

# National Aeronautics and Space Administration

## ARMSTRONG FLIGHT RESEARCH CENTER

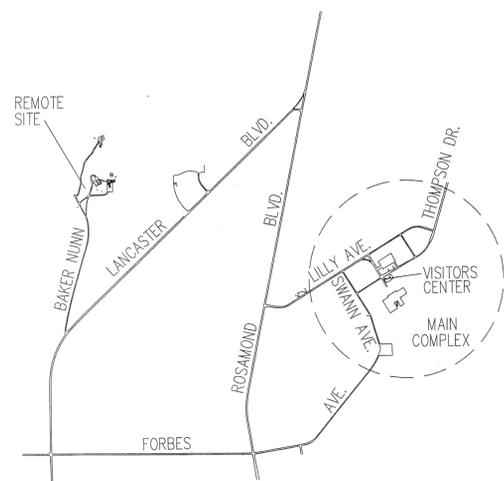
### PROJECT TITLE: REPAIR B4824 ELECTRICAL DISTRIBUTION SYSTEM

### DRAWING INDEX

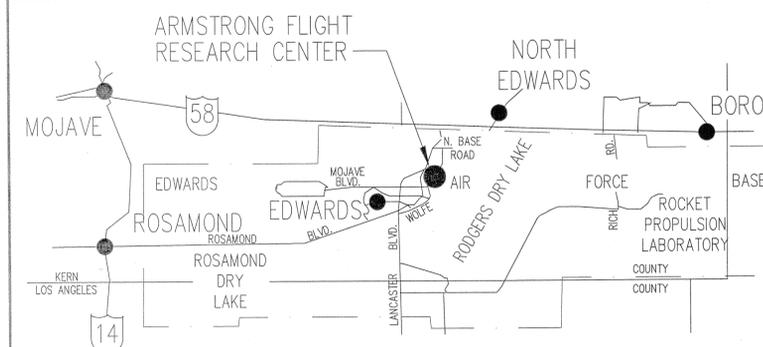
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PROJECT LOCATION



AREA PLAN  
NOT TO SCALE

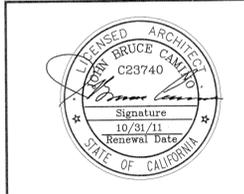
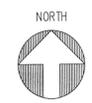
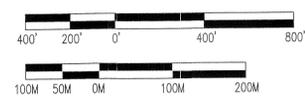


VICINITY MAP  
NOT TO SCALE



### ARMSTRONG FLIGHT RESEARCH CENTER MAIN COMPLEX SITE PLAN

SCALE: 1" = 400'



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DATE	SYM	REVISION	BY
8/15/14	E	FINAL DESIGN	
5/16/14	D	100% FINAL DESIGN	
1/31/14	C	95% NEAR-FINAL DESIGN	
11/01/13	B	30% PRELIMINARY DESIGN	
08/23/13	A	15% CONCEPT DESIGN	

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
ARMSTRONG FLIGHT RESEARCH CENTER  
EDWARDS, CA

DRAWING TITLE  
TITLE AND INDEX SHEET

PROJECT TITLE  
REPAIR B4824 ELECTRICAL  
DISTRIBUTION SYSTEM

**Project Approval Signatures**

<b>Daniel Crowley</b> – Chief, Facility Engineering and Asset Management Office
<b>William Rocha</b> – Project Requestor / Customer
<b>Andrew Boykin</b> – Facilities Project Manager
<b>Kris Kim</b> (for John Zellmer) – Chief, Office of Protective Services
<b>Jennifer Gocke</b> (for Ralph Anton) – Chief, Safety, Health & Environmental Office
<b>Patrick Harrington</b> (for Larry Freuding) – AFRC Chief Information Officer

APPROVALS	DATE
Chief, Facilities Engineering & Asset Mgmt. Office	10-16-14
Project Requestor / Customer	25 SEP 14
Facilities Project Manager	7/31/14
Chief, Office of Protective Services	9/19/14
Chief – Safety, Health and Environmental Office	9/19/14
AFRC Chief Information Officer	19 Sep 14

DATE STRID: - J DATE PRINTD: 8/15/14

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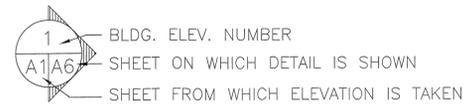
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# ABBREVIATIONS

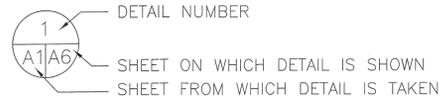
ACT	ACOUSTIC TILE
ACP	ACCESS PANEL
ACT	ASBESTOS COMPOSITION TILE
AFF	ABOVE FINISH FLOOR
ALUM	ALUMINUM
BD	BOARD
BLDG	BUILDING
CPT	CARPET
CEM	CEMENT
CH	CEILING HEIGHT
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CPOI	CONTRACTOR PROVIDED OWNER INSTALLED
CT	CERAMIC TILE
DWP	DRYWALL PAINTED
DR	DOOR
(E)	EXISTING
EM	ELASTOMERIC MEMBRANE
EN	ENAMEL
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
EC	EXPOSED CONSTRUCTION
ECP	EXPOSED CONSTRUCTION PAINTED
EXTR	EXTRUDED
EXT	EXTERIOR
FBI	FEDERAL BUREAU OF INVESTIGATION
FC	FINISH CEILING
FD	FLOOR DRAIN
FF	FINISHED FLOOR
FIN	FINISH(ED)
FEC	FIRE EXTINGUISHER CABINET
FL	FLOOR
FW	FACE OF WALL
GALV	GALVANIZED
GL	GLASS
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
HC	HOLLOW CORE
HDW	HARDWARE
HM	HOLLOW METAL
HR	HOUR
HT	HEIGHT
HWD	HARDWOOD
INS	INSULATION
INT	INTERIOR
LAM	LAMINATE
MFR	MANUFACTURER
MFT	MINERAL FISSURED TILE
MIN	MINIMUM
MWP	MEMBRANE WATERPROOFING
NAT	NATURAL
(N)	NEW
NIC	NOT IN CONTRACT
OH	OVERHANG
OPCI	OWNER PROVIDED, CONTRACTOR INSTALLED
OPOI	OWNER PROVIDED, OWNER INSTALLED
PERF	PERFORATED
PL	PLASTER
P-LAM	PLASTIC LAMINATE
PNL	PANEL
PT	PAINT
PTN	PARTITION
PWD	PLYWOOD
QT	QUARRY TILE
RB	RUBBER BASE
RE	REFER TO
REIN	REINFORCING
RM	ROOM
SC	SOLID CORE
SIM	SIMILAR
ST	STEEL
SS	STAINLESS STEEL
SSD	SEE STRUCTURAL DRAWINGS
STRUCT	STRUCTURAL
SUSP	SUSPENDED
TBD	TO BE DETERMINED
TEL	TELEPHONE
THLD	THRESHOLD
TOS	TOP OF SLAB
UBC	UNIFORM BUILDING CODE
UG	UNDERGROUND UTILITY
TYP	TYPICAL
UC	UNDER CUT
UON	UNLESS OTHERWISE NOTED
VCT	VINYL COMPOSITION TILE
VIF	VERIFY IN FIELD
VWC	VINYL WALL COVERING
VYN	VINYL
WCO	WALL CLEAN OUT
WD	WOOD
WP	WEATHER PROOF
WR	WATER RESISTANT
WWF	WOVEN WIRE FABRIC

# SYMBOL LEGEND

## EXTERIOR ELEVATION AND PHOTO REFERENCES



## DETAIL REFERENCE



# GENERAL NOTES

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES HAVING JURISDICTION.
- INSTALL ALL MANUFACTURED ITEMS, MATERIALS AND EQUIPMENT IN STRICT ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
- CONTRACTOR IS RESPONSIBLE FOR EXAMINING ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND CONFIRMING THAT WORK MAY BE CONSTRUCTED AS SHOWN BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY QUESTIONS REGARDING THESE OR OTHER COORDINATION QUESTIONS, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE CONTRACTING OFFICER BEFORE PROCEEDING WITH WORK IN QUESTION.
- ALL WORK NOTED "N.I.C." OR "NOT IN CONTRACT" IS TO BE ACCOMPLISHED BY A CONTRACTOR OTHER THAN THE GENERAL CONTRACTOR AND IS NOT TO BE PART OF THE CONSTRUCTION AGREEMENT. THE GENERAL CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS AS REQUIRED.
- "TYPICAL" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION IS THE SAME OR REPRESENTATIVE FOR ALL SIMILAR CONDITIONS THROUGHOUT, UNLESS OTHERWISE NOTED.
- CONTRACTOR IS TO ERECT AND MAINTAIN TEMPORARY BRACING, BARRICADES, SIGNS, AND OTHER MEASURES AS NECESSARY TO PROTECT THE PUBLIC, WORKERS, OTHER PERSONS, AND ADJOINING PROPERTY FROM DAMAGE FROM DEMOLITION WORK, ALL IN ACCORDANCE WITH THE APPLICABLE CODES AND REGULATIONS. CONTRACTOR IS TO PROVIDE NOISE AND DUST ABATEMENT AS REQUIRED TO PREVENT DISTURBANCE AND NUISANCE TO ADJACENT PREMISES AND SURROUNDING AREAS. OPERATIONAL PROCEDURES SHALL BE OPTIONAL WITH THE CONTRACTOR. DEMOLITION AND REMOVAL WORK SHALL BE DONE IN A MANNER WHICH WILL MINIMIZE THE SPREAD OF DUST AND FLYING PARTICLES. REMOVED MATERIALS AND DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF BASE IN A LEGAL MANNER.
- CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AT THE JOB SITE PRIOR TO BIDDING AND START OF CONSTRUCTION. IF ANY DISCREPANCIES ARE FOUND, CONTRACTING OFFICER SHALL BE NOTIFIED FOR CLARIFICATION.
- THE CONTRACTOR IS RESPONSIBLE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS SHOWN ON THE CONSTRUCTION DOCUMENTS BEFORE MANUFACTURING AND/OR FABRICATION OF ALL WORK. ANY WORK PROVIDED AND INSTALLED IN CONFLICT WITH THE CONSTRUCTION DOCUMENTS SHALL BE CORRECTED BY EACH CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACTING AGENCY.
- ALL SYMBOLS AND ABBREVIATIONS ARE CONSIDERED TO BE CONSTRUCTION STANDARDS. CONTRACTOR SHALL SEEK CLARIFICATION FROM THE CONTRACTING OFFICER FOR ANY QUESTIONS PRIOR TO COMMENCEMENT OF WORK.
- DO NOT SCALE DRAWINGS; WRITTEN DIMENSIONS TAKE PRECEDENCE. LARGE SCALE DETAILS GOVERN OVER SMALL SCALE DETAILS.
- THE CONTRACTOR SHALL COORDINATE WITH, AND OBTAIN WRITTEN APPROVAL FROM THE CONTRACTING OFFICER FOR THE FOLLOWING PERMIT REQUIRED OPERATIONS:
  - EXCAVATION AND DIGGING
  - OPEN FLAMES AND HOT WORK
  - CONFINED SPACE ENTRY
  - UTILITY OUTAGES/FACILITY CLOSURES
  - CRANE OPERATIONS
  - ENERGIZED ELECTRICAL WORK
 SEE SPECIFICATION SECTION 01 35 14.11 40 FOR PERMIT INFORMATION

# GENERAL NOTES (CONT.)

- WHEN NOTED "APPROVED EQUAL" IT SHALL BE UNDERSTOOD THAT A PROPRIETARY PRODUCT MAY BE SUBSTITUTED BY THE CONTRACTOR WITH AN EQUIVALENT PRODUCT ONLY AS APPROVED BY THE CONTRACTING OFFICER.
- WHEN A PROPRIETARY PRODUCT IS NOTED, CONTRACTOR MAY SUBSTITUTE AN EQUIVALENT PRODUCT ONLY AS APPROVED BY THE CONTRACTING OFFICER.
- THE PROJECT AREAS SHALL BE CLEARLY MARKED AT THE OUTER BOUNDARIES TO DEFINE THE WORK AREA. ALL WORKERS SHALL BE INSTRUCTED THAT THEIR ACTIVITIES MUST BE CONFINED TO LOCATIONS WITHIN THE FENCED, FLAGGED OR MARKED AREAS.
- PROTECTION OF BIOLOGICAL RESOURCES:  
  
OPEN EXCAVATIONS OF ANY KIND CREATED DURING THE PROJECT ACTIVITIES SHALL BE SECURED AT THE END OF EACH DAY BY BACKFILLING, PLACING A COVER OVER THE EXCAVATION, INSTALLING A TEMPORARY DESERT TORTOISE FENCE APPROVED BY THE CONTRACTING OFFICER, AND/OR RAMPING EXCAVATIONS AT A 3:1 SLOPE.

EXCAVATIONS LEFT UNSECURED DURING THE WORKDAY SHALL BE CHECKED THREE TIMES PER DAY (MORNING, MIDDAY, AND LATE AFTERNOON) FOR TRAPPED ANIMALS. IF ANY ANIMALS ARE FOUND IN AN EXCAVATION, IMMEDIATELY NOTIFY THE CONTRACTING OFFICER, OR NASA OFFICE IDENTIFIED BY THE CONTRACTING OFFICER FOR ANIMAL CONTROL. ALL PROJECT PERSONNEL SHALL IMMEDIATELY REPORT SIGHTINGS OF DESERT TORTOISES OR DESERT TORTOISE BURROWS FOUND WITHIN THE PROJECT AREA TO THE CONTRACTING OFFICER.

PROJECT PERSONNEL SHALL USE EXISTING ACCESS ROADS AND STAGING AREAS, AND FOLLOW FLAGGED ACCESS ROUTES THAT HAVE BEEN SURVEYED OR CLEARED OF DESERT TORTOISES.

HABITAT DISTURBANCE SHALL BE CONTAINED TO PRE-DISTURBED AREAS AS MUCH AS POSSIBLE.

ANY PIPES STORED WITHIN THE AREA SHALL BE CAPPED ON OPEN ENDS OR ELEVATED AT LEAST 12" ABOVE THE GROUND TO PREVENT ENTRY BY DESERT TORTOISES OR OTHER WILDLIFE.

SPEED LIMITS ON DIRT ROADS WITHIN THE PROJECT AREA SHALL BE LESS THAN 20 MPH UNLESS OTHERWISE POSTED.

ALL TRASH SHALL BE CONTAINED WITHIN RAVEN-PROOF (COVERED) CONTAINERS AND REMOVED FROM THE PROJECT SITE.

NO PETS OR FIREARMS SHALL BE ALLOWED ON THE PROJECT SITE.

16. MONITORING WELLS: CARE MUST BE TAKEN TO AVOID DISTURBING MONITORING LOG CASINGS. LOCATE ALL WELL CASINGS WITHIN THE WORK AREA AND AVOID ALL EXCAVATIONS OR HEAVY EQUIPMENT OPERATION THAT MAY DAMAGE MONITORING WELLS.

17. SOIL AND DIGGING CONDITIONS THROUGHOUT THE PROJECT AREA INCLUDE HARD MATERIALS AND ROCK AS DEFINED BY THE SPECIFICATIONS. CONTRACTOR SHALL INCORPORATE ALL HARD MATERIAL AND ROCK EXCAVATION INTO THE BID. NO CHANGE ORDERS WILL BE AWARDED FOR HARD MATERIAL AND ROCK EXCAVATION. BLASTING WILL NOT BE PERMITTED.

18. PRIOR TO WORK WITHIN BUILDING 4824, THE CONTRACTOR SHALL TEST ANY MATERIALS TO BE DISTURBED FOR THE PRESENCE OF LEAD-CONTAINING PAINT. MATERIALS FOUND OR KNOWN TO CONTAIN LEAD SHALL BE ABATED AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

19. ALL UTILITY OUTAGES, INCLUDING CONNECTION TO B4870 AND B4824, MUST BE SCHEDULED A MINIMUM OF 21 CALENDAR DAYS IN ADVANCE WITH THE CONTRACTING OFFICER. OUTAGES MUST BE SCHEDULED FOR AFTER NORMAL OPERATING HOURS, WEEKENDS, OR HOLIDAYS.

# DESIGNERS OF RECORD

## ARCHITECTURE

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TELEPHONE: (562)479-2999

# CODE REFERENCES

- INTERNATIONAL BUILDING CODE (2013)
- NASA STANDARD 8719.1 (2008)
- NFPA 1 UNIFORM FIRE CODE (2012)
- NFPA 101 LIFE SAFETY CODE (2002)
- NFPA 70 NATIONAL ELECTRICAL CODE (2011)



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EDWARDS, CA

DRAWING TITLE

GENERAL NOTES

PROJECT TITLE

REPAIR B4824 ELECTRICAL DISTRIBUTION SYSTEM

DATE	SYM	REVISION	BY	A'PD
8/15/14	E	FINAL DESIGN		
5/16/14	D	100% FINAL DESIGN		
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APPROVALS		DATE
Chief, Facilities Engineering & Asset Mgmt. Office	<i>[Signature]</i>	10/16/14
Project Manager/Customer	<i>[Signature]</i>	9/25/14
Facilities Project Manager	<i>[Signature]</i>	7/5/14
Chief, Office of Protective Services	<i>[Signature]</i>	9/19/14
Chief - Safety, Health and Environmental Office	<i>[Signature]</i>	9/19/14
Office of Information Officer	<i>[Signature]</i>	11/5/14
DATE STARTD	-	DATE PRINTD
DRAWN BY	DRM	SCALE
SCALE	AS NOTED	BRIDGE
FILE NAME	T2	SHEET No. 2 of 15

EXISTING CONDITIONS LEGEND

	HORIZONTAL/VERTICAL CONTROL
oLP	LIGHT POLE
oPP	POWER POLE
oTS	TRAFFIC SIGNAL
±S, oS	SIGN
o SP	STAND PIPE
o MH	MANHOLE
o SMH	SEWER MANHOLE
o WH	WATER HANDHOLE
o V	VALVE WELL
o PIV	POST INDICATOR VALVE
o FH	FIRE HYDRANT
o DI	DRAIN INLET
o CB	CATCH BASIN
o TB	TELEPHONE BOOTH
o FP	FLAG POLE
	TREE
x 1902.4	SPOT GRADE
IE 1992.3	INVERT ELEVATION
	PRESSURE REDUCING VALVE ASSY
	BACKFLOW PREVENTION ASSEMBLY
	PAINTED CROSSWALK
	PAINTED STOP LINE
	CANOPY/PATIO
	STRUCTURE OR BUILDING AND NUMBER
	FENCE
	MASONRY WALL
	RETAINING WALL
	CURB/GUTTER
	ASPHALT SURFACE
	DIRT SURFACE
	CONCRETE SURFACE
	GUARDRAIL
	TREE LINE
	INDEX CONTOUR (5' INTERVALS)
	INTERMEDIATE CONTOUR (1' INTERVALS)
	APPROXIMATE CONTOUR
	HEADWALL
	STORM WATER FLOW LINE
	ELECTRICAL LINE—UNDERGROUND
	ELECTRICAL LINE—OVERHEAD
	FUEL LINE
	TELECOMMUNICATIONS
	SANITARY SEWER LINE
	SANITARY SEWER FORCEMAIN LINE
	POTABLE WATER LINE
	NATURAL GAS
	NON-POTABLE WATER LINE USED EXCLUSIVELY FOR FIRE SUPPRESSION SYSTEMS AND FIRE HYDRANTS.
	ABANDONED GAS
	ABANDONED FUEL

ABBREVIATIONS

A	ANGLE	N	NORTH, NORTHINGS
AA	ABANDONED COMP AIR	NAD	NORTH AMERICAN DATUM
AB	ABANDONED	NAVD	NORTH AMERICAN VERTICAL DATUM
ACP	ASBESTOS CEMENT PIPE	NAVFAC	NAVAL FACILITIES
AC	ASPHALTIC CONCRETE	N.I.C.	NOT IN CONTRACT
AG	ABANDONED GAS	NPW	NON-POTABLE WATER
ARV	AIR RELEASE VACUUM ASSY	NF	NOT FOUND
AS	ABANDONED SEWER	NS	NEAR SIDE
ASPH	ASPHALT	NO.#	NUMBER
ASSY	ASSEMBLY	O/C	ON CENTER
AVE.	AVENUE	OD	OUTSIDE DIAMETER
AW	ABANDONED WATER	OH, O/H	OVER HEAD
A/G	ABOVE GROUND	OPNG	OPENING
B	BELL	OS&Y, OSY	OUTSIDE STEM & YOKE
BC	BEGIN CURVE	P	POLE
BFP	BACKFLOW PREVENTER	PCC	PORTLAND CEMENT CONCRETE
BLDG	BUILDING	PE	PLAIN END
B/G	BELOW GROUND	PE	POLYETHYLENE
BOT	BOTTOM	PIV	POST INDICATOR VALVE
BOV	BLOW-OFF VALVE ASSY	PL	PLATE
CB	CATCH BASIN	POC	POINT OF CONNECTION
CICB	CURB INLET CATCH BASIN	PNL	PANEL
CI	CAST IRON	PRV	PRESSURE REDUCING VALVE
CL	CLASS, CENTER LINE	PSF	POUNDS PER SQUARE FOOT
CLR	CLEAR	PSI	POUNDS PER SQUARE INCH
CMU	CONCRETE MASONRY UNIT	PT	POST
CO	CLEANOUT	PWO	PUBLIC WORKS OFFICE
COM	COMMUNICATIONS	PP	POWER POLE
COMP	COMPRESSED	PVC	POLYVINYL CHLORIDE
COND	CONDUIT	PVMT	PAVEMENT
CONT	CONTINUOUS	R	RADIUS
CONC	CONCRETE	RD.	ROAD
CONN	CONNECT, CONNECTION	RED.	REDUCER
CPLG	COUPLING	REF	REFERENCE
C&G	CURB/GUTTER	REINF	REINFORCED
C	CENTER LINE	REQD	REQUIRED
DET	DETAIL	RJ	RESTRAINED JOINT
DBL	DOUBLE	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
DIA, Ø	DIAMETER	S/C	CONC. LINED/COATED STEEL PIPE
DI	DUCTILE IRON	SS	SANITARY SEWER
D.I.P., DIP	DUCTILE IRON PIPE DRAWING	SCH	SCHEDULE
DWG.	DRAWING	S	SIGN, SLOPE
E	EAST, EASTINGS, ELECTRIC	SFM	SEWER FORCE MAIN
EQ	EQUAL	SIM	SIMILAR
EA	EACH	SMH	SEWER MANHOLE
EC	END CURVE	SQ	SQUARE
EIC	ENGINEER IN CHARGE	SST	STAINLESS STEEL
EL	ELEVATION	ST.	STREET
ELEC	ELECTRICAL	STA	STATION
EMH	ELECTRICAL MANHOLE	STL	STEEL
ETC	ETCETERA	SP	STANDPIPE
EW	EACH WAY	TAP.	TAPPING
EXP	EXPANSION	TB	TOP OF BERM
EXST	EXISTING	TD	TRENCH DRAIN
FH	FIRE HYDRANT	TEL.	TELEPHONE
FLG	FLANGE	TG	TOP OF GRATE
FIN.	FINISH	TMH	TELEPHONE MANHOLE
FL	FLOOR	TP	TOP OF PAVEMENT
FF	FINISHED FLOOR	TYP	TYPICAL
FO	FIBER OPTIC	T&B	TOP AND BOTTOM
FS	FAR SIDE	U/G	UNDERGROUND
FT	FEET	UL	UNDERWRITERS LABORATORIES
FW	FIRE WATER	UNK	UNKNOWN
GAL	GALLON	U.O.N.	UNLESS OTHERWISE NOTED
GALV	GALVANIZED	UTIL	UTILITY
GB	GRADE BREAK	V	VALVE
GP	GUARD POST	VCP, V.C.P.	VITRIFIED CLAY PIPE
GR	GUARD RAIL	VERT	VERTICAL
GIS	GEOGRAPHICAL INFORMATION SYSTEM	VL	VAULT
GPM	GALLONS PER MINUTE	W	WATER, WIDE, WIDTH
GPS	GEOGRAPHICAL POSITIONING SYSTEM	WH	WATER HANDHOLE
GR	GRADE	WLS	WELDED STEEL
GUT.	GUTTER	W/	WITH
GV	GATE VALVE	±	PLUS OR MINUS
H	HIGH, HEIGHT	Δ	DELTA
HH	HANDHOLE		
HDPE	HIGH DENSITY POLYETHYLENE		
HDWL	HEADWALL		
HORIZ	HORIZONTAL		
HTHW	HIGH TEMPERATURE HOT WATER		
HWY	HIGHWAY		
I.D.	INTERIOR DIMENSION		
IE	INVERT ELEVATION		
INV	INVERT		
IRR	IRRIGATION		
L	ARC LENGTH, LENGTH		
LA	LANDSCAPED AREA		
MAX	MAXIMUM		
MIN	MINIMUM		
MH	MANHOLE		
MFR	MANUFACTURER		

HORIZONTAL AND VERTICAL CONTROL

MONUMENT #1:  
 CONCRETE MONUMENT AT CORNER OF WALKER AVE AND THOMPSON DR (NAD 27)  
 NORTHERN 528,183.086'  
 EASTERN 2,033,650.182'  
 ELEVATION 2,292.15'

MONUMENT #2:  
 CONCRETE MONUMENT NEAR CORNER OF MCKAY AVE AND THOMPSON DR (NAD 27)  
 NORTHERN 528,601.559'  
 EASTERN 2,034,416.916'  
 ELEVATION 2,280.85'

MONUMENT #3:  
 CONCRETE MONUMENT AT CORNER OF WALKER AVE AND LILLY AVE (NAD 27)  
 NORTHERN 528,717.766'  
 EASTERN 2,033,320.393'  
 ELEVATION 2,305.56'

GENERAL NOTES

- 1) CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITIES THAT CROSS NEW CONC EQUIPMENT PADS OR NEW CONDUIT / DUCT BANK / WATER LINE RUNS BEFORE ORDERING ANY CONSTRUCTION MATERIALS. CONTRACTOR SHALL IDENTIFY AND RECORD TOP & BOTTOM ELEVATIONS AND HORIZONTAL COORDINATES OF ALL EXISTING UTILITIES AT EACH CROSSING ON ASBUILTS. CONTRACTOR SHALL NOTIFY CONTRACTING OFFICER OF ANY POSSIBLE CONFLICTS. ALL POTENTIAL CONFLICTS SHALL BE RESOLVED BEFORE THE CONTRACTOR IS ALLOW TO ORDER ANY CONSTRUCTION MATERIALS.
- 2) CONTRACTOR SHALL RECORD TOP & BOTTOM ELEVATIONS AND HORIZONTAL COORDINATES OF ALL NEW CONDUIT / DUCT BANK / WATER LINES AT THE POINT OF CONNECTIONS AND ALL ROUTING CHANGE IN DIRECTIONS ON ASBUILTS. CONTRACTOR SHALL RECORD ELEVATIONS AND HORIZONTAL COORDINATES OF ALL NEW VALVES (TOP OF WELL) AND FIRE HYDRANTS (TOP OF PAD) ON ASBUILTS.
- 3) SOIL AND DIGGING CONDITIONS THROUGHOUT THE PROJECT AREA INCLUDE HARD MATERIALS AND ROCK. CONTRACTOR SHALL INCORPORATE ALL HARD MATERIAL AND ROCK EXCAVATION INTO THE BID. NO CHANGE ORDERS WILL BE AWARDED FOR HARD MATERIAL AND ROCK EXCAVATION. BLASTING WILL NOT BE PERMITTED.

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APPROVALS

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19 Sep 14	<i>[Signature]</i>

DRAWING TITLE: CIVIL LEGEND, NOTES, AND ABBREVIATIONS

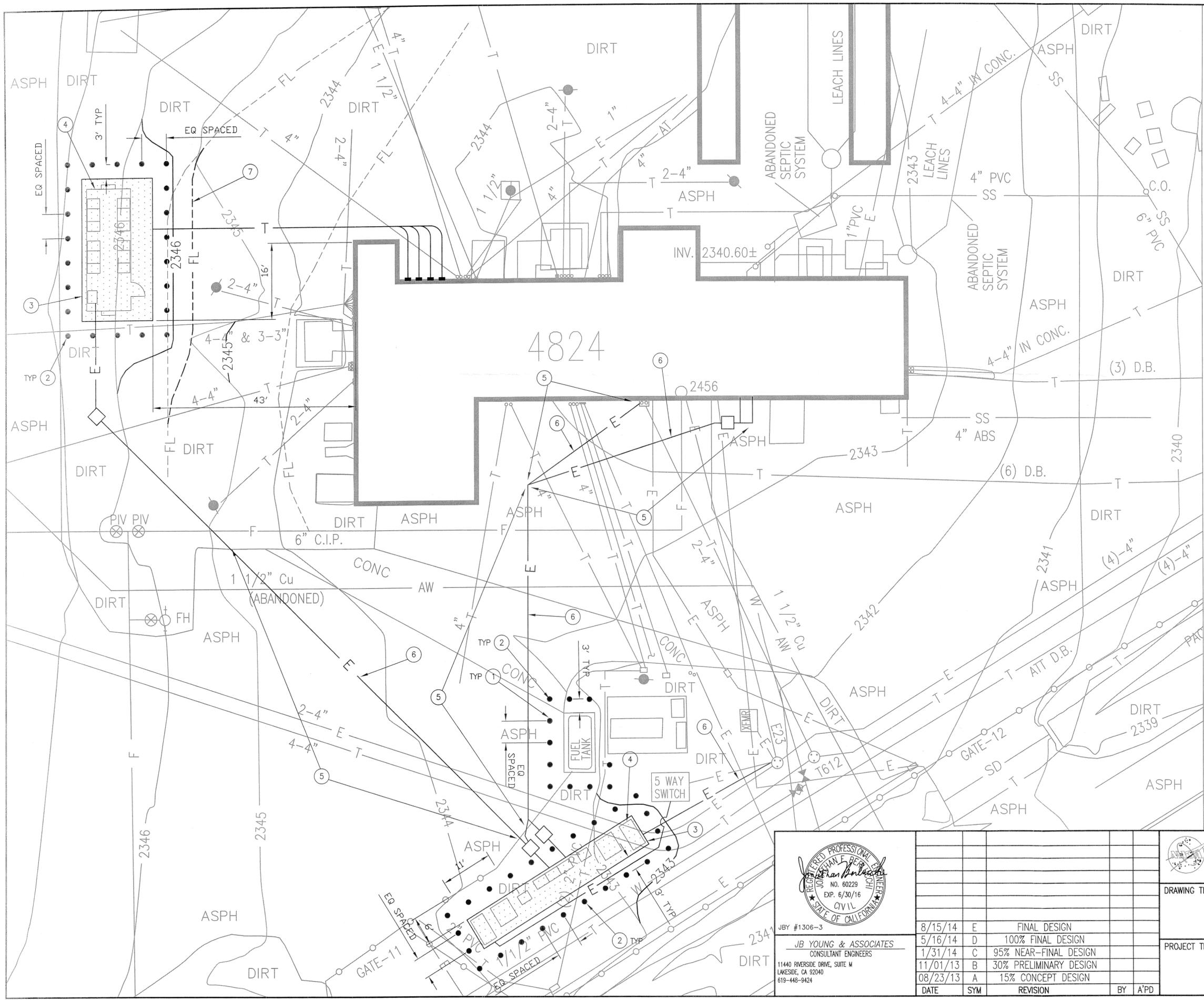
PROJECT TITLE: REPAIR B4824 ELECTRICAL DISTRIBUTION SYSTEM

DATE STRTD: - DATE PRINTD: 8/15/14

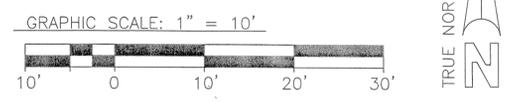
DRAWN BY: JFB TRADE SH. No. EDM-1727

SCALE: AS NOTED

FILE NAME: C-1 SHEET No. 3 of 15



- (XX) NOTES:
- 1) SAWCUT, REMOVE, AND DISPOSE AND REPLACE OF EXISTING ASPHALT OR CONCRETE PAVEMENT, AS REQUIRED, TO INSTALL GUARD POSTS.
  - 2) INSTALL NEW 4" Ø GUARD POST, SEE DETAIL 2 C-3
  - 3) INSTALL NEW CONCRETE EQUIPMENT PAD, SEE DETAIL 1 C-3
  - 4) NEW ELECTRICAL EQUIPMENT (TYP)
  - 5) SAWCUT, REMOVE, DISPOSE, AND REPLACE EXISTING ASPHALT PAVEMENT, TO INSTALL UNDERGROUND CONDUIT, SEE DETAIL 3 C-3
  - 6) INSTALL NEW ELECTRICAL CONDUIT, SEE DETAIL 3 C-3 4 C-3
  - 7) RELOCATE DIRT FLOWLINE.



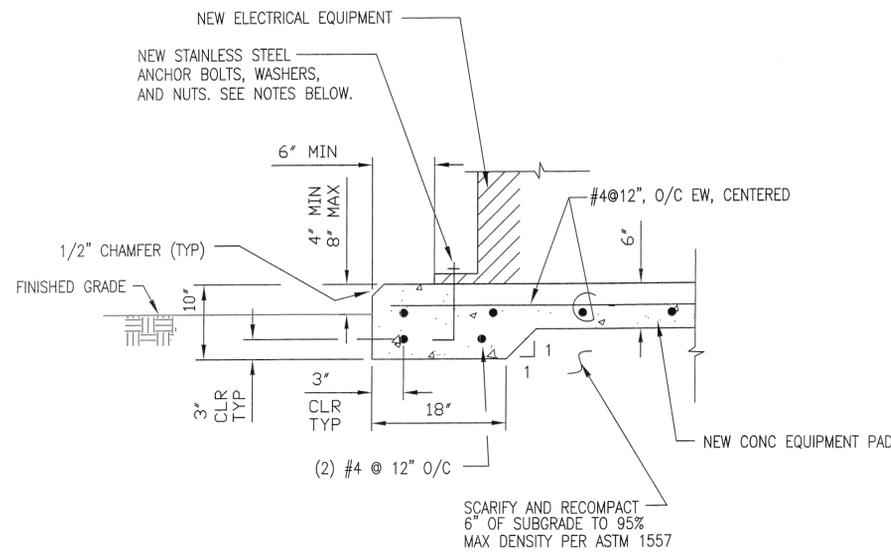
JONATHAN F. BECK  
 NO. 60229  
 EXP. 6/30/16  
 CIVIL  
 STATE OF CALIFORNIA

JBY #1306-3  
**JB YOUNG & ASSOCIATES**  
 CONSULTANT ENGINEERS  
 11440 RIVERSIDE DRIVE, SUITE M  
 LAKESIDE, CA 92040  
 619-448-9424

DATE	SYM	REVISION	BY
8/15/14	E	FINAL DESIGN	
5/16/14	D	100% FINAL DESIGN	
1/31/14	C	95% NEAR-FINAL DESIGN	
11/01/13	B	30% PRELIMINARY DESIGN	
08/23/13	A	15% CONCEPT DESIGN	
			A/PD

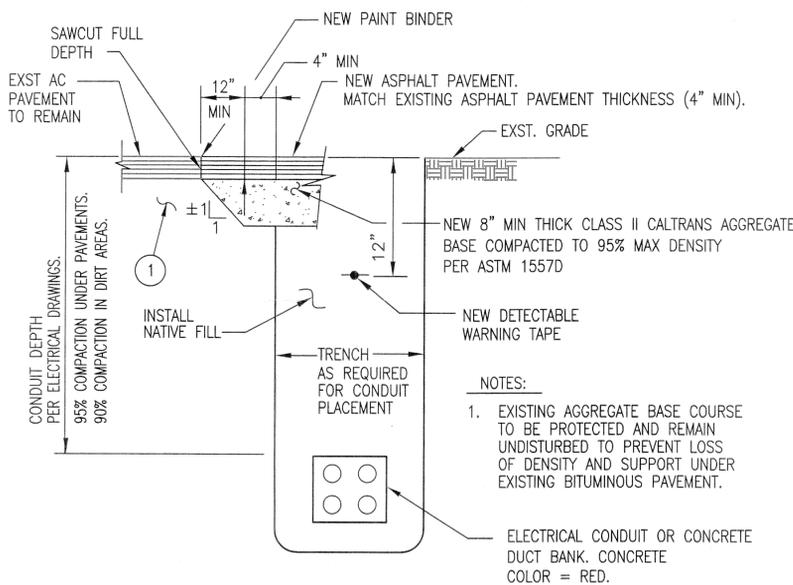
 <b>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</b> ARMSTRONG FLIGHT RESEARCH CENTER EDWARDS, CA	APPROVALS		DATE
	Chief, Facilities Engineering & Asset Mgmt. Office <i>Don Lowrey</i> 10/16/14 Project Regular Customer <i>William Smith</i> 9/25/14 Facilities Project Manager <i>SPZ</i> 9/15/14 Chief, Office of Executive Services <i>RHS</i> 9/19/14 Chief, Safety, Health and Environmental Office <i>Grake</i> 9/19/14 Office Chief Information Officer <i>P. Harrington</i> 9/19/14		
DRAWING TITLE  CIVIL SITE PLAN  PROJECT TITLE  REPAIR B4824 ELECTRICAL DISTRIBUTION SYSTEM	DATE STRTD	DATE PRNTD	EDM-1727
	DRAWN BY JFB	SCALE AS NOTED	TRADE SPL. No. C-2
FILE NAME	SHEET No. 4 of 15		

10/14/14 10:00 AM PL A001.C41.DSN \* PLOT 0:25:32.71004710



- NOTES**
- CONTRACTOR HAS THE OPTION TO DRILL & EPOXY OR EMBED THE ANCHOR BOLTS. SEE EPOXY ANCHOR NOTES.
  - CONTRACTOR SHALL PROVIDE SEISMIC ANCHOR BOLT STRUCTURAL CALCULATIONS STAMPED BY A REGISTERED PROFESSIONAL ENGINEER TO THE CONTRACTING OFFICER FOR APPROVAL BEFORE INSTALLATION.

**EQUIPMENT PAD**  
**DETAIL 1**  
 NO SCALE  
 C-3



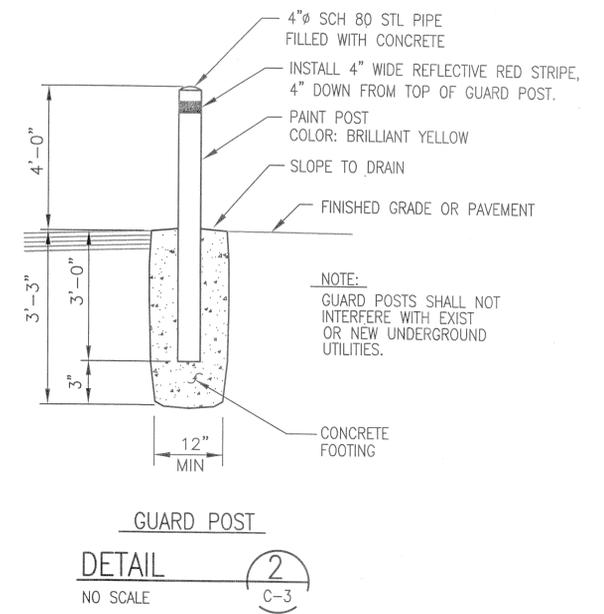
**TYPICAL UTILITY TRENCH - PAVEMENT REPAIR**  
**DETAIL 3**  
 NO SCALE  
 C-3

### EPOXY ANCHORS NOTES

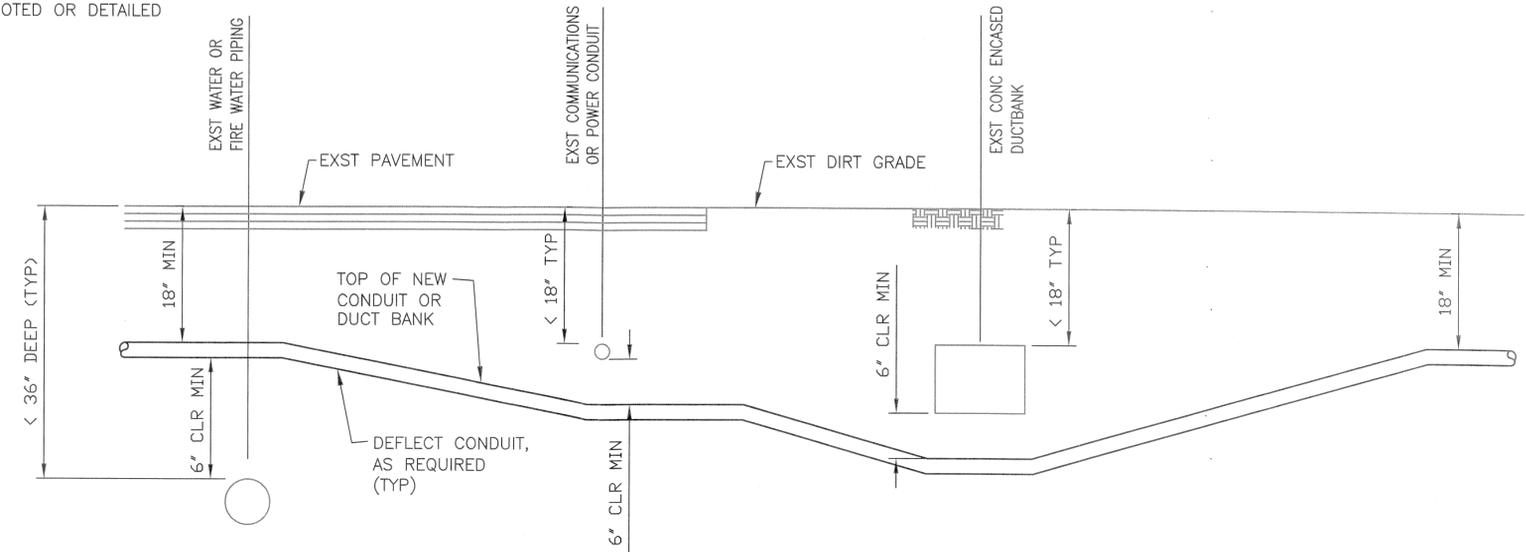
- EPOXY FOR EPOXY ANCHORS SHALL BE SET-XP EPOXY BY "SIMPSON STRONG-TIE" (ICC ER ESR-2508)
- ANCHORS USED FOR EPOXY ANCHORS SHALL BE CARBON STEEL CONFORMING TO ASTM A-307 THREADED RODS U.N.O. SIZE AND EMBEDMENT SHALL BE AS INDICATED ON PLANS.
- ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE EPOXY MANUFACTURER'S RECOMMENDATIONS AND THE CURRENT ICBO REPORT.
- DRILLED HOLES SHALL BE CLEANED OF DUST AND ANY DEBRIS USING NYLON BRUSH AND COMPRESSED AIR. OIL, SCALE, AND RUST SHALL BE REMOVED FROM THREADED RODS PRIOR TO INSTALLATION.
- UNLESS NOTED OTHERWISE IN THE PLANS, EPOXY ANCHORS SHALL HAVE THE FOLLOWING MINIMUM EMBEDMENT

BAR SIZE	MINIMUM EMBEDMENT *
#3	3 1/2"
#4 OR 1/2"φ	4 1/4"
#5 OR 5/8"φ	5 1/2"
#6 OR 3/4"φ	6 3/4"

\* UNLESS NOTED OR DETAILED



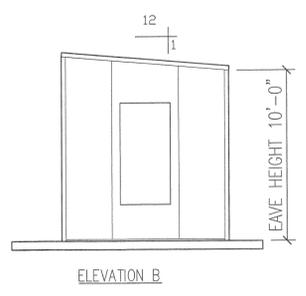
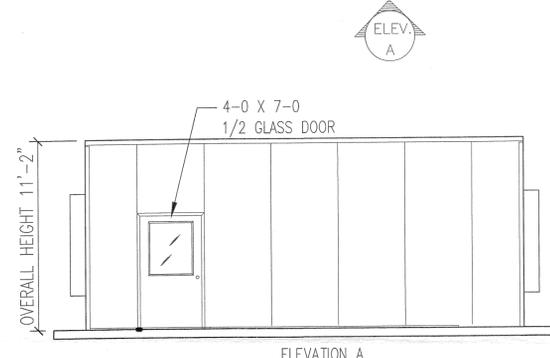
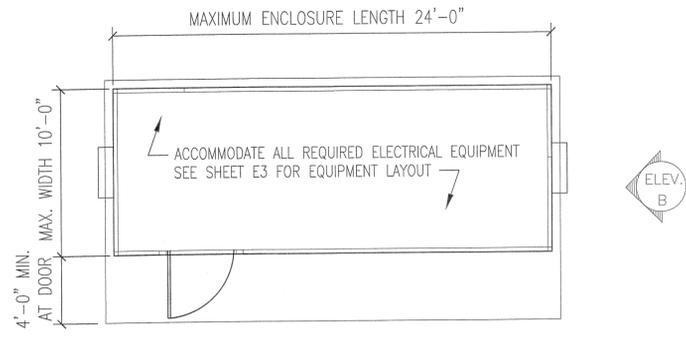
**GUARD POST**  
**DETAIL 2**  
 NO SCALE  
 C-3



- NOTES**
- EXISTING METAL PIPING THAT ARE CROSSED BY NEW ELECTRICAL CONDUIT NEED TO BE CATHODICALLY PROTECTED OR SHIELDED.

**TYPICAL UTILITY UNDER-CROSSING**  
**DETAIL 4**  
 NO SCALE  
 C-3

	<b>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</b> ARMSTRONG FLIGHT RESEARCH CENTER EDWARDS, CA			<b>APPROVALS</b> DATE 10/16/14 9/25/14 9/17/14 9/19/14 9/19/14	
	<b>DRAWING TITLE</b> CIVIL DETAILS			<b>PROJECT TITLE</b> REPAIR B4824 ELECTRICAL DISTRIBUTION SYSTEM	
JBY #1306-3 <b>JB YOUNG &amp; ASSOCIATES</b> CONSULTANT ENGINEERS 11440 RIVERSIDE DRIVE, SUITE M LAKESIDE, CA 92040 619-448-9424	8/15/14 E FINAL DESIGN 5/16/14 D 100% FINAL DESIGN 1/31/14 C 95% NEAR-FINAL DESIGN 11/01/13 B 30% PRELIMINARY DESIGN 08/23/13 A 15% CONCEPT DESIGN	DATE SYM REVISION BY A'PD	DATE STARTED: 8/15/14 DATE PRINTED: 8/15/14 DRAWN BY: JFB SCALE: AS NOTED TRADE: EDM-1727 FILE NAME: C-3 SHEET No. 5 of 15		



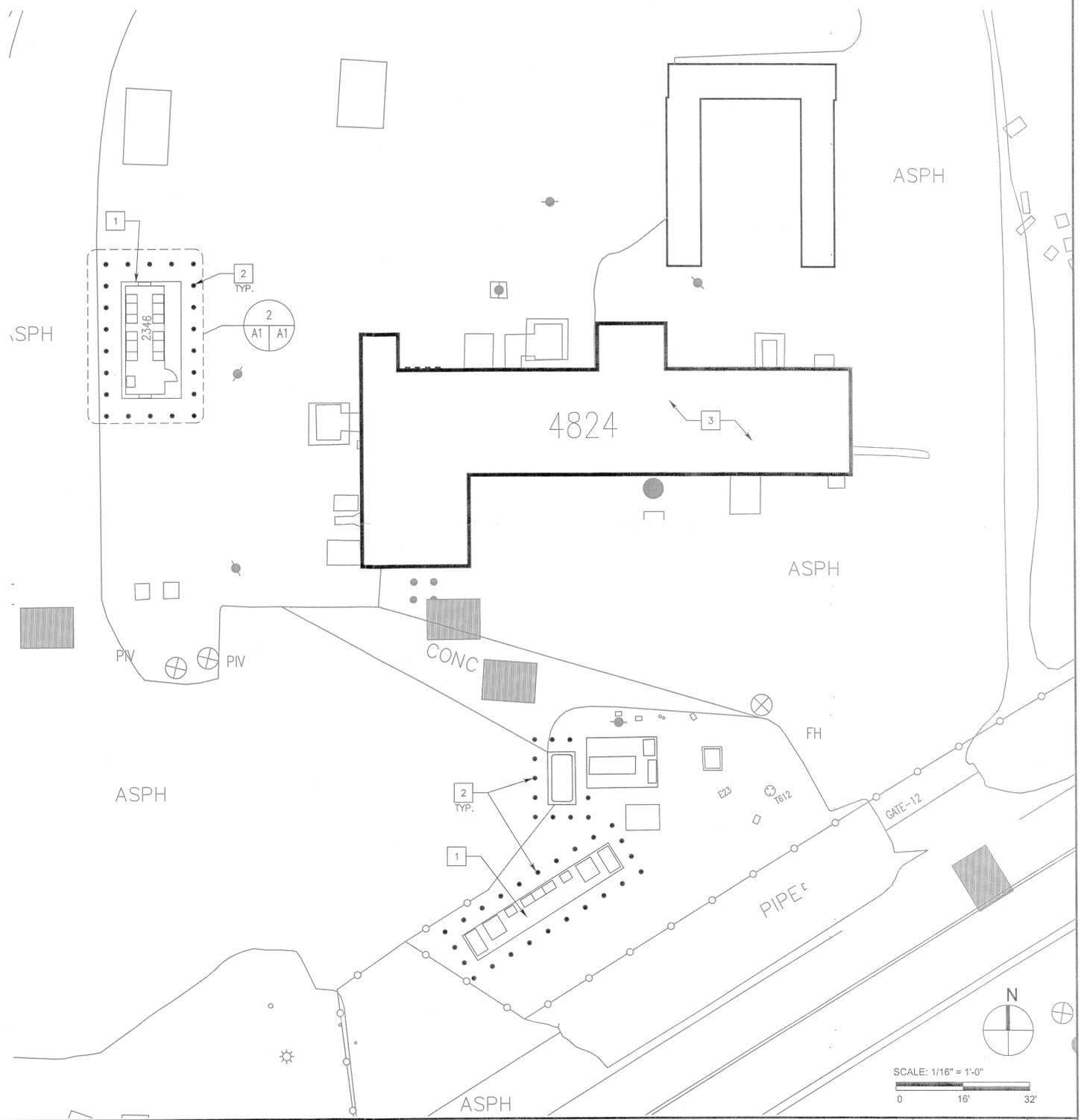
PROVIDE (N) ENCLOSURE FOR ELECTRICAL EQUIPMENT. ENCLOSURE SHALL BE SKID-MOUNTED WITH INSULATED FLOOR, WALL AND CEILING PANELS. EXTERIOR SURFACE SHALL BE MIN. 22 GAUGE STEEL WITH FACTORY-APPLIED FINISH.

ENCLOSURE SHALL INCLUDE DUAL 5-TON A/C UNITS FACTORY-INSTALLED AND WARRANTED BY ENCLOSURE MANUFACTURER. ENCLOSURE INSULATION VALUE SHALL BE R-19 AT WALLS AND R-38 AT ROOF, MINIMUM.

ENCLOSURE SHALL BE DESIGNED FOR A WIND LOAD OF 90 MPH, EXPOSURE 'D', AND FOR THE WEIGHT OF THE SPECIFIC ELECTRICAL EQUIPMENT TO BE INSTALLED.

ENCLOSURE SHALL INCLUDE INTERIOR LIGHTING, POWER CONNECTIONS FOR THE EQUIPMENT TO BE INSTALLED AND ONE ADDITIONAL CONVENIENCE ELECTRICAL OUTLET. SHOW ALL ELECTRICAL ITEMS IN SHOP DRAWINGS.

CONTRACTOR SHALL PROVIDE COORDINATION DRAWINGS SHOWING EQUIPMENT TO BE INSTALLED AND REQUIRED CLEARANCES. CONTRACTOR SHALL PROVIDE DETAILS FOR ANCHORING ENCLOSURE TO EXISTING CONCRETE PAD. ANCHORAGE DETAILS SHALL BE STAMPED BY CALIFORNIA LICENSED STRUCTURAL ENGINEER.



**ELECTRICAL ENCLOSURE**

SCALE: 3/16" = 1'-0"  
2

**SITE PLAN B4824**

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

- KEYNOTES**
- 1 (N) PAD-MOUNTED ELECTRICAL EQUIPMENT. SEE SHEET E3 FOR EQUIPMENT AND C2 FOR LOCATION AND CONCRETE PADS.
  - 2 (N) BOLLARDS AT (N) AND (E) EQUIPMENT. SEE SHEET C2 FOR BOLLARDS.
  - 3 PRIOR TO WORK WITHIN BUILDING 4824, THE CONTRACTOR SHALL TEST ANY MATERIALS TO BE DISTURBED FOR THE PRESENCE OF LEAD-CONTAINING PAINT. MATERIALS FOUND OR KNOWN TO CONTAIN LEAD SHALL BE ABATED AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.



**DEVELOPMENT ONE, INC.**  
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DATE	SYM	REVISION	BY	A'PD
8/15/14	E	FINAL DESIGN		
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**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**  
ARMSTRONG FLIGHT RESEARCH CENTER  
EDWARDS, CA

DRAWING TITLE  
**BUILDING 4824 SITE PLAN**

PROJECT TITLE  
**REPAIR B4824 ELECTRICAL DISTRIBUTION SYSTEM**

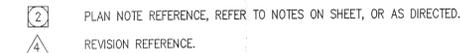
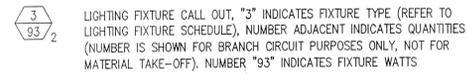
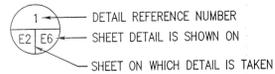
APPROVALS	DATE
Chief, Facilities Engineering & Assg. Mgmt. Office <i>Don Cowley</i>	10/16/14
Project Requester/Customer <i>William Smith</i>	9/25/14
Facilities Project Manager <i>[Signature]</i>	9/15/14
Chief, Office of Protective Services <i>[Signature]</i>	9/19/14
Chief - Safety, Health and Environmental Office <i>[Signature]</i>	9/19/14
Chief Information Officer <i>[Signature]</i>	19 Sep 14

DATE STRTD: - - - DATE PRNTD: 8/15/14

DRAWN BY: DRM  
SCALE: AS NOTED  
FILE NAME: A1

TRADE: EDM-1727  
SHEET No. 6 of 15

**ANNOTATIONS**



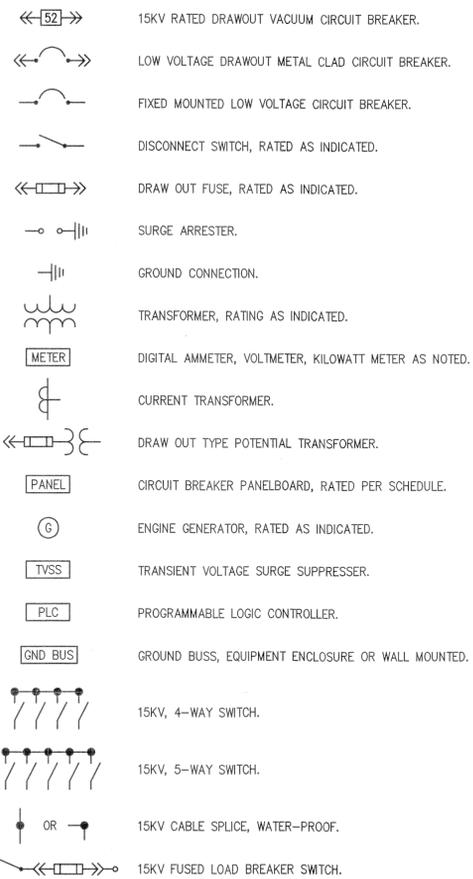
**ABBREVIATIONS**

A/C	AIR CONDITIONING
ADA	AMERICAN WITH DISABILITIES ACT
A.F.F.	ABOVE FINISH FLOOR
A.F.G.	ABOVE FINISH GRADE
AWG	AMERICAN WIRE GAUGE
AMP, A	AMPERE
A.I.C.	AMPERES INTERRUPTING CAPACITY (SYMMETRICAL)
AT/FAT	AMP FRAME, AMP TRIP
AS/AF	AMP SWITCH, AMP FUSE
ATS	AUTOMATIC TRANSFER SWITCH
BATT	BATTERY
CIRC., CKT.	CIRCUIT
CB	CIRCUIT BREAKER
C	CONDUIT
CM	CENTIMETER
C.O.	CONDUIT ONLY, COMPLETE WITH PULLSTRING
CONN	CONNECTED
CPT	CONTROL POWER TRANSFORMER
CLCB	CURRENT LIMITING CIRCUIT BREAKER
CLF	CURRENT LIMITING FUSE
CT	CURRENT TRANSFORMER
DIA	DIAMETER
E.C.	ELECTRICAL CONTRACTOR
EMS	ENERGY MANAGEMENT CONTROL SYSTEM
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
ENT	ELECTRICAL NON-METALLIC TUBING
EWC	ELECTRIC WATER COOLER
E-O-L	END-OF-LINE CIRCUIT TERMINATOR
EF	EXHAUST FAN
E/G	EQUIPMENT GROUND (GREEN)
E	EXISTING EQUIPMENT
EP	EXPLOSION PROOF
FA	FIRE ALARM
FLA	FULL LOAD AMPS
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRD	GROUND
HOA	HAND-OFF-AUTO
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
H, W, D, L	HEIGHT, WIDTH, DEPTH, LENGTH
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
I/G	ISOLATED GROUND
JBOX	JUNCTION BOX
K	DEGREE KELVIN
KVA	KILOVOLT AMPERES
KW	KILOWATT
LCL	LONG CONTINUOUS LOAD
L.F.	LINEAR FEET
LTS, LIT	LIGHTING
LPS	LOW PRESSURE SODIUM
MAINT	MAINTENANCE
MAX	MAXIMUM
MSP	MAINTENANCE BYPASS
MCB	MAIN CIRCUIT BREAKER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MM	MILLIMETER
MV	MERCURY VAPOR
MH	METAL HALIDE
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILS
MCP	MOTOR CIRCUIT PROTECTOR
MFR.	MANUFACTURER
MTD	MOUNTED
MW	MICROWAVE
NEC	NATIONAL ELECTRICAL CODE
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
NF	NON-FUSED
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO. or #	NUMBER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED.
P	POLE
PC	PHOTOCELL
PRIMARY	OVER 600 VOLTS
PH. or Ⓞ	PHASE
PROVIDE	FURNISH, INSTALL AND CONNECT.
PT	POTENTIAL TRANSFORMER
PA	PUBLIC ADDRESS
REC, RECEPT	RECEPTACLE
REF	REFRIGERATOR
RGS	RIGID GALVANIZED STEEL
SECONDARY	600 VOLTS AND LESS
SQ.	SQUARE
TC	TIMECLOCK
TEL./DATA	TELEPHONE AND DATA
TV	TELEVISION
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPERES
WP	WEATHERPROOF
W	WIRE
XFMR	TRANSFORMER

**GENERAL NOTES:**

- CONDUIT SIZES CALLED OUT ON DRAWINGS ARE NOT NECESSARILY BASED ON THE MINIMUM SIZE ALLOWED BY THE NATIONAL ELECTRICAL CODE AND MAY BE PURPOSELY OVERSIZED FOR EASE OF CONDUCTOR PULLING OR TO AVOID EXCESS CONDUIT HEATING. IN NO CASE SHALL CONDUIT SIZE BE SMALLER THAN IS REQUIRED BY THE NATIONAL ELECTRICAL CODE.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL JUNCTION AND PULL BOXES REQUIRED FOR THE INSTALLATION OF ELECTRICAL DEVICES AND EQUIPMENT, WHETHER OR NOT SPECIFICALLY INDICATED ON THE PLANS. SIZE OF THESE BOXES SHALL BE PER THE NATIONAL ELECTRICAL CODE.
- THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT FOR TEMPORARY CONSTRUCTION POWER AS REQUIRED.
- ALL PENETRATIONS THROUGH FIRE BARRIERS SHALL BE FIRE STOPPED TO MAINTAIN THE INTEGRITY OF THE FIRE BARRIER. FIRE STOPPING MATERIAL SHALL BE U.L. LISTED.
- THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE CONTRACTING OFFICER BEFORE DRILLING ANY PENETRATION THROUGH STRUCTURAL MEMBERS OR FIRE RATED WALLS AND SLABS.
- SHOULD PROJECT CONDITIONS REQUIRE REARRANGEMENT OF WORK, THE CONTRACTOR SHALL MARK SUCH CHANGES ON THE AS-BUILT DRAWINGS. IF THESE CHANGES REQUIRE ALTERNATE METHODS TO THOSE SPECIFIED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL SUBMIT DRAWINGS SHOWING THE PROPOSED ALTERNATE METHODS TO THE CONTRACTING OFFICER. THE CONTRACTOR SHALL NOT PROCEED UNTIL APPROVAL IS OBTAINED. REARRANGEMENT OF WORK FOR THE PURPOSE OF COORDINATION SHALL NOT BE CONSIDERED AN ITEM FOR EXTRA COST.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. TESTING SHALL BE DONE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. SUBMIT A COPY OF SHOP DRAWINGS TO THE CONTRACTING OFFICER FOR ENGINEERING REVIEW.
- PROVIDE TESTING BY OPERATING THE INSTALLATION AND RUNNING TESTS TO DEMONSTRATE ITS OPERATIONS AND COMPLIANCE WITH THE EQUIPMENT SPECIFICATIONS. TEST ALL WIRING AND EQUIPMENT TO INSURE PROPER OPERATION ACCORDING TO FUNCTIONS SPECIFIED HEREIN AND ON THE DRAWINGS.
- WARRANTY: ALL WORK IN THIS SECTION SHALL BE UNDER WARRANTY FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF THE WORK AS A WHOLE BY THE CONTRACTING OFFICER. SHOULD ANY EQUIPMENT OR MATERIAL FAIL WITHIN THIS PERIOD, THE CONTRACTOR SHALL REPLACE OR REPAIR THAT ITEM AT NO COST FOR MATERIAL AND/OR SERVICES IF SUCH IS DUE TO FAULTY WORKMANSHIP OR QUALITY OF MATERIAL FURNISHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO ANY PART OF THE PREMISES CAUSED BY FAILURE IN THE EQUIPMENT FURNISHED AS PART OF THE CONTRACT DRAWINGS FOR A PERIOD OF ONE YEAR AFTER THE FINAL ACCEPTANCE OF THE WORK AS A WHOLE.
- ALL MECHANICAL CONTROL SYSTEMS EQUIPMENT SHALL BE PROVIDED, INSTALLED AND WIRED BY THE MECHANICAL CONTRACTOR PER THE CONTRACT DOCUMENTS. ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUITS ONLY FOR CONTROL WIRING. ELECTRICAL POWER FOR THE MECHANICAL CONTROL SYSTEM EQUIPMENT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. THIS INCLUDES THE POWER WIRING, AND CONNECTION TO THE MECHANICAL CONTROL SYSTEMS EQUIPMENT.
- POT HOLE, AND LOCATE ALL UTILITY LINES WITHIN THE PROJECT AREA PRIOR TO START OF EXCAVATION IN ORDER TO AVOID DAMAGE TO EXISTING UNDERGROUND UTILITIES. REPAIR ALL DAMAGES TO EXISTING UTILITIES AT NO COST TO OWNER.
- PATCH AND PAINT ALL EXPOSED ELECTRICAL MATERIAL, INCLUDING CONDUIT, SURFACE METAL RACEWAYS, JUNCTION BOXES, PANELS, AND DEVICES TO MATCH THE ADJACENT SURFACES IN TEXTURE AND COLOR.
- REPAIR ANY DAMAGE TO EXISTING CONSTRUCTION RESULTING FROM THE INSTALLATION OF ELECTRICAL ITEMS. THE AREAS REPAIRED SHALL MATCH THE ADJACENT SURFACES IN TEXTURE AND COLOR.
- PROVIDE DEWATERING EFFORT FOR NEW BELOW GRADE EXCAVATION/TRENCHING IF GROUND WATER IS ENCOUNTERED. THE CONTRACTOR SHALL OBTAIN A DIGGING PERMIT BEFORE ANY EXCAVATION OR TRENCHING.
- ALL ELECTRICAL SPLICES SHALL BE WATERPROOF.
- ALL MOUNTING HARDWARE, CHANNELS AND FASTENING DEVICES IN EXTERIOR LOCATIONS SHALL BE 316 STAINLESS STEEL UNLESS NOTED.
- PROVIDE A COMPLETE AND OPERATING ELECTRICAL SYSTEM. PROVIDE SHALL MEAN "FURNISH AND INSTALL". WORK INCLUDES INSTALLATION OF ALL ELECTRICAL EQUIPMENT AND SYSTEMS, INCLUDING ANY FURNISHED BY OWNER OR OTHER TRADES, COMPLETE AND OPERATIONAL TO THE SATISFACTION OF THE CONTRACTING OFFICER, AS LIMITED BY THE INTENT OF THE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL COMPLY WITH THE CONSTRUCTION PRACTICES AND REQUIREMENTS OF THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE (NFPA 70), 2012 EDITION OF THE SAFETY CODE (NFPA 101), 2012 EDITION OF ELECTRICAL SAFETY IN THE WORKPLACE (NFPA 70E), AMERICANS WITH DISABILITIES ACT, APPLICABLE INSTRUCTIONS OF MANUFACTURERS OF EQUIPMENT AND MATERIALS SUPPLIED FOR THE PROJECT, AND ALL ORDINANCES, RULES AND POLICIES OF THE STATE AND COUNTY IN WHICH THE WORK IS TO BE PERFORMED.
- ALL CIRCUITS SHALL INCLUDE AN INSULATED GREEN GROUNDING CONDUCTOR, SIZED PER THE NATIONAL ELECTRICAL CODE. THIS CONDUCTOR SHALL BE CARRIED IN ALL RACEWAYS INCLUDING THOSE INSTALLED FOR SWITCH LEGS AND SHALL BE ATTACHED TO THE DEVICE OR EQUIPMENT HOUSING USING A SUITABLE GROUNDING LUG.
- AT COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL PROVIDE A COPY OF AS-BUILT DRAWINGS IN CD-ROM TO THE CONTRACTING OFFICER. REFER TO 013300 FOR DRAWING FORMAT.
- SAWCUT EXISTING AC PAVEMENT/SIDEWALK FOR NEW UNDERGROUND DUCTLINE INSTALLATIONS. PATCH AND REPAIR AC PAVEMENT/SIDEWALK TO MATCH EXISTING ADJACENT SURFACES. AT NON-PAVED AREAS, RESTORE SURFACES TO MATCH EXISTING ADJACENT SURFACES. REFER TO 013300 FOR DRAWING FORMAT.
- ALL OUTAGES SHALL BE COORDINATED AND SCHEDULED WITH THE CONTRACTING OFFICER AT LEAST (3) WEEKS IN ADVANCE OF REQUESTED OUTAGE IN WRITING. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING GENERATOR SUPPORT FOR SCHEDULED ELECTRICAL OUTAGE DUE TO CONSTRUCTION CONTRACT WORK.
- ALL SITE 15KV DISTRIBUTION CONDUITS SHALL INCLUDE #4/0 AWG BARE COPPER GROUND CONDUCTOR.
- ALL ELECTRICAL CONDUCTORS FOR DISTRIBUTION AT 480 VOLTS AND BELOW SHALL BE THHN, 90°C INSULATION EXCEPT WHERE SPECIFIED ON SINGLE LINE DIAGRAM TO INSTALL DOL TYPE RHH/RHW-2 90°C CONDUCTORS.
- MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG FOR BOTH POWER AND CONTROL CIRCUITS.
- OBTAIN CONFINED SPACE PERMIT FROM NASA PRIOR TO ENTRY OF UNDER GROUND MANHOLES AND VAULTS.
- GOVERNMENT RESERVES THE RIGHT TO WITNESS FACTORY TESTING. NOTIFY GOVERNMENT 30 CALENDAR DAYS PRIOR TO EQUIPMENT FACTORY TESTS FOR GOVERNMENT REPRESENTATIVE ATTENDANCE.

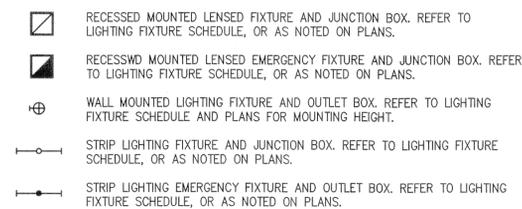
**ONE LINE DIAGRAM**



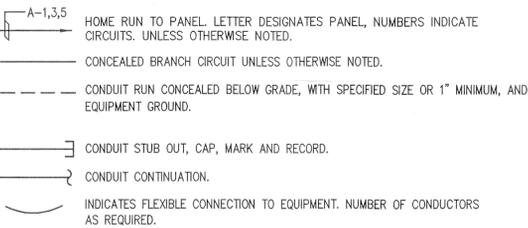
**TELEPHONE/DATA SYMBOLS**



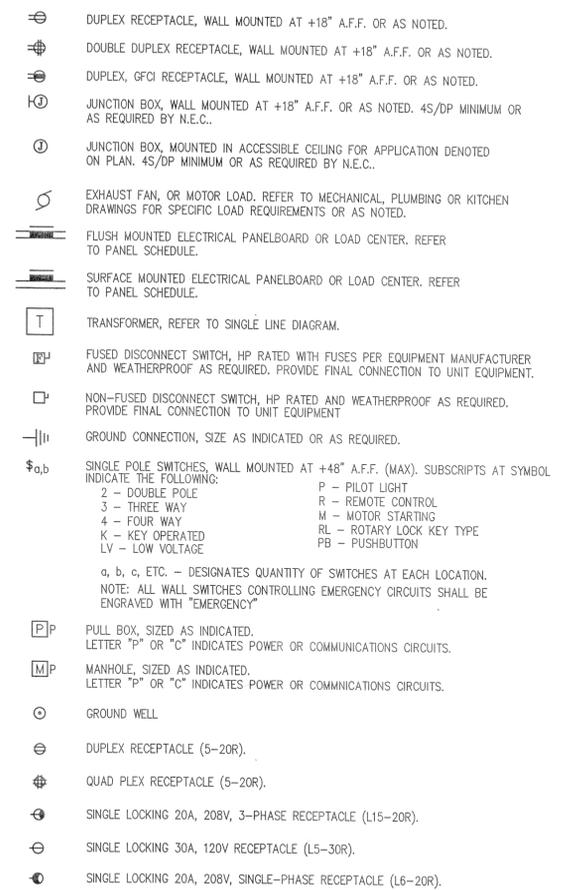
**LIGHTING SYMBOLS**



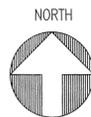
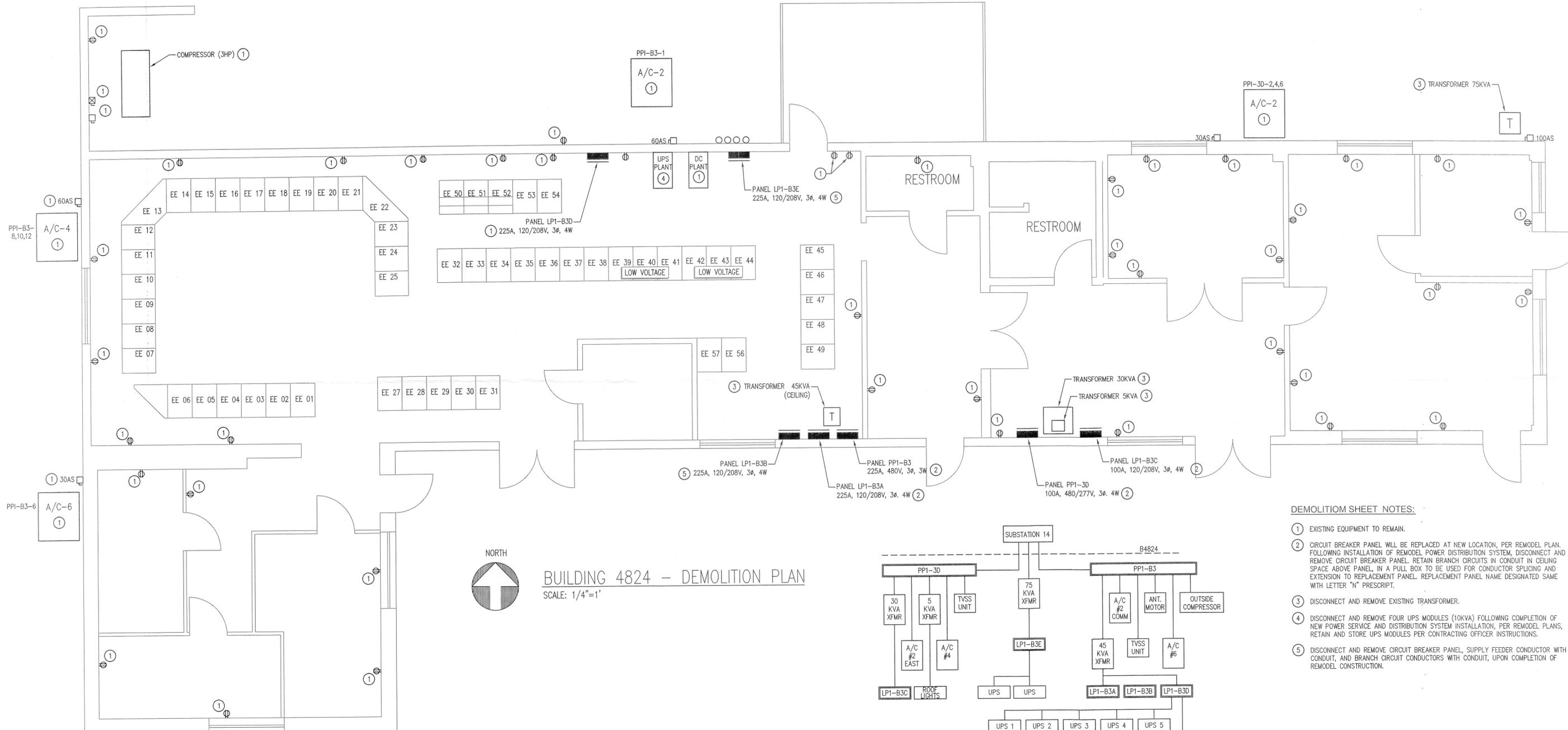
**BRANCH CIRCUIT SYMBOLS**



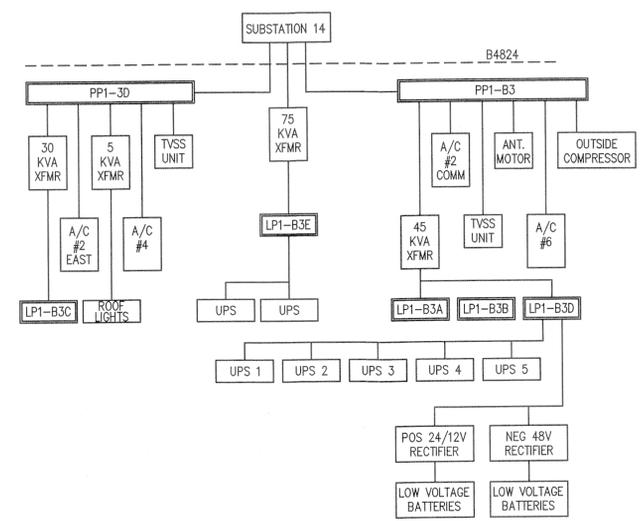
**POWER SYMBOLS**



	<b>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</b> ARMSTRONG FLIGHT RESEARCH CENTER EDWARDS, CA		<b>APPROVALS</b> DATE
	<b>DRAWING TITLE</b> ELECTRICAL SYMBOLS, NOTES AND ABBREVIATIONS		Chief, Facilities Engineering & Asset Mgmt. Office Project Requestor/Customer Facilities Project Manager Chief, Office of Protective Services Chief - Safety, Health and Environmental Office Dir. of Information Office
<b>PROJECT TITLE</b> REPAIR B4824 ELECTRICAL DISTRIBUTION SYSTEM		DATE STRTD: - DATE PRNTD: 8/15/14	EDM-1727 SHEET No. 2 of 19
8/15/14 E FINAL DESIGN 5/16/14 D 100% FINAL DESIGN 1/31/14 C 95% NEAR-FINAL DESIGN 11/01/13 B 30% PRELIMINARY DESIGN 08/23/13 A 15% CONCEPT DESIGN	DATE SYM REVISION BY A/PD		



**BUILDING 4824 - DEMOLITION PLAN**  
SCALE: 1/4"=1'



EXISTING SINGLE LINE DIAGRAM  
SCALE: NONE

**DEMOLITION SHEET NOTES:**

- ① EXISTING EQUIPMENT TO REMAIN.
- ② CIRCUIT BREAKER PANEL WILL BE REPLACED AT NEW LOCATION, PER REMODEL PLAN. FOLLOWING INSTALLATION OF REMODEL POWER DISTRIBUTION SYSTEM, DISCONNECT AND REMOVE CIRCUIT BREAKER PANEL. RETAIN BRANCH CIRCUITS IN CONDUIT IN CEILING SPACE ABOVE PANEL, IN A PULL BOX TO BE USED FOR CONDUCTOR SPLICING AND EXTENSION TO REPLACEMENT PANEL. REPLACEMENT PANEL NAME DESIGNATED SAME WITH LETTER "N" PRESCRIPT.
- ③ DISCONNECT AND REMOVE EXISTING TRANSFORMER.
- ④ DISCONNECT AND REMOVE FOUR UPS MODULES (10KVA) FOLLOWING COMPLETION OF NEW POWER SERVICE AND DISTRIBUTION SYSTEM INSTALLATION, PER REMODEL PLANS, RETAIN AND STORE UPS MODULES PER CONTRACTING OFFICER INSTRUCTIONS.
- ⑤ DISCONNECT AND REMOVE CIRCUIT BREAKER PANEL, SUPPLY FEEDER CONDUCTOR WITH CONDUIT, AND BRANCH CIRCUIT CONDUCTORS WITH CONDUIT, UPON COMPLETION OF REMODEL CONSTRUCTION.

DWG: P113050 NASA B4824 (dwg) E13050 E2.0.dwg USER: Jerry Limon DATE: Aug 15, 2014 1:31pm APPR: NASA Time Block - INADVIS.

**DONN C. GILMORE & ASSOC.**  
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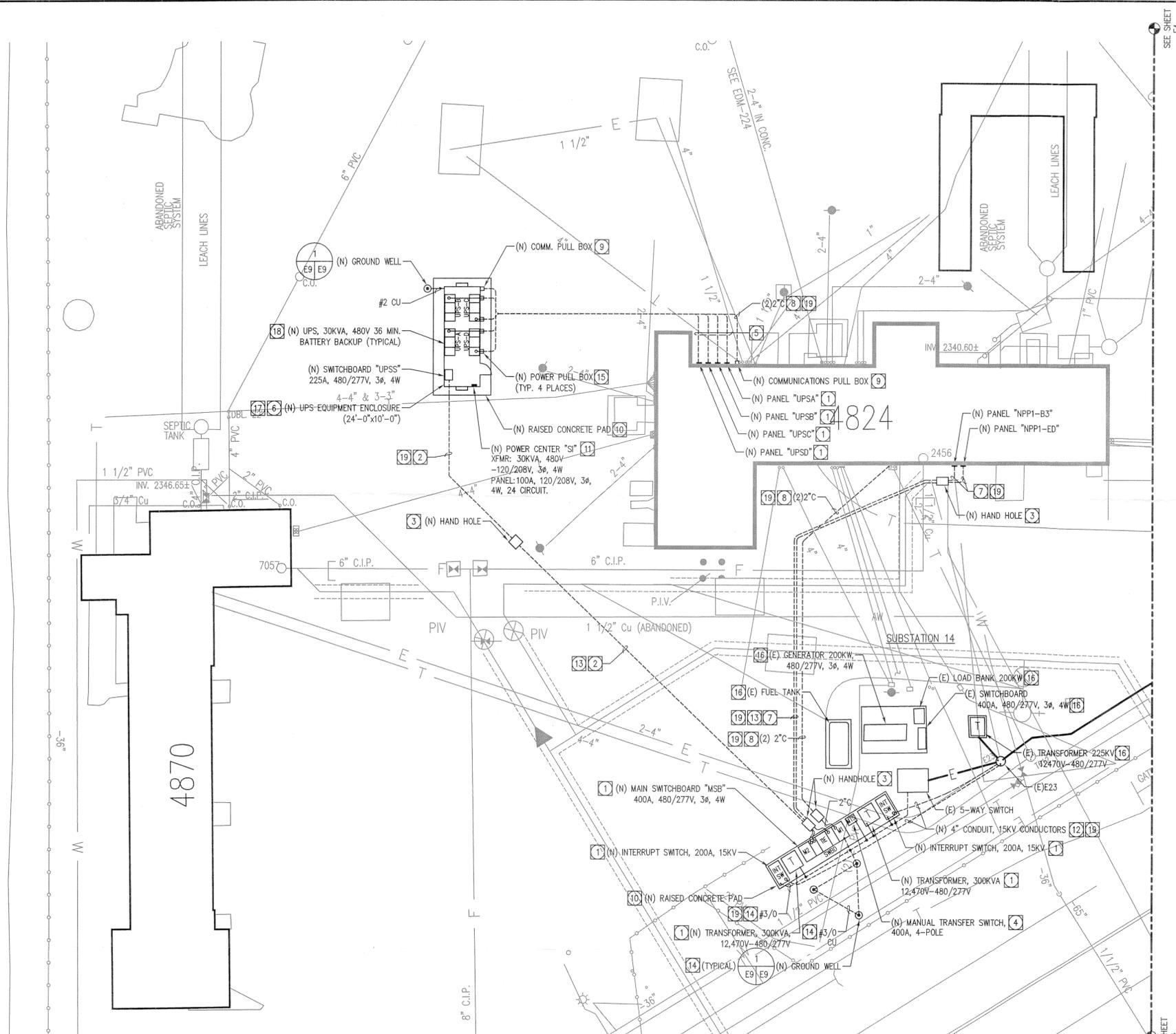
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5/16/14	D	100% FINAL DESIGN		
1/31/14	C	95% NEAR-FINAL DESIGN		
11/01/13	B	30% PRELIMINARY DESIGN		
08/23/13	A	15% CONCEPT DESIGN		

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**  
 ARMSTRONG FLIGHT RESEARCH CENTER  
 EDWARDS, CA

**DRAWING TITLE**  
BUILDING 4824  
DEMOLITION PLAN

**PROJECT TITLE**  
REPAIR B4824 ELECTRICAL  
DISTRIBUTION SYSTEM

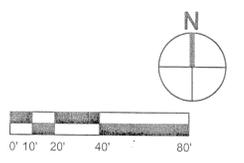
APPROVALS	DATE
Chief, Facilities Engineering & Asset Mgmt. Office <i>Don Cowley</i>	10/6/14
Project Requirer/ Customer <i>William Reich</i>	9/25/14
Facilities Project Manager <i>[Signature]</i>	9/5/14
Chief, Office of Protective Services <i>[Signature]</i>	9/19/14
Chief - Safety, Health and Environmental Office <i>[Signature]</i>	9/19/14
OPS Chief Information Officer <i>[Signature]</i>	9/25/14
DATE STRTD: - DATE PRNTD: 8/15/14	
DRAWN BY: ANH/WAS	EDM-1727
SCALE: 1/4"=1'-0"	
FILE NAME: E2	SHEET No. 8 of 15



PARTIAL ELECTRICAL SITE PLAN  
SCALE: 1/16"=1'-0"

SHEET SPECIFIC NOTES:

- 1 PROVIDE EQUIPMENT ENCLOSURE RATED NEMA TYPE 3R.
- 2 PROVIDE (2) 2"C-4 #3/0, 1 #3 GND. (EACH).
- 3 PROVIDE PRECAST CONCRETE HAND HOLE WITH GRADE FLUSH TRAFFIC COVER. HAND HOLE TO BE MINIMUM 2'-0"x3'-0" VARIABLE DEPTH. INSTALL ON 6" OF COMPACTED ROCK FOR UNIFORM DISTRIBUTION OF SOIL PRESSURE.
- 4 PROVIDE NEMA TYPE 3R ENCLOSURE.
- 5 PROVIDE 2"C-4 #1/0, 1 #6 GND. AT MINIMUM 13" BURIAL DEPTH.
- 6 MAXIMUM ENCLOSURE DIMENSIONS SHOWN FOR APPROXIMATE EQUIPMENT LAYOUT. MAINTAINING CODE REQUIRED MAINTENANCE CLEARANCE (4' IN FRONT) AND EXIT DOOR SPACE. PROVIDE ENCLOSURE EQUIPPED WITH DUAL AIR CONDITIONERS, LIGHTING, AND MAINTENANCE RECEPTACLES. PROVIDE ENCLOSURE TEMPERATURE SENSOR WITH REMOTE ALARM ANNUNCIATOR PANEL IN B4824.
- 7 PROVIDE 1 1/4"C-3 #1, 1 #8 GND.
- 8 COMMUNICATIONS CONDUIT.
- 9 PROVIDE COMMUNICATIONS PULL BOX (12"x18"x4"D) ON EXTERIOR WALL, RATED NEMA TYPE 3R.
- 10 SEE CIVIL PLANS FOR DIMENSIONS AND CONSTRUCTION.
- 11 PROVIDE WALL MOUNTED UL LISTED POWER CENTER CONTAINING A 30KVA TRANSFORMER WITH PRIMARY AND SECONDARY CIRCUIT BREAKERS, AND 24-CIRCUIT BREAKERS PANEL IN A NEMA 1 (OR NEMA 3R) ENCLOSURE. PROVIDE (2) 3-POLE CIRCUIT BREAKERS RATED FOR AIR CONDITIONER OVER-CURRENT PROTECTION. PROVIDE (2) 1-POLE 20A CIRCUIT BREAKERS FOR ENCLOSURE LIGHT AND MAINTENANCE RECEPTACLE CIRCUITS. PROVIDE 1-POLE, 20A CIRCUIT BREAKER IN REMAINING PANEL SPACES.
- 12 PROVIDE 4"C-3 #4/0 15KV, 1 #1/0 GROUND, PROVIDE EPR, TYPE MV-105, SHIELDED CONDUCTOR WITH 133% INSULATION. PROVIDE "RED" CONCRETE ENCASUREMENT (3" ALL AROUND) WITH MINIMUM 24" BURIAL DEPTH.
- 13 PROVIDE AT MINIMUM 18" BURIAL DEPTH.
- 14 PROVIDE GROUND WELL TRIAD WITH (3) 10' LONG COPPER-CLAD STEEL RODS INSTALLED WITH MINIMUM 10 FOOT SEPARATION DISTANCE. PROVIDE CONNECTING #3/0 AWG COPPER CONDUCTOR FROM ROD TO ROD AND CONDUCTORS WITH EXOTHERMIC WELD. CONNECT EACH ELECTRICAL EQUIPMENT ENCLOSURE IN SUBSTATION 14 WITH BOLTED CONNECTION OF #3/0 AWG AT EQUIPMENT AND EXOTHERMIC WELD AT GROUND WIRE.
- 15 PROVIDE PULL BOX (12"x18"x4"D) ON EXTERIOR WALL, RATED NEMA TYPE 3R.
- 16 DISCONNECT AND REMOVE EQUIPMENT AND CONNECTING CONDUCTORS FOLLOWING CONSTRUCTION OF NEW EQUIPMENT. STORE OR DISPOSE PER CONTRACTING OFFICER DIRECTIONS.
- 17 PROVIDE WIRED TEMPERATURE SENSOR AND ALARM PANEL FOR UPS EQUIPMENT ENCLOSURE. TEMPERATURE DETECTION RANGE ADJUSTABLE TO 95 DEGREES FAHRENHEIT. WIRED ANNUNCIATOR PANEL TO BE LOCATED IN BUILDING MANNED OFFICE, WITH 90DB ALARM SOUNDING FOR 45 SECONDS (MINIMUM). TEMPERATURE MONITOR INTERVALS TO BE 60 SECONDS (MAXIMUM) AND ACCURATE TO PLUS OR MINUS 3 DEGREES FAHRENHEIT.
- 18 PROVIDE CELLWATCH BATTERY MONITORING SENSORS AT EACH UPS BATTERY CABINET. EXISTING CELLWATCH SYSTEM REPORTING SOFTWARE TO BE REUSED AT EXISTING BUILDING 4824 WORKSTATION. NASA TO PROVIDE COMMUNICATION CABLE LINKS BETWEEN SENSORS AND WORKSTATION.
- 19 PROVIDE CONDUIT STUB-UP AS RIGID GALVANIZED STEEL, WRAPPED IN 10 MIL CORROSION PROTECTION TAPE WHERE IN CONTACT WITH SOIL.

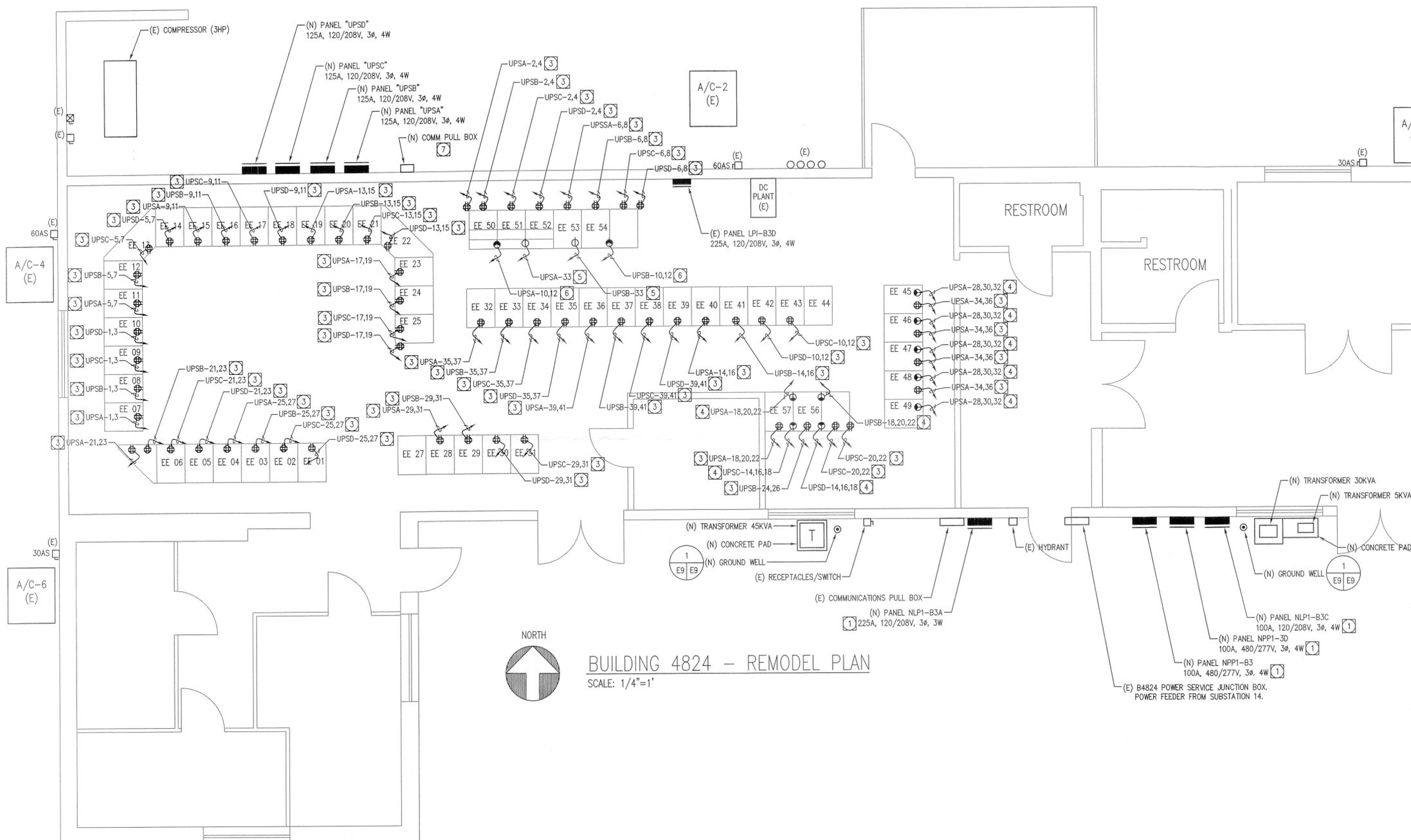


DWG: P113050 NASA B4824wp113050 E3.0.dwg USER: Jerry Limon  
 DATE: Aug 15, 2014 7:53am XREFS: NASA Title Block IM45 Aerial Survey IMAGES:

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DATE	SYM	REVISION	BY	A'PD
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 <b>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</b> ARMSTRONG FLIGHT RESEARCH CENTER EDWARDS, CA		<b>APPROVALS</b> Chief, Facilities Engineering & Asset Mgmt. Office <i>[Signature]</i> Project Manager/Customer <i>[Signature]</i> Facility Project Manager <i>[Signature]</i> Chief, Office of Protective Services <i>[Signature]</i> Chief - Safety, Health and Environmental Office <i>[Signature]</i> DFRS Data Information Officer <i>[Signature]</i>		<b>DATE</b> 10/16/14 9/25/14 9/18/14 9/19/14 9/25/14
<b>DRAWING TITLE</b> PARTIAL ELECTRICAL SITE PLAN		<b>PROJECT TITLE</b> REPAIR B4824 ELECTRICAL DISTRIBUTION SYSTEM		
<b>DATE STRTD</b> -	<b>DATE PRNTD</b> 8/15/14	<b>DRAWN BY</b> ANH/LWAS	<b>TRADE</b> EDM-1727	
<b>SCALE</b> 1/16"=1'-0"	<b>FILE NAME</b> E3	SHEET No. 2 of 15		



**BUILDING 4824 -- REMODEL PLAN**  
SCALE: 1/4"=1'

- REMODEL SHEET NOTES:**
- 1 PROVIDE CIRCUIT BREAKER PANEL BREAKERS PER SCHEDULE, IN A NEMA 3R ENCLOSURE.
  - 2 NOT USED.
  - 3 PROVIDE 3/4"C-2 #12, 2 #12 NEU., 2 #12 GND.
  - 4 PROVIDE 3/4"C-3 #12, 1 #12 GND.
  - 5 PROVIDE 3/4"C-2 #10, 1 #10 GND.
  - 6 PROVIDE 3/4"C-2 #12, 1 #12 GND.
  - 7 PROVIDE COMMUNICATIONS PULL BOX (12"x18"x4"D) ON EXTERIOR WALL, RATED NEMA TYPE 3R.

- GENERAL NOTES:**
1. ALL RECEPTACLES SHOWN ON PLAN ARE TO BE INSTALLED IN CEILING SPACE ABOVE EQUIPMENT RACK CABLE TRAY. SEE SHEET E9, DETAILS 2 THROUGH 6. PROVIDE MINIMUM 12" SEPARATION DISTANCE BETWEEN RECEPTACLE BOX AND TOP OF TRAY TO ALLOW CABLE INSTALLATION. PROVIDE SPECIFIED RECEPTACLES IN .05" STEEL SURFACE RACEWAY WITH MINIMUM 4 3/4"x1 3/4" SIZE AND VARYING LENGTHS AS REQUIRED. PROVIDE UNISTRUT VERTICAL AND SWAY BRACE MOUNTING, AT ENDS AND 5' INTERVALS (MAXIMUM), BOLTED WITH CLAMPS TO UNDER-ROOF STRUCTURE. FIELD DEVELOP VERTICAL UNISTRUT PLACEMENT TO AVOID EXISTING OBSTRUCTIONS. BOLT RACEWAY TO UNISTRUT USING MANUFACTURER'S RECOMMENDED HARDWARE. PROVIDE MATCHING RACEWAY COVER PLATES, END PLATES, AND ENTRANCE ENDS WITH CONDUIT KNOCKOUTS.

DWG: P113050 NASA B4824Dwg1E13050 E4.0.dwg USER: Jerry Limon  
 DATE: Aug 15, 2014 7:56am XREFS: NASA Title Block WINGS

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**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**  
ARMSTRONG FLIGHT RESEARCH CENTER  
EDWARDS, CA

**DRAWING TITLE**  
BUILDING 4824  
REMODEL PLAN

**PROJECT TITLE**  
REPAIR B4824 ELECTRICAL  
DISTRIBUTION SYSTEM

APPROVALS	DATE
Chief, Facilities Engineering & Asset Mgmt. Office <i>[Signature]</i>	10/16/14
Project Receptor/Owner <i>[Signature]</i>	9/15/14
Facilities Project Manager <i>[Signature]</i>	9/15/14
Chief, Office of Protective Services <i>[Signature]</i>	9/19/14
Chief - Safety, Health and Environmental Office <i>[Signature]</i>	9/19/14
OPRC Chief Information Officer <i>[Signature]</i>	19 Sep 14
DATE STRD: - DATE PRINTD: 8/15/14	
DRAWN BY: ARH,WAS	EDM-1727
SCALE: 1/4"=1'-0"	
FILE NAME: E4	SHEET No. 12 of 18



VOLTS: 120/208 PHASE: 3PH, 4W MTG: SURFACE				PANELBOARD: "UPSA"				MAIN: 125A BUS: 125A AIC: 22KA										
LOCATION: B4824																		
OKT #	←← LOAD (VA) →→			LOAD TYPE	BKR	QUAN	OUTLET	DESCRIPTION	BUS ABC	OKT #	←← LOAD (VA) →→			LOAD TYPE	BKR	QUAN	OUTLET	DESCRIPTION
	A	B	C								A	B	C					
1						20/1	1	EE 07	A	2					20/1	1	EE 50	
3						20/1	1	EE 07	B	4					20/1	1	EE 50	
5						20/1	1	EE 11	C	6					20/1	1	EE 53	
7						20/1	1	EE 11	A	8					20/1	1	EE 53	
9						20/1	1	EE 15	B	10					20/2	1	EE 50	
11						20/1	1	EE 15	C	12								
13						20/1	1	EE 19	A	14					20/1	1	EE 40	
15						20/1	1	EE 19	B	16					20/1	1	EE 40	
17						20/1	1	EE 23	C	18					20/3	1	EE 57	
19						20/1	1	EE 23	A	20								
21						20/1	1	EE 06	B	22								
23						20/1	1	EE 06	C	24					20/1	1	EE 57	
25						20/1	1	EE 04	A	26					20/1	1	EE 57	
27						20/1	1	EE 04	B	28					20/3	1	EE 49	
29						20/1	1	EE 28	C	30								
31						20/1	1	EE 28	A	32								
33						30/1	1	EE 51	B	34					20/1	1	EE 48	
35						20/1	1	EE 32	C	36					20/1	1	EE 48	
37						20/1	1	EE 32	A	38					20/3	1	EE 45	
39						20/1	1	EE 36	B	40								
41						20/1	1	EE 36	C	42								

CONNECTED:		L.C.L. @ 125% = 0		LOAD TYPE:	
VA	AMPS	RECEPT. (> 10 kVA @ 50%) = 0	KITCHEN @ 65% = 0	G - GENERAL (100%)	M - MOTOR (100%)
PHASE A = 0	0				
PHASE B = 0	0				
PHASE C = 0	0				
TOTAL = 0	0				

VOLTS: 120/208 PHASE: 3PH, 4W MTG: SURFACE				PANELBOARD: "UPSB"				MAIN: 125A BUS: 125A AIC: 22KA										
LOCATION: B4824																		
OKT #	←← LOAD (VA) →→			LOAD TYPE	BKR	QUAN	OUTLET	DESCRIPTION	BUS ABC	OKT #	←← LOAD (VA) →→			LOAD TYPE	BKR	QUAN	OUTLET	DESCRIPTION
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3						20/1	1	EE 08	B	4					20/1	1	EE 50	
5						20/1	1	EE 12	C	6					20/1	1	EE 54	
7						20/1	1	EE 12	A	8					20/1	1	EE 54	
9						20/1	1	EE 16	B	10					20/2	1	EE 54	
11						20/1	1	EE 16	C	12								
13						20/1	1	EE 20	A	14					20/1	1	EE 41	
15						20/1	1	EE 20	B	16					20/1	1	EE 41	
17						20/1	1	EE 24	C	18					20/3	1	EE 56	
19						20/1	1	EE 24	A	20								
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31						20/1	1	EE 29	A	32								
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35						20/1	1	EE 33	C	36					20/1	1	EE 47	
37						20/1	1	EE 33	A	38					20/1		SPARE	
39						20/1	1	EE 37	B	40					20/1		SPARE	
41						20/1	1	EE 37	C	42					20/1		SPARE	

CONNECTED:		L.C.L. @ 125% = 0		LOAD TYPE:	
VA	AMPS	RECEPT. (> 10 kVA @ 50%) = 0	KITCHEN @ 65% = 0	G - GENERAL (100%)	M - MOTOR (100%)
PHASE A = 0	0				
PHASE B = 0	0				
PHASE C = 0	0				
TOTAL = 0	0				

VOLTS: 120/208 PHASE: 3PH, 4W MTG: SURFACE				PANELBOARD: "UPSC"				MAIN: 125A BUS: 125A AIC: 22KA										
LOCATION: B4824																		
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7						20/1	1	EE 13	A	8					20/1	1	EE 54	
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35						20/1	1	EE 34	C	36					20/1		SPARE	
37						20/1	1	EE 34	A	38					20/1		SPARE	
39						20/1	1	EE 38	B	40					20/1		SPARE	
41						20/1	1	EE 38	C	42					20/1		SPARE	

CONNECTED:		L.C.L. @ 125% = 0		LOAD TYPE:	
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PHASE B = 0	0				
PHASE C = 0	0				
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VOLTS: 120/208 PHASE: 3PH, 4W MTG: SURFACE				PANELBOARD: "UPSD"				MAIN: 125A BUS: 125A AIC: 22KA										
LOCATION: B4824																		
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7						20/1	1	EE 14	A	8					20/1	1	EE 54	
9						20/1	1	EE 18	B	10					20/1	1	EE 42	
11						20/1	1	EE 18	C	12					20/1	1	EE 42	
13						20/1	1	EE 22	A	14					20/3	1	EE 56	
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17						20/1	1	EE 25	C	18								
19						20/1	1	EE 25	A	20					20/1	1	EE 56	
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33						30/1	1	SPARE	B	34					20/1		SPARE	
35						20/1	1	EE 35	C	36					20/1		SPARE	
37						20/1	1	EE 35	A	38					20/1		SPARE	
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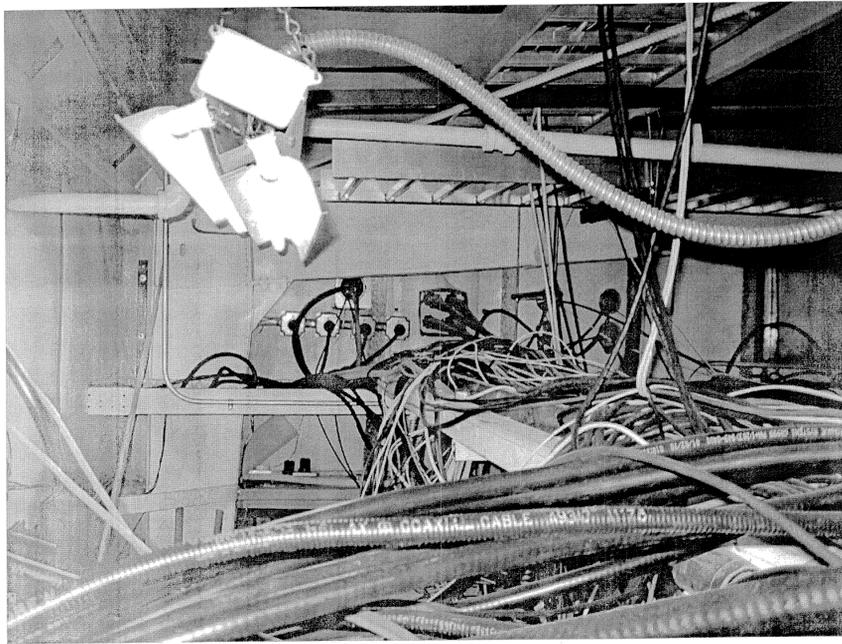
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PHASE A = 0	0				
PHASE B = 0	0				
PHASE C = 0	0				
TOTAL = 0	0				

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 DATE: Aug 15, 2014 7:55am XREFS: NASA Title Block IMAGESET:

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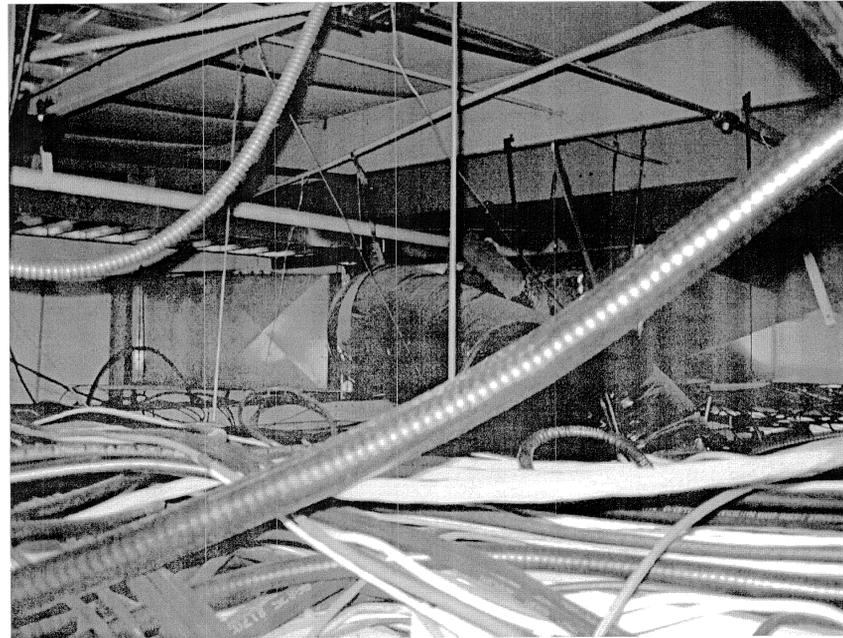






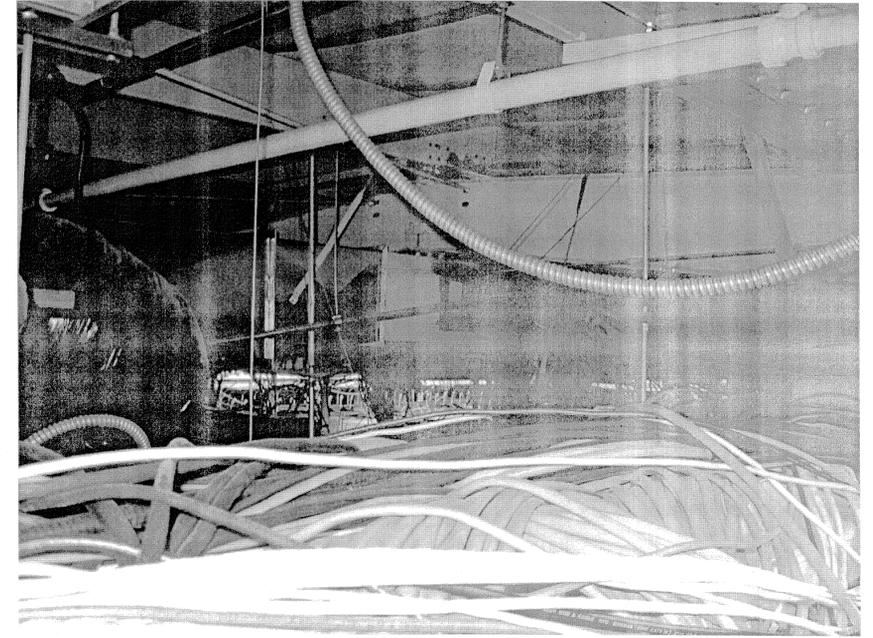
BUILDING 4824 CEILING SPACE PHOTO

SCALE: 6  
NTS E9 E9



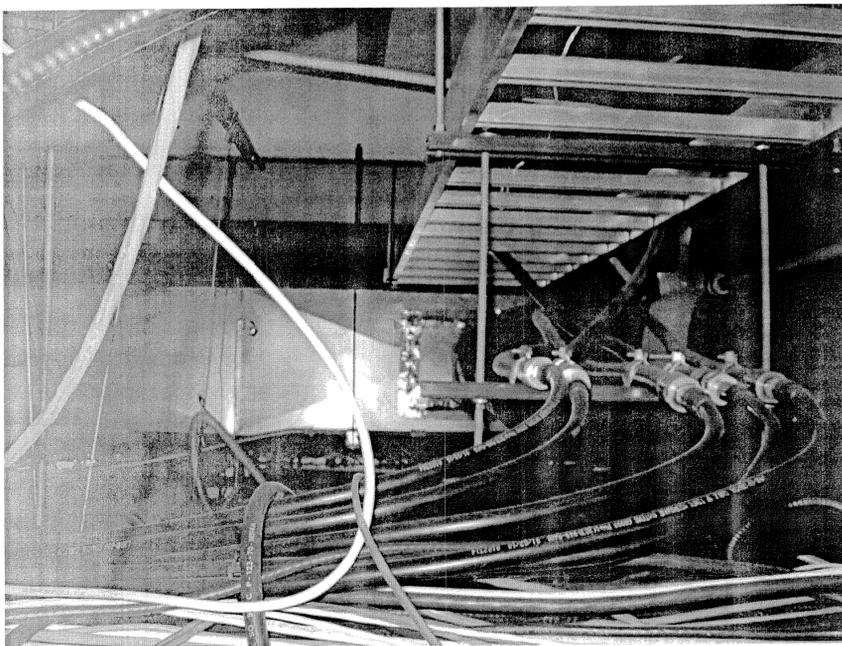
BUILDING 4824 CEILING SPACE PHOTO

SCALE: 5  
NTS E9 E9



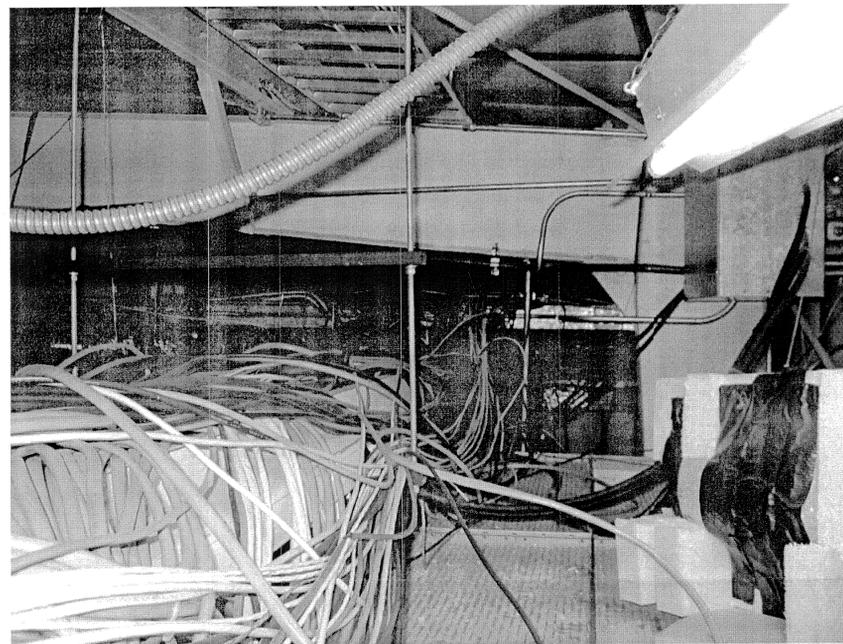
BUILDING 4824 CEILING SPACE PHOTO

SCALE: 4  
NTS E9 E9



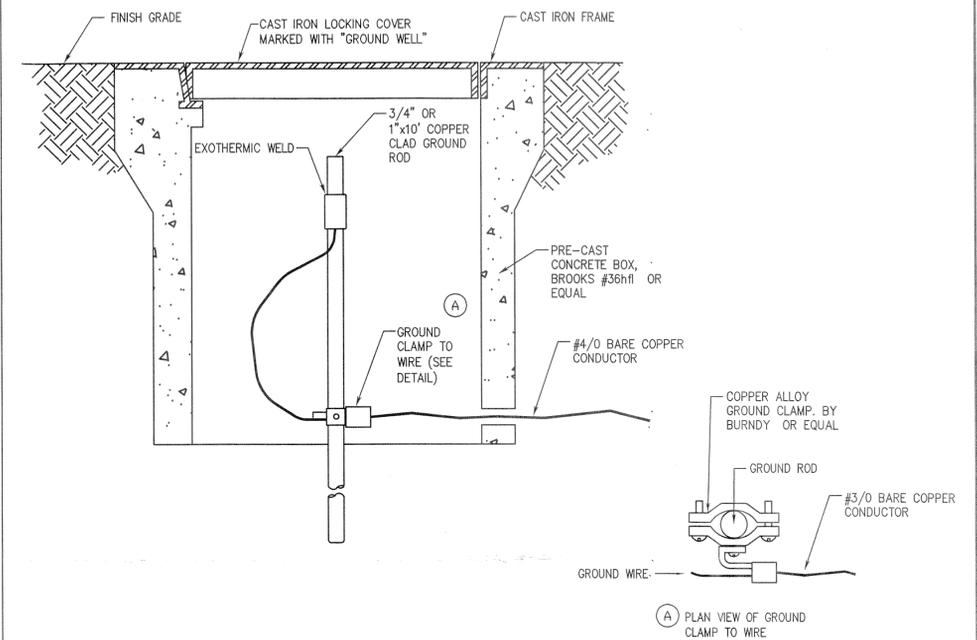
BUILDING 4824 CEILING SPACE PHOTO

SCALE: 3  
NTS E9 E9



BUILDING 4824 CEILING SPACE PHOTO

SCALE: 2  
NTS E9 E9



GROUND WELL DETAIL

SCALE: 1  
NTS E9 E9

DWG: P119359 NASA B4824DWG1E119359 E9.0.dwg USER: Jerry Limon  
 DATE: Aug 15, 2014 7:57am XREFS: NASA Title Block IMAGES: Etc 050.jpg  
 Etc 051.jpg Etc 052.jpg Etc 053.jpg Etc 054.jpg

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**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**  
 ARMSTRONG FLIGHT RESEARCH CENTER  
 EDWARDS, CA

DRAWING TITLE: ELECTRICAL DETAILS  
 PROJECT TITLE: REPAIR B4824 ELECTRICAL DISTRIBUTION SYSTEM

APPROVALS		DATE
Chief, Facilities Engineering & Asset Mgmt. Office	<i>[Signature]</i>	10-16-14
Project Inspector/Customer	<i>[Signature]</i>	9/25/14
Facilities Project Manager	<i>[Signature]</i>	9/5/14
Chief, Office of Protective Services	<i>[Signature]</i>	9/19/14
Chief - Safety, Health and Environmental Office	<i>[Signature]</i>	9/19/14
Chief, Office of Information Officer	<i>[Signature]</i>	19sep14
DATE STRTD	-	DATE PRNTD 8/15/14
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