

**APPLICATION AND AGREEMENT FOR USE OF
HIGHWAY RIGHT-OF-WAY FOR UTILITIES ACCOMMODATION**

FOR DEPARTMENT USE ONLY

| | | |
|--|-----------------------------|--|
| Permit Number <u>914-2014-016</u> | Highway Number <u>92</u> | County <u>WARREN</u> |
| DOT Project Number <u>WHSX-092-5(B)-34-91</u> | | Expiration/Completion Date <u>10-1-2014</u> |

APPLICANT (INDIVIDUAL OR COMPANY)

| | | | | |
|--|------------------------|-------------------|--------------------------------|------|
| First Name | Middle | Last Name | Phone Number | Ext. |
| | | | | |
| Company Name Indianola Municipal Utilities | City/Town Indianola | | Phone Number (515) 961-9444 | Ext. |
| Street Address P.O. Box 356, 111 South Buxton St. | State IA | ZIP Code 50125 | | |

INSTALLATION TO BE ACCOMMODATED

Approval is hereby requested to enter within the state highway right-of-way for the accommodation of a utility installation as detailed on the attachments and further described as follows.

The installation shall consist of:

Overhead cable for electric transmission at 69 KV run longitudinally north of Hwy 92 within DOT ROW from Hwy Sta. 267+40 to 273+71
Crossing over the highway at 273+71.
Run longitudinally on the south side of Hwy 92 within DOT ROW from Hwy Sta. 273+71 to 344+85
30 poles will be set on DOT ROW.

Conductors:
One shield wire top (steel 3/8" 7 strand, class B galvanized, EHS)
Three 69 KV nominal wire vertically - tangentially arranged (T-2-336.4 ACSR, Bare)

Traffic control plan: TC-202 for Hwy 92 while installing the poles and down guys if necessary. TC-251 for Hwy 92 while pulling conductors.
coordination with local officials for closures of county roads.
See drawings E8958-P1 Thru E8958-P11 for the plan view.
See drawings T69-021, T69-022, T69-026A, T69-064, T69-169 for pole details.

and shall be located as shown on the detailed plan attached hereto. (See current Iowa Department of Transportation Utility Accommodation Policy for submittal of detailed plan requirements.)

WORK SITE LOCATION

The proposed work as described above is located in Section 28.29, Twp. 76N
Range 24W on Highway No. Hwy. 92 generally located .75 - 2.25 (miles) west
(direction) from Indianola, IA (city, county line, or other land line). Work proposed is more specifically located as being from 126+15 (Milepost #) and 267+40 (Highway Station) to 127+64 (Milepost #) and 345+45 (Highway Station) on the Both side of highway.

Applicant Signature and Agreement

I have read this Agreement, understand its provisions, and agree to abide by it and the utility accommodation policy of the Iowa Department of Transportation

| | | |
|--|---|-------------------------------------|
| Name of Agent (Print or Type) Bob Miller | Agent/Owner (Signature) <i>[Signature]</i> | Title <u>Electric Supervisor</u> |
| Name of Owner (Print or Type) Indianola Municipal Utilities | <u>Robert Miller</u> | Date <u>4/28/14</u> |

CITY ACTION (IF PROPOSED WORK IS WITHIN AN INCORPORATED CITY, CITY ACTION IS REQUIRED)

"The undersigned city joins in the grants embodied in the above permit executed by the Iowa Department of Transportation on condition that all of the covenants and undertakings therein running to the Iowa Department of Transportation shall inure to the benefit of the undersigned city and recommends action on said permit application as noted below by the delegated city official".

Recommend Approval Do Not Recommend Approval None Required

| | | |
|--|---|------------------------|
| Handwritten Signature <i>[Signature]</i> | Title <u>Dir. of Con. Dev.</u> | Date <u>3-17-14</u> |
| Type or Print Name <u>Charles Burgess</u> | Authorized Official for the City of <u>INDIANOLA</u> | |

COUNTY ACTION (IF PROPOSED WORK CROSSES COUNTY RIGHT-OF-WAY, COUNTY ACTION IS REQUIRED)

"The undersigned county joins in the grants embodied in the above permit executed by the Iowa Department of Transportation on condition that all of the covenants and undertakings therein running to the Iowa Department of Transportation shall inure to the benefit of the undersigned county and recommends action on said permit application as noted below by the delegated county official".

Recommend Approval Do Not Recommend Approval None Required

| | | |
|---|--|------------------------|
| Handwritten Signature <i>[Signature]</i> | Title <u>County Engineer</u> | Date <u>3-19-14</u> |
| Type or Print Name <u>J. Brian Morrissey</u> | Authorized Official for the County of <u>Warren</u> | |

FOR DEPARTMENT USE ONLY

Special Requirements - in addition to the stipulations below, the following special requirements shall apply to this permit:

FEDERAL HIGHWAY ADMINISTRATION ACTION (WHEN REQUIRED)

Recommend Approval Do Not Recommend Approval None Required

Authorized FHWA Representative Signature _____ Date _____

DEPARTMENT OF TRANSPORTATION FINAL ACTION

Application Approved Application Denied Permit Number: 59U-2014-016

Authorized Highway District Representative Date O'Brien _____ Signature _____ Date 5-19-2014

Notice of intention to start construction or maintenance activities on the highway right-of-way shall be made to:

| | | |
|--|-----------------------|------------------------------|
| Local DOT Contact Person (Type or Print Name) Scott Sommers, P.E. | | Phone Number 641-774-5056 |
| Street Address 21922 480th St | City/Town Chariton | State ZIP Code IA 50049 |

AGREEMENTS

The utility company, corporation, applicant, permit holder or licensee, (hereinafter referred to as the Permit Holder) agrees with the Iowa Department (hereafter referred to as Department) that the following stipulations and those special requirements as listed on this page shall govern under this permit.

A. General

1. The installation shall meet the requirements of local municipal, county, state, and federal Iowa franchise rules and regulations, regulations and directives of the Iowa State Commerce Commission; the Department of Natural Resources, all rules and regulations of the Department and any other laws or regulations applicable.
2. The Permit Holder shall be fully responsible for any future adjustments of the facilities within the established highway right-of-way caused by highway construction or maintenance operations.
3. Non-compliance with any of the terms of the Department's policy, permit or agreement, may be considered cause for shut-down of utility construction operations or withholding of relocation reimbursement until compliance is assured, or revocation of the permit. The cost of any work caused to be performed by the State in removal of non-complying construction will be assessed against the Permit Holder.
4. The work described in this permit shall be completed as proposed in compliance with the stipulations and special requirements within one year from the date Department approval is received for said request. Failure on the part of the Permit Holder to abide by the stipulations or in constructing the work described as stipulated and within the time frame stated shall render this agreement and request null and void. The Permit Holder also agrees to save the State of Iowa and the Department harmless of any damages or losses that may be sustained by any person, or persons, on account of the conditions and requirements of this agreement.

B. Construction and Maintenance

1. The location, construction and maintenance of the utility installation covered by this application shall be in accordance with the current Department's Utility Accommodation Policy.
2. Before beginning any work in the highway right-of-way, it is the responsibility of the Permit Holder to obtain an easement from the drainage district if necessary. The Department assumes no responsibility for advising the Permit Holder of each location of a drainage district crossing. It is the Permit Holder's responsibility to locate these crossings and obtain any necessary easements or permission from the drainage district. See Code of Iowa, Chapter 468 for additional information.
3. A copy of the approved permit shall be available on the job site at all times for examination by Department officials.
4. All traffic control including sign placement and flagging are the responsibility of the Permit Holder. The original placement of signs and their removal upon completion of the work shall be accomplished by the Permit Holder.
5. Operations in the construction and maintenance of said utility installation shall be carried on in such a manner as to cause minimum interference to or distraction of traffic on said highway.
6. After November 24, 2008, all personnel in the highway right-of-way shall wear ANSI 107 Class 2 apparel at all times when exposed to traffic or construction equipment.

C. Liability

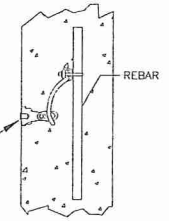
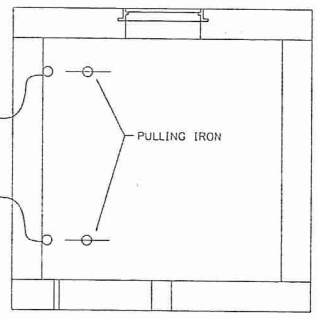
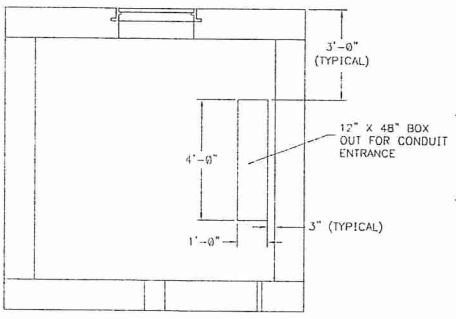
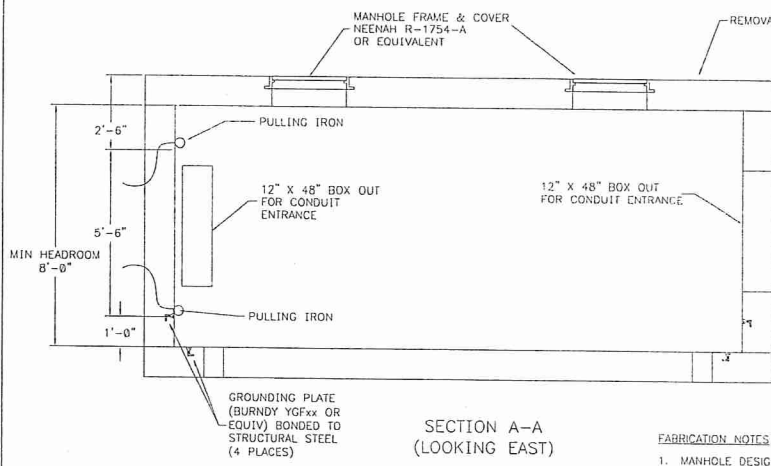
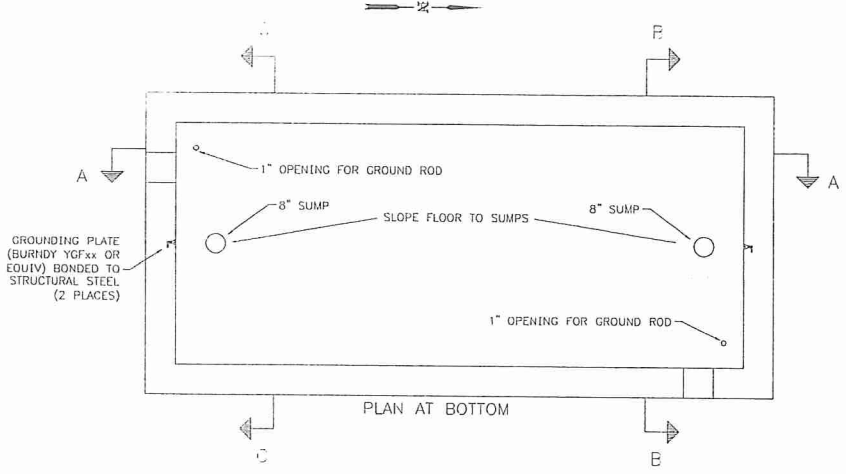
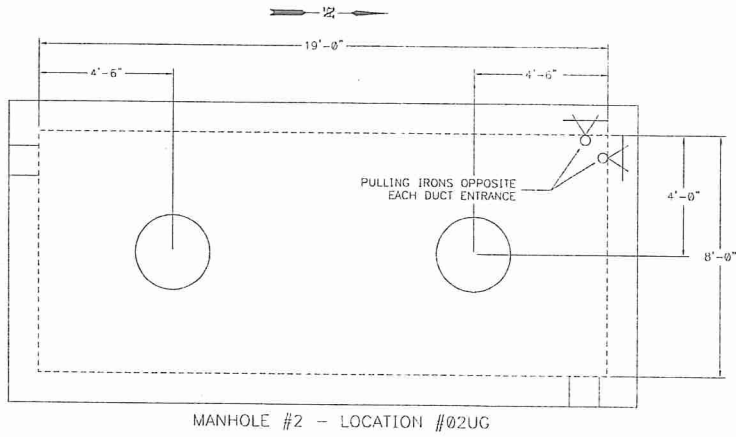
1. The Permit Holder shall indemnify and save harmless the State of Iowa, its agencies and employees, from any and all causes of action, suits at law or in equity, for losses, damages, claims or demands, and from any and all liability and expense of whatsoever nature, arising out of or in connection with the Permit Holder's use or occupancy of the public highway.
2. The state of Iowa and the Department assume no responsibility for damages to the Permit Holder's property occasioned by any construction or maintenance operations on said highway if Permit Holder has been notified in accordance with stipulation number D.3. or if the facilities are not located in accordance with this permit.

3. The State of Iowa, its agencies or employees, will be liable for expense incurred by the Permit Holder in its use and occupancy of the highway right-of-way only when negligence of the State, its agencies or employees, is the sole proximate cause of such expense. Whether in contract, tort or otherwise, the liability of the State, its agencies and employees, is limited to the reasonable, direct expense to repair damaged utilities, and in no event will such liability extend to loss of profits or business, indirect, special, consequential or incidental damages.

D. Notification

1. The Permit Holder is responsible for contacting Iowa One-Call (1-800-292-8989) and request the location of any underground utilities forty-eight (48) hours before excavation. Before beginning work in the highway right-of-way, the Permit Holder shall also contact any other known utility located in the area of the proposed work.
2. The Permit Holder agrees to give the Department forty-eight hours notice of its intention to start construction or to perform routine maintenance on the highway right-of-way. Said notice shall be made to the contact person whose name is shown on this page.
3. The Department shall give the Permit Holder at least forty-eight hours notice of any proposed construction or maintenance work, on either existing or newly acquired right-of-way when the proposed work will be ten feet of a utility location as previously approved by the Department by permit or written agreement. The Permit Holder shall be responsible within this time frame to arrange to protect its facilities.

Disclosure Statement: The information furnished on this form will be used by the Department of Transportation to determine approval or denial of the application. Failure to provide all information will result in denial of the application. Information furnished is public information and copies may be provided to the public upon request.



- FABRICATION NOTES**
1. MANHOLE DESIGN SHALL BE SUITABLE FOR INSTALLATION ALONG STATE HIGHWAYS AND WITH REQUIREMENTS OF AASTO H-20.
 2. PROVIDE PULLING EYES (CONDUX 083B1301 OR EQUIVALENT) AND MANHOLE FRAMES & COVERS AS NOTED.
 3. PROVIDE KNOCKOUT AREAS AS NOTED. KNOCK OUT AREAS SHALL BE VOID OF REBAR AND SHALL HAVE NO MORE THAN A 1" THICKNESS OF CONCRETE.
 4. PRE-CAST SUPPLIER IS RESPONSIBLE FOR STRUCTURAL DESIGN OF MANHOLE.
 5. SEE SPECIFICATION PARAGRAPH 17.0 IN SECTION 167222 FOR ADDITIONAL REQUIREMENTS.

**PRELIMINARY
NOT FOR CONSTRUCTION**

| REV | DATE | DESIGN | CHKD | APP | DESCRIPTION |
|-----|----------|--------|------|-----|---|
| B | 04/05/13 | PAE | SNB | JEP | ADJUSTED POSITION OF PULLING IRONS AND HEIGHT NOTES |
| A | 03-13-13 | PAE | NWB | JEP | ORIGINAL DESIGN |

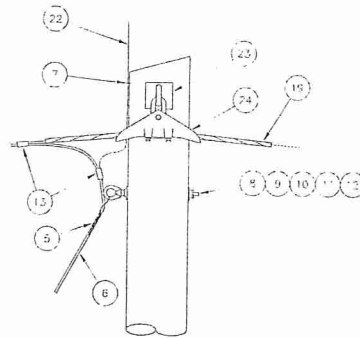
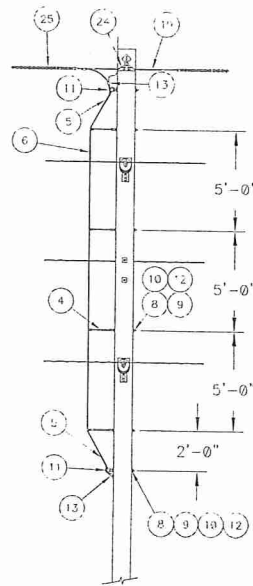
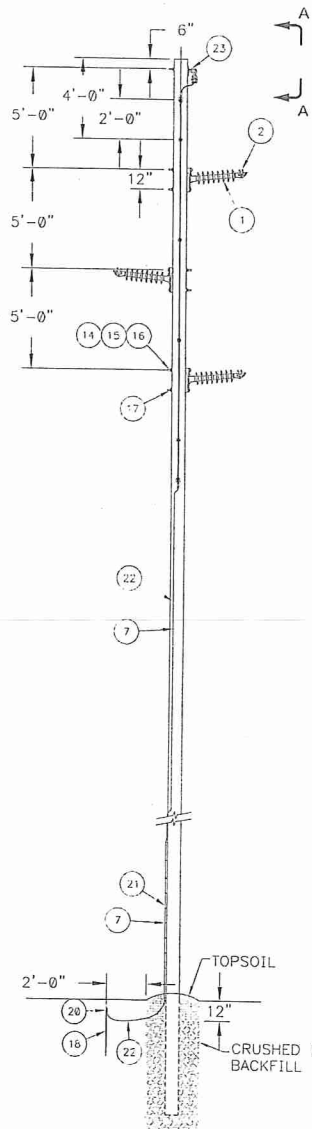
P. R. R. ENGINEERING, LLC
UTILITY SYSTEM ANALYSIS AND DESIGN
245 S. 30th
P.O. Box 422
Olathe, MO 64041

INDIANOLA MUNICIPAL UTILITIES
IMU
Electric • Natural Gas • Water

DATE 01-08-12
DESIGNED P&E
DRAWN DAW
APPROVED JWC
APPROVED ARP

INDIANOLA MUNICIPAL UTILITIES
HIGHWAY 92 DOT PROJECT
PREFABRICATED MANHOLE CONSTRUCTION, LOCATION 02UG

SCALE: AS NOTED
REV B
DWG NO E8958-U120



VIEW A-A
NOT TO SCALE

T59-021

69kV TANGENT STRUCTURE, T2 CONDUCTOR

| ITEM | QTY | MATID | UNIT | DESCRIPTION |
|------|-----|-------|------|---|
| 1 | 3 | 16601 | EA | INSULATOR, HORIZ LINE POST, 69 KV, GAIN BASIC, CLAMP TOP, 1325 LB RCL |
| 2 | 3 | 16192 | EA | CLAMP, TRUNNION, CLAMP TOP, 266-T2 - 477-T2 ACSR |
| 3 | | 99999 | | NOT USED |
| 4 | 4 | 16010 | EA | INSULATOR, DOWN LEAD, FIBERGLASS, 5/8" X 12" |
| 5 | 2 | 10701 | EA | GRIP, DEAD-END, PREFORMED, 1/0 ACSR, AAC, AAAC |
| 6 | 25 | 05023 | FI | CONDUCTOR, #1/0 ACSR, BARE |
| 7 | 40 | 12550 | EA | SHAPL, GROUND WIRE, 2" X 5/8" |
| 8 | 6 | 12103 | FA | BOLT, DOUBLE ARMING, 5/8" GALVANIZED, VARIOUS LENGTHS |
| 9 | 17 | 12502 | FA | WASHER, SQUARE, FLAT, 5/8" GALVANIZED |
| 10 | 6 | 12403 | EA | LOCKNUT, 5/8" GALVANIZED |
| 11 | 2 | 12453 | EA | EYE NUT, 5/8" GALVANIZED |
| 12 | 6 | 12509 | EA | WASHER, TWIN COILS, 5/8" |
| 13 | 3 | 14205 | EA | CONNECTOR, AL COMPRESSION, H-TAP, VARIOUS SIZES |
| 14 | 6 | 12004 | EA | BOLT, MACHINE, 3/4" GALVANIZED, VARIOUS LENGTHS |
| 15 | 6 | 12506 | EA | WASHER, SQUARE, CURVED, GALVANIZED, 3/4" |
| 16 | 6 | 12404 | EA | LOCKNUT, 3/4" GALVANIZED |
| 17 | 6 | 12510 | EA | WASHER, TWIN COILS, 3/4" |
| 18 | 1 | 10402 | CA | ROD, GROUND, 5/8" X 10', COPPERWELD, THREADED SECTIONAL |
| 19 | 1 | 10790 | CA | ROD, ARMOR, 3/8" IIS/DHS |
| 20 | 1 | 10406 | EA | CLAMP, 5/8" GROUND ROD TO #8 - 1/0 CU |
| 21 | 8 | 10410 | FT | MOLDING, GROUND WIRE, 1/2" PLASTIC |
| 22 | 50 | 05001 | FT | WIRE, #4 SOLID COPPER, SD, BARE |
| 23 | 1 | 10100 | EA | SUPPORT, SHIELD WIRE, SIDE MOUNTED, 5/8" X 12" |
| 24 | 1 | 10501 | EA | CLAMP, SUSPENSION, 3/8" EHS (WITH ARMOR ROD) |
| 25 | 2 | 10761 | FA | DAMPER, VIBRATION, SPIRAL, 0.377-0.461" |

PRELIMINARY
NOT FOR CONSTRUCTION

| REV | DATE | DESIGN | BY | APP | ISSUED FOR | DESCRIPTION |
|-----|----------|--------|-----|-----|------------|-------------|
| A | 03-13-13 | P&E | RVB | ARP | | |

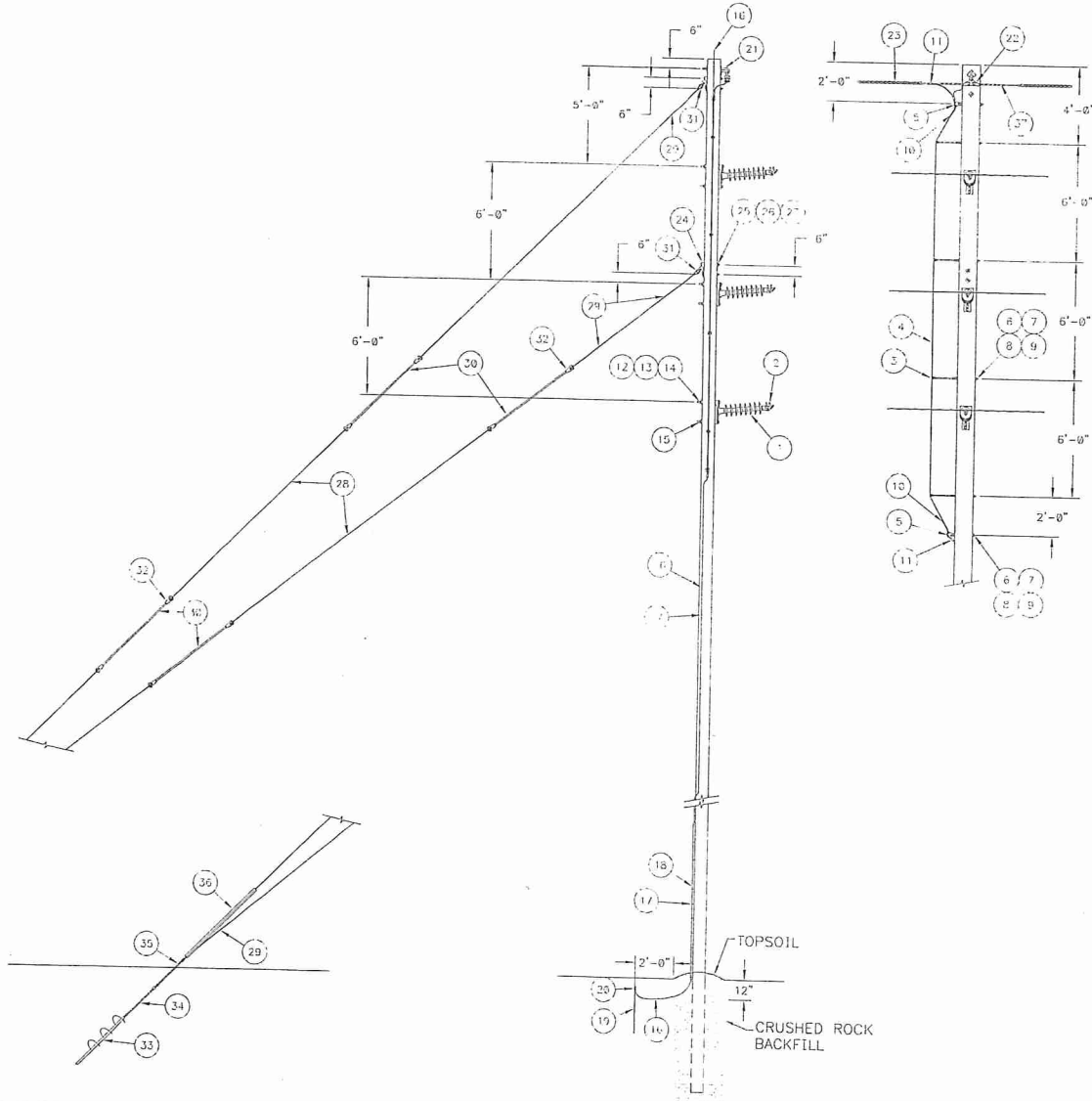
P R E ENGINEERING CO.
POWER SYSTEM ANALYSIS AND DESIGN
285 S. 5th St.
PO Box 470
Lafayette, LA 70504
504-285-5770
504-285-5193
2025701000000000

DATE 05-16-12
DESIGNED P&E
DRAWN MRB
APPROVED JWE
APPROVED ARP

69kV TANGENT STRUCTURE T2 CONDUCTOR

SCALE: NONE
REV A

DWG NO
T69-021



T69-022
69KV, LIGHT ANGLE, GUYED, T2 CONDUCTOR

| ITEM | QTY | MATID | UNIT | DESCRIPTION |
|------|-----|-------|------|--|
| 1 | 3 | 16601 | EA | INSULATOR, HORZ LINP POST, 69 KV, GAIN BASF, CLAMP TOP, 1225 LB RCL |
| 2 | 3 | 16192 | EA | CLAMP, TRUITION, CLAMP TOP 266-T2 477-T2 ACSR |
| 3 | 4 | 16610 | EA | INSULATOR, DOWN LEAD, FIBERGLASS, 5/8" X 12" |
| 4 | 25 | 05023 | F1 | CONDUCTOR, #1/0 ACSR, BARL |
| 5 | 2 | 12403 | EA | EYE NUT, 5/8" GALVANIZED |
| 6 | 7 | 12103 | EA | BOLT, DOUBLE ARMING, 5/8" GALVANIZED, VARIOUS LENGTHS |
| 7 | 12 | 12503 | EA | WASHER, SQUARE, FLAT, 5/8" GALVANIZED |
| 8 | 6 | 12403 | EA | LOCKNUT, 5/8" GALVANIZED |
| 9 | 6 | 12509 | EA | WASHER, TWIN COILS, 5/8" |
| 10 | 2 | 10707 | EA | GRIP, DEAD-END, PREFORMED, 1/2 ACSR, AAC, A/C |
| 11 | 3 | 14305 | EA | CONNECTOR, AL COMPRESSION, H-AP, VARIOUS SIZES |
| 12 | 6 | 12804 | EA | BOLT, MACHINE, 3/4" GALVANIZED, VARIOUS LENGTHS |
| 13 | 6 | 12506 | EA | WASHER, SQUARE, CURVED, GALVANIZED, 3/4" |
| 14 | 6 | 12404 | EA | LOCKNUT, 3/4" GALVANIZED |
| 15 | 6 | 12510 | EA | WASHER, TWIN COILS, 3/4" |
| 16 | 50 | 05841 | FT | WIRE, #4 SOLID COPPER, SD, BARE |
| 17 | 40 | 12550 | EA | STAPLE, GROUND WIRE, 2" X 5/8" |
| 18 | 8 | 10410 | FT | MOLDING, GROUND WIRE, 1/2" PLASTIC |
| 19 | 1 | 10402 | EA | RCD, GROUND, 5/8" X 10", COPPERWELD, THREADED SECTIONAL |
| 20 | 1 | 10406 | EA | CLAMP, 5/8" GROUND RCD TO #8 - 1/0 CU |
| 21 | 1 | 10168 | EA | SUPPORT, SHIELD WIRE, SIDE MOUNTED, 5/8" X 12" |
| 22 | 1 | 10541 | EA | CLAMP, SUSPENSION, 3/8" EHS (WITH ARMOR ROD) |
| 23 | 2 | 10761 | EA | DAMPER, VIBRATION, SPIRAL, 0.327-0.461" |
| 24 | 2 | 10201 | EA | PLATE, POLE EYE, 6" |
| 25 | 4 | 12005 | EA | BOLT, MACHINE, 7/8", VARIOUS LENGTHS |
| 26 | 4 | 12507 | EA | WASHER, SQUARE, CURVED, GALVANIZED, 7/8" |
| 27 | 4 | 12405 | EA | LOCKNUT, 7/8", GALVANIZED |
| 28 | 120 | 05707 | EA | WIRE, GUY, 7/16", 7 STR, CLASS A GALVANIZED, EHS STEEL |
| 29 | 12 | 05722 | EA | GRIP, GUY, PREFORMED, 7/16" |
| 30 | 4 | 16502 | EA | INSULATOR, GUY, FIBERGLASS, 54", 36,000 POUND, 3/4" PINS, ONE ROLLER |
| 31 | 2 | 10901 | EA | THIMBLE CLEVIS, 40,000 POUND |
| 32 | 4 | 16511 | EA | ROLLER, GUY, 13/16" X 2-3/8" DIA, 3/4" PIN |
| 33 | 1 | 10252 | EA | ANCHOR, 8-10-12" TRIPLE HELIX |
| 34 | 7 | 10772 | EA | RCD, EXTENSION, 1-1/2" X 5" |
| 35 | 1 | 10262 | EA | RCD, ANCHOR, 1 1/2" ADAPTER WITH TRIPIE EYE |
| 36 | 1 | 10350 | EA | GUARD, GUY |
| 37 | 1 | 10790 | EA | RCD, ARMOR, 3/8" HS/EHS |

69KV LIGHT ANGLE-GUYED
T2 CONDUCTOR

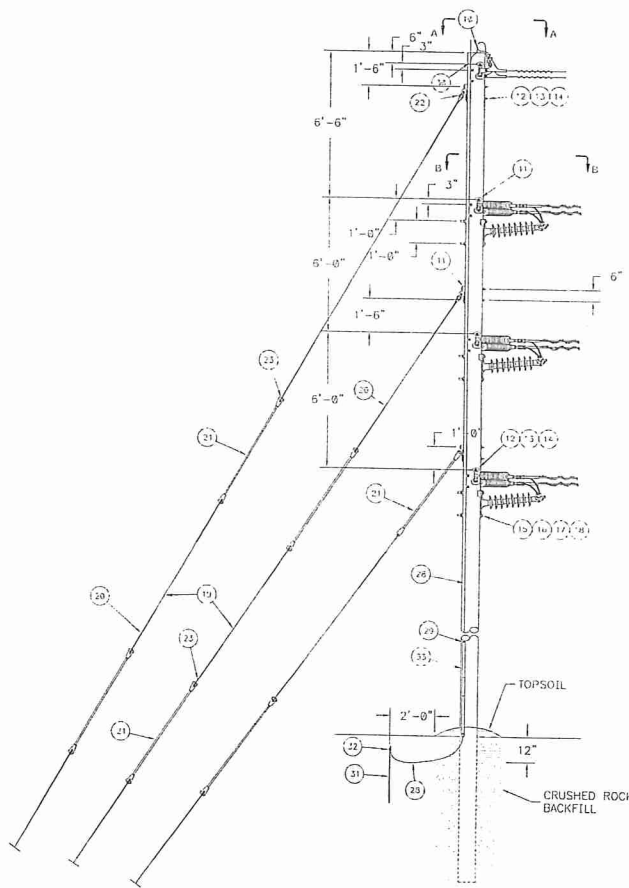
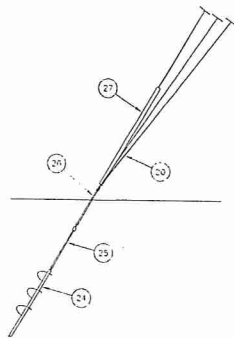
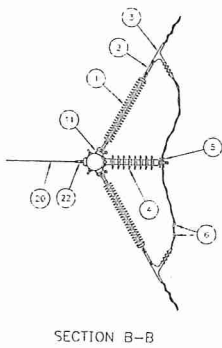
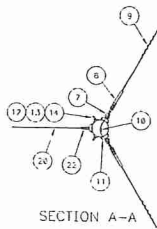
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|-----|----------|----------|-------|-----|-----------------|
| A | 07-30-13 | PAE | MWB | JAE | ORIGINAL DESIGN |

P & E ENGINEERING CO.
POWER SYSTEM ANALYSIS AND DESIGN
205 S. 10th
PO BOX 100
LAKOTA, SD 57007
605-535-3333 FAX 605-535-3337
WWW.PEENGINEERING.CO

DATE 05-16-12
DESIGNED P&E
DRAWN MRB
APPROVED JWE
APPROVED ARP

69KV LIGHT ANGLE-GUYED T2 CONDUCTOR

SCALE: NONE
REV A
DWG NO T69-022



109-026A

69 KV DOUBLE DEADEND, MEDIUM ANGLE, BISECT GUYING, 3 DOWN GUYS

| ITEM | QTY | MATID | UNIT | DESCRIPTION |
|------|-----|-------|------|--|
| 1 | 6 | 16604 | EA | INSULATOR, SUSPENSION, PCV/MPPF, 69 KV, 35" |
| 2 | 6 | 10947 | EA | SOCKET EYE, 8 3/8" EXTENSION LHM |
| 3 | 6 | 16500 | EA | CLAMP, DEADEND, SEE VAR MAT LIST |
| 4 | 3 | 16601 | EA | INSULATOR, HORIZ LINE POST, 69 KV, GAIN BASE, CLAMP TOP, 225 LB PCL |
| 5 | 3 | 16780 | EA | CLAMP, TRUNNION, CLAMP TOP, SEE VAR MAT LIST |
| 6 | 6 | 14794 | EA | CONNECTOR, COMP SLEEVE, JUMPER, VARIOUS SIZES |
| 7 | 2 | 10911 | EA | CLEVIS-EYE, 7/8" OPENING, 3-3/8" C-C |
| 8 | 2 | 10500 | EA | CLAMP, DEADEND, SEE VAR MAT LIST |
| 9 | 2 | 10760 | CA | DAMPER, VIBRATION, SPIRAL, SEE VAR MAT LIST |
| 10 | 2 | 14205 | EA | CONNECTOR, AL COMPRESSION, H-TAP, VARIOUS SIZES |
| 11 | 1 | 10201 | EA | PLATE, POLE EYE, 6" |
| 12 | 22 | 12005 | EA | BOLT, MACHINE, 7/8", VARIOUS LENGTHS |
| 13 | 22 | 12507 | EA | WASHER, SQUARE, CURVED, GALVANIZED, 7/8" |
| 14 | 22 | 12405 | EA | LOCKWASHER, 1/8", GALVANIZED |
| 15 | 6 | 12034 | EA | BOLT, MACHINE, 3/4" GALVANIZED, VARIOUS LENGTHS |
| 16 | 6 | 12505 | EA | WASHER, SQUARE, CURVED, GALVANIZED, 3/4" |
| 17 | 6 | 12404 | EA | LOCKWASHER, 3/4" GALVANIZED |
| 18 | 6 | 12510 | EA | WASHER, TWIN COILS, 3/4" |
| 19 | 200 | 05707 | EA | WIRE, GUY, 7/16", 7 STR, CLASS A GALVANIZED, EHS STEEL |
| 20 | 18 | 05722 | EA | GRIP, GUY, PREFORMED, 7/16" |
| 21 | 6 | 16502 | EA | INSULATOR, GUY, FIBERGLASS, 54", 36,000 POUND, 3/4" PHOS, ONE ROLLER |
| 22 | 2 | 10901 | EA | THIMBLE CLEVIS, 40,000 POUND |
| 23 | 5 | 16311 | EA | ROLLER, GUY, 13/16" X 2-3/8" DIA, 3/4" PHOS |
| 24 | 1 | 10252 | EA | ANCHOR, 8-10-12" TRIPLE HELIX |
| 25 | 2 | 10272 | EA | ROD, EXTENSION, 1-1/2" X 5' |
| 26 | 1 | 10262 | EA | ROD, ANCHOR, 1-1/2" ADAPTER WITH TRIPLE EYE |
| 27 | 1 | 10350 | EA | GUARD, GUY |
| 28 | 70 | 20041 | F | WIRE, #4 SOLID COPPER, SD, BARE |
| 29 | 50 | 12550 | EA | STAPLE, GROUND WIRE, 2" X 5/8" |
| 30 | 1 | 14220 | EA | CONNECTOR, COPPER CRIMP-IT, #6 SOL-#4 STR TO #8 SOL-#4 STR |
| 31 | 1 | 10402 | EA | ROD, GROUND, 5/8" X 10", COPPERWELDED, ITHREADED SECTIONAL |
| 32 | 1 | 10406 | EA | CLAMP, 5/8" GROUND ROD TO #8 - 1/8" CU |
| 33 | 8 | 10410 | F | MOLDING, GROUND WIRE, 1/2" PLASTIC |

SPECIFY VARIABLE MATERIAL BY:
 CONDUCTOR BOLTED DEADEND: 6-1006xx
 CLAMP, TRUNNION CLAMP TOP: 3-1002xx
 SHIELD WIRE BOLTED DEADEND: 2-1006xx
 DAMPER VIBRATION, SPIRAL: 2-1004xx

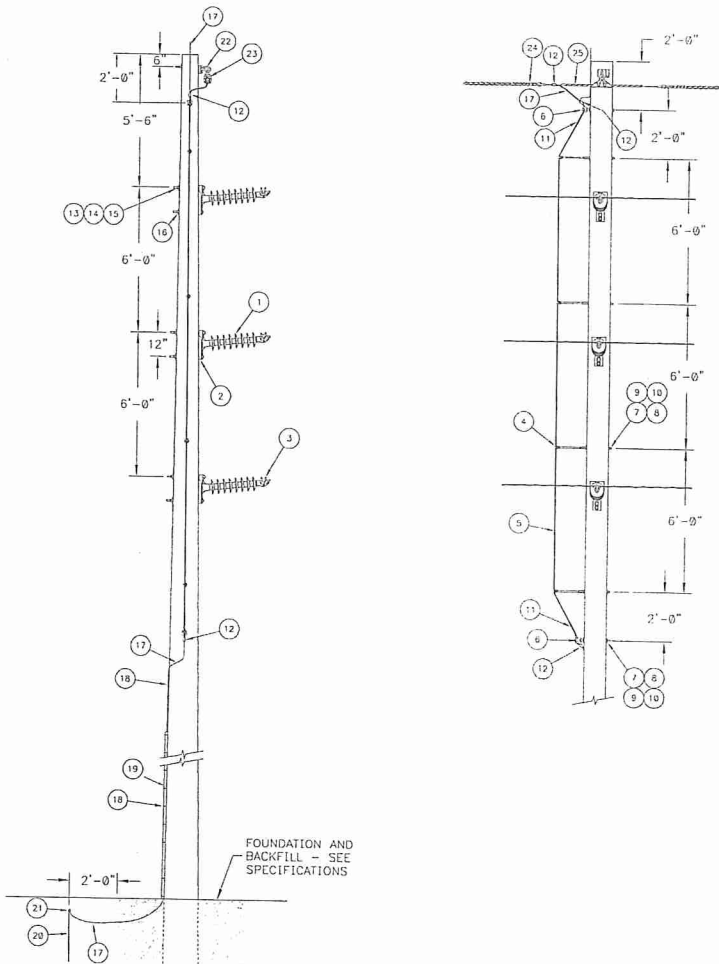
69kV DOUBLE DEADEND,
 MEDIUM ANGLE
 BISECT GUYING
 3 DOWN GUYS

| REV | DATE | DESIG | DFTR | APP | DESCRIPTION |
|-----|----------|-------|------|-----|----------------|
| A | 04-18-13 | P&E | MRB | JWE | ORIGINAL ISSUE |

P & E ENGINEERING CO.
 POWER SYSTEM ANALYSIS AND DESIGN
 245 S. 10th St.
 P.O. Box 220
 57404-0220

DATE 04-18-13
 DESIGNED P&E
 DRAWN MRB
 APPROVED JWE
 APPROVED ARP

SCALE: NONE
 REV A
 DWG NO
 T69-026A



T69-064
69KV, LIGHT ANGLE, LINE POST FRAMING, LAMINATED WOOD POLE

| ITEM | QTY | MATID | UNIT | DESCRIPTION |
|------|-----|-------|------|---|
| 1 | 3 | 16601 | EA | INSULATOR, HORZ LINE POST, 69 KV, GAIN BASE, CLAMP TOP, 1225 LB RCL |
| 2 | 3 | 10013 | EA | SHIM, TO ADAPT GAIN BASE INSULATOR TO FLAT, XX" BOLT SPACING |
| 3 | 3 | 16180 | EA | CLAMP, TRUNNION, CLAMP TOP, SEE VAR MAT LIST |
| 4 | 4 | 16610 | EA | INSULATOR, DOWN LEAD, FIBERGLASS, 5/8" X 12" |
| 5 | 25 | 05023 | FT | CONDUCTOR, #1/0 ACSR, BARE |
| 6 | 2 | 12453 | EA | EYE NUT, 5/8" GALVANIZED |
| 7 | 6 | 12103 | EA | BOLT, DOUBLE ARMING, 5/8" GALVANIZED, VARIOUS LENGTHS |
| 8 | 12 | 12503 | EA | WASHER, SQUARE, FLAT, 5/8" GALVANIZED |
| 9 | 6 | 12403 | EA | LOCKNUT, 5/8" GALVANIZED |
| 10 | 6 | 12509 | EA | WASHER, TWIN COILS, 5/8" |
| 11 | 2 | 10701 | EA | GRIP, DEAD-END, PREFORMED, 1/0 ACSR, AAC, AAC |
| 12 | 3 | 14205 | EA | CONNECTOR, AL COMPRESSION, H-TAP, VARIOUS SIZES |
| 13 | 6 | 12004 | EA | BOLT, MACHINE, 3/4" GALVANIZED, VARIOUS LENGTHS |
| 14 | 6 | 12504 | EA | WASHER, SQUARE, FLAT, 3/4" GALVANIZED |
| 15 | 6 | 12404 | EA | LOCKNUT, 3/4" GALVANIZED |
| 16 | 6 | 12510 | EA | WASHER, TWIN COILS, 3/4" |
| 17 | 50 | 05041 | FT | WIRE, #4 SOLID COPPER, SD, BARE |
| 18 | 40 | 12550 | EA | STAPLE, GROUND WIRE, 2" X 5/8" |
| 19 | 8 | 10410 | FT | MOLDING, GROUND WIRE, 1/2" PLASTIC |
| 20 | 1 | 10402 | EA | ROD, GROUND, 5/8" X 10', COPPERWELD, THREADED SECTIONAL |
| 21 | 1 | 10406 | EA | CLAMP, 5/8" GROUND ROD TO #8 - 1/0 CU |
| 22 | 1 | 10167 | EA | SUPPORT, SHIELD WIRE, SIDE MOUNTED, 5/8" X 14", FLAT BASE |
| 23 | 1 | 10540 | EA | CLAMP, SUSPENSION, SEE VAR MAT LIST |
| 24 | 2 | 10760 | EA | DAMPER, VIBRATION, SPIRAL, SEE VAR MAT LIST |
| 25 | 1 | 10780 | EA | ROD, ARMOR, SEE VAR MAT LIST |

SPECIFY VARIABLE MATERIAL BY:
 ARMOR ROD 1-T001XX
 CLAMP, TRUNION, CLAMP TOP 3-T002XX
 SUSPENSION CLAMP 1-T003XX
 DAMPER, VIBRATION, SPIRAL 2-T004XX

**PRELIMINARY
NOT FOR CONSTRUCTION**

| REV | DATE | DESIGNED | DRAWN | APP | DESCRIPTION |
|-----|----------|----------|-------|-----|----------------|
| A | 04-02-13 | P&E | DAW | ARP | ORIGINAL ISSUE |

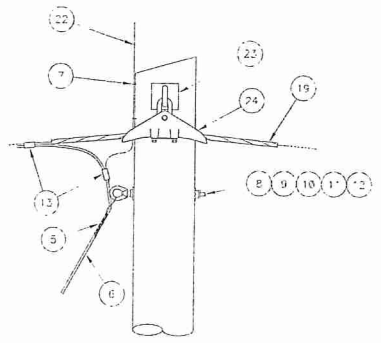
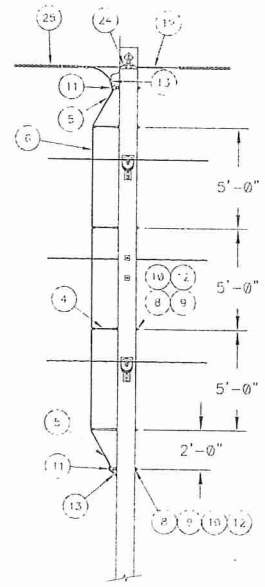
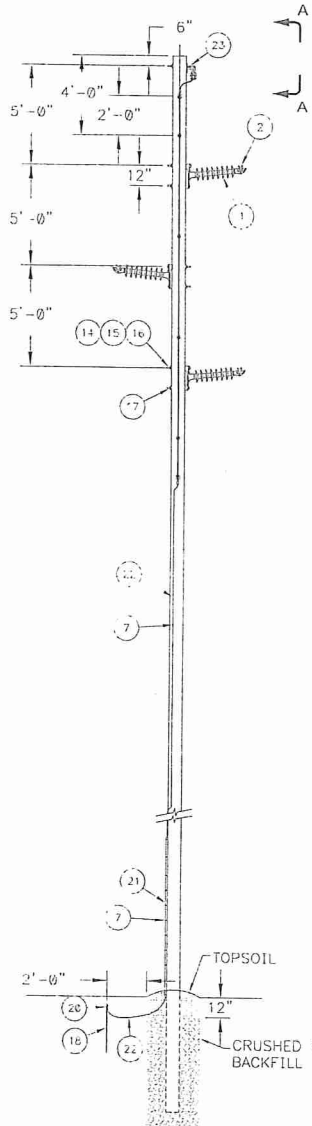
CC P & E ENGINEERING, LTD.
 POWER SYSTEM ANALYSIS AND DESIGN
 215 S. 5th St. Fargo, ND 58103
 701.785.1234

DATE 04-02-13
 DESIGNED P&E
 DRAWN DAW
 APPROVED JWE
 APPROVED ARP

69KV MEDIUM ANGLE, T2, LAMINATED WOOD POLE

SCALE: AS NOTED
 REV A

DWG NO
T69-064



VIEW A-A
NOT TO SCALE

T59-021

| ITEM | QTY | MATID | UNIT | DESCRIPTION |
|------|-----|-------|------|--|
| 1 | 3 | 16601 | CA | INSULATOR, HORZ LINE POST, 69 KV, GAIN BASIC, CLAMP TOP, 1225 LB RCL |
| 2 | 3 | 16192 | CA | CLAMP, TRUNNION, CLAMP TOP, 266-T2 - 477-T2 ACSR |
| 3 | | 99999 | | NOT USED |
| 4 | 4 | 16610 | EA | INSULATOR, DOWN LEAD, FIBERGLASS, 5/8" X 12" |
| 5 | 2 | 10701 | EA | GRIP, DEAD-END, PREFORMED, 1/0 ACSR, AAC, AAAC |
| 6 | 25 | 05023 | FI | CONDUCTOR, #1/0 ACSR, BARE |
| 7 | 40 | 12550 | EA | STAPLE, GROUND WIRE, 2" X 5/8" |
| 8 | 6 | 12103 | FA | BOLT, DOUBLE ARMING, 5/8" GALVANIZED, VARIOUS LENGTHS |
| 9 | 12 | 12503 | FA | WASHER, SQUARE, FLAT, 5/8" GALVANIZED |
| 10 | 6 | 12403 | EA | LOCKNUT, 5/8" GALVANIZED |
| 11 | 2 | 12453 | EA | EYE NUT, 5/8" GALVANIZED |
| 12 | 6 | 12509 | EA | WASHER, TWIN COILS, 5/8" |
| 13 | 3 | 14205 | EA | CONNECTOR, AL COMPRESSION, H-TAP, VARIOUS SIZES |
| 14 | 6 | 12004 | EA | BOLT, MACHINE, 3/4" GALVANIZED, VARIOUS LENGTHS |
| 15 | 6 | 12506 | EA | WASHER, SQUARE, CURVED, GALVANIZED, 3/4" |
| 16 | 6 | 12404 | EA | LOCKNUT, 3/4" GALVANIZED |
| 17 | 6 | 12510 | EA | WASHER, TWIN COILS, 3/4" |
| 18 | 1 | 10402 | CA | POD, GROUND, 5-8" X 10", COPPERWELD, THREADED SECTIONAL |
| 19 | 1 | 10790 | CA | POD, ARMOR, 3/8" IIS DHS |
| 20 | 1 | 10406 | EA | CLAMP, 3/8" GROUND ROD TO #8 - 1/0 CU |
| 21 | 2 | 10410 | FT | MOLDING, GROUND WIRE, 1 1/2" PLASTIC |
| 22 | 50 | 05021 | FT | WIRE, #4 SOLID COPPER, 00, BARE |
| 23 | 1 | 10108 | EA | SUPPORT, SHIELD WIRE, SIDE MOUNTED, 5, 8" X 12" |
| 24 | 1 | 10541 | LA | CLAMP, SUSPENSION, 3/8" EHS (WITH ARMOR NO.2) |
| 25 | 2 | 10761 | FA | DAMPER, VIBRATION, SPIRAL, 0.527-2.461" |

**PRELIMINARY
NOT FOR CONSTRUCTION**

| REV | DATE | DESIG | DFTR | APP | DESCRIPTION |
|-----|----------|-------|------|-----|----------------|
| A | 03-13-13 | P&E | MRB | JWP | ISSUED FOR BID |

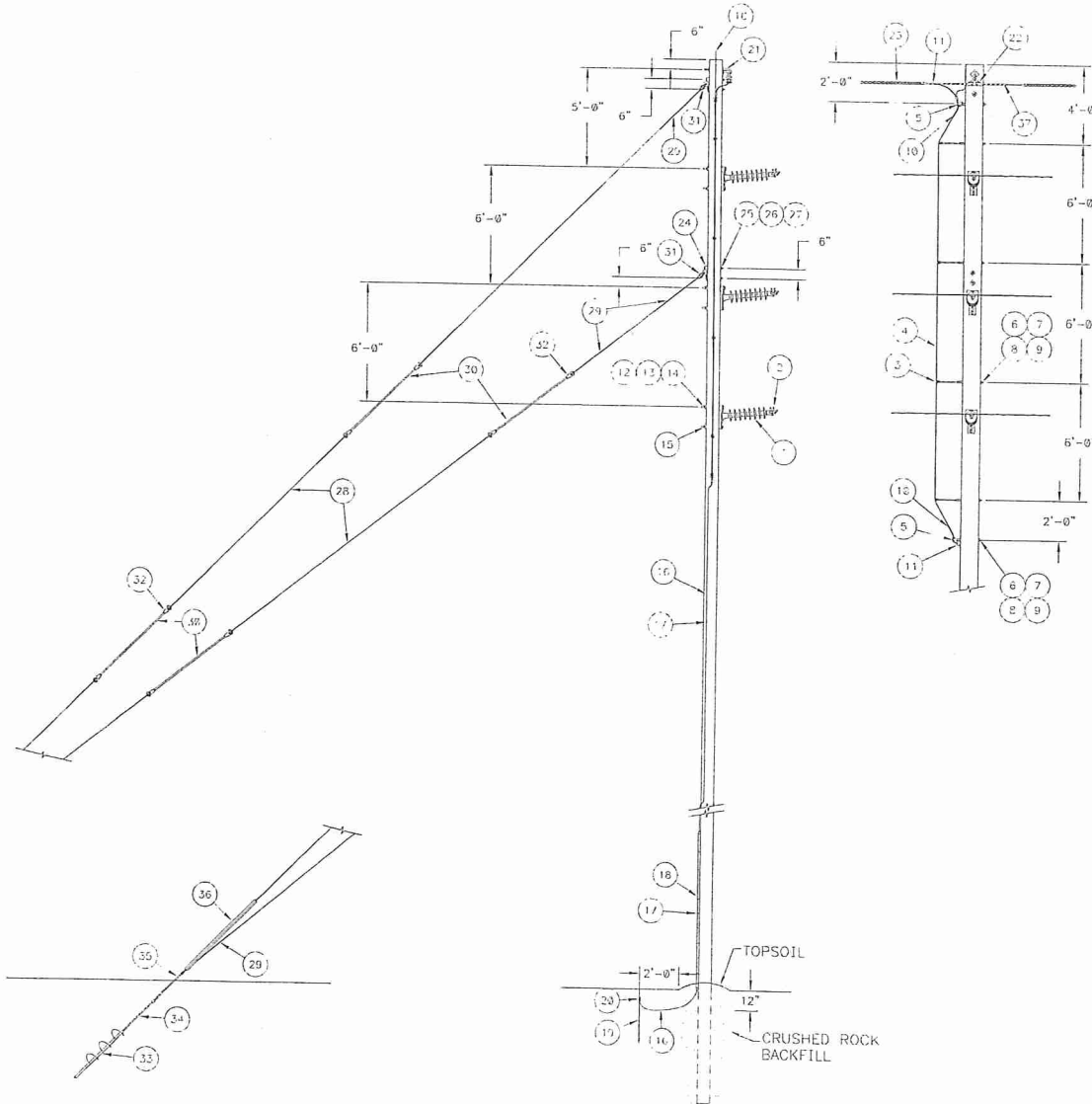
P & E ENGINEERING CO.
POWER SYSTEM ANALYSIS AND DESIGN
302 S.W. 10th St.
P.O. Box 129
Cape Coral, FL 33901
Cape Coral, FL 33901
Tel: 941-573-3333
Fax: 941-573-3333
www.pandesign.com

DATE 05-16-12
DESIGNED P&E
DRAWN MRB
APPROVED JWE
APPROVED ARP

69kV TANGENT STRUCTURE T2 CONDUCTOR

SCALE: NONE
REV A

DWG NO
T69-021



T69-022

| ITEM | QTY | MATID | UNIT | DESCRIPTION |
|------|-----|-------|------|--|
| 1 | 3 | 1660 | EA | INSULATOR, HORZ I INF POST, 69 KV, GAIN BASE, CLAMP TOP, 1225 LB RC |
| 2 | 3 | 16192 | EA | CLAMP, TRUITION, CLAMP TOP, 266 T2 477 T2 ACSR |
| 3 | 4 | 16610 | EA | INSULATOR, DOWN LEAD, FIBERGLASS, 5/8" X 12" |
| 4 | 25 | 05023 | -I | CONDUCTOR, #1/0 ACSR, BARE |
| 5 | 2 | 12453 | EA | EYE BUI, 5/8" GALVANIZED |
| 6 | 6 | 12103 | EA | BOLT, DOUBLE ARMING, 5/8" GALVANIZED, VARIOUS LENGTHS |
| 7 | 12 | 12503 | EA | WASHER, SQUARE, FLAT, 5/8" GALVANIZED |
| 8 | 6 | 12403 | EA | LOCKNUT, 5/8" GALVANIZED |
| 9 | 6 | 12509 | EA | WASHER, TWIN COILS, 5/8" |
| 10 | 2 | 10701 | EA | GRIP, DEAD-END, PREFORMED, 1/0 ACSR, AAC, AAC |
| 11 | 3 | 14205 | EA | CONNECTOR, AL COMPRESSION, H-TAP, VARIOUS SIZES |
| 12 | 6 | 12004 | EA | BOLT, MACHINE, 3/4" GALVANIZED, VARIOUS LENGTHS |
| 13 | 6 | 12506 | EA | WASHER, SQUARE, CURVED, GALVANIZED, 3/4" |
| 14 | 6 | 12404 | EA | LOCKNUT, 3/4" GALVANIZED |
| 15 | 6 | 12510 | EA | WASHER, TWIN COILS, 3/4" |
| 16 | 50 | 05041 | -T | WIRE, #4 SOLID COPPER, SD, BARE |
| 17 | 40 | 17550 | -FA | STAPLE, GROUND WIRE, 2" X 5/8" |
| 18 | 8 | 10410 | -T | MOIDING, GROUND WIRE, 1/2" PLASTIC |
| 19 | 1 | 10402 | EA | ROD, GROUND, 5/8" X 10', COPPERWELD, THREADED SECTIONAL |
| 20 | 1 | 10406 | EA | CLAMP, 5/8" GROUND ROD TO #8 - 1/0 CU |
| 21 | 1 | 10158 | -EA | SUPPORT, SHIELD WIRE, SIDE MOUNTED, 5/8" X 12" |
| 22 | 1 | 10541 | -EA | CLAMP, SUSPENSION, 3/8" LHS (WITH ARMOR ROD) |
| 23 | 2 | 10761 | EA | DAMPER, VIBRATION, SPIRAL, 0.327-0.461" |
| 24 | 2 | 10201 | EA | PLATE, POLE EYE, 6" |
| 25 | 4 | 12005 | EA | BOLT, MACHINE, 7/8", VARIOUS LENGTHS |
| 26 | 4 | 12507 | EA | WASHER, SQUARE, CURVED, GALVANIZED, 7/8" |
| 27 | 4 | 12405 | EA | LOCKNUT, 7/8", GALVANIZED |
| 28 | 120 | 05707 | EA | WIRE, GUY, 7/16", 7 STR, CLASS A GALVANIZED, EHS STEEL |
| 29 | 12 | 05722 | EA | GRIP, GUY, PREFORMED, 7/16" |
| 30 | 4 | 16502 | EA | INSULATOR, GUY, FIBERGLASS, 54", 36,000 POUND, 3/4" PINS, ONE ROLLER |
| 31 | 2 | 10901 | EA | THIMBLE CLEVIS, 49,000 POUND |
| 32 | 4 | 16511 | EA | ROLLER, GUY, 13/16" X 2-3/8" DIA, 3/4" PIN |
| 33 | 1 | 10252 | EA | ANCHOR, 8-10-12" TRIPLE HELIX |
| 34 | 2 | 10272 | EA | ROD, EXTENSION, 1-1/2" X 5' |
| 35 | 1 | 10262 | EA | ROD, ANCHOR, 1-1/2" ADAPTER WITH TRIPLE FYP |
| 36 | 1 | 10350 | EA | GUARD, GUY |
| 37 | 1 | 10790 | EA | ROD, ARMOR, 3/8" HS/EHS |

69kV LIGHT ANGLE-GUYED
T2 CONDUCTOR

| REV | DATE | DESC | DFIR | APP | DESCRIPTION |
|-----|----------|------|------|-----|-----------------|
| A | 07-20-13 | P&E | MRB | JAE | ORIGINAL DESIGN |

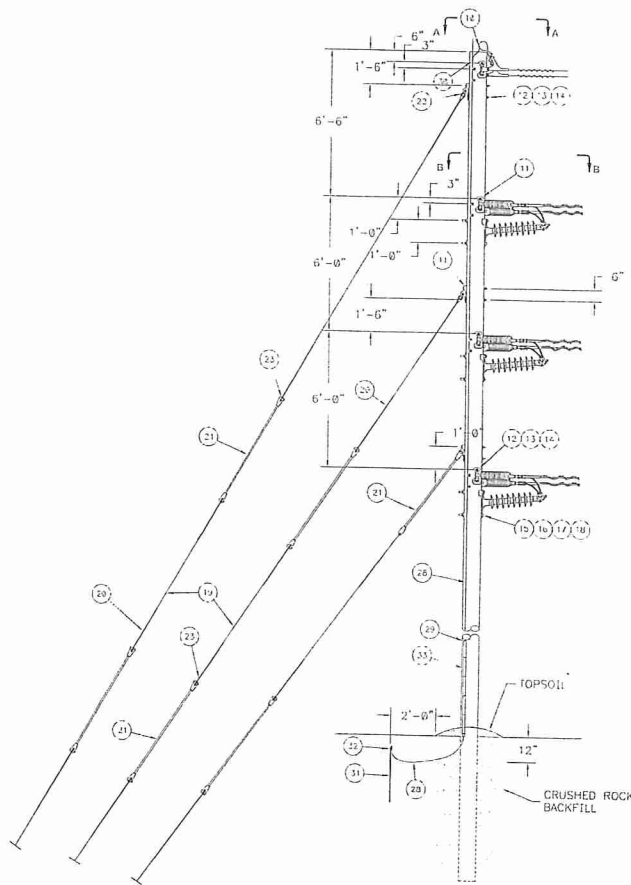
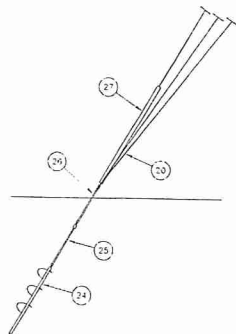
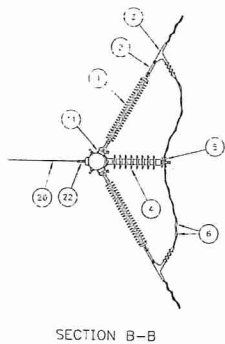
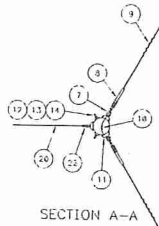
P & E ENGINEERING CO.
POWER SYSTEM ANALYSIS AND DESIGN
201 E. 10th
PO Box 600
Ogish, MN 55050
612-336-3333
FAX 612-336-3333
www.pandesign.com

DATE 05-16-12
DESIGNED P&E
DRAWN MRB
APPROVED JWE
APPROVED ARP

69kV LIGHT ANGLE-GUYED T2 CONDUCTOR

SCALE: NONE
REV A

DWC NO
T69-022



169-026A

69 KV DOUBLE DEADEND, MEDIUM ANGLE, BISECT GUYING, 3 DOWN GUYS

| ITEM | QTY | MATID | UNIT | DESCRIPTION |
|------|-----|-------|------|--|
| 1 | 6 | 16600 | EA | INSULATOR, SUSPENSION, POLYMER, 60 KV, .35" |
| 2 | 6 | 10947 | EA | SOCKET EYE, 8 3/8" EXTENSION LINK |
| 3 | 6 | 10500 | EA | CLAMP, DEADEND, SEE VAR MAT LIST |
| 4 | 3 | 16601 | EA | INSULATOR, HORIZ LINE POST, 69 KV, GAIN BASE, CLAMP TOP, 1225 LB RCL |
| 5 | 3 | 16180 | EA | CLAMP, TRUNNION, CLAMP TOP, SEE VAR MAT LIST |
| 6 | 6 | 14194 | EA | CONNECTOR, COMP SLEEVE, JUMPER, VARIOUS SIZES |
| 7 | 2 | 10911 | EA | C.E./IS-EYE, 7/8" OPENING, 3-3/8" C-C |
| 8 | 2 | 10500 | EA | CLAMP, DEADEND, SEE VAR MAT LIST |
| 9 | 2 | 10700 | EA | DAMPER, VIBRATION, SPIRAL, SEE VAR MAT LIST |
| 10 | 2 | 14205 | EA | CONNECTOR, AL COMPRESSION, 11-TAP, VARIOUS SIZES |
| 11 | 11 | 12 | EA | PLATE, POLE EYE, 6" |
| 12 | 22 | 12005 | EA | BOLT, MACHINE, 7/8", VARIOUS LENGTHS |
| 13 | 22 | 12507 | EA | WASHER, SQUARE, CURVED, GALVANIZED, 7-8" |
| 14 | 22 | 12405 | EA | LOCKWASHER, 1/8", GALVANIZED |
| 15 | 6 | 12004 | EA | BOLL, MACHINE, 3/4" GALVANIZED, VARIOUS LENGTHS |
| 16 | 6 | 12506 | EA | WASHER, SQUARE, CURVED, GALVANIZED, VARIOUS LENGTHS |
| 17 | 6 | 12404 | EA | LOCKWASHER, 3/4" GALVANIZED |
| 18 | 6 | 12510 | EA | WASHER, TWIN COILS, 3/4" |
| 19 | 200 | 35707 | EA | WIRE, GUY, 7/16", 7 STR, CLASS A GALVANIZED, EHS STEEL |
| 20 | 16 | 35722 | EA | GRIP, GUY, PREFORMED, 7/16" |
| 21 | 6 | 16502 | EA | INSULATOR, GUY, FIBERGLASS, 54", 36,000 POUND, 3/4" PINS, ONE ROLLER |
| 22 | 2 | 10901 | EA | THIMBLE CLEVIS, 40,000 POUND |
| 23 | 5 | 16511 | EA | ROLLER, GUY, 13/16" X 2-3/8" DIA, 3/4" PIN |
| 24 | 1 | 10252 | EA | ANCHOR, 8-10-12" TRIPLE HELIX |
| 25 | 2 | 10272 | EA | ROD, EXTENSION, 1-1/2" X 5' |
| 26 | 1 | 10262 | EA | ROD, ANCHOR, 1-1/2" ADAPTER WITH TRIPLE EYE |
| 27 | 1 | 10350 | EA | GUARD, GUY |
| 28 | 70 | 05041 | FT | WIRE, #4 SOLID COPPER, SD, BARE |
| 29 | 50 | 12550 | EA | STAPLE, GROUND WIRE, 2" X 5/8" |
| 30 | 1 | 14220 | EA | CONNECTOR, COPPER CRIMP IT, #6 SOL-#4 STR TO #8 SOL-#4 STR |
| 31 | 1 | 10402 | EA | ROD, GROUND, 5/8" X 10', COPPER WELDED, IRRADIATED SECTIONAL |
| 32 | 1 | 10406 | EA | CLAMP, 5/8" GROUND ROD TO #8 - 1/0 CU |
| 33 | 8 | 10410 | FT | HOLDING, GROUND WIRE, 1/2" PLASTIC |

SPECIFY VARIABLE MATERIAL BY:
 CONDUCTOR BOLTED DEADEND: 6-T000xx
 CLAMP, TRUNNION CLAMP TOP: 3-T002xx
 SHIELD WIRE BOLTED DEADEND: 2-T006xx
 DAMPER VIBRATION, SPIRAL: 2-T004xx

69KV DOUBLE DEADEND,
 MEDIUM ANGLE
 BISECT GUYING
 3 DOWN GUYS

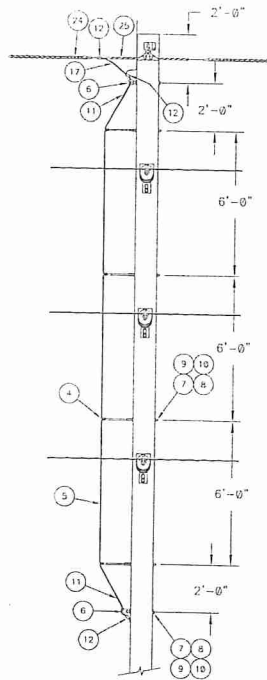
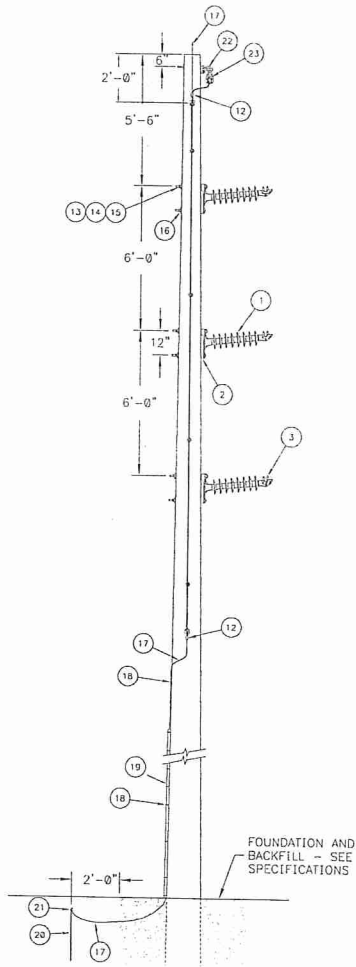
| REV | DATE | DCSG | DFTR | APP | DESCRIPTION |
|-----|----------|------|------|-----|----------------|
| A | 01-18-13 | P&E | MSB | JAK | ORIGINAL ISSUE |

P & E ENGINEERING, LTD.
 POWER SYSTEM ANALYSIS AND DESIGN
 245 S. 7th
 P.O. Box 622
 CHICAGO, ILLINOIS 60604
 TEL: 312-551-5500
 FAX: 312-551-5510
 WWW.P&EONLINE.COM

DATE 04-18-13
 DESIGNED P&E
 DRAWN MRB
 APPROVED JWE
 APPROVED ARP

SCALE: NONE
 REV A

DWG NO
T69-026A



T69-064

69KV, LIGHT ANGLE, LINE POST FRAMING, LAMINATED WOOD POLE

| ITEM | QTY | MATID | UNIT | DESCRIPTION |
|------|-----|-------|------|--|
| 1 | 3 | 16601 | EA | INSULATOR, HORIZ LINE POST, 69 KV, GAIN BASE, CLAMP TOP, 1225 LB RCL |
| 2 | 3 | 16013 | EA | SHIM, TO ADAPT GAIN BASE INSULATOR TO FLAT, XX" BOLT SPACING |
| 3 | 3 | 16180 | EA | CLAMP, TRUNNION, CLAMP TOP, SEE VAR MAT LIST |
| 4 | 4 | 16610 | EA | INSULATOR, DOWN LEAD, FIBERGLASS, 5/8" X 12" |
| 5 | 25 | 05023 | FT | CONDUCTOR, #1/0 ACSR, BARE |
| 6 | 2 | 12453 | EA | EYE NUT, 5/8" GALVANIZED |
| 7 | 6 | 12103 | EA | BOLT, DOUBLE ARMING, 5/8" GALVANIZED, VARIOUS LENGTHS |
| 8 | 12 | 12503 | EA | WASHER, SQUARE, FLAT, 5/8" GALVANIZED |
| 9 | 6 | 12403 | EA | LOCKNUT, 5/8" GALVANIZED |
| 10 | 6 | 12509 | EA | WASHER, TWIN COILS, 5/8" |
| 11 | 2 | 10701 | EA | GRIP, DEAD-END, PREFORMED, 1/0 ACSR, AAC, AAAC |
| 12 | 3 | 14205 | EA | CONNECTOR, AL COMPRESSION, H-TAP, VARIOUS SIZES |
| 13 | 6 | 12094 | EA | BOLT MACHINE, 3/4" GALVANIZED, VARIOUS LENGTHS |
| 14 | 6 | 12504 | EA | WASHER, SQUARE, FLAT, 3/4" GALVANIZED |
| 15 | 6 | 12404 | EA | LOCKNUT, 3/4" GALVANIZED |
| 16 | 6 | 12510 | EA | WASHER, TWIN COILS, 3/4" |
| 17 | 50 | 05041 | FT | WIRE, #4 SOLID COPPER, SD, BARE |
| 18 | 40 | 12550 | EA | STAPLE, GROUND WIRE, 2" X 5/8" |
| 19 | 8 | 10410 | FT | MOLDING, GROUND WIRE, 1/2" PLASTIC |
| 20 | 1 | 10402 | EA | ROD, GROUND, 5/8" X 10", COPPERWELD, THREADED SECTIONAL |
| 21 | 1 | 10167 | EA | CLAMP, 5/8" GROUND ROD TO #8 - 1/0 CU |
| 22 | 1 | 10167 | EA | SUPPORT, SHIELD WIRE, SIDE MOUNTED, 5/8" X 14", FLAT BASE |
| 23 | 1 | 10540 | EA | CLAMP, SUSPENSION, SEE VAR MAT LIST |
| 24 | 2 | 10760 | EA | DAMPER, VIBRATION, SPIRAL, SEE VAR MAT LIST |
| 25 | 1 | 10760 | EA | ROD, ARMOR, SEE VAR MAT LIST |

SPECIFY VARIABLE MATERIAL BY:
 ARMOR ROD 1-T001XX
 CLAMP, TRUNION, CLAMP TOP 3-T002XX
 SUSPENSION CLAMP 1-T003XX
 DAMPER, VIBRATION, SPIRAL 2-T004XX

**PRELIMINARY
 NOT FOR CONSTRUCTION**

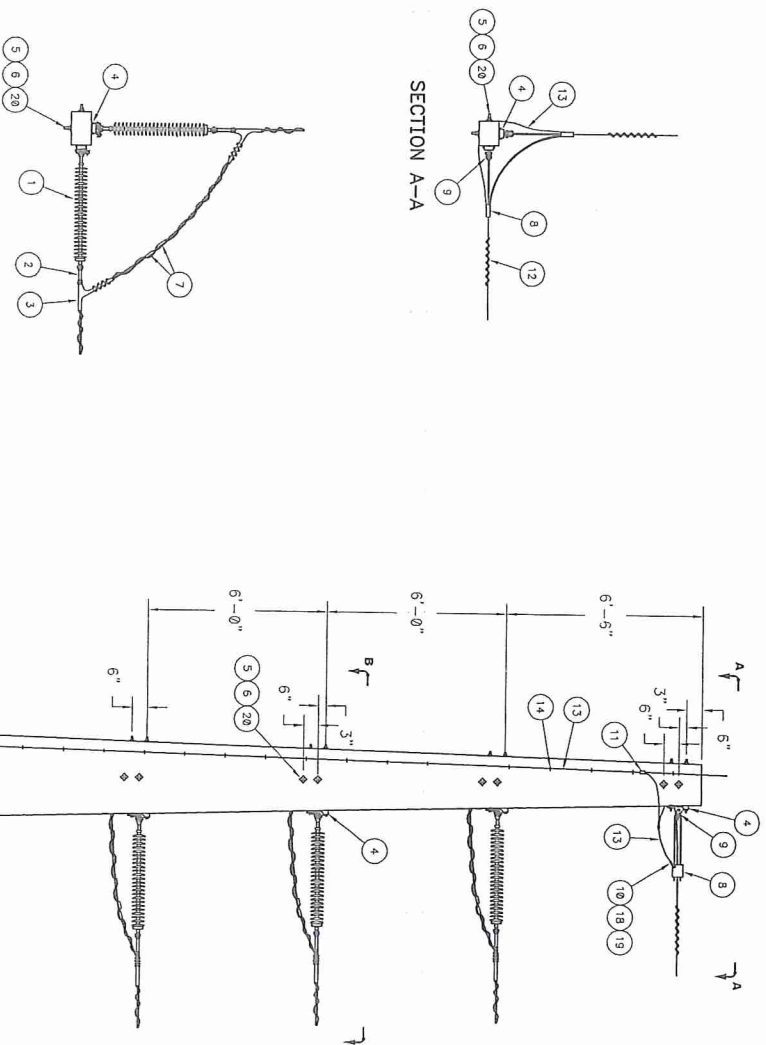
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|-----|----------|-------|-----|-----|----------------|
| A | 04-02-13 | P&E | D&W | JWE | ORIGINAL DESIG |

S & P & E ENGINEERING CO.
 POWER SYSTEM ANALYSIS AND DESIGN
 285 S. W. 11th St.
 Ft. Lauderdale, FL 33304
 954.585.5447

DATE 04-02-13
 DESIGNED P&E
 DRAWN D&W
 APPROVED JWE
 APPROVED ARP

69KV MEDIUM ANGLE, T2, LAMINATED WOOD POLE

SCALE: AS NOTED
 REV A
 DWG NO T69-064



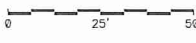
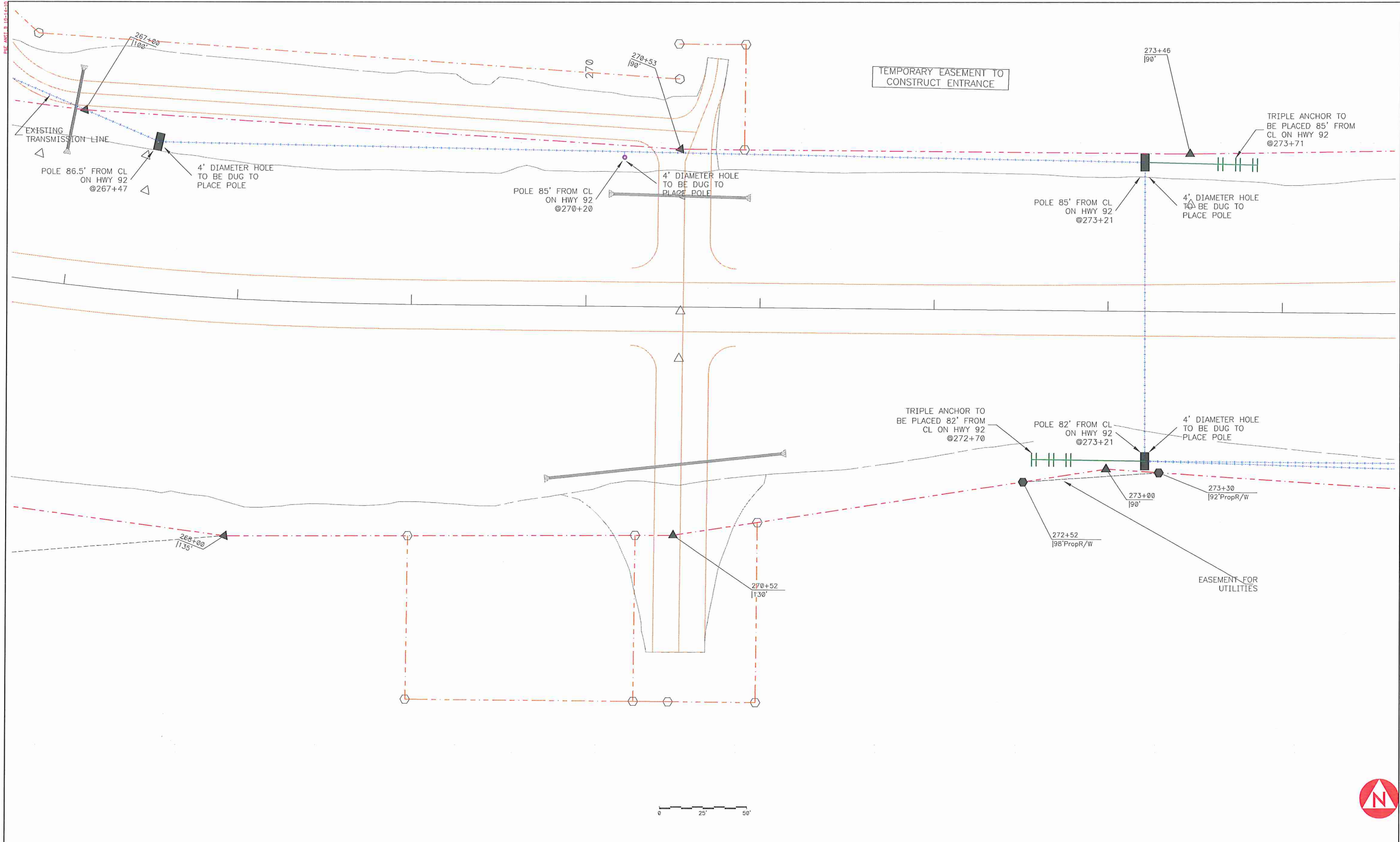
SPECIFY VARIABLE MATERIAL BY:
 VIBRATION DAMPER: 2-T004xx
 SHIELD WIRE DEADEND CLAMP: 2-T006xx
 CONDUCTOR DEADEND CLAMP: 6-T006xx

69KV DEADEND
 90° CORNER
 TENSION CHANGE
 LAMINATED WOOD POLE

SCALE N.T.S.
 DATE 12-12-11
 DESIGNED P&E
 DRAWN DAW
 APPROVED JWE
 APPROVED ARP



SECTION T
 DRAWING NO. T69-169



**PRELIMINARY
NOT FOR CONSTRUCTION**

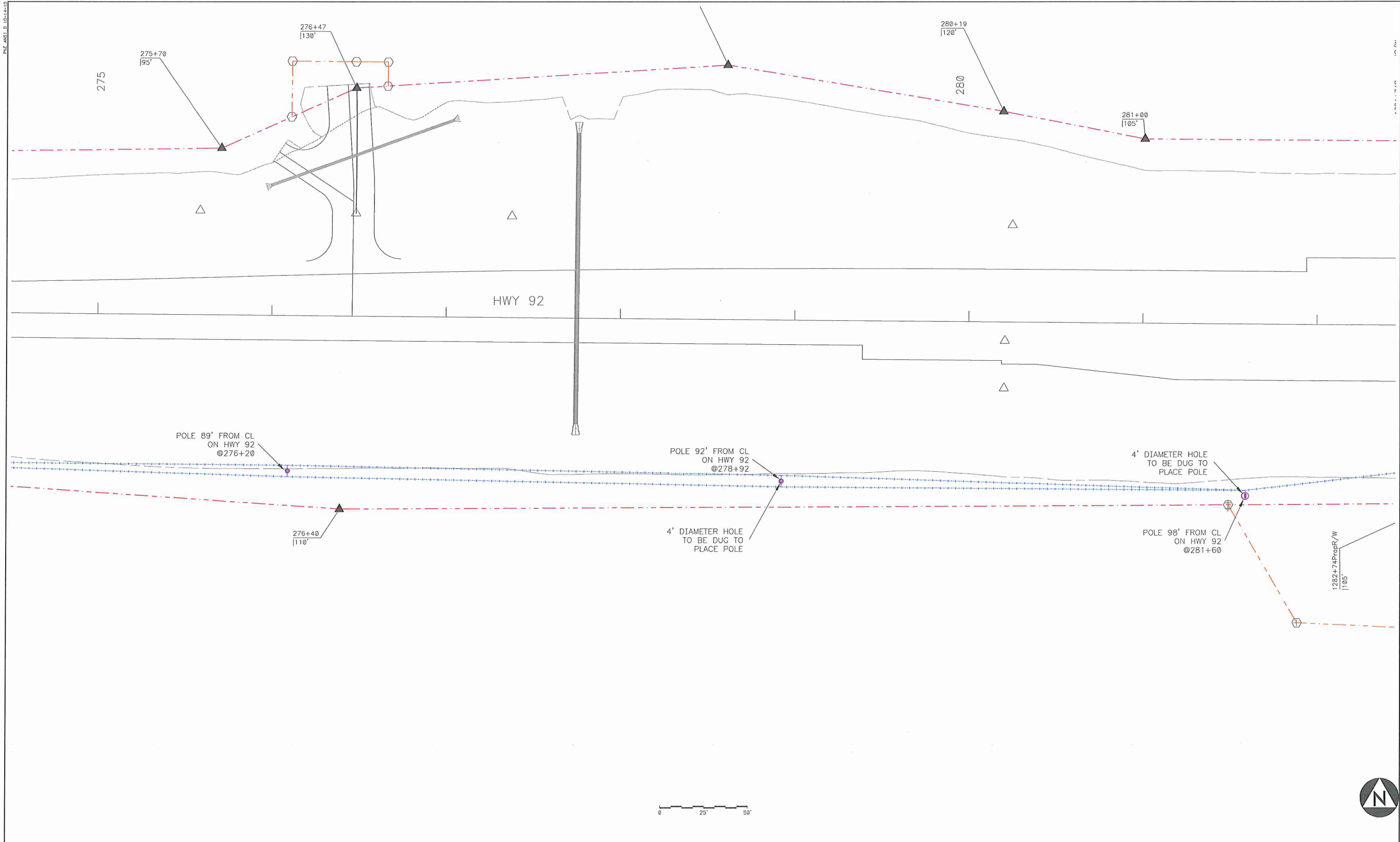
| REV | DATE | DESIGNED | DRAWN | APP | DESCRIPTION |
|-----|----------|----------|-------|-----|--------------------------|
| C | 05-02-14 | P&E | RWB | ARP | CORRECTED TO LATEST PLAN |
| B | 08-05-13 | P&E | RMB | ARP | ADDED OVERHEAD LINETYPE |
| A | 07-16-13 | P&E | RMB | ARP | ORIGINAL ISSUE |

P & E ENGINEERING CO.
POWER SYSTEM ANALYSIS AND DESIGN
245 S. 5th
P.O. Box 620
Carlisle, IA 50047
Office: 515-939-2083
FAX: 515-939-3138
pecon@pecon.com

DATE 01-08-12
DESIGNED P&E
DRAWN RMB
APPROVED JWE
APPROVED ARP

INDIANOLA MUNICIPAL UTILITIES
HIGHWAY 92 DOT PROJECT
HWY 92 PERMIT DRAWINGS

SCALE: AS NOTED
REV C
DWG NO E8958-P1



**PRELIMINARY
NOT FOR CONSTRUCTION**

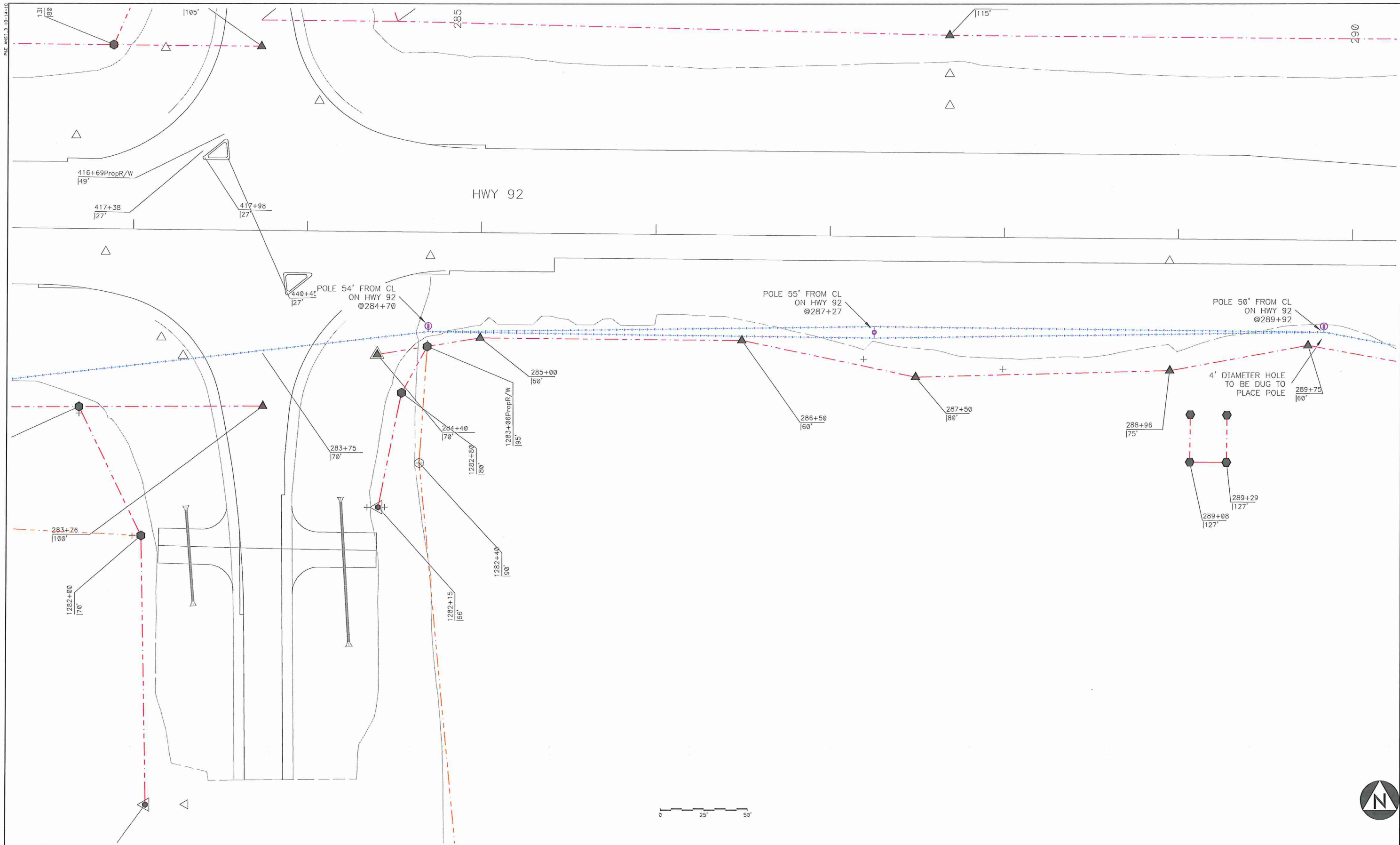
| REV | DATE | DESIG | DFTR | APP | DESCRIPTION |
|-----|----------|-------|------|-----|--------------------------|
| C | 05-02-14 | P&E | RWB | ARP | CORRECTED TO LATEST PLAN |
| B | 08-05-13 | P&E | RMB | ARP | ADDED OVERHEAD LINETYPE |
| A | 07-16-13 | P&E | RMB | ARP | ORIGINAL ISSUE |

P & E ENGINEERING CO.
POWER SYSTEM ANALYSIS AND DESIGN
245 S. 5th P.O. Box 620
Carlisle, IA 50047
Office: 515-959-3083
Fax: 515-959-3138
peconor@peconor.com

DATE 01-08-12
DESIGNED P&E
DRAWN RMB
APPROVED JWE
APPROVED ARP

INDIANOLA MUNICIPAL UTILITIES
HIGHWAY 92 DOT PROJECT
HWY 92 PERMIT DRAWINGS

SCALE: AS NOTED
REV **C**
DWG NO **E8958-P2**



**PRELIMINARY
NOT FOR CONSTRUCTION**

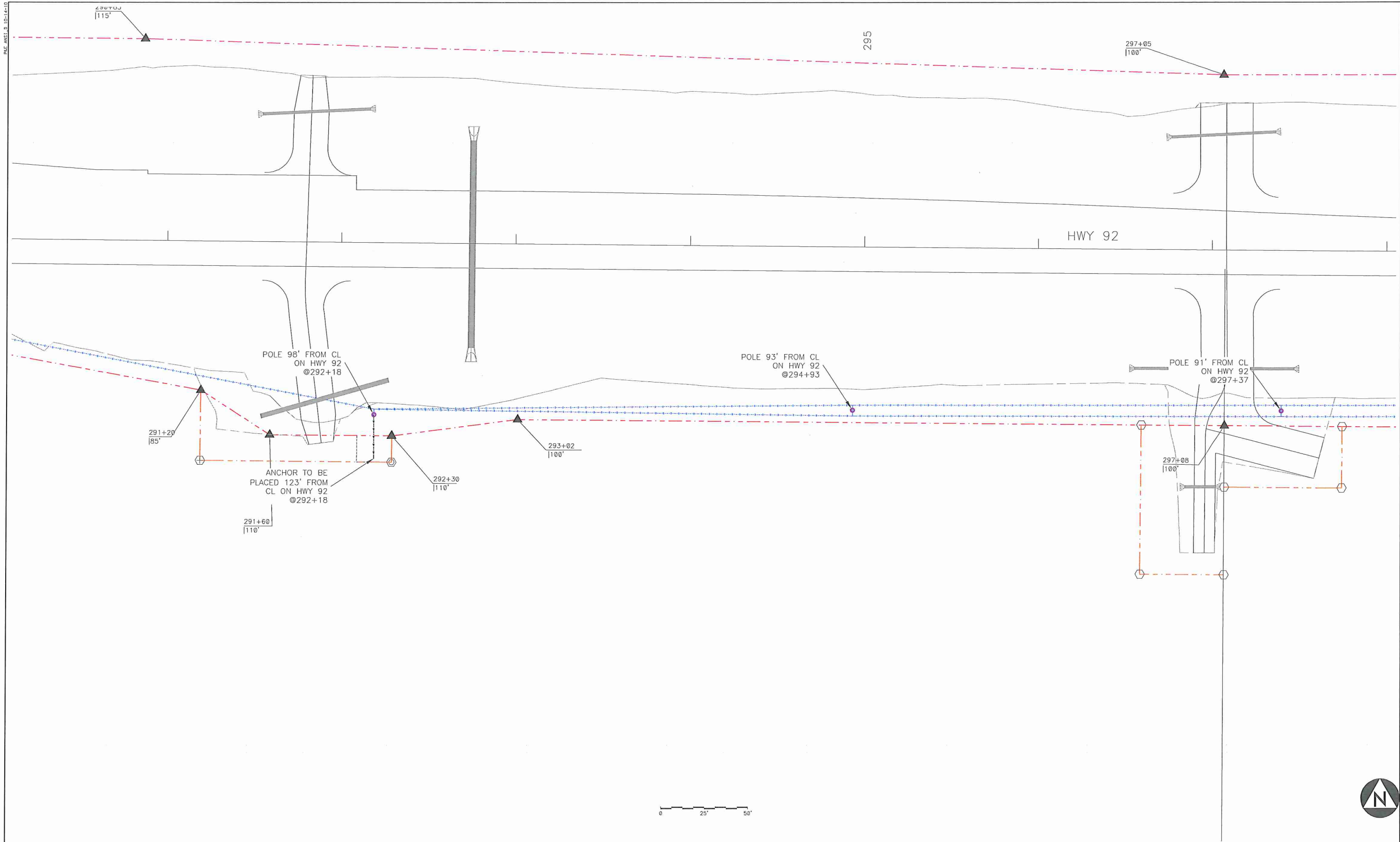
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| C | 05-02-14 | P&E | RWB | ARP | CORRECTED TO LATEST PLAN |
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| A | 07-16-13 | P&E | RMB | ARP | ORIGINAL ISSUE |

P & E ENGINEERING CO.
POWER SYSTEM ANALYSIS AND DESIGN
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Carlisle, IA 50047
Office: 515-959-3083
Fax: 515-959-3138
pecongr@pecongr.com

DATE 01-08-12
DESIGNED P&E
DRAWN RMB
APPROVED JWE
APPROVED ARP

INDIANOLA MUNICIPAL UTILITIES
HIGHWAY 92 DOT PROJECT
HWY 92 PERMIT DRAWINGS

SCALE: AS NOTED
REV C
DWG NO
E8958-P3



**PRELIMINARY
NOT FOR CONSTRUCTION**

| REV | DATE | DESG | DFTD | APP | DESCRIPTION |
|-----|----------|------|------|-----|--------------------------|
| C | 05-02-14 | P&E | RWB | ARP | CORRECTED TO LATEST PLAN |
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| A | 07-16-13 | P&E | RMB | ARP | ORIGINAL ISSUE |

P & E ENGINEERING CO.
POWER SYSTEM ANALYSIS AND DESIGN
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P.O. Box 620
Carlisle, IA 50047
Office: 515-659-3033
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pecongr@pecongr.com

DATE 01-08-12
DESIGNED P&E
DRAWN RMB
APPROVED JWE
APPROVED ARP

INDIANOLA MUNICIPAL UTILITIES
HIGHWAY 92 DOT PROJECT
HWY 92 PERMIT DRAWINGS

SCALE: AS NOTED
REV C
DWG NO E8958-P4

P&E sheet 10-14-10

300

305

HWY 92

POLE 90' FROM CL ON HWY 92 @299+34

POLE 85' FROM CL ON HWY 92 @301+75

ANCHOR TO BE PLACED 75' FROM CL ON HWY 92 @304+19

POLE 90' FROM CL ON HWY 92 @304+19

302+96 |93' PropR/W

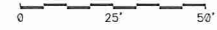
304+17 |90'
304+17 |96'

EASEMENT FOR UTILITIES

305+20 |90'

305+80 |100'

299+35
|100'



**PRELIMINARY
NOT FOR CONSTRUCTION**

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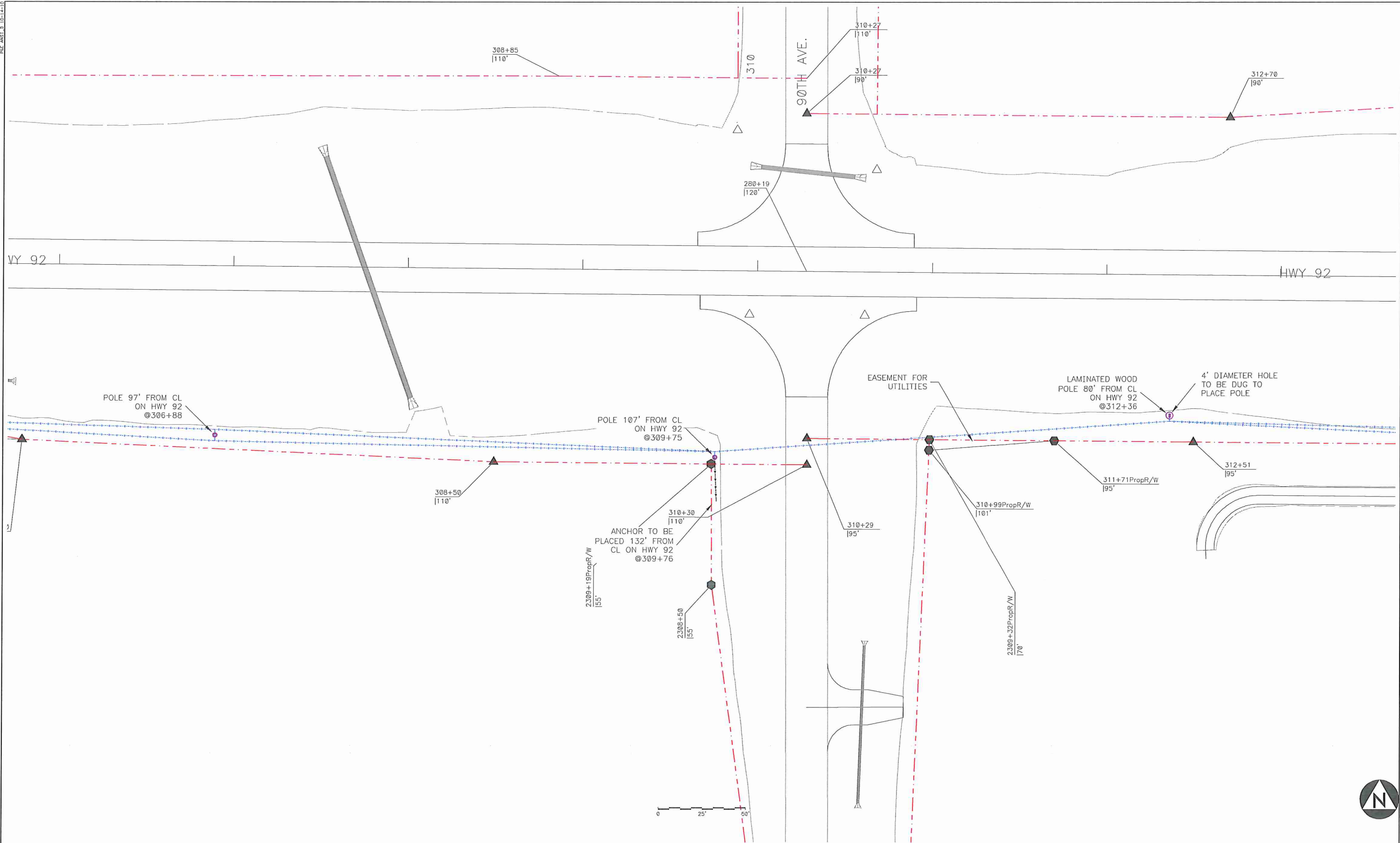
Office: 515-959-3033
FAX: 515-959-3138
pecon@pecon.com

DATE 01-08-12
DESIGNED P&E
DRAWN RMB
APPROVED JWE
APPROVED ARP

INDIANOLA MUNICIPAL UTILITIES
HIGHWAY 92 DOT PROJECT
HWY 92 PERMIT DRAWINGS

SCALE: AS NOTED
REV C
DWG NO
E8958-P5

P&E ANST.D. 10-14-10



**PRELIMINARY
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| A | 07-16-13 | P&E | RMB | ARP | ORIGINAL ISSUE |

P & E ENGINEERING CO.
POWER SYSTEM ANALYSIS AND DESIGN

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pecongr@pecongr.com

| | |
|----------|----------|
| DATE | 01-08-12 |
| DESIGNED | P&E |
| DRAWN | RMB |
| APPROVED | JWE |
| APPROVED | ARP |

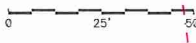
INDIANOLA MUNICIPAL UTILITIES

HIGHWAY 92 DOT PROJECT
HWY 92 PERMIT DRAWINGS

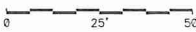
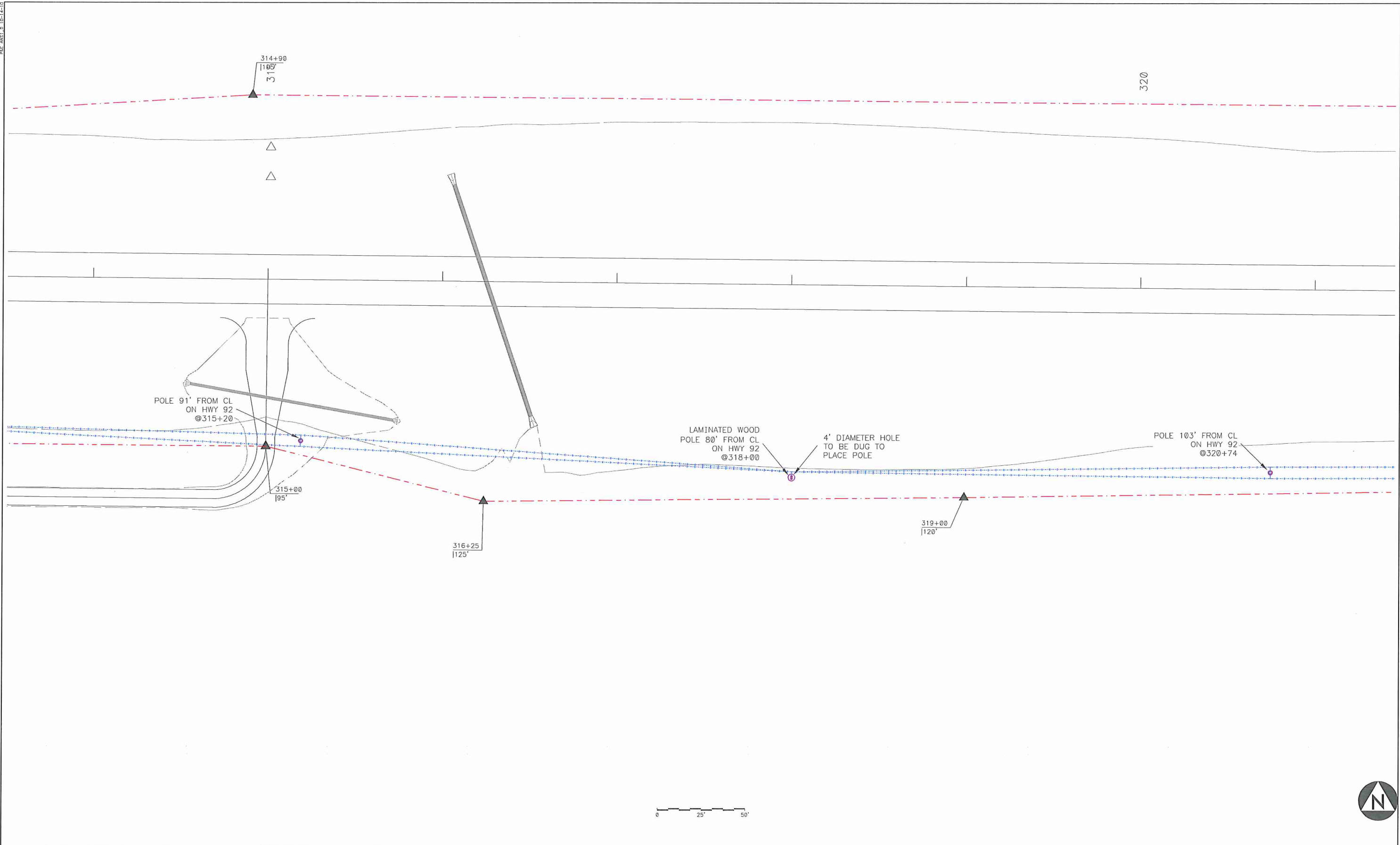
SCALE:
AS NOTED

REV
C

DWG NO
E8958-P6



P&E ANST.D. 10-14-10



**PRELIMINARY
NOT FOR CONSTRUCTION**

| REV | DATE | DESG | DFTR | APP | DESCRIPTION |
|-----|----------|------|------|-----|--------------------------|
| C | 05-02-14 | P&E | RWB | ARP | CORRECTED TO LATEST PLAN |
| B | 08-05-13 | P&E | RMB | ARP | ADDED OVERHEAD LINETYPE |
| A | 07-16-13 | P&E | RMB | ARP | ORIGINAL ISSUE |

P & E ENGINEERING CO.
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peconr@pecongr.com

DATE 01-08-12
DESIGNED P&E
DRAWN RMB
APPROVED JWE
APPROVED ARP

INDIANOLA MUNICIPAL UTILITIES
HIGHWAY 92 DOT PROJECT
HWY 92 PERMIT DRAWINGS

SCALE: AS NOTED
REV **C**
DWG NO **E8958-P7**

P&E ANST.D. 10-14-10

325

HWY 92

POLE 100' FROM CL
ON HWY 92
@323+56

323+56
|110'

LAMINATED WOOD
POLE 95' FROM CL
ON HWY 92
@326+18

4' DIAMETER HOLE
TO BE DUG TO
PLACE POLE

326+83
|110'

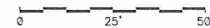
POLE 120' FROM CL
ON HWY 92
@329+03

329+00
|130'

329+1
|148'

328+91
|148'

ANCHOR TO BE
PLACED 145' FROM
CL ON HWY 92
@329+03



**PRELIMINARY
NOT FOR CONSTRUCTION**

| REV | DATE | DESIGNED | DRAWN | APP | DESCRIPTION |
|-----|----------|----------|-------|-----|--------------------------|
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245 S. 5th
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Carlisle, IA 50047
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peanor@peanor.com

DATE 01-08-12
DESIGNED P&E
DRAWN RMB
APPROVED JWE
APPROVED ARP

INDIANOLA MUNICIPAL UTILITIES

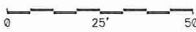
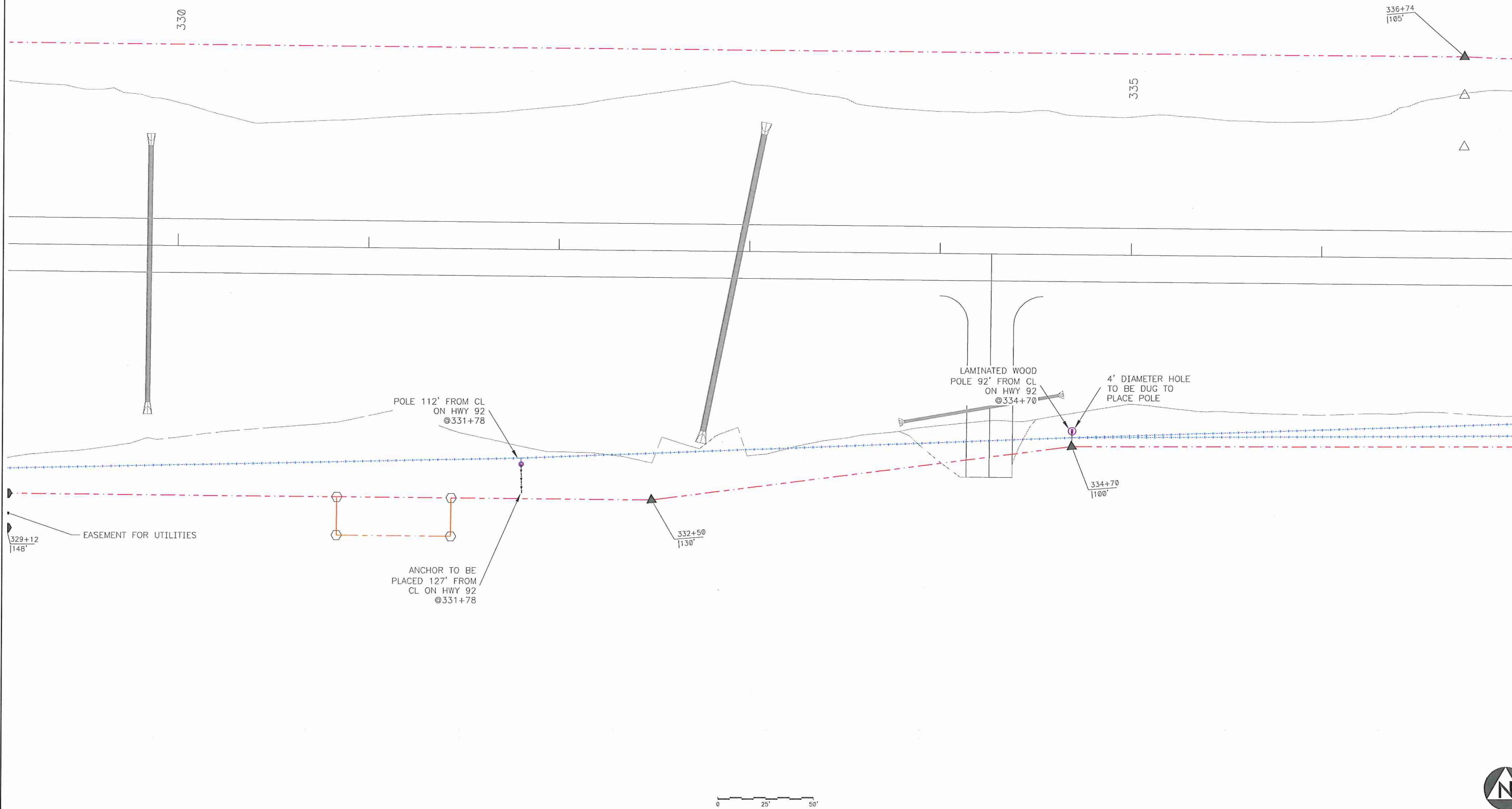
HIGHWAY 92 DOT PROJECT
HWY 92 PERMIT DRAWINGS

SCALE:
AS NOTED

REV
C

DWG NO
E8958-P8

P&E ANST.D. 10-14-10



**PRELIMINARY
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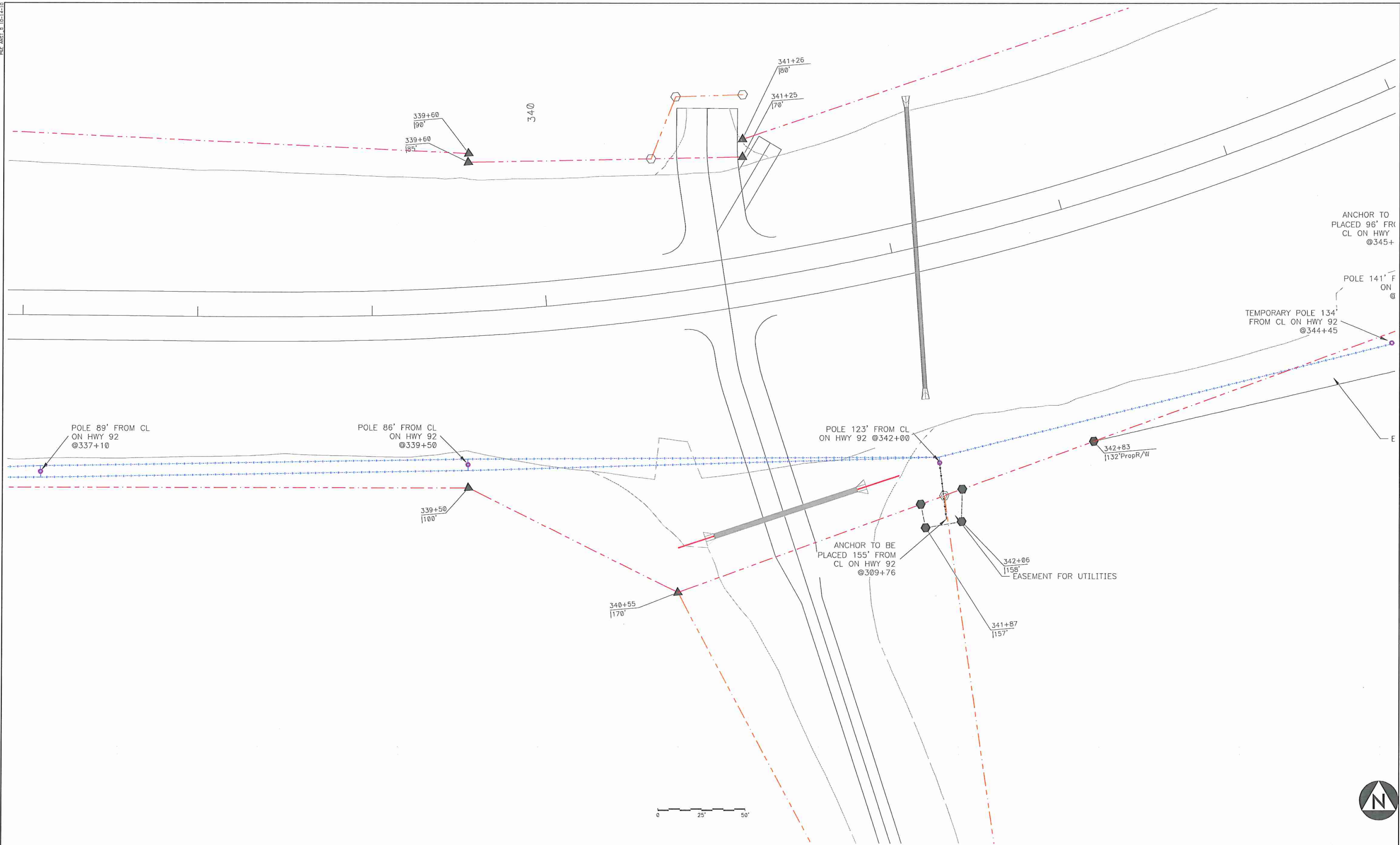
P & E ENGINEERING CO.
POWER SYSTEM ANALYSIS AND DESIGN
245 S. 5th
P.O. Box 620
Carlisle, IA 50047
Office: 515-989-3083
Fax: 515-989-3138
peconr@peconr.com

DATE 01-08-12
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APPROVED ARP

INDIANOLA MUNICIPAL UTILITIES
HIGHWAY 92 DOT PROJECT
HWY 92 PERMIT DRAWINGS

SCALE: AS NOTED
REV C
DWG NO **E8958-P9**

P&E ANST.D. 10-14-10



**PRELIMINARY
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| A | 07-16-13 | P&E | RMB | ARP | ORIGINAL ISSUE |

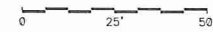
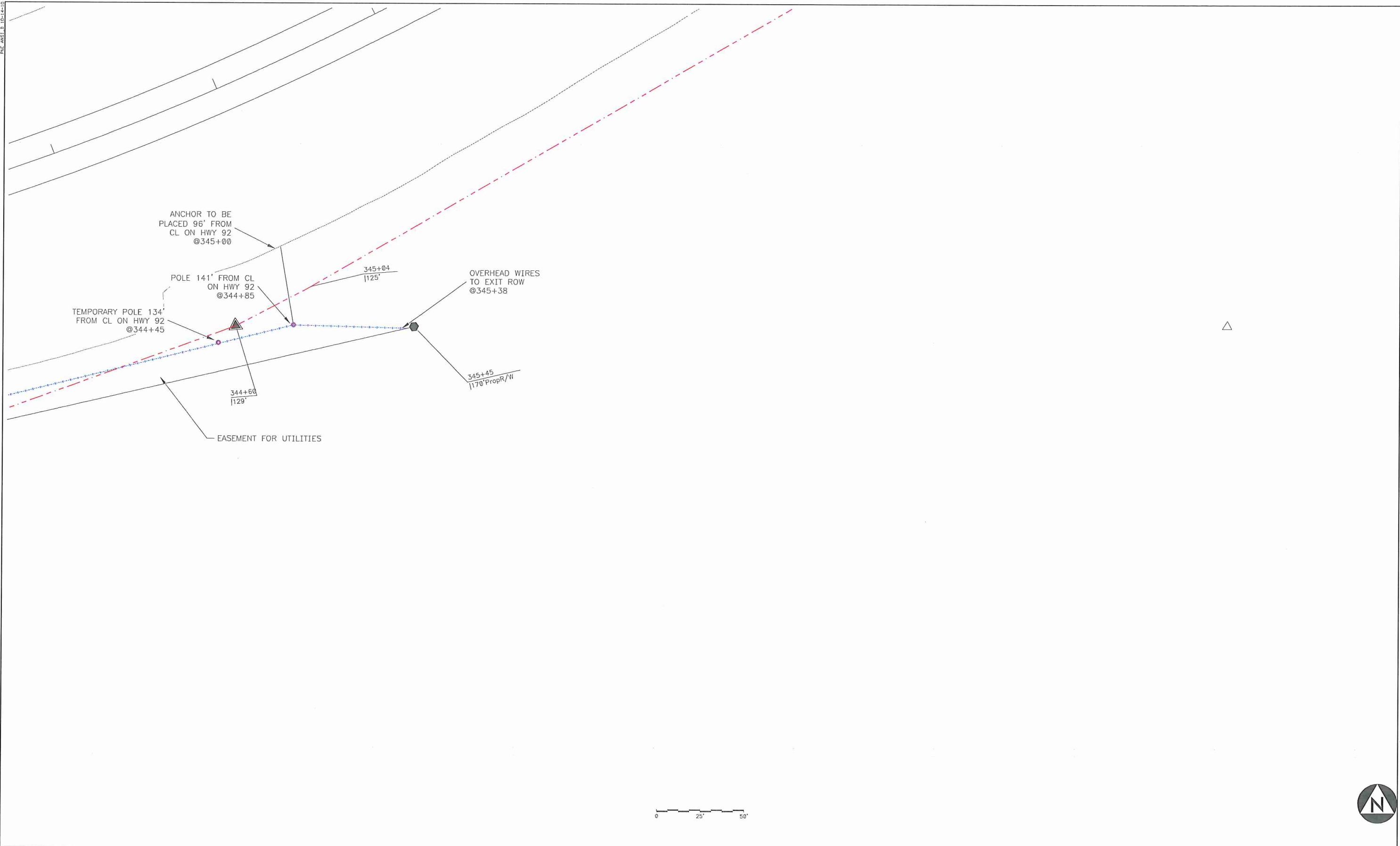
P & E ENGINEERING CO.
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245 S. 5th
P.O. Box 620
Carlisle, IA 50047
Office: 515-939-2083
Fax: 515-939-3138
peconar@peconar.com

| | |
|----------|----------|
| DATE | 01-08-12 |
| DESIGNED | P&E |
| DRAWN | RMB |
| APPROVED | JWE |
| APPROVED | ARP |

INDIANOLA MUNICIPAL UTILITIES
HIGHWAY 92 DOT PROJECT
HWY 92 PERMIT DRAWINGS

| | | | |
|--------|----------|-----|------------------|
| SCALE: | AS NOTED | REV | C |
| | | | DWG NO |
| | | | E8958-P10 |

P&E ANSE, D. 10-14-13



**PRELIMINARY
NOT FOR CONSTRUCTION**

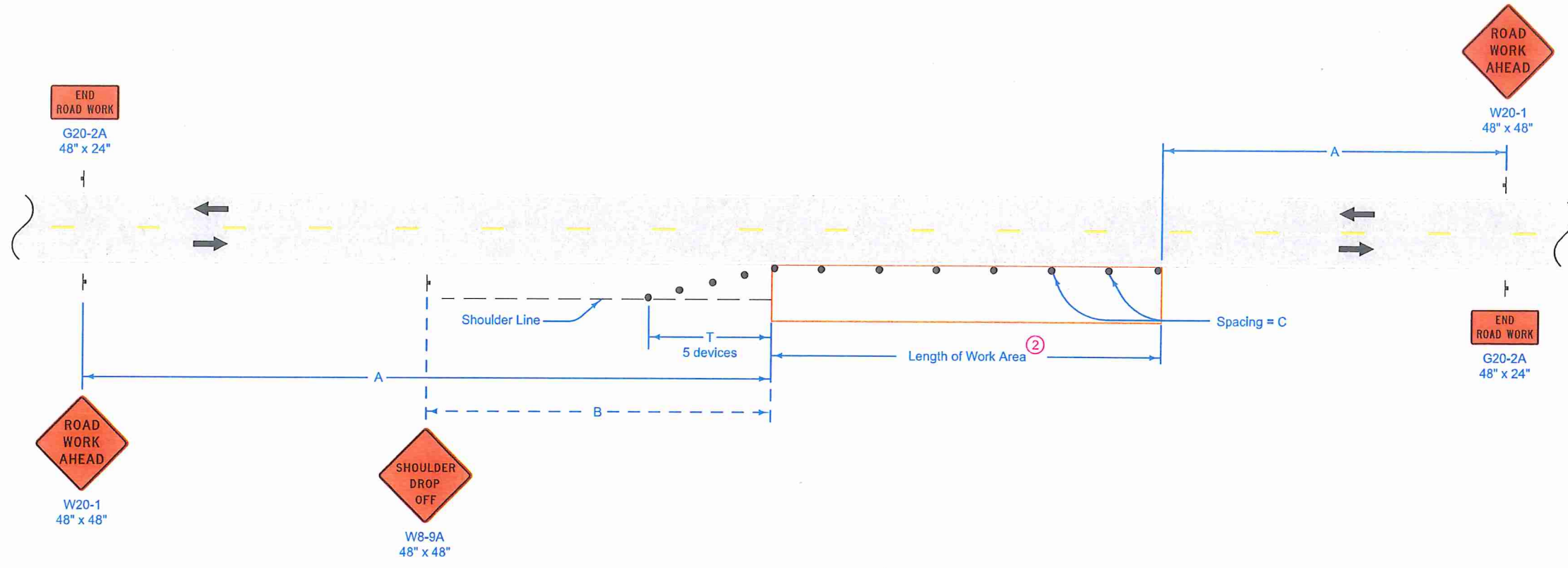
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pecon@pecon.com

DATE 01-08-12
DESIGNED P&E
DRAWN RMB
APPROVED JWE
APPROVED ARP

INDIANOLA MUNICIPAL UTILITIES
HIGHWAY 92 DOT PROJECT
HWY 92 PERMIT DRAWINGS

SCALE: AS NOTED
REV **C**
DWG NO **E8958-P11**



LEGEND

- Traffic Sign
- 42" Channelizer
- Work Area
- Direction of Traffic

| SPEED LIMIT (mph) | A | B | C ^② | T |
|-------------------|-------|------|-------------------|------|
| 35 or less | 500' | 250' | 40' | 100' |
| 40 - 45 | 700' | 350' | 80' ^① | 200' |
| 50 or greater | 1000' | 500' | 100' ^① | 200' |

When a pavement edge drop-off exists, install a SHOULDER DROP-OFF sign.

No pavement edge drop-offs greater than pavement depth will be allowed during non-working hours.

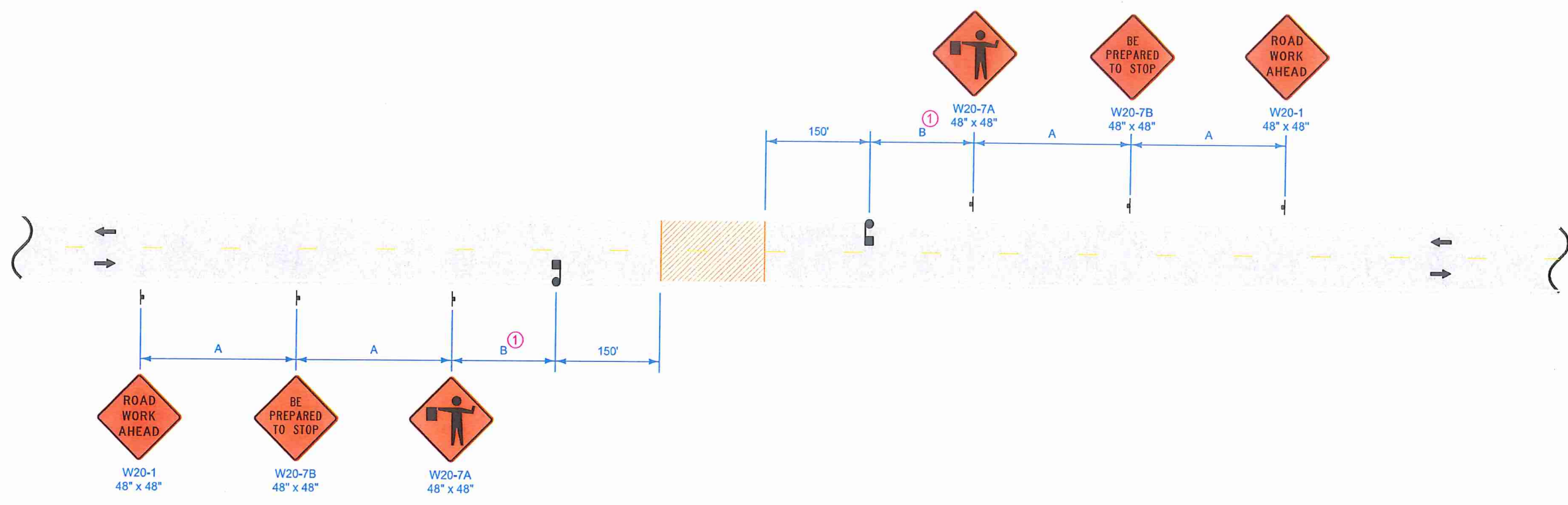
Shoulder edge drop-offs shall be mitigated according to Article 1107.08.L2 of the Standard Specifications.

^① When the length of a pavement edge drop-off is 1000 feet or less, the temporary fillet requirement of Article 1107.08 of the Standard Specifications does not apply. Reduce channelizer spacing to 40 feet.

^② For work areas less than 200 feet long, use channelizers spaced at 20 foot centers or use a vehicle with an amber revolving light or amber strobe light.

Possible Contract Item:
Traffic Control

| | |
|--|-------------------------------|
| Iowa Department of Transportation STANDARD ROAD PLAN | REVISION 7 10-15-13 |
| | TC-202 SHEET 1 of 1 |
| REVISIONS: Modified circle note 1. | |
| APPROVED BY DESIGN METHODS ENGINEER <i>Brian Smith</i> | |
| SHOULDER CLOSURE (ONE LANE) | |



- LEGEND**
- Traffic Sign
 - Work Area
 - Flagger
 - Direction of Traffic

| SPEED LIMIT (mph) | A | B ^① (minimum) |
|-------------------|------|--------------------------|
| 35 or less | 250' | 250' |
| 40 - 45 | 350' | 350' |
| 50 or greater | 500' | 500' |

This layout is intended for a preplanned closure of 20 minutes or less.

^① The Engineer will determine the storage length, B, necessary to accommodate stopped traffic during the closure.

Possible Contract Item:
Traffic Control
Flaggers

| | |
|--|-------------------------------|
| Iowa Department of Transportation STANDARD ROAD PLAN | REVISION 2 04-17-12 |
| | TC-251 SHEET 1 of 1 |
| REVISIONS: No significant changes. Changed to color. | |
| <small>APPROVED BY DESIGN METHODS ENGINEER</small> | |
| TEMPORARY ROAD CLOSURE | |