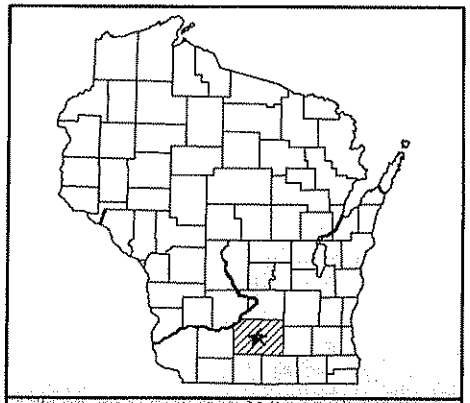
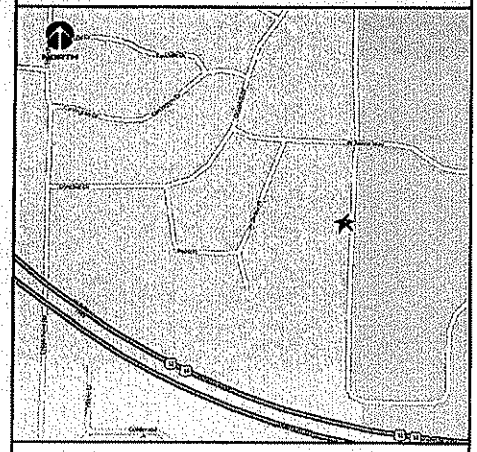




SITE LOCATION MAPS

FROM MADISON AREA:
On W TERRACE DR go toward EASTPARK BLVD go < 0.1 mi
Turn RIGHT on EASTPARK BLVD go 0.4 mi
Turn RIGHT on AMERICAN PKY go 0.1 mi
Take ramp onto US-151 S go 0.9 mi
Take exit # 97A/CHICAGO/MILWAUKEE onto I-90 E go 6.3 mi
Take exit # 142A/MADISON onto US-12 W go 13.1 mi
Take exit # 254/MINERAL PT RD onto MINERAL POINT RD go 0.4 mi
Turn RIGHT on S HIGH POINT RD go 0.3 mi
Turn LEFT on DONOFRIO DR go 0.4 mi
Turn RIGHT on W TOWNE WAY go 0.1 mi
Turn RIGHT on ZOR SHRINE PL go 0.2 mi
Arrive at 575 DONOFRIO DRIVE on the LEFT

TRIP DISTANCE:
22.1 miles, Time: 26 mins

DISTANCE TO NEAREST INTERSECTION:
ON SOUTH SIDE OF ROAD APPROX. 300' EAST OF S HIGH POINT ROAD

DRIVING DIRECTIONS

U.S. Cellular

ZOR [#782483]
MADISON, WISCONSIN
CONSTRUCTION DRAWINGS
70' LIGHT POLE
OCTOBER 2009

SHEET INDEX:

* PREPARED BY OTHERS

PROJECT DIRECTORY:

ENGINEER:
EDGE CONSULTING ENGINEERS, INC.
624 WATER STREET
PRAIRIE DU SAC, WI 53578
CONTACT: ANDREW BRADLEY
PHONE: 608.644.1449
FAX: 262.364.3000

CLIENT:
U.S. CELLULAR - MADISON
8117 WEST TERRACE DRIVE
MADISON, WI 53718
CONTACT: MIKE STAFFORD
PHONE: 608.235.9904

SITE ACQUISITION:
BUELL CONSULTING
1200 RIVA RIDGE
RACINE, WI 53402
CONTACT: NATHAN WARD
PHONE: 414.788.1327

SURVEYOR:
REIGEL LAND SURVEYING
3308 HIGH ROAD
MIDDLETON, WI 53562
CONTACT: MATT REIGEL
PHONE: 608.712.6767

PROJECT INFO:

SITE LOCATION:
675 D'ONOFRIO DRIVE
MADISON, WI 53719

SITE #: 782483

PROPERTY OWNER:
HIGH POINT OFFICE PARK, LLC
P.O. BOX 7700
MADISON, WI 53707
CONTACT: TERRY BELL
PHONE: 608.241.2100

2C INFORMATION (PER SURVEY)
LAT: 43°-03'-22.52"
LONG: 89°-30'-43.74"
GROUND ELEVATION: 1067.9'

PLSS INFORMATION
A PART OF THE SW 1/4 OF THE NE 1/4
SECTION 26, T.7N., R.8E.,
CITY OF MADISON
DANE COUNTY
WISCONSIN

UTILITY INFORMATION

ELECTRIC SERVICE PROVIDER: MADISON GAS & ELECTRIC
608.252.7000

TELEPHONE SERVICE PROVIDER: AT&T
PHONE: 800.258.2020

TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN, CALL DIGGERS HOTLINE
TOLL FREE
1-800-242-8511
FAX A LOCATE 1-800-338-3860
WIS. STATUTE 182.0175 (1974) REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE.

WISCONSIN
DAVID C. LYSHEK
39472
PRAIRIE DU SAC, WI
PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THIS PLAN SET 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.

Signature:

Date: 10/21/09

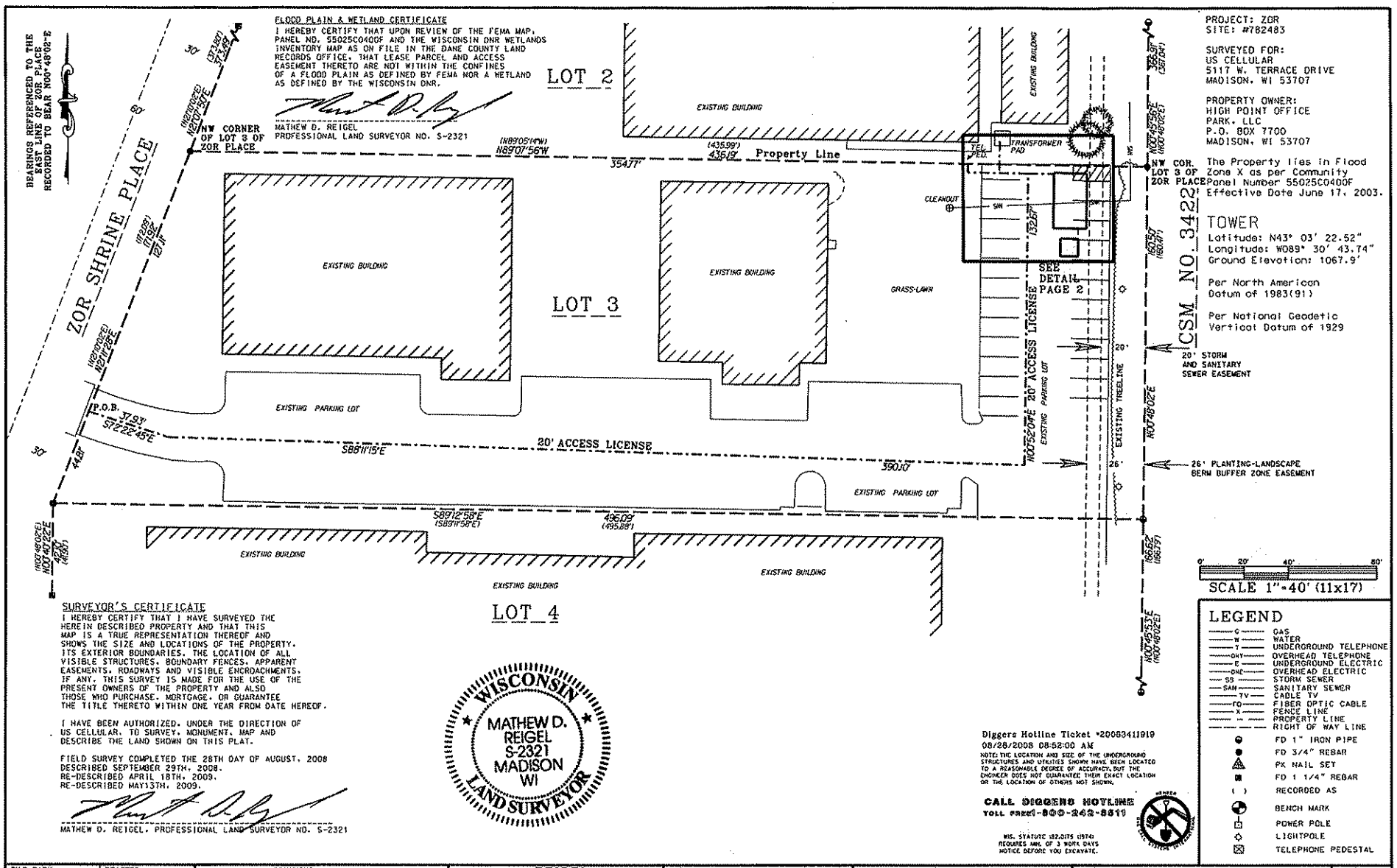
Edge
Consulting Engineers, Inc.
624 Water Street
Prairie du Sac, WI 53578
608.644.1449 voice
262.364.3000 fax
www.edgeconsult.com

TITLE SHEET
ZOR [#782483]
MADISON, WISCONSIN

SHEET TITLE

ISSUE DATE:
PRELIM CDs - 09/30/09
PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 05/15/09
FINAL CDs - 10/21/09
REVISIONS:
BUILDING LOCATION - 04/01/09
LEASE LOCATION - 05/15/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/28/09
DRAWN BY:
MJL, AJC, JMH
CHECKED BY:
AKB
PLOT DATE:
10/21/2009
PROJECT NUMBER:
3593
FILE NAME:
E-Edge

SHEET NUMBER:
T-1



FILE PATH:	DRAFTED:	REVISIONS		
C:\PROJECTS\1194\	MDR	NO.	DATE	REMARKS
	CHECKED:	1	04/16/09	MOVED LEASE PARCEL
1194TOPO.DGN		2	05/13/09	CHANGED LEASE PARCELS
JOB NUMBER:	DATE:	3	05/15/09	CHANGED EASEMENT TO LICENSE
1194	08/29/08			

REIGEL LAND SURVEYING
3308 High Road
Middleton, Wisconsin 53562
Voice: 608-712-8767
reigellandsurveying@charter.net

PREPARED FOR: U.S. Cellular.
5117 W. TERRACE DRIVE
MADISON, WI 53707
PHONE: (608) 441-6532
FAX: (608) 441-6102

PROJECT INFORMATION:
SITE NAME: ZOR
SITE NUMBER: #782483
SITE ADDRESS: 676 D'ONOFRIO DRIVE MADISON, WI 53719
OWNER: HIGH POINT OFFICE PARK LLC

SHEET TITLE
TOPOGRAPHIC AND BOUNDARY SURVEY

SHEET NUMBER
1-2

LEASE PARCEL "A" DESCRIPTION

A PART OF LOT 3 OF ZOR PLACE LOCATED IN THE SOUTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 26, TOWNSHIP 07 NORTH, RANGE 08 EAST, CITY OF MADISON, DANE COUNTY, WISCONSIN DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID LOT 3; THENCE N89°07'56"W, ALONG THE NORTH LINE OF SAID LOT 3, 27.25 FEET; THENCE S00°52'04"W, 3.50 FEET TO THE POINT OF BEGINNING; THENCE S00°52'04"W, 25.00 FEET; THENCE N89°07'56"W, 15.00 FEET; THENCE N00°52'04"E, 25.00 FEET; THENCE S89°07'56"E, 15.00 FEET TO THE POINT OF BEGINNING. PARCEL CONTAINS 375 SQUARE FEET. PARCEL IS SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.

LEASE PARCEL "B" DESCRIPTION

A PART OF LOT 3 OF ZOR PLACE LOCATED IN THE SOUTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 26, TOWNSHIP 07 NORTH, RANGE 08 EAST, CITY OF MADISON, DANE COUNTY, WISCONSIN DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID LOT 3; THENCE N89°07'56"W, ALONG THE NORTH LINE OF SAID LOT 3, 27.25 FEET; THENCE S00°52'04"W, 28.50 FEET; THENCE N89°07'56"W, 3.71 FEET; THENCE S00°52'04"W, 4.77 FEET TO THE POINT OF BEGINNING; THENCE S00°52'04"W, 8.00 FEET; THENCE N89°07'56"W, 8.00 FEET; THENCE N00°52'04"E, 8.00 FEET; THENCE S89°07'56"E, 8.00 FEET TO THE POINT OF BEGINNING. PARCEL CONTAINS 64 SQUARE FEET. PARCEL IS SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.

8' UTILITY LICENSE "A" DESCRIPTION

A PART OF LOTS 2 AND 3 OF ZOR PLACE LOCATED IN THE SOUTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 26, TOWNSHIP 07 NORTH, RANGE 08 EAST, CITY OF MADISON, DANE COUNTY, WISCONSIN WHOSE CENTERLINE IS DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID LOT 3; THENCE N89°07'56"W, ALONG THE NORTH LINE OF SAID LOT 3, 27.25 FEET; THENCE S00°52'04"W, 3.50 FEET; THENCE N89°07'56"W, 15.00; THENCE S00°52'04"W, 0.50 FEET TO THE POINT OF BEGINNING; THENCE N89°07'56"W, 39.17 FEET; THENCE N00°52'04"E, 6.60 FEET TO THE POINT OF TERMINATION. PARCEL IS SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.

8' UTILITY LICENSE "B" DESCRIPTION

A PART OF LOTS 2 AND 3 OF ZOR PLACE LOCATED IN THE SOUTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 26, TOWNSHIP 07 NORTH, RANGE 08 EAST, CITY OF MADISON, DANE COUNTY, WISCONSIN WHOSE CENTERLINE IS DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID LOT 3; THENCE N89°07'56"W, ALONG THE NORTH LINE OF SAID LOT 3, 27.25 FEET; THENCE S00°52'04"W, 3.50 FEET; THENCE N89°07'56"W, 15.00; THENCE S00°52'04"W, 0.50 FEET TO THE POINT OF BEGINNING; THENCE N89°07'56"W, 24.77 FEET; THENCE N00°52'04"E, 14.43 FEET TO THE EXISTING ELECTRICAL TRANSFORMER. PARCEL IS SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.

20' ACCESS LICENSE DESCRIPTION

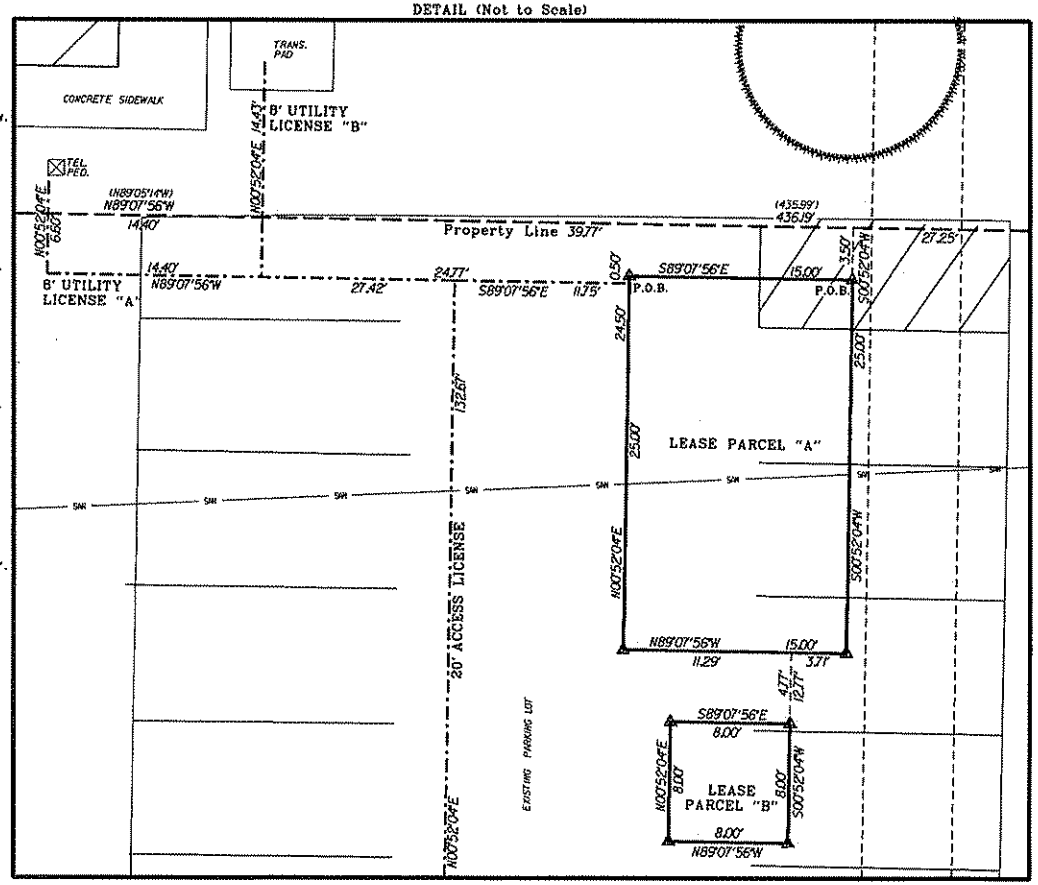
A PART OF LOT 3 OF ZOR PLACE LOCATED IN THE SOUTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 26, TOWNSHIP 07 NORTH, RANGE 08 EAST, CITY OF MADISON, DANE COUNTY, WISCONSIN WHOSE CENTERLINE IS DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID LOT 3; THENCE S21°11'28"W, ALONG THE WEST LINE OF SAID LOT 3, 127.11 FEET TO THE POINT OF BEGINNING; THENCE S72°22'45"E, 37.93 FEET; THENCE S88°11'15"E, 390.10 FEET; THENCE N00°52'04"E, 132.67 FEET; THENCE S89°07'56"E, 11.75 FEET TO THE POINT OF TERMINATION IN THE EAST LINE OF LEASE PARCEL "A". PARCEL IS SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.

WISCONSIN
MATHEW D. REIGEL
S-2321
MADISON WI
LAND SURVEYOR

MAY 15TH, 2009

DETAIL (Not to Scale)



PROJECT: ZOR
SITE: #782483

SURVEYED FOR:
US CELLULAR
5117 W. TERRACE DRIVE
MADISON, WI 53707

PROPERTY OWNER:
HIGH POINT OFFICE
PARK, LLC
P.O. BOX 7700
MADISON, WI 53707

The Property lies in Flood Zone X as per Community Panel Number 55025C0400F Effective Date June 17, 2003.

TOWER
Latitude: N43° 03' 22.52"
Longitude: W089° 30' 43.74"
Ground Elevation: 1067.9'

Per North American Datum of 1983(91)

Per National Geodetic Vertical Datum of 1929

FILE PATH:	DRAFTED:
G:\PROJECTS\1194\	MDR
	CHECKED:
1194TOPO.DGN	
JOB NUMBER:	DATE:
1194	05/29/09

REVISIONS		
NO.	DATE	REMARKS
1	04/15/09	MOVED LEASE PARCEL
2	05/13/09	CHANGED LEASE PARCELS
3	05/15/09	CHANGED EASEMENT TO LICENSE

REIGEL LAND SURVEYING
3308 High Road
Middleton, Wisconsin 53562
Voice: 608-712-8757
reigellandsurveying@charter.net

PREPARED FOR: U.S. Cellular.
5117 W. TERRACE DRIVE
MADISON, WI 53707
PHONE: (608) 441-5552
FAX: (608) 441-5105

PROJECT INFORMATION:
SITE NAME: ZOR
SITE NUMBER: 782483
SITE ADDRESS: 575 D'ONOFRIO DRIVE
MADISON, WI 53719
OWNER: HIGH POINT OFFICE PARK LLC

SHEET TITLE: DETAIL AND DESCRIPTIONS

SHEET NUMBER: 2-2

GENERAL REQUIREMENTS

1. SITE WORK SHALL BE COMPLETED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS (US CELLULAR STANDARD PLANS AND SPECIFICATIONS) AND THE REFERENCED STANDARDS.
   A. ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES AND REGULATIONS.
   B. UNIFORM BUILDING CODE (UBC) BUILDING OFFICIALS & CODE ADMINISTRATORS (BOCA) AS APPLICABLE.
   C. AMERICAN CONCRETE INSTITUTE (ACI).
   D. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM).
   E. ELECTRONICS INDUSTRIES ASSOCIATION STANDARDS (EIA/TIA-222-E)
   F. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
2. WHERE A CONFLICT OCCURS BETWEEN REFERENCED STANDARDS AND US CELLULAR STANDARD PLANS AND SPECIFICATIONS, THE MORE STRINGENT STANDARD SHALL APPLY.
3. THE FACILITY IS AN UNOCCUPIED SPECIALIZED MOBILE RADIO FACILITY.
4. PLANS ARE NOT TO BE SCALED AND ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY. UNLESS NOTED OTHERWISE THE WORK SHALL INCLUDE FURNISHING, MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
5. PRIOR TO THE SUBMISSIONS OF THE BIDS, THE CONTRACTOR SHALL VISIT THE JOB SITE AND BECOME FAMILIAR WITH THE FIELD CONDITIONS. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.
6. THE CONTRACTOR SHALL RECEIVE IN WRITING, AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEM NOT CLEARLY IDENTIFIED BY THE CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY OTHERWISE NOTED.
8. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING BEST SKILLED PERSONNEL. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT INCLUDING CONTACT AND COORDINATION WITH THE LANDLORDS AUTHORIZED REPRESENTATIVE.
9. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS OF THE SITE AND NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES BEFORE STARTING ANY WORK.
10. WHEN CONTRACTOR'S ACTIVITIES IMPEDE OR OBSTRUCT TRAFFIC FLOW, CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL DEVICES, SIGNS, AND FLAGMEN IN ACCORDANCE WITH PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
11. THE CONTRACTOR SHALL COORDINATE SITE ACCESS AND SECURITY WITH THE PROPERTY OWNER AND US CELLULAR PRIOR TO CONSTRUCTION.
12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, PAVING, CURBS, GALVANIZED SURFACES, ETC., AND UPON COMPLETION OF WORK REPAIR ANY DAMAGE THAT OCCURRED DURING CONSTRUCTION.
13. THE LOCATIONS OF UTILITIES SHOWN ON THE PLAN ARE BASED ON EXISTING RECORDS, FIELD LOCATIONS OR OWNER SUPPLIED INFORMATION AND MAY NOT BE ACCURATE. THE CONTRACTOR SHALL MARK ALL PUBLIC & PRIVATE UTILITIES. THE CONTRACTOR SHALL CALL THE LOCAL "ONE CALL" PROVIDER A MINIMUM OF THREE BUSINESS DAYS PRIOR TO EXCAVATING TO ALLOW MEMBER UTILITIES TO LOCATE THEIR FACILITIES. THE PROPERTY OWNER SHALL BE NOTIFIED IN A SIMILAR FASHION TO ALLOW HIM TO LOCATE HIS PRIVATE UTILITIES.
14. WHEN EXCAVATING AROUND UTILITIES, THE CONTRACTOR SHALL USE REASONABLE CARE IN LOCATING AND PROTECTING UTILITIES. US CELLULAR SHALL BE NOTIFIED IMMEDIATELY OF ANY CONFLICTS BETWEEN EXISTING UTILITIES AND PROPOSED CONSTRUCTION.
15. DAMAGE TO PUBLIC OR PRIVATE UTILITIES SHALL BE REPORTED TO US CELLULAR AND THE OWNER OF THE UTILITY IMMEDIATELY. ANY DAMAGE RESULTING FROM CONTRACTORS NEGLIGENCE OR FAILURE TO ACT WITH DUE REGARD SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
16. UNLESS OTHERWISE NOTED ON THE PLANS, CONTRACTOR SHALL ASSUME ALL SURFACE FEATURES SUCH AS BUILDINGS, PAVEMENTS, LANDSCAPING FEATURES AND PLANTS ARE TO BE SAVED AND PROTECTED FROM DAMAGE.
17. KEEP THE CONSTRUCTION SITE CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
18. THE CONTRACTOR SHALL PROVIDE ON-SITE TRASH RECEPTACLES FOR COLLECTION OF NON-TOXIC DEBRIS. ALL TRASH SHALL BE COLLECTED ON A DAILY BASIS.
19. ALL TOXIC AND ENVIRONMENTALLY HAZARDOUS SUBSTANCES SHALL BE USED AND DISPOSED OF IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS. UNDER NO CIRCUMSTANCES SHALL RINSING OR DUMPING OF THESE SUBSTANCES OCCUR ON-SITE.
20. THE CONTRACTOR SHALL MAINTAIN AND SUPPLY US CELLULAR AND PROPERTY OWNER WITH AS-BUILT PLANS UPON COMPLETION OF THE PROJECT.
21. MEANS AND METHODS OF CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, THE DESIGN AND PLACEMENT OF FORMS AND SHORING ARE THE RESPONSIBILITY OF THE CONTRACTOR.
22. THE CONTRACTOR SHALL COORDINATE/ASSIST DIFFERENT TRADE CONTRACTORS IN TERMS OF COORDINATION AND SITE ACCESS.
23. ALL ARCHITECTURAL, MECHANICAL & ELECTRICAL SYSTEM AND COMPONENTS IN THIS FACILITY SHALL BE INSTALLED TO RESIST WIND, ICE AND SNOW FORCES AS PER NATIONAL STANDARDS AND BUILDING CODES (LATEST ADOPTED EDITION).
24. US CELLULAR WILL OBTAIN NECESSARY PERMITS AND LICENSES FORM THE FEDERAL COMMUNICATIONS COMMISSION (FCC) AND THE FEDERAL AVIATION ADMINISTRATION (FAA). UNLESS OTHERWISE NOTED IN THE PLANS OR SPECIAL PROVISIONS, CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL OTHER PERMITS NECESSARY FOR CONSTRUCTION.
25. US CELLULAR WILL ORDER AND PAY FOR ANY NECESSARY ELECTRIC AND TELEPHONE UTILITY INSTALLATIONS TO THE POINT OF TERMINATION AS SHOWN ON THE PROJECT PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH UTILITIES.
26. US CELLULAR WILL PROVIDE PRIMARY HORIZONTAL AND VERTICAL CONTROL FOR CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE TO CORRECTLY TRANSFER LINE AND GRADE. THE CONTRACTOR SHALL PROVIDE ANY ADDITIONAL STAKING OR RESTAKING.
27. US CELLULAR MAY RETAIN THE SERVICES OF A TESTING LABORATORY TO PERFORM QUALITY ASSURANCE TESTING ON VARIOUS PORTIONS OF THE CONTRACTORS WORK. WHEN REQUESTED, THE CONTRACTOR SHALL INFORM THE TESTING LABORATORY AND ASSIST THEM IN COMPLETING TESTS.
28. THE CONTRACTOR SHALL PROVIDE ANY TEMPORARY UTILITIES OR FACILITIES IT DEEMS NECESSARY TO COMPLETE IT'S WORK. THIS INCLUDES, BUT IS NOT LIMITED TO WATER, SEWER, POWER, TELEPHONE, HEAT, LIGHTING OR SECURITY.
29. NOTIFY ENGINEER 2 DAYS IN ADVANCE OF INITIATING SITE CONSTRUCTION ACTIVITIES.

DEMOLITION

1. PERFORM DEMOLITION AND REMOVAL OF EXISTING MATERIALS OR STRUCTURES AS SHOWN ON THE PLANS AND AS SPECIFIED IN SPECIAL CONDITIONS. PROTECT EXISTING FACILITIES OR STRUCTURES THAT ARE TO REMAIN.
2. COMPLETE DEMOLITION IN A SYSTEMATIC MANNER BEGINNING AT THE HIGHEST LEVEL.
3. NEATLY SAW OR CUT JOINTS AT THE LIMITS OF REMOVAL; WHENEVER POSSIBLE LOCATE CUTS AT EXISTING JOINTS.
4. PATCH AND REPAIR ANY DAMAGED SURFACES OR STRUCTURAL MEMBERS AT THE LIMITS OF REMOVAL.
5. REMOVAL DEMOLITION DEBRIS FROM THE SITE ON A REGULAR BASIS. DISPOSE ALL DEBRIS OFFSITE IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. BURNING OF MATERIAL SHALL NOT BE ALLOWED UNLESS OTHERWISE NOTED IN THE PLANS OR SPECIAL PROVISIONS.

CLEARING AND GRUBBING

1. REMOVE TREES, STUMPS, SHRUBS, GRASS AND OTHER VEGETATION AS SHOWN ON THE PLANS TO ALLOW FOR CONSTRUCTION OF NEW CELLULAR FACILITIES.
2. WHEN POSSIBLE, NEATLY TRIM OR CUT BACK EXISTING TREES OR VEGETATION TO ALLOW FOR CONSTRUCTION OF NEW CELLULAR FACILITIES.
3. WHEN CLEARING TREES, PROTECT ALL SURROUNDING STRUCTURES, PAVEMENTS AND LANDSCAPING BY TOPPING, TRIMMING AND USING GUY LINES.
4. COMPLETELY REMOVE ALL STUMPS AND ROOTS. STUMPS AND ROOTS MAY BE REMOVED BY GRUBBING, CHIPPING OR GRINDING.
5. DISPOSE OF ALL DEBRIS OFFSITE IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. BURNING OF MATERIAL SHALL NOT BE ALLOWED UNLESS OTHERWISE NOTED IN THE PLANS OR SPECIAL PROVISIONS.

EARTHWORK

1. REMOVE TOPSOIL FROM BENEATH ALL PROPOSED ROADS, PARKING AREAS, BUILDINGS AND AREAS TO RECEIVE MORE THAN 6" OF FILL. STOCKPILE TOPSOIL FOR USE DURING RESTORATION.
2. ALL TREES DESIGNATED TO REMAIN SHALL BE PROTECTED DURING CONSTRUCTION BY A 5 FOOT HIGH TREE BARRIER UTILIZING WIRE FENCING, OR PROTECTIVE SAFETY NETTING. SEE DETAIL 1/L1-1.
3. GRADE AREAS IN ACCORDANCE WITH ELEVATIONS AND GRADES SHOWN ON THE PLANS OR AS NECESSARY IN GRADING TO PROVIDE DRAINAGE.
4. FILL MATERIAL USED IN GRADING OPERATIONS SHALL CONSIST OF EARTH WHICH IS FREE OF DEBRIS, BOULDERS OR ORGANIC MATERIAL. FILL SHALL BE PLACED IN 12" LIFTS AND COMPACTED TO 90% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY.
5. ALL FILL SHALL BE TESTED FOR FIELD DENSITY. TESTS SHALL BE TAKEN IN EACH LIFT OF FILL AT LOCATIONS DESIGNATED BY THE OWNER'S REPRESENTATIVE.
6. SELECT GRANULAR FILL SHALL BE USED WHEN FILLING OR BACKFILLING BENEATH AND/OR AROUND ANY STRUCTURES, ROADS OR PARKING AREAS. SELECT FILL SHALL BE PLACED IN 9" LIFTS AND COMPACTED TO 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY. SELECT GRANULAR FILL SHALL CONSIST OF SAND, GRAVEL OR MIXTURE OF SAND AND GRAVEL FREE OF ORGANIC MATERIAL. THE MATERIAL SHALL HAVE A 2" MAXIMUM SIZE, LESS THAN 10% PASSING NO. 200 SIEVE, A PLASTICITY INDEX OF 6 OR LESS, AND A UNIFORMITY COEFFICIENT OF 5 OR GREATER.
7. ALL DISTURBED AREAS SHALL BE RESTORED AS SOON AS POSSIBLE WITH 4" TOPSOIL, SEED, FERTILIZER AND MULCH. GRASS SEED SHALL BE A SUITABLE MIX CONTAINING BOTH ANNUAL AND PERENNIAL VARIETIES OF FESCURE, RYE AND BLUEGRASS. FERTILIZER SHALL CONTAIN A MINIMUM OF 10% EACH OF NITROGEN, PHOSPHORIC ACID AND POTASH. MULCH SHALL BE A STRAW OR HAY MIXTURE FREE OF NOXIOUS WEED SEEDS. APPLY SEED AND FERTILIZER AS RECOMMENDED BY MANUFACTURER. MULCH SHALL BE CRIMPED AFTER APPLICATION.

Edge
Communicating Engineering, Inc.
632 Wolfe Street
Prairie du Sac, WI 53578
608.644.1449 voice
262.544.3000 fax
www.edgeconsult.com

SPECIFICATIONS

ZOR [#782483]

MADISON, WISCONSIN

SHEET TITLE

ISSUE DATE
PRELIM CDs - 09/26/08
PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 09/15/09
FINAL CDs - 10/21/09
REVISIONS
BUILDING LOCATION - 04/01/09
LEASE LOCATION - 05/15/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/28/09

DRAWN BY:
MJL AJC JAH
CHECKED BY:
ASS
PLOT DATE:
10/22/2009
PROJECT NUMBER:
0595
FILE NAME:
SP-1.dgn

SHEET NUMBER:

SP-1

9. THE CONTRACTOR SHALL VERIFY, UPON COMPLETION OF DEVELOPMENT, THE SITE IS PROPERLY STABILIZED AND ALL INDICATED SWALES & STORMWATER FACILITIES ARE CONSTRUCTED AS INDICATED ON THE PLANS.

10. TOWER, TOWER FOUNDATIONS, SLABS, MODULAR BUILDINGS, AND ELECTRICAL AND MECHANICAL FEATURES ARE TO BE DESIGNED AND SPECIFIED BY OTHERS.

11. EROSION CONTROL - ALL MEASURES SHALL BE INSPECTED DAILY AND IMMEDIATELY FOLLOWING ALL RAIN FALL EVENTS. ALL DEFICIENCIES SHALL BE NOTED AND REPAIRED IMMEDIATELY.

12. SEDIMENTATION CONTROL - SEDIMENTATION CONTROL SHALL BE ACCOMPLISHED DURING CONSTRUCTION THROUGH THE USE OF SILT FENCING PLACED AS SHOWN ON THE ATTACHED PLAN. THE CONTROL DEVICES SHALL BE SET AT THE ONSET OF SITE GRADING TO PREVENT SILTING OF THE EXISTING STORMWATER FACILITIES.

EROSION CONTROL

1. CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES IN ACCORDANCE WITH THE MOST STRINGENT OF: PROJECT PLANS, SPECIAL PROVISIONS, THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES "WISCONSIN CONSTRUCTION SITE BEST MANAGEMENT PRACTICE HANDBOOK", OR LOCAL ORDINANCES.

2. ESTABLISH EROSION CONTROL MEASURES PRIOR TO STARTING CONSTRUCTION AND MAINTAIN THROUGHOUT CONSTRUCTION. INSPECT EROSION CONTROL MEASURES FOLLOWING EACH RAINFALL EVENT AND REPAIR AS NECESSARY.

ROAD AND PARKING AREA CONSTRUCTION

1. PREPARE SUBGRADE FOR ROADS AND PARKING AREAS IN ACCORDANCE WITH "EARTHWORK" SECTION.

2. PROOF ROLL ROAD TO IDENTIFY UNSUITABLE MATERIALS. EXCAVATE UNSUITABLE MATERIAL OFFSITE. BACKFILL UNDERCUT EXCAVATION USING 3" BREAKER RUN MATERIAL. BREAKER RUN MATERIAL SHALL BE CRUSHED STONE MEETING THE FOLLOWING GRADATION:

SIEVE SIZE	% WEIGHT PASSING
3"	100
1 1/2"	0-60
3/4"	0-20
#200	0-10

3. PLACE CRUSHED AGGREGATE BASE COURSE IN MAXIMUM OF 6" THICK LIFTS IN ACCORDANCE WITH DETAIL DRAWINGS. MOISTURE CONDITION BASE COURSE AS NECESSARY TO ACHIEVE COMPACTION. BASE COURSE SHALL BE COMPACTED TO 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY. BASE COURSE MATERIAL SHALL MEET THE FOLLOWING REQUIREMENTS:

3" BASS COURSE

SIEVE SIZE	% WEIGHT PASSING
3"	100
2 1/2"	25-60
3/4"	0-20
3/8"	0-5

1 1/2" BASE COURSE

SIEVE SIZE	% WEIGHT PASSING
1 1/2"	100
1"	70-100
3/4"	55-95
3/8"	30-65
#4	25-55
#10	15-40
#200	0-10

4. PLACE BASE COURSE WITH CROWN OR UNIFORM SLOPE AS NECESSARY TO PROVIDE DRAINAGE FROM THE SITE.

5. GEOTEXTILE FABRIC SHALL BE USED IN THE EVENT OF UNSTABLE SOIL CONDITIONS. VERIFICATION OF SUCH CONDITIONS IS THE RESPONSIBILITY OF THE CONTRACTOR.

CONCRETE AND STEEL REINFORCEMENT

1. CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C94. CONCRETE SHALL BE 6 BAG MIX HAVING A 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI, MAXIMUM AGGREGATE SIZE OF 1", MAXIMUM WATER CEMENT RATIO OF 0.45, AIR ENTRAINMENT OF 6% +/- 1%, AND SLUMP OF 3" +/- 1". DEVIATIONS FROM THE MIX MUST BE APPROVED BY US CELLULAR PRIOR TO USE.

2. CONCRETE CONSTRUCTION SHALL BE COMPLETED IN ACCORDANCE WITH THE MOST STRINGENT OF: PROJECT PLANS, SPECIAL PROVISIONS, OR THE AMERICAN CONCRETE INSTITUTE (ACI) PUBLICATIONS. CONCRETE WORK FOR TOWER FOUNDATIONS SHALL BE COMPLETED IN ACCORDANCE WITH PLANS AND SPECIFICATIONS PROVIDED BY THE TOWER VENDOR.

3. FORM MATERIALS WILL COMPLY WITH ACI 301. PLYWOOD FORMS SHALL BE APA B-B PLYFORM CLASS I SOUND SHEETS. LUMBER SHALL BE SPRUCE-PINE-FIR SPECIES #2 OR BETTER GRADE. TUBULAR COLUMN FORMS MAY BE SPIRALLY WOUND LAMINATED FIBER MATERIAL. FORM TIES SHALL BE REMOVABLE OR SNAP-OFF METAL TYPE.

4. CONCRETE SHALL BE MADE OF CEMENT MEETING THE REQUIREMENTS OF ASTM C150, NORMAL, TYPE I PORTLAND. FINE AND COARSE AGGREGATES FOR CONCRETE SHALL MEET THE REQUIREMENTS OF ASTM C33.

5. PLACE, SUPPORT AND SECURE REINFORCEMENT STEEL AT LOCATIONS SHOWN ON PLANS. REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH ACI 315. REBAR YIELD STRENGTH = 60,000PSI

6. AIR ENTRAINING ADMIXTURES SHALL MEET THE REQUIREMENTS OF ASTM C260; WATER REDUCING ADMIXTURES SHALL MEET THE REQUIREMENTS OF ASTM C494, TYPE A. ALL OTHER ADMIXTURES ARE PROHIBITED WITHOUT PRIOR APPROVAL BY US CELLULAR.

7. VAPOR BARRIER SHALL BE 6 MIL THICK POLYETHYLENE, MEETING THE REQUIREMENTS OF ASTM D2103.

8. CURING COMPOUND SHALL MEET THE REQUIREMENTS OF ASTM C309. VAPOR BARRIER SHALL BE 4 MIL THICK POLYETHYLENE MEETING THE REQUIREMENTS OF ASTM D2103.

9. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.

10. ALL CONSTRUCTION AND EXPANSION JOINTS SHALL BE INSTALLED PER THE DRAWINGS.

12. ALL EXPOSED CORNERS OF CONCRETE WORK SHALL BE CHAMFERED 3/4" UNLESS NOTED OTHERWISE.

13. PLACE, SUPPORT AND SECURE REINFORCEMENT STEEL AT LOCATIONS SHOWN ON PLANS. REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH ACI 315.

14. ALL FORM WORK SHALL BE RIGID, TIGHT, LEVEL, PLUMB AND SUFFICIENTLY SHORED TO RESIST CONSTRUCTION LOAD CONDITIONS. COAT FORMS WITH RELEASE AGENT PRIOR TO PLACING REINFORCING STEEL.

15. PREPARE SUBGRADE FOR CONCRETE IN ACCORDANCE WITH PROJECT PLANS AND SPECIAL PROVISION. DO NOT PLACE CONCRETE ON FROZEN SUBGRADE.

16. PROVIDE US CELLULAR A MINIMUM OF 24 HRS. NOTICE PRIOR TO PLACING CONCRETE TO ALLOW FOR INSPECTION AND SCHEDULING OF TESTING.

17. UTILIZE CHUTES, TROUGHS OR CONVEYORS TO PLACE CONCRETE SO THAT HANDLING OF CONCRETE IS MINIMIZED. AVOID SEGREGATION OF THE AGGREGATE AND DISTURBING REINFORCING STEEL.

18. UNIFORMLY CONSOLIDATE CONCRETE USING HAND TOOLS OR MECHANICAL VIBRATORS. THOROUGHLY CONSOLIDATE EACH LAYER PRIOR TO PLACING SUBSEQUENT LAYERS.

19. WHEN PLACING OPERATIONS ARE TEMPORARILY SUSPENDED, THE UNFINISHED FACE OF THE POUR SHALL BE COVERED WITH WET BURLAP UNTIL PLACING OPERATIONS ARE RESUMED. WHEN PLACING OPERATIONS ARE SUSPENDED FOR MORE THAN 30 MINUTES, PROVIDE AN UNBONDED CONSTRUCTION JOINT.

20. TROWEL FINISH SURFACES UNLESS OTHERWISE DIRECTED ON THE PLANS.

21. AFTER FINAL FINISHING, PROVIDE POLYETHYLENE VAPOR BARRIER OR CURING COMPOUND TO MAINTAIN MOISTURE AND TEMPERATURE OF CONCRETE.

22. IN EXTREME WEATHER PLACE AND CURE CONCRETE IN ACCORDANCE WITH EITHER ACI 306R-89 FOR COLD WEATHER OR ACI 305R-89 FOR HOT WEATHER.

23. WELDING OF REINFORCING STEEL ARE PROHIBITED.

24. REMOVE FORMS IN A MANNER THAT DOES NOT DAMAGE THE CONCRETE. FILL AND PATCH AND POCKETS OR HOLES ON EXPOSED SURFACES USING MORTAR MIXTURE.

25. PROVIDE TEST CYLINDERS AS FOLLOWS:
   A. EQUIPMENT ENCLOSURE:
      1 CYLINDER AT 7 DAYS.
      1 CYLINDER AT 14 DAYS.
      1 CYLINDER AT 28 DAYS.

26. NOTIFY ENGINEER 24 HOURS IN ADVANCE OF TOWER FOUNDATION INSTALLATION.

27. REFER TO TOWER MANUFACTURER SPECIFICATIONS REGARDING FOUNDATION REQUIREMENTS.

Edge
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624 Water Street
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SHEET TITLE:

SPECIFICATIONS
ZOR [#782483]
MADISON, WISCONSIN

ISSUE DATE:
PRELIM CDs - 09/26/08
PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 05/15/09
FINAL CDs - 10/21/09
REVISIONS:
BUILDING LOCATION - 04/01/09
LEASE LOCATION - 05/15/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/28/09

DRAWN BY:
MJL, AJC, JAH

CHECKED BY:
ABS

PLOT DATE:
10/27/2009

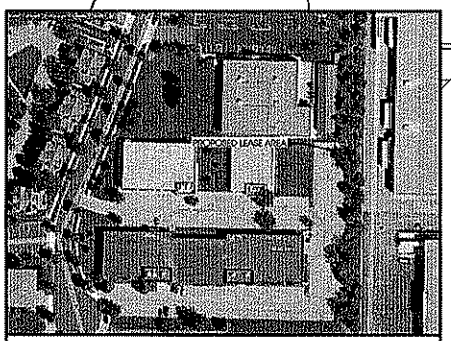
PROJECT NUMBER:
6093

FILE NAME:
SP-2.dgn

SHEET NUMBER:

SP-2

NORTH



EXISTING SITE AERIAL VIEW

20' 0 20' 40'

SCALE: 11"x 17" - 1" = 40'
22" x 34" - 1" = 20'

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SITE PLAN

ZOR [#782483]

MADISON, WISCONSIN

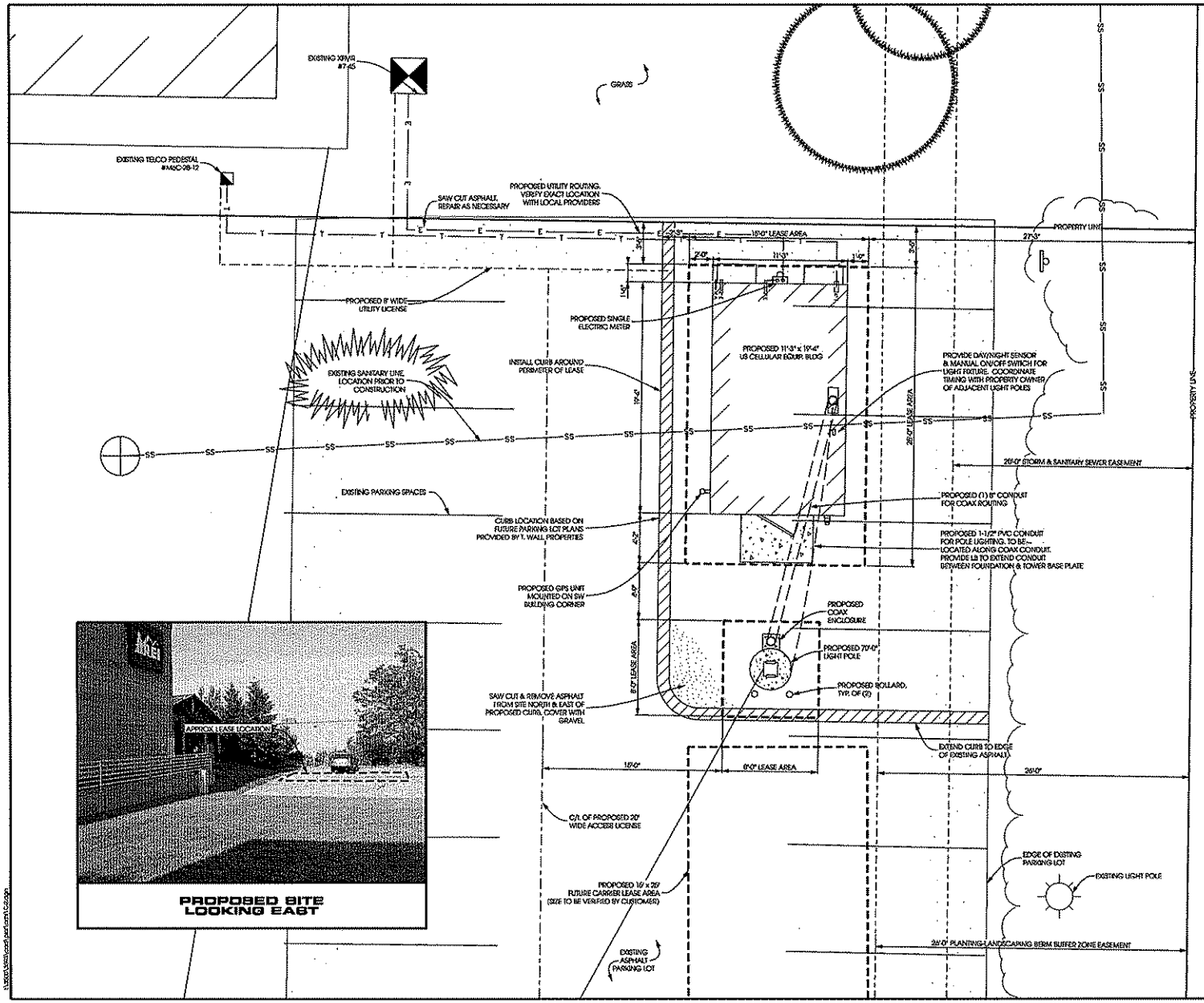
SHEET TITLE:

ISSUE DATE:
PRELIM CDs - 09/26/08
PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 05/15/09
FINAL CDs - 10/21/09
REVISIONS:
BUILDING LOCATION - 04/01/09
LEASE LOCATION - 09/15/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/28/09

DRAWN BY:
MJL, AJC, JAH
CHECKED BY:
ABB
PLOT DATE:
10/27/2009
PROJECT NUMBER:
3999
FILE NAME:
C-1.dgn

SHEET NUMBER:

C-1



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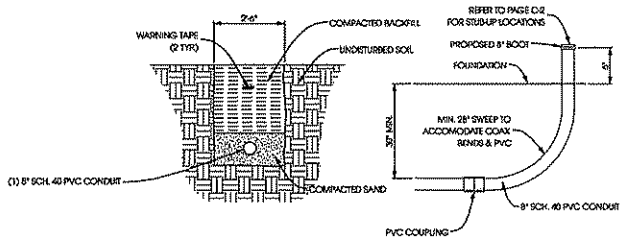
COMPOUND PLAN
ZOR [#7824483]
MADISON, WISCONSIN

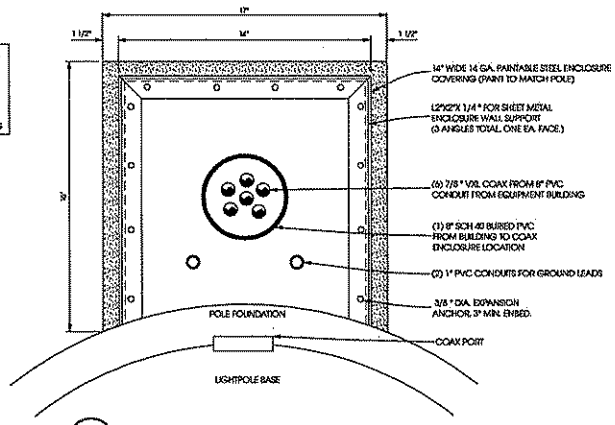
SHEET TITLE

ISSUE DATES
PRELIM CDs - 09/26/09
PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 05/15/09
FINAL CDs - 10/21/09
REVISIONS:
BUILDING LOCATION - 04/01/09
LEASE LOCATION - 05/15/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/26/09

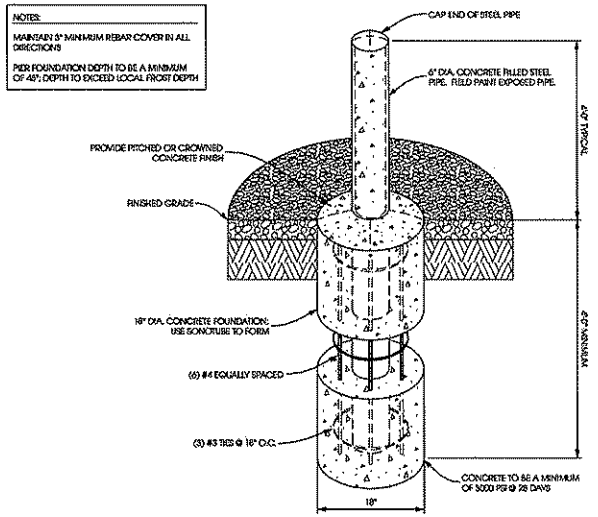
DRAWN BY:	MJR, AJC, JAH
CHECKED BY:	ASB
PLOT DATE:	10/27/2009
PROJECT NUMBER:	3665
FILE NAME:	C2.dgn
SHEET NUMBER	C-2



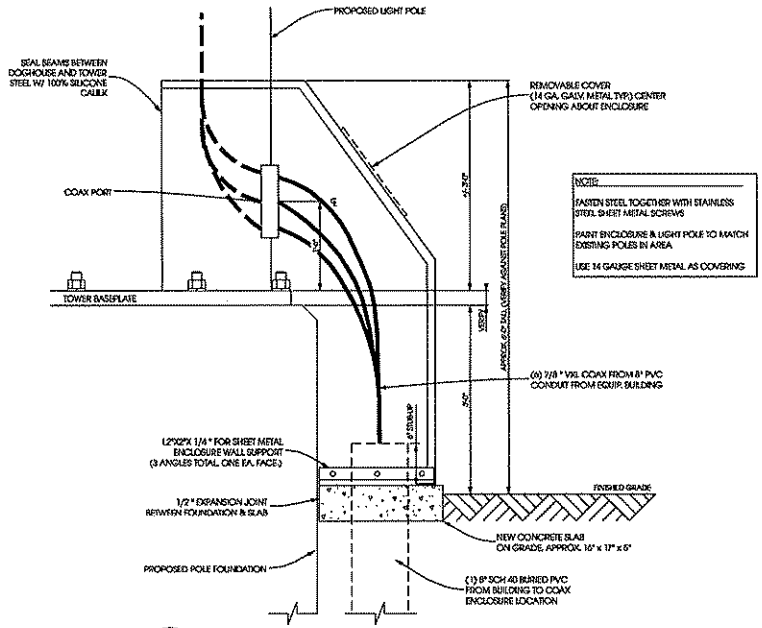
A C-3 **TYP. CONDUIT TRENCH DETAIL**
NTS



B C-3 **COAX ENCLOSURE SECTION**
NTS



C C-3 **PIPE BOLLARD DETAIL**
11X17 - 1/2" = 1'-0"
22X34 - 1" - 1'-0"



D C-3 **COAX ENCLOSURE ELEVATION**
NTS

Edge
Consulting Engineers, Inc.
426 Water Street
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CONSTRUCTION DETAILS

ZOR [#7824483]

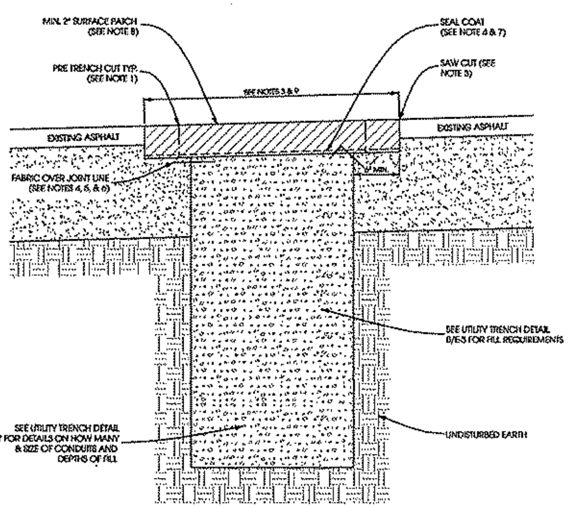
MADISON, WISCONSIN

SHEET TITLE:

ISSUE DATE
PRELIM CDs - 01/26/09
PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 05/15/09
FINAL CDs - 10/21/09
REVISIONS:
BUILDING LOCATION - 04/01/09
LEASE LOCATION - 09/15/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 01/26/09

DRAWN BY:
MJR, AJC, JAH
CHECKED BY:
ABB
PLOT DATE:
10/27/2009
PROJECT NUMBER:
3093
FILE NAME:
C-3.dgn

SHEET NUMBER:
C-3



NOTES:

1. SURFACE SHALL BE CUT PRIOR TO EXCAVATION.

2. FLOWABLE FILL SHALL BE PLACED AROUND THE ENCASEMENT IN A PROCESS TO ASSURE NO DISPLACEMENT FROM BEING CENTERED IN THE TRENCH BOTTOM. FLOWABLE FILL SHALL BE STRUCK OFF AT THE TOP OF THE EXISTING BASE OR 2" BELOW EXISTING FINISHED SURFACE, WHICHEVER IS GREATER.

3. UPON COMPLETION OF THE BACKFILL, MAKE ADDITIONAL SAW CUTS, AS NECESSARY TO REMOVE EXISTING PAVEMENT AT A MINIMUM DEPTH OF 2" TO CREATE A 6" MINIMUM SHOULDER OR TO THE POINT WHERE EXISTING PAVEMENT IS NOT DAMAGED, WHICHEVER IS GREATER. SAW CUTS SHOULD HAVE A MINIMUM NUMBER OF ANGLE POINTS.

4. TACKING MATERIAL SHALL BE AC15PW OR A CORR APPROVED EQUAL.

5. TACK COAT A MINIMUM 12" WIDTH OF NON-WOVEN GEO-TEXTILE FABRIC OVER THE EXISTING BASE AND FLOWABLE FILL JOINT LINE WITH 0.3 GALS/SY, PLACING FABRIC BEFORE TACK SETS.

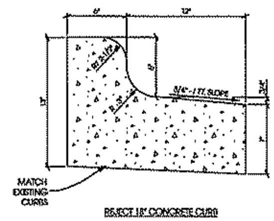
6. GEO-TEXTILE FABRIC SHALL WITHSTAND 500° FAHRENHEIT (TREVIRA SPUNBOND 011/120, CONTECH C-38NW, OR C.O.R.R. APPROVED EQUAL).

7. SINGLE COURSE SEAL COAT THE AREA TO BE HMAC PATCHED, WITH 0.33 GALS/SY TACK AND 3/8" CRUSHED LIMESTONE COVER AT 21 LBS/SY.

8. VACUUM UP LOOSE GRAVEL BEFORE PLACING SURFACE PATCH WITH HMAC HOT LAID; AT A MINIMUM THICKNESS OF 2".

9. WHEREVER AN EXISTING PATCH OR CRACK IS IN CLOSE PROXIMITY TO THE NEW CUT, THE ENGINEER MAY REQUIRE REMOVAL OF THE EXISTING PATCH OR CRACK AND ANY INTERVENING PAVEMENT. DEPTH OF REPLACEMENT ASPHALT SHALL BE IN ACCORDANCE WITH WDOT STANDARD SPECIFICATIONS AND MACHINE ROLL FLUSH WITH EXISTING PAVEMENT.

A / C-4 ASPHALT PATCH DETAIL
11X17 - NTS
22X34 - NTS



GENERAL NOTES:

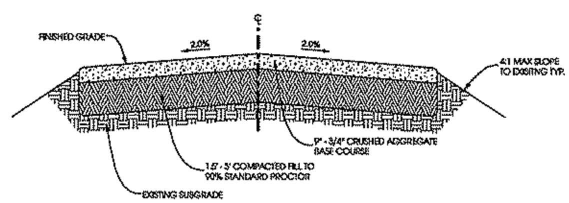
LATERAL CONTRACTION JOINTS SHALL BE PLACED AT INTERVALS OF NOT MORE THAN 15' NOR LESS THAN 6' IN LENGTH. THE JOINTS SHALL BE A MINIMUM OF 3" IN DEPTH.

EXPANSION JOINTS SHALL BE PLACED TRANSVERSLY AT RADIUS POINTS ON CURVES OF 200' OR LESS, AND AT ANGLE POINTS, OR AS DIRECTLY BY THE ENGINEER. THE EXPANSION JOINT SHALL BE A ONE PIECE ASPHALTIC MATERIAL HAVING THE SAME DIMENSIONS AS CURB & GUTTER AT THAT STATION AND BE 1/2" THICK.

IN ALL CASES, CONCRETE CURB & GUTTER SHALL BE PLACED ON 6" OF THOROUGHLY COMPACTED CRUSHED STONE.

B / C-4 TYP. 18" CURB & GUTTER DETAIL
11X17 - NTS
22X34 - NTS

CONTRACTOR TO SAW CUT & REMOVE EXISTING ASPHALT. GRAVEL ENTIRE SITE.



C / C-4 COMPOUND CROSS SECTION
11X17 - NTS
22X34 - NTS

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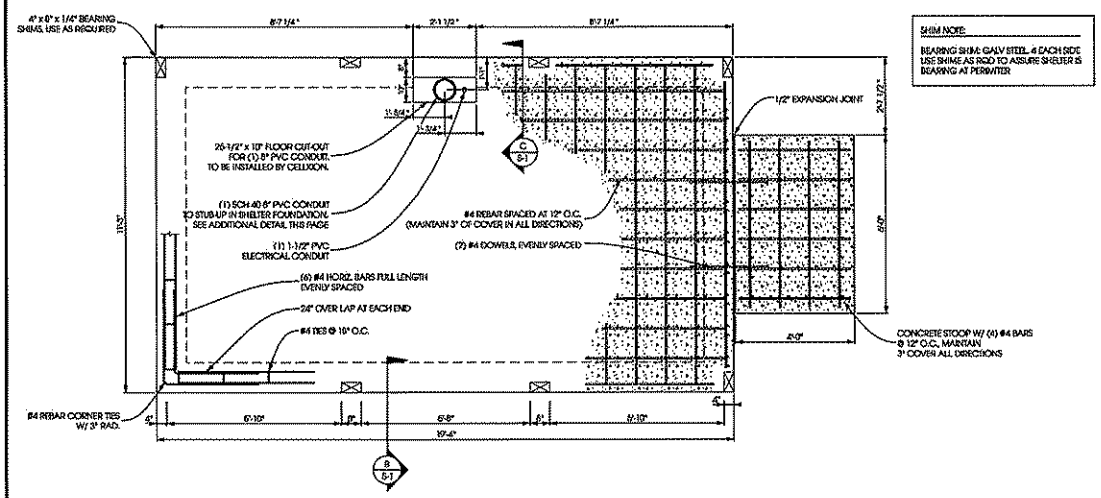
SHEET TITLE:

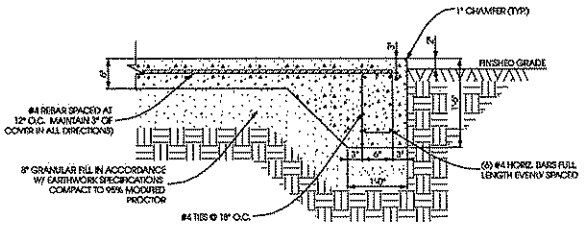
CONSTRUCTION DETAILS
ZOR [#7824831]
MADISON, WISCONSIN

ISSUE DATE:
PRELIM CDs - 09/26/08
PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 05/15/09
FINAL CDs - 10/21/09
REVISIONS:
BUILDING LOCATION - 04/01/09
LEASE LOCATION - 05/15/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/26/09

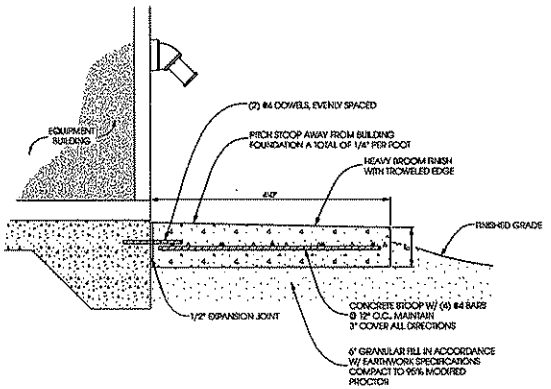
DRAWN BY: MJL, AJC, JAH
CHECKED BY: ABB
PLOT DATE: 10/27/2009
PROJECT NUMBER: 3593
FILE NAME: C-4.dgn
SHEET NUMBER: **C-4**



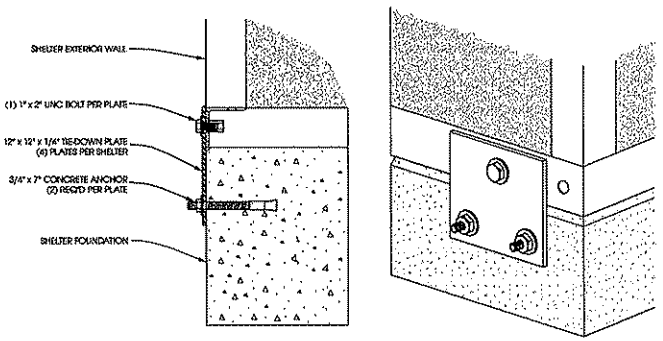
A S-1 SHELTER FOUNDATION PLAN
11 x 17 - 1/4" = 1'-0"
22 x 34 - 1/2" = 1'-0"



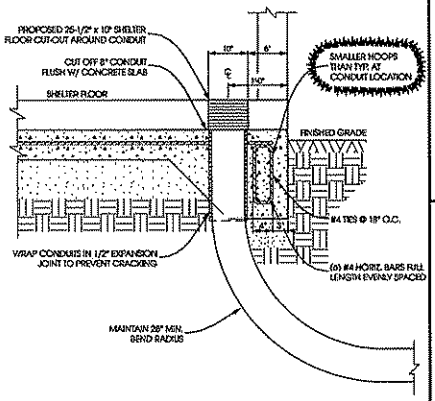
B S-1 TYPICAL FOUNDATION DETAIL
11 x 17 - 1/2" = 1'-0"
22 x 34 - 1" = 1'-0"



D S-1 BUILDING STOOP DETAIL
11 x 17 - 1/2" = 1'-0"
22 x 34 - 1" = 1'-0"



C S-1 TIE DOWN PLATE DETAIL
11 x 17 - 1" = 1'-0"
22 x 34 - 2" = 1'-0"



C C-3 CONDUIT STUB-UP DETAIL
11 x 17 - 1/2" = 1'-0"
22 x 34 - 1" = 1'-0"

CONCRETE AND REINFORCING NOTES:

1.) ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH LOCAL BUILDING CODE REQUIREMENTS AND MOST CURRENT VERSION OF ACI STANDARDS.

2.) ALL CONCRETE UNLESS SPECIFICALLY NOTED SHALL BE NORMAL WEIGHT (145 PCF) AND SHALL ACHIEVE A 28-DAY COMPRESSIVE STRENGTH (f'c) OF 3,000 PSI.

3.) ALL CONCRETE REINFORCING SHALL BE ASTM A615 GRADE 60 AND PLACED IN ACCORDANCE WITH ACI STANDARDS W/ 3" MIN. COVERAGE.

4.) REMOVE ALL ORGANIC MATERIAL AND POOR SOILS BENEATH SLAB TO A DEPTH OF AT LEAST 4'-0".

5.) DESIGN BASED ON A PRESUMPTIVE SOIL BEARING CAPACITY OF 2500 PSF, CONTRACTOR TO VERIFY EXACT SOIL CONDITIONS BEFORE INSTALLATION.

6.) SLAB NOT SUITABLE AT SITES WITH ORGANIC SOIL, UNCOMPACTED FILL, EXPANSIVE SOIL, OR SOILS SUSCEPTABLE TO FROST HEAVE.

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FOUNDATION DETAILS

ZOR [#782483]

MADISON, WISCONSIN

SHEET TITLE:

ISSUE DATE:
PRELIM CDs - 03/29/07
PRELIM CDs - 04/01/07
FINAL CDs - 04/21/07
FINAL CDs - 05/15/07
FINAL CDs - 10/21/07
REVISIONS:
BUILDING LOCATION - 04/07/07
LEASE LOCATION - 05/15/07
NEW LEASE AREA - 07/22/07
TOWER HEIGHT - 07/28/07
DRAWN BY: MJR, AJC, JAH
CHECKED BY: ABS
PLOT DATE: 10/27/2007
PROJECT NUMBER: 3325
FILE NAME: S-1.dgn

SHEET NUMBER:

S-1

ITEM LIST

ITEM NO.	DESCRIPTION
1	200A ELECTRICAL SWITCH PANEL, CUTLER HAMMER
2	SERVICE ENTRY, 2" X 6" GALVANIZED NIPPLE
3	100A GENERATOR RECEPTACLE, CROUSE HINDS AREA 10315522
4	6'-6"x4" ENCLOSURE W/ 1-1/2" x 6" GALV. NIPPLE TO ITEM #3
5	SURGE ARRESTOR (SUPPLIED BY US CELLULAR)
6	INTERIOR LIGHT SWITCH, 4 x 4 JUNCTION BOX
7	WIRE, #2 SOLID COPPER, BARE, TINNED
8	DUPLEX CONVENIENCE OUTLET
9	GFCI RECEPTACLE/2x4 WP JUNTION BOX
10	TOWER LIGHT CONTROLLER (SUPPLIED BY US CELLULAR)
11	100W HPS EXTERIOR LIGHT W/ PHOTOCELL, METALLIX HPWL100
12	INTERIOR LIGHTS, METALLIX MWR240A 120LES
13	CAP, SCH 40, 1 1/2" W/ NIPPLE, RIGID, 1 1/2" X 8" LONG
14	3 TON AIR CONDITIONER #2 W/ 10 KW HEAT
15	3 TON AIR CONDITIONER #1 W/ 10 KW HEAT & ECONOMIZER
16	THERMOSTAT, SINGLE STAGE HEAT/COOL
17	LOW TEMPERATURE ALARM, DAYTON 2Z26A
18	HIGH TEMPERATURE ALARM, DAYTON 2Z26B
19	MAGNETIC DOOR CONTACT
20	24V SMOKE DETECTOR W/ 1/2" CONDUIT DROP
21	ALARM TERMINATION BLOCK (SUPPLIED BY US CELLULAR)
22	4' x 4' x 3/4" TELCO BOARD
23	6" x 6" x 4" ENCLOSURE W/ (2) 3/4" CONDUIT DROPS
24	3'-0" x 7'-0" HOLLOW METAL DOOR
25	48" DOOR CANOPY
26	DOOR LOUVERGUARD, 10", STAINLESS STEEL, 820
27	HALO GROUND, #2/0 GREEN W/ (4) EXIT DROPS
28	1/2" PVC CAST @ 45° (GRND. PENETRATION)
29	1/4" x 4" x 20" GROUND BAR
30	GROUND STRAP, 14"
31	CABLE TRAY, 12" ZINC CHROMATE
32	WAVE GUIDE ENTRY PORT, MICRODUCT B1118
33	UNISTRUT, 1-1/2"
34	1/4" x 5" x 5" GALV. ANGLE ICE SHIELD
35	4" PVC COUPLING, TELCO ENTRY
36	4 x 4 JUNCTION BOX
37	4-11/16" SQ. JUNCTION BOX
38	4 x 4 JUCTION BOX W/ 1/2" x 9" WALL PENETRATION
39	4 x 4 JUNTION BOX W/ 3/4" x 9" WALL PENETRATION
40	1-3/4" x 1-3/4" CABLE TRAY WALL MOUNTED SUPPORT ANGLE

CODE SUMMARY

1997 - WISCONSIN STATE CODE
1996 - NEC
OCCUPANT LOAD = 0
NOT INTENDED FOR HUMAN HABITATION

DESIGN PARAMETERS

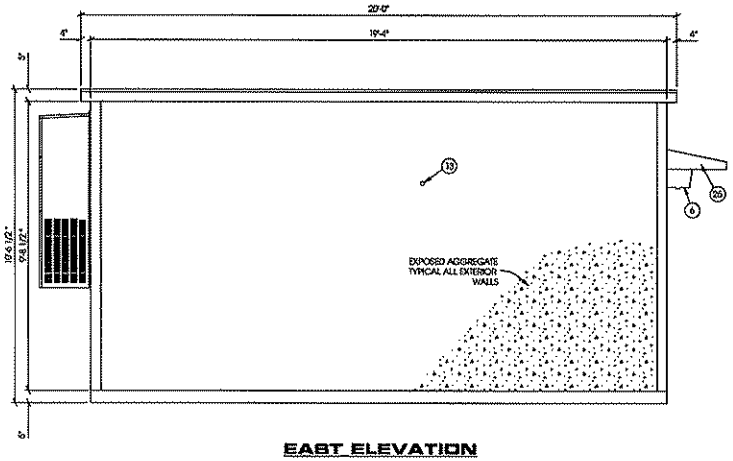
ROOF LIVE LOAD: 93 PSF
FLOOR LIVE LOAD: 208 PSF
WIND SPEED: 120 MPH
SEISMIC ZONE: 4
CONCRETE f'c: 5000 PSI AT 28 DAYS
CONCRETE UNIT WEIGHT: 150 PCF

PHYSICAL PROPERTIES

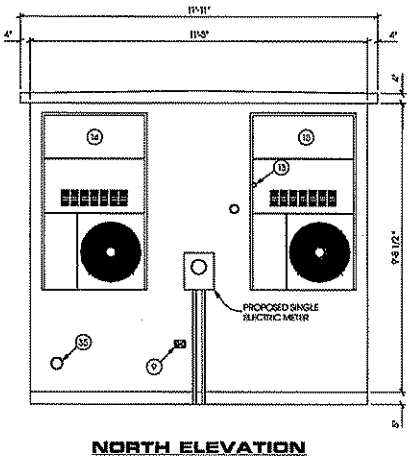
SHELTER DIMENSIONS: 11'-3"w X 19'-4"l X 10'-5 1/2"h
SHIPPING DIMENSIONS: 11'-11"w X 20'-10"l X 10'- 7"h
INTERIOR DIMENSIONS: 10'-2 5/8"w X 18'-3 5/8"l X 9'-5 9/16"h
SHELTER WEIGHT (AS SHIPPED): 47,000 #

FINISH SCHEDULE

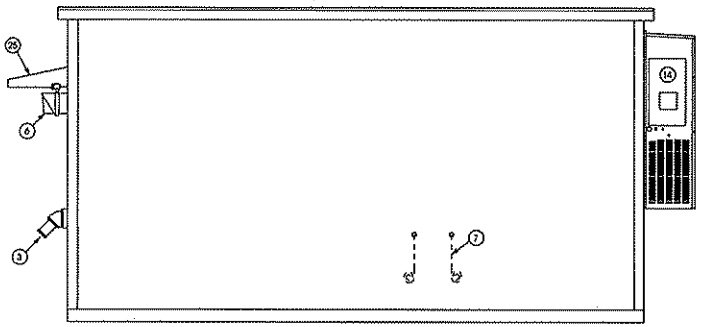
EXTERIOR WALLS: EXPOSED LIGHT WEIGHT AGGREGATE
EXTERIOR METALS: PRE URETEK, CUSTOM COLOR MATCH
INTERIOR WALLS: 5/16" WHITE WOOD GRAIN PANELING/7/16" OSB/1 1/2" R-MAX TSX6500 INSULATION
CEILING: 5/16" WHITE, WOOD GRAIN PANELING/7/16" OSB/1 1/2" R-MAX TSX6500 INSULATION
FLOORING: .100 VENYL TILE, CONSOLEUM EXT-14, COLOR "WHITE/LIGHT PEBBLE"



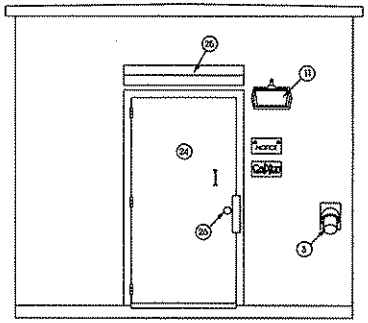
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

A / S-2 EQUIPMENT SHELTER ELEVATIONS
11X17 - 1" = NTS
22X34 - 1" = NTS

DETAILS ON THIS SHEET PROVIDED BY CELLXION FOR 11'-3" x 19'-4" CONCRETE SHELTER

CELLXION
5081 HAZEL JONES ROAD
BOSSIER CITY, LA 71111
VOICE: 318.213.2000
FAX: 318.213.2919
WWW.CELLXION.COM

Edge Consulting Engineers, Inc.
625 Water Street
Prairie du Sac, WI 53578
608.644.1449 voice
262.644.3200 fax
www.edgeconsult.com

EQUIPMENT SHELTER
ZOR [#782483]
MADISON, WISCONSIN

SHEET TITLE:

ISSUE DATE:
PRELIM CDs - 09/26/08
PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 05/15/09
FINAL CDs - 10/01/09
REVISIONS:
BUILDING LOCATION - 04/09/09
LEASE LOCATION - 03/16/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/25/09

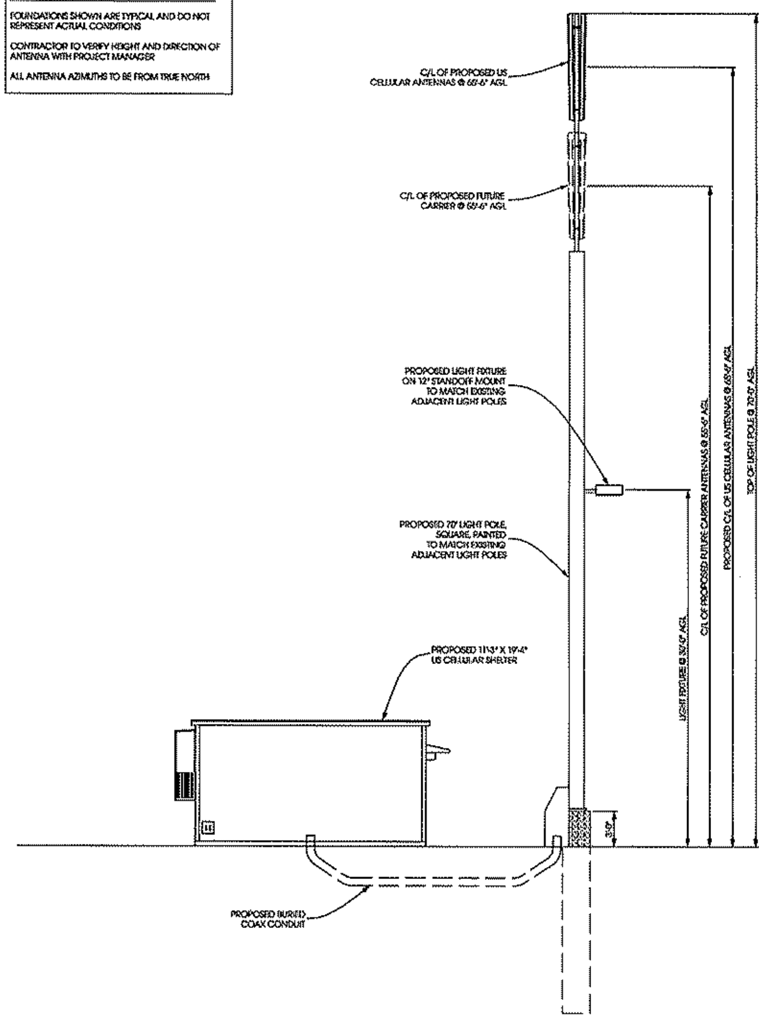
DRAWN BY: MJT, AJC, JAH
CHECKED BY: ABS
PLOT DATE: 10/27/2009
PROJECT NUMBER: 3093
FILE NAME: A2.dgn
SHEET NUMBER: S-2

NOTES:

FOUNDATIONS SHOWN ARE TYPICAL AND DO NOT REPRESENT ACTUAL CONDITIONS

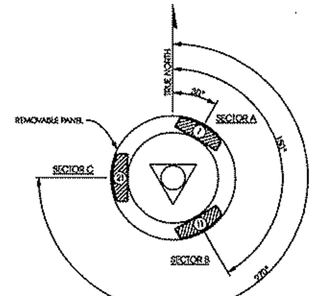
CONTRACTOR TO VERIFY HEIGHT AND DIRECTION OF ANTENNA WITH PROJECT MANAGER

ALL ANTENNA AZIMUTHS TO BE FROM TRUE NORTH



A / A-1 **TOWER PROFILE [WEST ELEVATION]**

SCALE: 11" x 17" - 1" = 10'-0"
22" x 34" - 1" = 5'-0"



ANTENNA ORIENTATION

B / A-1 **LIGHT POLE CROSS-SECTION**

NTS

POS #	ANTENNA ID	MAKE AND MODEL	GAIN	MECH. DT	ANT. HEIGHT	AZIMUTH	CABLE LENGTH	CABLE DIAM.	TOP 1/2" JUMPER LENGTH (FT)
1	TX1 / RX1-X	FV65-1400_A2.dpa		0°	65'6"	30°	96'	(2) 7/8"	10'
2									
3									
4									
5									
6									
7									
8									
9									
10									
11	TX1 / RX1-Z	FV65-1400_A2.dpa		0°	65'6"	150°	96'	(2) 7/8"	10'
12									
13									
14									
15									
16									
17									
18									
19									
20									
21	TX1 / RX1-Z	FV65-1400_A2.dpa		0°	65'6"	270°	96'	(2) 7/8"	10'
22									
23									
24									

US CELLULAR TO VERIFY & PROVIDE RF INFORMTION

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

C / A-1 **ANTENNA PLATFORM ASSIGNMENT**

Edge Consulting Engineers, Inc.
624 Water Street
Prairie du Sac, WI 53578
608.644.1449 voice
262.644.2000 fax
www.edgeconsult.com

TOWER ELEVATION
ZOR [#782483]
MADISON, WISCONSIN

SHEET TITLE:

ISSUE DATE:
PRELIM CDs - 09/26/08
PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 05/15/09
FINAL CDs - 10/21/09

REVISIONS:
BUILDING LOCATION - 04/01/09
LEASE LOCATION - 05/18/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/28/09

DRAWN BY: MJL, AJC, JAH
CHECKED BY: ABB
PLOT DATE: 10/27/2009
PROJECT NUMBER: 3593
FILE NAME: A-1.dgn
SHEET NUMBER: **A-1**

ANTENNA & COAXIAL CABLE INSTALLATION

I. SCOPE:

THIS SECTION COVERS THE SPECIFICATIONS FOR ANTENNA AND COAXIAL CABLE INSTALLATION. THE AREAS OF FOCUS ARE THE INSTALLATION OF: ANTENNAS, COAXIAL CONNECTIONS, AND ICE BRIDGE.

II. ANTENNAS:

A: ANTENNAS SHALL BE PLUMB AND INSTALLED SO THAT ENTIRE WHIP EXTENDS ABOVE VERTICAL PIPE MOUNT. DIRECTIONAL ANTENNAS SHALL BE ORIENTED TO PROPER AZIMUTH, PROVIDED ON THE RF SPECIFICATION SHEET. NOTE: THE ANTENNA MAY BE ORIENTED USING THE REFLECTOR AS THE REFERENCE. ADJUSTING ITS AZIMUTH 180 DEGREES FROM MAXIMUM ANTENNA RADIATION.

B: MICROWAVE ANTENNAS (DISHES) SHALL BE ASSEMBLED PER MANUFACTURERS DRAWINGS. STIFF ARMS AND RADOMES SHALL BE INSTALLED WITH POLARIZATION PROVIDED BY RF SPECIFICATION SHEET. IF PATH IS NOT READY TO ALIGN, DISH SHOULD BE POINTED TOWARD CALCULATED AZIMUTH, OR DIRECTION OF FIELD STAKE DENOTING OPPOSITE END. 2 STIFF ARMS SHALL BE PROVIDED FOR MICROWAVE DISHES 6'-0" IN DIAMETER AND GREATER.

C: A TRANSIT SHALL BE USED TO PROPERLY ALIGN CELLULAR AND MICROWAVE ANTENNAS.

III. COAXIAL CABLE:

A: COAXIAL CABLE SHALL BE SUPPORTED WITH SNAP IN HANGERS. SNAP IN HANGERS SHOULD BE USED EVERY 3 FEET THE ENTIRE HEIGHT OF TOWER. ANGLE ADAPTERS OR ROUND MEMBER ADAPTERS WITH BUTTERFLY CLAMPS SHALL BE USED ELSEWHERE, I.E. SIDEARMS, PLATFORMS, AND MICROWAVE MOUNTS.

B: COAXIAL CABLE SHALL ALSO BE SUPPORTED WITH HOISTING GRIPS, INSTALLED AT MAXIMUM INTERVALS OF 200 FEET. HOISTING GRIPS SHALL BE ATTACHED WITH SHACKLES, BOLTED IN THE 7/16" HOLE OF WAVEGUIDE LADDER.

C: ALL JUMPERS USED BETWEEN COAXIAL CABLE AND ANTENNA SHALL BE SUPPORTED WITHIN 18 INCHES OF ANTENNA, USING BUTTERFLY CLAMPS WITH ANGLE ADAPTERS OR ROUND MEMBER ADAPTERS AROUND PIPES. CELLULAR ANTENNAS TYPICALLY USE 6' JUMPERS; MICROWAVE DISHES USE 3' JUMPERS.

D: COAXIAL CABLE SHALL BE NEATLY BENT WHEN REQUIRED, USING A MINIMUM BENDING RADIUS OF 10 TIMES THE DIAMETER OF THE COAXIAL CABLE. DRIP LOOPS SHOULD BEGIN AT THE ICE BRIDGE. THE BEND IN THE COAXIAL CABLE SHOULD BE AT A LOWER HEIGHT THAN THE ENTRY PORT.

E: COAXIAL CABLE SHALL BE SUPPORTED WITH SNAP IN HANGERS ON THE WAVEGUIDE LADDER UNDER ICE BRIDGE. COAXIAL CABLE SHOULD BE NEATLY CUT 18" INSIDE BUILDING AND TERMINATED AT THE QUARTER WAVE SHORTS.

F: CONNECTORS WILL NORMALLY BE PROVIDED FIRST OFF REEL FROM FACTORY. CONNECTORS TERMINATED IN BUILDING SHALL BE NEATLY INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

G: OPENINGS #1, #2, AND #3 SHOULD BE USED FOR THE X SECTOR; OPENINGS #5, #6, AND #7 SHOULD BE USED FOR THE Y SECTOR; OPENINGS #9, #10, AND #11 SHOULD BE USED FOR THE Z SECTOR. OPENINGS #4, #8, AND #12 SHOULD BE RESERVED FOR MICROWAVE WAVEGUIDE.

H: COAXIAL CABLES SHOULD BE LABELED WITH TAGS INSIDE THE BUILDING.

SECTOR INDICATOR - PRIMARY COLORS
USE 2" WIDE COLORED TAPE TO INDICATE SECTORS
X SECTOR FOR SECTORED SITE: BROWN
Y SECTOR FOR SECTORED SITE: VIOLET
Z SECTOR FOR SECTORED SITE: ORANGE
FUNCTION INDICATOR - SECONDARY COLORS
USE 1" WIDE COLORED TAPE TO INDICATE FUNCTION.
RX1: YELLOW RX2: GREEN TX1: RED TX2: WHITE TX3: BLUE

I: ALL EXCEPTIONS NEED TO BE VERIFIED WITH THE PROJECT MANAGER.

IV. CONNECTORS:

A: ALL CONNECTIONS, AND GROUNDING KITS SHALL BE WEATHER PROOFED USING COLD SHRINK OR ANDREW APPROVED WEATHER STRIPPING.
NOTE: NO PORTION OF CONNECTOR SHALL BE EXPOSED TO THE ELEMENTS.

B: COAXIAL CABLE SHALL BE GROUNDED USING GROUNDING KITS AT THE TOP, BELOW THE BEND; BOTTOM, ABOVE THE BEND ON TOWER GROUND BAR; AND ON BUILDING GROUND BAR BEFORE ENTRY INTO WAVEGUIDE PORTS. 4" CABLE BOOTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

C: GROUNDING KITS SHALL BE NEATLY INSTALLED SO THAT THE JUMPER RUNS IN THE SAME DIRECTION AS THE COAXIAL AND GROUND BAR. JUMPER WIRE SHOULD RUN IN A DIRECT PATH TO THE GROUND BAR/TOWER LADDER, BUT HAVE ADEQUATE SLACK FOR EXPANSION, CONTRACTION, AND REPAIR. NON-OXID GREASE SHOULD BE APPLIED BETWEEN LUG AND BAR/TOWER.

D: TOWER GROUND BAR SHALL BE INSTALLED ON THE ANGLE BEHIND THE FIRST DIAGONAL WAVEGUIDE LADDER RUNG, ABOVE 6'0".

ANTENNA COLOR CODING

1ST TAPE - FOR SECTOR IDENTIFICATION
SECTOR X BROWN
SECTOR Y PURPLE
SECTOR Z ORANGE

2ND TAPE - FOR ANTENNA IDENTIFICATION
RX2, RX4 GREEN
TX RED
RX-1, RX-3 YELLOW

3RD TAPE - FOR TECHNOLOGY IDENTIFICATION
TDMA/AMPS WHITE
CDMA 800 GRAY
PCS 1900 BLUE

USE SCOTCH VINYL TAPE 35. AVAILABLE AT GRAYBAR OR LOCAL 3M DISTRIBUTOR.

NOTES:
1. IF ANTENNA IS DUPLEXED, WRAP LINE AS TX
2. IF SECTOR HAS MORE THAN ONE TX, DOUBLE WRAP LINE FOR SECOND TX.
3. IF SECTOR IS SHARED BETWEEN CDMA AND TDMA WRAP WITH BOTH WHITE AND GRAY.

Edge
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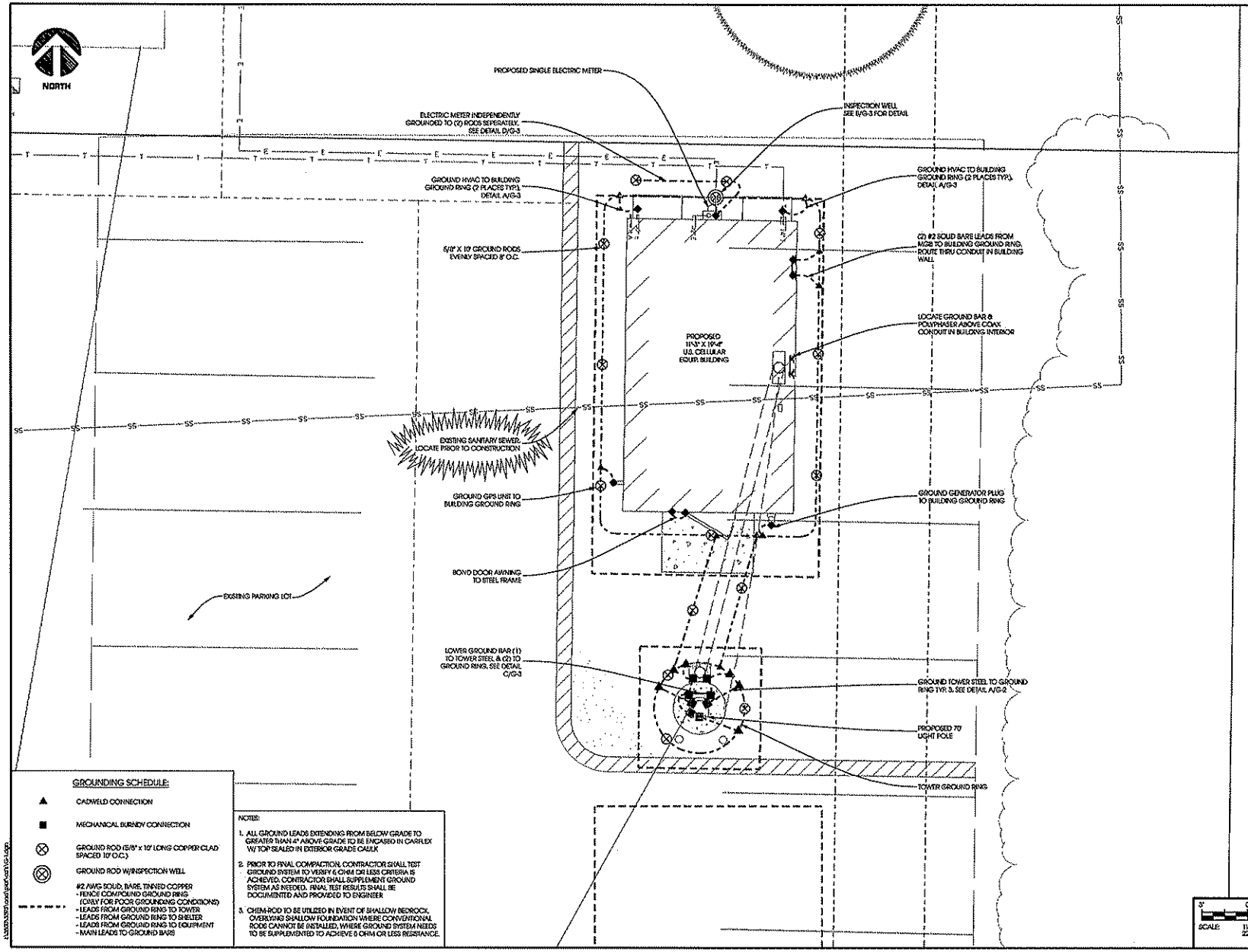
ANTENNA INSTALLATION NOTES

ZOR [#782483]

MADISON, WISCONSIN

sheet title

ISSUE DATE:
PRELIM CDs - 09/26/08
PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 05/15/09
FINAL CDs - 10/21/09
REVISIONS:
BUILDING LOCATION - 04/01/09
LEASE LOCATION - 02/16/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/26/09
DRAWN BY:
MJL, AJC, SAH
CHECKED BY:
ABS
PLOT DATE:
10/27/2009
PROJECT NUMBER:
3093
FILE NAME:
A-2.dgn
SHEET NUMBER:
A-2



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GROUNDING PLAN

ZOR [#782483]

MADISON, WISCONSIN

SHEET TITLE:

ISSUE DATE:
PRELIM CDs - 07/29/09
PRELIM CDs - 08/07/09
FINAL CDs - 09/07/09
FINAL CDs - 09/15/09
FINAL CDs - 10/27/09
REVISIONS:
BUILDING LOCATION - 04/09/09
LEASE LOCATION - 03/11/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/23/09
DRAWN BY: MJL, AJC, JAH
CHECKED BY: ABB
PLOT DATE: 10/27/2009
PROJECT NUMBER: 5093
FILE NAME: G-1.dgn
SHEET NUMBER: G-1

(B) OUTLINE OF NEW EQUIPMENT SHELTER

(E) RF GROUND BAR BY BUILDING MFR., CONTRACTOR TO BOND TO COAX ENTRY PORT W/ 2/0 AWG GREEN LEAD, AND HAVE DOWNLEAD TO MGB W/ 2/0 AWG GREEN LEAD

(F) MASTER GROUND BAR BY BUILDING MFR. ELECTRICAL CONTRACTOR TO EXTEND (2) #2 SOLID BARE COPPER DOWN LEADS THROUGH BUILDING WALL @ 45° ANGLE AND INTO 3/4" PVC CONDUITS. CONTRACTOR TO PROVIDE ALL REQ'D. CADWELD CONNECTIONS

(H) (4) - 3/4" DIA. PVC CONDUITS WITH (1) "C" CLAMP FOR GROUND WIRE FEED THRU EXTEND PVC PIPE 12" BELOW GRADE.

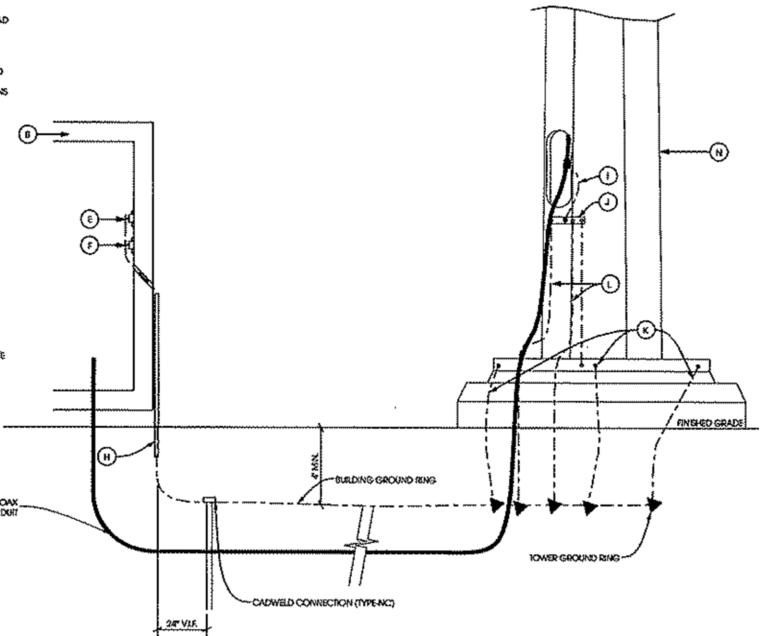
(I) COAXIAL CABLE GROUND KITS TO TGB. SEE DETAIL "0" THIS PAGE. KIT SUPPLIED BY U.S.C. AND INSTALLED BY ANT. CONTRACTOR.

(J) (2) - 4" X 12" X 1/4" INSUL. GROUND BARS. MOUNT LOWER TGB DIAGONALLY FOR EASIER HOOK-UP OF GROUNDING STRAPS MOUNT BAR ON TOWER AT 12" (ABOVE WAVEGUIDE BRIDGE) AND AT THE TOP OF THE TOWER (UGB)

(K) #2 SOLID BARE WIRE SOFT DRAWN COPPER WIRE EXOTHERMICALLY WELDED TOWER LEG ANGLE TABS TYPICAL OF 3 POSITIONS.

(L) (7) #2 AWG BARE, SOLID, TINNED COPPER GROUND LEADS FROM LOWER TGB TO GROUND RING & (1) #2 TO TOWER BASE PLATE

(N) LIGHT POLE TOWER

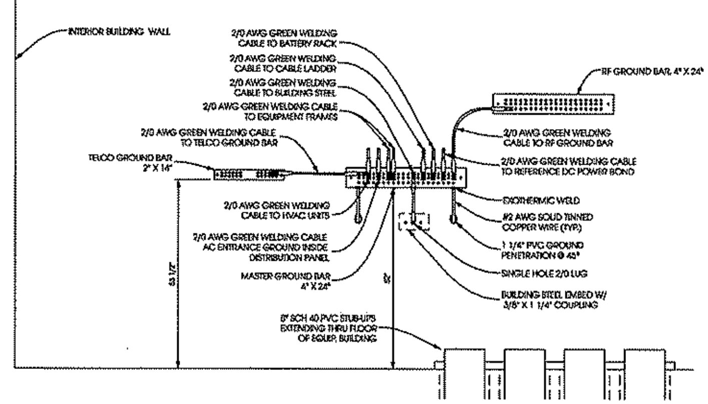


NOTE:
LOWER & UPPER ANTENNA GROUND BAR BONDED DIRECTLY TO TOWER STEEL W/ (2) #2 CONDUCTORS

A / G-2 **GROUNDING DETAILS**
NTS

NOTES:

1. TELCO GROUND BAR TO BE LOCATED ON TELCO BOARD.
2. RF GROUND BAR TO BE LOCATED AT INSTALLED WAVEGUIDE ENTRY PORT.
3. #2 AWG SOLID TINNED COPPER WIRE SHALL BE PULLED TO EXTERIOR OF SHELTER AND 10'-0" EXTRA COILED AND SECURED TO THE SHELTER FOR SHIPMENT.
4. ALL GROUND CONDUCTORS HAVE A 8" BEND RADIUS MIN.
5. USE 3/8" - UNC X 1" SS BOLT, 3/8" SS LOCK WASHER, AND SS NUT TO SECURE 3/8" BOLT HOLE LUGS TO GROUND BAR.
6. USE 1/4" - UNC X 1" SS BOLT, 1/4" SS LOCKWASHER, AND UNC SS NUT TO SECURE 1/4" BOLT HOLE LUGS TO GROUND BAR.



INTERIOR BUILDING WALL
2/0 AWG GREEN WELDING CABLE TO BATTERY RACK
2/0 AWG GREEN WELDING CABLE TO CABLE LADDER
2/0 AWG GREEN WELDING CABLE TO BUILDING STEEL
2/0 AWG GREEN WELDING CABLE TO EQUIPMENT FRAMES
2/0 AWG GREEN WELDING CABLE TO TELCO GROUND BAR
TELCO GROUND BAR 2" X 14"
2/0 AWG GREEN WELDING CABLE TO HVAC UNITS
2/0 AWG GREEN WELDING CABLE AC ENTRANCE GROUND INSIDE DISTRIBUTION PANEL
MASTER GROUND BAR 4" X 24"
8" SCH 40 PVC STUB-UPS EXTENDING THRU FLOOR OF EQUIP. BUILDING
RF GROUND BAR, 4" X 24"
2/0 AWG GREEN WELDING CABLE TO RF GROUND BAR
2/0 AWG GREEN WELDING CABLE TO REFERENCE DC POWER BOND
EXOTHERMIC WELD
#2 AWG SOLID TINNED COPPER WIRE (TYP.)
1 1/4" PVC GROUND PENETRATION @ 45°
SINGLE HOLE 2/0 LUG
BUILDING STEEL EMBED W/ 3/8" X 1 1/4" COUPLING

B / G-2 **INTERNAL SHELTER GROUNDING SCHEME**
NTS

Edge Consulting Engineers, Inc.
624 Water Street
Prairie du Sac, WI 53578
608.644.1449 voice
262.364.3300 fax
www.edgeconsult.com

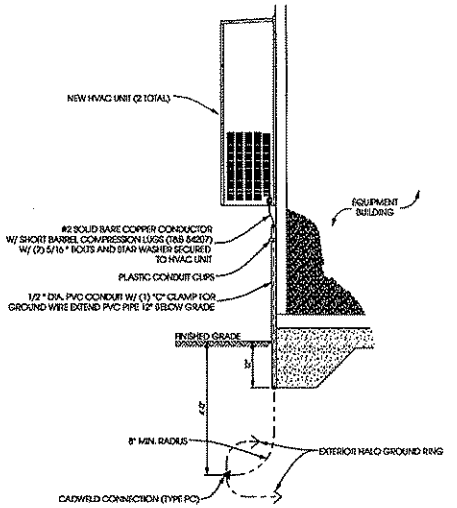
GROUNDING DETAILS
ZOR [#782483]
MADISON, WISCONSIN

SHEET TITLE

ISSUE DATE:
PRELIM CDs - 09/26/08
PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 05/15/09
FINAL CDs - 10/21/09
REVISIONS:
BUILDING LOCATION - 04/01/09
LEASE LOCATION - 05/15/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/28/09

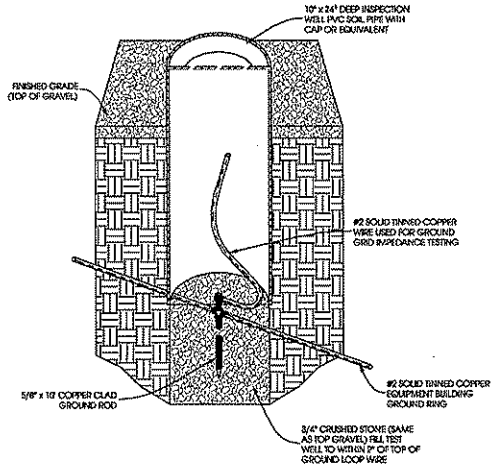
DRAWN BY: MJL, AJC, JAH
CHECKED BY: ABB
PLOT DATE: 10/27/2009
PROJECT NUMBER: 3593
FILE NAME: G-2.dgn

SHEET NUMBER:
G-2



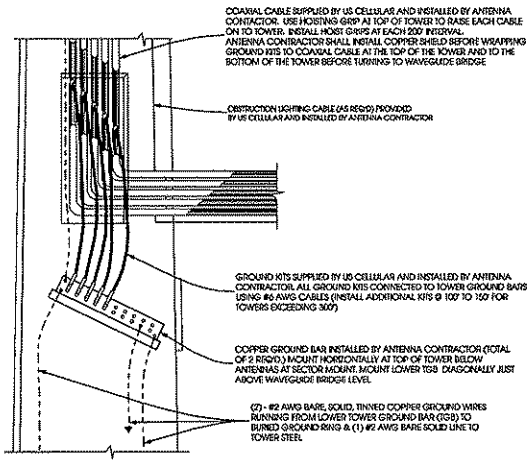
A G-3 **HVAC GROUNDING DETAIL**

SCALE: NTS



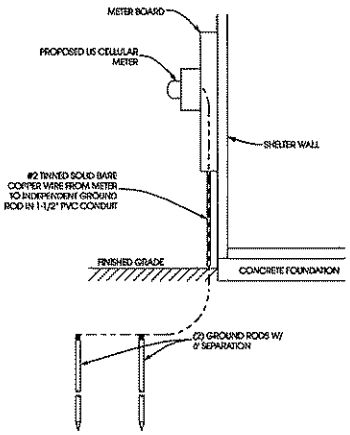
B G-3 **INSPECTION WELL DETAIL**

11X17 - 1" = 4'
22X34 - 1" = 2'



C G-3 **CABLE GROUNDING AT TOWER**

11X17 - NTS
22X34 - NTS



D G-3 **ELEC. METER GROUND DETAIL**

SCALE: NTS

Edge
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224 Water Street
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GROUNDING DETAILS

ZOR [#7824483]

MADISON, WISCONSIN

SHEET TITLE

ISSUE DATE:
PRELIM CDs - 09/25/09
PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 05/15/09
FINAL CDs - 10/21/09
REVISIONS:
BUILDING LOCATION - 04/01/09
LEASE LOCATION - 05/15/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/29/09
DRAWN BY:
MJL, AJC, JAH
CHECKED BY:
ABB
PLOT DATE:
10/27/2009
PROJECT NUMBER:
5595
FILE NAME:
G-3.dgn

SHEET NUMBER

G-3

GROUNDING SYSTEM NOTES

1. SCOPE:

THIS SECTION COVERS THE SPECIFICATIONS FOR CELL SITE GROUNDING. THE AREAS OF FOCUS ARE: TOWER, BUILDING, AND INSTALLATION METHODS.

2. GENERAL:

2.1 ALL GROUND RODS SHALL BE 5/8" COPPER CLAD STEEL 10 FT. LONG. GROUND RODS SHALL BE EQUALLY SPACED AT 10 FT. INTERVALS. REFER TO SITE GROUNDING PLAN FOR DETAILS AND PLACEMENT WITH GROUNDING.

2.2 GROUNDING A SYSTEM SHALL BE MEGGAR TESTED TO ASSURE SATISFYING 5 OHMS OR LESS RESISTANCE.

2.3 ALL CADWELD CONNECTIONS TO GALVANIZED MATERIAL SHALL BE PROPERLY PREPARED TO ASSURE A SATISFACTORY CADWELD. THE CADWELD CONNECTION SHALL BE COATED WITH A COLD GALVANIZING SPRAY TO PREVENT CORROSION.

2.4 CONTRACTOR SHALL PROVIDE PHOTO DOCUMENTATION OF THE GROUND SYSTEM BY PROVIDING A CD TO US CELLULAR. REQUIRED PHOTOS SHALL INCLUDE:

* ALL BUSS BARS AND COAX GROUND CONNECTIONS.
* TOWER COUNTERPOISE
* BUILDING COUNTERPOISE
* CONNECTIONS TO POWER, TELCO, A.C., FENCING AND ICE BRIDGE.

2.5 CONTRACTOR SHALL PROVIDE AS BUILT PLANS SHOWING LOCATION AND DIMENSIONS OF BELOW GRADE GROUNDING FEATURES.

3. INSTALLATION:

3.1 ALL EXTERIOR ABOVE AND BELOW GROUND CONNECTIONS SHALL BE CADWELD. NO ALUMINUM CONNECTORS SHALL BE USED. UNLESS SPECIFIED OTHERWISE ON PLANS

3.2 NO RIGHT-ANGLE CADWELD CONNECTION (OTHER THAN GROUND RODS TO GROUND RING CONNECTION) SHALL BE USED. ALL WIRE-TO-WIRE CONNECTIONS SHALL UTILIZE "Y-TYPE" CONNECTIONS.

3.3 ALL VERTICAL JUMPERS SHALL NOT BE WELDED WITHIN TWO (2) FT. OF THE GROUND ROD.

3.4 KOPR SHIELD REQUIRED FOR ALL MECHANICAL CONNECTIONS

3.5 ALL CADWELDS FINISHED WITH COLD GALVANIZED SHIELD

4. TOWER:

4.1 A #2 SOLID BARE COPPER WIRE SHALL BE BURIED A MINIMUM FOUR (4) FT. UNDERGROUND AND ENCIRCLE TOWER FOUNDATION TWO (2) FT. FROM THE FOUNDATION. THIS GROUNDING SYSTEM SHALL BE CONNECTED TO THE BUILDING GROUND RING IN TWO (2) PLACES USING CADWELD CONNECTIONS. SUCH CONNECTIONS SHALL BE "Y-TYPE" CADWELD CONNECTIONS.

4.2 THREE (3) #2 SOLID BARE COPPER WIRES SHALL BE RUN FROM THE TOWER GROUND RING TO THE TOWER. THESE WIRES SHALL BE CONNECTED TO THE TOWER USING A CADWELD CONNECTION. NO SHARP BENDS SHALL BE PLACED IN THESE GROUND LEADS.

4.3 GROUND SYSTEM SHALL INCLUDE THE INSTALLATION OF AN ISOLATED LIGHTNING ROD AT THE TOP OF THE TOWER ABOVE THE HIGHEST ANTENNA. A #2 INSULATED COPPER WIRE SHALL BE CONNECTED TO THE TOWER LIGHTNING ROD USING AN APPROVED MECHANICAL CONNECTOR, OR CADWELDED, TO TOWER STEEL.

5. BUILDING:

5.1 A #2 SOLID BARE COPPER WIRE SHALL BE BURIED A MINIMUM OF FOUR (4) FT. UNDERGROUND AND ENCIRCLE BUILDING FOUNDATION TWO (2) FEET FROM THE FOUNDATION. GROUND RING CORNERS SHALL BE INSTALLED WITH A MINIMUM TWO FOOT RADIUS (NO SHARP RIGHT ANGLE BENDS).

5.2 A #2 SOLID BARE COPPER WIRE SHALL BE INSTALLED FROM THE BUILDING GROUND RING AND CONNECTED TO THE COPPER BUS BAR LOCATED ON THE OUTSIDE OF BUILDING UNDER THE WAVEGUIDE PORT WITH A MINIMUM NINE (9) INCHES RADIUS. A "Y-TYPE" OR "PARALLEL-TYPE" CADWELD CONNECTION SHALL BE USED FOR ALL CONNECTIONS TO THE GROUND RING.

5.3 ONE (1) ADDITIONAL #2 SOLID BARE GROUND WIRE LEAD SHALL BE INSTALLED DIRECTLY BELOW THE ELECTRICAL SERVICE ENTRANCE PORT (GROUND LUG ON THE MAIN DISCONNECT INSIDE THE BUILDING). THIS WIRE SHALL BE CONNECTED TO THE BUILDING GROUND RING USING "Y-TYPE" CADWELD CONNECTION.

5.4 ONE (1) ADDITIONAL #2 SOLID BARE COPPER GROUND WIRE LEAD SHALL BE INSTALLED DIRECTLY BELOW EACH HVAC UNIT.

6. FENCING:

6.1 A #2 SOLID BARE COPPER GROUND WIRE SHALL BE INSTALLED FROM THE FENCE CORNER POSTS TO THE GROUND RING AND SHALL BE BURIED A MINIMUM FOUR (4) FT. UNDERGROUND. THESE RUNS SHALL INCLUDE GROUND RODS EQUALLY SPACED AT 10 FT. INTERVALS. THESE RUNS SHALL BE BROUGHT ABOVE GROUND LEVEL AND SUPPORTED ABOVE GROUND WITH TEMPORARY POSTS UNTIL PERMANENT FENCING IS INSTALLED. GROUND WIRE SHALL BE CONNECTED TO THE FENCE POSTS USING CADWELD TYPE CONNECTIONS.

7. EXISTING GROUND SYSTEMS

7.1 CONTRACTOR SHALL PROVIDE CONNECTIONS TO ALL EXISTING GROUND SYSTEMS AT THE SITE (SCADA, TELEMETRY, ETC.)

8. TESTING

8.1 THE CONTRACTOR SHALL TEST THE DRIVEN ELECTRODE SYSTEM PRIOR TO CONNECTING THE GROUND LEADS FROM THE OTHER GROUNDING SYSTEMS. TRENCHES SHALL BE BACK FILLED IN ORDER TO ACHIEVE ACCURATE TEST RESULTS. TRENCHES SHALL NOT BE BACK FILLED AND COMPACTED TO FINAL DENSITY PRIOR TO TESTING. THE DRIVEN ELECTRODE SYSTEM IS COMPOSED OF THE GROUND RODS, THE INTERCONNECTION GROUND WIRE, AND THE CADWELD CONNECTIONS. ALL OTHER BONDS TO THE SYSTEM SHALL BE REMOVED.

8.2 THE GROUND FIELD RESISTANCE SHALL MEASURE 5 OHMS OR LESS TO GROUND. IF RESISTANCE IS NOT MET, CONTRACTOR SHALL PAY FOR NECESSARY ADDITIONS TO MEET CRITERIA.

8.3 TEST RESULTS SHALL BE DOCUMENTED & PROVIDED TO ENGINEER.

9. COMPLIANCE

9.1 ELECTRICAL CODE COMPLIANCE

COMPLY WITH APPLICABLE LOCAL ELECTRICAL CODES REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION, AND NEC AS APPLICABLE TO ELECTRICAL GROUNDING AND BONDING. PERTAINING TO SYSTEMS, CIRCUITS AND EQUIPMENT

9.2 UL COMPLIANCE

COMPLY WITH APPLICABLE REQUIREMENTS OF UL467, 486A AND 869 PERTAINING TO GROUNDING AND BONDING OF SYSTEMS, CIRCUITS AND EQUIPMENT. USE GROUNDING AND BONDING PRODUCTS WHICH ARE UL-LISTED AND LABELED FOR THEIR INTENDED USAGE.

9.3 IEEE COMPLIANCE

COMPLY WITH APPLICABLE REQUIREMENTS OF RECOMMENDED INSTALLATION PRACTICES OF IEEE STANDARDS 80, 81, 141 AND 142 PERTAINING TO GROUNDING AND BONDING OF SYSTEMS, CIRCUITS AND EQUIPMENT.

MASTER GROUND BAR NOTES:

THE MASTER GROUND BAR (MGB) IS THE EXTENSION OF THE BUILDING GROUNDING SYSTEM AND SERVES AS THE MAIN POINT OF BONDING WITHIN THE FACILITY. THE MGB WILL BE THE COMMON GROUND POINT WHERE ALL GROUND POINTS FOR THE FACILITY WILL CONNECT.

THE MGB SHOULD BE LOCATED SO THAT THE BONDING CONDUCTOR IS AS SHORT AND STRAIGHT AS POSSIBLE TO THE FACILITY GROUND RING.

THE MGB WILL BE LOCATED NEAREST THE PRIMARY GROUND WHILE MAINTAINING HEIGHT AND DISTANCE CLEARANCES REQUIRED BY APPLICABLE ELECTRICAL CODES.

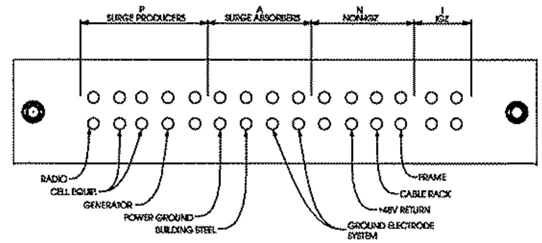
THE MGB WILL BE PREDRILLED COPPER ELECTRO TIN-PLATED BUS BAR WITH STANDARD NEMA BOLT SIZING AND SPACING WITH MINIMUM DIMENSIONS OF 1/4" THICK BY 4" WIDE AND 24" IN LENGTH. THE LENGTH MAY BE LONGER TO MEET FUTURE GROWTH PROJECTIONS.

THE MGB WILL BE INSULATED FROM ITS SUPPORT WITH MINIMUM 2" SEPARATION REQUIREMENT ON ISOLATED STANDOFFS.

THE MGB WILL BE PERMANENTLY AND APPROPRIATELY LABELED AND IDENTIFIED WITH THE "P", "A", "N" AND "I" SECTION OF THE MGB CLEARLY AND PERMANENTLY IDENTIFIED.

P = PRODUCERS, A = ABSORBERS, N = NON-PRODUCERS, I = ISOLATED (SWITCH, DCS)

ALL CONNECTIONS MADE TO MGB WILL BE STANDARD 2-HOLE LUGS.



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SHEET TITLE:

GROUNDING NOTES
ZOR [#782483]
MADISON, WISCONSIN

ISSUE DATE:
PRELIM CDs - 09/22/08
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NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/28/09

DRAWN BY: MJL, AJC, JAH

CHECKED BY: ABB

PLOT DATE: 10/27/2009

PROJECT NUMBER: 3593

FILE NAME: G-4.dgn

SHEET NUMBER:

G-4

ELECTRICAL NOTES

GENERAL

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

B. CONTRACTOR IS TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS TO BE PAID BY CONTRACTOR.

C. CONTRACTOR SHALL OBTAIN ALL NECESSARY BUILDING PERMITS, INSPECTIONS AND APPROVALS, AND PAY ALL REQUIRED FEES PURSUANT TO THE WORK.

D. ALL WORK SHALL BE IN STRICT ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE AND ANY APPLICABLE NATIONAL, STATE AND LOCAL CODES. ALL COMPONENTS SHALL BE U.L. APPROVED.

E. CONTRACTOR SHALL BEFORE SUBMITTING HIS BID, VISIT THE SITE OF THE PROJECT AND BECOME FAMILIAR WITH THE CONDITIONS. NO ALLOWANCE WILL BE MADE FOR EXISTING CONDITIONS OR FAILURE OF THE CONTRACTOR TO OBSERVE THEM.

F. EXACT LOCATION OF ALL EQUIPMENT SHALL BE COORDINATED WITH OWNER AND OTHER TRADES.

G. CONTRACTOR SHALL PROVIDE ALL VERIFICATION OBSERVATION TESTS AND EXAMINE ALL WORK PRIOR TO ORDERING THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT/ENGINEER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.

H. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN SAFE CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT (SEE NOTE G. FOR EXCEPTIONS). MATERIALS SHALL MEET WITH APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY AND ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA, NBFU AND "UL" LISTED.

I. WHERE EQUIPMENT IS SPECIFIED BY MANUFACTURER AND TYPE, SUBSTITUTION SHALL ONLY BE MADE WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR SHALL SUBMIT DETAILS OF PROPOSED MATERIALS, REASON FOR CHANGE AND CHANGE IN CONTRACT AMOUNT.

J. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY LABELED WITH ENGRAVED PLASTIC LABELS FOR EACH PANELBOARD, PULL BOX, J-BOX, SWITCH BOX, ETC. IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

K. THESE PLANS ARE DIAGRAMMATIC ONLY AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE.

L. THE NEUTRAL IS TO BE GROUNDED AT THE METER MAIN PEDESTAL ONLY. AT ALL OTHER POINTS IN THE DISTRIBUTION SYSTEM, IT IS TO REMAIN INSULATED FROM ALL OTHER GROUNDS UNLESS OTHERWISE INDICATED ON DRAWING.

M. THE TEMPERATURE RATING ASSOCIATED WITH THE AMPACITY OF A CONDUCTOR SHALL BE SO SELECTED AND COORDINATED AS TO NOT EXCEED THE LOWEST TEMPERATURE RATING OF ANY CONNECTED TERMINATION, CONDUCTOR, OR DEVICE. REFER TO TABLE A.

N. ALL ENCLOSURES CONTAINING THE SERVICE CONDUCTORS-SERVICE RACEWAY, CABLE ARMOR, BOXES, FITTINGS, CABINETS MUST BE EFFECTIVELY BONDED TOGETHER.

O. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE SPECIFIED, WITH UV PROTECTION (UNLESS NOTED OTHERWISE) AT A MINIMUM DEPTH SPECIFIED BY NATIONAL STATE AND LOCAL CODES. IT IS REQUIRED AND WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO NOTIFY THE DIGGER HOTLINE OR OTHER SUCH NOTIFYING AGENCY FORTY EIGHT (48) HOURS PRIOR TO THE START OF DIGGING, TRENCHING, EXCAVATION, OR OTHER SUCH EARTH REMOVAL.

P. THE UNDERGROUND SERVICE ENTRANCE WORK MUST BE CONSTRUCTED ACCORDING TO THE LOCAL BUILDING CODE, NEC & UTILITY STANDARDS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL UTILITY BEFORE QUOTING AND DURING THE CONSTRUCTION.

MATERIALS, ELECTRICAL WIRING AND RACEWAYS

A. ALL CIRCUIT BREAKERS, FUSES, CONDUCTORS AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING SHORT CIRCUIT TO WHICH THEY MAY BE SUBJECTED AND A MINIMUM OF 10,000 AIC RATING UNLESS SPECIFIED OTHERWISE.

B. PLASTIC PLATES FOR ALL SWITCHES, RECEPTACLES, TELEPHONE AND BLANKED OUTLETS SHALL HAVE ENGRAVED LETTERING WHERE INDICATED ON THE DRAWINGS. WEATHERPROOF RECEPTACLES SHALL HAVE SIERRA "WPD 8" LIFT COVER PLATES.

C. METER SOCKET AMPERAGE, VOLTAGE AND NUMBER OF PHASES SHALL BE AS NOTED ON THE DRAWINGS AND MANUFACTURED BY SQUARE "D" COMPANY OR AN APPROVED EQUAL.

D. INSTALLATION OF RIGID METAL CONDUIT SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF ARTICLES 300 & 346-NEC. SHALL BE UL APPROVED

E. INSTALLATION OF ELECTRICAL METALLIC TUBING (EMT) SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF ARTICLES 300 & 348-NEC. SHALL BE U.L. APPROVED.

F. INSTALLATION OF INTERMEDIATE METAL CONDUIT (IMC) SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF ARTICLES 300 & 345-NEC. SHALL BE UL APPROVED.

G. PLASTIC CONDUIT SHALL BE SCHEDULE 40, HIGH IMPACT, POLYVINYL CHLORIDE AND SHALL BE USED WITH UNTHREADED SOLVENT CEMENT PLASTIC CONDUIT FITTINGS. COUPLINGS SHALL HAVE A CENTER STOP TO TYPE ENSURE PROPER SEATING. CONDUIT SHALL BE MANUFACTURED BY CARLON OR ACCEPTABLE EQUAL SHALL BE IN COMPLIANCE WITH ART 300 & 347-NEC. UL APPROVED.

H. ALL WIRING OF ALL KINDS MUST BE INSTALLED IN CONDUIT, UNLESS OTHERWISE NOTED OR APPROVED BY THE ELECTRICAL ENGINEER.

I. ALL WIRING SHALL BE COPPER TYPE TINNED AND IN ACCORDANCE WITH THE (NEC) NATIONAL ELECTRICAL CODE OR AS INDICATED ON PLANS.

J. RACEWAYS SHALL BE STEEL, GALVANIZED, WITH SIZE AS SPECIFIED AND IN ACCORDANCE WITH THE (NEC) NATIONAL ELECTRICAL CODE UNLESS OTHERWISE NOTED ON PLANS. ALL RACEWAYS SHALL BE APPROVED PRIOR TO INSTALLATION.

K. JUNCTION BOXES OR PULL BOXES SHALL MEET (NEC) NATIONAL ELECTRICAL CODE STANDARDS AND AS APPROVED FOR INSTALLATION OF RACEWAYS AND WIRING.

L. THE RACEWAY AND WIRING INSTALLATION SHALL BE GROUNDED PERMANENTLY AND EFFECTIVELY IN ACCORDANCE WITH ARTICLE 250 OF THE (NEC) NATIONAL ELECTRICAL CODE.

M. THE CONTRACTOR SHALL BE AWARE THAT ALL STATE AND LOCAL CODES SHALL APPLY TO THIS INSTALLATION AND MUST BE ADHERED TO.

GENERATOR

A. CONTRACTOR SHALL COORDINATE ALL WORK WITH GENERATOR SET SUPPLIER TO PROVIDE A COMPLETE OPERATING EMERGENCY BACK-UP SYSTEM.

B. A SURGE PROTECTOR IS TO BE INSTALLED ON THE LOAD SIDE OF THE GENERATOR TRANSFER SWITCH.

C. IF THE GENERATOR IS A "SEPARATELY DERIVED SYSTEM" ITS NEUTRAL MUST BE BONDED TO THE GENERATOR METAL CASE AND ITS GROUNDING ELECTRODE CONDUCTOR MUST BE TIED INTO THE CELLULAR EXTERIOR GROUNDING SYSTEM. (NEC 250-26)

D. IF THE GENERATOR IS NOT A "SEPARATELY DERIVED SYSTEM" BONDING AND GROUNDING OF GENERATOR NEUTRAL IS NOT REQUIRED.

SCOPE OF WORK

A. THE CONTRACTOR SHALL PROVIDE ALL ELECTRICAL WIRING AND EQUIPMENT UNLESS OTHERWISE INDICATED. MAIN COMPONENTS ARE AS FOLLOWS:
1. PROVIDE ELECTRICAL SERVICE AS INDICATED ON THE DRAWINGS.
2. PROVIDE TELEPHONE CONDUIT WITH PULL WIRE AS INDICATED HEREIN AND ON DRAWINGS.
3. COORDINATE ELECTRICAL SERVICE WITH LOCAL POWER COMPANY.
4. COORDINATE TELEPHONE SERVICE WITH LOCAL TELEPHONE COMPANY.
5. INSTALL WIRE AND CONDUIT AS INDICATED. PROVIDE CABLE SUPPORTS AS INDICATED.
6. PROVIDE GROUNDING AS INDICATED.

B. ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" OR "AS-BUILT" DRAWINGS AT THE COMPLETION OF THE JOB SHOWING ACTUAL DIMENSIONS, ROUTINGS AND CIRCUITS SHALL BE PROVIDED TO CLIENT. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO CLIENT AT JOB COMPLETION.

C. PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF ELECTRICAL WORK.

D. UPON COMPLETION OF WORK, CONDUIT CONTINUITY, SHORT CIRCUIT, AND GROUNDING FALL POTENTIAL TEST WILL BE MADE FOR APPROVAL. SUBMIT TEST REPORTS TO CLIENT. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE IN A COMPLETE AND UNDAMAGED CONDITION.

E. THE COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF SITE ACCEPTANCE BY CLIENT. ANY WORK MATERIAL OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AND AT THE EXPENSE OF THE CONTRACTOR.

F. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE ELECTRICAL EQUIPMENT PROVIDED BY CLIENTS SUPPLIERS.

TERMINATION RATING		CONDUCTOR INSULATION RATING	
	60 DEGREES C	75 DEGREES C	90 DEGREES C
60 DEGREES C	OK	OK AT 60 DEGREES C AMPACITY	OK AT 60 DEGREES C AMPACITY
75 DEGREES C	NO	OK	OK AT 75 DEGREES C AMPACITY
60/75 DEGREES C	OK	OK AT 60 DEGREES C OR 75 DEGREES C AMPACITY	OK AT 60 DEGREES C OR 75 DEGREES C AMPACITY
90 DEGREES C	NO	NO	OK 90 DEGREES C RATING ONLY IF EQUIPMENT HAS

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SHEET TITLE:

ELECTRICAL NOTES
ZOR [#782483]
MADISON, WISCONSIN

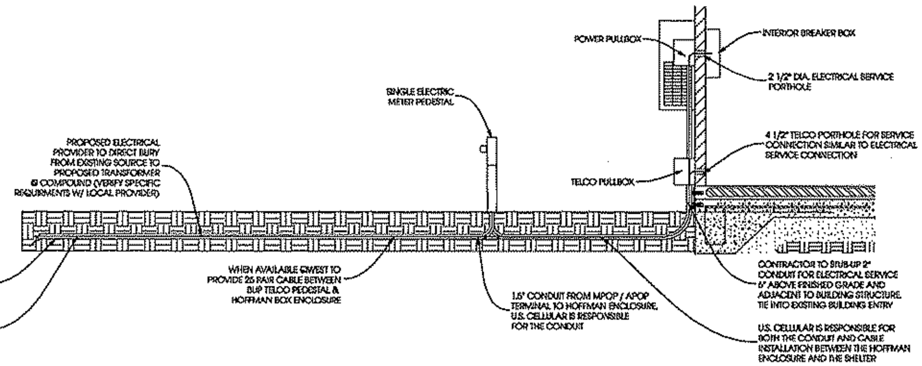
ISSUE DATE:
PRELIM CDs - 09/25/08
PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 05/13/09
FINAL CDs - 10/21/09

REVISIONS:
BUILDING LOCATION - 04/08/09
LEASE LOCATION - 05/15/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/26/09

DRAWN BY: M.L. A.JC. JAH
CHECKED BY: ABB
PLOT DATE: 10/27/2009
PROJECT NUMBER: 3593
FILE NAME: E-1.dgn

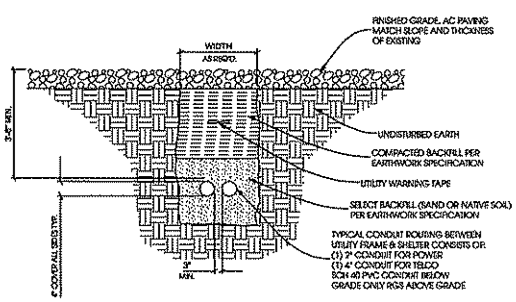
SHEET NUMBER:
E-1

NOTE:
INSTALL IN ACCORDANCE WITH LOCAL CODES & UTILITY COMPANY REQUIREMENTS



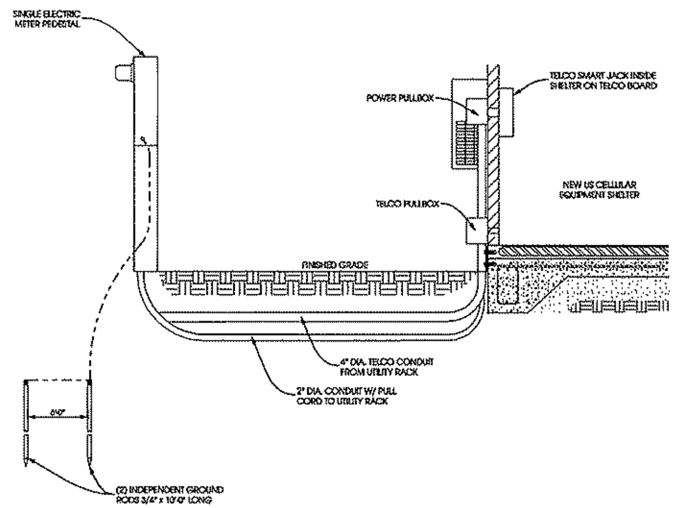
POWER PULLBOX
INTERIOR BREAKER BOX
2 1/2" DIA. ELECTRICAL SERVICE PORTHOLE
SINGLE ELECTRIC METER PEDESTAL
4 1/2" TELCO PORTHOLE FOR SERVICE CONNECTION SIMILAR TO ELECTRICAL SERVICE CONNECTION
PROPOSED ELECTRICAL PROVIDER TO DIRECT BURY FROM EXISTING SOURCE TO PROPOSED TRANSFORMER @ COMPOUND (VERIFY SPECIFIC REQUIRMENTS W/ LOCAL PROVIDER)
TELCO PULLBOX
U.S. CELLULAR IS RESPONSIBLE FOR PLACING THE CONDUIT FROM THE PEDESTAL IN THE ROW TO THE BUP TERMINAL LOCATED OUTSIDE THE COMPOUND FENCE
QWEST IS RESPONSIBLE FOR PULLING A 50 PAIR CABLE FROM THE ROW PEDESTAL TO THE BUP TERMINAL WITHIN THE U.S. CELLULAR PROVIDED CONDUIT
WHEN AVAILABLE QWEST TO PROVIDE 25 PAIR CABLE BETWEEN BUP TELCO PEDESTAL & HOFFMAN BOX ENCLOSURE
1.5" CONDUIT FROM MPOP / APOP TERMINAL TO HOFFMAN ENCLOSURE. U.S. CELLULAR IS RESPONSIBLE FOR THE CONDUIT
CONTRACTOR TO STUB-UP 2" CONDUIT FOR ELECTRICAL SERVICE 6" ABOVE FINISHED GRADE AND ADJACENT TO BUILDING STRUCTURE. TIE INTO EXISTING BUILDING ENTRY
U.S. CELLULAR IS RESPONSIBLE FOR BOTH THE CONDUIT AND CABLE INSTALLATION BETWEEN THE HOFFMAN ENCLOSURE AND THE SHELTER

A / E-2 **STANDARD UNDERGROUND POWER**
11X17 - NTS
22X34 - NTS



WIDTH
AS REQ'D.
3'-6" MIN.
6" COVER ALL SIDES TYP.
3" MIN.
FINISHED GRADE. AC PAVING MATCH SLOPE AND THICKNESS OF EXISTING
UNDISTURBED EARTH
COMPACTED BACKFILL PER EARTHWORK SPECIFICATION
UTILITY WARNING TAPE
SELECT BACKFILL (SAND OR NATIVE SOIL) PER EARTHWORK SPECIFICATION
TYPICAL CONDUIT ROUTING BETWEEN UTILITY FRAME & SHELTER CONSISTS OF:
(1) 2" CONDUIT FOR POWER
(1) 4" CONDUIT FOR TELCO
SCH 40 PVC CONDUIT BELOW GRADE ONLY RGS ABOVE GRADE

B / E-2 **UTILITY TRENCH DETAIL**
11X17 - NTS
22X34 - NTS



SINGLE ELECTRIC METER PEDESTAL
TELCO SMART JACK INSIDE SHELTER ON TELCO BOARD
POWER PULLBOX
NEW US CELLULAR EQUIPMENT SHELTER
TELCO PULLBOX
FINISHED GRADE
4" DIA. TELCO CONDUIT FROM UTILITY RACK
2" DIA. CONDUIT W/ PULL CORD TO UTILITY RACK
6'-0"
(2) INDEPENDENT GROUND RODS 3/4" x 10'-0" LONG

C / E-2 **SINGLE CARRIER UTILITY PEDESTAL DETAIL**
11X17 - NTS
22X34 - NTS

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ZOR [#782483]
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ISSUE DATE:
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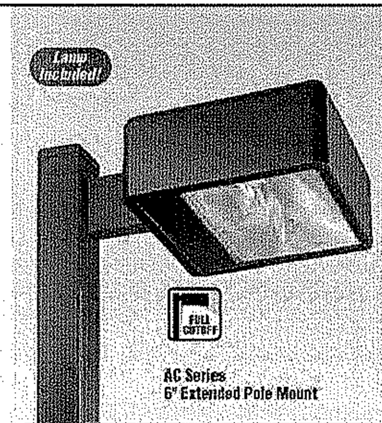
DRAWN BY: MJL, AJC, JAN
CHECKED BY: ABB
PLOT DATE: 10/27/2009
PROJECT NUMBER: 3393
FILE NAME: E2.dgn
SHEET NUMBER: **E-2**

ADDITIONAL ORDER INFORMATION:

12" ARM MOUNT
CATALOG #: PM-2/12-12
WWW.RUUDLIGHTING.COM

AC SERIES Cutoff Area

Lamp Included!

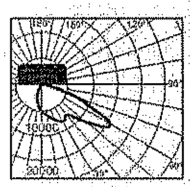


AC Series
6" Extended Pole Mount

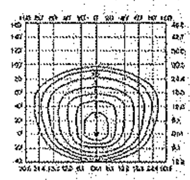
Area Cutoff

This compact forward-throw reflector has a main beam of 60+ degrees from vertical (30 degrees from horizontal), providing wide lateral distribution and excellent uniformities. A Backlight Shield accessory (standard on Wall Mount) permits precise cutoff adjustability.

Three Sizes:
12" square x 5" deep (305 x 127 mm)
16" square x 6.5" deep (406 x 165 mm)
22" square x 9.3" deep (559 x 235 mm)



Candlepower distribution curve of 400W MH 16" Area Cutoff Light.



Isofootcandle plot of 400W MH Area Cutoff Light at 25' (7.6 m) mounting height, 0° tilt above horizontal, with backlight shield removed.

RUUD LIGHTING

124

Order Information

Housing Size (sq.)	Voltage/ Lamp	Catalog Number
12"	150W PSMH	MAC*615-M
16"	⚲ 320W PSMH	AC*632-M
22"	750W PSMH	AC*675-M
12"	50W MH	MAC*405-D
12"	70W MH	MAC*407-D
12"	100W MH	MAC*410-D
12"	175W MH	MAC*417-M
16"	175W MH	AC*417-M
16"	250W MH	AC*425-M
16"	⚲ 400W MH	AC*440-M
22"	⚲ 1000W MH	AC*499-M
12"	35W HPS	MAC*503-1
12"	50W HPS	MAC*505-D
12"	70W HPS	MAC*507-M
12"	100W HPS	MAC*510-M
12"	150W HPS	MAC*515-M
16"	250W HPS	AC*525-M
16"	400W HPS	AC*540-M

Mounting Code (Insert Code at * in Catalog #)

1 = 1-1/2" Close Pole Mount
2 = 6" Extended Pole Mount
3 = 2" Adjustable Fitter
4 = Yoke Mount
6 = 1/2" Adjustable Fitter (12" housing only)
8 = Without Mounting (hardware)
K = Round Tube Off-Center Tenon Mount (16" housing only) (For 2-3/8" or 3" O.D.)
M = Round Tube Off-Center Direct Mount (16" housing only) (Direct Fitter for 4" sq. pole)
W = Wall Mount (Backlight Shield is standard)

NOTE: When using multiple 22" sq. housings at 90° configuration, a special 12" arm is required; see page 156.

* Specify Mounting (additional cost)
Other lamp wattages available—consult factory
⚲ Reduced envelope lamp. ED28 for 320W PSMH and 400W MH; BT37 for 1000W MH.

Options: (Factory-Installed) Description	Change Suffix To	Add After Suffix
277V Reactor ballast (PSMH only)	27	
120V Reactor ballast (50–150W HPS, 12" housing only)	1	
480V ballast (320W PSMH, 175–1000W MH & 70–400W HPS only)	5	
480V ballast (70–100W MH only)	5	
347V ballast (50W HPS only)	6	
Quad-volt ballast (50–400W MH only)	M	
Quad-volt ballast (70W HPS only)	M	
Tri-volt ballast (320W PSMH, 175–1000W MH & 70–400W HPS only)	1	
Tri-volt ballast (50–100W MH only)	1	
Single Fuse (277V Reactor, 120V, 277V or 347V)	27, 1, 2 or 6	F
Dual Fuse (208V, 240V or 480V) (n/a Canada)	3, 4 or 5	F
Quartz Standby (Strike-relay type) (includes 100W Q lamp) (n/a 277V Reactor)		Q
Button Photocell (factory-installed with all mountings other than 2" Adjustable Fitter) NOTE: n/a on 1000W w/120V; all 480V	27, 1, 2, 3, 4 or 6	P
External Photocell (factory-installed) (Page 133)		
For fixtures w/1000W, 120V	1	P
For fixtures w/480V	5	P

Accessories: (Field-Installed)	12"	16"	22"
Wire Guard	PWG-12	PWG-16	PWG-22
Backlight Shield (standard on AC Series Wall Mount)	SBL-12	SBL-16	SBL-22

Button Photocell (Field-installed in fixtures with 2" Adjustable Fitter)	Catalog #
For fixtures w/120V (n/a on 1000W)	PC-1
For fixtures w/208, 240 or 277V	PC-2
For fixtures w/347V	PC-6

Housings .... Page 110
Catalog Number Logic/Voltage Suffix Key .... Page 115
Optical Systems .... Pages 104–107
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LIGHT FIXTURE DETAILS
ZOR [#782483]
MADISON, WISCONSIN

SHEET TITLE:

ISSUE DATE:
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PRELIM CDs - 04/01/09
FINAL CDs - 04/21/09
FINAL CDs - 05/15/09
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REVISIONS:
BUILDING LOCATION - 04/01/09
LEASE LOCATION - 05/15/09
NEW LEASE AREA - 09/22/09
TOWER HEIGHT - 09/25/09

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