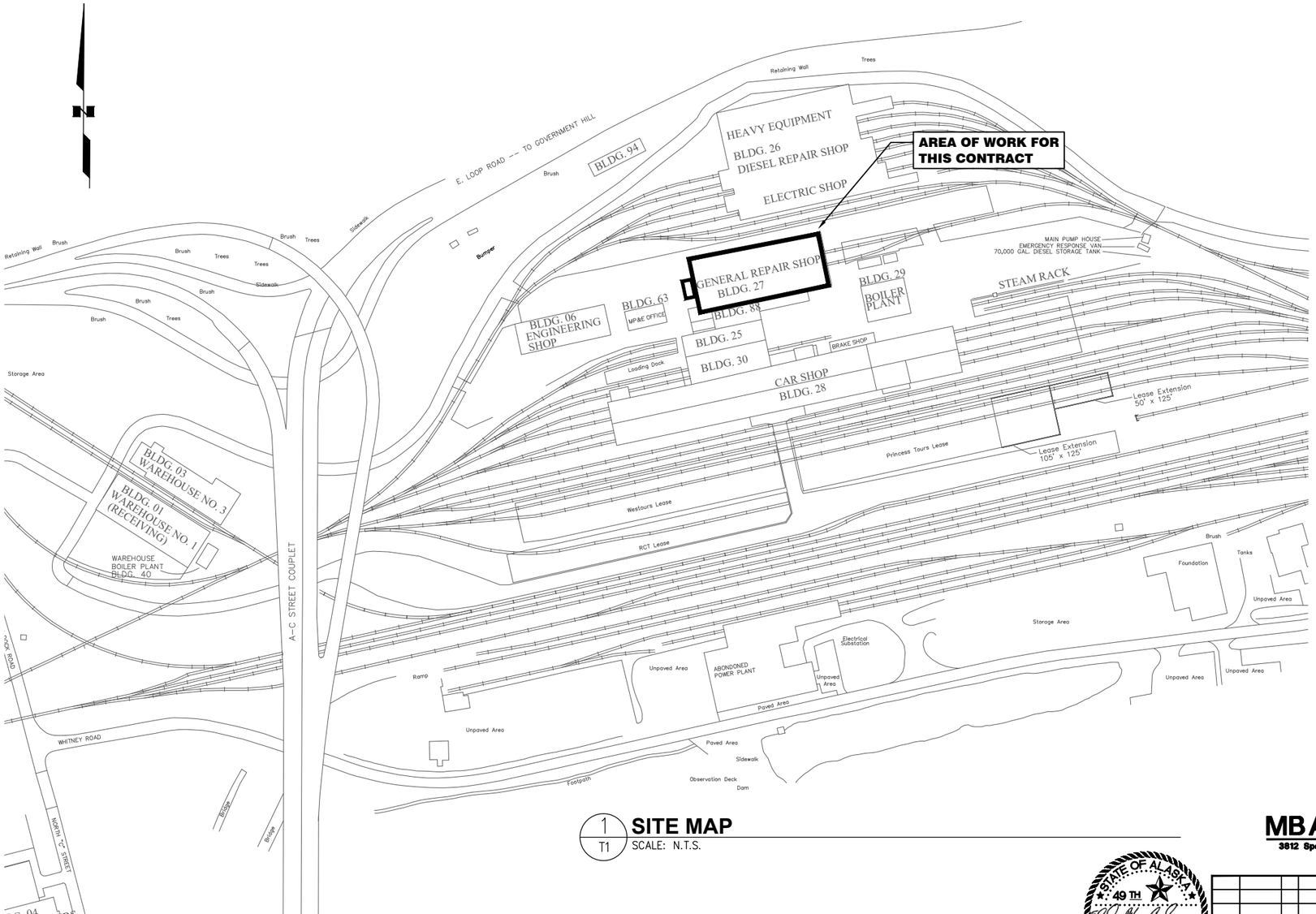
Alaska Railroad Corporation

2021 BUILDING 6 DISTRIBUTION REVISIONS - CONSTRUCTION DOCUMENTS



1 T1 **SITE MAP**
SCALE: N.T.S.

DRAWING INDEX:	
DRAWING NO.	DESCRIPTION
T1	TITLE SHEET
E1	ELECTRICAL LEGEND AND SCHEDULES
E2	ELECTRICAL WAREHOUSE DEMOLITION PLAN
E2	ELECTRICAL BOILER BUILDING PLANS
E3	ELECTRICAL PLAN
E4	ELECTRICAL ONE LINE DIAGRAM

ELECTRICAL SCOPE OF WORK

- UNDER THIS CONTRACT A NEW FEEDER WILL BE ROUTED FROM THE MDP IN BUILDING 27 TO SERVE THE MDP IN BUILDING 06.
- THE EXISTING 2.4kV PRIMARY TO BUILDING 06 WILL BE DISCONNECTED FROM THE UTILITY (ML&P) SOURCE AT THE MANHOLE WEST OF THE ELECTRICAL SHOP BUILDING.
- PROVIDE A NEW 150 KVA STEP-UP TRANSFORMER. THIS NEW TRANSFORMER WILL BE FED FROM BUILDING 06 MDP AND CONNECTED TO THE EXISTING PRIMARY CONDUCTORS TO FEED WAREHOUSE 01.
- DEMOLISH THE EXISTING TRANSFORMER THAT FED BUILDING 06.

BEFORE YOU DIG CALL FOR FREE UNDERGROUND LOCATION

CALL BEFORE YOU DIG!!!	
ALASKA DIGLINE, INC. STATESIDE	811
ALASKA RAILROAD	265-2520
MILITARY FUEL LINES	552-3760
STATE STORM DRAINS	333-2411

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STATE OF ALASKA 49TH
EDWARD W. CARLSON
05/04/2021
EE-9354
REGISTERED PROFESSIONAL ENGINEER

REV.	DATE	BY	REVISION

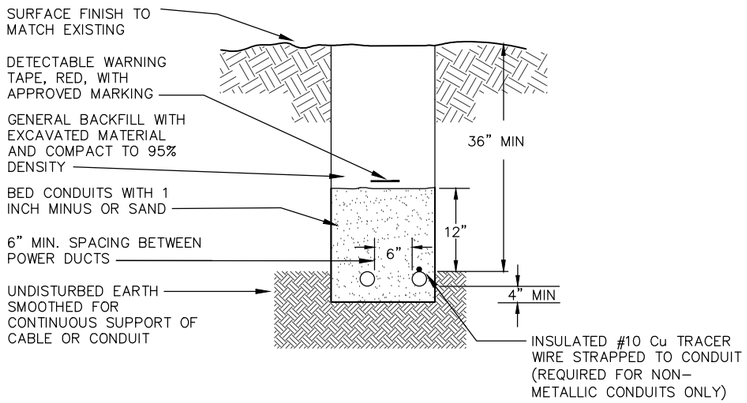
ALASKA RAILROAD CORPORATION
ENGINEERING SERVICES
P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500

PROJECT:
ALASKA RAILROAD CORPORATION
REVISE DISTRIBUTION BUILDING 06

TITLE:
TITLE SHEET

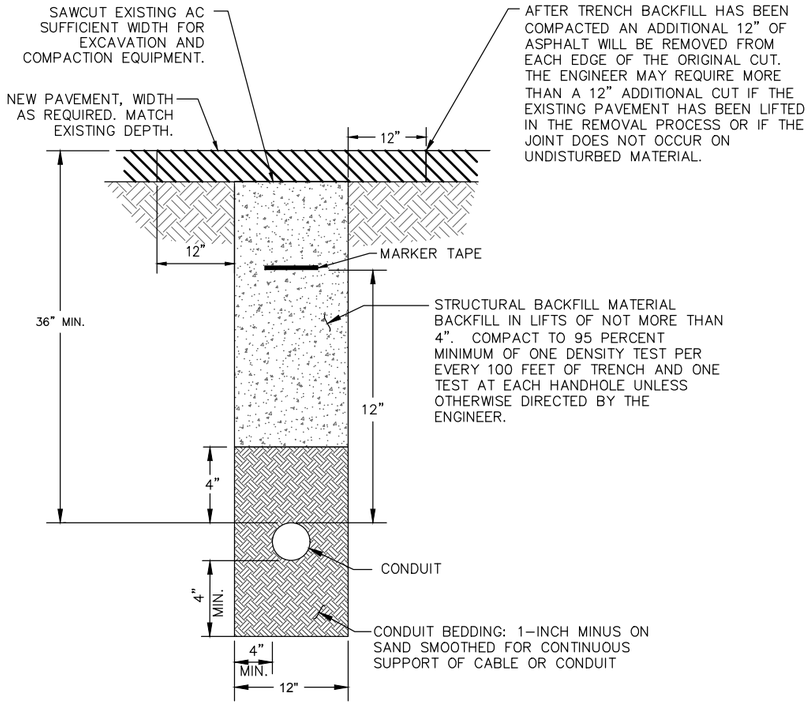
DESIGNED BY:	JHE	SCALE: AS NOTED	T1
DRAWN BY:	JHE		
CHECKED BY:	EWC	DATE: 05/04/2021	
APPROVED BY:	EWC		

AFE NO.:
ACAD FILE:
DWG NO. 1 OF 5



1/E1 CONDUIT TRENCHING DETAIL

SCALE: N.T.S.



2/E1 CONDUIT TRENCH DETAIL UNDER PAVEMENT

SCALE: N.T.S.

MBA CONSULTING ENGINEERS, INC.

ELECTRICAL SERVICE LOAD CALCULATION

PROJECT NAME: ARRC BUILDING 06 SERVICE REVISION
PROJECT NO: 20024EPD
DATE: 16-Apr-21

EXISTING SERVICE DEMAND LOAD CALCULATION

	ML&P METER #89 112 143 PEAK DEMAND KWD	291.2 KW
	CONVERSION TO kVA AT 0.8% P.F.	364.0 KVA
A	NEC ADJUSTMENT FACTOR FOR ADDITIONS (125%)	**455.0** KVA

EXISTING LOAD CALCULATION MDP-1 BLDG 27

	EXISTING PEAK VALUE (NEC 220.87)	112.8 KW
B	CONVERSION TO KVA AT POWER FACTOR OF 0.8	**141.0** KVA

EXISTING LOAD CALCULATION BLDG 06

	2015 PEAK MEASURED LOAD IN AMPERES	180 A @ 480 V
	150A FEED TO BUILDING 63 INCLUDED IN READING	
C	CONVERSION TO KVA:	**149.6** KVA

EXISTING LOAD CALCULATION BUILDING 01

	2015 PEAK MEASURED LOAD IN AMPERES	130 A @ 208 V
D	CONVERSION TO KVA:	**46.8** KVA

NEW CALCULATED LOAD AT SERVICE BLDG 27 (A + C + D) 651.5 KVA
480 VAC = 783.6 AMPS ON 1200 AMP GEAR

NEW CALCULATED LOAD AT BLDG 27 MDP (B + C + D) 337.5 KVA
480 VAC = 405.9 AMPS ON 1200 AMP MDP

NEW CALCULATED LOAD AT BUILDING 06 (C + D) 196.5 KVA
480 VAC = 236.3 AMPS ON 600 AMP MDP

BASED ON THE ABOVE CALCULATION, THE EXISTING 1200 AMPERE, 277/480 VOLT SERVICE IS ADEQUATE FOR BOTH EXISTING AND NEW LOADS

GENERAL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE MUNICIPALITY OF ANCHORAGE (MOA) STANDARD SPECIFICATIONS, CURRENT REVISION. (HEREINAFTER REFEREED TO AS MASS), DESIGN AND CONSTRUCTION PRACTICES MANUAL (DCPM) AND THE SPECIAL PROVISIONS.
2. ALL WORK SHALL BE PERFORMED WITHIN ALASKA RAILROAD CORPORATION (ARRC) PROPERTY OR PUBLIC RIGHT-OF-WAY. ALL DISTURBED AREA BEYOND THE SCOPE LIMITS SHALL BE RESTORED TO ORIGINAL CONDITION. UNLESS OTHERWISE NOTED.
3. IN PREPARATION FOR AND IMMEDIATELY PRIOR TO PAVING. THE CONTRACTOR SHALL SAW CUT AND REMOVE ADDITIONAL PAVEMENT BEYOND THE INITIAL SAW CUT, A MINIMUM OF 1-FOOT ONTO UNDISTURBED ASPHALT. TRANSVERSE JOINTS SHALL NOT BE PERPENDICULAR TO CENTERLINE, BUT SHALL BE SKEWED BETWEEN FIFTEEN AND TWENTY-FIVE DEGREE (15° AND 25°) PER MASS SECTION 40.06. TACK COAT SHALL BE APPLIED TO THE SAWN FACE OF ASPHALT PRIOR TO BEGINNING PAVING. TACK COAT SHALL ALSO BE APPLIED BETWEEN LAYERS OF ASPHALT. TACK COAT SHALL BE INCIDENTAL TO THE PROJECT AND NO SEPARATE PAYMENT WILL BE MADE.
4. ALL FILL, USABLE EXCAVATION, AND TRENCH BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT, PER MASS DIVISION 20.
5. ALASKA RAILROAD FLAG PROTECTION IS REQUIRED WHEN OPERATING EQUIPMENT INSIDE OR CAPABLE OF EXTENDING INTO ALASKA RAILROAD FLAGGING BOUNDARY. COORDINATE WITH ARRC TO ESTABLISH FLAGGING BOUNDARY PRIOR TO BEGINNING CONSTRUCTION.
6. CONTRACTOR SHALL COORDINATE ALL WORK AND ACCESS WITH ARRC WHILE ON ARRC PROPERTY.
7. ARRC TRACKS MAY BE LOCKED OUT BETWEEN THE HOURS OF 0900 TO 1600 WITH PRIOR APPROVAL FROM ARRC. COORDINATE WITH PAUL FARNSWORTH AT 907-265-2540.

LEGEND

ABBR.	EXPLANATION	SYMBOL
AFF	ABOVE FINISHED FLOOR	
AFG	ABOVE FINISHED GRADE	
AWG	AMERICAN WIRE GAUGE	
BLDG	BUILDING	
BNG	BELOW NATURAL GRADE	
C	CONDUIT,. SIZE AS NOTED (TYP.)	
	HOMERUN TO PANEL/CIRCUITS AS NOTED	
DN	CONDUIT DOWN	O|
UP	CONDUIT UP	C|
CKT	CIRCUIT – NUMBER AS NOTED (TYP.)	CKT-XX
ECB	ENCLOSED CIRCUIT BREAKER	
ETR	EXISTING TO REMAIN	
	EXISTING IN-GRADE MANHOLE OR VAULT TO REMAIN	□
FOC	FIBER OPTIC CABLE	
GND	GROUND	
HDPE	HIGH DENSITY POLYETHYLENE	
J-BOX	JUNCTION BOX	J
MFR	MANUFACTURER	
MTS	MANUAL TRANSFER SWITCH	
NIC	NOT IN CONTRACT	
PNL	PANELBOARD – SEE SCHEDULES	▬
	REFER TO INDICATED NOTE	1
RMC	RIGID METALLIC CONDUIT	
SCH	SCHEDULE	
TYP.	TYPICAL	
WP	WEATHERPROOF	
WR	WEATHER RESISTANT	
#X	WIRE COUNT OF # 12 UON/SPECIFIED	///
XFMR	TRANSFORMER	T

LINETYPES

———	NEW WORK
———	EXISTING
– – –	DEMOLITION
—UGE—	UNDERGOUND ELECTRICAL

THIS IS A STANDARD LEGEND, ALL SYMBOLS SHOWN ON LEGEND ARE NOT NECESSARILY ON THE DRAWINGS

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STATE OF ALASKA 49TH
EDWARD W. CARLSON
05/04/2021
EE-9354
REGISTERED PROFESSIONAL ENGINEER

REV.	DATE	BY	REVISION

ALASKA RAILROAD CORPORATION
ENGINEERING SERVICES
P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500

PROJECT: **ALASKA RAILROAD CORPORATION REVISE DISTRIBUTION BUILDING 06**

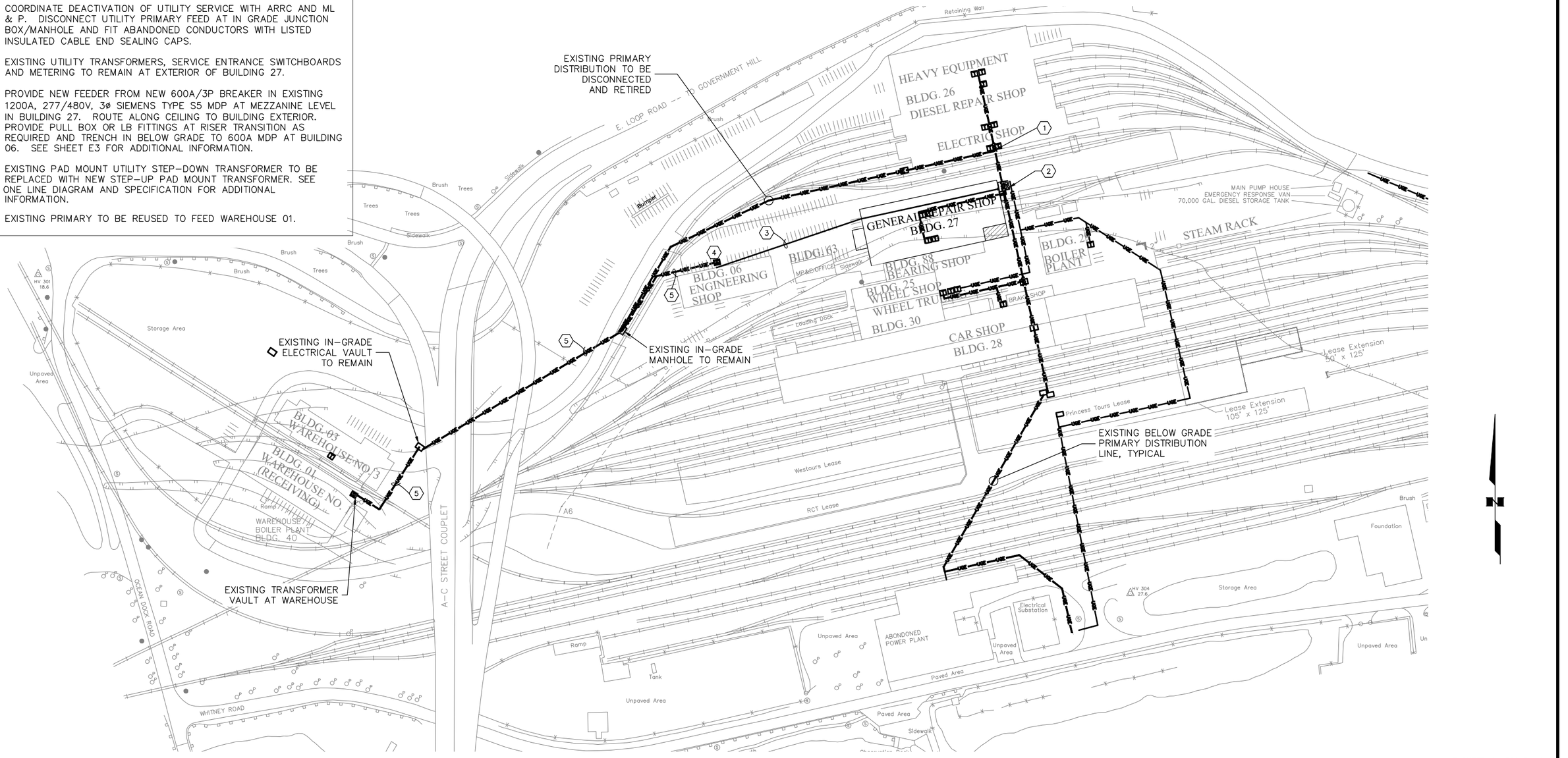
TITLE: **ELECTRICAL LEGEND AND SCHEDULES**

DESIGNED BY:	JHE	SCALE: AS NOTED	E1
DRAWN BY:	JHE	DATE: 05/04/2021	
CHECKED BY:	EWC		
APPROVED BY:	EWC		

AFE NO.:
ACAD FILE:
DWG NO. 2 OF 5

SHEET NOTES ⬡

1. COORDINATE DEACTIVATION OF UTILITY SERVICE WITH ARRC AND ML & P. DISCONNECT UTILITY PRIMARY FEED AT IN GRADE JUNCTION BOX/MANHOLE AND FIT ABANDONED CONDUCTORS WITH LISTED INSULATED CABLE END SEALING CAPS.
2. EXISTING UTILITY TRANSFORMERS, SERVICE ENTRANCE SWITCHBOARDS AND METERING TO REMAIN AT EXTERIOR OF BUILDING 27.
3. PROVIDE NEW FEEDER FROM NEW 600A/3P BREAKER IN EXISTING 1200A, 277/480V, 3ø SIEMENS TYPE S5 MDP AT MEZZANINE LEVEL IN BUILDING 27. ROUTE ALONG CEILING TO BUILDING EXTERIOR. PROVIDE PULL BOX OR LB FITTINGS AT RISER TRANSITION AS REQUIRED AND TRENCH IN BELOW GRADE TO 600A MDP AT BUILDING 06. SEE SHEET E3 FOR ADDITIONAL INFORMATION.
4. EXISTING PAD MOUNT UTILITY STEP-DOWN TRANSFORMER TO BE REPLACED WITH NEW STEP-UP PAD MOUNT TRANSFORMER. SEE ONE LINE DIAGRAM AND SPECIFICATION FOR ADDITIONAL INFORMATION.
5. EXISTING PRIMARY TO BE REUSED TO FEED WAREHOUSE 01.



1 / E2 **ELECTRICAL SITE PLAN**
SCALE: 1" = 100'

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REV.	DATE	BY	REVISION

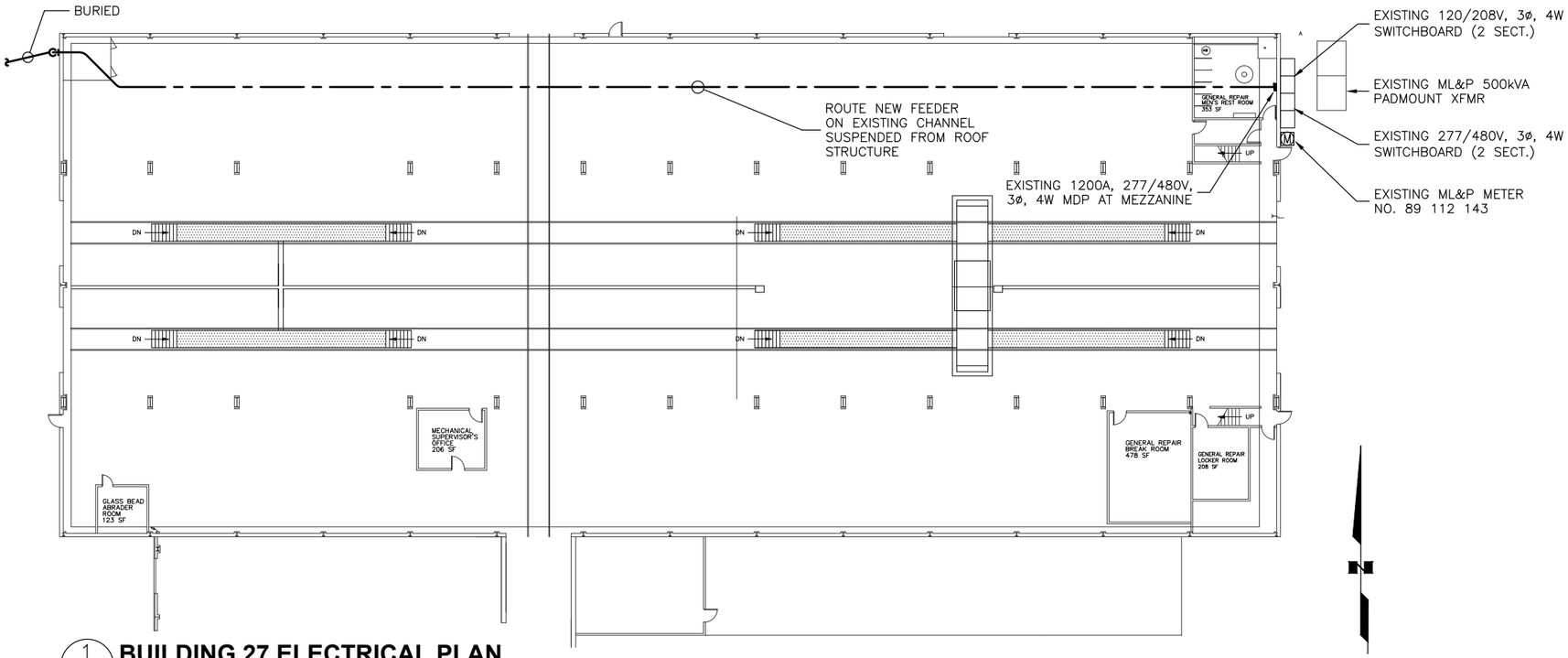
ALASKA RAILROAD CORPORATION
ENGINEERING SERVICES
P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500

PROJECT:
ALASKA RAILROAD CORPORATION
REVISE DISTRIBUTION BUILDING 06

TITLE:
ELECTRICAL SITE PLAN

DESIGNED BY:	JHE	SCALE: AS NOTED	E2
DRAWN BY:	JHE		
CHECKED BY:	EWC	DATE: 05/04/2021	
APPROVED BY:	EWC		

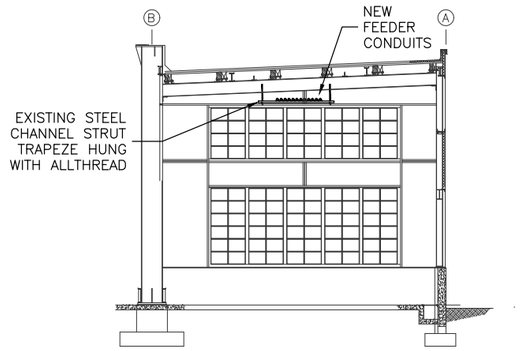
AFE NO.:
ACAD FILE:
DWG NO. 3 OF 5



1 E3 **BUILDING 27 ELECTRICAL PLAN**
SCALE: 1/16" = 1'-0"

SHEET NOTES

1. COORDINATE DEACTIVATION OF UTILITY SERVICE WITH ARRC AND ML & P. DISCONNECT UTILITY PRIMARY FEED AT IN GRADE JUNCTION BOX/MANHOLE AND FIT ABANDONED CONDUCTORS WITH LISTED INSULATED CABLE END SEALING CAPS.
2. EXISTING UTILITY TRANSFORMERS, SERVICE ENTRANCE SWITCHBOARDS AND METERING TO REMAIN AT EXTERIOR OF BUILDING 27.
3. PROVIDE NEW FEEDER FROM NEW 600A/3P BREAKER IN EXISTING 1200A, 277/480V, 3ø SIEMENS TYPE S5 MDP AT MEZZANINE LEVEL IN BUILDING 27. ROUTE CONDUIT ALONG CEILING TO BUILDING EXTERIOR. PROVIDE PULL BOX OR LB FITTINGS AT RISER TRANSITION AS REQUIRED AND TRENCH IN BELOW GRADE TO 600A MDP AT BUILDING 06.



2 E3 **BUILDING 27 SECTION**
SCALE: 1/8" = 1'-0"

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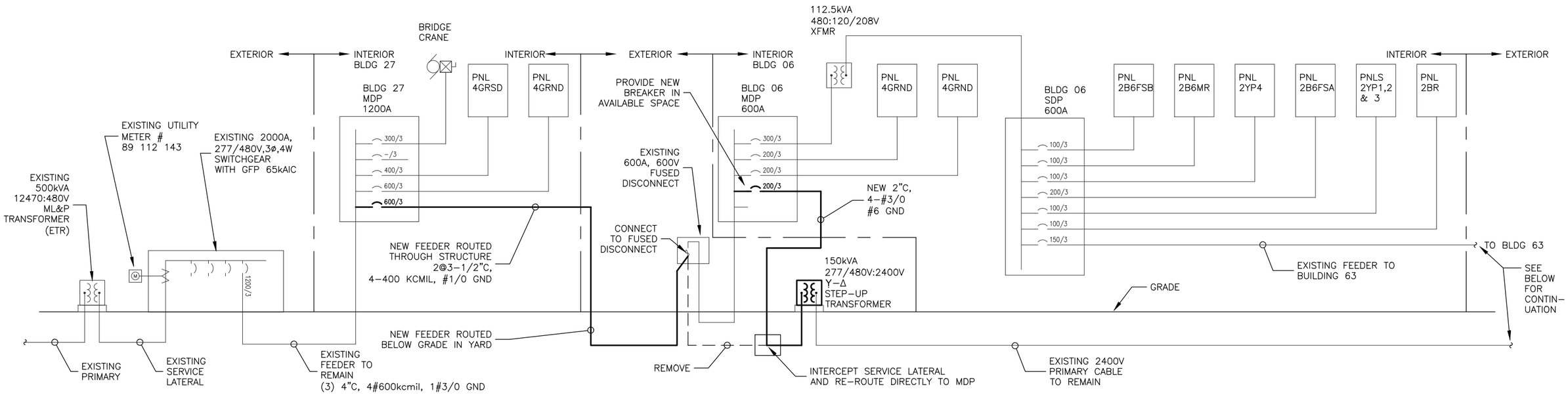
PROJECT:
ALASKA RAILROAD CORPORATION
REVISE DISTRIBUTION BUILDING 06

TITLE:
BUILDING 27
DETAILS

REV.	DATE	BY	REVISION

DESIGNED BY: JHE
DRAWN BY: JHE
CHECKED BY: EWC
APPROVED BY: EWC
SCALE: AS NOTED
DATE: 05/04/2021
E3
AFE NO.:
ACAD FILE:
DWG NO. 4 OF 5



1 E4 POWER DISTRIBUTION ONE-LINE DIAGRAM

SCALE: N.T.S.

GENERAL NOTE:
ALL EQUIPMENT, CONDUIT AND WIRING ARE EXISTING TO REMAIN UNLESS OTHERWISE IDENTIFIED. FIELD VERIFY CONDITION OF EQUIPMENT TO BE REUSED AS REQUIRED.

SHEET NOTES: ⬡
1. FIELD TEST EXISTING TRANSFORMER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS TO CONFIRM SUITABILITY FOR REUSE. INSULATING FLUID/LEVEL, OIL TANK PRESSURE, INSULATION RESISTANCE MEGGER, COIL RATIO AND TAPS/SETTINGS, CONTINUITY AND RESISTANCE, AND LINE CONNECTIONS AT A MINIMUM. NOTIFY CONTRACTING OFFICER OF ANY DEFICIENCIES FOUND INCLUDING CORROSION, LEAKS AND COMPROMISED INSULATION.

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P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500

PROJECT:
ALASKA RAILROAD CORPORATION REVISE DISTRIBUTION BUILDING 06

TITLE:
ELECTRICAL ONE-LINE DIAGRAM AND DETAILS

DESIGNED BY: JHE	SCALE: AS NOTED	E4	AFE NO.:
DRAWN BY: JHE			ACAD FILE:
CHECKED BY: EWC	DATE: 05/04/2021		DWG NO. 5 OF 5
APPROVED BY: EWC			