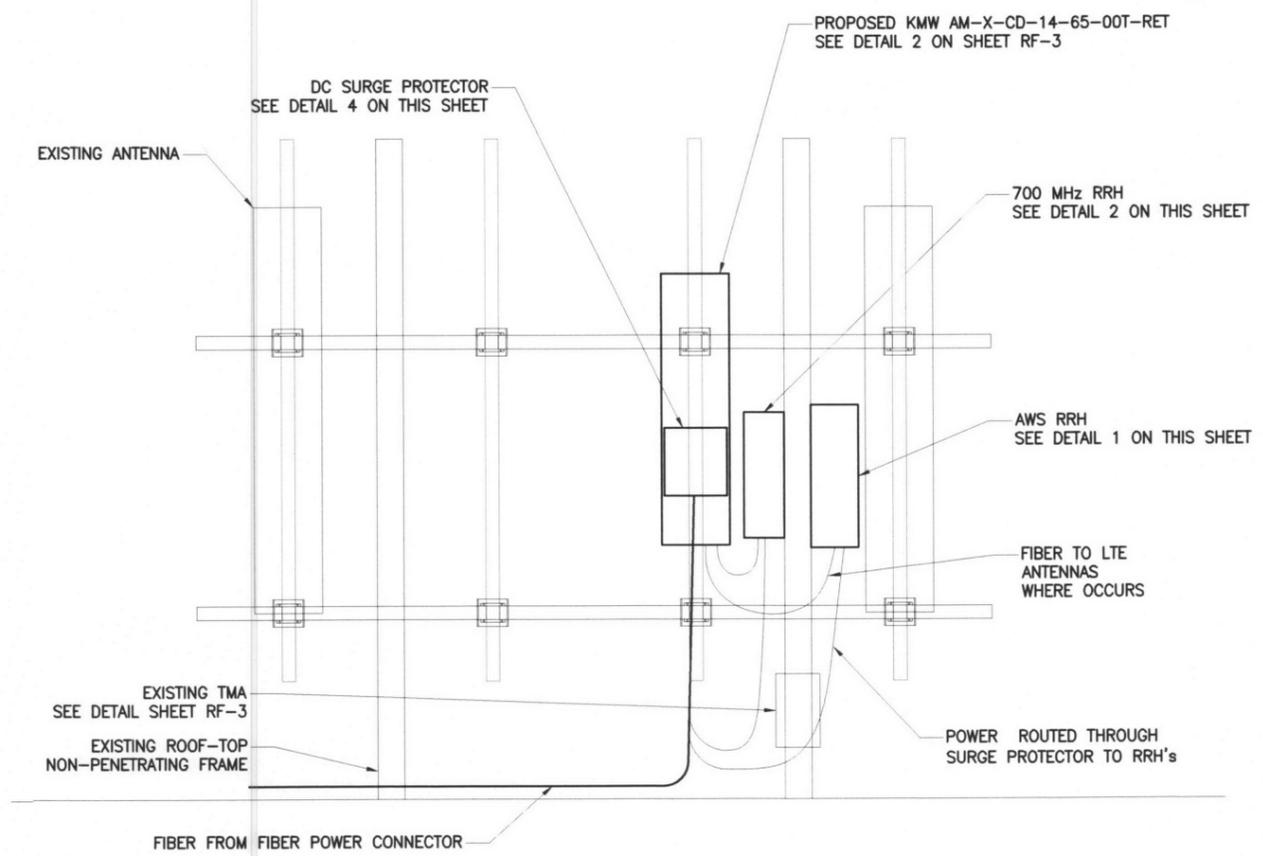
SHEET TITLE:
RF DETAILS

SHEET NUMBER: RF-4

REV: 2

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NOTE 1: SEE DETAILS REFERENCED IN THIS CD SET FOR WEIGHTS AND DIMENSIONS



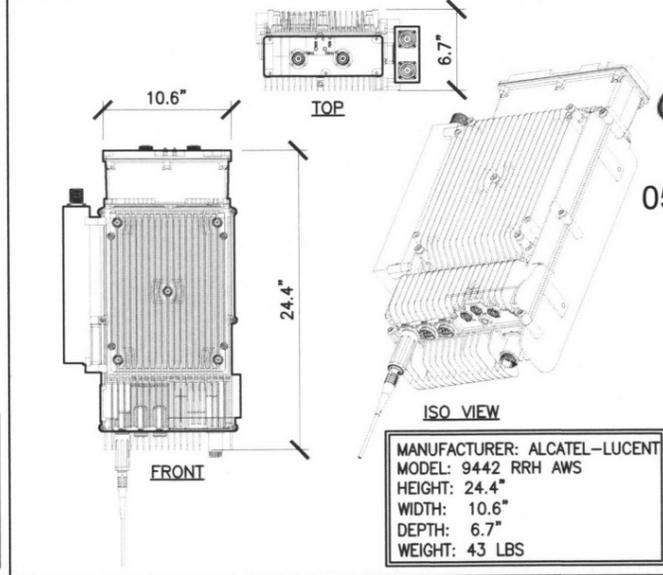
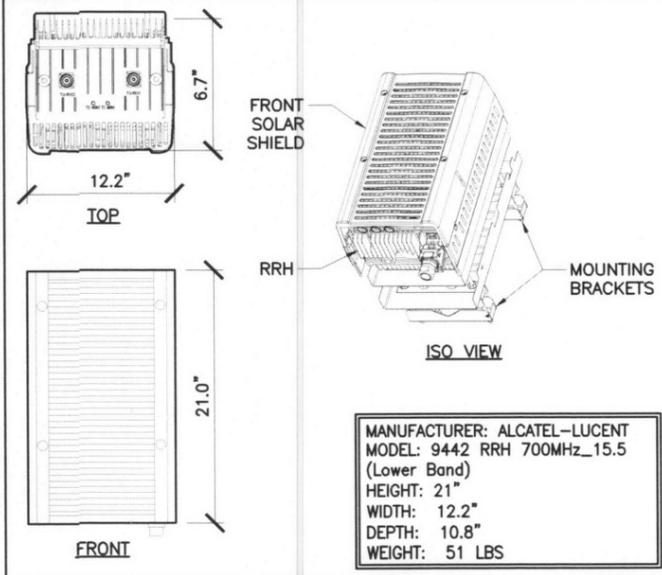
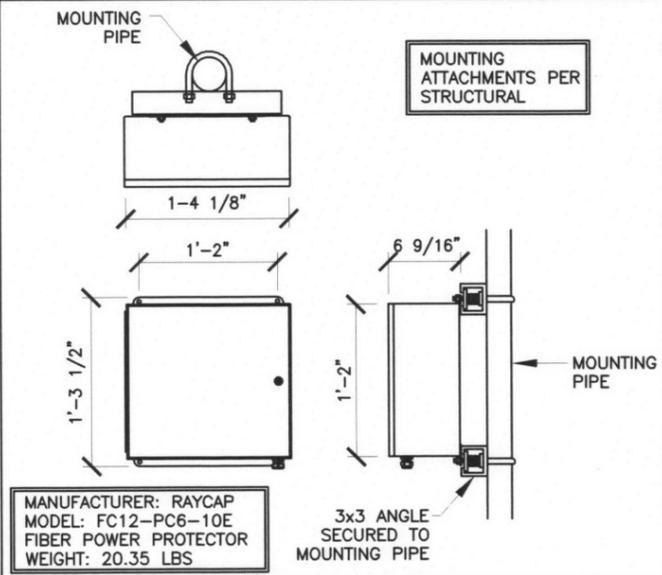
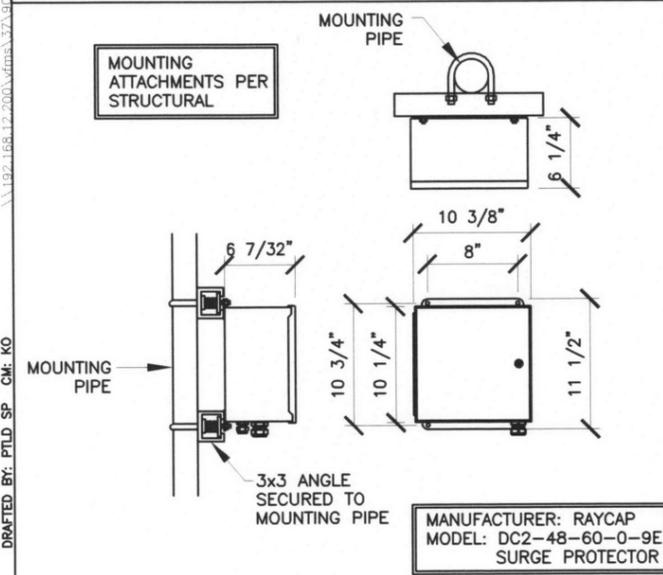
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11"x17" SCALE: NTS
NOT USED 9

24"x36" SCALE: NTS
11"x17" SCALE: NTS
NOT USED 8

24"x36" SCALE: NTS
11"x17" SCALE: NTS
NOT USED 7

24"x36" SCALE: NTS
11"x17" SCALE: NTS
LTE GPS ANTENNA 6

24"x36" SCALE: NTS
11"x17" SCALE: NTS
SURGE SUPPRESSOR & RRH ATTACHMENT 5



24"x36" SCALE: NTS
11"x17" SCALE: NTS
SURGE PROTECTOR 4

24"x36" SCALE: NTS
11"x17" SCALE: NTS
FIBER POWER CONNECTOR 3

24"x36" SCALE: NTS
11"x17" SCALE: NTS
700 MHz RRH UNIT 2

24"x36" SCALE: NTS
11"x17" SCALE: NTS
AWS RRH UNIT 1

DRAFTED BY: FTLD, SP, CM, KO



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SUBMITTALS				
REV.	DATE	DESCRIPTION	BY	
A	11/6/12	PRELIM CD's	SP	
0	1/2/13	ISSUED FOR CONST. LG		
1	4/25/13	RF COMPLIANCE	SP	
2	5/10/13	FCD DETAILS REV2	SP	

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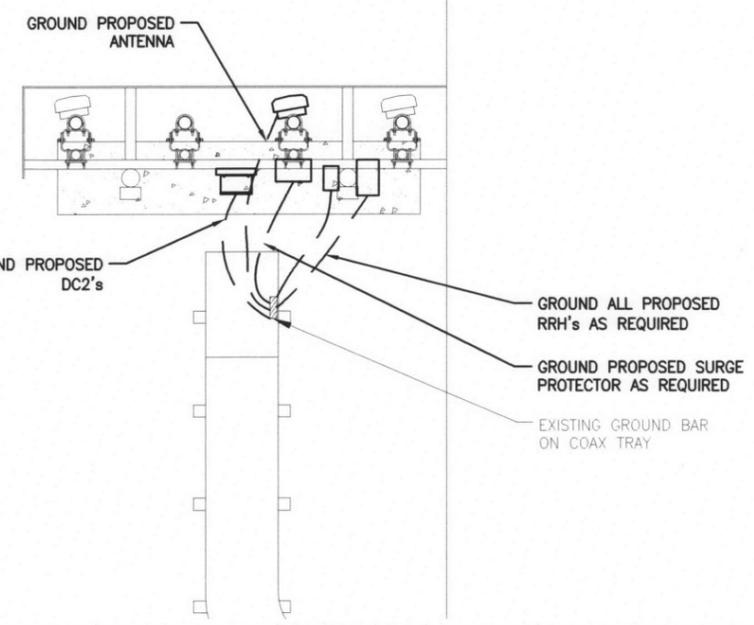


RENEWS: 06/30/2014

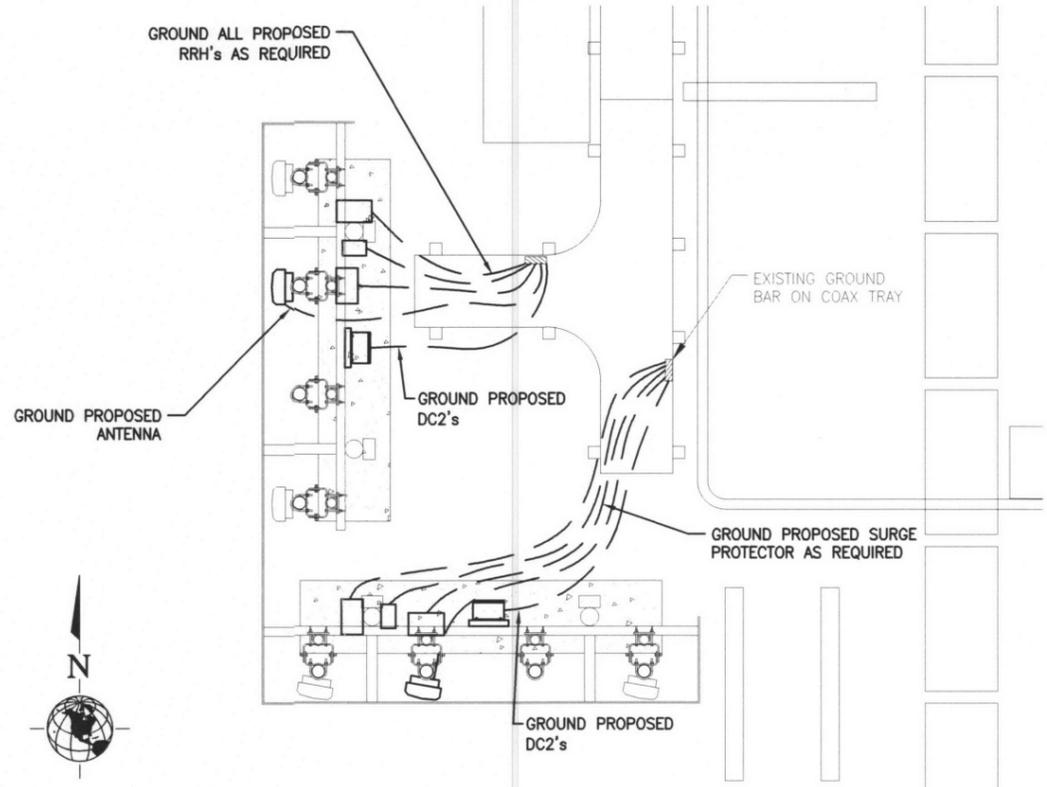
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SHEET TITLE:
GROUNDING PLAN

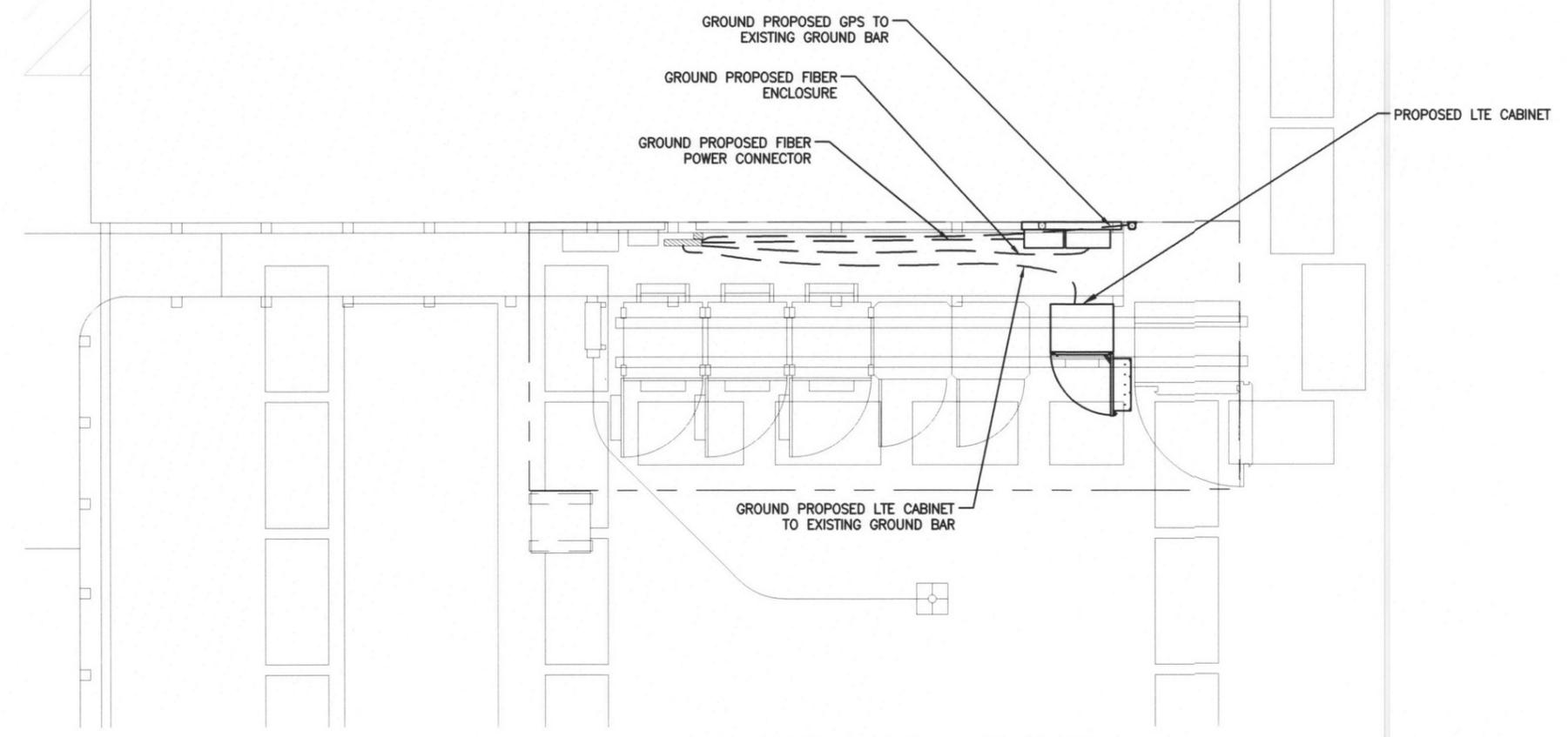
SHEET NUMBER: **E-1** REV: **2**



24"x36" SCALE: 1"=2.5'
11"x17" SCALE: 1"=5'
GROUNDING PLAN (ALPHA SECTOR) 3



24"x36" SCALE: 1"=2.5'
11"x17" SCALE: 1"=5'
GROUNDING PLAN (BETA & GAMMA SECTOR) 2



24"x36" SCALE: 1"=2.5'
11"x17" SCALE: 1"=5'
GROUNDING PLAN (EQUIPMENT) 1

GROUNDING NOTES & LEGEND

GENERAL GROUNDING NOTES

- ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.
- GROUND ALL ANTENNA BASES, FRAMES, CABLE RUNS, AND OTHER METALLIC COMPONENTS USING GROUND WIRES AND CONNECT TO SURFACE MOUNTED BUS BARS. FOLLOW ANTENNA AND BTS MANUFACTURERS PRACTICES FOR GROUNDING REQUIREMENTS. GROUND COAX SHIELD AT BOTH ENDS AND EXIT FROM TOWER OR POLE USING MFR'S PRACTICES.
- ALL GROUND CONNECTIONS SHALL BE CADWELD. ALL WIRES SHALL BE COPPER THHN/THWN. ALL GROUND WIRE SHALL BE GREEN INSULATED WIRE ABOVE GROUND.
- CONTRACTOR TO VERIFY AND TEST GROUND TO SOURCE. GROUNDING AND OTHER OPERATIONAL TESTING WILL BE WITNESSED BY AT&T WIRELESS, LLC. REPRESENTATIVE.
- REFER TO DIVISION 16 GENERAL ELECTRIC; GENERAL ELECTRICAL PROVISION AND COMPLY WITH ALL REQUIREMENTS OF GROUNDING STANDARDS.
- ELECTRICAL CONTRACTOR TO PROVIDE DETAILED DESIGN OF GROUNDING SYSTEM, AND RECEIVE APPROVAL OF DESIGN BY AUTHORIZED AT&T MOBILITY REPRESENTATIVE, PRIOR TO INSTALLATION OF GROUNDING SYSTEM. PHOTO DOCUMENT ALL CADWELDS AND GROUND RING.
- NOTIFY CONSTRUCTION MANAGER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.

GROUNDING ROD NOTES

(WHERE APPLICABLE)
ELECTRICAL CONTRACTOR SHALL ORDER GROUND RESISTANCE TESTING ONCE THE GROUND SYSTEM HAS BEEN INSTALLED; A QUALIFIED INDIVIDUAL, UTILIZING THE FALL OF POTENTIAL METHOD, SHOULD PERFORM THE TEST. THE REPORT WILL SHOW THE LOCATION OF THE TEST AND CONTAIN NO LESS THAN 9 TEST POINTS ALONG THE TESTING LINE, GRAPHED OUT TO SHOW THE PLATEAU.

2 POINT GROUND TEST OR 3 POINT 62% TESTS WILL NOT BE ACCEPTED AS ALTERNATIVES TO THE AFOREMENTIONED GROUND TESTS. TEST SHALL BE PERFORMED WHILE THE COUNTERPOISE IS ISOLATED FROM THE A/C SYSTEM GRIDS AND EXISTING COMMUNICATIONS FACILITY.

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
⊗	COPPER GROUND ROD	⊗	TEST WELL
▲●	CADWELD CONNECTION	—	GROUND BAR
■	SIDE SPLICE CADWELD	—●—	
⚡	FIELD VERIFY & TIE INTO EXISTING GROUNDING SYSTEM		

DRAFTED BY: PTLD.SP CM: KO

11/19/12 168.12.2003\rfms\373\909\A&E\2 - Drawings.CAD



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SUBMITTALS			
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1	4/25/13	RF COMPLIANCE	SP
2	5/10/13	FCD DETAILS REV2	SP

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5-10-13

STAMP:

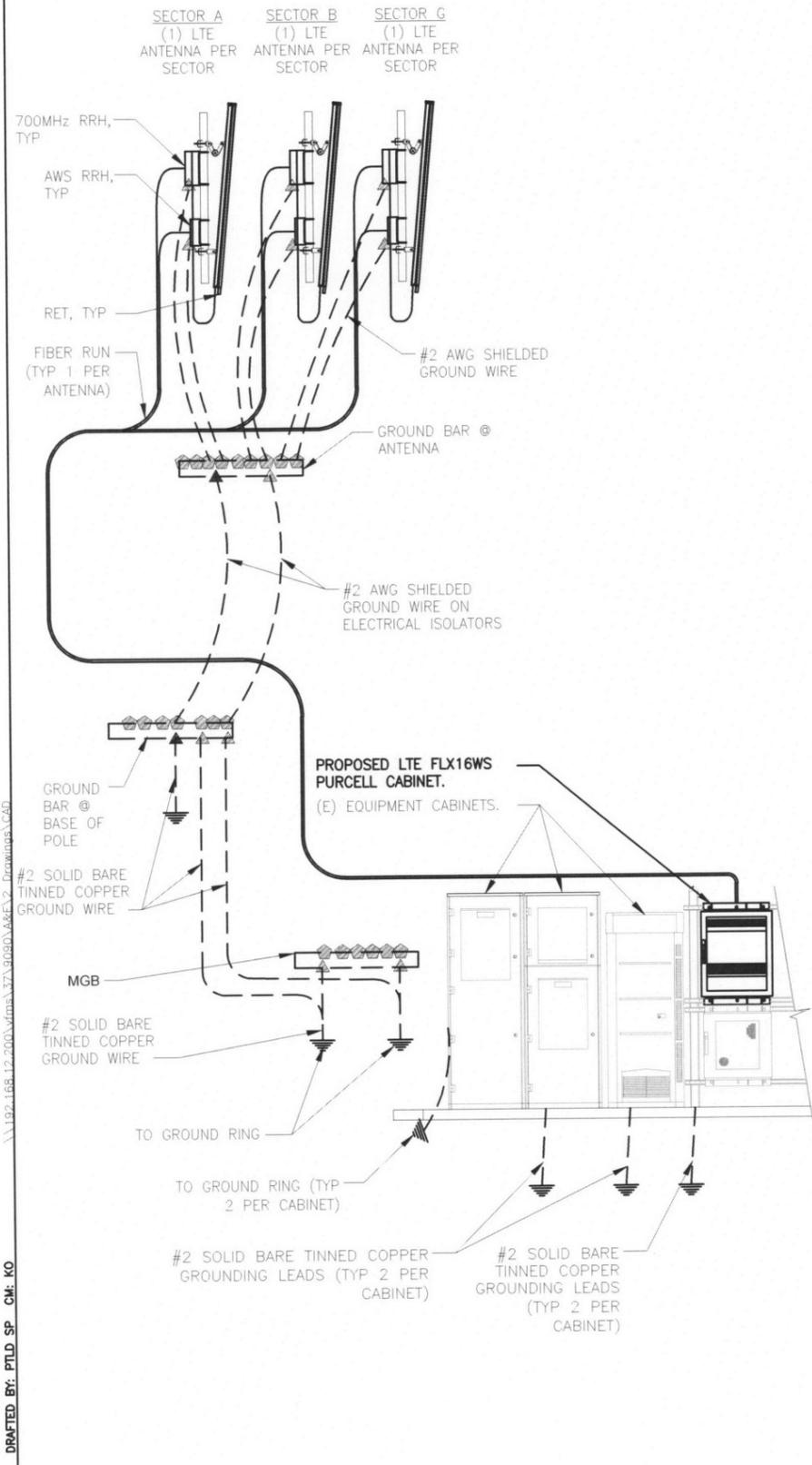


05/10/13
RENEWS: 06/30/2014

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SHEET TITLE:
GROUNDING DETAILS

SHEET NUMBER: **E-2** REV. **2**

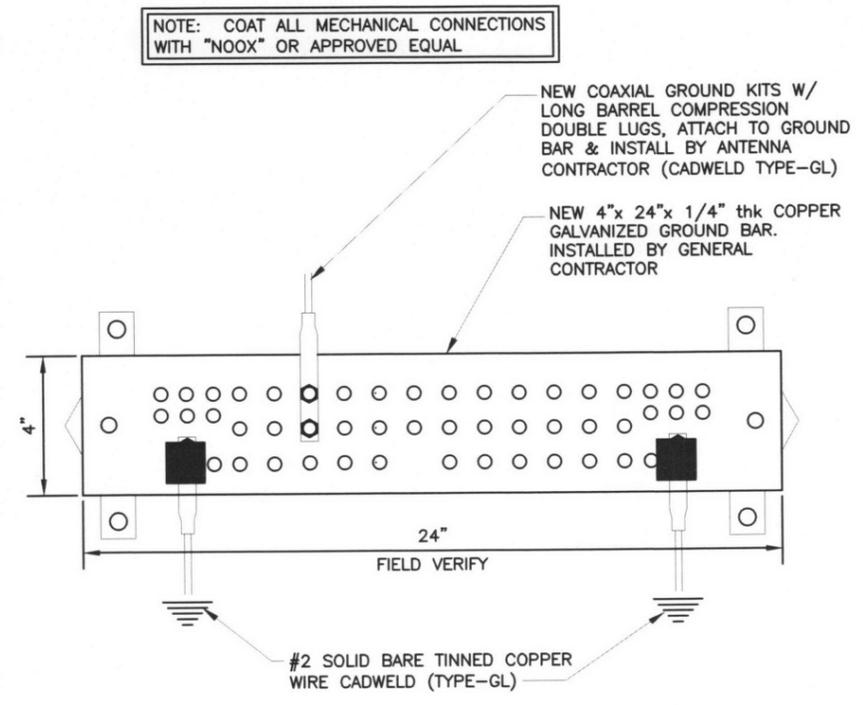


ANTENNA GROUNDING DIAGRAM 2

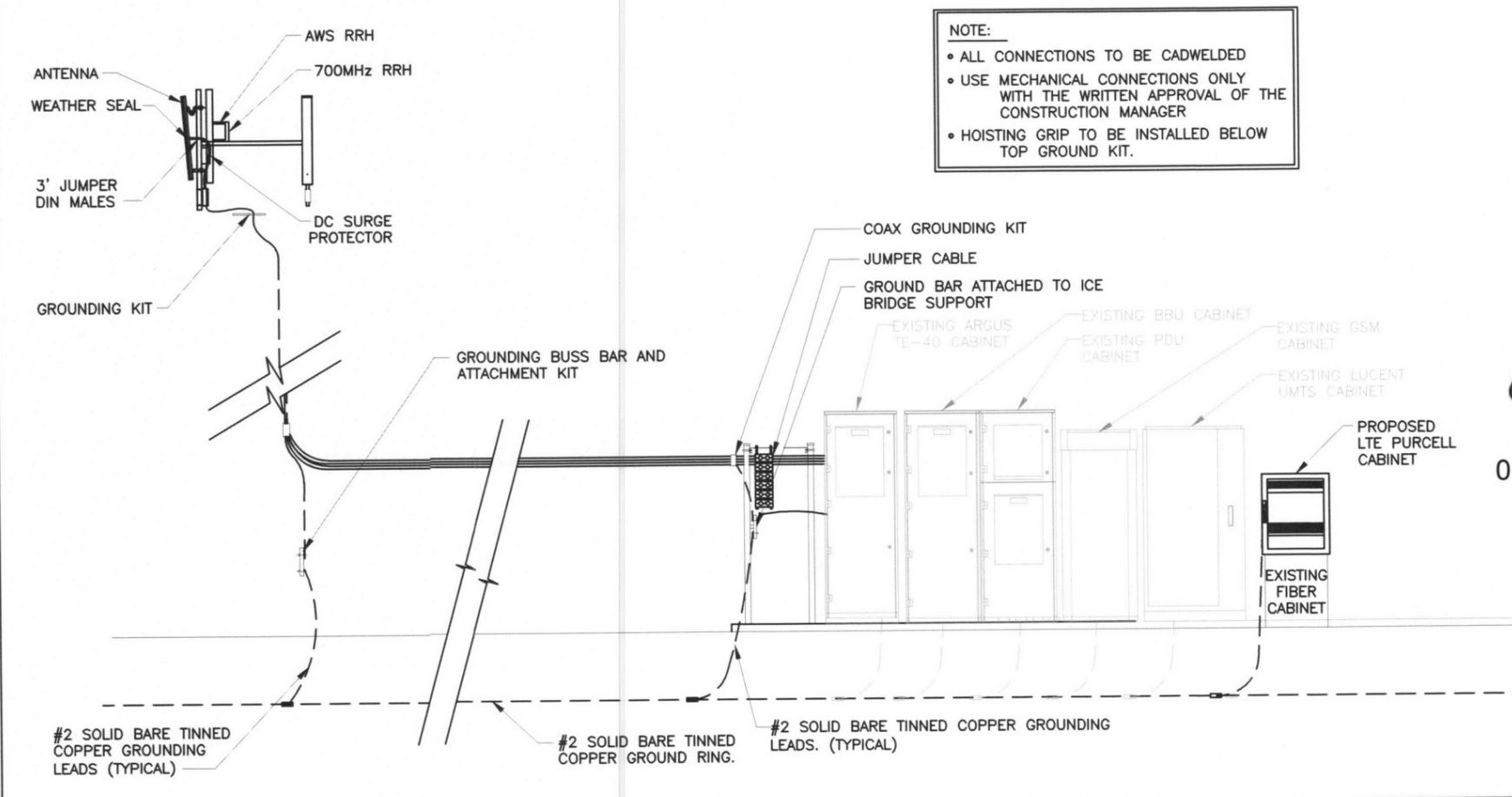
TYPE TA	TYPE VN	TYPE NC	TYPE SS
TYPE VV	TYPE VS	TYPE VB	TYPE PI
TYPE GT	TYPE GY	TYPE GR	TYPE GL

NOTE: CADWELD "TYPES" SHOWN ABOVE ARE EXAMPLES - CONSULT WITH PROJECT MANAGER FOR SPECIFIC TYPES OF CADWELDS TO BE USED FOR THIS PROJECT.

CADWELD DETAILS 4



GROUND BAR DETAIL 3

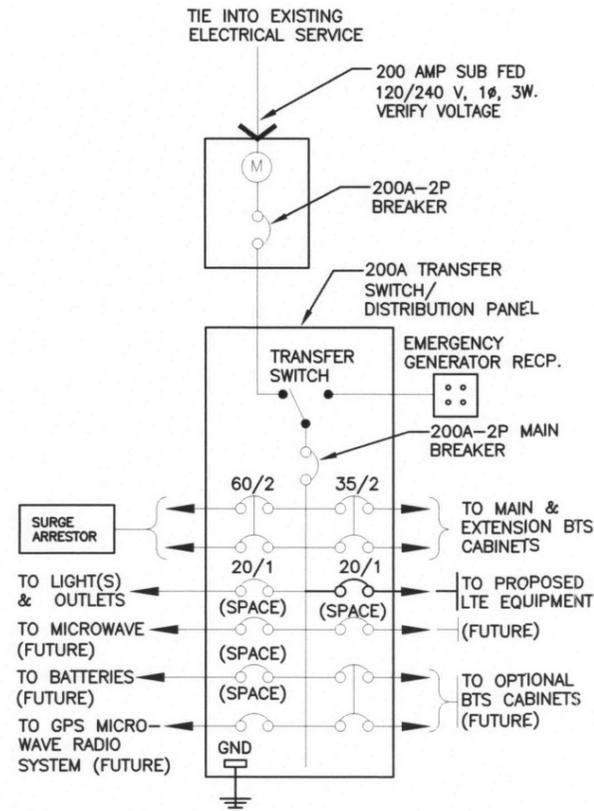


TOWER GROUNDING SCHEMATIC DIAGRAM 1

DRAFTED BY: PTLD SP CM: KO

ELECTRICAL SPECIFICATION:

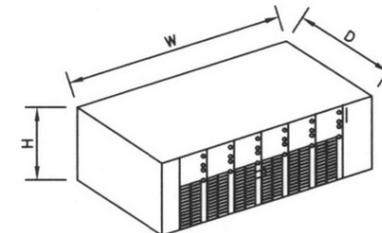
1. ALL ELECTRICAL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.
2. COMPLY WITH THE LATEST EDITION OF THE UNIFORM BUILDING CODE, THE REQUIREMENTS OF ALL APPLICABLE MUNICIPAL AND STATE CODES AND REGULATIONS, AND UTILITY GUIDELINES.
3. PERFORM ALL VERIFICATION, OBSERVATIONS, TESTING AND EXAMINATION OF WORK PRIOR TO THE ORDERING OF ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE CONSTRUCTION MANAGER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
4. UNDERGROUND CONDUIT SHALL BE RIGID POLYVINYL CHLORIDE CONDUIT: SCHEDULE 40, TYPE " CONFORMING TO UL ARTICLE 651: WESTERN PLASTICS OR CARBON MANUFACTURER. COUPLINGS SHALL BE SLIP-ON SOLVENT SEALED T PIPE: SOLVENT, WESTERN TYPE COMPATIBLE WITH PVC DUCT, ALL BENDS SHALL BE 30" MINIMUM RADIUS.
5. ALL WIRING SHALL BE STRANDED COPPER WITH MINIMUM 600V INSULATION (UNLESS OTHERWISE NOTED).
6. NEUTRAL SHALL BE COLOR CODED, INSULATION SHALL BE CROSS-LINKED POLYETHYLENE.
7. CONTRACTOR TO CONTACT ALL UTILITIES FOR LOCATION OF UNDERGROUND SERVICES. SERVICE LOCATIONS TO BE CONFIRMED PRIOR TO CONSTRUCTION.
8. THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITTING, FILING, AND FEES IN CONJUNCTION WITH THE PROJECT.
9. THE CONTRACTOR SHALL SCHEDULE ALL NECESSARY INSPECTIONS WITH THE PROPER AUTHORITIES AND INFORM CINGULAR 24-HOURS IN ADVANCE. ALL TICKETS AND INSPECTION VERIFICATIONS WILL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE WITHIN 24-HOURS AFTER THE INSPECTION HAS TAKEN PLACE.
10. ALL EQUIPMENT, WIRING, AND MATERIALS MUST HAVE A UL LABEL.
11. ALL WORK SHALL BE DONE BY QUALIFIED AND EXPERIENCED JOURNEYMEN AND PERFORMED IN A WORKMANLIKE MANNER AND SHALL PROCEED IN AN ORDERLY MANNER SO AS NOT TO HOLD UP THE PROGRESS OF THE PROJECT.
12. THOROUGHLY TEST ALL LINES FEEDERS, EQUIPMENT, AND DEVICES WITH MAXIMUM LOADS TO ASSURE PROPER OPERATION
13. CONDUCTOR LENGTHS SHALL BE CONTINUOUS FROM TERMINATION TO TERMINATION WITHOUT SPLICES
14. PROVIDE PULL BOXES WHERE SHOWN AND/OR WHERE REQUIRED BY CODES AND/OR UTILITY COMPANIES.
15. ALL CONDUIT ROUGH IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS CONTRACTOR SHALL VERIFY ALL LOCATIONS
16. ALL WIRES SHALL BE TAGGED AT ALL PULL BOXES, J-BOXES, EQUIPMENT BOXES, AND CABINETS WITH APPROVED PLASTIC TAGS.
17. ALL BREAKERS IN PANEL BOXES SHALL BE IDENTIFIED WITH TYPE WRITTEN LABELS NEATLY PLACED ALONG SIDE OF THE BREAKER.
18. ALL FIRE RATED WALL AND FLOOR PENETRATIONS ARE TO BE CAULKED AND SEALED WITH A FIRE RESISTANT CAULKING TO MAINTAIN THE INTEGRITY OF THE FIRE SEPARATION.
19. UTILIZE SONNEBORN TYPE NP-1 CAULKING FOR SEALING ALL EXTERIOR WALL PENETRATIONS



ELECTRICAL ONE-LINE DIAGRAM 5

NOT USED 4

CSM01 24V TO 48V CONVERTER SYSTEM				
MANUFACTURER: ARGUS				
AMPS	HEIGHT (H)	WIDTH (W)	DEPTH (D)	WEIGHT (LBS)
10	3.5"	17"	12"	18.5
15	3.5"	20"	12"	24
25	7"	17"	12"	36
30	7"	20"	12"	43



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503-636-2501 (FAX)

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BROADWAY & 405
2211 S.W. 4th AVENUE
PORTLAND, OREGON 97201

PROJECT:
LTE

ISSUED FOR:
REVIEW

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
A	11/6/12	PRELIM CD's	SP
0	1/2/13	ISSUED FOR CONST.	LG
1	4/25/13	RF COMPLIANCE	SP
2	5/10/13	FCD DETAILS REV2	SP

FA#: 10133717
DRAWN BY: SP
CHECKED BY: PT
CURRENT ISSUE DATE:
5-10-13

STAMP:

05/10/13
RENEWS: 06/30/2014

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SHEET TITLE:
ELECTRICAL DETAILS

SHEET NUMBER: **E-3** REV. **2**

ELECTRICAL SPECIFICATIONS 3

24"x36" SCALE: NTS
11"x17" SCALE: NTS

NOT USED 2

24"x36" SCALE: NTS
11"x17" SCALE: NTS
24V TO 48V DC TO DC CONVERTER DETAIL 1

DRAFTED BY: PTL/D SP CM: KO