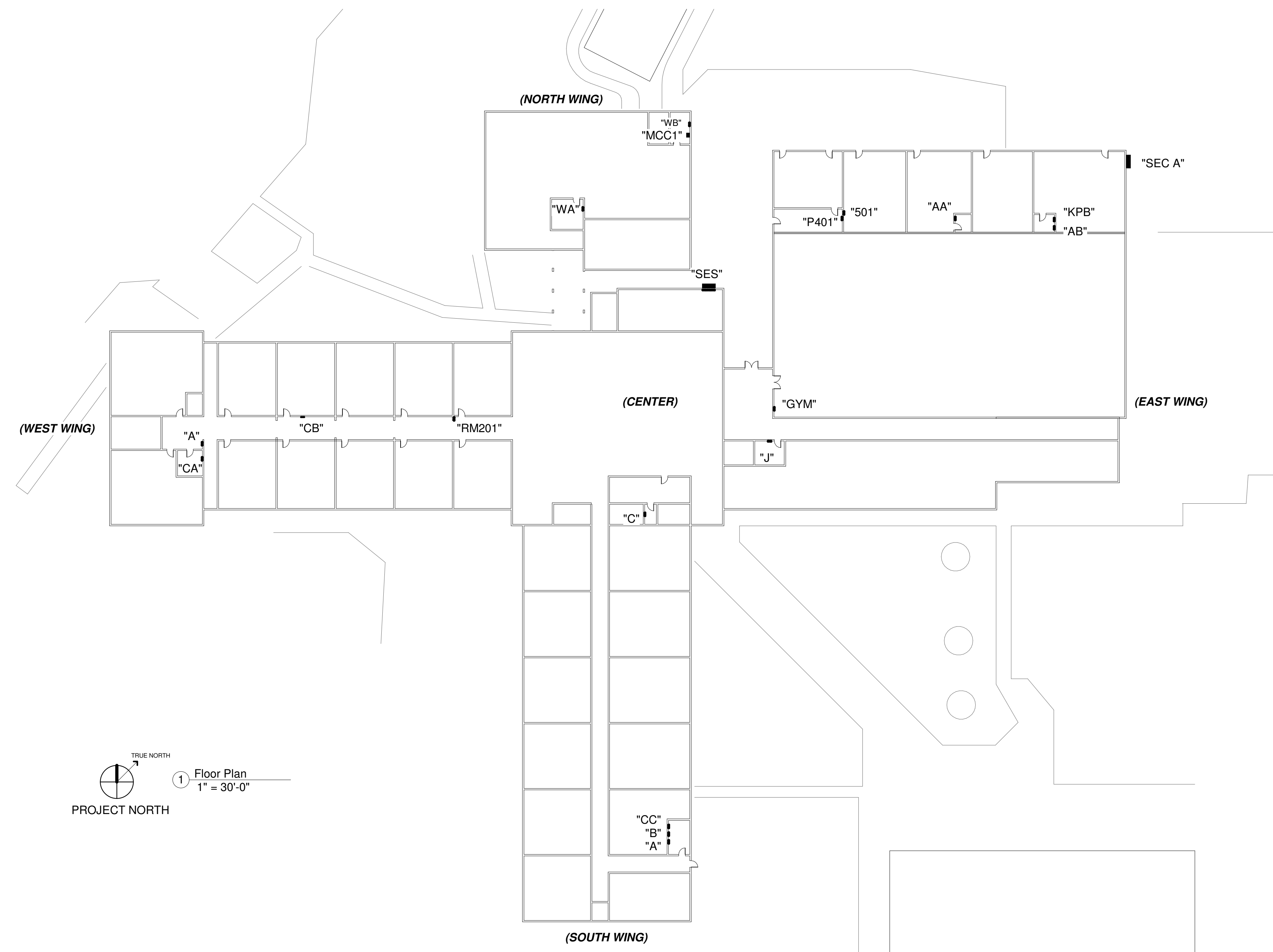


SHOW LOW UNIFIED SCHOOL DISTRICT

CORRECT POWER DEFICIENCY SHOW LOW JUNIOR HIGH SCHOOL 500 W OLD LINDEN RD SHOW LOW, AZ 85901

2020



SFB CONTACT: STEPHANIE VASSAR
(602) 542-6144

ELECTRICAL CONSULTANT: DAVID HARTWIG
HARTWIG ENGINEERING
(480) 643-0432

ARCHITECT: ROBERT POLCAR ARCHITECTS
(602) 363-4096

SCHOOL CONTACT: SHAWN WEST
(928) 910-2274

SFB PROJECT #: 090210225-1001-025-BRG

SHEET INDEX

A0	PROJECT INFORMATION
E1	FLOOR PLAN
E2	ONE-LINE DIAGRAM
E3	PANEL SCHEDULES

PROJECT SCOPE:

THE SCOPE OF THIS PROJECT IS TO PROVIDE ADDITIONAL POWERED DUPLEX RECEPTACLES WITHIN THE INDICATED CLASSROOMS TO CHARGE BATTERY POWERED ELECTRONIC DEVICES.

SEVERAL NEW PANELBOARDS WILL NEED TO BE INSTALLED ALONG WITH NEW FEEDERS FROM EXISTING DISTRIBUTION PANELS.

NEW BRANCH CIRCUITS WILL NEED TO BE INSTALLED BETWEEN THE PANELBOARDS AND THE NEW DUPLEX RECEPTACLES. LOCATIONS ON THE PLANS OF THE NEW RECEPTACLES WITHIN THE CLASSROOMS ARE DIAGRAMMATIC. THE EXACT LOCATION WITHIN THE CLASSROOM WILL BE DETERMINED BY THE DISTRICT REPRESENTATIVE IN THE FIELD.

ANY SURFACE, WALL, FLOOR, CEILING, ETC. DISTURBED BY THE WORK WILL NEED TO BE PATCHED/PAINTED/RESTORED TO ITS ORIGINAL CONDITION.

SEE ELECTRICAL PLANS FOR DETAILED DESCRIPTION OF THE WORK.

WORK WITHIN THE CLASSROOMS AND HALLWAYS, AND ANY POWER OUTAGES, WILL NEED TO TAKE PLACE OFF HOURS OR ON WEEKENDS, OR OVER SCHEDULED SCHOOL BREAKS.

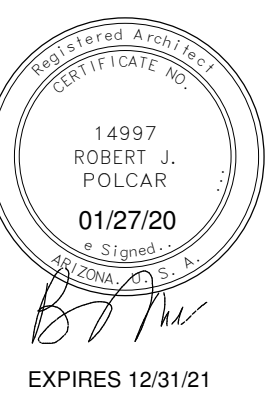
CONTRACTOR SHALL PROVIDE THEIR OWN TRAILER/OFFICE SPACE, RESTROOM FACILITIES, AND DUMPSTER. ALL WORK AREAS SHALL BE CLEANED PRIOR TO THE START OF EACH DAY'S CLASSROOM USE.

A FULL SET OF AS-BUILT PLANS MUST BE MAINTAINED ON SITE AND TURNED OVER TO THE SCHOOL DISTRICT AT THE COMPLETION OF THE PROJECT.



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SEDONA, ARIZONA

SHOW LOW JUNIOR HIGH SCHOOL
CORRECT POWER DEFICIENCY
500 W OLD LINDEN RD, SHOW LOW, AZ 85901



EXPIRES 12/31/21

Revision	Revision Date
Project number	18030
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Drawn by	CW
Checked by	BP
Sheet Size	ARCH D
Sheet Name	PROJECT INFORMATION

A0

SHOW LOW UNIFIED SCHOOL DISTRICT

CLASSROOMS POWER MODIFICATIONS

SHOW LOW JUNIOR HIGH SCHOOL

500 W OLD LINDEN RD
SHOW LOW, AZ 85901

2019

General Notes

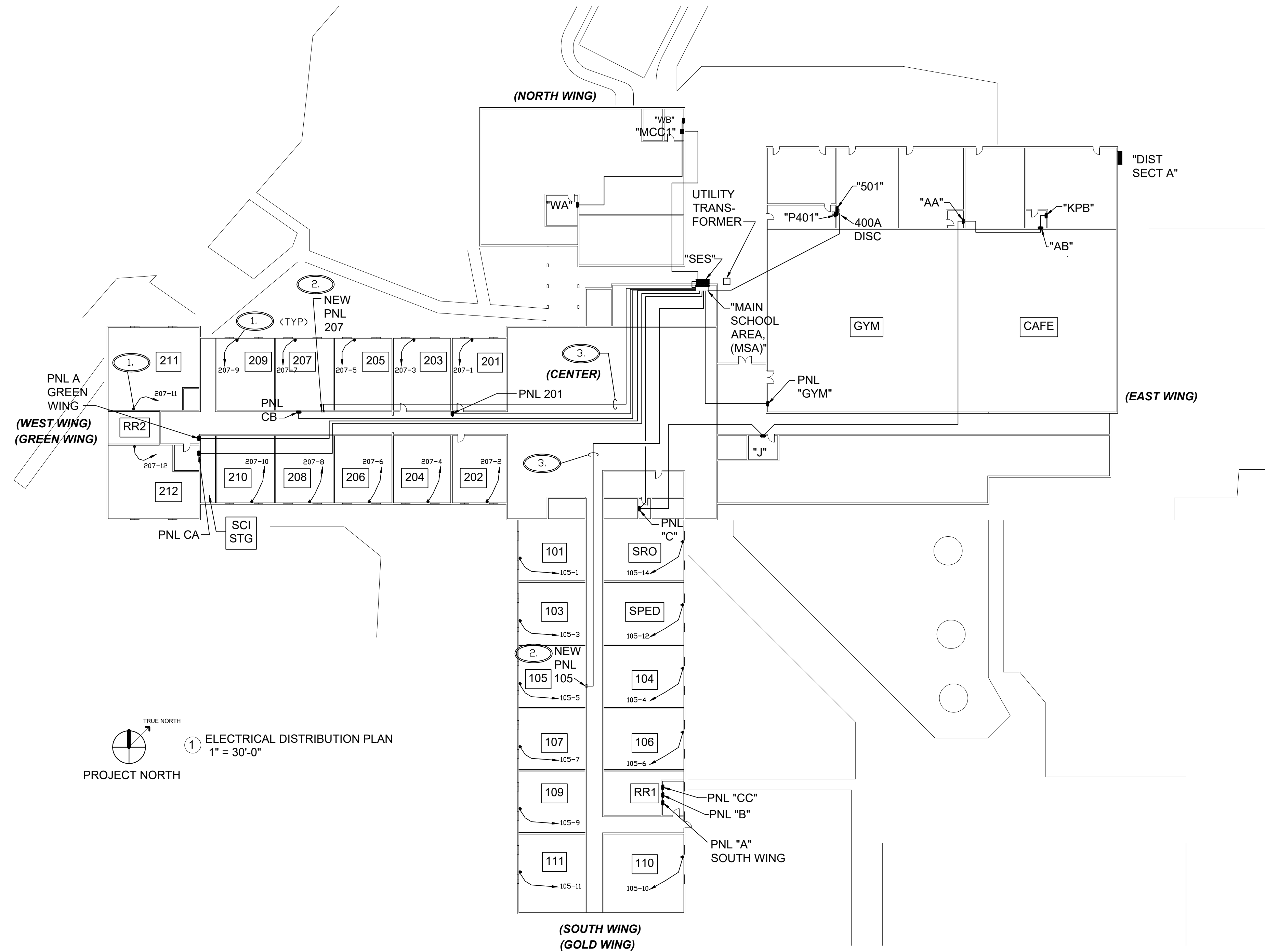
1. COMPLY WITH STATE AND LOCAL CODES. OBTAIN ALL NECESSARY PERMITS. ALL ELECTRICAL EQUIPMENT TO BE LISTED. COORDINATE WITH UTILITY COMPANY.
2. INSTALL ALL WIRING IN CONDUIT, EXCEPT AS NOTED. PROVIDE PLASTIC THROATED CONDUIT FITTINGS. PROVIDE GROUND WIRE IN ALL CONDUITS. ALL WIRING COPPER, INSULATION TYPE THHN/THWN INTERIOR, XHHW-2 EXTERIOR MINIMUM.
3. COORDINATE ELECTRICAL WORK WITH OTHER TRADES. INSTALL WIRING PER MANUFACTURERS REQUIREMENTS.
4. DESIGNED PER 2011 NEC.

RPA

ROBERT POLCAR ARCHITECTS, INC
(480) 975-9768 (602) 363-4096
SCOTTSDALE, ARIZONA

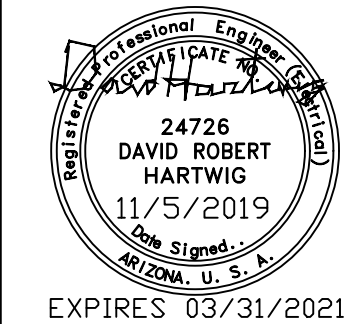
ELECTRICAL NOTES

1. PROVIDE NEW DOUBLE DUPLEX RECEPTACLES AS NOTED. IN EXTERIOR WALLS, USE SURFACE METAL RACEWAY AND SURFACE MOUNTED METAL RECEPTACLES BOXES, USING "WIREMOLD" OR SIMILAR. IN INTERIOR WALLS, USE CONCEALED CONDUIT AND FLUSH RECEPTACLES. TRANSITION TO CONCEALED CONDUIT AS SOON AS POSSIBLE.
2. PROVIDE NEW RECESSED (FLUSH) PANELBOARDS OPENING INTO HALLWAYS. CONCEAL FEEDER CONDUIT AND BRANCH CIRCUIT CONDUITS. TYPE MC CABLE WITH INDIVIDUAL GROUND WIRE MAY BE USED FOR CONCEALED BRANCH CIRCUIT WIRING IN INACCESSIBLE SPACES.
3. PROVIDE NEW FEEDERS FROM DISTRIBUTION PANEL "MSA" IN BOILER ROOM TO NEW PANELBOARDS. ROUTING SHOWN IS DIAGRAMMATIC ONLY. ROUTE CONCEALED IN CEILINGS IN MAIN SCHOOL AREAS.



1 ELECTRICAL DISTRIBUTION PLAN
1" = 30'-0"
PROJECT NORTH

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480-643-0432
david@hartwigengineering.com



Revision Revision Date

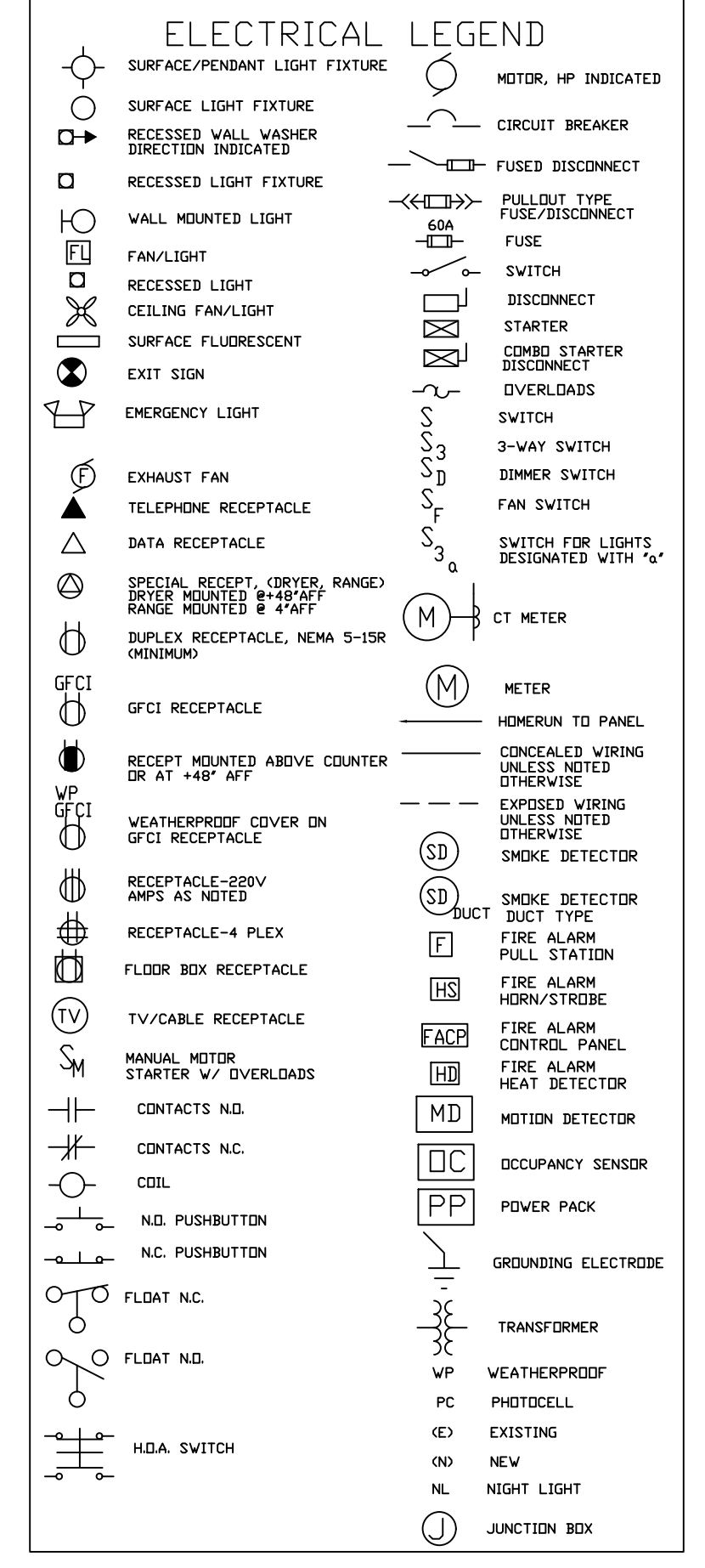
Project number	Project Number
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Checked by	DRH
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SHOW LOW JUNIOR HIGH SCHOOL
CLASSROOMS POWER MODIFICATIONS
500 W OLD LINDEN RD, SHOW LOW, AZ 85901

FAULT CALCULATIONS FOR THREE PHASE
 FAULT F1 PER UTILITY COMPANY: 56,194 ISC

FAULT	PANEL	ISC	DIST	V	CABLE	# OF	C FACTOR	KVA	F	M	ISC
F2	MSA	56,194	10	208	2-300	2	18177	0.13	0.89		49,792
F3	DSA	56,194	220	208	2-300	2	18177	2.83	0.26		14,678
F4	MCC-1	56,194	120	208	1-500	1	22185	2.53	0.28		15,928
F5	CC	49,792	300	208	1-3/0	1	12844	9.67	0.09		4,865
F6	105	49,792	255	208	#2	1	5907	17.88	0.05		2,638
F7	207	49,792	254	208	#2	1	5907	17.81	0.05		2,647



SCOPE OF WORK

1. PROVIDE NEW 100/3 FUSED DISCONNECTS AND 100A DUAL ELEMENT FUSES IN EXISTING SWITCHGEAR. PROVIDE ENGRAVED LABELS: "PANEL 105", OR "PANEL 207".
2. PROVIDE NEW CONDUIT AND WIRE FROM NEW DISCONNECTS TO NEW PANELBOARDS.
3. PER LOAD STUDY, EXISTING PEAK LOAD IS 90A. NEW LOADS ARE 39A + 39A. TOTAL EXISTING AND NEW PEAK LOAD IS 168A.
4. PROVIDE NEW PANELBOARD AS SHOWN ON PLANS.
5. PROVIDE ENGRAVED LABEL FOR DISTRIBUTION PANEL "MAIN SCHOOL AREA-MSA" WITH 1" HIGH WHITE LETTERS ON BLACK BACKGROUND.

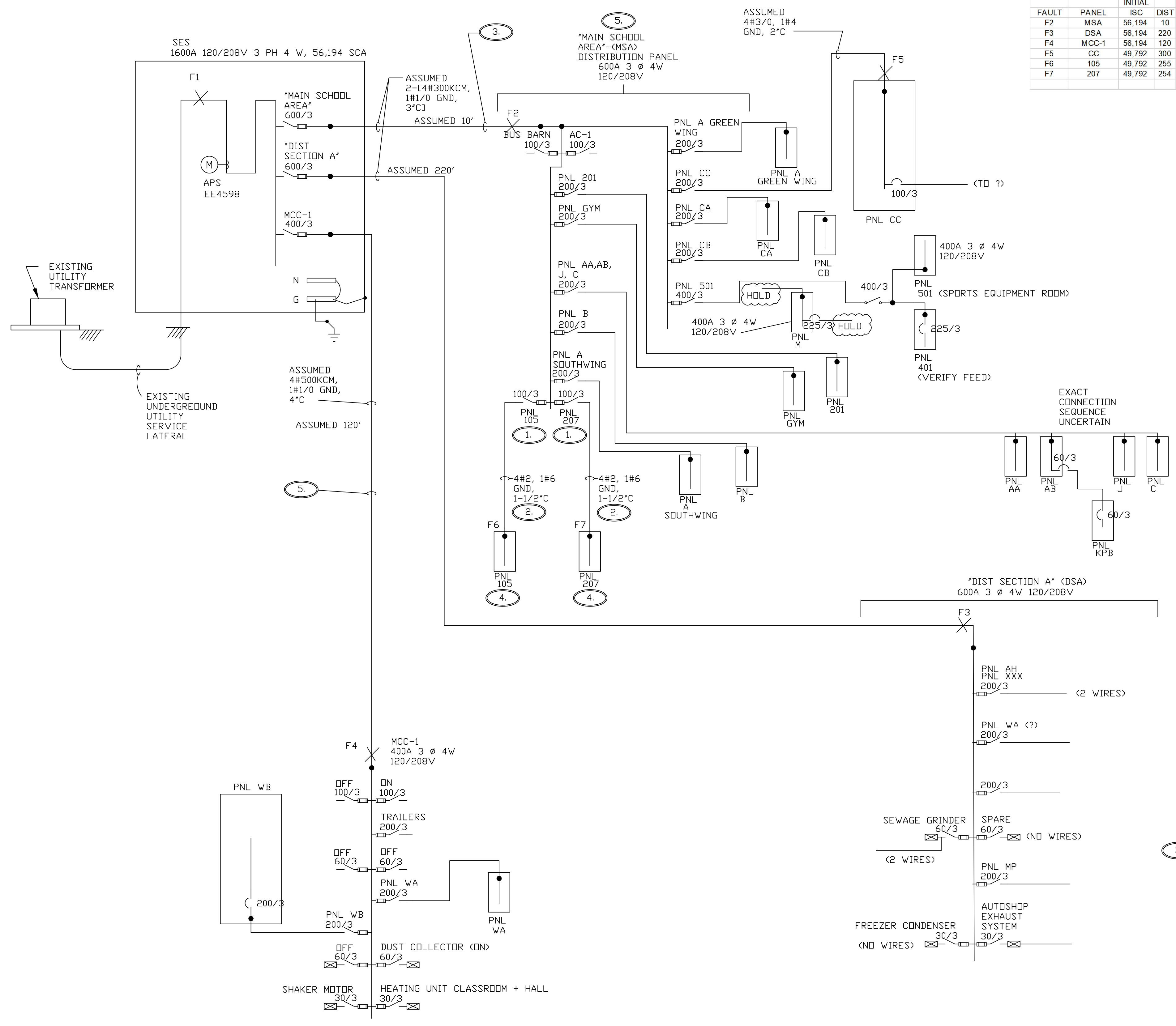
- General Notes**
1. COMPLY WITH STATE AND LOCAL CODES. OBTAIN ALL NECESSARY PERMITS. ALL ELECTRICAL EQUIPMENT TO BE LISTED. COORDINATE WITH UTILITY COMPANY.
 2. INSTALL ALL WIRING IN CONDUIT, EXCEPT AS NOTED. PROVIDE PLASTIC THROATED CONDUIT FITTINGS. PROVIDE GROUND WIRE IN ALL CONDUITS. ALL WIRING COPPER, INSULATION TYPE THHN/THWN INTERIOR, XHHW-2 EXTERIOR MINIMUM.
 3. COORDINATE ELECTRICAL WORK WITH OTHER TRADES. INSTALL WIRING PER MANUFACTURERS REQUIREMENTS.
 4. DESIGNED PER 2011 NEC.

VOLTAGE DROPS

PANEL	AMPS	DIST	CABLE	FACTOR	V DROP	%VDROP	CUM VD	CUM%
105	39	255	#2	0.000354	3.52	1.47	3.52	1.47
207	39	254	#2	0.000354	3.51	1.46	3.51	1.46

LOAD CALCULATIONS

PANEL	FUSE OR SERVICE SIZE	STUDY OR ASSUMED VALUES	APPARENT SPARE CAPACITY
MSA	600	90 A LOAD STUDY	510 A
DSA	600	480 A ASSUMED 80%	120 A
MCC-1	400	210 A LOAD STUDY	190 A
CC	200	60 A LOAD STUDY	140 A
SES	1600	780 A SUM OF MSA, DSA AND MCC-1	820 A

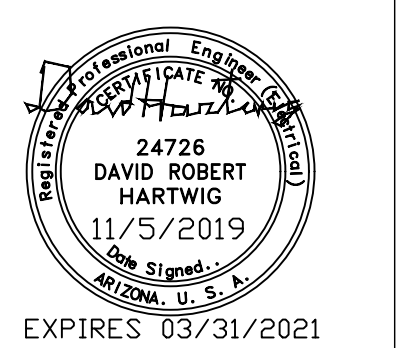


A EXISTING ONE-LINE DIAGRAM WITH NEW ADDITIONS

NO SCALE

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**E2
PH2**



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PANELBOARD SCHEDULE		PANEL 105		LOCATION HALLWAY	
MINS: 200A, MAIN LINES ONLY		LOAD VA		MOUNTING RECESSED	
VOLTAGE: 120/208V, 3 PH, 4W		Phase		MIN.AIC: 10,000	
L-N= 120 L-L 208					
TYPE NEMA 1					
CIR	CON	CIR		CIR	
BKR	NUM	TIN	A	B	C
ROOM 101 RECEP	20/1	1	1,950		
			1,950	2	20/1 ROOM SRO RECEP
ROOM 103 RECEP	20/1	3		1,950	
				1,950	4
ROOM 105 RECEP	20/1	5			20/1 ROOM SPED RECEP
				1,950	6
ROOM 107 RECEP	20/1	7	360		20/1 ROOM 106 RECEP
			360	8	20/1 ROOM 108 RECEP
ROOM 109 RECEP	20/1	9		360	
				360	10
ROOM 111 RECEP	20/1	11			20/1 ROOM 110 RECEP
				360	12
					13
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LOAD/PHASE	CONTINUOUS (C)	-	-	-	HIGH PHASE AMPERES:
	NON-CONTINUOUS	4,620	4,620	4,620	39
TOTAL LOAD	CONTINUOUS (C)	-	-	-	AMPERES FROM CODE VA:
	NON-CONTINUOUS	13,500	-	-	37
	25% OF CONT LOAD	-	-	-	
	CODE	-	13,500	-	

1. 2.

PANELBOARD SCHEDULE		PANEL 207		LOCATION HALLWAY	
MINS: 200A, MAIN LINES ONLY		LOAD VA		MOUNTING RECESSED	
VOLTAGE: 120/208V, 3 PH, 4W		Phase		MIN.AIC: 10,000	
L-N= 120 L-L 208					
TYPE NEMA 1					
CIR	CON	CIR		CIR	
BKR	NUM	TIN	A	B	C
ROOM 201 RECEP	20/1	1	1,950		
			1,950	2	20/1 ROOM 202 RECEP
ROOM 203 RECEP	20/1	3		1,950	
				1,950	4
ROOM 205 RECEP	20/1	5			20/1 ROOM 204 RECEP
				1,950	6
ROOM 207 RECEP	20/1	7	360		20/1 ROOM 206 RECEP
			360	8	20/1 ROOM 208 RECEP
ROOM 209 RECEP	20/1	9		360	
				360	10
ROOM 211 RECEP	20/1	11			20/1 ROOM 210 RECEP
				360	12
					13
					14
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					42
LOAD/PHASE	CONTINUOUS (C)	-	-	-	HIGH PHASE AMPERES:
	NON-CONTINUOUS	4,620	4,620	4,620	39
TOTAL LOAD	CONTINUOUS (C)	-	-	-	AMPERES FROM CODE VA:
	NON-CONTINUOUS	13,860	-	-	38
	25% OF CONT LOAD	-	-	-	
	CODE	-	13,860	-	

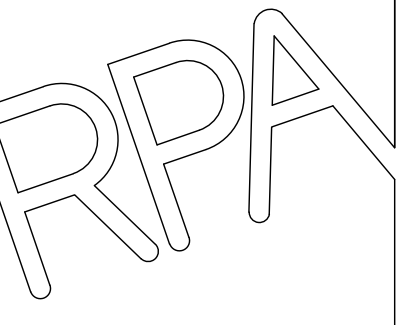
LOAD CALCULATIONS FOR CHARGING CART:

WORST CASE CHROMEBOOK CHARGING POWER:	65 VA
NUMBER OF CHROMEBOOKS ON CHARGING CART:	30
LOAD ON CART	1950 VA
AMPERES ON 120V CIRCUIT	16.25 A
NUMBER OF 20A CIRCUITS REQUIRED:	0.813 OR 1

- General Notes
- COMPLY WITH STATE AND LOCAL CODES. OBTAIN ALL NECESSARY PERMITS. ALL ELECTRICAL EQUIPMENT TO BE LISTED. COORDINATE WITH UTILITY COMPANY.
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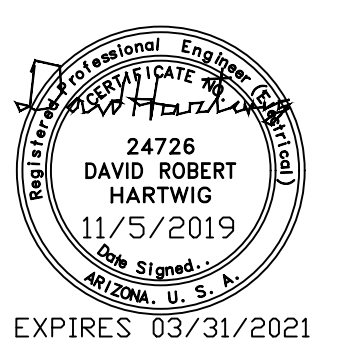
SCOPE OF WORK

- PROVIDE NEW PANELBOARDS RECESSED INTO HALLWAYS AT LOCATION SHOWN ON PLANS. PANELBOARDS TO BE 42 POLE, 200A, 208/120V 3 PHASE 4 WIRE, WITH FLUSH MOUNTING. PROVIDE ENGRAVED LABEL "FED FROM MSA LOCATED IN BOILER ROOM" PROVIDE CIRCUIT DIRECTORY.
- PER SCHOOL PERSONNEL, THERE WILL BE A MAXIMUM OF SIX COMPUTER CHARGING CARTS CHARGING AT ANY TIME.



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SHOW LOW JUNIOR HIGH SCHOOL
 CORRECT POWER DEFICIENCY
 500 W OLD LINDEN RD, SHOW LOW, AZ 85901



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