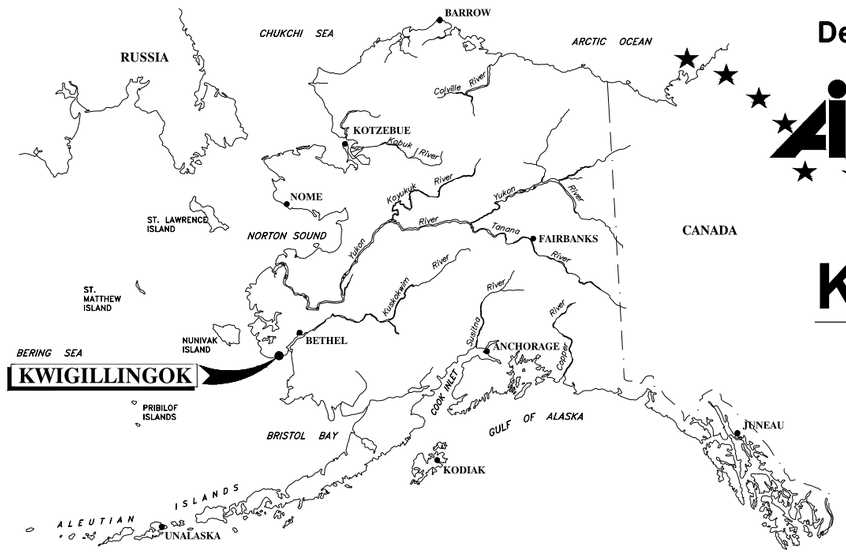

State of Alaska
Department of Community and Economic Development

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813 West Northern Lights Blvd.
Anchorage, Alaska 99503

ALASKA ENERGY AUTHORITY

KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADE
ISSUED FOR CONSTRUCTION
JANUARY 2017

SCHEDULE OF DRAWINGS	
ELECTRICAL	
G1.1	COVER SHEET & SCHEDULE OF DRAWINGS
G1.2	POLE COORDINATES SCHEDULE
E1.1	AERIAL SITE MAP
E1.2	OVERALL PLAN
E1.3	LEGEND & ABBREVIATIONS, SPECIFICATIONS & BILL OF MATERIAL
E2.1	EXISTING DISTRIBUTION PLAN (1 of 10)
E2.2	EXISTING DISTRIBUTION PLAN (2 of 10)
E2.3	EXISTING DISTRIBUTION PLAN (3 of 10)
E2.4	EXISTING DISTRIBUTION PLAN (4 of 10)
E2.5	EXISTING DISTRIBUTION PLAN (5 of 10)
E2.6	EXISTING DISTRIBUTION PLAN (6 of 10)
E2.7	EXISTING DISTRIBUTION PLAN (7 of 10)
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E2.9	EXISTING DISTRIBUTION PLAN (9 of 10)
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E3.2	NEW DISTRIBUTION PLAN (2 of 13)
E3.3	NEW DISTRIBUTION PLAN (3 of 13)
E3.4	NEW DISTRIBUTION PLAN (4 of 13)
E3.5	NEW DISTRIBUTION PLAN (5 of 13)
E3.6	NEW DISTRIBUTION PLAN (6 of 13)
E3.7	NEW DISTRIBUTION PLAN (7 of 13.)
E3.8	NEW DISTRIBUTION PLAN (8 of 13)
E3.9	NEW DISTRIBUTION PLAN (9 of 13)
E3.9A	NEW DISTRIBUTION PLAN (10 of 13)
E3.9B	NEW DISTRIBUTION PLAN (11 of 13)
E3.10	NEW DISTRIBUTION PLAN (12 of 13)
E3.10A	NEW DISTRIBUTION PLAN (13 of 13)
E3.11	ENLARGED POWER PLANT PLAN
E3.12	ENLARGED PLANS
E4.1	DETAILS

Project Number (Consultant) 30404.10 (AEA) _____
AEA Project Manager ALAN FETTERS
Construction Manager X
Final Design (Date) X
Fire Marshal Approval (Date) _____
Construction Period (From) _____ (To) _____
As-Builts (Date) _____

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EE 7802
01/18/2017
REGISTERED PROFESSIONAL ENGINEER

Sheet No. G1.1

PILE LOCATION SCHEDULE (1 of 3)

POLE #	NORTHING	EASTING	NOTES
1			
1A			
1A–1A			
1A–1B			
1A–2A			
1A–3A			
1A–4A			
1A–5A			
1A–6A			
1A–7A			
1A–8A			
1A–9A			
1A–10A			
1A–11A			
1A–12A			
1A–13A			
1A–14A			
1A–14A–1A			
1A–14A–1B			
2			
2A			
3			
3A			
3A–1A			
3A–1B			
3A–2A			
3A–2B			
3A–3A			
3A–3A–1A			
3A–3A–1B			
3A–3B			
4			
4–1	EXISTING		
4–2			
4–2A	EXISTING		
4–3			
4–4			
4–5			
4A			
5	EXISTING		
5A			
5A–1A			
5A–1B			
5A–2A			
5A–2B			
5A–3A			
5A–3A–1			
5A–3B			
5A–4B			
5A–5B			
5A–5B–1			
5A–5B–2			
5A–6B			
6	EXISTING		
7	EXISTING		
7–1A	EXISTING		
7–1			
8			
8–1			
8–2			
8–3			
8–3A			
8–3B			

PILE LOCATION SCHEDULE (2 of 3)

POLE #	NORTHING	EASTING	NOTES
8–4			
8–5			
8–6			
8–7			
8–8			
8–9			
8–9A–1			
8–9A–2			
8–10			
8–11			
8–12			
8–12A			
8–13			
8–14			
8–15			
8–16			
8–17			
8–17A			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
18–1			
18–2			
18–3			
18–4			
19			
20			
20–1			
20–1A			
20–1B			
21			
22			
22–1A			
22–1a–1			
22–1A–2			
22–1B			
22–2A			
22–3A			
22–4A			
22–4A–1			
22–5A			
22–6A			
23			
23–1			
23–2			
23–3			
23–4			
24			
25			
26			
26–1A			
26–1B			
26–2A			
26–2B			
26–3B			
26–3B–1A			

PILE LOCATION SCHEDULE (3 of 3)

POLE #	NORTHING	EASTING	NOTES
26–3B–1B			
26–3B–2A			
26–4B			
26–4B–1			
26–4B–2			
26–4B–3			
26–5B			
26–6B			
26–6B–1			
26–7B			
26–7B–1			
26–8B			
26–9B			
26–10B			
26–10B–1			
26–11B			
27			
28			
29			
29–1			
29–2			
29–3			
29–3–1A			
29–3–1B			
29–3–1C			
29–3–1D			
30			
31			
31–1A			
31–1B			
32			
33			
33–1			
33–2			
34			
35			
36			
37			

NOTE TO BIDDER:

PILE LOCATION SURVEY TO BE PERFORMED BY ENGINEER IN SUMMER OF 2017. PILE LOCATION INFORMATION WILL BE PROVIDED TO SUCCESSFUL BIDDER IN FALL OF 2017.

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KONGIGANAK, ALASKA

RURAL POWER SYSTEM UPGRADES

POLE COORDINATES SCHEDULE

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. G1.2

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Sheet No. E1.1

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

NO.	REVISION	BY	DATE

KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

AERIAL SITE MAP

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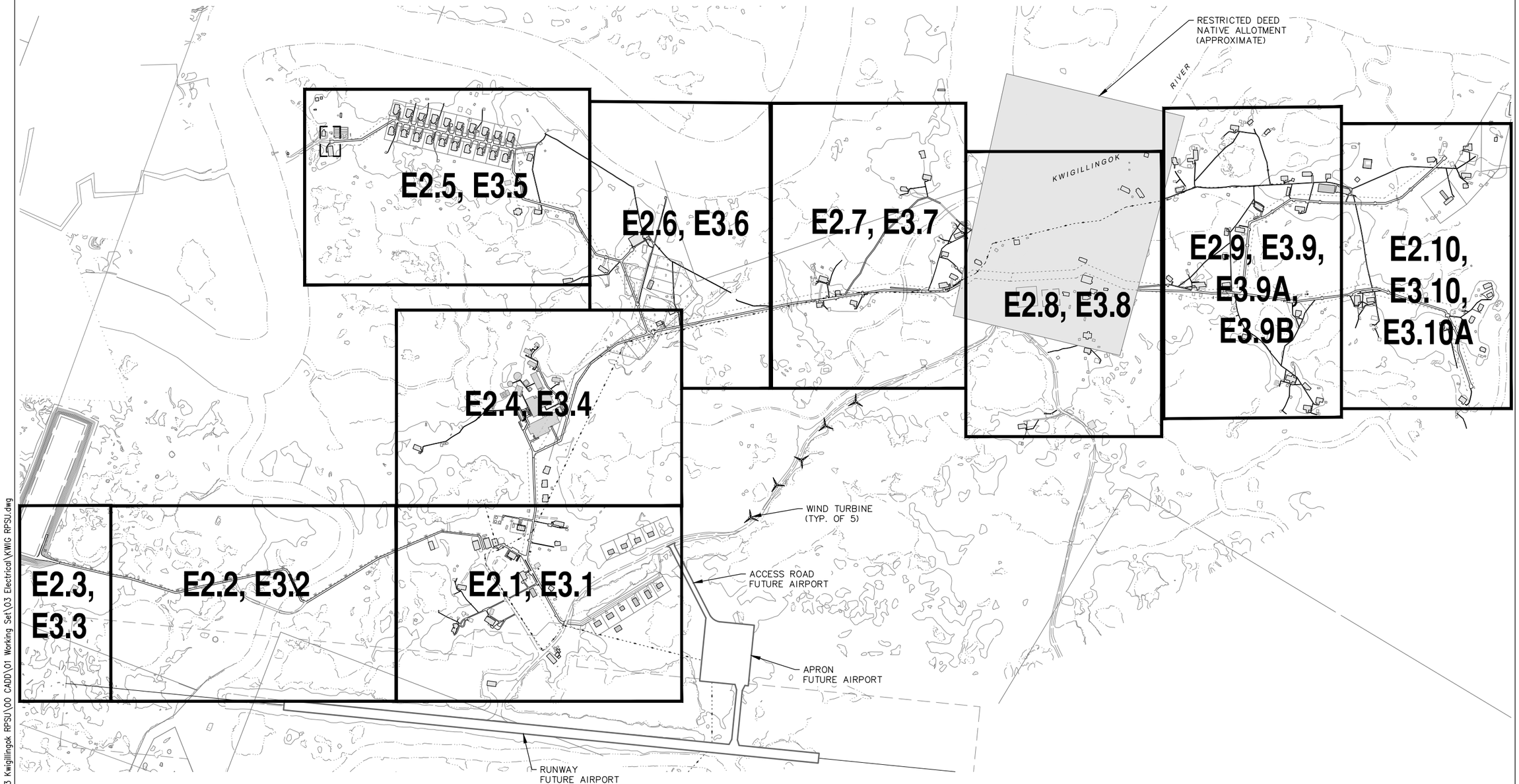

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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

OVERALL PLAN

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E1.2

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

GENERAL NOTES

1. ALL CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE STAKING SHEETS, NOTES TO STAKING SHEETS, SPECIFICATIONS, AND THE CONSTRUCTION DRAWINGS.

2. THE 2007 EDITION OF ANSI C2 – NATIONAL ELECTRICAL SAFETY CODE (NESC), RUS BULLETIN 1728F–804, SPECIFICATIONS AND DRAWINGS FOR 12.47/7.2 kV LINE CONSTRUCTION, AND RUS BULLETIN 1728F–806, SPECIFICATIONS AND DRAWINGS FOR UNDERGROUND ELECTRICAL DISTRIBUTION, UNLESS MODIFIED BY THESE DRAWINGS OR SPECIFICATIONS, SHALL BE FOLLOWED, INCLUDING ANY STATE OF ALASKA AMENDMENTS. OBTAIN COPIES OF THE RUS BULLETINS AND MAINTAIN COPIES ON THE JOB SITE. ADDITIONALLY, CONSTRUCTION SPECIFICATIONS ARE INCLUDED IN DIVISION 16 OF THE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL BE THOROUGHLY FAMILIAR WITH THE CONTRACT DOCUMENTS, RUS CONSTRUCTION UNITS, AND ANSI C2.

3. THE EXISTING ELECTRICAL DISTRIBUTION SYSTEM CURRENTLY SERVES CUSTOMERS. SERVICE SHALL BE MAINTAINED AT ALL TIMES TO THE CUSTOMERS EXCEPT WHEN OUTAGES ARE REQUIRED FOR SERVICE CONVERSION OR OTHER CONSTRUCTION RELATED ACTIVITIES. ALL OUTAGES SHALL BE COORDINATED IN ADVANCE WITH THE KWIGILLINGOK POWER COMPANY (OWNER). PRIOR TO COMMENCING WORK ON THE UPGRADE, MEET WITH THE KWIGILLINGOK POWER COMPANY TO DEVELOP AN OUTAGE SCHEDULE THAT WILL KEEP DISRUPTIONS OF POWER TO THE CUSTOMERS TO A MINIMUM. KWIGILLINGOK POWER COMPANY SHALL HAVE FINAL AUTHORITY ON WHEN OUTAGES CAN OCCUR.

4. THE EXISTING ELECTRICAL DISTRIBUTION SYSTEM POLES ARE SHARED WITH THE TELEPHONE SYSTEM, UNITED UTILITY, INC. CONTRACTOR SHALL NOT DISRUPT THE EXISTING TELEPHONE SYSTEM WITHOUT THE CONSENT OF THE TELEPHONE COMPANY. ANY PART OF THE EXISTING TELEPHONE SYSTEM DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE TELEPHONE COMPANY.

5. UNLESS OTHERWISE INDICATED, THE EXISTING PRIMARY AND SECONDARY DISTRIBUTION SYSTEM, INCLUDING HARDWARE, CONDUCTORS (BOTH PRIMARY AND SECONDARY), TRANSFORMERS, CROSSARMS, INSULATORS, LIGHTS, ANCHOR RODS, GUYS, AND ALL OTHER MATERIAL DIRECTLY RELATED TO THE EXISTING ELECTRICAL DISTRIBUTION SYSTEM SHALL BE REMOVED AFTER COMPLETION OF THE INSTALLATION, ENERGIZATION, AND SERVICE CONVERSIONS TO THE NEW ELECTRICAL DISTRIBUTION SYSTEM. POLES THAT HAVE TELEPHONE SYSTEM CONDUCTORS OR EQUIPMENT ATTACHED SHALL NOT BE REMOVED.

6. EXISTING H–PILES SHALL BE CUT OFF 6" BELOW GROUND LEVEL, UNLESS OTHERWISE INDICATED. ALL EXISTING ANCHORS RODS SHALL BE REMOVED TO A POINT BELOW EXISTING GRADE.

7. ALL EXISTING UTILITIES MAY NOT BE SHOWN. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES PRIOR TO DRIVING ANY PILES OR DRILLING ANY ANCHORS. COORDINATE WITH THE VILLAGE OF KWIGILLINGOK AND KWIGILLINGOK POWER COMPANY TO LOCATE UNDERGROUND UTILITIES.

8. THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL FEATURES OF THE REQUIRED WORK. PROVIDE ALL EQUIPMENT AND MATERIALS REQUIRED FOR A COMPLETE SYSTEM. VERIFY EXISTING FIELD CONDITIONS PRIOR TO STARTING CONSTRUCTION. IMMEDIATELY CONTACT THE ENGINEER FOR CLARIFICATION OF QUESTIONABLE ITEMS OR APPARENT CONFLICTS.

9. ENSURE THAT APPROPRIATE SAFETY MEASURES ARE IMPLEMENTED AND THAT ALL WORKERS ARE AWARE OF THE POTENTIAL HAZARDS FROM ELECTRICAL SHOCK ASSOCIATED WITH WORKING ON OR NEAR AN ENERGIZED MEDIUM VOLTAGE DISTRIBUTION SYSTEM.

10. THE SITE DRAWINGS USED WERE DEVELOPED USING A COMBINATION OF AERIAL PHOTOGRAPHY AND SURVEY DATA PROVIDED BY OTHERS. ANY VARIATIONS BETWEEN WHAT IS SHOWN AND THE ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

11. SEE CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INFORMATION.

SCOPE OF WORK

1. THE PURPOSE OF THIS PROJECT IS TO REPLACE THE EXISTING ELECTRICAL DISTRIBUTION SYSTEM IN KWIGILLINGOK, ALASKA, AS INDICATED ON THE DRAWINGS.

2. THE LIMIT OF CONSTRUCTION FOR THE NEW ELECTRICAL DISTRIBUTION SYSTEM IS THE CONNECTION TO THE EXISTING SERVICE MASTS AT THE VARIOUS SERVICES. THE CONTRACTOR SHALL REMOVE THE EXISTING SECONDARY SERVICE DROP CONDUCTORS, UNLESS OTHERWISE INDICATED ON THE DRAWINGS, AND INSTALL NEW SERVICE CONDUCTORS TO EACH SERVICE. THE EXISTING METER BASE OR SERVICE MAST WILL NOT BE THE RESPONSIBILITY OF THE CONTRACTOR EXCEPT FOR PROVIDING DEADEND ASSEMBLIES AND MAKING THE CONNECTION TO THE EXISTING SERVICE ENTRANCE CONDUCTORS AT THE SERVICE MAST. IF THE EXISTING SERVICE MAST IS NOT IN SATISFACTORY CONDITION TO SUPPORT THE NEW SERVICE, THE CONTRACTOR SHALL NOTIFY KWIGILLINGOK POWER COMPANY FOR RESOLUTION. THE CONTRACTOR SHALL NOTIFY KWIGILLINGOK POWER COMPANY FAR ENOUGH IN ADVANCE TO ALLOW KWIGILLINGOK POWER COMPANY TIME TO REPAIR OR REPLACE THE SERVICE MAST.

COORDINATION BETWEEN NEW AND EXISTING DISTRIBUTION SYSTEMS

1. THE NEW ELECTRICAL DISTRIBUTION SYSTEM WILL CROSS THE EXISTING ELECTRICAL DISTRIBUTION SYSTEM AT MULITIPLE LOCATIONS AS INDICATED ON THE DRAWINGS, BUT NOT LIMITED TO THE LOCATIONS SHOWN. AT ALL CROSSINGS THE CONTRACTOR SHALL MAKE PROVISIONS IN THE EXISTING AND/OR NEW ELECTRICAL DISTRIBUTION SYSTEMS TO MAINTAIN POWER TO THE CUSTOMERS DURING THE CONSTRUCTION OF THE NEW SYSTEM. AS INDICATED, ALL OUTAGES SHALL BE COORDINATED WITH AND APPROVED BY THE KWIGILLINGOK POWER COMPANY. ACCEPTABLE METHODS WILL BE AS FOLLOWS:

   a) WHERE THE NEW OVERHEAD DISTRIBUTION SYSTEM IS HIGHER THAN THE EXISTING SYSTEM, CONTRACTOR MAY LOWER THE NEUTRAL OF THE NEW SYSTEM SUCH THAT THE PRIMARY CONDUCTORS OF THE NEW SYSTEM CROSS OVER THE EXISTING SYSTEM AND THE NEUTRAL CROSSES UNDER.

   b) CONTRACTOR MAY INSTALL TEMPORARY INSULATED MEDIUM VOLTAGE CONDUCTORS AND ROUTE THE CONDUCTORS ON THE GROUND. IF THIS METHOD IS CHOSEN, THE AT–GRADE CONDUCTORS SHALL BE PROTECTED FROM VANDALISM AND DAMAGE AND PROVISIONS SHALL BE MADE FOR THE SUPPORT OF THE EXISTING POLES DURING THE INSTALLATION OF THE NEW SYSTEM.

   c) OTHER METHODS MAY BE PROPOSED BY THE CONTRACTOR AS APPLICABLE TO ALLOW INSTALLATION OF THE NEW SYSTEM WHILE THE EXISTING SYSTEM REMAINS IN SERVICE.

2. IN ALL CASES, THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE BEST METHOD OF CROSSING THE EXISTING DISTRIBUTION SYSTEM. THE CONTRACTOR SHALL PROVIDE ALL MATERIAL REQUIRED TO ACCOMPLISH ALL CROSSINGS.

3. AT ALL TIMES AND IN ALL LOCATIONS, TEMPORARY INSTALLATIONS SHALL MEET THE NESC SAFETY REQUIREMENTS. ANY TEMPORARY INSTALLATION THAT IS ROUTED ON THE GROUND SHALL BE CLEARLY IDENTIFIED AND, IF REQUIRED, PROVISIONS SHALL BE INSTALLED FOR PERSONNEL AND VEHICLE CROSSING.

ELECTRICAL EQUIPMENT SCHEDULE

ITEM NO.	DESCRIPTION	MANUFACTURER
1	STREET LIGHT, LED TYPE, POLE MOUNTED WITH ARM AND ATTACHMENTS. TYPE II LIGHT DISTRIBUTION. 4000K CCT, GRAY. PROVIDE 2–1/2' LONG GALVANIZED, 2" PIPE TENON CANTILEVER ARM SUITABLE FOR WOOD POLES. 120 VOLTS. PHOTO ELECTRIC CONTROL.	AMERICAN ELECTRIC LIGHTING CAT. No. ATBO 20ALEDE53 MVOLT R2 PCSS LITHONIA SMAWT20US2–5 TENON ARM
2	STREET LIGHT, LED TYPE, POLE MOUNTED WITH ARM AND ATTACHMENTS. TYPE II LIGHT DISTRIBUTION. 4000K CCT, GRAY. PROVIDE 2–1/2' LONG GALVANIZED, 2" PIPE TENON CANTILEVER ARM SUITABLE FOR WOOD POLES. 120 VOLTS. PHOTO ELECTRIC CONTROL.	AMERICAN ELECTRIC LIGHTING CAT. No. ATBO 80BLEDE70 MVOLT R4 PCSS LITHONIA SMAWT20US2–5 TENON ARM
3	120/240 VOLT, SINGLE–PHASE, THREE–WIRE, 100 AMP, OVERHEAD METER MAIN BASE WITH 100 AMP MAIN CIRCUIT BREAKER. FORM 2S WITH 304 STAINLESS STEEL ENCLOSURE. PROVIDE AW HUB. SERVICE ENTRANCE RATED.	B–LINE CAT. No. 1M1R–SS
4	120/240 VOLT, SINGLE–PHASE, THREE–WIRE, 100 AMP, OVERHEAD BASE. FORM 2S WITH 304 STAINLESS STEEL ENCLOSURE. PROVIDE AW HUB.	B–LINE CAT. No. 011–SS

LEGEND

EXISTING SINGLE PHASE OVERHEAD PRIMARY	NEW SINGLE PHASE OVERHEAD PRIMARY
EXISTING 3–PHASE OVERHEAD PRIMARY	NEW 3–PHASE OVERHEAD PRIMARY
EXISTING UNDERGROUND	NEW UNDERGROUND
EXISTING SECONDARY*	NEW SECONDARY*
EXISTING ELECTRICAL POLE	NEW ELECTRICAL POLE
EXISTING STUB POLE	NEW STUB POLE
EXISTING TRANSFORMER XX=SIZE	NEW TRANSFORMER XX=SIZE
EXISTING GUY	NEW GUY
EXISTING LIGHT	NEW LIGHT
EXISTING EASEMENT (BOARDWALK OR UTILITY)	RESTRICTIVE TITLE

*SINGLE PHASE UNLESS NOTED ON THE DRAWINGS

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STATE OF ALASKA – 49TH – REGISTERED PROFESSIONAL ENGINEER – CLOIS W. VERSTEEG – EE 7802 – 01/31/2018

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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

LEGEND & ABBREVIATIONS
SPECIFICATIONS & BILL OF MATERIAL

NO.	REVISION	BY	DATE

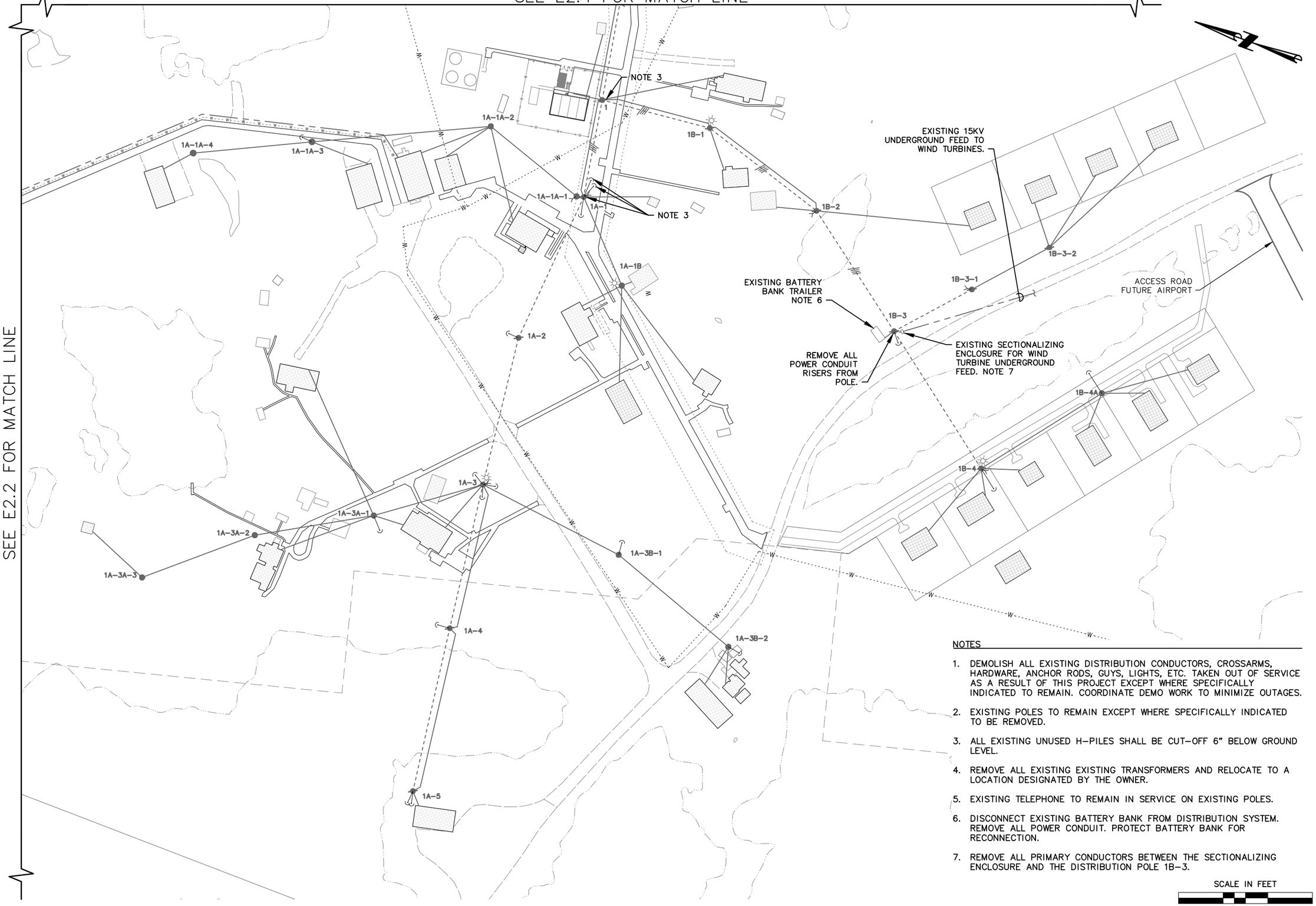
Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E1.3

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

SEE E2.4 FOR MATCH LINE

SEE E2.2 FOR MATCH LINE



NOTES

1. DEMOLISH ALL EXISTING DISTRIBUTION CONDUCTORS, CROSSARMS, HARDWARE, ANCHOR RODS, GUYS, LIGHTS, ETC. TAKEN OUT OF SERVICE AS A RESULT OF THIS PROJECT EXCEPT WHERE SPECIFICALLY INDICATED TO REMAIN. COORDINATE DEMO WORK TO MINIMIZE OUTAGES.
2. EXISTING POLES TO REMAIN EXCEPT WHERE SPECIFICALLY INDICATED TO BE REMOVED.
3. ALL EXISTING UNUSED H–PILES SHALL BE CUT–OFF 6" BELOW GROUND LEVEL.
4. REMOVE ALL EXISTING EXISTING TRANSFORMERS AND RELOCATE TO A LOCATION DESIGNATED BY THE OWNER.
5. EXISTING TELEPHONE TO REMAIN IN SERVICE ON EXISTING POLES.
6. DISCONNECT EXISTING BATTERY BANK FROM DISTRIBUTION SYSTEM. REMOVE ALL POWER CONDUIT. PROTECT BATTERY BANK FOR RECONNECTION.
7. REMOVE ALL PRIMARY CONDUCTORS BETWEEN THE SECTIONALIZING ENCLOSURE AND THE DISTRIBUTION POLE 1B–3.

SCALE IN FEET

60 0 30 60 120

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

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RURAL POWER SYSTEM UPGRADES

EXISTING DISTRIBUTION PLAN
(1 of 10)

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E2.1

SEE E2.3 FOR MATCH LINE

SEE E2.1 FOR MATCH LINE

APPROXIMATE LOCATION OF EXISTING DRY TYPE TRANSFORMER AND DISTRIBUTION PANEL. SEE NOTE 1

EXISTING PUMP HOUSE/HOUSE SERVICE NEXT TO WATER LINE

RIVER CROSSING

BRIDGE

NOTES

1. DISCONNECT THE 480 VOLT METAL CLAD CABLE THAT FEEDS THE PUMP HOUSE. TAPE THE INDIVIDUAL CONDUCTORS AND LABEL CABLE AS SPARE TO PUMP HOUSE.

SCALE IN FEET

60 0 30 60 120

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

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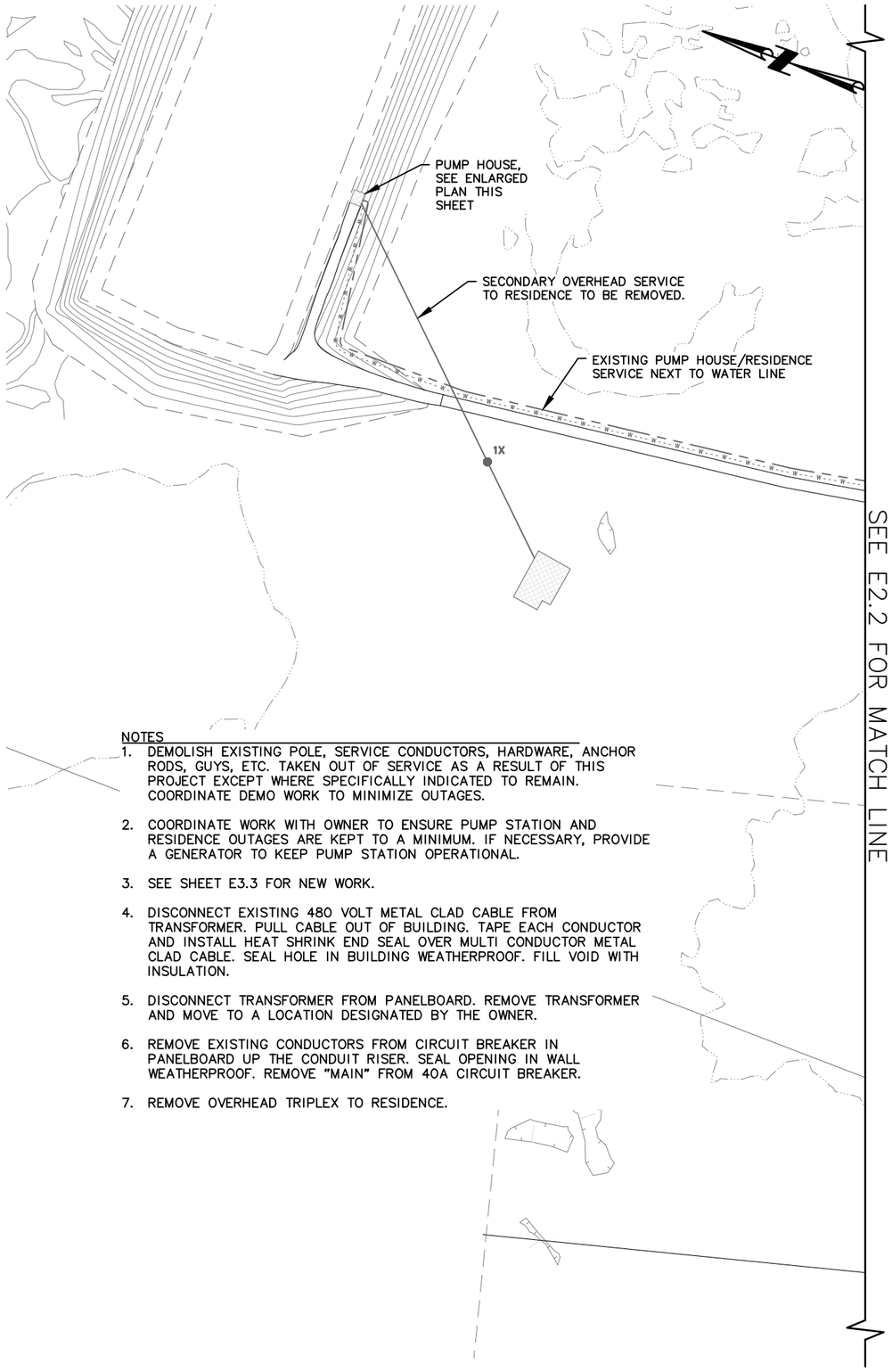
RURAL POWER SYSTEM UPGRADES

EXISTING DISTRIBUTION PLAN
(2 of 10)

NO.	REVISION	BY	DATE

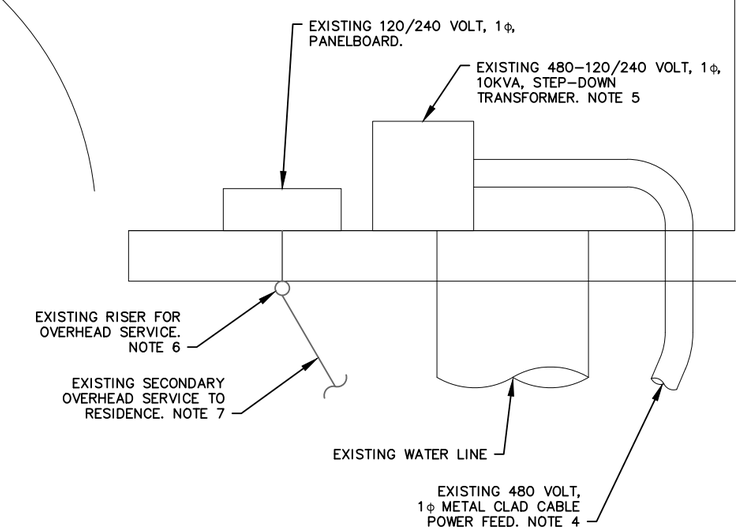
Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E2.2



NOTES

1. DEMOLISH EXISTING POLE, SERVICE CONDUCTORS, HARDWARE, ANCHOR RODS, GUYS, ETC. TAKEN OUT OF SERVICE AS A RESULT OF THIS PROJECT EXCEPT WHERE SPECIFICALLY INDICATED TO REMAIN. COORDINATE DEMO WORK TO MINIMIZE OUTAGES.
2. COORDINATE WORK WITH OWNER TO ENSURE PUMP STATION AND RESIDENCE OUTAGES ARE KEPT TO A MINIMUM. IF NECESSARY, PROVIDE A GENERATOR TO KEEP PUMP STATION OPERATIONAL.
3. SEE SHEET E3.3 FOR NEW WORK.
4. DISCONNECT EXISTING 480 VOLT METAL CLAD CABLE FROM TRANSFORMER. PULL CABLE OUT OF BUILDING. TAPE EACH CONDUCTOR AND INSTALL HEAT SHRINK END SEAL OVER MULTI CONDUCTOR METAL CLAD CABLE. SEAL HOLE IN BUILDING WEATHERPROOF. FILL VOID WITH INSULATION.
5. DISCONNECT TRANSFORMER FROM PANELBOARD. REMOVE TRANSFORMER AND MOVE TO A LOCATION DESIGNATED BY THE OWNER.
6. REMOVE EXISTING CONDUCTORS FROM CIRCUIT BREAKER IN PANELBOARD UP THE CONDUIT RISER. SEAL OPENING IN WALL WEATHERPROOF. REMOVE "MAIN" FROM 40A CIRCUIT BREAKER.
7. REMOVE OVERHEAD TRIPLEX TO RESIDENCE.



1/- **PUMP HOUSE ENLARGED PLAN**
Scale: 3/4" = 1'

SCALE IN FEET
60 0 30 60 120

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STATE OF ALASKA 49TH REGISTERED ENGINEER CLOIS W. VERSTEEG EE 7802 01/18/2017

CRW ENGINEERING GROUP LLC
3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL882-AK

KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

EXISTING DISTRIBUTION PLAN
(3 of 10)

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E2.3

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

SEE E2.6 FOR MATCH LINE

SEE E2.6 FOR MATCH LINE

REMOVE EXISTING ANCHOR ROD AND GUY

NOTE 6

OVERHEAD TO REMAIN

POLES AND OVERHEAD TO REMAIN

NOTE 6

POLE TO REMAIN

NOTE 6

POLE TO REMAIN

REMOVE EXISTING ANCHOR ROD AND GUY

NOTES

1. DEMOLISH ALL EXISTING DISTRIBUTION CONDUCTORS, CROSSARMS, HARDWARE, ANCHOR RODS, GUYS, LIGHTS, ETC. TAKEN OUT OF SERVICE AS A RESULT OF THIS PROJECT EXCEPT WHERE SPECIFICALLY INDICATED TO REMAIN. COORDINATE DEMO WORK TO MINIMIZE OUTAGES.
2. EXISTING POLES TO REMAIN EXCEPT WHERE SPECIFICALLY INDICATED TO BE REMOVED.
3. ALL EXISTING UNUSED H–PILES SHALL BE CUT–OFF 6" BELOW GROUND LEVEL.
4. REMOVE ALL EXISTING EXISTING TRANSFORMERS AND RELOCATE TO A LOCATION DESIGNATED BY THE OWNER.
5. EXISTING TELEPHONE TO REMAIN IN SERVICE ON EXISTING POLES.
6. REMOVE EXISTING POLES. SAVE H–PILES FOR REUSE. POLES TO BE TURNED OVER TO OWNER.

SCALE IN FEET

60 0 30 60 120

SEE E2.1 FOR MATCH LINE

File: U:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

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STATE OF ALASKA 49TH REGISTERED ENGINEER CLOIS W. VERSTEEG EE 7802 01/18/2017 PROFESSIONAL ENGINEER

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KWIGILLINGOK, ALASKA

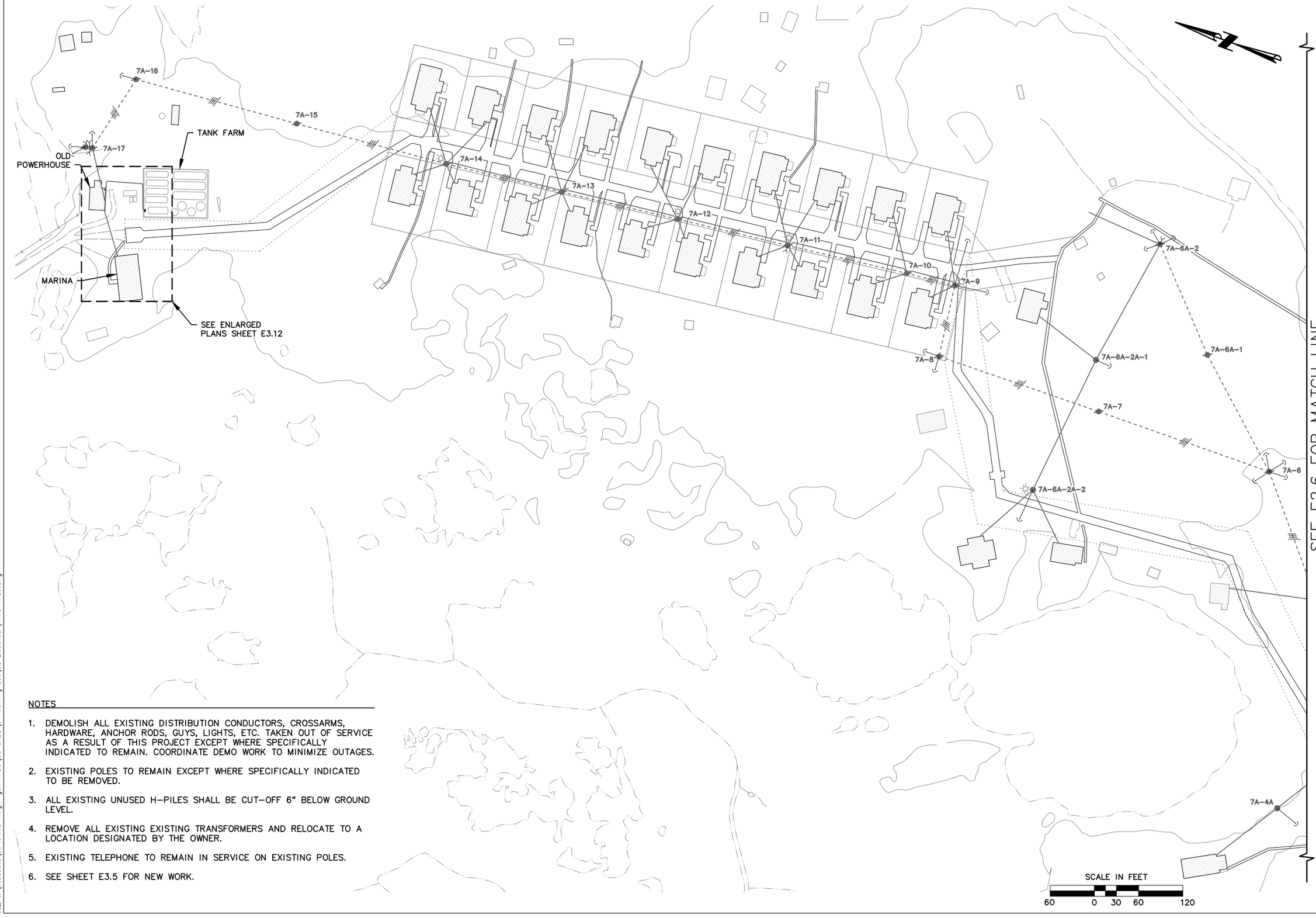
RURAL POWER SYSTEM UPGRADES

EXISTING DISTRIBUTION PLAN
(4 of 10)

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E2.4



NOTES

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5. EXISTING TELEPHONE TO REMAIN IN SERVICE ON EXISTING POLES.
6. SEE SHEET E3.5 FOR NEW WORK.

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STATE OF ALASKA 49TH REGISTERED ENGINEER CHRIS W. VERSTEEG EE 7802 01/18/2017

CRW ENGINEERING GROUP LLC
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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

EXISTING DISTRIBUTION PLAN
(5 of 10)

NO.	REVISION	BY	DATE

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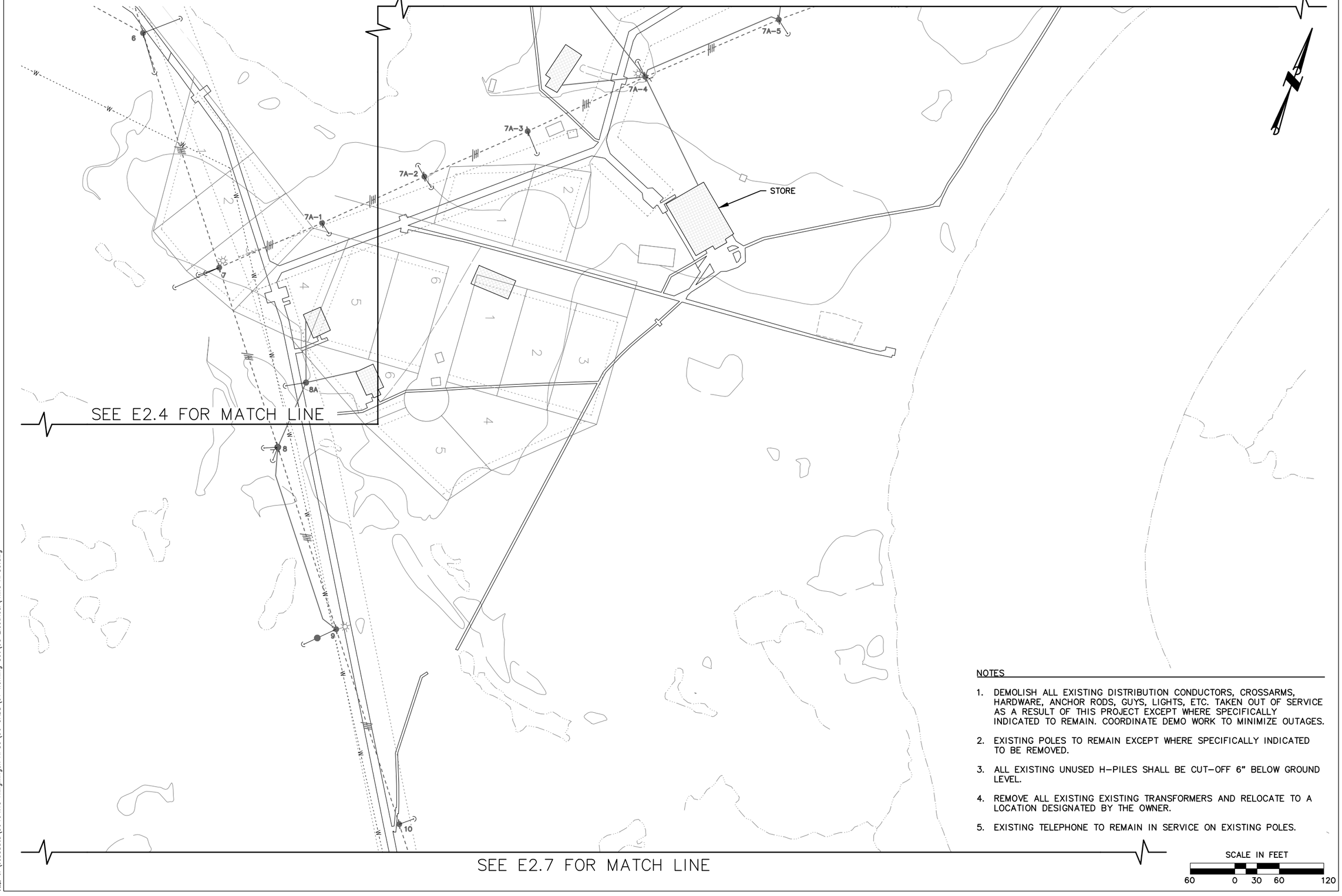
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E2.5

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

SEE E2.5 FOR MATCH LINE



SEE E2.4 FOR MATCH LINE

SEE E2.7 FOR MATCH LINE

NOTES

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SCALE IN FEET
60 0 30 60 120

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

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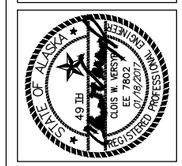

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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

EXISTING DISTRIBUTION PLAN
(6 of 10)

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E2.6

SEE E2.6 FOR MATCH LINE

NOTES

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5. EXISTING TELEPHONE TO REMAIN IN SERVICE ON EXISTING POLES.

11
12
13
14
14A–1
14A–2
15
16A–1
16A–2
16A–3
16A–3A

SEE E2.8 FOR MATCH LINE

SCALE IN FEET
60 0 30 60 120

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

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49TH
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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

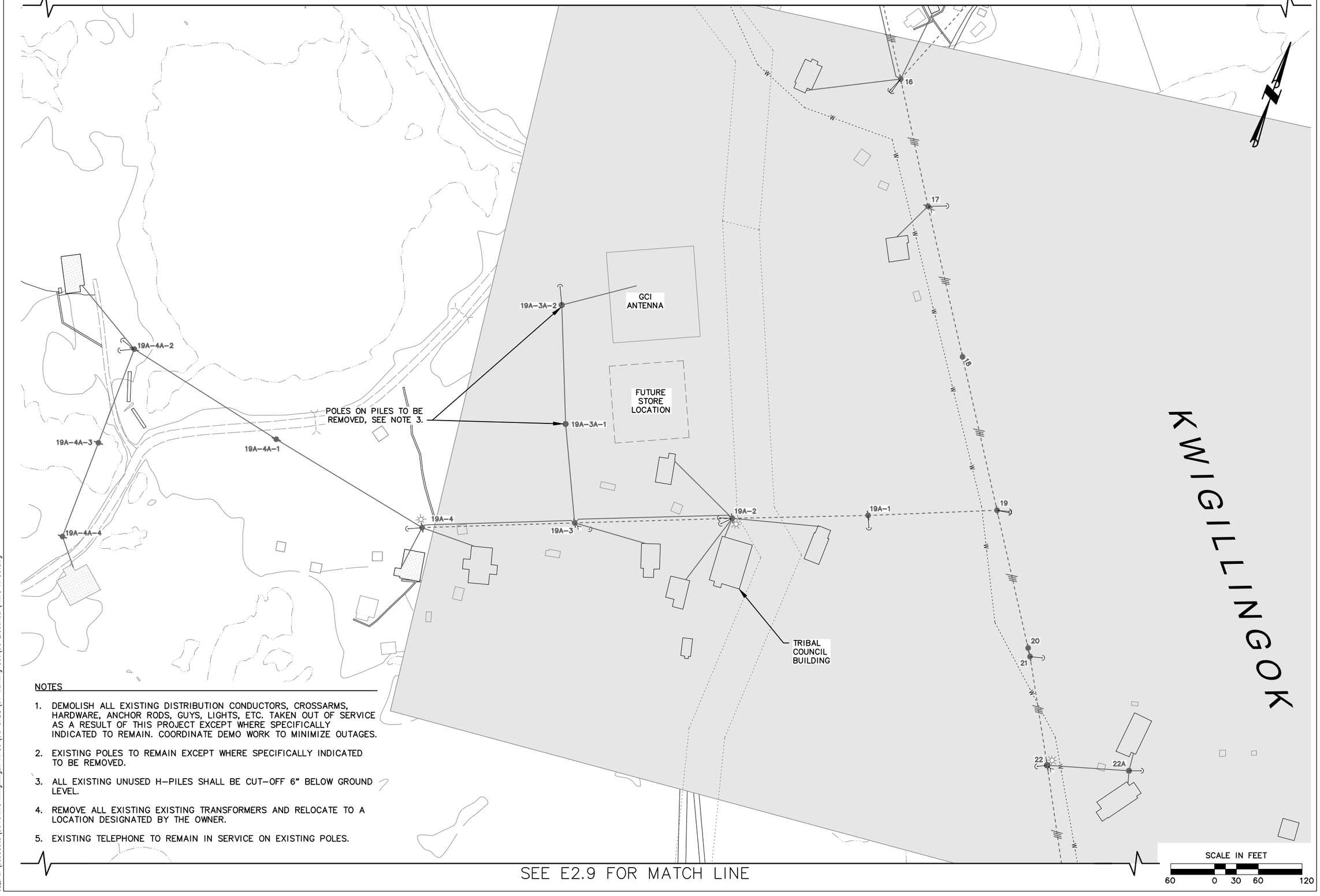
EXISTING DISTRIBUTION PLAN
(7 of 10)

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E2.7

SEE E2.7 FOR MATCH LINE



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SCALE IN FEET
60 0 30 60 120

SEE E2.9 FOR MATCH LINE

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

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RURAL POWER SYSTEM UPGRADES

EXISTING DISTRIBUTION PLAN
(8 of 10)

NO.	REVISION	BY	DATE

Plot Date 1/18/17
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Sheet No. E2.8

SEE E2.8 FOR MATCH LINE

NOTES

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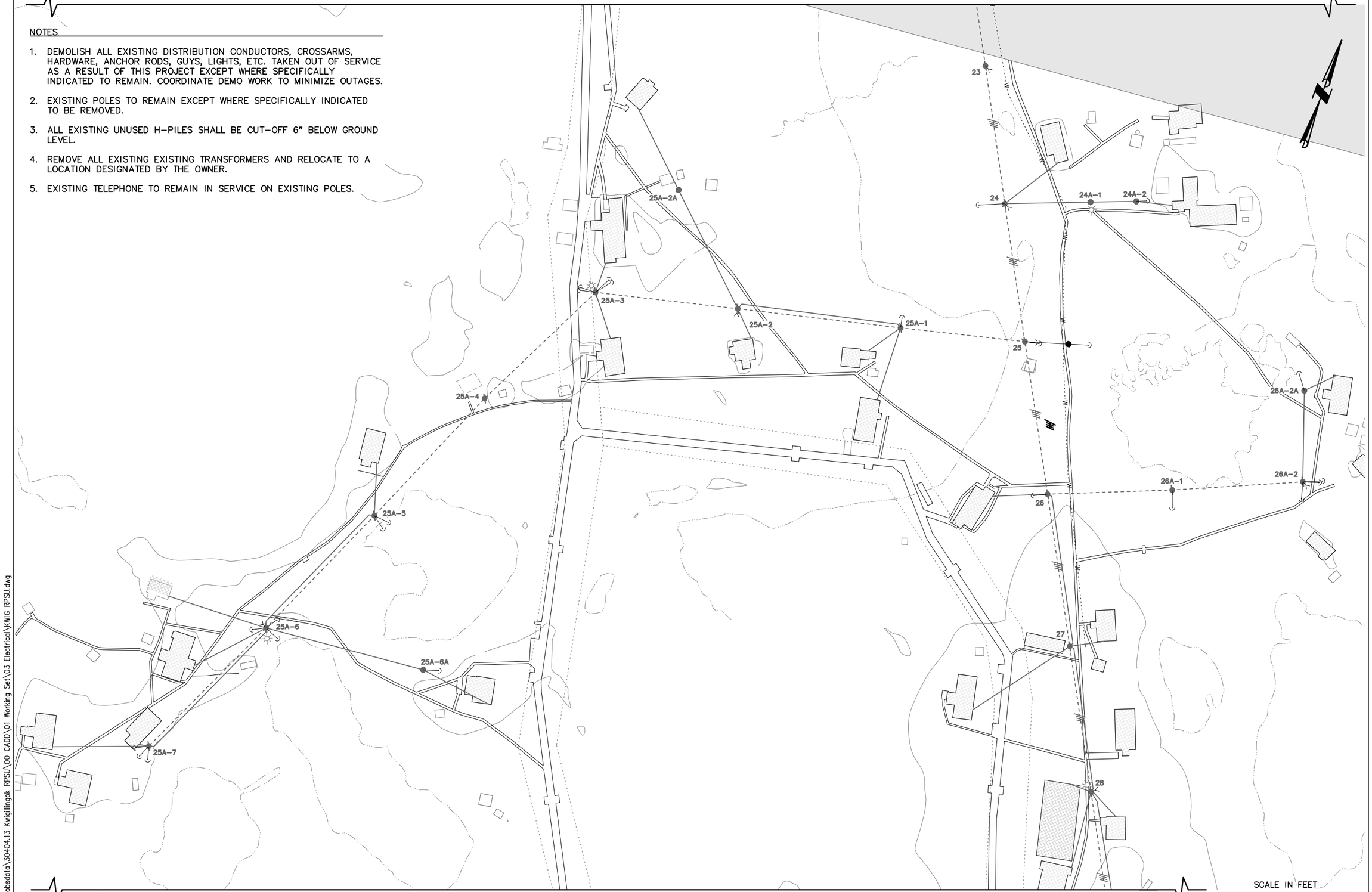

SEE E2.10 FOR MATCH LINE

SCALE IN FEET
60 0 30 60 120

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RURAL POWER SYSTEM UPGRADES

EXISTING DISTRIBUTION PLAN
(9 of 10)

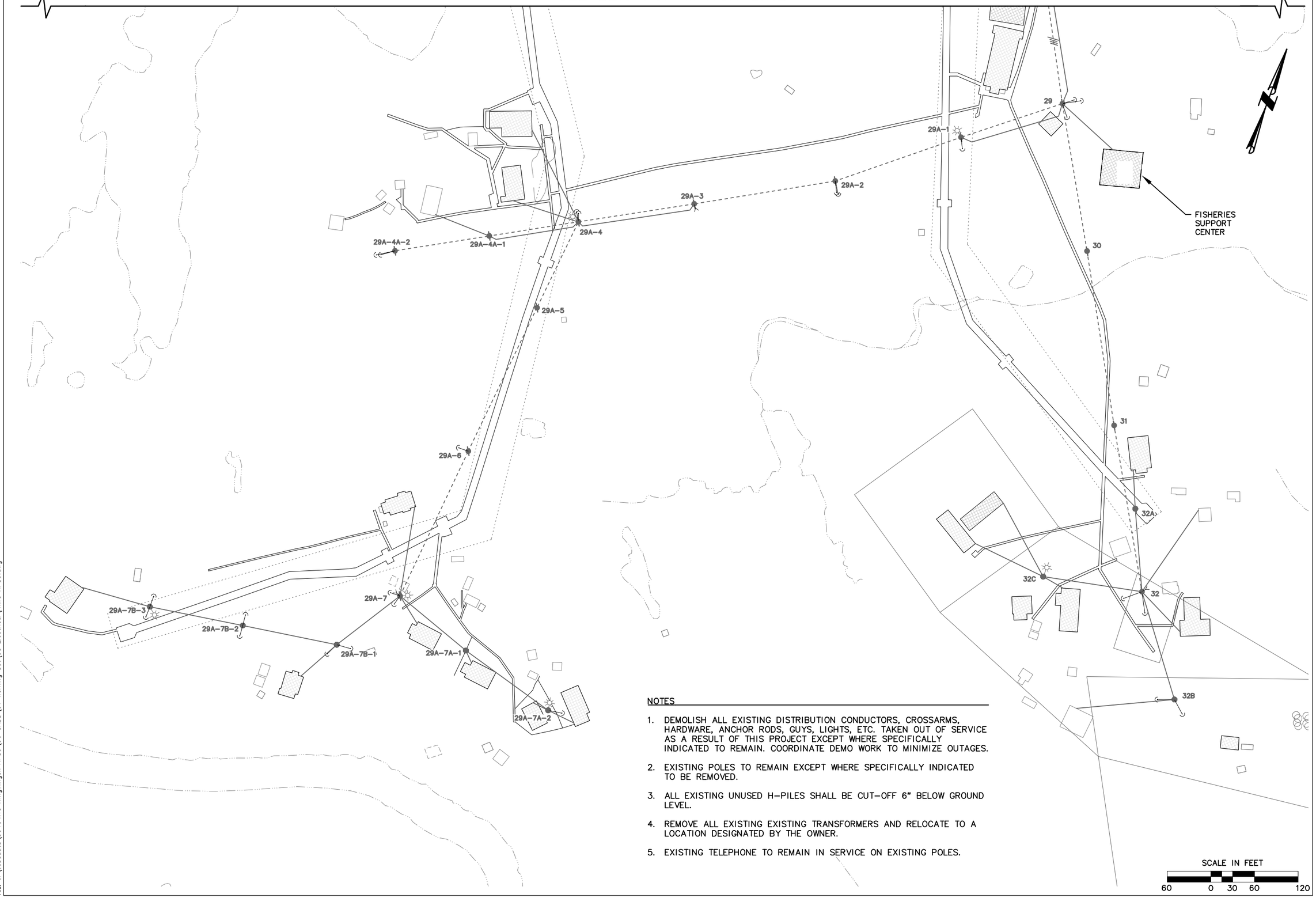
NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E2.9

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

SEE E2.9 FOR MATCH LINE



NOTES

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SCALE IN FEET
60 0 30 60 120

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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

EXISTING DISTRIBUTION PLAN
(10 of 10)

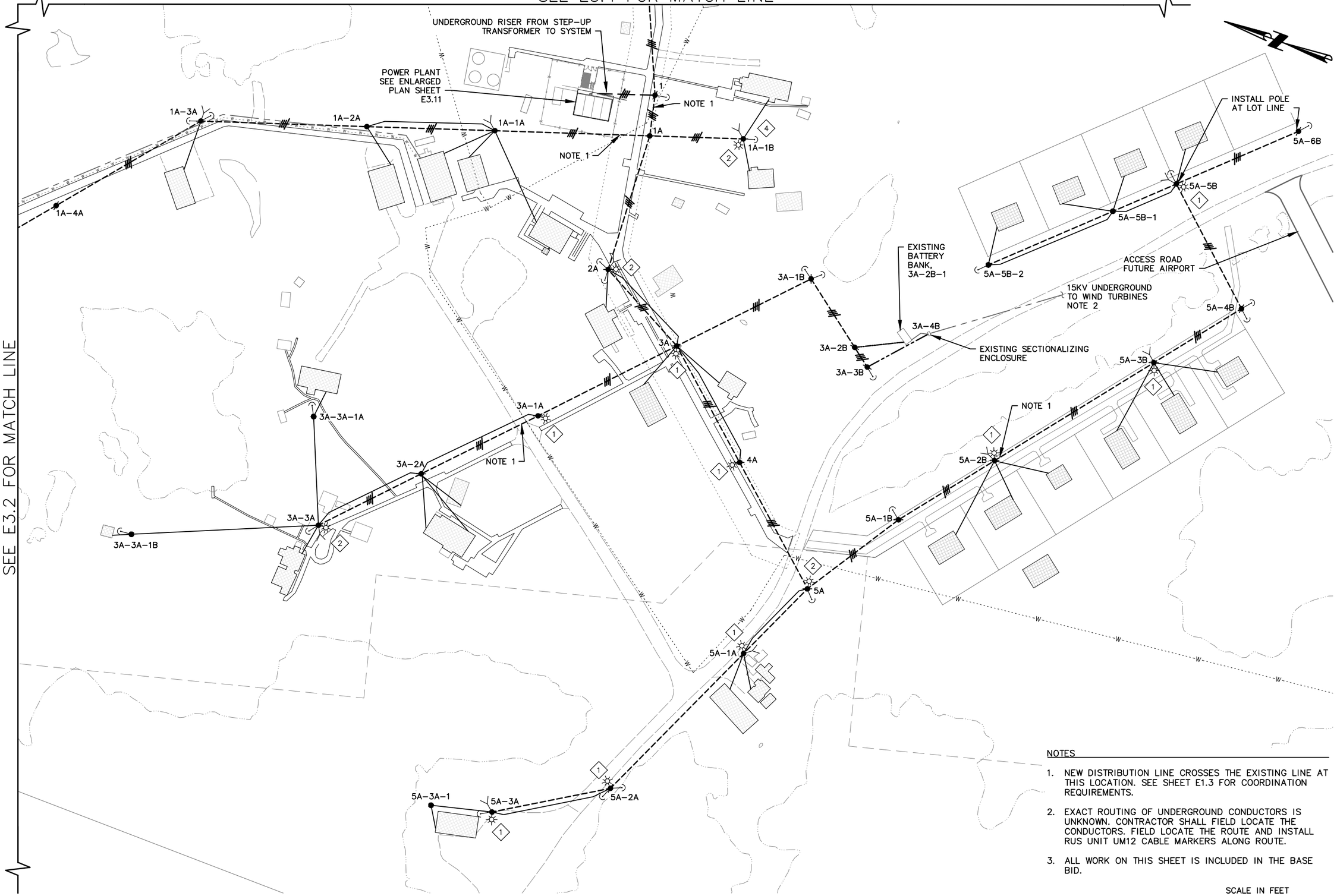
NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E2.10

SEE E3.4 FOR MATCH LINE

SEE E3.2 FOR MATCH LINE



NOTES

1. NEW DISTRIBUTION LINE CROSSES THE EXISTING LINE AT THIS LOCATION. SEE SHEET E1.3 FOR COORDINATION REQUIREMENTS.
2. EXACT ROUTING OF UNDERGROUND CONDUCTORS IS UNKNOWN. CONTRACTOR SHALL FIELD LOCATE THE CONDUCTORS. FIELD LOCATE THE ROUTE AND INSTALL RUS UNIT UM12 CABLE MARKERS ALONG ROUTE.
3. ALL WORK ON THIS SHEET IS INCLUDED IN THE BASE BID.

SCALE IN FEET

60 0 30 60 120

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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

NEW DISTRIBUTION PLAN
(1 of 13
BASE BID

NO.	REVISION	BY	DATE

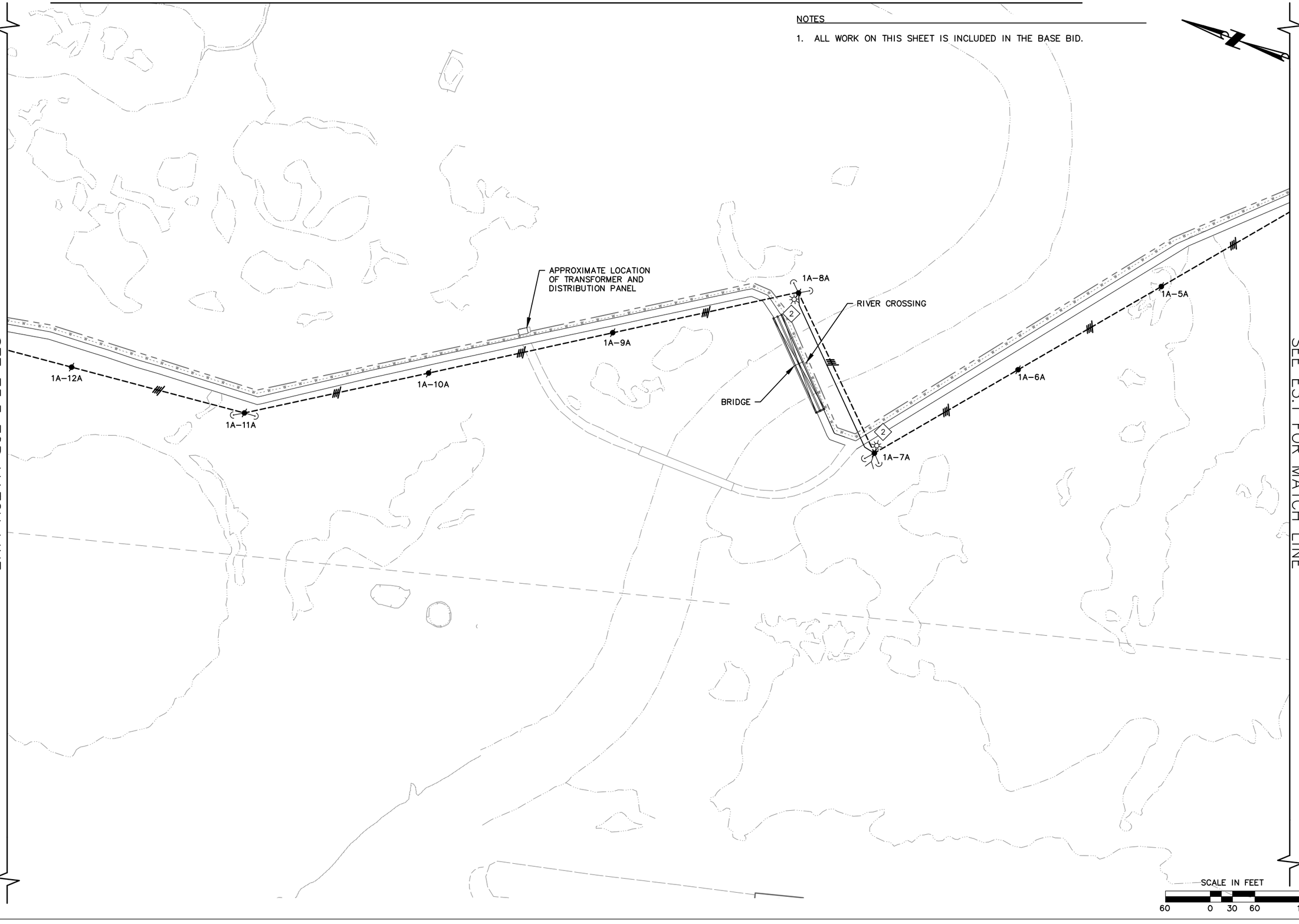
Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E3.1

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

NOTES

1. ALL WORK ON THIS SHEET IS INCLUDED IN THE BASE BID.



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KWIGILLINGOK, ALASKA

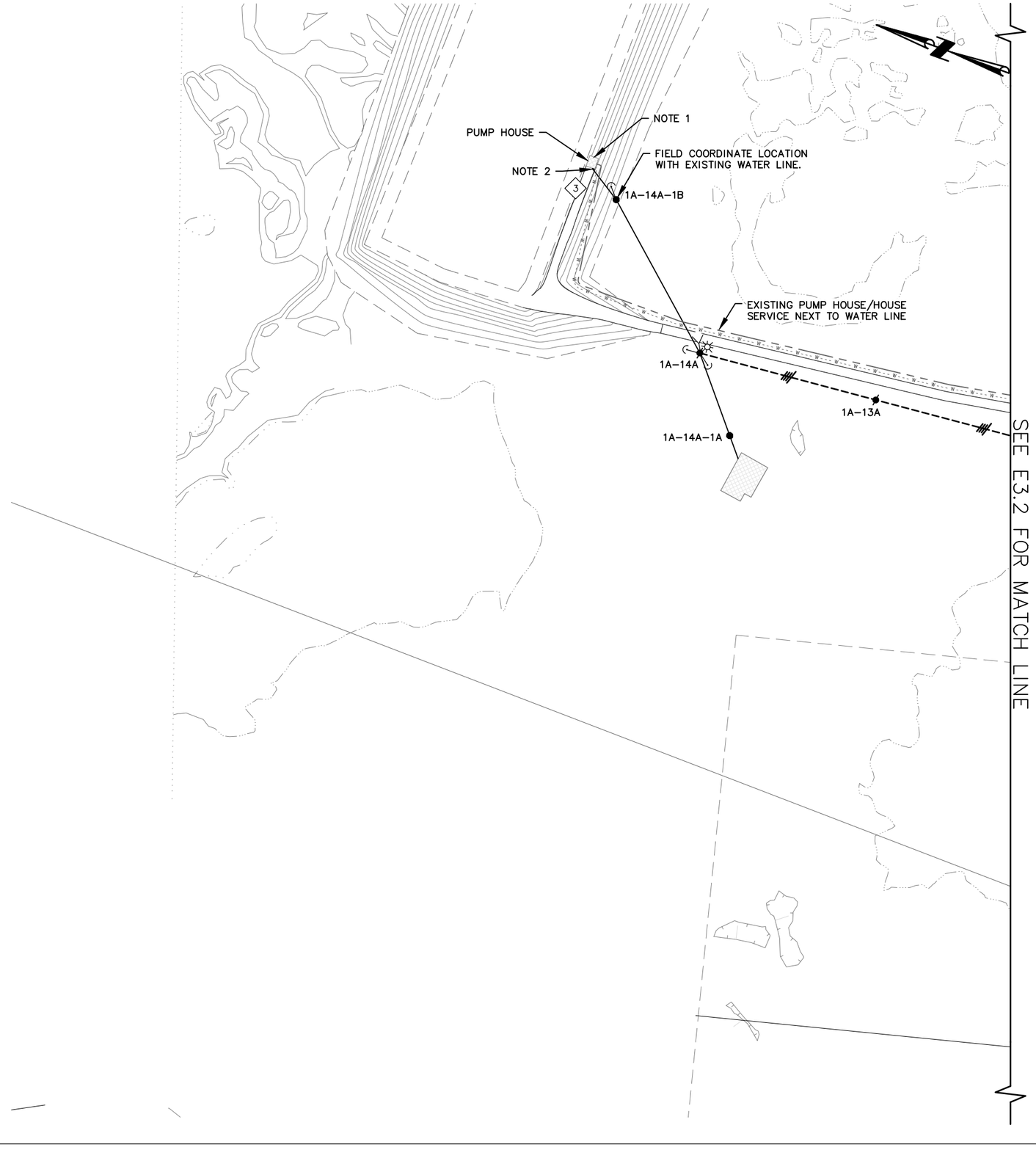
RURAL POWER SYSTEM UPGRADES

NEW DISTRIBUTION PLAN
(2 of 13)
BASE BID

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No.
E3.2



NOTES

1. SEE SHEET E2.3 FOR MODIFICATIONS TO PUMP HOUSE. INSTALL NEW METER BASE AND METER.
2. INSTALL NEW METER BASE AND METER ON EXISTING BUILDING. USE EXISTING SUPPORTS AND INSTALL 2" RISER WITH WEATHER HEAD. ROUTE 3#2 AWG, #6G, 2"C TO EXISTING PANEL MAIN BREAKER. SEAL PENETRATION WEATHERPROOF. METER TO BE PROVIDED BY OWNER.
3. ALL WORK ON THIS SHEET IS INCLUDED IN THE BASE BID.

SCALE IN FEET
60 0 30 60 120

State of Alaska
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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

NEW DISTRIBUTION PLAN
(3 of 13)
BASE BID

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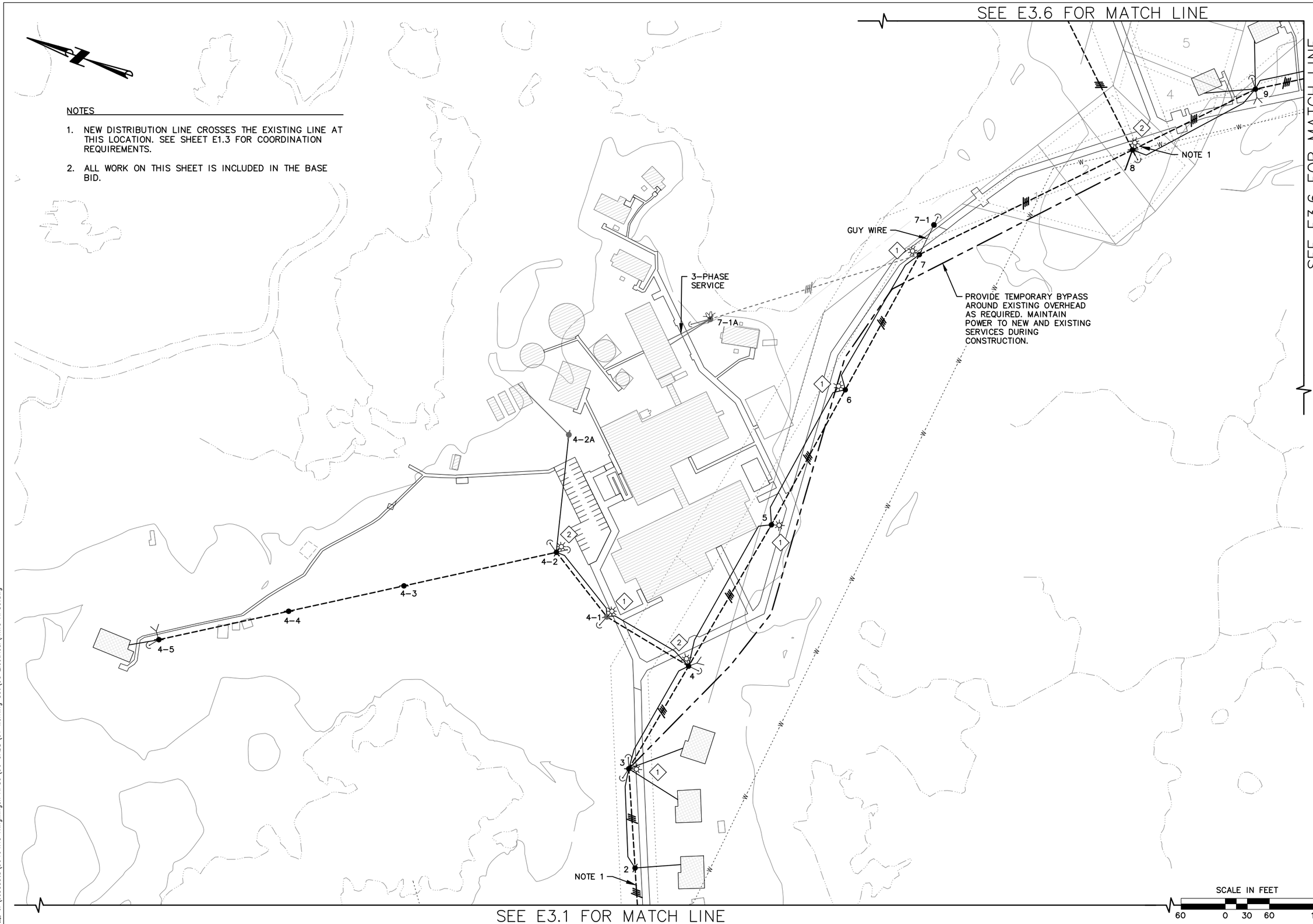
Drawn TRK
Approved CWV

Sheet No. E3.3

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

NOTES

1. NEW DISTRIBUTION LINE CROSSES THE EXISTING LINE AT THIS LOCATION. SEE SHEET E1.3 FOR COORDINATION REQUIREMENTS.
2. ALL WORK ON THIS SHEET IS INCLUDED IN THE BASE BID.



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STATE OF ALASKA 49TH — REGISTERED PROFESSIONAL ENGINEER — CLOIS W. VERSTEEG — EE 7802 — 01/18/2017

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RURAL POWER SYSTEM UPGRADES

NEW DISTRIBUTION PLAN
(4 of 13)
BASE BID

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Sheet No. E3.4

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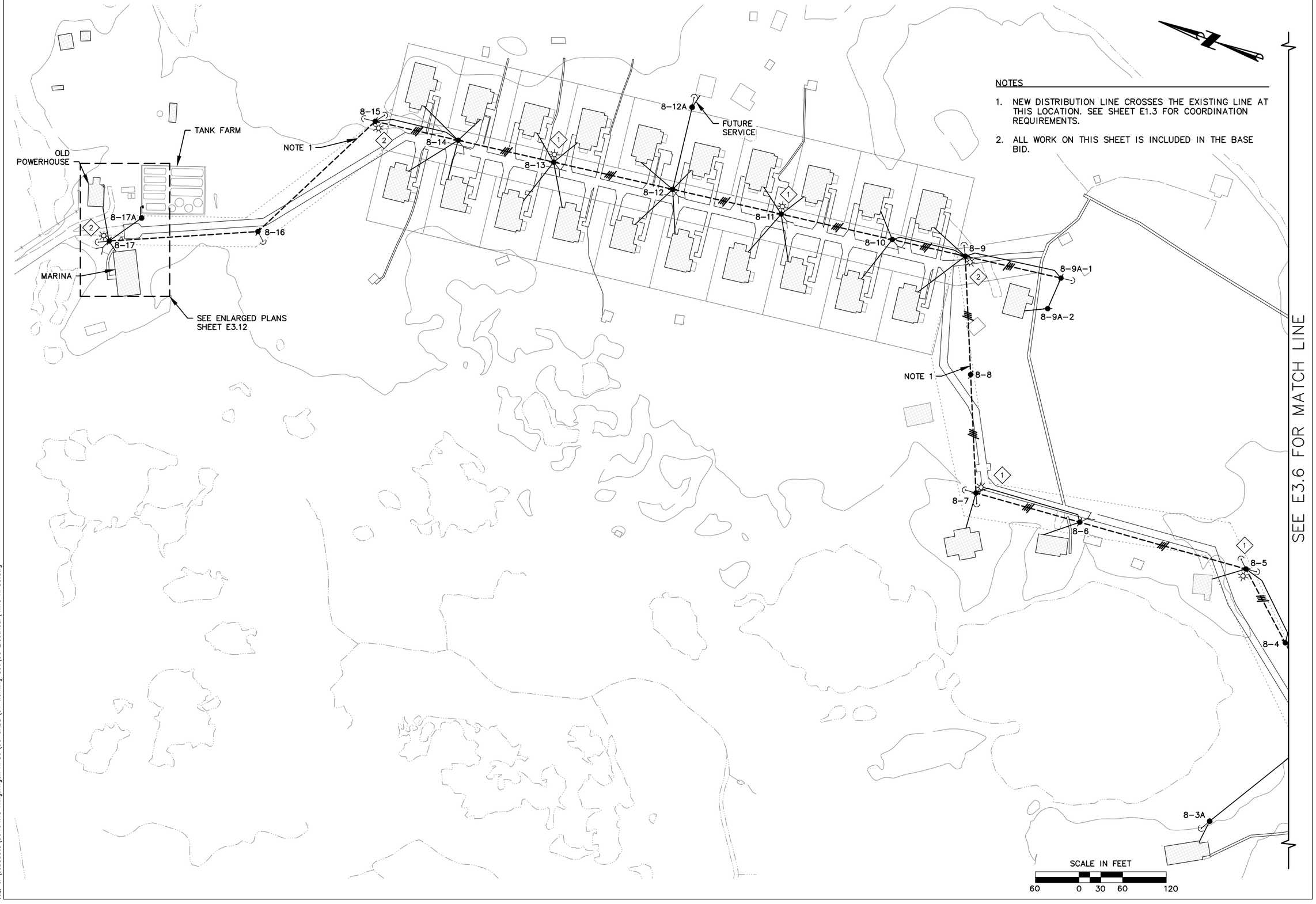

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RURAL POWER SYSTEM UPGRADES

NEW DISTRIBUTION PLAN
(5 of 13)
BASE BID

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Designed CWV
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Approved CWV

Sheet No. E3.5

SEE E3.5 FOR MATCH LINE

NOTES

1. NEW DISTRIBUTION LINE CROSSES THE EXISTING LINE AT THIS LOCATION. SEE SHEET E1.3 FOR COORDINATION REQUIREMENTS.
2. ALL WORK ON THIS SHEET IS INCLUDED IN THE BASE BID.

INSTALL 3φ GANG OPERATED SWITCH. SEE STAKING SHEETS.

STORE

NOTE 1

INSTALL 3φ GANG OPERATED SWITCH. SEE STAKING SHEETS.

SEE E3.4 FOR MATCH LINE

SEE E3.7 FOR MATCH LINE

SCALE IN FEET
60 0 30 60 120

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

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RURAL POWER SYSTEM UPGRADES

NEW DISTRIBUTION PLAN
(6 of 13)
BASE BID

NO.	REVISION	BY	DATE

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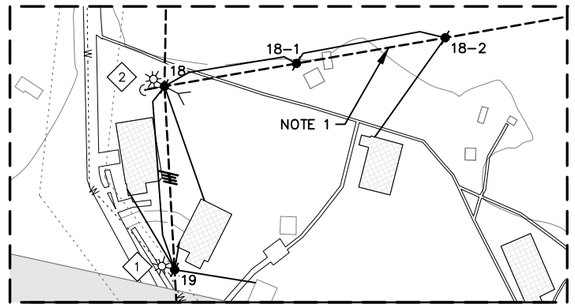
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E3.6

SEE E3.6 FOR MATCH LINE

NOTES

1. NEW DISTRIBUTION LINE CROSSES THE EXISTING LINE AT THIS LOCATION. SEE SHEET E1.3 FOR COORDINATION REQUIREMENTS.
2. ALL WORK ON THIS SHEET IS INCLUDED IN THE BASE BID, UNLESS OTHERWISE NOTED.



ADDITIVE ALTERNATIVE #1 PLAN

SEE E3.8 FOR MATCH LINE

SCALE IN FEET
60 0 30 60 120

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RURAL POWER SYSTEM UPGRADES

NEW DISTRIBUTION PLAN
(7 of 13)
BASE BID

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

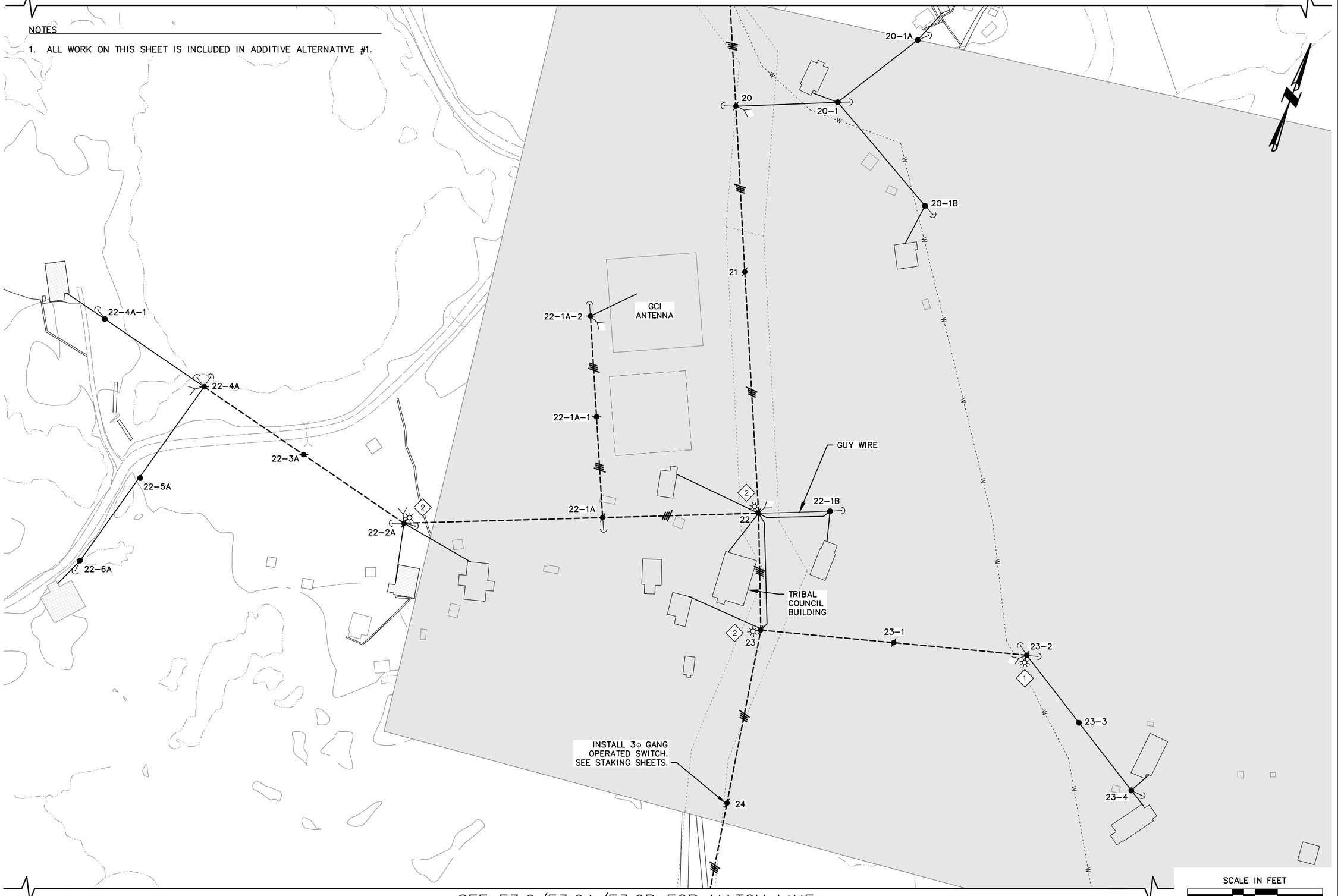
Sheet No. E3.7

File: J:\jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

SEE E3.7 FOR MATCH LINE

NOTES

1. ALL WORK ON THIS SHEET IS INCLUDED IN ADDITIVE ALTERNATIVE #1.



SEE E3.9/E3.9A/E3.9B FOR MATCH LINE

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

State of Alaska
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AIDEA/AEA
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813 West Northern Lights Blvd.
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ALASKA ENERGY AUTHORITY

STATE OF ALASKA
49TH
CLOIS W. VERSTEEG
EE 7802
01/18/2017
REGISTERED PROFESSIONAL ENGINEER

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PHONE: (907) 562-3252
#AECL882-AK

KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

########################
(8 of 13)
ADDITIVE ALT. #1

NO.	REVISION	BY	DATE

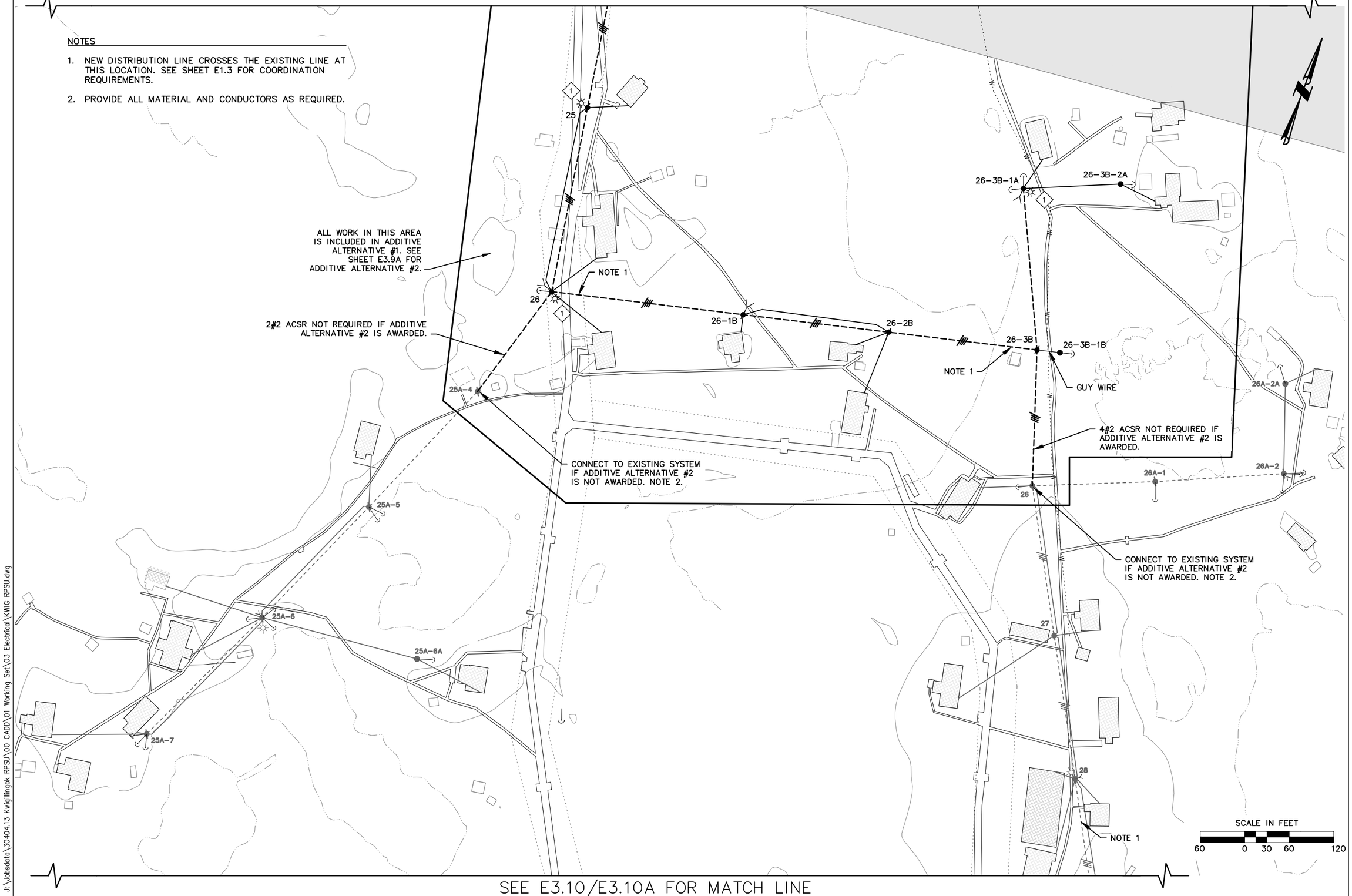
Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E3.8

SEE E3.8 FOR MATCH LINE

NOTES

1. NEW DISTRIBUTION LINE CROSSES THE EXISTING LINE AT THIS LOCATION. SEE SHEET E1.3 FOR COORDINATION REQUIREMENTS.
2. PROVIDE ALL MATERIAL AND CONDUCTORS AS REQUIRED.



SEE E3.10/E3.10A FOR MATCH LINE

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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

NEW DISTRIBUTION PLAN
(9 of 13)
ADDITIVE ALT. #1

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E3.9

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

SEE E3.8 FOR MATCH LINE

NOTES

1. NEW DISTRIBUTION LINE CROSSES THE EXISTING LINE AT THIS LOCATION. SEE SHEET E1.3 FOR COORDINATION REQUIREMENTS.
2. ALL WORK ON THIS SHEET IS INCLUDED IN ADDITIVE ALTERNATE #2, UNLESS OTHERWISE NOTED.

ALL WORK IN THIS AREA IS INCLUDED IN ADDITIVE ALTERNATIVE #1.

25
26
26-1A
26-1B
26-2A
26-2B
26-3B
26-3B-1A
26-3B-1B
26-3B-2A
26-4B
26-4B-1
26-4B-2
26-4B-3
26-5B
26-6B
26-6B-1
27
28
29
29-1
29-2
29-3
29-3-1A
29-3-1B
29-3-1C
29-3-1D

NOTE 1
GUY WIRE

PROVIDE ANCHOR IF ADDITIVE ALTERNATIVE #3 IS NOT AWARDED.

SCALE IN FEET
60 0 30 60 120

SEE E3.10/E3.10A FOR MATCH LINE

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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

NEW DISTRIBUTION PLAN
(10 of 13)
ADDITIVE ALT. #1 & #2

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
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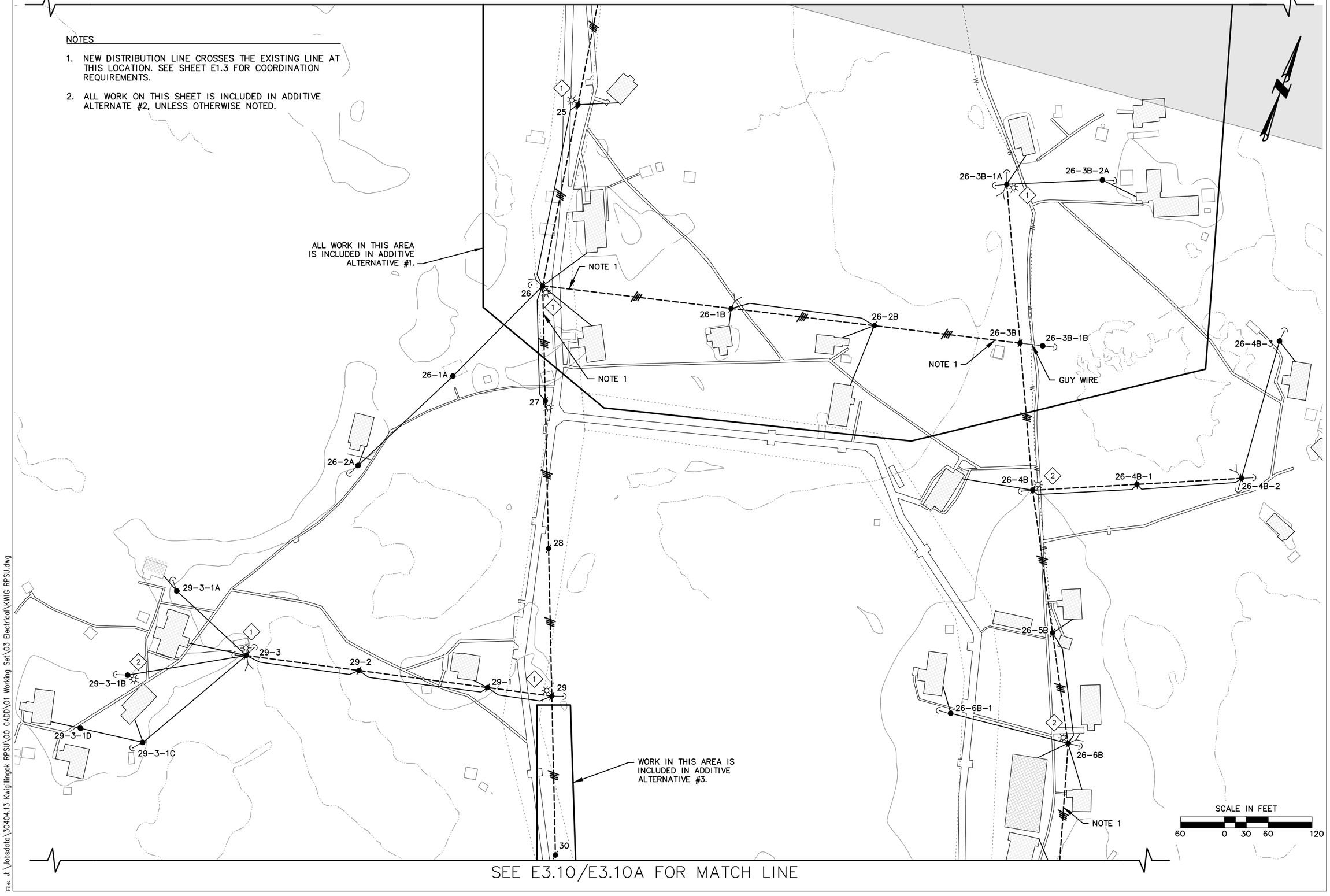
Sheet No. E3.9A

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

SEE E3.8 FOR MATCH LINE

NOTES

1. NEW DISTRIBUTION LINE CROSSES THE EXISTING LINE AT THIS LOCATION. SEE SHEET E1.3 FOR COORDINATION REQUIREMENTS.
2. ALL WORK ON THIS SHEET IS INCLUDED IN ADDITIVE ALTERNATE #2, UNLESS OTHERWISE NOTED.



SEE E3.10/E3.10A FOR MATCH LINE

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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

NEW DISTRIBUTION PLAN
(11 of 13)
ADDITIVE ALT. #1, #2 & #3

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E3.9B

NOTES

1. NEW DISTRIBUTION LINE CROSSES THE EXISTING LINE AT THIS LOCATION. SEE SHEET E1.3 FOR COORDINATION REQUIREMENTS.
2. PROVIDE ALL MATERIALS AND CONDUCTORS AS REQUITED.

SEE E3.9/E3.9A/E3.9B FOR MATCH LINE

ALL WORK IN THIS AREA IS INCLUDED IN ADDITIVE ALTERNATIVE #2. SEE SHEET E3.10A FOR ADDITIVE ALTERNATIVE #3.

NOT REQUIRED IF ADDITIVE ALTERNATIVE #3 IS AWARDED.

CONNECT TO EXISTING SYSTEM IF ADDITIVE ALTERNATIVE #3 IS NOT AWARDED. NOTE 2.

FISHERIES SUPPORT CENTER

26-7B
26-7B-1
29
29A-1
29A-2
29A-3
29A-4
29A-4A-1
29A-4A-2
29A-5
29A-6
29A-7
29A-7A-1
29A-7A-2
29A-7B-1
29A-7B-2
29A-7B-3
30
31
32
32A
32B
32C

SCALE IN FEET
60 0 30 60 120

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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

NEW DISTRIBUTION PLAN
(12 of 13)
ADDITIVE ALT. #2

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E3.10

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

SEE E3.9/E3.9A/E3.9B FOR MATCH LINE

NOTES

1. NEW DISTRIBUTION LINE CROSSES THE EXISTING LINE AT THIS LOCATION. SEE SHEET E1.3 FOR COORDINATION REQUIREMENTS.
2. ALL WORK ON THIS SHEET IS INCLUDED IN ADDITIVE ALTERNATIVE #3, UNLESS OTHERWISE NOTED.

ALL WORK IN THIS AREA IS INCLUDED IN ADDITIVE ALTERNATIVE #2.

30
31
31-1A
31-1B
GUY WIRE
NOTE 1
NOTE 1
32
33
NOTE 1
33-1
33-2
34
35
36
37
26-7B
NOTE 1
26-7B-1
FISHERIES SUPPORT CENTER
26-8B
26-9B
26-10B
26-10B-1
26-11B

SCALE IN FEET
60 0 30 60 120

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg

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RURAL POWER SYSTEM UPGRADES

NEW DISTRIBUTION PLAN
(13 of 13)
ADDITIVE ALT. #3

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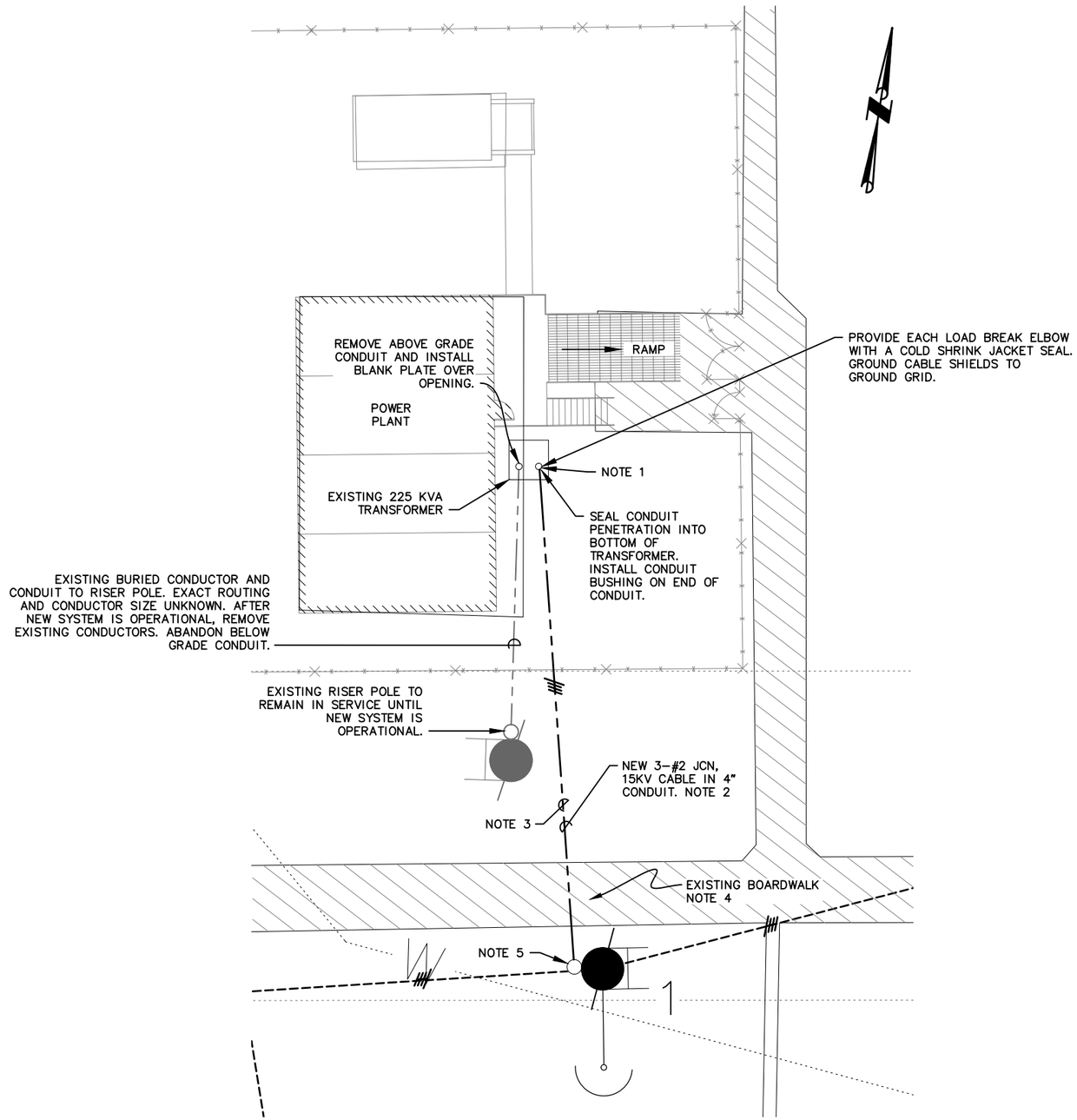
Sheet No. E3.10A



1 - **ENLARGED POWER PLANT PLAN**
Scale: GRAPHIC

GENERAL NOTES

1. INSTALL COOPER POWER SYSTEMS ROTATABLE FEED THRU INSERT KID IN EXISTING BUSHING WELL, CATALOG No. LF1215. CONNECT THE EXISTING AND NEW LOAD BREAK ELBOWS TO THE INSERTS.
2. PROVIDE SCHEDULE 80 PVC FOR BELOW GRADE AND UP TO THE TRANSFORMER, GRC AT THE POLE.
3. BURY CONDUIT MINIMUM 3'-0".
4. REMOVE EXISTING BOARDWALK AS REQUIRED TO INSTALL NEW CABLE AND CONDUIT. RETURN BOARDWALK TO EXISTING CONDITION AFTER CONDUIT HAS BEEN INSTALLED.
5. TRANSITION TO PVC FOR BELOW GRADE. SEE UNIT UC2a.

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RURAL POWER SYSTEM UPGRADES

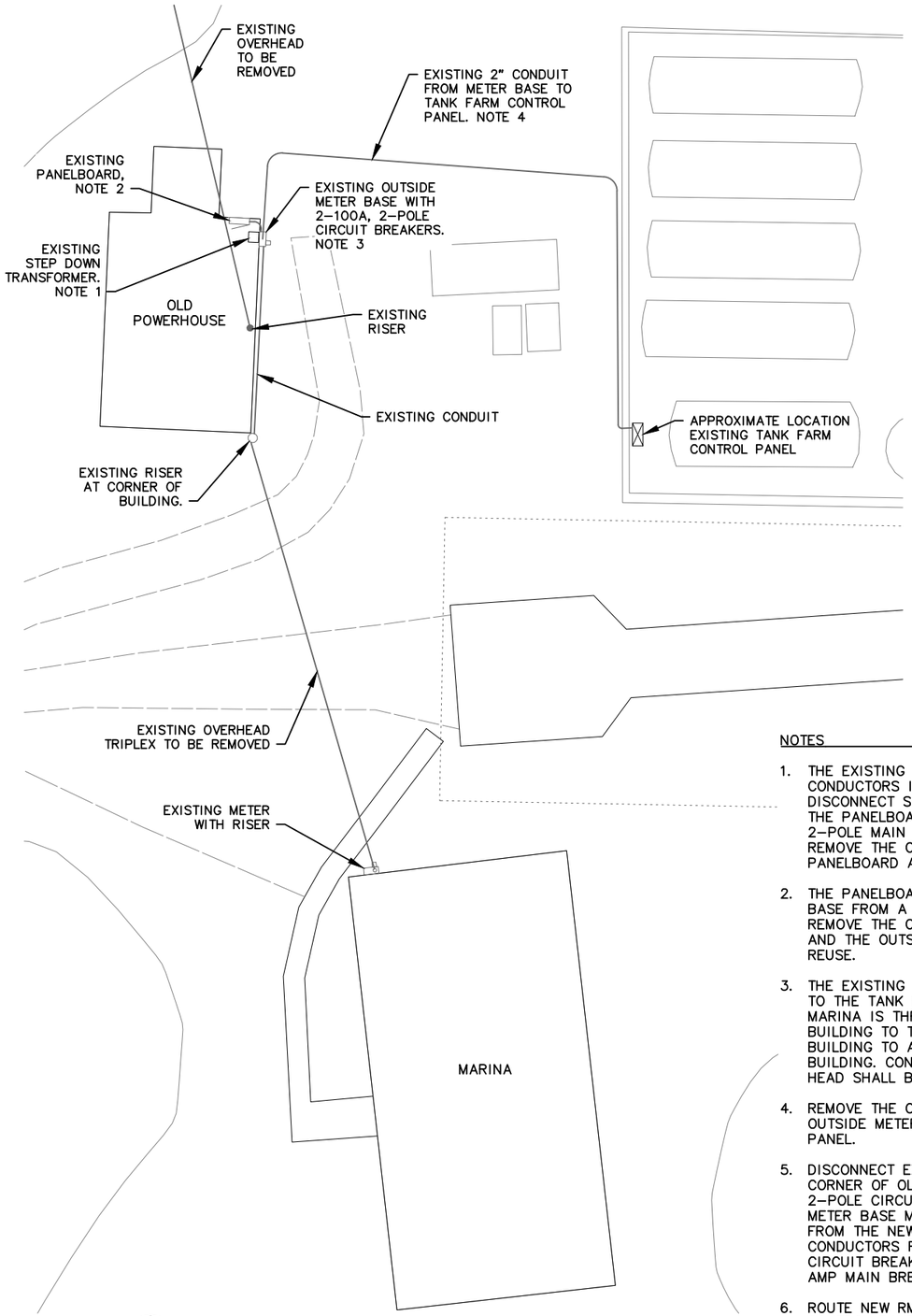
ENLARGED POWER PLANT PLAN

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E3.11

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg



1 - **OLD POWER PLANT ENLARGED PLAN DEMOLITION**

Scale: GRAPHIC

SCALE IN FEET

20 0 5 10 20

NOTES

1. THE EXISTING STEP DOWN TRANSFORMER IS FED FROM CONDUCTORS IN WIREWAY THROUGH A FUSED DISCONNECT SWITCH. THE TRANSFORMER THEN FEEDS THE PANELBOARD THROUGH A METER TO A 100 AMP, 2-POLE MAIN CIRCUIT BREAKER IN THE PANELBOARD. REMOVE THE CONDUIT AND CONDUCTORS BETWEEN THE PANELBOARD AND METER.

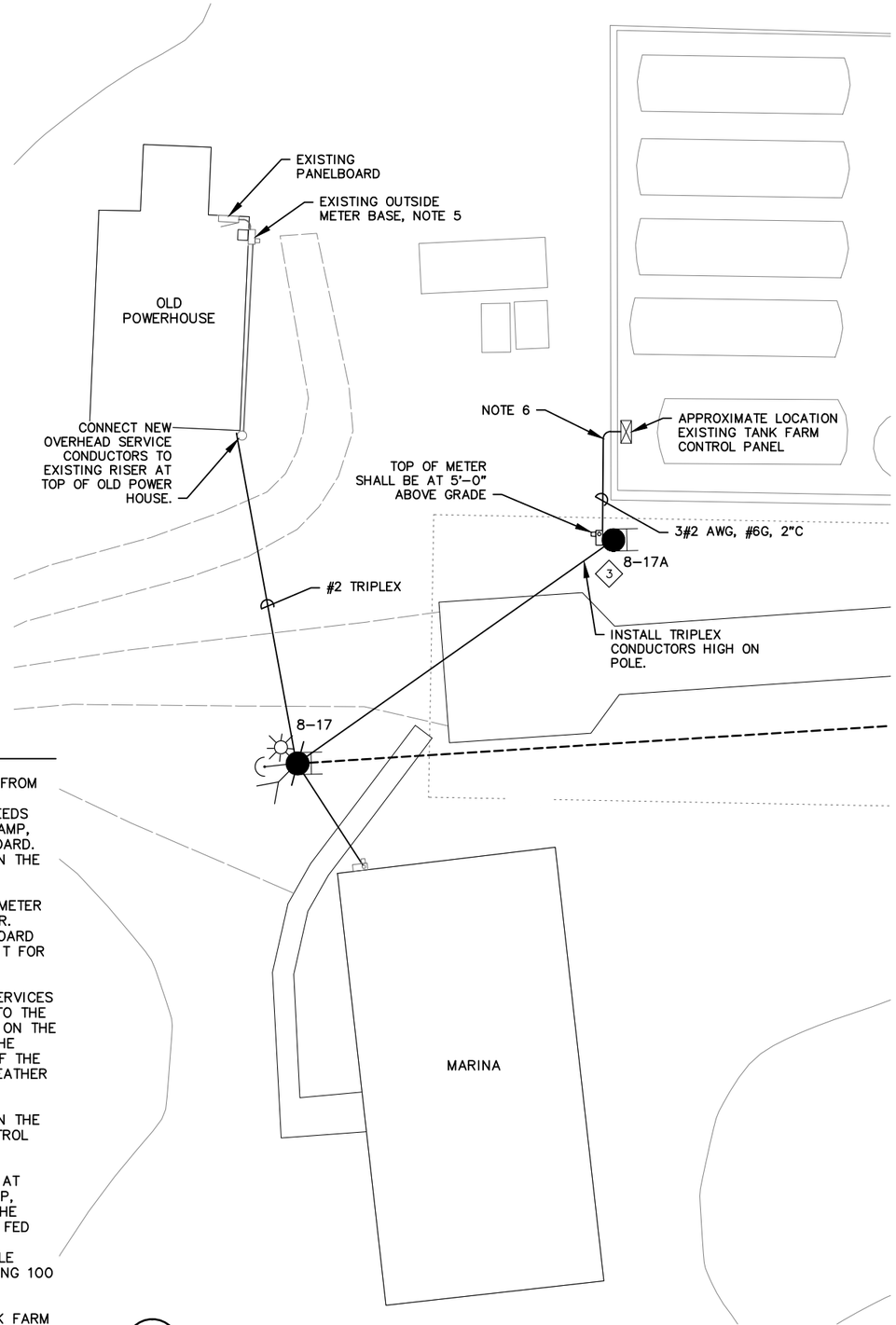
2. THE PANELBOARD FEEDS THE EXISTING OUTSIDE METER BASE FROM A 50 AMP, 2-POLE CIRCUIT BREAKER. REMOVE THE CONDUCTORS BETWEEN THE PANELBOARD AND THE OUTSIDE METER BASE. PROTECT CONDUIT FOR REUSE.

3. THE EXISTING OUTSIDE METER BASE PROVIDES SERVICES TO THE TANK FARM AND THE MARINA. SERVICE TO THE MARINA IS THROUGH A CONDUIT INSTALLED LOW ON THE BUILDING TO THE CORNER WHERE IT RISES UP THE BUILDING TO A WEATHER HEAD NEAR THE TOP OF THE BUILDING. CONDUIT AND CONDUCTORS TO THE WEATHER HEAD SHALL BE PROTECTED FOR REUSE.

4. REMOVE THE CONDUIT AND CONDUCTORS BETWEEN THE OUTSIDE METER BASE AND THE TANK FARM CONTROL PANEL.

5. DISCONNECT EXISTING CONDUCTORS FROM RISER AT CORNER OF OLD POWERHOUSE FROM THE 100 AMP, 2-POLE CIRCUIT BREAKER AND RECONNECT TO THE METER BASE MAIN LUGS SO THE METER BASE IS FED FROM THE NEW SERVICE. INSTALL 3#2 AWG, #6G CONDUCTORS FROM ONE OF THE 100 AMP, 2-POLE CIRCUIT BREAKERS AND ROUTE IT TO THE EXISTING 100 AMP MAIN BREAKER IN THE PANELBOARD.

6. ROUTE NEW RMC CONDUIT TO THE EXISTING TANK FARM CONTROL PANEL. SECURELY SUPPORT AT THE PILE AND FROM THE TANK FARM DIKE. ROUTE BENEATH EXISTING STAIRS. INSTALL SEAL FITTING AT THE PANEL TO MATCH EXISTING.



2 - **OLD POWER PLANT ENLARGED PLAN NEW WORK**

Scale: GRAPHIC

SCALE IN FEET

20 0 5 10 20

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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

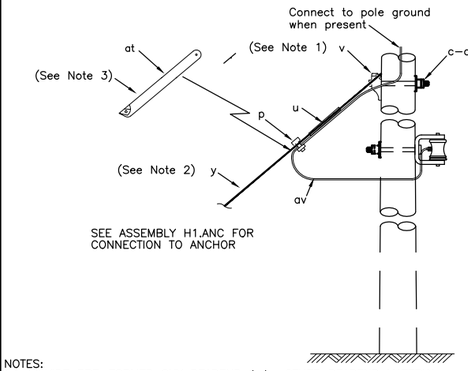
ENLARGED PLANS

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E3.12

File: J:\Jobsdata\30404.13 Kwigillingok RPSU\00 CADD\01 Working Set\03 Electrical\KWIG RPSU.dwg



NOTES:
1. PROVIDE PRE–FORMED GUY DEADEND (u.) OTHER DEADEND MATERIAL SHALL NOT BE SUBSTITUTED.
2. Pole eye plate guy attachment and anchor shakle (item "bo") may be used.
3. INSTALL RED STRIPED REFLECTIVE TAPE ON BOTH SIDES OF GUY GUARD. INSTALL TAPE IN WARM ENVIRONMENT, ABOVE MANUFACTURE RECOMMENDED TEMPERATURE.

ITEM	QTY	MATERIAL
c	1	Bolt, machine, 3/4" x req'd length
d	1	Washer, square, 4" curved
p		Connectors, guy bond and as req'd
j	1	Screw, lag, 1/2" x 4"
u	2	Deadend for guy strand, heavy duty
v	1	Guy attachment, guy hook type
y		Guy wire, as req'd (See Note 4)
at	1	Guy marker, Yellow
av		Jumpers, as req'd
ck	1	Clamp, anchor bonding
ek	1	Locknuts

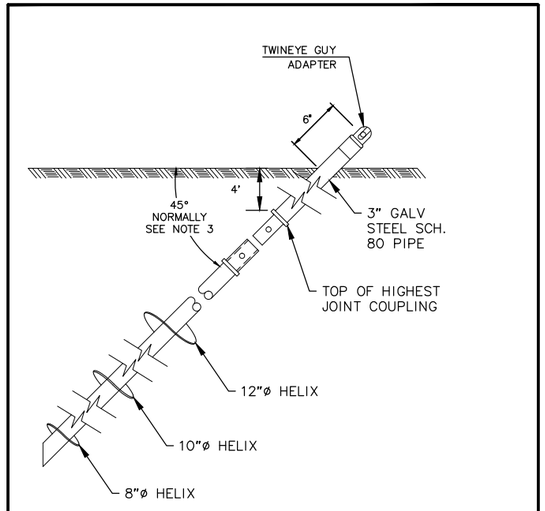
4. 2–5/8 machine bolts and 2–3 square curved washers may be used to install guy attachment.
5. Specify guy wire size, type and required length.

DESIGN PARAMETERS:

PERMITTED LOAD IS LEAST OF:
8,500 lbs (in any direction)
or 90% of RATED BREAKING STRENGTH OF GUY WIRE

SINGLE DOWN GUY (THROUGH BOLT TYPE)

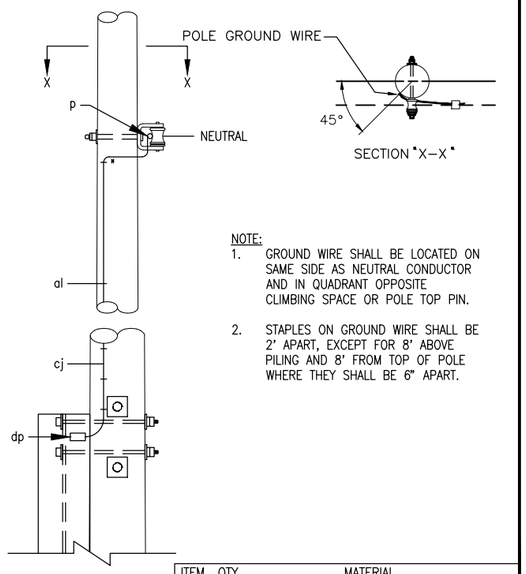
JANUARY 2014 | E1.1La



NOTES:
1. USE PILOT DRILL TO PROVIDE MAX 4" DIAMETER HOLE WHEN INSTALLING HELICAL PILES IN PERMAFROST.
2. ADVANCE HELICAL ANCHOR UNTIL THE AVERAGE INSTALLATION TORQUE EXCEEDS THE MINIMUM INSTALLATION TORQUE OF 2,000 FEET–POUNDS OVER THE FINAL THREE FEET OF HELICAL PILE EMBEDMENT OR THE PILES ARE EMBEDDED A MINIMUM OF 9 FEET TO THE UPPER HELIX, WHICHEVER IS DEEPER.
3. UNDER NO CIRCUMSTANCES SHALL THE ROD AND GUY STRAND JOIN AT AN ANGLE OF DEPARTURE EXCEEDING +/– 5 DEGREES.

HELICAL PILE ANCHORS (POWER INSTALLED)

JANUARY 2014 | F7.0



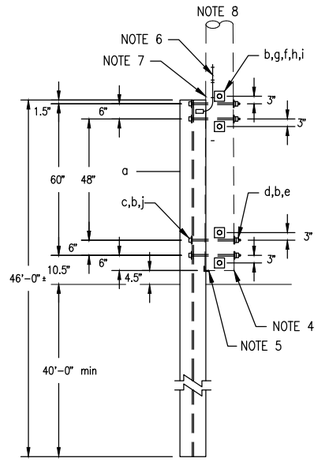
NOTE:
1. GROUND WIRE SHALL BE LOCATED ON SAME SIDE AS NEUTRAL CONDUCTOR AND IN QUADRANT OPPOSITE CLIMBING SPACE OR POLE TOP PIN.
2. STAPLES ON GROUND WIRE SHALL BE 2' APART, EXCEPT FOR 8' ABOVE PILING AND 8' FROM TOP OF POLE WHERE THEY SHALL BE 6" APART.

ITEM	QTY.	MATERIAL
p		CONNECTORS, AS REQUIRED
al		COPPER PLATED STAPLES, AS REQUIRED
cj	1	GROUND WIRE, MINIMUM #4 SOLID COPPER.
dp	1	CADWELD

GROUNDING DETAIL H–PILE

JANUARY 2014 | H1.1G

NOTE:
1. BOLT HOLES ARE TO BE FIELD DRILLED AT 1/8" LARGER THAN BOLT.
2. PILING WILL BE LOCATED INLINE WITH ADJACENT POLE LOCATIONS.
3. THE SPRING WASHER SHALL BE INSTALLED SO THAT THE SPRING WASHER LAYS HORIZONTAL.
4. THE BUTT OF THE POLE SHALL BE APPROXIMATELY 6" OFF OF THE GROUND.
5. SMALL PIECE OF 3"x3" ANGLE STEEL IS TO BE WELDED ONTO PILING TO SUPPORT POLE DURING INSTALLATION.
6. USE H1.1G GROUNDING ASSEMBLY.
7. POLE SHALL BE SNUG AGAINST PILING FOR ITS ENTIRE LENGTH. TIGHTEN BOLTS SEQUENTIALLY AND EVENLY. BOLTS SHALL BE TIGHTENED WITH THE SPRING WASHER COMPLETELY COMPRESSED AND THE SQUARE WASHER AND PILING FLANGE INDENTED INTO THE WOOD POLE 1/16".
8. INSTALLATION DETAIL TYPICAL FOR ALL H–PILE FOUNDATIONS. SEE STAKING SHEET FOR SPECIFIC RUS CONSTRUCTION UNIT REQUIRED.

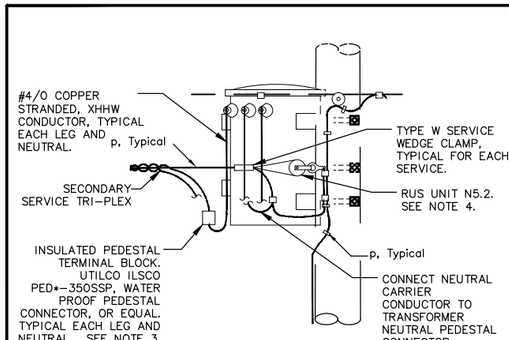


SIDE VIEW

ITEM	QTY.	MATERIAL
a	1	10x57x46' HP STEEL PILING
b	8	SPRING CLIP WASHER, 3/4"
c	4	BOLT, WASHER, 3/4" x REQ'D LENGTH
d	4	WASHER, SQ. CURVED, 4"x4" W/ 13/16" HOLE
e	4	LOCKNUT, 3/4" MF TYPE
f	4	SPRING CLIP WASHER, 5/8"
g	4	BOLT, MACHINE, 5/8" x REQ'D LENGTH
h	8	WASHER, SQ. CURVED, 4"x4" W/ 11/16" HOLE
i	4	LOCKNUT, 5/8" MF TYPE
j	4	WASHER, SQ., 2–1/4"x2–1/4" W/ 13/16" HOLE

POLE FOUNDATION H–PILE INSTALLATION

JANUARY 2014 | H1–PILE



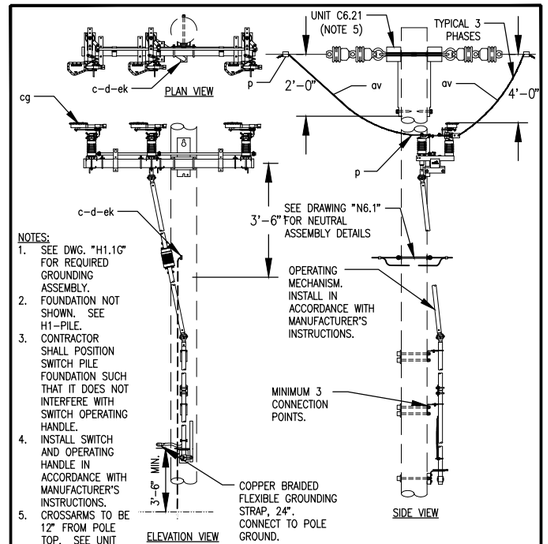
NOTES:
1) THIS CONSTRUCTION UNIT APPLIES ONLY TO SINGLE–PHASE SECONDARY CONNECTIONS AT SINGLE–PHASE TRANSFORMERS. FOR CONNECTIONS THREE–PHASE TRANSFORMERS SEE APPROPRIATE RUS CONSTRUCTION UNIT.
2) FOR POLE GROUNDING, NEUTRAL CONNECTIONS, ETC. SEE THE APPROPRIATE RUS CONSTRUCTION UNIT.
3) * – FOR 4 OUTLET CONNECTOR USE PED4–350SSP AND FOR 6 OUTLET CONNECTOR USE PED6–350SSP. INSTALL WITH OUTLET FACING DOWN AND SCREW OPENINGS AWAY FROM TRANSFORMER. CONNECT #4/0 CONDUCTOR NEAR CENTER OF PEDESTAL CONNECTOR.
4) FOR SERVICES ON OPPOSITE SIDES OF POLE PROVIDE TWO UNITS. AN EYE NUT MAY BE USED FOR THE SECOND UNIT IF DESIRED BY THE CONTRACTOR.

N7.4 – 4 OUTLET CONNECTOR.
N7.6 – 6 OUTLET CONNECTOR.

ITEM	QTY	MATERIAL
p		Connectors, as req'd
–	–	–
av		Jumpers, as req'd

SINGLE–PHASE SECONDARY SERVICE ASSEMBLY

JANUARY 2014 | N7.4, N7.6



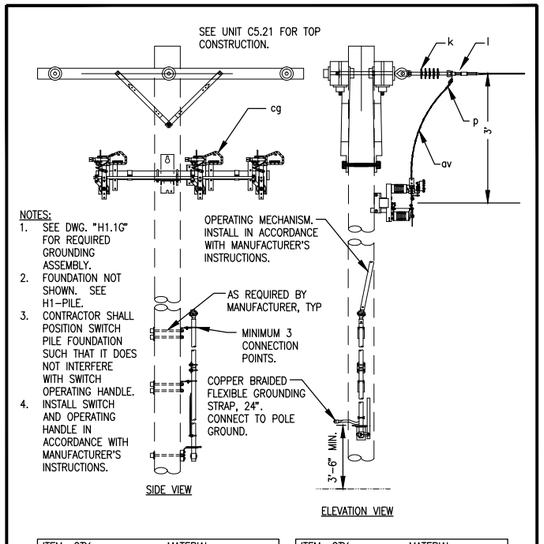
NOTES:
1. SEE DWG. "H1.1G" FOR REQUIRED GROUNDING ASSEMBLY.
2. FOUNDATION NOT SHOWN. SEE H1–PILE.
3. CONTRACTOR SHALL POSITION SWITCH PILE FOUNDATION SUCH THAT IT DOES NOT INTERFERE WITH SWITCH OPERATING HANDLE.
4. INSTALL SWITCH AND OPERATING HANDLE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
5. CROSSARMS TO BE 12" FROM POLE TOP. SEE UNIT FOR DETAILS.

ITEM	QTY.	MATERIAL
c	As Req'd	BOLT, MACHINE, 5/8" X REQ'D LENGTH
d	As Req'd	WASHER, ROUND, 1–3/8"
d	As Req'd	WASHER, SQUARE 2 1/4"
l	3	COMPRESSION DEADEND
k	3	INSULATOR, SUSPENSION, POLYMER TYPE
p	As Req'd	CONNECTORS, AS REQ'D

ITEM	QTY.	MATERIAL
av	6	JUMPERS, AS REQ'D
cg	1	SWITCH, LOADBREAK, GANG OPERATED 15 KV, W/OPERATING MECHANISM
ek	As Req'd	LOCKNUTS

GANG OPERATED LOADBREAK SWITCH (THREE–PHASE) HORIZONTAL

JANUARY 2014 | 12.47/7.2 kV | S2.32a



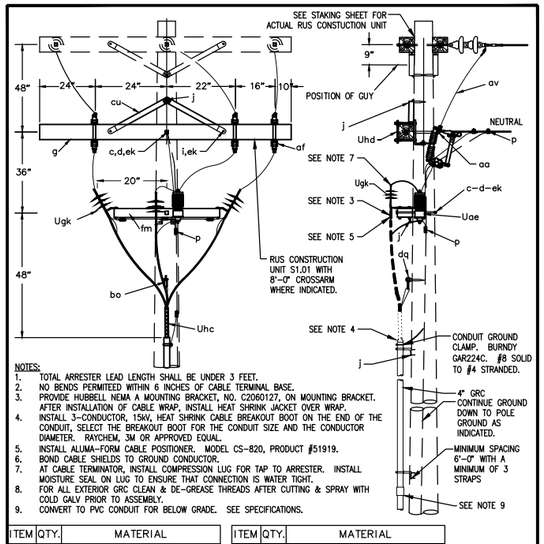
NOTES:
1. SEE DWG. "H1.1G" FOR REQUIRED GROUNDING ASSEMBLY.
2. FOUNDATION NOT SHOWN. SEE H1–PILE.
3. CONTRACTOR SHALL POSITION SWITCH PILE FOUNDATION SUCH THAT IT DOES NOT INTERFERE WITH SWITCH OPERATING HANDLE.
4. INSTALL SWITCH AND OPERATING HANDLE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

ITEM	QTY.	MATERIAL
c	As Req'd	BOLT, MACHINE, 5/8" X REQ'D LENGTH
d	As Req'd	WASHER, ROUND, 1–3/8"
d	As Req'd	WASHER, SQUARE 2 1/4"
l	3	COMPRESSION DEADEND
k	3	INSULATOR, SUSPENSION, POLYMER TYPE
p	As Req'd	CONNECTORS, AS REQ'D

ITEM	QTY.	MATERIAL
av	3	JUMPERS, AS REQ'D
cg	1	SWITCH, LOADBREAK, GANG OPERATED 15 KV, W/OPERATING MECHANISM
ek	As Req'd	LOCKNUTS

GANG OPERATED LOADBREAK SWITCH (THREE–PHASE) VERTICAL

DEC 2015 | 12.47/7.2 kV | S2.32b



NOTES:
1. TOTAL ARRESTER LEAD LENGTH SHALL BE UNDER 3 FEET.
2. NO BENDS PERMITEED WITHIN 6 INCHES OF CABLE TERMINAL BASE.
3. PROVIDE HUBBELL NEMA A MOUNTING BRACKET, NO. C2060127, ON MOUNTING BRACKET. AFTER INSTALLATION OF CABLE WRAP, INSTALL HEAT SHRINK JACKET OVER WRAP.
4. INSTALL 3–CONDUCTOR, 15kV, HEAT SHRINK CABLE BREAKOUT BOOT ON THE END OF THE CONDUIT, SELECT THE BREAKOUT BOOT FOR THE CONDUIT SIZE AND THE CONDUCTOR DIAMETER. RAYCHEM, 3M OR APPROVED EQUAL.
5. INSTALL ALUMA–FORM CABLE POSITIONER. MODEL CS–820, PRODUCT #51919.
6. BOND CABLE SHIELDS TO GROUND CONDUCTOR.
7. AT CABLE TERMINATOR, INSTALL COMPRESSION LUG FOR TAP TO ARRESTER. INSTALL MOISTURE SEAL ON LUG TO ENSURE THAT CONNECTION IS WATER TIGHT.
8. FOR ALL EXTERIOR GRC CLEAN & DE–GREASE THREADS AFTER CUTTING & SPRAY WITH COLD GALV PRIOR TO ASSEMBLY.
9. CONVERT TO PVC CONDUIT FOR BELOW GRADE. SEE SPECIFICATIONS.

ITEM	QTY.	MATERIAL
c	2	Bolt, machine, 5/8" x required length.
d	2	Washer, square 2 1/4".
g	1	Crossarm, 3 5/8" x 4 5/8" x 8'–0"
i	2	Bolt, carriage, 3/8" x 4 1/2"
j		Screw, lag 1/2" x 4" as required.
p		Connectors, as required.
aa	1	Eyenut, 5/8"
af	3	100 amp open cutout, Chance C7.
av		Jumpers, as required.
bo	1	Anchor, shackle.
cu	2	Brace, wood, 28"
dq	1	Eye screw, elliptical or drive hook.
ek	4	Locknuts, as required.
fm	1	Three–Phase Mounting bracket, ALUMA–FORM TB–EMB–1–6PA–35 Product 51064, or Approved Equal.
Uae	3	Surge arrester, 7.65 kV MCOV (9kV Dist. Class)

ITEM	QTY.	MATERIAL
Ugc	1	4" GRC CONDUIT.
Ugk	3	Cable termination. (IEEE Class 1, Molded Outdoor) with Compression Lug.
Uhc	3	Cable support. HUBBELL 1"–1.24", Catalog NO. 02402017.
Uhd	3	Crossarm mounting bracket.

THREE PHASE CABLE TERMINAL POLE WITH CUTOUTS AND BRACKET MOUNTING ARRESTERS

NOV 2016 | 12.47/7.2 kV | UC2a

State of Alaska
Department of Commerce
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KWIGILLINGOK, ALASKA

RURAL POWER SYSTEM UPGRADES

DETAILS

NO.	REVISION	BY	DATE

Plot Date 1/18/17
Designed CWV
Drawn TRK
Approved CWV

Sheet No. E4.1

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