

8

7

6

5

4

3

2

DWG NO. A258A-0702-G1

SH. REV

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AMES RESEARCH CENTER

BUILDING 258
NASA ADVANCED SUPERCOMPUTING FACILITY
ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT
PHASE III

SCOPE OF WORK

NEW WORK:

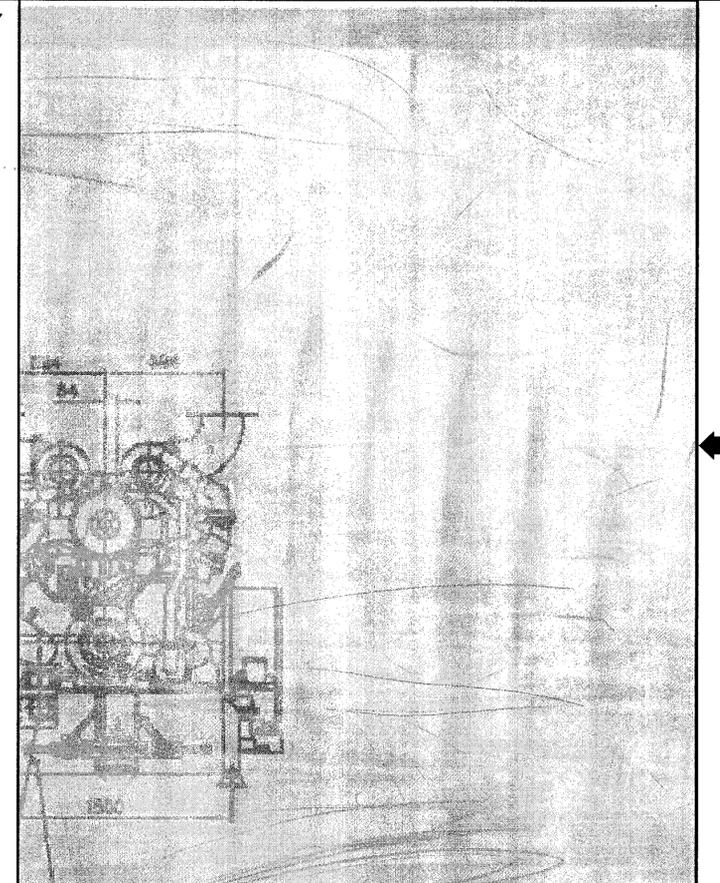
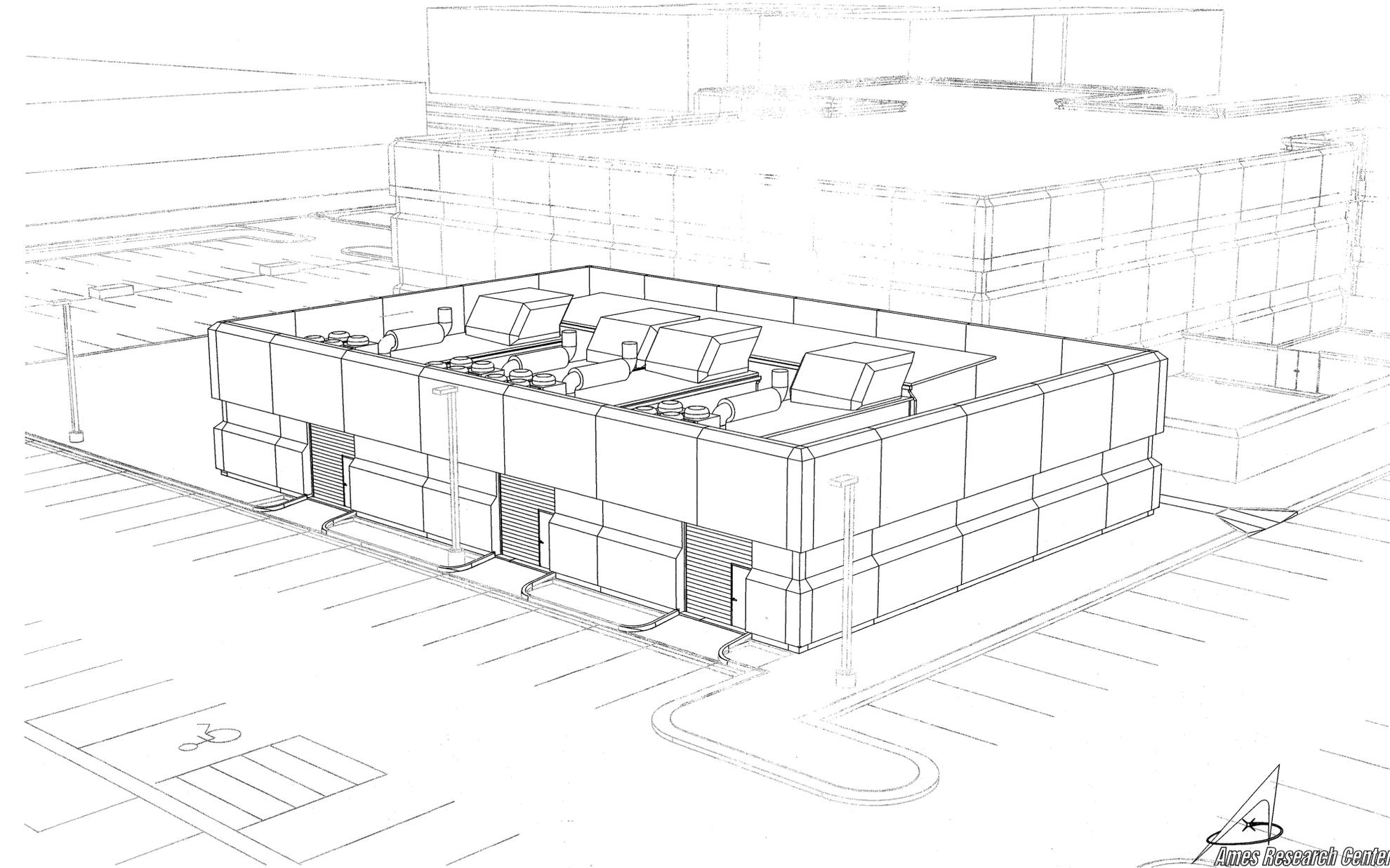
THE NEW WORK IS COMPRISED OF PROVIDING ONE RUPS UNIT IDENTICAL TO ANY THAT MAY BE INSTALLED OR PLANNED TO BE INSTALLED. THE NEW WORK INCLUDES, BUT IS NOT LIMITED TO:

1. PROVIDE ONE RUPS UNIT WITH BASE FUEL STORAGE TANK IN AN OUTDOOR ENCLOSURE, COMPLETE WITH AUXILIARY PANELS AND ANCILLARY EQUIPMENT, ABUTTED TO AND CONNECTED TO THE EXISTING RUPS SWITCHGEAR ENCLOSURE AND INTEGRATED INTO IT FOR A FULLY FUNCTIONAL MULTI-UNIT PARALLEL SYSTEM CAPABLE OF FUTURE EXPANSION TO FOUR UNITS.
2. PROVIDE INDOOR AND OUTDOOR LIGHTING FOR THE ENCLOSURE.
3. PROVIDE A FIRE PROTECTION SYSTEM FOR THE ENCLOSURE.
4. PROVIDE ENCLOSURE HEAT DETECTORS COMPATIBLE WITH THE EXISTING FIRE ALARM PANEL IN THE EXISTING RUPS SWITCHGEAR ENCLOSURE.
5. PROVIDE A LIGHTNING PROTECTION SYSTEM FOR THE NEW ENCLOSURE.
6. TEST, STARTUP AND COMMISSION THE SYSTEM.

NOTES:

1. THE SCOPE OF WORK PROVIDED HERE IS FOR REFERENCE ONLY. REFER TO DRAWINGS FOR SPECIFIC SCOPE OF WORK.
2. SEE SHEET G4 FOR PROJECT DRAWING LIST.

R O T A R Y U N I N T E R R U P T I B L E P O W E R S U P P L Y



Approved for Construction
Moffett Field Permit Board
W. K. Kelly
Chief Building Official
Permit No. 09Q041

21850 kg

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD

REVISIONS					
DRAWN	PAA	DATE	4/22/09		
DESIGNED	PAA	DATE	4/22/09		
CHECKED		DATE			
J.M.CUSKER	<i>M. K. Kelly</i>	DATE	4-23-09		
PROJECT MGR		DATE			
J.M.CUSKER		DATE	4-23-09		
REQUESTER		DATE			
N.HSU/H.CHUNG		DATE			
R&QA		DATE			
SAFETY		DATE			
SUPERVISOR		DATE			
S.FRANKEL	<i>S. Frankel</i>	DATE	4-23-09		

Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
GENERAL

TITLE SHEET

SUPPLIER	DATE	SIZE	CASE CODE	REV
		D	25307	
SCALE	INDEX	SHEET	OF	
NTS				

FILE NAME:
258A-G01.DWG 4-28-09

8

7

6

5

4

3

2

DWG: P:\ARC\258\ESRI - Rotary Uninterruptible Power Supply\ESRI - RUPS Repackaging\ESRI_RUPS - Phase 3 - RUPS258A-G01.DWG Version: 17.1s (LMS Tech) User: pabden
 DATE: Apr 28, 2009 - 2:45:12 pm

60048320.0001

GENERAL NOTES

GENERAL NOTES (con't)

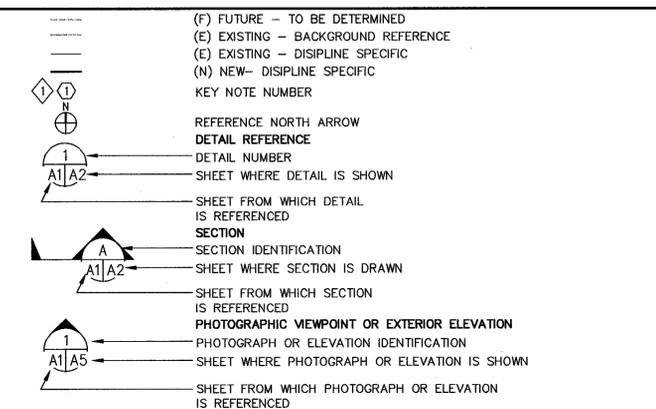
HEALTH, SAFETY AND ENVIRONMENTAL REQUIREMENTS

GENERAL SYMBOLS

- 1. THIS PROJECT HAS BEEN DESIGNED COMPLETELY IN ENGLISH UNITS. ALL INSPECTIONS WILL TAKE PLACE IN ENGLISH DIMENSIONS. SHOP DRAWINGS MUST BE SUBMITTED WITH ENGLISH DIMENSIONS UNLESS OTHERWISE DIRECTED BY THE CONTRACTING OFFICER (COTR).

- 30. THE GENERAL CONTRACTOR SHALL FURNISH A SYSTEM OF TEMPORARY LIGHTS THROUGHOUT THE SPACE UNDER CONSTRUCTION, AS REQUIRED.

- 1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF CAL-OSHA, FED-OSHA, CAL-EPA, FED-EPA, SANTA CLARA COUNTY, THE BAAQMD (BAY AREA AIR QUALITY MANAGEMENT DISTRICT), THE RWQCB (REGIONAL WATER QUALITY CONTROL BOARD) AND THE SWPPP (STORM WATER POLLUTION PREVENTION PLAN).



QUALITY CONTROL

THE CONSTRUCTION INSPECTIONS LISTED ARE IN ADDITION TO THE INSPECTIONS REQUIRED BY CBC SECTION 108. SPECIALLY INSPECTED WORK THAT IS INSTALLED OR COVERED WITHOUT THE APPROVAL OF THE BUILDING OFFICIAL AND THE SPECIAL INSPECTOR, IS SUBJECT TO REMOVAL OR EXPOSURE.

CODES AND STANDARDS

ALL WORK SHALL BE IN ACCORDANCE WITH THE CODES LISTED IN APD 8829.1 AVAILABLE ON-LINE AT: "HTTP://SERVER-MPO.ARC.NASA.GOV/SERVICES/CDMSDOCS/CENTERS/ARC/DIRS/APD/8829.1.HTML" INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

Approved for Construction Moffett Field Permit Board Chief Building Official Permit No. 09Q041

Table with columns for ZONE, LETTER, DESCRIPTION, DRAWN, DATE, APPRVD, and a detailed revision log with dates and signatures.

Vertical text on the left margin: Version: 17.1s (LMS Tech) User: pdlden RUPFS Phase 3 - RUPFS258A-G03.DWG

Vertical text on the right margin: 60048320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-G4 SH. REV

PROJECT DRAWING LIST

NASA NO.	SHEETS	DESCRIPTION	NASA NO.	SHEETS	DESCRIPTION
GENERAL			ELECTRICAL		
A258A-0702-G1	1	TITLE SHEET	A258A-0702-E1	3	ELELCTRICAL NOTES, SYMBOLS AND ABBREVIATIONS
A258A-0702-G2	1	LOCATION PLAN	A258A-0702-E2	1	NOT USED
A258A-0702-G3	1	GENERAL NOTES	A258A-0702-E3	2	NOT USED
A258A-0702-G4	1	PROJECT DRAWING LIST	A258A-0702-E4	1	SINGLE LINE DIAGRAM - EXISTING
A258A-0702-G5	1	CONCEPTUAL DESIGN - CUTAWAY ISOMETRIC VIEW LOOKING SOUTHEAST	A258A-0702-E5	1	SINGLE LINE DIAGRAM - NEW WORK
CIVIL			A258A-0702-E6	1	RUPS STATION TYPICAL POWER PLAN
A258A-0702-C1	1	CIVIL NOTES, SYMBOLS AND ABBREVIATIONS	A258A-0702-E7	1	RUPS STATION TYPICAL BLOCK DIAGRAM
A258A-0702-C2	1	NOT USED	A258A-0702-E8	1	13.8 KV SWITCHGEAR TYPICAL OUTLINE
A258A-0702-C3	1	SITE PLAN - EXISTING	A258A-0702-E9	1	GROUNDING PLAN - EXISTING
A258A-0702-C4	1	NOT USED	A258A-0702-E10	1	METER AND RELAY SINGLE LINE DIAGRAM
A258A-0702-C5	1	NOT USED	A258A-0702-E11	1	NOT USED
A258A-0702-C6	1	NOT USED	A258A-0702-E12	1	NOT USED
A258A-0702-C7	1	SECTIONS - EXISTING	A258A-0702-E13	1	NOT USED
ARCHITECTURAL			A258A-0702-E14	1	NOT USED
A258A-0702-A1	1	ARCHITECTURAL NOTES, SYMBOLS AND ABBREVIATIONS	A258A-0702-E15	1	NOT USED
A258A-0702-A2	1	FLOOR PLAN	A258A-0702-E16	1	NOT USED
A258A-0702-A3	1	ROOF PLAN	A258A-0702-E17	1	NOT USED
A258A-0702-A4	1	NOT USED	A258A-0702-E18	1	NOT USED
A258A-0702-A5	1	NOT USED	A258A-0702-E19	1	NOT USED
A258A-0702-A6	1	BUILDING SECTIONS	A258A-0702-E20	1	NOT USED
A258A-0702-A7	1	NOT USED	A258A-0702-E21	1	FIRE ALARM & EPO SYSTEM PLAN
A258A-0702-A8	1	DOOR AND FINISH SCHEDULES	A258A-0702-E22	1	FIRE ALARM RISER DIAGRAM
A258A-0702-A9	1	NOT USED	A258A-0702-E23	1	NOT USED
A258A-0702-A10	1	NOT USED	A258A-0702-E24	1	NOT USED
STRUCTURAL			A258A-0702-E25	1	EXTERIOR LIGHTING PLAN
A258A-0702-S1	1	STRUCTURAL NOTES AND ABBREVIATIONS	A258A-0702-E26	2	NOT USED
A258A-0702-S2	1	NOT USED	A258A-0702-E27	1	TYPICAL GROUNDING DETAILS
A258A-0702-S3	1	TYPICAL CONCRETE DETAILS	A258A-0702-E28	1	NOT USED
A258A-0702-S4	1	FOUNDATION PLAN - EXISTING	A258A-0702-E29	1	TYPICAL VCB THREE LINE DIAGRAM
A258A-0702-S5	1	NOT USED	A258A-0702-E30	1	TYPICAL VT's AND AT's THREE LINE DIAGRAM
MECHANICAL			A258A-0702-E31	1	TYPICAL VCB CONTROL DIAGRAM
A258A-0702-M1	1	MECHANICAL NOTES, SYMBOLS AND ABBREVIATIONS	A258A-0702-E32	1	NOT USED
A258A-0702-M2	1	NOT USED.			
A258A-0702-M3	1	MECHANICAL RUPS UNIT FLOOR PLAN			
A258A-0702-M4	1	MECHANICAL RUPS UNIT ROOF PLAN			
A258A-0702-M5	1	MECHANICAL RUPS UNIT ELEVATION & SECTION			
A258A-0702-M6	1	MECHANICAL RUPS UNIT SECTION			
FIRE PROTECTION					
A258A-0702-F1	1	FIRE SUPPRESSION NOTES, SYMBOLS AND ABBREVIATIONS			
A258A-0702-F2	1	FIRE SUPPRESSION INSTALLATION PLAN			

Approved for Construction
Moffett Field Permit Board

[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					
DRAWN	PAA	DATE	4/22/09		
DESIGNED	PAA	DATE	4/22/09		
CHECKED	J.McCusker	DATE	4/23/09		
PROJECTOR	J.McCusker	DATE	4/23/09		
REQUESTER	N.HSU/H.CHUNG	DATE	4/23/09		
R&GA		DATE			
SAFETY		DATE			
SUPERVISOR	S.FRANKEL	DATE	4/23/09		

Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
GENERAL

PROJECT DRAWING LIST

SIZE	D	CAGE CODE	25307	REV	1
SCALE	NONE	INDEX		SHEET	OF

FILE NAME: 258A-G04.DWG 4-28-09

8

7

6

5

4

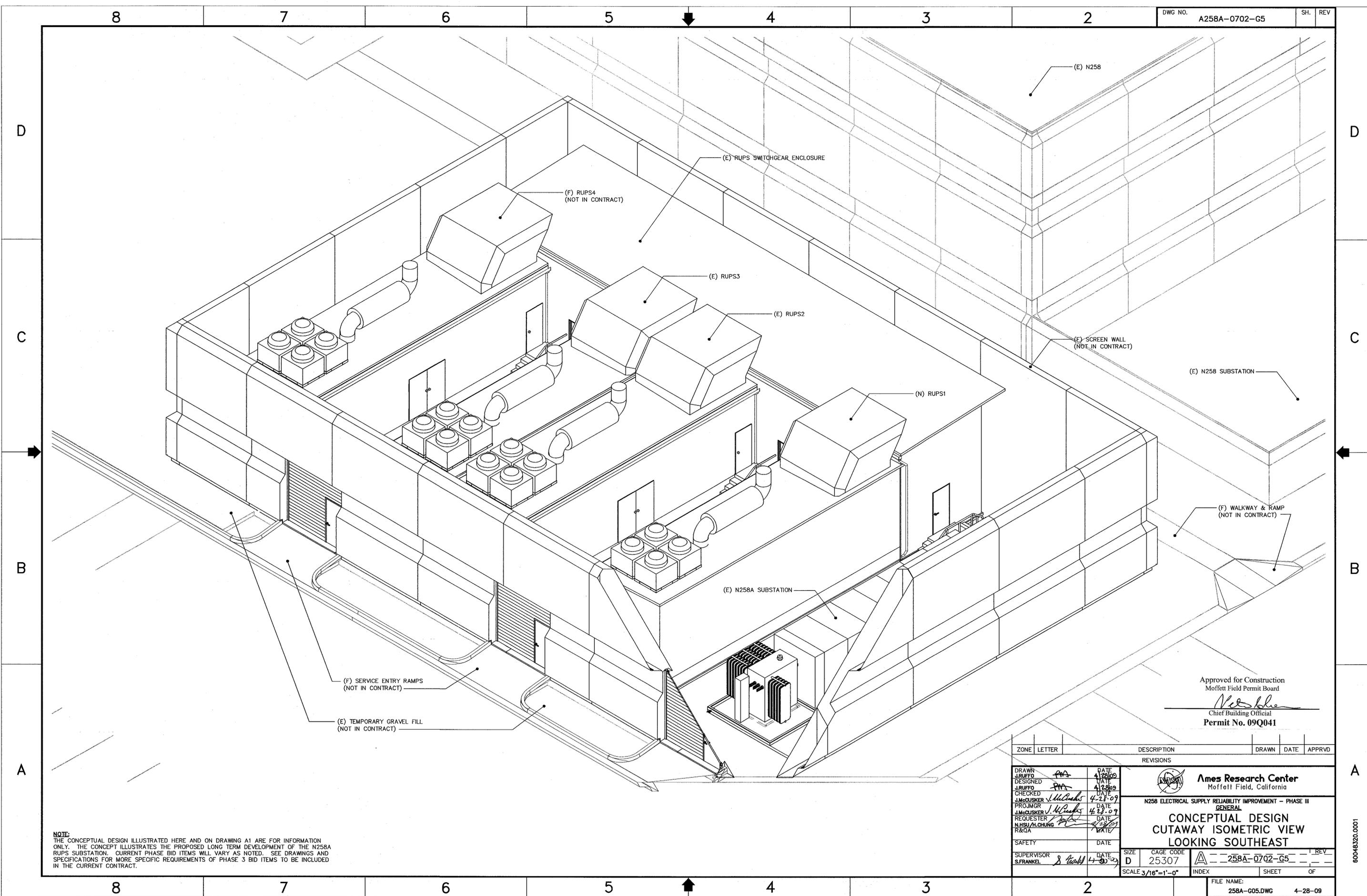
3

2

DWG: P:\AEC\258\ESR - Battery Uninterruptible Power Supply\ESR - RUPS Repackaging\ESR_RUPS - Phase 3\6046320.0001_RUPS Phase 3 - RUPS258A-G04.DWG User: pdlden Version: 17.1s (LMS Tech) Date: Apr 28, 2009 2:45:22 pm

10046320.0001

DWG: P:\ARC\258\ESRI - Robotry Uninterruptible Power Supply\ESRI - RUPS Repackaging\ESR_RUPS - Phase 3\60048320.000\RUPS Phase 3 - RUPS258A-G05.DWG User: pdalen
 Version: 17.1b (LMS Tech)
 DATE: Apr 28, 2009 - 2:46:24 pm



NOTE:
 THE CONCEPTUAL DESIGN ILLUSTRATED HERE AND ON DRAWING A1 ARE FOR INFORMATION ONLY. THE CONCEPT ILLUSTRATES THE PROPOSED LONG TERM DEVELOPMENT OF THE N258A RUPS SUBSTATION. CURRENT PHASE BID ITEMS WILL VARY AS NOTED. SEE DRAWINGS AND SPECIFICATIONS FOR MORE SPECIFIC REQUIREMENTS OF PHASE 3 BID ITEMS TO BE INCLUDED IN THE CURRENT CONTRACT.

Approved for Construction
 Moffett Field Permit Board

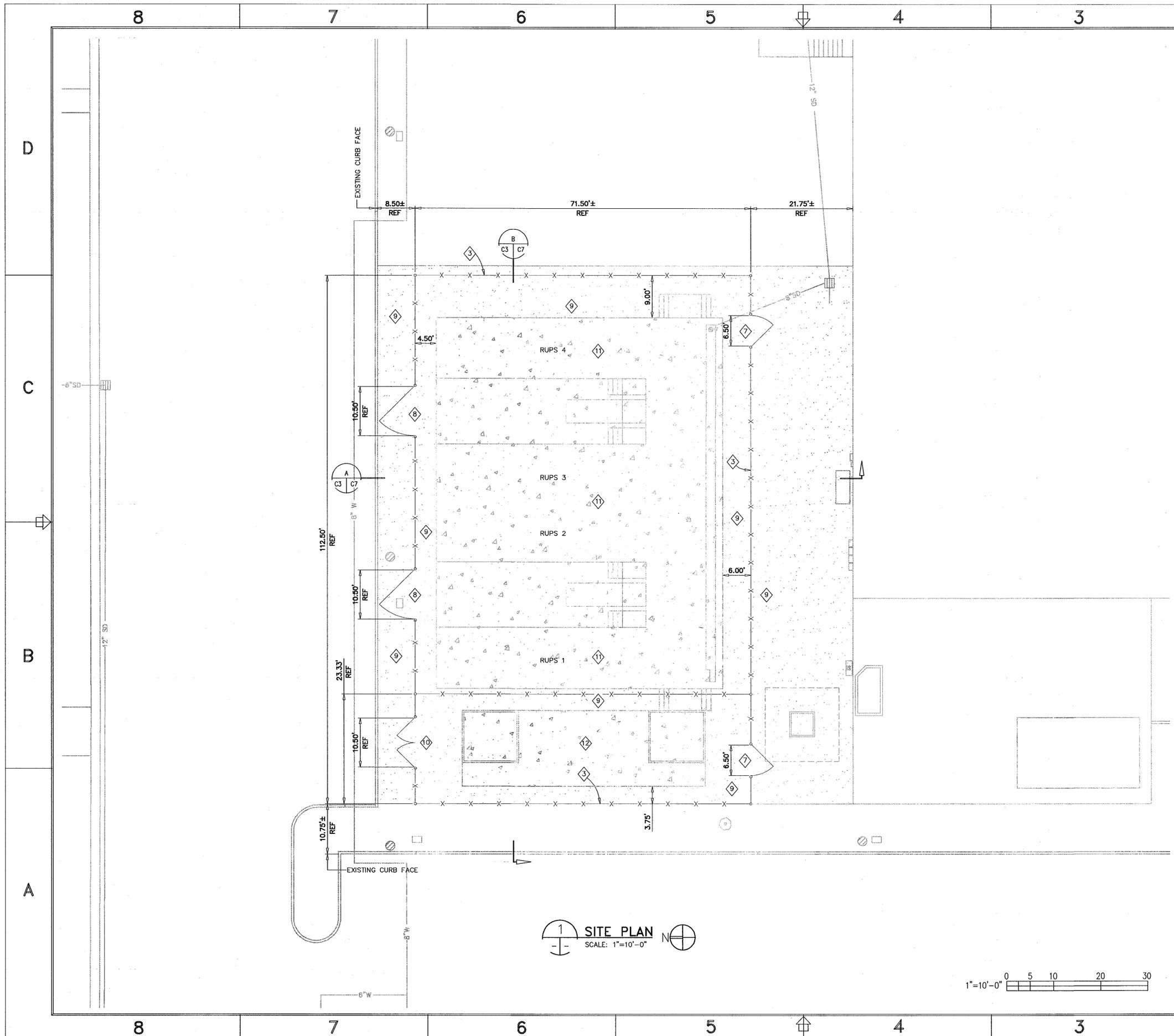
 Chief Building Official
 Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					
DRAWN	J.RUFFO	DATE	4/22/09		
DESIGNED	J.RUFFO	DATE	4/22/09		
CHECKED	J.McCUSKER	DATE	4-23-09		
PROJECTOR	J.McCUSKER	DATE	4-23-09		
REQUESTER	N.HSU/H.CHUNG	DATE	4-23-09		
R&QA		DATE			
SAFETY					
SUPERVISOR					
S.FRANKEL					
DATE		4-23-09			
SIZE	D	CAGE CODE	25307		
SCALE		3/16"=1'-0"			
INDEX					
SHEET					
OF					
FILE NAME:					
258A-G05.DWG 4-28-09					

Ames Research Center
 Moffett Field, California
 N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
 GENERAL
CONCEPTUAL DESIGN
CUTAWAY ISOMETRIC VIEW
LOOKING SOUTHEAST

60048320.0001

DWG: F:\ARC\258\ESRI - Rotary Interruptible Power Supply\ESRI - Phase 3\60048320\001_RUPS_Phase 3 - RUPS258A-C03.dwg
 Version: 17.1.s (LMS Tech) User: polden
 DATE: Apr 28, 2009 - 2:45:31 pm



SHEET NOTES

- UNTIL THE LAST RUPS UNIT IS INSTALLED, A TEMPORARY CHAIN LINK FENCE HAS BEEN INSTALLED IN PLACE OF THE PERMANENT WALL. DRAWING C3 SHOWS THE TEMPORARY FENCE ARRANGEMENT TO CONTINUE THROUGHOUT ALL CONSTRUCTION STAGES EXCEPT THE FINAL STAGE. FUTURE DRAWINGS WILL SHOW THE PERMANENT WALL ARRANGEMENT IN WHICH THE TEMPORARY FENCE AND GRAVEL ARE REPLACED BY THE PERMANENT CONCRETE SCREEN WALL AND CONCRETE EQUIPMENT PADS RESPECTIVELY, REFERENCE DRAWING G5.
- ANY PORTION OF THE (E) CHAINLINK FENCE THAT IS REMOVED TO FACILITATE (N) CONSTRUCTION SHALL BE RESTORED TO ITS ORIGINAL STATE AT THE CONCLUSION OF THE WORK.

NOTE:
THIS DRAWING IS PROVIDED FOR INFORMATION ONLY, UON.

KEY NOTES

- ① NOT USED.
- ② NOT USED.
- ③ (E) CHAIN LINK FENCE AND GATES.
- ④ NOT USED.
- ⑤ NOT USED.
- ⑥ NOT USED.
- ⑦ (E) PERSONNEL GATE.
- ⑧ (E) SINGLE SWING GATE.
- ⑨ (E) TEMPORARY GRAVEL AREA.
- ⑩ (E) DOUBLE GATE.
- ⑪ (E) GENERATOR AND SWITCHGEAR ENCLOSURE PAD.
- ⑫ (E) TRANSFORMER AND SWITCHGEAR PAD.

Approved for Construction
 Moffett Field Permit Board

 Chief Building Official
 Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					
DRAWN	SAGIZIAN	DATE	4/22/09		
DESIGNED	PVA	DATE	4/22/09		
CHECKED	Ames Tech	DATE	4/22/09		
APPROVED	Ames Tech	DATE	4/22/09		
REQUESTER	N.H.SU/H.CHUNG	DATE	4/22/09		
R&QA		DATE			
SUPervisor	SFRANKEL	DATE	4/22/09		

Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
CIVIL

SITE PLAN EXISTING

SIZE: 25307 CAGE CODE: A-258A-0702-C3 I-REV: 1
SCALE: 1"=10' INDEX SHEET OF

FILE NAME: 258A-C03.DWG 4-28-09

60048320.001

8

7

6

5

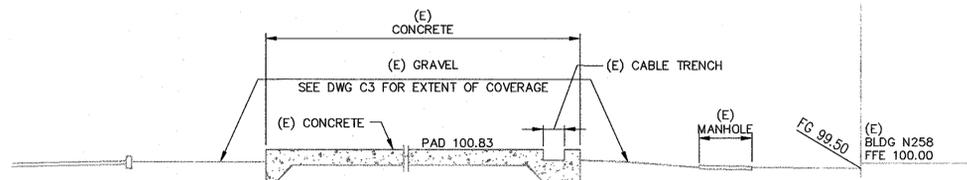
4

3

2

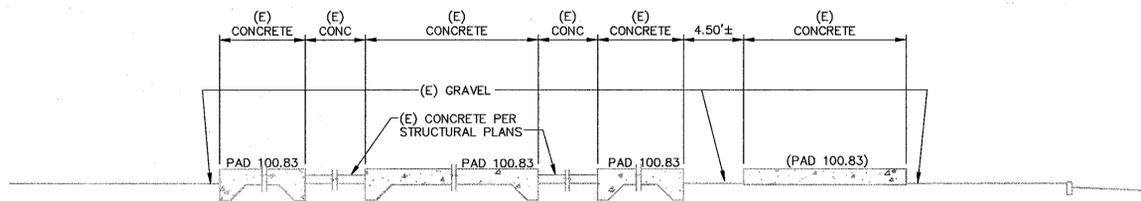
DWG NO. A258A-0702-C7 SH. REV

D



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

D



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

C

C

B

B

A

A

NOTE: THIS DRAWING IS PROVIDED FOR INFORMATION ONLY, UON.

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					
DRAWN	<i>[Signature]</i>	DATE	4/22/09		
DESIGNED	<i>[Signature]</i>	DATE	4/22/09		
CHECKED	<i>[Signature]</i>	DATE	4/22/09		
PROJECT	<i>[Signature]</i>	DATE	4/22/09		
REQUESTER	<i>[Signature]</i>	DATE	4/22/09		
R&QA	<i>[Signature]</i>	DATE	4/22/09		
SUPervisor	<i>[Signature]</i>	DATE	4/22/09		
SFRANKEL	<i>[Signature]</i>	DATE	4/22/09		
SIZE	D	CAGE CODE	25307		
SCALE	NONE	INDEX			
		FILE NAME:	258A-C07.DWG 4-28-09		

Ames Research Center
Moffett Field, California
N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
CIVIL
SECTIONS EXISTING

DWG: P:\ARC\258\ESR - Relay Uninterruptible Power Supply\ESR - RUPS Repackaging\ESR_RUPS - Phase 3\60046320.0001_RUPS Phase 3 - RUPS258A-C07.dwg User: pdalen
DATE: Apr 28, 2009 - 2:45:34 pm

60046320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-A1

SH. REV

ARCHITECTURAL NOTES

- INSTALL ACOUSTICAL CAULKING AT PERIMETER AND PENETRATIONS OF ALL PARTITIONS/WALLS THROUGHOUT PROJECT.
- RETAIN WALL FIRE-RATINGS AT ALL ELECTRICAL, DATACOMM AND CONTROL BOXES.
- EXTERIOR DOORS SHALL LIMIT AIR LEAKAGE AROUND OPENING PERIMETER WHEN CLOSED.
- ALL (N) EXTERIOR HORIZONTAL SURFACES TO SLOPE A MINIMUM OF 2% BUT LESS THAN 5% AWAY FROM BUILDING, UON.
- INSTALL FIRE SAFING WHERE REQUIRED TO MAINTAIN RATINGS INDICATED.
- ALL DIMENSIONS ARE SHOWN TO FACE OF FINISH UNLESS NOTED OTHERWISE.
- ALL DOORS AND STAIRS SHOWN ON DWGS ARE FOR GENERAL CONFIGURATION AND DIMENSIONS ONLY, THE ACTUAL SIZE AND LOCATION OF THE DOORS AND STAIRS SHALL BE DETERMINED BY THE RUPS EQUIPMENT MANUFACTURER. SIMILARLY, THE NUMBER OF STAIR RISERS SHALL BE BASED ON THE ACTUAL AS-BUILT ELEVATION DIFFERENCE BETWEEN THE FINISHED SLAB AND THE FINISH FLOOR ELEVATIONS OF THE SWITCHGEAR AND RUPS ENCLOSURES. SEE DOOR SCHEDULE AND DOOR NOTES FOR FURTHER REQUIREMENTS.
- ALL PERSONNEL DOORS, RAMPS, STAIRS, LANDINGS, HANDRAILS AND GUARDRAILS SHALL COMPLY WITH CBC 2007 SECTIONS 1008 (DOORS), 1009 (STAIRWAYS), 1010 (RAMPS), 1012 (HANDRAILS), 1013 (GUARDS) AND 1014/1015/1018 (EXITS).
- ALL RUPS ENCLOSURES SHALL BE PROVIDED WITH A MINIMUM OF TWO MEANS OF EGRESS WITHIN A MAXIMUM OF 10'-0" OF EACH OPPOSING END WALL AS MEASURED ALONG THE LONGITUDINAL AXIS OF THE ENCLOSURE, BUT AS CLOSE TO THE END WALLS AS POSSIBLE.
- A MINIMUM OF ONE EXIT IN EACH ENCLOSURE, SHALL BE PROVIDED WITH STAIR, LANDING AND GUARD RAIL ACCESS; THESE DOORS SHALL SWING OUTWARD AND BE PROVIDED W/PANIC HARDWARE. ALL OTHER EXITS SHALL BE PROVIDED WITH LADDER ACCESS, UON; DOORS WITH LADDER ACCESS SHALL SWING INWARD. ALL LADDERS SHALL BE OF GALVANIZED STEEL FABRICATION W/RAIL EXTENSIONS AND SCURELY FASTENED TOP AND BOTTOM.
- IF THE RUPS MANUFACTURER REQUIRES THE EXTERIOR FACE OF THE ENCLOSURES TO BE SETBACK FROM THE EDGE OF THE FOUNDATION SLAB, THE CONTRACTOR IS TO PROVIDE A MIN 3/8" THICK GALVANIZED STEEL CHECKER PLATE TO BRIDGE BETWEEN ALL STAIR LANDINGS AND THEIR ASSOCIATED ENCLOSURES AT OR BELOW THE ASSOCIATED DOOR THRESHOLD.
- IF THE MANUFACTURERS' DETAILED DESIGN OR SPECIFICATION OF THE FIRE SUPPRESSION SYSTEM, ENCLOSURES, MACHINERY, FUEL TYPE, FUEL STORAGE OR FUEL DELIVERY SYSTEM TRIGGERS RECLASSIFICATION OF THE OCCUPANCY TYPE TO "HIGH-HAZARD" (GROUP H) PER CBC SECTION 307, THEN EMERGENCY EXITING REQUIREMENTS CONCURRENT WITH A HAZARD CLASSIFICATION SHALL BE PROVIDED THROUGHOUT THE FINAL DETAILED DESIGN AND EMPLOYED IN SUCH A WAY AS TO NOT INTERFERE WITH THE FUNCTION, ACCESS OR SERVICABILITY OF THE FACILITY.

ABBREVIATIONS

AB	ANCHOR BOLT	LAM	LAMINATE
ACOUST	ACOUSTICAL	LAV	LAVATORY
ADJ	ADJUSTABLE	LT	LIGHT
ADP	AMES PROCEEDURE DOCUMENT	MATL	MATERIAL
AFF	ABOVE FINISH FLOOR	MAX	MAXIMUM
ALUM	ALUMINUM	MECH	MECHANICAL
ALT	ALTERNATE	MEMB	MEMBRANE
APPROX	APPROXIMATE	MET	METAL
ARCH	ARCHITECTURAL	MFR	MANUFACTURER
BD	BOARD	MIN	MINIMUM
BLDG	BUILDING	MISC	MISCELLANEOUS
BLK	BLOCK	MTD	MOUNTED
BLKG	BLOCKING	MTG	MOUNTING
BO	BOTTOM OF	MUL	MULLION
BTM	BOTTOM	MR	MOISTURE RESISTANT
C	CONDUIT	(N)	NEW
CAB	CABINET	N/A	NOT APPLICABLE
CB	CATCH BASIN	NEC	NATIONAL ELECTRIC CODE
CEM PLAS	CEMENT PLASTER	NER	NATIONAL EVALUATION REPORT
CER	CERAMIC	N.I.C.	NOT IN CONTRACT
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED	NO.	NUMBER
CL	CENTERLINE	NTS, N.T.S.	NOT TO SCALE
CLG	CEILING	OC, O.C.	ON CENTER
CLKG	CAULKING	OCC.	OCCUPANCY
CLR	CLEAR	OFF	OFFICE
CMU	CONCRETE MASONRY UNIT	OPNG	OPENING
CO	CLEAN OUT	OPP HAND	OPPOSITE HAND
COL	COLUMN	OPT	OPTIONAL
CONC	CONCRETE	PB	PULLBOX
CONT	CONTINUOUS	PBS	PUSHBUTTON STATION
COTR	CONTRACTING OFFICER TECHNICAL REPRESENTATIVE	PL	PLATE
CW	DOMESTIC COLD WATER	PLAM	PLATE
DBL	DOUBLE	PLYWD	PLASTIC LAMINATE
DET	DETAIL	PNL	PANEL
DF	DRINKING FOUNTAIN	PR	PAIR
DIA, Ø	DIAMETER/DIAGONAL	PRI	PRIMARY
DIM	DIMENSION	PT	PRESSURE TREATED
DISCONT	DISCONTINUOUS	PTD	PAINTED
DN	DOWN	PVC	POLYVINYLCHLORIDE
DR	DOOR	(R)	RELOCATED
DSD	DUCT SMOKE DETECTOR	RECEP	RECEPTACLE
DWG	DRAWING	REF	REFERENCE
DWR	DRAWER	REFL	REFLECTED
(E)	EXISTING	REINF	REINFORCED
EA	EACH	REQ	REQUIRED/REQUIRMENT
ELEC	ELECTRICAL	RGS	RIGID GALVANIZED STEEL
EMER	EMERGENCY	RM	ROOM
ENCL	ENCLOSURE	R.O.	ROUGH OPENING
EQ	EQUAL	RSC	RIGID STEEL CONDUIT
EXP	EXPANSION	RTG	RATING
(F)	FUTURE	SC	SOLID CORE
FA	FIRE ALARM	SCHED	SCHEDULE
FD	FLOOR DRAIN	SD	STORM DRAIN
FE	FIRE EXTINGUISHER	SHWR	SHOWER
FEC	FIRE EXTINGUISHER CAB	SHT	SHEET
FIN	FINISH	SIM	SIMILAR
FLEX	FLEXIBLE	SPEC	SPECIFICATION
FLR	FLOOR	SO	SQUARE
FLUOR	FLUORESCENT	STC	SOUND TRANSMISSION CLASS
FOF	FACE OF FINISH	STD	STANDARD
FOC	FACE OF CONC.	STOR	STORAGE
FOS	FACE OF STUD	STRUC	STRUCTURAL
FP	FULL PENETRATION (WELD)	SYM	SYMBOL
FURR	FURRING	TEL	TELEPHONE
FTG	FOOTING	TS	TUBE STEEL
GA	GAUGE	TYP	TYPICAL
GALV	GALVANIZED	UBC	UNIFORM BUILDING CODE
GAB	GRAB BAR	UON, U.O.N.	UNLESS OTHERWISE NOTED
GND	GROUND	VAT	VINYL ASBESTOS TILE
GFCI	GOVERNMENT FURNISHED CONTRACTOR INSTALLED	VCT	VINYL COMPOSITION TILE
GWB	GYPSPUM WALL BOARD	VIF	VERIFY IN FIELD
GYP	GYPSPUM	W/	WITH
HB	HOSE BIB	WC	WATER CLOSET
H/C	HANDICAP	WD	WOOD
HDWR	HARDWARE	WD PT	WOOD PAINTED
HM	HOLLOW METAL	W/O	WITHOUT
HR	HOUR	WP	WATER PROOF
HS	HIGH STRENGTH (BOLT)	WR	WATER RESISTANT
HT	HEIGHT	WSC	WAINSCOT
HT	HEIGHT	WT	WEIGHT
INSUL	INSULATION	WWF	WELDED WIRE FABRIC

SYMBOLS

- KEY NOTE NUMBER
- ROOM NAME & NUMBER
- DOOR NUMBER
- WORK POINT / CONTROL POINT / DATUM POINT
- REFERENCE NORTH ARROW
- REVISION IDENTIFICATION
- DETAIL, SHEET NOTE OR KEY NOTE REFERENCE
- SHEET WHERE DETAIL OR NOTE IS SHOWN
- DETAIL REFERENCE
- DETAIL NUMBER
- SHEET WHERE DETAIL IS SHOWN
- SHEET FROM WHICH DETAIL IS REFERENCED
- SECTION
- SECTION IDENTIFICATION
- SHEET WHERE SECTION IS DRAWN
- SHEET FROM WHICH SECTION IS REFERENCED
- PHOTOGRAPHIC VIEWPOINT OR EXTERIOR ELEVATION
- PHOTOGRAPH OR ELEVATION IDENTIFICATION
- SHEET WHERE PHOTOGRAPH OR ELEVATION IS SHOWN
- SHEET FROM WHICH PHOTOGRAPH OR ELEVATION IS REFERENCED
- INTERIOR ELEVATION
- DRAWING NUMBER
- LETTER INDICATES ELEVATION VIEW
- DRAWING NUMBER WHERE DRAWN
- EXISTING
- DEMOLITION, OPTION OR ALTERNATE
- NEW
- ALIGN NEW WITH EXISTING SURFACES OR AS OTHERWISE INDICATED

BUILDING INFORMATION

N258A ROTARY UNINTERRUPTIBLE POWER SUPPLY.

OCCUPANCY:	F (SEE NOTE 12)
CONSTRUCTION TYPE:	II YES, WITHIN ENCLOSURES
APPROXIMATE TOTAL NET USABLE AREA:	
(N) RUPS 1	502 SF
(E) RUPS 2	502 SF
(E) RUPS 3	502 SF
(F) RUPS 4	502 SF
(E) RUPS SWITCHGEAR	1,134 SF

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					
DRAWN	PA	DATE	4/22/09		
DESIGNED	THORAN	DATE	4/21/09		
CHECKED	C. MURPHY	DATE	4/28/09		
PROJECTOR	J. M. SISKER	DATE	4/28/09		
REQUESTER	N. HSU/H. CHUNG	DATE	4/28/09		
R&QA		DATE			
SAFETY		DATE			
SUPERVISOR	S. FRANKEL	DATE	4/28/09		

Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ARCHITECTURAL
ARCHITECTURAL NOTES, SYMBOLS AND ABBREVIATIONS

SIZE	D	CAGE CODE	25307	FILE NAME:	258A-A01.DWG
SCALE	AS SHOWN	INDEX		SHEET	OF

8

7

6

5

4

3

2

4-28-09

DWG: P:\MCA\258\ESRI - Rotary Uninterruptible Power Supply\ESRI - RUPS Recataloging\ESRI - RUPS - Phase 3 - RUPS258A-A01.dwg
 DATE: Apr 28, 2009 - 2:45:35 pm
 Version: 17.1.6 (LMS Tech) User: padden

60048320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-A2

SH. REV

SHEET NOTES

1. LIGHT LINES INDICATE EXISTING CONDITIONS OR NON-ARCHITECTURAL ELEMENTS, DARK LINES INDICATE NEW WORK.
2. SEE CIVIL AND STRUCTURAL DRAWINGS FOR GRADE, SLABS AND PAD ELEVATIONS AND/OR DIMENSIONS.
3. FOR REQUIREMENTS OF THE THIRD RUPS ENCLOSURE, SEE SPECIFICATION SECTION 26 32 33.00 10.
4. THE SPACING AND LAYOUT OF THE RUPS AND SWITCHGEAR ENCLOSURES INDICATE THE GENERAL ARRANGEMENT TO BE FOLLOWED BY THE DESIGN CONTRACTOR. THE DIMENSIONS SHOWN FOR THE ENCLOSURES ARE THE MAXIMUM ALLOWABLE. THE DIMENSIONS FOR THE AISLES BETWEEN THE ENCLOSURES AND BETWEEN THE ENCLOSURES AND THE CONCRETE WALL ARE THE MINIMUM ALLOWABLE. THE PRECISE LOCATION OF OPENINGS SHALL BE DESIGNED BY THE DESIGN BUILD CONTRACTOR BASED ON THE OPERATIONAL AND MAINTENANCE REQUIREMENTS OF THE EQUIPMENT AND ALL APPLICABLE CODES AND STANDARDS. THE LOCATIONS INDICATED SHALL BE GENERALLY ADHERED TO.

KEY NOTES

- 1 NOT USED.
- 2 (E) SHED ROOF AND GUTTER SYSTEM (ABOVE), TYP.
- 3 NOT USED.
- 4 NOT USED.
- 5 (E) CONCRETE SLAB ON GRADE, SEE STRUCTURAL DRAWINGS.
- 6 NOT USED.
- 7 NOT USED.
- 8 (E) GRAVEL GROUND COVER, SEE CIVIL DRAWINGS.
- 9 RESTORE (E) LANDSCAPING TO MATCH (E) TURF. REPAIR OR REPLACE IRRIGATION SYSTEM IF DISTURBED DURING CONSTRUCTION.
- 10 (N) SHEET METAL DOWNSPOUTS, MINIMUM 2 PER ENCLOSURE.
- 11 (N) RUPS UNIT W/INTEGRAL ENCLOSURE (TYP OF 1).
- 12 (E) SWITCHGEAR ENCLOSURE.
- 13 NOT USED.
- 14 NOT USED.
- 15 (E) ELECTRICAL MANHOLE, SEE ELECTRICAL DRAWINGS.
- 16 INDUCTION COUPLING FORKLIFT ACCESS POINT INDICATED BY ◆.
- 17 NOT USED.
- 18 (E) CONCRETE LANDINGS AND STAIRS WITH METAL HANDRAILS, TYP.
- 19 (E) CONCRETE EQUIPMENT RAMP AND LANDING, TYP.
- 20 (E) SWITCHGEAR/TRANSFORMER FOUNDATION AND CONTAINMENT AREA.
- 21 VENTILATION FAN, SEE MECHANICAL DWGS.
- 22 OVERHEAD SERVICE CRANE, BY RUPS MANUFACTURER.
- 23 (F) RUPS 4 INSTALLATION.

Approved for Construction
Moffett Field Permit Board

[Signature]
Chief Building Official

Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN PALDEN	DATE 4/28/09
DESIGNED THORAN	DATE 4/21/09
CHECKED CMURPHY	DATE 4/28/09
PROJECT MGR JIMCOURSER	DATE 4/28/09
REGISTERED N.HSU/H.CHUNG	DATE 4/28/09
R&QA	DATE

Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ARCHITECTURAL

FLOOR PLAN

SUPERVISOR SFRANKEL	DATE 4/28/09	SIZE D	CAGE CODE 25307	INDEX	SHEET OF
SCALE AS SHOWN		FILE NAME: 258A-A02.DWG		4-28-09	

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

8

7

6

5

4

3

2

DWG: P:\ARC\258A\ESRI - Rotary Uninterruptible Power Supply\ESRI - Phase 3\60048320.001_RUPS Phase 3 - RUPS258A-A02.DWG Version: 17.1.s (LMS Tech) User: pdalen DATE: Apr 28, 2009 2:45:39 pm

60048320.001

DWG: P:\ARC\238\ESRI - Rotary Uninterruptible Power Supply\ESRI - RUPS Repackaging\ESRI_RUPS - Phase 3\60048320.0001_RUPS Phase 3 - RUPS258A-A03.DWG Version: 17.1.s (LMS Tech) User: palden
 DATE: Apr 28, 2009 - 2:45:42 pm

SHEET NOTES

- LIGHT LINES INDICATE EXISTING CONDITIONS OR NON-ARCHITECTURAL ELEMENTS, DARK LINES INDICATE NEW WORK.
- FOR REQUIREMENTS OF FOUR INTEGRAL RUPS ENCLOSURES AND SWITCHGEAR ENCLOSURE SEE SPECIFICATION SECTION 26 32 33.00 10.

KEY NOTES

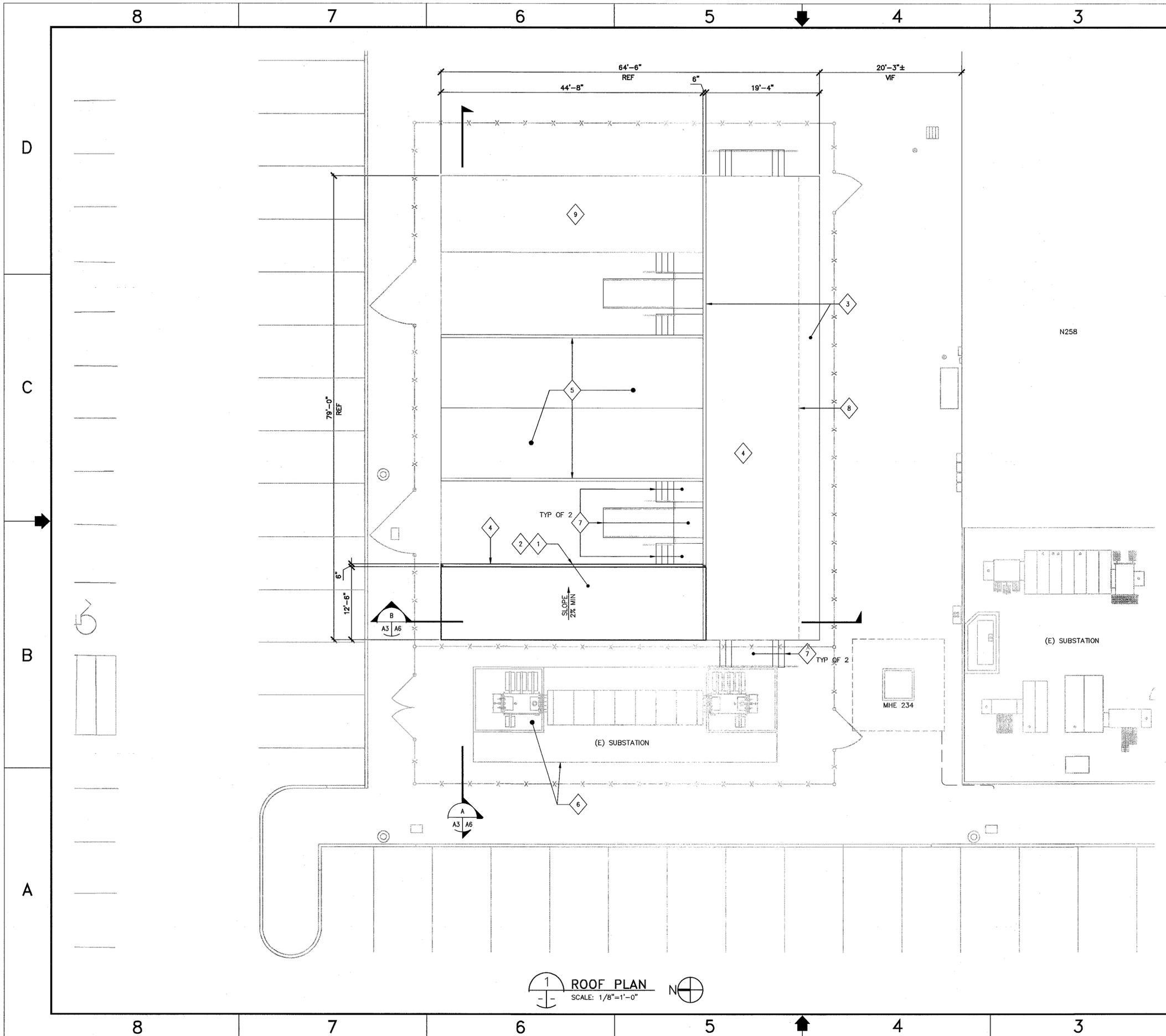
- 1 (N) SHED ROOF, SLOPE ROOF TO DRAIN (TYP OF 1).
- 2 (N) RUPS ENCLOSURE.
- 3 (E) SWITCHGEAR ENCLOSURE W/SHED ROOF AND INTEGRAL GUTTER SYSTEM.
- 4 (N) CONTINUOUS SHEET METAL GUTTER SYSTEM AT LOWER ROOF EAVE (TYP).
- 5 (E) RUPS ENCLOSURE W/GABLE ROOF AND INTEGRAL GUTTER SYSTEM.
- 6 (E) SWITCHGEAR/TRANSFORMER FOUNDATION AND CONTAINMENT AREA.
- 7 (E) RAMP, STAIRS AND LANDINGS W/HANDRAILS.
- 8 (E) OUTLINE OF SWITCHGEAR ENCLOSURE, BELOW.
- 9 (F) RUPS 4 INSTALLATION.

Approved for Construction
 Moffett Field Permit Board

 Chief Building Official
 Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN PALDEN	DATE 4/28/09	 Ames Research Center Moffett Field, California N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III ARCHITECTURAL <h3 style="margin: 0;">ROOF PLAN</h3>	DATE 4/28/09	DATE 4/28/09	DATE 4/28/09
DESIGNED T. HORAN	DATE 4/28/09		DATE 4/28/09	DATE 4/28/09	DATE 4/28/09
CHECKED C. MURPHY	DATE 4/28/09		DATE 4/28/09	DATE 4/28/09	DATE 4/28/09
PROJ. MGR J. MCCLUSKEY	DATE 4/28/09		DATE 4/28/09	DATE 4/28/09	DATE 4/28/09
REQUESTER N. HSU/H. CHUNG	DATE 4/28/09		DATE 4/28/09	DATE 4/28/09	DATE 4/28/09
SUPervisor S. FRANKEL	DATE 4/28/09	SCALE AS SHOWN	SIZE D	CAGE CODE 25307	INDEX SHEET OF
FILE NAME: 258A-A03.DWG			4-28-09		



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

60048320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-A6

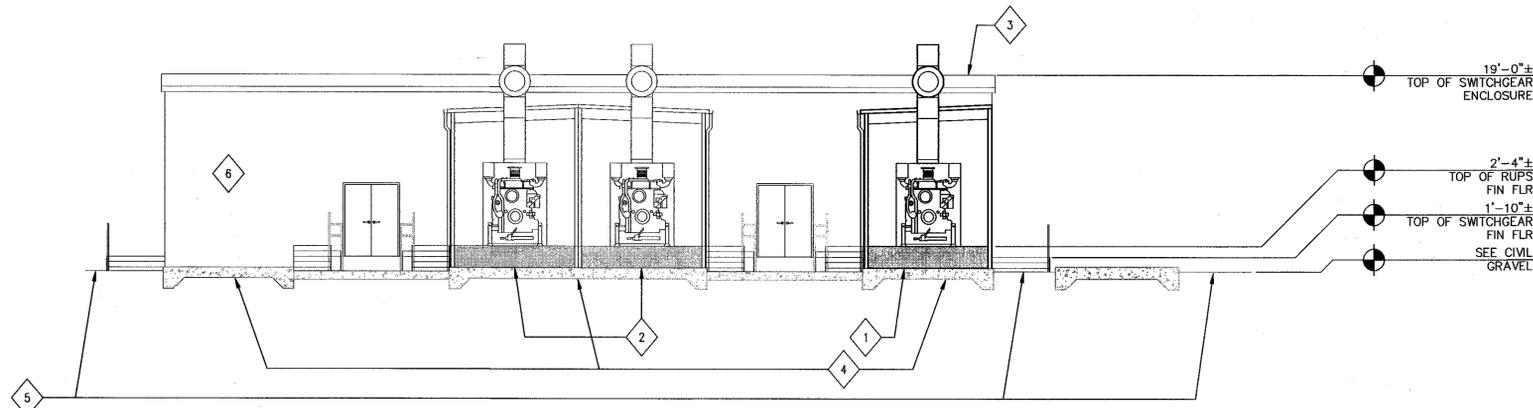
SH. REV

SHEET NOTES

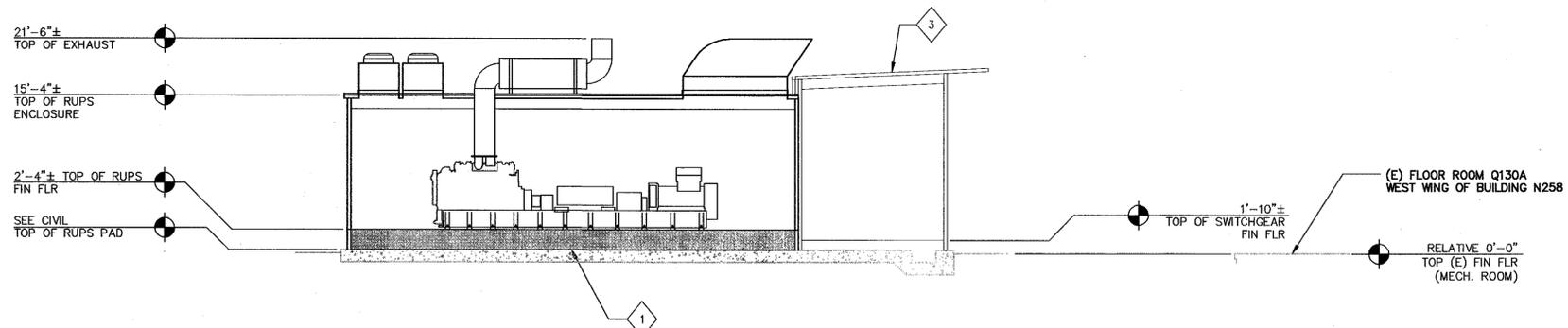
- 1. LIGHT LINES INDICATE EXISTING CONDITIONS AND DARK LINES INDICATE NEW WORK.
- 2. ALL (N) EQUIPMENT SHOWN ON THIS DRAWING ARE BASE BID ITEMS, UON.
- 3. ALL (N) CONTIGUOUS ENCLOSURES ARE TO BE INTEGRAL, THAT IS, PHYSICALLY ATTACHED AND BRACED STRUCTURALLY.

KEY NOTES

- 1 (N) RUPS UNITS W/ENCLOSURES AND INTEGRAL FUEL STORAGE TANK (BELOW), TYP OF 1. SEE MECHANICAL AND ELECTRICAL DRAWINGS.
- 2 (E) RUPS UNITS W/ENCLOSURES AND INTEGRAL FUEL STORAGE TANK (BELOW), TYP OF 2. SEE MECHANICAL AND ELECTRICAL DRAWINGS.
- 3 (E) RUPS SWITCHGEAR W/ENCLOSURE. SEE MECHANICAL AND ELECTRICAL DRAWINGS.
- 4 (E) RUPS EQUIPMENT PADS, SEE CIVIL AND STRUCTURAL DRAWINGS.
- 5 (E) GRAVEL FILL, SEE CIVIL DRAWINGS.
- 6 (F) RUPS 4 INSTALLATION.



A SECTION
A2, A3, A6 SCALE: 1/8"=1'-0"



B SECTION
A2, A3, A6 SCALE: 1/8"=1'-0"

Approved for Construction
Moffett Field Permit Board
M. S. Blue
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPROV
REVISIONS					

DRAWN	DATE
DESIGNED	DATE
CHECKED	DATE
PROJ MGR	DATE
REQUESTER	DATE
R&QA	DATE

Ames Research Center
Moffett Field, California
N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ARCHITECTURAL

BUILDING SECTIONS

SUPERVISOR	DATE	SIZE	CAGE CODE	INDEX	SHEET	OF
SFRANKEL	4-23-09	D	25307	A	258A-0702-A6	1 REV
SCALE AS SHOWN		INDEX		FILE NAME:		

258A-A06.DWG 4-28-09

DWG: P:\ARC\258\ESRI - Relay Uninterruptible Power Supply\ESRI - RUPS Reproscoping\ESRI_RUPS - Phase 3\60048320.0001_RUPS Phase 3 - RUPS258A-A06.DWG
 User: palden
 Version: 17.1.8 (LMS Tech)
 DATE: Apr 28, 2009 - 2:45:45 pm

60048320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-A8 SH. REV

DOOR SCHEDULE

FINISH SCHEDULE

DOOR NO.	TYPE	DOOR OPENING SIZE (MIN/CLR)	THK (NOM)	MATL	FIN	FRAME MATL	FRAME FIN	FIRE RTG (MIN)	HARDWARE GROUP	HEAD	JAMB	SILL	REMARKS	ROOM NO.	ROOM NAME	FLOOR	BASE	WALL				CEILING	CEILING HEIGHT	REMARKS
																		N	E	S	W			
G101A	A	3'-0" X 6'-8"	1 3/4"	HM	PTD	HM	PTD	1 HOUR	3	-	-	-	IN-SWING HOLLOW METAL SINGLE DOOR PER MANUFACTURERS' RECOMMENDATION	G101	RUPS1	2	NA	4	4	4	4	6	NA	BY MANUFACTURER
G101B	C	PER MFR	PER MFR	HM	PTD	HM	PTD	1 HOUR	PER MFR	-	-	-	SERVICE ACCESS DOOR; MUST MEET MINIMUM EGRESS REQUIREMENTS, FIRE RATING PER WALL RATING, DETAIL PER MANUFACTURERS' RECOMMENDATION	G102	RUPS2	-	-	-	-	-	-	-	-	EXISTING INSTALLATION
G101C	A	3'-0" X 6'-8"	1 3/4"	HM	PTD	HM	PTD	1 HOUR	1	-	-	-	OUT-SWING HOLLOW METAL DOOR PER MANUFACTURERS' RECOMMENDATION	G103	RUPS3	-	-	-	-	-	-	-	-	EXISTING INSTALLATION
														G104	RUPS4	-	-	-	-	-	-	-	-	FUTURE INSTALLATION

DOOR NOTES

FINISH NOTES

1. REFER TO SPECIFICATION SECTION 08 71 00 FOR HARDWARE INFORMATION.
 2. PROVIDE LEVER TYPE OPERATING HANDLES ON ALL PERSONNEL DOORS.
 3. REFER TO SPECIFICATION SECTION 08 11 13 FOR STEEL DOOR AND FRAME INFORMATION.
 4. ALL DOOR THRESHOLDS SHALL NOT PROJECT MORE THAN 1/2" ABOVE FINISHED INTERIOR FLOORS.
 5. ALL STAIRWAY LANDINGS SHALL BE AT OR BELOW INTERIOR FINISHED FLOOR LEVELS.
 6. ALL DOORS OF SIMILAR TYPES SHALL BE CONSISTENTLY SIZED AND SPACED.
 7. HOLLOW METAL DOORS AND FRAMES SHALL BE PAINTED.

HM - HOLLOW METAL
 NR - NON RATED
 PTD - PAINTED
 GALV - GALVANIZED STEEL
 NA - NOT APPLICABLE

1. REFER TO PROJECT SPECIFICATIONS AND/OR MANUFACTURERS' PRODUCT SPECIFICATIONS FOR GENERAL PRODUCT INFORMATION.
 2. EXAMINE ALL SURFACES TO BE FINISHED AND VERIFY THAT THEY ARE ACCEPTABLE TO RECEIVE SPECIFIED FINISHES.
 3. SURFACE DEFECTS OR DEFICIENCIES WHICH MAY ADVERSELY AFFECT WORK SHALL BE CORRECTED OR BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR CORRECTION PRIOR TO COMMENCEMENT OF WORK.
 4. ALL SURFACES TO BE PAINTED SHALL BE PREPARED AND PRIMED ACCORDING TO MANUFACTURERS' DIRECTIONS AND RECOMMENDATIONS.
 5. NOTIFY CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS REGARDING CONDITIONS OR LOCATIONS FOR APPLICATION OF MATERIALS PRIOR TO OR DURING CONSTRUCTION/INSTALLATION, OR ASSIGN TRADE RESPONSIBILITY FOR CORRECTION OF SUCH WORK AS DIRECTED BY THE CONTRACTING OFFICER.
 6. EXAMINE ALL AREAS OF CONSTRUCTION AFTER COMPLETION OF WORK BY ALL TRADES AND DIRECT AND APPROVE ALL NECESSARY TOUCH-UP PAINTING OR PATCHING.
 7. SUBMIT SAMPLES OF ALL FINISH MATERIALS FOR CONTRACTING OFFICER'S APPROVAL.
 8. ALL CHANGES IN FLOOR MATERIAL TO OCCUR AT CENTERLINE OF DOOR FRAME, UON.
 9. MIN 20GA GALVANIZED STEEL FLASHING SHALL BE PROVIDED AT THE BASE OF ALL EXTERIOR ENCLOSURE WALLS TO PREVENT RAIN WATER INFILTRATION.

10. EXTERIOR WALL OPENINGS SHALL BE PROVIDED WITH MIN 20GA GALVANIZED STEEL DRIP EDGES ABOVE ALL OPENINGS.
 11. ADDITIONAL FLASHING APPLICATIONS ASSOCIATED WITH METAL CLADDING AND/OR OTHER UNRELATED APPLICATIONS SHALL ALSO BE GALVANIZED STEEL OR OF SIMILAR MATERIAL TO THE CLADDING ITSELF AND EQUAL TO OR GREATER THAN IN THICKNESS THAN THE ADJACENT CLADDING MATERIAL.
 12. ALL ENCLOSURES SHALL BE CLAD AND FINISHED CONSISTENTLY INSIDE AND OUT THE SAME OR SIMILARLY PER THEIR SURFACE DESIGNATION - ROOF, WALLS AND ETC. IF METAL SIDING AND ROOFING IS SELECTED AS THE FINISH MATERIAL BY THE DETAIL DESIGNERS, THE THICKNESS OF SUCH CLADDING SHALL BE A MIN OF 22GA.

DOOR TYPES

FINISH TYPES

Diagram A: Door with 3'-0" CLR MIN and 6'-8" MIN. Diagram B: NOT USED. Diagram C: Door with PER MFR VIF.

FLOOR

1 NOT USED
 2 BY MANUFACTURER

WALL

3 NOT USED
 4 BY MANUFACTURER

CEILING

5 NOT USED
 6 BY MANUFACTURER

DOOR HARDWARE

NOTE:
 SEE SPECIFICATION SECTION 08 71 00 FOR FINISH HARDWARE REQUIREMENTS. IN THE EVENT OF CONFLICTS BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE DRAWINGS SHALL TAKE PRECEDENCE

GROUP 1 (SINGLE DOOR WITH PANIC HARDWARE)
 HINGES: 1 SET BUTTS 4 1/2" X 4 1/2", HAGAR BB1279 FINISH, 630 (SATIN STAINLESS)
 CLOSER: LCN 4011 SERIES, FINISH 628 TO MEET REQUIREMENTS OF CBC 1133B.2.5 (1 PER DOOR)
 PANIC DEVICE: VON DUPRIN 98L-F, 360L TRIM; BEST 1E 7-PIN CYLINDER HOUSING(S); FINISH 628
 ASTRAGAL: PEMKO 357SP
 DOOR STOP: GYLNN JOHNSON FB19X, FINISH 630
 DOOR SILENCERS: (3) TRIMCO 1229A
 DOOR SEALS: PEMKO S88D20

GROUP 2
 NOT USED

GROUP 3 (SINGLE DOORS WITHOUT PANIC HARDWARE)
 HINGES: 1 1/2 PAIR BUTTS 4 1/2" X 4 1/2", HAGAR BB1279, FINISH 630 (SATIN STAINLESS)
 CLOSER: LCN 4011 SERIES, FINISH 628 TO MEET REQUIREMENTS OF CBC 1133B.2.5
 PANIC DEVICE: NONE
 DOOR STOP: GYLNN JOHNSON FB19X, FINISH 630
 DOOR SILENCERS: (3) TRIMCO 1229A
 DOOR SEALS: PEMKO S88D20

Approved for Construction
 Moffett Field Permit Board
 Chief Building Official
 Permit No. 09Q041

ZONE LETTER DESCRIPTION DRAWN DATE APPROVD

REVISIONS

DRAWN: P. ALDEN
 DESIGNED: J. THORAN
 CHECKED: J. THORAN
 PROJECTOR: J. MCGUISKER
 REQUESTER: N.HSU/H.CHUNG
 R&QA: S. FRANKEL

DATE: 4/22/09
 DATE: 4/28/09
 DATE: 4/28/09
 DATE: 4/28/09
 DATE: 4/28/09

Ames Research Center
 Moffett Field, California
 N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
 ARCHITECTURAL

DOOR AND FINISH SCHEDULES

SIZE: 25307
 CAGE CODE: 25307
 SCALE: AS SHOWN

FILE NAME: 258A-0702-A8
 SHEET: 4-28-09

8

7

6

5

4

3

2

FILE NAME: 258A-0702-A8 4-28-09

DWS: P:\AEC\258A\ESRI - RUP5\Utilities\Power Supply\ESRI - RUP5\Repackaging\ESRI_RUP5 - Phase 3\60048320.0001_RUP5 Phase 3 - RUP5258A-A08.DWG Version: 17.1s (LMS Tech) User: palden DATE: Apr 26, 2009 - 2:46:17 PM

60048320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-S1

SH. REV

STRUCTURAL NOTES

FOUNDATION

CONCRETE

ABBREVIATIONS

- 1. ALL WORK AND MATERIALS SHALL CONFORM TO THE 2007 CALIFORNIA BUILDING CODE.
- 2. ALL STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATIONS AND ALL OTHER DRAWINGS RELATING TO THE WORK.
- 3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES BEFORE PROCEEDING FURTHER WITH THE CONSTRUCTION.
- 4. EMBEDDED ITEMS SUCH AS PIPES, INSERTS, SLEEVES AND CONDUITS, AND ANY RECESSES OR OPENINGS REQUIRED FOR UTILITY, ARCHITECTURAL, MECHANICAL AND ELECTRICAL INSTALLATIONS ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS. CONTRACTOR TO REFER TO THE UTILITY, ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR THE LOCATIONS AND DETAILS OF THESE ITEMS.
- 5. NO PIPES OR SLEEVES FOR MECHANICAL, ELECTRICAL OR PLUMBING TRADES SHALL PASS THROUGH STRUCTURAL MEMBERS, UNLESS SHOWN ON STRUCTURAL DRAWINGS, WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.
- 6. SEWER AND UTILITY LINES ARE NOT INDICATED ON STRUCTURAL DRAWINGS. REFER TO CIVIL, PLUMBING AND ELECTRICAL DRAWINGS FOR THEIR LOCATION, PROFILE AND DETAILS. THE CONTRACTOR MUST COORDINATE SEWER AND UTILITY LINES WITH FOUNDATIONS SHOWN ON STRUCTURAL DRAWINGS. ANY INTERFERENCE BETWEEN SEWER AND UTILITY LINES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING FURTHER WITH THE CONSTRUCTION.
- 7. SEE ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR WALL OPENINGS, SLAB DEPRESSIONS, TRENCHES ETC. NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- 8. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISH STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION, SUCH MEASURES SHALL INCLUDE, BUT NOT LIMITED TO, BRACING, SHORING, TEMPORARY SUPPORTS FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC.
- 9. THE CONSTRUCTION PRACTICE, ADEQUACY AND SAFETY OF TEMPORARY BRACING, SHORING, SUPPORTS, ETC. SHALL REMAIN THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

- A.B. — ANCHOR BOLT
- ADD'L — ADDITIONAL
- ACI — AMERICAN CONCRETE INSTITUTE
- AISC — AMERICAN INSTITUTE OF STEEL CONSTRUCTION
- ALT. — ALTERNATE
- ARCH. — ARCHITECTURAL
- AWS — AMERICAN WELDING SOCIETY
- BM — BEAM
- B.O.S. — BOTTOM OF STEEL
- BOT. — BOTTOM
- B.PL. — BASE PLATE
- BTWN — BETWEEN
- C.J.P. — COMPLETE JOINT PENETRATION
- CHKD — CHECKED
- C.I.P. — CAST IN PLACE
- C.L. — CENTERLINE
- CLR — CLEAR
- C.M.U. — CONCRETE MASONRY UNIT
- COL — COLUMN
- CONC — CONCRETE
- CONN — CONNECTION
- CONST JT — CONSTRUCTION JOINT
- C.J. — CONTROL JOINT
- CONT — CONTINUOUS
- DET — DETAIL
- DIA OR Ø — DIAMETER
- DWG — DRAWING
- EA — EACH
- E.F. — EACH FACE
- EQUIP — EQUIPMENT
- E.S. — EACH SIDE
- E.W. — EACH WAY
- EL OR ELEV — ELEVATION
- EQ — EQUAL
- ER — EXISTING TO REMAIN
- EXP — EXPANSION
- EXP JT — EXPANSION JOINT
- FLG — FLANGE
- FDN — FOUNDATION
- F.S. — FAR SIDE
- FTG — FOOTING
- FRMG — FRAMING
- GA — GAGE, GAUGE
- GALV — GALVANIZED
- GB — GRADE BEAM
- GRGT — GRATING
- HNGR — HANGER
- HORIZ — HORIZONTAL
- H.P. — HIGH POINT
- HT — HEIGHT
- H.S. — HIGH STRENGTH
- JT — JOINT
- KSI — KILO LBS PER SQUARE INCH
- LG — LONG
- LLH — LONG LEG HORIZONTAL
- LLV — LONG LEG VERTICAL
- LP — LOW POINT
- LT WT — LIGHT WEIGHT
- M — METER
- MAX. — MAXIMUM
- MET — METAL
- MIN. — MINIMUM
- N.I.C. — NOT IN CONTRACT
- N.S. — NEAR SIDE
- N.T.S. — NOT TO SCALE
- N.W. — NORMAL WEIGHT
- O.C. — ON CENTER
- OPNG — OPENING
- OPP HD — OPPOSITE HAND
- OVS. — OVERSIZED
- PL OR R — PLATE
- PLF — POUNDS PER LINEAL FOOT
- PSF — POUNDS PER SQUARE FOOT
- PSI — POUNDS PER SQUARE INCH
- PC — PRECAST
- PS — PRESTRESSED
- RAD — RADIUS
- REF — REFERENCE
- REINF — REINFORCE (D) (ING) (MENT)
- REQ — REQUIRED/REQUIREMENTS
- SECT — SECTION
- SHT — SHEET
- SIM — SIMILAR
- STAG — STAGGERED
- STIFF — STIFFENER
- STL — STEEL
- STRUCT — STRUCTURAL
- SYMM — SYMMETRICAL
- T & B — TOP AND BOTTOM
- THK — THICK, THICKNESS
- T.O.C. — TOP OF CONCRETE
- T.O.F. — TOP OF FOOTING
- T.O.S. — TOP OF STEEL
- T.O.W. — TOP OF WALL
- TSG — TAPERED STEEL GIRDER
- TYP — TYPICAL
- U.N.O. — UNLESS NOTED OTHERWISE
- VERT. — VERTICAL
- VIF — VERIFY IN FIELD
- W/ — WITH
- W.P. — WORKING POINT
- WPS — WELD PASS SEQUENCE
- W.W.F. — WELDED WIRE FABRIC

REINFORCING STEEL

SPECIAL INSPECTION

- 1. INSPECTIONS AND TESTING SHALL COMPLY WITH SPECIFICATIONS.
- 2. ALL INSPECTIONS INCLUDING SPECIAL INSPECTIONS AND CONTINUOUS INSPECTION SHALL BE DONE BY A QUALIFIED TESTING AGENCY AND QUALIFIED INSPECTORS AT THE EXPENSE OF THE CONTRACTOR. GOVERNMENT SHALL BE NOTIFIED IN ADVANCE TO WITNESS ALL THE TESTS. ALL TEST RESULTS DOCUMENTATIONS SHALL BE SUBMITTED TO THE GOVERNMENT.
- 3. SPECIAL INSPECTION SHALL COMPLY WITH 2007 CBC, CHAPTER 17. SPECIAL INSPECTION SHALL BE PROVIDED FOR THE FOLLOWING USE:
 - A) WELDING — WELDING SHALL BE DONE IN AN GOVERNMENT APPROVED SHOP. APPROVED FABRICATORS SHALL CONFORM TO CBC 1701. ALL FIELD WELDING SHALL HAVE CONTINUOUS INSPECTION.
 - B) EPOXY & EXPANSION TYPE ANCHOR BOLTS.
 - C) REINFORCING STEEL PLACEMENT.
 - D) ALL CONCRETE WORK.

Approved for Construction
Moffett Field Permit Board
Metsala
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	J.MADANO	DATE	4/20/09
DESIGNED	PVA	DATE	4/20/09
CHECKED	J.MATUTINA	DATE	4/29/09
IN CHARGE	N.SHAH	DATE	4/28/09
PROJECT MGR	J.MCJUSKEY	DATE	4/28/09
REQUESTER	N.HSU/H.CHUNG	DATE	4/28/09
R&QA		DATE	

Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
STRUCTURAL

STRUCTURAL NOTES AND ABBREVIATIONS

SUPERVISOR	S.FRANKEL	DATE	4-28-09	SIZE	D	CAGE CODE	25307	SCALE	NTS	INDEX	SHEET	OF
------------	-----------	------	---------	------	---	-----------	-------	-------	-----	-------	-------	----

FILE NAME:
258A-S01.DWG 4-28-09

8

7

6

5

4

3

2

DWG: P:\AEC\258\ESR - Bates\Uninterruptible Power Supply\ESR - RUPS Replacement\ESR_RUPS - Phase 3 - RUPS258-S01.DWG
 Version: 17.1s (LMS Tech) User: pdiden
 DATE: Apr 28, 2009 2:45:49 pm

60048320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-S3

SH. REV

D

D

1 NOT USED
SCALE: NTS

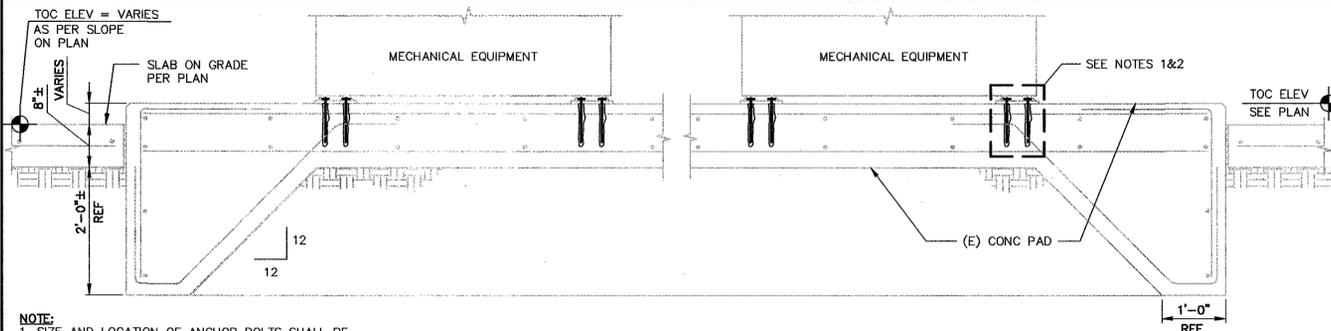
2 NOT USED
SCALE: NTS

3 NOT USED
SCALE: NTS

4 NOT USED
SCALE: NTS

C

C



NOTE:
 1. SIZE AND LOCATION OF ANCHOR BOLTS SHALL BE DESIGNED BY EQUIPMENT MANUFACTURER.
 2. CONTRACTOR SHALL SUBMIT STRUCTURAL CALCULATION FOR EQUIPMENT ANCHORAGE AND ENCLOSURE ANCHORAGE TO THE CONCRETE FOUNDATION, STAMPED BY A CIVIL ENGINEER LICENSED IN THE STATE OF CALIFORNIA. CALCULATION SHALL BE ACCORDING TO REQUIREMENTS AND CRITERIA OF 2007 CBC (CALIFORNIA BUILDING CODE).

5 NOT USED
SCALE: NTS

6 CONC EQUIPMENT PAD SECTION
SCALE: 1/2"=1'-0"

7 NOT USED
SCALE: NTS

B

B

8 NOT USED
SCALE: NTS

9 NOT USED
SCALE: NTS

10 NOT USED
SCALE: NTS

A

A

11 NOT USED
SCALE: NTS

12 NOT USED
SCALE: NTS

13 NOT USED
SCALE: NTS

Approved for Construction
 Moffett Field Permit Board
 Chief Building Official
 Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	LMAGANO	DATE	4/28/09
DESIGNED	By: J. Frankel	DATE	4/28/09
CHECKED	JMATUTINA for J. Frankel	DATE	4/28/09
PROJECTOR	N. SHAI	DATE	4/28/09
REQUESTER	J. McCLUSKER	DATE	4/28/09
R&QA	N. HSU/H. CHUNG	DATE	4/28/09
SAFETY		DATE	
SUPERVISOR	S. FRANKEL	DATE	4-28-09

Ames Research Center
 Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
 STRUCTURAL

TYPICAL CONCRETE DETAILS

SIZE	D	CAGE CODE	25307	INDEX	258A-0702-S3	REV	
SCALE	NTS	INDEX		SHEET		OF	

FILE NAME:
 258A-S03.DWG 4-28-09

8

7

6

5

4

3

2

DWG NO. A258A-0702-S4 SH. REV

SHEET NOTES

1. FOR FINISH SLAB ELEVATIONS, SEE CIVIL DRAWINGS

NOTE: THIS DRAWING IS PROVIDED FOR INFORMATION ONLY, UON.

LEGEND

- ← INDICATES SLOPE
- ▭ NOT USED
- ▭ INDICATES EXISTING CONCRETE FOUNDATION PAD

Approved for Construction
Moffett Field Permit Board
M. J. ...
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	J. MADANO	DATE	4/22/09
DESIGNED	A. J. ...	DATE	4/22/09
CHECKED	N. SHAH	DATE	4/23/09
PROJECT MGR	J. MADANO	DATE	4/23/09
REQUESTER	N. SHAH	DATE	4/23/09
R&QA	S. FRANKEL	DATE	4/23/09

Ames Research Center
Moffett Field, California
N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
STRUCTURAL

FOUNDATION PLAN
EXISTING

SUPERVISOR	S. FRANKEL	DATE	4-23-09	SIZE	D	CAGE CODE	25307	INDEX	258A-0702-S4	REV	1
SCALE 1/8"=1'-0"										SHEET	OF

FILE NAME:
258-S04.DWG 4-28-09



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

DWG: P:\VCS\258\ESR - Relay Uninterruptible Power Supply\ESR - Phase 3\6046320.001_RUPS Phase 3 - RUPS258-S04.DWG Version: 17.1s (LMS Tech) User: polden DATE: Apr 28, 2009 - 2:45:54 pm

60046320.001

8

7

6

5

4

3

2

DWG NO. 258A-0702-M1

SH. REV

SUBMITTALS

ABBREVIATIONS (NOT ALL ABBREVIATIONS HAVE BEEN USED)

SYMBOLS

SUBMIT DESIGN-BUILD SHOP DRAWINGS AND THE FOLLOWING SUBMITTALS TO NASA FOR APPROVAL BEFORE START OF CONSTRUCTION:

1. CALIFORNIA TITLE 24 ENERGY CALCULATION
2. COOLING AND HEATING LOAD CALCULATION
3. AIR CONDITIONING UNIT (ACU-1)
4. MOUNTING DETAILS FOR ACU-1 ON ROOF WITH ROOF CURB
5. TYPICAL DUCTWORK SUPPORT MEETING SMACNA REQUIREMENT
6. THERMOSTAT

THE FOLLOWING SUBMITTALS ARE FOR INFORMATION ONLY:

1. O&M MANUAL

ACM ASBESTOS CONTAINING MATERIAL
AHU AIR HANDLING UNIT
AI ANALOG INPUT
AMP AMPERE
AO ANALOG OUTPUT
AVA AIR VENT (AUTOMATIC)
BF BOILER FEED
BFP BACKFLOW PREVENTER ASSEMBLY
BOD BOTTOM OF DUCT
CA COMPRESSED AIR
CAP CAPACITY
CER CEILING EXHAUST REGISTER
CC COOLING COIL
OFF CAP FOR FUTURE CONNECTION
CG CEILING GRILLE
CH CHILLER
CHW CHILLED WATER
CHR CHILLED WATER RETURN
CHS CHILLED WATER SUPPLY
CO CLEAN OUT
CONC. CONCRETE
COTR CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE
CW DOMESTIC COLD WATER
CWP CHILLED WATER PUMP
DB DRY BULB
DDC DIRECT DIGITAL CONTROL
DEFL DEFLECTION
DIA DIAMETER
DI DI-IONIZED WATER
DO DIGITAL OUTPUT
DN DOWN
DP DIFFERENTIAL PRESSURE
DPT DIFFERENTIAL PRESSURE TRANSDUCER
DPU DIGITAL POINT UNIT
DSD DUCT SMOKE DETECTOR
DW DEIONIZED WATER
(E) EXISTING
EA EACH
EAT ENTERING AIR TEMPERATURE
EF EXHAUST FAN
EG EXHAUST GRILLE
ESP EXTERNAL STATIC PRESSURE
ET EXPANSION TANK
EWT ENTERING WATER TEMPERATURE
F FIRE SPRINKLER LINE
(F) FUTURE
F&T FLOAT & THERMOSTATIC STEAM TRAP
FA FROM ABOVE
FACP FIRE ALARM CONTROL PANEL
FAI FRESH AIR INTAKE
FC FLEXIBLE CONNECTION
FCO FLOOR CLEAN OUT
FD FLOOR DRAIN, FIRE DAMPER
FLA FULL LOAD AMPERE
FLEX FLEXIBLE
FLR FLOOR
FMCS FACILITY MANAGEMENT CONTROL SYSTEM
FTG FITTING
G GAS LINE
GFE GOVERNMENT FURNISHED EQUIPMENT
GCO GROUND CLEAN OUT
GFCI GOVERNMENT FURNISHED CONTRACTOR INSTALLED
HDT HORIZONTAL DRAW THRU
HSPF HEATING SEASONAL PERFORMANCE FACTOR
HW DOMESTIC HOT WATER
HWP HOT WATER PUMP
HWR HOT WATER RETURN
HWS HOT WATER SUPPLY
IVB INVERTED BUCKET STEAM TRAP
IFW IN FURRED WALL
IGV INLET GUIDE VANES
ISU IN-SPACE AIRCONDITIONING UNIT
kW KILOWATT
LPS LOW PRESSURE STEAM SUPPLY
LPR LOWER PRESSURE CONDENSATE RETURN
LRA LOCKED ROTOR AMPERE
LWT LEAVING WATER TEMPERATURE
MAX MAXIMUM
m METER
mm MILLIMETER
m/s METERS PER SECOND
MCA MINIMUM CIRCUIT AMP
MCC MOTOR CONTROL CENTER
MER MECHANICAL EQUIPMENT ROOM
MTD. MOUNTED
MIN MINIMUM
MOCP MAXIMUM OVER CURRENT PROTECTION
MS MOTOR STARTER
(N) NEW
N.O. NORMALLY OPEN
N.T.S. NOT TO SCALE
N.I.C. NOT IN CONTRACT
ODC OZONE DEPLETING COMPOUND
OBD OPPOSED BLADE DAMPER
OSA OUTSIDE AIR
Pd PASCAL
PD PRESSURE DIFFERENTIAL
PRV PRESSURE REDUCING VALVE
(R) RELOCATED
RF RETURN FAN
RG RETURN AIR GRILLE
RH RELATIVE HUMIDITY
RPM REVOLUTION PER MINUTE
SCH SCHEDULE
S.D SMOKE DETECTOR
SEER SEASONAL ENERGY EFFICIENCY RATIO
SF SUPPLY FAN
SENS SENSIBLE
SG SUPPLY AIR GRILLE
SM SHEET METAL
SP STATIC PRESSURE
SR SUPPLY REGISTER
SS SANITARY SEWER DRAIN
ST SOUND TRAP
T THERMOSTAT
TEC TERMINAL EQUIPMENT CONTROLLER
TCC TOTAL COOLING CAPACITY
THC TOTAL HEATING CAPACITY
TP TRAP PRIMER
TYP TYPICAL
V VENT PIPING
VAC VACUUM PIPING
VAV VARIABLE AIR VOLUME
VB VACUUM BREAKER
VD VOLUME DAMPER
VFD VARIABLE FREQUENCY DRIVE
VIF VERIFY IN FIELD
VTR VENT THROUGH ROOF
W SANITARY WASTE
WB WET BULB
WC WATER CLOSET
WCO WALL CLEAN OUT
WH WATER HEATER

UNLINED DUCTWORK
SUPPLY DUCT DOWN
RETURN DUCT DOWN
CEILING SUPPLY AIR DIFFUSER
KEY NOTE IDENTIFIER
POINT OF CONNECTION
POINT OF DISCONNECTION
SPACE TEMPERATURE THERMOSTAT
SPACE TEMPERATURE SWITCH ALARM TO FMCS
GATE VALVE
BALL VALVE
PIPE UP
PIPE DOWN
PIPE CAP
INDUSTRIAL COLD WATER (ICW)

CODES AND REFERENCES

ALL WORK SHALL BE IN ACCORDANCE WITH THE CODES AND STANDARDS LISTED IN NASA APD 8829.1 INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

ASCS NASA AMES STANDARD CONSTRUCTION SPECIFICATIONS
APR 1700.1 NASA AMES HEALTH AND SAFETY MANUAL (AVAILABLE FOR REFERENCE)
ADAAG AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (LATEST EDITION)
CBC 2007 CALIFORNIA BUILDING CODE
CFC 2007 CALIFORNIA FIRE CODE
CMC 2007 CALIFORNIA MECHANICAL CODE
CPC 2007 CALIFORNIA PLUMBING CODE
CEC 2007 CALIFORNIA ELECTRIC CODE (1999 NEC WITH CALIFORNIA AMENDMENTS)
TITLE-24 CALIFORNIA STATE BUILDING CODE ACCESSIBILITY STANDARDS (LATEST EDITION)
UFAS UNIFORM FEDERAL ACCESSIBILITY STANDARDS (LATEST EDITION)
SMACNA SHEET METAL & AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (LATEST EDITION)
BAAQMD BAY AREA AIR QUALITY MANAGEMENT DISTRICT
CARB RULES AND REGULATIONS
CALIFORNIA AIR RESOURCES BOARD
AIRBORNE TOXIC CONTROL MEASURES FOR STATIONARY COMPRESSION IGNITION ENGINES

Approved for Construction
Moffett Field Permit Board
Chief Building Official
Permit No. 09Q041

ZONE LETTER DESCRIPTION DRAWN DATE APPRVD REVISIONS

DRAWN: JRU/TO
DESIGNED: PWA
CHECKED: JLEUNG
PROJECTOR: J.M. GUSKER
REQUESTER: N.HSU/H.CHUNG
SAFETY:
SUPERVISOR: S.FRANKEL

Ames Research Center
Moffett Field, California
N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
MECHANICAL
MECHANICAL NOTES, SYMBOLS AND ABBREVIATIONS
SIZE: D
CAGE CODE: 25307
SCALE: NTS
INDEX:
SHEET: OF

FILE NAME: 258A-M01.DWG 4-28-09

8

7

6

5

4

3

2

DWG: P:\AFC\258\ESSR - Rotary Uninterruptible Power Supply\ESSR - RUPPS Replacing\ESSR_RUPPS Phase 3 - RUPPS258A-M01.DWG
DATE: Apr 28, 2009 2:46:56 pm

60048320.001

8

7

6

5

4

3

2

DWG NO. A258A-0702-M3

SH. REV

SHEET NOTES

- SEE DRAWING M1 FOR GENERAL MECHANICAL NOTES, SYMBOLS AND ABBREVIATIONS.
- REFER TO SPECIFICATION 263233.0010 FOR RUPS UNIT ENCLOSURE REQUIREMENTS.

KEY NOTES

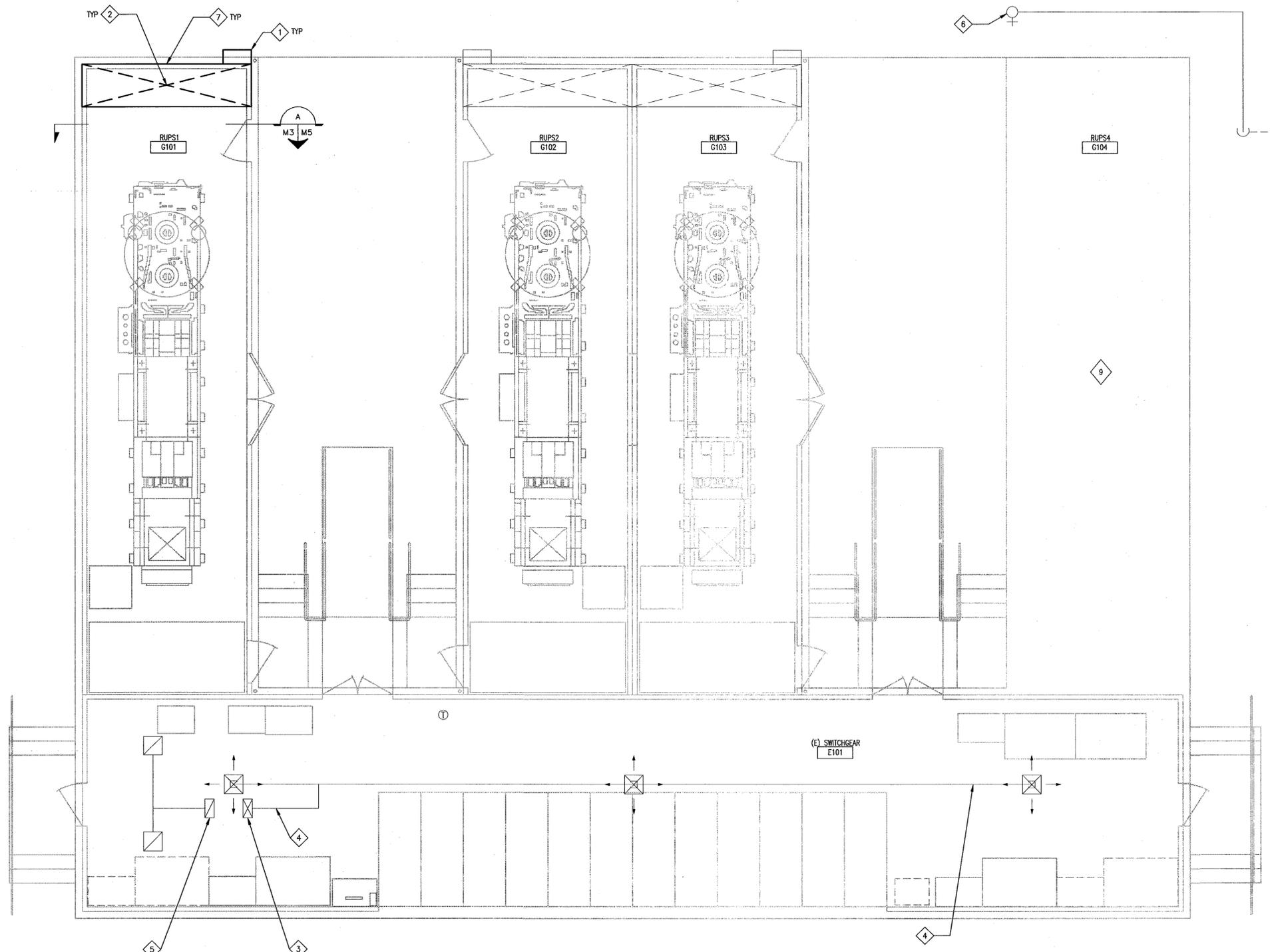
- LOCATION FOR MAIN BASE TANK FUEL SUPPLY FILL PORT. FUEL FILL PORT SHALL HAVE A LOCKABLE MANUAL FUEL FILL CAP AND SHALL ACCOMMODATE STANDARD 1" DIAMETER DIESEL FUEL FILL TRUCK NOZZLE. A SPILL LIP SHALL BE INSTALLED AROUND THE FUEL FILL PORT.
- LOCATION OF VENTILATION FAN FOR RUPS UNIT.
- (E) SUPPLY AIR DUCT FROM ACU ON ROOF. FOR CONT. SEE M4
- (E) PROVIDE DUCTWORK FOR AIR DISTRIBUTION.
- (E) RETURN AIR DUCT TO ACU ON ROOF. FOR CONT. SEE M4
- (E) 3/4" HOSE BIB, PROTECT FROM DAMAGE.
- LOCATION OF AIR OUTLET FOR RUPS UNIT. GENERATOR END OF ENCLOSURES TO CONTAIN ELECTRICALLY OPERATED AIR OUTLET LOUVERS FOR RAIN-PROTECTION WITH BIRD SCREEN, SIZED FOR THE MAXIMUM AIR EXHAUST BY THE VENTILATION FAN(S) DURING DIESEL OPERATION. ALL AIR EXHAUST OPENINGS SHALL BE PROTECTED FROM RAIN INTRUSION WITH METAL LOUVERS.
- (E) 1" ICW ROUTED UNDERGROUND FROM (E) IRRIGATION BACKFLOW PREVENTER.
- FUTURE INSTALLATION.

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	DATE
DESIGNED	DATE
P.WAN	DATE
CHECKED	DATE
JLEUNG	DATE
PROJ.MGR	DATE
J.MOUSKER	DATE
REQUESTER	DATE
N.HSU/H.CHUNG	DATE
R&QA	DATE
SUPervisor	DATE
S.FRANKEL	DATE

Ames Research Center Moffett Field, California		N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III MECHANICAL	
		MECHANICAL RUPS UNIT FLOOR PLAN	
SIZE	CAGE CODE	INDEX	SHEET
D	25307	A258A-0702-M3	OF
SCALE	AS SHOWN	INDEX	SHEET
FILE NAME:		SHEET	
258A-M03.DWG		4-28-09	



MECHANICAL RUPS UNIT FLOOR PLAN
SCALE: 1/4" = 1'-0"
N

DWG: P:\AC_258\ESR - Rotary Uninterruptible Power Supply\ESR - Phase 3\60048320.0001_RUPS Phase 3 - RUPS258A-M03.DWG Version: 17.1s (LMS Tech) User: pdalen
 DATE: Apr 28, 2009 2:45:59 pm

60048320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-M4

SH. REV

SHEET NOTES

- 1. SEE DRAWING M1 FOR GENERAL MECHANICAL NOTES, SYMBOLS AND ABBREVIATIONS.
- 2. REFER TO SPECIFICATION 263233.0010 FOR RUPS UNIT ENCLOSURE REQUIREMENTS.

KEY NOTES

- 1 LOCATION OF HEAT EXCHANGER/RADIATOR FOR DIESEL ENGINE COOLING SYSTEM. RADIATOR IS MOUNTED AND SUPPORTED ON TOP OF RUPS UNIT ENCLOSURE.
- 2 LOCATION OF AIR INLET TO RUPS UNIT. AIR INLET SCOOP ON TOP OF RUPS ENCLOSURE TO CONTAIN ELECTRICALLY OPERATED AIR INLET LOUVERS FOR RAIN PROTECTION WITH BIRD SCREEN, SIZED FOR THE MAXIMUM AIR DRAWN BY THE VENTILATION FAN(S) DURING DIESEL OPERATION. ALL AIR INLET AND EXHAUST OPENINGS SHALL BE PROTECTED FROM RAIN INTRUSION WITH METAL LOUVERS.
- 3 LOCATION OF DIESEL ENGINE EXHAUST MUFFLER AND EXHAUST STACK. MAXIMUM HEIGHT OF EXHAUST STACK NOT TO EXCEED MAXIMUM HEIGHT OF PERIMETER WALL. MINIMUM HEIGHT SHALL BE 22'-0" ABOVE GRADE.
- 4 RUPS UNIT ENCLOSURE, TYP OF 1.
- 5 (E) THERMOSTATICALLY CONTROLLED ROOF TOP PACKAGED UNIT.
- 6 FUTURE INSTALLATION.

D

D

C

C

B

B

A

A

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	DATE
DESIGNED	DATE
P.WAN	DATE
CHECKED	DATE
PROJECT	DATE
MECHANICAL	DATE
REQUESTER	DATE
R&QA	DATE
SAFETY	DATE
SUPERVISOR	DATE
S.FRANKEL	DATE

Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
MECHANICAL

**MECHANICAL RUPS UNIT
ROOF PLAN**

SIZE D CAGE CODE 25307

SCALE AS SHOWN INDEX SHEET OF

FILE NAME: 258A-M04.DWG 4-28-09

MECHANICAL RUPS UNIT ROOF PLAN
SCALE: 1/4" = 1'-0"



8

7

6

5

4

3

2

DWG: P:\C\258\ESR - Rotary Uninterruptible Power Supply\ESR - Phase 3\60048320.0001_RUPS Phase 3 - RUPS258A-M04.DWG User: palden
 DATE: Apr 28, 2009 2:46:02 pm

60048320.0001

8

7

6

5

4

3

2

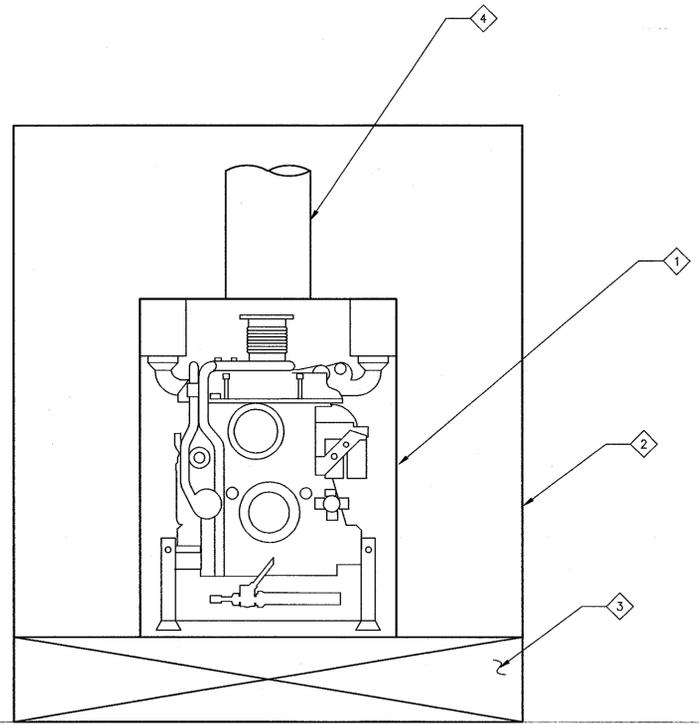
DWG NO. A258A-0702-M5 SH. REV

SHEET NOTES

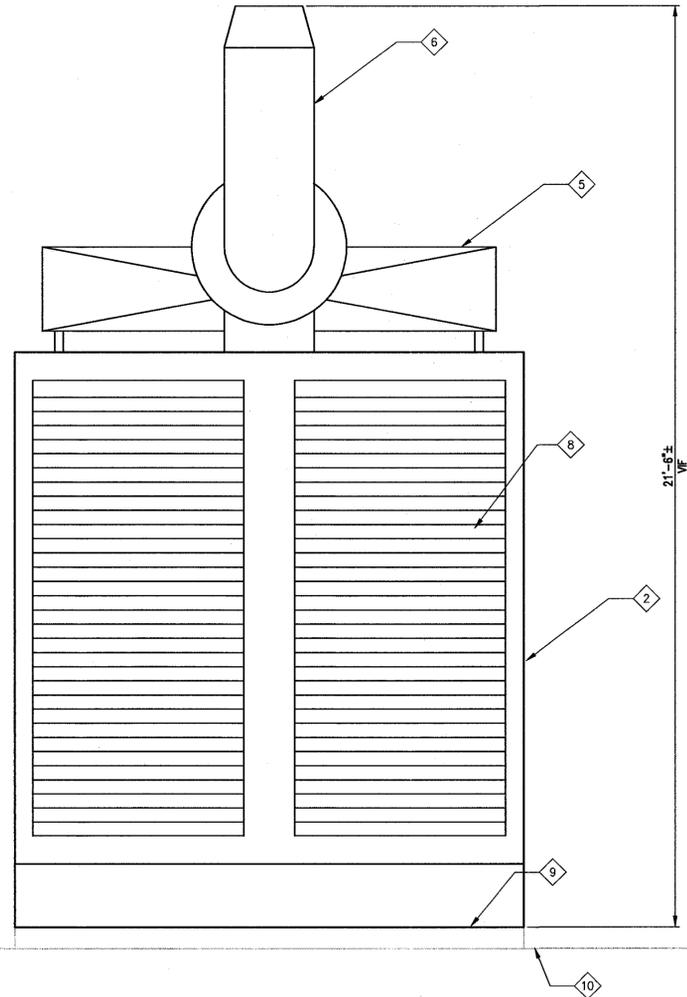
- 1. SEE DRAWING M1 FOR GENERAL MECHANICAL NOTES, SYMBOLS AND ABBREVIATIONS.
- 2. REFER TO SPECIFICATION 263233.0010 FOR RUPS UNIT ENCLOSURE REQUIREMENTS.

KEY NOTES

- 1 RUPS UNIT.
- 2 RUPS ENCLOSURE.
- 3 SECONDARY CONTAINED BASE FUEL TANK.
- 4 DIESEL GENERATOR EXHAUST PIPING.
- 5 DIESEL GENERATOR HEAT EXCHANGER/RADIATOR MOUNTED ON TOP OF RUPS ENCLOSURE.
- 6 DIESEL GENERATOR EXHAUST MUFFLER AND EXHAUST STACK, SEE SPECIFICATIONS FOR NOISE ATTENUATION REQUIREMENTS.
- 7 EXHAUST STACK. MAXIMUM HEIGHT NOT TO EXCEED HEIGHT OF PERIMETER WALL. MINIMUM HEIGHT SHALL BE 22'-0" ABOVE GRADE, REF B/A6.
- 8 ELECTRICALLY OPERATED AIR OUTLET DAMPER WITH BIRD SCREEN. SIZED FOR THE MAXIMUM AIR DRAWN BY THE VENTILATION FAN DURING DIESEL GENERATOR OPERATION. AIR OUTLET OPENING SHALL BE PROTECTED FROM RAIN INTRUSION WITH METAL LOUVER.
- 9 (E) RUPS CONC EQUIPMENT PAD. REF ELEV 100.83, SEE CIVIL DWGS.
- 10 (E) EQUIPMENT YARD GRADE.



A RUPS UNIT SECTION (INSIDE OF ENCLOSURE)
 M3 M5 SCALE: 1/2" = 1'-0"



B RUPS UNIT ELEVATION (EXTERIOR OF ENCLOSURE)
 M4 M5 SCALE: 1/2" = 1'-0"

Approved for Construction
 Moffett Field Permit Board
[Signature]
 Chief Building Official
 Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	DATE
DESIGNED	DATE
P.WAN	DATE
CHECKED	DATE
JLEUNG	DATE
PROJ.MGR	DATE
J.MCYSKER	DATE
REQUESTER	DATE
N.HSU/H.CHUNG	DATE
R&QA	DATE
SAFETY	DATE
SUPERVISOR	DATE
S.FRANKEL	DATE

Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
MECHANICAL

**MECHANICAL RUPS UNIT
ELEVATION & SECTION**

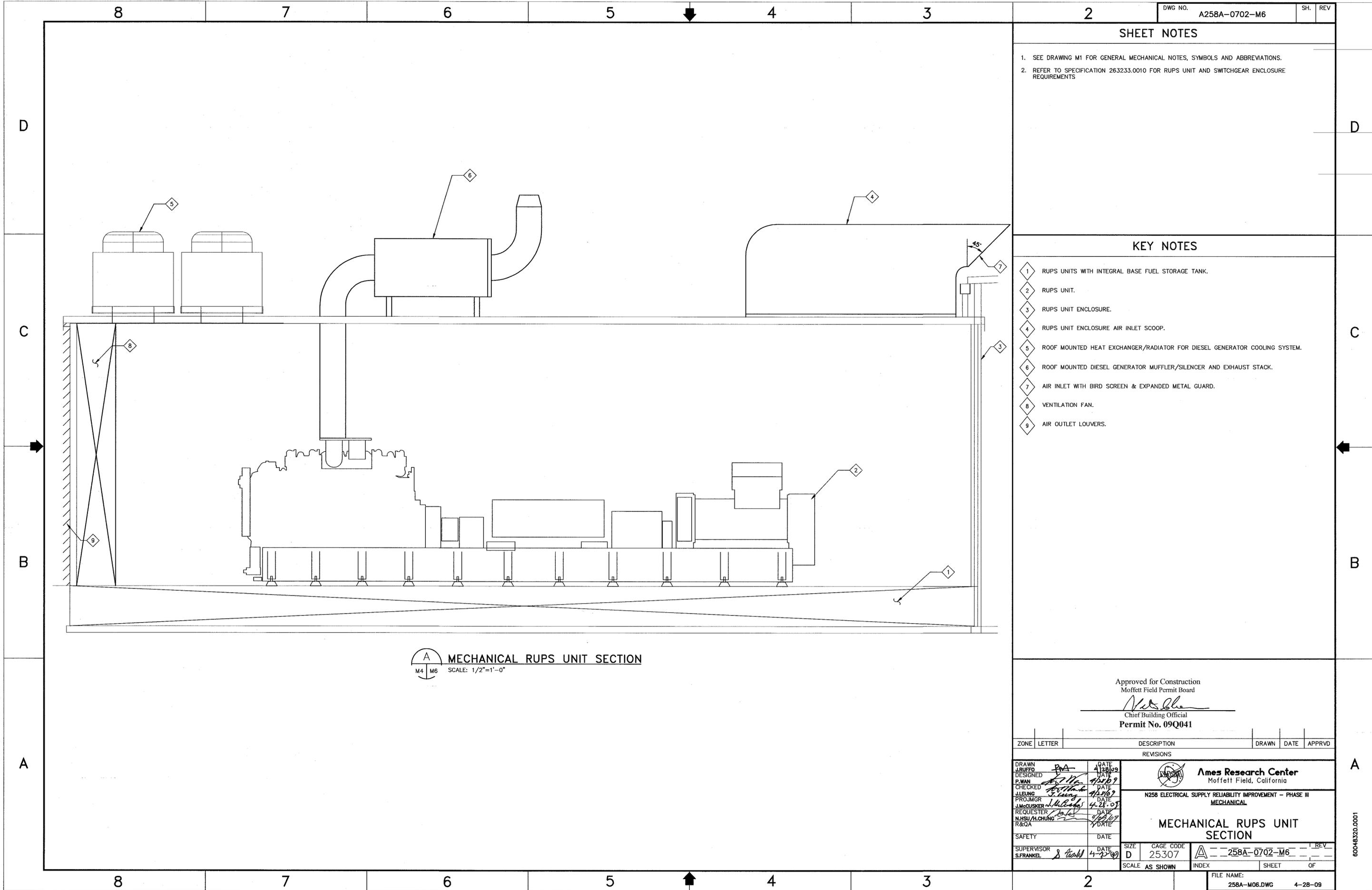
SIZE	CAGE CODE	INDEX	SHEET	OF
D	25307			
SCALE	AS SHOWN	INDEX	SHEET	OF

FILE NAME:
258A-M05.DWG 4-28-09

DWG: P:\MCC\258\ESR - Rotary Uninterruptible Power Supply\ESR - RUPS Repro\ESR\ESR - RUPS Phase 3 - RUPS258-M05.DWG User: poldan
 DATE: Apr 28, 2009 2:46:04 pm

60048320.0001

DWG: P:\ARC\258\ESRI - Rotary Uninterruptible Power Supply\ESRI - RUPS Repackaging\ESRI_RUPS - Phase 3 - RUPS258A-M06.DWG Version: 17.1s (LMS Tech) User: pccan
 DATE: Apr 28, 2009 - 2:46:07 pm



A MECHANICAL RUPS UNIT SECTION
 M4 M6 SCALE: 1/2"=1'-0"

DWG NO. A258A-0702-M6 SH. REV

SHEET NOTES

1. SEE DRAWING M1 FOR GENERAL MECHANICAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO SPECIFICATION 263233.0010 FOR RUPS UNIT AND SWITCHGEAR ENCLOSURE REQUIREMENTS

KEY NOTES

- 1 RUPS UNITS WITH INTEGRAL BASE FUEL STORAGE TANK.
- 2 RUPS UNIT.
- 3 RUPS UNIT ENCLOSURE.
- 4 RUPS UNIT ENCLOSURE AIR INLET SCOOP.
- 5 ROOF MOUNTED HEAT EXCHANGER/RADIATOR FOR DIESEL GENERATOR COOLING SYSTEM.
- 6 ROOF MOUNTED DIESEL GENERATOR MUFFLER/SILENCER AND EXHAUST STACK.
- 7 AIR INLET WITH BIRD SCREEN & EXPANDED METAL GUARD.
- 8 VENTILATION FAN.
- 9 AIR OUTLET LOUVERS.

Approved for Construction
 Moffett Field Permit Board

 Chief Building Official
 Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	PVA	DATE	4/28/09
DESIGNED		DATE	
P.WAN		DATE	4/28/09
CHECKED		DATE	
JLEUNG		DATE	4/28/09
PROJ.MGR		DATE	
J.MCCLUSKEY		DATE	4-28-09
REQUESTER		DATE	
N.HSU/H.CHUNG		DATE	4/28/09
R&QA		DATE	

Ames Research Center
 Moffett Field, California
 N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
 MECHANICAL

SUPervisor	SFRANKEL	DATE	4-28-09
------------	----------	------	---------

SIZE	D	CAGE CODE	25307	FILE NAME:	258A-M06.DWG
SCALE	AS SHOWN	INDEX		SHEET	OF

MECHANICAL RUPS UNIT SECTION

FILE NAME:
 258A-M06.DWG 4-28-09

60048320.001

8

7

6

5

4

3

2

DWG NO. A258A-0702-FP1

SH. REV

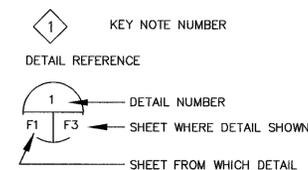
GENERAL NOTES

- 1. DESIGN AND INSTALLATION OF FIRE PROTECTION AND FIRE ALARM SYSTEMS SHALL CONFORM TO NFPA 750, NFPA 2001, NFPA 72, NEC, AND SPECIFIED HEREIN. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR APPROVAL FOR ALL AREAS INDICATED. WORK SHALL NOT COMMENCE UNTIL DRAWINGS AND CALCULATIONS ARE APPROVED BY NASA
- 2. CONTRACTOR SHALL MAINTAIN AT THE JOB SITE, AN UP-TO-DATE SCALED REDLINE DRAWING SET. THE SCALED REDLINE DRAWING SET SHALL REFLECT ALL APPROVED CHANGES TO THE DESIGN DRAWINGS. THE REDLINE DRAWING SET SHALL BE KEPT CLEAN AND IN GOOD CONDITION AND SHALL BE TURNED OVER TO THE COTR ALONG WITH AN ELECTRONIC COPY OF THE "AS BUILT" DRAWINGS (AUTOCAD RELEASE 2004 OR NEWER) AT THE COMPLETION OF THE PROJECT.
- 3. RUPS FIRE SUPPRESSION SYSTEM SHALL BE COMPATIBLE AND CONNECTED TO (E) FIRE ALARM CONTROL PANEL IN THE SWITCHGEAR ENCLOSURE.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
A.S.	AUTOMATIC SPRINKLER SYSTEM WET PIPE
BLDG	BUILDING
C.H.	CEILING HEIGHT
C.I.	CAST IRON
CKT	CIRCUIT
CONT	CONTINUOUS OR CONTINUATION
COTR	CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE
D.I.	DUCTILE IRON
DN	DIAMETER NOMINAL
DWG	DRAWING
(E)	EXISTING
ELECT.	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
EOL	END OF LINE RESISTOR
FACP	FIRE ALARM CONTROL PANEL
F/A	FIRE ALARM
FD	FLOOR DRAIN
FEC	FIRE EXTINGUISHER CABINET
FHC	FIRE HOSE CABINET
FS	FLOW SWITCH
FW	FIRE WATER PIPING
G	GROUND
GFE	GOVERNMENT FURNISHED EQUIPMENT
GOVT	GOVERNMENT
LED	LIGHT EMITTING DIODE
L/S	LITRES PER SECOND
(N)	NEW
MAX.	MAXIMUM
MECH	MECHANICAL
MIN.	MINIMUM
MH	MOUNTING HEIGHT
mm	MILLIMETERS
MOD	MODIFY
NSHT	NATIONAL STANDARD HOSE THREAD
NTS	NOT TO SCALE
PA	PREACTION SPRINKLER SYSTEM
PS	PRESSURE SWITCH
POC	POINT OF CONNECTION
POD	POINT OF DISCONNECTION
REF	REFERENCE
REHAB	REHABILITATE
REQ'D, REQD	REQUIRED
RM	ROOM
SD	STORM DRAIN
SP	STAND PIPE
SV	SOLENOID VALVE
SOV	SHUTOFF VALVE
SS	SANITARY SEWER
SW	SWITCH
TEL	TELEPHONE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VIF	VERIFY IN FIELD
W	WATER
W/	WITH
ZCA	ZONE CONTROL ASSEMBLY
ø	DIAMETER

DRAWING CONVENTIONS



FIRE SUPPRESSION FOR THE ROTATING UNINTERRUPTIBLE POWER SUPPLY (RUPS) ENCLOSURE, TOTAL OF ONE (1)

- 1. THE SYSTEM DESIGN SHALL USE TOTAL COMPARTMENT PROTECTION APPROACH. EACH RUPS ENCLOSURE SHALL BE PROTECTED BY A DEDICATED WATER MIST FIRE SUPPRESSION SYSTEM. THE SYSTEM SHALL BE ASSEMBLED AND TESTED AND SHALL INCLUDE ALL NECESSARY VALVES, ACTUATION COMPONENTS FOR SYSTEM OPERATION AND A WATER STORAGE TANK MOUNTED ON A SINGLE SKID INSIDE THE ENCLOSURE. SYSTEM SHALL PROTECT AL EQUIPMENT IN A SINGLE ENCLOSURE.
- 2. CALCULATION SHALL BE IN ACCORDANCE WITH NFPA 750 AND TAKE INTO CONSIDERATION THE NORMAL TEMPERATURES INCURRED DURING SYSTEM OPERATION AND THE VENTILATION INSIDE THE PROTECTED AREA.
- 3. DETECTION AND CONTROL: PROVIDE FIXED TEMPERATURE (SET POINT RANGE FROM 175 F TO 190 F) HEAT DETECTION SYSTEM PER NFPA 72. EACH ENCLOSURE SHALL BE FURNISHED WITH A CONTROL PANEL FOR ALL INPUTS AND OUTPUTS REQUIRED FOR THE WATER MIST SYSTEM AND OTHER PROGRAMMABLE FUNCTIONS. IN ADDITION, THE PANEL SHALL PROVIDE CONNECTIONS TO SHUT DOWN THE VENTILATION AND SHUTOFF FUEL SUPPLIES.
- 4. INSTALL AUTOMATIC FUEL SHUT OFF VALVE TO STOP FUEL FLOW IN CASE OF FIRE.
- 5. WATER MIST FIRE SUPPRESSION SYSTEM DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH NFPA 750.
- 6. THE MANUFACTURER OF THE FIRE SUPPRESSION SYSTEM HARDWARE AND DETECTION COMPONENTS SHALL HAVE A MINIMUM OF 10 YEARS EXPERIENCE IN DESIGN AND MANUFACTURE OF SIMILAR TYPES OF SUPPRESSION SYSTEMS AND CAN REFER TO SIMILAR INSTALLATIONS PROVIDING SATISFACTORY SERVICE.
- 7. THE NAME OF THE MANUFACTURER, PART NUMBERS AND SERIAL NUMBERS SHALL APPEAR ON ALL MAJOR COMPONENTS.
- 8. ALL DEVICES, COMPONENTS AND EQUIPMENT SHALL BE THE PRODUCTS OF THE SAME MANUFACTURER.
- 9. ALL DEVICES, COMPONENTS AND EQUIPMENT SHALL BE NEW, STANDARD PRODUCTS OF THE MANUFACTURER'S LATEST DESIGN AND SUITABLE TO PERFORM THE FUNCTIONS INTENDED.
- 10. ALL DEVICES AND EQUIPMENT SHALL BE U.L LISTED AND/OR FM APPROVED.
- 11. LOCKS FOR ALL CABINETS SHALL BE KEYED ALIKE.
- 12. THE WATER MIST SYSTEM SHALL BE EITHER AN ENGINEERED SYSTEM OR A PRE-ENGINEERED SYSTEM, AND BE IN ACCORDANCE WITH NFPA 750.
- 13. THE DURATION OF DISCHARGE SHALL BE IN ACCORDANCE WITH NFPA 750 FOR EITHER A PRE-ENGINEERED SYSTEM OR ENGINEERED SYSTEM AND IN ACCORDANCE WITH THE LISTING OF THE SYSTEM.
- 14. RESERVE SUPPLIES SHALL BE PROVIDED AS REQUIRED BY NFPA 750, SECTION 10.4.
- 15. WATER SUPPLY SHALL CONTAIN AN APPROPRIATE FILTER OR STRAINER WITH CLEANOUT.
- 16. SUBMIT SHOP DRAWINGS TO THE NASA FIRE DEPARTMENT AND NASA COTR FOR APPROVAL. A SYSTEM OPERATIONAL TEST AND FINAL ACCEPTANCE TEST ARE REQUIRED. SUBMIT TEST PROCEDURE TO COTR FOR APPROVAL.

CODES AND REFERENCES

- ALL WORK SHALL BE IN ACCORDANCE WITH THE CODES AND STANDARDS LISTED IN NASA APD 8829.1 INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
- ASCS NASA AMES STANDARD CONSTRUCTION SPECIFICATIONS
 - APR 1700.1 NASA AMES HEALTH AND SAFETY MANUAL (AVAILABLE FOR REFERENCE)
 - ADAAG AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (LATEST EDITION)
 - CBC 2007 CALIFORNIA BUILDING CODE
 - CFC 2007 CALIFORNIA FIRE CODE
 - CMC 2007 CALIFORNIA MECHANICAL CODE
 - CPC 2007 CALIFORNIA PLUMBING CODE
 - CEC 2007 CALIFORNIA ELECTRICAL CODE (2002 NEC WITH CALIFORNIA AMENDMENTS)
 - TITLE-24 CALIFORNIA STATE BUILDING CODE ACCESSIBILITY STANDARDS (LATEST EDITION)
 - UFAS UNIFORM FEDERAL ACCESSIBILITY STANDARDS (LATEST EDITION)
 - SMACNA SHEET METAL & AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (LATEST EDITION)
 - BAAQMD BAY AREA AIR QUALITY MANAGEMENT DISTRICT
 - CARB CALIFORNIA AIR RESOURCES BOARD
 - AIRBORNE TOXIC CONTROL MEASURES FOR STATIONARY COMPRESSION IGNITION ENGINES

Approved for Construction
 Moffett Field Permit Board
 [Signature]
 Chief Building Official
 Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
------	--------	-------------	-------	------	--------

DRAWN C.WANG		DATE 4/20/09	Ames Research Center Moffett Field, California N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III FIRE SUPPRESSION FIRE SUPPRESSION NOTES, SYMBOLS AND ABBREVIATIONS
DESIGNED J. LEUNG	DATE 4/20/09		
CHECKED J. LEUNG	DATE 4/20/09		
DRAWN J. LEUNG	DATE 4/20/09		
PROJECTOR J. LEUNG	DATE 4/20/09		
REQUESTER NHSU/H.CHUNG	DATE 4/20/09		
R&QA	DATE		
SAFETY	DATE		
SUPERVISOR SFRANKEL	DATE 4/20/09	SIZE D	CAGE CODE 25307
SCALE	AS SHOWN	INDEX	SHEET OF

FILE NAME:
 258A-F01.DWG 4-28-09

8

7

6

5

4

3

2

DWG: P:\ARC\258\ESRI - Rotary Uninterruptible Power Supply\ESRI - RUPS Repackaging\ESRI - RUPS - Phase 3 - RUPS258A-F01.DWG Version: 17.1s (LMS Tech) User: padden
 DATE: Apr 28, 2009 - 3:49:11 pm

60048320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-E1

SH. 1 REV

ELECTRICAL NOTES

ELECTRICAL NOTES

1. EXISTING CONDITIONS: THESE DRAWINGS SHOW EXISTING EQUIPMENT, MATERIAL, WRING, ETC. BASED UPON THE BEST AVAILABLE INFORMATION, CONTRACTOR SHALL CONFIRM EXISTING CONDITIONS, WRING, LOCATION OF EQUIPMENT, DIMENSIONS, ETC. PRIOR TO STARTING ANY WORK OR ORDERING ANY MATERIAL. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING UNDERGROUND UTILITIES, CORRECTING DISCREPANCIES AND PROVIDING A COMPLETE PROPER OPERATING SYSTEM.
2. WHEN USED IN THESE DRAWINGS AND THE ACCOMPANYING SPECIFICATIONS THE FOLLOWING DEFINITIONS APPLY:
FURNISH: CONTRACTOR TO SUPPLY AND DELIVER COMPLETE.
INSTALL: CONTRACTOR TO PLACE, SECURE AND CONNECT AND TEST AS REQUIRED TO MAKE FULLY OPERATIONAL.
PROVIDE: CONTRACTOR TO FURNISH AND INSTALL AS DEFINED ABOVE.
3. EXISTING EQUIPMENT AND/OR ELECTRICAL WRING WHICH IS TO REMAIN, BUT HAS TO BE REMOVED TO FACILITATE THE INSTALLATION OF THE NEW EQUIPMENT SHALL BE RESTORED TO ITS ORIGINAL OPERATING CONDITION.
4. EXISTING CONDUCTORS REMOVED FROM SERVICE SHALL NOT BE USED FOR NEW WORK UNDER THIS CONTRACT, UNLESS OTHERWISE NOTED.
5. EXISTING CONDUIT RUNS REMAINING IN PLACE MAY BE UTILIZED FOR THE NEW WORK, PROVIDED THAT THE CONDUIT IS OF ADEQUATE SIZE PER NATIONAL ELECTRICAL CODE FOR THE NUMBER AND SIZE OF CONDUCTORS BEING INSTALLED. CONDUCTORS SHALL BE OF THE SAME VOLTAGE RATING. CONTRACTOR SHALL PULL A HARD MANDREL THROUGH CONDUITS AND VERIFY THAT CABLES CAN BE PULLED SAFELY WITHOUT DAMAGE TO CABLE.
6. PROVIDE ENGRAVED NAMEPLATES ON ALL NEW EQUIPMENT AND DEVICES INCLUDING PULL BOXES. NAMEPLATES SHALL BE SCREWED ON PHENOLIC TYPE WITH WHITE LETTERS ON BLACK BACKGROUND. THE NAMEPLATE SHALL BE OF APPROPRIATE SIZE WITH LETTER HEIGHTS PER SPECIFICATIONS SECTION 28 05 00.00 40, AND SUBJECT TO APPROVAL BY THE CONTRACTING OFFICER.
7. ALL POWER SHUTDOWN WILL BE SCHEDULED ON WEEKENDS OR HOLIDAYS OR WITH PRIOR WRITTEN APPROVAL BY THE CONTRACTING OFFICER.
8. THE CONTRACTOR SHALL REQUEST ALL BUILDING POWER OUTAGES AT LEAST TWENTY ONE (21) DAYS IN ADVANCE OF THE OUTAGES.
9. SUBSTATIONS N225 AND N225B ARE VITAL TO THE OPERATION OF NASA-AMES RESEARCH CENTER. SUBSTATION SHUTDOWN CAN ONLY BE ACCOMPLISHED ON WEEKENDS (5:00 PM FRIDAY TO 5:00 PM SUNDAY) OR ON HOLIDAYS (6:00 AM TO 5:00 PM ONLY). ALL SCHEDULED SHUTDOWNS SHALL BE REQUESTED AT LEAST TWENTY ONE (21) CALENDAR DAYS IN ADVANCE. THE CONTRACTOR SHALL TAKE THESE CONSTRAINTS INTO CONSIDERATION IN PREPARING AND SCHEDULING OF ALL CONSTRUCTION ACTIVITIES FOR THIS CONTRACT.
10. THE CONTRACTOR SHALL SUBMIT A UTILITY OUTAGE REQUEST FOR APPROVAL IN NO LESS THAN TWENTY ONE (21) CALENDAR DAYS PRIOR TO A REQUIRED UTILITY OUTAGE (ELECTRICAL, TELEPHONE). NO OUTAGE SHALL BE ACCOMPLISHED PRIOR TO THE RECEIPT OF APPROVAL. NASA-AMES SHALL PERFORM ALL SWITCHING 6900V AND ABOVE. THE CONTRACTOR SHALL PERFORM ALL SWITCHING BELOW 6900V. THE CONTRACTOR/NASA-AMES SHALL LOCK OUT AND RED TAG THE APPROPRIATE CIRCUIT BREAKER, SWITCH, ETC. THE RED TAG SHALL LIST THE CIRCUIT, THE TIME OF OUTAGE, THE INDIVIDUAL AND FIRM EFFECTING THE OUTAGE, THE EXPECTED TIME THE OUTAGE WILL BE TERMINATED, AND PHONE NUMBER TO CONTACT REGARDING THE OUTAGE. THE TAG SHALL ALSO WARN PEOPLE NOT TO RE-ENERGIZE THE CIRCUIT SYSTEM BECAUSE THE POTENTIAL DANGER TO PERSONNEL/EQUIPMENT. TIMES FOR THESE SHUTDOWNS ARE FROM 6:00 AM, SATURDAY MORNING TO 5:00 PM, SUNDAY AFTERNOON; AND FROM 6:00 AM TO 5:00 PM ON HOLIDAYS.
11. CONTRACTOR SHALL STRICTLY FOLLOW ALL STANDARD SAFETY PRACTICES, PRECAUTIONS, AND REQUIREMENTS OF NASA-AMES RESEARCH CENTER FOR ALL WORK INSIDE AN ENCLOSED AND ENERGIZED 115KV SUBSTATION. REFER TO AMES HEALTH & SAFETY MANUAL APG 1700.1.
12. ALL WIRES SHALL BE TAGGED FOR IDENTIFICATION BEFORE DISCONNECTION.
13. REPLACEMENT OF OTHER UNDERGROUND MEDIUM VOLTAGE DISTRIBUTION LINES MANHOLES AND VAULTS, BY ANOTHER CONTRACTOR, MAY BE SCHEDULED DURING THE CONSTRUCTION PERIOD OF THIS CONTRACT. ALL WORK IN THIS CONTRACT SHALL BE COORDINATED WITH THE CONTRACTING OFFICER TO AVOID CONFLICT OF ACTIVITIES WITH OTHER CONTRACTS IN PROGRESS.
14. REPAIR DAMAGES TO GALVANIZED STEEL MEMBERS USING ASTM A780 ZINC RICH PAINT. PAINT ALL NEW HOLES DRILLED ON EXISTING GALVANIZED STEEL MEMBERS. DO NOT HEAT SURFACES TO WHICH REPAIR PAINT HAS BEEN APPLIED.
15. FIRE PROOFING TAPE SHALL BE WRAPPED AROUND EACH CABLE BEING WORKED ON IN THE MANHOLE, STARTING AND FINISHING OF FIRE PROOFING SHALL BE DONE WITH APPROVED FIBERGLASS TAPE.
16. ALL CABLES SHALL BE SUPPORTED PROPERLY AND ROUTED NEATLY ALONG THE MANHOLE WALL.
17. ALL SPARE (EMPTY) CONDUITS SHALL BE PROVIDED WITH A 1/4" NYLON PULL WIRE PRIOR TO CAPPING. PROVIDE IDENTIFICATION LABELS AND TAG SPARE CONDUITS INDICATING ORIGIN AND DESTINATION AT BOTH ENDS.
18. CONDUITS SHALL BE SEALED AND FIRE PROOFED AT ENTRIES TO MANHOLES/VAULTS.
19. ALL MV FEEDER CABLES SHALL HAVE PHASE IDENTIFICATION AND FEEDER TAGS IN MANHOLES.
20. CABLE AND WIRE USED SHALL MEET THE FOLLOWING: FOR SIZES #1 AND SMALLER CABLES SHALL BE RATED FOR 60°C, MINIMUM. FOR SIZES #1/0 AND LARGER CABLES SHALL BE RATED FOR 75°C, MINIMUM.
21. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE TOTALLY SEALED TO PREVENT THE SPREAD OF SMOKE, FIRE, TOXIC GASES, AND WATER THROUGH THE PENETRATION BEFORE, DURING AND AFTER A FIRE CONDITION. THE FIRE RATING OF THE SEALED PENETRATION SHALL BE AT LEAST THAT OF THE WALL INTO WHICH IT IS INSTALLED. THE SEAL SHALL PERMIT THE VIBRATION, EXPANSION AND/OR CONTRACTION OF THE CONDUIT PASSING THROUGH THE PENETRATION WITHOUT THE SEAL CRACKING OR CRUMBLING. CONFORM TO NFPA 70-2002 ART. 300.21.
22. PRIOR TO START OF WORK, CONTRACTOR SHALL SUBMIT A COMPREHENSIVE SAFETY PROGRAM TO THE CONTRACTING OFFICER FOR APPROVAL BY THE NASA SAFETY OFFICE. ALL SAFETY ITEMS WILL BE DISCUSSED AT THE PRE-CONSTRUCTION MEETING.
23. THE CONTRACTOR SHALL OBTAIN A VALID AIR QUALITY PERMIT FOR THE TEMPORARY POWER GENERATOR WHICH SHALL BE POSTED AT A VISIBLE LOCATION ON THE GENERATOR UNIT. ALL PERMIT CONDITIONS SHALL BE COMPLIED WITH AND RECORDS SHALL BE SENT TO THE NASA SAFETY OFFICE, CODE QE FOR COMPLIANCE DOCUMENTATION.
24. PROVIDE GROUND FAULT PROTECTION EQUIPMENT FOR EACH SERVICE, FEEDER AND BRANCH CIRCUIT BREAKER OR DISCONNECT RATED 1000A OR MORE ON SOLIDLY GROUNDED SYSTEM OF MORE THAN 150V TO GROUND (AT 480Y/277V) IN ACCORDANCE WITH CEC/NEC.

25. PROVIDE FIELD MARKINGS OF PROPER WARNING LABELS FOR ARC FLASH AND SHOCK HAZARD PROTECTION ON ALL SWITCHBOARDS, PANELBOARDS, INDUSTRIAL CONTROL PANELS AND MOTOR CONTROL CENTERS INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH CEC/NEC ARTICLE 110. WARNING LABELS SHALL CONFORM TO APPLICABLE PROVISIONS OF NFPA 70E AND ANSI Z535.4, AND SUBJECT TO APPROVAL BY THE CONTRACTING OFFICER. ARC FLASH ANALYSIS DATA WILL BE PROVIDED BY THE CONTRACTING OFFICER.
26. THE COMPLETE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH THE CALIFORNIA ELECTRICAL CODE, NATIONAL ELECTRICAL CODE AND NATIONAL ELECTRICAL SAFETY CODE (LATEST EDITION).
27. CONDUCTOR SIZES ARE AWG & KCMIL, U.O.N.
28. ALL ELECTRICAL ITEMS SHALL BE NEW U.O.N.
29. DARK OR HEAVY LINES INDICATE NEW WORK. LIGHT LINES DENOTE EXISTING CONDITIONS.
30. PRIOR TO ENERGIZATION OF EQUIPMENT OR CIRCUITS, THE CONTRACTOR SHALL DEVELOP A TEST PROCEDURE AND SUBMIT IT TO THE CONTRACTING OFFICER FOR REVIEW AND APPROVAL. THE CONTRACTOR SHALL PERFORM A COMPLETE FUNCTIONAL TEST TO DEMONSTRATE TO THE CONTRACTING OFFICER THAT THE NEW INSTALLATION IS OPERATING AS INTENDED. ANY DEFECTS OR DEFICIENCIES IN THE MATERIALS OR INSTALLATION WORK SHALL BE CORRECTED IMMEDIATELY BY AND AT THE CONTRACTOR'S EXPENSE.
31. UTILITIES, ELECTRIC, TELEPHONE, GAS, WATER, SIGNAL AND COMMUNICATIONS SYSTEM DAMAGED AS A RESULT OF THIS WORK SHALL BE RESTORED IN WORKING CONDITION AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE CONTRACTING OFFICER.
32. TRENCHING AND OTHER EXCAVATION WORK SHALL BE ACCOMPLISHED WITH EXTREME CARE TO PROTECT ALL EXISTING UNDERGROUND INSTALLATIONS WHICH SHALL REMAIN. EXISTING INSTALLATIONS INDICATED ON THE DRAWINGS ARE BASED ON AVAILABLE AS BUILT DRAWINGS AND VISUAL VERIFICATIONS ONLY. POSSIBILITIES EXIST THAT NOT ALL UNDERGROUND INSTALLATIONS ARE INDICATED. OTHER INFORMATION/LOCATION OF ALL EXISTING UNDERGROUND INSTALLATION WHICH MAY BE AFFECTED BY THE WORK SHALL BE PROVIDED BY NASA, UPON REQUEST.
33. ALL PERSONNEL WORKING IN MANHOLES (MH) SHALL BE CERTIFIED IN ACCORDANCE WITH OSHA CONFINED SPACE REGULATION 29 CFR 1910.146 AND CAL OSHA CONFINED SPACE REGULATIONS CCR5156.5157.5158 AND 5159.
34. CONTRACTOR SHALL SUBMIT A CONFINED SPACE ENTRY PLAN FOR APPROVAL BY THE CONTRACTING OFFICER.
35. CERTIFICATION OF THE QUALIFICATIONS OF THE MEDIUM VOLTAGE (MV) CABLE SPLICE/TERMINATOR SHALL BE SUBMITTED TO THE CONTRACTING OFFICER. THE CERTIFICATION SHALL INCLUDE THE TRAINING AND EXPERIENCE OF THE INDIVIDUAL. THE CERTIFICATION SHALL INDICATE THAT THE INDIVIDUAL HAS HAD THREE OR MORE YEARS OF EXPERIENCE SPLICING AND TERMINATING MEDIUM VOLTAGE CABLES. ONCE A MV TERMINATION OR SPLICE HAS BEEN STARTED BY A WORKER, THE SAME PERSON SHALL COMPLETE THAT PARTICULAR SPLICE. EACH MV TERMINATION AND SPLICE SHALL BE STARTED AND COMPLETED IN ONE CONTINUOUS WORK PERIOD.
36. THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER AT LEAST SEVEN (7) DAYS IN ADVANCE TO DWATER EXISTING MANHOLES (MH). CONTRACTOR SHALL ASSUME THAT ALL MANHOLES CONTAIN ASBESTOS OR LEAD MATERIALS. EXTREME CARE SHALL BE MADE WHEN REMOVING MATERIALS FROM MANHOLES.
37. THE CONTRACTOR SHALL PROVIDE CABLE RACK CHANNELS, ARMS AND INSULATORS TO SUPPORT NEW CABLES, SPLICES, AND DEADBREAK JUNCTIONS IF NECESSARY.
38. ALL NEW CONDUITS AND CONDUIT DUCTBANKS SHALL BE SLOPED DOWN IN THE DIRECTION OF THE EXISTING MANHOLES.
39. CONTRACTOR SHALL USE EXTREME CAUTION AND TAKE ALL NECESSARY SAFETY PRECAUTIONS WHEN WORKING IN THE MANHOLES. MULTIPLE SYSTEM VOLTAGES MAY EXIST IN THE MANHOLES AND CAN BE ANY COMBINATION OF THE FOLLOWING:
 13.8KV
 6.9KV
 480V
 208Y/120V
 480Y/277V
 COMM CIRCUITS
40. REMOVE, STORE AND REINSTALL ALL ELECTRICAL WORK INDICATED TO BE RELOCATED. ALL OTHER ELECTRICAL WORK SHALL REMAIN INTACT, UON. AVOID DAMAGE TO ALL (E) POWER, COMMUNICATIONS OUTLETS & LIGHT FIXTURES, ETC.

Approved for Construction
 Moffett Field Permit Board

 Chief Building Official
 Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPROV
REVISIONS					
DRAWN	PA	DATE	4/28/09		
DESIGNED	PA	DATE	4/28/09		
CHECKED	PA	DATE	4-28-09		
PROJ MGR	PA	DATE	4-28-09		
REQUESTER	PA	DATE	4/28/09		
R&QA	PA	DATE	4/28/09		
SAFETY		DATE			
SUPERVISOR	PA	DATE	4-28-09		
SFRANKEL	PA	DATE	4-28-09		

Ames Research Center Moffett Field, California	
N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III ELECTRICAL	
ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS	
SIZE	D
CAGE CODE	25307
SCALE	NTS
INDEX	
SHEET	1 OF 3

FILE NAME:
 258A-E01_1.DWG 4-28-09

8

7

6

5

4

3

2

DWG: P:\ARC\258\ESR - Rotary Uninterruptible Power Supply\ESR - RUPS Reproducting\ESR - RUPS Phase 3 - Phase 3\60048320.0001_RUPS_Phase 3 - RUPS258A-E01_1.DWG
 DATE: Apr 28, 2009 2:46:14 pm
 Version: 17.1s (LUS Tech) User: pdalen

60048320.0001

ABBREVIATIONS

A	AMPERE
ACB	AIR CIRCUIT BREAKER
ACP	ALTERNATE CURRENT AUXILIARY PANEL
A/C	AIR CONDITIONING
AC	ALTERNATING CURRENT
ADS	AIR DISCONNECT SWITCH
AF	AMPERE FRAME OR FUSE SETTING
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AL	ALUMINUM
ALTC	AUTOMATIC LOAD TAP CHANGER
AM	AMMETER
AMP	AMPERE
AMR	AMMETER RECORDER
ANN	ANNUNCIATOR
APMS	AMES POWER MONITORING SYSTEM
APPROX	APPROXIMATELY
ARF	ABOVE RAISED FLOOR
AS	AMMETER SWITCH
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ASW	AIR SWITCH
AT	AUXILIARY TRANSFORMER
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
B	BELL
BATT	BATTERY
BCP	BYPASS CONTROL PANEL
BCS	BREAKER CONTROL SWITCH
BCW	BARE COPPER WIRE
BIL	BASIC INSULATION LEVEL
BLDG	BUILDING
BKR	BREAKER
BOC	BOTTOM OF CONDUIT
BOD	BOTTOM OF DUCT
BOT	BOTTOM OF TRAY
C	CONDUIT
CAB	CABINET
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CCTV	CLOSED-CIRCUIT TELEVISION
CEC	CALIFORNIA ELECTRICAL CODE
CES	CABLE ENTRY SIDE
CIR/CKT	CIRCUIT
CLF	CURRENT LIMITING FUSE
CLG	CEILING
CLR	CLEAR
CMD	CIRCUIT MONITOR DEVICE
CMPT	COMPARTMENT
CNTRL	CONTROL
CO	CONDUIT ONLY
COL	COLUMN
CONC	CONCRETE
CONTD	CONTINUED
CONT'N	CONTINUATION
CPT	CONTROL POWER TRANSFORMER
CRS	COATED RIGID STEEL
CS	CONTROL SWITCH
CT	CURRENT TRANSFORMER
CTB	CONTROL TEST BLOCK
CTD	CAPACITOR TRIP DEVICE
CU	COPPER
CUB	CUBICLE
DB	DUCT BANK
DC	DIRECT CURRENT
DCP	DIRECT CURRENT AUXILIARY PANEL WITH RECTIFIER
DEMO	DEMOLITION
DET	DETAIL
DEV	DEVICE
DI	DIGITAL INPUT
DIA	DIAMETER
DISC	DISCONNECT
DIESEL	DIESEL ENGINE
DIST, DISTRIB	DISTRIBUTION
DIV	DIVISION
DN	DOWN
DO	DRAW-OUT TYPE, DIGITAL OUTPUT
DS	DISCONNECT SWITCH
DSD	DUCT SMOKE DETECTOR
DWG	DRAWING
EA	EACH
(E), EXIST	EXISTING
ELEC	ELECTRIC(AL)

ABBREVIATIONS (CONT'D)

ELEV	ELEVATION
EMT	ELECTRICAL METALLIC TUBING
ENT	ELECTRICAL NONMETALLIC TUBING
EOL	END OF LINE
EPO	EMERGENCY POWER OFF
EPOCP	EMERGENCY POWER OFF CONTROL PANEL
EPR	ETHYLENE PROPYLENE RUBBER
EQ	EQUAL
EQUIP	EQUIPMENT
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHER
FDR	FEEDER
FIN	FINISH
FIXT	FIXTURE
FLA	FULL LOAD AMPERES
FLR	FLOOR
FLEX	FLEXIBLE
FMCS	FACILITIES MONITORING & CONTROL SYSTEM
FOS	FRONT OF SWITCH
FSA	FIRE SYSTEM ANNUNCIATOR
FTR	FIRE ALARM TRANSMITTER
FU	FUSE
F, FUT	FUTURE
G	GREEN
G, GND, GRD	GROUND(ED)
GD	GENERATOR DISCONNECT
GEC	GROUND ELECTRODE CONDUCTOR
GEN	GENERATOR
GF	GROUND FAULT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFE	GOVERNMENT FURNISHED EQUIPMENT
GFI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GS	GROUND SENSOR
HAZMAT	HAZARDOUS MATERIAL
H1, H2	MV TERMINALS
HOA	HAND-OFF-AUTO SWITCH
HP	HORSE POWER
HR	HOUR
HTR	HEATER
HV	HIGH VOLTAGE
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HZ	HERTZ
IC	INDUCTION COUPLING (FLY WHEEL)
ISC	SHORT CIRCUIT CURRENT
JB	JUNCTION BOX
KA	KILO AMPERE
KAIC	KILO AMPERE INTERRUPTING RATING
KCMIL	KILO CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVARH	KILO VAR-HOUR
KW	KILOWATT
KWH	KILO WATT-HOUR
LAB	LABORATORY
LAN	LOCAL AREA NETWORK
LB	POUND
LC	LIGHTING CONTACTOR
LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT
LTC	LOAD TAP CHANGER
LT(G)	LIGHT(ING)
LHS	LEFT HAND SIDE
LTSW	LIGHT SWITCH
LV	LOW VOLTAGE
mA	MILLIAMPERES
MBG	MAIN BUILDING GROUND
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MHEXXX	MANHOLE ELECTRICAL #XXX
MI	MECHANICAL INTERLOCK
MIN	MINIMUM
MLO	MAIN LUGS ONLY
mm	MILLIMETERS
MO	MOTOR OPERATED
MOB	MOBILE
MPH	MILES PER HOUR
MR	MULTI RATIO
MRCT	MULTI-RATIO, CURRENT TRANSFORMER
MS	MOTOR STARTER
MTD	MOUNTED
MTG	MOUNTING
MV	MEDIUM VOLTAGE
MVA	MEGA VOLT-AMPERE

ABBREVIATIONS (CONT'D)

NASA	NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
N, NEUT	NEUTRAL
N/A	NOT APPLICABLE
(N)	NEW
N.C.	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEIS	NATIONAL ELECTRICAL INSTALLATION STANDARD
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NESC	NATIONAL ELECTRICAL SAFETY CODE
NIC	NOT IN CONTRACT
NO.	NUMBER
N.O.	NORMALLY OPEN
NTS	NOT TO SCALE
O/H	OVERHEAD
OL	OVERLOAD
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
P	POLE
PB	PULLBOX
PBS	PUSH BUTTON STATION
PCB	POLYCHLORINATED BIPHENYL
PF	POWER FACTOR
PG&E	PACIFIC GAS AND ELECTRIC
PH	PHASE
PMD	POWER METER DISPLAY
PNL	PANEL
POC	POINT OF CONNECTION
PPD	POWER METERING PICK-UP DEVICE
PR	PAIR
PRI	PRIMARY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
R	RED
(R)	RELOCATED
RECPT, RCP	RECEPTACLE
REDS7	RESTORATION OF ELECTRICAL DISTRIBUTION SYSTEM, PHASE 7
REF	REFERENCE
REQ	REQUIRED/REQUIREMENTS
RES	RESISTOR
RGC	RIGID GALVANIZED CONDUIT
RGS	RIGID GALVANIZED STEEL
RHS	RIGHT HAND SIDE
RM	ROOM
RMS	ROOT MEAN SQUARE
RSC	RIGID STEEL CONDUIT
RUPS	ROTARY UNINTERRUPTIBLE POWER SUPPLY
SA	SURGE ARRESTOR
SC	SHORT CIRCUIT
SCH	SCHEDULE
SERV	SERVICE
SEC	SECOND, SECONDARY
SCTB	SHORT CIRCUITTING TERMINAL BLOCK
SF6	SULFUR-HEXAFLUORIDE
SH, SHT	SHEET
SP	SPARE
SPEC	SPECIFICATION(S)
SQ	SQUARE
SS	SELECTOR SWITCH
ST	SHUNT TRIP
STA	STATION
STD	STANDARD
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SW	SWITCH
SYM	SYMMETRICAL, SYMBOL
SYS, SYST	SYSTEM
T	TERMINAL
T, XFMR,	TRANSFORMER
TB	TERMINAL BLOCK
TBD	TO BE DETERMINED OR DEVELOPED
TBL	TEST BLOCK
TDR	TIME DELAY RELAY
TEL	TELEPHONE
TEMP	TEMPERATURE
TJB	TERMINAL JUNCTION BOX
TP	TWISTED PAIR
TPS	TWISTED PAIR, SHIELDED CABLE
TS	TEST SWITCH
TY, (TYP)	TYPICAL

ABBREVIATIONS (CONT'D)

UBC	UNIFORM BUILDING CODE
UCP	UNIT CONTROL PANEL
U/G	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UR	UNIT REACTOR
V	VOLT(S)
VA	VOLTAMPERE
VCB	VACUUM CIRCUIT BREAKER
VDC	VOLTS DIRECT CURRENT
VM	VOLTMETER
VS	VOLTMETER SWITCH, VERTICAL SECTION
VT	VOLTAGE TRANSFORMER
VTD	VOLTAGE TRANSDUCER
W	WATT, WIRE, WHITE
W/	WITH
WH	WATT HOUR
WP	WEATHERPROOF
WP#2	WORK PACKAGE #2
W/O	WITHOUT
WTD	WATT TRANSDUCER
WT	WIND TUNNEL
XLPE	CROSS-LINKED POLYETHYLENE
XFMR	TRANSFORMER
X1...X4	LV TERMINALS
Y	WYE CONNECTED
Z	IMPEDANCE

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	DATE
DESIGNED	DATE
CHECKED	DATE
PROJ MGR	DATE
REQUESTER	DATE
NHSU/ALCHUNG	DATE
R&QA	DATE
SAFETY	DATE
SUPERVISOR	DATE
SFRANKEL	DATE

Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ELECTRICAL

**ELECTRICAL NOTES,
SYMBOLS AND ABBREVIATIONS**

SIZE	CAGE CODE	REV
D	25307	1
SCALE	INDEX	SHEET 2 OF 3

DWG: P:\ARC\258\ESRI - RUPS Reengineering\ESRI_RUPS - Phase 3\60048320.0001_RUPS Phase 3 - RUPS258A-E01_2.DWG
 Version: 17.1s (LMS Tech) User: radden
 DATE: Apr 28, 2009 - 2:46:16 pm

60048320.0001

GENERAL SYMBOLS

SYMBOL	DESCRIPTION
	KEY NOTE NUMBER
	DETAIL, SHEET NOTE OR KEY NOTE REFERENCE SHEET WHERE DETAIL OR NOTE IS SHOWN DETAIL OR NOTE NUMBER
	DETAIL REFERENCE DETAIL NUMBER SHEET WHERE DETAIL IS SHOWN SHEET FROM WHICH DETAIL IS REFERENCED
	SECTION SECTION IDENTIFICATION SHEET WHERE SECTION IS DRAWN SHEET FROM WHICH SECTION IS REFERENCED
	PHOTOGRAPHIC VIEWPOINT OR EXTERIOR ELEVATION PHOTOGRAPH OR ELEVATION IDENTIFICATION SHEET WHERE PHOTOGRAPH OR ELEVATION IS SHOWN SHEET FROM WHICH PHOTOGRAPH OR ELEVATION IS REFERENCED

	ELECTRICAL MANHOLE (EXISTING), "E60" INDICATES MH #
	NEW DUCT BANK ○ - INDICATES EMPTY CONDUIT ● - INDICATES NEW CABLE
	EXISTING DUCT BANK ○ - INDICATES EMPTY CONDUIT ⊗ - INDICATES CONDUIT IN USE.
	TRANSFORMER
	SF6 SWITCH WITH NEW CONDUIT BANK, '467' INDICATES SW #.
	EPO PUSH BUTTON
	LIGHTING POLE
	WALL MOUNTED LIGHTING FIXTURE

GROUNDING SYMBOLS

	GROUND WIRE (COPPER) EXPOSED
	GROUND WIRE (COPPER) CONCEALED/EMBEDDED
	GROUND ROD
	GROUND WELL
	EXOTHERMIC WELD CONNECTION
	GROUND PAD
	GROUND OR BONDING CONNECTION
	GROUND PIGTAIL

ONE LINE DIAGRAM SYMBOLS (CONT'D)

	CURRENT TRANSFORMER, ZERO SEQUENCE
	DELTA CONNECTION
	"Y" OR STAR CONNECTION WITH GROUNDED NEUTRAL
	THREE PHASE, 3W, OPEN DELTA CONNECTION
	THREE PHASE, OPEN DELTA, GROUNDED AT COMMON POINT.
	GROUND CONNECTION
	LIGHTNING ARRESTOR NUMBER INDICATES QUANTITY
	SURGE ARRESTOR
	SEPARABLE ELBOW CONNECTOR
	AM-AMMETER
	AMR-AMMETER RECODER
	AS-AMMETER SWITCH
	EDM-ELECTRONIC DISPLAY METER
	MO-MOTOR OPERATED
	PF-POWER FACTOR
	PPD-POWER PICK-UP DEVICE FOR POWER METERING
	ST-SHUNT TRIP
	WTD-WATT TRANSDUCER
	WHM-WATT HOUR METER
	VM-VOLT METER
	VS-VOLT METER SWITCH
	PROTECTIVE RELAY (COIL)

ONE LINE DIAGRAM SYMBOLS (CONT'D)

	GREEN INDICATING LIGHT
	RED INDICATING LIGHT
	WHITE INDICATING LIGHT
	EXISTING CABLE SPLICE
	CABLE TERMINATION/SPLICE POINT
	NEW CABLE SPLICE
	TERMINAL BLOCK
	TERMINAL POINTS
	AUTOMATIC CLUTCH BETWEEN DIESEL AND IC
	VACUUM INTERRUPTER
	GROUND FAULT PROTECTION
	SYNCHRONOUS MACHINE USED AS A MOTOR IN RUPS NORMAL MODE AND AS A GENERATOR IN RUPS EMERGENCY MODE
	INDUCTION COUPLING (FLY WHEEL)

POWER AND CONTROL SYMBOLS

	NEW FEEDER IDENTIFICATION
	EXPOSED CONDUIT.
	NEW UNDERGROUND (OR CONCEALED) ELECTRICAL CONDUIT
	EXISTING UNDERGROUND (OR CONCEALED) ELECTRICAL CONDUIT
	NEW UNDERGROUND (OR CONCEALED) COMMUNICATION CONDUIT
	EXISTING UNDERGROUND (OR CONCEALED) COMMUNICATION CONDUIT
	CONDUIT STUBOUT
	CONDUIT TURNED UP
	CONDUIT TURNED DOWN
	EXPANSION FITTING
	FLEXIBLE CONDUIT
	JUNCTION BOX
	PULLBOX
	HANDHOLE

ONE LINE DIAGRAM SYMBOLS

	DRAWOUT TYPE MEDIUM VOLTAGE CIRCUIT BREAKER
	MOLDED CASE CIRCUIT BREAKER FRAME AND TRIP UNIT AS NOTED, 3-POLE UNLESS OTHERWISE NOTED. ST- SHUNT TRIP GFCI- GROUND FAULT CIRCUIT INTERRUPTER AF- FRAME AMPS AT- TRIP AMPS
	MANUAL INTERRUPTING SWITCH, 3POLE, 600A RATING AND 200A FUSE SIZE
	DRAWOUT DEVICE
	DISCONNECT SWITCH
	RUPS REACTOR WITH TAP
	TRANSFORMER
	POTENTIAL TRANSFORMER NUMBER INDICATES QUANTITY
	CURRENT TRANSFORMER, PRIMARY/SECONDARY CURRENT INDICATED. NUMBER INDICATES QUANTITY MR-MULTI RATIO, INDICATES MAXIMUM CT RATIO "T"- TAP, INDICATES REQUIRED TAP SETTINGS
	SPARE CURRENT TRANSFORMER SHORTED ON SHORT-CIRCUITING TERMINAL BLOCK

	MICROPROCESSOR BASED ELECTRONIC DEVICE/RELAY. FOR ADDITIONAL DEVICE SEE ANSI C37.2
	50-INSTANTANEOUS OVERCURRENT RELAY
	50G-INSTANTANEOUS GROUND OVERCURRENT RELAY
	50GS-INSTANTANEOUS OVERCURRENT RELAY, ZERO SEQUENCE
	50N-INSTANTANEOUS NEUTRAL OVERCURRENT RELAY
	51-AC TIME OVERCURRENT RELAY
	51N-NEUTRAL TIME OVERCURRENT RELAY
	51G-GROUND TIME OVERCURRENT RELAY
	51GS ZERO SEQUENCE TIME OVERCURRENT RELAY TIME UNIT
	52-AC CIRCUIT BREAKER
	67-AC DIRECTIONAL OVERCURRENT RELAY
	32-DIRECTIONAL POWER RELAY
	86T-TRANSFORMER LOCK OUT RELAY
	86-LOCK OUT RELAY
	87-DIFFERENTIAL CURRENT RELAY (WITH SUFFIX M,T,B,G FOR MOTOR, XFMR, BUS AND GENERATOR RESPECTIVELY)
	FUSE, RATING AS NOTED
	BUS DUCT (RATING AS INDICATED ON DRAWING)
	INTERLOCK
	KEY INTERLOCK
	EPO BUZZER
	MOTOR 3 PHASE, HORSE POWER AS INDICATED
	CROSS WIRING (NOT CONNECTED)
	ELECTRIC CONNECTION
	RESIDUAL CONNECTION
	CONNECTION FOR RESIDUAL GROUND RELAY
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	EPO PUSH BUTTON
	TRIPPING INFLUENCE LINE

FIRE ALARM SYMBOLS

	1407 HEAT DETECTOR, CEILING MOUNTED, WITH ADDRESS NUMBER.
	1407 MANUAL PULL STATION, WITH ADDRESS NUMBER, WALL MOUNTED WITH OPERABLE PART NOT LESS THAN 42" AND NOT MORE THAN 54" A.F.F.
	N-101 15cd AUDIO/VISUAL DEVICE, WITH ADDRESS NUMBER, WALL MOUNTED WITH ITS ENTIRE LENS NOT LESS THAN 80" AND NOT GREATER THAN 96" A.F.F. PER NFPA 72. STROBE CANDELA RATING AS SHOWN.
	FCP FIRE ALARM CONTROL PANEL
	FSA FIRE SYSTEM ANNUNCIATOR
	FTR FIRE ALARM TRANSCIVER OR TRANSMITTER

Approved for Construction
Moffett Field Permit Board
Metsche
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					
DRAWN	F.ALDEN	DATE	4/26/09		
DESIGNED	R.NIZAMOV	DATE	4/28/09		
CHECKED	J.MCCLUSKER	DATE	4/27/09		
PROJECTOR	J.MCCLUSKER	DATE	4/27/09		
REQUESTER	N.HSU/H.CHUNG	DATE	4/27/09		
R&QA		DATE			
SAFETY		DATE			
SUPERVISOR	S.FRANKEL	DATE	4/27/09		

Ames Research Center
Moffett Field, California
N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ELECTRICAL

**ELECTRICAL NOTES,
SYMBOLS AND ABBREVIATIONS**

SIZE	D	CAGE CODE	25307	REV	3
SCALE	NTS	INDEX		SHEET	3 OF 3

DWG: P:\AEC\258A\ESR - RUPS Uninterruptible Power Supply\ESR - RUPS Repackaging\ESR_RUPS - Phase 3\60048320.0001_RUPS Phase 3 - RUPS258A-E01_3.DWG Version: 17:1s (LMS Tech) User: pdfern
 DATE: Apr 28, 2009 2:46:18 pm

60048320.0001

SHEET NOTES

1. LIGHT LINES INDICATE EXISTING CONDITIONS AND DARK LINES INDICATE NEW WORK.
2. SEE DRAWING E1 FOR GENERAL ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS.
3. THIS DRAWING REPRESENTS RUPS STATION EXISTING CONDITION AND IS FOR INFORMATION ONLY.

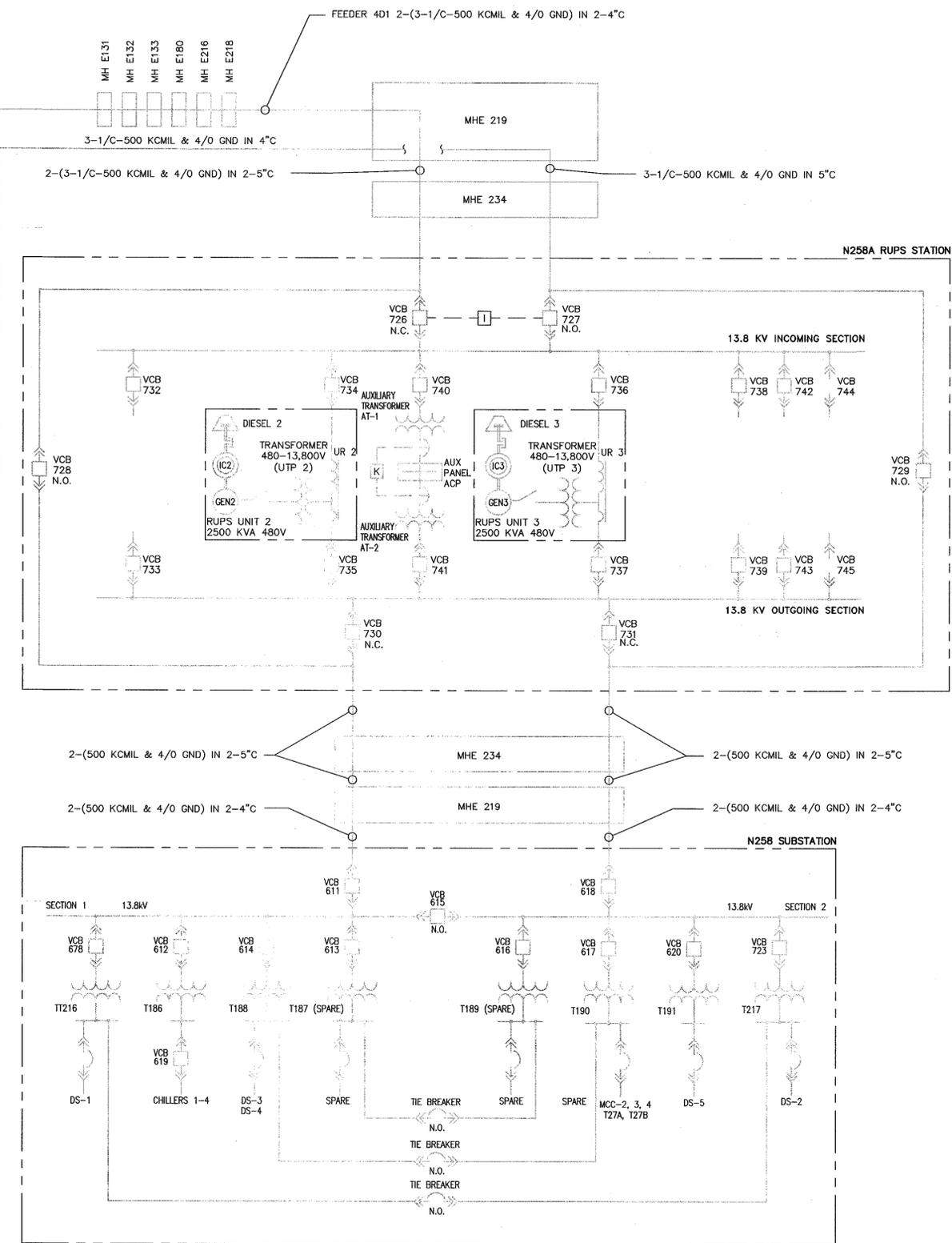
KEY NOTES

NOTE:
THIS DRAWING IS PROVIDED FOR INFORMATION ONLY, UON.

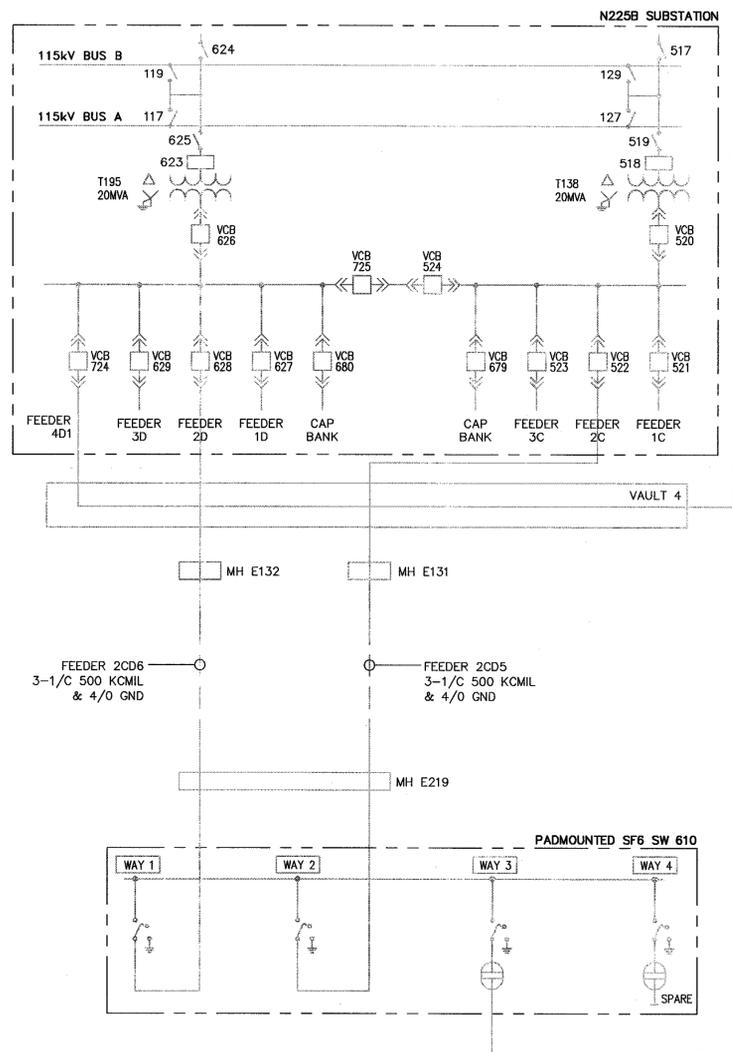
Approved for Construction
Moffett Field Permit Board
M. Blum
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN P. ALDEN DESIGNED R. NIZAMOV CHECKED J. McCusker PROJECT MGR J. McCusker REQUESTER N. HSU/H. CHUNG R&QA SAFETY SUPERVISOR S. FRANKEL	DATE 4/28/09 DATE 4/28/09 DATE 4/28/09 DATE 4/28/09 DATE 4/28/09 DATE 4/28/09 DATE 4/28/09	RATE 4128.09 DATE 4/28/09 DATE 4/28/09 DATE 4/28/09 DATE 4/28/09 DATE 4/28/09 DATE 4/28/09	Ames Research Center Moffett Field, California N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III ELECTRICAL SINGLE LINE DIAGRAM - EXISTING	SIZE D CAGE CODE 25307 SCALE AS SHOWN	INDEX 258A-0702-E4 SHEET 1 OF 1
---	---	---	--	--	--



1 SINGLE LINE DIAGRAM - EXISTING
SCALE: NTS



DWG: P:\ARC\258\SSRI - Backup Uninterruptible Power Supply\SSRI - RUPS Reproting\SSRI_RUPS - Phase 3\60048320.0001_RUPS Phase 3 - RUPS258A-E04.dwg
 Version: 17.1s (LMS Tech) User: palden
 DATE: Apr 28, 2009 - 2:46:20 pm

SHEET NOTES

1. LIGHT LINES INDICATE EXISTING CONDITIONS AND DARK LINES INDICATE NEW WORK.
2. SEE DRAWING E1 FOR GENERAL ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS.

KEY NOTES

- 1 NOT USED.
- 2 NOT USED.
- 3 NOT USED.
- 4 NOT USED.
- 5 NOT USED.
- 6 NOT USED.
- 7 (E) RUPS UNIT #2.
- 8 (E) RUPS UNIT #3.
- 9 PROVIDE THIRD RUPS UNIT IN ACCORDANCE WITH SPECIFICATION SECTION 26 32 33.00 10.
- 10 FUTURE INSTALLATION.

Approved for Construction
Moffett Field Permit Board
Verde
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
		REVISIONS			

DRAWN	P. ALDEN	DATE	4/24/09
DESIGNED	P. ALDEN	DATE	4/24/09
CHECKED	J. McUSKER	DATE	4/25/09
PROJ. MGR	J. McUSKER	DATE	4/25/09
REQUESTER	N. HSU	DATE	4/25/09
R&QA	N. HSU	DATE	4/25/09

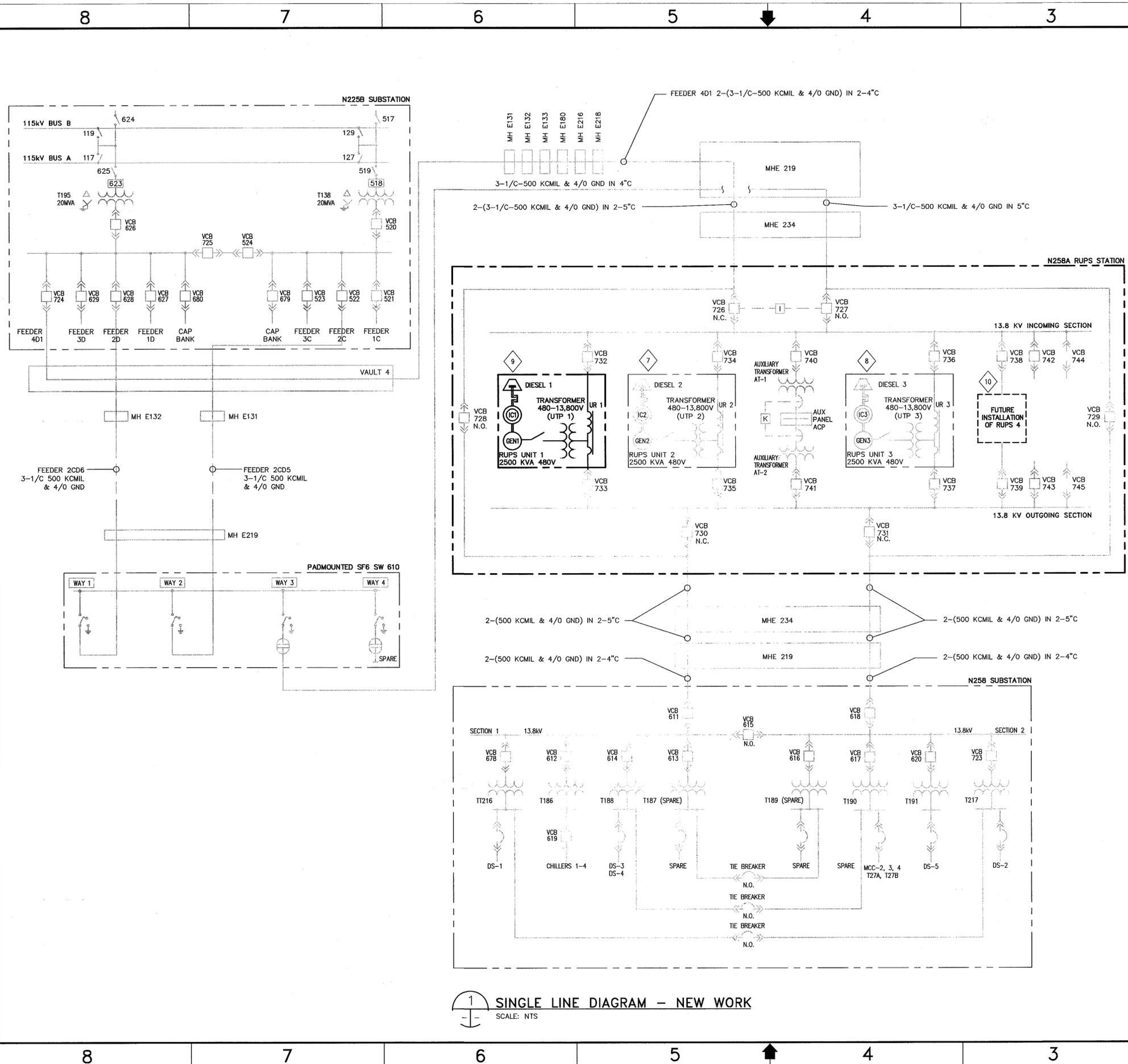
Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ELECTRICAL

SINGLE LINE DIAGRAM - NEW WORK

SUPERVISOR	S. FRANKEL	DATE	4-24-09	SIZE	D	CAGE CODE	25307	INDEX		SHEET	1	OF	1
------------	------------	------	---------	------	---	-----------	-------	-------	--	-------	---	----	---

FILE NAME:
258A-E05 4-28-09



1 SINGLE LINE DIAGRAM - NEW WORK
SCALE: NTS

DWG: P:\ARC\258\ESR - Rotary Uninterruptible Power Supply\ESR - RUPS Reproducting\ESR_RUPS - Phase 3 - RUPS258A-E05.dwg User: palden
 DATE: Apr 28, 2009 2:46:22 pm

60048320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-E6

SH. 1 REV

SHEET NOTES

1. LIGHT LINES INDICATE EXISTING CONDITIONS AND DARK LINES INDICATE NEW WORK.
2. SEE DRAWING E1 FOR GENERAL ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS. SEE DWG. E7 FOR RUPS STATION ABBREVIATIONS.
3. EXACT LOCATION OF SWITCHGEAR AND PANELS IN THE SWITCHGEAR ENCLOSURE, LOCATION AND ROUTING OF ABOVE GROUND CABLE TRAYS HAVE BEEN DETERMINED BY THE RUPS DESIGNER OF A PREVIOUS CONTRACT.

KEY NOTES

- 1 NOT USED.
- 2 NOT USED.
- 3 NOT USED.
- 4 NOT USED.
- 5 (E) MAINTENANCE OPERATOR DESK AND RUPS MONITORING SYSTEM COMPUTER.
- 6 (E) FMCS PANEL.
- 7 NOT USED.
- 8 (E) SWITCHGEAR ENCLOSURE.
- 9 PROVIDE EXTENSION OF (E) POWER CABLE TRAY FOR INSTALLATION OF POWER CABLES.
- 10 PROVIDE EXTENSION OF (E) CONTROL CABLE TRAY FOR INSTALLATION OF CONTROL CABLES.
- 11 FUTURE INSTALLATION.
- 12 RESERVED FOR FUTURE RUPS4 PANELS.

LEGEND

- (N) POWER CABLE TRAY
- (E) POWER CABLE TRAY
- (F) POWER CABLE TRAY
- (N) CONTROL CABLE TRAY
- (E) CONTROL CABLE TRAY
- (F) CONTROL CABLE TRAY
- CABLE TRAY'S ENTRANCE INTO EQUIPMENT

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

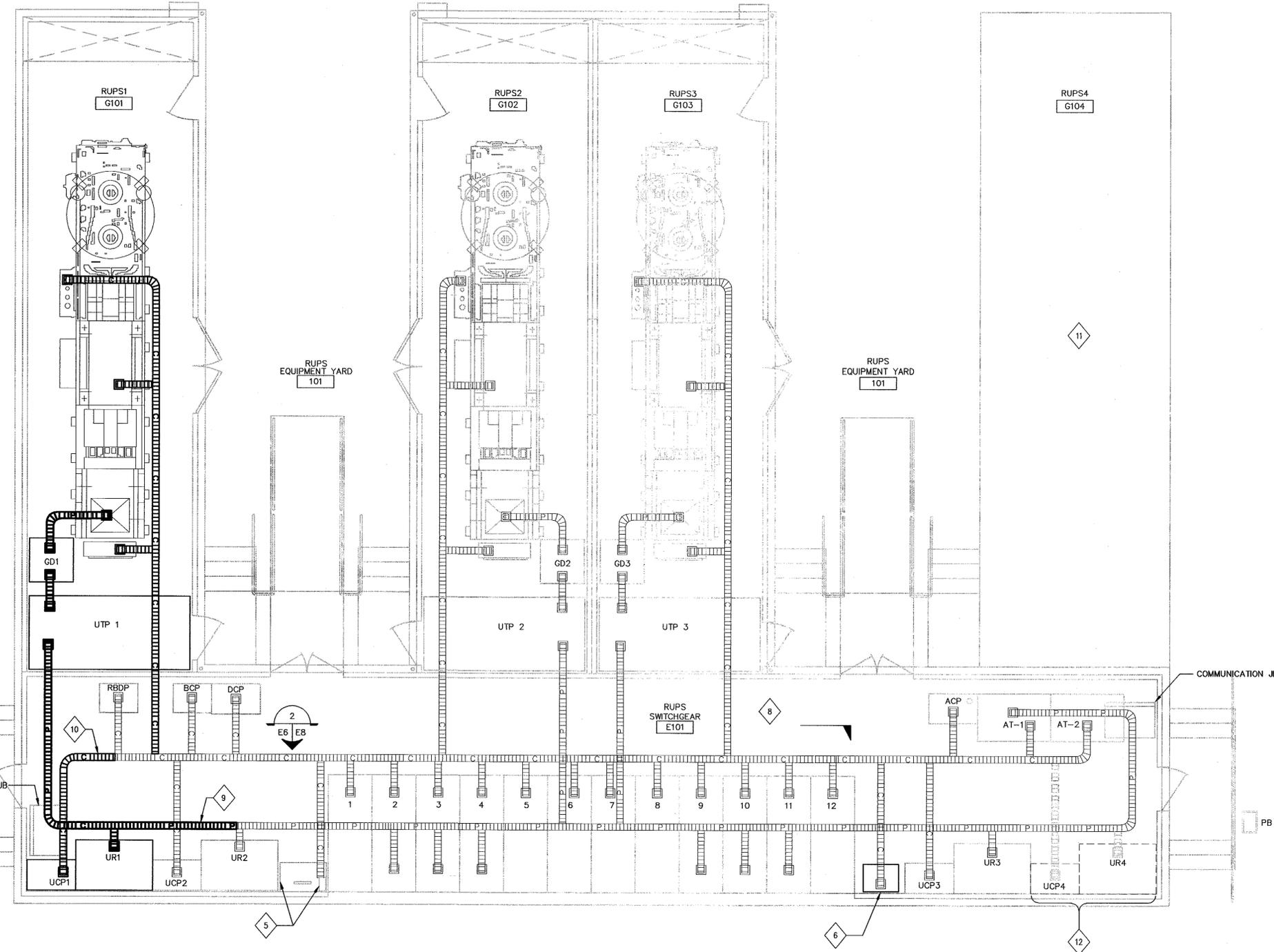
DRAWN C. WONG	DATE 4/26/02
DESIGNED R. NIZAMOV	DATE 4/28/02
CHECKED J. McCusker	DATE 4-28-02
PROJECT MGR J. McCusker	DATE 4-28-02
REQUESTER N. HSU/H. CHUNG	DATE 4/28/02
R&QA	DATE

Ames Research Center
Moffett Field, California
N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ELECTRICAL

RUPS STATION TYPICAL POWER PLAN

SUPervisor S. FRANKEL	DATE 4-28-02	SIZE D	CAGE CODE 25307	SCALE AS SHOWN	INDEX	FILE NAME: 258A-E06.DWG
--------------------------	-----------------	-----------	--------------------	-------------------	-------	----------------------------

SHEET 1 OF 1
4-28-09



RUPS STATION TYPICAL POWER PLAN
SCALE: 1/4" = 1'-0"

DWG: P:\ARC\258A\ESRI - Rotary Uninterruptible Power Supply\ESRI - Phase 3\60048320.0001_RUPS Phase 3 - RUPS258A-E06_1.dwg
 Version: 17.1s (LMS Tech) User: palden
 DATE: Apr 28, 2009 - 2:46:25 pm

60048320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-E7 SH. 1 REV 1

SHEET NOTES

- 1. SEE DRAWING E1 FOR GENERAL ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS.
- 2. ALL EQUIPMENT SHOWN ON THIS DRAWING ARE EXISTING, UON.

KEY NOTES

- 1 PROVIDE THIRD RUPS UNIT IN ACCORDANCE WITH SPECIFICATION SECTION 26 32 33.00 10.
- 2 NOT USED.
- 3 NOT USED.
- 4 FUTURE INSTALLATION.

RUPS STATION ABBREVIATIONS

VCB 101	VACUUM CIRCUIT BREAKER AND ITS NUMBER. SEE DRAWING E5 FOR SINGLE LINE DIAGRAM.
UR	UNIT REACTOR WITH TAP
GD	13.8 KV GENERATOR DISCONNECT
GEN	GENERATOR
IC	INDUCTION COUPLING (FLY WHEEL)
DIESEL	DIESEL ENGINE
UCP	UNIT CONTROL PANEL
BCP	BYPASS CONTROL PANEL
AT	AUXILIARY TRANSFORMER
ACP	ALTERNATE CURRENT AUXILIARY PANEL
DCP	DIRECT CURRENT AUXILIARY PANEL WITH BATTERY AND CHARGER
UTP	TRANSFORMER 480-13,800V
RBOP	REMOTE BREAKER OPERATING PANEL
(E)	POWER CIRCUIT
(N)	AUXILIARY AC POWER CIRCUITS
(N)	AUXILIARY DC POWER CIRCUITS
(N)	CONTROL CIRCUITS

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	<i>[Signature]</i>	DATE	4/28/09
DESIGNED	<i>[Signature]</i>	DATE	4/28/09
CHECKED	<i>[Signature]</i>	DATE	4/28/09
PROJECT	<i>[Signature]</i>	DATE	4/28/09
REQUESTER	<i>[Signature]</i>	DATE	4/28/09
R&QA	<i>[Signature]</i>	DATE	4/28/09
SAFETY		DATE	
SUPERVISOR	<i>[Signature]</i>	DATE	4/28/09

Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ELECTRICAL

**RUPS STATION TYPICAL
BLOCK DIAGRAM**

SIZE: D CAGE CODE: 25307
SCALE: AS SHOWN INDEX: SHEET 1 OF 1

FILE NAME: 258A-E07 4-28-09

13.8 KV POWER SUPPLY FROM SUBSTATION N225B

13.8 KV FEEDER TO EXISTING N258 SWITCHGEAR

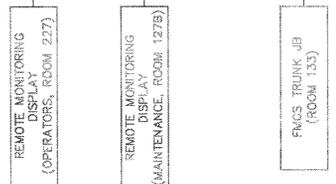
13.8 KV POWER SUPPLY FROM SUBSTATION N225B

13.8 KV FEEDER TO EXISTING N258 SWITCHGEAR

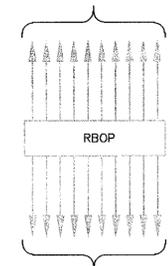
INCOMING BUS

OUTGOING BUS

RUPS MONITORING SYSTEM



TO VCB CONTROL CIRCUITS



TO VCB CONTROL CIRCUITS

RUPS STATION TYPICAL BLOCK DIAGRAM
SCALE: N.T.S.

8

7

6

5

4

3

2

DWG: P:\ARC\258\ESRI - Rctory Uninterruptible Power Supply\ESRI - RUPS - Reproducting\ESRI_RUPS - Phase 3 - RUPS258A-E07.dwg Version: 17:1s (LMS Tech) User: polden
 DATE: Apr 28, 2009 2:46:28 pm

60048320.0001

8 7 6 5 4 3 2 DWG NO. A258A-0702-E8 SH. 1 REV

SHEET NOTES

1. LIGHT LINES INDICATE EXISTING CONDITIONS AND DARK LINES INDICATE NEW WORK.
2. SEE DRAWINGS E1 FOR ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS.

KEY NOTES

- 1 NOT USED.
- 2 NOT USED.
- 3 PROVIDE POWER AND CONTROL CABLES FROM VCB732 AND VCB 733 TO RUPS UNIT 1.

D
C
B
A

D
C
B
A

13.8 KV SWITCHGEAR TYPICAL PLAN VIEW
SCALE: 1/2"=1'-0"

13.8 KV SWITCHGEAR TYPICAL ELEVATION
SCALE: 1/2"=1'-0"

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					
DRAWN: R.NIZAMOV DESIGNED: R.NIZAMOV CHECKED: J.McCusker PROJECTOR: J.McCusker REQUESTER: N.HSU/H.CHUNG R&QA: [Signature]					
Ames Research Center Moffett Field, California N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III ELECTRICAL 13.8 KV SWITCHGEAR TYPICAL OUTLINE					
SAFETY		DATE	SIZE	CAGE CODE	INDEX
SUPERVISOR: S.FRANKEL		DATE: 7-20-09	D	25307	A-258A-0702-E8
SCALE: AS SHOWN		INDEX	SHEET 1 OF 1		
FILE NAME: 258A-E08 4-28-09					

DWS: P:\VCO\258\ESSR - RUPS Uninterruptible Power Supply\ESSR - RUPS Repackaging\ESSR_RUPS - Phase 3\160046320.0001_RUPS Phase 3 - RUPS258A-E08.dwg Version: 17.16 (LMS Tech) User: paldin DATE: Apr 28, 2009 2:46:30 pm

8

7

6

5

4

3

2

DWG NO. A258A-0702-E9 SH. REV

SHEET NOTES

- 1. LIGHT LINES INDICATE EXISTING CONDITIONS AND DARK LINES INDICATE NEW WORK.
- 2. SEE DRAWING E1 FOR GENERAL ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS.
- 3. EACH RUPS ENCLOSURE AND SWITCHGEAR SHALL HAVE TWO CONNECTIONS TO GROUND GRID.
- 4. LIGHTNING PROTECTION SHALL BE PROVIDED ON EACH ENCLOSURE AND CONNECTED TO GROUND GRID.
- 5. GROUND TEMPORARY CHAIN LINK FENCE. SEE DRAWING E27 DETAILS 9 & 10 FOR GATE & FENCE GROUNDING.
- 6. THIS DRAWING REPRESENTS EXISTING GROUND GRID CONDITIONS.

NOTE:

THIS DRAWING IS PROVIDED FOR INFORMATION ONLY, UON.

KEY NOTES

- 1. CONNECT EQUIPMENT GROUND BONDING JUMPER TO (E) GROUND GRID PIGTAILS.
- 2. NOT USED.
- 3. NOT USED.
- 4. NOT USED.
- 5. NOT USED.
- 6. NOT USED.
- 7. NOT USED.

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	R.NIZAMOV	DATE	4/23/09
DESIGNED	R.NIZAMOV	DATE	4/23/09
CHECKED	J.McCusker	DATE	4/28/09
PROJ.MGR	J.McCusker	DATE	4/21/09
REQUESTER	N.HSU/H.CHUNG	DATE	4/28/09
R&QA		DATE	
SAFETY		DATE	
SUPERVISOR	S.FRANKEL	DATE	7-30-09

Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ELECTRICAL

**GROUNDING PLAN
EXISTING**

SIZE	D	CAGE CODE	25307	FILE NAME:	258A-0702-E9	REV	1
SCALE	AS SHOWN	INDEX		SHEET		OF	

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

DWG: P:\VOC\258\ESR - Recovery Uninterruptible Power Supply\ESR - RUPS Repackaging\ESR_RUPS - Phase 3\60048320.0001_RUPS Phase 3 - RUPS258A-E09.DWG
 Version: 17.1s (LMS Tech) User: palden
 DATE: Apr 28, 2009 2:46:33 pm

60048320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-E10 SH. 1 REV 1

SHEET NOTES

- 1. LIGHT LINES INDICATE EXISTING CONDITIONS AND DARK LINES INDICATE NEW WORK.
- 2. SEE DRAWING E1 FOR GENERAL ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS.

KEY NOTES

- 1 NOT USED.
- 2 NOT USED.
- 3 NOT USED.
- 4 NOT USED.
- 5 NOT USED.
- 6 PROVIDE THIRD RUPS UNIT IN ACCORDANCE WITH SPECIFICATION SECTION 26 32 33.00 10.
- 7 NOT USED.
- 8 NOT USED.
- 9 FUTURE INSTALLATION.

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	DATE
DESIGNED	DATE
CHECKED	DATE
APPROVED	DATE
REQUESTER	DATE
R&QA	DATE
SAFETY	DATE
SUPERVISOR	DATE
PROTECTION ENGINEER	DATE

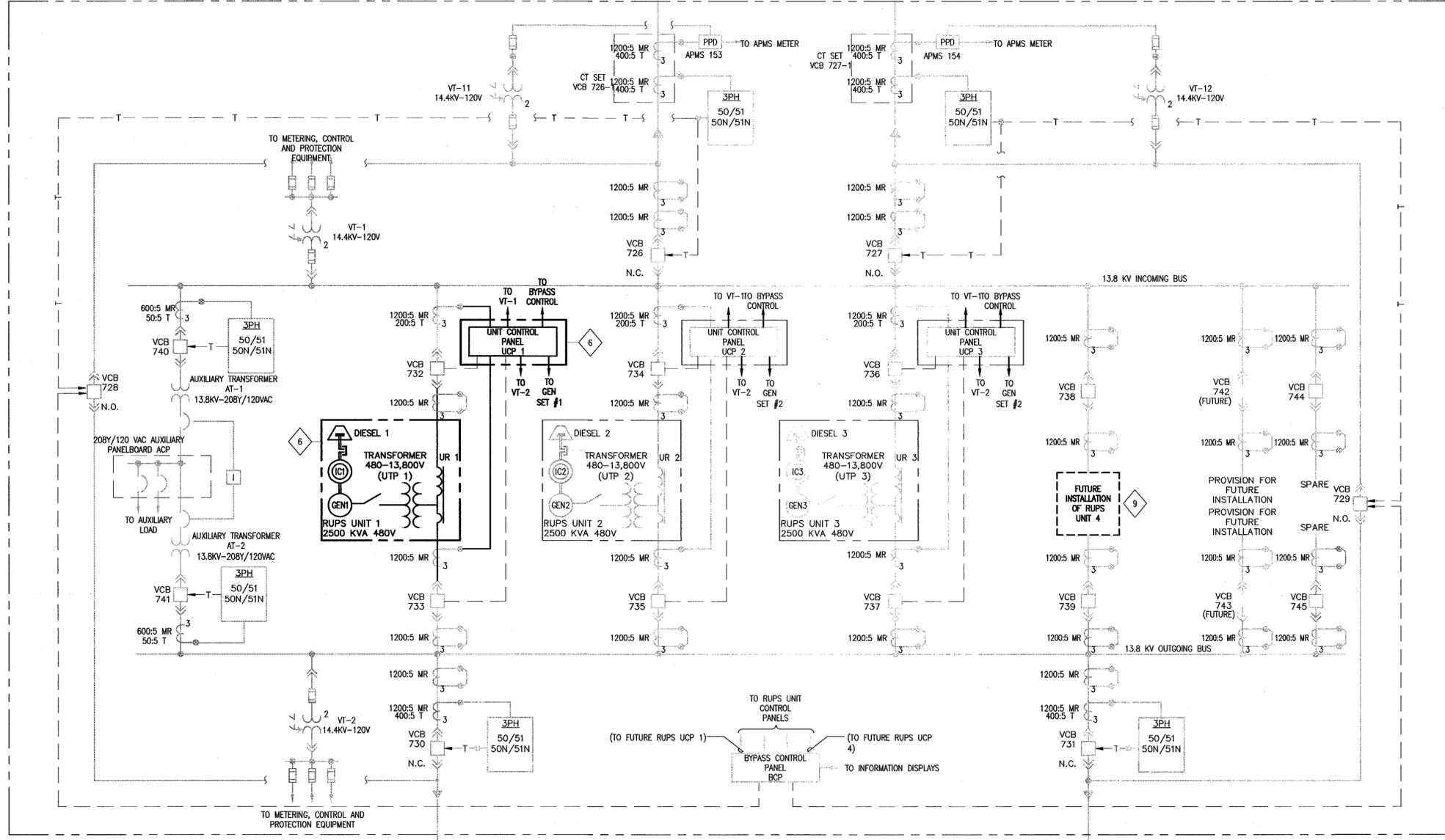
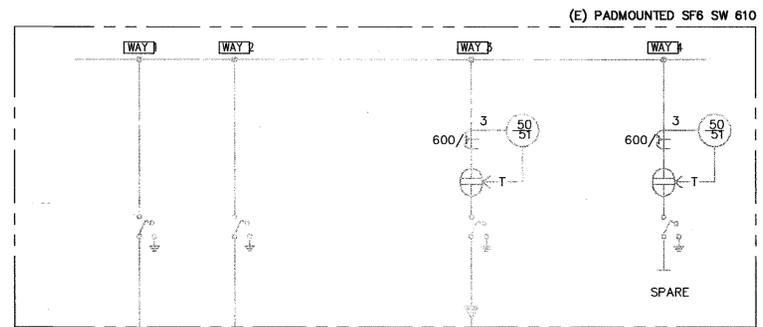
Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ELECTRICAL

**METER AND RELAY
SINGLE LINE DIAGRAM**

SIZE: CAGE CODE: 25307
SCALE: AS SHOWN
INDEX: SHEET 1 OF 1
FILE NAME: 258A-E10.DWG 4-28-09

1 METER AND RELAY SINGLE LINE DIAGRAM
SCALE: N.T.S.



DWG: P:\ARC\258A\ESR - RUPS Reliability Power Supply\ESR - RUPS Reliability\ESR_RUPS - Phase 3 - RUPS258A-E10.DWG
 DATE: Apr 28, 2009 2:46:35 pm
 User: paden

60046320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-E21 SH. 1 REV

SHEET NOTES

- ALL FIRE ALARM DEVICES SHOWN ARE NEW. UON. PROVIDE CONDUIT, J-BOX AND WIRING FROM ALL NEW FIRE ALARM DEVICES TO THE FIRE ALARM CONTROL PANEL.
- MINIMUM SIZE OF CONDUIT SHALL BE 3/4".
- LIGHT LINES INDICATE BACKGROUND WORK BY OTHERS AND DARK LINES INDICATE NEW WORK.
- THE (E) FIRE ALARM SYSTEM IS ADDRESSABLE, CLASS A, FOUR-WIRE, FULLY SUPERVISED. ALL FIRE ALARM DEVICES MUST BE COMPATIBLE WITH (E) FACP.
- SEE DRAWINGS E1-1, E1-2 & E1-3 FOR THE FOLLOWING ELECTRICAL INFORMATION:
 - GENERAL NOTES
 - ABBREVIATIONS
 - FIRE ALARM SYMBOLS
- SEE DRAWING E22 FOR THE FOLLOWING ELECTRICAL INFORMATION:
 - SCOPE OF WORK
 - SEQUENCE OF OPERATION
 - FIRE ALARM RISER DIAGRAM
- ALL FIRE ALARM CIRCUIT CONDUIT BOXES AND FITTINGS SHALL BE PAINTED RED.
- STROBES SHALL BE SYNCHRONIZED AS PER NFPA 72. NOTIFICATION CIRCUITS AND APPLIANCES SHALL MEET ADAAG REQUIREMENTS.

KEY NOTES

- NOT USED.
- MANUAL PULL STATION SHALL BE INSTALLED WITHIN 5 FEET OF THE DOOR. SEE DRAWING E1-3 FOR INSTALLATION HEIGHT.
- CONTRACTOR SHALL WIRE NEW MICROMIST SYSTEM CONTROLLER TO THE FIRE ALARM CONTROL PANEL.
- NOT USED.
- ELECTRICALLY OPERATED OUTLET AIR LOUVERS SHALL BE INTERLOCKED WITH THE FIRE ALARM SYSTEM.
- ELECTRICALLY OPERATED INLET AIR LOUVERS SHALL BE INTERLOCKED WITH THE FIRE ALARM SYSTEM.
- NOT USED.
- NOT USED.
- NOT USED.
- HEAT DETECTORS IN RUPS ENCLOSURE SHALL BE CROSS-ZONED IN ORDER TO MEET REQUIREMENTS FOR INSTALLATION OF EPO SYSTEM. ACTIVATION OF ONE HEAT DETECTOR (FACP-1) SHALL TURN ON STROBE ALARM IN ROOM E101 BLDG N258A AND ROOM 227 (COMPUTER CONTROL ROOM) BLDG N258. IF WITHIN A PRESET TIME DELAY OF 2 MINUTES MULTIPLE ZONE ALARM OCCURS (FACP-2) OR IT CAN NOT BE VERIFIED THERE IS NO FIRE AND THE RESET HAS NOT BEEN ACTUATED WITH A KEY, THE CONTINUED ALARM CONDITION WILL ACTIVATE THE FIRE ALARM SYSTEM TO THE LOCAL FIRE DEPARTMENT AND POWER TO RUPS STATIONS WILL BE DISCONNECTED.
- NOT USED.
- NOT USED.
- FUTURE INSTALLATION.

Approved for Construction
Moffett Field Permit Board

[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	<i>[Signature]</i>	DATE	4/22/09
DESIGNED	<i>[Signature]</i>	DATE	4/22/09
CHECKED	<i>[Signature]</i>	DATE	4/22/09
PROJ MGR	<i>[Signature]</i>	DATE	4/22/09
REQUESTER	<i>[Signature]</i>	DATE	4/22/09
R&QA	<i>[Signature]</i>	DATE	4/22/09

Ames Research Center
Moffett Field, California

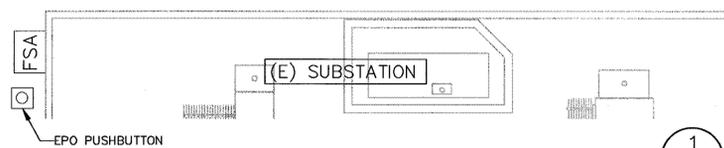
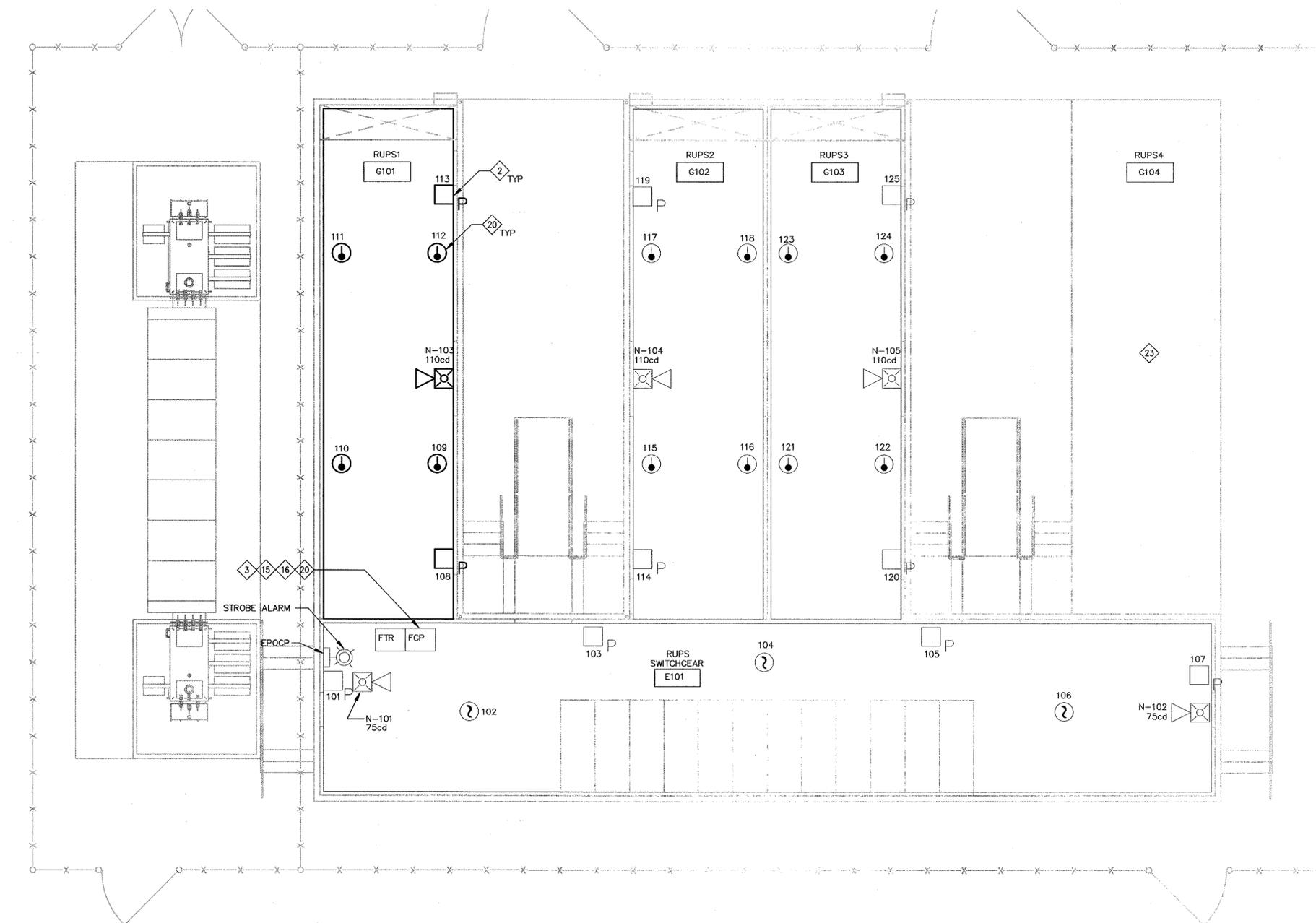
N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ELECTRICAL

FIRE ALARM & EPO SYSTEM PLAN

SUPERVISOR	<i>[Signature]</i>	DATE	7/2/09
------------	--------------------	------	--------

SIZE	D	CAGE CODE	25307	REV	1
SCALE	AS SHOWN	INDEX		SHEET	1 OF 1

FILE NAME:
258A-E21 4-28-09



1 FIRE ALARM AND EPO SYSTEM PLAN
SCALE: 3/16" = 1'-0"



8

7

6

5

4

3

2

DWG: P:\MCO\258A\ESRI - Rotary Uninterruptible Power Supply\ESRI - RUPS Recpackaging\ESRI_RUPS - Phase 3 - RUPS258A-E21.DWG Version: 17.1a (LMS Tech) User: palden DATE: Apr 28, 2009 - 2:46:39 pm

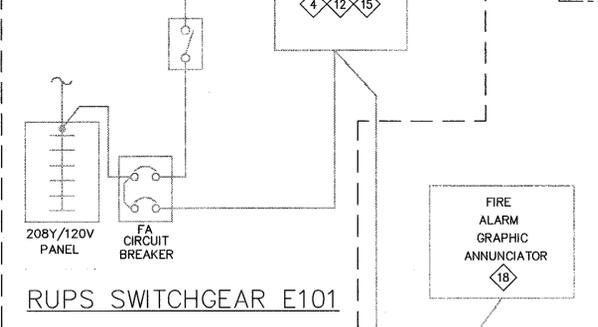
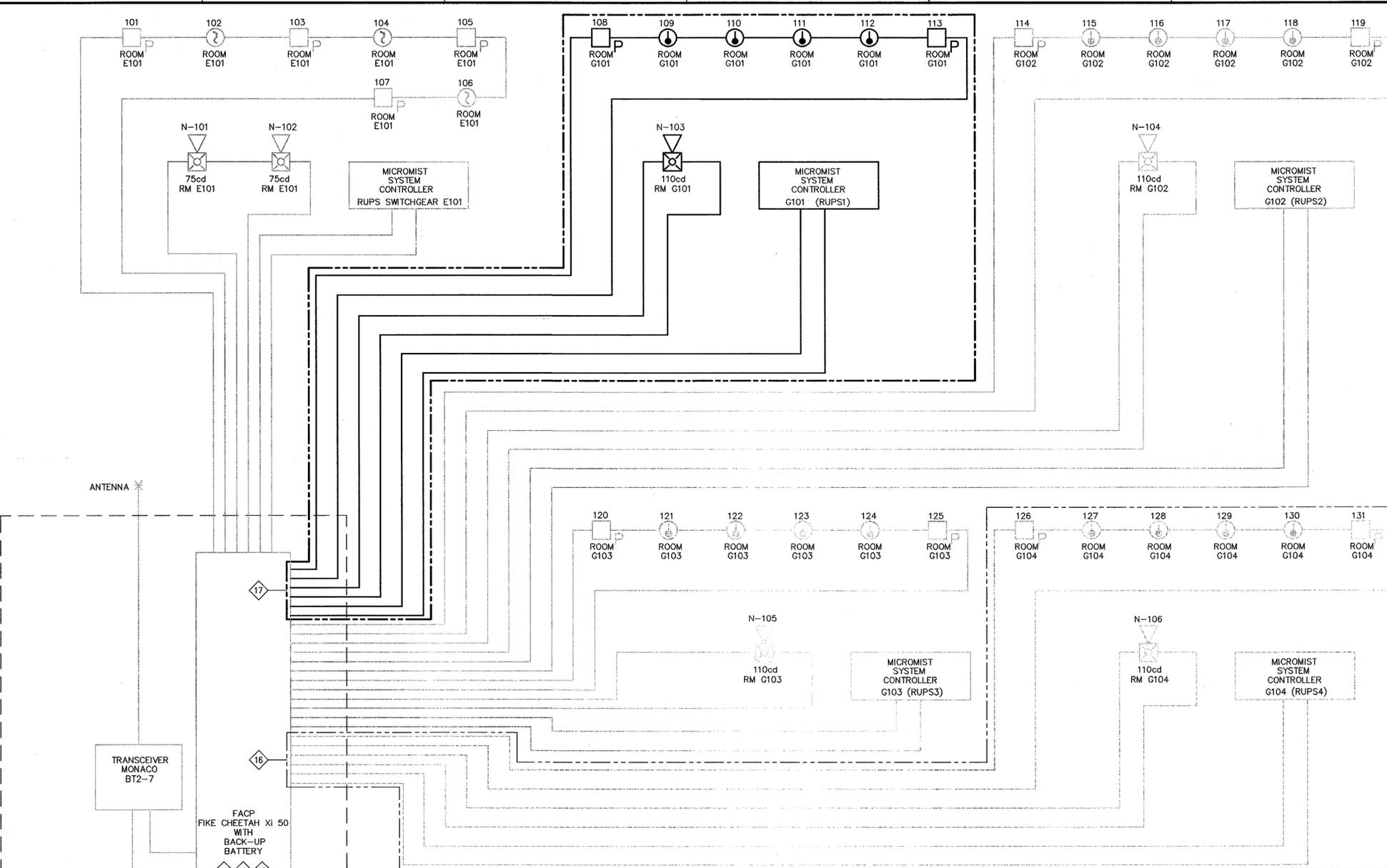
60048320.0001

SHEET NOTES

- ALL FIRE ALARM DEVICES SHOWN ARE NEW, UON. PROVIDE CONDUIT, J-BOX AND WIRING FROM ALL FIRE ALARM DEVICES TO THE FIRE ALARM CONTROL PANEL.
- MINIMUM SIZE OF CONDUIT SHALL BE 3/4".
- LIGHT LINES INDICATE BACKGROUND WORK BY OTHERS AND DARK LINES INDICATE NEW WORK.
- THE (E) FIRE ALARM SYSTEM IS ADDRESSABLE, CLASS A, FOUR-WIRE, FULLY SUPERVISED.
- SEE DRAWINGS E1-1, E1-2 & E1-3 FOR THE FOLLOWING ELECTRICAL INFORMATION:
 - a) GENERAL NOTES
 - b) ABBREVIATIONS
 - c) FIRE ALARM SYMBOLS
- SEE DRAWING E21 FOR FIRE ALARM PLAN.
- ALL FIRE ALARM CIRCUIT CONDUIT BOXES AND FITTINGS SHALL BE PAINTED RED.
- STROBES SHALL BE SYNCHRONIZED AS PER NFPA 72. NOTIFICATION CIRCUITS AND APPLIANCES SHALL MEET ADAAG REQUIREMENTS.

KEY NOTES

- 1 NOT USED.
- 2 NOT USED.
- 3 NOT USED.
- 4 CONTRACTOR SHALL WIRE NEW MICROMIST SYSTEM CONTROLLER TO THE (E) FIRE ALARM CONTROL PANEL.
- 5 NOT USED.
- 6 NOT USED.
- 7 NOT USED.
- 8 NOT USED.
- 9 NOT USED.
- 10 NOT USED.
- 11 NOT USED.
- 12 PROVIDE INTERLOCK WIRING AND CONDUIT FOR CONTROL OF ELECTRICALLY OPERATED INLET AND OUTLET AIR LOUVERS. SEE MECHANICAL DRAWINGS FOR LOUVER OPERATION REQUIREMENTS.
- 13 NOT USED.
- 14 NOT USED.
- 15 HEAT DETECTORS IN RUPS ENCLOSURE SHALL BE CROSS-ZONED IN ORDER TO MEET REQUIREMENTS FOR INSTALLATION OF EPO SYSTEM. ACTIVATION OF ONE HEAT DETECTOR (FACP-1) SHALL TURN ON STROBE ALARM IN ROOM E101 BLDG N258A AND ROOM 227 (COMPUTER CONTROL ROOM) BLDG N258. IF WITHIN A PRESET TIME DELAY OF 2 MINUTES MULTIPLE ZONE ALARM OCCURS (FACP-2) OR IT CAN NOT BE VERIFIED THERE IS NO FIRE AND THE RESET HAS NOT BEEN ACTUATED WITH A KEY, THE CONTINUED ALARM CONDITION WILL ACTIVATE THE FIRE ALARM SYSTEM TO THE LOCAL FIRE DEPARTMENT AND POWER TO RUPS STATIONS WILL BE DISCONNECTED.
- 16 FUTURE INSTALLATION.
- 17 (N) RUPS 1.
- 18 VERIFY THE CORRECT OPERATION OF THE GRAPHIC ANNUNCIATOR WITH NEW INPUTS. SEE SCOPE OF WORK, PAR. 4.



SCOPE OF WORK

- PROVIDE FIRE ALARM DEVICES, CONDUIT AND WIRING.
- PROVIDE INTERLOCK WIRING AND CONDUIT FOR CONTROL OF INLET AND OUTLET AIR LOUVERS.
- PROVIDE RE-PROGRAMMING OF THE FIRE ALARM CONTROL PANEL.
- UPON COMPLETION OF THE WORK, DEVELOP A TEST PROCEDURE AND PERFORM A COMPLETE FUNCTIONAL TEST OF THE FIRE ALARM SYSTEM. SUBMIT ALL TEST PROCEDURES FOR MICROMIST SYSTEM AND FIRE ALARM SYSTEMS TO THE COTR FOR APPROVAL BY THE NASA SAFETY OFFICE.

SEQUENCE OF OPERATION

- AUTOMATIC OPERATION OF EACH PROTECTED AREA SHALL BE AS FOLLOWS:
- ACTUATION OF ONE (1) DETECTOR, WITHIN THE SYSTEM, SHALL:
 - a) ILLUMINATE THE 'ALARM' LAMP ON THE CONTROL PANEL FACE.
 - b) ENERGIZE AN ALARM HORN AND VISUAL INDICATOR.
 - c) TRANSFER SETS OF 2 AMP RATED AUXILIARY CONTACTS, WHICH CAN PERFORM AUXILIARY SYSTEM FUNCTIONS SUCH AS:
 - 1) TRANSMIT A SIGNAL TO A FIRE ALARM SYSTEM.
 - 2) SHUTDOWN HVAC EQUIPMENT.
 - d) LIGHT AN INDIVIDUAL LAMP ON GRAPHIC ANNUNCIATOR.
 - ACTUATION OF A 2nd DETECTOR, WITHIN THE SYSTEM, SHALL:
 - a) ILLUMINATE A 'PRE-DISCHARGE' CONDITION ON THE CONTROL PANEL FACE.
 - b) ENERGIZE A PREDISCHARGE HORN/STROBE DEVICE.
 - c) SHUT DOWN THE HVAC SYSTEM AND CLOSE ALL AIR LOUVERS.
 - d) START TIME-DELAY SEQUENCE (NOT TO EXCEED 60 SECONDS)
 - e) SYSTEM ABORT SEQUENCE IS ENABLED AT THIS TIME.
 - f) LIGHT AN INDIVIDUAL LAMP ON THE GRAPHIC ANNUNCIATOR.
 - AFTER COMPLETION OF THE TIME DELAY SEQUENCE, THE HFC-227ea CLEAN AGENT SYSTEM SHALL DISCHARGE AND THE FOLLOWING SHALL OCCUR:
 - a) ILLUMINATE A 'SYSTEM DISCHARGE' CONDITION ON THE CONTROL PANEL FACE.
 - b) SHUTDOWN OF ALL POWER TO HIGH VOLTAGE EQUIPMENT.
 - c) ENERGIZE A VISUAL INDICATOR OUTSIDE THE HAZARD IN WHICH THE DISCHARGE OCCURRED.
 - d) ENERGIZE A 'SYSTEM FIRED' AUDIBLE DEVICE.
 - THE SYSTEM SHALL BE CAPABLE OF BEING ACTUATED BY MANUAL DISCHARGE DEVICES LOCATED AT EACH HAZARD EXIT. OPERATION OF A MANUAL DEVICE SHALL DUPLICATE THE SEQUENCE DESCRIPTION ABOVE EXCEPT THAT THE TIME DELAY AND ABORT FUNCTIONS SHALL BE BYPASSED. THE MANUAL DISCHARGE STATION SHALL BE OF THE ELECTRICAL ACTUATION TYPE AND SHALL BE SUPERVISED AT THE MAIN CONTROL PANEL.
 - THE SYSTEM SHALL BE CAPABLE OF PROVIDING A 'PRE-ALARM' FEATURE THAT CAN GIVE ADVANCED WARNING OF A POSSIBLE ALARM CONDITION.

FIRE ALARM RISER DIAGRAM

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	<i>[Signature]</i>	DATE	4-22-09
DESIGNED	<i>[Signature]</i>	DATE	4-28-09
CHECKED	<i>[Signature]</i>	DATE	4-28-09
PROJECT MGR	<i>[Signature]</i>	DATE	4-28-09
REQUESTER	<i>[Signature]</i>	DATE	4-28-09
R&QA	<i>[Signature]</i>	DATE	4-28-09
SAFETY		DATE	
SUPERVISOR	<i>[Signature]</i>	DATE	4-28-09

Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ELECTRICAL

FIRE ALARM RISER DIAGRAM

SIZE	D	CAGE CODE	25307	REV	1
SCALE	AS SHOWN	INDEX		SHEET	1 OF 1
FILE NAME: 258A-E22 4-28-09					

DWG: P:\ARC\258\ESR - Rotary Interruptible Power Supply\ESR - RUPS Reprogramming\ESR_RUPS - Phase 3\60048320.001_RUPS Phase 3 - RUPS258A-E22.DWG
 Version: 17.1a (LMS Tech) User: palden
 DATE: Apr 28, 2009 - 2:45:41 pm

60048320.001

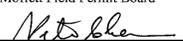
DWS: P:\A\258\258\ESR - Relay Uninterruptible Power Supply\ESR - RUPS Repackaging\ESR\RUPS - Phase 3\60046320.0001_RUPS Phase 3 - RUPS258A-E25.dwg Version: 17.1s (LMS Tech) User: polden
 DATE: Apr 28, 2009 2:46:44 pm

SHEET NOTES

1. SEE DRAWINGS E1-1, E1-2, E1-3 FOR THE FOLLOWING ELECTRICAL INFORMATION:
 a) GENERAL NOTES
 b) ABBREVIATIONS
 c) FIRE ALARM SYMBOLS
2. ALL ELECTRICAL ITEMS SHALL BE NEW UNLESS OTHERWISE NOTED AS EXISTING (E).
3. LIGHT LINES INDICATE EXISTING ELECTRICAL CONDITIONS AND BACKGROUND WORK BY OTHER DISCIPLINES, DARK LINES INDICATE NEW ELECTRICAL WORK, UON.
4. PRIOR TO COMMENCING ELECTRICAL WORK, COORDINATE WITH ALL OTHER TRADES TO AVOID ANY CONFLICT OR INTERFERENCE WITH ITEMS THAT MAY BE AFFECTED BY ELECTRICAL WORK.

KEY NOTES

- ◆ PROVIDE WALL MOUNTED LIGHTING FIXTURE WITH 100W HPS LAMP, CLEAR TEMPERED GLASS, WALL BRACKET, 120V, HOLOPHANE SMST-100HP-12-BK-CL-WB OR EQUAL. MOUNT FIXTURE HIGH ON THE WALL, 14FT A.F.C. ELECTRICAL CONTRACTOR SHALL PROVIDE PHOTOCELL ON THE ROOF OF RUPS SWITCHGEAR ENCLOSURE FACING NORTH TO CONTROL LIGHTING FIXTURES.
- ◆ CONNECT LIGHTING FIXTURE TO THE 208Y/120V PANEL LOCATED IN RUPS SWITCHGEAR ENCLOSURE E101 VIA THWN 3-1/C #12 & #12 GND AND 3/4" EMT CONDUIT ON THE WALL.
- ◆ (E) POLE MOUNTED LIGHTING FIXTURE..

Approved for Construction
 Moffett Field Permit Board

 Chief Building Official
 Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN	<i>Stey</i>	DATE	4/28/09
DESIGNED	<i>Stey</i>	DATE	4/28/09
CHECKED	<i>J. McCusker</i>	DATE	4/28/09
PROJECT MGR	<i>J. McCusker</i>	DATE	4/28/09
REQUESTER	<i>N.H.SU/H.CHUNG</i>	DATE	4/28/09
R&GA	<i>S. Frankel</i>	DATE	4/28/09
SAFETY		DATE	
SUPERVISOR	<i>S. Frankel</i>	DATE	4/28/09

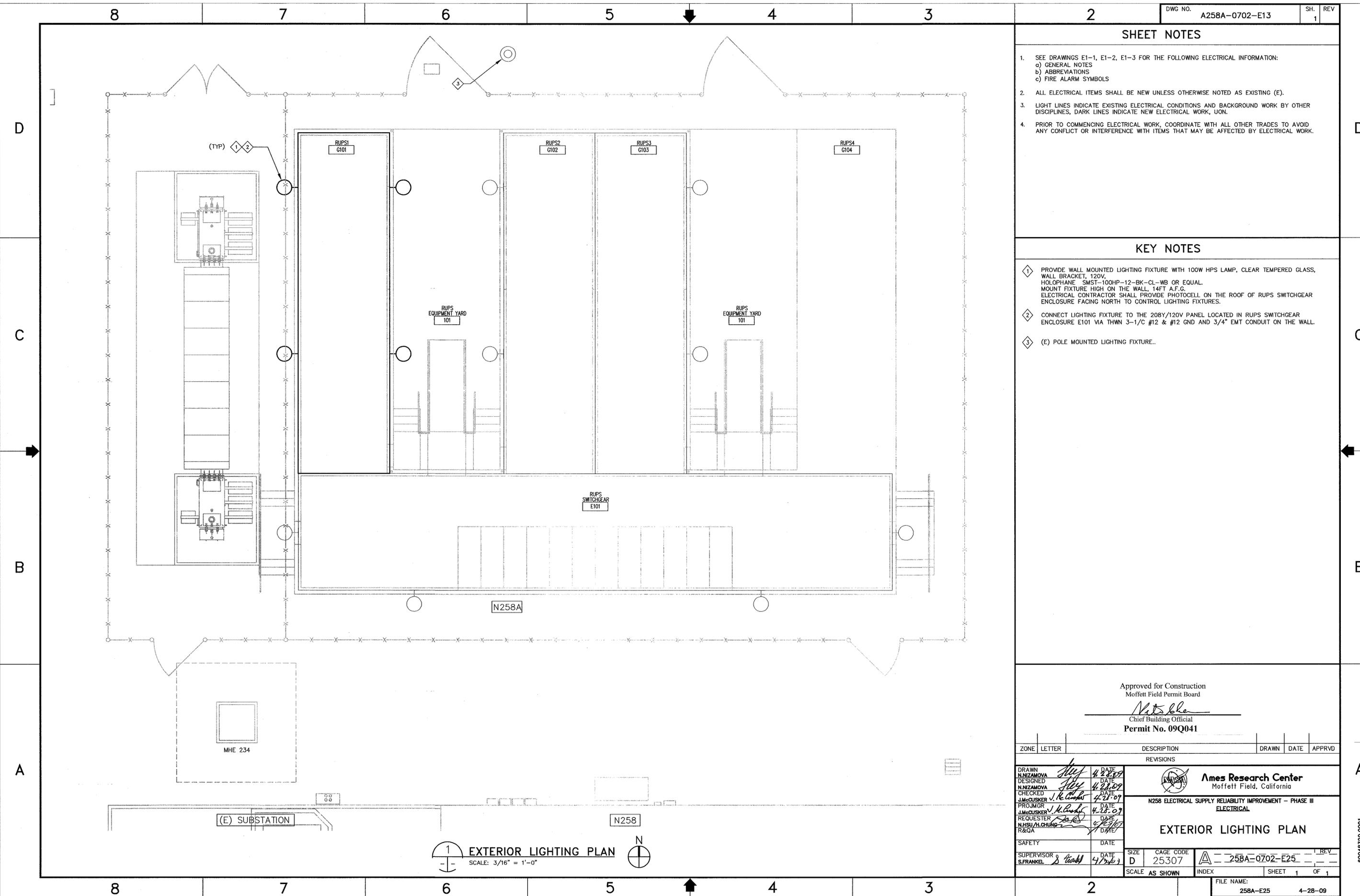
Ames Research Center
 Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
 ELECTRICAL

EXTERIOR LIGHTING PLAN

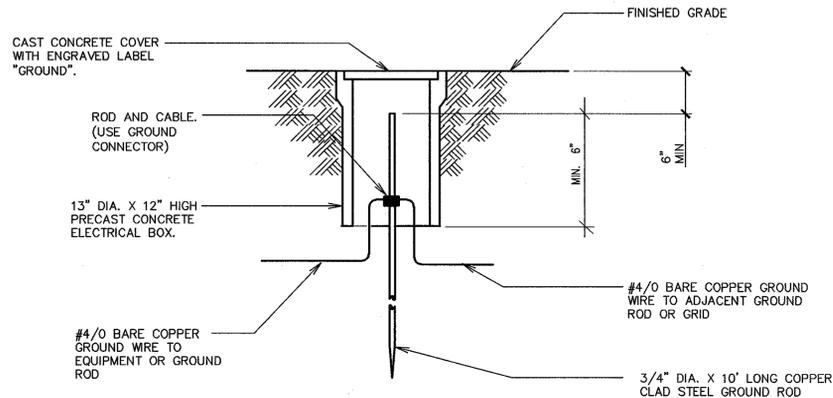
SIZE	D	CAGE CODE	25307	INDEX	258A-0702-E25	REV	1
SCALE	AS SHOWN	INDEX		SHEET	1	OF	1

FILE NAME:
 258A-E25 4-28-09

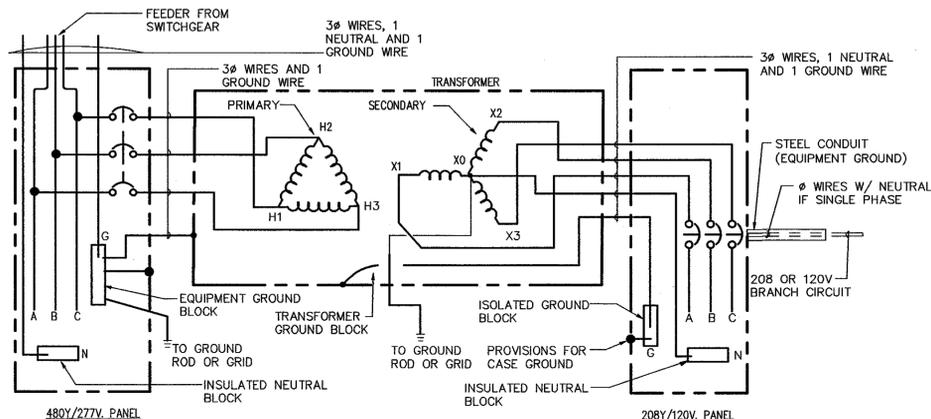


1 EXTERIOR LIGHTING PLAN
 SCALE: 3/16" = 1'-0"

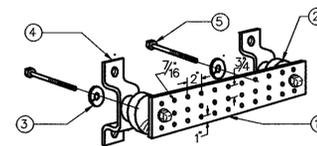
60046320.0001



1 DETAIL-GROUND WELL SCALE: 1"=1'-0"



2 TRANSFORMER GROUNDING SYSTEM WIRING DIAGRAM SCALE: 1"=1'-0"



NOTES:

A. PROVIDED BY ELECTRICAL CONTRACTOR.

1 COPPER GROUND BAR, 1/4" X 4" X 20", NEWTON INSTRUMENT CO. CAT. NO. B-6142 (OR EQUAL). HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.

2 INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4 (OR EQUAL).

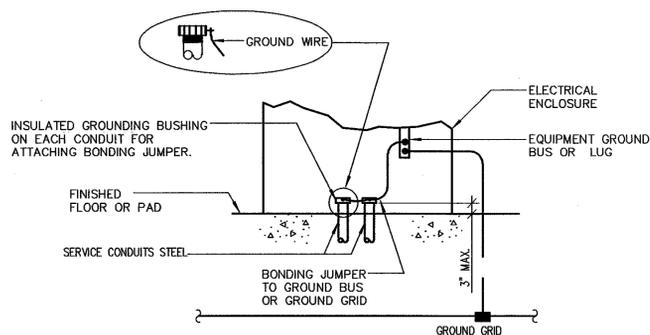
3 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8 (OR EQUAL).

4 WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 (OR EQUAL).

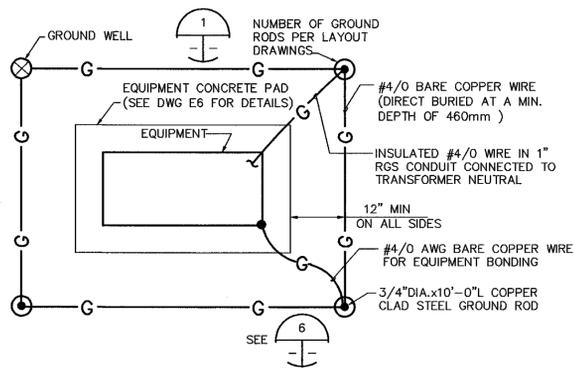
5 5/8-11 X 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 (OR EQUAL).

B. PROVIDE #4/0 BARE CU. WIRE WITH NEMA 2-HOLE CONNECTOR FROM MAIN BUILDING GROUND (MBG) BUS BAR TO MAIN COMPUTER GROUND (MCG) BUS BAR.

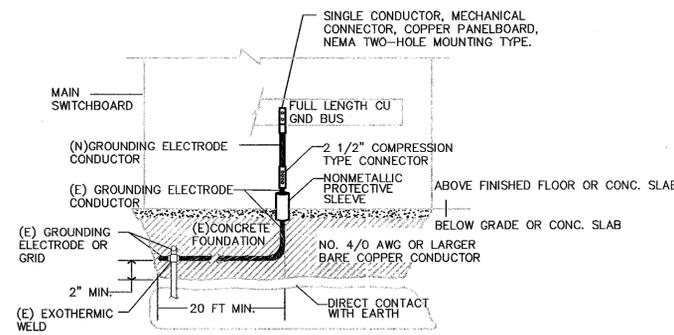
3 GROUND BUS BAR DETAIL SCALE: 3"=1'-0"



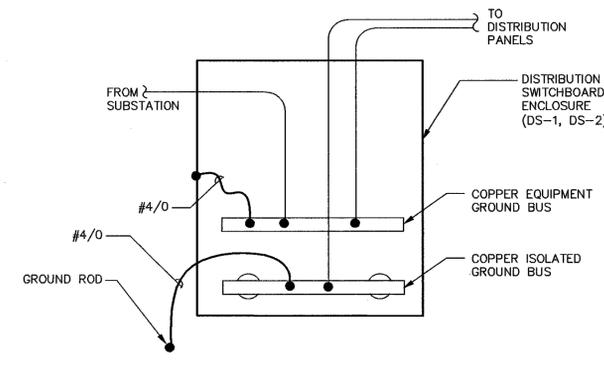
4 (TYPICAL FOR BOXES, CABINETS) CONDUIT GROUND CONNECTION DETAIL SCALE: 1"=1'-0"



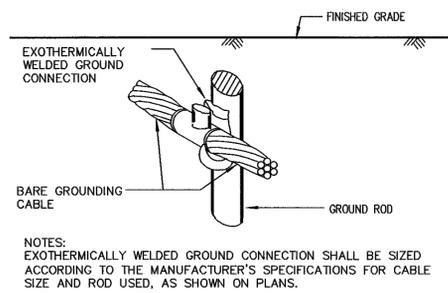
5 TYPICAL - NEW EQUIPMENT PAD GROUNDING DETAILS SCALE: 6"=1'-0"



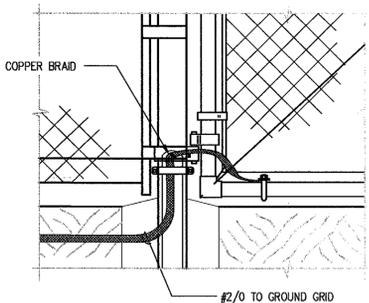
6 GROUND BUS BAR DETAIL SCALE: 3"=1'-0"



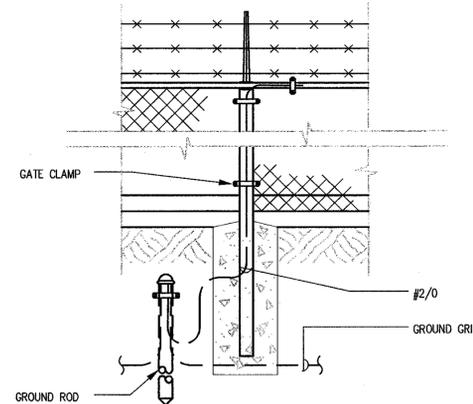
7 TYPICAL DISTRIBUTION SWITCHBOARD GROUNDING DETAIL SCALE: NTS



8 DETAIL-GROUND CABLE CONNECTION TO GROUND ROD SCALE: 1"=1'-0"



9 GATE GROUNDING DETAIL SCALE: 1"=1'-0"



10 FENCE GROUNDING DETAIL SCALE: 1"=1'-0"

Approved for Construction
Moffett Field Permit Board

[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					
DESIGNED	DATE	Ames Research Center			
CHECKED	DATE	Moffett Field, California			
PROJECTOR	DATE	N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III			
REQUESTER	DATE	ELECTRICAL			
R&GA	DATE	TYPICAL GROUNDING DETAILS			
SAFETY	DATE	SIZE	CAGE CODE	SCALE AS NOTED	
SUPERVISOR	DATE	D	25307	258A-0702-E27	1 REV
INDEX		SHEET 1		OF 1	
FILE NAME: 258A-E27 4-28-09					

DWG: P:\MCS\258\ESR - Relay Uninterruptible Power Supply\ESR - RUPS - Repackaging\ESR_RUPS - Phase 3\60046320.0001_RUPS Phase 3 - RUPS258A-E27.DWG
 Version: 17.1e (LMS Tech) User: pdcain
 DATE: Apr 28, 2009 2:46:47 pm

8

7

6

5

4

3

2

DWG NO. A258A-0702-E29

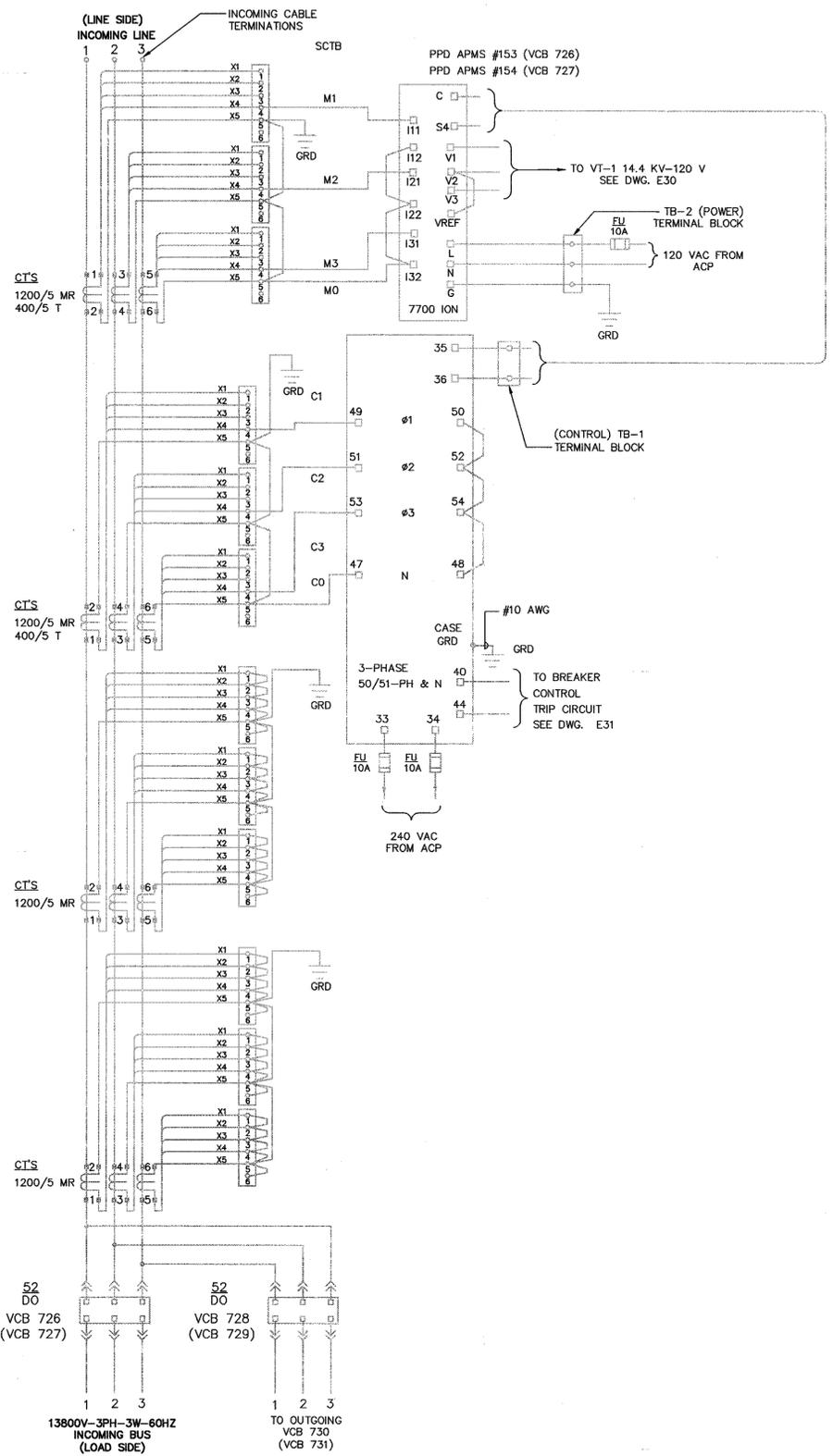
SH. 1 REV

SHEET NOTES

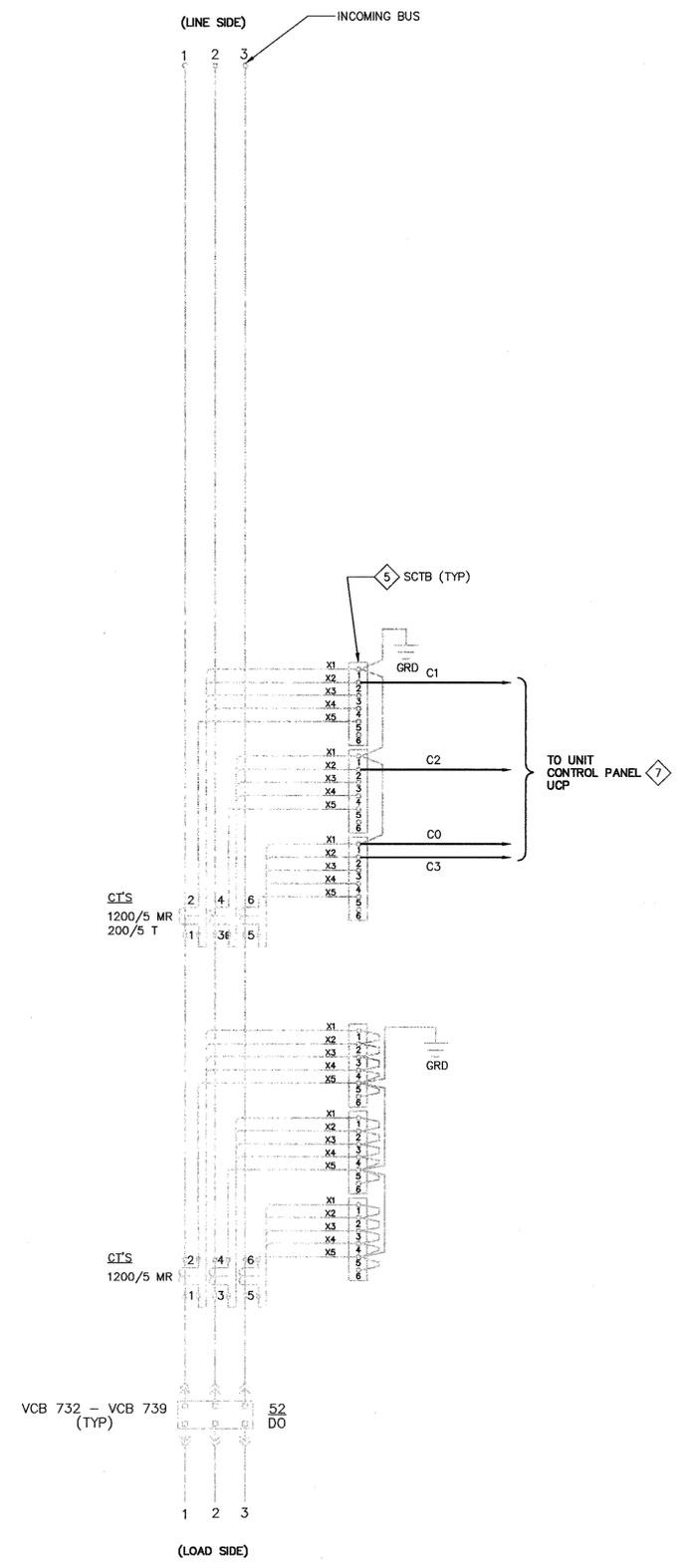
- 1. SEE DRAWING E1 FOR GENERAL ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS.
- 2. ALL EQUIPMENT SHOWN ON THIS DRAWING ARE EXISTING, UON.

KEY NOTES

- 1 NOT USED.
- 2 NOT USED.
- 3 NOT USED.
- 4 NOT USED.
- 5 (E) HEAVY DUTY SIX-CIRCUIT SHORTING TERMINAL BLOCK (SCTB), BUCHANAN 6HD OR SIMILAR.
- 6 NOT USED.
- 7 PROVIDE MIN #10 AWG THHN CONDUCTORS TO PANEL UCP1.



1 TYPICAL INCOMING/BYPASS VCB's THREE LINE DIAGRAM
SCALE: N.T.S.



2 TYPICAL UNIT VCB THREE LINE DIAGRAM
SCALE: N.T.S.

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					
DRAWN	R.NIZAMOV	DATE	4/23/09		
DESIGNED	R.NIZAMOV	DATE	4/23/09		
CHECKED	J. McCusker	DATE	4/23/09		
PROJ MGR	J. McCusker	DATE	4/23/09		
REQUESTER	N.HSU/H.CHUNG	DATE	4/23/09		
R&QA		DATE			
SAFETY		DATE			
SUPERVISOR	S.FRANKEL	DATE	4/23/09		
SIZE	D	CAGE CODE	25307		
SCALE	AS SHOWN	INDEX			
FILE NAME:	258A-E29				
		SHEET	1	OF	1

Ames Research Center
Moffett Field, California
N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ELECTRICAL
TYPICAL
VCB
THREE LINE DIAGRAM

DWG: P:\VAC\258\ESR - Rotary Uninterruptible Power Supply\ESR - Phase 3\60048320.0001_RUPS Phase 3 - RUPS258A-E29.DWG Version: 17.1.9 (LMS Tech) User: palden
 DATE: Apr 28, 2009 2:45:49 pm

60048320.0001

8

7

6

5

4

3

2

DWG NO. A258A-0702-E30

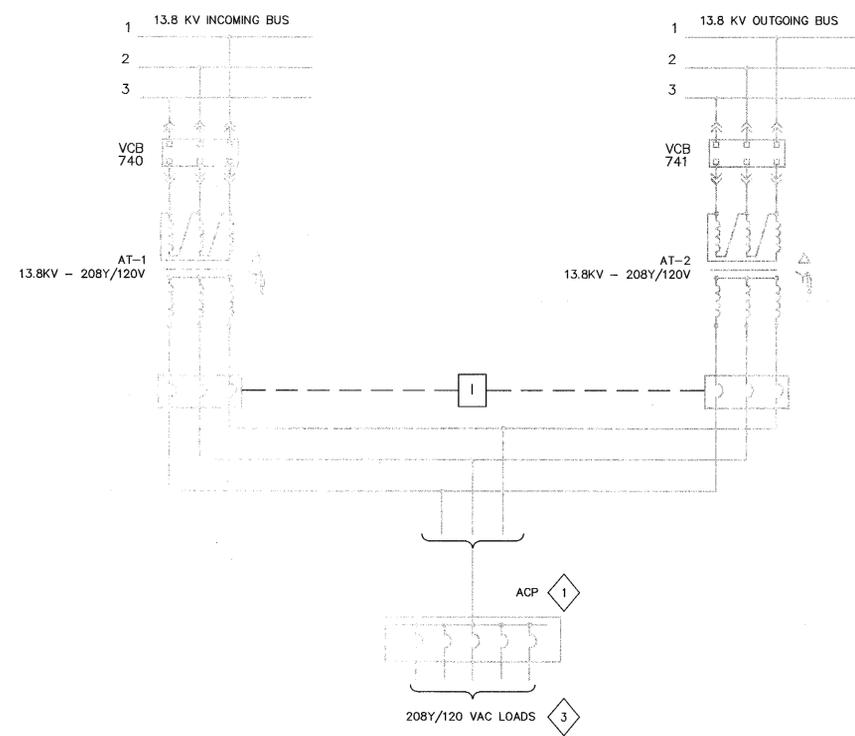
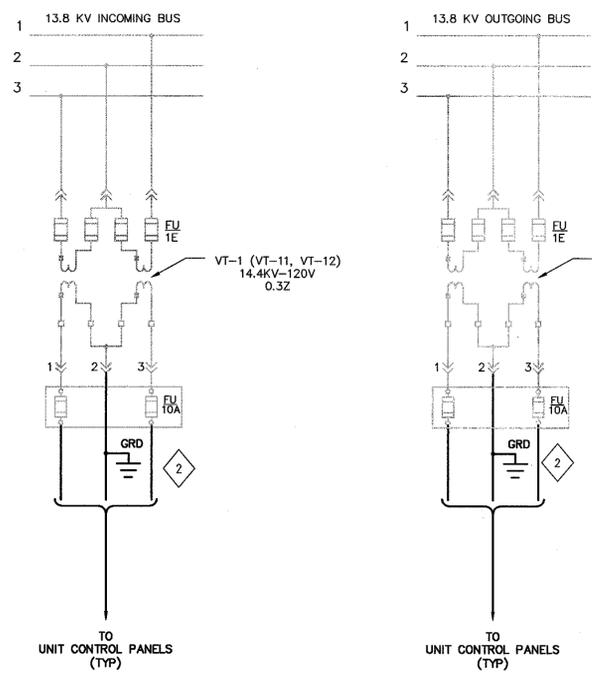
SH. 1 REV

SHEET NOTES

- 1. SEE DRAWING E1 FOR GENERAL ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS.
- 2. ALL EQUIPMENT SHOWN ON THIS DRAWING ARE EXISTING, UON.

KEY NOTES

- 1. AUXILIARY CONTROL PANELBOARD (ACP) NORMALLY SHALL BE POWERED FROM AUXILIARY TRANSFORMER AT-1. BACK-UP POWER SUPPLY FOR ACP SHALL BE PROVIDED FROM AT-2.
- 2. PROVIDE MINIMUM SIZE #12 AWG THHN CONDUCTORS TO PANEL UCP1.
- 3. PROVIDE MINIMUM SIZE #12AWG THHN CONDUCTORS TO EACH (N) DEVICE REQUIRING 120V-1φ OR 208V-3φ.



1 TYPICAL VT-1, VT-11, VT-12, AND VT-2 COMPARTMENTS THREE LINE DIAGRAM
SCALE: N.T.S.

2 TYPICAL AUXILIARY TRANSFORMERS THREE LINE DIAGRAM
SCALE: N.T.S.

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN R.NIZAMOV 4/28/09	DATE
DESIGNED R.NIZAMOV 4/28/09	DATE
CHECKED J.MCCLUSKER 4/28/09	DATE
PROJECT MGR J.MCCLUSKER 4/28/09	DATE
REQUESTER N.HSU/H.CHUNG 4/28/09	DATE
R&QA	DATE
SAFETY	DATE
SUPERVISOR S.FRANKEL 4/28/09	DATE

Ames Research Center
Moffett Field, California

N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III
ELECTRICAL

TYPICAL VT's AND AT's THREE LINE DIAGRAM

SIZE D CAGE CODE 25307
SCALE AS SHOWN INDEX SHEET 1 OF 1

FILE NAME: 258A-E30 4-28-09

8

7

6

5

4

3

2

258A-E30 4-28-09

DWG: P:\ARC\258A\ESSR - Rotary Uninterruptible Power Supply\ESSR - RUPS Repackaging\ESSR_RUPS - Phase 3 - RUPS258A-E30.DWG User: palden
 Version: 17.1a (LMS Tech)
 DATE: Apr 28, 2009 - 2:46:51 pm

60048320.0001

8

7

6

5

4

3

2

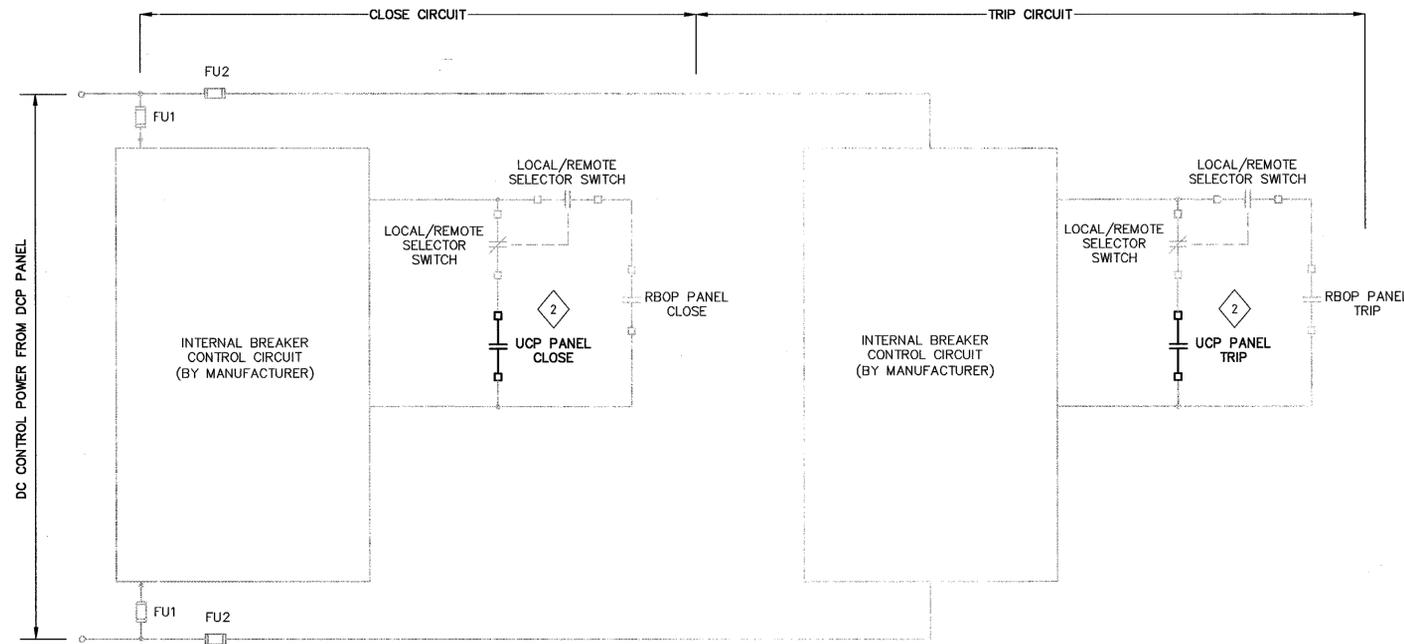
DWG NO. A258A-0702-E31 SH. 1 REV

SHEET NOTES

- 1. LIGHT LINES INDICATE EXISTING CONDITIONS AND DARK LINES INDICATE NEW WORK.
- 2. SEE DRAWING E1 FOR GENERAL ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS.

KEY NOTES

- 1 NOT USED.
- 2 PROVIDE #12 AWG THHN CONDUCTORS FROM PANEL UPC1 TO EACH UNIT CB, VCB 732 AND VCB 733.



2 TYPICAL RUPS UNIT VCB CONTROL DIAGRAM SCALE: NTS

Approved for Construction
Moffett Field Permit Board
[Signature]
Chief Building Official
Permit No. 09Q041

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
REVISIONS					

DRAWN P. ALDEN	DATE 4/28/09
DESIGNED R. NIZAMOV	DATE 4/28/09
CHECKED J.M. CUSKER	DATE 4/28/09
PROJ. ENGR J.M. CUSKER	DATE 4/28/09
REQUESTER N.H.SU/H.CHUNG	DATE 4/28/09
R&QA	DATE
SAFETY	DATE
SUPERVISOR S. FRANKEL	DATE 4/28/09

Ames Research Center Moffett Field, California	
N258 ELECTRICAL SUPPLY RELIABILITY IMPROVEMENT - PHASE III ELECTRICAL	
TYPICAL VCB CONTROL DIAGRAM	
SIZE D	CAGE CODE 25307
SCALE AS SHOWN	INDEX
FILE NAME: 258A-E31	REV 1
SHEET 1	OF 1

DWG: P:\VBC\258\ESR1 - Relay Intermittible Power Supply\ESR1 - RUPS Replacement\ESR1_RUPS - Phase 3 - RUPS258A-E31.DWG
 Version: 17.1.s (LMS Tech) User: palden
 DATE: Apr 28, 2009 - 2:48:54 pm

60048320.0001