

LOCATION MAP



# LAKE HAVASU CITY MUNICIPAL AIRPORT LAKE HAVASU CITY, ARIZONA



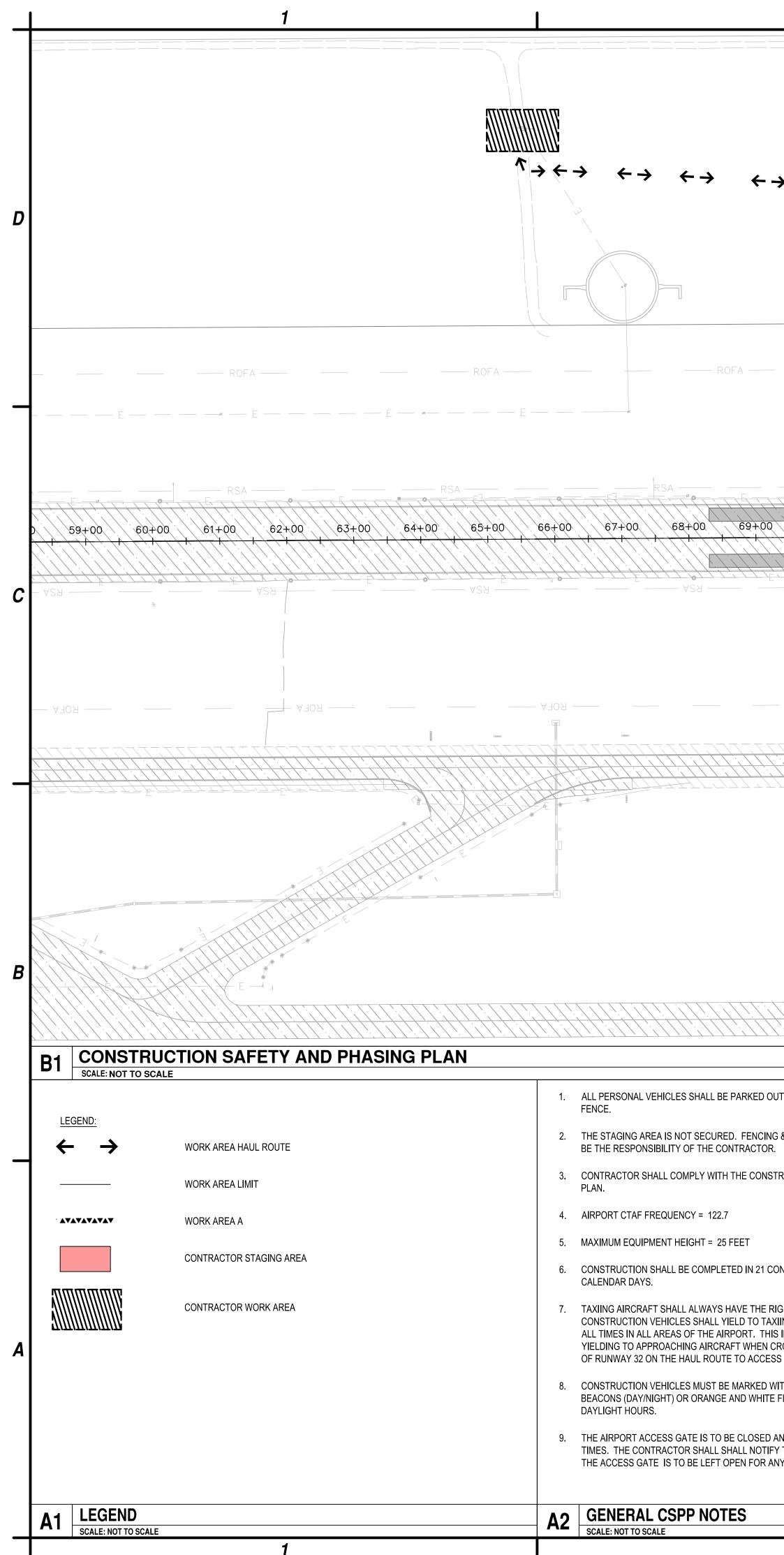
# **CONTRACT DRAWINGS** FOR THE CONSTRUCTION OF

# **AWOS REPLACEMENT**

LHC: 104011 ADOT GRANT NO: E3S2Z01C C&S PROJECT: K33.004.004

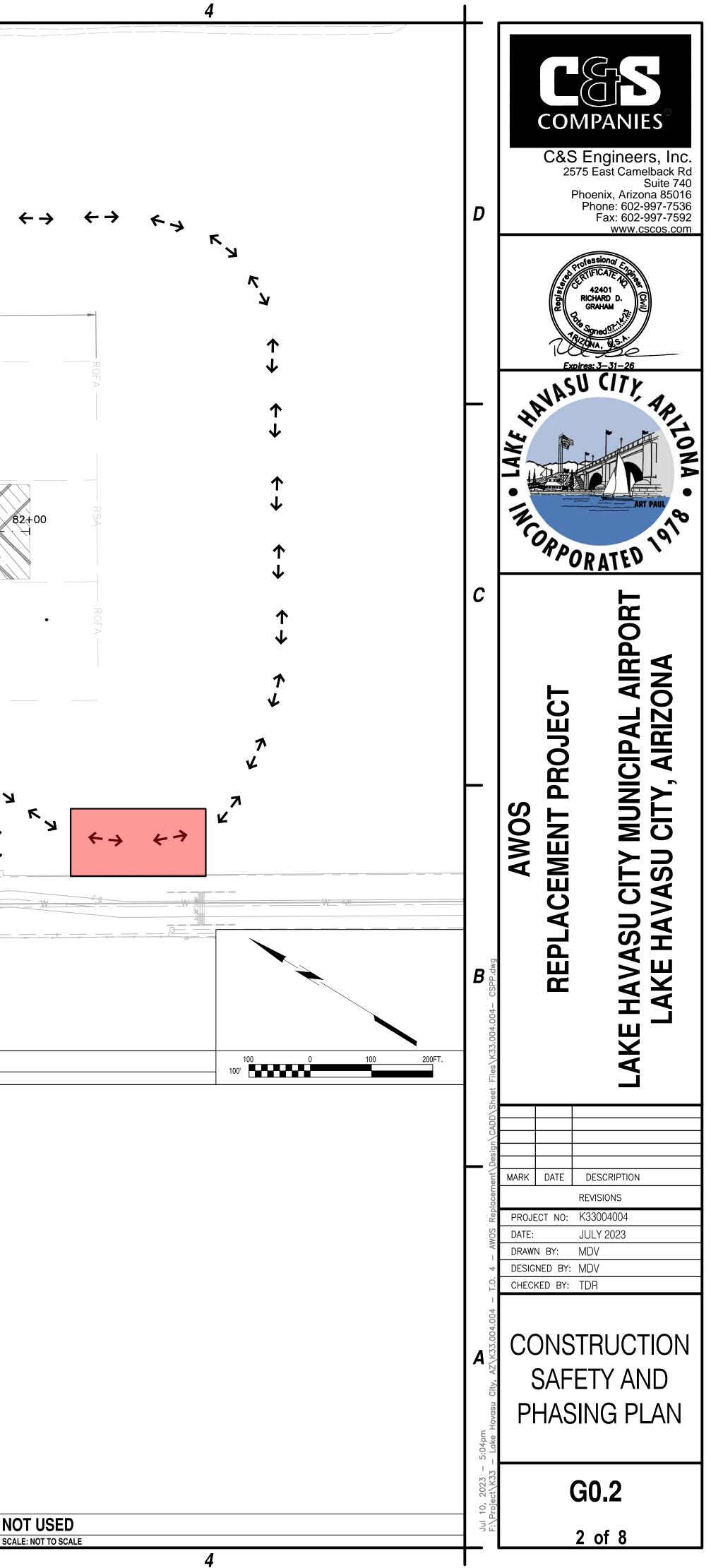






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RSA RSA 70+00 70+00 72+00 72+00		RS 75+00 76+00 77+00		RSA N=1286346.88 80+00 E= 18359052
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BOFA — ROFA — ROFA	BOFA	BOFA		Υ.
	W	Ma <sup>21</sup> Ma <sup>21</sup>		

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		Δ		
13.	OF EACH SHIFT.			
10				
12.				
11.	. AT NO TIME SHALL CONTRACTOR PERSONNEL OR EQUIPMENT BE WITHIN 150' OF AN ACTIVE RUNWAY CENTERLINE OR AN ACTIVE TAXIWAY(S) WITHOUT APPROVAL FROM AIRPORT.			
	OPENED AT SAME OR BETTER CONDITION (TYP.).			
	ALL ROADS USED TO ACCESS SITE SHALL BE MAINTAINED. AT THE COMPLETION OF ALL CONSTRUCTION ACTIVITY, ROADS SHALL BE			
	BY THE AIRPORT TO ENSURE ONLY AUTHORIZED VEHICLES USE THE ACCESS GATE.			
	THE PROJECT, AND PROVIDE QUALIFIED PERSONNEL APPROVED			
	11. 12. 13.	<ul> <li>BY THE AIRPORT TO ENSURE ONLY AUTHORIZED VEHICLES USE THE ACCESS GATE.</li> <li>ALL ROADS USED TO ACCESS SITE SHALL BE MAINTAINED. AT THE COMPLETION OF ALL CONSTRUCTION ACTIVITY, ROADS SHALL BE OPENED AT SAME OR BETTER CONDITION (TYP.).</li> <li>AT NO TIME SHALL CONTRACTOR PERSONNEL OR EQUIPMENT BE WITHIN 150' OF AN ACTIVE RUNWAY CENTERLINE OR AN ACTIVE TAXIWAY(S) WITHOUT APPROVAL FROM AIRPORT.</li> <li>ALL CONSTRUCTION DEBRIS INCLUDING DIRT TRACKING OUTSIDE THE STAGING AREA(S) SHALL BE CLEANED UP IMMEDIATELY.</li> <li>CONTRACTOR TO PERFORM A FOD INSPECTION BEFORE THE END OF EACH SHIFT.</li> </ul>	<ul> <li>BY THE AIRPORT TO ENSURE ONLY AUTHORIZED VEHICLES USE THE ACCESS GATE.</li> <li>10. ALL ROADS USED TO ACCESS SITE SHALL BE MAINTAINED. AT THE COMPLETION OF ALL CONSTRUCTION ACTIVITY, ROADS SHALL BE OPENED AT SAME OR BETTER CONDITION (TYP.).</li> <li>11. AT NO TIME SHALL CONTRACTOR PERSONNEL OR EQUIPMENT BE WITHIN 150' OF AN ACTIVE RUNWAY CENTERLINE OR AN ACTIVE TAXIWAY(S) WITHOUT APPROVAL FROM AIRPORT.</li> <li>12. ALL CONSTRUCTION DEBRIS INCLUDING DIRT TRACKING OUTSIDE THE STAGING AREA(S) SHALL BE CLEANED UP IMMEDIATELY.</li> <li>13. CONTRACTOR TO PERFORM A FOD INSPECTION BEFORE THE END OF EACH SHIFT.</li> </ul>	<ul> <li>BY THE ARPORT TO ENSURE ONLY AUTHORIZED VEHICLES USE THE ACCESS GATE.</li> <li>ALL ROADS USED TO ACCESS SITE SHALL BE MAINTAINED. AT THE COMPLETION OF ALL CONSTRUCTION ACTIVITY, ROADS SHALL BE OPENED AT SAME OR BETTER CONDITION (TYP.).</li> <li>AT NO TIME SHALL CONTRACTOR PERSONNEL OR EOUIPMENT BE WITHIN 150' OF AN ACTIVE RUNWAY CENTERLINE OR AN ACTIVE TAXIWAY(S) WITHOUT APPROVAL FROM AIRPORT.</li> <li>ALL CONSTRUCTION DEBRIS INCLUDING DIRT TRACKING OUTSIDE THE STAGING AREA(S) SHALL BE CLEANED UP IMMEDIATELY.</li> <li>CONTRACTOR TO PERFORM A FOD INSPECTION BEFORE THE END OF EACH SHIFT.</li> </ul>



### GENERAL ELECTRICAL REQUIREMENTS

THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, FAA, STATE AN ORDINANCES AND REGULATIONS. CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND INSPI BY THE AUTHORITIES HAVING JURISDICTION. ALL WORK SHALL BE DONE IN A NEAT, WORKMANL SAFE MANNER, ACCORDING TO THE LATEST PUBLISHED N.E.C.A. STANDARDS OF INSTALLATION, SUPERVISION. INSTALL GROUNDING AS REQUIRED BY THE CODE(S) AND FAA ADVISORY CIRCUL AS DETAILED PER THIS PLAN SET.

VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND ALL O WHICH MAY AFFECT THE EXECUTION OF THIS WORK. INCLUDE ALL RELATED COSTS IN THE INIT

ALL MATERIALS SHALL BE NEW AND OF THE BEST QUALITY, MANUFACTURED IN ACCORDANCE W OR OTHER APPLICABLE STANDARDS. THE USE OF MANUFACTURER'S NAMES, MODELS, AND NUM TO ESTABLISH STYLE, QUALITY, APPEARANCE, USEFULNESS AND BID PRICE. PROPOSED SUBST SUBMITTED IN WRITING AND REVIEWED BY THE ENGINEER BEFORE ORDERING.

PROTECT ALL ELECTRICAL MATERIAL AND EQUIPMENT INSTALLED UNDER THIS DIVISION AGAINS TRADES, WEATHER CONDITIONS OR ANY OTHER CAUSES. EQUIPMENT FOUND DAMAGED OR IN CONDITION WILL BE REJECTED AS DEFECTIVE.

LEAVE THE SITE CLEAN, REMOVE ALL DEBRIS, EMPTY CARTONS, TOOLS, CONDUIT, WIRE SCRAPS MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THE WORK DURING CONSTRUCTI COMPONENTS SHALL BE FREE OF DUST, GRIT AND FOREIGN MATERIALS, LEFT AS NEW BEFORE OF WORK.

EXPOSED CONDUITS TO BE GALVANIZED RIGID STEEL, MINIMUM SIZE 3/4", UNLESS OTHERWISE N PLANS.

ALL SAFETY SWITCHES AND OTHER DISTRIBUTION AND CONTROL ELECTRICAL EQUIPMENT SHAL RATED FOR HEAVY DUTY SERVICE.

ALL WIRING DEVICES SHALL BE SPECIFICATION GRADE.

ALL ELECTRICAL EQUIPMENT, CONDUIT, WIRING, BOXES, ETC. SHALL BE SUBMITTED TO THE ENC PRIOR TO ORDERING. THE SUBMITTALS SHALL BE NEATLY GROUPED AND ORGANIZED. PERTINE SHALL BE HIGHLIGHTED, AND THE SPECIFIC PRODUCT SHALL BE IDENTIFIED. ALL SUBMITTALS S AND PRESENTED IN ONE PACKAGE. THE SUBMITTAL SHALL INCLUDE A COMPLETE LIST OF THE MATERIALS, INCLUDING THE MANUFACTURER'S NAME, PRODUCT SPECIFICATION, DESCRIPTIVE LITERATURE, PERFORMANCE CHARTS, CATALOG CUTS, INSTALLATION INSTRUCTIONS, AND SPAI RECOMMENDATIONS FOR EACH DIFFERENT ITEM OF THE EQUIPMENT SPECIFIED.

CONDUIT/CONDUCTOR RUNS SHOWN ARE DIAGRAMMATICAL ONLY. THE BEST FINAL CONDUIT R DETERMINED BY THE ELECTRICAL CONTRACTOR AT THE TIME OF CONSTRUCTION. THE ENGINE REPRESENTATIVE MUST FIELD REVIEW CONTRACTOR'S PROPOSED CONDUIT ROUTING AND HAN PRIOR TO ANY SAW CUTTING OR EXCAVATIONS.

IT IS THE OBLIGATION OF THE CONTRACTOR TO ORGANIZE HIS WORK, SO THAT A COMPLETE EL INSTRUMENTATION, AND CONTROL SYSTEM FOR THE FACILITY WILL BE PROVIDED, AND WILL BE ACCURATE SHOP AND RECORD DRAWINGS, AND O & M MANUALS.

PRIOR TO PERFORMING UNDERGROUND EXCAVATION, THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANY/OWNER TO OBTAIN FIELD UNDERGROUND UTILITIES LOCATION MARKING. THE SHALL UNCOVER, AHEAD OF CONSTRUCTION, ALL LINES BEING TIED INTO AND ALL INTERSECTIN AND UTILITIES AS SHOWN ON THE PLANS OR MARKED BY BLUE STAKE TO VERIFY THEIR LOCATION CONTRACTOR SHALL ASSUME THAT ALL EXISTING DUCTBANKS THAT CROSS EXISTING AIRFIELD WITHIN RUNWAY OR TAXIWAY SAFETY AREAS ARE ENCASED. UTILITY SERVICES AND ALL EXIST LINES SHALL BE LOCATED AND PROTECTED BY THE CONTRACTOR. COORDINATE WITH ENGINEE APPROPRIATE UTILITY COMPANY. ALL PRECAUTIONS SHALL BE USED WHILE WORKING NEAR ALL UTILITIES, TO AVOID INJURY OR DEATH TO PERSONNEL, PROPERTY DAMAGE AND/OR INTERRUPTION OF SERVICE.

THE CONTRACTOR SHALL ALLOW TWO WEEKS FOR REVIEW OF THE SUBMITTALS BY THE ENGIN SHALL BE CALCULATED FROM THE TIME THE ENGINEER HAS RECEIVED THE SUBMITTALS TO THI SUBMITTALS LEAVE THE ENGINEER'S OFFICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESULTING FROM "FURNISH AS NOTED", "REVISE AND RESUBMIT", "NOT REVIEWED" AND/OR "RE SUBMITTALS. INCOMPLETE SUBMITTALS WILL BE RETURNED FOR RESUBMITTAL WITH NO CHANG TO THE CONSTRUCTION SCHEDULE. SUBMITTALS SHALL INCLUDE COMPREHENSIVE INFORMATI DATA, CLEARLY IDENTIFYING AND SUBSTANTIATING THE CHARACTERISTICS REQUIRED BY THE DOCUMENTS.

ALL REQUESTS FOR INFORMATION (RFIs) SHALL BE PRESENTED TO THE ENGINEER ALLOWING T RESPONSE. THIS PROCESS SHALL BE CONSIDERED IN THE SCHEDULING PROCESS AND SHALL N IN THE COMPLETION OF THE PROJECT.



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### ELECTRICAL ABBREVIATIONS:

	ACU	ACQUISITION CONTROL UNIT						
ND LOCAL CODE PECTIONS REQUIRED ILIKE, FINISHED, AND N, UNDER COMPETENT	AIC	AMP INTERRUPTING CABLE						
	AWOS	AUTOMATED WEATHER OBSERVATION SYSTEM						
JLAR REQUIREMENTS	BCG	BARE COPPER GROUND						
OTHER FACTORS	CDP	CENTRAL DATA PLATFORM						
TIAL BID PROPOSAL.	CE	CONCRETE ENCASED						
WITH NEMA, ANSI, U.L.	СКТ	CIRCUIT	ELECTRIC	AL LEGEND:				
UMBERS IS INTENDED STITUTIONS SHALL BE	DB	DIRECT BURIED		HERWISE NOTED ON PLANS)				
	DCP	DATA COLLECTION PACKAGE	— — — E — —	NEW CONDUIT AND CONDUCTORS (				
	EMT	ELECTRIC METALLIC TUBING		INDICATED ON PLAN SHEETS)				
N OTHER THAN NEW	FAA	FEDERAL AVIATION ADMINISTRATION	— — E — — E	EXISTING ELECTRICAL CONDUIT AN				
PS AND ALL	GRS	GALVANIZED RIGID STEEL	[EB]	EXISTING PULLBOX/HANDHOLE				
TION. ALL E FINAL ACCEPTANCE	НН	HANDHOLE						
	JC	JUNCTION CAN	<b>*</b>	EXISTING ELEVATED EDGE LIGHT				
ENOTED ON THE	LED	LIGHT EMITTING DIODE						
	LF	LINEAR FEET						
ALL BE U.L. LISTED AND	NEC	NATIONAL ELECTRICAL CODE						
	N.E.C.A.	NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION						
NGINEER FOR REVIEW	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION						
NENT INFORMATION	NPI	NON PAY ITEM						
E EQUIPMENT AND	OFZ	OBJECT FREE ZONE						
E DATA, TECHNICAL PARE PART	OID	OPERATOR INTERACTION DEVICE						
	PPE	PERSONAL PROTECTIVE EQUIPMENT						
ROUTING SHALL BE AS IEER ORT	PVC	POLYVINYL CHLORIDE	SHEET INDEX	<u>&lt;:</u>				
ANDHOLE LOCATIONS	ROFA	RUNWAY OBJECT FREE AREA	E0.1	ELECTRICAL LEGEND AND NO				
	RSA	RUNWAY SAFETY AREA	E1.1	ELECTRICAL INSTALLATION PL				
ELECTRICAL, BE SUPPORTED BY	SES	SERVICE ENTRANCE SECTION	E1.2 E2.1	ELECTRICAL INSTALLATION PL AWOS INSTALLATION AND GRO				
	TOFA	TAXIWAY OBJECT FREE AREA	E3.1	GROUNDING DETAIL				
	TSA	TAXIWAY SAFETY AREA	E4.1	PANEL SCHEDULES AND SING				
HE CONTRACTOR ING ELECTRICAL LINES	TYP	TYPICAL						
TION AND DEPTH. LD PAVEMENTS OR ARE STING ELECTRICAL EER AND/OR								

NEER. THIS PERIOD	
IE TIME THE ALL DELAYS	SELECTED FAA A
EJECTED" IGE BEING ALLOWED	(MOST RECENT VER
ION AND TECHNICAL CONSTRUCTION	150/5220-16 CHANGE 1
	150/5345-53
TWO WEEKS FOR NOT CAUSE A DELAY	
	150/5370-2

ADVISORY CIRCULARS FOR AIRPORT PROJECTS:
ERSION AT TIME OF CONSTRUCTION)
AUTOMATED WEATHER OBSERVATION SYSTEM (AWOS) FOR NON-FEDERAL APPLICATIONS
AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM
OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION
SPECIFICATIONS FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR AIRPORT CIRCUITS
STANDARDS FOR SPECIFYING CONSTRUCTION OF AIRPORTS



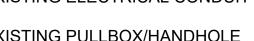
**GROUNDING DETAIL** PANEL SCHEDULES AND SINGLE LINE DIAGRAM

ELECTRICAL INSTALLATION PLAN AWOS INSTALLATION AND GROUNDING DETAILS

ELECTRICAL LEGEND AND NOTES ELECTRICAL INSTALLATION PLAN

NEW CONDUIT AND CONDUCTORS (QUANTITY AND SIZE AS IDICATED ON PLAN SHEETS)

XISTING ELECTRICAL CONDUIT AND CONDUCTOR



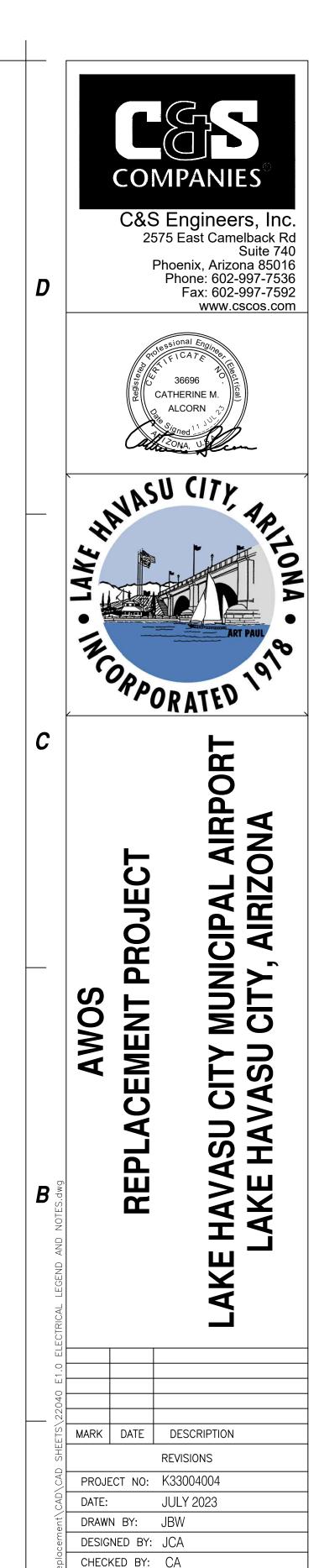


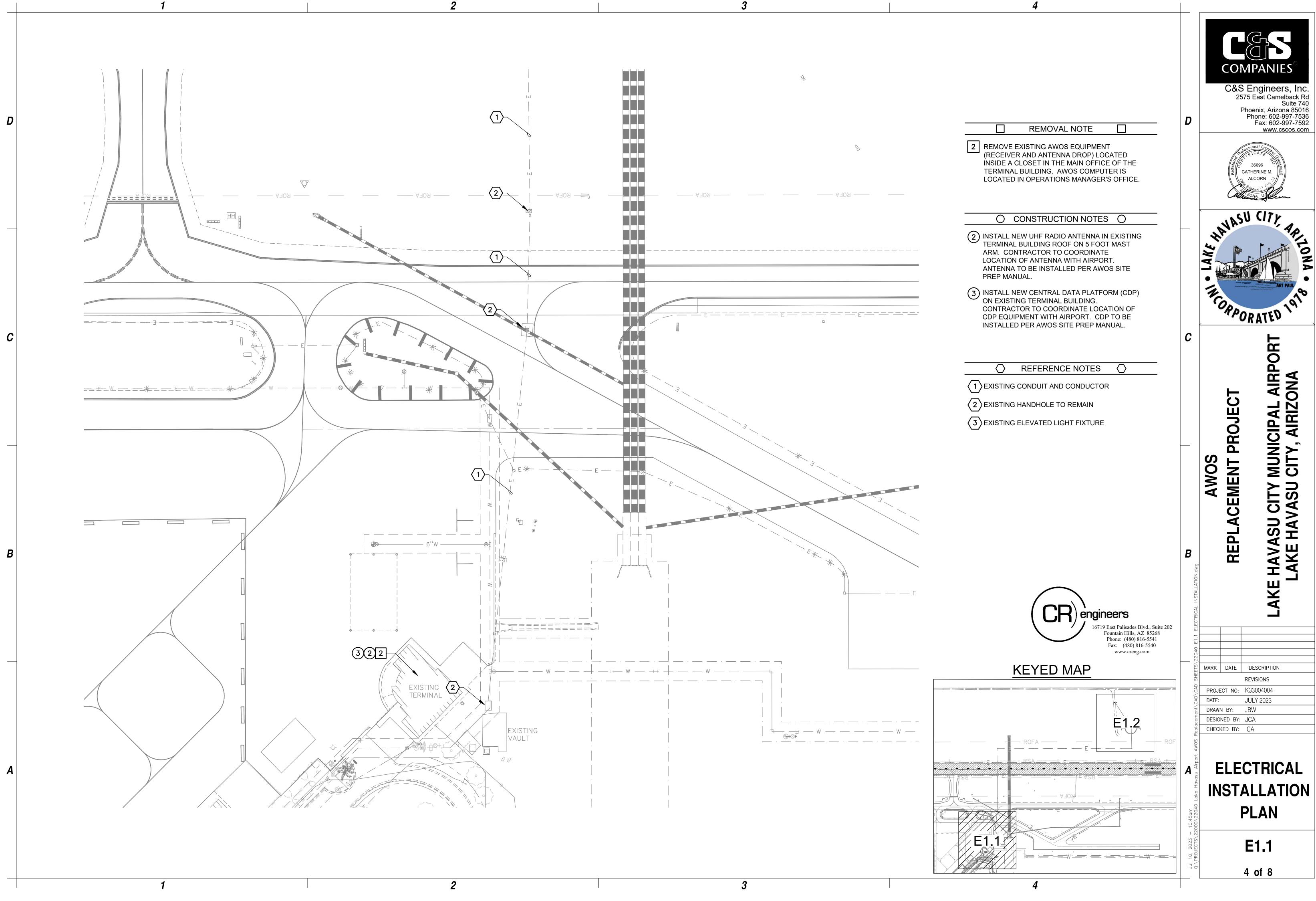
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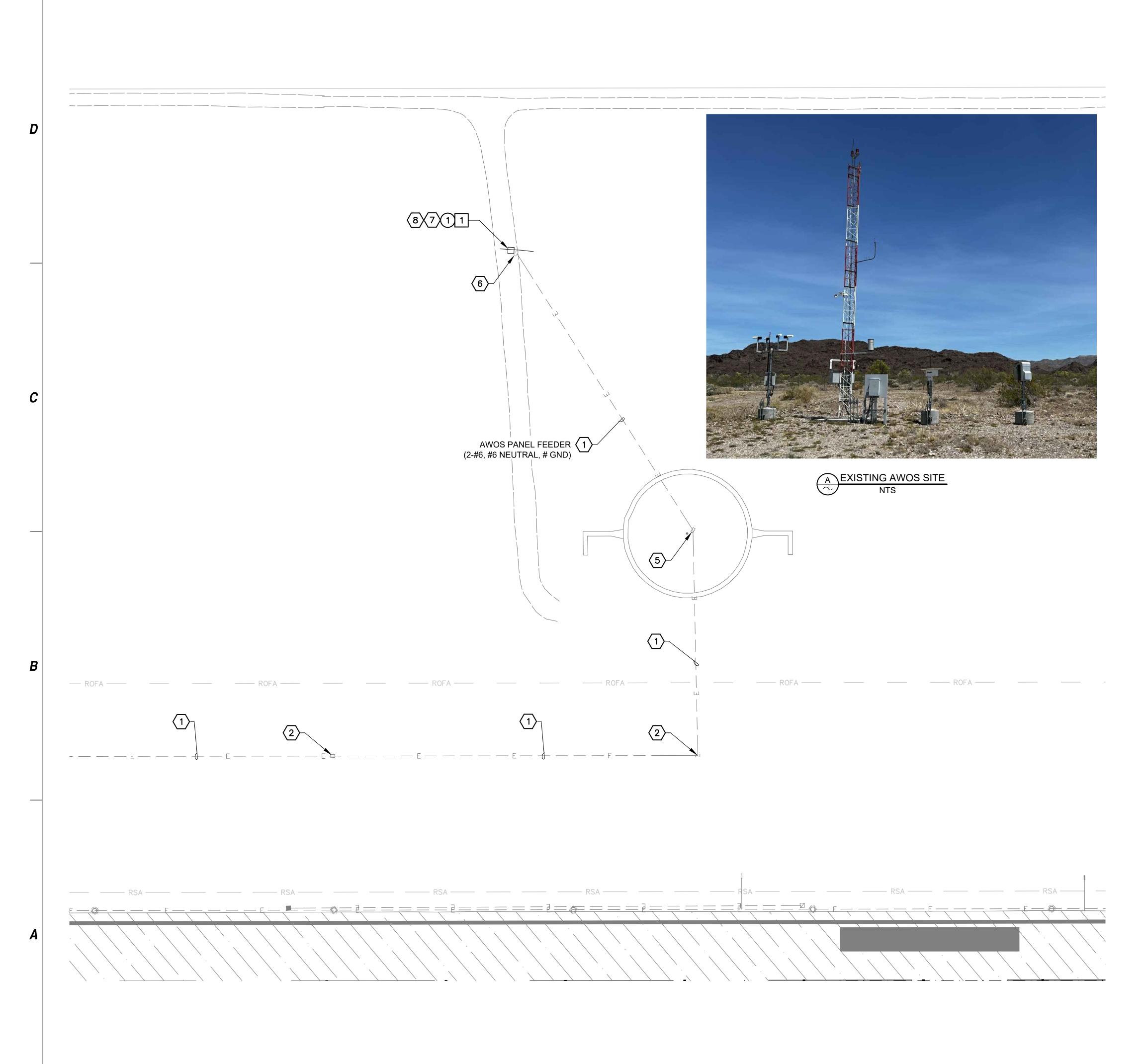
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LEGEND AND

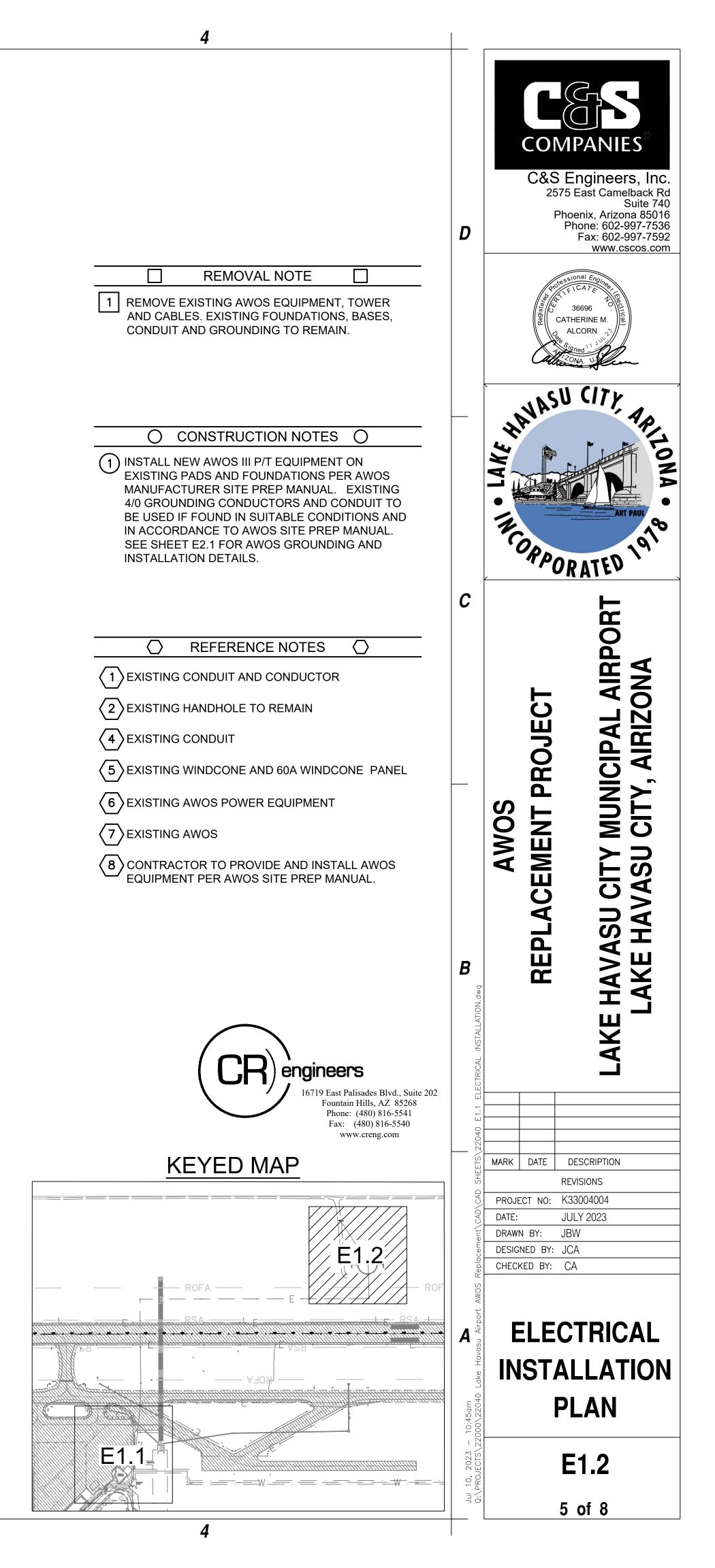
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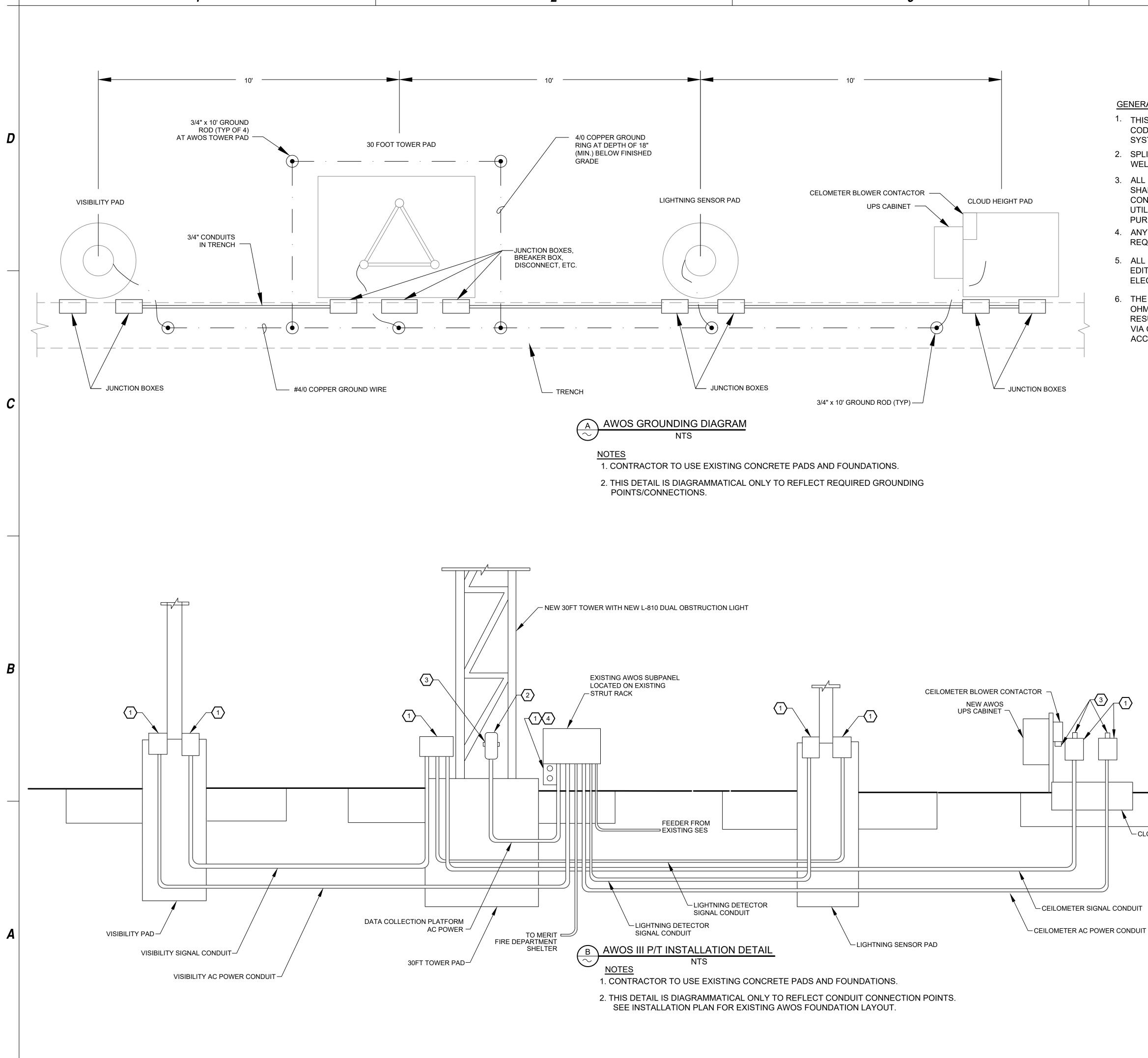






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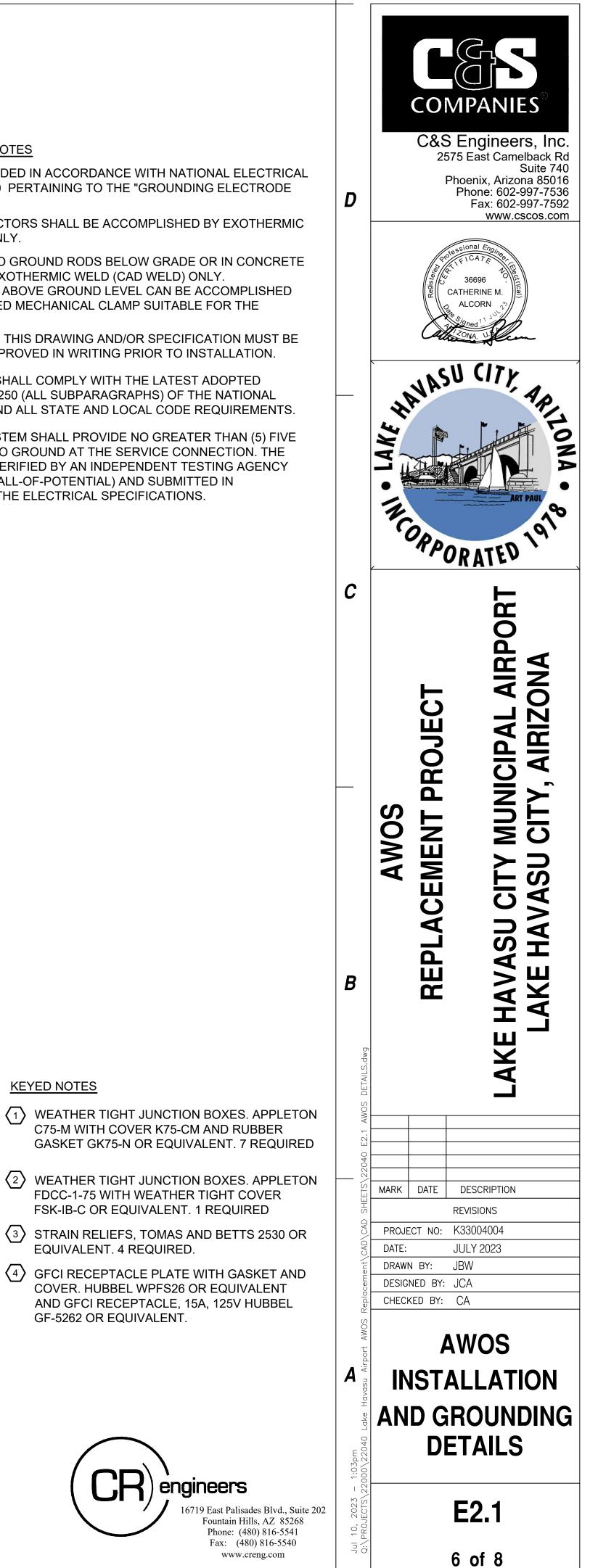






GENERAL GROUNDING NOTES

- 1. THIS DETAIL IS PROVIDED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE ARTICLE 250-50 PERTAINING TO THE "GROUNDING ELECTRODE SYSTEM".
- 2. SPLICING OF CONDUCTORS SHALL BE ACCOMPLISHED BY EXOTHERMIC WELD (CAD WELD) ONLY.
- 3. ALL CONNECTIONS TO GROUND RODS BELOW GRADE OR IN CONCRETE SHALL BE MADE BY EXOTHERMIC WELD (CAD WELD) ONLY. CONNECTIONS MADE ABOVE GROUND LEVEL CAN BE ACCOMPLISHED UTILIZING A U.L. LISTED MECHANICAL CLAMP SUITABLE FOR THE PURPOSE.
- 4. ANY VARIANCE FROM THIS DRAWING AND/OR SPECIFICATION MUST BE REQUESTED AND APPROVED IN WRITING PRIOR TO INSTALLATION.
- 5. ALL INSTALLATIONS SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF ARTICLE 250 (ALL SUBPARAGRAPHS) OF THE NATIONAL ELECTRICAL CODE AND ALL STATE AND LOCAL CODE REQUIREMENTS.
- 6. THE GROUNDING SYSTEM SHALL PROVIDE NO GREATER THAN (5) FIVE OHMS RESISTANCE TO GROUND AT THE SERVICE CONNECTION. THE RESULTS SHALL BE VERIFIED BY AN INDEPENDENT TESTING AGENCY VIA GROUND TEST (FALL-OF-POTENTIAL) AND SUBMITTED IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.



**KEYED NOTES** 

C75-M WITH COVER K75-CM AND RUBBER

FDCC-1-75 WITH WEATHER TIGHT COVER FSK-IB-C OR EQUIVALENT. 1 REQUIRED

3 STRAIN RELIEFS, TOMAS AND BETTS 2530 OR

4 GFCI RECEPTACLE PLATE WITH GASKET AND

COVER. HUBBEL WPFS26 OR EQUIVALENT

AND GFCI RECEPTACLE, 15A, 125V HUBBEL

) engineers

Phone: (480) 816-5541 Fax: (480) 816-5540

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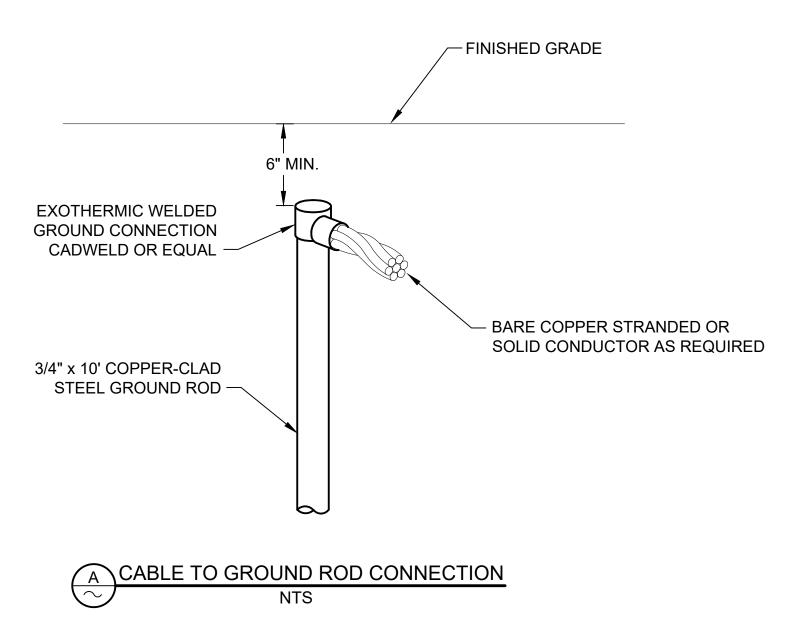
EQUIVALENT. 4 REQUIRED.

GF-5262 OR EQUIVALENT.

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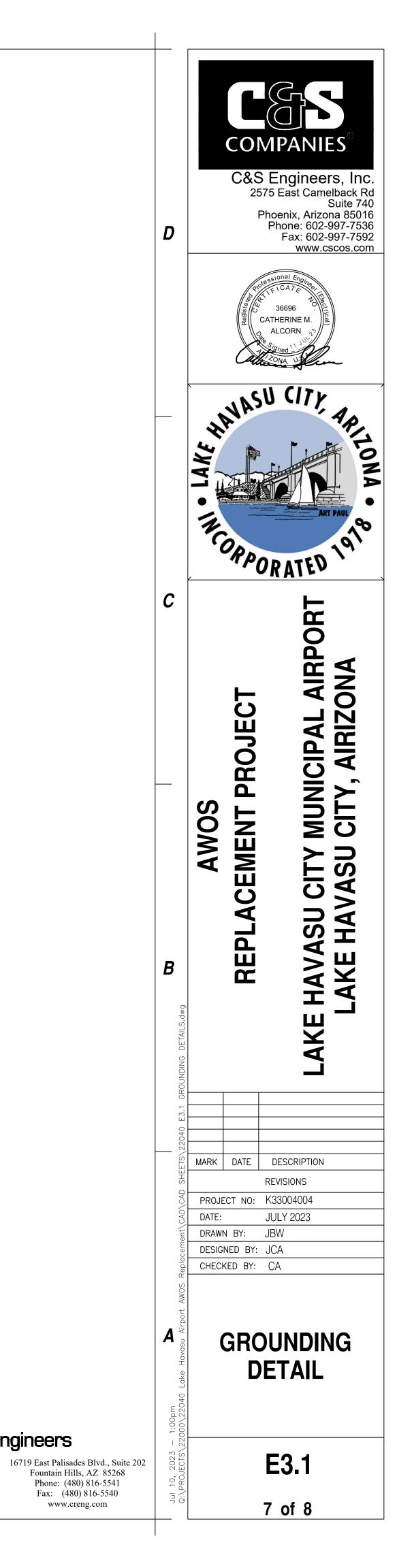
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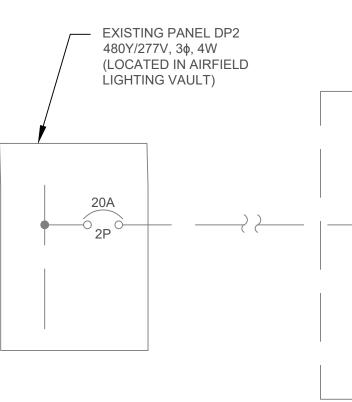
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PANEL: WINDCONE CB TYPE: BOLT-ON		VOLTAGE: 120/240 MOUNTING: SURFACE		MAIN CB: MLO BRACING: 10KAIC		BUS AMPS: 60A BKR AIC: 10KIAC	
AWOS	50	1					
	/				2		SPACE
	2	3					
					4		SPACE
AWOS	50	5					
	/				6		SPACE
	2	7					
					8		SPACE
WINDSOCK	15/1	9					
					10	_	SPACE
SPACE		11					
					12		SPACE
CONNECTED KVA PER PHASE			0.0	0.0	NOTES:		
			0.0	0.0	_		
CONNECTED A MPS PER PHA SE			0.0	0.0			
25% OF CONTINUOUS & LIGHTING LOAD (KVA)			0.0	0.0			
	$OAD(\mathbf{K}VA)$		0.0	0.0			
LARGEST MOTOR (25%)			0.0	0.0			
CODE KVA PER PHASE			0.0	0.0			
CODE AMPS PER PHA SE AT 120V			0.0	0.0			



(FOR REFERENCE ONLY)



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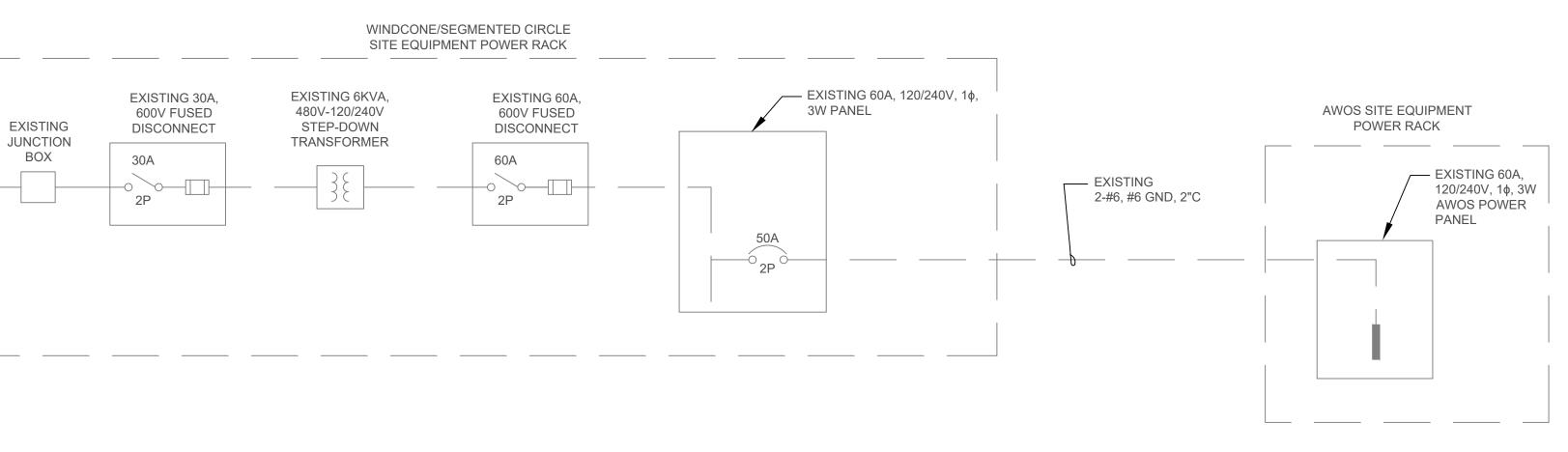
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В

PANEL: AWOS		VOLTAGE: 120/240		MAIN CB: MLO		BUS AMPS: 60A		
CB TYPE: BOLT-ON		MOUNTING: SURFACE		BRACING: 10KAIC		BKR AIO	BKR AIC: 10KIAC	
CIRCUIT DESCRIPTION	BKR	CIRCUIT	LINE 1	LINE 2	CIRCUIT	BKR	CIRCUIT DESCRIPTION	
OBSTRUCTION LIGHT (TOWER)	20/1	1	400					
			200		2	20/1	LIGHTNING SENSOR	
RAIN GAUGE (TOWER)	20/1	3		200				
				500	4	20/1	GFCI DUPLEX OUTLET (TOWER)	
PRESENT WEATHER SENSOR	20/1	5	200					
(TOWER)			400		6	20/1	VISIBILITY SENSOR	
CLOUD HEIGHT SENSOR	20/1	7		1000				
				500	8	*15/1	DATA COLLECTION PLATFORM	
OTHER SENSORS, AS APPLICABLE	20/1	9	1000				DAY/NIGHT DETECTOR (TOWER)	
					10		SPACE	
SPACE		11						
					12		SPACE	
CONNECTED KVA PER PHASE			2.2	2.2	NOTES:			
CONNECTED AMPS PER PHASE			18.3	18.3	* DENOTES NEW CIRCUIT BREAKER. MATCH EXISTING			
					IN BRACING A	ND TYPE.		
25% OF CONTINUOUS & LIGHTING LOAD (KVA)			0.1	0.0				
LARGEST MOTOR (25%)			0.0	0.0				
CODE KVA PER PHASE			2.3	2.2				
CODE AMPS PER PHASE AT 120V			19.2	18.3				

B EXISTING AWOS PANEL SCHEDULE (WITH NEW AWOS LOADS)  $\langle \sim \rangle$ 



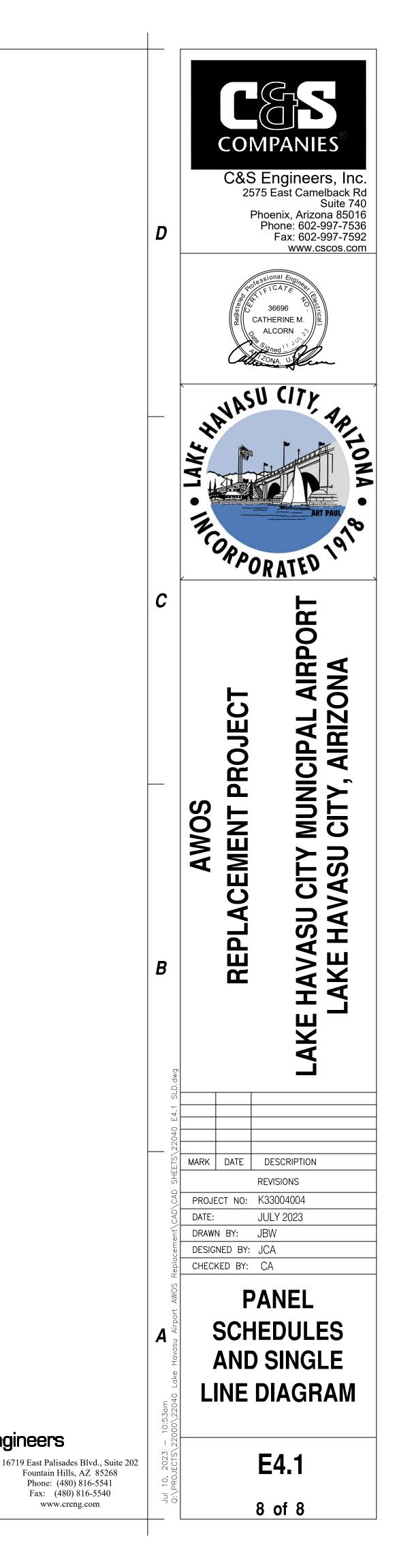
### C SINGLE LINE DIAGRAM - AWOS FEED (FOR INFORMATION ONLY)

**GENERAL NOTES - ONE-LINE** 

- 1. THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS TO FULLY FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS PRIOR TO BID. NO ADDITIONAL CONSIDERATIONS WILL BE ALLOWED AFTER THE BID.
- 2. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL INDICATED EQUIPMENT TO CODE COMPLIANT CLEARANCES. PROVIDE SUBMITTALS AS INDICATED IN SPECIFICATIONS TO PROPERLY COORDINATE PHYSICAL LOCATIONS OF NEW AND/OR EXISTING EQUIPMENT.
- 3. REFER TO ELECTRICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND COMPLETE CONTRACTUAL OBLIGATIONS.
- 4. ALL DASHED LINES ARE INDICATING EXISTING EQUIPMENT.
- 5. UPON SUBSTANTIAL COMPLETION, THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE ENGINEER AND SHALL ALLOW, AT THE ENGINEERS DISCRETION, FOR THE INSPECTION OF NEW WORK PRIOR TO ENERGIZING.

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CR) engineers

Phone: (480) 816-5541 Fax: (480) 816-5540

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