

**SUPPLEMENT AGREEMENT NO. 1
TO
INTERGOVERNMENTAL AGREEMENT NO. 101746
BETWEEN
CITY OF PHOENIX
AND
CITY OF CHANDLER
FOR SHARING OF COMMUNICATIONS FACILITIES**

Pursuant to Intergovernmental Telecommunications Facilities Sharing Agreement No. 101746, ("Sharing Agreement") entered into as of June 1, 2002, the CITY OF PHOENIX and CITY OF CHANDLER enter into this site-specific agreement which shall be a Supplement No.1 (Supplement) to the Sharing Agreement.

1. SITE:

1.1. Chandler Fire Training Academy, located at 3550 S. Dobson Rd., Chandler, Arizona 85225 (Lat.33°15'14"N), (Long. 111°53'17"W). The City of Chandler, the property owner, grants Phoenix permission to use the existing property for the installation of 800 MHZ Trunked Radio Network transmitters, receivers, antennas and associated equipment identified in this supplement.

1.2. City of Chandler grants Phoenix permission to construct a 12' x 28' communications equipment building per the attached drawings. This building will be owned and operated by the City of Phoenix. Phoenix will also install a new 100' monopole and Emergency Generator to service the communications equipment building in the event of a commercial power outage. These items will remain Phoenix property and be maintained and operated by Phoenix. Electro-mechanical and HVAC equipment installed to service the new communications equipment building shall be provided by and maintained by Phoenix.

2. FACILITY OWNERSHIP: The City of Phoenix, as the facility installer, shall be the owner of the communications building, monopole, generator, and equipment installed as part of the 800 MHz Trunked Radio Network. If this agreement is ever terminated, Phoenix shall be responsible to remove all its facilities and restore the property to its pre-existing condition. If Chandler desires to retain the facility, a property transfer may be negotiated at the time of termination.

3. FREQUENCY USE:

3.1. Frequency Licensing: As stipulated in the Master Site Sharing Agreement each agency is responsible for the proper licensing of operating frequencies utilized at this site with the Federal Communications Commission (FCC).

3.2. Frequency Protection:

- 3.2.1. Phoenix shall be responsible for resolving interference problems generated by new Phoenix owned equipment which affect existing frequencies employed by Chandler, and shall bear the cost of such resolution. Phoenix will not be responsible for interference to Chandler equipment from Phoenix equipment that exists at the time any new Chandler equipment is added. Phoenix also agrees to work with Chandler to resolve any potential interference problems between their respective systems as Chandler transitions to its new Project 25 system.
- 3.2.2. Chandler shall be responsible for resolving interference problems generated by new Chandler owned equipment which affect existing frequencies employed by Phoenix, and shall bear the cost of such resolution. Chandler will not be responsible for interference to Phoenix equipment from Chandler equipment that exists at the time any new Phoenix equipment is added.
- 3.2.3. Phoenix and Chandler shall ensure that they are operating telecommunications equipment at this site in compliance with current licenses issued by the Federal Communications Commission (FCC). In the event that interference issues arise with either parties equipment and it is determined that the interfering party is in compliance with their FCC license then both parties will cooperate and work together to equitably resolve the problem per established FCC guidelines.

3.3. Frequency Assignment:

- 3.3.1. The Chandler Fire Training Academy site is an integral part of the City's 800 MHz Trunked Radio Network as a "Simulcast C Site". The site will consists of ten 800 MHZ NPSPAC Channel assignments as follows:

VOICE CHANNELS:

<u>Channel Number</u>	<u>Frequency</u>
691	867.2000
704	867.3625
726	867.6625
742	867.8625
762	868.1375
774	868.2875
789	868.4750
751	867.9750
771	868.2500
785	868.4250

MICROWAVE FREQUENCIES:

- Chandler to DPS South Mountain.
- Chandler to Tempe Police South Substation.

4. EQUIPMENT INSTALLATION: (Drawing Package attached)

4.1. Phoenix will install the following facilities and equipment in the communications equipment building, (reference attached drawing package):

- 12' x 28' CMU Building
- 50 kW Diesel Generator
- 500 Gallon Fuel Tank
- Two 5 Ton HVAC units
- Remote Site Equipment (Simulcast C)
- 10 Channel Simulcast Linear Base Station
- 2 Harris Constellation Microwave radios & 48" & 72" Dishes
- TeNSr Channel Bank Equipment
- 3 Transmit Antennas
- 2 Receive Antennas
- 10 KW DC Power System

5. REMOVAL OF EQUIPMENT: Phoenix will remove all city owned facilities and equipment from Chandler property and return the property to its original condition upon termination of this agreement by either agency.

6. MAINTENANCE: Communications equipment installed at the site shall be maintained by the owner of the equipment. Chandler shall provide 24 hr/day access to the site by Phoenix personnel for preventive and corrective maintenance activities. Preventive and corrective maintenance performed by either agency that may affect the other agency's equipment or network systems shall be coordinated between the agencies prior to the start of work. Because this equipment supports Public Safety Operations network service interruptions shall be kept to an absolute minimum.

7. TERM: The term of this SUPPLEMENT shall be coterminous with the underlying AGREEMENT.

8. OPTION TO EXTEND: Agencies shall have the option to extend this site-specific agreement for one additional ten year term under the same terms and conditions as stated in this Supplement, the Basic Sharing Agreement, and any intervening amendments thereof. This agreement will automatically extend for the additional 10 year period unless terminated by either party per the terms of this supplement.

9. TERMINATION: Chandler, as the owner of the communications facility may terminate this Supplement or use of the facility at any time by giving no less than 365 days written notice to Phoenix. Phoenix not owning the property on which the City's communications facility is located, may terminate this Supplement at any time by giving no less than ninety (90) days written notice to Chandler. Unless sooner terminated, this Supplement and any extensions hereof shall automatically terminate upon termination of the Basic Sharing Agreement.

IN WITNESS WHEREOF, the parties have executed this Intergovernmental Agreement on the dates indicated below.

CITY OF PHOENIX
A municipal corporation
Frank A. Fairbanks, City Manager

By: [Signature]
Danny W. Murphy
Chief Information Officer

Date: 3/6/03

ATTEST: [Signature]
CHIEF DEPUTY City Clerk

In accordance with A. R. S. Section 11-952 this Supplement has been reviewed by the undersigned attorney who has determined that this Supplement is in proper form and within the powers and authority granted to the City of Phoenix under the laws of the State of Arizona.

[Signature]
ACTING City Attorney

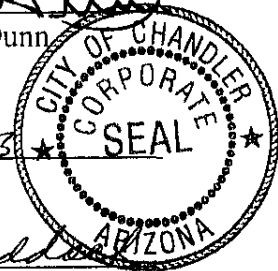
Date: 3/6/03

CITY OF CHANDLER
A municipal corporation

By: [Signature]
Mayor Boyd Dunn

Date: 2-28-2003

ATTEST: [Signature]
City Clerk



In accordance with A. R. S. Section 11-952 this Supplement has been reviewed by the undersigned attorney who has determined that this Supplement is in proper form and within the powers and authority granted to the City of Chandler under the laws of the State of Arizona.

[Signature]
City Attorney

Date: 2-28-03

CITY CLERK DEPT.
2003 MAR 11 AM 11:23



MOTOROLA

**ASTRO25 MULTI-ZONE SYSTEM
800 MHz RADIO PROJECT**

**NEW 90 FOOT MONOPOLE AND NEW SHELTER
LATITUDE 33°15'14"N, LONGITUDE 111°53'17"W**

**MOTOROLA SITE NAME:
CHANDLER FIRE TRAINING ACADEMY**

**SITE ADDRESS:
3550 S DOBSON RD
CHANDLER, AZ 85225**

**PROJECT #:
32**



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SCOTTSDALE, AZ 85258
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DWG. DATE: 09/20/02

**DRAWN BY: MAB
CHECKED BY: VED**

REVISIONS	
NO.	DATE
1	10/25/02
PERMIT DWGS	



**ASTRO25 MULTIZONE SYSTEM
800 MHz RADIO PROJECT**

APPROVALS

MOTOROLA INITIALS DATE

PHOENIX INITIALS DATE

OTHER INITIALS DATE

SITE NAME

CHANDLER FIRE STATION ACADEMY

SITE ADDRESS

**3550 S DOBSON ROAD
CHANDLER, AZ 85225**

SHEET TITLE

**PROJECT INFORMATION,
VICINITY MAP,
SHEET INDEX**

SHEET NUMBER

TS-1 JOB # 1140-32

A/C	AIR CONDITIONING	MIL	METAL
ADJ	ADJUSTABLE	MFR	MANUFACTURER
AFF	ABOVE FINISH FLOOR	MGR	MANAGER
APPROX	APPROXIMATELY	MN	MINIMUM
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	MISC	MISCELLANEOUS
AWG	AMERICAN WIRE GAUGE	NA	NOT APPLICABLE
BLDG	BUILDING	N/C	NOT IN CONTRACT
BULK	BULK	N/T	NOT TO SCALE
BMR	BASE MOBILE RADIO	OC	ON CENTER
B/S	BUILDING STANDARD	OD	OUTSIDE DIAMETER
CLG	CEILING	OPG	OPENING
CLR	CLEAR	OPP	OPPOSITE
C	CONDUIT	PLYWD	PLYWOOD
CONC	CONCRETE	PR	PAIR
CONST	CONSTRUCTION	PROJ	PROJECT
CONT	CONTINUOUS	PROP	PROPERTY
DEL	DOUBLE	PRINT	PRINT (DANTE)
DIAM	DIAMETER	REQD	REQUIRED
DIAG	DIAGONAL	RM	ROOM
DIM	DIMENSION	RO	ROUGH OPENING
DN	DOWN	S	SOUTH
DR	DOOR	SHT	SHEET
DTL/DETL	DETAIL	SM	SIMILAR
DWG	DRAWING	SPEC	SPECIFICATION
E	EACH	SQ	SQUARE
EA	ELEVATION	SS	STAINLESS STEEL
ELEV	ELECTRICAL	STL	STEEL
ELECT	EQUAL	STRUCT	STRUCTURAL
EQ	EQUIPMENT	SUSP	SUSPENDED
EW	EACH WAY	SV	SHEET VINYL
EXIST	EXISTING	THRU	THROUGH
EXT	EXTERIOR	TINND	TINNED
FIN	FINISH	TOC	TOP OF CONCRETE
FLUR	FLUORESCENT	TUM	TOP OF MASONRY
FLR	FLOOR	TYP	TYPICAL
FT	FOOT	UNIFORM	UNIFORM BUILDING
GA	GALVE	CODE	CODE
GALV	GALVANIZE(D)	UNLESS	UNLESS NOTED
GC	GENERAL CONTRACTOR	OTHERWISE	OTHERWISE
GND	GROUND	VERT	VERTICAL
GYP BD	Gypsum BOARD	VF	VERIFY IN FIELD
HORIZ	HORIZONTAL	VT	VINYL TILE
HR	HOUR	W	WEST
HT	HEIGHT	W/	WITH
HVAC	HEATING, VENTING & AIR CONDITIONING	W/D	WITHOUT
ID	INSIDE DIA	W/O	WITHOUT
IN	INCH	WP	WATERPROOF
INFO	INFORMATION	X	ANGLE
INSUL	INSULATION	&	AND
INT	INTERIOR	C	CENTER LINE
LB OR #	POUND(S)	E	PROPERTY LINE
MAX	MAXIMUM	@	AT
MECH	MECHANICAL	#	NUMBER

	REVISION		DETAIL REFERENCE
	DOOR NUMBER		ELEVATION REFERENCE
	ROOM NUMBER		SECTION REFERENCE
	KEYED NOTE		

ABBREVIATIONS AND SYMBOLS

NO.	DESCRIPTION
TS-1	TITLE SHEET
TS-2	PROJECT NOTES
SP-1	SITE PLAN
EL-1	EXT. ELEVATION
FP-1	FLOOR PLAN
D-1	DETAIL SHEET
D-2	DETAIL SHEET
SC-1	SPECIFICATIONS
C-1	SURVEY
E-1	ELEC SPECS
E-2	ELEC SPECS CONT
E-3	ELEC ABBR
E-4	ONE LINE DIAGRAM
E-5	GROUNDING DETAILS
E-6	ELEC DETAILS
E-7	BUS DETAIL
E-8	ELEC DETAILS
E-9	POWER SITE PLAN
E-10	GROUNDING PLAN

SHEET INDEX

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SW ENGINEERING
426 E SOUTHERN, SUITE 102
TEMPE, AZ 85282
PHONE: (480) 731-5050
FAX: (480) 731-5353

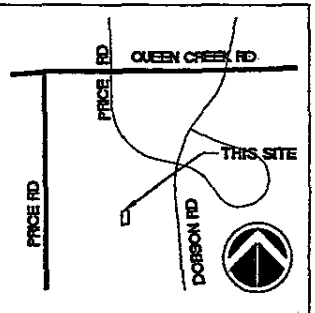
GEOTECHNICAL ENGINEER
AMMTEC CONSULTING, INC.
2447 W. 12TH ST., SUITE 1
TEMPE, AZ 85281
PHONE: (480) 927-9696
FAX: (480) 927-9797

CONSULTANT TEAM

THIS PROJECT INCLUDES:

- NEW EQUIPMENT BUILDING AND BUILDING FOUNDATION
- NEW MONOPOLE AND FOUNDATION
- NEW ELECTRICAL SERVICE
- NEW STANDBY GENERATOR AND FUEL TANK
- NEW CABLING AND SUPPORT BRIDGE
- NEW ANTENNAE AND CABLING INSTALLATION

PROJECT DESCRIPTION



VICINITY MAP

PROPERTY OWNER
CITY OF CHANDLER
25 S. ARIZONA PLAZA
CHANDLER, AZ 85225
CONTACT: DICK MCBLAINE
PHONE: (480) 782-2065

APPLICANT
MOTOROLA
3332 E. BROADWAY #102
PHOENIX, AZ 85040
CONTACT: LONNIE NICHOLS
PHONE: (602) 271-7838

CONSTRUCTION MANAGER
MOTOROLA
3332 E. BROADWAY #102
PHOENIX, AZ 85040
PHONE: (602) 271-7817
FAX: (602) 438-1608
CONTACT: MICHAEL JOHNSON
CELL: (480) 326-8309

ZONING INFORMATION

TAX PARCEL: 303-37-004M
ZONING: R-43
PARK'G REQ: 1
PARK'G PROV: 1

BUILDING CODE INFORMATION

OCCUPANT GROUP: U2 TOWER
OCCUPANT GROUP: S2 SHELTER
OCCUPANT GROUP: B STATION
OCCUPANT LOAD: 0
CONSTRUCTION TYPE: V-N
BLDG. AREA (NEW): 336 S.F.

PROJECT SUMMARY

ANTENNAE, MOUNTS & CABLING

NEW MICROWAVE ANTENNAE, MOUNTS, CABLING AND CONNECTORS WILL BE PROVIDED, INSTALLED AND VERIFIED BY A SEPARATE CONTRACT. CONTRACTOR SHALL INCLUDE IN HIS BID ALL NECESSARY COORDINATION FOR THE TIMELY COMPLETION OF THIS WORK.

NEW OMNI ANTENNAE, CABLING AND CONNECTORS WILL BE PROVIDED BY THE OWNER AND INSTALLED AND VERIFIED BY THE CONTRACTOR. MOUNTS TO BE PROVIDED & INSTALLED BY CONTRACTOR SHELTER.

TOWER

CONTRACTOR TO PROVIDE & INSTALL 100' MONOPOLE, FOUNDATION, FOUNDATION DESIGN, ERECTION & SPECIAL INSPECTION AS DEFINED BY THE OWNER.

CONTRACTOR TO ACQUIRE SEPARATE PERMIT FOR THIS WORK WITH THE CITY OF CHANDLER.

SHELTER

CONTRACTOR TO PROVIDE & INSTALL EQUIPMENT BUILDING AS FOLLOWS:

'OLDCASTLE' 11'-10"x21'-10"x9' HIGH (INSIDE) CONCRETE EQUIPMENT BUILDING,

ONE ROOM TO INCLUDE (1) GALVANIZED & PAINTED STEEL 3'-6"x1'-0" DOOR WITH STAINLESS STEEL MORTISE DEAD BOLT LOCK SET, DRIP CAP, DOOR STOP WITH HOLD-OPEN HOOK,

EXPOSED AGGREGATE (PEA GRAVEL) CONCRETE EXTERIOR FINISH,

(1) 4'x4'x3/4' TELCO BACKBOARD,

225 AMP, 3 PHASE, 120/208 VOLT ELECTRICAL SYSTEM WITH MAIN BREAKER FOR DUPLEX OUTLETS EVERY 4' ON THREE WALLS, AND (2) 4' DUAL BULB FLUORESCENT LIGHTS AS REQUIRED WITH SWITCH,

EXTERIOR 200 AMP, 3 PHASE FUSED MAIN DISCONNECT SWITCH, AND METER

EXTERIOR 225 AMP AUTO TRANSFER SWITCH,

EXTERIOR GROUND FAULT DUPLEX RECEPTACLE AT A/C LOCATION,

DUAL-HEAD EMERGENCY LIGHT WITH BATTERY PACK,

(1) STANDARD EXTERIOR LIGHT,

TRANSECTOR SYSTEMS APEX 4120 1/2" STYLE SURGE ARRESTOR,

GROUNDING TO INCLUDE #2 STRANDED (CU TINNED) HALO WITH (4) #2 STRANDED HALO DROPS THRU EXTERIOR WALL @ 6" ABOVE FLOOR,

(2) OUTSIDE, WALL MOUNT, HIGH VOLUME, 6 TON AIR CONDITIONER UNITS WITH LEAD/LAG CONTROLLER,

R1200 FIRE SUPPRESSION SYSTEM TO INCLUDE THESE ALARM DEVICES (CONTRACT CLOSURE FOR REMOTE MONITORING) FOR: HIGH/LOW TEMPERATURE, OPEN DOOR, SMOKE DETECTOR, HEAT DETECTOR, POWER FAIL,

10 LBS. DRY CHEMICAL (ABC) HAND-HELD FIRE EXTINGUISHER,

(15) 4" WAVEGUIDE ENTRY PORTS AND 34' COMBINED LINEAL FEET OF 12" WIDE CABLE TRAY,

ELECTRIC SERVICE TO BE SERIES RATED AND CABLE TRAY, DOOR AND FRAME TO BE GROUNDED

PROVIDE SEPARATE PRICE FOR A HYDROGEN DETECTION SYSTEM AND 300 CFM EXHAUST FAN (WALL MTD.) BOTH OF WHICH ACTIVATE A SHUNT TRIP IN THE BREAKER PANEL THAT WILL OPEN 3 SETS OF BREAKERS SERVING OWNER BATTERY CHARGER.

ENTIRE SHELTER TO BE CONSTRUCTED IN ACCORDANCE WITH MOTOROLA R56 STANDARD, AND CONTRACTOR TO ACQUIRE SEPARATE PERMIT FROM THE STATE OF ARIZONA FOR A PLANT MANUFACTURED BUILDING,

SHELTER PERMITTED BY THE STATE OF ARIZONA SHALL BE 1 HOUR RATED WITH NON-COMBUSTABLE EXTERIOR WALLS, 9-2 OCCUPANCY GROUP, V-N CONSTRUCTION TYPE AND WITH NO OPENINGS IN EXTERIOR WALLS WHERE THE SITE PLAN SHOWS A PROPERTY LINE WITHIN 10'-0" MEASURED PERPENDICULAR TO SUCH PROPERTY LINE.



phoenix design group
a harsco company

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DWG. DATE: 09/20/02

DRAWN BY: MAB
CHECKED BY: VEO

REVISIONS	
NO.	DATE
1	10/25/02
2	
3	
4	
5	

MOTOROLA
ASTRO25 MULTIZONE SYSTEM
800 MHz RADIO PROJECT

APPROVALS

MOTOROLA INITIALS DATE

PHOENIX INITIALS DATE

OTHER INITIALS DATE

SITE NAME

CHANDLER FIRE STATION ACADEMY

SITE ADDRESS

3550 S DOBSON ROAD
CHANDLER, AZ 85225

SHEET TITLE

MICROWAVE, ANTENNAE, TOWER, SHELTER SPECS

SHEET NUMBER

TS-2 JOB # 1140-32



phoenix design group
 a full service company

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REVISIONS

NO.	DATE	COMMENTS
1	10/25/02	PERMIT DWGS

MOTOROLA
 ASTRO25 MULTIZONE SYSTEM
 800 MHz RADIO PROJECT

APPROVALS

MOTOROLA INITIALS DATE

PHOENIX INITIALS DATE

OTHER INITIALS DATE

SITE NAME

CHANDLER FIRE STATION ACADEMY

SITE ADDRESS

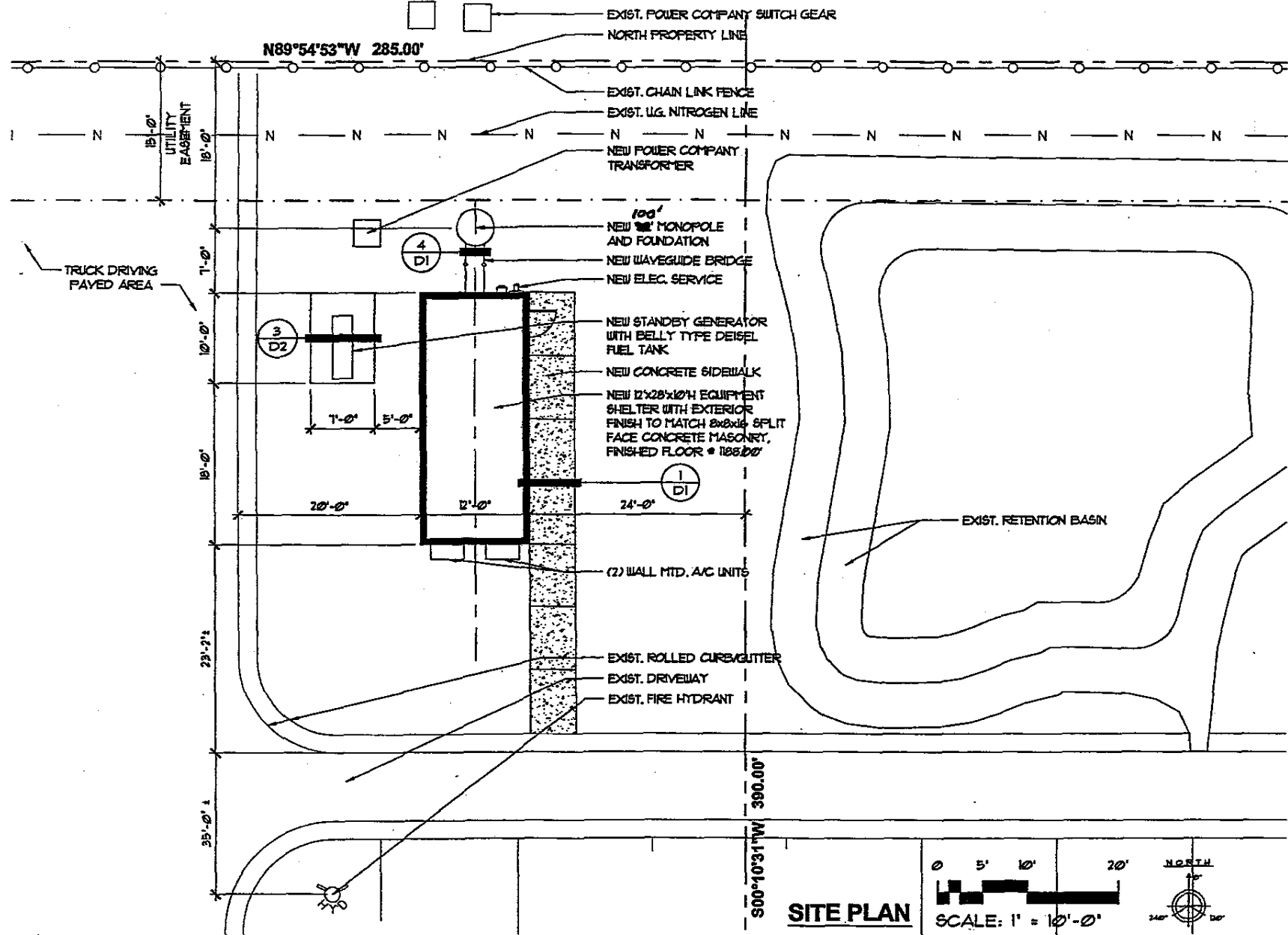
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 CHANDLER, AZ 85225**

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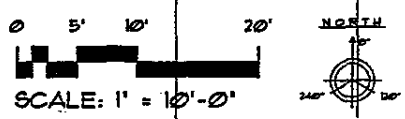
SITE PLAN

SHEET NUMBER

SP-1 JOB # 1140-32

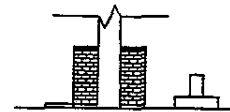


SITE PLAN

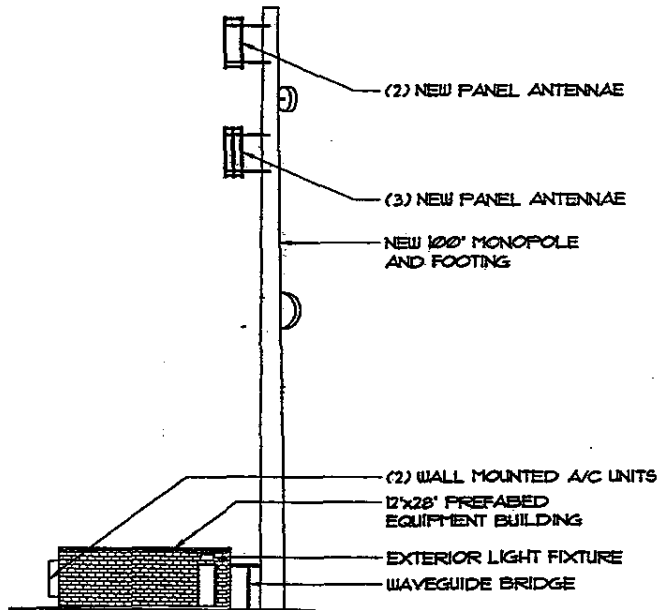




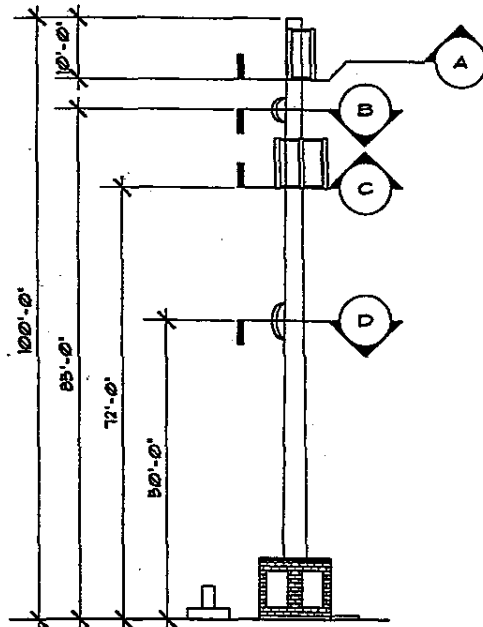
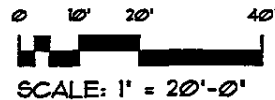
WEST ELEVATION



NORTH ELEVATION



EAST ELEVATION



SOUTH ELEVATION

(2) NEW PANEL ANTENNAE
 * AZ 160.00°
 NEW ANTENNAE MOUNT W/
 BI-BRACKET MTS' B2416,
 STRAIGHT ARM STANDOFF
 MTS' B1820, SECTOR CROSS-
 ARM MTS' B1821, AND FLAIN
 PIPE MTS' B1855

SECTION A

NEW 4+ MICROWAVE
 ANTENNAE * AZ 327.94°

SECTION B

(3) NEW PANEL ANTENNAE
 * AZ 160.00°
 NEW ANTENNAE MOUNT W/
 BI-BRACKET MTS' B2416,
 STRAIGHT ARM STANDOFF
 MTS' B1820, SECTOR CROSS-
 ARM MTS' B1821, AND FLAIN
 PIPE MTS' B1855

SECTION C

NEW 6+ MICROWAVE
 ANTENNAE * AZ 258.00°

SECTION D



PLAN DETAILS



phoenix design group
 Best Value Company

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REVISIONS	
NO.	COMMENTS
1	10/25/02 PERMIT DWGS

MOTOROLA
 ASTRO25 MULTIZONE SYSTEM
 800 MHz RADIO PROJECT

APPROVALS

MOTOROLA INITIALS DATE

PHOENIX INITIALS DATE

OTHER INITIALS DATE

SITE NAME

CHANDLER FIRE
 STATION ACADEMY

SITE ADDRESS

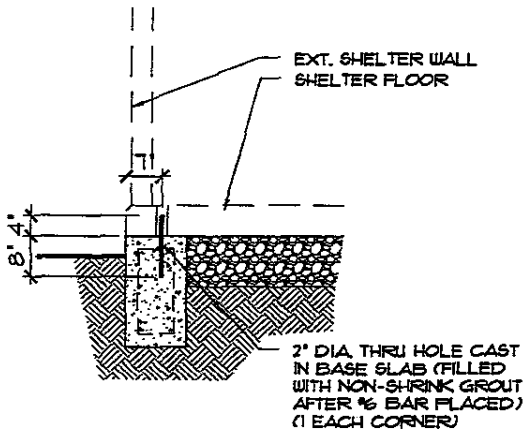
3550 S DOBSON ROAD
 CHANDLER, AZ 85225

SHEET TITLE

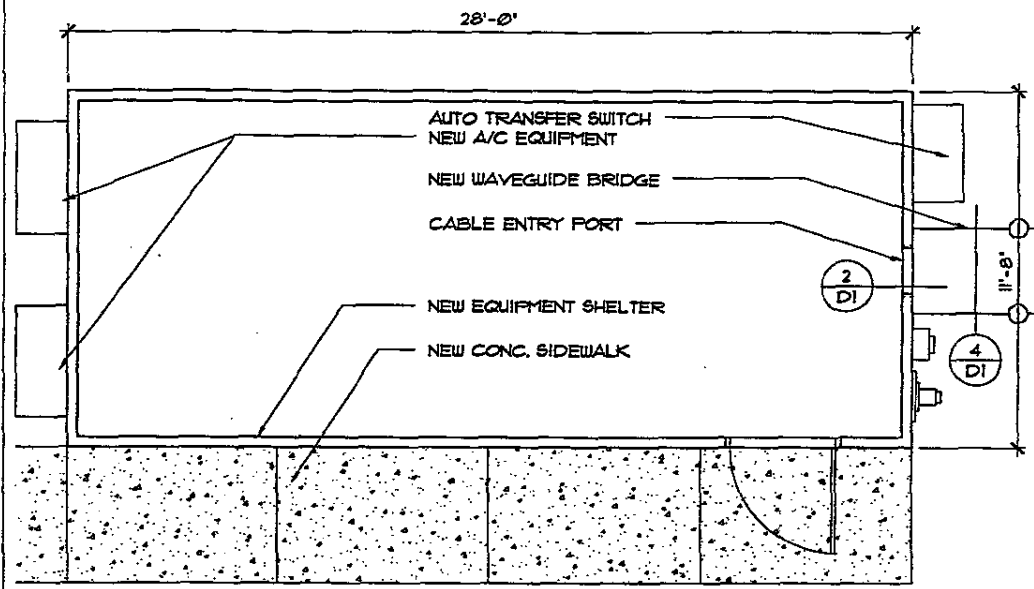
ELEVATION

SHEET NUMBER

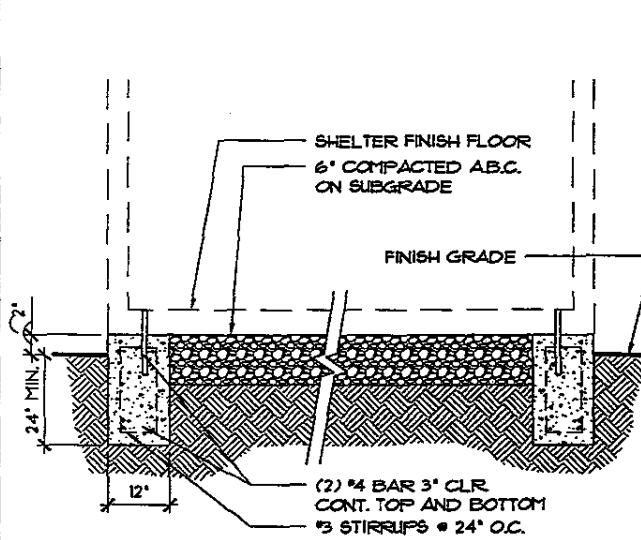
EL-1 JOB # 1140-32



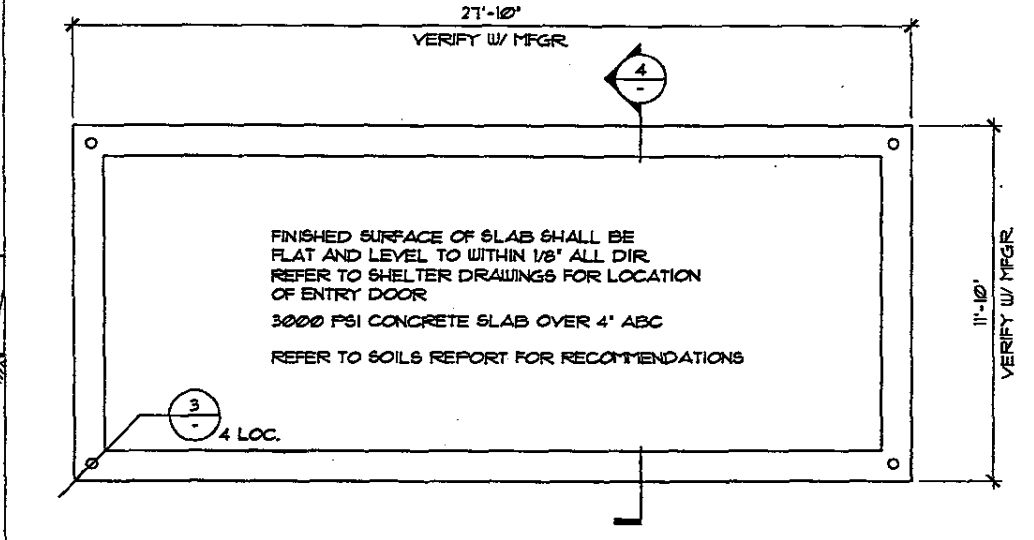
FOUNDATION TO BLDG. CONNECTION SCALE: 1" = 1'-0" 3



SHELTER FLOOR PLAN SCALE: 1/4" = 1'-0" 1



FOUNDATION DETAIL SCALE: 1/2" = 1'-0" 4



SHELTER FOUNDATION PLAN SCALE: 1/4" = 1'-0" 2



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DWG. DATE: 09/20/02

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NO.	DATE	COMMENTS
1	10/25/02	PERMIT DWGS

MOTOROLA
 ASTRO2S MULTIZONE SYSTEM
 800 MHz RADIO PROJECT

APPROVALS	
MOTOROLA INITIALS	DATE
PHOENIX INITIALS	DATE
OTHER INITIALS	DATE
SITE NAME	
CHANDLER FIRE STATION ACADEMY	
SITE ADDRESS	
3550 S DOBSON ROAD CHANDLER, AZ 85225	
SHEET TITLE	
EQUIPMENT ROOM LAYOUT	
SHEET NUMBER	

FP-1 JOB # 1140-32



phoenix design group
United Industry Company

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 CHECKED BY: VED

REVISIONS		
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MOTOROLA
 ASTRO25 MULTIZONE SYSTEM
 800 MHz RADIO PROJECT

APPROVALS

MOTOROLA INITIALS DATE

PHOENIX INITIALS DATE

OTHER INITIALS DATE

SITE NAME

CHANDLER FIRE STATION ACADEMY

SITE ADDRESS

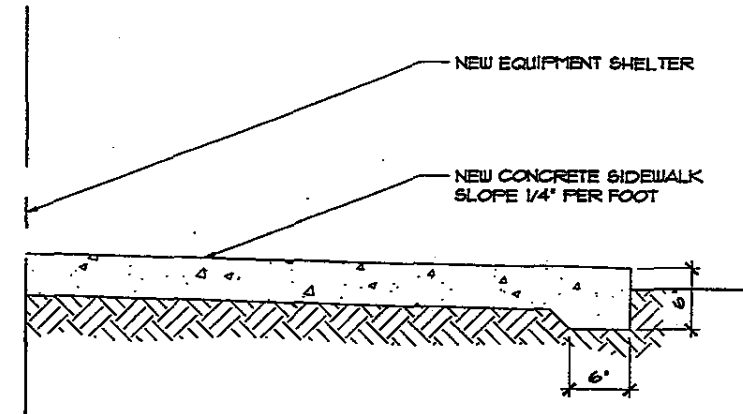
3550 S DOBSON ROAD
 CHANDLER, AZ 85225

SHEET TITLE

CONSTRUCTION DETAILS

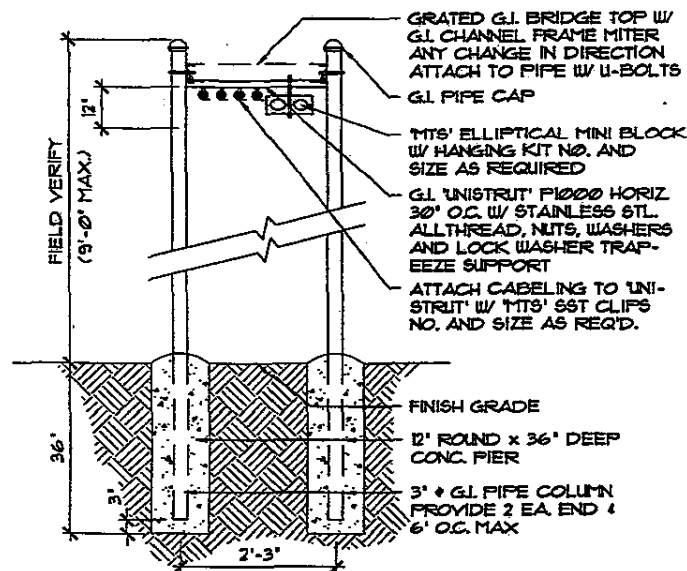
SHEET NUMBER

D-1 JOB # 1140-32

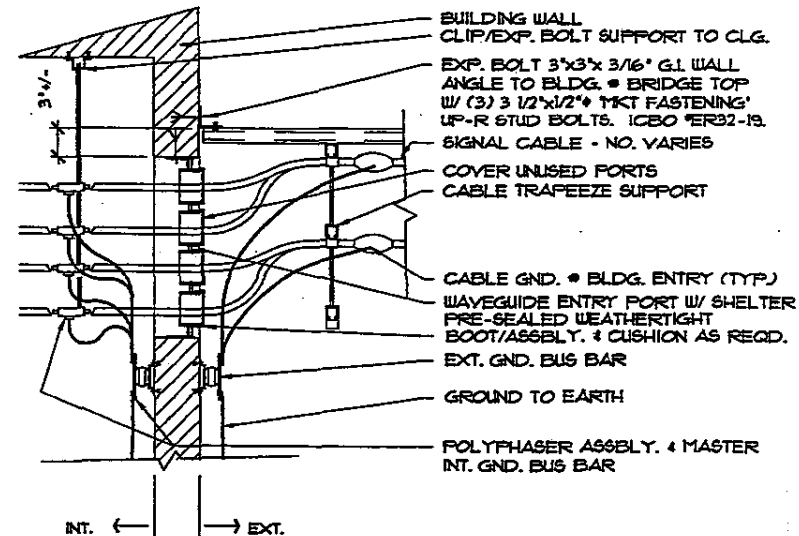


3 SIDEWALK DETAIL

1

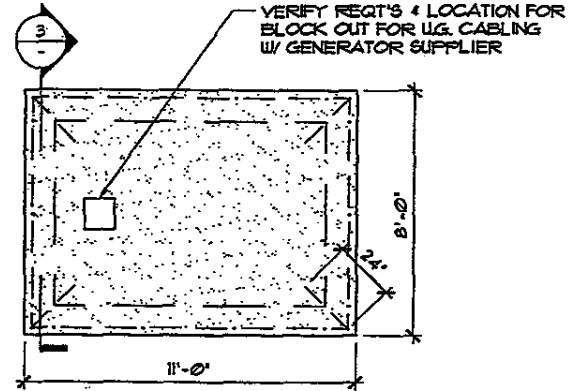
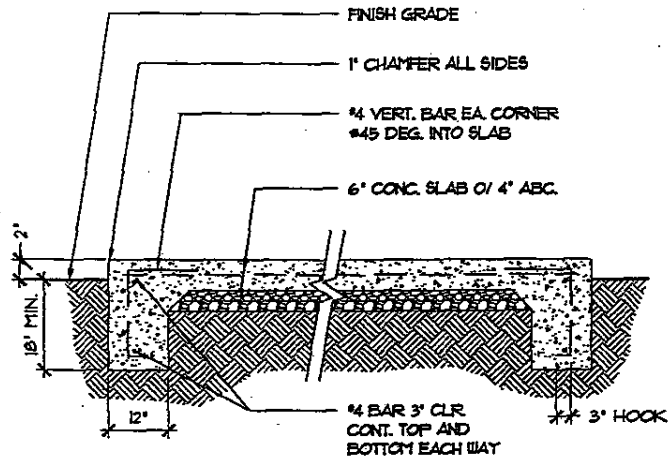


WAVEGUIDE BRIDGE



4 CABLE ENTRY PORT

2



GENERATOR FOUNDATION DETAIL

3 GENERATOR FOUNDATION



phoenix design group
Best Value Company

10245 E. VIA LINDA STE.105
SCOTTSDALE, AZ 85258
PHONE: 480-451-9773
FAX: 480-451-9246

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CHECKED BY: VED

REVISIONS		
NOL.	DATE	COMMENTS
1	10/25/02	PERMIT DWGS



MOTOROLA
ASTRO25 MULTIZONE SYSTEM
800 MHz RADIO PROJECT

APPROVALS

MOTOROLA INITIALS DATE

PHOENIX INITIALS DATE

OTHER INITIALS DATE

SITE NAME

CHANDLER FIRE STATION ACADEMY

SITE ADDRESS

3550 S DOBSON ROAD
CHANDLER, AZ 85225

SHEET TITLE

FOUNDATION PLANS

SHEET NUMBER

D-2 JOB # 1140-32

ELECTRICAL SPECIFICATIONS

I. GENERAL

- A. ALL MATERIALS SHALL BE NEW AND MUST CARRY THE UNDERWRITER'S LABORATORIES APPROVAL COVERING THE PURPOSE FOR WHICH THEY ARE USED, IN ADDITION TO MEETING ALL REQUIREMENTS OF THE CURRENT APPLICABLE CODES AND REGULATIONS.
- B. THE CURRENT EDITIONS OF THE FOLLOWING INDUSTRY STANDARDS, SPECIFICATIONS AND CODES ARE MINIMUM REQUIREMENTS:
 1. NATIONAL ELECTRICAL CODE.
 2. LOCAL CITY, STATE AND COUNTY CODE.
 3. UNDERWRITERS' LABORATORIES INCORPORATED STANDARDS.
 4. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION STANDARDS.
 5. AMERICAN STANDARDS ASSOCIATIONS.
 6. AMERICAN WITH DISABILITIES ACT.
 7. NATIONAL ENERGY POLICY ACT.
- C. GUARANTEE ALL MATERIALS AND WORKMANSHIP PROVIDED OR PERFORMED IN COMPLETION OF THIS PROJECT FOR A PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER. ANY DEFECTS IN MATERIAL OR WORKMANSHIP DEVELOPING IN THIS PERIOD SHALL BE CORRECTED AT NO EXPENSE TO THE OWNER.
- D. ALL ELECTRICAL CONDUIT, DEVICES AND EQUIPMENT ARE SHOWN DIAGRAMMATICALLY. DO NOT SCALE THE DRAWINGS. CONTRACTOR SHALL FIELD VERIFY ACTUAL LOCATIONS WITH ARCHITECT/OWNER PRIOR TO ANY ROUGH-IN.
- E. PLAN AND INSTALL WORK IN SUCH A MANNER AS TO PREVENT OBSTRUCTIONS, AND KEEP OPENINGS AND PASSAGeways CLEAR. CONSULT GENERAL CONTRACT DRAWINGS FOR CONDITIONS AFFECTING THIS WORK AND VERIFY SPACES IN WHICH WORK WILL BE INSTALLED. NOTIFY ENGINEER IMMEDIATELY OF POSSIBLE CONFLICTS. WHERE INTERFERENCE'S WITH STRUCTURAL, MECHANICAL OR OTHER FEATURES EXIST, OR WHERE JOB CONDITIONS REQUIRE REASONABLE CHANGES IN LOCATIONS AND ARRANGEMENT OF INDICATED EQUIPMENT, CONDUIT, OUTLETS OR WIRING, CONTRACTOR SHALL MAKE SUCH CHANGES WITHOUT EXTRA COST TO OWNER, ARCHITECT OR ENGINEER.
- F. FOR ANY EXISTING CIRCUIT THAT IS SHOWN TO BE EXTENDED AND/OR DISTURBED THEN REESTABLISHED IN ANY WAY, MATCH EXISTING MATERIALS IN SIZE AND TYPE.
- G. CONTRACTOR SHALL NOT INTERRUPT OR REMOVE ANY EXISTING CIRCUITS OR EQUIPMENT UNLESS NOTED OTHERWISE ON PLANS. ANY DAMAGED OR DISRUPTED CIRCUITS OR EQUIPMENT SHALL BE RESTORED TO LIKE NEW CONDITION AT NO ADDITIONAL COST TO OWNER, ARCHITECT OR ENGINEER.

- H. ALL PENETRATIONS OF FIRE-RESISTIVE FLOORS OR SHAFT WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATIONS DETAILS THAT CONFORM TO UNDERWRITERS' LABORATORIES LISTINGS FOR "THROUGH-PENETRATION FIRE STOP SYSTEMS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS DETAILS, FURNISHED BY THE MANUFACTURER OF THE FIRE STOP MATERIAL, WHICH SHOW COMPLETE CONFORMANCE TO THE UL TO THE ARCHITECT. THE DRAWINGS SHALL BE SPECIFIC FOR EACH PENETRATION, WITH ALL VARIABLES DEFINED.

II. MATERIALS.

A. RACEWAY

1. ALL CONDUCTORS SHALL BE INSTALLED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.
2. ELECTRICAL METALLIC TUBING (EMT) MAY BE USED IN STUB WALLS OR ABOVE CEILINGS. FITTINGS SHALL BE STEEL COMPRESSION OR SET SCREW TYPE WITH INSULATED THROAT CONNECTORS.
3. FLEXIBLE METAL CONDUIT SHALL BE UTILIZED FOR ALL CONNECTIONS TO VIBRATING EQUIPMENT SUCH AS MOTORS (MINIMUM OF 2'-0" - MAXIMUM OF 6'-0") AND CONNECTION TO LAY-IN TYPE LIGHT FIXTURES.
4. CONDUIT SHALL BE SIZED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE. MINIMUM SIZE SHALL BE 1/2". FACTORY FURNISHED FIXTURE FLEX TAILS MAY BE 3/8".
5. PROVIDE EXPANSION TYPE FITTINGS FOR ALL CONDUITS WHICH CROSS EXPANSION JOINTS.

B. CONDUCTORS

1. ALL WIRE SHALL BE THHN/THWN OR XHHW INSULATIONS. MINIMUM SIZE SHALL BE #12 AWG, COPPER.
2. FOLLOWING COLOR CODING SHALL BE UTILIZED.

120/208V

PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAL	WHITE
GROUND	GREEN

3. ALL BARE GROUND CONDUCTORS SHALL BE COPPER.

CONTINUED ON SHT. E-2



phoenix design group
an electrical company

10245 E. VIA LINDA STE. 105
 SCOTTSDALE, AZ. 85258
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REVISIONS

NO.	DATE	COMMENTS
1	10/25/02	PERMIT DWGS
2		
3		
4		
5		

MOTOROLA
ASTRO25 MULTIZONE SYSTEM
800 MHz RADIO PROJECT

APPROVALS

MOTOROLA INITIALS DATE

PHOENIX INITIALS DATE

OTHER INITIALS DATE

SITE NAME

CHANDLER FIRE STATION ACADEMY

SITE ADDRESS

3550 S DOBSON ROAD
 CHANDLER, AZ 85225

SHEET TITLE

ELECTRICAL SPECIFICATIONS
 HOT SPRINGS ROAD

SHEET NUMBER

E-1 JOB # 1140-32

SW ENGINEERING, INC.
 ELECTRICAL CONSULTANTS
 Designer: D. WATSON
 Job # 02316
 436 E. SOUTHERN AVE. SUITE 102
 TEMPE, AZ 85282
 PH (480) 731-9080 FAX (480) 731-3333
 E-Mail: MAL@SWENGINET

ELECTRICAL SPECIFICATIONS CONTINUED

III. EXECUTION

- A. WORK SHALL BE PERFORMED BY SKILLED CRAFTSMEN IN ACCORDANCE WITH ALL ORDINANCES AND REGULATIONS. CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY PERMITS AND LICENSES. INCLUDE ALLOWANCE OF \$2500.00 (TWO-THOUSAND FIVE HUNDRED DOLLARS) FOR ELECTRIC COMPANY DESIGN CHARGES.
- B. COOPERATE WITH OTHER TRADES SO THAT THE INSTALLATION OF THE ELECTRICAL OUTLETS AND EQUIPMENT WILL BE PROPERLY COORDINATED. CONDUIT, FIXTURES, AND OTHER EQUIPMENT LOCATIONS SHALL BE CHECKED WITH OTHER TRADES TO AVOID CONFLICT WITH PIPING, DUCTWORK, STEEL, BEAMS, OR OTHER OBSTRUCTIONS.
- C. ALL EXPOSED CONDUIT (INCLUDING CONDUIT INSTALLED IN CEILING PLENUMS) SHALL BE ROUTED PARALLEL OR PERPENDICULAR WITH THE BUILDING WALLS. SUPPORT CONDUIT AS REQUIRED BY THE NATIONAL ELECTRICAL CODE.
- D. FURNISH AND INSTALL ALL ELECTRICAL WIRING, RACEWAYS, OUTLET AND JUNCTION BOXES, MOTOR STARTERS, DISCONNECT AND CONTROLS FOR EQUIPMENT FURNISHED UNDER OTHER SECTIONS, UNLESS NOTED OTHERWISE.

IV. EMERGENCY POWER SUPPLY

- A. GENERATOR SHALL BE 50KW, 120/208V., 3Ø, 4W 60HZ DIESEL FUELED SYSTEM WITH AN IN FRAME FUEL CELL 500 GALLON UL 142 TANK FILLED WITH #2 DIESEL FUEL.
- B. GENERATOR SHALL COMPLY WITH ALL NEMA, IEEE, ANSI AND ISO 8528-5 STANDARDS FOR TEMPERATURE RISE, ELEVATION AND PERFORMANCE.
- C. GENERATOR RATINGS:
 1. STARTING VOLTAGE: 12VDC
 2. OUTPUT POWER: 50KW AT 0.8 POWER FACTOR.
 3. OUTPUT VOLTAGE: 120/208 VOLTS +/- 1 5% THREE PHASE.
 4. INVERTER OUTPUT FREQUENCY: 60 HZ +/- 1 PERCENT.
 5. EFFICIENCY: 90 PERCENT MINIMUM.
 6. INSTRUMENTATION AND ALARMS: NFPA 110A.
- D. REMOTE TROUBLE MONITOR
 1. INSTRUMENTATION AND ALARMS: NFPA 110A.
 2. ENCLOSURE: (SURFACE) MOUNTED WITH FINISH.
- E. THE GENERATOR SHALL COMPLY WITH THE FOLLOWING.
 1. NFPA 70 - NATIONAL ELECTRIC CODE, INCLUDING USE IN EMERGENCY AND STANDBY SYSTEMS IN ACCORDANCE WITH ARTICLE 701.

H. ACCESSORIES

1. EXHAUST SILENCER, RESIDENTIAL WITH HOUSING MOUNTING KIT.
 2. TAIL PIPE & RAIN CAP KIT.
 3. WEATHER PROOF HOUSING (NEMA 3R ENCLOSURE).
 4. FLEXIBLE FUEL LINES.
 5. FUEL PRESSURE GAUGE.
 6. BATTERY (LEAD ACID).
 7. BATTERY CHARGER. (EQUALIZE / FLOAT TYPE).
 8. AIR CLEANER (HEAVY DUTY).
 9. LINE CIRCUIT BREAKER WITH SHUNT TRIP (NEMA 3R ENCLOSURE).
 10. REMOTE AUDIO / VISUAL ALARM PANEL.
 11. AUTOMATIC DIALER FOR OFF SITE NOTIFICATION OF GENERATOR STATUS.
- G. GENERATOR SHALL BE SIMILAR TO KOHLER MODEL #50REOZJB OR APPROVED EQUAL.

V. AUTOMATIC TRANSFER SWITCH

- A. THE TRANSFER SWITCH SHALL BE MOUNTED IN A NEMA 3R ENCLOSURE FOR MOUNTING REMOTE FROM THE ENGINE GENERATOR.
- B. AUTOMATIC TRANSFER SWITCH (ATS) SHALL BE A 225 AMPS/ 3 POLE. 120/208 VOLTS, 3Ø, 4W AND SHALL INCLUDE DOUBLE THROW POWER TRANSFER SWITCH UNIT AND A CONTROL MODULE INTERCONNECTED TO PROVIDE COMPLETE AUTOMATIC OPERATION. THE CONTACT TRANSFER TIME IN EITHER DIRECTION SHALL NOT EXCEED ONE SIXTH (1/6) OF A SECOND.
- C. THE ATS SHALL COMPLY WITH THE FOLLOWING:
 1. UL 1008 - STANDARD FOR AUTOMATIC TRANSFER SWITCHES.
 2. NFPA 70 - NATIONAL ELECTRICAL CODE, INCLUDING USE IN EMERGENCY AND STANDBY SYSTEMS IN ACCORDANCE WITH ARTICLE 701.
 3. NFPA 110 - STANDARD FOR EMERGENCY AND STANDBY POWER SYSTEMS.
 4. NEMA STANDARD 1CS-2-447 - AC AUTOMATIC TRANSFER SWITCHES.
 5. IEC - STANDARD AUTOMATIC TRANSFER SWITCHES.
 6. THE CONTROL PANEL SHALL MEET OR EXCEED THE VOLTAGE SURGE WITHSTAND CAPABILITY IN ACCORDANCE WITH IEEE STANDARD 472-1974 (ANSI C37, 90a-1974) AND THE IMPULSE WITHSTAND VOLTAGE TEST IN ACCORDANCE WITH THE PROPOSED NEMA STANDARD IC 1-109.
- D. AUTOMATIC TRANSFER SWITCH SHALL BE OF THE SAME MANUFACTURE AS THE EMERGENCY GENERATOR. ATS SHALL BE SIMILAR TO KOHLER MODEL: KCT-ACTC-0225-S OR APPROVED EQUAL.

phoenix design group
 10245 E. VIA LINDA, STE. 105
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DRAWN BY: MAB
 CHECKED BY: VEO

NO.	DATE	COMMENTS
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MOTOROLA
 ASTRO25 MULTIZONE SYSTEM
 800 MHz RADIO PROJECT

APPROVALS

MOTOROLA INITIALS DATE

PHOENIX INITIALS DATE

OTHER INITIALS DATE

SITE NAME

CHANDLER FIRE STATION ACADEMY

SITE ADDRESS

3550 S DOBSON ROAD
 CHANDLER, AZ 85225

SHEET TITLE





ELECTRICAL SPECIFICATIONS CONTINUED

SHEET NUMBER

E-2 JOB# 1140-32

SW ENGINEERING, INC.
 ELECTRICAL CONSULTANTS
 Designer: D. WATSON
 Job # 02316
 480 C. MARSHALL AVE. SUITE 100
 TEMPE, AZ 85284
 PHONE: 480-831-1111 FAX: 480-831-1112
 WWW: WWW.SWENGINEERING.COM

ELECTRICAL SYMBOLS

- (M) KWH METER
-  SWITCH SIZE AND NUMBER OF POLES INDICATED
I.E. 100A/3 POLE.
-  FUSE SIZE AND TYPE INDICATED
-  CIRCUIT BREAKER SIZE AND NUMBER OF POLES
INDICATED, I.E. 100A/3 POLE.
-  GROUND

ABBREVIATIONS

- A AMPERE
- AFC AVAILABLE FAULT CURRENT
- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- AIC AMPERE INTERRUPTING CAPACITY
- APS ARIZONA PUBLIC SERVICE
- ATS AUTOMATIC TRANSFER SWITCH
- AL ALUMINUM
- C CONDUIT
- CB CIRCUIT BREAKER
- CKT CIRCUIT
- CT CURRENT TRANSFORMER
- CU COPPER
- CWB COLD WATER BOND
- DISC DISCONNECT SWITCH
- DN DOWN
- EC EMPTY CONDUIT
- EDF ELECTRIC DRINKING FOUNTAIN
- EF EXHAUST FAN
- FBO FURNISHED BY OWNER, INSTALLED
BY ELECTRICAL CONTRACTOR
- GF GROUND FAULT CIRCUIT INTERRUPTER
- GND GROUND
- G GROUND
- J.B. JUNCTION BOX
- KAIC KILO AMPERE INTERRUPTING CAPACITY
- KVA KILOVOLT AMPERE
- KW KILOWATT
- KHW KILOWATT HOUR
- LTG LIGHTING
- MFR MANUFACTURER
- MBJ MAIN BONDING JUMPER
- MH MANHOLE
- MTD MOUNTED
- N NEUTRAL
- NF NON-FUSED
- NL NIGHT LIGHT
- P POLE
- PNL PANEL
- SCH SCHEDULE
- SES SERVICE ENTRANCE SWITCHBOARD
- SRP SALT RIVER PROJECT
- SW SWITCH
- SWBD SWITCHBOARD
- UC UNDER COUNTER
- UNO UNLESS NOTED OTHERWISE
- VP VANDAL PROOF
- WH WATER HEATER
- WP WEATHERPROOF
- X EXISTING TO REMAIN
- XFMR TRANSFORMER
- XR EXISTING TO BE REMOVED
- XRR EXISTING TO BE REMOVED AND
RELOCATED.
- Ø PHASE



phoenix design group
Electrical Specialty Company

10245 E. VA LINDA STE.105
 SCOTTSDALE, AZ 85258
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 FAX: 480-451-8246

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NO.	DATE
1	10/25/02 PERMIT DWGS



MOTOROLA
 ASTRO25 MULTIZONE SYSTEM
 800 MHz RADIO PROJECT

APPROVALS

MOTOROLA INITIALS DATE

PHOENIX INITIALS DATE

OTHER INITIALS DATE

SITE NAME

**CHANDLER FIRE
 STATION ACADEMY**

SITE ADDRESS

**3550 S DOBSON ROAD
 CHANDLER, AZ 85225**

SHEET TITLE

**ELECTRICAL
 SYMBOLS &
 ABBREVIATIONS**

SHEET NUMBER

E-3 JOB # 1140-32



SW ENGINEERING, INC.
 ELECTRICAL CONTRACTORS

David G. Watson
 License No. 31172
 State of Arizona

200A, 120/208V, 3 ϕ , 4W,
NEMA 3R METER SOCKET PER
POWER CO. REQUIREMENTS.
OBTAIN APPROVAL PRIOR
TO ORDERING.

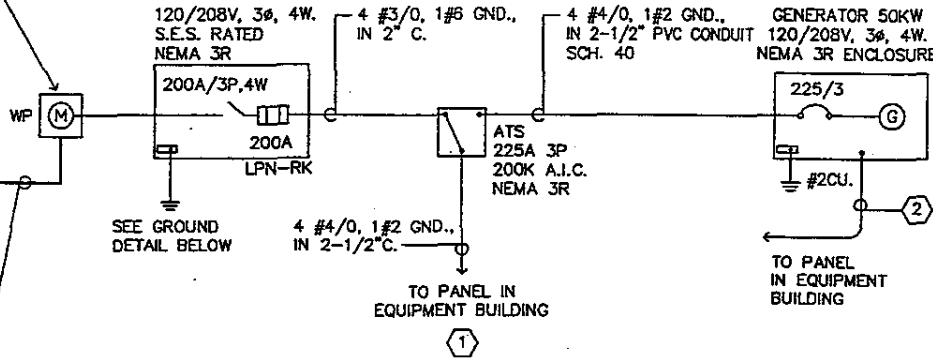
AVAILABLE FAULT CURRENT =
14,000 RMS SYM. AMPERES.

POWER CO.
PAD-MOUNT
TRANSFORMER

CONCRETE PAD
PER POWER CO.
REQUIREMENTS

4" PRIMARY POWER
CONDUIT, TRENCH, AND
BACKFILL PER POWER CO.
REQUIREMENTS. VERIFY
SIZE, ROUTING, & ALL
REQUIREMENTS WITH
POWER CO.

3" SECONDARY POWER
CONDUIT, TRENCH, AND
BACKFILL PER POWER CO.
REQUIREMENTS. VERIFY
SIZE, ROUTING, & ALL
REQUIREMENTS WITH
POWER CO.



ONE LINE DIAGRAM

N.T.S.

NOTE:
ALL EQUIPMENT SHALL BE
RATED FOR MINIMUM 14,000 A.I.C.

KEYED NOTES:

- ① DISTRIBUTION PANEL PROVIDED BY BUILDING MANUFACTURER SHALL BE RATED AT 10,000 AIC, 225A. 120/208V, 3 ϕ , 4W.
- ② 4#12, 1#12 GND., 1/2" C FOR BATTERY CHARGER, JACKET, WATER HEATER AND CONTROL CIRCUIT. ROUTE TO BUILDING EQUIPMENT PANEL. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL THREE 20/1, CBS OF SAME MANUFACTURE, STYLE AND A.I.C. RATING AS PANEL (FIELD VERIFY) E.C. TO MAKE FINAL CONNECTION.

Professional Engineer (Electrical)
CERTIFICATE NO.
 31172
DAVID C. WATSON
 09-22-02
 State of Arizona
 Phoenix, AZ

phoenix design group
 electrical engineering

10245 E. VIA LINDA, STE. 105
 SCOTTSDALE, AZ 85258
 PHONE: 480-451-3773
 FAX: 480-451-9246

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MOTOROLA

ASTRO25 MULTIZONE SYSTEM
800 MHz RADIO PROJECT

APPROVALS

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PHOENIX INITIALS DATE

OTHER INITIALS DATE

SITE NAME

CHANDLER FIRE STATION ACADEMY

SITE ADDRESS

**3550 S DOBSON ROAD
 CHANDLER, AZ 85225**

SHEET TITLE

ELECTRICAL ONE-LINE DIAGRAM

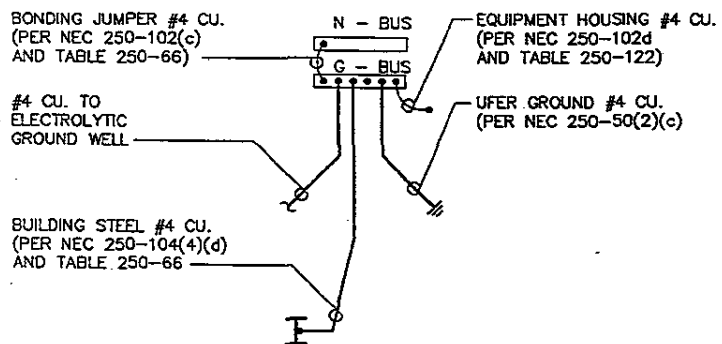
SHEET NUMBER

E-4 JOB # 1140-32

SW ENGINEERING, INC.
 ELECTRICAL ENGINEERING
 1000 W. WASHINGTON
 CHANDLER, AZ 85225
 PHONE: 480-948-8888
 FAX: 480-948-8889

LOAD CALCULATION:

GENERAL RECEPTACLES - 336 S.F. @ 2.0VA/S.F.	x 100%	=	672 VA
GENERAL LIGHTING - 336 S.F. @ 3.0VA/S.F.	x 125%	=	1210 VA
MOTOROLA EQUIPMENT (PER PDG)	x 100%	=	5400 VA
LARGEST A/C UNIT (40.0 AMPS EST.)	x 125%	=	18000 VA
REMAINING A/C UNIT (40.0AMPS EST.)	x 100%	=	14400 VA
TOTAL		=	39682 VA
+(208V x $\sqrt{3}$)		=	110.2 AMPS



GROUNDING DETAIL

N.T.S.

phoenix design group

 10245 E. VA LINDA, SITE 105

 SCOTTSDALE, AZ 85258

 PHONE: 480-451-3773

 FAX: 480-451-9246

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REVISIONS	
NO.	DATE
1	10/25/02
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MOTOROLA

 ASTRO25 MULTITONE SYSTEM

 800 MHz RADIO PROJECT

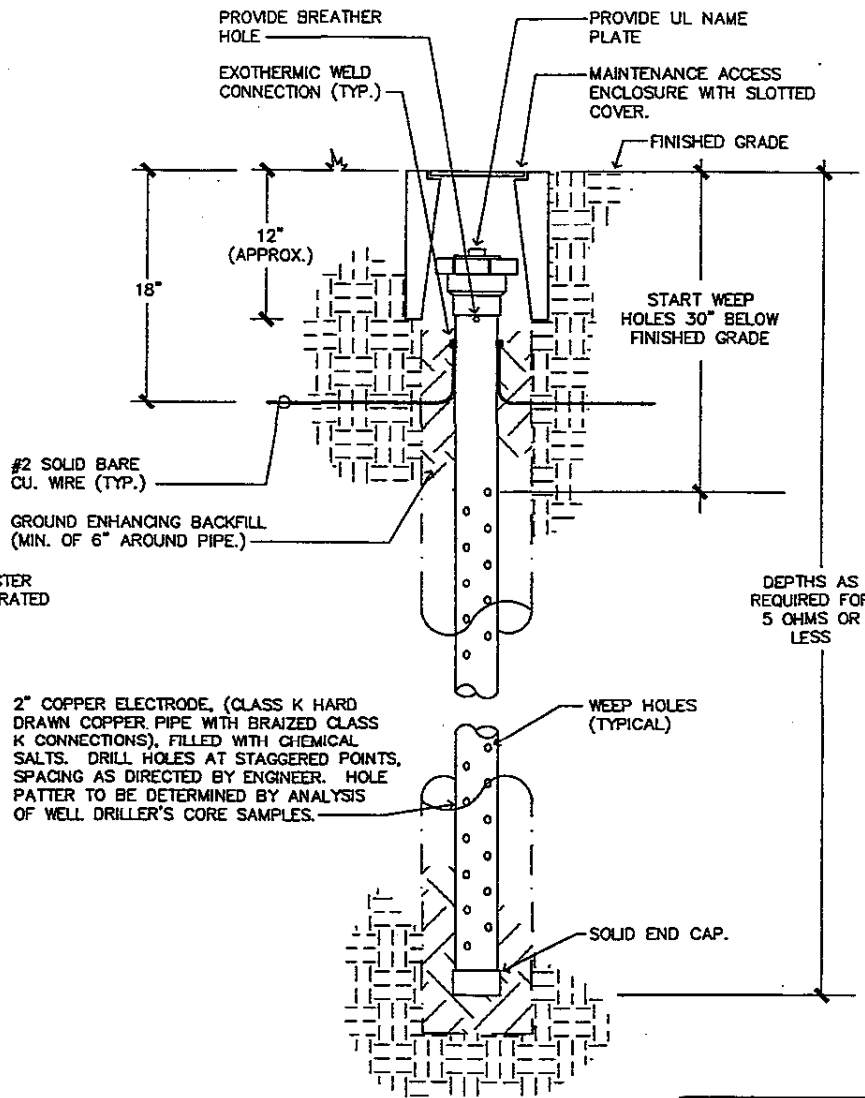
APPROVALS

MOTOROLA INITIALS	DATE
PHOENIX INITIALS	DATE
OTHER INITIALS	DATE
SITE NAME	
CHANDLER FIRE STATION ACADEMY	
SITE ADDRESS	
3550 S DOBSON ROAD	
CHANDLER, AZ 85225	

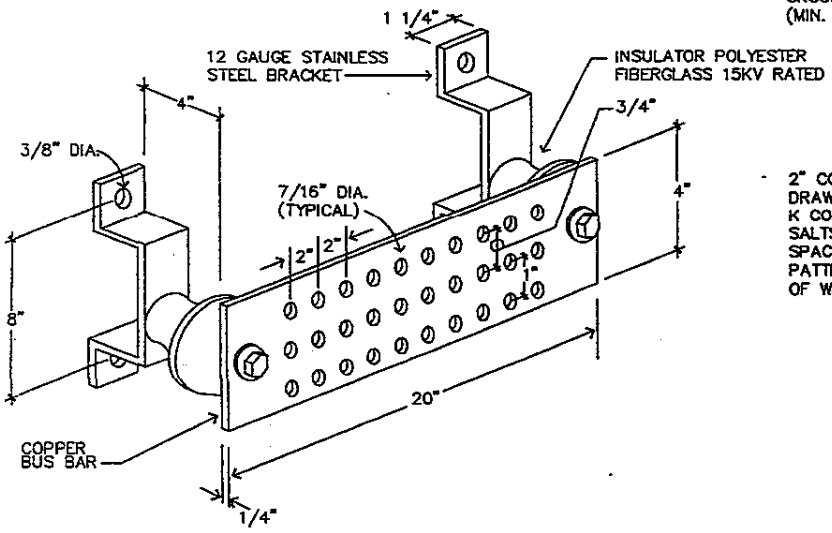
SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
E-5

JOB # 1140-32

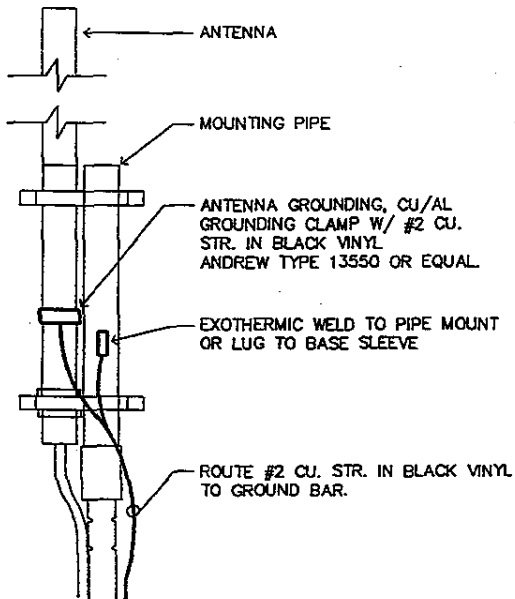


ELECTROLYTIC GROUNDING DETAIL
 N.T.S.



EXTERNAL GROUND BUS DETAIL
 N.T.S.

SW ENGINEERING, INC.
 LICENSED PROFESSIONAL ENGINEERS
 DESIGNER: D. WATSON
 JOB # 02316
 400 E. WASHINGTON AVE. SUITE 100
 TOLSON, AZ 85201
 PH: 480-451-3773 FAX: 480-451-9246
 WWW.SWENGINEERING.COM

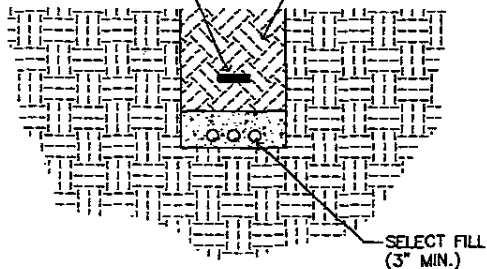


ANTENNAE GROUNDING

N.T.S.

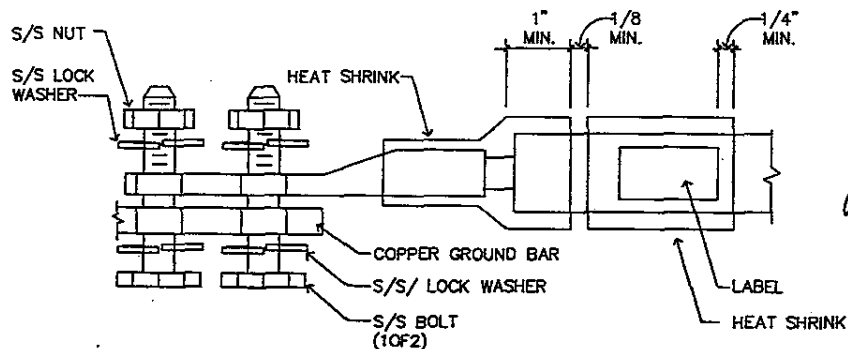
PROVIDE PANDUIT UNDERGROUND HAZARD TAPE - "CAUTION - ELECTRIC LINE BURIED BELOW" AT 12" ABOVE CONDUIT FOR THE ENTIRE LENGTH OF THE CONDUIT RUN.

NOTE: CONTRACTOR SHALL BACK FILL TRENCH IN 12" MAX. COMPACTED LIFTS AND SHALL OBTAIN A MIN. 95% MODIFIED PROCTOR COMPACTION ON LIFTS.



TRENCHING DETAIL

N.T.S.

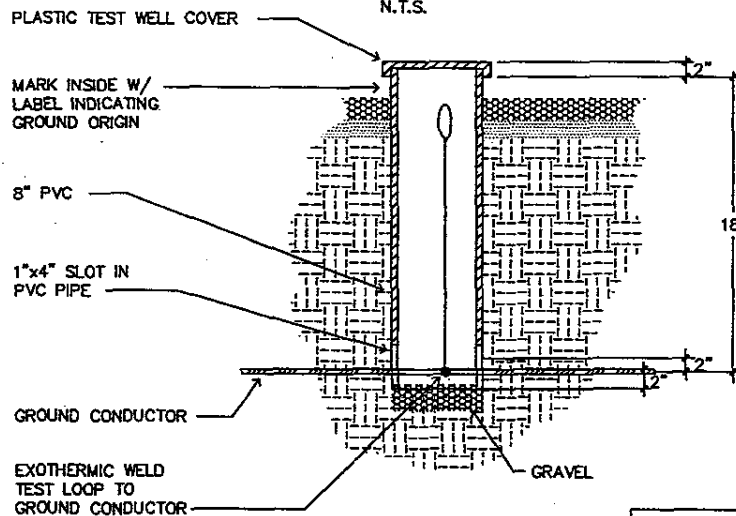


NOTES:

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

LUG DETAIL

N.T.S.



GROUND TEST WELL DETAIL

N.T.S.

S.W. ENGINEERING, Inc.
 ELECTRICAL DIVISION
 Designer: D. WATSON
 Job # 02316
 40 E. SPRING AVE. SUITE 100
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Registered Professional Engineer (Electrical)
 31172
 DAVID G. WATSON
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NO.	DATE	COMMENTS
1	10/25/02	PERMIT DWGS

MOTOROLA
 ASTRO25 MULTIZONE SYSTEM
 800 MHz RADIO PROJECT

APPROVALS

MOTOROLA INITIALS DATE

PHOENIX INITIALS DATE

OTHER INITIALS DATE

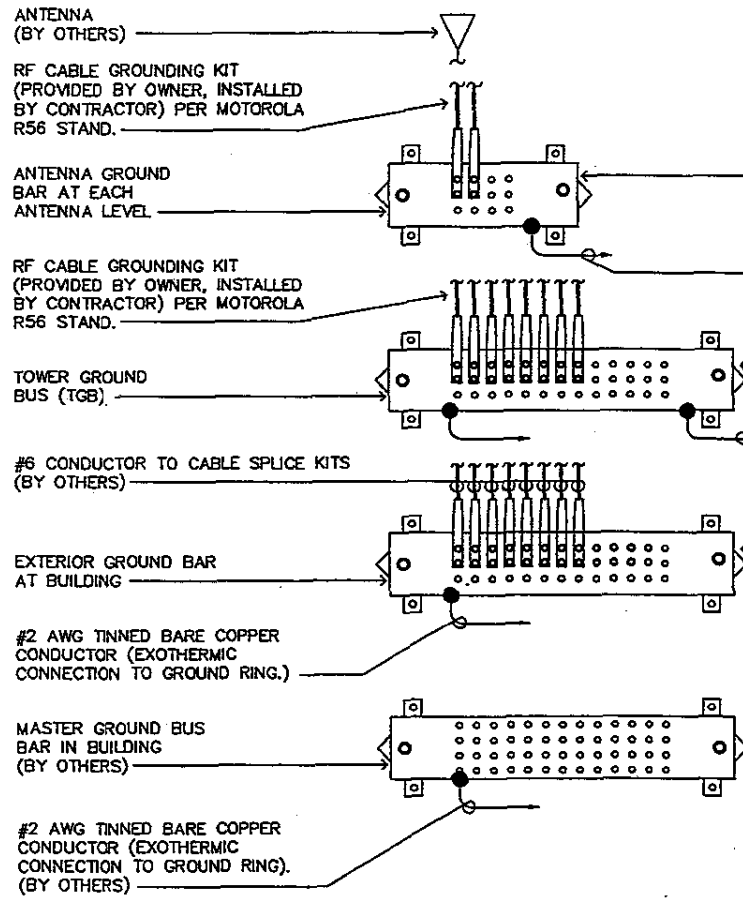
SITE NAME
CHANDLER FIRE STATION ACADEMY

SITE ADDRESS
**3550 S DOBSON ROAD
 CHANDLER, AZ 85225**

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER

E-6 JOB # 1140-32



NOTE:
RF CABLE TO BE GROUNDED AT
GROUND BAR AT TOWER TOP AND
GROUND BAR AT TOWER BASE.
(BY OTHERS)

NOTE:
ALL GROUND LEADS SHALL BE #2 AWG WITH
2 HOLE, LONG BARREL, CONNECTIONS.

GROUNDING BUS DETAIL
N.T.S.

phoenix design group
 10245 E. VIA LINDA STE. 105
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REVISIONS

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MOTOROLA
 ASTRO25 MULTIZONE SYSTEM
 800 MHz RADIO PROJECT

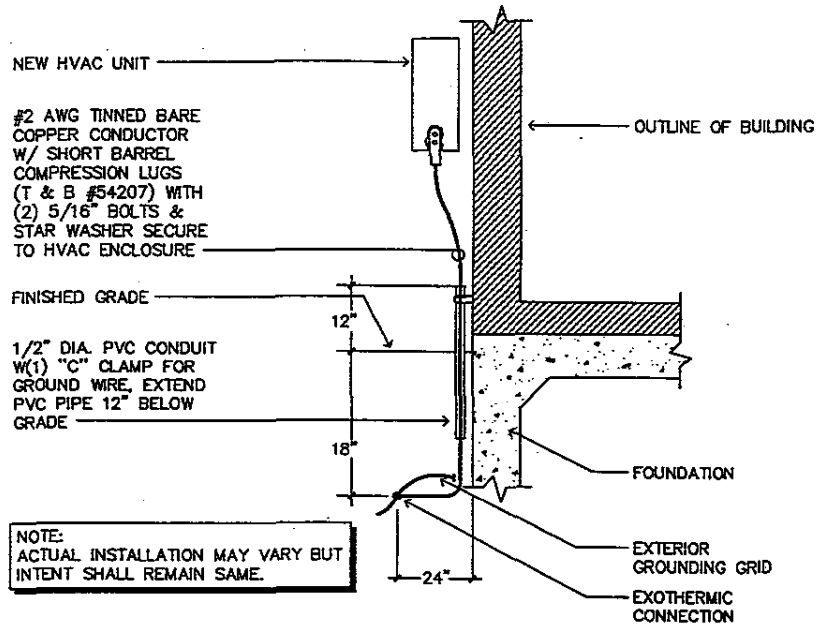
APPROVALS

MOTOROLA INITIALS	DATE
PHOENIX INITIALS	DATE
OTHER INITIALS	DATE
SITE NAME	
CHANDLER FIRE STATION ACADEMY	
SITE ADDRESS	
3550 S DOBSON ROAD CHANDLER, AZ 85225	

SW Engineering, Inc.
 LICENSED ELECTRICAL ENGINEERS
 1001 N. CENTRAL AVENUE, SUITE 100
 CHANDLER, AZ 85225
 PHONE: 480-948-8888
 FAX: 480-948-8889

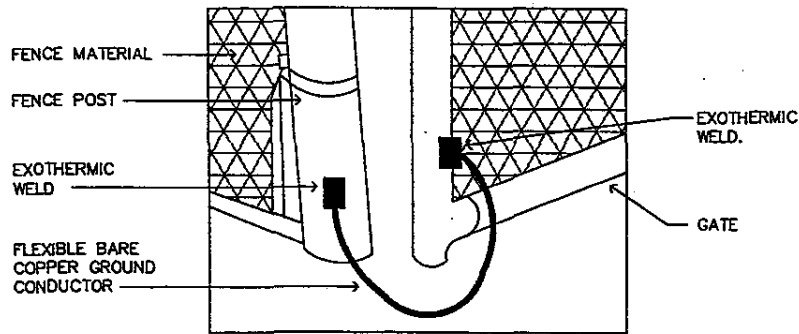
SHEET TITLE
GROUNDING BUS DETAIL

SHEET NUMBER
E-7 JOB # 1140-32



TYPICAL HVAC GROUNDING

N.T.S.



GATE BONDING

N.T.S.

phoenix design group
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 SCOTTSDALE, AZ 85268
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 FAX: 480-451-9246

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SITE NAME

CHANDLER FIRE STATION ACADEMY

SITE ADDRESS

**3550 S DOBSON ROAD
CHANDLER, AZ 85225**

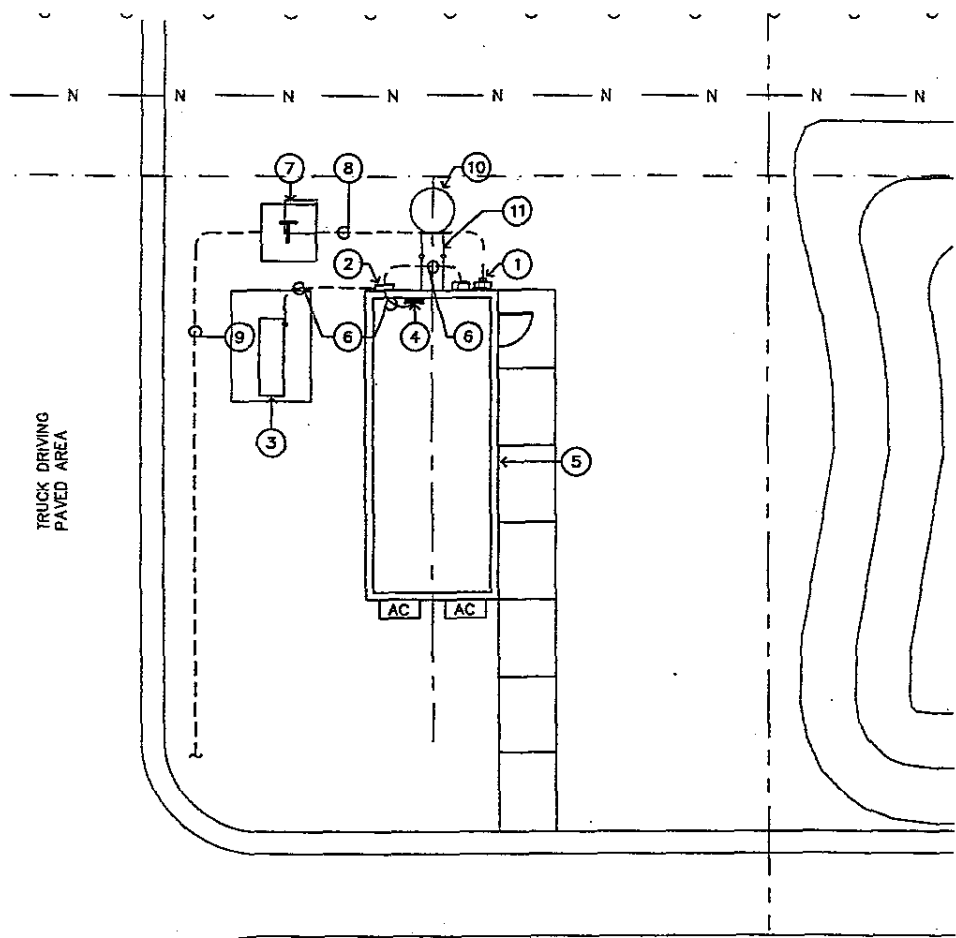
SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E-8 JOB # 1140-32

SW ENGINEERING, INC.
 ELECTRICAL CONSULTANTS
 Designated: D. WATSON
 340 W. 92316
 400 E. WASHINGTON AVE., SUITE 100
 CHANDLER, AZ 85225
 (480) 948-8888 (480) 948-8889
 FAX: (480) 948-8888 WWW.SWENGINEERING.COM



TRUCK DRIVING
PAVED AREA

ELECTRICAL POWER SITE PLAN

SCALE: 1" = 10'-0"

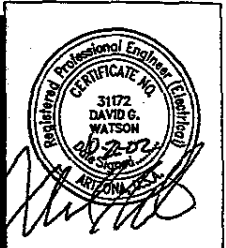


KEYED NOTES

- ① 200A. METER AND S.E. EQUIPMENT RATED DISCONNECT SWITCH, NEMA 3R.
- ② 225A. AUTOMATIC TRANSFER SWITCH, NEMA 3R.
- ③ EMERGENCY GENERATOR AND FUEL TANK, 50 KW, 120/208V., 3ø, 4W, NEMA-3R.
- ④ FINAL CONNECTION TO PANEL IN BUILDING BY OTHERS.
- ⑤ NEW EQUIPMENT SHELTER.
- ⑥ SEE ONE LINE DIAGRAM, SHEET E-4 FOR SIZES.
- ⑦ NEW POWER COMPANY PAD MOUNTED TRANSFORMER. VERIFY EXACT LOCATION.
- ⑧ NEW SECONDARY POWER CONDUIT, TRENCH, AND BACKFILL PER POWER CO. REQUIREMENTS. SEE ONE-LINE DIAGRAM SHEET E-4.
- ⑨ NEW PRIMARY POWER CONDUIT, TRENCH, AND BACKFILL PER POWER CO. REQUIREMENTS. SEE ONE-LINE DIAGRAM SHEET E-4.
- ⑩ NEW 90' MONOPOLE.
- ⑪ NEW WAVEGUIDE BRIDGE.

POWER NOTES

1. ELECTRICAL CONTRACTOR SHALL CONTACT SRP REGARDING EXACT LOCATION OF ALL PRIMARY SERVICE EQUIPMENT, TRENCH LOCATIONS, TRANSFORMER LOCATION, METER LOCATION, ETC.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE NECESSARY SECONDARY CONDUCTORS, POWER TRENCHING, BACKFILL, CONCRETE PADS FOR TRANSFORMERS AND SERVICE EQUIPMENT AND CONDUIT STUBS INTO TRENCH AS REQUIRED BY APS AND TO THEIR SPECIFICATIONS.
3. ALL WIRING SHALL BE COPPER UNLESS NOTED OTHERWISE. INSULATION SHALL BE TYPE "XHHW" OR "THHN/THWN".
4. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION AND COMPLIANCE WITH THE UTILITY COMPANY'S REQUIREMENTS. WITH-IN TWO WEEKS AFTER AWARD OF CONTRACT, SUBMIT (2) COMPLETE SETS OF PLANS, INCLUDING PLOT OF SURVEY, TO UTILITY COMPANY FOR COORDINATION. ROUTING OF INCOMING POWER SHOWN ARE FOR ESTIMATING PURPOSES ONLY. ACTUAL ROUTING, CONDUIT, TRENCH, AND PAD REQUIREMENTS SHALL BE AS SPECIFIED BY THE BY THE UTILITY COMPANY. CONFIRM ALL REQUIREMENTS WITH UTILITIES PRIOR TO INSTALLATION.



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DWG. DATE: 09/20/02

DRAWN BY: MAB
 CHECKED BY: YED

REVISIONS		
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MOTOROLA
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OTHER INITIALS DATE

SITE NAME

CHANDLER FIRE STATION ACADEMY

SITE ADDRESS

3550 S DOBSON ROAD
 CHANDLER, AZ 85225

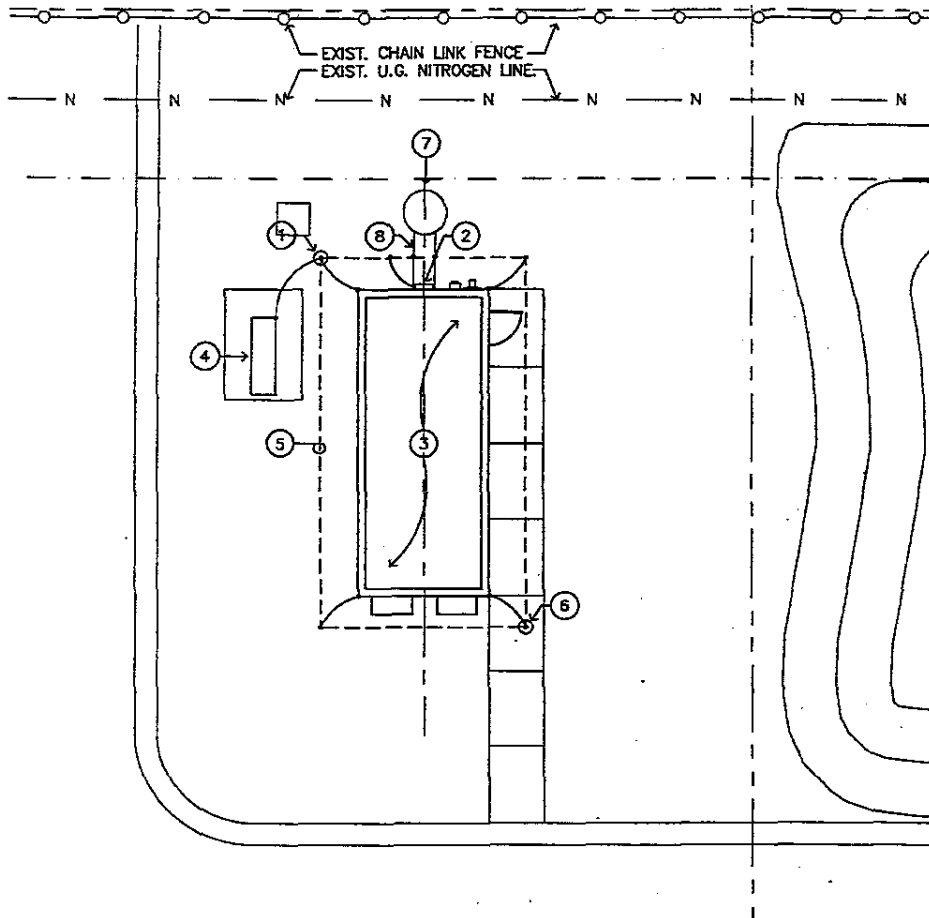
SHEET TITLE

ELECTRICAL POWER SITE PLAN

SHEET NUMBER

E-9 JOB # 1148-32

SW ENGINEERING, INC.
 ELECTRICAL CONSULTANTS
 PROJECT: D. WATSON
 DATE: 9/23/02
 48 S. DOBSON AVE. SUITE 102
 CHANDLER, AZ 85225
 PHONE: 480-451-9773
 FAX: 480-451-9246



KEYED NOTES

- ① ELECTROLYTIC GROUND WELL. SEE DETAIL ON SHEET E-5.
- ② EXTERNAL GROUND BUS (EGB) VERIFY LOCATION. SEE DETAIL ON SHEET E-5.
- ③ NEW EQUIPMENT SHELTER.
- ④ NEW EMERGENCY GENERATOR AND FUEL TANK.
- ⑤ #2 SOLID BARE COPPER DIRECT BURIED AT 2'-6" BELOW TOP OF FINISHED GRADE ALL AROUND SHELTER.
- ⑥ GROUND TEST WELL. SEE DETAIL ON SHEET E-5.
- ⑦ NEW 90' MONOPOLE & FOUNDATION.
- ⑧ NEW WAVE GUIDE BRIDGE.

Professional Engineer, Electrical
CERTIFICATE NO.
 31172
DAVID G. WATSON
 1/10-72-03
 State of Arizona
 ARIZONA, U.S.A.

phoenix design group
 a full service company

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PHOENIX INITIALS DATE

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SITE NAME
CHANDLER FIRE STATION ACADEMY

SITE ADDRESS
**3550 S DOBSON ROAD
 CHANDLER, AZ 85225**

ELECTRICAL GROUNDING PLAN

SCALE: 1" = 10'-0"

0 5' 10' 20'

NORTH

S.W. ENGINEERING, INC.
 ELECTRICAL ENGINEERS
 10101 N. CENTRAL AVENUE
 SUITE 100
 DOWNEY, CA 90241
 TEL: 714-962-2316
 FAX: 714-962-2317

SHEET TITLE
ELECTRICAL GROUNDING PLAN

SHEET NUMBER
E-10

JOB # 1140-32