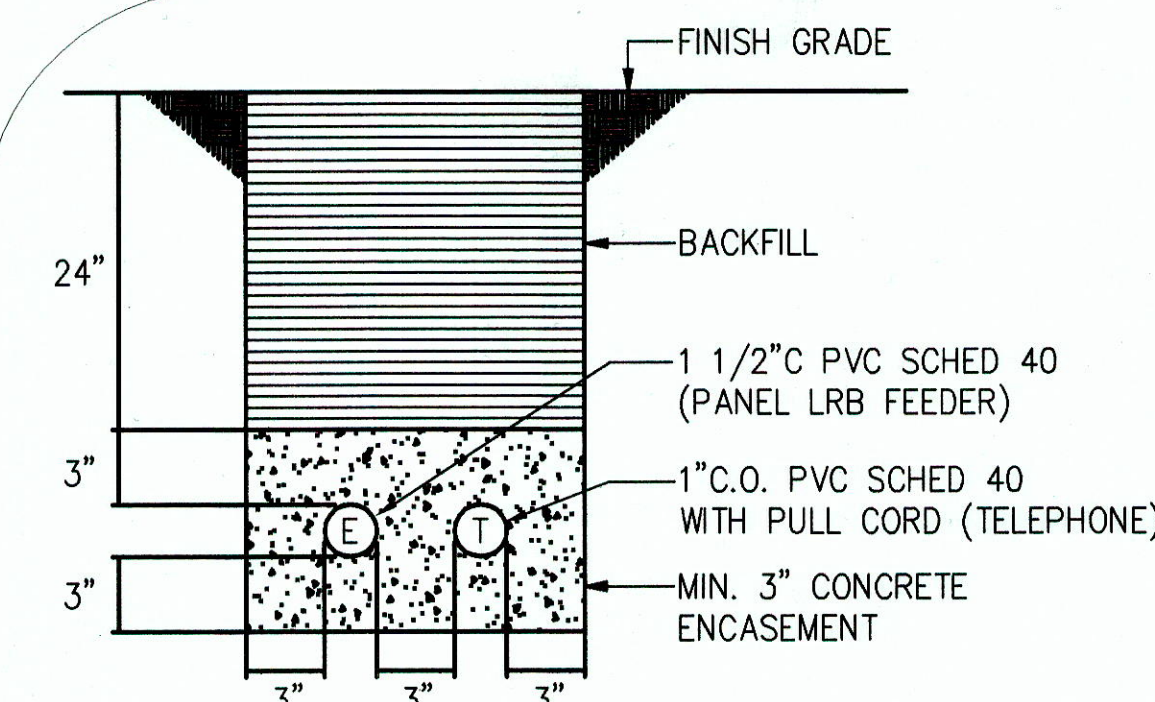


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-12-00	2004	78	82

ELECTRICAL SYMBOL LIST

- RACEWAY AND CONDUCTORS EXPOSED
- RACEWAY AND CONDUCTORS CONCEALED IN WALL OR ABOVE CEILING
- RACEWAY AND CONDUCTORS BELOW FLOOR OR GRADE
- ~ FLEXIBLE RACEWAY AND CONDUCTORS
- HOMERUN TO PANEL, AND CIRCUIT. HATCH MARKS INDICATE QUANTITY OF #12 CONDUCTORS IN RACEWAY. NO HATCH MARKS INDICATE 2 #12 CONDUCTORS OR AS NOTED.
- INDICATES #12 THW/CU GREEN INSULATED GROUND
- PANELBOARD
- 1 NOTE REFERENCE: "SEE PLAN NOTE "1" THIS SHEET"
- A LUMINAIRE DESIGNATION. REFER TO LUMINAIRE SCHEDULE
- LUMINAIRE, SURFACE MOUNTED
- LUMINAIRE, WALL MOUNTED
- LUMINAIRE, RECESSED
- NIGHT LIGHT - TIME SWITCH CONTROLLED
- EXISTING POST TOP LUMINAIRE
- JUNCTION BOX, CEILING MOUNTED
- DUPLEX RECEPTACLE, 15 AMP, 125 VOLT, 3 WIRE, 16" CENTERLINE TO FLOOR OR AS NOTED
- T TRANSFORMER
- TERMINAL CABINET
- S SINGLE POLE SWITCH, 46" CENTERLINE TO FLOOR OR AS NOTED. SUBSCRIPT "d" DESIGNATES OUTLETS CONTROLLED BY SWITCH "d"
- S SWITCH, 15 AMP, 1 POLE, 46" CENTERLINE TO FLOOR OR AS NOTED
- 2 = 2 POLE
- 3 = 3 WAY
- 4 = 4 WAY
- K= KEY
- ⊕ EQUIPMENT CONNECTION
- ⊕ MOTOR OUTLET CONNECTION
- ⊕ DISCONNECT SWITCH, 3 POLE, HORSEPOWER RATED, NONFUSED UNLESS NOTED
- C CONDUIT
- WP WEATHERPROOF
- GFI GROUND FAULT CIRCUIT INTERRUPTER
- ⊕ TIME SWITCH
- ⊕ SMOKE DETECTOR IONIZATION TYPE, SELF CONTAINED 120V, ALARM, TEST SWITCH & INDICATOR LIGHT
- CATV CONDUITS
- TELEPHONE CONDUITS OR ABOVE CEILING
- ⊕ CATV OUTLET, +16"
- ⊕ TELEPHONE OUTLET, +16"
- ⊕ JUNCTION BOX, WALL MOUNTED +16"



DUCT SECTION (A)

NOT TO SCALE

DUCT SECTION (B) SIMILAR EXCEPT 1-1/2" C PVC SCHED 40 (ELECTRICAL)

DUCT SECTION (C) SIMILAR EXCEPT 1-3" C PVC SCHED 40 (ELECTRICAL)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Chafetz
ELECTRICAL, INC.

This sheet replaces the original sheet A DPP/DLU Comments dated 2/22/08

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SYMBOL LIST, ELECTRICAL SITE PLAN

WAHIAWA BASEYARD
IMPROVEMENTS

Project No. HWY-0-12-00

Scale: AS SHOWN Date: JAN. 2003

SHEET No. E1.00 OF 82 SHEETS

C.O.78

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	XX
NOTE BOOK	No.

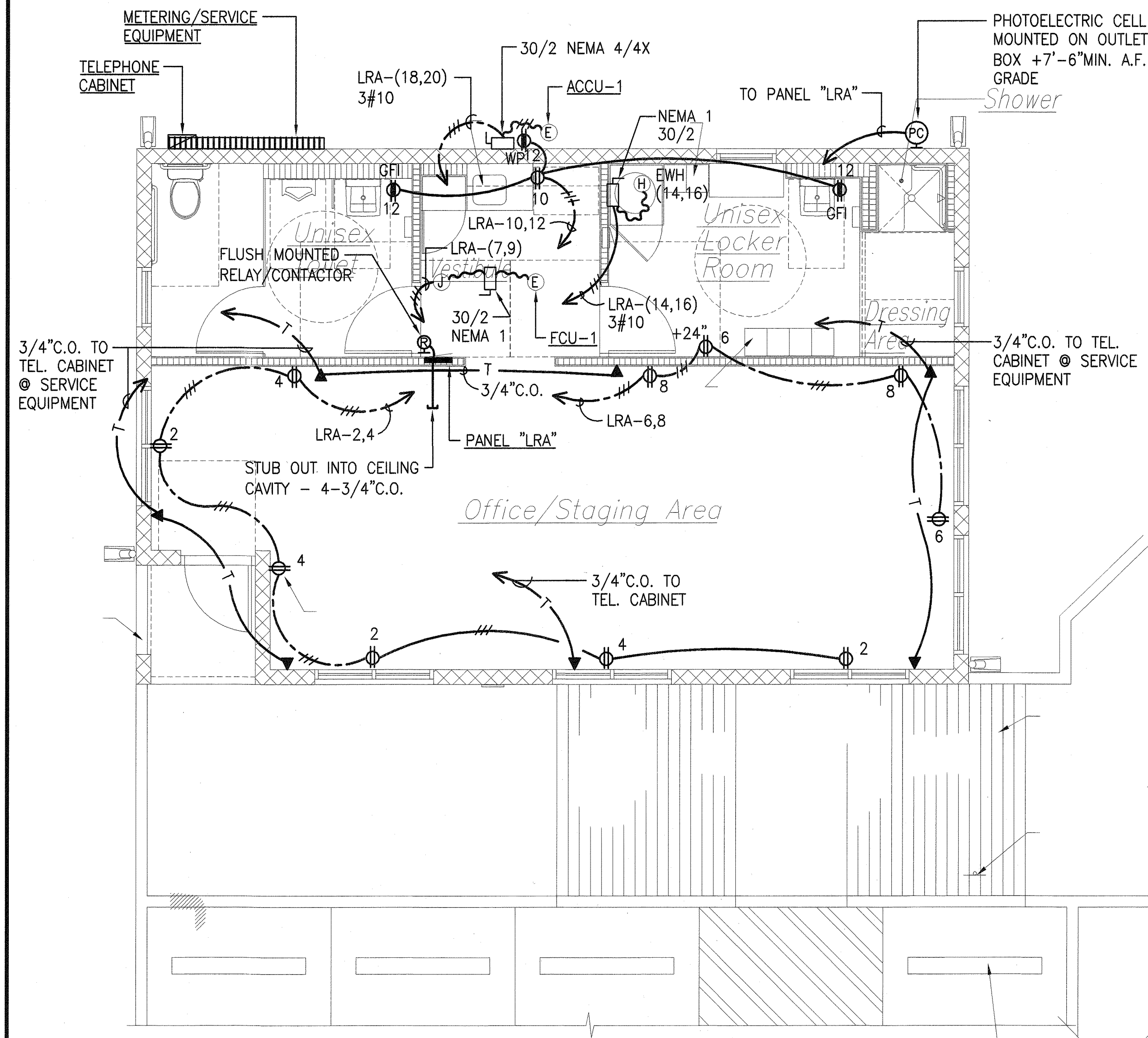
ELECTRICAL SITE PLAN

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

A
E1.00 E1.00

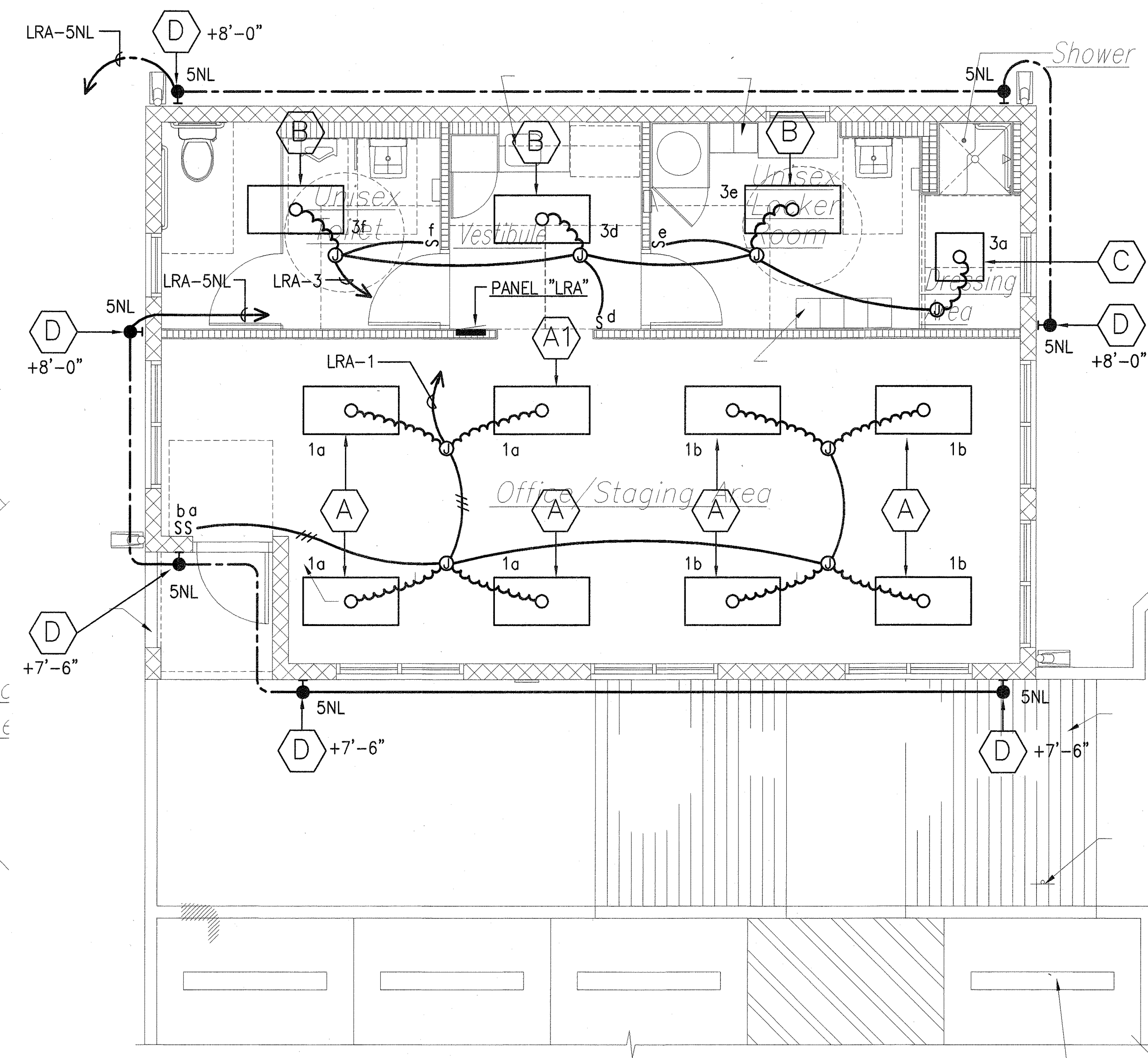
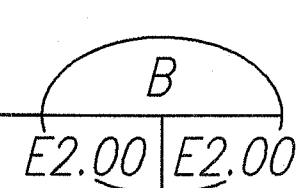
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-12-00	2004	79	82



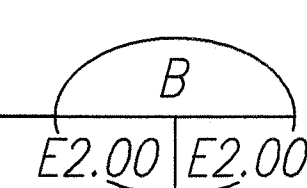
ELECTRICAL PLAN — OFFICE BUILDING

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



LIGHTING PLAN — OFFICE BUILDING

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



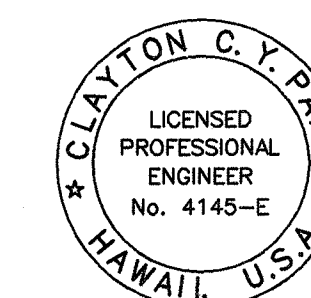
SURVEY DRAWN BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

ACCU-1

COMPRESSOR FAN 16 RLA, 208V, 1Ø, 60Hz
1/4HP, 208V, 1Ø, 60Hz

FCU-1

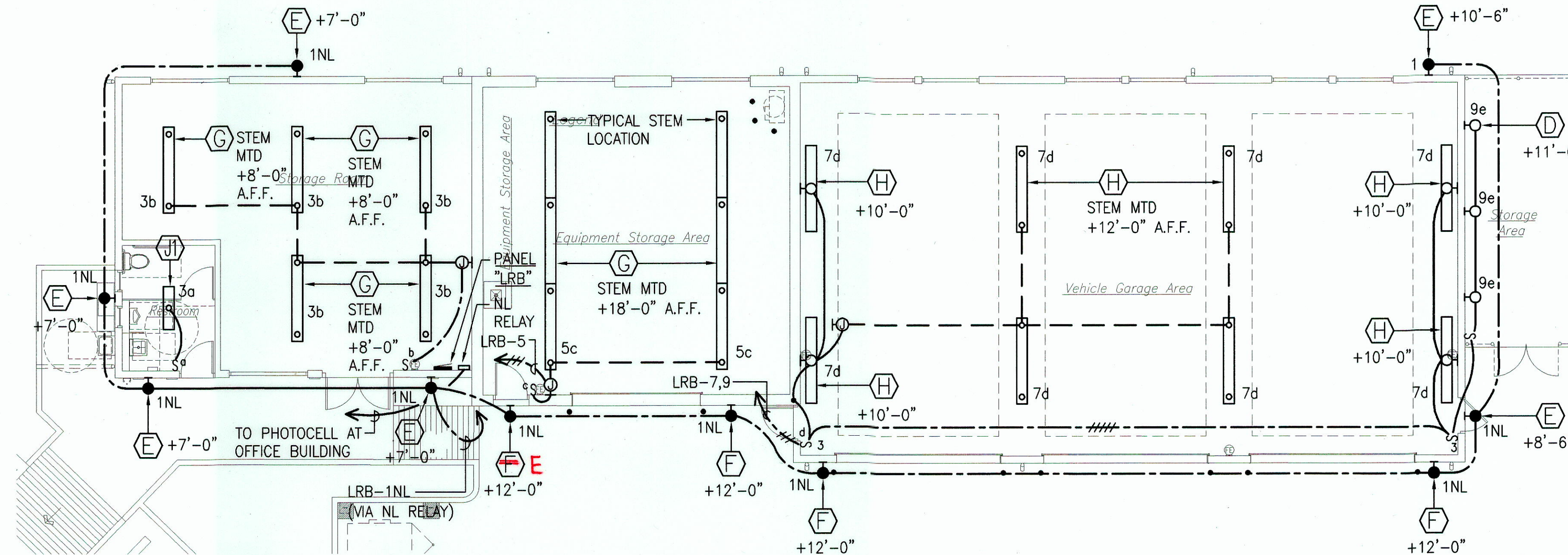
1/2HP, 208V, 1Ø, 60Hz



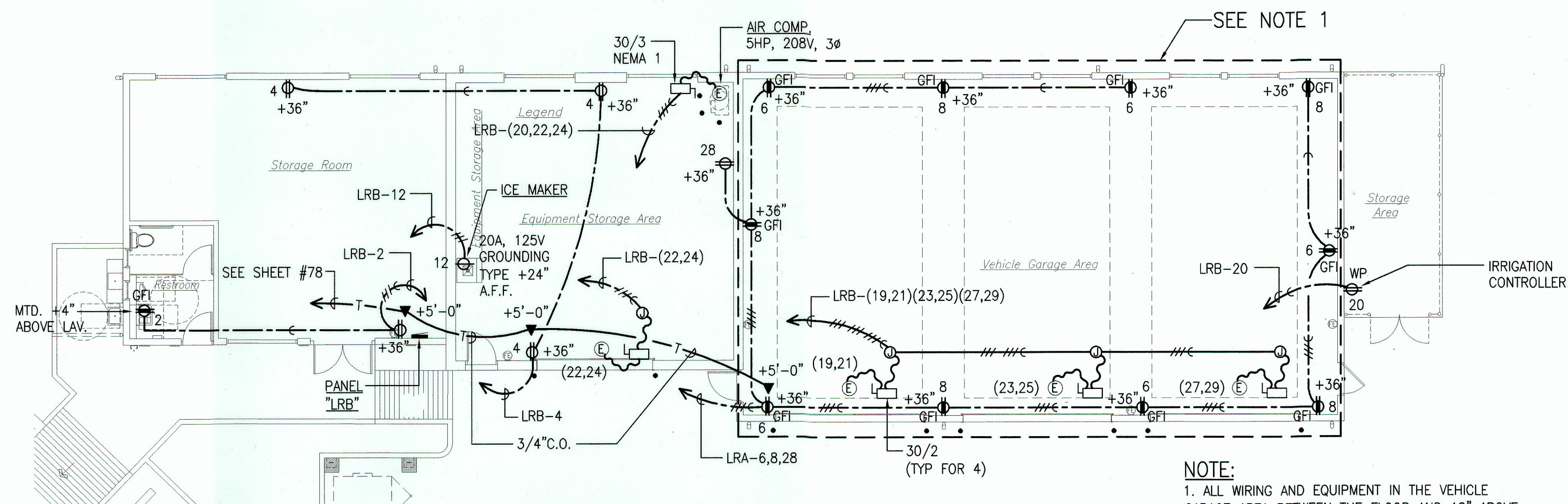
THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
Clayton C. Pang
ELECTRICAL ENGINEER

12/15/08	This sheet replaces the original sheet <u>4</u> DPP/DLU Comments dated 2/22/08
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION OFFICE BUILDING ELEC. & LIGHTING PLANS <u>WAIHAWA BASEYARD IMPROVMENTS</u> Project No. HWY-0-12-00 Scale: AS SHOWN Date: JAN. 2003 SHEET No. E2.00 OF 82 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-12-00	2004	80	82



LIGHTING PLAN – GARAGE BUILDING
Scale: 1/8"=1'-0" A
E3.00 E3.00



ELECTRICAL PLAN – GARAGE BUILDING
Scale: 1/8"=1'-0" B
E3.00 E3.00

REVISED ORDINANCES OF HONOLULU
CHAPTER 32
BUILDING ENERGY EFFICIENCY STANDARDS

THE BUILDING ENERGY EFFICIENCY STANDARDS HAVE BEEN REVIEWED AND TO THE BEST OF MY KNOWLEDGE THIS DESIGN SUBSTANTIALLY CONFORMS TO ELECTRICAL AND LIGHTING REQUIREMENTS OF SECTIONS 5.3 AND 6.3.

Clayton C. Y. Pang
Signature
04/30/08
Exp. Date

Clayton C. Y. Pang, P. E.
Name (Print)

Principal
Title

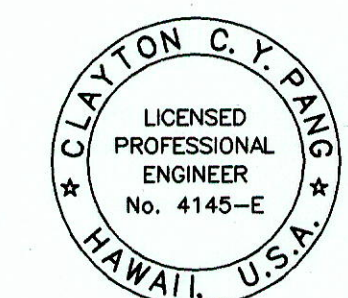
BUILDING ENERGY EFFICIENCY STANDARDS CALCULATIONS			
BUILDING TYPE	AREA	BUILDING	
F SERVICE ESTABLISHMENT	5596 sq ft	DATE	2/4/08
NA	0 sq ft	YEAR	1993
NA	0 sq ft		
	5596 Gross sq ft		
BUILDING DESIGN			
Interior Lighting Power	8900 W	1.590 W/Gross sq ft	
Exterior Lighting Power	0 W		
***** PASSES *****			
PREScriptive CRITERIA			
Unit Lighting Power Allowance		2.03 W/Gross sq ft	
Interior Lighting Power Allowance		11359 W	
SYSTEM PERFORMANCE CRITERIA			
Unit Power Density		NA W/Gross sq ft	
Interior Lighting Power Allowance		NA W	
EXTERIOR LIGHTING CRITERIA			
Exterior Lighting Power Allowance		NA W	
***** PASSES *****			

BUILDING ENERGY EFFICIENCY STANDARDS			
EXTERIOR LIGHTING POWER ALLOWANCE	NA	INSTALLED	NA
INTERIOR LIGHTING POWER ALLOWANCE	11359 W	INSTALLED	8900 W
METHOD USED:	PREScriptive ☒	SYSTEM PERFORMANCE	☐
(CHECK ONE)			
CALCULATIONS:	SEPARATE ☐	ON DRAWINGS	☒
(CHECK ONE)			

PANEL "LRC"		120/208 VOLTS	3ø, 4WSN			
3P70A MAIN BKR.		BRANCH BKR I.C.	10,000 AMPS			
FLUSH, 20" WIDE CABINET, INDUSTRIAL-BOLTED		NEMA 3R				
CKT NO.	BKR	L O A D	VA			WIRE
			A	B	C	
1,3,5	3P40A	PRESSURE WASHER	2500			8
2,4,6	3P20A	WATER RECYCLE EQUIP	1000			12
				2500		8
				1000		12
					2500	8
					1000	12
7	1P20A	LIGHTS	500			12
8	1P20A	SPARE				
9	1P20A	RECEP		1000		12
10	1P20A	SPARE				
11	1P	P F B				
12						
13						
14						
15						
16						
17						
18						
T O T A L			4000	4500	3500	

NOTE:
1. ALL WIRING AND EQUIPMENT IN THE VEHICLE GARAGE AREA BETWEEN THE FLOOR AND 18" ABOVE THE FLOOR SHALL COMPLY NEC ARTICLE 511.

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	XX
NOTE BOOK	XX
No.	



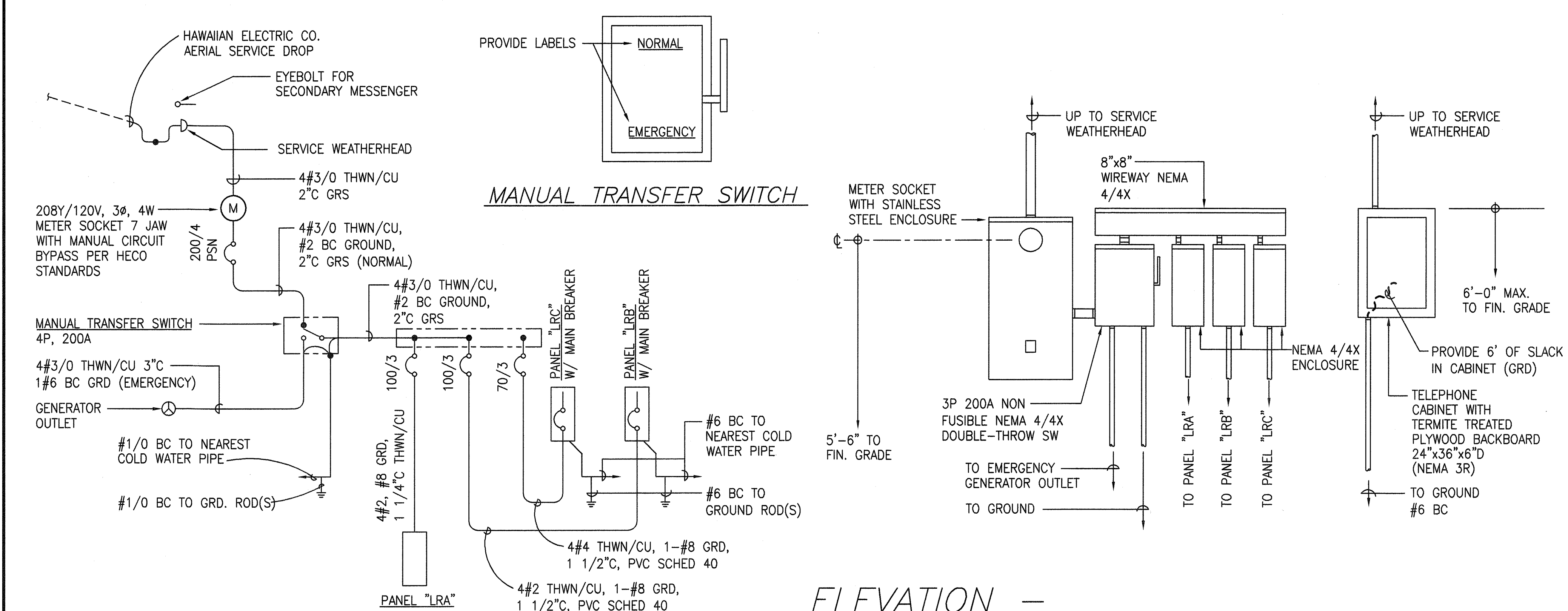
THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
Clayton C. Y. Pang
ELECTRICIAN HAWAII, INC.

12/15/08	This sheet replaces the original sheet 4 DPP/DLU Comments dated 2/22/08
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
ELECTRICAL & LIGHTING GARAGE PLANS	
WAHIAWA BASEYARD IMPROVEMENTS	
Project No. HWY-0-12-00	
Scale: AS NOTED	Date: JAN. 2003
SHEET No. E3.00 OF 82 SHEETS	

"AS-BUILT"

C.O.80

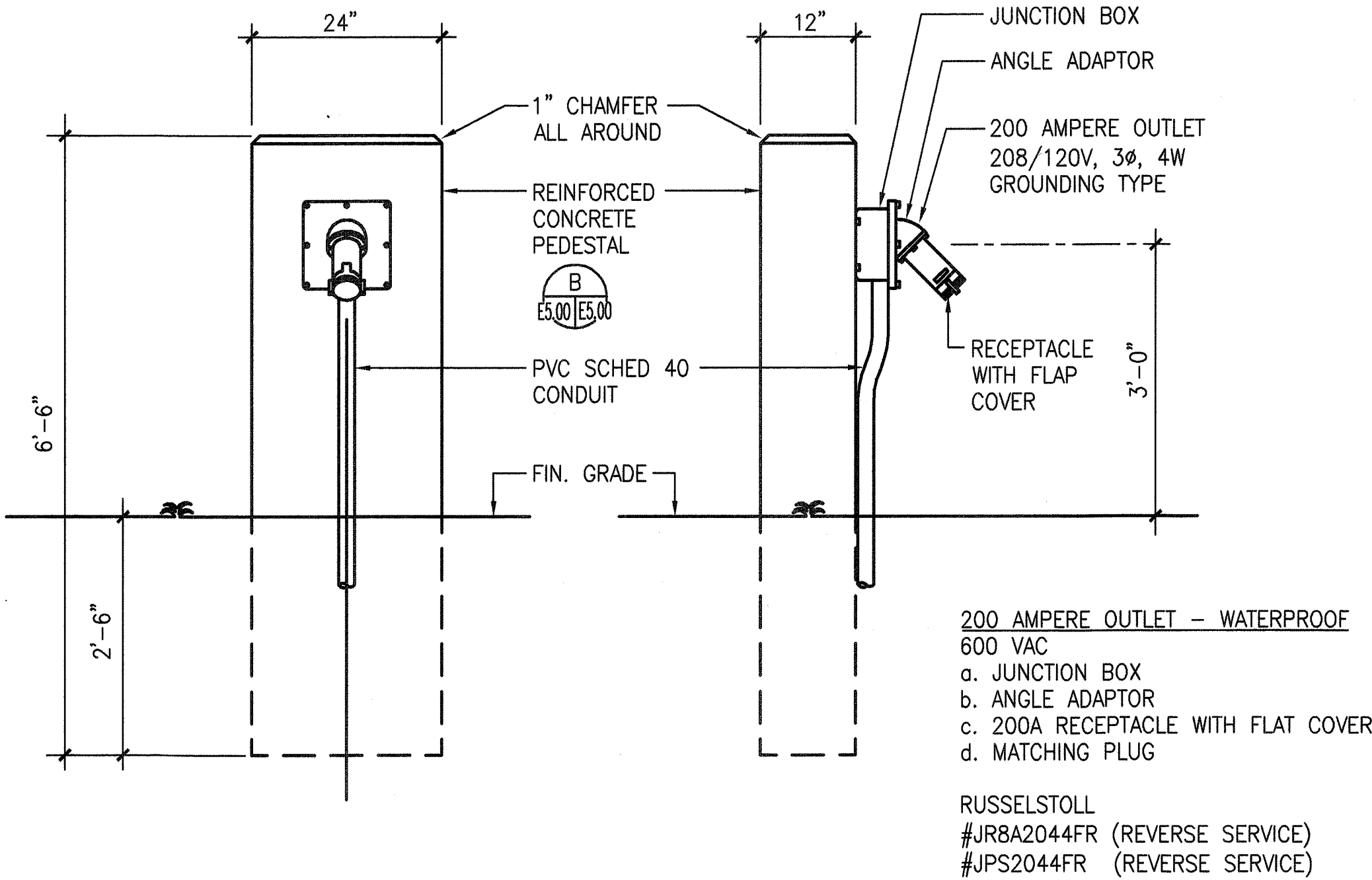
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-12-00	2004	82	82



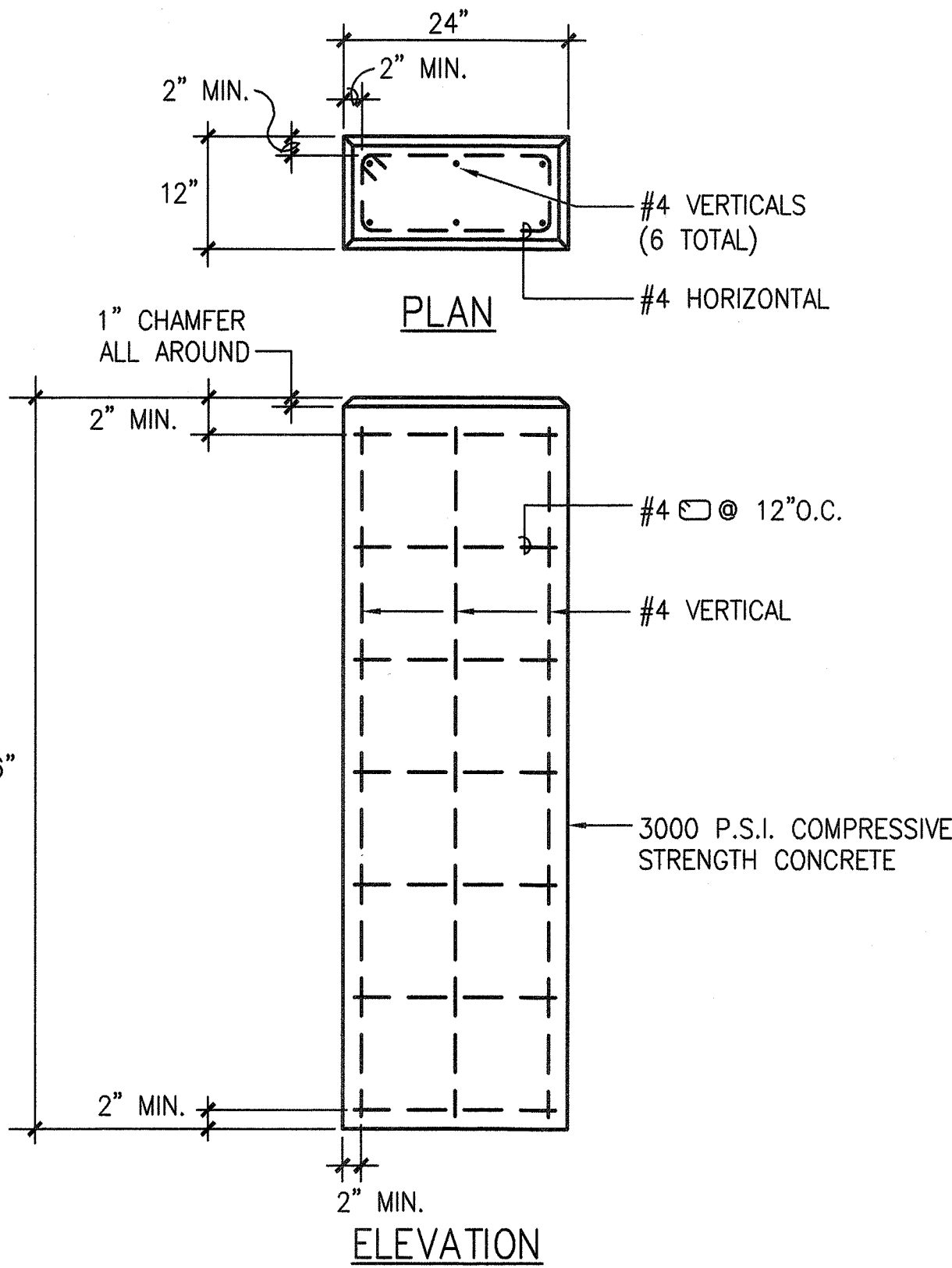
ONE LINE DIAGRAM
 120/208 VOLTS, 3 PHASE, 4 WIRE, SERVICE
 TRANSFER TO EMERGENCY MODE AFTER GENERATOR IS ON LINE AND RUNNING.

ELEVATION -
 METERING/SERVICE EQUIPMENT
 Not to Scale

PANEL "LRA" (OFFICE BUILDING)														
VOLTS: 208/120V		PHASE: 3		A.I.C. RATING: 10,000 MIN								100/3 MAIN BREAKER		
MOUNTING: FLUSH		WIRE: 4										BUSING: 100A		
LOAD		* A-VA	B-VA	C-VA	BKR	CT	CT BKR	A-VA	B-VA	C-VA	* LOAD			
L		L	1200			20/1	1	2	20/1	1200		R	R	
L		L		1000		20/1	3	4	20/1		1200	R	R	
* NL		L				1000	20/1	5	6	20/1		1200	R	R
FCU-1		N	560			20/2	7	8	20/1	1200		R	R	
SPARE		N		560			9	10	20/1		800	R	R-REFRIG	
PFB		N			1000	20/1	11	12	20/1		1200	R	R-TOILET	
PFB							13	14	30/2	2500		N	EWB	
PFB							15	16			2500		N	
PFB							17	18	30/2		1664	N	ACCU-1	
PFB							19	20		1664		N		
PFB							21	22					PFB	
PFB							23	24					PFB	



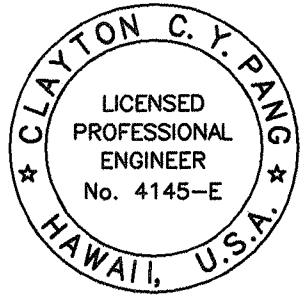
DETAIL - GENERATOR OUTLET PEDESTAL
 SCALE: 3/4"=1'-0"



DETAIL - REINFORCING FOR
 GENERATOR OUTLET PEDESTAL
 SCALE: 3/4"=1'-0"

PANEL "LRB"														
VOLTS: 208/120V		PHASE: 3		A.I.C. RATING: 10,000 MIN						100/3 MAIN BREAKER				
MOUNTING: SURFACE		WIRE: 4								BUSING: 100A				
LOAD		A-VA	B-VA	C-VA	BKR	CT	CT BKR	A-VA	B-VA	C-VA	* LOAD			
* NL	L	1000			20/1	1	2	20/1	1200		R RECEPTACLES			
L	L		1000		20/1	3	4	20/1		1200	R RECEPTACLES			
L	L				1000	20/1	5	6	20/1		1200	R RECEPTACLES		
L	L	1700			20/1	7	8	20/1	1200		R RECEPTACLES			
L	N		500		20/1	9	10	20/1			N SPARE			
SPARE	N				20/1	11	12	20/1			1000	N ICE MAKER		
SPARE	N	1000			20/1	13	14	20/1			N SPARE			
SPARE	N		1000		20/1	15	16	20/1			N WATER RECYCLING EQUIP			
SPARE	N				1000	20/1	17	18	20/1		N SPARE			
ROLL-UP DOOR	N	750			20/2	19	20	20/1	100		N IRRIGATION CONTROL			
ROLL-UP DOOR	N		750			21	22	20/1		750	N ROLL UP DOOR			
ROLL-UP DOOR	N	750		750	20/2	23	24	20/1			1000	N SPARE		
ROLL-UP DOOR	N		750		20/2	25	26	20/1			N SPARE			
ROLL-UP DOOR	N			750	20/2	27	28	20/1			N SPARE			
SPARE	N			750	20/2	29	30	20/1			N SPARE			
SPARE	N	1000			20/1	31	32	20/1	1000		N SPARE			
SPARE	N		1000		20/1	33	34	20/1		1000	N SPARE			
SPARE	N			1000	20/1	35	36	20/1			1000	N SPARE		
PHASE TOTALS:		9700	7950	8700	26350 = TOTAL CONNECTED LOAD, VA (FOR DEMAND LOAD SEE BELOW)									
PHASE AMPERES:		80.8	66.3	72.5										
*DEMAND LOAD CALCULATION:														
L=LIGHTING LOADS:		1.25	X	5200	=	6500	VA	NOTES: * PHOTO ELEC. CELL CONTROLLED GFCI BREAKER REQUIRED FOR CIRCUITS 26, 28, 30						
C=CONTINUOUS LOADS, OTHER:		1.25	X	0	=	0	VA							
M=MOTOR LOADS (INCL LGST):		1.00	X	0	=	0	VA							
LARGEST, VA:		0.25	X	0	=	0	VA							
R=RECEPTACLES: 1ST 10K:		1.00	X	4800	=	4800	VA							
BALANCE:		0.50	X	0	=	0	VA							
K=KITCHEN LOADS: QTY:		0	1.00	X	0	=	0	VA						
N=NONCONTINUOUS LOADS, OTHER:		1.00	X	16350	=	16350	VA							
(P=PANEL, INCL IN ABOVE)				TOTAL N.E.C. DEMAND LOAD		= 27850 VA = 76.8 AMPERES								

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	XX
NOTE BOOK	
No.	



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 OR UNDER MY SUPERVISION
 ELECTECH HAWAII, INC.

12/15/08		This sheet replaces the original sheet Δ DPP/DLU Comments dated 2/22/08	
DATE		REVISION	
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION DETAILS WAHIAWA BASEYARD IMPROVMENTS Project No. HWY-0-12-00 Scale: AS SHOWN Date: JAN. 2003 SHEET No. E5.00 OF 82 SHEETS			