

MEMORANDUM OF AGREEMENT

**Between the
Federal Communications Commission,
The Illinois State Historical Preservation Agency
for the
The Advisory Council on Historic Preservation,**

**For the Authorization and Construction of a Wireless Communications Facility
In Orland Park (unincorporated), Illinois.**

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Attachment A
(AT&T Construction Drawings)

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(Sprint Construction Drawings)

List of Parties

MEMORANDUM OF AGREEMENT

**Between the
Federal Communications Commission,
The Illinois State Historical Preservation Agency
for the
The Advisory Council on Historic Preservation,**

**For the Authorization and Construction of a Wireless Communications Facility
In Orland Park (unincorporated), Illinois.**

THIS AGREEMENT by and between the parties signatory hereto as of this day of November, 1998 do hereby agree as follows:

WHEREAS AT&T Wireless Services (AT&T) and Sprint PCS (Sprint) individually and collectively (Applicants) have applied to the Federal Communications Commission (FCC) for a license to construct and operate a wireless communications facility from a monopole tower (the "undertaking") to improve cellular radiotelephone communications and emergency communications for local government authorities, and upgrade the radio communications for the Orland Park area on land owned by Richard Connor Riley at 14299 South Wolf Road, Orland Park (unincorporated), Illinois; and,

WHEREAS the FCC, in consultation with the Illinois State Historic Preservation Agency (SHPO), has established the undertakings area(s) of potential effect, as defined at 47 CFR 1.1307(a)(4); and,

WHEREAS the SHPO, in consultation with the FCC has determined that the undertaking will create a visual adverse effect on the Yunker Schoolhouse which is eligible for listing on the National Register of Historic Places in accordance with Section 106 of the National Historic Preservation Act, 16 U.S.C. 470 (NHPA), and its implementing regulations 36 CFR Part 800; and,

WHEREAS the SHPO has, in consultation with the applicants, determined that there is no practical alternative location to place this communications facility; and,

WHEREAS Richard Connor Riley, as property owner, and AT&T and Sprint participated in the consultation process and has been invited to concur in this Memorandum of Agreement;

NOW, THEREFORE, the FCC and the SHPO agree that upon acceptance of this agreement by the Advisory Council on Historic Preservation (Council), and upon the FCC's decision to proceed with the undertaking, the FCC shall ensure the following stipulations are implemented in order to take into account the effect of the undertaking on this historic property, and that these measures shall constitute full and adequate mitigation measures under the National Historic Preservation Act and the Council's and the FCC's implementing regulations.

Stipulation

The FCC, through coordination with the SHPO, AT&T and Sprint, will ensure the following measures are carried out:

A. DESIGN OF THE STRUCTURE AND FACILITY

AT&T shall construct the facility in accordance with the site plans and specifications prepared by PAL Telecom Group as defined in PAL Telecom Group Project #98105 (Attachment A).

1. Consistent with agreement reached during the consultation process, AT&T shall ensure that the facility shall consist of a single pole, 3.75 feet in diameter at the base tapering to 2.75 feet in diameter at the top and 120 feet in height. Antennas at the top of the pole shall consist of no more than eighteen panel antennas (not to exceed 4 feet in length and 1 foot in width).
2. The proposed equipment shelter shall replicate the appearance of an outhouse, as was typical of the type originally employed at the site.
3. All utilities, conduits, waveguides, and wires shall be contained within the pole and shall be placed underground to the extent possible.
4. The proposed facility shall not install fencing on the site
5. The facility will be placed at the rearmost portion of the property so as to be visually associated with the shopping area behind the property.
6. Landscaping shall be designed to obscure the facility to the extent possible.
7. All exterior design treatments and landscaping shall be done in consultation with the SHPO.

Sprint shall place its antennas and construct its equipment enclosure as described in plans prepared by PAL Telecom Group as defined in PAL Telecom Group Project #98302 (Attachment B).

1. Antennas at the 100-foot level of the pole shall consist of no more than nine panel antennas (not to exceed 6 feet in length and 1 foot in width).
2. The proposed equipment shelter shall replicate the appearance of an outhouse, as was typical of the type originally employed at the site.
3. All utilities, conduits, waveguides, and wires shall be contained within the pole and shall be placed underground to the extent possible.
4. The proposed facility shall not install fencing on the site
5. The facility will be placed at the rearmost portion of the property so as to be visually associated with the shopping area behind the property.
6. Landscaping shall be designed to obscure the facility to the extent possible.
7. All exterior design treatments and landscaping shall be done in consultation with the SHPO.

B. MODIFICATIONS

In order to encourage the sharing of wireless communications services to minimize the construction of additional tower structures, AT&T may modify the structure to accommodate another wireless communications service provider. Any such modifications shall be submitted to

and be approved by the owner in consultation with the SHPO and prior to the initiation of any such modification.

C. DISPUTE RESOLUTION

Should the SHPO object within twenty-one (21) days to any plans provided for review pursuant to this Agreement, the FCC shall consult with the SHPO to resolve the objection. If the FCC determines that the objection cannot be resolved, the FCC shall request further comments of the Council concerning the dispute pursuant to 36 CFR 800.6(b). Any Council comment provided in response to such a request will be taken into account by the FCC in accordance with 36 CFR 800.6(c)(2) with reference only to the subject of the dispute; the FCC's responsibility to carry out all actions under this Agreement that are not the subject of the dispute will remain unchanged.

D. ABANDONMENT OF THE FACILITY

In the event that the facility is abandoned by all telecommunications service providers at any time after construction, AT&T shall dismantle the facility and notify the SHPO accordingly.

Execution of this Memorandum of Agreement by the FCC and the SHPO, its subsequent acceptance by the Council, and implementation of its terms evidence that the FCC has afforded the Council an opportunity to comment on the undertaking and its effects on the historic property, and that the FCC has taken into account the effects of the undertaking on historic properties.

THE FEDERAL COMMUNICATIONS COMMISSION

Catherine W. Seidel 11/12/99
Title Chief, Enforcement and Consumer Date
Information Division, WTB

THE ILLINOIS HISTORIC PRESERVATION AGENCY

Anne Haaker 11-20-98
Anne Haaker, Deputy State Historic Preservation Officer Date

Concur:

AT&T WIRELESS SERVICES (Applicant)

[Signature] 11/10/98
Title Sys. Dev. MGR Date

SPRINT PCS (Applicant)

James J. Meyers
Title Director of Site Development

11/10/98
Date

RICHARD CONNOR RILEY (Owner)

Richard Connor Riley
By Richard Connor Riley

11/6/98
Date

Accepted:

THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

John M. Stroh
Title Exec. Dir.

1/20/99
Date



AT&T

Wireless Services

1412 F THE SCHOOLHOUSE

NEW 120'-0" HIGH MONOPOLE TOWER
WITH
10' W. X 12' L. X 10' H. EQUIPMENT SHELTER



8700 WEST BRYN MAWR
SUITE 200 SOUTH
CHICAGO, IL 60631
(773) 895-2100
FAX: (773) 895-2100

SITE 1412 F THE SCHOOLHOUSE

14299 S. WOLF RD
CITY OF ORLAND PARK
COOK COUNTY
ILLINOIS 60462



PAL
TELECOM
GROUP
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PROJECT MANAGER: GP

PREPARED BY: JA

APPROVED BY: NTP

1	1-10-98	REMOVED FOR PERMIT 1 (20)
2	1-1-98	REMOVED FOR PERMIT 1 (20)
3	1-1-98	REMOVED FOR PERMIT 1 (20)
4	1-1-98	REMOVED FOR PERMIT 1 (20)
5	1-1-98	REMOVED FOR PERMIT 1 (20)

RILEY & ASSOC.

NOV 02 1998

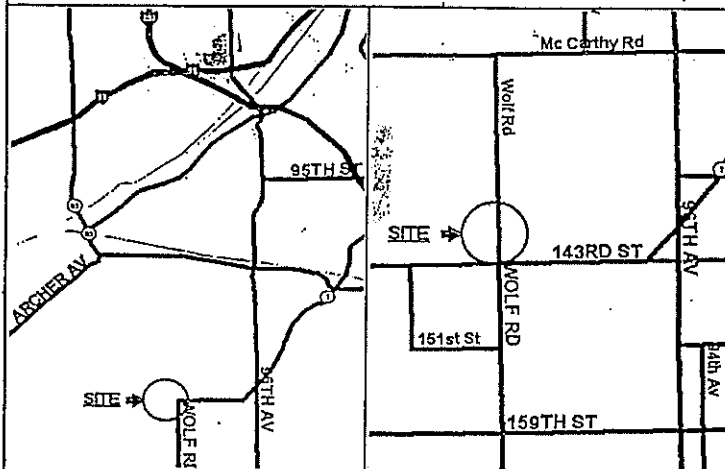
SHEET NAME

TITLE
SHEET

SHEET NUMBER

T-1

PAL PROJECT NUMBER
50105



DIRECTIONS TO SITE (FROM O'HARE AREA):

TAKE I-190 EAST TO I-294 SOUTH TO I-55 NORTH
TO ROUTE 45 (LA GRANGE ROAD). GO SOUTH TO
143 RD. STREET. GO WEST ON 143 RD STREET
TO WOLF ROAD. SITE IS ON THE NE CORNER OF
143 RD STREET AND WOLF ROAD.



ARCHITECT:



PROJECT MANAGEMENT
ARCHITECTURE
ENGINEERING
CONSTRUCTION

STRUCTURAL ENGINEER:



PROJECT MANAGEMENT
ARCHITECTURE
ENGINEERING
CONSTRUCTION

ELECTRICAL ENGINEER:



PROJECT MANAGEMENT
ARCHITECTURE
ENGINEERING
CONSTRUCTION

GEOTECHNICAL CONSULTANTS:



474 DIENS DRIVE
WILMINGTON, ILLINOIS 60090
OFFICE: (847) 439-9080
FAX: (847) 439-9322

SURVEYOR:



7903 WEST 103RD STREET
PALE PRAIRIE, ILLINOIS 60445-1579
Phone: (708) 599-3157

PERMITTING:



PROJECT MANAGEMENT
ARCHITECTURE
ENGINEERING
CONSTRUCTION

NAME: SCHOOLHOUSE
NUMBER: 1412 F
ADDRESS: 14299 S. WOLF RD.
CITY OF ORLAND PARK
COOK COUNTY
ILLINOIS
**PROPERTY
OWNER:** RICHARD CONNOR RILEY
630-789-1900
APPLICANT: AT&T WIRELESS SERVICES
8700 W. BRYN MAWR AVE.
CHICAGO, IL 60631
BRIAN MEIER, SENIOR PROJ. MGR.
OFFICE: (773) 695-2135
FAX: (773) 695-2160
JURISDICTION:
APPLICABLE BUILDING CODE: COOK COUNTY
OCCUPANCY GROUP: B
TYPE OF CONSTRUCTION: 2C
SQUARE FOOTAGE: 120 SQ. FT.
NUMBER OF STORIES: ONE
OCCUPANT LOAD: UNOCCUPIED
PARCEL NUMBER: 27-05-302-004-0000

HANDICAP REQUIREMENTS:
FACILITY IS UNMANNED AND NOT FOR HUMAN
HABITATION. HANDICAPPED ACCESS REQUIREMENTS
DO NOT APPLY.

SHT. NO.	DESCRIPTION
T-1	TITLE SHEET
SP-1	SPECIFICATIONS
SP-2	SPECIFICATIONS
SP-3	SPECIFICATIONS
SP-4	SPECIFICATIONS
C-1	SITE PLAN
C-2	ENLARGED SITE PLAN
A-1	ELEVATION
A-2	ANTENNA PLATFORM DETAILS
A-3	CABLE ROUTING DETAILS
A-4	FLOOR PLAN
A-5	ROOF FRAMING PLAN
A-6	BUILDING SECTIONS
A-7	BUILDING ELEVATIONS
AE-1	EQUIPMENT PLAN AND REFLECTED CEILING PLAN
S-1	CAISSON
S-2	BUILDING FOUNDATION
E-1	UTILITY PLAN AND DETAILS
E-2	GROUNDING PLAN AND DETAILS
E-3	GROUNDING DETAILS

1 AREA MAP
NOT TO SCALE

2 VICINITY MAP
NOT TO SCALE

3 PROJECT TEAM

4 SITE INFORMATION

5 SHEET INDEX

THE CONSTRUCTION DRAWINGS ARE INTERRELATED. EACH CONTRACTOR MUST REFER TO ALL DRAWINGS. COORDINATION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

DIVISION 2 - SITE-WORK

SECTION 02200 - EARTHWORK AND DRAINAGE

PART 1 - GENERAL

1. WORK INCLUDED: SEE SITE PLAN.
2. DESCRIPTIONS
 - A. ACCESS DRIVE BY TURNAROUND AREA, LEASE AREA, AND IF APPLICABLE 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 BY 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 BY 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 BY 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
 1. 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 STERILIZER.
 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 310 EPA 10732-1	PHASAR CORPORATION P.O. BOX 575 DEARBORN, MI 48128 (313) 563-8000
AMBUSH HERBICIDE EPA REGISTERED	FRAMAR INDUSTRIAL PRODUCTS 1435 MORRIS AVE. UNION, NJ 07093 (609) 516-4934

MATERIAL (UNLESS OTHERWISE NOTED) - ACCEPTABLE. FILL SHALL BE IN ACCORDANCE WITH STATE DEPARTMENT OF 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 BY TURNAROUND 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 AT&T, 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 BY 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 BY 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 THAN 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 SEEDDED TO EVEN THE SURFACE AND LOOSEN THE SOIL.
- P. SOU SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.
- Q. ENSURE GROWTH OF SEEDDED 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.

- A. PROTECT SEEDDED 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.



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PROJECT MANAGER
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PROJECT MANAGER: GP

PREPARED BY: TRD

APPROVED BY: NTP

3 1-10-96 REEDED FOR PERTY 1 SD
4 1-10-96 REEDED FOR PERTY 1 SD

SHEET NAME

SPECIFICATIONS

SHEET NUMBER

SP-1

PAL PROJECT NUMBER
50109

SPECIFICATIONS

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 AT&T CONSTRUCTION MANAGER PRIOR TO PLACEMENT OF CONCRETE.
 - C. THE AT&T 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 308 AND ACI 308.
 - B. PERFORM CONCRETE REINFORCING WORK IN ACCORDANCE WITH ACI 308, ACI 308, AND ASTM A108.
 - C. PERFORM CAST-IN-PLACE CONCRETE WORK IN ACCORDANCE WITH ACI 308, ACI 308, AND ACI 308.
4. SUBMITTALS

SUBMIT CONCRETE MIX AND REINFORCING STEEL SHOP DRAWINGS FOR APPROVAL BY AT&T 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 KI YIELD GRADE, DEFORMED BILLET STEEL BARS, PLAIN FINISH.
 - B. WELDED STEEL WIRE FABRIC ASTM A105 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 315, ASTM A104.
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 NON-METALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICISING AGENTS.
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 5 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 AS DIRECTED BY ARCHITECT/ENGINEER.

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 5 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 AS DIRECTED BY ARCHITECT/ENGINEER.

1 SPECIFICATIONS



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PROJECT MANAGER: G*

PREPARED BY: TFD

APPROVED BY: NTF

5 1-D-96 / REVISION FOR PERMITS
4 1-1-96 / ISSUED FOR PERMITS

SHEET NAME

SPECIFICATIONS

SHEET NUMBER

SP-2

PAL PROJECT NUMBER
26105

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. PIPE: ASTM A53, TYPE E OR S, GRADE B
 - D. BOLTS, NUTS, AND WASHERS: ASTM A325
 - E. ANCHOR BOLTS: ASTM A307
 - F. WELDING MATERIALS: AISC D11 TYPE REQUIRED FOR MATERIALS BEING WELDED
 - G. GROUT: NON-SHRINK TYPE, PREMIXED COMPOUND CONSISTING OF NON-METALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING ADDITIVES, CAPABLE OF DEVELOPING A MINIMUM COMPRESSIVE STRENGTH OF 10000 psi AT 28 DAYS.
 - H. SHOP AND TOUCH-UP PRIMER: SSPC B, 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 BRIDGINGS 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 05-000-METALS, PART 2 - PRODUCTS, H & I. SURFACES TO BE IN CONTACT WITH CONCRETE NOT INCLUDED.
3. FIELD QUALITY CONTROL:
FIELD INSPECTION OF MEMBERS, CONNECTIONS, WELDS AND TORQUING.

SECTION 18050 - BASIC ELECTRICAL MATERIALS 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 DIAGNOSTIC 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 (OSHA).
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, NEMA AND 'UL' LISTED.
5. ALL CONDUIT SHALL HAVE A METALLIC FULL WIRE.
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 AIC.
8. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY NEC, 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 "WPD-8" LEFT COVERPLATES.

SECTION 18400 - SERVICE AND DISTRIBUTION

1. WIRE AND CABLE CONDUITS SHALL BE COPPER, 600V, TYPE THHN OR THWN WITH A MIN. SIZE OF 1/2 INCH. COLOR CODED. ALL RECEPTACLES 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 HILBANK OR APPROVED EQUAL, AND SHALL BE UTILITY COMPANY APPROVED.
4. CONDUIT:
 - A. RIGID CONDUIT SHALL BE UL LABEL 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 HUNT'S WRAP PROCESS NO. 3.
 - B. ELECTRICAL METALLIC TUBING SHALL HAVE UL LABEL, FITTING SHALL BE GLAND RING COMPRESSION TYPE.
 - C. FLEXIBLE METALLIC CONDUIT SHALL HAVE UL 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 JULIE, AT 1-800-892-0023 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.

POTENTIAL PROTECTING SHALL BE 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 UNDAUNTED CONDITION.

B. GROUNDING ELECTRODE SYSTEM

- A. PREPARATION
 1. SURFACE PREPARATION:
ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FIELD INSPECTED AND MOOFED 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 TINED COPPER PLATE AND OF SIZE INDICATED ON DRAWINGS.
 2. ALL CONNECTIONS TO THE GROUND BAR SHALL OBSERVE THE FOLLOWING SEQUENCE:
 - A. BOLT-HEAD
 - B. 7-HOLE LUG
 - C. TINED BUSH BAR
 - D. STAR WASHER
 - E. NUT
- C. EXTERNAL CONNECTIONS
 1. ALL 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 'CADUOLD' AND INSTALLED PER MANUFACTURER'S RECOMMENDED PROCEDURES.
 2. ALL GROUNDING AND BONDING CONDUCTORS SHALL BE CONNECTED BY TWO HOLES CRIMP TYPE (COMPRESSION) CONNECTIONS (EXCEPT FOR THE ACEG AND GROUND ROD) MECHANICAL CONNECTIONS. FITTINGS OR CONNECTIONS THAT DEPEND SOLELY ON SOLDER SHALL NOT BE USED.
- 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 TINED SOLID BARE COPPER ANNEALED, AND OF SIZE INDICATED ON DRAWINGS UNLESS NOTED OTHERWISE.
- F. LUGS
 1. LUGS SHALL BE 2-HOLE, SHORT BARREL, STRAND COPPER UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. LUGS SHALL BE THOMAS AND BETTS SERIES '548', 'JSE' OR EQUIVALENT

A. 535 MCM DLO	54800BE
B. 267 MCM DLO	54810BE
C. 150 DLO	54820BE
D. 140 THIN AND BARE	54866BE
E. 2/0 THIN	54867BE
F. 2 THIN	54801BE
G. 1/2 DLO	54805BE
 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	MINIMUM BENDING RADIUS TO INSIDE EDGE
NO. 6 AWG TO NO. 4 AWG	6 INCHES
NO. 2 AWG TO NO. 1/0 AWG	8 INCHES
NO. 3/0 AWG TO 4/0 MCM	12 INCHES
250 MCM TO 150 MCM	24 INCHES



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PROJECT MANAGER: GP

PREPARED BY: TRS

APPROVED BY: NTP

5 11-58 ISSUED FOR PERMIT (100)

4 11-58 ISSUED FOR PERMIT (100)

SHEET NAME

SPECIFICATIONS

SHEET NUMBER

SP-3

PAL PROJECT NUMBER 50105

4. GROUND RING

1. THE EXTERNAL GROUND RING ENCLING THE TOWER (IF APPLICABLE) AND BETWEEN THE EQUIPMENT PLATFORM ANCHORS SHALL BE MINIMUM NO. 2 AWG. 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.

4. 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 MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES, AND SPRAYED WITH COLD-GALVANIZED PAINT.

5. IEEE FALL POTENTIAL TESTS

A. FOR RAW LAND SITE

1. GROUND TESTS SHALL BE PERFORMED AS INDICATED ON DRAWINGS. A MIDDLE GROUND ROPE OR THE METHOD OF USING TWO AUXILIARY GROUND RODS (AS DESCRIBED IN IEEE STANDARD NO. 81-1953, PART II) MAY BE USED. THE IEEE 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 MIDDLE NULL-BALANCE EARTH TESTER (MEGGER 730710-2 OR EQUIVALENT).

2. CONTRACTOR TO CONDUCT GROUND RESISTANCE TEST IN THE FORMAT AS FOLLOWS:

B. EQUIPMENT SHELTER PLATFORM HELICAL ANCHOR FOUNDATION

1. FIRST TEST - SHALL BE WITH EIGHT HELICAL ANCHORS OF THE PLATFORM INSTALLED, ONE AT EACH CORNER OF THE PLATFORM BUT NOT CONNECTED TO THE MAIN GROUNDING BUS. FURNISH WIRE TO CONNECT TEMPORARY CLAMP/FOUR CORNER HELICAL ANCHORS TOGETHER TO MAKE A SYSTEM TEST AFTER EACH HELICAL ANCHOR IS INDIVIDUALLY TESTED. IF ANY INDIVIDUAL ANCHOR TESTS 25 OHMS OR MORE, THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED. ANCHORS SHALL HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.

2. SECOND TEST - SHALL BE WITH THE HELICAL ANCHORS 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 MEASURES CAN BE TAKEN.

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 PLATFORM 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 SHELTER PLATFORM AND TOWER

1. AFTER THE EQUIPMENT SHELTER PLATFORM AND TOWER GROUND RESISTANCE TEST IS COMPLETED, CONTRACTOR SHALL THE EQUIPMENT SHELTER PLATFORM 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 LEADING IS 5 OHMS TO GROUND.

5. GROUNDING RESISTANCE TEST REPORT

UPON COMPLETION OF THE TESTING FOR EACH TEST REPORT SHOWING RESISTANCE IN OHMS WITH AUXILIARY INITIAL 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 18503 - 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 18745 - 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 MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF EQUIPMENT LOCATION UNLESS OTHERWISE STATED.
2. ALL COAX RUN LENGTHS GREATER THAN 143 FEET SHALL BE 1-5/8" AND IN LENGTH LESS THAN OR EQUAL TO 143 FEET SHALL BE 1/2".

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 CABLES, PLASTIC TAGS SHALL BE USED AT THE FOLLOWING LOCATIONS:
 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.
- B. USE ANDREW CABLE TIES (PT.# 27250) TO SECURE IDENTIFICATION TAGS.

5. TESTING

AT&T SHALL PROVIDE AN INDEPENDENT TESTING AGENCY TO PERFORM THE COAXIAL SWEEP TEST & REPORT. THE CONTRACTOR IS TO PROVIDE ONE CLIMBER / QUALIFIED PERSONNEL TO ASSIST IN ANY REPAIRS AND WEATHERPROOFING ONCE THE TEST IS COMPLETE. THE CONTRACTOR IS TO PROVIDE AT&T WITH A MINIMUM OF 48 HOURS NOTICE PRIOR TO THE TIME OF THE SWEEP TEST.

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PROJECT MANAGER: GP

PREPARED BY: TYS

APPROVED BY: NTP

5 1-13-16 REVISION FOR PERMITS

4 1-1-16 REVISION FOR PERMITS

SHEET NAME

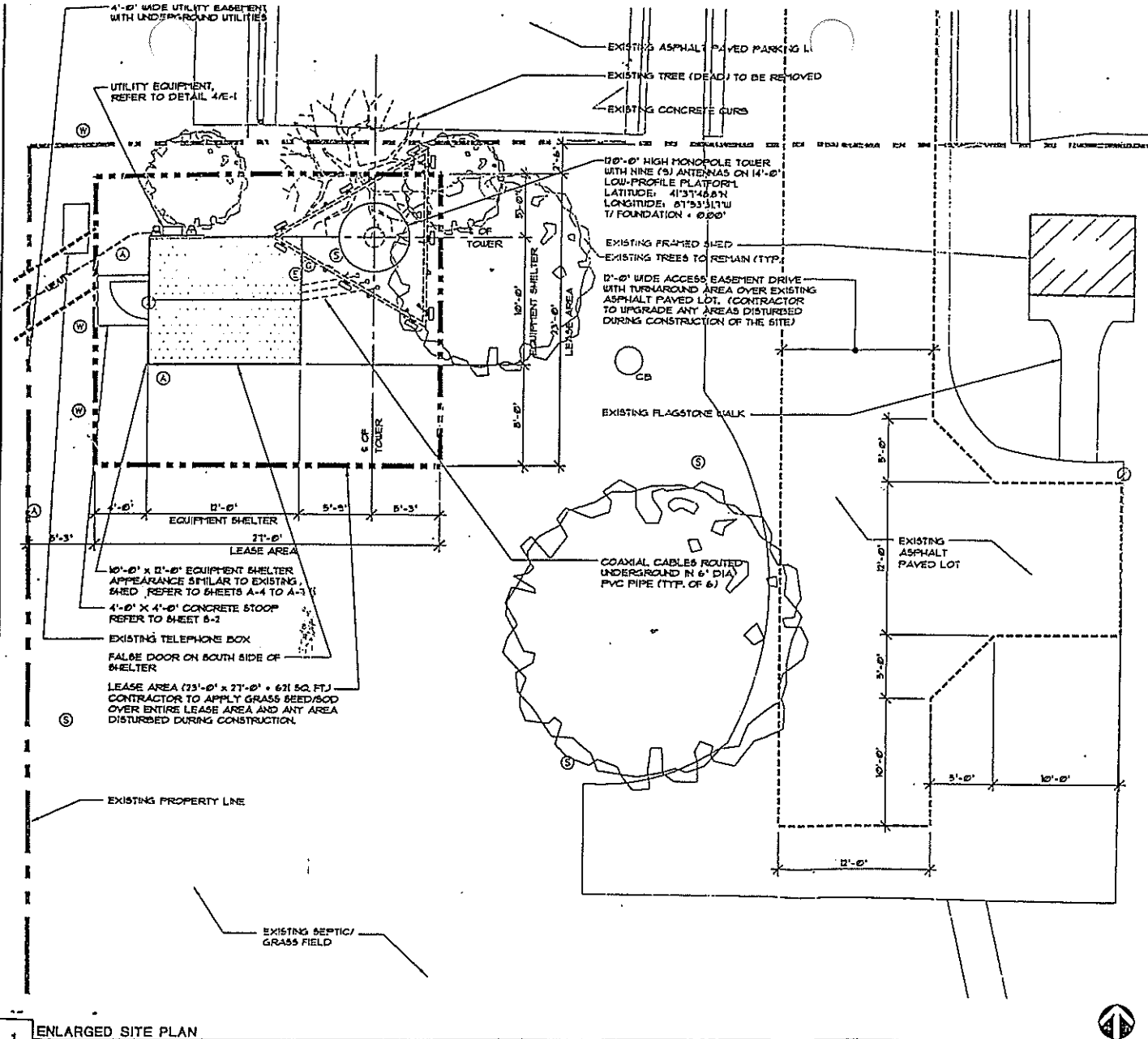
SPECIFICATIONS

SHEET NUMBER

SP-4

PAL PROJECT NUMBER
50105

1 SPECIFICATIONS



1 ENLARGED SITE PLAN
SCALE: 1/8" = 1'-0"

BENCHMARK/PROJECT DATUM		
LOCATION: CHISELED SQUARE IN CONCRETE CURB LOCATED AS SHOWN ON C-1		
ELEVATION: 107.11' AMSL		
PROJECT DATUM: 106.33' AMSL (TOP OF FOUNDATIONS + 0.00')		
LEGEND		
EXISTING		NEW
—SAS—	SANITARY SEWER	—SAS—
—STS—	STORM SEWER	—STS—
—W—	WATER MAIN	—W—
(S)	SANITARY MANHOLE ELEVATIONS	(S)
(ST)	STORM STRUCTURE ELEVATIONS	(ST)
---	PROPERTY LINE	---
---	SURFACE DRAINAGE	---
○	LIGHT STANDARD	●
○	STREET LIGHT	●
672.15	SPOT ELEVATION	671.22
---	CONTOUR	---
—G—G—	GAS MAIN	—G—G—
○	MANHOLE	○
○	CATCH BASIN	○
○	FIRE HYDRANT	○
---	EASEMENT LINE	---
—X—X—	FENCE	—X—X—
—UE/UT—	BURIED UTILITY LINE	—UE/UT—
○	UTILITY POLE	○
—OE/OT—	OVERHEAD UTILITY LINE	—OE/OT—
	BUILDING	

2 GENERAL NOTES

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CHICAGO - 100 N. LAKE ST. SUITE 1400
CHICAGO, IL 60602
TEL: 773.843-4200
FAX: 773.843-4241

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PROJECT MANAGER: GP

PREPARED BY: TRS

APPROVED BY: NTP

5 1-13-95 REWAS FOR PERM (150)

4 1-1-95 REWAS FOR PERM (150)

SHEET NAME

ENLARGED SITE PLAN

SHEET NUMBER

C-2

PAL PROJECT NUMBER

50105

PROVIDED BY THE TOWER MANUFACTURER AS DIRECTED BY AT&T. THIS SHALL INCLUDE (BUT NOT LIMITED TO) TOWER PROFILE, ERECTION DRAWINGS, MATERIAL LIST, TOWER DIMENSIONS, BASE PLATE DIMENSIONS AND ANCHOR BOLT CONFIGURATION.

DIRECTIONAL-PANEL BROADBAND ANTENNAS, TOTAL OF NINE (9), MOUNTED TO 14'-0" LOW PROFILE STEEL PLATFORM AT TOP OF 120'-0" HIGH MONOPOLE TOWER

NOTE:
ANTENNAS ARE SHOWN FROM DIRECTION OF SECTORIZATION FOR CLARITY

AT&T 120'-0" HIGH MONOPOLE TOWER AND ANTENNA STRUCTURE

EXISTING TREE (DEAD) TO BE REMOVED

EXISTING TREES TO REMAIN

10'-0" W x 12'-0" EQUIPMENT SHELTER, APPEARANCE SIMILAR TO EXISTING SHED, REFER TO SHEETS A-4 TO A-7

UTILITY EQMT. REFER TO DETAIL 4/E-1

EXISTING GRADE

EQUIPMENT SHELTER SUPPORT STRUCTURE, REFER TO SHEET S-2

TOWER CAISSON FOUNDATION REFER TO SHEET S-1

7/ ANTENNAS

ELEV. 127'-6"

7/ MONOPOLE TOWER

ELEV. 116'-0"

123'-2"
TOP OF GRADE TO TOP OF ANTENNAS

PROJECT DATUM 0'-0" (TOP OF CAISSON)

GRADE ELEV. (-) 0'-0"

OUTLINE OF SCREW JACKS

1 WEST ELEVATION
SCALE: 1/16" = 1'-0"

DIRECTIONAL-PANEL BROADBAND ANTENNAS, TOTAL OF NINE (9), MOUNTED TO 14'-0" LOW PROFILE STEEL PLATFORM AT TOP OF 120'-0" HIGH MONOPOLE TOWER

NOTE:
ANTENNAS ARE SHOWN FROM DIRECTION OF SECTORIZATION FOR CLARITY

AT&T 120'-0" HIGH MONOPOLE TOWER AND ANTENNA STRUCTURE

EXISTING TREE (DEAD) TO BE REMOVED

10'-0" W x 12'-0" EQUIPMENT SHELTER, APPEARANCE SIMILAR TO EXISTING SHED, REFER TO SHEETS A-4 TO A-7

EXISTING GRADE

EQUIPMENT SHELTER SUPPORT STRUCTURE, REFER TO SHEET S-2

TOWER CAISSON FOUNDATION REFER TO SHEET S-1

7/ ANTENNAS

ELEV. 127'-6"

7/ MONOPOLE TOWER

ELEV. 116'-0"

123'-2"
TOP OF GRADE TO TOP OF ANTENNAS

PROJECT DATUM 0'-0" (TOP OF CAISSON)

GRADE ELEV. (-) 0'-0"

COAXIAL CABLES ROUTED UNDERGROUND IN 6" DIA. PVC CONDUITS (TYP. OF 6)

OUTLINE OF SCREW JACKS

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



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TEL: 847-855-2800
FAX: 847-855-2802

SITE 1412 F
THE SCHOOLHOUSE

14208 S. WOLF RD
CITY OF ORLAND PARK
COOK COUNTY
ILLINOIS 60462

PAL
TELECOM
GROUP

PROJECT MANAGEMENT
ARCHITECTURE
ENGINEERING
CONSTRUCTION

PAL TELECOM GROUP, INC.
CHICAGO - CLEVELAND - DALLAS - SAN FRANCISCO - WASHINGTON, D.C.

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PROJECT MANAGER: GP

PREPARED BY: JAREL

APPROVED BY: NTP

5	7-10-96	NEEDED FOR PERMIT 1 & 2
4	7-1-96	BASED FOR PERMIT 1 & 2
3	5-25-96	NEEDED FOR LEASE EXHIBIT
2	4-2-96	NEEDED FOR LEASE EXHIBIT
1	3-26-96	BASED FOR LEASE EXHIBIT

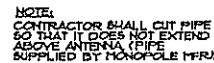
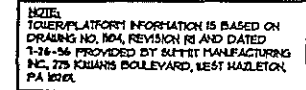
SHEET NAME

ELEVATION

SHEET NUMBER

A-1

PAL PROJECT NUMBER
201025



NO.	ANTENNA TYPE	SECTOR	AZMUTH	TAG
1	PCS PANEL ANTENNA - 5CALA - AP15-1500/030D	ALPHA	90°	GREEN
2	PCS PANEL ANTENNA - 5CALA - AP15-1500/030D	ALPHA	90°	DOUBLE GREEN
3	PCS PANEL ANTENNA - 5CALA - AP15-1500/030D	ALPHA	90°	TRIPLE GREEN
4	PCS PANEL ANTENNA - 5CALA - AP15-1500/030D	BETA	210°	BLUE
5	PCS PANEL ANTENNA - 5CALA - AP15-1500/030D	BETA	210°	DOUBLE BLUE
6	PCS PANEL ANTENNA - 5CALA - AP15-1500/030D	BETA	210°	TRIPLE BLUE
7	PCS PANEL ANTENNA - 5CALA - AP15-1500/030D	GAMMA	330°	RED
8	PCS PANEL ANTENNA - 5CALA - AP15-1500/030D	GAMMA	330°	DOUBLE RED
9	PCS PANEL ANTENNA - 5CALA - AP15-1500/030D	GAMMA	330°	TRIPLE RED

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 140 FEET, WITH A CORRESPONDING CABLE DIAMETER OF 7/8". 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 TWO (2) LOCATIONS;
 A. TOP OF TOWER - ANTENNAS B. INSIDE EQUIPMENT SHELTER NEAR THE EQUIPMENT CABINETS
4. EACH COAX SHALL BE SUPPORTED WITH COLUMB GRIP (CHINESE FINGER GRIP) HUNG FROM A J-HOOK AT TOP OF TOWER.



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Fax: (773) 693-2950

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COOK COUNTY
ILLINOIS 60462



PROJECT MANAGEMENT
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PAL TELECOM GROUP, INC.
CHICAGO • CLEVELAND • DENVER • SAN FRANCISCO

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Fax: 312 682-2242

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PROJECT MANAGER: GP

PREPARED BY: TRB

APPROVED BY: NTP

5	7-13-56	RECEIVED FOR PERMIT 10
4	7-1-56	EXCISED FOR PERMIT 10

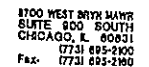
SHEET NAME

ANTENNA PLATFORM DETAILS

SHEET NUMBER

A-2

PAL PROJECT NUMBER
30405



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COOK COUNTY
ILLINOIS 60462



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APPROVED BY: NTP

B	7-13-96	ISSUED FOR PERMIT 1 DA
4	7-1-96	ISSUED FOR PERMIT 1 DA

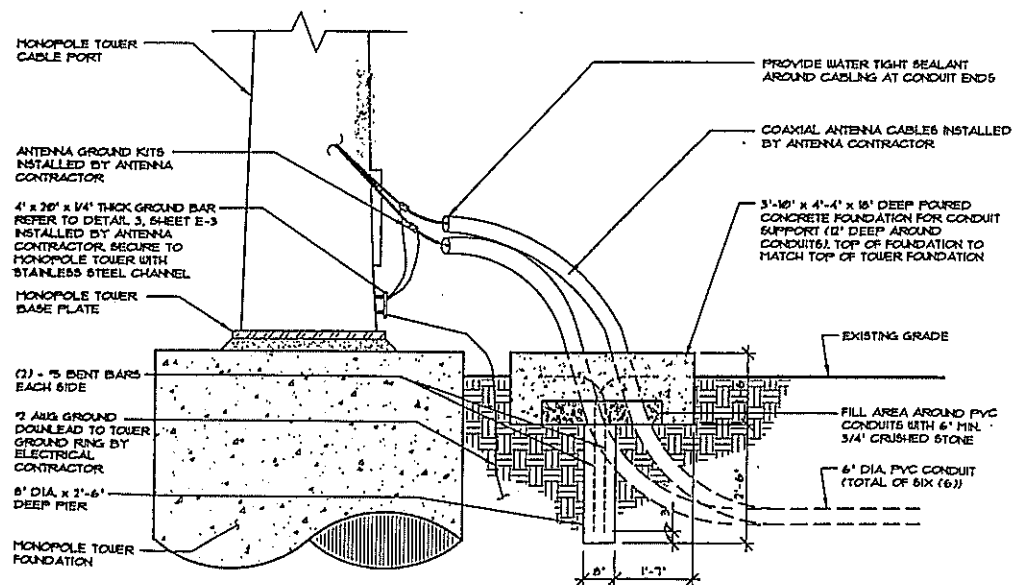
CABLE ROUTING
DETAILS .

A-3

PAL PROJECT NUMBER
30K05



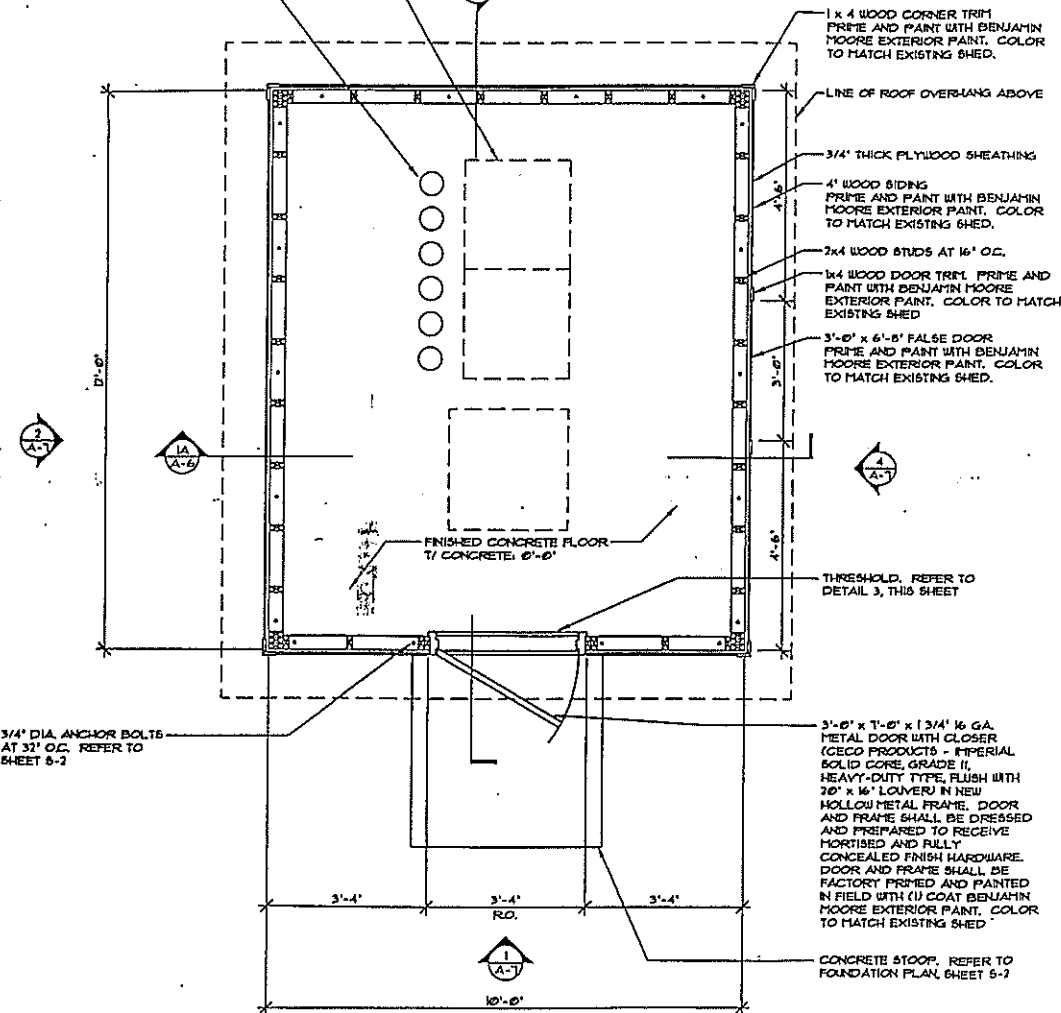
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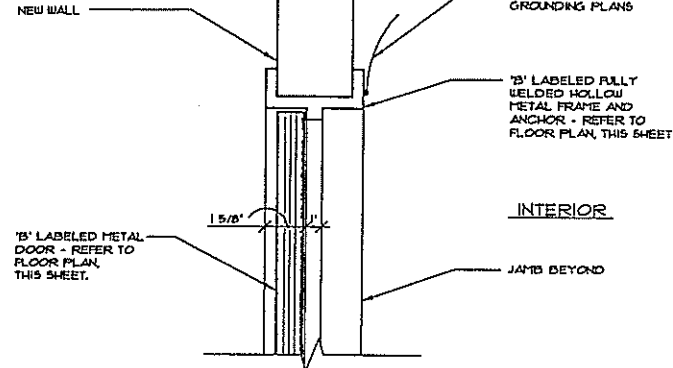
SCALE: 3/8" = 1'-0"

OUTLINE OF EQUIPMENT C

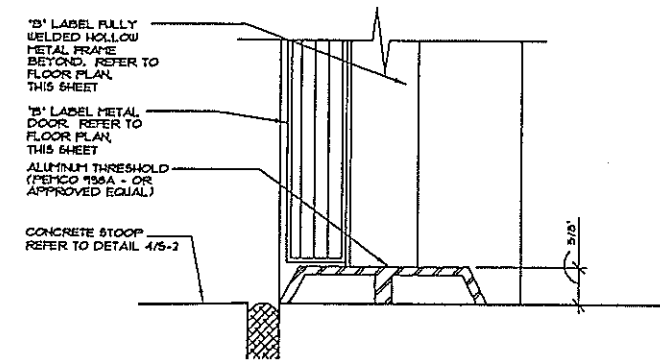
6" DIA. PVC CONDUITS
REFER TO FOUNDATION
PLAN, SHEET 5-2



1 FLOOR PLAN
SCALE: 3/8" = 1'-0"



2 DOOR HEAD/JAMB DETAIL
SCALE: 1/2" = 1'-0"



3 DOOR THRESHOLD DETAIL
SCALE: 3" = 1'-0"



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PROJECT MANAGER: GP

PREPARED BY: RGL

APPROVED BY: NTP

5 1-D-96 PERMITS FOR PERMITS
4 1-1-96 SCALED FOR PERMITS

SHEET NAME
FLOOR PLAN

SHEET NUMBER
A-4

PAL PROJECT NUMBER
50425



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8700 WEST BETH AVENUE
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FAX: 773/ 955-2100

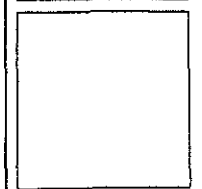
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PROJECT MANAGER: GP

PREPARED BY: RGL

APPROVED BY: NTP

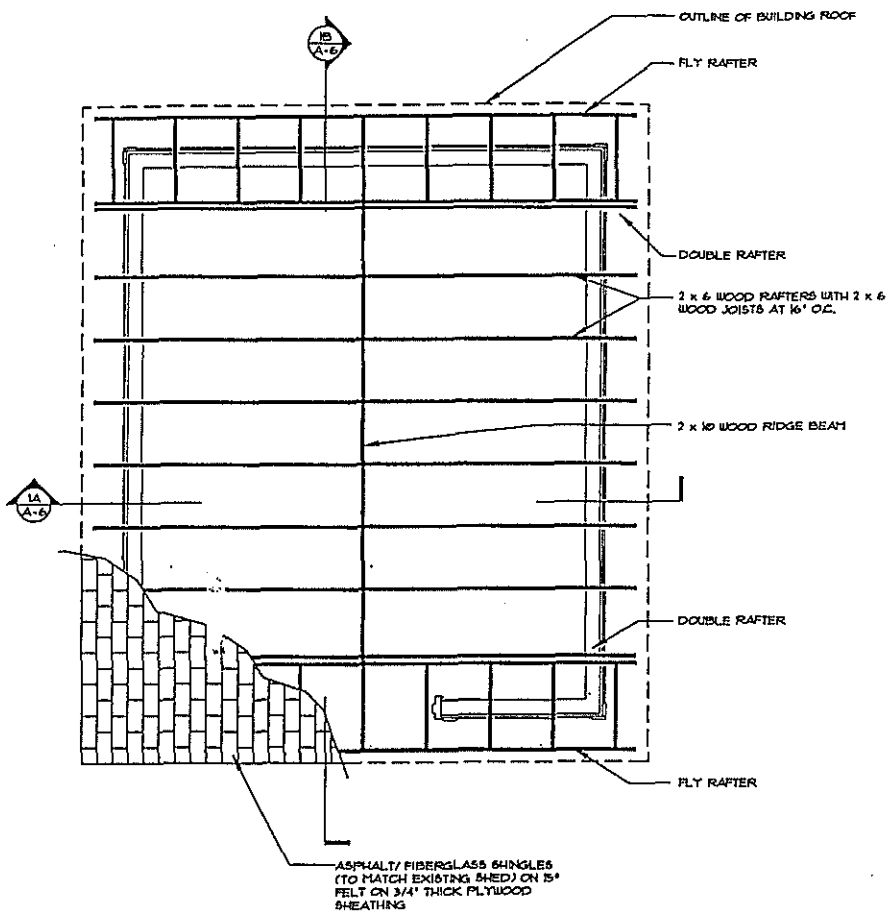
5 1-D-50 REEDED FOR PERMITS
4 1-D-50 REEDED FOR PERMITS



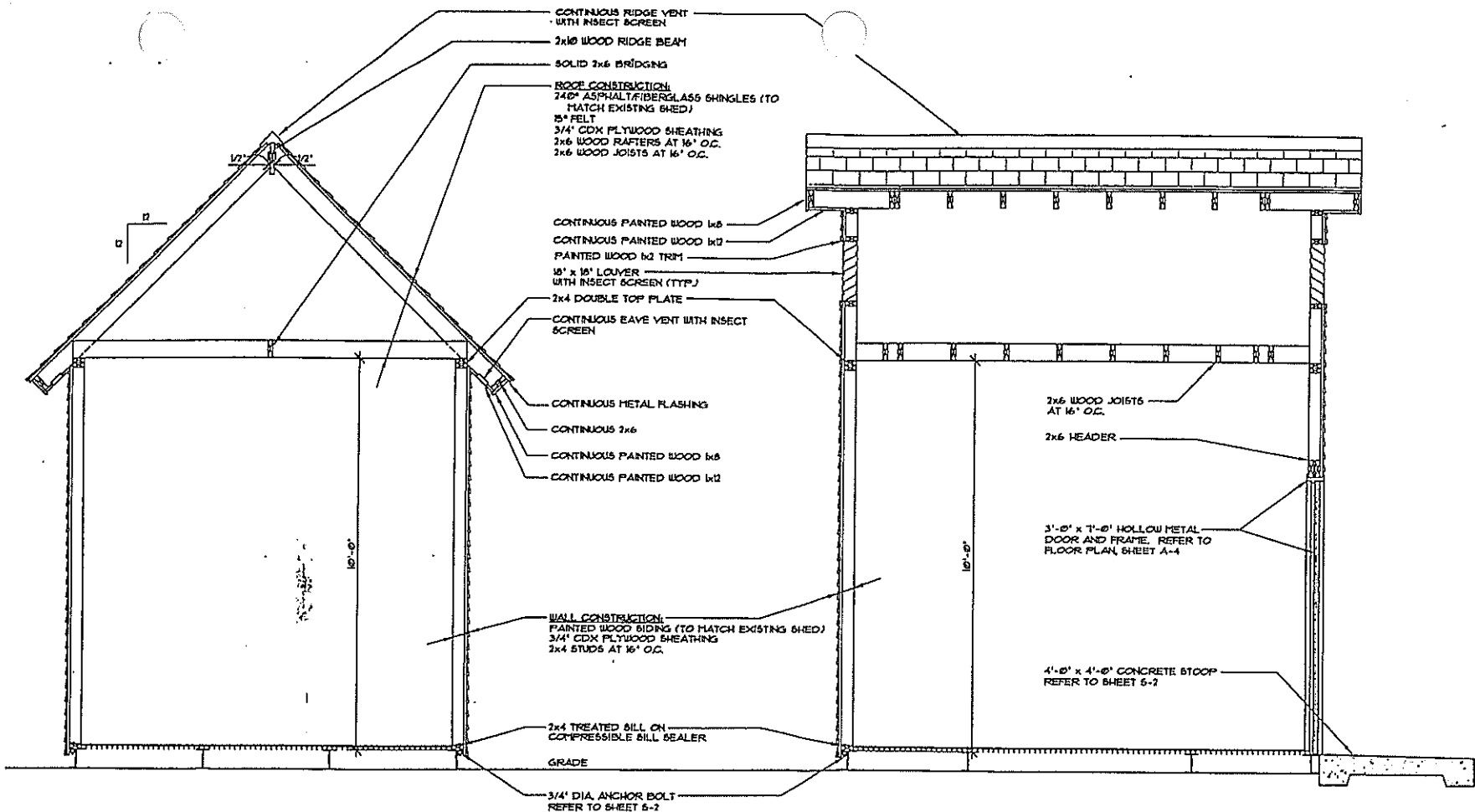
SHEET NAME
ROOF FRAMING PLAN

SHEET NUMBER
A-5

PAL PROJECT NUMBER
58105



1 **ROOF FRAMING PLAN**
SCALE: 3/8" = 1'-0"



SECTION A

SECTION B

BUILDING SECTIONS
 SCALE: 3/8" = 1'-0"



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PROJECT MANAGER: GP

PREPARED BY: RGL

APPROVED BY: NTP

5 1-15-99 REVISED FOR PERMIT (SD)

4 1-1-99 ISSUED FOR PERMIT (SD)

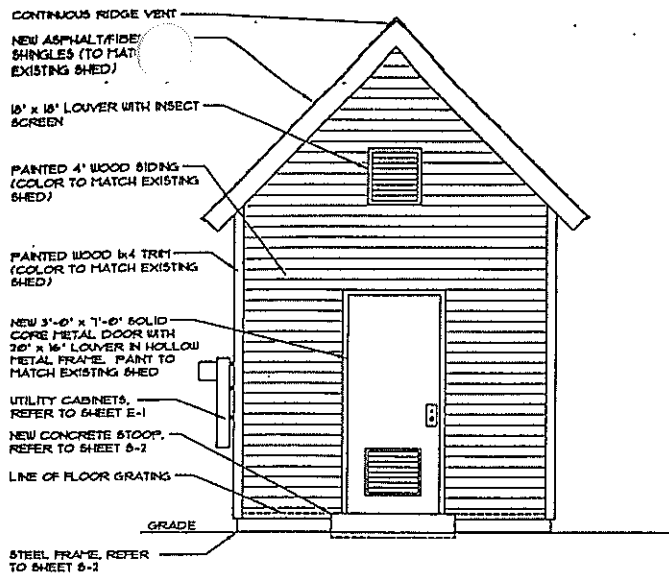
SHEET NAME

BUILDING SECTIONS

SHEET NUMBER

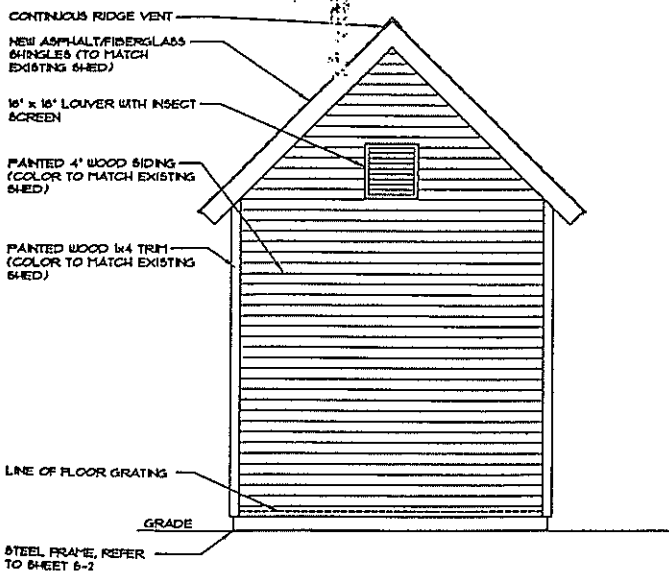
A-6

PAL PROJECT NUMBER
 55105



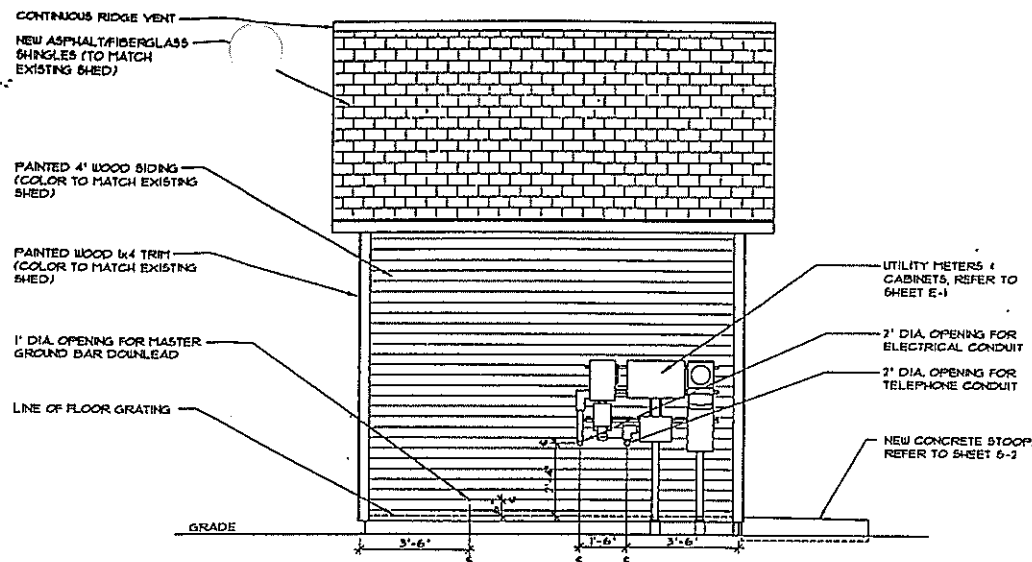
1 WEST ELEVATION

SCALE: 1/4" = 1'-0"



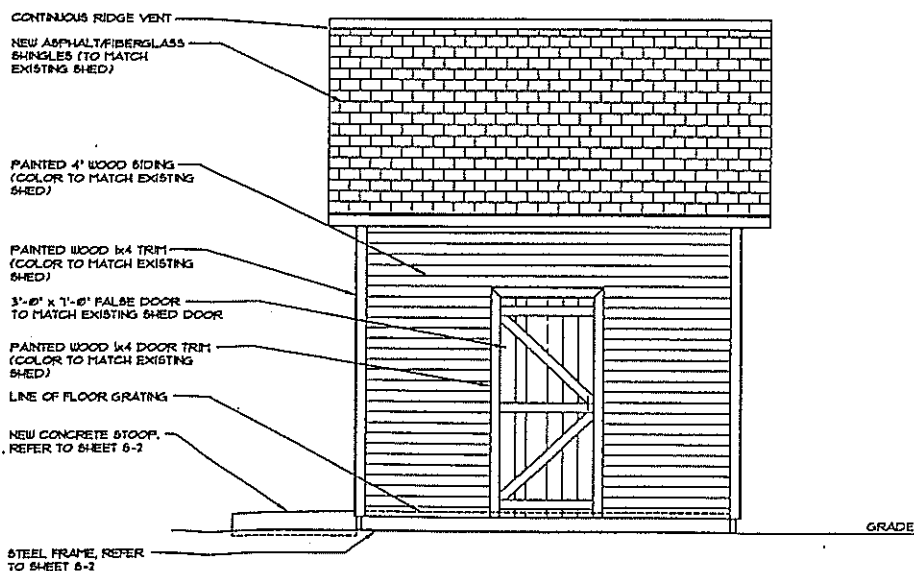
3 EAST ELEVATION

SCALE: 1/4" = 1'-0"



2 NORTH ELEVATION

SCALE: 1/4" = 1'-0"



4 SOUTH ELEVATION

SCALE: 1/4" = 1'-0"



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FAX: 873-855-2000

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COOK COUNTY
ILLINOIS 60462



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PROJECT MANAGER: GP

PREPARED BY: RGL

APPROVED BY: NTP

5 1-D-50 REVISION FOR PERIT 1 DO
4 1-T-50 REVISION FOR PERIT 1 DO

SHEET NAME

**BUILDING
ELEVATIONS**

SHEET NUMBER

A-7

PAL PROJECT NUMBER
56105

SITE 1412 F
THE SCHOOLHOUSE

14299 S. WOLF RD
CITY OF ORLAND PARK
COOK COUNTY
ILLINOIS 60162

PAL
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PROJECT MANAGER: GP

PREPARED BY: RSL

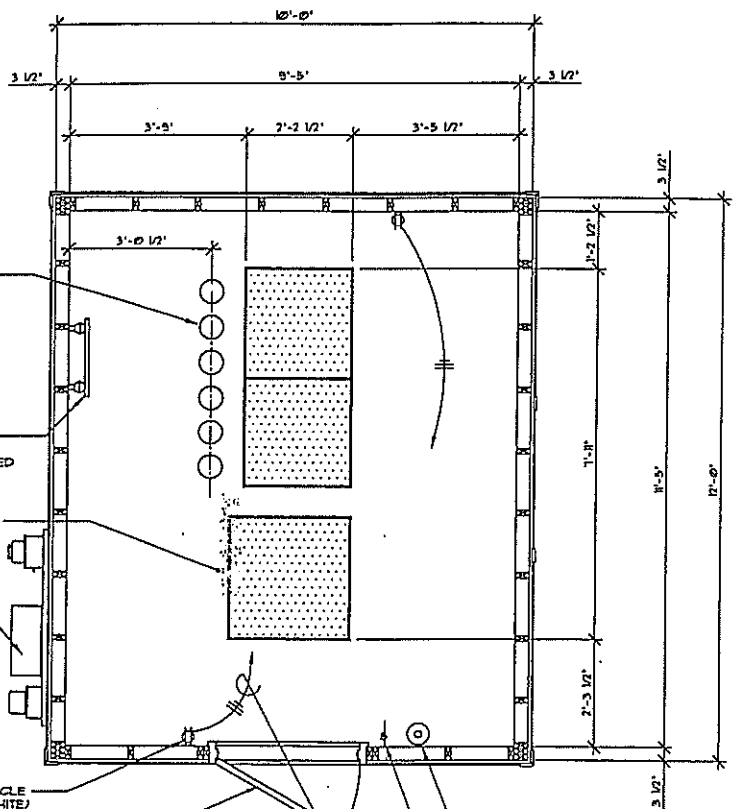
APPROVED BY: NTP

5	1-13-95	REVIEW FOR PERMIT (SD)	
4	1-11-95	ISSUED FOR PERMIT (SD)	

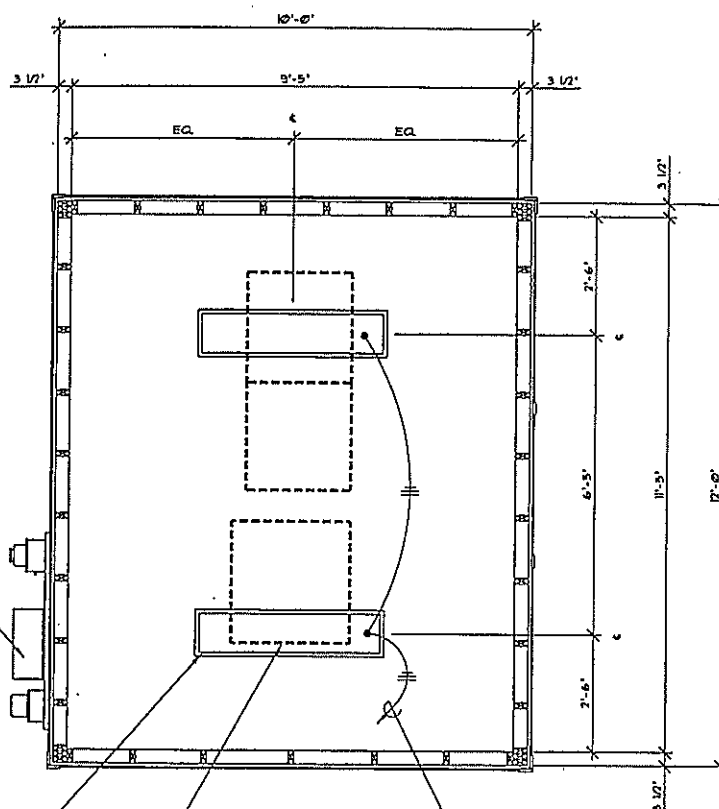
SHEET NAME
**EQUIPMENT PLAN
AND REFLECTED
CEILING PLAN**

SHEET NUMBER
AE-1

PAL PROJECT NUMBER
301025



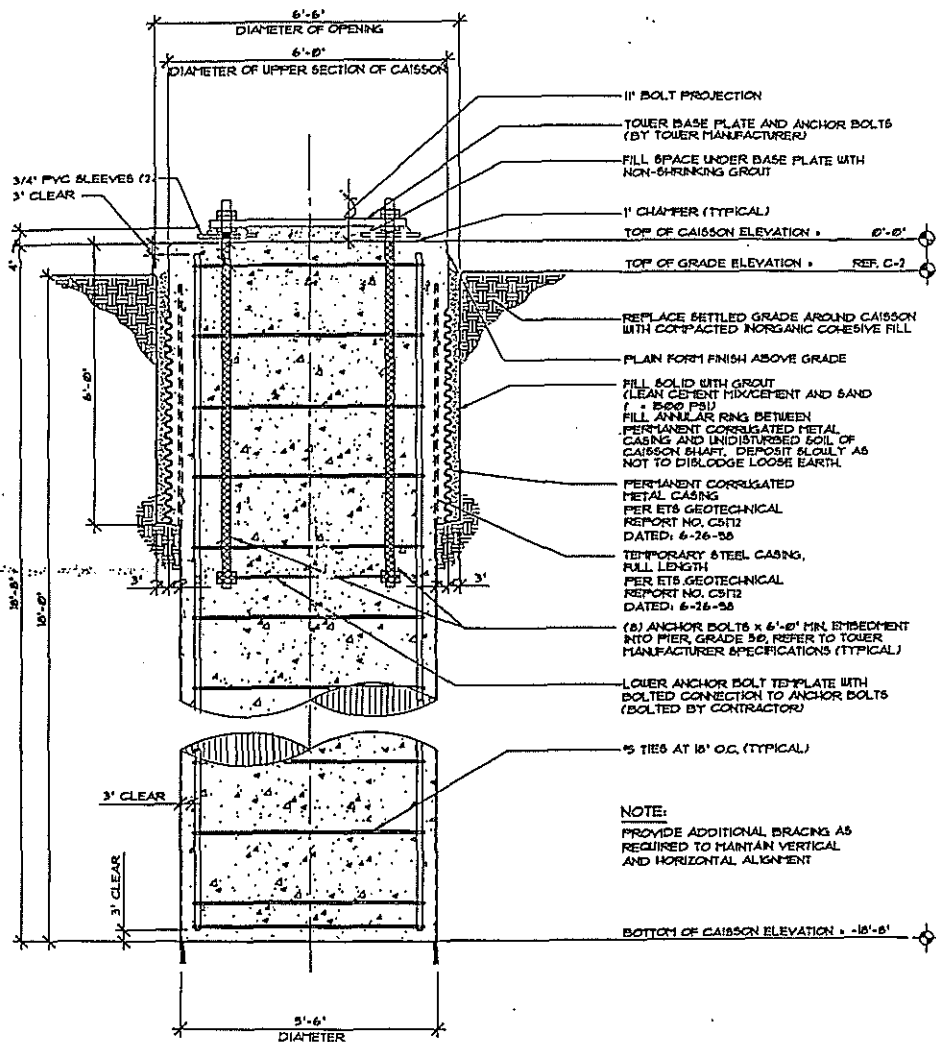
NORTH



NORTH

1 EQUIPMENT PLAN
SCALE: 3/8" = 1'-0"

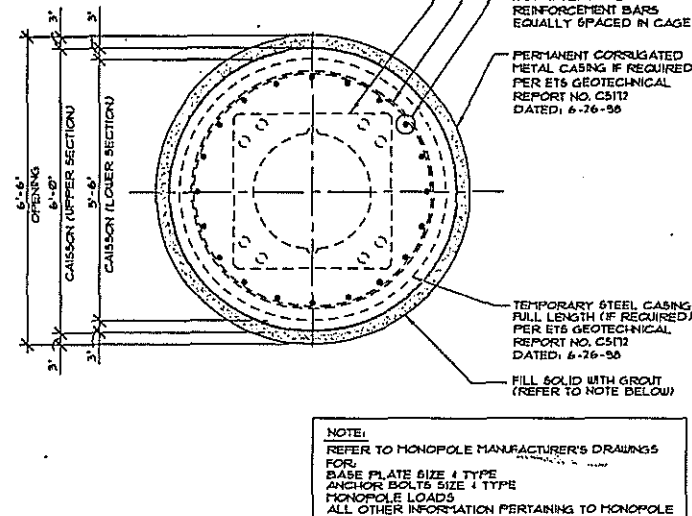
2 REFLECTED CEILING PLAN
SCALE: 3/8" = 1'-0"



NOTE:
PROVIDE ADDITIONAL BRACING AS
REQUIRED TO MAINTAIN VERTICAL
AND HORIZONTAL ALIGNMENT

BOTTOM OF CAISSON ELEVATION = -15'-6"

1 CAISSON
SCALE: 3/8" = 1'-0"



NOTE:
REFER TO MONOPOLE MANUFACTURER'S DRAWINGS
FOR:
BASE PLATE SIZE & TYPE
ANCHOR BOLTS SIZE & TYPE
MONOPOLE LOADS
ALL OTHER INFORMATION PERTAINING TO MONOPOLE

2 CAISSON SECTION
SCALE: 3/8" = 1'-0"

MONOPOLE FOUNDATION FOR 120'-0" SUMMIT TOWER

DESIGN CRITERIA:

HEIGHT OF MONOPOLE STRUCTURE	120'-0"
WIND LOAD	80 MPH, NO ICE 6.5 PSF, 1/2" ICE
OVERTURNING MOMENT	850 FT-KIPS
HORIZONTAL FORCE (WEAR)	10 KIPS
TOTAL VERTICAL LOAD (MAST) AND ANTENNA PLATFORM STRUCTURE	20 KIPS
SAFETY FACTOR OVER DESIGN MOMENT	2 MIN.
TENSION LAP	CLASS C

SOIL CAPACITY FOR CAISSON:

NET ALLOWABLE BEARING	
AT DEPTH 22'-0" DEEP	4000 PSF
CONCRETE STRENGTH, f_c	4000 PSI

REFER TO SOIL BORING REPORT PREPARED BY:

ENGINEERING & TESTING
SERVICES, INC.
416 DIENS DRIVE
WHEELING, ILLINOIS 60090-7641
PHONE: (708) 455-5090
FAX: (708) 455-5322
ETS PROJECT NO. C512
DATED: 6-26-98

NOTE:

CONTRACTOR IS TO VERBALLY NOTIFY THE AT&T PROJECT MANAGER IMMEDIATELY UPON BECOMING AWARE OF ANY SUBSURFACE OR LATENT PHYSICAL CONDITIONS CONTRADICTING THOSE DISCLOSED BY THE ORIGINAL SOIL INVESTIGATION REPORT, AND FOLLOW UP WITH A WRITTEN REPORT DESCRIBING THE NATURE OF THE DIFFERING CONDITIONS. NO CONTRACTOR'S CLAIM FOR ANY COST CONSIDERATION RESULTING FROM DIFFERING CONDITIONS WILL BE ALLOWED WITHOUT BOTH VERBAL AND WRITTEN NOTIFICATION HAVING BEEN PROPERLY RENDERED TO THE AT&T PROJECT MANAGER.

3 CAISSON NOTES



8700 WEST BRYN MAWR
SUITE 800 SOUTH
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(773) 695-2300
Fax: (773) 695-2160

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ILLINOIS 60462



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PROJECT MANAGER: GPF

PREPARED BY: TRS

APPROVED BY: NTP

5 11-11-98 REWOK FOR PERM (100)

4 11-11-98 REWOK FOR PERM (100)

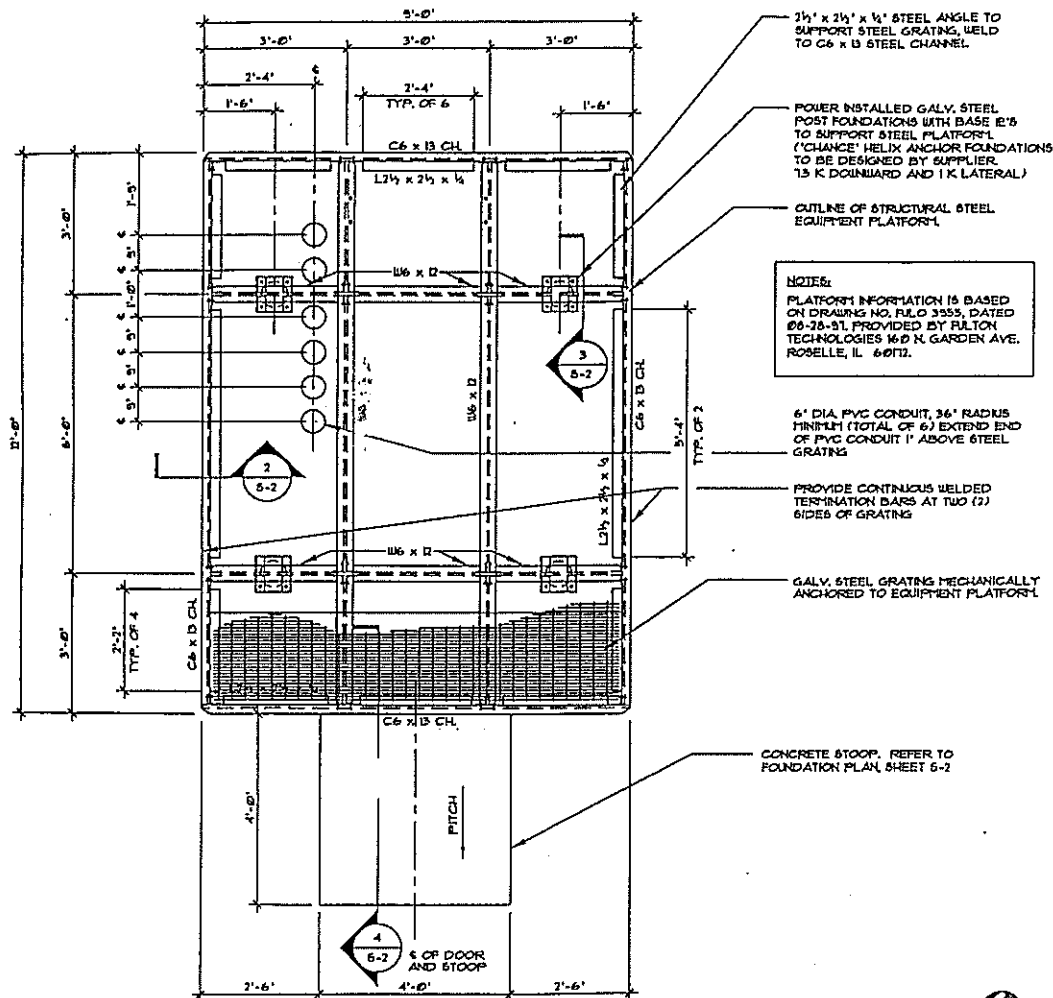
SHEET NAME

CAISSON

SHEET NUMBER

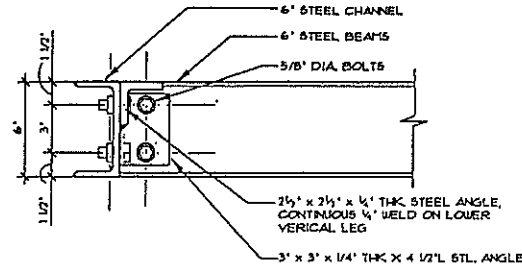
S-1

PAL PROJECT NUMBER
55105



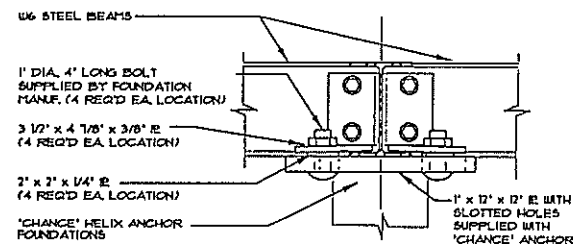
1 STRUCTURAL STEEL PLATFORM PLAN

SCALE: 1/2" = 1'-0"



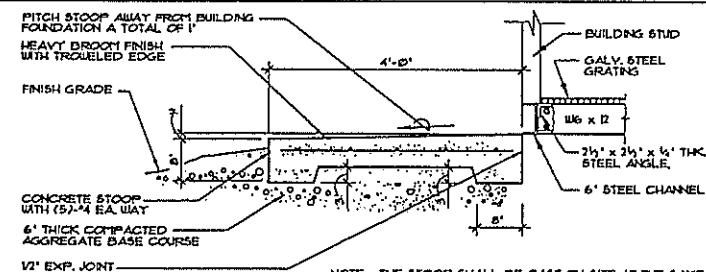
2 TYPICAL SECTION DETAIL

SCALE: 1/2" = 1'-0"



3 TYPICAL SECTION DETAIL

SCALE: 1/2" = 1'-0"



4 CONCRETE STOOP DETAIL

SCALE: 1/2" = 1'-0"

NOTE: THE STOOP SHALL BE CAST ON SITE AT THE SAME TIME AS THE BUILDING FOUNDATION & BROUGHT INTO FINAL POSITION AFTER CURING IS COMPLETE.



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FAX: 773/895-2800

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COOK COUNTY
ILLINOIS 60462



PAL
TELECOM
GROUP
PROJECT MANAGEMENT
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ENGINEERING
CONSTRUCTION
PAL TELECOM GROUP, INC.
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PROJECT MANAGER: GP

PREPARED BY: GLP

APPROVED BY: NTP

2	4-10-98	REVISION FOR PERM (10)
1	4-1-98	REVISION FOR PERM (10)

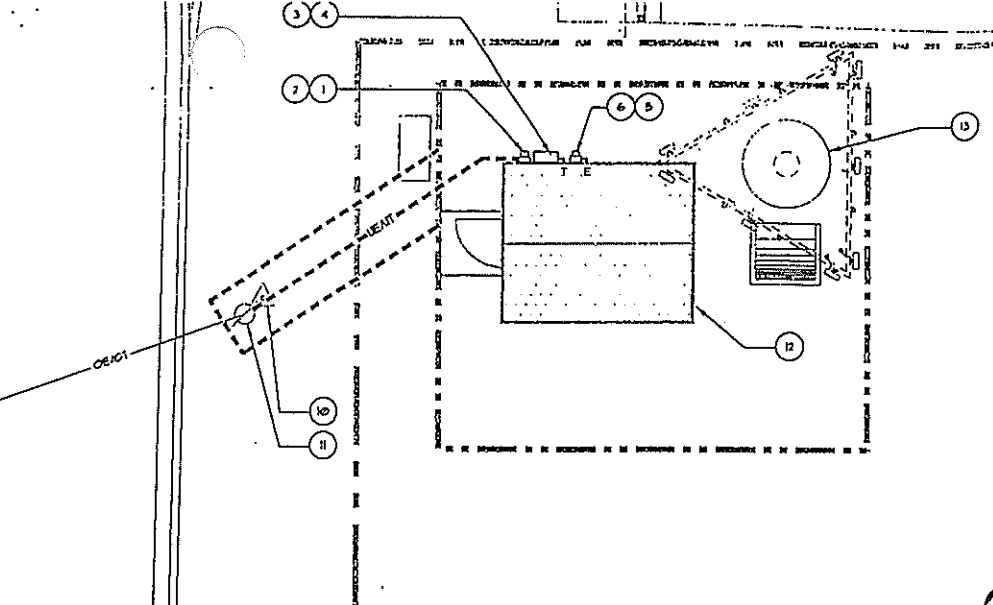
SHEET NAME

STRUCTURAL
STEEL PLATFORM
AND DETAILS

SHEET NUMBER

S-2

PAL PROJECT NUMBER
55105

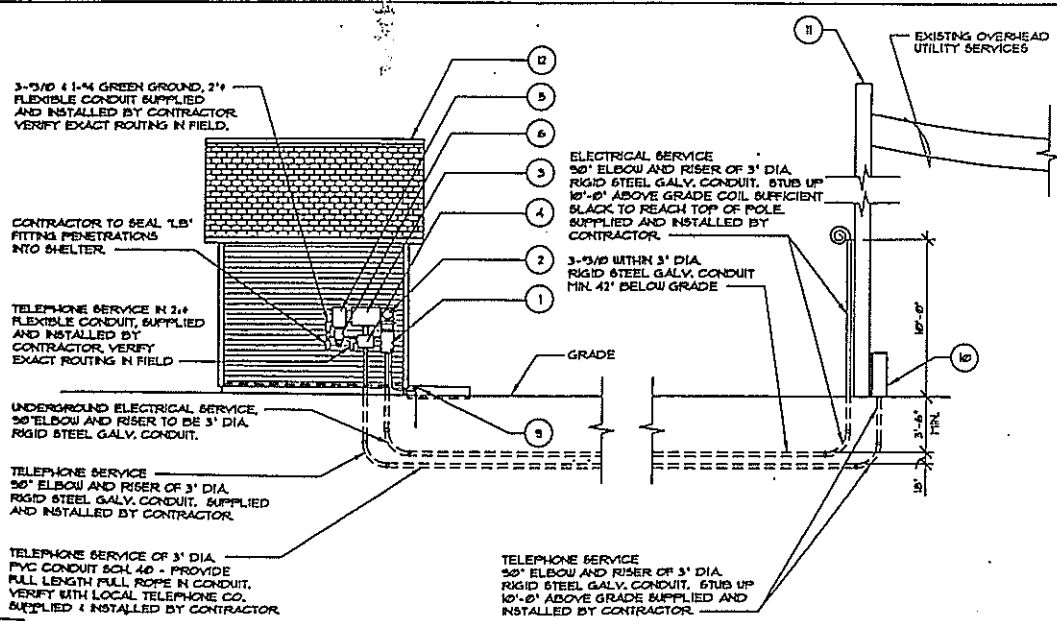


1 UTILITY PLAN
SCALE: 1/8" = 1'-0"

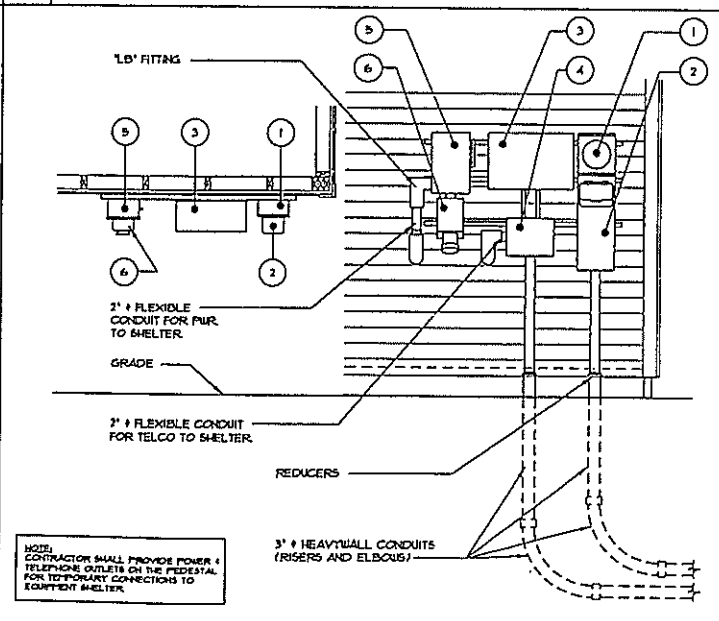
LEGEND	
—OE—	OVERHEAD ELECTRICAL SERVICE
—OT—	OVERHEAD TELEPHONE SERVICE
—UE—	UNDERGROUND ELECTRICAL
—UT—	UNDERGROUND TELEPHONE

- KEY NOTES:**
- 700 AMP RUSED DISCONNECT USING SINGLE POSITION METER MAIN (TILLBANK UT601-200-RL-KK' OR EQUAL)
 - ELECTRIC METER BY LOCAL UTILITY COMPANY
 - TELETROND TELCO INTERFACE
 - 10' WIDE x 8' D x 8' H TELCO JUNCTION BOX
 - 200 AMP DPST MANUAL TRANSFER SWITCH ('GE' OR EQUAL)
 - 700 AMP EMERGENCY GENERATOR RECEPTACLE ('APPLETON' 'HUBBELL' OR EQUAL)
 - NOT USED
 - NOT USED
 - GROUND ROD FOR UTILITY COMPANY GROUNDING OF SERVICE CONNECTION
 - EXISTING TELEPHONE PEDESTAL
 - EXISTING UTILITY POLE
 - EQUIPMENT SHELTER
 - MONOPOLE TOWER

2 UTILITY NOTES



3 ELECTRICAL RISER DIAGRAM
SCALE: 1/8" = 1'-0"



4 UTILITY POST DETAIL

AT&T
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PROJECT MANAGER: GP

PREPARED BY: RGL

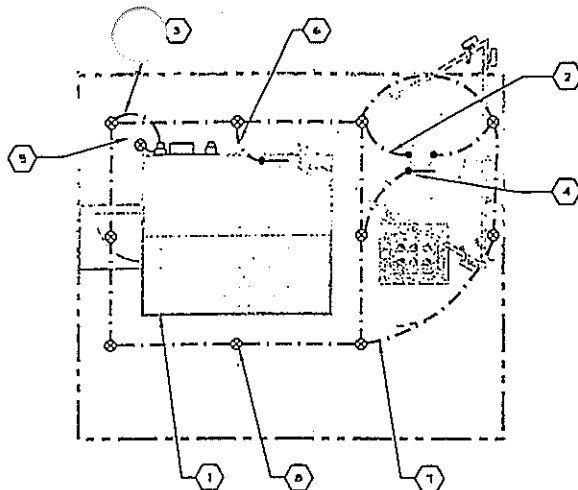
APPROVED BY: NTP

5	1-15-98	REVIEW FOR PERIT 1 BD
4	1-1-98	BASED FOR PERIT 1 BD

SHEET NAME
UTILITIES

SHEET NUMBER
E-1

PAL PROJECT NUMBER
000000



ITEM	DESCRIPTION
1	3/8" DIA. x 10'-0" LONG COPPER CLAD GROUND ROD, MINIMUM 42" BELOW GRADE, AT MINIMUM 6'-0" O.C. MAXIMUM 10'-0" O.C. (HARGER #5810).
2	7 AWG TINNED SOLID BARE COPPER CONDUCTOR, MINIMUM 42" BELOW GRADE, OR 6" BELOW LOCAL FROST LINE.
3	CADWELD CONNECTION
KEY NOTES:	
1	OUTLINE OF EQUIPMENT SHELTER
2	GROUND MONOPOLE TOWER AND ANTENNA STRUCTURE WITH 7 AWG TINNED SOLID BARE COPPER CONDUCTORS, CADWELDED TO TOWER BASE PLATE AND TO EXTERIOR GROUND RING (TOTAL OF 7). REFER TO DETAIL 3, THIS SHEET.
3	GROUND ELECTRICAL SERVICE WITH CONNECTION DEVICES LABELED 'CECHA' AND 7 AWG TINNED BARE COPPER CONDUCTOR, CADWELDED TO ELECTRICAL SERVICE GROUND ROD, SUPPLIED AND INSTALLED BY CONTRACTOR. REF. DTL. VE-3
4	TINNED COPPER GROUND BARS MOUNTED ON TOWER ANTENNA PLATFORM AND BASE OF MONOPOLE TOWER. LOWER GROUND BAR DOWNLEAD CADWELDED TO GROUND RING. GROUND BARS SUPPLIED BY AT&T AND INSTALLED BY CONTRACTOR. REF. DTL. 3/E-2 AND DTL. 3/E-3
5	NOT USED
6	CONTRACTOR SHALL BRING INTERIOR GROUND BAR (IGB) DOWNLEAD AND INTERIOR HALO RING DOWNLEADS THRU PENETRATION (BY SHELTER MANUFACTURER) AND MAKE FINAL CADWELD CONNECTION TO HELICAL ANCHOR AT FOUR CORNERS OF SHELTER. REF. DTL. 3/E-1 AND DTL. 2/E-3
7	7 AWG TINNED SOLID BARE COPPER CONDUCTOR FOR EXTERIOR GROUND RING AROUND CHASSIS MINIMUM 42" BELOW GRADE OR 6" BELOW FROST LINE, SUPPLIED AND INSTALLED BY CONTRACTOR.
8	3/8" DIA. x 10'-0" LONG COPPER CLAD GROUND ROD (HARGER #5810) MINIMUM 42" BELOW GRADE OR MINIMUM 6" BELOW FROST LINE, CADWELD CONNECTION (TYPE GT OR NC) TO EXTERIOR GROUND RING, SUPPLIED AND INSTALLED BY CONTRACTOR.
9	UTILITY POST. REFER TO DETAIL VE-3

GENERAL NOTES:

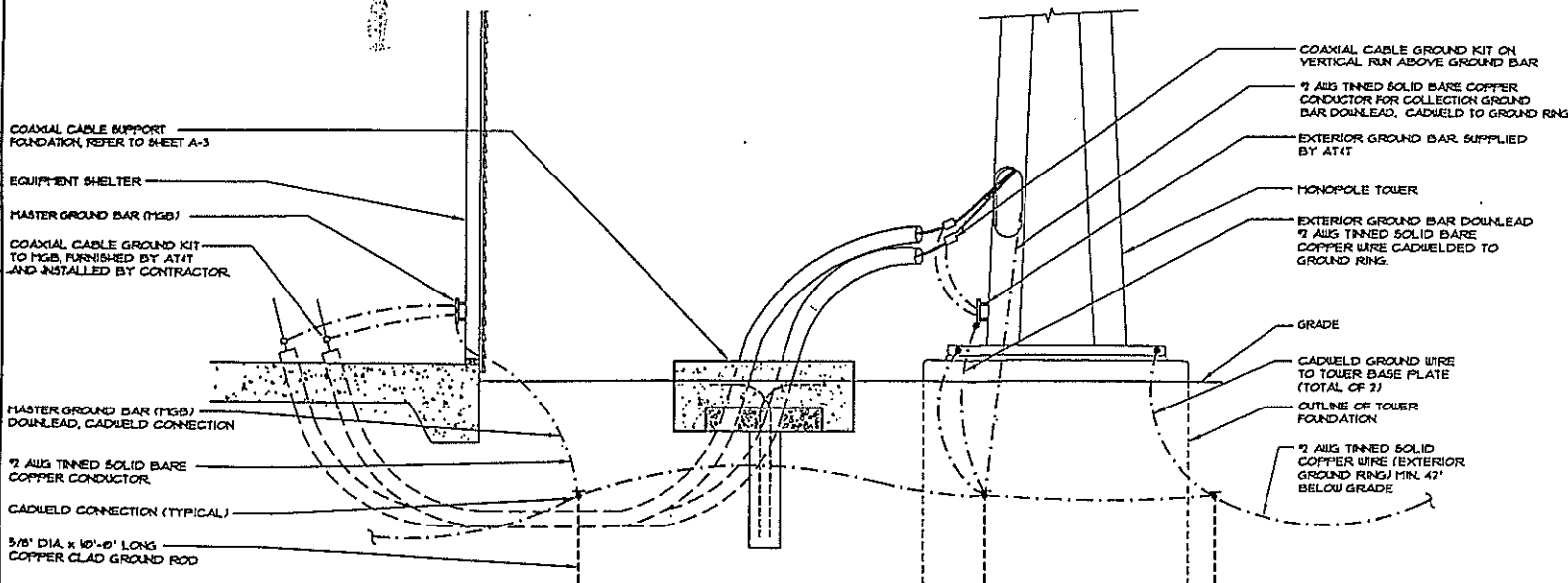
- ALL CADWELD CONNECTIONS ON GALVANIZED SURFACES SHALL BE CLEANED THOROUGHLY AND COVERED WITH TWO (2) COATS SHERWIN WILLIAMS GALVANITE PAINT B352003 OR EQUAL.
- ALL ELECTRICAL CADWELD AND MECHANICAL GROUND CONNECTIONS WILL HAVE NON-OXIDATION COMPOUND APPLIED TO CONNECTION.
- ANY METAL OBJECTS WITHIN 6 FEET OF THE EXTERNAL GROUND RING SHALL BE GROUNDING.
- ALL GROUNDING MATERIALS AND CADWELD MOLDS, SHOTS, ETC. SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS OTHERWISE NOTED.
- THE ELECTRICAL CONTRACTOR SHALL FOLLOW GROUNDING SYSTEM INSTALLATION AND TESTING PROCEDURES AS DESCRIBED IN THE GENERAL ELECTRICAL PROVISIONS.



GROUNDING NOTES

GROUNDING PLAN

SCALE: 1/8" = 1'-0"



COAXIAL CABLE AND WAVEGUIDE GROUNDING DIAGRAM

SCALE: 3/8" = 1'-0"



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PROJECT MANAGER: GP

PREPARED BY: RGL

APPROVED BY: NTP

5 1-15-16/REVISION FOR PERM (SC)

4 1-1-16/REVISION FOR PERM (SC)

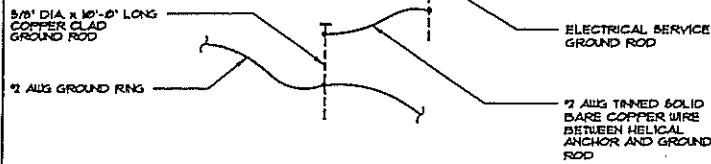
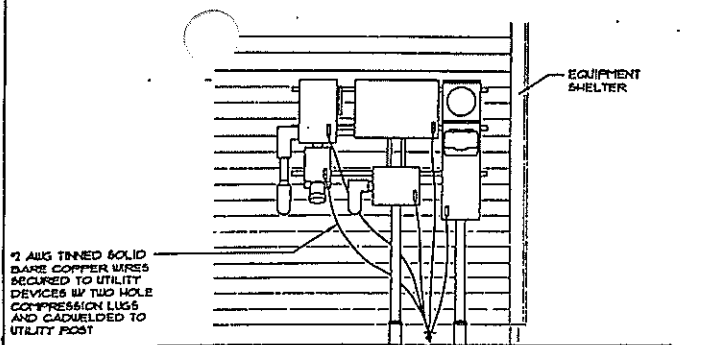
SHEET NAME

GROUNDING

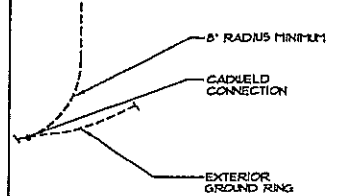
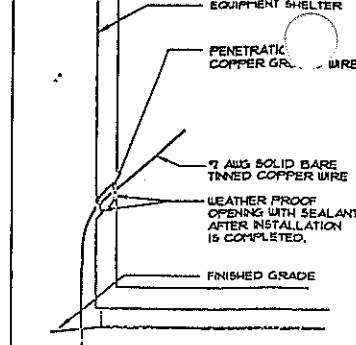
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E-2

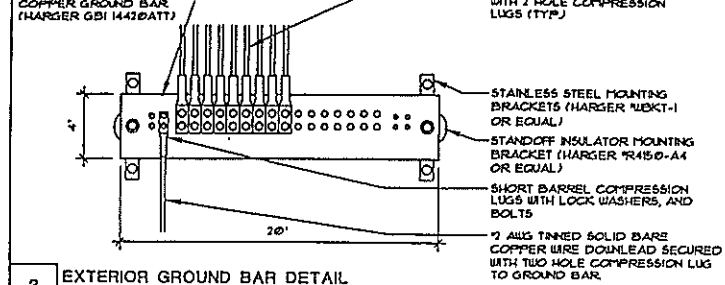
PAL PROJECT NUMBER
58165



1 UTILITY POST GROUNDING
SCALE: 3/8" = 1'-0"



2 BUILDING GROUNDING DETAIL
SCALE: 1/2" = 1'-0"



3 EXTERIOR GROUND BAR DETAIL
SCALE: 1 1/2" = 1'-0"



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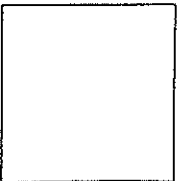
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PROJECT MANAGER: GP

PREPARED BY: RGL

APPROVED BY: NTP

5	1-10-98	REVIEW FOR PERMIT 1 SD
4	1-1-98	BAID FOR PERMIT 1 SD



SHEET NAME
GROUNDING DETAILS

SHEET NUMBER
E-3

PAL PROJECT NUMBER
58105

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

SECTION 02200 - EARTHWORK AND DRAINAGE

PART 1 - GENERAL

1. WORK INCLUDED: SEE SITE PLAN.
2. DESCRIPTIONS
 - A. ACCESS DRIVE W/ TURNAROUND AREA, LEASE AREA, AND IF APPLICABLE 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. PLACE 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
 1. 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 STERILIZER.
 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 510 EPA 10751-7	PHASAR CORPORATION P.O. BOX 503 DEARBORN MI 48028 (313) 563-8000
--	---

AMBUSH HERBICIDE EPA REGISTERED	FRANLAR INDUSTRIAL PRODUCTS 1435 MORRIS AVE. UNION NJ 07083 (609) 576-4324
------------------------------------	---

BE IN ACCORDANCE WITH STATE DEPARTMENT OF NATURAL AND FOREST CONSERVATION STANDARD SPECIFICATIONS.

- C. SOIL STABILIZER FABRIC SHALL BE MIRAFI - 5000

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/ TURNAROUND 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 SPRINT, 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 7:1.
 - 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 10:1, MOUND DIVERSIONARY HEADWALLS IN THE DITCH AT CULVERT ENTRANCES. POSITION THE HEADWALL AT AN ANGLE NO GREATER THAN 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 SEED 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 SEEDS 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.

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.



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PROJECT MANAGER: G20

PREPARED BY: TRS

APPROVED BY: NTP

1 1-10-20 ISSUED FOR PERMIT

SHEET NAME
SPECIFICATIONS

SHEET NUMBER
SP-1

PAL PROJECT NUMBER
56367

SECTION 03000 - BASIC CONCRETE MATERIALS AND METHODS

PART 1 - GENERAL

1. WORK INCLUDED
 - A. 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 SPRINT CONSTRUCTION MANAGER PRIOR TO PLACEMENT OF CONCRETE.
 - C. THE SPRINT CONSTRUCTION MANAGER SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POUR. QUALITY ASSURANCE
3. A. CONSTRUCT AND ERECT CONCRETE FORMWORK IN ACCORDANCE WITH ACI 301 AND ACI 308.
 B. PERFORM CONCRETE REINFORCING WORK IN ACCORDANCE WITH ACI 301, ACI 308, AND ASTM A184.
 C. PERFORM CAST-IN-PLACE CONCRETE WORK IN ACCORDANCE WITH ACI 301, ACI 308, AND ACI 311-20.
4. SUBMITTALS
 - A. SUBMIT CONCRETE MIX AND REINFORCING STEEL SHOP DRAWINGS FOR APPROVAL BY SPRINT 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.

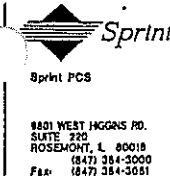
PART 2 - PRODUCTS

1. REINFORCEMENT MATERIALS
 - A. REINFORCEMENT STEEL, ASTM A615, 60 ksi YIELD GRADE, DEFORMED BILLET STEEL BARS, PLAN FINISH.
 - B. WELDED STEEL WIRE FABRIC ASTM A185 PLAN TYPE, IN FLAT SHEETS, PLAN FINISH.
 - C. CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS, SIZED AND SHAPED FOR SUPPORTS OF REINFORCING.
 - D. FABRICATE CONCRETE REINFORCING IN ACCORDANCE WITH ACI 301, ACI 308, ASTM A184.
2. CONCRETE MATERIALS
 - A. CEMENT, ASTM C150, PORTLAND TYPE
 - B. FINE AND COARSE 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, PREPARED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICISING AGENTS.

- 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 BE SUITABLE FOR DURABLE CONCRETE FOR LOCAL ANTICIPATED AGGRESSIVE ACTION. THE DURABILITY REQUIREMENTS OF ACI 308 CHAPTER 4 SHALL BE SATISFIED BASED ON THE CONDITIONS EXPECTED AT THE SITE. PROVIDE CONCRETE AS FOLLOWS:
 1. COMPRESSIVE STRENGTH: 3000 psi AT 28 DAYS
 2. SLUMP: 3 INCHES

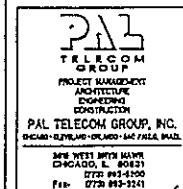
PART 3 - EXECUTION

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 ACI 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
 - A. MODIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LINES, DETAILS OR ELEVATIONS AS DIRECTED BY ARCHITECT/ENGINEER.



SITE 703-N RILEY

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PROJECT MANAGER: GLP

PREPARED BY: TRS

APPROVED BY: MTF

1	7-18-18	ISSUED FOR PERMIT
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SHEET NAME

SPECIFICATIONS

SHEET NUMBER

SP-2

PAL PROJECT NUMBER

26302

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: A57M A512, GRADE 50
 - B. STRUCTURAL TUBING: A57M A500, GRADE B
 - C. PIPE: A57M A53, TYPE E OR S, GRADE B
 - D. BOLTS, NUTS, AND WASHERS: A57M A325
 - E. ANCHOR BOLTS: A57M A307
 - F. WELDING MATERIALS: AUS D11, 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 1000 psi AT 28 DAYS.
 - H. SHOP AND TOUCH-UP PRIMER: 55PC D, 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 55PC 5P-1 TO 5P-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, H 1.1. SURFACES TO BE IN CONTACT WITH CONCRETE NOT INCLUDED.
3. FIELD QUALITY CONTROL: FIELD INSPECTION OF MEMBERS, CONNECTIONS, WELDS AND TORQUING.

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 DIAGNOSTIC 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 (OSHA).
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, NBS AND 'UL' LISTED.
5. ALL CONDUIT SHALL HAVE A METALLIC FULL WIRE.
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 10000 AIC.
8. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY USC, 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. WEATHER-PROOF RECEPTACLES SHALL HAVE SIEMENS 'UP-D' LIFT COVER PLATES.

SECTION 16400 - SERVICE AND DISTRIBUTION

1. WIRE AND CABLE CONDUCTORS SHALL BE COPPER, 60/2, TYPE THHN OR THWN, WITH A MIN. 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 'UL' LABEL 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 BUILDINGS EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNT'S WRAP PROCESS NO. 3.
 - B. ELECTRICAL METALLIC TUBING SHALL HAVE 'UL' LABEL. FITTING SHALL BE GLAND RING COMPRESSION TYPE.
 - C. FLEXIBLE METALLIC CONDUIT SHALL HAVE 'UL' LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE 'JAKES' 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 JLLIE, AT 1-800-857-0113 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.

POTENTIAL DAMAGE FROM A FALL EXTERIOR LIGHTING SERVICE SHALL BE 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 UNDAUNTED CONDITION.

B. 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 ENT. BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
4. GROUND BARS
 1. ALL GROUND BARS SHALL BE 1/4-INCH THICK TINED 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. TINED BUSH BAR
 - D. STAR WASHER
 - E. NUT

C. EXTERNAL CONNECTIONS

1. ALL GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS. CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPICES, TEES, CROSSES, ETC. ALL CABLE TO GROUND RODS, GROUND ROD SPICES 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 GROUNDING AND BONDING CONDUCTORS SHALL BE CONNECTED BY TWO HOLES CRIMP TYPE (COMPRESSION) CONNECTIONS (EXCEPT FOR THE ACEG AND GROUND ROD) MECHANICAL CONNECTIONS. FITTINGS OR CONNECTIONS THAT DEPEND SOLELY ON SOLDER SHALL NOT BE USED.

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 TINED SOLID BARE COPPER ANNEALED, AND OF SIZE INDICATED ON DRAWINGS UNLESS NOTED OTHERWISE.

F. LUGS

1. LUGS SHALL BE 2-HOLE, SHORT BARREL, STRAND COPPER UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. LUGS SHALL BE THOMAS AND BETTS SERIES 340 'BE' OR EQUIVALENT

A. 3/32 MC1 DLO	54060BE
B. 3/16 MC1 DLO	54072BE
C. 1/8 DLO	54062BE
D. 1/4 THIN AND BARE	54066BE
E. 7/16 THIN	54067BE
F. 3/4 THIN	54070BE
G. 1" DLO	54075BE
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	MINIMUM BENDING RADIUS TO INSIDE EDGE
NO. 6 AWG TO NO. 4 AWG	6 INCHES
NO. 2 AWG TO NO. 1/0 AWG	8 INCHES
NO. 3/0 AWG TO 4/0 MC1	12 INCHES
250 MC1 TO 350 MC1	24 INCHES



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PROJECT MANAGER: GP

PREPARED BY: TRS

APPROVED BY: NTP

1	7-26-04	ISSUED FOR PERMIT
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SHEET NAME

SPECIFICATIONS

SHEET NUMBER

SP-3

PAL PROJECT NUMBER
56307

1. THE EXTERNAL GROUND RING ENCIRCLING THE TOWER (IF APPLICABLE) AND BETWEEN THE EQUIPMENT SHELTER PLATFORM ANCHORS SHALL BE MINIMUM NO. 2 ALUM. SOLID TINNED 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 GADWELDED. 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 MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES, AND SPRAYED WITH GROUND-GALVANIZED PAINT.

I. IEEE FALL POTENTIAL TESTS

A. FOR RAW LAND SITE

1. GROUND TESTS SHALL BE PERFORMED AS INDICATED ON DRAWINGS. A BIDDLE GROUND OHMMETER OR THE METHOD OF USING TWO AUXILIARY GROUND RODS (AS DESCRIBED IN IEEE STANDARDS NO. 81-1983, PART 1) MAY BE USED. THE IEEE 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 BIDDLE NULL-BALANCE EARTH TESTER (MEGGER 750720-2 OR EQUIVALENT).

2. CONTRACTOR TO CONDUCT GROUND RESISTANCE TEST IN THE FORMAT AS FOLLOWS:

B. EQUIPMENT SHELTER PLATFORM HELICAL ANCHOR FOUNDATION

1. FIRST TEST - SHALL BE WITH EIGHT HELICAL ANCHORS OF THE PLATFORM INSTALLED, ONE AT EACH CORNER OF THE PLATFORM BUT NOT CONNECTED TO THE MAIN GROUNDING BUS. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) FOUR CORNER HELICAL ANCHORS TOGETHER TO MAKE A SYSTEM TEST AFTER EACH HELICAL ANCHOR IS INDIVIDUALLY TESTED. IF ANY INDIVIDUAL ANCHOR TESTS 75 OHMS OR MORE, THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED. ANCHORS SHALL HAVE A RESISTANCE OF 40 OHMS OR LESS ON A DRY DAY.

2. SECOND TEST - SHALL BE WITH THE HELICAL ANCHORS 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 MEASURES CAN BE TAKEN.

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 PLATFORM 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 75 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 40 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 SHELTER PLATFORM AND TOWER

1. AFTER THE EQUIPMENT SHELTER PLATFORM AND TOWER GROUND RESISTANCE TEST IS COMPLETED, CONTRACTOR SHALL TIE EQUIPMENT SHELTER PLATFORM 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 LEADING IS 5 OHMS TO GROUND.

UPON COMPLETION OF THE TESTING FOR FALL POTENTIAL, A TEST REPORT SHOWING RESISTANCE IN OHMS WITH AUXILIARY POTENTIAL ELECTRODES AT 5 FEET AND 10 FEET INTERVALS UNTIL THE RESISTANCE STARTS INCREASING AND ALSO NOTE THAT 10-15 FEET 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 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 MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF EQUIPMENT LOCATION UNLESS OTHERWISE STATED.

2. ALL COAX RUN LENGTHS GREATER THAN 143 FEET SHALL BE 1-5/8" AND IN LENGTH LESS THAN OR EQUAL TO 143 FEET SHALL BE 1/2".

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 CABLE, PLASTIC TAGS SHALL BE USED AT THE FOLLOWING LOCATIONS:

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.

B. USE ANDREW CABLE TIES (PT. 21250) TO SECURE IDENTIFICATION TAGS.

5. TESTING

TESTING SHALL BE DONE PER SPRINT STANDARD REQUIREMENTS.



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PROJECT MANAGER: GP

PREPARED BY: TRS

APPROVED BY: NTP

1 1-78-58 ISSUED FOR PERMIT

SHEET NAME

SPECIFICATIONS

SHEET NUMBER

SP-4

PAL PROJECT NUMBER
26307

SPECIFICATIONS

95307

SCALE 1" = 20'-0"
SHEET 11 OF 11

SITE 703-N RILEY

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BENCHMARK/PROJECT DATUM

LOCATION : CHISELED SQUARE IN CONCRETE CURB LOCATED AS SHOWN ON C-1
ELEVATION : 10'11" AMSL
PROJECT DATUM : 106.52' AMSL (TOP OF FOUNDATIONS + 0.00')

LEGEND

EXISTING		NEW
— SAS —	SANITARY SEWER	— SAS —
— STS —	STORM SEWER	— STS —
— W —	WATER MAIN	— W —
⊙	SANITARY MANHOLE ELEVATIONS	⊙
⊙	STORM STRUCTURE ELEVATIONS	⊙
---	PROPERTY LINE	---
---	SURFACE DRAINAGE	---
○	LIGHT STANDARD	●
○	STREET LIGHT	●
612.75	SPOT ELEVATION	612.75
6.75	CONTOUR	6.75
— G — G —	GAS MAIN	— G — G —
⊙	MANHOLE	⊙
○	CATCH BASIN	●
○	FIRE HYDRANT	●
---	EASEMENT LINE	---
—X—X—X—	FENCE	—X—X—X—
—UE/UT—	BURIED UTILITY LINE	—UE/UT—
⊙	UTILITY POLE	⊙
—OE/OT—	OVERHEAD UTILITY LINE	—OE/OT—
	BUILDING	

GENERAL NOTES

PROJECT MANAGER: GP

PREPARED BY: JA

APPROVED BY: NTP

1 1-78-58 ISSUED FOR PERMIT

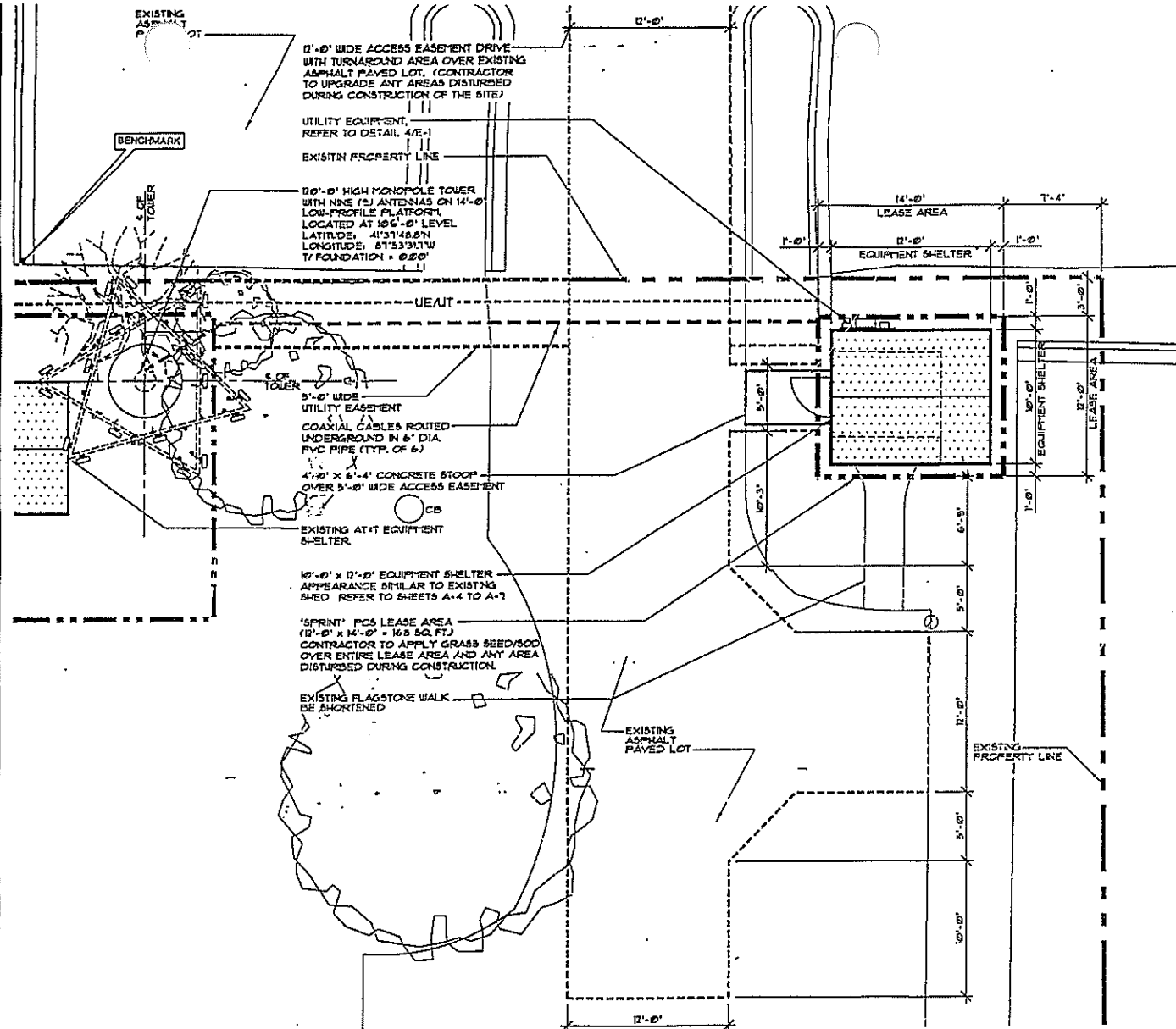
SHEET NAME

**ENLARGED
SITE PLAN**

SHEET NUMBER

C-2

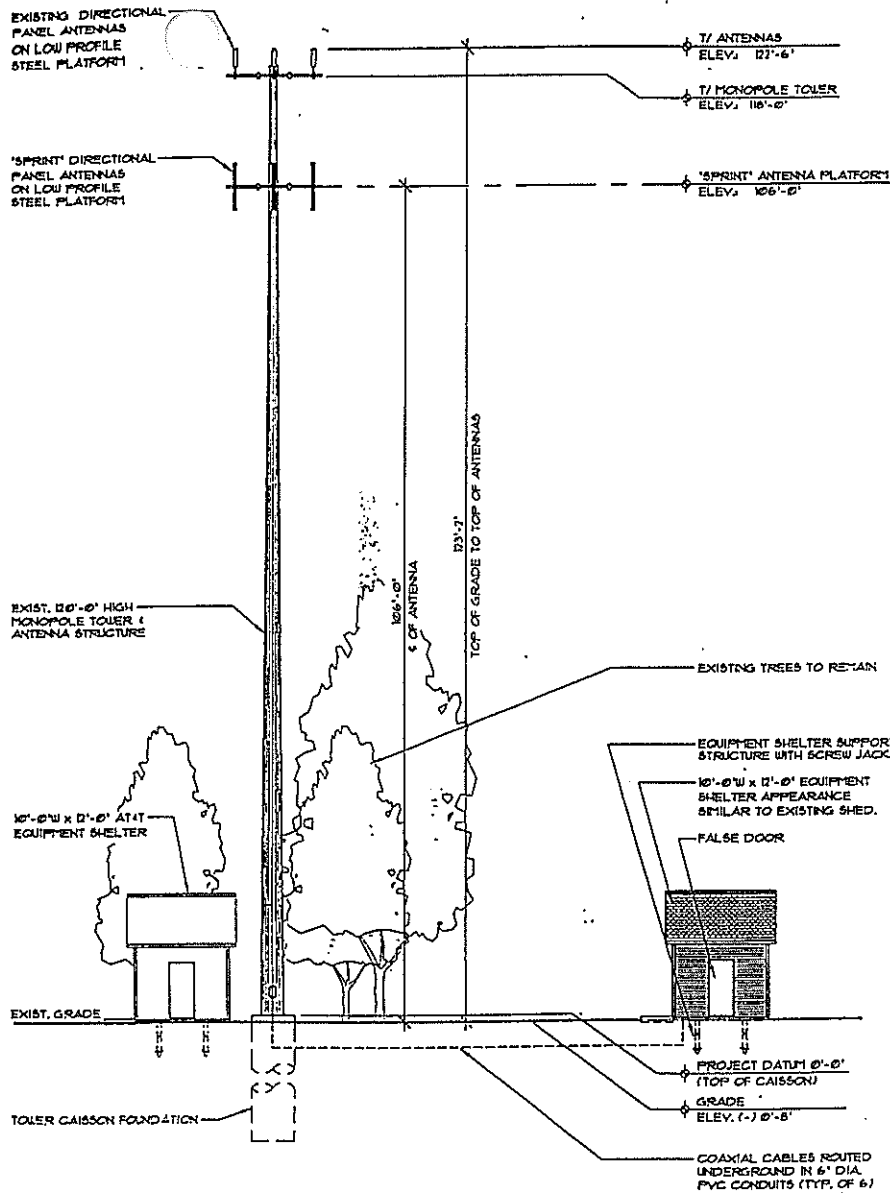
PAL PROJECT NUMBER
58307



1 **ENLARGED SITE PLAN**
SCALE: 1/8" = 1'-0"

1

2



SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



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SUITE 200
ROSEMONT, IL 60018
(847) 384-3000
Fax: (847) 384-3061

SITE 703-N RILEY

14288 S. WOLF RD
CITY OF GIL AND PARK
COOK COUNTY
ILLINOIS 60482



PROJECT MANAGEMENT
ARCHITECTURE
ENGINEERING
CONSTRUCTION

PAL TELECOM GROUP, INC.

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CHICAGO, IL 60611
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FAX: 312-543-5241

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PROJECT MANAGER: GP

PREPARED BY: JA

APPROVED BY: ATP

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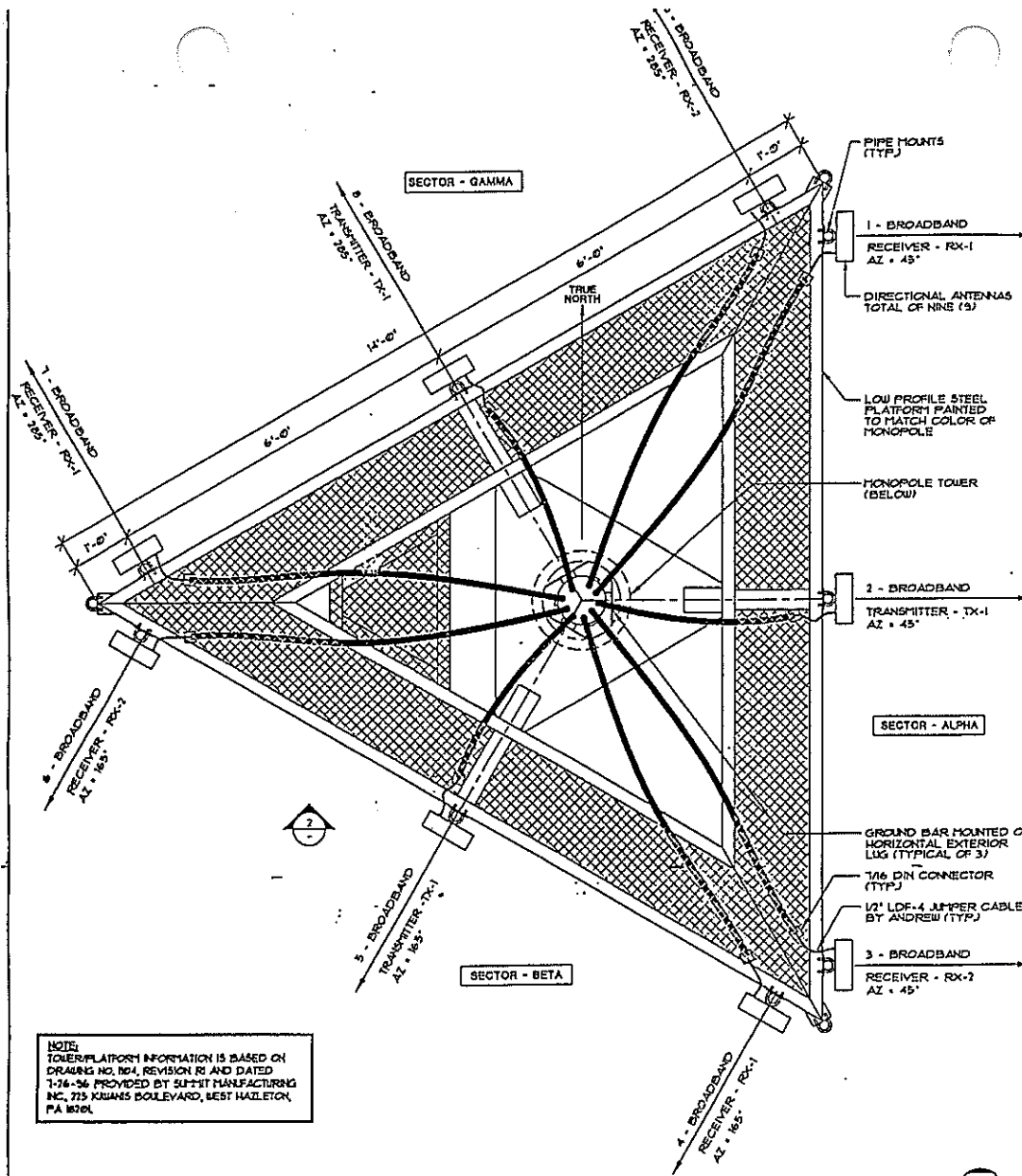
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ELEVATION

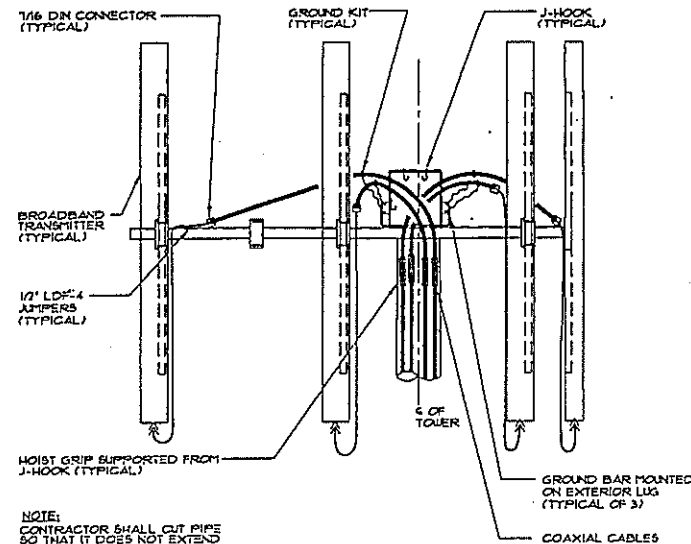
SHEET NUMBER

A-1

PAL PROJECT NUMBER
05307



1 ANTENNA PLATFORM PLAN
SCALE: 1/2" = 1'-0"



2 PLATFORM ELEVATION
SCALE: 1/4" = 1'-0"

NO.	ANTENNA TYPE	SECTOR	AZIMUTH	TAG
1	PCS PANEL ANTENNA - CELWAVE - APL-155016	ALPHA	45°	GREEN
2	PCS PANEL ANTENNA - CELWAVE - APL-155016	ALPHA	45°	DOUBLE GREEN
3	PCS PANEL ANTENNA - CELWAVE - APL-155016	ALPHA	45°	TRIPLE GREEN
4	PCS PANEL ANTENNA - CELWAVE - APL-155016	BETA	165°	BLUE
5	PCS PANEL ANTENNA - CELWAVE - APL-155016	BETA	165°	DOUBLE BLUE
6	PCS PANEL ANTENNA - CELWAVE - APL-155016	BETA	165°	TRIPLE BLUE
7	PCS PANEL ANTENNA - CELWAVE - APL-155016	GAMMA	285°	RED
8	PCS PANEL ANTENNA - CELWAVE - APL-155016	GAMMA	285°	DOUBLE RED
9	PCS PANEL ANTENNA - CELWAVE - APL-155016	GAMMA	285°	TRIPLE RED

3 ANTENNA AND COAXIAL CABLES

- VERIFY EACH COAXIAL CABLE LENGTH, DIAMETER, ROUTING, AND ALL MOUNTING APPURTENANCES WITH OWNER PRIOR TO ORDER.
- THE MAXIMUM COAXIAL CABLE LENGTH HAS BEEN ESTIMATED AT 175 FEET, WITH A CORRESPONDING CABLE DIAMETER OF 1/8". 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.
- TAG ALL MAIN CABLES AT TWO (2) LOCATIONS:
A. TOP OF TOWER * ANTENNAS B. INSIDE EQUIPMENT SHELTER NEAR THE EQUIPMENT CABINETS
- EACH COAX SHALL BE SUPPORTED WITH COLUMN GRIP (CHINESE FINGER GRIP) HUNG FROM A J-HOOK AT TOP OF TOWER.

4 COAXIAL CABLE GENERAL NOTES

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PROJECT MANAGER: GP

PREPARED BY: JA

APPROVED BY: NTP

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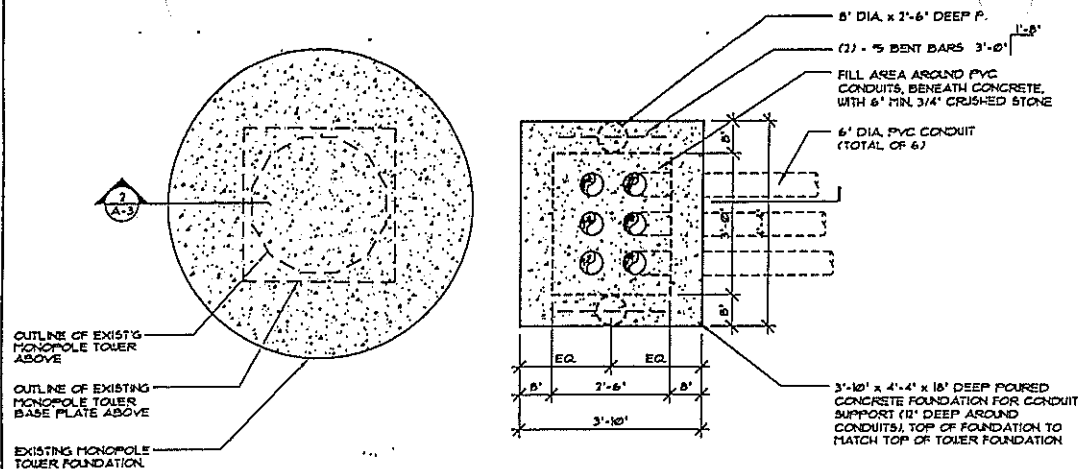
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**ANTENNA
PLATFORM
DETAILS**

SHEET NUMBER

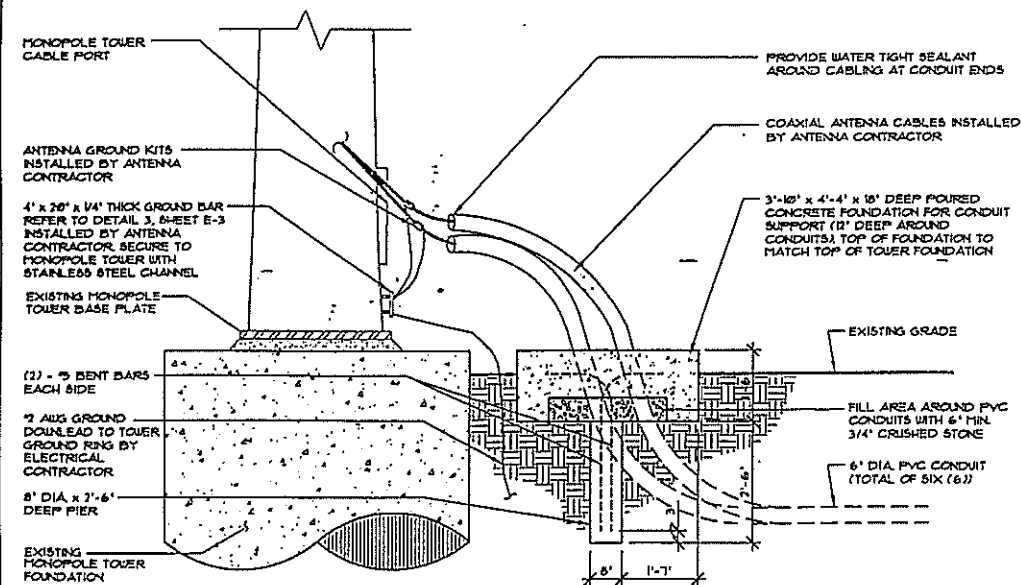
A-2

PAL PROJECT NUMBER
20307



1 CONDUIT FOUNDATION (AT TOWER)

SCALE: 3/8" = 1'-0"



2 CABLE HOOD SECTION

SCALE: 3/8" = 1'-0"



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PREPARED BY: JA

APPROVED BY: NTP

1 1-28-04 ISSUED FOR PERM

SHEET NAME

CABLE ROUTING
DETAILS

SHEET NUMBER

A-3

PAL PROJECT NUMBER
05307



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PROJECT MANAGER: GP

PREPARED BY:	JA
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APPROVED BY: *K.P.*

1	7-18-96	ISSUED FOR PERMIT
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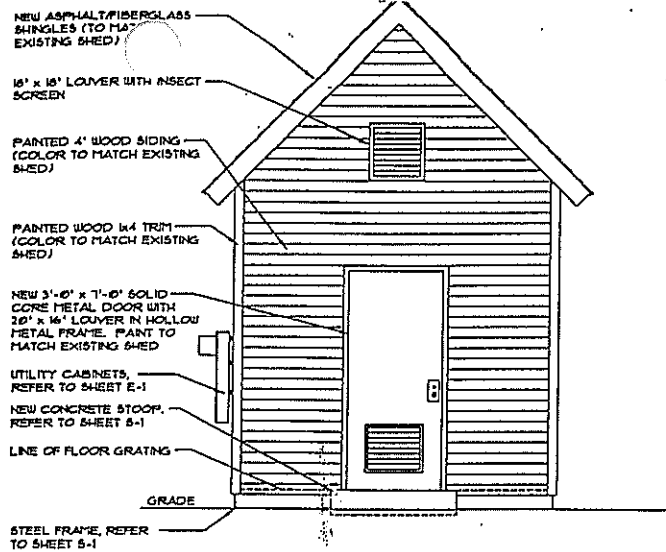
SHEET NAME

BUILDING ELEVATIONS

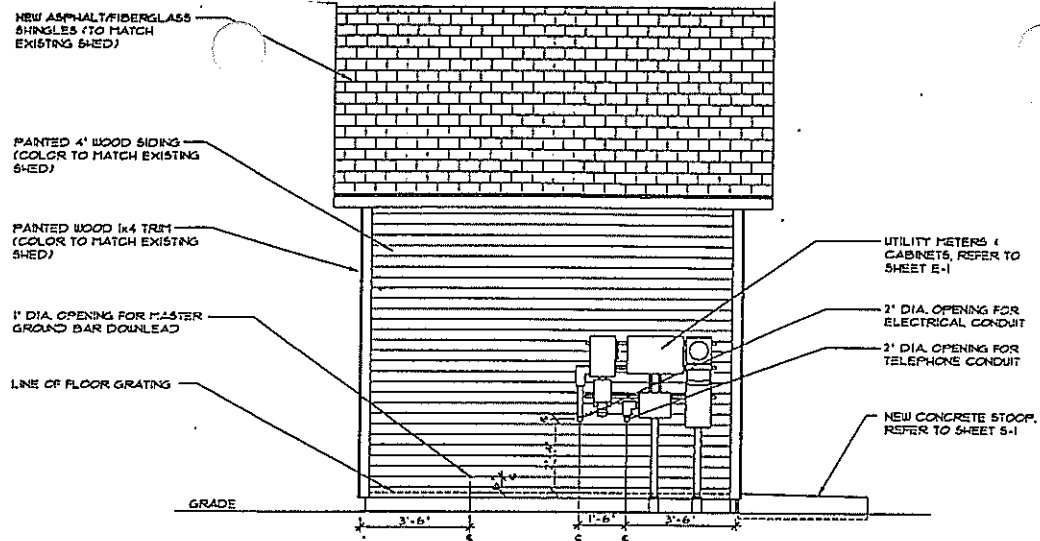
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A-7

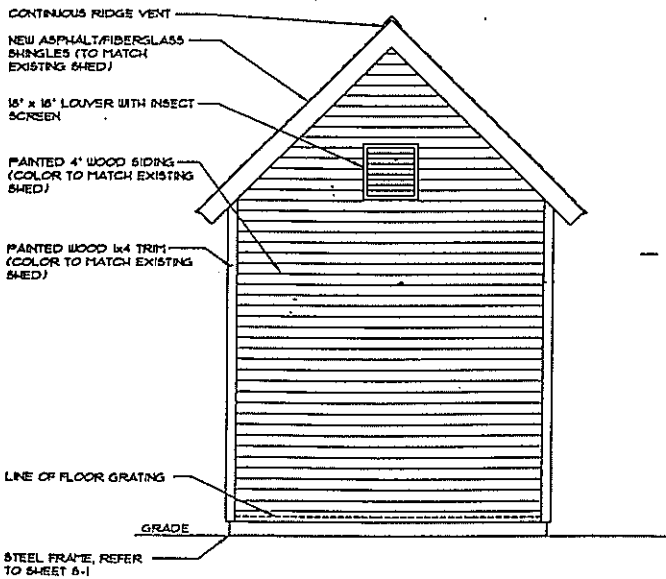
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90307



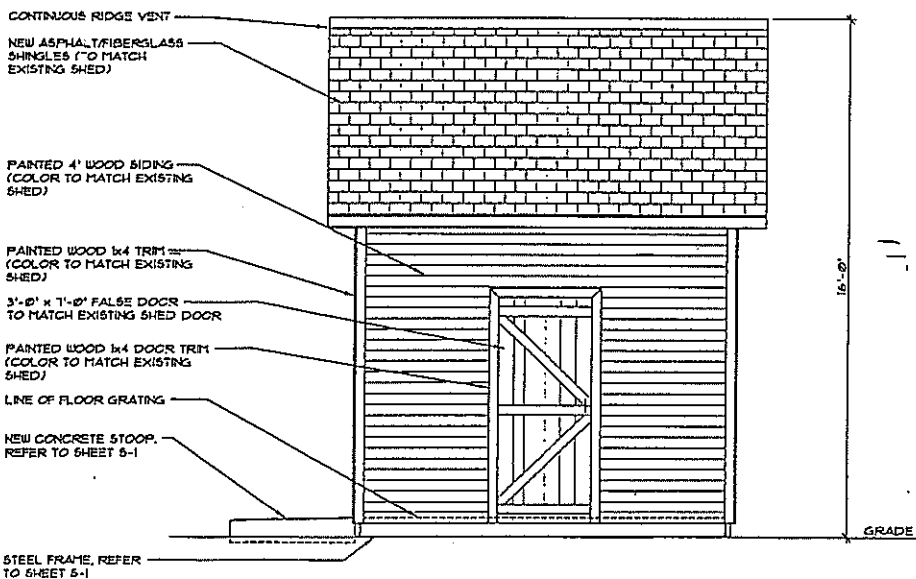
1 WEST ELEVATION
SCALE: 1/4" = 1'-0"



2 NORTH ELEVATION
SCALE: 1/4" = 1'-0"



3	EAST ELEVATION
	SCALE: 1/4" = 1'-0"



4 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

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PROJECT MANAGER: G#

PREPARED BY: JA

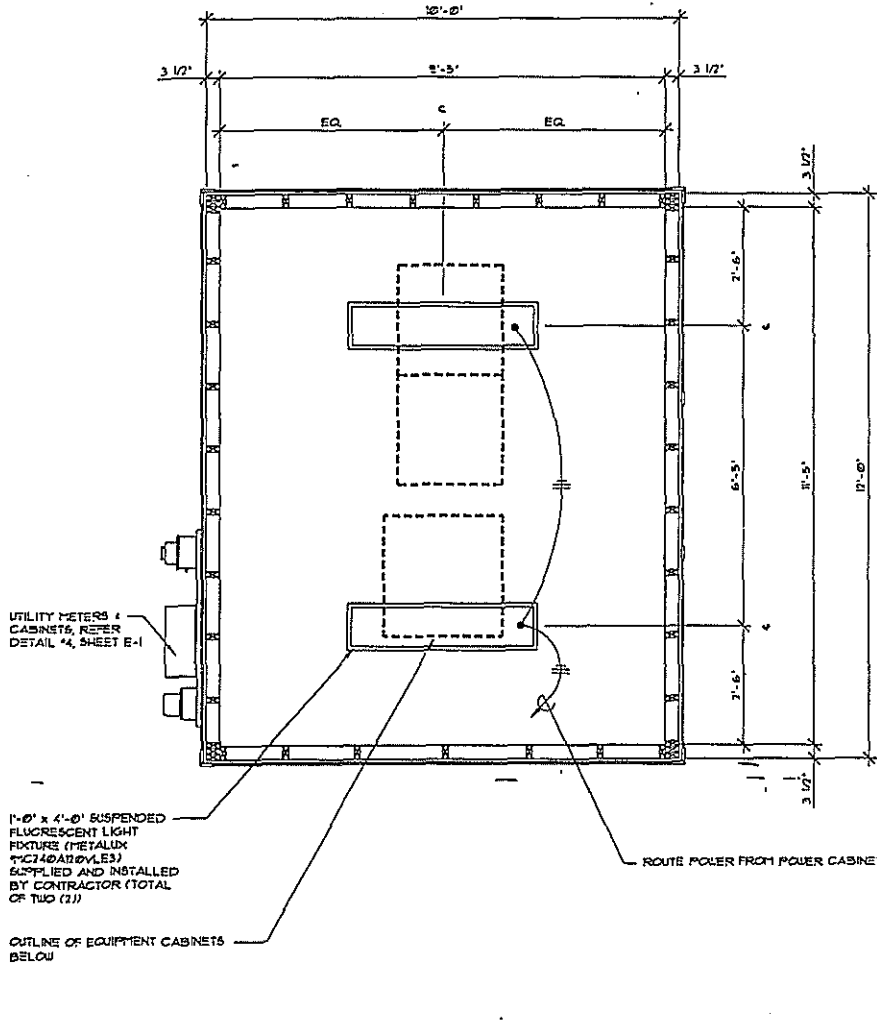
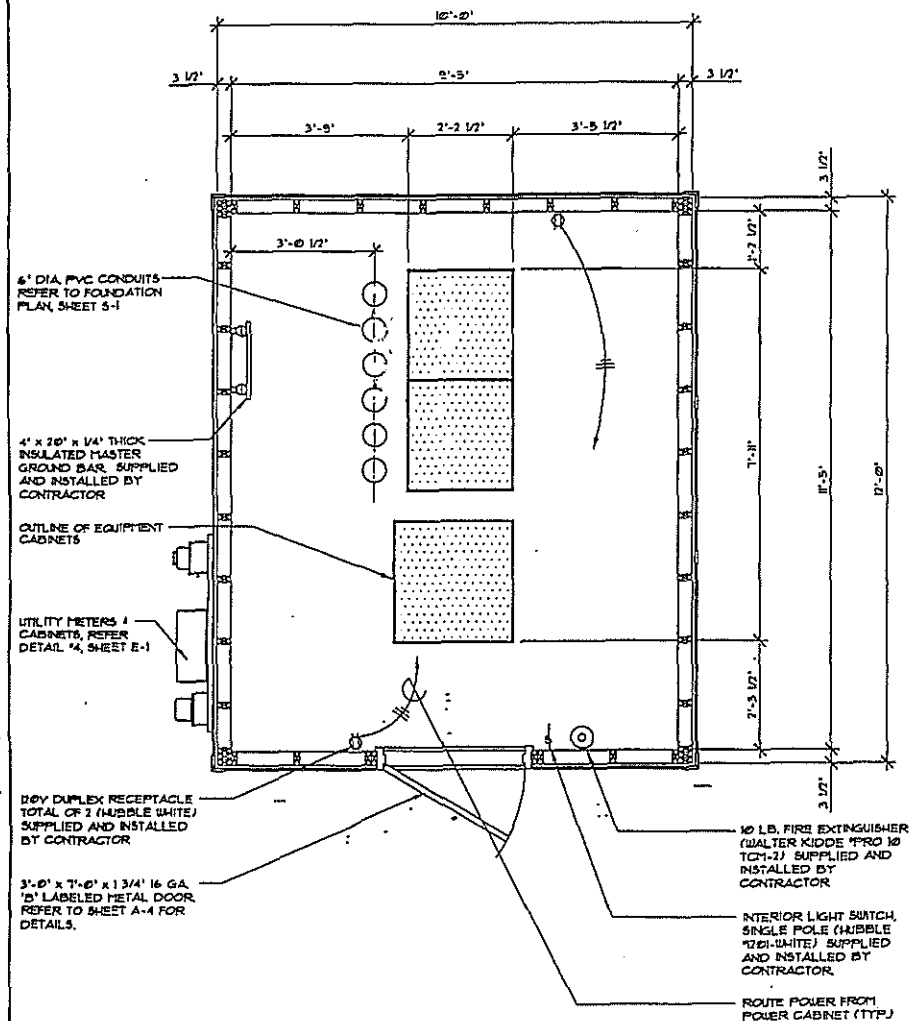
APPROVED BY: NTP

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SHEET NAME
**EQUIPMENT PLAN
AND REFLECTED
CEILING PLAN**

SHEET NUMBER
AE-1

PAL PROJECT NUMBER
58307

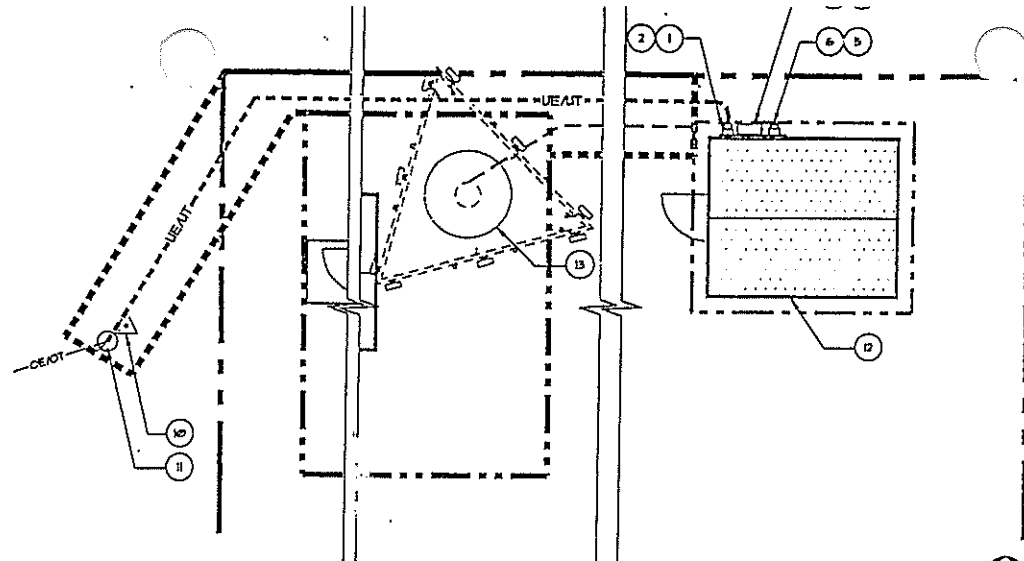


1 **EQUIPMENT PLAN**
SCALE: 3/8" = 1'-0"

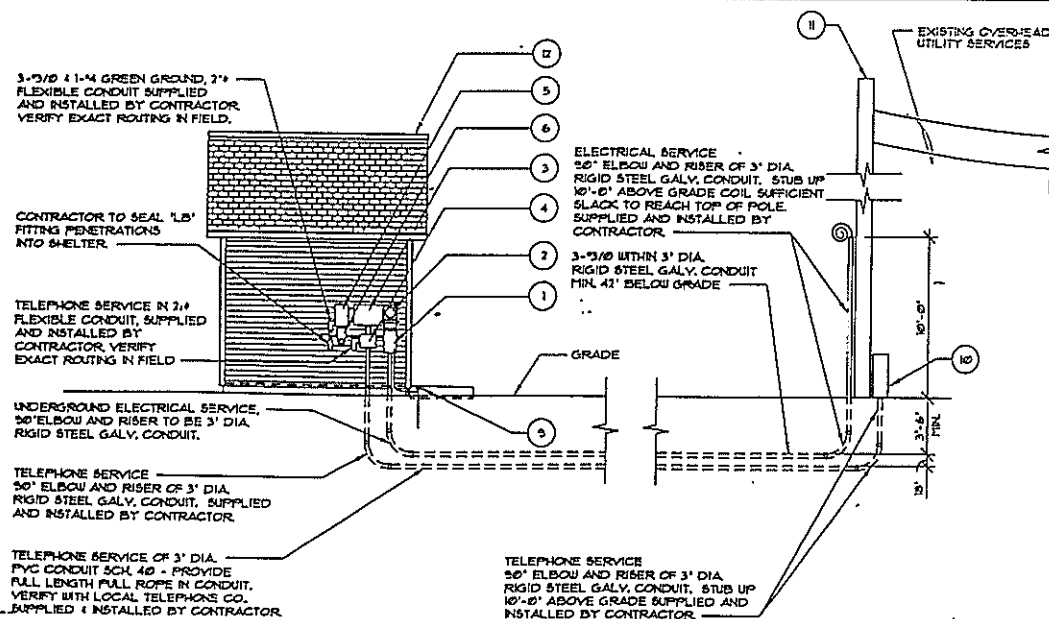


2 **REFLECTED CEILING PLAN**
SCALE: 3/8" = 1'-0"





1 UTILITY PLAN
SCALE: 1/8" = 1'-0"



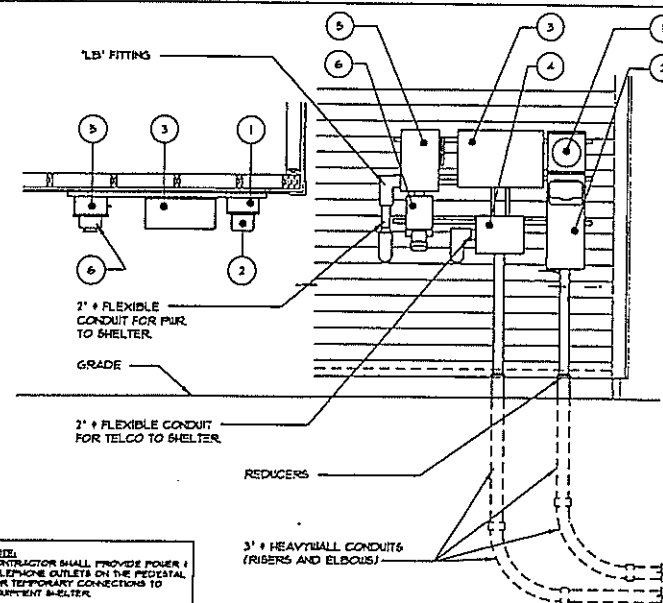
3 ELECTRICAL RISER DIAGRAM ELECTRICAL SERVICE: 200-AMP, 207/240-VOLT, SINGLE PHASE, 3-WIRE
SCALE: 1/8" = 1'-0"

—OE—	OVERHEAD ELECTRICAL SERVICE
—OT—	OVERHEAD TELEPHONE SERVICE
—UE—	UNDERGROUND ELECTRICAL
—UT—	UNDERGROUND TELEPHONE

KEY NOTES:

- 1 200 AMP FUSED DISCONNECT W/SINGLE POSITION METER MAIN (MILLBANK UT601-200-RL-KK' OR EQUAL)
- 2 ELECTRIC METER BY LOCAL UTILITY COMPANY
- 3 TELETEND TELCO INTERFACE
- 4 10" WIDE x 8" D x 8" H TELCO JUNCTION BOX
- 5 200 AMP DPST MANUAL TRANSFER SWITCH ("GE" OR EQUAL)
- 6 200 AMP EMERGENCY GENERATOR RECEPTACLE ("APPLETON" "HUBBELL" OR EQUAL)
- 7 NOT USED
- 8 NOT USED
- 9 GROUND ROD FOR UTILITY COMPANY GROUNDING OF SERVICE CONNECTION
- 10 EXISTING TELEPHONE PEDESTAL
- 11 EXISTING UTILITY POLE
- 12 EQUIPMENT SHELTER
- 13 EXISTING MONOPOLE TOWER

2 UTILITY NOTES



4 UTILITY POST DETAIL
SCALE: 3/8" = 1'-0"

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PREPARED BY: JA

APPROVED BY: NTP

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SHEET NAME

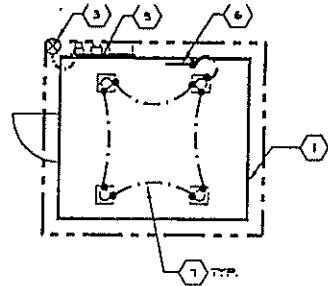
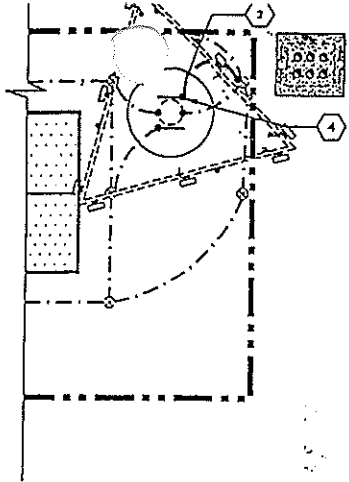
UTILITIES

SHEET NUMBER

E-1

PAL PROJECT NUMBER

56307



W	MINIMUM 42" BELOW GRADE, AT MINIMUM 6'-0" O.C. MAXIMUM 10'-0" O.C. (HARGER 58102)
-G-	7 AWG TINNED SOLID BARE COPPER WIRE, MINIMUM 42" BELOW GRADE, OR 6" BELOW LOCAL FROST LINE
---	CADWELD CONNECTION

- KEY NOTES:**
1. OUTLINE OF EQUIPMENT SHELTER
 2. GROUND MONOPOLE TOWER AND ANTENNA STRUCTURE WITH 7 AWG TINNED SOLID BARE COPPER CONDUCTORS, CADWELDED TO TOWER BASE PLATE AND TO EXTERIOR GROUND RING (TOTAL OF 12, REFER TO DETAIL 3, THIS SHEET).
 3. GROUND ELECTRICAL SERVICE WITH CONNECTION DEVICES LABELED 'CECHA' AND 7 AWG TINNED BARE COPPER CONDUCTOR CADWELDED TO ELECTRICAL SERVICE GROUND ROD, SUPPLIED AND INSTALLED BY CONTRACTOR, REF. DTL. VE-3
 4. TINNED COPPER GROUND BARS MOUNTED ON TOWER ANTENNA PLATFORM AND BASE OF MONOPOLE TOWER, LOWER GROUND BAR DOWNLEAD CADWELDED TO GROUND RING. GROUND BARS SUPPLIED BY SPRINT AND INSTALLED BY CONTRACTOR, REF. DTL. 3/E-2 AND DTL. 3/E-3
 5. NOT USED
 6. CONTRACTOR SHALL BRING INTERIOR GROUND BAR (IGB) DOWNLEAD AND INTERIOR HOLO RING DOWNLEADS THRU PENETRATION (BY SHELTER MANUF.) AND MAKE FINAL CADWELD CONNECTION TO HELICAL ANCHORS AT FOUR CORNERS OF SHELTER, REF. DTL. 3/E-2 AND DTL. 7/E-3
 7. 7 AWG TINNED SOLID BARE COPPER CONDUCTOR CADWELDED TO FOUR (4) HELICAL ANCHORS TO FORM EXTERNAL GROUND RING, MINIMUM 42" BELOW GRADE OR 6" BELOW FROST LINE, SUPPLIED AND INSTALLED BY CONTRACTOR
 8. 5/8" DIA. x 10'-0" LONG COPPER CLAD GROUND ROD (HARGER 58102) MINIMUM 42" BELOW GRADE OR MINIMUM 6" BELOW FROST LINE, CADWELD CONNECTION (TYP. GT OR NC) TO EXTERIOR GROUND RING, SUPPLIED AND INSTALLED BY CONTRACTOR
 9. UTILITY POST, REFER TO DETAIL VE-3
- GENERAL NOTES:**
1. ALL CADWELD CONNECTIONS ON GALVANIZED SURFACES SHALL BE CLEANED THOROUGHLY AND COVERED WITH TWO (2) COATS SHERWIN WILLIAMS GALVANITE PAINT D350W3 OR EQUAL.
 2. ALL ELECTRICAL CADWELD AND MECHANICAL GROUND CONNECTIONS WILL HAVE NON-OXIDATION APPLIED TO CONNECTION.
 3. ANY METAL OBJECTS WITHIN 6 FEET OF THE EXTERNAL GROUND RING SHALL BE GROUNDED.
 4. ALL GROUNDING MATERIALS AND CADWELD MOLDS, SHOTS, ETC., SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR, UNLESS OTHERWISE NOTED.
 5. THE ELECTRICAL CONTRACTOR SHALL FOLLOW GROUNDING SYSTEM INSTALLATION AND TESTING PROCEDURES AS DESCRIBED IN THE GENERAL ELECTRICAL PROVISIONS.

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 PREPARED BY: JA
 APPROVED BY: NTP

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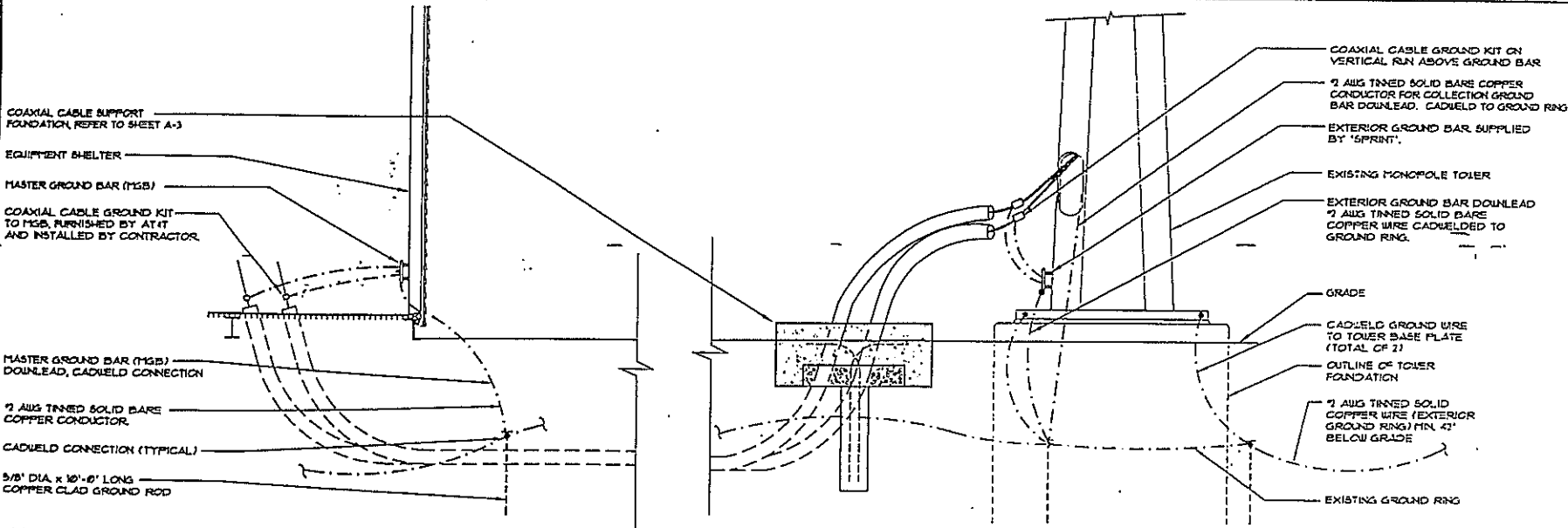
SHEET NAME
GROUNDING

SHEET NUMBER
E-2

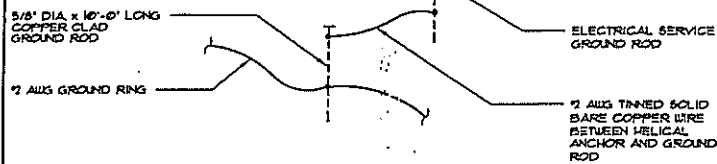
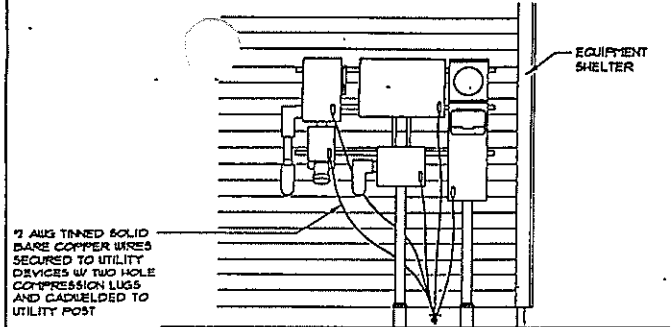
PAL PROJECT NUMBER
 58367

1 GROUNDING PLAN
 SCALE: 1/8" = 1'-0"

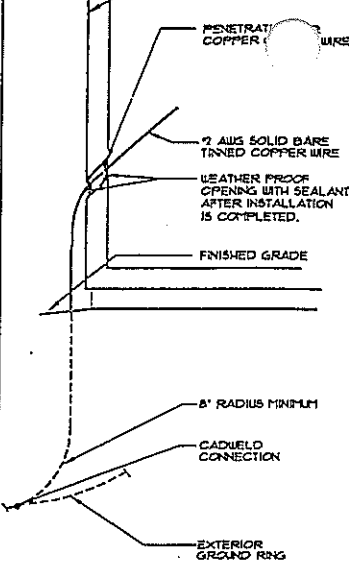
2 GROUNDING NOTES



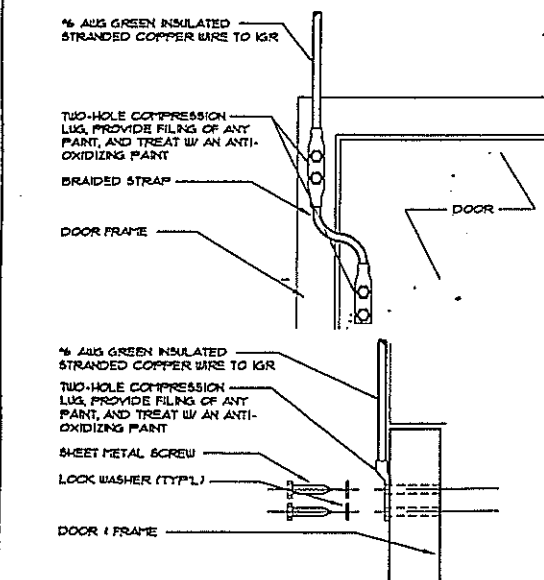
3 COAXIAL CABLE AND WAVEGUIDE GROUNDING DIAGRAM
 SCALE: 3/8" = 1'-0"



1 UTILITY POST GROUNDING
SCALE: 3/8" = 1'-0"



3 EXTERIOR GROUND BAR DETAIL
SCALE: 1 1/2" = 1'-0"



4 ENTRANCE DOOR GROUNDING DETAIL
NOT TO SCALE

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PREPARED BY: JA

APPROVED BY: NTP

1 1-78-50 ISSUED FOR PERMIT

SHEET NAME
**GROUNDING
DETAILS**

SHEET NUMBER
E-3

PAL PROJECT NUMBER
58367

List of Parties

Illinois State Historical Preservation Agency
Anne E. Haaker, Deputy State Historic Preservation Officer
Tracey Sculle, Cultural Resources Manager
Old State Capital Plaza
Springfield, IL 62701-1507
IHPA Log # 04061798
217-782-4836

AT&T Wireless Services
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Michael McCrery, Property Specialist
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Rosemont, IL 60018
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Richard Connor Riley (Owner)
Richard Connor Riley & Associates, L.L.C.
Dennis Schermerhorn, Attorney
7600 S. County Line Road
Burr Ridge, IL 60521
630-789-1900

Federal Communications Commission
Wireless Telecommunications Bureau
Enforcement Division
Rose Crellin
2025 M Street, N.W., Room 8308
Washington, D.C. 20554

Advisory Council On Historic Preservation
Charlene Dwin-Vaughn, Program Analyst
Tom M. McCulloch, Historic Preservation Specialist
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1100 Pennsylvania Ave., N.W., Suite 809
Washington, D.C. 20004
202-606-8503

**Advisory
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Historic
Preservation**

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Washington, DC 20004

HPA REVIEW

20

HPA _____
AC _____
AR _____
File _____

Ms. Cathy Seidel
Chief, Enforcement and Consumer Information Division
Wireless Telecommunications Bureau
Federal Communications Commission
2025 M Street NW
Room 8308
Washington, DC 20554

REF: Memorandum of Agreement for construction of AT&T Wireless and Sprint PCS wireless communications structure, Orland Park, Illinois

Dear Ms. Seidel:

The enclosed Memorandum of Agreement for the referenced project has been signed by the Council. By carrying out the terms of the Agreement, the Federal Communications Commission will have fulfilled its responsibilities under Section 106 of the National Historic Preservation Act and the Council's regulations.

We appreciate your cooperation in this matter. Should you have any questions, please contact me at (202) 606-8554.

Sincerely,



Tom McCulloch, Ph.D.
Office of Planning and Review

Enclosures