ENGINEER:

RAMAKER
& ASSOCIATES, INC.
1120 DALLAS STREET
SAUK CITY, WISCONSIN 53583
VOICE: 608-643-4100
FAX: 608-643-7999
Web: http://www.ramaker.com

PROJECT TYPE:
PROPOSED WIRELESS ANTENNAS MOUNTED ON A PROPOSED LIGHT POLE.
PROPOSED 14'-0" X 20'-0" EQUIPMENT ROOM LOCATED WITHIN EXISTING BUILDING.

SITE COORDINATES:
LATITUDE : 43°-02'-16.84"
LONGITUDE: 89°-21'-8.39"
ELEVATION: 165.7'

DIRECTIONS TO SITE:
FROM I-90/I-39 TAKE US-12/US-18 (W. BELTLINE HWY.) WEST TOWARDS MADISON. GO APPROX. 9 MILES TO EXIT 258 (US-18/US151) TOWARD DODGEVILLE. TURN RIGHT AT S. MIDVALE BLVD. GO APPROXIMATELY 2/10 MILE AND MAKE A U-TURN AT BOULDER TERRACE. GO 1/10 MILE TO SITE - WHICH IS ON THE WEST SIDE OF US18/US151 ADJACENT TO DORN HARDWARE.

PROJECT SIGNOFF:

REAL ESTATE: _____

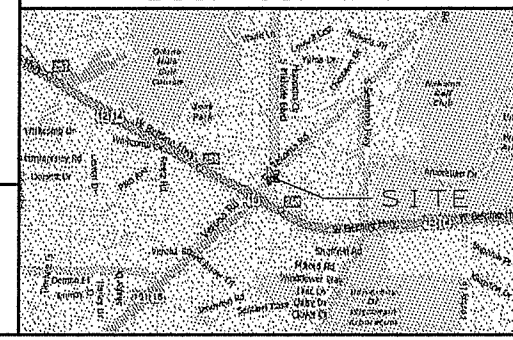
RF: _____

CONSTRUCTION: _____

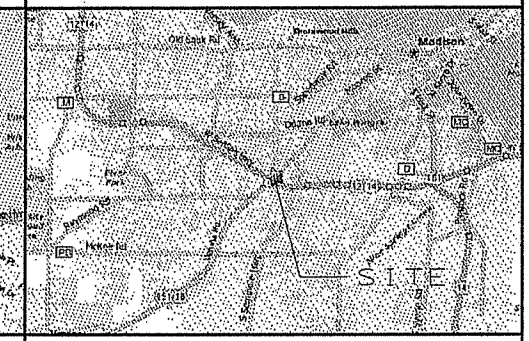
OPERATIONS: _____

EQUIPMENT ENGINEERING: _____

LOCATION MAP



VICINITY MAP



ADDRESS: 1326 S. MIDVALE BOULEVARD
MADISON, WI 53717

UTILITIES: POWER
MGE
133 S. BLAIR ST.
MADISON, WI 53703
PHONE: (608) 252-7000

TELEPHONE SBC
225 W. RANDOLPH ST.
FLOOR 27A
CHICAGO, IL 60606
PHONE: (800) 647-9000

SITE INFORMATION:
JURISDICTION: CITY OF MADISON
MUNICIPALITY: CITY OF MADISON
OCCUPANCY: UNMANNED
ZONING: COMMERCIAL
CONSTRUCTION TYPE: LIGHT POLE

BUILDING OWNER:
TYCAROL INVESTMENTS
215 SAUK CREEK DR.
MADISON, WI 53717

APPLICANT:
LESSEE
CONSTRUCTION MANAGER:
JESSE WILLIS, AGENT
CELL: (920) 909-0102
REAL ESTATE MANAGER:
JOSEPH COATES
PHONE: (847) 706-1376

ENGINEER:
RAMAKER & ASSOCIATES, INC.
1120 DALLAS STREET
SAUK CITY, WI 53583
CONTACT: STEVE NIDEEN
PHONE: (608) 643-4100
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VERIZON WIRELESS PERSONAL COMMUNICATIONS LP d/b/a VERIZON WIRELESS

15725 WEST RYERSON ROAD
NEW BERLIN, WI 53151
PHONE: 414-390-5278 FAX: 414-390-5543

LOCATION #: 112336
PROJECT #: 2000037963
SITE CODE: 14-3650

SITE NAME: HWY 151 & HWY 14
1326 S. MIDVALE BOULEVARD
MADISON, WI 53717

DRAWING INDEX

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ENGINEER STAMP

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin. It should be noted that those plan sheets identified with an (*) have been prepared and certified by others and have been included herein for informational purposes only.

Signature:

7/17/2007
Date:

BY	REVISIONS	DATE:
KJH	PRELIMINARY DRAWINGS	07/17/07

SITE CODE:
14-3650

PREPARED BY:
RAMAKER & ASSOCIATES, INC.
1120 DALLAS STREET
SAUK CITY, WISCONSIN 53583
VOICE: 608-643-4100
FAX: 608-643-7999
Web: http://www.ramaker.com

DATE:	7/17/2007	CHECKED BY:	SEW
DESIGNED BY:	KJH	PROJECT No.	11845
TITLE: HWY 151 & HWY 14		SHEET:	T-1

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TDD 1-800-542-2289

GENERAL

THE CONSTRUCTION DOCUMENT DRAWINGS ARE INTERRELATED.
WHEN PERFORMING THE WORK, EACH CONTRACTOR MUST REFER TO ALL DRAWINGS.
COORDINATION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

DIVISION 1: GENERAL REQUIRMENTS

SECTION 01700 - PROJECT CLOSEOUT

PART 1- GENERAL

A. OBTAIN AND SUBMIT RELEASES ENABLING THE OWNER UNRESTRICTED USE OF THE WORK AND ACCESS TO SERVICES AND UTILITIES: INCLUDE OCCUPANCY PERMITS, OPERATING CERTIFICATES AND SIMILAR RELEASES.

B. SUBMIT RECORD DRAWINGS, DAMAGE OR SETTLEMENT SURVEY, PROPERTY SURVEY, AND SIMILAR FINAL RECORD INFORMATION.

C. COMPLETE FINAL CLEAN UP REQUIREMENTS, INCLUDING TOUCH-UP PAINTING. TOUCH UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES.

PART 2 - FINAL CLEANING

1. COMPLETE THE FOLLOWING CLEANING OPERATIONS BEFORE REQUESTING INSPECTION FOR CERTIFICATION OF COMPLETION.
   - A. CLEAN THE PROJECT SITE, YARD AND GROUNDS, IN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, INCLUDING LANDSCAPE DEVELOPMENT AREAS, OF RUBBISH, WASTE MATERIALS, LITTER AND FOREIGN SUBSTANCES. SWEEP PAVED AREAS BROOM CLEAN. REMOVE PETRO-CHEMICAL SPILLS, STAINS AND OTHER FOREIGN DEPOSITS. RAKE GROUNDS THAT ARE NEITHER PLANTED NOR PAVED, TO A SMOOTH EVEN-TEXTURED SURFACE.
   - B. REMOVE TOOLS, CONSTRUCTION EQUIPMENT, MACHINERY AND SURPLUS MATERIAL FROM THE SITE.
   - C. REMOVE SNOW AND ICE TO PROVIDE SAFE ACCESS TO THE SITE AND EQUIPMENT ENCLOSURE.
   - D. CLEAN EXPOSED EXTERIOR AND INTERIOR HARD-SURFACED FINISHES TO A DIRT-FREE CONDITION, FREE OF STAINS, FILMS AND SIMILAR FOREIGN SUBSTANCES. AVOID DISTURBING NATURAL WEATHERING OF EXTERIOR SURFACES.
   - E. REMOVE DEBRIS FROM LIMITED ACCESS SPACES, INCLUDING ROOFS, EQUIPMENT ENCLOSURE, MANHOLES, AND SIMILAR SPACES.
   - F. REMOVE LABELS THAT ARE NOT PERMANENT LABELS.
   - G. TOUCH-UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES AND SURFACES. REPLACE FINISHES AND SURFACES THAT CAN NOT BE SATISFACTORILY REPAIRED OR RESTORED, OR THAT SHOW EVIDENCE OF REPAIR OR RESTORATION. DO NOT PAINT OVER "UL" AND SIMILAR LABELS, INCLUDING ELECTRICAL NAME PLATES.
   - H. LEAVE THE PROJECT CLEAN AND READY FOR OCCUPANCY.
   - I. DUST-OFF ALL EQUIPMENT, INCLUDING BATTERY PACKS, WITHIN EQUIPMENT ENCLOSURE.
   - J. WASH AND WAX FLOOR WITHIN EQUIPMENT ENCLOSURE.

2. REMOVAL OF PROTECTION: REMOVE TEMPORARY PROTECTION AND FACILITIES INSTALLED DURING CONSTRUCTION TO PROTECT PREVIOUSLY COMPLETED INSTALLATIONS DURING THE REMAINDER OF THE CONSTRUCTION PERIOD.

DIVISION 2: SITE WORK

SECTION 02200 - EARTHWORK AND DRAINAGE

PART 1- GENERAL

1. WORK INCLUDED: SEE SITE PLAN.
2. DESCRIPTIONS
   LEASE AREA, AND IF APPLICABLE ACCESS DRIVE / TURNAROUND AREA, AND UNDERGROUND UTILITY EASEMENTS ARE TO BE CONSTRUCTED TO PROVIDE A WELL DRAINED, EASILY MAINTAINED, EVEN SURFACE FOR MATERIAL AND EQUIPMENT DELIVERIES AND MAINTENANCE PERSONNEL ACCESS.
3. QUALITY ASSURANCE
   - A. APPLY SOIL STERILIZER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS (AS NEEDED).
   - B. APPLY AND MAINTAIN GRASS SEED AS RECOMMENDED BY THE SEED PRODUCER (IF REQUIRED).
   - C. PLACE AND MAINTAIN VEGETATION LANDSCAPING, IF INCLUDED WITHIN THE CONTRACT, AS RECOMMENDED BY NURSERY INDUSTRY STANDARDS.
4. SEQUENCING
   - A. CONFIRM SURVEY STAKES AND SET ELEVATION STAKES PRIOR TO ANY CONSTRUCTION.
   - B. COMPLETELY GRUB THE ACCESS DRIVE W/ TURNAROUND, UNDERGROUND UTILITY EASEMENTS, (IF APPLICABLE) AND LEASE AREA PRIOR TO FOUNDATION CONSTRUCTION, PLACEMENT OF BACKFILL AND SUB-BASE MATERIAL.
   - C. CONSTRUCT TEMPORARY CONSTRUCTION AREA ALONG ACCESS DRIVE.
   - D. BRING THE LEASE AREA AND ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION PRIOR TO INSTALLING FOUNDATION.
   - E. APPLY SOIL STERILIZER PRIOR TO PLACING BASE MATERIALS.
   - F. GRADE, SEED, FERTILIZE, AND MULCH ALL AREAS DISTURBED BY CONSTRUCTION (INCLUDING UNDERGROUND UTILITY EASEMENTS) IMMEDIATELY AFTER BRINGING LEASE AREA AND ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION. WATER TO ENSURE GROWTH.
   - G. REMOVE GRAVEL FROM TEMPORARY CONSTRUCTION ZONE TO AN AUTHORIZED AREA OR AS DIRECTED BY PROJECT MANAGER.
   - H. AFTER APPLICATIONS OF FINAL SURFACES, APPLY SOIL STERILIZER TO STONE SURFACES.
5. SUBMITTALS
   - A. BEFORE CONSTRUCTION
     IF LANDSCAPING IS APPLICABLE TO THE CONTRACT, SUBMIT TWO COPIES OF THE LANDSCAPE PLAN UNDER NURSERY LETTERHEAD. IF A LANDSCAPE ALLOWANCE WAS INCLUDED IN THE CONTRACT, PROVIDE AN ITEMIZED LISTING OF PROPOSED COSTS ON NURSERY LETTERHEAD (REFER TO PLANS FOR LANDSCAPING REQUIREMENTS).
   - B. AFTER CONSTRUCTION
     1. MANUFACTURER'S DESCRIPTION OF PRODUCT AND WARRANTY STATEMENT ON SOIL STERILIZED.
     2. MANUFACTURER'S DESCRIPTION OF PRODUCT ON GRASS SEED AND FERTILIZER
     3. LANDSCAPING WARRANTY STATEMENT.
6. WARRANTY
   - A. IN ADDITION TO THE WARRANTY ON ALL CONSTRUCTION COVERED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL REPAIR ALL DAMAGE AND RESTORE AREA AS CLOSE TO ORIGINAL CONDITION AS POSSIBLE AT SITE AND SURROUNDINGS.
   - B. SOIL STERILIZATION APPLICATION TO GUARANTEE VEGETATION FREE ROAD AND SITE AREAS FOR ONE YEAR FROM DATE OF FINAL INSPECTION.
   - C. DISTURBED AREAS WILL REFLECT GROWTH OF NEW GRASS COVER PRIOR TO FINAL INSPECTION.
   - D. LANDSCAPING, IF INCLUDED WITHIN THE SCOPE OF THE CONTRACT, WILL BE GUARANTEED FOR ONE YEAR FROM DATE OF FINAL INSPECTION.

PART 2 - PRODUCTS

1. MATERIALS
   - A. SOIL STERILIZER SHALL BE EPA-REGISTERED, PRE-EMERGENCE LIQUID

TOTAL KILL PRODUCT 910 EPA 10292-7	PHASAR CORPORATION P.O. BOX 5123 DEARBORN, MI 48128 (313) 563-8000
AUBUSH HERBICIDE EPA REGISTERED	FRAMAR INDUSTRIAL PRODUCTS 1435 MORRIS AVE. UNION, NJ 07083 (800) 526-4924

   - B. ROAD AND SITE MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS FILL MATERIAL (UNLESS OTHERWISE NOTED) - ACCEPTABLE SELECT FILL SHALL BE IN ACCORDANCE WITH STATE DEPARTMENT OF HIGHWAY AND TRANSPORTATION STANDARD SPECIFICATIONS..
   - C. SOIL STABILIZER FABRIC SHALL BE MIRAFI - 500X.

PART 3 - EXECUTION

1. INSPECTIONS
   LOCAL BUILDING INSPECTORS SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, UNLESS OTHERWISE SPECIFIED BY JURISDICTION.
2. PREPARATION
   - A. CLEAR TREES, BRUSH AND DEBRIS FROM LEASE AREA, ACCESS DRIVE W/ TURN-AROUND AND UNDER GROUND UTILITY EASEMENTS AS REQUIRED FOR CONSTRUCTION.
   - B. PRIOR TO OTHER EXCAVATION AND CONSTRUCTION, GRUB ORGANIC MATERIAL TO A MINIMUM OF SIX (6) INCHES BELOW GRADE.
   - C. UNLESS OTHERWISE INSTRUCTED BY VERIZON WIRELESS. TRANSPORT ALL REMOVED TREES, BRUSH AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED LANDFILL.
   - D. PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL.
   - E. WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, LINE THE AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL.
3. INSTALLATION
   - A. GRADE OR FILL THE LEASE AREA AND ACCESS DRIVE W/ TURNAROUND AS REQUIRED IN ORDER THAT UPON DISTRIBUTION OF SPOILS. RESULTING FROM EXCAVATIONS, THE RESULTING GRADE WILL CORRESPOND WITH SAID SUB-BASE COURSE. ELEVATIONS ARE TO BE CALCULATED FROM BENCHMARK, FINISHED GRADES, OR INDICATED SLOPES.
   - B. CLEAR EXCESS SPOILS, IF ANY, FROM JOB SITE AND DO NOT SPREAD BEYOND THE LIMITS OF PROJECT AREA UNLESS AUTHORIZED BY PROJECT MANAGER AND AGREED TO BY LANDOWNER.
   - C. BRING THE ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION TO FACILITATE CONSTRUCTION AND OBSERVATION DURING CONSTRUCTION OF THE SITE.
   - D. AVOID CREATING DEPRESSIONS WHERE WATER MAY POND.
   - E. THE CONTRACT SHALL INCLUDE GRADING, BANKING, AND DITCHING, UNLESS OTHERWISE INDICATED.
   - F. WHEN IMPROVING AN EXISTING ACCESS DRIVE, GRADE THE EXISTING DRIVE TO REMOVE ANY ORGANIC MATTER AND SMOOTH THE SURFACE BEFORE PLACING FILL OR STONE.
   - G. PLACE FILL OR STONE IN SIX (6) INCH MAXIMUM LIFTS, AND COMPACT BEFORE PLACING NEXT LIFT.
   - H. THE TOP SURFACE COURSE, SHALL EXTEND A MINIMUM OF ONE (1) FOOT BEYOND THE SITE FENCE (UNLESS OTHERWISE NOTED) AND SHALL COVER THE AREA AS INDICATED.
   - I. APPLY RIPRAP TO THE SIDE SLOPES OF ALL FENCED SITE AREAS, PARKING AREAS, AND ALL OTHER SLOPES GREATER THAN 2:1.
   - J. APPLY RIPRAP TO THE SIDES OF DITCHES OR DRAINAGE SWALES.
   - K. RIPRAP ENTIRE DITCH FOR SIX (6) FEET IN ALL DIRECTIONS AT CULVERT OPENINGS.
   - L. APPLY SEED, FERTILIZER, AND STRAW COVER TO ALL OTHER DISTURBED AREAS, DITCHES, AND DRAINAGE SWALES, NOT OTHERWISE RIPRAPPED.
   - M. UNDER NO CIRCUMSTANCES WILL DITCHES, SWALES, OR CULVERTS BE PLACED SO THAT THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO SHELTER OR EQUIPMENT. IF DESIGNS OR ELEVATIONS ARE IN CONFLICT WITH THIS, ADVISE CONSTRUCTION MANAGER IMMEDIATELY.
   - N. IN DITCHES WITH SLOPES GREATER THAN 10%, MOUND DIVERSIONARY HEADWALLS IN THE DITCH AT CULVERT ENTRANCES. POSITION THE HEADWALL AT AN ANGLE NO GREATER THAT 60° OFF THE DITCH LINE. RIPRAP THE UPSTREAM SIDE OF THE HEADWALL AS WELL AS THE DITCH FOR SIX (6) FEET ABOVE THE CULVERT ENTRANCE.
   - O. APPLY SEED AND FERTILIZER TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. RAKE AREAS TO BE SEEDED TO EVEN THE SURFACE AND LOOSEN THE SOIL.
   - P. SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.
   - Q. ENSURE GROWTH OF SEEDED AND LANDSCAPED AREAS, BY WATERING, UP TO THE POINT OF RELEASE FROM THE CONTRACT, CONTINUE TO REWORK THE BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.
4. FIELD QUALITY CONTROL
   COMPACT SOILS TO MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557. AREAS OF SETTLEMENT WILL BE EXCAVATED AND REFILLED AT CONTRACTOR'S EXPENSE. INDICATE PERCENTAGE OF COMPACTION ACHIEVED ON AS-BUILT DRAWINGS.
5. PROTECTION
   - A. PROTECT SEEDED AREAS FROM EROSION BY SPREADING STRAW TO A UNIFORM LOOSE DEPTH OF 1-2 INCHES. STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET WILL BE AN ACCEPTABLE ALTERNATE.
   - B. ALL TREES PLACED IN CONJUNCTION WITH A LANDSCAPE CONTRACT WILL BE WRAPPED, TIED WITH HOSE PROTECTED WIRE, AND SECURED TO 2" X 2" X 4'-0" WOODEN STAKES EXTENDING TWO-FEET INTO THE GROUND ON FOUR SIDES OF THE TREE.
   - C. PROTECT ALL EXPOSED AREAS AGAINST WASHOUTS AND SOIL EROSION. PLACE STRAW BALES AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS, WHERE THE SITE OR ROAD AREAS HAVE BEEN ELEVATED IMMEDIATELY ADJACENT TO THE RAIL LINE, STAKE EROSION CONTROL FABRIC FULL LENGTH IN THE SWALE TO PREVENT CONTAMINATION OF THE RAIL BALLAST. ALL EROSION CONTROL METHODS SHALL CONFORM TO APPLICABLE BUILDING CODE REQUIREMENTS.

SECTION 02830 - FENCING AND GATE(S)

PART 1- GENERAL

1. WORK INCLUDED
   SEE PLAN FOR SITE AND LOCATION OF FENCE AND GATE(S).
2. QUALITY ASSURANCE
   ALL STEEL MATERIALS UTILIZED IN CONJUNCTION WITH THIS SPECIFICATION WILL BE GALVANIZED OR STAINLESS STEEL. WEIGHT OF ZINC COATING ON THE FABRIC SHALL NOT BE LESS THAN 12 OUNCES PER SQUARE FOOT OF MATERIAL COVERED. POSTS SHALL BE HOT-DIPPED IN GRADE 'E' ZINC, 18 OUNCES PER SQUARE FOOT.
3. SEQUENCING
   IF THE SITE AREA HAS BEEN BROUGHT UP TO SURFACE COURSE ELEVATION (PRIOR TO THE FENCE CONSTRUCTION), FENCE POST EXCAVATION SPOILS MUST BE CONTROLLED TO PRECLUDE CONTAMINATION OF SAID SURFACE COURSE.
4. SUBMITTALS
   - A. MANUFACTURER'S DESCRIPTIVE LITERATURE.
   - B. CERTIFICATE OR STATEMENT OF COMPLIANCE WITH THE SPECIFICATIONS.

PART 2 - PRODUCTS

1. FENCE MATERIAL
   - A. ALL FABRIC WIRE, RAILS, HARDWARE, AND OTHER STEEL MATERIALS SHALL BE HOT-DIPPED GALVANIZED.
   - B. FABRIC SHALL BE SEVEN-FOOT HIGH OR TO MATCH EXISTING FENCE TWO-INCH CHAIN LINK MESH OF NO. 9 GAUGE (0.148") WIRE. THE FABRIC SHALL HAVE A KNUCKLED FINISH FOR THE TOP SELVAGES. FABRIC SHALL CONFORM TO THE SPECIFICATIONS OF ASTM A-392 CLASS I.
   - C. BARBED WIRE SHALL BE DOUBLE-STRAND, 12-1/2 GAUGE TWISTED WIRE, WITH 14-GAUGE, 4-POINT ROUND BARBS SPACED ON FIVE-INCH CENTERS.
   - D. ALL POSTS SHALL BE SCHEDULE - 40 MECHANICAL SERVICE PIPE AND SHALL BE TYPE I ASTM A-120 AND OF THE FOLLOWING DIAMETER

LINE	2" SCHEDULE 40 (2 3/8" O.D.)
CORNER	3" SCHEDULE 40 (3 1/2" O.D.)
GATE	3" SCHEDULE 40 (3 1/2" O.D.)

   - E. GATE POSTS SHALL BE EXTENDED 12 INCHES, INCLUDING DOME CAP, TO PROVIDE FOR ATTACHMENT OF BARBED WIRE.
   - F. ALL TOP AND BRACE RAILS SHALL BE 1½ DIAMETER SCHEDULE - 40 MECHANICAL-SERVICE PIPE.
   - G. GATE FRAMES AND BRACES SHALL BE 1.90 INCH DIAMETER SCHEDULE 40 MECHANICAL-SERVICE PIPE. FRAMES SHALL HAVE WELDED CORNERS.
   - H. GATE FRAMES SHALL HAVE A FULL-HEIGHT VERTICAL BRACE, AND A FULL-WIDTH HORIZONTAL BRACE, SECURED IN PLACE BY USE OF GATE BRACE CLAMPS.
   - I. GATE HINGES SHALL BE MERCHANTS METAL MODEL 64305 HINGE ADAPTER WITH MODEL 6409, 180-DEGREE ATTACHMENT.
   - J. THE GUIDE (LATCH ASSEMBLY) SHALL BE HEAVY INDUSTRIAL DOUBLE GATE LATCH. SEE DETAIL.
   - K. LATCHES AND STOPS SHALL BE PROVIDED FOR ALL GATES.
   - L. PLUNGER ROD COMPLETE WITH RECEPTOR TO BE PROVIDED AT THE INACTIVE LEAF OF ALL DOUBLE GATE INSTALLATIONS.
   - M. ALL STOPS SHALL HAVE KEEPERS CAPABLE OF HOLDING THE GATE LEAF IN THE OPEN POSITION
   - N. A NO. 7 GAUGE ZINC COATED TENSION WIRE SHALL BE USED AT THE BOTTOM OF THE FABRIC, TERMINATED WITH BAND CLIPS AT CORNER AND GATE POSTS.
   - O. A SIX-INCH BY 1/2-INCH DIAMETER EYEBOLT TO HOLD TENSION WIRE SHALL BE PLACED AT LINE POSTS.
   - P. STRETCHER BARS SHALL BE 3/16-INCH BY 3/4-INCH OR HAVE EQUIVALENT CROSS-SECTIONAL AREA.
   - Q. ALL CORNER GATE AND PANELS SHALL HAVE A 3/8-INCH TRUSS ROD WITH TURNBUCKLES.
   - R. ALL POSTS EXCEPT GATE POSTS SHALL HAVE A COMBINATION CAP AND BARBED WIRE SUPPORTING ARM. GATE POSTS SHALL HAVE A DOME CAP.
   - S. OTHER HARDWARE INCLUDES BUT MAY NOT BE LIMITED TO TIE CLIPS, BAND CLIPS AND TENSION BAND CLIPS.
   - T. BARBED WIRE GATE GUARDS SHALL BE FITTED WITH DOME CAPS.
   - U. BARBED WIRE SUPPORT ARMS SHALL BE PRESSED STEEL COMPLETE WITH SET BOLT AND LOCK WIRE IN THE ARM.
   - V. ALL CAPS SHALL BE MALLEABLE IRON, DOME OR ACORN SHAPED AS REQUIRED BY PIPE SIZE.
   - W. WHERE THE USE OF CONCERTINA HAS BEEN SPECIFIED, 24-INCH DIAMETERS COIL. BARBED TAPE, STAINLESS STEEL, CYCLONE FENCE MODEL G8P TO TYPE III SHALL BE FURNISHED. IT SHALL BE SUPPORTED ABOVE THE TOP RAIL BY USE OF SIX(6) WIRE BARBED WIRE ARMS POSITIONED ATOP EACH LINE/CORNER POST.

PART 3 - EXECUTION

1. INSPECTION
   TO CONFIRM PROPER DEPTH AND DIAMETER OF POST HOLE EXCAVATIONS. ALL POST HOLES WILL BE EXCAVATED AS PER CONSTRUCTION DOCUMENTS.
2. INSTALLATION
   - A. FOUNDATIONS SHALL HAVE A MINIMUM SIX (6) INCH CONCRETE COVER UNDER POST.
   - B. ALL FENCE POSTS SHALL BE VERTICALLY PLUMB (ONE QUARTER (1/4) INCH
   - C. AT CORNER POSTS, GATE POSTS, AND SIDES OF GATE FRAME, FABRIC SHALL BE ATTACHED WITH STRETCHER AND TENSION BAND-CLIPS AT FIFTEEN(15) INCH INTERVALS.
   - D. AT LINE POSTS, FABRIC SHALL BE ATTACHED WITH BAND-CLIPS AT FIFTEEN (15) INCH INTERVALS.
   - E. FABRIC SHALL BE ATTACHED TO BRACE RAILS, TENSION WIRE AND TRUSS RODS WITH TIE-CLIPS AT TWO (2) FOOT INTERVALS.
   - F. A MAXIMUM GAP OF ONE INCH WILL BE PERMITTED BETWEEN THE CHAIN LINE FABRIC AND THE FINAL GRADE.
   - G. GATE SHALL BE INSTALLED SO LOCKS ARE ACCESSIBLE FROM BOTH SIDES.
   - H. GATE HINGE BOLTS SHALL HAVE THEIR THREADS PEENED OR WELDED TO PREVENT UNAUTHORIZED REMOVAL.
   - I. CONCRETE TO BE A MINIMUM OF 4,000 PSI AT 7DAYS. CEMENT SHALL EXCEED ASTM C150, TYPE IIA.
3. PROTECTION
   UPON COMPLETION OF ERECTION, INSPECT FENCE MATERIAL AND PAINT FIELD CUTS OR GALVANIZING BREAKS WITH ZINC-BASED PAINT, COLOR TO MATCH THE GALVANIZED METAL.

   APPLICABLE STANDARDS

ASTM-A120	SPECIFICATION FOR PIPE, STEEL BLACK AND HOT-DIPPED ZINC COATED (GALVANIZED) WELDED AND SEAMLESS, FOR ORDINARY USES.
ASTM-A123	ZINC (HOT-DIP GALVANIZED) COATING ON IRON AND STEEL PRODUCTS.
ASTM-A153	STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE.
ASTM-A392	SPECIFICATION FOR ZINC-COATED STEEL CHAIN LINK FENCE FABRIC.
ASTM-A491	SPECIFICATION FOR ALUMINUM-COATED STEEL CHAIN LINK FENCE FABRIC
ASTM-A525	STANDARD SPECIFICATION FOR STEEL SHEET ZINC COATED (GALVANIZED) BY THE HOT-DIPPED PROCESS.
ASTM-A570	SPECIFICATION FOR HOT-ROLLED CARBON STEEL SHEET AND STRIP. STRUCTURAL QUALITY.
ASTM-A585	SPECIFICATION FOR ALUMINUM COATED STEEL BARBED WIRE.

   FEDERAL SPECIFICATION RR-F-191- FENCING, WIRE AND POST METAL (AND GATES, CHAIN LINK FENCE FABRIC, AND ACCESSORIES)

DIVISION 3: CONCRETE

SECTION 03000 - BASIC CONCRETE MATERIALS AND METHODS

PART 1- GENERAL

1. WORK INCLUDED
   FORMWORK, REINFORCEMENT, ACCESSORIES, CAST-IN-PLACE CONCRETE, FINISHING, AND CURING.
2. INSPECTIONS
   - A. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING BUILDING DEPARTMENT INSPECTIONS REQUIRED FOR HIS SCOPE OF WORK.
   - B. ALL REINFORCING STEEL SHALL BE INSPECTED AND APPROVED BY THE VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR AND MES TO PLACEMENT OF CONCRETE.
   - C. THE VERIZON WIRELESS CONSTRUCTION MANAGER SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS.
3. QUALITY ASSURANCE
   - A. CONSTRUCT AND ERECT CONCRETE FORMWORK IN ACCORDANCE WITH ACI 301 AND ACI 318.
   - B. PERFORM CONCRETE REINFORCING WORK IN ACCORDANCE WITH ACI 301, ACI 318, AND ASTM A184.
   - C. PERFORM CAST-IN-PLACE CONCRETE WORK IN ACCORDANCE WITH ACI 301, ACI 318, AND ACI 117-90.
   - D. OPEN FOUNDATION TRENCHES SHALL BE INSPECTED BY MES PRIOR TO CONCRETE INSTALLATION.
4. SUBMITTALS
   SUBMIT CONCRETE MIX AND REINFORCING STEEL SHOP DRAWINGS FOR APPROVAL BY VERIZON WIRELESS CONSTRUCTION MANAGER/ENGINEER. THE SHOP DRAWINGS SHALL BE SUBMITTED IN THE FORM OF TWO (2) CONCRETE MIX DESIGN INFORMATION SHEETS AND TWO (2) BLUELINE DRAWINGS FOR REINFORCING STEEL.

PART 2 - PRODUCTS

1. REINFORCEMENT MATERIALS
   - A. REINFORCEMENT STEEL, ASTM A615, 60 ksi YIELD GRADE, DEFORMED BILLET STEEL BARS, PLAIN FINISH.
   - B. WELDED STEEL WIRE FABRIC ASTM A185 PLAIN TYPE, IN FLAT SHEETS, PLAIN FINISH.
   - C. CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS. SIZED AND SHAPED FOR SUPPORTS OF REINFORCING.
   - D. FABRICATE CONCRETE REINFORCING IN ACCORDANCE WITH ACI 315, ACI 318, ASTM A184
2. CONCRETE MATERIALS
   - A. CEMENT: ASTM C150, PORTLAND TYPE
   - B. FINE AND COURSE AGGREGATES: ASTM C33 - MAXIMUM SIZE OF CONCRETE AGGREGATE SHALL NOT EXCEED 1 ONE (1) INCH SIZE SUITABLE FOR INSTALLATION METHOD UTILIZED OR ONE-THIRD CLEAR DISTANCE BEHIND OR BETWEEN REINFORCING.
   - C. WATER: CLEAN AND NOT DETRIMENTAL TO CONCRETE
   - D. AIR ENTRAINING ADMIXTURE: ASTM C260
   - E. BONDING AGENT: LATEX EMULSION FOR BONDING NEW TO OLD CONCRETE AS MANUFACTURED BY DAYTON SUPERIOR.
   - F. NON-SHRINK GROUT: PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICISING AGENTS.
3. CONCRETE MIX
   - A. CONCRETE MATERIALS SHALL CONFORM TO THE APPROPRIATE A.C.I. REQUIREMENTS FOR EXPOSED STRUCTURAL CONCRETE.
   - B. MIX AND DELIVER CONCRETE IN ACCORDANCE WITH ASTM C94, ALT. 3.
   - C. PROPORTIONS OF CONCRETE MATERIALS SHALL BE SUITABLE FOR THE INSTALLATION METHOD UTILIZED AND SHALL RESULT IN DURABLE CONCRETE FOR LOCAL ANTICIPATED AGGRESSIVE ACTIONS, THE DURABILITY REQUIREMENTS OF ACI 318 CHAPTER 4 SHALL BE SATISFIED BASED ON THE CONDITIONS EXPECTED AT THE SITE. PROVIDE CONCRETE AS FOLLOWS:
     1. COMPRESSIVE STRENGTH: 4000 psi AT 7 DAYS. SEE SHEET S-1 FOR CAISSON CONCRETE COMPRESSIVE STRENGTH
     2. SLUMP: 3 INCHES

PART 3 - EXECUTION

1. INSERTS, EMBEDDED COMPONENTS AND OPENINGS
   - A. THE CONTRACTOR SHALL COORDINATE AND CROSS-CHECK ARCHITECTURAL, BUILDING & ELECTRICAL DRAWINGS FOR OPENINGS, SLEEVES, ANCHORS, HANGERS, AND OTHER ITEMS RELATED TO CONCRETE WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THE PROPER LOCATION BEFORE PLACING CONCRETE.
   - B. PROVIDE FORMED OPENINGS WHERE REQUIRED FOR WORK TO BE EMBEDDED IN AND PASSING THROUGH CONCRETE MEMBERS.
   - C. COORDINATE WORK OF OTHER SECTIONS IN FORMING AND SETTING OPENING, SLOTS, RECESSES, CHASES, SLEEVES, BOLTS, ANCHORS, AND OTHER INSERTS.
   - D. INSTALL CONCRETE ACCESSORIES STRAIGHT, LEVEL AND PLUMB.
2. REINFORCEMENT PLACEMENT
   - A. PLACE REINFORCEMENT, SUPPORTED AND SECURED AGAINST DISPLACEMENT.
   - B. ENSURE REINFORCING IS CLEAN, FREE OF LOOSE SCALE, DIRT, OR OTHER FOREIGN COATINGS.
   - C. WELDING IS PROHIBITED ON REINFORCING STEEL AND EMBEDMENTS.
   - D. MINIMUM CONCRETE COVER FOR REINFORCING SHALL BE 3 INCHES UNLESS OTHERWISE NOTED.
   - E. CONCRETE COVER FROM TOP OF FOUNDATION TO ENDS OF VERTICAL REINFORCEMENT SHALL NOT EXCEED 3 INCHES NOR BE LESS THAN 2 INCHES.
3. PLACING CONCRETE
   - A. VIBRATE ALL CONCRETE.
   - B. ALL CONCRETE WORK SHALL ADHERE TO THE LATEST A.C.I. STANDARDS FOR WINTER POURING AND CURING PROCEDURES IF SEASONAL CONDITIONS APPLY
4. CURING
   - A. AFTER PLACEMENT, PROTECT CONCRETE FROM PREMATURE DRYING.
   - B. MAINTAIN CONCRETE WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
5. PROVIDE HAND RUBBED SMOOTH FINISH TO ALL EXPOSED VERTICAL FORMED CONCRETE SURFACES.
6. FIELD QUALITY CONTROL
   - A. SUBMIT THREE (3) CONCRETE TEST CYLINDERS - TAKEN FOR EVERY 15 CUBIC YARD OR LESS. SUBMIT CONCRETE TESTS TO THE PROJECT MANAGER IN ACCORDANCE WITH ASTM, C-31 AND C-39.
   - B. SUBMIT ONE (1) ADDITIONAL TEST CYLINDER - TAKEN DURING COLD WEATHER POURS, AND CURED ON JOB SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
   - C. SUBMIT ONE (1) SLUMP TEST - TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.
7. DEFECTIVE CONCRETE
   MODIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LINES, DETAILS OR ELEVATIONS AT COST OF GC, AS DIRECTED BY ARCHITECT/ENGINEER.

1	7/17/07	PRELIMINARY DRAWINGS
NO.	DATE	REVISIONS

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DIVISION 5: METALS

SECTION 05000 - METALS

PART 1- GENERAL

1. SECTION INCLUDES:
   STRUCTURAL STEEL FRAMING MEMBERS, BASE PLATES, PLATES, BARS AND GROUTING UNDER BASE PLATES.
2. SUBMITTALS:
   SHOP DRAWINGS: INDICATE SIZES, SPACING, AND LOCATIONS OF STRUCTURAL MEMBERS, OPENINGS, CONNECTIONS, CAMBERS, LOADS, AND WELDED SECTIONS.
3. QUALITY ASSURANCE
   A. FABRICATE STRUCTURAL STEEL MEMBERS IN ACCORDANCE WITH AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.
   B. PERFORM DESIGN UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE.

PART 2 - PRODUCTS

1. MATERIALS:
   A. STRUCTURAL STEEL MEMBERS: ASTM A572, GRADE 50
   B. STRUCTURAL TUBING: ASTM A500, GRADE B
   C. PIPES: ASTM A53, TYPE E OR S, GRADE B
   D. BOLTS, NUTS, AND WASHERS: ASTM A325
   E. ANCHOR BOLTS: ASTM A307
   F. WELDING MATERIALS: AWS D1.1; TYPE REQUIRED FOR MATERIALS BEING WELDED
   G. GROUT: NON-SHRINK TYPE, PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING ADDITIVES, CAPABLE OF DEVELOPING A MINIMUM COMPRESSIVE STRENGTH OF 7000 PSI AT 28 DAYS.
   H. SHOP AND TOUCH-UP PRIMER: SSPC 15, TYPE 1, RED OXIDE
   I. TOUCH-UP PRIMER FOR GALV. SURFACES: ZINC RICH TYPE
2. FABRICATION:
   CONTINUOUSLY SEAL JOINTED MEMBERS BY CONTINUOUS WELDS. GRIND EXPOSED WELDS SMOOTH.
3. FINISH
   A. PREPARE STRUCTURAL COMPONENT SURFACES IN ACCORDANCE WITH SSPC SP-1 TO SP-10 PROCEDURES.
   B. STRUCTURAL STEEL MEMBERS SHALL BE HOT DIPPED GALVANIZED.

PART 3 - EXECUTION

1. EXAMINATION AND PREPARATION:
   VERIFY THAT THE FIELD CONDITIONS ARE ACCEPTABLE.
2. ERECTION:
   A. ALLOW FOR ERECTION LOADS. PROVIDE TEMPORARY BRACING TO MAINTAIN FRAMING IN ALIGNMENT UNTIL COMPLETION OF ERECTION AND INSTALLATION OF PERMANENT BRIDGING AND BRACING.
   B. FIELD WELD COMPONENTS INDICATED ON SHOP DRAWINGS.
   C. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT APPROVAL OF THE ARCHITECT/ENGINEER.
   D. AFTER ERECTION, TOUCH-UP WELDS, ABRASIONS, AND SURFACES NOT SHOP PRIMED OR GALVANIZED WITH TOUCH-UP PRIMERS AS SPECIFIED UNDER SECTION 05000-METALS PART 2 - PRODUCTS. N & S SURFACES TO BE IN CONTACT WITH CONCRETE NOT INCLUDED.
3. FIELD QUALITY CONTROL:
   FIELD INSPECTION OF MEMBERS, CONNECTIONS, WELDS AND TORQUING.

DIVISION 16: ELECTRICAL

SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

1. CONTRACTOR SHALL REVIEW THE CONTRACT DOCUMENTS PRIOR TO ORDERING THE ELECTRICAL EQUIPMENT AND STARTING THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT LISTING ANY DISCREPANCIES OR CONFLICTING INFORMATION.
2. ELECTRICAL PLANS, DETAILS AND DIAGRAMS ARE DIAGRAMMATIC ONLY. VERIFY EXACT LOCATIONS AND MOUNTING HEIGHTS OF ELECTRICAL EQUIPMENT WITH OWNER PRIOR TO INSTALLATION.
3. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANELBOARD, PULLBOX, JUNCTION BOX, SWITCH BOX, ETC. THE TYPE OF TAGGING METHODS SHALL BE IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.).
4. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN GOOD WORKING 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 "U" WHERE APPLICABLE. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA, NEPU AND "UL" LISTED.
5. ALL CONDUIT SHALL HAVE A PULL CORD.
6. PROVIDE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.
7. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
8. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY UBC, NEC AND ALL APPLICABLE CODES.
9. PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
10. PLASTIC PLATES FOR ALL SWITCHES, RECEPTACLES, TELEPHONE AND BLANKED OUTLETS SHALL HAVE ENGRAVED LETTERING WHERE INDICATED ON THE DRAWINGS. WEATHERPROOF RECEPTACLES SHALL HAVE SIERRA WHITE-B LIFT COVERPLATES.

SECTION 16400 - SERVICE AND DISTRIBUTION

1. WIRE AND CABLE CONDUCTORS SHALL BE COPPER, 600V, TYPE THWN OR THHN, WITH A WIRE SIZE OF #12 AWG. COLOR CODED. ALL RECTIFIER DROPS SHALL BE STRANDED TO ACCEPT CRIMP CONNECTORS.
2. ALL CHEMICAL GROUND RODS SHALL BE "UL" APPROVED.
3. METER SOCKET AMPERES, VOLTAGE, NUMBER OF PHASES SHALL BE AS NOTED ON THE DRAWINGS. MANUFACTURED BY MILBANK OR APPROVED EQUAL, AND SHALL BE UTILITY COMPANY APPROVED.
4. CONDUIT:
   A. RIGID CONDUIT SHALL BE U.L. LISTED, GALVANIZED ZINC COATED WITH GALVANIZED 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. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
   B. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTING SHALL BE GLAND RING COMPRESSION TYPE.
   C. FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE. ALL FLEXIBLE CONDUITS SHALL HAVE FULL LENGTH GROUND WIRE.
   D. ALL UNDERGROUND CONDUIT SHALL BE AS NOTED ON THE DRAWINGS AT A MINIMUM DEPTH OF 42" BELOW GRADE. IT IS REQUIRED AND WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO NOTIFY J.U.L.I.E. AT 1-800-892-0123 OR OTHER SUCH NOTIFYING AGENCY FORTY-EIGHT (48) HOURS PRIOR TO DIGGING.
5. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS ARE TO BE PAID BY THE CONTRACTOR.
6. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS WITH WHITE ON BLUE BACKGROUND LETTERING MINIMUM LETTER HEIGHT SHALL BE 1/4-INCH. NAMEPLATES SHALL BE FASTENED WITH STAINLESS STEEL SCREWS, NOT ADHESIVE.
7. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS BY AN INDEPENDENT TESTING SERVICE ENGAGED BY THE CONTRACTOR SHALL BE SUBMITTED FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
8. GROUNDING ELECTRODE SYSTEM
   A. PREPARATION
      1. SURFACE PREPARATION:
         ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FIELD INSPECTED AND MODIFIED 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.
      2. GROUND BAR PREPARATION:
         ALL COPPER GROUND BARS SHALL BE CLEANED, POLISHED AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
      3. SLEEVES:
         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.
   B. GROUND BARS
      1. ALL GROUND BARS SHALL BE 1/4-INCH THICK TINNED COPPER PLATE AND OF SIZE INDICATED ON DRAWINGS.
      2. ALL CONNECTIONS TO THE GROUND BAR SHALL OBSERVE THE FOLLOWING SEQUENCE:
         A. BOLT-HEAD
         B. 2-HOLE LUG
         C. TINNED COPPER BUSS BAR
         D. STAR WASHER
         E. NUT
   C. EXTERNAL CONNECTIONS
      1. ALL BURIED GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS. CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE SPLICES, TEE'S, CROSSES, ETC. ALL CABLE TO GROUND RODS, GROUND ROD SPLICES AND LIGHTNING PROTECTION SYSTEMS ARE TO BE AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING METAL, TOOLS, ETC.) SHALL BE BY "CADWELD" AND INSTALLED PER MANUFACTURER'S RECOMMENDED PROCEDURES.
      2. ALL ABOVE GRADE GROUNDING AND BONDING CONDUCTORS SHALL BE CONNECTED BY TWO HOLE CRIMP TYPE COMPRESSION CONNECTIONS (EXCEPT FOR THE ACEG AND GROUND ROD) MECHANICAL CONNECTIONS, FITTINGS OR CONNECTORS THAT DEPEND SOLELY ON SOLDER SHALL NOT BE USED. ALL CABLE TO CABLE CONNECTIONS SHALL BE HIGH PRESSURE DOUBLE CRIMP TYPE CONNECTIONS. CONNECTIONS TO STRUCTURAL STEEL SHALL BE EXOTHERMIC WELDS.
   D. GROUND RODS
      ALL GROUND RODS SHALL BE 5/8-INCH DIAMETER X 10'-0" LONG "COPPERWELD" OR APPROVED EQUAL, OF THE NUMBER AND LOCATIONS INDICATED. GROUND RODS SHALL BE DRIVEN FULL LENGTH VERTICAL IN UNDISTURBED EARTH.
   E. GROUND CONDUCTORS
      ALL GROUND CONDUCTORS SHALL BE STANDARD TINNED SOLID BARE COPPER ANNEALED, AND OF SIZE INDICATED ON DRAWINGS UNLESS NOTED OTHERWISE.
   F. LUGS
      1. LUGS SHALL BE 2-HOLE, LONG BARREL, STRAND COPPER UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. LUGS SHALL BE THOMAS AND BETTS SERIES #549 BE OR EQUIVALENT MINIMUM BENDING

A.	535 MCM DLO	54890BE
B.	262 MCM DLO	54872BE
C.	#1/0 DLO	54862BE
D.	#4/0 THWN AND BARE	54864BE
E.	#2/0 THWN	54862BE
F.	#2 THWN	54207BE
G.	#6 DLO	54209BE

      2. WHEN THE DIRECTION OF THE CONDUCTOR MUST CHANGE, IT SHALL BE DONE GRADUALLY. THE CURVATURE OF THE TURN SHALL BE DONE IN ACCORDANCE WITH THE FOLLOWING CHART:

GROUNDING CONDUCTOR SIZE	BENDING TO INSIDE EDGE
NO. 6 AWG TO NO. 4 AWG	6 INCHES
NO. 2 AWG TO NO. 1/0 AWG	8 INCHES
NO. 2/0 AWG TO 4/0 MCM	12 INCHES
250 MCM TO 750 MCM	24 INCHES

   G. GROUND RING
      1. THE EXTERNAL GROUND RING ENCIRCLING THE TOWER IF APPLICABLE) AND BETWEEN THE EQUIPMENT SHELTER PLATFORM ANCHORS SHALL BE MINIMUM NO. 2 A.W.G. SOLID TINNED BARE COPPER CONDUCTOR IN DIRECT CONTACT WITH THE EARTH AT THE DEPTH INDICATED ON THE DRAWINGS. CONDUCTOR BENDS SHALL HAVE A MINIMUM BENDING RADIUS OF EIGHT (8) INCHES.
      2. ALL EXTERNAL GROUND RINGS ARE TO BE JOINED TOGETHER AND ALL CONNECTIONS MUST BE CADWELDED. NO LUGS OR CLAMPS WILL BE ACCEPTED.
   H. FENCE/GATE
      GROUND EACH GATE POST, CORNER POST AND GATE AS INDICATED ON DRAWING GROUND CONNECTIONS TO FENCE POSTS AND ALL OTHER CONNECTIONS FOR THE GROUND GRID SYSTEM SHALL BE MADE BY EXOTHERMIC WELD PROCESS, AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND PROCEDURES, AND SPRAYED WITH COLD-GALVANIZED PAINT.
9. I.E.E.E. FALL POTENTIAL TESTS
   A. FOR RAW LAND SITE
      1. GROUND TESTS SHALL BE PERFORMED AS INDICATED ON DRAWINGS. A BIGGLE GROUND CHECK ON THE METHOD OF USING TWO AUXILIARY GROUND RODS (AS DESCRIBED IN I.E.E.E. STANDARDS NO. 81-1983, PART 1) MAY BE USED. THE I.E.E.E. METHOD REQUIRES THE USE OF AN A.C. TEST CURRENT. THE AUXILIARY TEST RODS MUST BE SUFFICIENTLY FAR AWAY FROM THE ROD UNDER TEST SO THAT THE REGIONS IN WHICH THEIR RESISTANCE IS LOCALIZED DO NOT OVERLAP. THE TEST POINT WILL BE THE GROUND ROD AND WILL CONSIST OF THE THREE POINT FALL OF POTENTIAL MEGGER TEST METHOD USING THE BIGGLE WALL-BALANCE EARTH TESTER (MEGGER #250220-2 OR EQUIVALENT)
      2. CONTRACTOR TO CONDUCT GROUND RESISTANCE TEST IN THE FORMAT AS FOLLOWS:
   B. EQUIPMENT PAD
      1. FIRST TEST - SHALL BE WITH FOUR GROUND RODS INSTALLED, ONE AT EACH CORNER OF THE PAD BUT NOT CONNECTED TO THE MAIN GROUNDING BUS. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL FOUR GROUND RODS TOGETHER TO MAKE A SYSTEM TEST. AFTER EACH ROD IS INDIVIDUALLY TESTED, IF ANY INDIVIDUAL ROD TESTS 25 OHMS OR MORE, THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL FOUR RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.
      2. SECOND TEST - SHALL BE WITH THE GROUND RODS CONNECTED, WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR THE PAST TEN (10) DAYS. THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND. IF THE RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 5 OHMS, NOTIFY THE CONTRACTOR AND OWNER'S REPRESENTATIVE SO THAT ADDITIONAL AND/OR DEEPER RODS CAN BE INSTALLED.
   C. TOWER
      1. FIRST TEST - SHALL BE WITH THREE GROUND RODS INSTALLED (MINIMUM) EQUALLY SPACED AROUND THE TOWER FOUNDATION, BUT NOT CONNECTED TO THE SHELTER PAD EXTERNAL GROUND RING. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL THREE GROUND RODS TOGETHER TO MAKE A SYSTEM TEST. AFTER EACH ROD IS INDIVIDUALLY TESTED, IF ANY INDIVIDUAL ROD TESTS 25 OHMS OR MORE, NOTIFY THE CONTRACTOR AND OWNER'S REPRESENTATIVE SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL THREE (3) RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.
      2. SECOND TEST - SHALL BE WITH THE GROUND RODS CONNECTED, WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR THE PAST TEN (10) DAYS. THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND. IF THE RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 5 OHMS THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT EITHER ADDITIONAL AND/OR DEEPER RODS CAN BE INSTALLED.
   D. EQUIPMENT PAD AND TOWER
      1. AFTER THE EQUIPMENT PAD AND TOWER GROUND RESISTANCE TEST IS COMPLETED, CONTRACTOR SHALL TIE EQUIPMENT PAD EXTERNAL GROUND RING AND TOWER EXTERNAL GROUND RING TOGETHER. AFTER FIRST AND SECOND TEST ALL CONNECTIONS MUST BE MADE USING EXOTHERMIC WELD. NO LUGS OR CLAMPS WILL BE ACCEPTED.
      2. AFTER ALL THE EXTERNAL GROUND RINGS ARE TIED TOGETHER, COMPLETE A MEGGER CHECK OF THE GROUND SYSTEM SHOULD BE DONE. THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND.
10. GROUNDING RESISTANCE TEST REPORT

    UPON COMPLETION OF THE TESTING FOR EACH SITE, A TEST REPORT SHOWING RESISTANCE IN OHMS WITH AUXILIARY POTENTIAL ELECTRODES AT 5 FEET AND 10 FEET INTERVALS UNTIL THE AVERAGE RESISTANCE STARTS INCREASING AND ALSO NOTE THAT 10-15 PHOTOS MUST BE TAKEN TO PROOF ENTIRE EXTERNAL GROUND RING SYSTEM BEFORE BACKFILL. TWO (2) SETS OF TEST DOCUMENTS ARE OF THE INDEPENDENT TESTING SERVICE TO BE BOUND AND SUBMITTED WITHIN ONE (1) WEEK OF WORK COMPLETION.

SECTION 16503 - POLES, POSTS, AND STANDARDS

(SINGLE MAST AND SELF SUPPORTING TOWERS)

1. GENERAL
   A. LIGHTNING ROD AND EXTENSION PIPE INCLUDING ALL APPURTENANCES, TO BE FURNISHED BY OWNER, IF REQUIRED.
   B. PROVIDE TEMPORARY LIGHTING FOR TOWER AS PER FAA REGULATIONS DURING CONSTRUCTION, IF REQUIRED.
   C. GROUNDING:
      GROUND TOWER WITH A MINIMUM OF #2 AWG TINNED SOLID BARE COPPER CONDUCTOR CADWELDED TO TOWER BASE PLATE. TWO (2) GROUNDING LEADS PER TOWER BASE PLATE.

NO EXOTHERMIC WELDS SHALL BE ATTACHED DIRECTLY TO THE MONOPOLE TOWER SHAFT.

SECTION 16745 - TELECOMMUNICATIONS WIRING COMPONENTS

(COAXIAL ANTENNA CABLE)

1. GENERAL
   A. ALL MATERIALS, PRODUCTS OR PROCEDURES INCORPORATED INTO WORK SHALL BE NEW AND OF STANDARD COMMERCIAL QUALITY.
   B. CERTAIN MATERIALS AND PRODUCTS WILL BE SUPPLIED BY THE OWNER (REFER TO GENERAL CONDITIONS FOR THE LIST OF OWNER FURNISHED EQUIPMENT. MATERIALS AND SUPPLIES FOR THESE ITEMS). THE CONTRACTOR IS RESPONSIBLE FOR PICKUP AND DELIVERY OF ALL SUCH MATERIALS.
   C. ALL OTHER MATERIALS AND PRODUCTS SPECIFIED IN THE CONTRACT DOCUMENTS SHALL BE SUPPLIED BY THE CONTRACTOR.
2. MATERIALS:
   A. COAXIAL CABLE:
      1. INSTALL COAXIAL CABLE AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS WITH COAXIAL CABLES SUPPORTED AT NO MORE THAN 3'-0" O.C. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURERS' REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF EQUIPMENT LOCATION UNLESS OTHERWISE STATED.
      2. ALL COAX RUN LENGTHS SHALL BE 1-5/8" UNLESS OTHERWISE INDICATED.
3. ANTENNA AND COAXIAL CABLE GROUNDING
   A. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)
4. COAXIAL CABLE IDENTIFICATION
   A. TO PROVIDE EASY IDENTIFICATION AND UNIFORM MARKING OF ANTENNA CABLING, MARK CABLE:
      1. FIRST LOCATION IS AT THE END OF THE COAX NEAREST THE ANTENNA (WHERE THE COAXIAL CABLE AND JUMPER ARE CONNECTED).
      2. SECOND LOCATION IS INSIDE THE EQUIPMENT SHELTER NEAR THE WAVEGUIDE ENTRY PORT.
5. TESTING

   IF REQUESTED BY CONSTRUCTION MANAGER, VERIZON WIRELESS SHALL PROVIDE AN INDEPENDENT TESTING AGENCY TO PERFORM THE COAXIAL SWEEP TEST & REPORT. THE CONTRACTOR SHALL PROVIDE ONE CLIMBER / QUALIFIED PERSONNEL TO ASSIST IN ANY REPAIRS AND WEATHERPROOFING ONCE THE TEST IS COMPLETE. THE CONTRACTOR SHALL PROVIDE VERIZON WIRELESS WITH A MINIMUM OF 48 HOURS NOTICE PRIOR TO THE TIME OF THE SWEEP TEST.

REVISIONS		
PRELIMINARY DRAWINGS		
	BY/INIT	DATE

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DESIGNED BY: SEW	
DRAWN BY: KJH	
APPROVED BY: MLP	

PREPARED BY:

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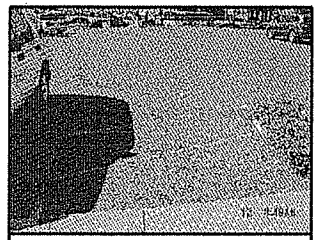
14-3650
HWY 151 & HWY 14
1326 S. MIDVALE BLVD.
MADISON, WI 53717

JOB: 11845

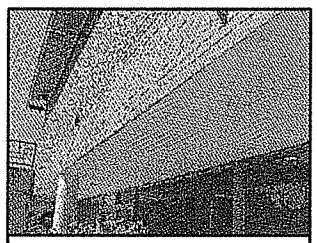
SHEET:

SPECIFICATIONS SP-2

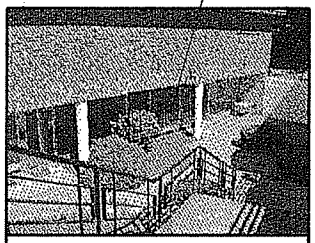
7/17/2007 4:55:09 PM G:\11800\11845\local\telecom\post\preliminary\11845 SP-2 SPECIFICATIONS.dgn



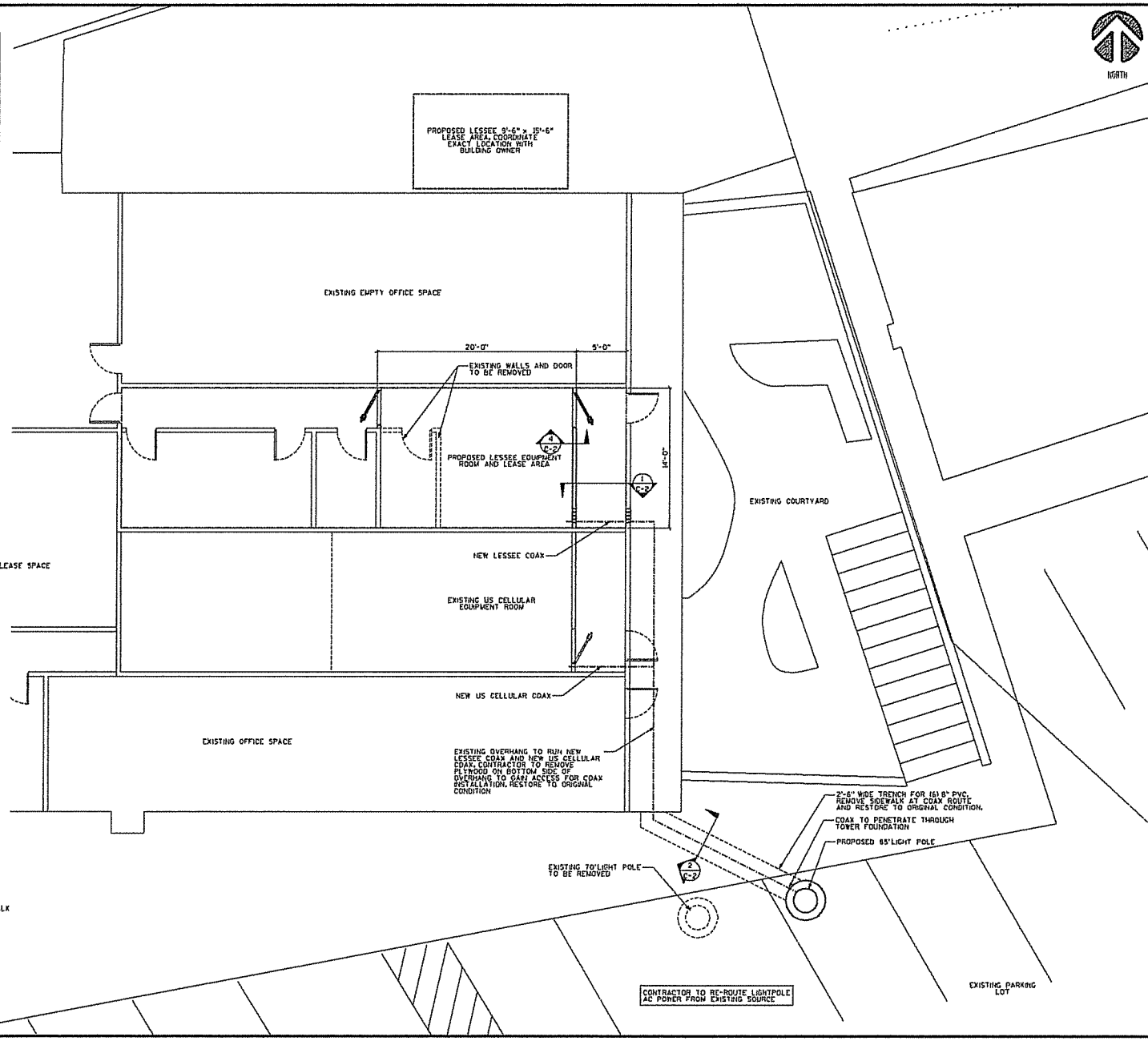
PROPOSED LOCATION OF NEW LIGHT POLE



EXISTING OVERHANG TO ROUTE COAX



PROPOSED LEASE SPACE



SITE PLAN 1 C-1

11x17 1" = 5'-0"
22x34 1" = 10'-0"

0' 2.5' 5' 7.5'

PRELIMINARY DRAWINGS

REVISIONS

PREPARED FOR:

VERIZON WIRELESS PERSONAL COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

DATE: 7/17/2007
DESIGNED BY: SEW
DRAWN BY: KJH
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MADISON, WI 53717

JOB: 11845

SHEET: SITE PLAN C-1

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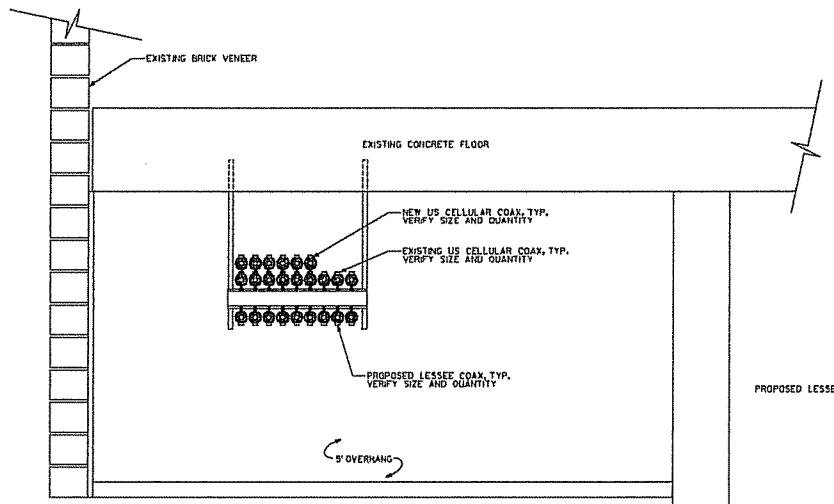
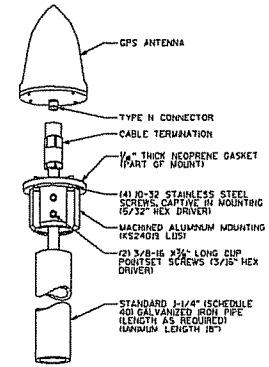
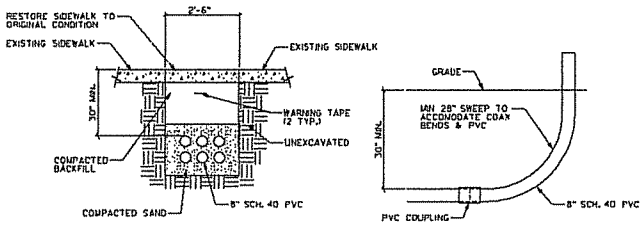


COAX ROUTE @ OVERHANG 1 / C-2
SCALE: NONE

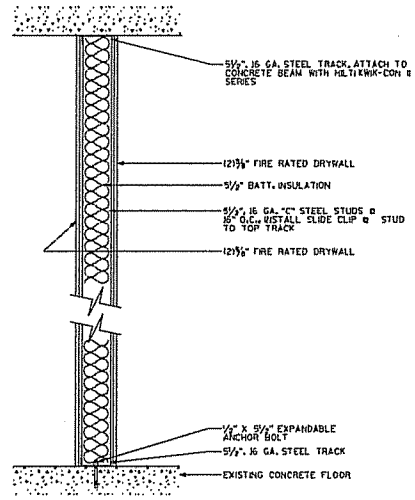


TYPICAL GPS DETAIL 3 / C-2
SCALE: NONE

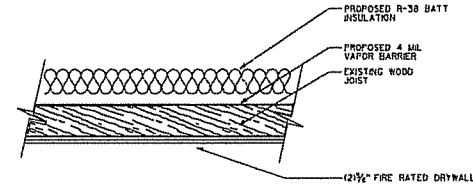


TRENCH SECTION **CONDUIT SECTION**

TYP. UNDERGROUND COAX CONDUIT DETAIL 2 / C-2
SCALE: NONE



INTERIOR WALL SECTION 4 / C-2
SCALE: 11x17 1/4" = 1'-0" 22x34 1" = 1'-0"



CEILING SECTION 5 / C-2
SCALE: NONE

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dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

DATE: 7/17/2007	DESIGNED BY: SEW
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MADISON, WI 53717

JOB: 11845

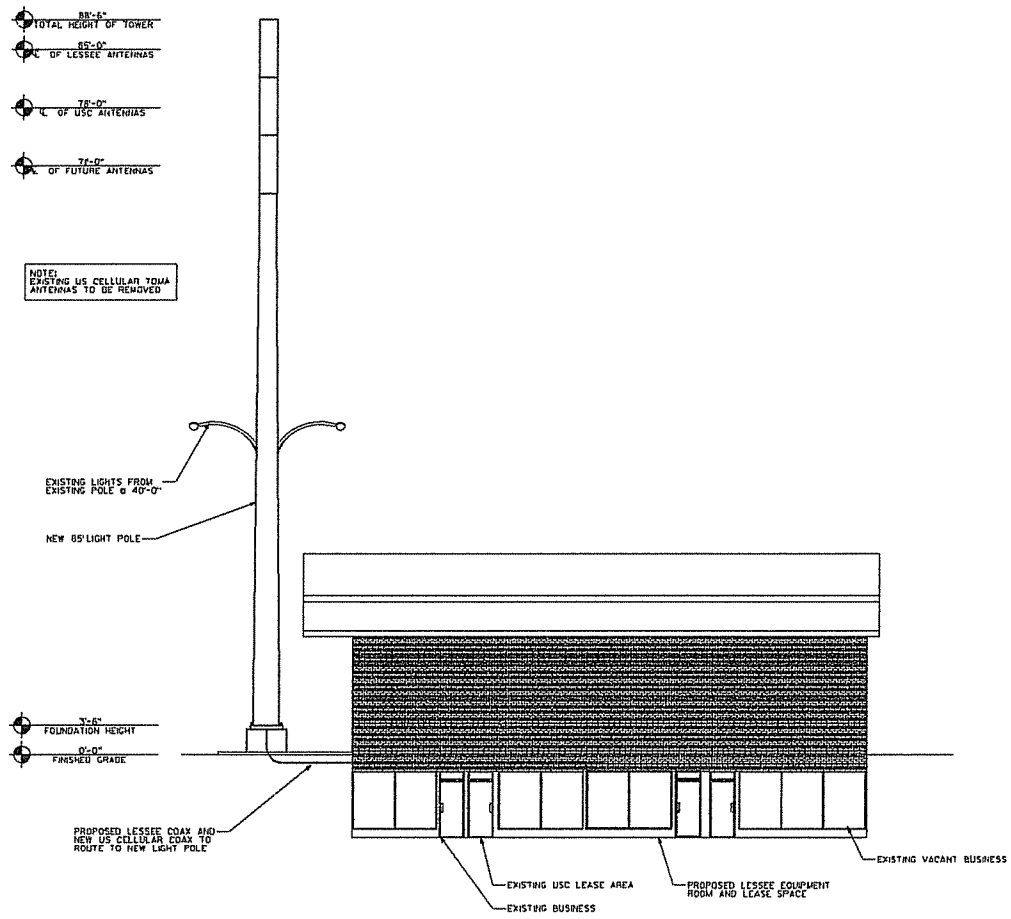
SHEET: SITE DETAILS C-2

PRELIMINARY DRAWINGS
REVISIONS

No.	Description	Date

7/17/2007 4:53:17 PM I:\11800\11845\cad\telecom\plot\preliminary\11845 C-2 SITE DETAILS.dgn

LOOKING WEST AT EXISTING LIGHT POLE TO BE REPLACED



EAST ELEVATION 1 / A-1

11x17 1" = 15'-0"
22x34 1" = 7.5'-0"

0' 7.5' 15' 22.5'

NO.	REVISIONS	DATE
	PRELIMINARY DRAWINGS	

PREPARED FOR:

VERIZON WIRELESS PERSONAL COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

DATE: 7/17/2007
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MADISON, WI 53717

JOB: 11845

SHEET: **SITE ELEVATION A-1**

7/17/2007 4:53:20 PM I:\11800\11845\cad\telecom\plot\preliminary\11845 A-1 ELEVATION.dgn

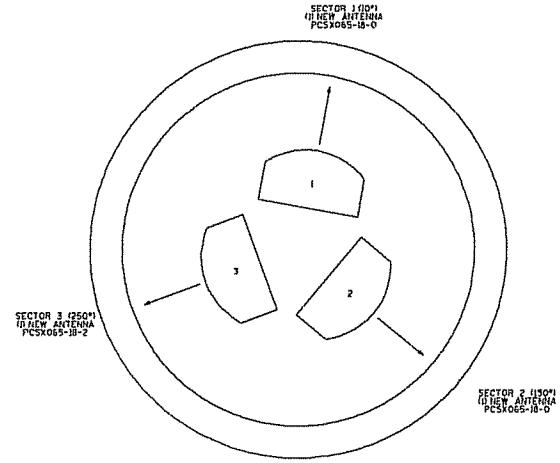
POS #	MAKE AND MODEL	ANTENNA QUANTITY	WEIGHT PER ANTENNA	ANTENNA DIMENSIONS	ANTENNA GAIN (dBi)	ANT. RAD CENTER	AZIMUTH	CABLE LENGTH	CABLE DIAM.	COAX MAKE
1	JAYBEAM WIRELESS PCSX065-18-0	1	13.2 lbs.	72.4" x 6.3" x 3.5"	18.8 dBi	85.5'	10°	165'	1 5/8"	ANDREW OR EQUIV.
2	JAYBEAM WIRELESS PCSX065-18-0	1	13.2 lbs.	72.4" x 6.3" x 3.5"	18.8 dBi	85.5'	130°	165'	1 5/8"	ANDREW OR EQUIV.
3	JAYBEAM WIRELESS PCSX065-18-2	1	13.2 lbs.	72.4" x 6.3" x 3.5"	18.8 dBi	85.5'	250°	165'	1 5/8"	ANDREW OR EQUIV.
4										
5										
6										
7										
8										
9										
10										

- ANTENNAS TYP. EQUIPMENT W/ELECTRICAL DOWNTILT. INSTALL ALL ASSOCIATED REMOTE LINES AS NEEDED.
- TYP. JUMPER LENGTH @ ANTENNA 10'

NOTES:

1. VERIFY EACH COAXIAL CABLE LENGTH, DIAMETER, ROUTING, AND ALL MOUNTING APPURTENANCES WITH OWNER PRIOR TO ORDER.
2. THE MAXIMUM COAXIAL CABLE LENGTH HAS BEEN ESTIMATED AT 200 FEET WITH A CORRESPONDING CABLE DIAMETER OF 1 5/8". THIS CABLE LENGTH IS APPROXIMATE, AND IS NOT TO BE USED FOR CONSTRUCTION. ACTUAL ANTENNA CABLE LENGTHS MAY VARY FROM ESTIMATED MAXIMUM LENGTH AND MUST BE VERIFIED.
3. TAG ALL MAIN CABLES AT THREE (3) LOCATIONS:
   A. TOP OF TOWER AT ANTENNAS
   B. INSIDE EQUIPMENT SHELTER NEAR THE WAVEGUIDE ENTRY PORT
   C. OUTSIDE EQUIPMENT SHELTER NEAR THE WAVEGUIDE ENTRY PORT
4. EACH COAX SHALL BE SUPPORTED WITH COLLWN GRIP (CHINESE FINGER GRIP) HUNG FROM A J-HOOK AT TOP OF TOWER. (10' ABOVE FOR LATTICE TOWER).
5. EACH COAX SHALL BE GROUNDED AT (3) THREE LOCATIONS. TOWER PLATFORM, TOWER BASE AND BUILDING PORT ENTRY.
6. COAXIAL CABLES TO BE SUPPORTED EVERY 3'-0" ON PLATFORM WITH STAINLESS STEEL HANGERS.
7. JUMPERS TO BE SUPPORTED EVERY 18" WITH STAINLESS STEEL HANGERS.
8. ANTENNA CONTRACTOR RESPONSIBLE FOR FABRICATING ENCLOSURE JUMPERS.

ANTENNA CONFIGURATION TABLE & NOTES (1 / A-2)



ANTENNA LAYOUT (2 / A-2)

PRELIMINARY DRAWINGS

REVISIONS

#	DATE	BY/CHK

PREPARED FOR:

VERIZON WIRELESS PERSONAL COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

DATE: 7/17/2007
DESIGNED BY: SEW
DRAWN BY: KJH
APPROVED BY: MLP

PREPARED BY:

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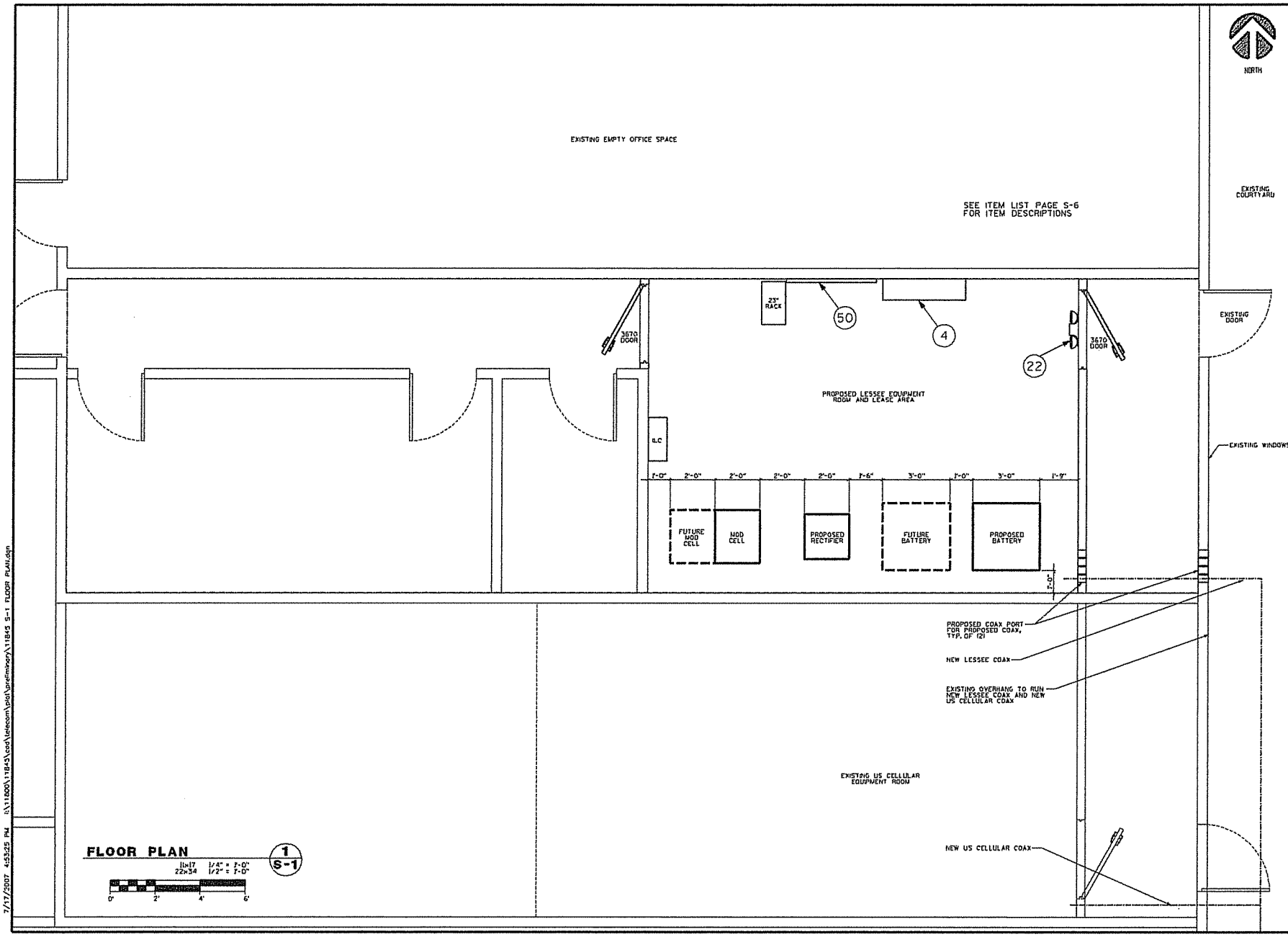
MADISON, WI 53717

JOB: 11845

SHEET: ANTENNA DETAILS A-2

7/17/2007 4:53:24 PM I:\11800\11845\cad\telecom\plot\preliminary\11845 A-2 ANTENNA DETAILS.dgn



FLOOR PLAN

1 S-1

11x17 1/4" = 1'-0"
22x34 1/2" = 1'-0"

0' 2' 4' 6'

PRELIMINARY DRAWINGS

REVISIONS

NO.	DATE	ISSUE

PREPARED FOR:

VERIZON WIRELESS PERSONAL COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

DATE: 7/17/2007
DESIGNED BY: SEW
DRAWN BY: KJH
APPROVED BY: MLP

PREPARED BY:

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0326 S. MIDVALE BLVD.
MADISON, WI 53717

JOB# 11845

SHEET: FLOOR PLAN S-1

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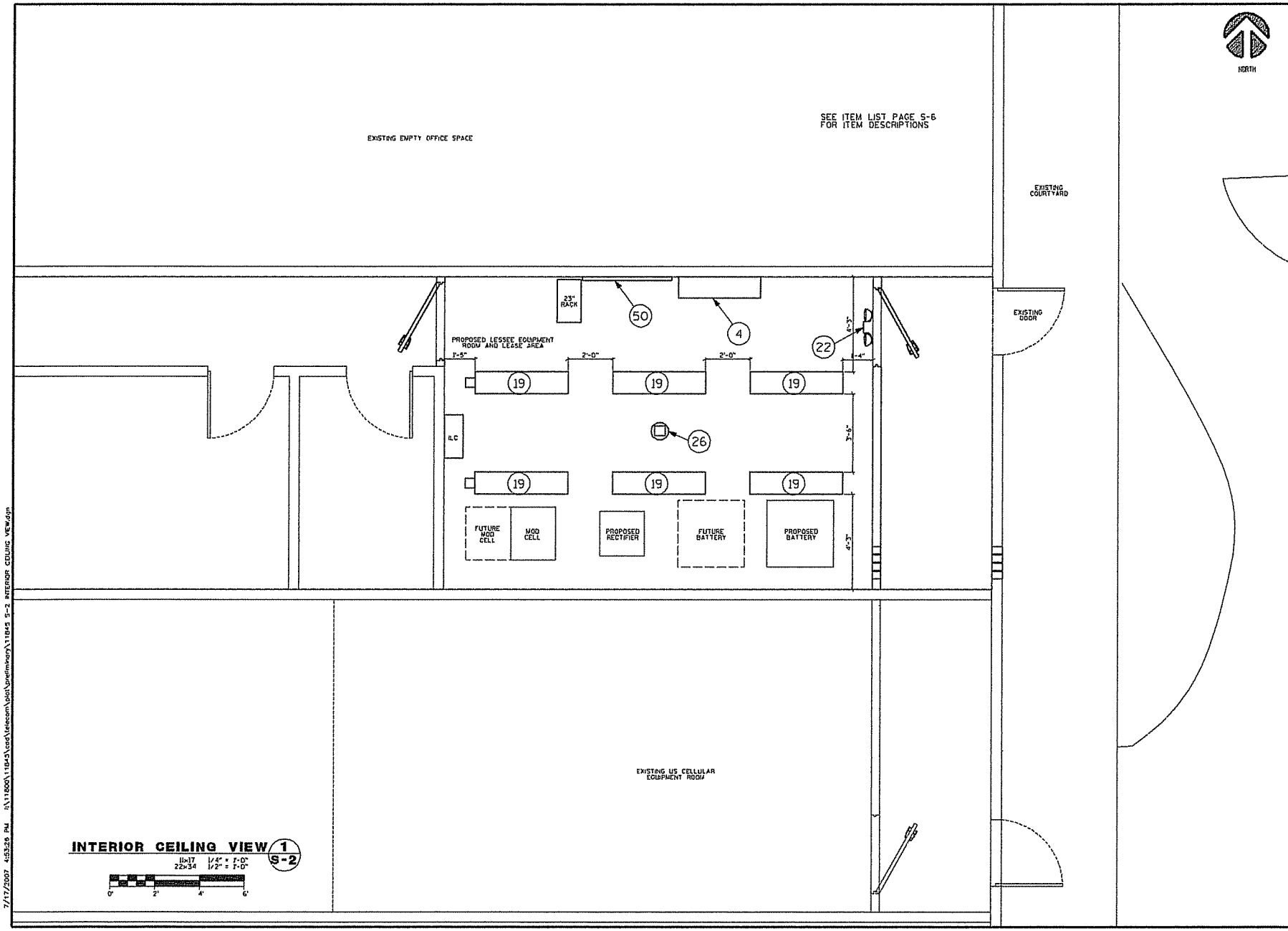

INTERIOR CEILING VIEW 1 S-2

11x17 1/4" = 1'-0"
22x34 1/2" = 1'-0"

0' 2' 4' 6'

NO.	REVISIONS	DATE	BY
	PRELIMINARY DRAWINGS		

PREPARED FOR:

VERIZON WIRELESS PERSONAL COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

DATE: 7/17/2007
DESIGNED BY: SEW
DRAWN BY: KJH
APPROVED BY: MLP

PREPARED BY:

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MADISON, WI 53717

JOB: 11845

SHEET: INTERIOR CEILING VIEW S-2

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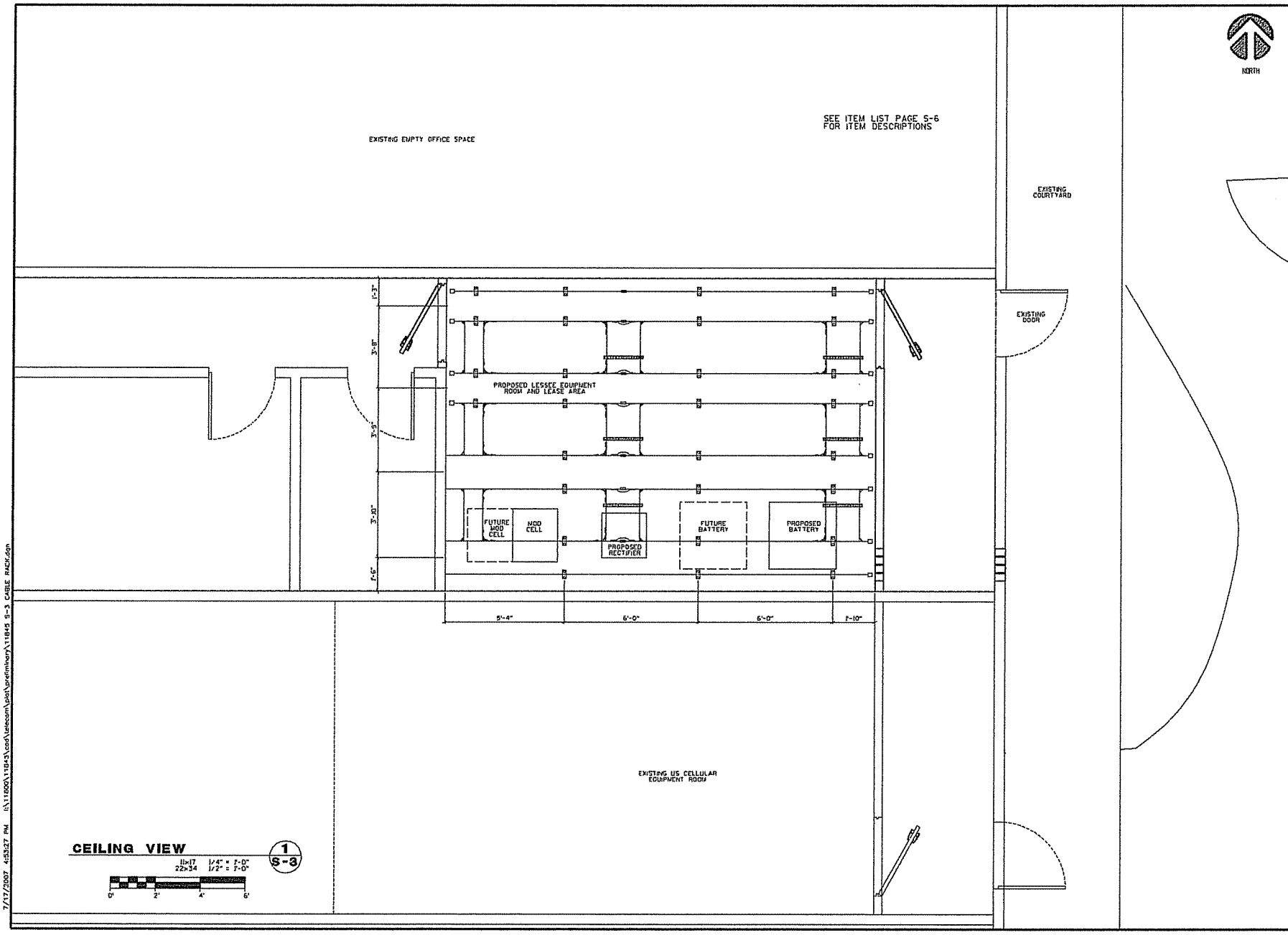

7/17/2007 4:53:27 PM (:\11600\11845\cad\telecom\plot\preliminary\11845 S-3 CABLE RACK.dgn

NO.	PRELIMINARY DRAWINGS REVISIONS	BY/TP	DATE

PREPARED FOR:

VERIZON WIRELESS PERSONAL
COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

DATE: 7/17/2007
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DRAWN BY: KJH
APPROVED BY: MLP

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MADISON, WI 53717

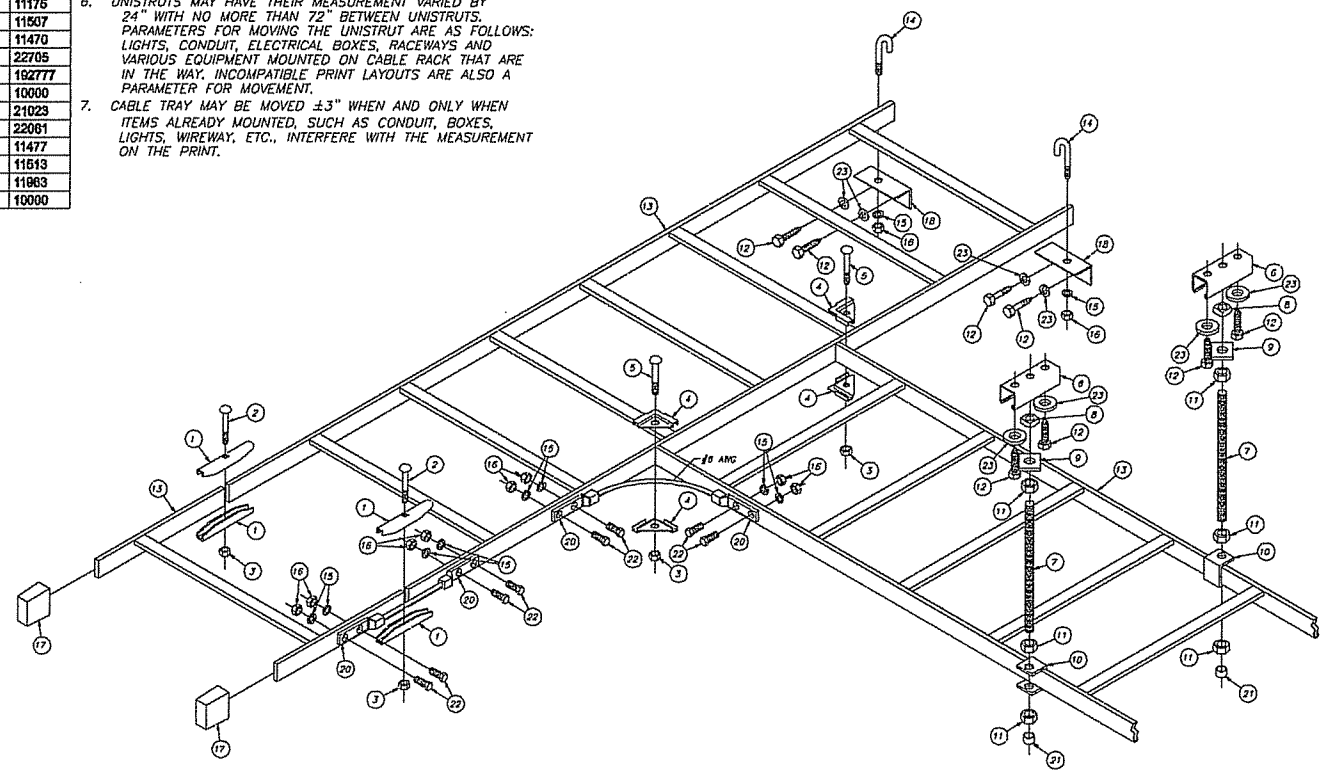
JOB: 11845

SHEET: CABLE RACK CEILING VIEW S-3

MATERIAL LIST			
NO	REQ'D.	DESCRIPTION	PART NO
1	12	SPLICE CLAMP	11188
2	6	BOLT	11173
3	38	NUT	11183
4	60	CORNER CLAMP	11189
5	30	BOLT	11172
6	12	4 1/2" KINDORF CHANNEL	10000
7	24	5/8" - 11 THREADED ROD	11635
8	24	SQUARE NUT - 5/8"	10205
9	24	SQUARE WASHER	11519
10	24	BRACKET	11178
11	72	NUT	11184
12	81	TAP CON	12909
13	6	24" Z/C "STANDARD"	23229
14	18	J-BOLT	11175
15	16	LOCK WASHER	11507
16	18	NUT	11470
17	0	END CAPS	22705
18	18	1 3/4" x 1 3/4" x 1/8" x 4" ANGLE	192777
19	6	21" UNISTRUT	10000
20	40	2-HOLE LUG W/ #6 WIRE	21023
21	24	PLASTIC PROTECTION CAP	22061
22	80	1/4" X 1" BOLT	11477
23	81	1/4" X 1" FENDER FLAT WASHER	11513
24	0	BRACKET, WALL CLIP- 7/16" HOLE	11963
25	3	30" UNISTRUT	10000

NOTES:

1. ALL CABLE TRAY MEASUREMENTS ARE ACCURATE WITHIN ± 1/4".
2. BOTTOM OF CABLE RACK TO BE MOUNTED 96" A.F.F.
3. ALL DETAILS MAY NOT APPLY TO CABLE RACK LAYOUT.
4. CABLE TRAY CORNER CLAMPS SHALL BE INSTALLED AS SHOWN. CORNER CLAMPS MAY BE MOVED TO OPPOSITE SIDE IF NEEDED DUE TO OBSTRUCTIONS.
5. UNISTRUT MEASUREMENTS ARE ACCURATE WITHIN ±2" WHEN MOVEMENT IS REQUIRED TO MISS TRIM, CABLE TRAY RUNGS, CONCRETE RIBS IN WRONG LOCATION, ETC. CONSIDERATION OF THE PREVIOUS UNISTRUT MOVEMENT SHOULD BE TAKEN INTO ACCOUNT.
6. UNISTRUTS MAY HAVE THEIR MEASUREMENT VARIED BY 24" WITH NO MORE THAN 72" BETWEEN UNISTRUTS. PARAMETERS FOR MOVING THE UNISTRUT ARE AS FOLLOWS: LIGHTS, CONDUIT, ELECTRICAL BOXES, RACEWAYS AND VARIOUS EQUIPMENT MOUNTED ON CABLE RACK THAT ARE IN THE WAY. INCOMPATIBLE PRINT LAYOUTS ARE ALSO A PARAMETER FOR MOVEMENT.
7. CABLE TRAY MAY BE MOVED ±3" WHEN AND ONLY WHEN ITEMS ALREADY MOUNTED, SUCH AS CONDUIT, BOXES, LIGHTS, WIREWAY, ETC., INTERFERE WITH THE MEASUREMENT ON THE PRINT.



TYPICAL MOUNTING 1 / S-4

SCALE: NTS

PRELIMINARY DRAWINGS

REVISIONS

PREPARED FOR:

VERIZON WIRELESS PERSONAL COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

DATE: 7/17/2007
DESIGNED BY: SEW
DRAWN BY: KJH
APPROVED BY: H&P

PREPARED BY:

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MADISON, WI 53717

JOB# 11845

SHEET: CABLE RACK MOUNTING DETAILS & MATERIALS S-4

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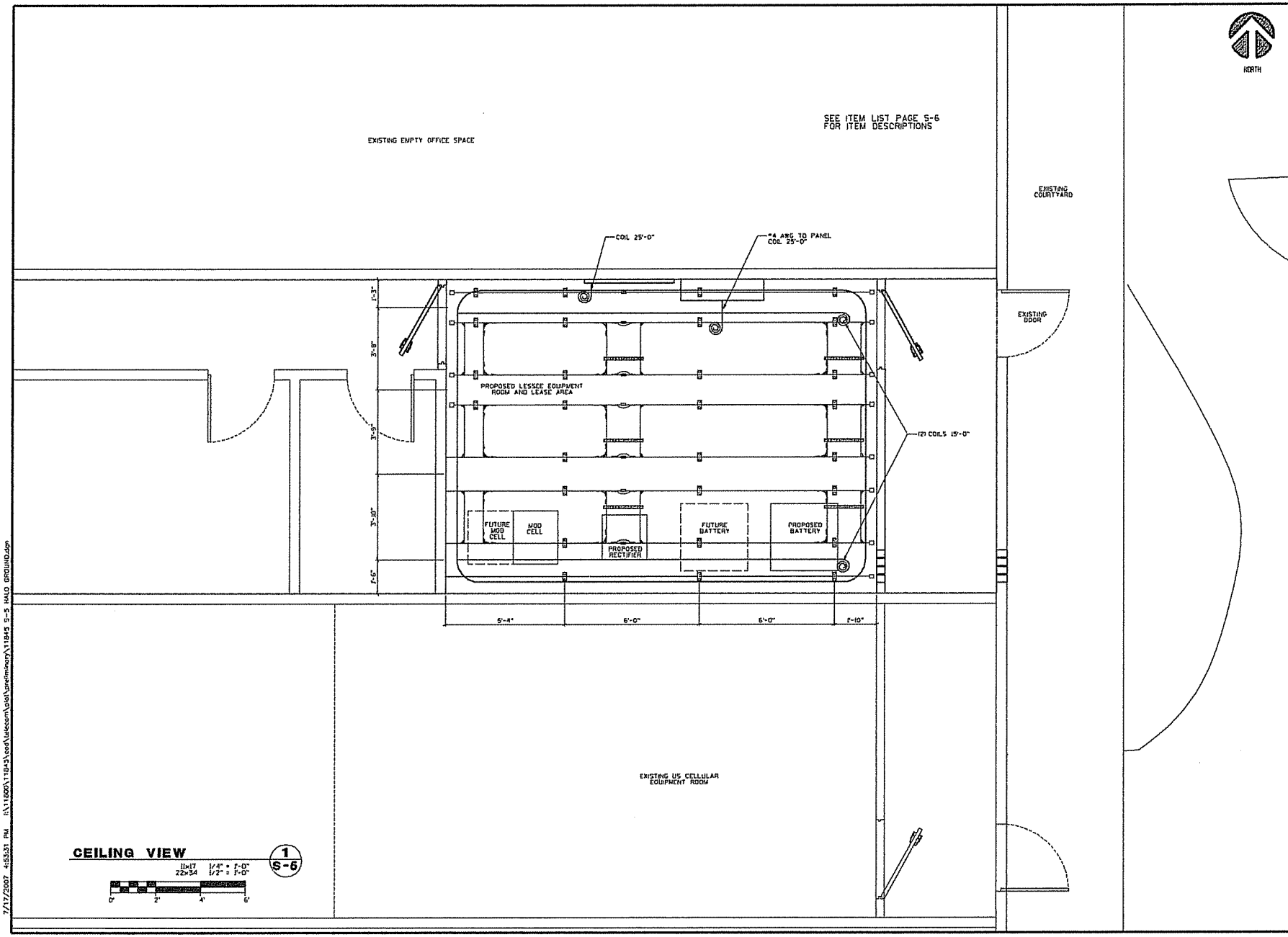

CEILING VIEW

1 / S-6

11x17 1/4" = 1'-0"
22x34 1/2" = 1'-0"

0' 2' 4' 6'

7/17/2007 4:53:31 PM I:\11500\11845\cad\telecom\plot\preliminary\11845 S-5 HALO GROUND.dgn

No.	REVISIONS	DATE
	PRELIMINARY DRAWINGS	

PREPARED FOR:

VERIZON WIRELESS PERSONAL
COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

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MADISON, WI 53717

JOB: 11845

SHEET:
HALO GROUND
CEILING VIEW
S-5

ITEM LIST

ITEM NO.	FIBREBOND PART NO.	MANUFACTURER PART NO.	MANUFACTURER	DESCRIPTION
1.		39QR060C	CARRIER	HVAC #1, 5 TON, W/ 5KW HEAT STRIP & ECONOMIZERS
2.		39QR060C	CARRIER	HVAC #2, 5 TON, W/ 5KW HEAT STRIP & ECONOMIZERS
3.	21914	TEC20	BARD	LEAD/LAG THERMOSTAT
4.	10886	4876	GENERAC	PANELBOARD W/ AUTO TRANSFER
5.		MINIDSX1/FA		ADC TELE COMMUNICATION (INSTALLED BY OTHERS)
6.	10203	CS1201	P&S	EXTERIOR LIGHT SWITCH / 4" X 4" J.B.
7.	11657		AMWELD	DOOR, 3670, LH SWING
8.	11050	1164	SARGENT	DOOR CLOSURE
9.	11021	TA2314NRB26D	HOGANEY	DOOR HINGES
10.	20771	AL420 4SS	AUSTIN HARDWARE	DOOR HOLDER
11.	11058		NATIONAL GUARD	LOCK GUARD
12.	12417		SIMPLEX	LOCKSET W/LEVER HANDLES
13.	11050	0383	KASON	PULL HANDLE
14.	19347		NATIONAL GUARD	DOOR SWEEP
15.	19450	164B 42	PONDER	DRIP STRIP
16.	12633	1686 55 TAN	G.T. RUBBER	DOOR STOP
17.	20000		HUBBELL	20AMP 2P2P DUPLEX RECEPTACLE / 2" X 4" WP J.B.
18.	12740			2" L.B.
19.	23789	MWTR-240A-120V-LE3	METALUX	INTERIOR LIGHT FIXTURE, 40W, 2-BULB
20.	10203	CS1201	P&S	INTERIOR LIGHT SWITCH / 4" X 4" J.B.
21.	23469	TWU705180	LITHONIA	EXTERIOR LIGHT FIXTURE W/ PHOTOCELL
22.	13762	2V604	GRAINGER	EMERGENCY LIGHT
23.	10105	CR201	P&S	20 AMP QUADPLEX RECEPTACLE/ 4" X 4" J.B.
24.	10105	CR201	P&S	20 AMP QUADPLEX RECEPTACLE/ 4" X 4" J.B.
25.	10150	4SDEK	APPLETON	4" X 4" J.B. W/ 1/2" & 3/4" KNOCKOUT
26.	22405	320CX	ELECTRO.SIG	SMOKE DETECTOR/ 4" X 4" J.B.
27.	11351	7939-2GY	ADEMCO	DOOR ALARM
28.	22389			8"-X-10" DOCUMENT FRAME (PACK IN BLDG.)
29.	194345	FB194345	FIBREBOND	GROUND BAR, 1/4" X 4" X 24" (PACK 1)
30.	12864/10925	3X740/5X852	DAYTON	COMMERCIAL POWER FAIL RELAY/ 6" X 8" J.B.
31.	194861	194861	FIBREBOND	TELCO GROUND BAR, 1/4" X 4" X 10" (W/ TINNED COATING)
32.	21944	1/2" PVC	BARTELT	1/2" PVC CAST 90 45
33.	13887			LETTER TRAY
34.	11657		AMWELD	DOOR, 3670, RH SWING
35.	24433	S66B3-100MH	SEIMON	ALARM BLOCK W/ HINGED BOX W/ BACKPLATE
36.	10150	4SDEK	APPLETON	4" X 4" J.B. (PIT FRAME PULL BOX)
37.	12473			FEED-HOLE
38.	12417		SIMPLEX	LOCKSET W/LEVER HANDLES
39.	11209		PONDER	42" DOOR CANOPY
40.				4" X 4" WIREWAY
41.	20675	4C440	DAYTON	SCROLL FAN
42.	13843	2C026	DAYTON	24 HOUR TIMER
43.	13657/11214	VE145		36" MOTORIZED INTAKE DAMPER W/ HOOD
44.	13657/11214	VE145		36" MOTORIZED EXHAUST DAMPER W/ HOOD
45.				EMERGENCY STOP SWITCH
46.	22543	SY-1072		10lb. HALO FIRE EXTINGUISHER
47.	19377			COVER PLATE
48.	23789	MWTR-240A-120V-LE3	METALUX	INTERIOR LIGHT FIXTURE, 40W, 2-BULB
49.	10203	CS1201	P&S	INTERIOR LIGHT SWITCH / 2" X 4" J.B.
50.				TELCO BOARD, 3/8" X 4'-0" X 8'-0" (FRP over 5/8" PLYWOOD)
51.	10877	2E206	DAYTON	HIGH TEMP ALARM
52.	10877	2E206	DAYTON	LOW TEMP ALARM
53.		90663/21607	ATLANTIC SCIENTIFIC	SURGE ARRESTOR (INSTALLED BY OTHERS)
54.		2025669 VAT	GENERAC	GENERATOR, 40KW, W/ 225 GALLON TANK
55.		2025669 VTC	GENERAC	GENERATOR, 30KW, W/ 225 GALLON TANK
56.	10903	CS1201	P&S	TELCO ENTRY, 4" PVC
57.	10105	CR201	P&S	LOUVER DISCONNECT SWITCH/ 4" X 4" J.B.
58.	13888		DME	20 AMP DUPLEX RECEPTACLE/ 2" X 4" J.B.
59.	10105	CR201	P&S	THIMBLE
60.	21163.2			20 AMP DUPLEX RECEPTACLE
61.	21163.8			SIGN 18" X 14" "DANGER DIESEL FUEL" (QTY 2)
62.	21163.1			SIGN "DANGER THIS EQUIPMENT STARTS AUTOMATICALLY" (QTY 1)
63.	20426	S10B		SIGN 10" X 14" "DANGER CORROSIVE" (QTY 1)
64.	21163.2			EYEWASH STATION
65.	21163.3			SIGN "DANGER ELECTRICAL EQUIPMENT AUTHORIZED PERSONNEL ONLY" (QTY 1)
66.	10120.1	"10031"		SIGN "DANGER NO SMOKING NO OPEN FLAMES NO SPARKS" (QTY 1)
67.	23903	OW750		SMOKE/ HEAT DETECTOR
68.	23938	SW514		LADDER (PACK IN BLDG.)
69	21230	DU222RB		FLOOR MAT (PACK IN BLDG.)
70.	21230	DU222RB		HVAC #1 DISCONNECT
71.	11718			HVAC #2 DISCONNECT
72.	21163.4			HIGH HUMIDITY
73.	21163.5			SIGN 7" X 17" "DANGER EXPLOSIVE GAS NO SMOKING" (QTY 1)
74.	21163.6			SIGN "CUSTOM-NEPA 11" X 11" VINYL B-3 R-3 Y-0 W-BLANK"
75.	194520	FB194520	FIBREBOND	SIGN "CUSTOM-NEPA 11" X 11" VINYL B-3 R-0 Y-3 W-
76.	11056.1		SARGENT	GROUND BAR, 1/4" X 4" X 24" (W/TINNED COATING) (PACK 1)
				90° DOOR CLOSURE

NOTE:

ITEMS ARE SUBJECT TO CHANGE DUE TO AVAILABILITY AND EQUAL SUBSTITUTES WILL BE USED. ELECTRICAL OR MECHANICAL REQUIREMENTS MAY CHANGE DUE TO MANUFACTURES SPECIFICATIONS.

ITEM LIST 1 / S-6

SCALE: NTS

PREPARED FOR:

VERIZON WIRELESS PERSONAL COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

DATE: 7/17/2007	DESIGNED BY: SEW
DRAWN BY: KJH	APPROVED BY: MLP

PREPARED BY:

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14-3650
HWY 151 & HWY 14
1326 S. MIDVALE BLVD.
MADISON, WI 53717

JOB: 11845

SHEET: ITEM LIST S-6

PRELIMINARY DRAWINGS

REVISIONS

NO.	DESCRIPTION	BY	DATE

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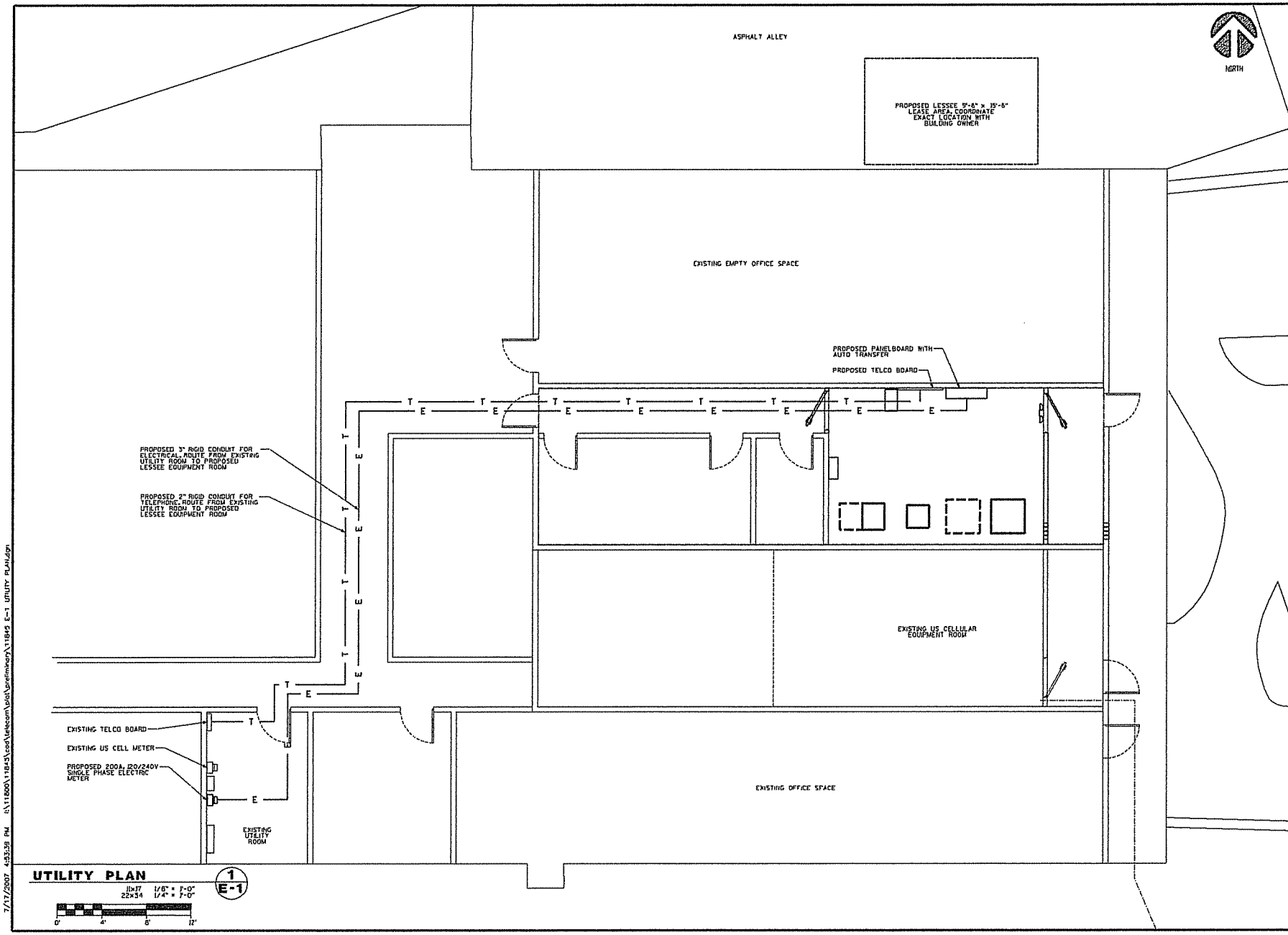

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	PRELIMINARY DRAWINGS	
	REVISIONS	
		DATE

PREPARED FOR:

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COMMUNICATIONS LP
dba VERIZON WIRELESS
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JOB 11845

SHEET: UTILITY PLAN
E-1

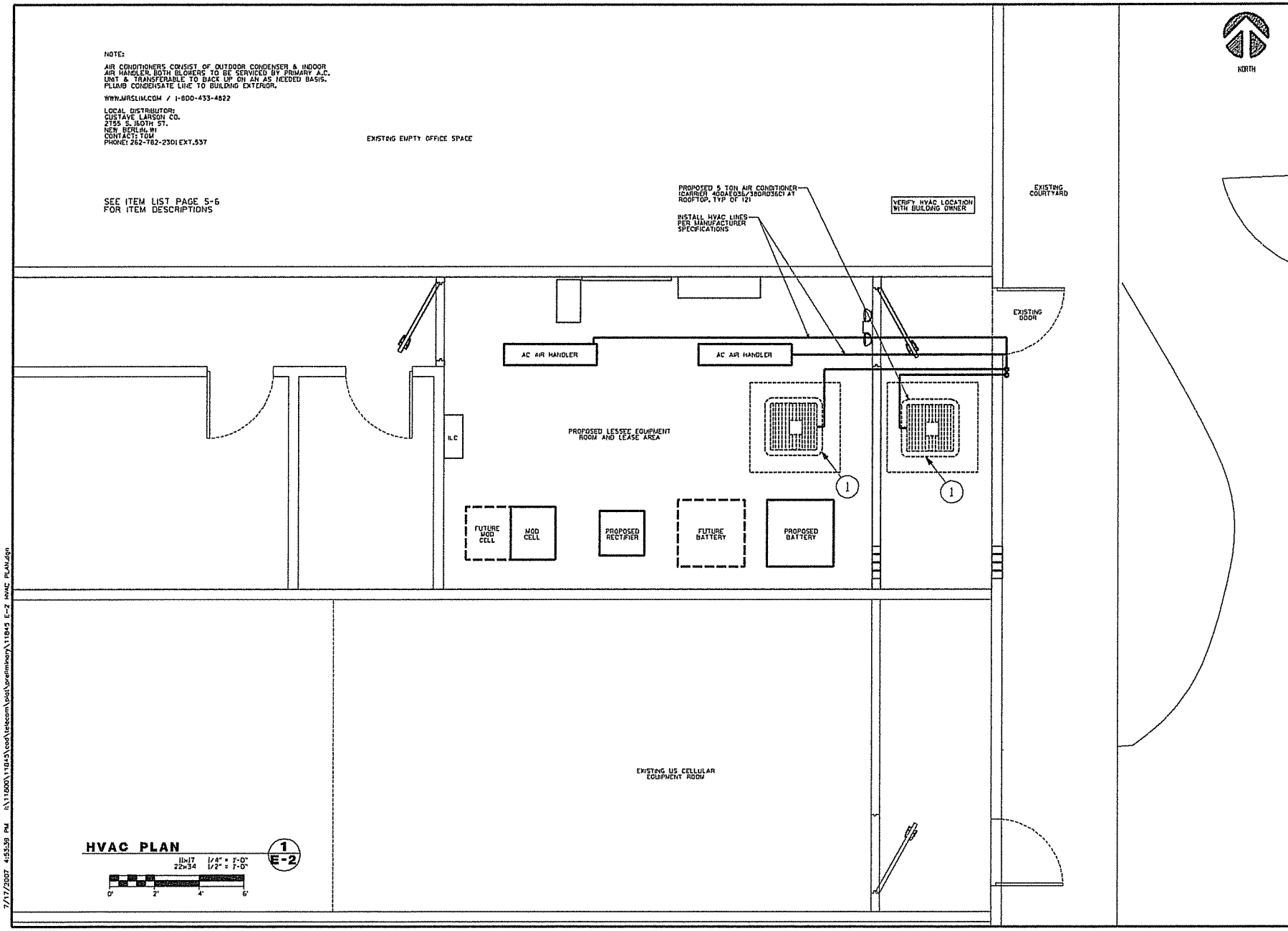
NOTE:

AIR CONDITIONERS CONSIST OF OUTDOOR CONDENSER & INDOOR AIR HANDLER. BOTH BLOWERS TO BE SERVICED BY PRIMARY A.C. UNIT & TRANSFERABLE TO BACK UP ON AN AS NEEDED BASIS. PLUMB CONDENSATE LINE TO BUILDING EXTERIOR.

WWW.MRSLIM.COM / 1-800-433-4822

LOCAL DISTRIBUTOR:
GUSTAVE LARSON CO.
2755 S. 160TH ST.
NEW BERLIN, WI
CONTACT: TOM
PHONE: 262-782-2301 EXT.537

SEE ITEM LIST PAGE S-6
FOR ITEM DESCRIPTIONS



HVAC PLAN 1 E-2

11x17 1/4" = 1'-0"
22x34 1/2" = 1'-0"

0' 2' 4' 6'

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PRELIMINARY DRAWINGS	BY/CD	DATE
REVISIONS		

PREPARED FOR:

VERIZON WIRELESS PERSONAL COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

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JOB: 11845

SHEET: HVAC PLAN E-2

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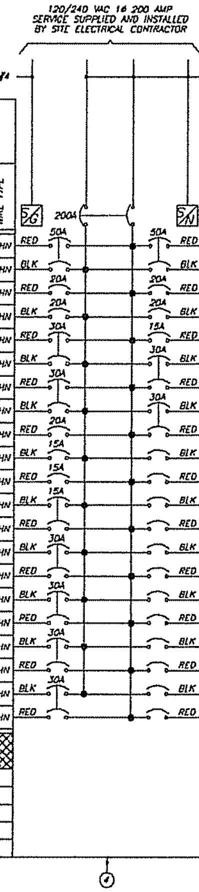
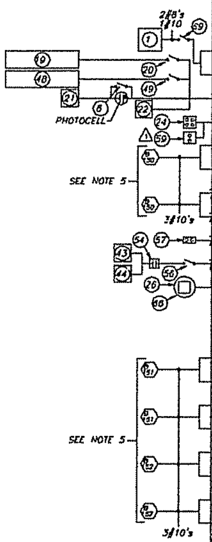




PANEL CIRCUIT AND LOAD SCHEDULE

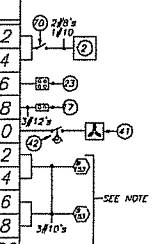
Ckt	Description	Qty.	Unit V.A.	Phase A (VA)	Phase B (VA)	Phase C (VA)	Loads Continuous	Loads Non-Continuous	Trip	Poles	Wire Size	A.I.C.	Wire Type	Conductor
1	HVAC #1	1	3695	–	3695	–		X	50	2	8	10,000	THHN	RED
3	HVAC #1	1	3695	3695	–	–		X	50	2	8	10,000	THHN	BLK
5	INTERIOR/EXTERIOR EMERGENCY LIGHTS	8/1/1	90/100/15	–	835	–	X		20	1	12	10,000	THHN	RED
7	RECEPTACLES	2/1	360/180	900	–	–	X		20	1	12	10,000	THHN	BLK
9	RECTIFIER #1	1	1000	–	1000	–	X		30	2	10	10,000	THHN	RED
11	RECTIFIER #1	1	1000	1000	–	–	X		30	2	10	10,000	THHN	BLK
13	RECTIFIER #2	1	1000	–	1000	–	X		30	2	10	10,000	THHN	RED
15	RECTIFIER #2	1	1000	1000	–	–	X		30	2	10	10,000	THHN	BLK
17	BATTERY CHARGER & BLOCK HEATER	1	1500	–	1500	–	X		20	1	12	10,000	THHN	RED
19	VENT SYSTEM	1	150	150	–	–	X		15	1	12	10,000	THHN	BLK
21	SMOKE DETECTOR	2	12	–	24	–	X		15	1	12	10,000	THHN	RED
23	SPARE				–	–			15	2		10,000	THHN	BLK
25	SPARE			–		–			15	2		10,000	THHN	RED
27	RECTIFIER #3	1	1000	1000	–	–	X		30	2	10	10,000	THHN	BLK
29	RECTIFIER #3	1	1000	–	1000	–	X		30	2	10	10,000	THHN	RED
31	RECTIFIER #4	1	1000	1000	–	–	X		30	2	10	10,000	THHN	BLK
33	RECTIFIER #4	1	1000	–	1000	–	X		30	2	10	10,000	THHN	RED
35	RECTIFIER #5	1	1000	1000	–	–	X		30	2	10	10,000	THHN	BLK
37	RECTIFIER #5	1	1000	–	1000	–	X		30	2	10	10,000	THHN	RED
39	RECTIFIER #6	1	1000	1000	–	–	X		30	2	10	10,000	THHN	BLK
41	RECTIFIER #6	1	1000	–	1000	–	X		30	2	10	10,000	THHN	RED
			SUBTOTAL CONTINUOUS	6882	8359	–								
			SUBTOTAL NON-CONTINUOUS	3695	3695	–								

VOLTAGE: 120/240	CYCLE: 60	PHASE: 1	WIRES: 3
NEUTRAL: 200 AMPS			
MAIN BREAKER: 200 AMP FRAME		A/C: 25,000	TRIP: 200 AMPS
MAIN LUGS: AMPS	MAIN COPPER BUS: 200 AMPS		
MAINS: TOP ☒	BOTTOM ☐		

SERVICE: 120/240 VAC
DESIGNATION: N/A
LOCATION: N/A

Conductor	Wire Type	A.I.C.	Wire Size	Poles	Trip	Loads Non-Continuous	Loads Continuous	Phase A (VA)	Phase B (VA)	Phase C (VA)	Unit V.A.	Qty.	Description	Ckt
RED	THHN	10,000	8	2	50	X		–	3695	–	3695	1	HVAC #2	2
BLK	THHN	10,000	8	2	50	X		3695	–	–	3695	1	HVAC #2	4
RED	THHN	10,000	12	1	20		X	–	1080	–	360	3	RECEPTACLES	6
BLK	THHN	10,000	12	1	20		X	180	–	–	180	1	EXTERIOR RECEPTACLE	8
RED	THHN	10,000	12	1	15	X		–	25	–	25	1	BATTERY VENT FAN	10
BLK	THHN	10,000	10	2	30		X	1000	–	–	1000	1	RECTIFIER #7	12
RED	THHN	10,000	10	2	30		X	–	1000	–	1000	1	RECTIFIER #7	14
BLK	THHN	10,000	10	2	30		X	1000	–	–	1000	1	RECTIFIER #8	16
RED	THHN	10,000	10	2	30		X	–	1000	–	1000	1	RECTIFIER #8	18
BLK									–	–			SPACE	20
RED								–		–			SPACE	22
BLK									–	–			SPACE	24
RED								–		–			SPACE	26
BLK									–	–			SPACE	28
RED								–		–			SPACE	30
BLK									–	–			SPACE	32
RED								–		–			SPACE	34
BLK									–	–			SPACE	36
RED								–		–			SPACE	38
BLK									–	–			SPACE	40
RED								–		–			SPACE	42
								2180	3105	–	SUBTOTAL CONTINUOUS			
								3695	3695	–	SUBTOTAL NON-CONTINUOUS			

MANUFACTURER: GENERAC			TOTAL KVA CONTINUOUS X 1.25: 25.66
TYPE AND CATALOG NUMBER: 4876 FB# 10586			TOTAL KVA NON-CONTINUOUS: 14.78
NO EQUAL: ☐	APPROVED EQUAL: ☒		TOTAL KVA: 40.44
MOUNTING:	SURFACE ☒	FLUSH ☐	TOTAL AMPS: 168.49



NOTES:
1. ALL WIRE TO BE #12 THHN/THWN UNLESS NOTED OTHERWISE.
   COLOR CODE:
   AΦ = BLACK
   BΦ = RED
   NEUTRAL = WHITE
   GROUND = GREEN
2. ALL WORK TO CONFORM TO N.E.C. LATEST STATE ADOPTED EDITION.
3. LABEL SERVICE DISCONNECT WITH A RED TAG.
4. SWITCH LEG CONDUCTORS SHALL BE THE SAME COLOR AS CIRCUIT CONDUCTORS.
5. PULL RECTIFIERS TO END OF SEALTIGHTS PLUS 10'-0"; COIL AND TAG.

ELECTRICAL SCHEMATIC (1 / E-3)
SCALE: NONE

PRELIMINARY DRAWINGS
REVISIONS

PREPARED FOR:
VERIZON WIRELESS PERSONAL COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

DATE: 7/17/2007
DESIGNED BY: SEW
DRAWN BY: KJH
APPROVED BY: MLP

PREPARED BY:
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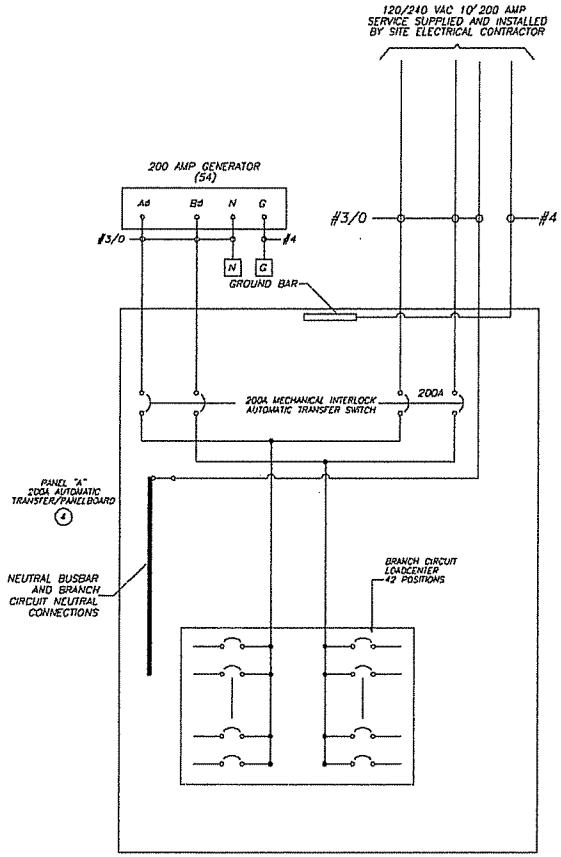
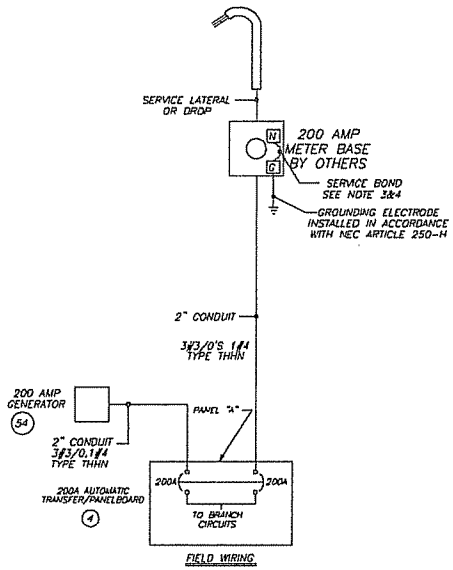
MADISON, WI 53717

JOB: 11845

SHEET: **ELECTRICAL SCHEMATIC E-3**





NOTES:

1. ------ DASHED LINES DENOTE FIELD WORK
2. BUILDING ELECTRICAL SYSTEM IS RATED AT 10,000 A.I.C. IF HIGHER RATINGS ARE REQUIRED, IT IS THE RESPONSIBILITY OF SITE CONTRACTOR/ENGINEER TO MEET SUCH REQUIREMENTS.
3. SERVICE BOND IS TO BE MADE BY DEVICES (STRAPS, SCREWS, ETC.) SUPPLIED BY EQUIPMENT MANUFACTURER. IF NO SUCH DEVICE IS SUPPLIED, BOND IS TO BE MADE IN ACCORDANCE WITH NEC ARTICLE 250.
4. WHEN SERVICE OVERCURRENT DISCONNECT IS FIELD INSTALLED AND HAS A NEUTRAL TO GROUND CONNECTION ESTABLISHED, REMOVE NEUTRAL TO GROUND CONNECTION IN MANUAL TRANSFER.
5. CONDUCTOR OVERCURRENT PROTECTION DEVICES ARE SELECTED IN ACCORDANCE WITH 1999 NEC (ARTICLE 240-3).
6. CONDUCTOR SIZING IS SELECTED FROM 1999 NEC (ARTICLE 215-2).
7. ALL LUGS THAT HOLD MORE THAN ONE WIRE SHALL BE LISTED FOR MULTI-BARRELL CONNECTIONS.
8. ALL CONDUCTORS SHALL BE COPPER.
9. LABEL SERVICE DISCONNECT WITH A RED TAG.

LIGHTING SCHEDULE

MANUFACTURER	MANUFACTURER PART NUMBER	ELECTRICAL CHARACTERISTIC	FIBREBOND PART NUMBER	QUANTITY
KENALL	3636	120V/100W	1027B	1
METALUX	MWIR-240A-120V-LE3	120V/90W	10486	8
GRAINGER	2V604	120V/15W	13762	1

ELECTRICAL SCHEMATIC 1 / E-4

SCALE: NONE

PRELIMINARY DRAWINGS

REVISIONS

PREPARED FOR:

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COMMUNICATIONS LP
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MADISON, WI 53717

JOB: 11845

SHEET: ELECTRICAL SCHEMATIC E-4

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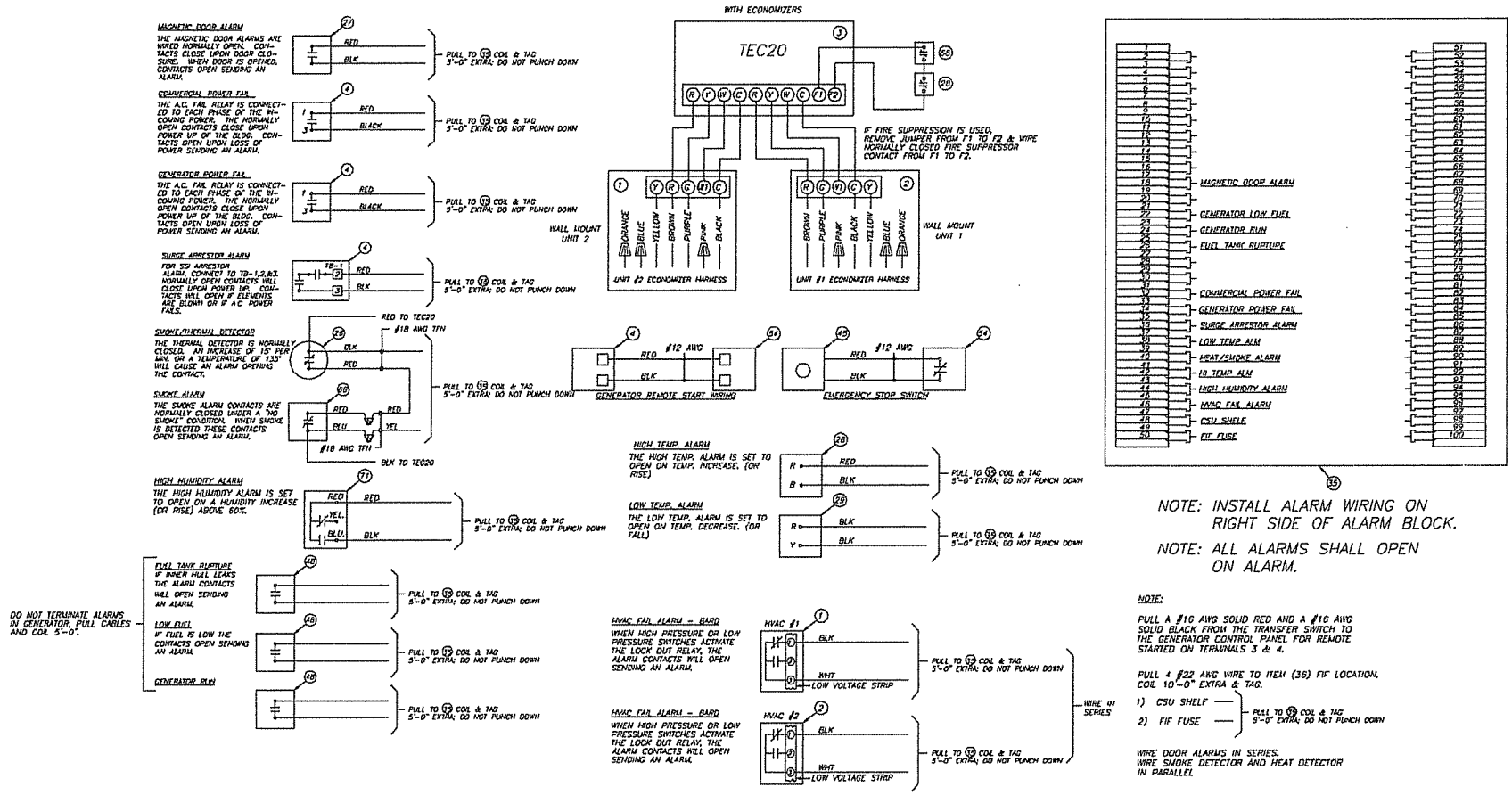

NOTE: INSTALL ALARM WIRING ON RIGHT SIDE OF ALARM BLOCK.

NOTE: ALL ALARMS SHALL OPEN ON ALARM.

NOTE:

PULL A #16 AWG SOLID RED AND A #16 AWG SOLID BLACK FROM THE TRANSFER SWITCH TO THE GENERATOR CONTROL PANEL FOR REMOTE STARTED ON TERMINALS 3 & 4.

PULL 4 #22 AWG WIRE TO ITEM (36) FIF LOCATION. COIL 10'-0" EXTRA & TAG.

1) CSU SHELF
2) FIF FUSE

PULL TO 19 COIL & TAG 5'-0" EXTRA; DO NOT PUNCH DOWN

WIRE DOOR ALARMS IN SERIES.
WIRE SMOKE DETECTOR AND HEAT DETECTOR IN PARALLEL

ALARM WIRING (1 / E-5)

SCALE: NONE

PREPARED FOR:

VERIZON WIRELESS PERSONAL COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

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MADISON, WI 53717

11845

SHEET: ALARM WIRING E-5

PRELIMINARY DRAWINGS

REVISIONS

No.		BY/FOR	DATE

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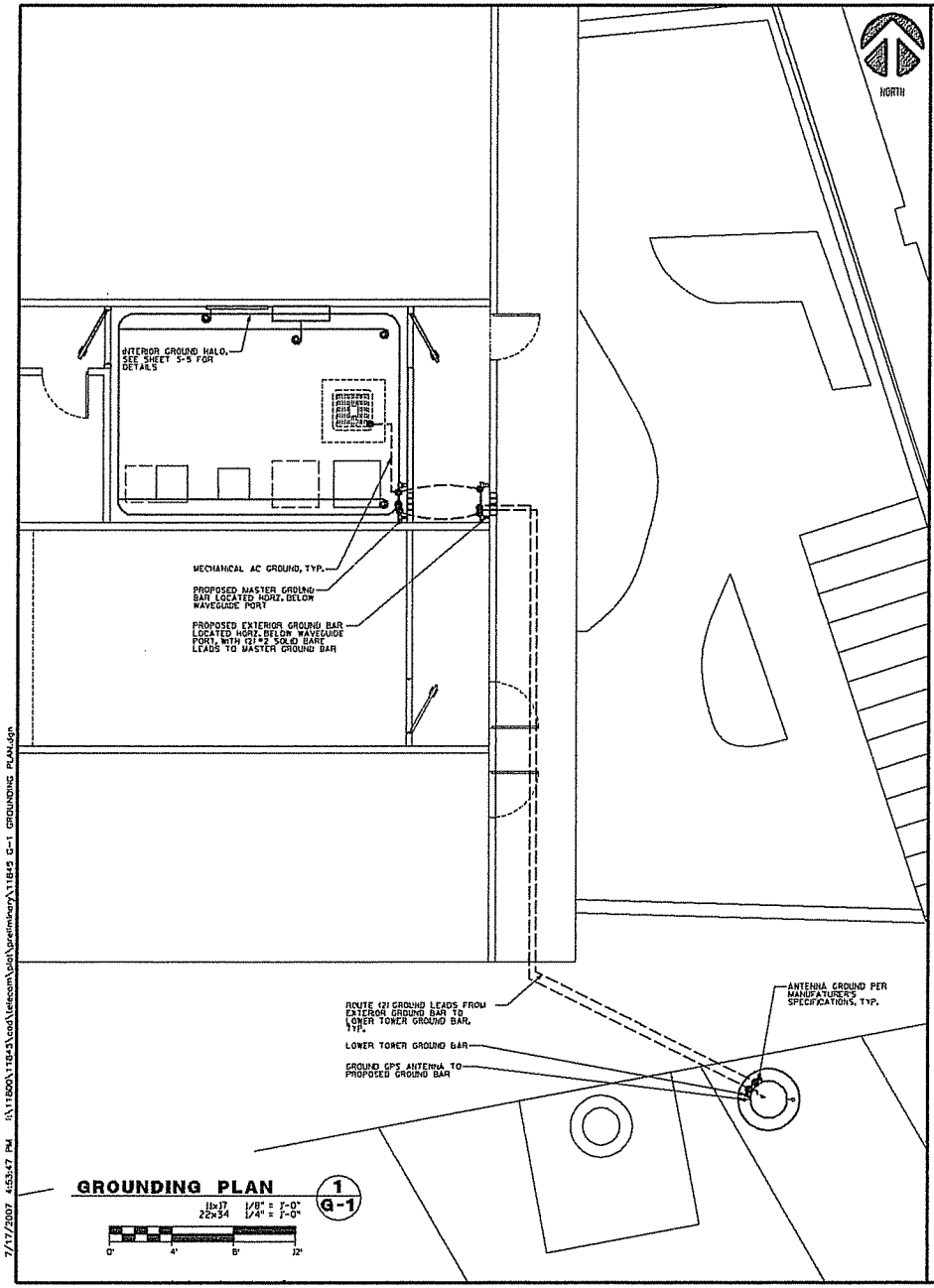

GROUNDING PLAN

1 G-1

11x17 1/8" = 1'-0"
22x34 1/4" = 1'-0"

0' 4' 8' 12'

GENERAL NOTES:

WORK INCLUDES:
THESE NOTES AND ACCOMPANYING DRAWINGS COMPLEMENT THE PROVISIONS AND INSTALLATIONS BY THE ELECTRICAL CONTRACTOR, OF ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO INSTALL THE ELECTRICAL WORK COMPLETE IN CONNECTION WITH THIS VERIZON WIRELESS SITE AND SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

1. THE PROVISIONS, INSTALLATION, AND CONNECTION OF A GROUNDING ELECTRODE SYSTEM COMPLETE WITH A BUILDING AND SECONDARY GROUNDING, CELLULAR TELEPHONE COMMUNICATIONS TOWER AND CONNECTIONS TO THE INCOMING ELECTRICAL DISTRIBUTION EQUIPMENT.
2. THE PROVISION AND INSTALLATION OF AN OVERHEAD ELECTRICAL SERVICE OR UNDERGROUND ELECTRICAL SERVICE AND ALL ASSOCIATED WIRE AND CONDUIT AS REQUIRED AND/OR INDICATED ON PLANS.
3. THE PROVISION, INSTALLATION OF CONDUIT AND CONNECTIONS FOR LOCAL TELEPHONE SERVICE.
4. THE FURNISHING AND INSTALLATION OF THE ELECTRICAL SERVICE ENTRANCE CONDUCTORS, CONDUITS, METER SOCKET, AND CONNECTIONS TO THE SERVICE EQUIPMENT WITHIN THE ENCLOSURE.
5. TWO INCH (2") AND THREE INCH (3") DIAMETER PVC CONDUITS SCHEDULE 40.
6. ALL PVC CONDUITS SHOULD BE LEFT WITH NYLON PULL CORD FOR FUTURE USE.
7. EXCAVATION, TRENCHING, AND BACKFILLING FOR CONDUIT(S), CABLE(S), AND EXTERNAL GROUNDING SYSTEM.

CODES, PERMITS, AND FEES:

1. ALL REQUIRED PERMITS, LICENSES, INSPECTIONS AND APPROVALS SHALL BE SECURED AND ALL FEES FOR SAME PAID BY CONTRACTOR.
2. THE INSTALLATION SHALL COMPLY WITH ALL APPLICABLE CODES: STATE, LOCAL AND NATIONAL, AND THE DESIGN, PERFORMANCE CHARACTERISTICS AND METHODS OF CONSTRUCTION OF ALL ITEMS AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE LATEST ISSUE OF THE VARIOUS APPLICABLE STANDARD SPECIFICATIONS OF THE FOLLOWING AUTHORITIES:

N.E.C.	NATIONAL ELECTRIC CODE
A.N.S.I.	AMERICAN NATIONAL STANDARDS INSTITUTE
I.E.E.E.	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
A.S.T.M.	AMERICAN SOCIETY FOR TESTING MATERIALS
N.E.M.A.	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
U.L.	UNDERWRITERS LABORATORIES, INC.
N.F.P.A.	NATIONAL FIRE PROTECTION ASSOCIATION

GROUNDING ELECTRODE SYSTEM:

1. CONNECTIONS
   ALL GROUNDING CONNECTIONS SHALL BE MADE BY THE "CADWELD" PROCESS CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, ETC. ALL CABLE TO GROUND RODS, GROUND RODS SPLICES AND LIGHTNING PROTECTION SYSTEM AS INDICATED. GROUND FOUNDATION ONLY AS INDICATED BY PM. ALL MATERIALS USED (MOLDS, WELDING, METAL, TOOLS, ETC.) SHALL BE BY "CADWELD" PROCESS AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND PROCEDURES. GROUND CONDUCTOR SHALL HAVE A MINIMUM 24" BENDING RADIUS.
2. ALL CADWELD CONNECTIONS ON GALVANIZED SURFACES SHALL BE CLEANED THOROUGHLY AND COLORED TO MATCH SURFACE WITH (2) TWO COATS OF SHERWIN-WILLIAMS GALVITE (WHITE) PAINT B50W3 (OR EQUAL) OR SHERWIN-WILLIAMS SILVERBRITE (ALUMINUM) B59S1 (OR EQUAL).
3. ALL ELECTRICAL & MECHANICAL GROUND CONNECTIONS SHALL HAVE ANTI-OXIDANT COMPOUND APPLIED TO CONNECTION

LEGEND

SYMBOL	DESCRIPTION
⊗	5/8" DIAMETER x 10'-0" LONG COPPER CLAD GROUND ROD (HARGER-5810)
⊗	5/8" DIAMETER X 10'-0" LONG COPPER CLAD GROUND ROD WITH INSPECTION WELL
———	#2 AWG TINNED SOLID BARE COPPER WIRE MINIMUM 42" BELOW GRADE (HARGER-L2)
●	CADWELD

4. FENCE/GATE:
   GROUND FENCE POSTS WITHIN 6 FEET OF ENCLOSURE AND 25 FEET OF TOWER AS INDICATED ON DRAWINGS. GROUND EACH GATE POST AND CORNER POST. GROUND CONNECTIONS TO FENCE POSTS SHALL BE MADE BY THE "CADWELD" PROCESS AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES. ALL OTHER CONNECTIONS FOR THE GROUND GRID SYSTEM SHALL BE MADE BY THE "CADWELD" PROCESS, AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES.
5. UTILITY COMPANY COORDINATION:
   ELECTRICAL CONTRACTOR SHALL CONFIRM THAT ALL WORK IS IN ACCORDANCE WITH THE RULES OF THE LOCAL UTILITY COMPANY BEFORE SUBMITTING THE BID. THE CONTRACTOR SHALL CHECK WITH THE UTILITY COMPANIES SUPPLYING SERVICE TO THIS PROJECT AND SHALL DETERMINE FROM THEM ALL EQUIPMENT AND CHARGES WHICH THEY WILL REQUIRE AND SHALL INCLUDE THE COST IN THE BID.
6. GROUND TEST:
   GROUND TESTS SHALL BE PERFORMED AS REQUIRED BY VERIZON STANDARD PROCEDURES. GROUND GRID RESISTANCE SHALL NOT EXCEED 5 OHMS.
7. CONTRACTOR SHALL SUBMIT THE GROUND RESISTANCE TEST REPORT AS FOLLOWS:
   1. ONE (1) COPY TO OWNER REPRESENTATIVE
   2. ONE (1) COPY TO ENGINEER
   3. ONE (1) COPY TO KEEP INSIDE EQUIPMENT ENCLOSURE

RACEWAYS AND WIRING:

1. WIRING OF EVERY KIND MUST BE INSTALLED IN CONDUIT, UNLESS NOTED OTHERWISE, OR AS APPROVED BY THE ENGINEER.
2. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE COPPER (CU) TYPE THWN, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
3. RACEWAYS SHALL BE GALVANIZED STEEL, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, UNLESS OTHERWISE NOTED. ALL RACEWAYS SHALL BE APPROVED FOR THE INSTALLATION.
4. PULL OR JUNCTION BOXES SHALL BE PROVIDED AS REQUIRED TO FACILITATE INSTALLATION OF RACEWAYS AND WIRING. PROVIDE JUNCTION AND PULLBOXES FOR CONDUIT RUNS WITH MORE THAN (360) DEGREES OF BENDS.
5. PROVIDE A COMPLETE RACEWAY AND WIRING INSTALLATION, PERMANENTLY AND EFFECTIVELY GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE AND LOCAL CODES.
6. ELECTRICAL PANELBOARD SHALL BE FURNISHED AND INSTALLED BY OTHERS. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION.
7. ALL STEEL CONDUIT SHALL BE BONDED AT BOTH ENDS WITH GROUNDING BUSHING.

GENERAL NOTES:
SEE DETAILS AND SCHEDULES ON DRAWINGS AND SPECIFICATIONS FOR MEANING OF ABBREVIATIONS AND ADDITIONAL REQUIREMENTS AND INFORMATION. CHECK ARCHITECTURAL, STRUCTURAL AND OTHER MECHANICAL AND ELECTRICAL DRAWINGS FOR SCALE, SPACE LIMITATIONS, COORDINATION, AND ADDITIONAL INFORMATION, ETC. REPORT ANY DISCREPANCIES, CONFLICTS, ETC. TO ENGINEER BEFORE SUBMITTING BID. ALL EQUIPMENT FURNISHED BY OTHERS (FBO) SHALL BE PROVIDED WITH PROPER MOTOR STARTERS, DISCONNECTS, CONTROLS, ETC. BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE. THE ELECTRICAL CONTRACTOR SHALL INSTALL AND COMPLETELY WIRE ALL ASSOCIATED EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S WIRE DIAGRAMS AND AS REQUIRED FOR A COMPLETE OPERATING INSTALLATION. ELECTRICAL CONTRACTOR SHALL VERIFY AND COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF (FBO) EQUIPMENT PRIOR TO ROUGH-IN OF CONDUIT AND WIRING TO AVOID CONFLICTS.

COORDINATION WITH UTILITY COMPANY:
THE ELECTRICAL CONTRACTOR SHALL COORDINATE COMPLETE ELECTRICAL SERVICE WITH LOCAL UTILITY COMPANY FOR A COMPLETE OPERATIONS SYSTEM, INCLUDING TRANSFORMER CONNECTIONS, CONCRETE TRANSFORMER PADS, IF REQUIRED, METER SOCKETS, PRIMARY CABLE RACEWAY REQUIREMENTS, SECONDARY SERVICE, ETC. PRIOR TO SUBMITTING BID TO INCLUDE ALL LABOR AND MATERIALS.
THE ELECTRICAL CONTRACTOR SHALL INCLUDE IN THE BID ANY OPTIONAL OR EXCESS FACILITY CHARGES ASSOCIATED WITH PROVIDING ELECTRICAL SERVICE FROM LOCAL UTILITY COMPANY. VERIFY BEFORE BIDDING TO INCLUDE ALL COSTS.

THE ELECTRICAL CONTRACTOR SHALL VERIFY THE AVAILABLE FAULT CURRENT WITH THE LOCAL UTILITY COMPANY PRIOR TO SUBMITTING BID. ADJUST A.I.C. RATINGS OF ALL OVERCURRENT PROTECTION DEVICES IN DISTRIBUTION EQUIPMENT AS REQUIRED TO COORDINATE WITH AVAILABLE FAULT CURRENT FROM LOCAL UTILITY COMPANY. ALL GROUNDING RODS PROVIDED BY THE POWER OR TELEPHONE UTILITY COMPANIES MUST BE TIED INTO THE MAIN EXTERNAL GROUND RING.

REV#	REVISIONS	DATE
	PRELIMINARY DRAWINGS	

PREPARED FOR:
VERIZON WIRELESS PERSONAL COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

DATE: 7/17/2007
DESIGNED BY: SEW
DRAWN BY: KJH
APPROVED BY: MLP

PREPARED BY:
RAMAKER & ASSOCIATES, INC.
1120 DALLAS STREET
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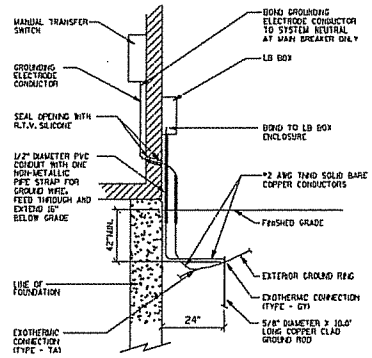
14-3650
HWY 151 & HWY 14
1326 S. MIDVALE BLVD.
MADISON, WI 53717

JOB: 11845

SHEET: GROUNDING PLAN & NOTES G-1

7/17/2007 4:53:47 PM I:\11800\11845\cad\telecom\plot\preliminary\11845 G-1 GROUNDING PLAN.dgn



ELECTRIC SERVICE GROUNDING DETAIL 1 G-2

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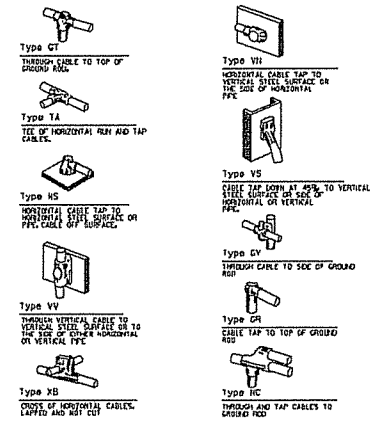

EXOTHERMIC WELD DETAILS 3 G-2

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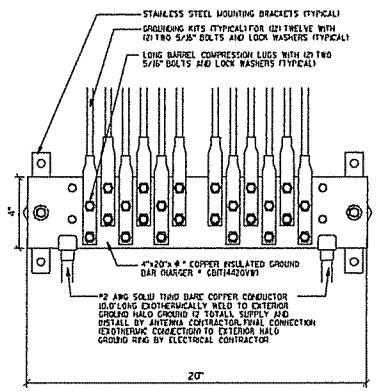
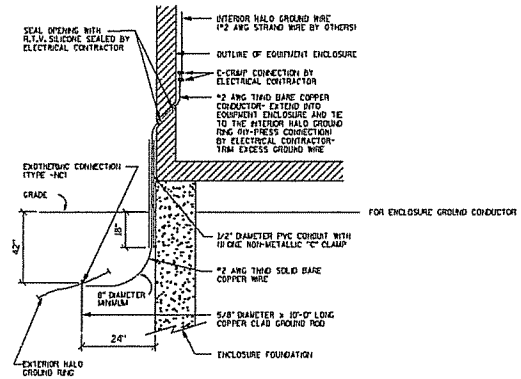


EXTERIOR GROUND BAR DETAIL 2 G-2

SCALE: NONE



ENCLOSURE GROUNDING DETAIL 4 G-2

SCALE: NONE

PREPARED FOR:

VERIZON WIRELESS PERSONAL COMMUNICATIONS LP
dba VERIZON WIRELESS
15725 RYERSON RD.
NEW BERLIN, WI 53151

DATE:	7/17/2007
DESIGNED BY:	SEW
DRAWN BY:	KJH
APPROVED BY:	MLP

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1326 S. MIDVALE BLVD.
MADISON, WI 53717

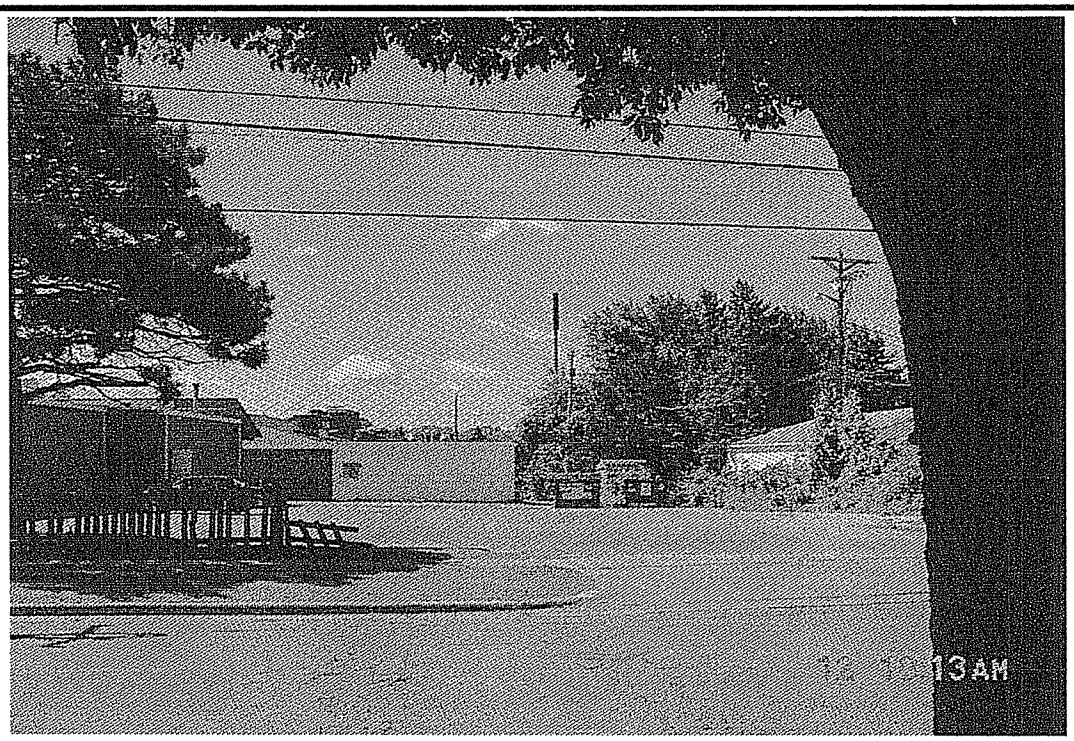
JOB: 11845

SHEET: GROUNDING DETAILS G-2

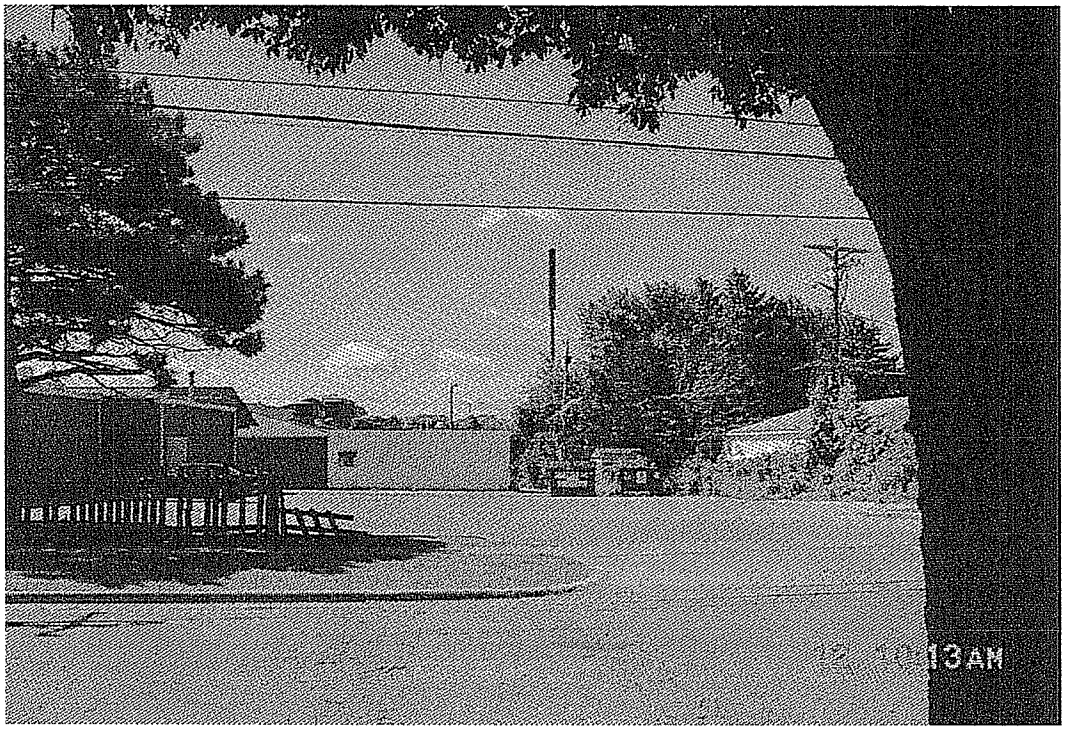
PRELIMINARY DRAWINGS

REVISIONS	BY/CHK	DATE

7/17/2007 4:53:51 PM N:\11800\11845\cad\telecom\plot\preliminary\11845 G-2 GROUNDING DETAILS.dgn



7. Photo Before Rendering/Simulation Looking South.

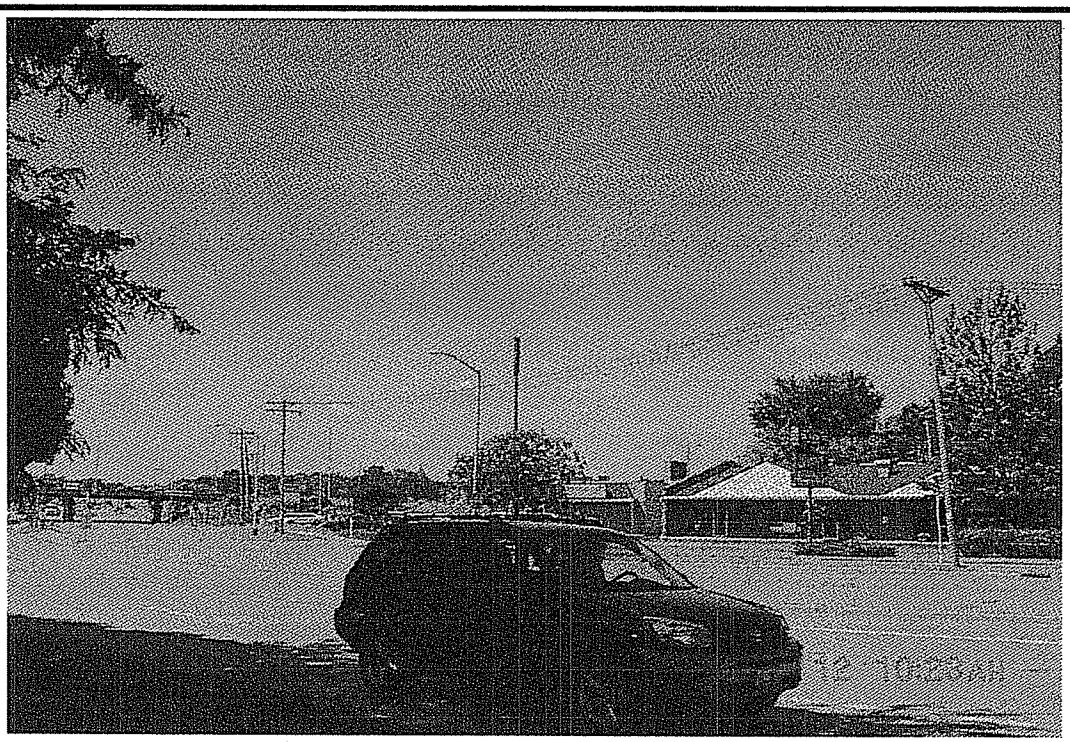


8. Photo Rendering/Simulation Looking South.

PHOTO SIMULATIONS

Job Name : Hwy 151&14 143650
Job Number : 11845
Site Address : 1326 S. Midvale Boulavard
Madison, WI 53717

RAMAKER & ASSOCIATES, INC.
1120 Dallas Street, Sauk City, WI 53583
Telephone : 608/643-4100
Facsimile : 608/643-7999



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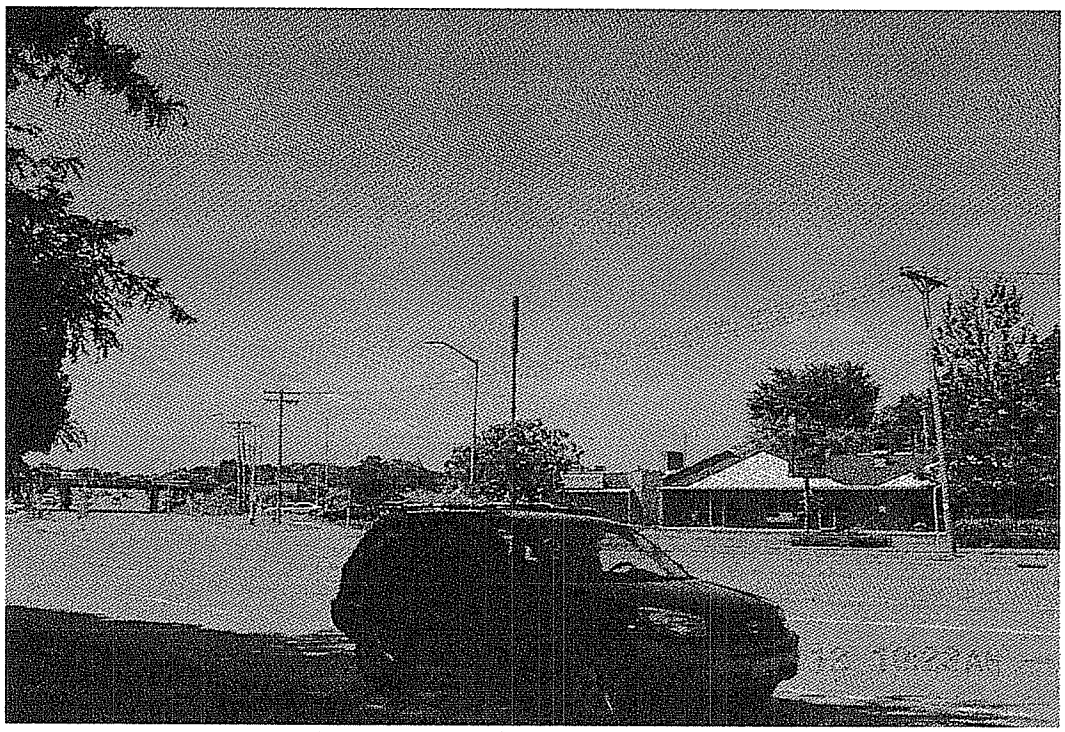

6. Photo Rendering/Simulation Looking West.

PHOTO SIMULATIONS

Job Name : Hwy 151&14 143650
Job Number : 11845
Site Address : 1326 S. Midvale Boulavard
Madison, WI 53717

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1120 Dallas Street, Sauk City, WI 53583
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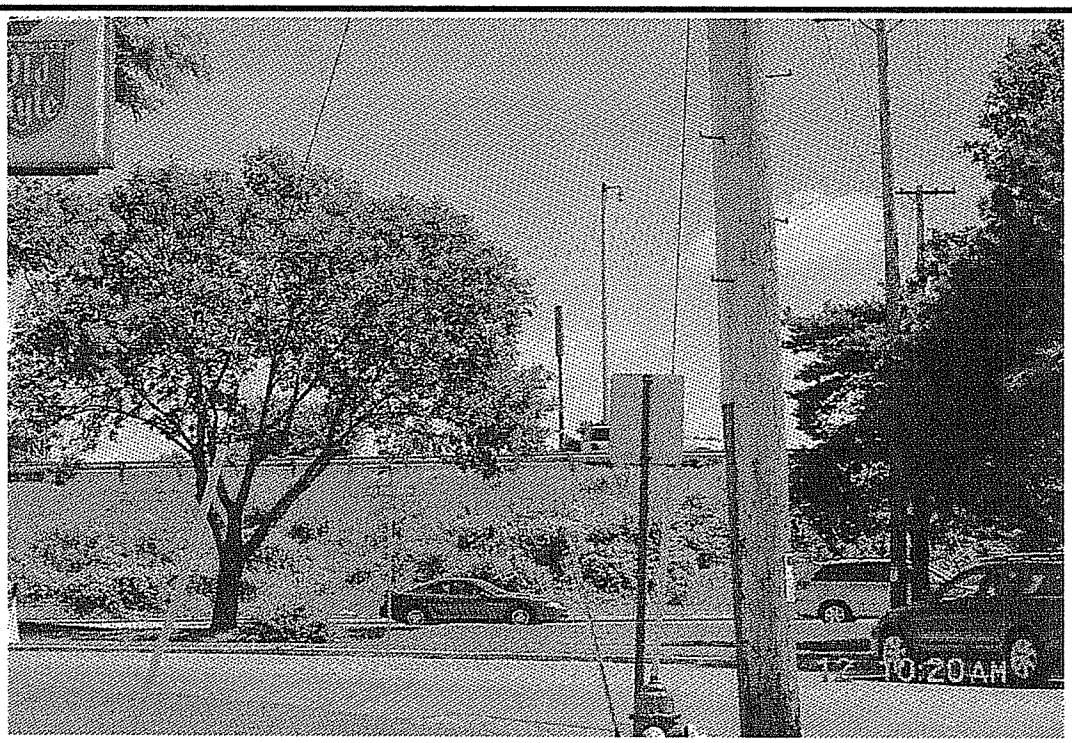

3. Photo Before Rendering/Simulation Looking North.

4. Photo Rendering/Simulation Looking North.

PHOTO SIMULATIONS

Job Name : Hwy 151&14 143650
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Site Address : 1326 S. Midvale Boulavard
Madison, WI 53717

RAMAKER & ASSOCIATES, INC.
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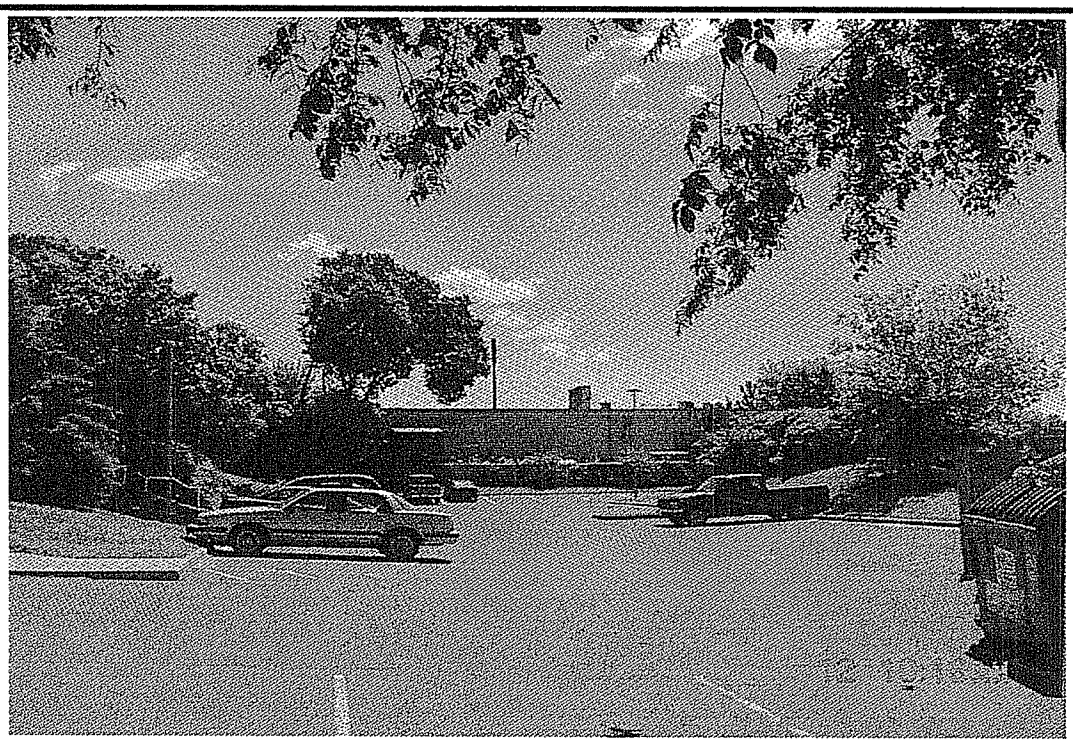

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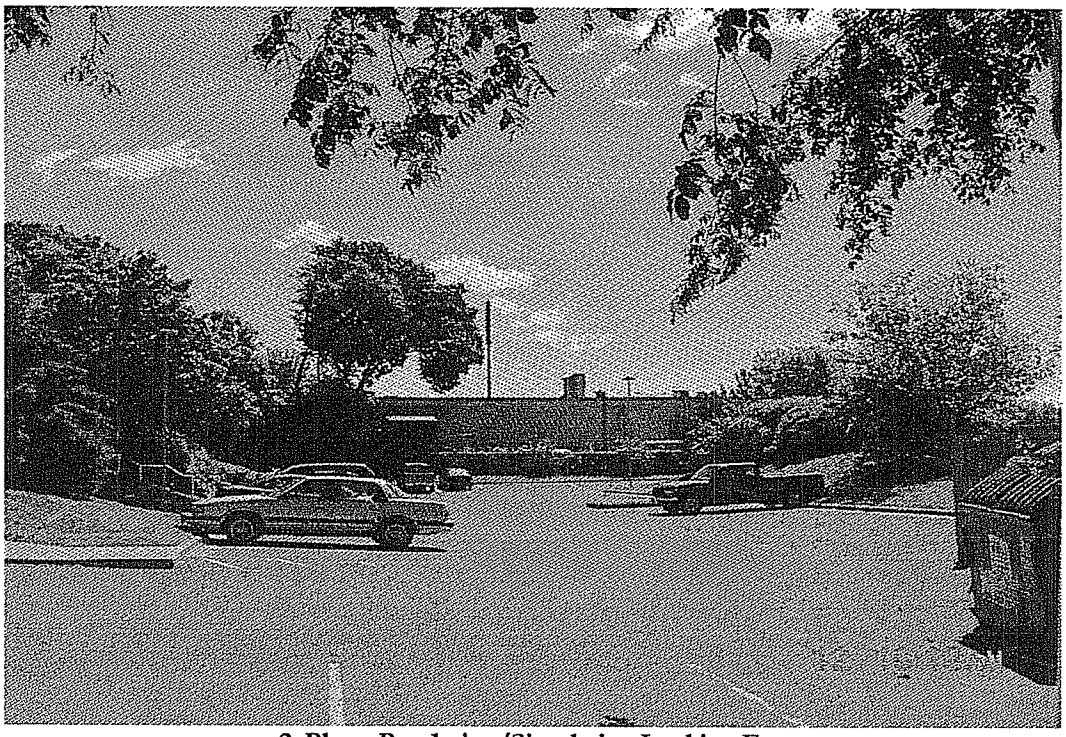

2. Photo Rendering/Simulation Looking East.

PHOTO SIMULATIONS

Job Name : Hwy 151&14 143650
Job Number : 11845
Site Address : 1326 S. Midvale Boulavard
Madison, WI 53717

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