

CITY OF NORTH LITTLE ROCK, ARKANSAS
COMMERCE DEPARTMENT
Mary Beth Bowman, Director
Amy Smith, Assistant Director for Procurement
Crystal Willis, Admin. Sect./Assistant Purchasing Agent



120 MAIN STREET, North Little Rock, AR 72114
P.O. BOX 5757, North Little Rock, AR 72119
501-975-8881 Phone
501-975-8885 Fax

INVITATION TO BID/PROPOSAL COVER SHEET

RFP Number : 15-3351 Date Issued: July 17, 2015

Date & Time RFP Opening: Friday, August, 14, 2015 at 10:00 a.m.

GIS Systems Inventory Services

The Proposal response should be fully self-contained, and display clearly and accurately the capabilities, knowledge, experience and capacity of the Respondent to meet the requirements of the project and the RFP. Respondents are encouraged to utilize methods they consider appropriate in communicating the required information. At a minimum, this will include submission of the information requested below:

- Firm Description
- Team Qualifications and Experience
- Approach to Completing Scope of WORK
- Total Project Bid Price (on form provided herein)
- References
-

Please direct technical questions to Eric Heinrichs at 501-992-4086 or ehinrichs@nlr.ar.gov.

The City of North Little Rock reserves the right to reject any or all bids or to waive any informality in the bidding.

If you are obtaining this bid from our website, please be reminded that addendums may occur. It is therefore advisable that you review our listings (www.nlr.ar.gov) for attachments including any changes to the bid.

The City of North Little Rock encourages participation of small, minority, and woman own business enterprises in the procurement of goods, services, professional services, and construction, either as a general contractor or sub-contractor. It is further requested that whenever possible, majority contractors who require sub-contractors, seek qualified small, minority, and woman businesses to partner with them.

EXECUTION OF RFP

Upon signing this page, the organization certifies that they have read and agree to the requirements set forth in this bid including conditions set forth and pertinent information requests.

Name of Firm: _____ Phone No.: _____

Tax Identification No.: _____

Business Address: _____

Signature of Authorized Person: _____

Title: _____ Date: _____

UNSIGNED BID COVER SHEET WILL BE REJECTED.



INVITATION TO BID/PROPOSAL COVER SHEET

RFP Number : 15-3351 Date Issued: July 17, 2015

Date & Time RFP Opening: Friday, August, 14, 2015 at 10:00 a.m.

GIS Systems Inventory Services

In order to be considered, all requested information shall be submitted. All material shall be presented in a succinct manner in the same orders as presented in this RFP. Facsimile, emailed or electronic format proposals are not acceptable. The City will not be responsible for proposals delivered to a person/location other than specified on the cover sheet.

A. Firm Description

1. Firm: Name, address, telephone number, fax number, email address, website address (if available)
2. Year the firm was established
3. Primary contacts within the company: Title, telephone number and email address for each. Indicate which person will be the contact for the RFP process.
4. Number of employees in firm and the office locations.
5. List of pertinent equipment (GPS equipment, Total Station, Data Collector, Software, etc.).

B. Team Qualifications and Experience

1. List of Lead Professional Personnel by Area of Expertise: Provide an organization chart describing the staff available to handle the desire work. Provide a brief, but detailed history of the number of years of experience with the current firm and other firms, education, professional registration/certifications and qualified work experience relevant to the services requested.
2. Who (and how many) staff will be working on this project.

B. Team Qualifications and Experience- Continued

3. Current/Prior Experience with Municipal Projects: List up to three (3) projects, starting with the most recent, that the professional personnel of your firm have worked on in the past five (5) years. Provide the year the project was performed, the name of the municipality/jurisdiction and location (city), the owner's name, address and contact name, phone number, email address and the scope of work performed. Other related experience may be included

C. Approach to Completing Scope of Work

1. What resources will your firm use to address this project: people, equipment, software, etc.?
2. Provide the tasks and narratives of how our firm will comply with this assignment and what special services and products your firm has to meet our needs and not exceed the agreement amount.
3. A description of how the firm provides the desired services and equality control to assure adequate level of service and successful project completion and management.
4. A statement indicating the firm is independent, properly licensed to practice in Arkansas and has no conflict of interest with regard to any other work performed by the firm for the City.

D. Fee Schedule

Provide a total project bid price (on the form provided herein) that reflects the work proposed in the scope.

E. References

Provide three (3) references (names, address, phone numbers, email addresses and contact persons) for comparable work for your firm and the team members. Provide a brief description and magnitude of services provided for each reference.

CITY OF NORTH LITTLE ROCK, ARKANSAS
COMMERCE DEPARTMENT
Mary Beth Bowman, Director
Amy Smith, Assistant Director for Procurement
Crystal Willis, Admin. Sect./Assistant Purchasing Agent



120 MAIN STREET, North Little Rock, AR 72114
P.O. BOX 5757, North Little Rock, AR 72119
501-975-8881 Phone
501-975-8885 Fax

reasonable

INVITATION TO BID/PROPOSAL PRICING SHEET

RFP Number : 15-3351 Date Issued: July 17, 2015

Date & Time RFP Opening: Friday, August, 14, 2015 at 10:00 a.m.

GIS Systems Inventory Services

Price is only one of several factors comprising the evaluation criteria. Award is made to the qualified bidder whose bid substantially conforms to the requirements set forth in the solicitation documents and is evaluated to be the most reasonable cost to the City.

Total Project Bid Price \$ _____

**TERMS AND STANDARD CONDITIONS
CITY OF NORTH LITTLE ROCK, ARKANSAS**

PLEASE READ CAREFULLY

1. When submitting an "Invitation to Bid," the bidder warrants that the commodities covered by the bid shall be free from defects in material and workmanship under normal use and service. In addition, bidder must deliver new commodities of the latest design and model, unless otherwise specified in the "Invitation to Bid."
2. Prices quoted are to be net process, and when an error is made in extending total prices, the City may accept the bid for the lesser amount whether reflected by extension or by the correct multiple of the unit price.
3. Discounts offered will be taken when the City qualifies for such. The beginning date for computing discounts will be the date of invoice or the date of delivery and acceptance, whichever is later.
4. When bidding other than the brand and/or model specified in the "Invitation to Bid," the brand and/or model number must be stated by that item in the "Invitation to Bid," and descriptive literature be submitted with the bid.
5. The City reserves the right to reject any and all bids.
6. The Purchasing office reserves the right to award items, all or none, or by line item(s).
7. Quality, time and probability of performance may be factors in making an award.
8. Bid quotes submitted will remain firm for 30 calendar days from bid opening date; however, the prices may remain firm for a longer period of time if mutually agreeable between bidder and the Department of Commerce and Governmental Relations.
9. Bidder must submit a completed signed copy of the front page of the "Invitation to Bid" and must submit any other information required in the "Invitation to Bid."
10. In the event a contract is entered into pursuant to the "Invitation to Bid," the bidder shall not discriminate against any qualified employee or qualified applicant for employment because of race, sex, color, creed, national origin or ancestry. The bidder must include in any and all subcontracts a provision similar to the above.
11. Sales or use tax is not to be included in the bid price, but is to be added by the vendor to the invoice billing to the City. Although use tax is not to be included in this bid, vendors are to register and pay tax direct to the Arkansas State Revenue Department.
12. Prices quoted shall be "Free on Board" (F.O.B.) to destination at designated facility in North Little Rock. Charges may not be added after the bid is opened.
13. In the event of two or more identical low bids, the contract may be awarded arbitrarily or for any reason to any of such bidders or split in any proportion between them at the discretion of the Department of Commerce and Governmental Relations.
14. Specifications furnished with this Invitation are intended to establish a desired quality or performance level, or other minimum dimensions and capacities, which will provide the best product available at the lowest possible price. Other than designated brands and/or models approved as equal to designated products shall receive an equal consideration.
15. Samples of items when required, must be furnished free, and, if not called for within 30 days from date of bid opening, will become property of the City.
16. Bids will not be considered if they are: 1. Submitted after the bid's opening time. 2. Submitted electronically or faxed (unless authorized by Purchasing Agent).
17. Guarantees and warranties should be submitted with the bid, as they may be a consideration in making an award.
18. **CONSTRUCTION**
- A. Contractor is to supply the City with evidence of having and maintaining proper and complete insurance, specifically Workman's Compensation Insurance in accordance with the laws of the State of Arkansas, Public Liability and Property Damage. All premiums and cost shall be paid by the Contractor. In no way will the City be responsible in case of accident.
- B. When noted, a Certified check or bid bond in the amount of 5% of total bid shall accompany bid.
- C. A Performance Bond equaling the total amount of any bid exceeding \$10,000.00 must be provided for any contract for the repair, alteration or erection of any public building, public structure or public improvement (pursuant to Act 351 or 1953 as amended by Act 539 of 1979).
19. **LIQUIDATED DAMAGES** - Liquidated damages shall be assessed beginning on the first day following the maximum delivery or completion time entered on this bid form and/or provided for by the plans and specifications.
20. **AMBIGUITY IN BID** - Any ambiguity in any bid as the result of omission, error, lack of clarity or non-compliance by the bidder with specifications, instructions, and all conditions of bidding shall be construed in the light most favorable to the City.
21. The bid number should be stated on the face of the sealed bid envelope. If it is not, the envelope will have to be opened to identify.
22. Whenever a bid is sought seeking a source of supply for a specified period of time for materials and services, the quantities of usage shown are estimated ONLY. No guarantee or warranty is given or implied by the participants as to the total amount that may or may not be purchased from any resulting contracts. These quantities are for the bidders information ONLY and will be used for tabulation and presentation of bid and the participant reserves the right to increase or decrease quantities as required.
23. The City of North Little Rock reserves the right to reject any and all bids, to accept in whole or in part, to waive any informalities in bids received, to accept bids on materials or equipment with variations from specifications in those cases where efficiency of operation will not be impaired, and unless otherwise specified by the bidder, to accept any item in the bid. If unit prices and extensions thereof do not coincide, the City of North Little Rock may accept the bid for the lesser amount whether reflected by the extension or by the correct multiple of the unit price.
24. Additional information or bid forms may be obtained from:
COMMERCE DEPARTMENT, 120 Main Street, P.O. Box 5757, North Little Rock, Arkansas 72119 (501) 975-8881 www.nlr.ar.gov

Bidding documents must be submitted on or before the bid's opening date and time. Unless noted, sealed bids must be submitted to the Commerce Department at 120 Main Street, North Little Rock, AR 72114 or PO Box 5757, North Little Rock, AR 72119

North Little Rock Electric is the largest municipal utility in the State of Arkansas. We have around 38,500 customers and are for the most part serve a dense urban service territory. Our system covers around 85 square miles. We serve North Little Rock customers from Burns Park in the west to the Galloway area in the east and from the Arkansas River south of downtown NLR up north to the majority of Sherwood and a small part of Pulaski County.

The system inventory is expected to consist of the following locations to be observed and documented into a digital format that can be natively recognized by Milsoft WindMilMap GIS software:

- 13 substations with 46 individual feeder circuits and spare feeder bays at most stations
- 20,100 Poles – Wood, Concrete, or Metal from 25 foot to 105 foot tall
- 5,300 Dedicated Street Light Poles
- 11,100 Transformers in Service – Approximately 1,110 of these are Pad-Mount Transformers
- 39,000 Meters – Approximately 34,000 Residential
- 11,000 Street Lights in Service (Floodlights and Nightwatchers are included in this total)

NOTE: These numbers were pulled from NLRED's 2014 End of Year Continuing Property Records. These numbers change every day and are the best approximation available.

In addition to this there will be multiple communications companies, other electric utilities, and additional infrastructure owned by the electric department as in fiber communication lines attached to these poles. This information needs to be documented as well.

The main goals of this project are listed below and described in further detail in this document. They are:

- Obtaining a complete electrical model of North Little Rock Electric's Electrical System in a format defined by the import tools of Milsoft's WindmilMap software
- Obtaining a complete inventory of all equipment and conductor currently installed and used on NLRED's Electrical System starting at our substations and ending at every customer's meter or end point on the system
- Correct Phasing of all attached equipment and conductor is critical
- Obtaining pole attachment information as to what equipment is attached on our system and who owns the attached equipment
- To supply and install sufficient labels to tag every pole with a unique ID number on a label that can withstand the weather conditions found in Arkansas
 - Tags should be black letters on a yellow field
 - Specific materials for these tags will need to be approved by NLRED before commencing the project and installing any tags.

By our tabulation, we have **approximately 66,000 points** that need to be located, have GPS coordinates documented, and have an inventory done on the construction assembly units, poles, distribution equipment, street lights, conductor size, span lengths, any attachments owned by other utilities (such as Comcast, Entergy, and AT&T), and the electrical relationship between each location starting at each of our 46 substation feeder breakers out to the end of each line that serves every individual endpoint (meter). (25,400 poles, 1,110 pad-mounts, 39,000 meters)

To insure that the data transfer from the hired data collection service is integrated smoothly, proof of previous customers and projects using Milsoft to input the collected data is required. **Please submit contacts, references, and any projects your company has successfully completed collecting data for a Milsoft based GIS system.**

The specifics of the information that we want to obtain is described in the tables below. **Jeff Kirkes** of Milsoft is supporting NLR in the formatting and organization of the gathered system inventory information so that it successfully will be in a form to be input into Milsoft WindmilMap as is it collected and submitted. ANY questions about the data collection format can be directed to him at **800-344-5647**.

A copy of our Construction Assembly Specifications will be provided as well. They are based on the pre-Dot method RUS numbering scheme and sections A-G should be familiar to anyone that has worked with any US Electric Co-op Utility in the past. That said, they are NLRED's standards and like all utilities standards are a variation that is specific to NLRED.

Riser Poles (Where underground system wires come up the single or 3-phase tap pole from the UG Feed), Fault Indicators, and Lightning Arrestors are not native to Milsoft's database. They will be imported into an auxiliary data table from the other obtained information in this inventory. The same format should be used for these but they should be contained in a second separate file.

North Little Rock Electric has not been able to document and keep up with other utilities that have equipment and lines attached to our poles. An important part of this project will be identifying **WHAT** and **WHO** is attached to our system infrastructure. Please be specific on how this information will be gathered in the field and how you will be accurate with what utilities own which lines in our service territory.

Connectivity or the electrical connections between all of our devices is paramount to the success and the future use of this information. Each and every device installed on our system shall at a minimum have the "parent" device or connection be listed along with the devices or conductors inventoried information. Parent devices are the first direct upstream connection from the device being inventoried as you head back to the system's electrical source. Normally open switches have both an 'A' Parent connection and a 'B' parent connection that must be documented. These switches include fuses, single phase underslung switches, ground operated air break switches, and reclosers.

While the system is being inventoried, each pole will need to be tagged with a specific number so that we can evolve and keep better records of our equipment using the newer Milsoft database mapping system. The format has not been finalized, but they will be numbered numerically as the hired contractor inventories the system.

To limit the burden on NLRED's operations, we would like the inventory to occur and be completed as soon as possible. We expect the inventory to take in the neighborhood of 6 to 12 months with a start date of September 15th, 2015.

The system inventory must be submitted in a format that can be automatically recognized and imported into Milsoft WindMilMap GIS software. We prefer that a Windmil project file be created. This is Windmil's default project file format that has a .WM extension. If this is not possible by your company Milsoft's .MPT and .STD formats may be used to populate our digital mapping model. One to many relationships are required for external database tables. By submitting a bid, you are agreeing to both

understand the formats involved to successfully submit your work on this project **AND** understand that if the information collected and submitted does not meet the standards of the North Little Rock Electric Department's approval the contract for this project will be terminated. Working with NLR Electric and Milsoft to best accomplish this integration is extremely important to the success of this project.

The most current versions of the following internal documents and references will be provided by NLRED for the system inventory:

- NLRED AutoCAD system maps that show overhead lines, poles, limited equipment and conductor information, and Underground system locations
- NLRED Construction Standards
- NLRED Material List
- NLRED Main Feeder Maps
- List of all Switch Points including Normally Open Switch Points
- List of Capacitors
- List of Distribution Equipment
- List of Substation Feeder Breakers

Further References or system information will be given as the contractor requests. Samples of our maps and some of the above references are attached to this document along with this bid information.

If any of the desired information listed in this system inventory project cannot be obtained at all or cannot be obtained without utility support, please explain why not or how we can help facilitate gather the listed information. For example, transformer nameplates are attached in various positions on the pole-mounted transformers we own anywhere from 20 to 40 feet off the ground. Can you reliably obtain the information listed on 10,000 nameplates without support of our utility?

Please be as descriptive as possible on the cost per point obtained and what factors can lead to special charges based on any difficulties that may be caused by the information we desire.

In many cases the locations that the contractors will be going to collect this data will be through residential areas and properties owned by citizens of both North Little Rock and Sherwood. Proper signage and identification is required. Policies and procedures regarding interaction with customers, what to do in the event of damage to customer's property, safety procedures, internal quality control and benchmark standards regarding accuracy of data collection should be submitted and will need to be approved by NLRED before work is commenced.

NLRED is building a system that will be the basis of outage management and day to day internal procedures for years to come. At a minimum the data collected is expected to be above 99% accurate when spot checked by NLRED engineering staff. Please submit internal expectations and benchmarks held by your company and projects that support this level of service.

Any questions can be directed to Eric Heinrichs, PE by phone at 501-992-4086 or by email at eheinrichs@nlr.ar.gov.

Database Field

Description/Example Data

Database

Poles

Pole ID	Pole Number	Milsoft Model
Pole Material	Aluminum, Wood	Auxiliary
Pole Class	3,4,5	Auxiliary
Pole Height	15 though 105 (Feet)	Auxiliary
Pole Owner	NLRED, Entergy, AT&T, Comcast	Auxiliary
Pole Install Date	YYYY/MM/DD	Auxiliary
Pole Attachments	Yes,No	Auxiliary
Pole Attachment Owner 1	NLRED, Entergy, AT&T, Comcast	Auxiliary
Pole Attachment Wire Size	Fiber, Conductor	Auxiliary
Pole Attachment Owner 2	NLRED, Entergy, AT&T, Comcast	Auxiliary
Pole Attachment Wire Size	Fiber, Conductor	Auxiliary
Pole Attachment Owner 3	NLRED, Entergy, AT&T, Comcast	Auxiliary
Pole Attachment Wire Size	Fiber, Conductor	Auxiliary
GUID	Milsoft Master Database ID	Milsoft Model
GPS	(Long, Lat)	Milsoft Model
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Auxiliary
Grid Number	200010, 194200	Auxiliary

Transformers

Transformer Company Number	10001, XZ15003	Milsoft Model
Transformer Serial Number	Manufacturer's Serial Number	Auxiliary
Transformer Rating	kVA Rating	Equipment DB
Transformer Type	Pole-Mount, Pad-Mount	Equipment DB
Transformer Manufacturer	Name of MFG	Auxiliary
Transformer Primary Voltage	7620/13200, 7967/13800	Milsoft Model
Transformer Secondary Voltage	120/208, 120/240, 240/480, 277/480	Milsoft Model
Transformer Impedance	% Per Unit Impedance	Equipment DB
Transformer Bank Location ID	Number generated to ID what transformers are tied to which banks	Milsoft Model
Transformer Bank	NO, 2-pot, 3-pot	Auxiliary
Transformer Phase Taps	A, B, C, AB, BC, CA, ABC	Milsoft Model
Transformer Center In Bank	Yes, No	Auxiliary
Transformer Center Bank Tap	A, B, C	Auxiliary
Transformer Tap Changer	Yes, No	Auxiliary
Transformer Tap Setting	A, B, C, D, E	Auxiliary
Transformer Date of Manufacture	MM/YYYY	Auxiliary
Transformer Installation Date	YYYY/MM/DD	Auxiliary
Transformer AB Switch Position	Open, A, B, A&B	Auxiliary
Transformer UG Normal Open Point	Yes, No	Auxiliary
Transformer Status	Stock, Installed, Scrap	Auxiliary
GUID	Milsoft Master Database ID	Milsoft Model
GPS	(Long, Lat)	Milsoft Model
Direct Upstream Connection (Parent Feed)	GID of Parent Device or Conductor	Milsoft Model
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Auxiliary
Grid Number	200010, 194200	Auxiliary

Street Lights - Consumer Element

Street Light ID	Unique ID Number	Auxiliary
Street Light Rating	Watt Rating	Auxiliary
Street Light Type	Luminaire, Nightwatcher, Floodlight	Auxiliary
Street Light Manufacturer	SL MFG	Auxiliary
Street Light Voltage	120, 208, 240, 277, 480	Auxiliary
Street Light Technology	Mercury Vapor, Metal Halide, LED, Induction	Auxiliary
Street Light Controller	Timer, PE, Circuit	Auxiliary
Street Light Phase Tap	A, B, C	Auxiliary
Street Light Circuit	Yes, No	Auxiliary

Street Light Circuit Number	ST Circuit ID #	Auxiliary
Street Light Circuit Control Box ID		Auxiliary
Street Light Circuit Controller Type	Timer, PE, Circuit	Auxiliary
GUID	Milsoft Master Database ID	Milsoft Model
GPS	(Long, Lat)	Milsoft Model
Direct Upstream Connection (Parent Feed)	GID of Parent Device or Conductor	Milsoft Model
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Auxiliary
Grid Number	200010, 194200	Auxiliary

Fuses - Overcurrent Device

Fuse ID	Unique ID	Milsoft Model
Fuse Rating	Amp Rating: 5, 10, 150, 200	Equipment DB
Fuse Type	K, KS, Q, T	Equipment DB
Fuse Installation Date	YYYY/MM/DD	Equipment DB
Fuse Phase Tap	A, B, C	Equipment DB
Fuse Attachment	Crossarm, Switch Arm	Auxiliary
GUID	Milsoft Master Database ID	Milsoft Model
GPS	(Long, Lat)	Milsoft Model
Direct Upstream Connection (Parent Feed)	GID of Parent Device or Conductor - 'A' Connection	Milsoft Model
Connection B	Switch 'B' Connection in Milsoft	Milsoft Model
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Milsoft Model
Grid Number	200010, 194200	Auxiliary

Underslung - Switch

Underslung ID	Underslung ID	Milsoft Model
Underslung Rating	Amp Rating	Auxiliary
Underslung Manufacturer	Name of MFG	Auxiliary
Underslung Normal Closed	Normal Closed, Normal Open	Auxiliary
Underslung Installation Date	YYYY/MM/DD	Auxiliary
Underslung Phase Tap	A, B, C	Auxiliary
GUID	Milsoft Master Database ID	Milsoft Model
GPS	(Long, Lat)	Milsoft Model
Direct Upstream Connection (Parent Feed)	GID of Parent Device or Conductor	Milsoft Model
Connection B (If Normal Open Point)	Switch 'B' Connection in Milsoft	Milsoft Model
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Milsoft Model
Grid Number	200010, 194200	Auxiliary

GOABs - Switch

GOAB ID	GOAB ID	Milsoft Model
GOAB Rating	Amp Rating	Auxiliary
GOAB Load Break Switch	Yes, No	Auxiliary
GOAB Manufacturer	Name	Auxiliary
GOAB Normal Closed	Normal Closed, Normal Open	Auxiliary
GOAB Installation Date	YYYY/MM/DD	Auxiliary
GUID	Milsoft Master Database ID	Milsoft Model
GPS	(Long, Lat)	Milsoft Model
Direct Upstream Connection (Parent Feed)	GID of Parent Device or Conductor	Milsoft Model
Connection B (If Normal Open)	Switch 'B' Connection in Milsoft	Milsoft Model
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Milsoft Model
Grid Number	200010, 194200	Auxiliary

RECLOSERS - Switch

Recloser ID	Recloser ID Number	Milsoft Model
-------------	--------------------	---------------

Recloser Manufacturer	Cooper, ABB, SEL, Siemens	Equipment DB
Application	Recloser, Rollover, Generator Protection	Equipment DB
Recloser Rating	Amp Rating	Equipment DB
Recloser Model	Model Name/Number	Equipment DB
Recloser Type	Single Phase, Three Phase	Equipment DB
Recloser Phase Tap	A, B, C, ABC	Milsoft Model
Recloser Installation Date	YYYY/MM/DD	Auxiliary
Recloser Radio	Yes/No	Auxiliary
Recloser Radio DNP 3.0 Address	Number	Auxiliary
Recloser Last Date Maintained	YYYY/MM/DD	Auxiliary
Recloser Battery Backup Model	Battery Information	Auxiliary
Recloser Battery Backup Voltage	Voltage DC	Auxiliary
Recloser Battery Backup Maintained	YYYY/MM/DD	Auxiliary
GUID	Milsoft Master Database ID	Milsoft Model
GPS	(Long, Lat)	Milsoft Model
Direct Upstream Connection (Parent Feed)	GID of Parent Device or Conductor	Milsoft Model
Connection B	Switch 'B' Connection in Milsoft	Auxiliary
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Milsoft Model
Grid Number	200010, 194200	Auxiliary

SE CABINETS

Sectionalizing (SE) Cabinet ID	SE Cabinet Number	Auxiliary
SECAB Type	1-phase, 3-phase	Auxiliary
SECAB Phase	A, B, C, ABC	Auxiliary
SECAB Installation Date	YYYY/MM/DD	Auxiliary
GUID	Milsoft Master Database ID	Auxiliary
GPS	(Long, Lat)	Auxiliary
Direct Upstream Connection (Parent Feed)	GID of Parent Device or Conductor	Auxiliary
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Auxiliary
Grid Number	200010, 194200	Auxiliary

VOLTAGE REGULATORS

Regulator ID	Regulator ID	Milsoft Model
Regulator Size	kVA Rating?	Milsoft Model
Regulator Manufacturer	Name	Auxiliary
Regulator Phase Tap	A, B, C	Milsoft Model
Regulator Installation Date	YYYY/MM/DD	Auxiliary
GUID	Milsoft Master Database ID	Milsoft Model
GPS	(Long, Lat)	Milsoft Model
Direct Upstream Connection (Parent Feed)	GID of Parent Device or Conductor	Milsoft Model
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Milsoft Model
Grid Number	200010, 194200	Auxiliary

CAPACITORS

Capacitor ID	Capacitor ID Number	Milsoft Model
Capacitor Size	kVAR Rating	Milsoft Model
Capacitor Control	Manual, TTO, Volt/VAR	Milsoft Model
Capacitor Date Installed	YYYY/MM/DD	Auxiliary
Capacitor Last Date Maintained	YYYY/MM/DD	Auxiliary
Capacitor Manufacturer	Name	Auxiliary
Capacitor Fuse Size	Amp Rating	Auxiliary
Capacitor Fuse Type	KS, K, QA, T	Auxiliary
GUID	Milsoft Master Database ID	Milsoft Model
GPS	(Long, Lat)	Milsoft Model
Direct Upstream Connection (Parent Feed)	GID of Parent Device or Conductor	Milsoft Model

NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Milsoft Model
Grid Number	200010, 194200	Auxiliary

Substation Breakers (Circuits)

Substation Feeder Breaker ID (Feeder Number)	Feeder Number	Milsoft Model
Breaker Manufacturer	ABB	Auxiliary
Breaker Model	R-MAG, R2	Auxiliary
Breaker Rating	Amp Rating	Milsoft Model
Breaker Relay Model	Westinghouse CO-9, CO-11, SEL 351S	Auxiliary
Breaker Relay Curve	Very Inverse, Extremely Inverse	Milsoft Model
Breaker Relay Tap Setting	Number	Milsoft Model
Breaker Relay Time Dial	Number	Milsoft Model
GUID	Milsoft Master Database ID	Milsoft Model
GPS	(Long, Lat)	Milsoft Model
Direct Upstream Connection (Parent Feed)	GID of Parent Device or Conductor	Milsoft Model
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Milsoft Model
Grid Number	200010, 194200	Auxiliary

FAULT INDICATORS

Fault Indicator ID	ID Number	Auxiliary
Fault Indicator Manufacturer	Name	Auxiliary
Fault Indicator Model	Name	Auxiliary
GUID	ID of Conductor Indicator is connected to	Auxiliary
GPS	(Long, Lat)	Auxiliary
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Auxiliary
Grid Number	200010, 194200	Auxiliary

UG RISERS

Underground Riser ID	Riser Number	Auxiliary
Riser Phase Tap	A, B, C, ABC	Auxiliary
Riser Fuse Size	Amp Rating	Auxiliary
Riser Type	1-phase, 3-phase	Auxiliary
GUID	ID of first span of Underground Conductor	Auxiliary
GPS	(Long, Lat)	Auxiliary
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Auxiliary
Grid Number	200010, 194200	Auxiliary

ARRESTORS

Lightning Arrestor	ID Number	Auxiliary
LA Manufacturer	Name	Auxiliary
LA Model	Name	Auxiliary
LA Rating	Voltage Rating	Auxiliary
LA Date Installed	YYYY/MM/DD	Auxiliary
LA Phase Tap	A, B, C	Auxiliary
GUID	ID of Conductor Arrestor is connected to	Auxiliary
GPS	(Long, Lat)	Auxiliary
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Auxiliary
Grid Number	200010, 194200	Auxiliary

WIRE

Primary Conductor Size	#4, #1, 1/0, 4/0, 336, 477, 795, 1033	Equipment DB
Primary Conductor Material	ACSR, AAC, Copper	Equipment DB
Secondary Conductor Size	#8 through 4/0	Equipment DB
Secondary Conductor Material	ACSR, AAC, Copper	Equipment DB
Secondary Conductor Type	Single, Duplex, Triplex, Quadraplex	Equipment DB
GUID	Milsoft Master Database ID	Milsoft Model
GPS	(Long, Lat)	Milsoft Model
Direct Upstream Connection (Parent Feed)	GID of Parent Device or Conductor	Milsoft Model
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Milsoft Model
Grid Number	200010, 194200	Auxiliary

METERS - *Consumer Element*

Meter Number	20000001, XZD0001999	Milsoft Model
Transformer ID	14599, ZX4509	Auxiliary
Address	Street Address if available	Auxiliary
Meter Form	1S, 2S, 9S, 16K	Auxiliary
GUID	Milsoft Master Database ID	Milsoft Model
GPS	(Long, Lat)	Milsoft Model
Direct Upstream Connection (Parent Feed)	GID of Parent Device or Conductor	Milsoft Model
NLRED Assembly Number	A-1, C-4, L-1, UA-1	Auxiliary
Feeder Number	A1, B6, L43	Milsoft Model
Grid Number	200010, 194200	Auxiliary

Assembly Numbering Scheme

List of Categories

A	Single Phase, pole-top	L	Street Light Supports	UA	Underground, Single-phase, pole-top
B	2-Phase, pole-top	LD	Decorative Street Lights	UC	Underground, 3-phase, pole-top
C	3-Phase, pole-top	LF	Street Light Fixtures	UP	Underground Protection
D	Multi circuit, pole-top	P	Protection	UQ	Underground Equipment
E	Guys	Q	Equipment		
F	Anchors	R	Reclosers		
G	Transformers	S	Switches		
H	Grounding	W	Wood Pole Specs		

Assembly Numbers – Sections A thru D

1	Tangent or Small Angles (Single Pin or Post Insulator)
2	Tangent or Small Angles (Double Pin or Post Insulator)
3	Large Angles (Suspension Insulators)
4	Large Angles (Double Dead Ends)
5	Single Dead Ends or Taps
6	Double Dead Ends

Assembly Suffixes

A	A lley Arm
C	2-Phase, Neutral on C rossarm
H	H heavy Duty
M	M aterial List
P	P ost Insulators
T1	Single-Phase T ap from S ingle Phase Assembly
T3	Single or 3-Phase T ap from 3 -Phase Assembly
T6	D ouble 3-phase T ap from 3 -Phase Assembly
V	V ertical Construction

CONSTRUCTION ASSEMBLY LIST

UNIT #	CONSTRUCTION DESCRIPTION	ASSEMBLY DESCRIPTION	RUS EQUIV.
A			
A-1	7.98kV Primary Single Phase	Single Primary Support - Tangent Pole	A1.3
A-2		Double Primary Supports - Tangent Pole/Small Angle	A2.3
A-3		Suspension Angle	A3.4
A-4		Dead End Angle (30° to 165°)	A4.1
A-5		Dead End (Single)	A5.4
A-5-T1		Single Phase Tap From Single Phase	A5.46
A-5-T3		Single Phase Tap From 3-Phase	A5.6G
A-6		Dead End (Double) - Tangent Pole w/Vertical Jumper	A6.2
B			
B-1	13.8 / 7.98kV Crossarm Construction	2 Phase - Single Primary Support - Tangent Pole	B1.13
B-1C		2 Phase - Single Primary Support - Neutral on Crossarm - Tangent Pole	B1.14
B-2		2 Phase - Double Primary Support - Tangent Pole/Small Angle	B2.21
B-2C		2 Phase - Double Primary Support - Neutral on Crossarm - Tangent Pole	B2.22
B-3	13.8 / 7.98kV Vertical Construction	2 Phase - Suspension Angle	B3.4
B-4V		2 Phase - Dead End Angle (90° to 150°)	B4.16
B-5	13.8 / 7.98kV Crossarm Construction	2 Phase - Dead End (Single)	B5.21
B-5V	13.8 / 7.98kV Vertical Construction	2 Phase - Dead End (Single)	B5.6
B-6	13.8 / 7.98kV Crossarm Construction	2 Phase - Dead End (Double)	B6.21
C			
C-1	13.8 / 7.98kV Crossarm Construction	3 Phase - Single Primary Support - Tangent Pole	C1.13
C-1A	13.8 / 7.98kV Alley Arm Construction	3 Phase - Single Primary Support - Tangent Pole	-
C-1P	13.8 / 7.98kV Crossarm Construction - Post	3 Phase - Single Primary Support - Tangent Pole	C1.13P
C-1V	13.8 / 7.98kV Vertical Construction	3 Phase - Tangent	C1.3N
C-2	13.8 / 7.98kV Crossarm Construction	3 Phase - Double Primary Support - Tangent Pole/Small Angle	C2.21
C-2A	13.8 / 7.98kV Alley Arm Construction	3 Phase - Double Primary Support - Tangent Pole/Small Angle	-
C-2P	13.8 / 7.98kV Crossarm Construction - Post	3 Phase - Double Primary Support - Tangent Pole/Small Angle	C2.21P
C-3V	13.8 / 7.98kV Vertical Construction	3 Phase - Suspension Angle	C3.6
C-3VH		3 Phase - Suspension Angle w/Gate	C3.1L
C-4		Double Dead End - 90° (Buck Arms)	-
C-4H		Double Dead End - 90° Heavy Duty (Buck Arms)	-
C-4V		3 Phase - Dead End Angle - 30° to 90°	C4.26
C-4VH		3 Phase - Dead End Angle - 90° to 165°	C4.16
C-5	13.8 / 7.98kV Crossarm Construction	3 Phase - Dead End (Single)	C5.22
C-5H		3 Phase - Dead End (Single) Heavy Duty	C5.71L
C-5-T3		3-Phase - Single Buck - 3-Phase Tap	C5.82G
C-5-T6		3-Phase - Double Buck - 3-Phase Tap (Double)	C6.91G
C-5V	13.8 / 7.98kV Vertical Construction	3 Phase - Dead End (Single)	-
C-6	13.8 / 7.98kV Crossarm Construction	3 Phase - Dead End (Double) - Tangent Pole w/Vertical Jumper	C6.21
C-6H		3-Phase - Dead End (Double) - Distribution Equipment	-
D			
D-1-2	13.8 / 7.98kV Crossarm Construction - Double Circuit	3 Phase - Single Primary Support - 2 Crossarm Type - Tangent Pole	D1.83
D-1-3	13.8 / 7.98kV Crossarm Construction - Triple Circuit	3 Phase - Single Primary Support - 3 Crossarm Type - Tangent Pole	-
E			
E-1	Guy Wire Assembly	Down Guy	E1.1L
E-2		Down Guy with Guy Strain Insulator	E1.1L+E1.5
E-3		Span Guy	E1.4L
E-4		Span Guy with Guy Strain Insulator	E1.4L+E1.5
E-5		Sidewalk Guy	-
E-6		Push Pole	-
F			
F-1	Anchor Assembly	8" Bust Anchor	F1.6
F-2		10" Bust Anchor	F1.10
F-3		14" Helix Anchor (PISA)	F2.6
F-4		Twin 8" Anchor	F2.10
F-5		Rock Anchor	F5.1
G			
G-1	Pole Mounted Transformers	Single Transformer Bank	G1
G-2		Double Transformer Bank	G2
G-3		Triple Transformer Bank	G3
G-TW-1	Transformer Wire Diagrams	120/240V 3-Wire Secondary	-
G-TW-3		2-Phase Open Wye Primary - 3-Phase 240V or 480V Open Delta Secondary	-
G-TW-4		2-Phase Open Wye Primary - 3-Phase 240V or 480V 4-Wire Open Delta Secondary, with High Leg from C to N	-
G-TW-5		3-Phase Wye Primary - 3-Phase 120/208V 4-Wire Closed Wye Secondary	-
G-TW-6		3-Phase Wye Primary - 3-Phase 277/480V 4-Wire Closed Wye Secondary	-
G-TW-7		3-Phase Wye Primary - 3-Phase 240V or 480V 3-Wire Closed Delta Secondary	-
G-TW-8		3-Phase Wye Primary - 3-Phase 240V or 480V 4-Wire Grounded Delta Secondary, with High Leg From C to N	-
G-TW-9		3-Phase Delta Primary - 3-Phase 240V or 480V 3-Wire Closed Delta Secondary	-
G-TW-10		3-Phase Delta Primary - 3-Phase 240V or 480V 4-Wire Grounded Delta Secondary, with High Leg From C to N	-

H			
H-1	Grounding Assembly	Butt Wrap	H5.1
H-2		Ground Rod	H1.1
H-3		Ground Assembly for GOAB	H3.1
L			
L-1	Wood Pole Light Attachment	Arm for Street Light Balast	-
L-2	Aluminum Poles	25' Residential Aluminum Street Light Pole	-
L-3		30' Main Artery Aluminum Street Light Pole	-
L-4		30' Main artery Aluminum Street Light Pole (Double)	-
LD			
LD-1	Decorative Street Lights	Park Hill Single Lamp Post	-
LD-2		Park Hill Double Lamp Post	-
LF			
LF-1	Street Lights	Metal Halide 150W Flat Glass Balast	-
LF-2		Metal Halide 250W Flat Glass Balast	-
LF-3		Metal Halide 400W Flat Glass Balast	-
LF-4		150W Hi-Pressure Sodium Night Watcher	-
LF-5		Metal Halide 400W Night Watcher	-
LF-6		400W Metal Halide Floodlight (Series 75, Yoke Mount)	-
LF-7		250W Metal Halide Floodlight	-
LF-8		400W Metal Halide Floodlight (Series 77, Yoke Mount)	-
LF-9		400W Metal Halide Floodlight (Series 77, Vertical Tenon Mount)	-
P			
P-1		Lightning Arrestor - Single Phase	P1.1
P-2		Lightning Arrestor - 2-Phase	-
P-3		Lightning Arrestor - 3-Phase	P1.3
Q			
Q-1	Distribution Equipment	Fixed Bank Primary Capacitor Installation - 100 - 1200 kVAR	Y3.2
Q-2		Switched Bank Primary Capacitor Installation - 100-1200 kVAR	Y3.4
Q-3		3-Phase Primary Metering Installation	-
R			
R-1	Recloser	Electronically Controlled Reclosers	-
R-2		Single Phase Vacuum Bottle Recloser	R1.2
R-3		Three Phase Vacuum Bottle Recloser	R3.3
S			
S-1-1	Switch Assembly	Single Phase Cutout w/ Single Fiberglass Switch Arm	S1.1
S-1-2		Two Phase Cutout w/ Triple Fiberglass Switch Arm	-
S-1-3		Three Phase Cutout w/ Triple Fiberglass Switch Arm	S1.3
S-2-1	Switch Assembly	Single Phase Current Limiting Combination Cutout w/ Single Fiberglass Switch Arm	S1.1
S-2-2		Two Phase Current Limiting Combination Cutout w/ Triple Fiberglass Switch Arm	-
S-2-3		Three Phase Current Limiting Combination Cutout w/ Triple Fiberglass Switch Arm	S1.3
S-3		600A Underslung Cutouts	S2.01,,21,,31
S-4		4th Cutout Switch for 3-Phase Delta Primary Transformer Bank	-
S-5		GOAB - Ground Operated Airbreak Switch	S2.32
W			
W-1	Wood Pole Specifications	25' (Class 6) & 30' (Class 5) & 35' (Class 3) Wood Poles	W1.1G
W-2		40' and Above (Class 3) Wood Poles	-
W-25-90	Wood Pole Hole Depths	25' Wood Pole	-
UA			
UA-1		Single Phase Dip Pole	UA1
UA-2		Single Phase - Dip Pole (Double)	-
UC			
UC-1		3-Phase - Dip Pole	UC1
UC-2		3-Phase - Dip Pole (Double)	-
UG			
UG-1	Pad Mounted Transformers	Single Phase Transformer with Preform Pad	UG6
UG-3		Three Phase Transformer	UG17
UQ			
UQ-1		Single Phase Sectionalizing (SE) Cabinet w/ Preform Base	UM3-14
UQ-2		3-Phase Sectionalizing (SE) Cabinet with Preform Base	UM37
UQ-3		Secondary Pedestal	-
UQ-4		Flush-Mount Secondary Pedestal	-
UQ-5		3-Phase Secondary Cabinet	-

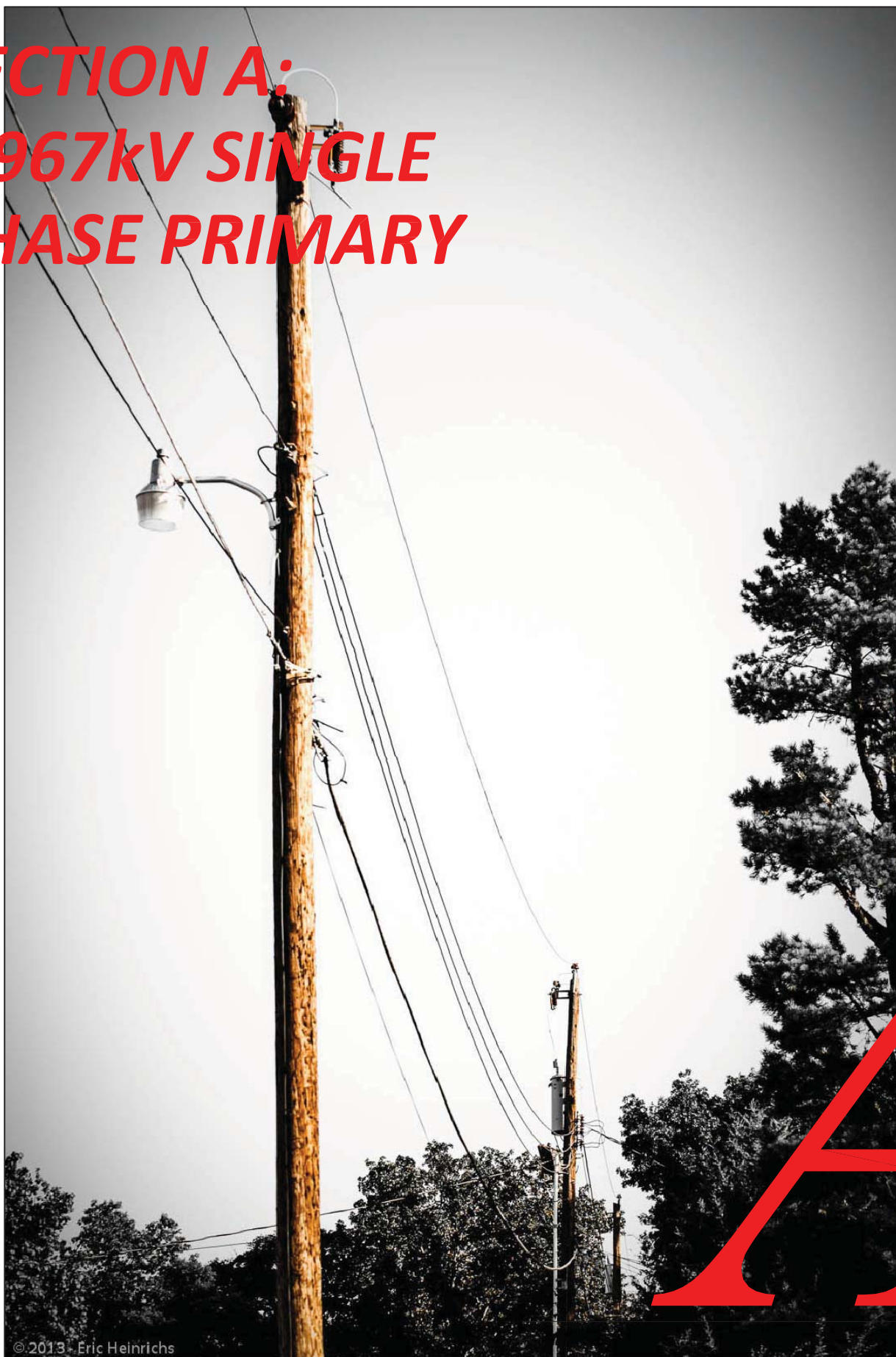
MATERIAL INDEX

INDEX	DESCRIPTION
A	PIN INSULATOR
B	18" POLE TOP PIN
C	MACHINE BOLT, 5/8" X REQ'D LENGTH
D	SQUARE WASHER, 2 1/4" X 2 1/4"
D1	ROUND WASHER 1/2"
D2	ROUND WASHER 1 3/8"
D3	CURVED WASHER 3"
F	STEEL CROSSARM PIN, 5/8" X 10 3/4"
G	WOOD CROSSARM, 3 5/8" x 4 5/8" x 8'-0"
GF	8' DEAD END FIBERGLASS CROSSARM #6 CU - 336 ACSR (2500 PUPI)
GH	8' DEAD END FIBERGLASS CROSSARM 795 - 1033 ACSR (3000 PUPI)
I	MACHINE BOLT, 1/2" X REQ'D LENGTH
J	LAG SCREW, 1/2" X 4"
K	SUSPENSION INSULATOR
N	DA BOLT, 5/8" X REQ'D LENGTH
O	EXTENSION LINK, 18"
P	CONNECTORS, AS REQ'D
U	PREFORM WRAP
V	GUY ATTACHMENT
W	FIBERGLASS GUY STRAIN INSULATOR
X	EYE THIMBLE ANCHOR ROD
Y	GUY WIRE
Z	8" BUST ANCHOR
Z1	10" BUST ANCHOR
Z2	14" HELIX ANCHOR (PISA)
Z3	TWIN 8" ANCHOR
Z4	ROCK ANCHOR
AA	EYE NUT, 5/8"
AB	STD EYELET BOLT, 5/8"
AE	LIGHTNING ARRESTOR
AF	FUSED CUTOUT
AFB	BRASS CUTOUT (FOR DELTA TRANSFORMER BANK)
AFH	CURRENT LIMITING CUTOUT WITH COMBINATION EXPULSION FUSE
AI	GROUND ROD
AJ	GROUND ROD CLAMP
AL	STAPLES, 1 1/2" X 1/4"
AN	POLE MOUNTED TRANSFORMER
ANB	TRANSFORMER MOUNTING BRACKET
AP	HOT LINE CLAMP
AT	GUY GUARD (YELLOW)
AV	JUMPERS, AS REQ'D
AW	LOCK WASHER (SPRING TYPE), AS REQ'D
AW3	LOCK WASHER (SPRING TYPE), 3/4" AS REQ'D
AX	COMBINATION CUTOUT

BE	COOPER NOVA VACUUM BOTTLE RECLOSER
BE1	SINGLE PHASE VACUUM BOTTLE RECLOSER
BE3	3 PHASE VACUUM BOTTLE RECLOSER
BEC	COOPER FORM 6 CONTROLLER
BO	ANCHOR SHACKLE
BW	BUTT WRAP
BZ	VACUUM CONTROL SWITCH
CA	PRIMARY DEAD END ASSEMBLY
CC	NEUTRAL DEAD END ASSEMBLY
CCH	HEAVY DUTY NEUTRAL DEAD END ASSEMBLY
CD	PRIMARY ANGLE ASSEMBLY, (SUSPENSION CLAMP)
CE	2-HOLE COMPRESSION CONNECTOR
CG	GANG OPERATED AIRBREAK SWITCH (GOAB)
CGA	GOAB GROUND LEVEL SWITCH ASSEMBLY
CJ	GROUND WIRE, NO. 4 BARE COPPER
CJ2	GROUND WIRE, NO. 2 S.D. COPPER
CK	ANCHOR BONDING CLAMP
CL	GUY BONDING CLAMP
CM	SPOOL INSULATOR
CR	ANGLE BRACKET
CU	WOOD BRACE
CUS	8' GALVANIZED STEEL BRACE
CW	CONTROL WIRES (SUPPLIED W/ CONTROLLER)
DA	SPOOL BRACKET
DR	CONDUIT
DS	U-GUARD
EA	POST TYPE INSULATOR, 15KV
EB	POLE TOP BRACKET
EF	CLEVIS BOLT, 5/8" X REQ'D LENGTH
EP	OFFSET BRACKET, 2 1/2"
ER	CONTROLLER WIRE GUARD (SUPPLIED W/ CONTROLLER)
EQ	CONDUIT MOUNTING BRACKET
FA	SINGLE PHASE FIBERGLASS SWITCH ARM
FB	3 PHASE FIBERGLASS SWITCH ARM
FBA	3 PHASE ALUMINUM SWITCH BRACE
FC	CAPACITOR (2 BUSHING, 13.8KV RATING)
FD	CAPACITOR MOUNTING BRACKET
FE	CAPACITOR CONTROLLER (TIME-TEMPERATURE)
FK	NOVA RECLOSER MOUNTING BRACKET
FK3	3-PHASE VACUUM BOTTLE RECLOSER MOUNTING BRACKET
FL	PT/CT MOUNTING BRACKETS
GA	9S METER
GB	METER CAN W/ 9S METER SOCKET
GP	GALVANIZED PIPE 2" X REQ'D LENGTH
LA	ALUMINUM STREET LIGHT ARM
LB	25' RESIDENTIAL ALUMINUM STREET LIGHT POLE
LC1	30' MAIN ARTERY ALUMINUM STREET LIGHT POLE

LC2	30' MAIN ARTERY ALUMINUM STREET LIGHT POLE (DOUBLE)
LD1	DECORATIVE STREET LIGHT (SINGLE ACORN)
LD2	DECORATIVE STREET LIGHT (DOUBLE ACORN)
LF-1	METAL HALIDE 150W FLAT GLASS BALAST
LF-2	METAL HALIDE 250W FLAT GLASS BALAST
LF-3	METAL HALIDE 400W FLAT GLASS BALAST
LF-4	150W HI-PRESSURE SODIUM NIGHT WATCHER
LF-5	METAL HALIDE 400W NIGHT WATCHER
LF-6	400W METAL HALIDE FLOODLIGHT (SERIES 75, YOKE MOUNT)
LF-7	250W METAL HALIDE FLOODLIGHT
LF-8	400W METAL HALIDE FLOODLIGHT (SERIES 77, YOKE MOUNT)
LF-9	400W METAL HALIDE FLOODLIGHT (SERIES 77, VERTICAL TENON MOUNT)
LH	LEAD HEAD
PO	CLASS 5 OR 7 POLE, REQ'D LENGTH
POB	POLE ATTACHMENT BRACKET
PW	POLLY WIRE (FROM BOTTOM OF CUTOUT TO ARRESTOR TO TRANSFORMER)
RP	ANIMAL GUARD
SB	600A UNDERSLUNG DISCONNECT SWITCH
SD	CURRENT TRANSFORMER
SE	POTENTIAL TRANSFORMER
SLD	DECORATIVE STREET LIGHT
SL1	STREET LIGHT FIXTURES
ST	STIRRUP
SWF	SIDEWALK GUY FITTING
SWP	SIDEWALK GUY PLATE
UAN	SINGLE PHASE PAD MOUNTED TRANSFORMER
UAN3	3-PHASE PAD MOUNTED TRANSFORMER
UGN	SINGLE PHASE SE CABINET
UGN3	3-PHASE SE CABINET
UGU	ABOVE GRADE SECONDARY PEDESTAL
UGU3	3-PHASE SECONDARY CABINET
UGV	FLUSH MOUNT SECONDARY PEDESTAL
UJA	SINGLE PHASE COMPOSITE TRANSFORMER PAD
UJG	SINGLE PHASE COMPOSITE SE CABINET BOX PAD
UJG3	3-PHASE COMPOSITE SE CABINET BOX PAD
UFA	TERMINATOR BRACKET
UGK	TERMINATOR
VE	EYE PLATE GUY ATTACHMENT
WB	WIRING BOX
WH	WEATHERHEAD
ZZ	2" ONE HOLE PIPE STRAP W/ BOLT

SECTION A: 7.967kV SINGLE PHASE PRIMARY



©.2013 - Eric Heinrichs

NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS

7.967kV SINGLE PHASE PRIMARY

DATE: 9-10-2013

SHT No: 1

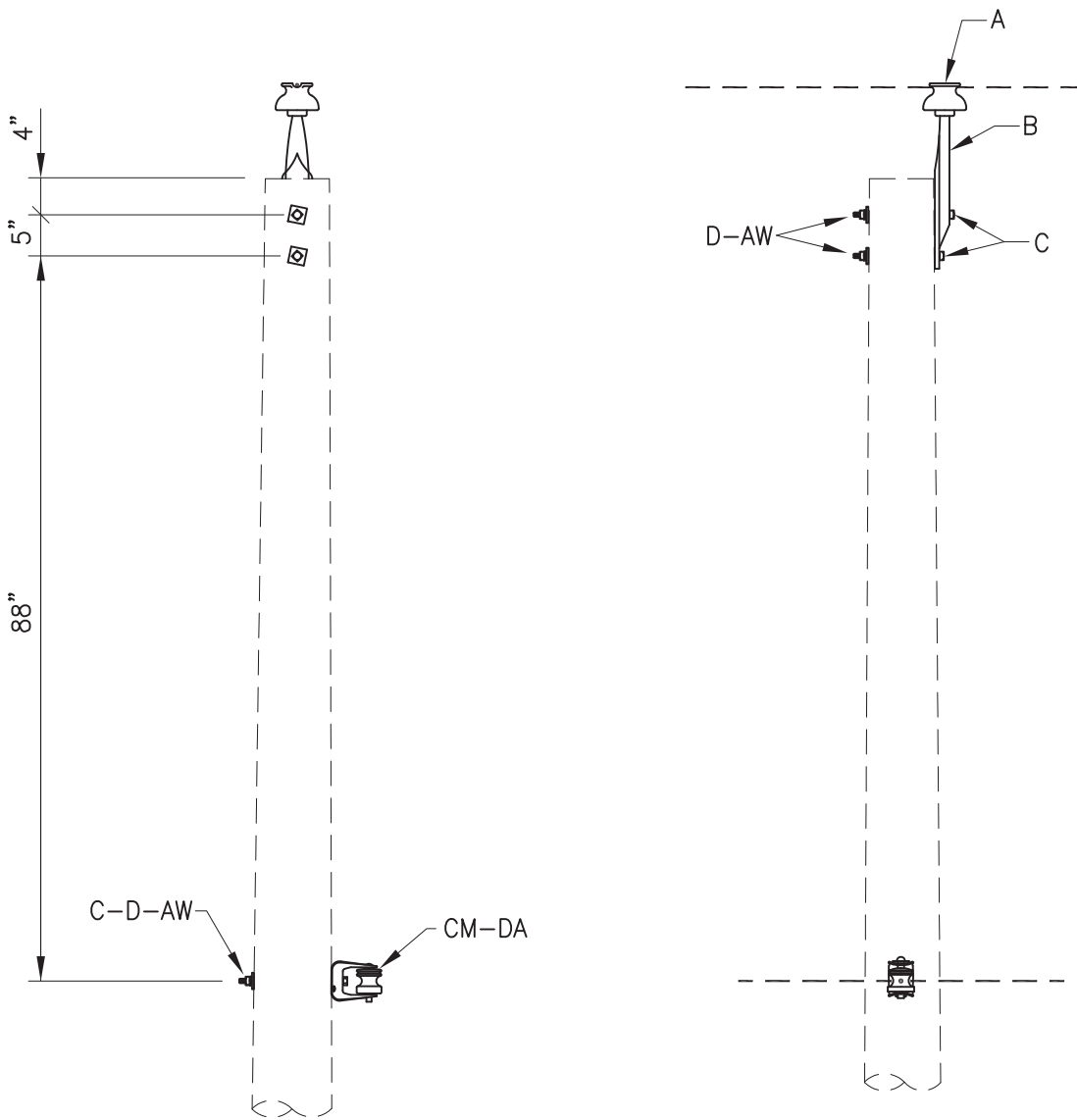
CONSTRUCTION
STANDARD No.

REVISION

0

A





NOTE:

ALL NEW POLES ARE REQUIRED TO HAVE A GROUNDLINE POLE WRAP AND A POLE TOP CAP INSTALLED.

ITEM	QUAN.	MATERIAL DESCRIPTION
A	1	PIN INSULATOR
B	1	18" POLE TOP PIN
C	3	MACHINE BOLT, 5/8" x REQ'D LENGTH
D	3	SQUARE WASHER, 2 1/4" x 2 1/4"
AW	3	LOCK WASHER (SPRING TYPE), AS REQ'D
CM	1	SPOOL INSULATOR
DA	1	SPOOL BRACKET



NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
 SINGLE PRIMARY SUPPORTS - TANGENT POLE
 7.98kV PRIMARY, SINGLE PHASE

DATE: 5-15-2013

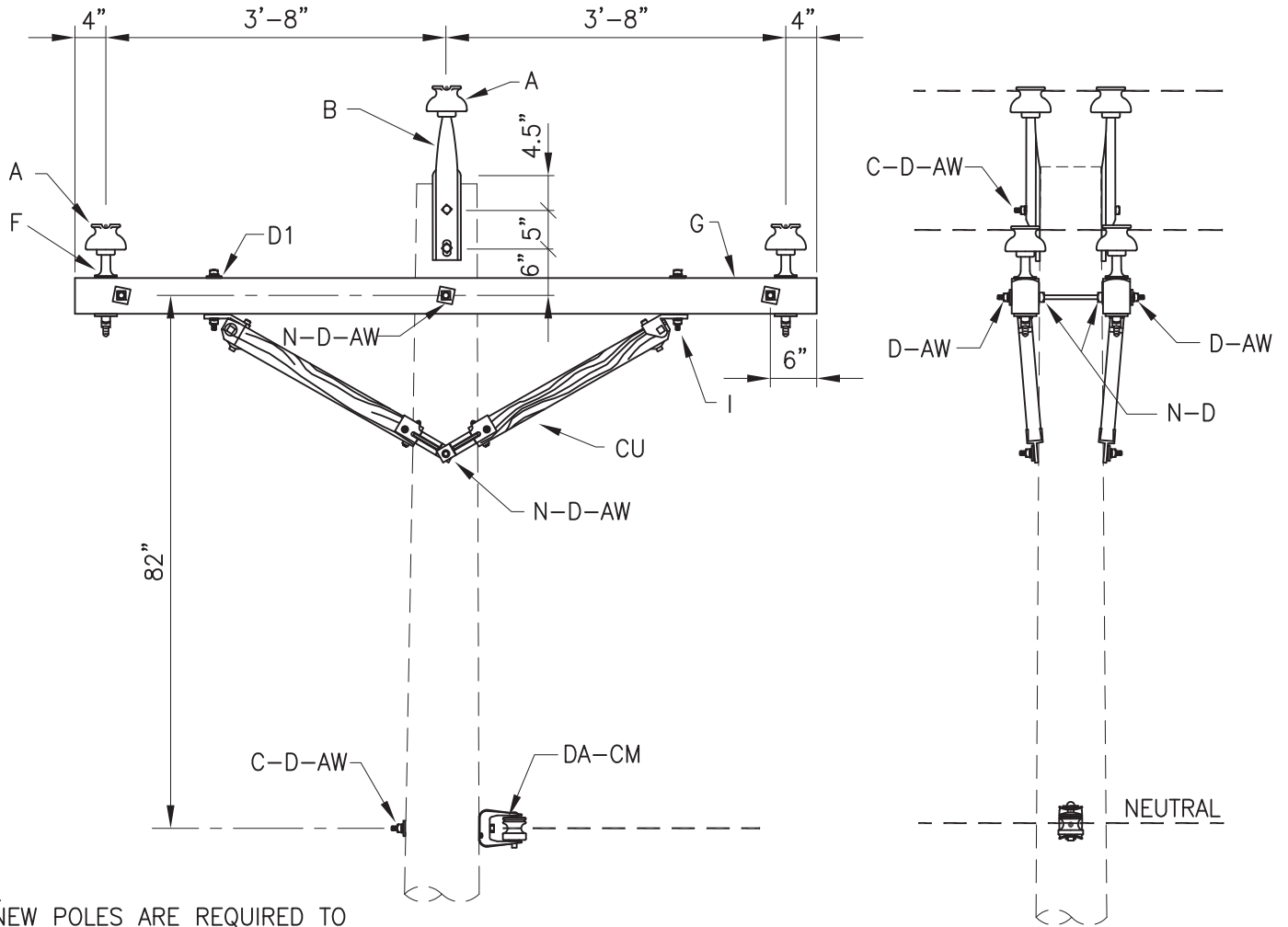
REVISION

SHT No: 1

0

CONSTRUCTION STANDARD No.

A-1



NOTE:
 ALL NEW POLES ARE REQUIRED TO
 HAVE A GROUNDLINE POLE WRAP
 AND A POLE TOP CAP INSTALLED.

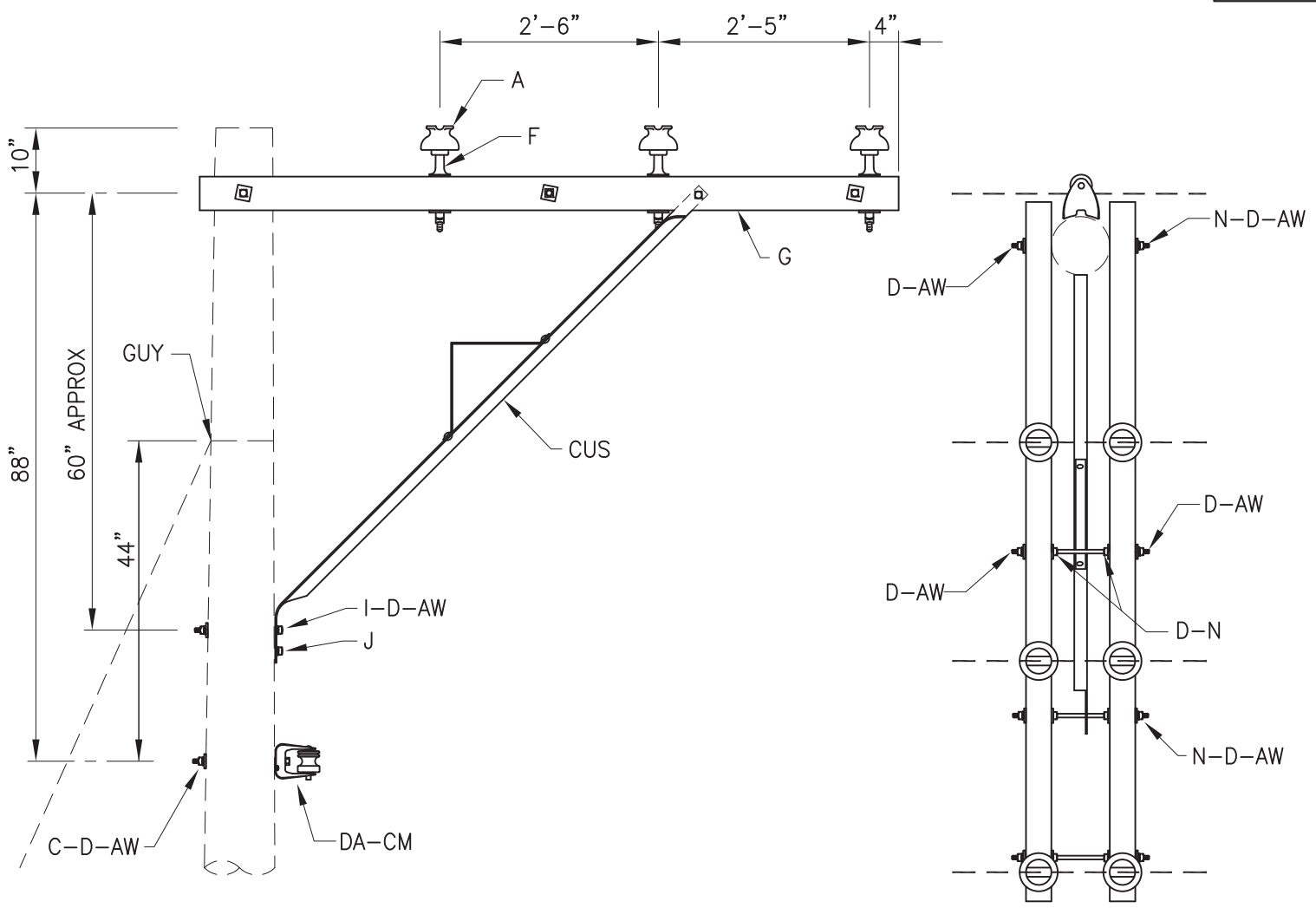
ITEM	QUAN.	MATERIAL DESCRIPTION
A	6	PIN INSULATOR
B	2	18" POLE TOP PIN
C	3	MACHINE BOLT, 5/8" x REQ'D LENGTH
D	11	SQUARE WASHER, 2 1/4" x 2 1/4"
D1	4	ROUND WASHER 1/2"
F	4	STEEL CROSSARM PIN, 5/8" x 10 3/4"
G	2	WOOD CROSSARM, 3 5/8" x 4 5/8" x 8'-0"
I	4	MACHINE BOLT, 1/2" x REQ'D LENGTH
N	4	DA BOLT, 5/8" x REQ'D LENGTH
AW	11	LOCK WASHER (SPRING TYPE), AS REQUIRED
CM	1	SPOOL INSULATOR
CU	4	WOOD BRACE
DA	1	SPOOL BRACKET

BORDER CADD FILE: NLR8511.DWG



NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
 3 PHASE - DOUBLE PRIMARY SUPPORT - TANGENT POLE/SMALL ANGLE
 13.8 / 7.98kV CROSSARM CONSTRUCTION

DATE: 5-15-2013	REVISION
SHT No: 1	0
CONSTRUCTION STANDARD No.	C-2



TOP VIEW

NOTE:
 ALL NEW POLES ARE REQUIRED TO
 HAVE A GROUNDLINE POLE WRAP
 AND A POLE TOP CAP INSTALLED.

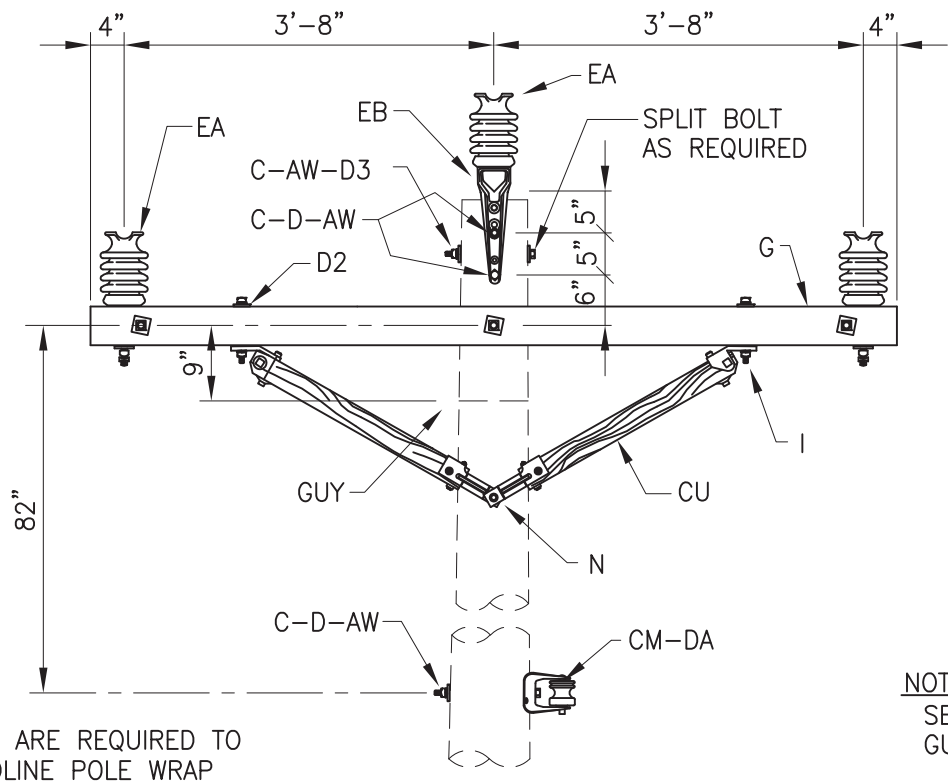
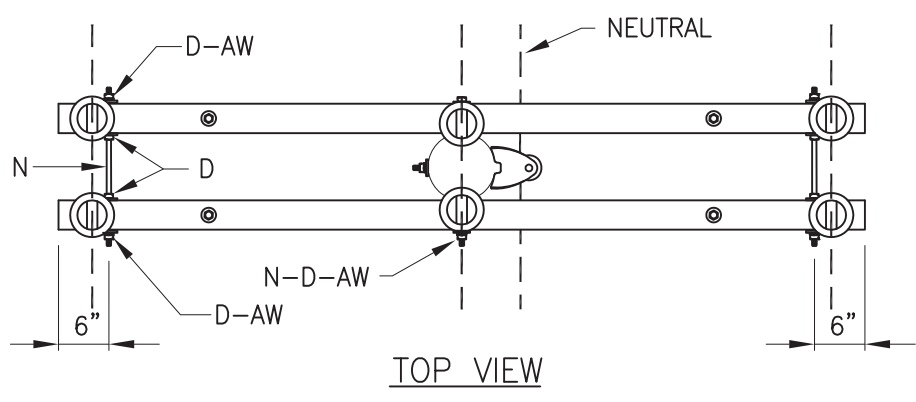
ITEM	QUAN.	MATERIAL DESCRIPTION
A	6	PIN INSULATOR
C	1	MACHINE BOLT, 5/8" x REQ'D LENGTH
D	16	SQUARE WASHER, 2 1/4" x 2 1/4"
F	6	STEEL CROSSARM PIN, 5/8 x 10 3/4"
G	2	WOOD CROSSARM, 3 5/8" x 4 5/8" x 8'-0"
I	1	MACHINE BOLT, 1/2" X REQ'D LENGTH
J	1	LAG SCREW, 1/2" x 4"
N	4	DA BOLT, 5/8" x REQ'D LENGTH
AW	10	LOCK WASHER (SPRING TYPE), AS REQ'D
CM	1	SPOOL INSULATOR
CUS	1	8' GALVANIZED STEEL BRACE
DA	1	SPOOL BRACKET

BORDER CADD FILE: NLR8511.DWG



NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
 3-PHASE - DOUBLE PRIMARY SUPPORT - TANGENT POLE
 13.8 / 7.98kV ALLEY ARM CONSTRUCTION

DATE: 5-23-2013	REVISION
SHT No: 1	0
CONSTRUCTION STANDARD No.	C-2A



NOTE:
ALL NEW POLES ARE REQUIRED TO HAVE A GROUNDLINE POLE WRAP AND A POLE TOP CAP INSTALLED.

NOTE:
SEE SECTION "E" FOR GUY STANDARDS.

ITEM	QUAN.	MATERIAL DESCRIPTION
C	4	MACHINE BOLT, 5/8" x REQ'D LENGTH
D	13	SQUARE WASHER, 2 1/4" x 2 1/4"
D2	4	ROUND WASHER, 1 3/8"
D3	2	CURVED WASHER 3"
G	2	WOOD CROSSARM, 3 5/8" x 4 5/8" x 8'-0"
I	4	MACHINE BOLT, 1/2" x REQ'D LENGTH
N	4	DA BOLT, 5/8" x REQ'D LENGTH
AW	11	LOCK WASHER (SPRING TYPE), AS REQ'D
CM	1	SPOOL INSULATOR
CU	4	WOOD BRACE
DA	1	SPOOL BRACKET
EA	6	POST TYPE INSULATOR, 15 KV
EB	2	POLE TOP BRACKET

BORDER CADD FILE: NLR8511.DWG



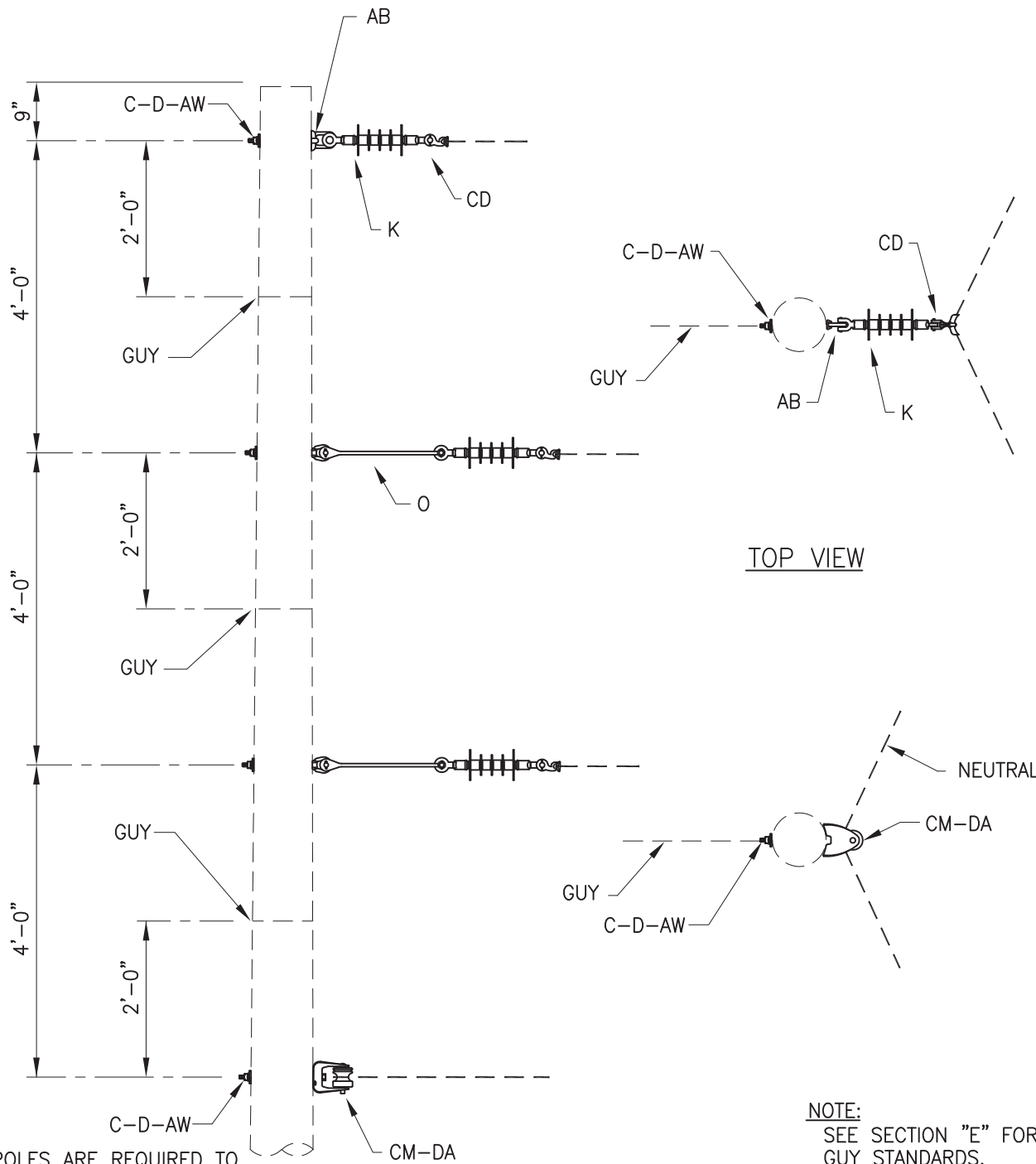
NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
3 PHASE - DOUBLE PRIMARY SUPPORT - TANGENT POLE
13.8 / 7.98kV CROSSARM CONSTRUCTION - POST

DATE: 5-22-2013
SHT No: 1

REVISION
0

CONSTRUCTION STANDARD No.

C-2P



NOTE:
 ALL NEW POLES ARE REQUIRED TO
 HAVE A GROUNDLINE POLE WRAP
 AND A POLE TOP CAP INSTALLED.

NOTE:
 SEE SECTION "E" FOR
 GUY STANDARDS.

ITEM	QUAN.	MATERIAL DESCRIPTION
C	4	MACHINE BOLT, 5/8" x REQ'D LENGTH
D	4	SQUARE WASHER, 2 1/4" x 2 1/4"
K	3	SUSPENSION INSULATOR
O	2	EXTENSION LINK, 18"
AB	3	STD EYELET BOLT, 5/8"
AW	4	LOCK WASHER (SPRING TYPE), AS REQUIRED
CD	3	PRIMARY ANGLE ASSEMBLY, (SUSPENSION CLAMP)
CM	1	SPOOL INSULATOR
DA	1	SPOOL BRACKET

NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
 3-PHASE - SUSPENSION ANGLE
 13.8 / 7.98kV VERTICAL CONSTRUCTION

DATE: 5-22-2013

REVISION

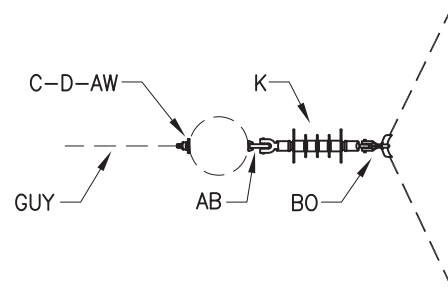
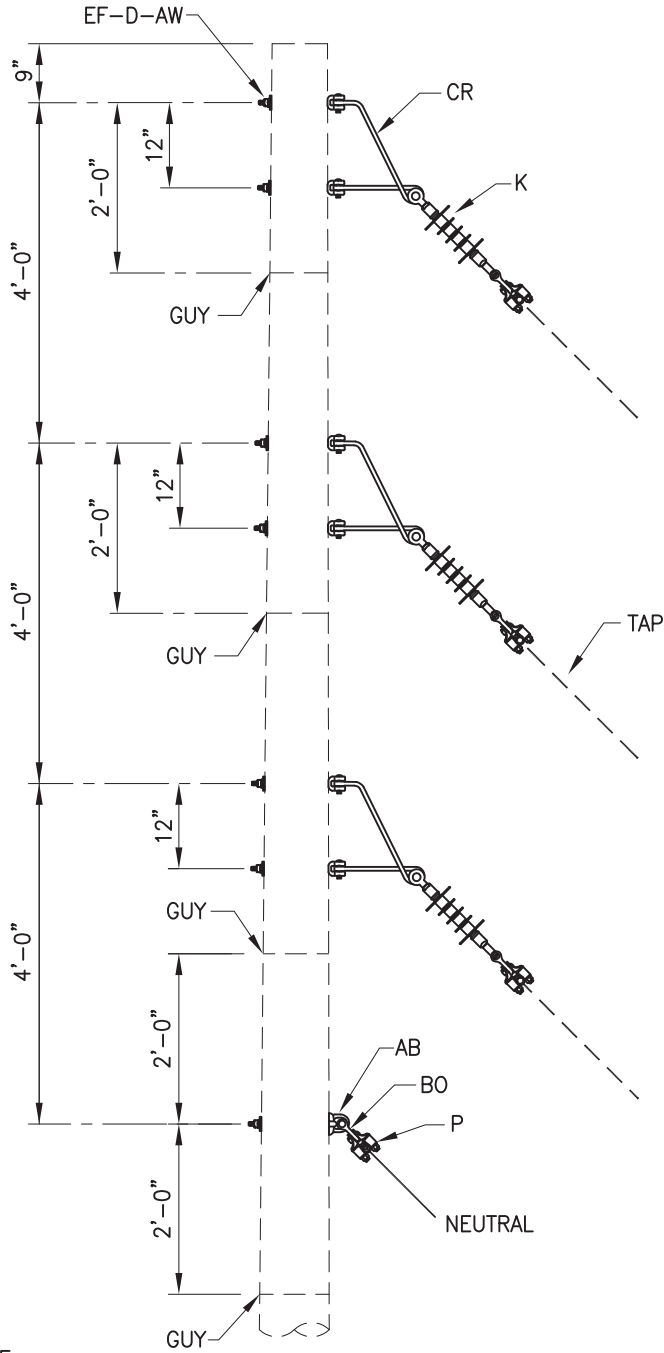
SHT No: 1

0

CONSTRUCTION
 STANDARD No.

C-3V





TOP VIEW

NOTE:
ALL NEW POLES ARE REQUIRED TO HAVE A GROUNDLINE POLE WRAP AND A POLE TOP CAP INSTALLED.

NOTE:
SEE SECTION "E" FOR GUY STANDARDS.

ITEM	QUAN.	MATERIAL DESCRIPTION
C	1	MACHINE BOLT, 5/8" x REQ'D LENGTH
D	7	SQUARE WASHER, 2 1/4" x 2 1/4"
K	3	SUSPENSION INSULATOR
P	3	CONNECTORS, AS REQ'D
AB	1	STD EYELET BOLT, 5/8"
AW	7	LOCK WASHER (SPRING TYPE), AS REQ'D
BO	4	ANCHOR SHACKLE
CR	3	ANGLE BRACKET
EF	6	CLEVIS BOLT, 5/8" x REQ'D LENGTH

NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
3-PHASE - MEDIUM ANGLE
13.8 / 7.98kV VERTICAL CONSTRUCTION

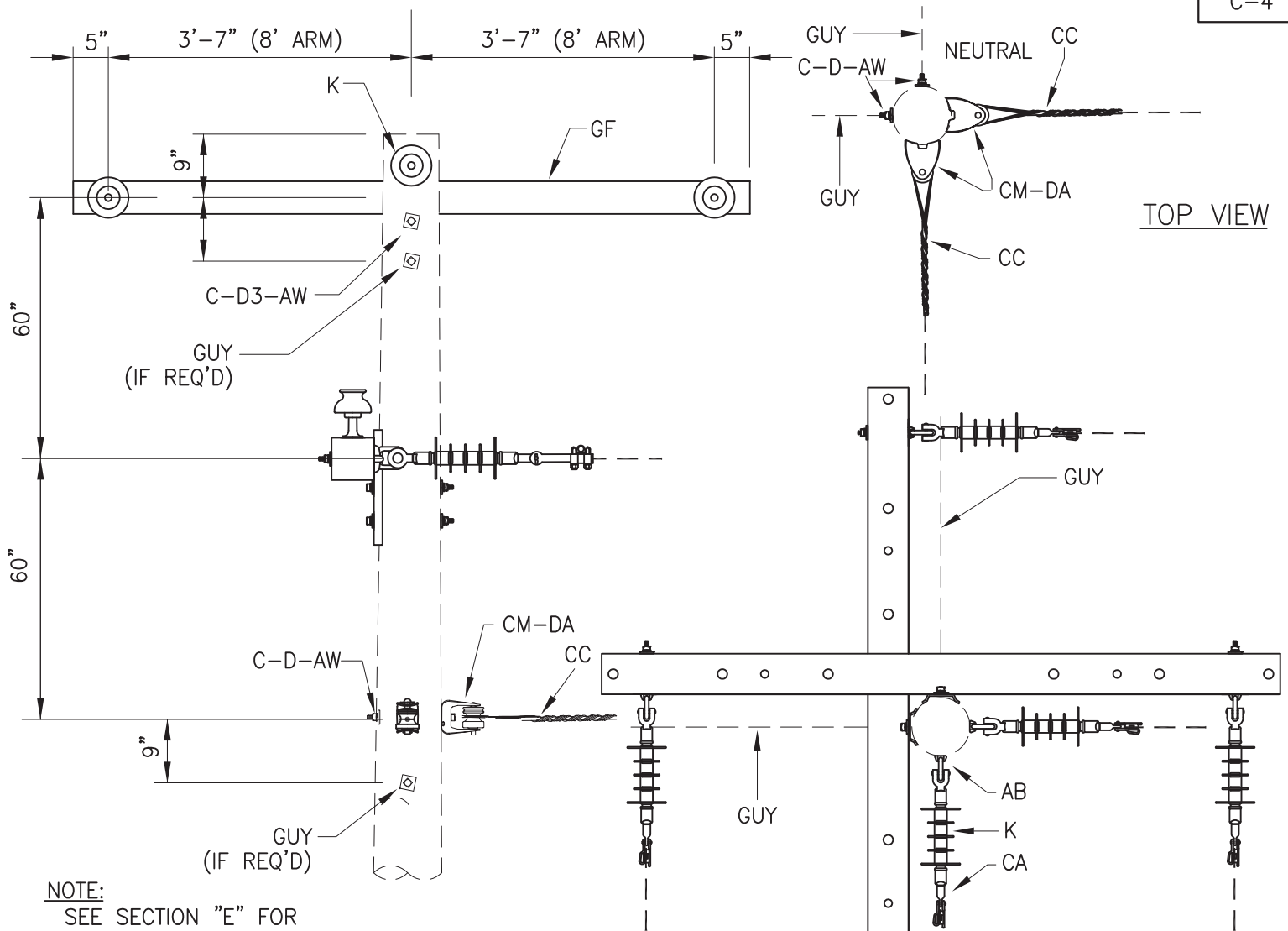
DATE: 5-22-2013
SHT No: 1

REVISION
0

CONSTRUCTION STANDARD No.

C-3VH





NOTE:
SEE SECTION "E" FOR
GUY STANDARDS.

NOTE:
ALL NEW POLES ARE REQUIRED TO
HAVE A GROUNDLINE POLE WRAP
AND A POLE TOP CAP INSTALLED.

ITEM	QUAN.	MATERIAL DESCRIPTION
C	6	MACHINE BOLT, 5/8" x REQ'D LENGTH
D	2	SQUARE WASHER, 2 1/4" x 2 1/4"
D3	4	CURVED WASHER, 3"
GF	2	8' DEAD END FIBERGLASS CROSSARM #6 CU.-336 ACSR (2500 PUPI)
K	6	SUSPENSION INSULATOR
AB	6	EYE NUT, 5/8"
AW	6	LOCK WASHER (SPRING TYPE), AS REQ'D
CA	6	PRIMARY DEAD END ASSEMBLY
CC	2	NEUTRAL DEAD END ASSEMBLY
CM	2	SPOOL INSULATOR
DA	2	SPOOL BRACKET



NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
DOUBLE DEAD END - 90° (BUCK ARMS)
13.8 / 7.98kV CROSSARM CONSTRUCTION

DATE: 5-21-2013

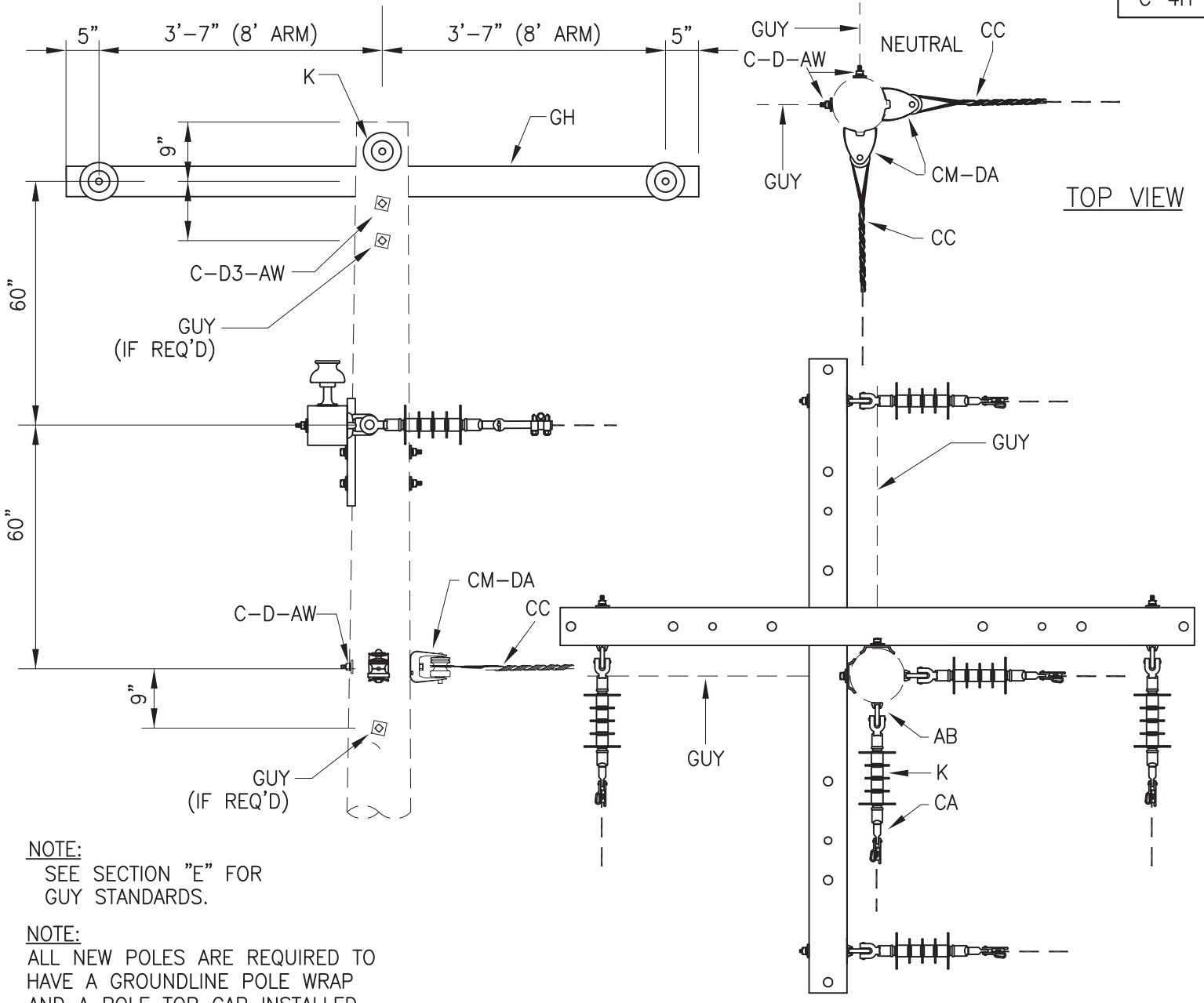
REVISION

SHT No: 1

0

CONSTRUCTION
STANDARD No.

C-4



NOTE:
SEE SECTION "E" FOR
GUY STANDARDS.

NOTE:
ALL NEW POLES ARE REQUIRED TO
HAVE A GROUNDLINE POLE WRAP
AND A POLE TOP CAP INSTALLED.

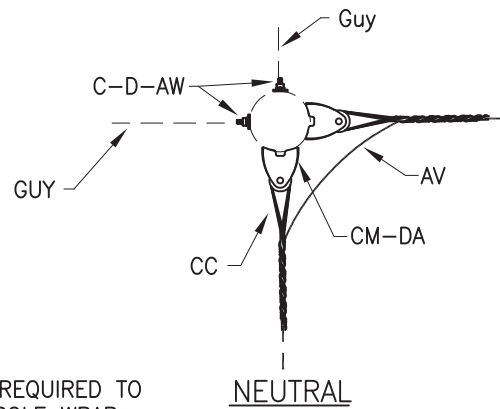
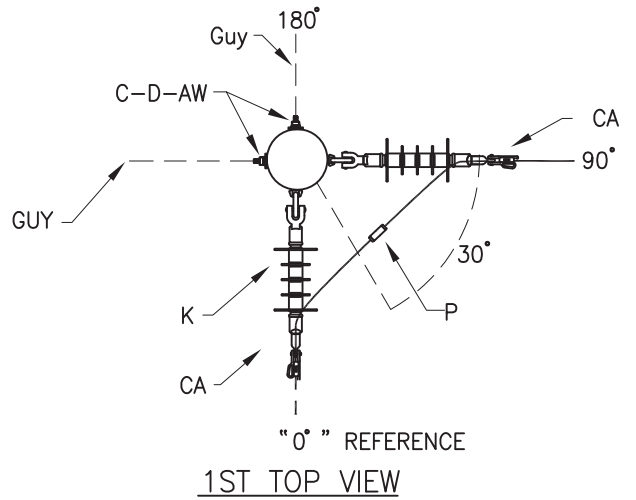
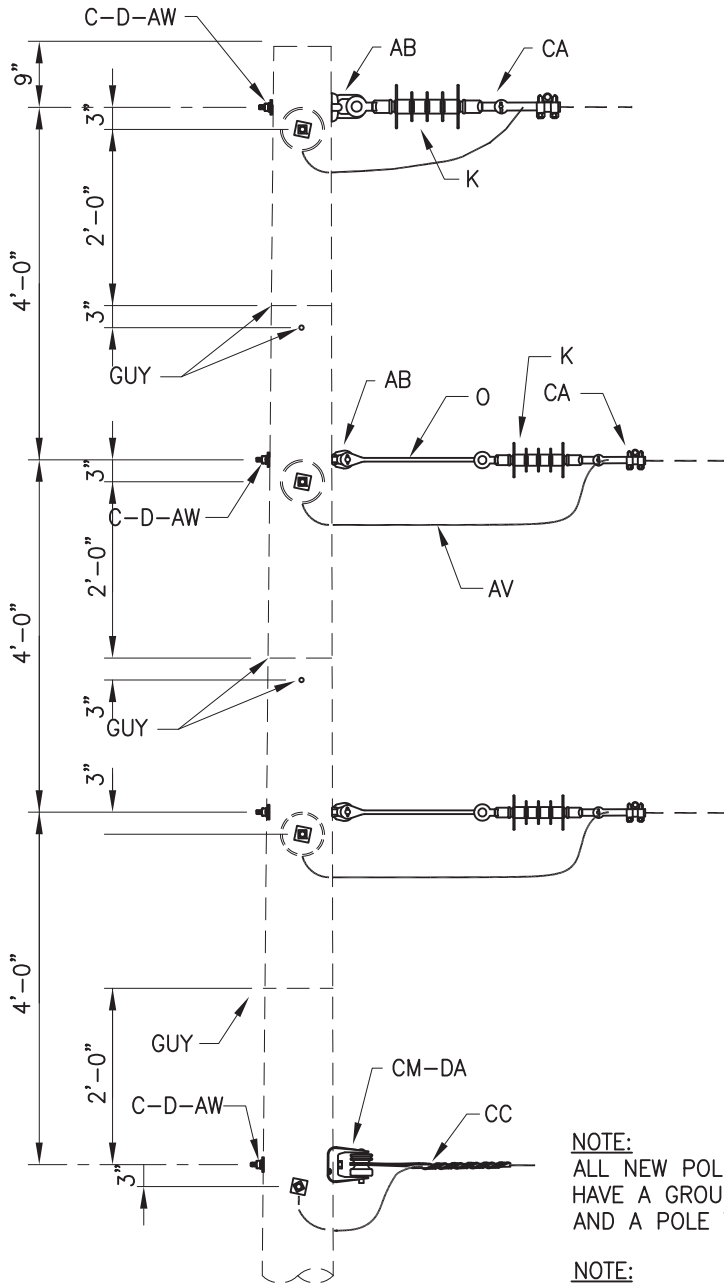
ITEM	QUAN.	MATERIAL DESCRIPTION
C	6	MACHINE BOLT, 5/8" x REQ'D LENGTH
D	2	SQUARE WASHER, 2 1/4" x 2 1/4"
D3	4	CURVED WASHER, 3"
GH	2	8' DEAD END FIBERGLASS CROSSARM 795-1033 ACSR (3000 PUPI)
K	6	SUSPENSION INSULATOR
AB	6	EYE NUT, 5/8"
AW	6	LOCK WASHER (SPRING TYPE), AS REQ'D
CA	6	PRIMARY DEAD END ASSEMBLY
CC	2	NEUTRAL DEAD END ASSEMBLY
CM	2	SPOOL INSULATOR
DA	2	SPOOL BRACKET

BORDER CADD FILE: NLR8511.DWG



NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
 DOUBLE DEAD END - 90° HEAVY DUTY (BUCK ARMS)
 13.8 / 7.98kV CROSSARM CONSTRUCTION

DATE: 5-21-2013	REVISION 0
SHT No: 1	
CONSTRUCTION STANDARD No.	C-4H



NOTE:
ALL NEW POLES ARE REQUIRED TO HAVE A GROUNDLINE POLE WRAP AND A POLE TOP CAP INSTALLED.

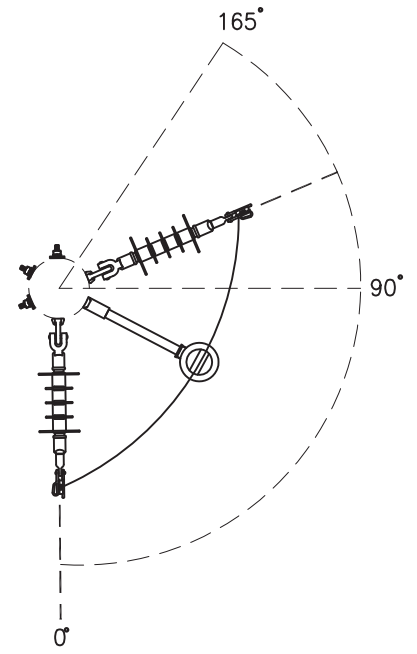
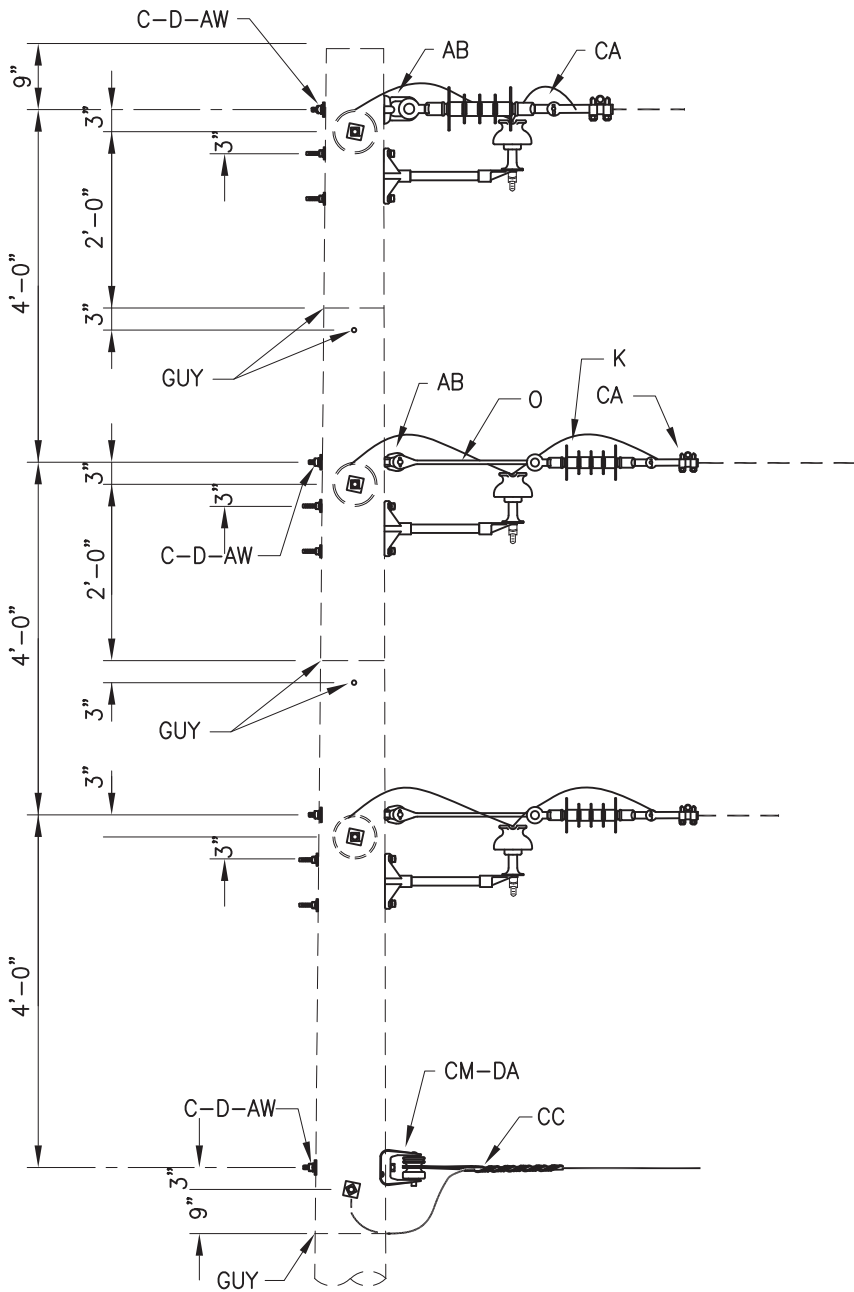
NOTE:
SEE SECTION "E" FOR GUY STANDARDS.

ITEM	QUAN.	MATERIAL DESCRIPTION
C	8	MACHINE BOLT, 5/8" x REQ'D LENGTH
D	8	SQUARE WASHER, 2 1/4" x 2 1/4"
K	6	SUSPENSION INSULATOR
O	4	EXTENSION LINK, 18"
P	REQ'D	CONNECTORS, AS REQ'D
AB	6	STD EYELET BOLT, 5/8"
AV	REQ'D	JUMPERS, AS REQ'D
AW	8	LOCK WASHER (SPRING TYPE), AS REQ'D
CA	6	PRIMARY DEAD END ASSEMBLY
CC	2	NEUTRAL DEAD END ASSEMBLY
CM	2	SPOOL INSULATOR
DA	2	SPOOL BRACKET



NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
DEAD END ANGLE - 30° TO 90°
13.8 / 7.98kV VERTICAL CONSTRUCTION

DATE: 5-22-2013	REVISION
SHT No: 1	0
CONSTRUCTION STANDARD No.	C-4V



TOP VIEW

NOTE:
ALL NEW POLES ARE REQUIRED TO
HAVE A GROUNDLINE POLE WRAP
AND A POLE TOP CAP INSTALLED.

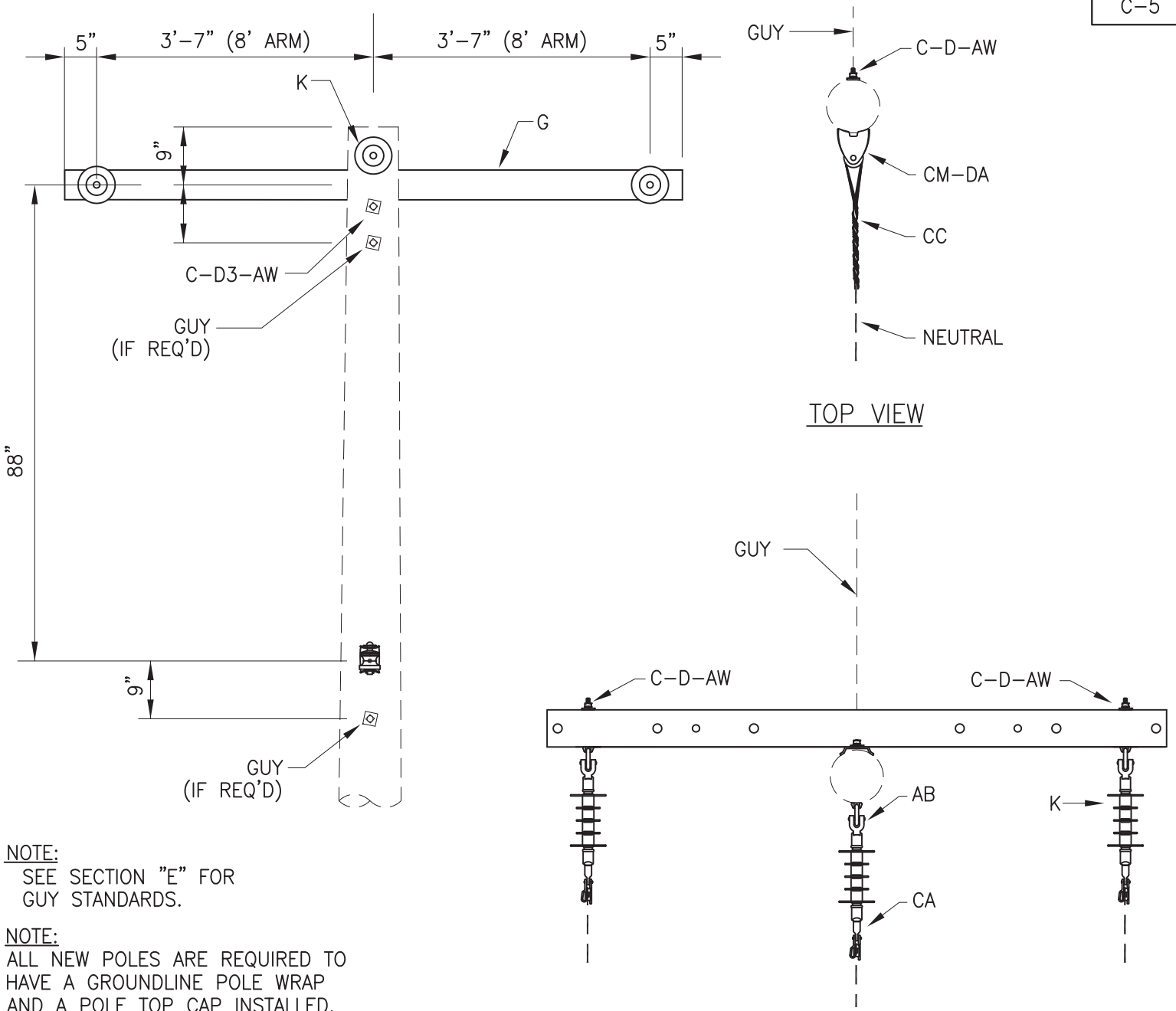
ITEM	QUAN.	MATERIAL DESCRIPTION
A	3	PIN INSULATOR
C	13	MACHINE BOLT, 5/8" x REQ'D LENGTH
D	13	SQUARE WASHER, 2 1/4" x 2 1/4"
K	6	SUSPENSION INSULATOR
O	4	EXTENSION LINK, 18"
P	REQ'D	CONNECTORS, AS REQ'D
AB	6	STD EYELET BOLT, 5/8"
AV	REQ'D	JUMPERS, AS REQ'D
AW	13	LOCK WASHER (SPRING TYPE), AS REQ'D
CA	6	PRIMARY DEAD END ASSEMBLY
CC	2	NEUTRAL DEAD END ASSEMBLY
CM	2	SPOOL INSULATOR
DA	2	SPOOL BRACKET
FA	3	SINGLE PHASE FIBERGLASS SWITCH ARM

NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS

DEAD END ANGLE - 90° to 165°
13.8 / 7.98kV VERTICAL CONSTRUCTION

DATE: 8/6/2013	REVISION 0
SHT No: 1	
CONSTRUCTION STANDARD No.	C-4VH





NOTE:
SEE SECTION "E" FOR
GUY STANDARDS.

NOTE:
ALL NEW POLES ARE REQUIRED TO
HAVE A GROUNDLINE POLE WRAP
AND A POLE TOP CAP INSTALLED.

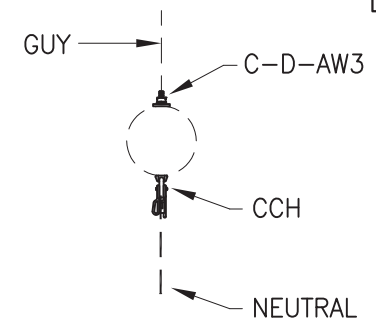
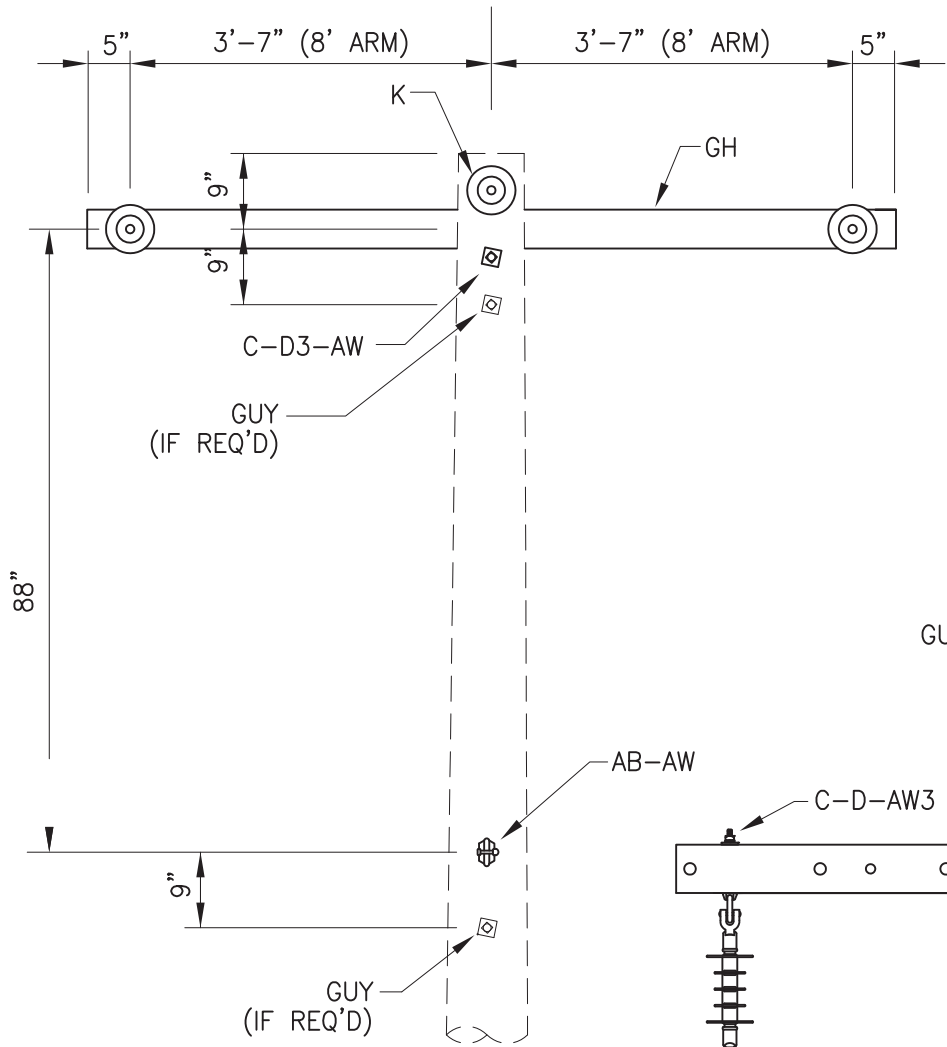
ITEM	QUAN.	MATERIAL DESCRIPTION
C	3	MACHINE BOLT, 5/8" x REQ'D LENGTH
D	1	SQUARE WASHER, 2 1/4" x 2 1/4"
D3	2	CURVED WASHER, 3"
GF	1	8' DEAD END FIBERGLASS CROSSARM #6 CU.-336 ACSR (2500 PUPI)
K	3	SUSPENSION INSULATOR
AB	3	EYE NUT, 5/8"
AW	3	LOCK WASHER (SPRING TYPE), AS REQ'D
CA	3	PRIMARY DEAD END ASSEMBLY
CC	1	NEUTRAL DEAD END ASSEMBLY
CM	1	SPOOL INSULATOR
DA	1	SPOOL BRACKET

BORDER CADD FILE: NLR8511.DWG

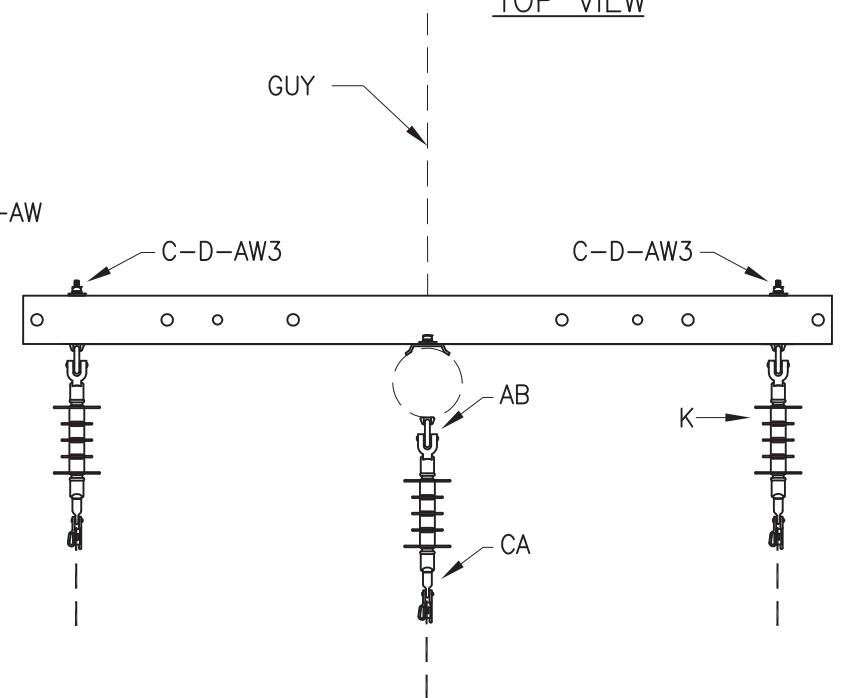


NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
3 PHASE - DEAD END (SINGLE)
13.8 / 7.98kV CROSSARM CONSTRUCTION

DATE: 5-21-2013	REVISION 0
SHT No: 1	
CONSTRUCTION STANDARD No.	C-5



TOP VIEW



NOTE:

SEE SECTION "E" FOR GUY STANDARDS.

NOTE:

ALL NEW POLES ARE REQUIRED TO HAVE A GROUNDLINE POLE WRAP AND A POLE TOP CAP INSTALLED.

ITEM	QUAN.	MATERIAL DESCRIPTION
C	2	MACHINE BOLT, 3/4" x REQ'D LENGTH
D	1	SQUARE WASHER, 2 1/4" x 2 1/4"
D3	2	CURVED WASHER, 3"
GH	1	8' DEAD END FIBERGLASS CROSSARM 795 -1033 ACSR (3000 PUPI)
K	3	SUSPENSION INSULATOR
N	1	BOLT, 5/8" x REQ'D LENGTH
AB	1	STD EYELET BOLT, 3/4"
AW	1	LOCK WASHER (SPRING TYPE), 5/8" AS REQ'D
AW3	2	LOCK WASHER (SPRING TYPE), 3/4" AS REQ'D
CA	3	PRIMARY DEAD END ASSEMBLY
CCH	1	HEAVY DUTY NEUTRAL DEAD END ASSEMBLY

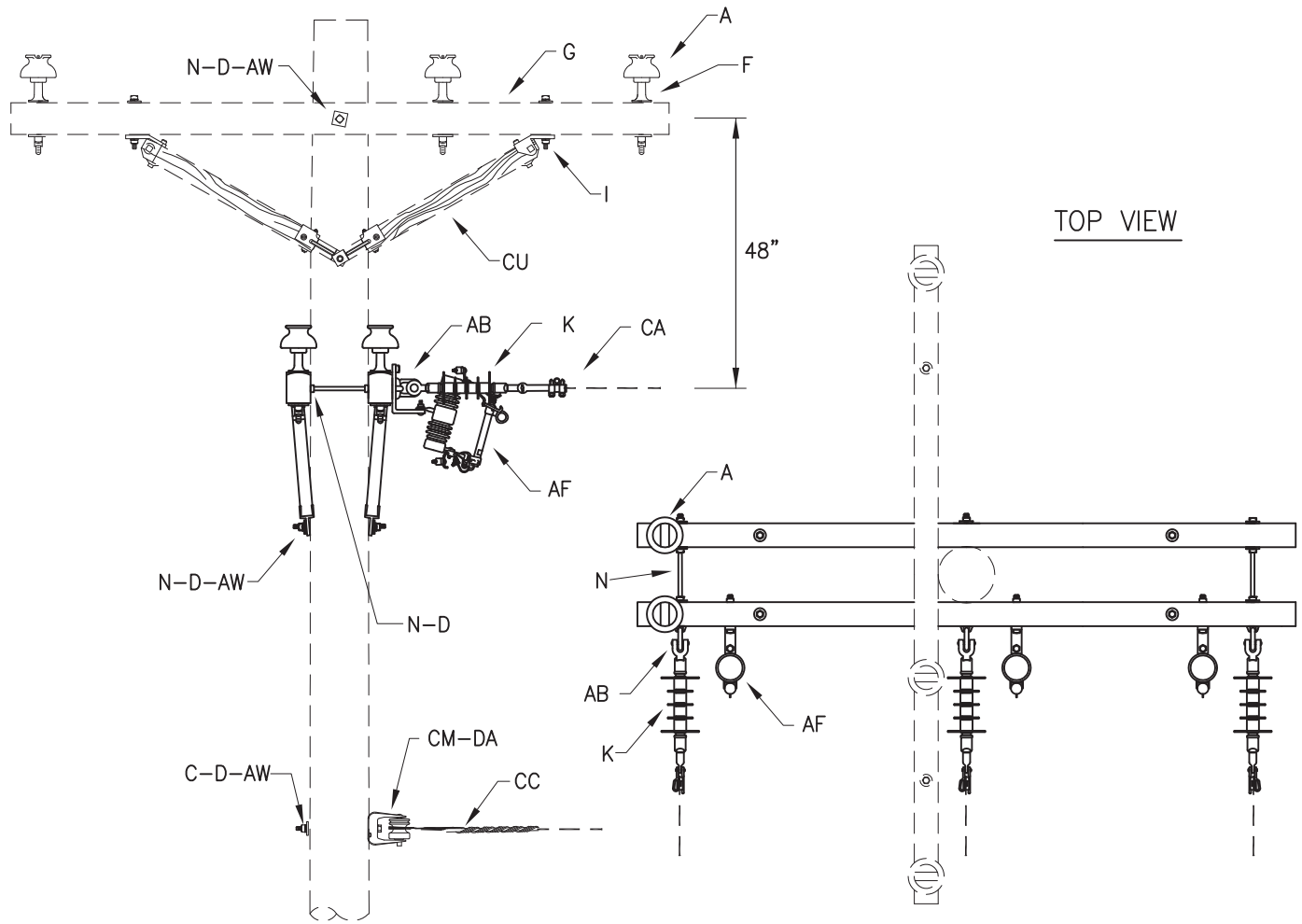
BORDER CADD FILE: NLR8511.DWG



NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
 3 PHASE - DEAD END (SINGLE) HEAVY DUTY
 13.8 / 7.98kV CROSSARM CONSTRUCTION

DATE: 5-22-2013
 SHT No: 1
 CONSTRUCTION STANDARD No.

REVISION
 0
 C-5H



TOP VIEW

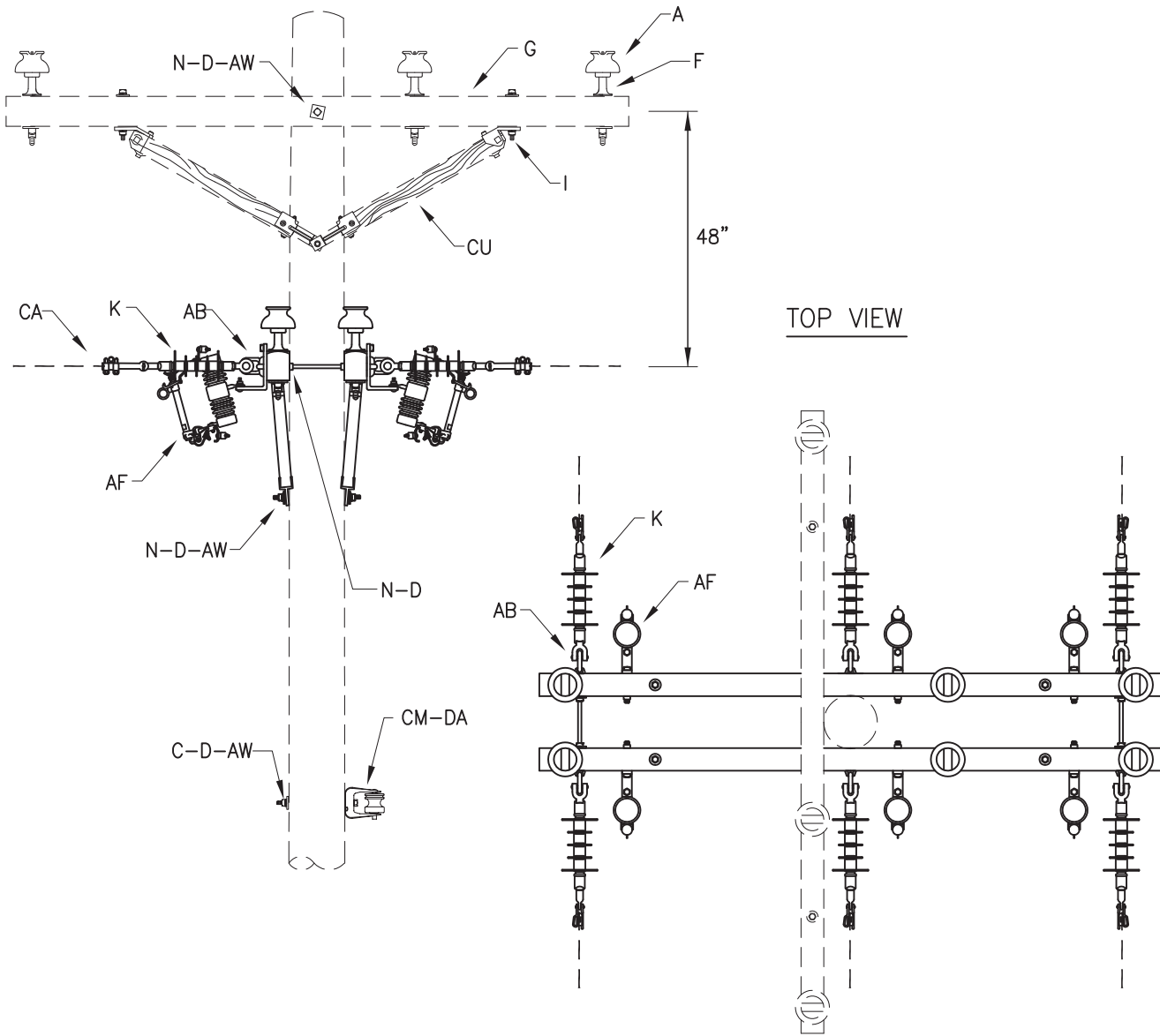
NOTE:
USE ARM PINS AS
NEEDED (DEPENDING ON
EXISTING 3 PHASE)

ITEM	QUAN.	MATERIAL DESCRIPTION
A	2	PIN INSULATOR
D	11	SQUARE WASHER, 2 1/4" x 2 1/4"
F	2	STEEL CROSSARM PIN, 5/8" x 10 3/4"
G	4	WOOD CROSSARM, 3 5/8" x 4 5/8" x 8'-0"
I	4	MACHINE BOLT, 1/2" x REQ'D LENGTH
K	3	SUSPENSION INSULATOR
N	4	DA BOLT, 5/8" x REQ'D LENGTH
AB	6	EYE NUT, 5/8"
AF	3	FUSED CUTOUT
AV	REQ'D	JUMPERS, AS REQ'D
AW	9	LOCK WASHER (SPRING TYPE), AS REQ'D
CA	6	PRIMARY DEAD END ASSEMBLY
CU	4	WOOD BRACE

NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
3-PHASE - SINGLE BUCK - 3-PHASE TAP
13.8 / 7.98kV CROSSARM CONSTRUCTION

DATE: 8/6/2013	REVISION 0
SHT No: 1	
CONSTRUCTION STANDARD No.	C-5-T3





TOP VIEW

NOTE:
USE ARM PINS AS
NEEDED (DEPENDING ON
EXISTING 3 PHASE)

ITEM	QUAN.	MATERIAL DESCRIPTION
A	6	PIN INSULATOR
D	11	SQUARE WASHER, 2 1/4" x 2 1/4"
F	6	STEEL CROSSARM PIN, 5/8" x 10 3/4"
G	4	WOOD CROSSARM, 3 5/8" x 4 5/8" x 8'-0"
I	4	MACHINE BOLT, 1/2" x REQ'D LENGTH
K	3	SUSPENSION INSULATOR
N	4	DA BOLT, 5/8" x REQ'D LENGTH
AB	6	EYE NUT, 5/8"
AF	6	FUSED CUTOUT
AV	REQ'D	JUMPERS, AS REQ'D
AW	9	LOCK WASHER (SPRING TYPE), AS REQ'D
CA	6	PRIMARY DEAD END ASSEMBLY
CU	4	WOOD BRACE

NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS

3-PHASE - DOUBLE BUCK - 3-PHASE TAP (DOUBLE)
13.8 / 7.98kV CROSSARM CONSTRUCTION

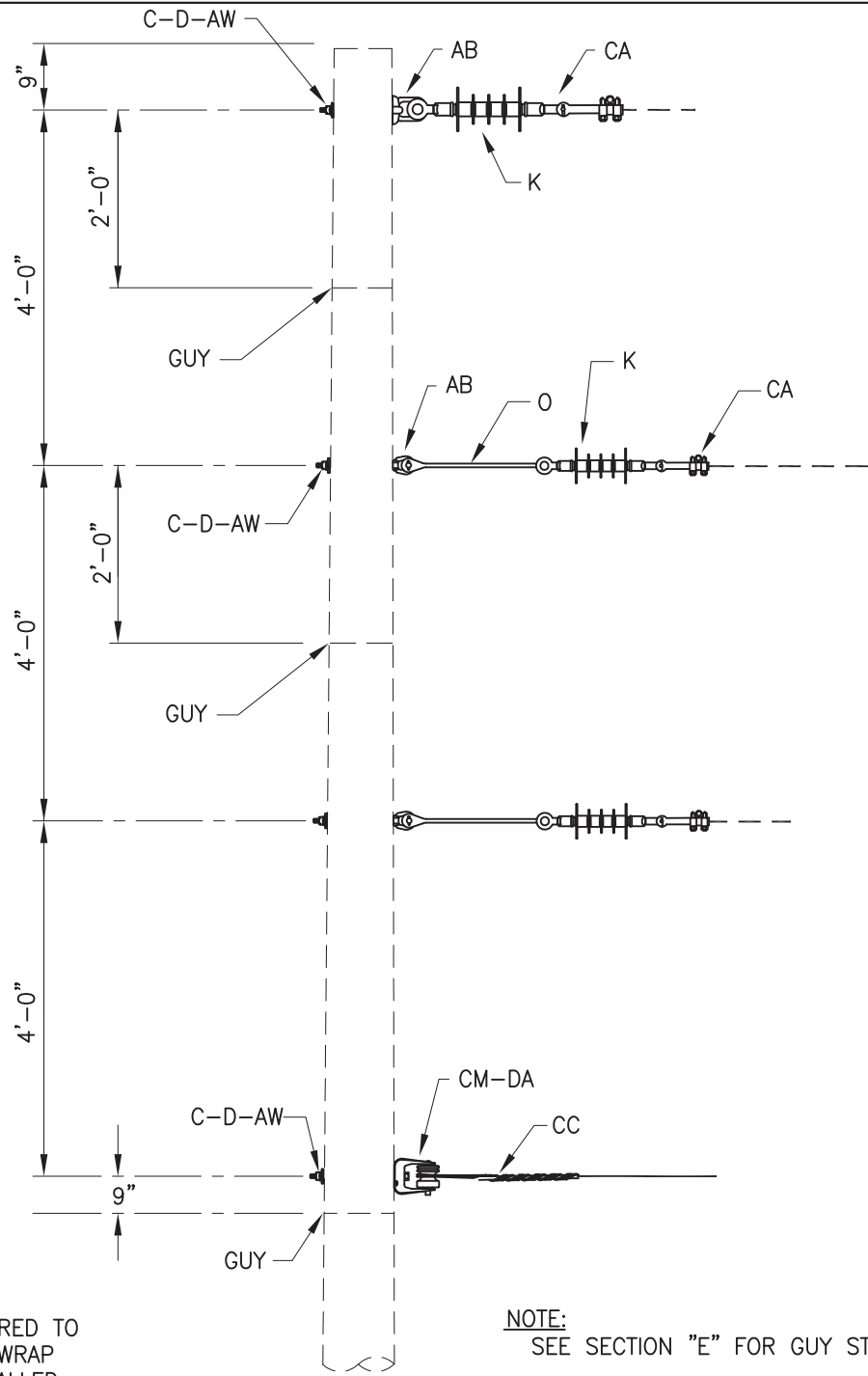
DATE: 8/6/2013
SHT No: 1

REVISION
0

CONSTRUCTION
STANDARD No.

C-5-T6





NOTE:
 ALL NEW POLES ARE REQUIRED TO
 HAVE A GROUNDLINE POLE WRAP
 AND A POLE TOP CAP INSTALLED.

NOTE:
 SEE SECTION "E" FOR GUY STANDARDS.

ITEM	QUAN.	MATERIAL DESCRIPTION
C	4	MACHINE BOLT, 5/8" x REQ'D LENGTH
D3	4	CURVED WASHER 3"
K	3	SUSPENSION INSULATOR
O	2	EXTENSION LINK, 18"
AB	3	STD EYELET BOLT, 5/8"
AW	4	LOCK WASHER (SPRING TYPE), AS REQ'D
CA	3	PRIMARY DEAD END ASSEMBLY
CC	1	NEUTRAL DEAD END ASSEMBLY
CM	1	SPOOL INSULATOR
DA	1	SPOOL BRACKET

NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
 3-PHASE - DEAD END (SINGLE)
 13.8 / 7.98kV VERTICAL CONSTRUCTION

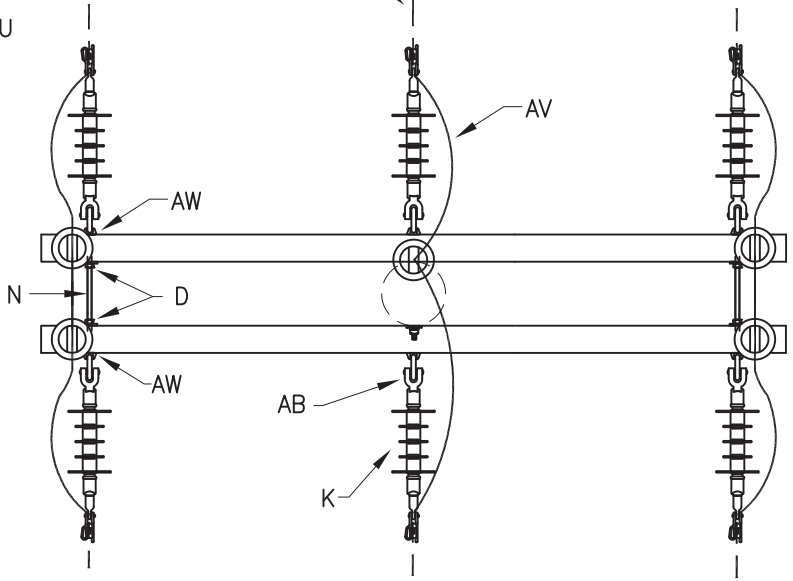
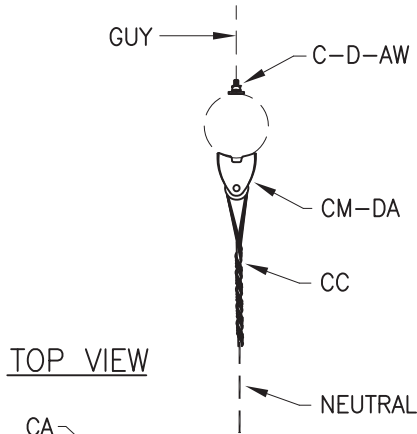
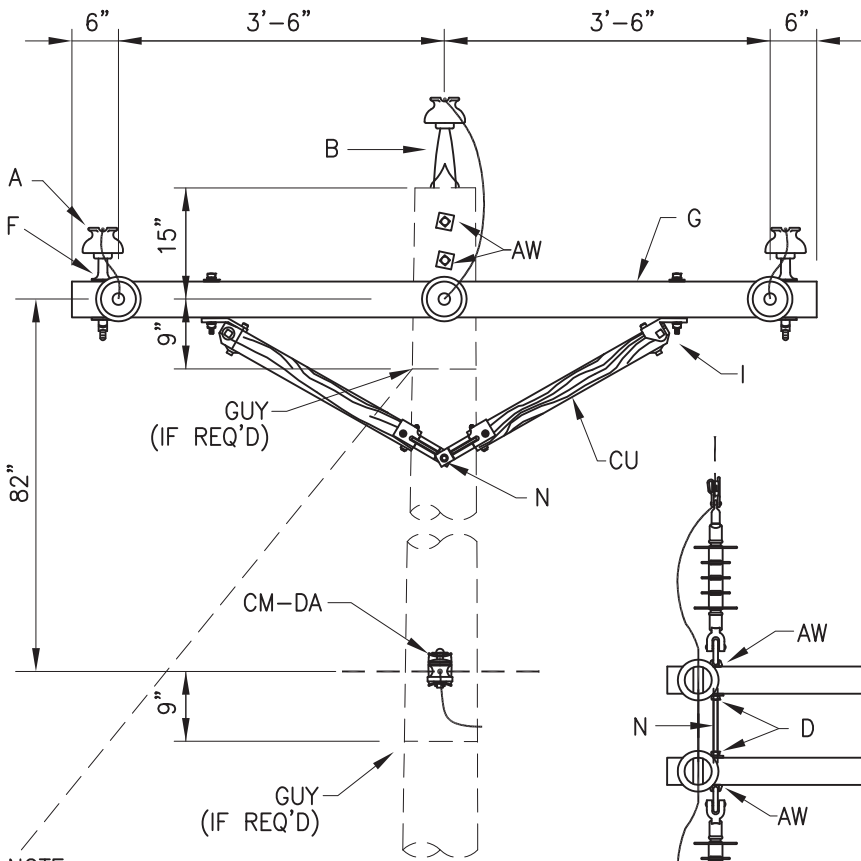
DATE: 5-21-2013
 SHT No: 1

REVISION
 0

CONSTRUCTION
 STANDARD No.

C-5V





NOTE:
SEE SECTION "E" FOR
GUY STANDARDS.

NOTE:
ALL NEW POLES ARE REQUIRED TO
HAVE A GROUNDLINE POLE WRAP
AND A POLE TOP CAP INSTALLED.

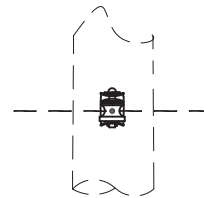
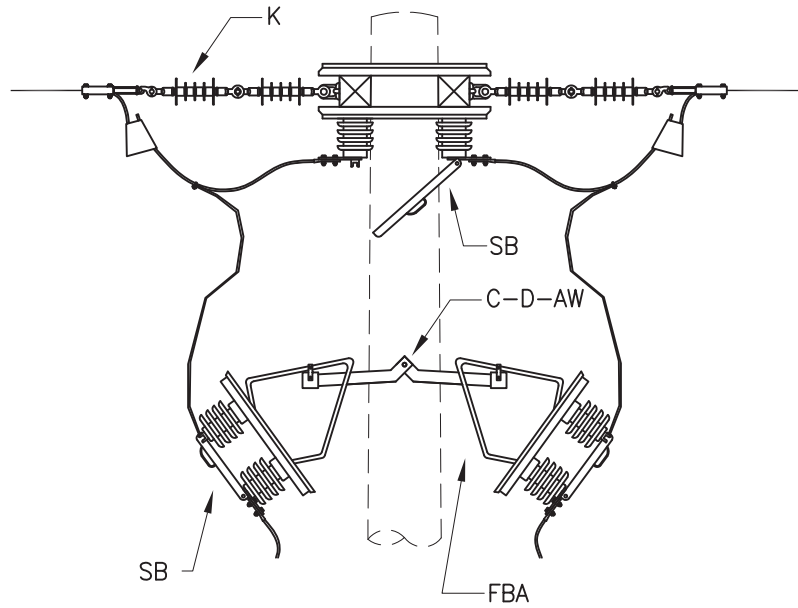
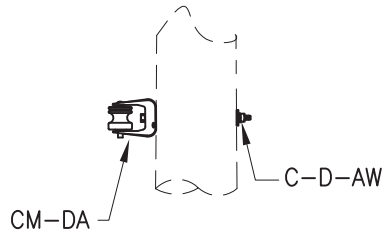
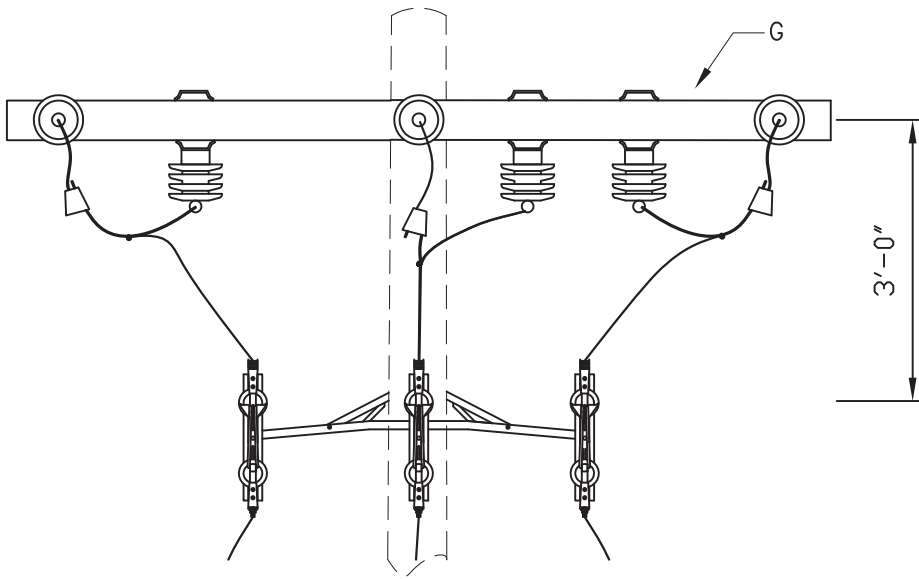
ITEM	QUAN.	MATERIAL DESCRIPTION
A	6	PIN INSULATOR
B	1	18" POLE TOP PIN
C	3	MACHINE BOLT, 5/8" x REQ'D LENGTH
D	11	SQUARE WASHER, 2 1/4" x 2 1/4"
F	4	STEEL CROSSARM PIN, 5/8" x 10 3/4"
G	2	WOOD CROSSARM, 3 5/8" x 4 5/8" x 8'-0"
I	4	MACHINE BOLT, 1/2" x REQ'D LENGTH
K	6	SUSPENSION INSULATOR
N	4	DA BOLT, 5/8" x REQ'D LENGTH
AB	6	EYE NUT, 5/8"
AV	REQ'D	JUMPERS, AS REQ'D
AW	10	LOCK WASHER (SPRING TYPE), AS REQ'D
CA	6	PRIMARY DEAD END ASSEMBLY
CC	2	NEUTRAL DEAD END ASSEMBLY
CM	2	SPOOL INSULATOR
CU	4	WOOD BRACE
DA	2	SPOOL BRACKET

BORDER CADD FILE: NLR8511.DWG



NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
3 PHASE - DEAD END (DOUBLE) - TANGENT POLE W/VERTICAL JUMPER
13.8 / 7.98kV CROSSARM CONSTRUCTION

DATE: 5-16-2013	REVISION
SHT No: 1	0
CONSTRUCTION STANDARD No.	C-6



BORDER CADD FILE: NLR8511.DWG



NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
 3 PHASE - DEADEND (DOUBLE) - FOR DISTRIBUTION EQUIPMENT
 13.8/7.98KW CROSSARM CONSTRUCTION

DATE: 6-25-2013

SHT No: 1

CONSTRUCTION STANDARD No.

REVISION

0

C-6H

ITEM	QUAN.	MATERIAL DESCRIPTION
C	36	MACHINE BOLT, 5/8" X REQ'D LENGTH
D	72	SQUARE WASHER, 2 1/4" X 2 1/4"
D1	2	ROUND WASHER 1/2"
G	2	WOOD CROSSARM, 3 5/8" x 4 5/8" x 8'-0"
I	2	MACHINE BOLT, 1/2" x REQ'D LENGTH
N	3	DA BOLT, 5/8" X REQ'D LENGTH
K	12	SUSPENSION INSULATOR
P	REQ'D	CONNECTORS, AS REQ'D
AB	6	STD EYELET BOLT, 5/8"
AV	REQ'D	JUMPERS, AS REQ'D
AW	36	LOCK WASHERS (SPRING TYPE), AS REQ'D
CA	6	PRIMARY DEAD END ASSEMBLY
CE	18	2-HOLE COMPRESSION CONNECTOR
CM	1	SPOOL INSULATOR
CU	2	WOOD BRACE
DA	1	SPOOL BRACKET
FBA	2	3-PHASE ALUMINUM SWITCH BRACE
SB	9	600 AMP UNDERSLUNG DISCONNECT SWITCH

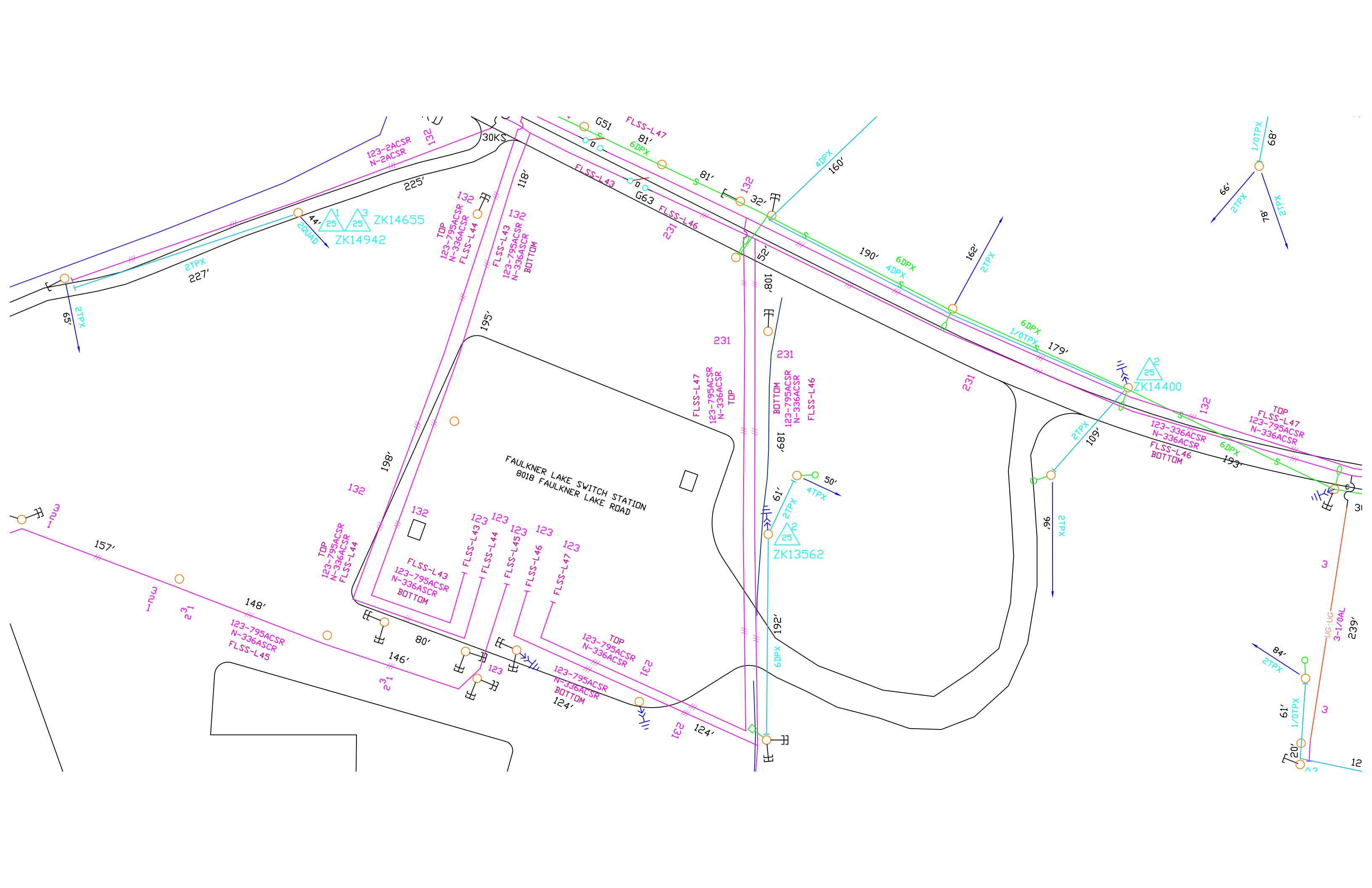
BORDER CADD FILE: NLR8511.DWG



NORTH LITTLE ROCK ELECTRIC CONSTRUCTION STANDARDS
 3 PHASE - DEADEND (DOUBLE) - FOR DISTRIBUTION EQUIPMENT
 13.8/7.98KW CROSSARM CONSTRUCTION

DATE: 9/27/2013
 SHT No: 1
 CONSTRUCTION STANDARD No.

REVISION
 0
 C-6HM



123-2ACSR
N-2ACSR

ZK14655
ZK14942

123-795ACSR
N-336ACSR
FLSS-L44
TOP

FLSS-L43
123-795ACSR
N-336ACSR
BOTTOM

G51
FLSS-L47
81'
6DPX

G63
FLSS-L46
81'

132
32'

190'
6DPX
4DPX

179'
6DPX
1/0TPX

ZK14400

FLSS-L46
123-336ACSR
N-336ACSR
BOTTOM

FLSS-L47
123-795ACSR
N-336ACSR
TOP

FAULKNER LAKE SWITCH STATION
8018 FAULKNER LAKE ROAD

FLSS-L43
123-795ACSR
N-336ACSR
BOTTOM

FLSS-L43
FLSS-L44

FLSS-L44
FLSS-L45

FLSS-L45
FLSS-L46

FLSS-L46
FLSS-L47

FLSS-L47

123-795ACSR
N-336ACSR
TOP

123-795ACSR
N-336ACSR
BOTTOM

123-795ACSR
N-336ACSR
FLSS-L45

192'
6DPX

96'
2TPX

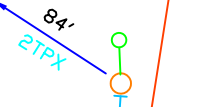
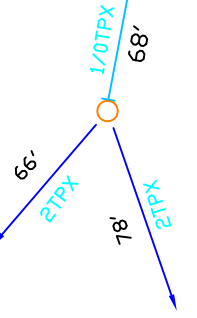
84'
2TPX

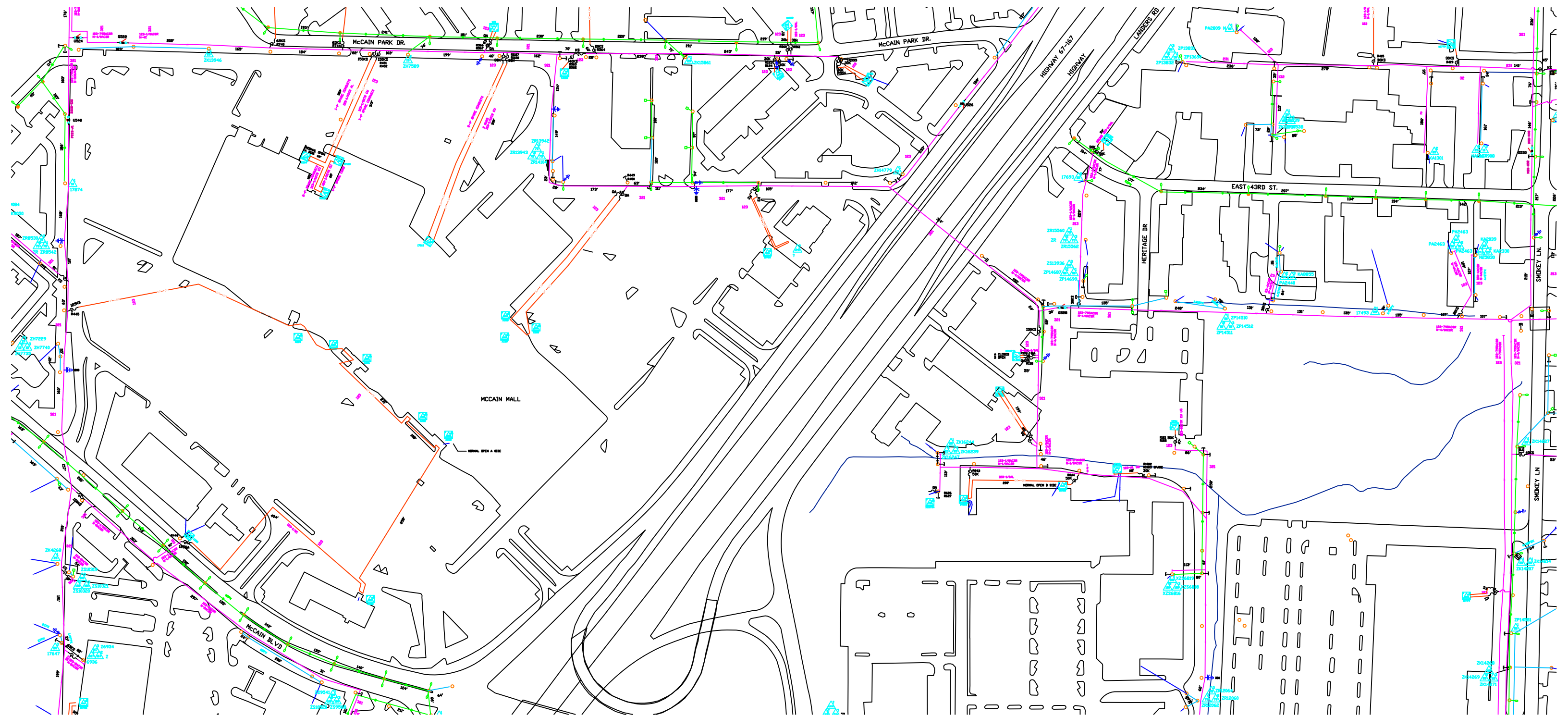
61'
1/0TPX

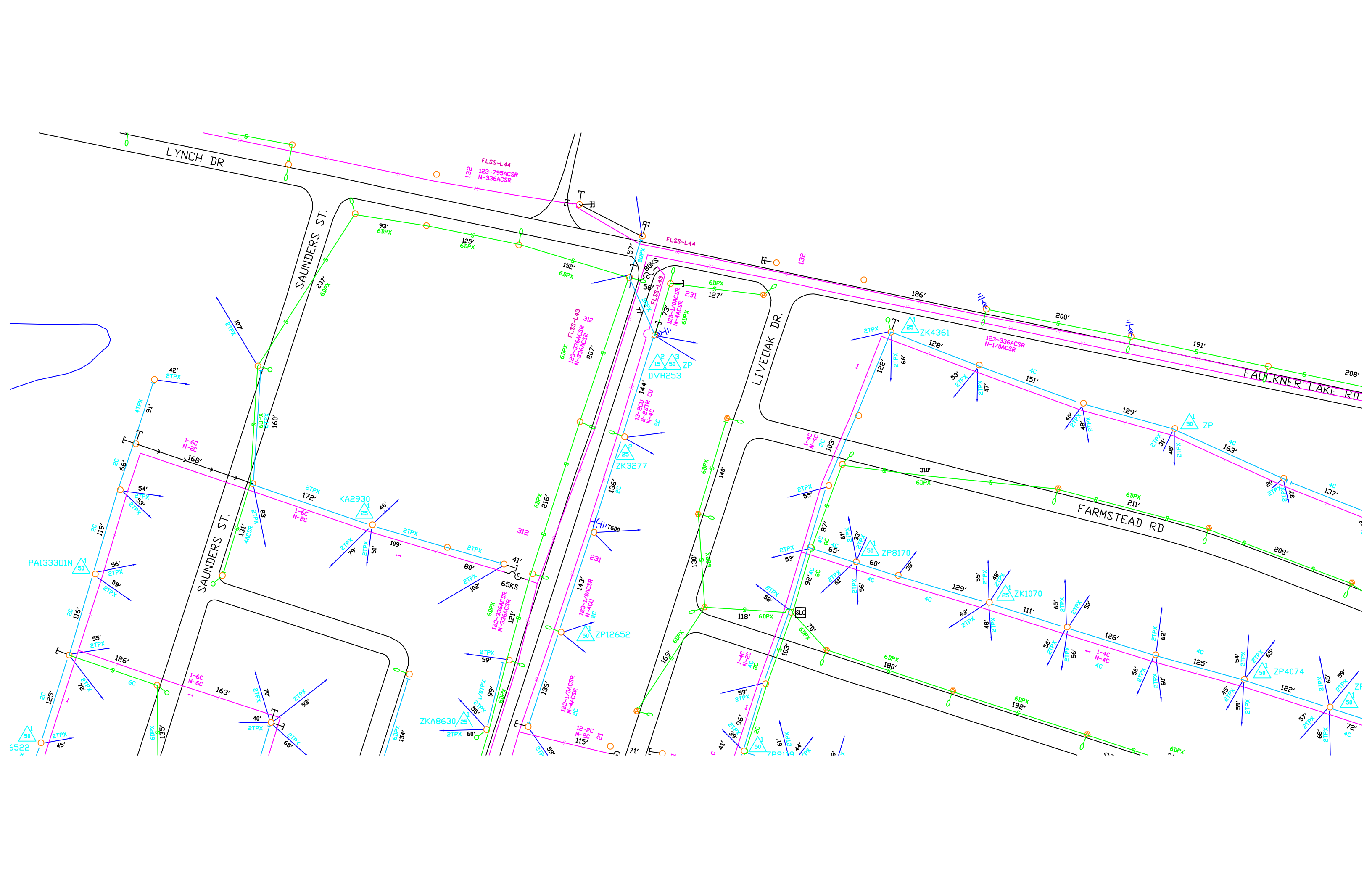
12

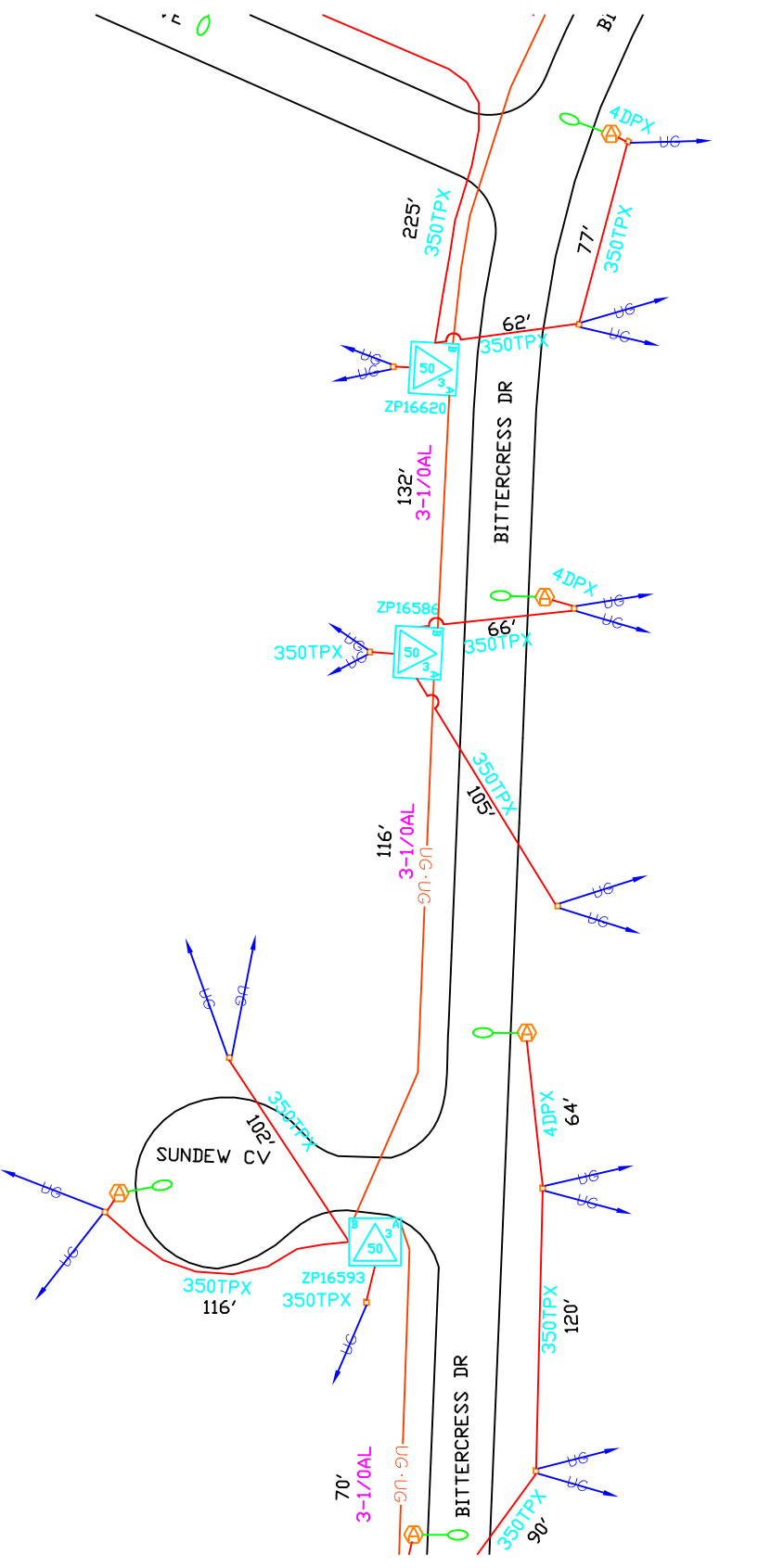
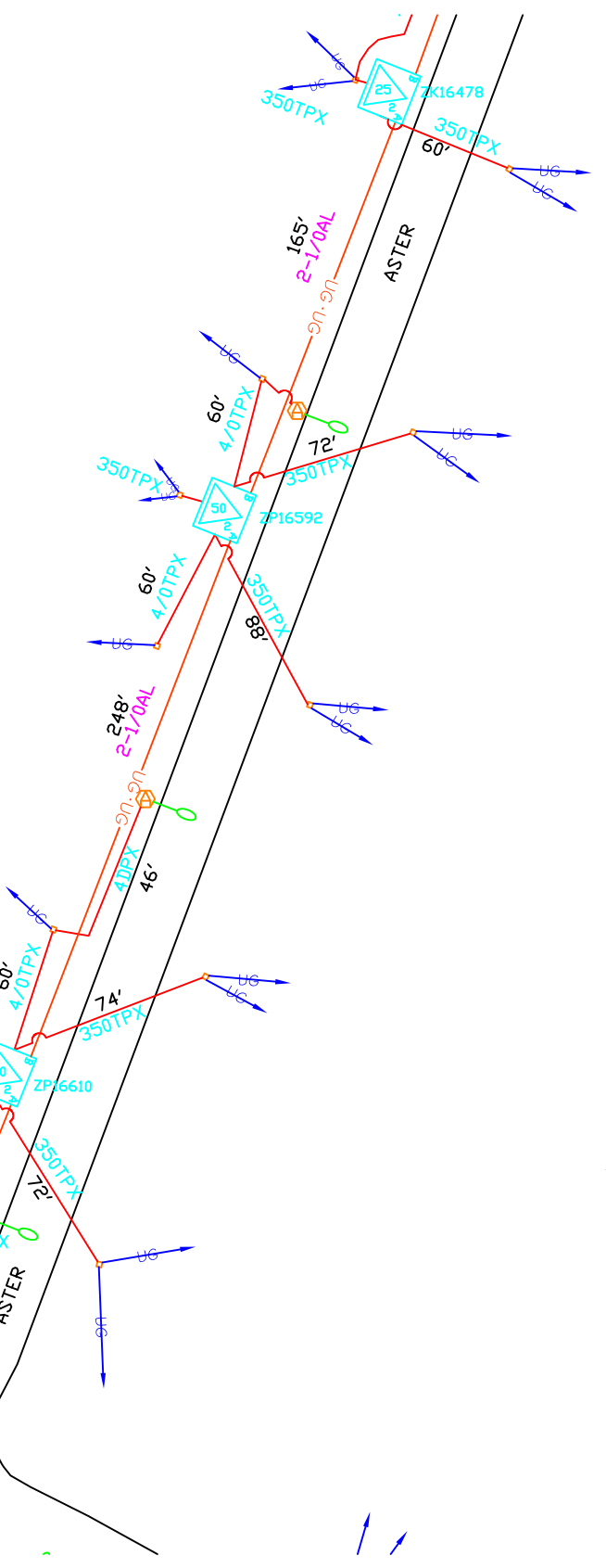
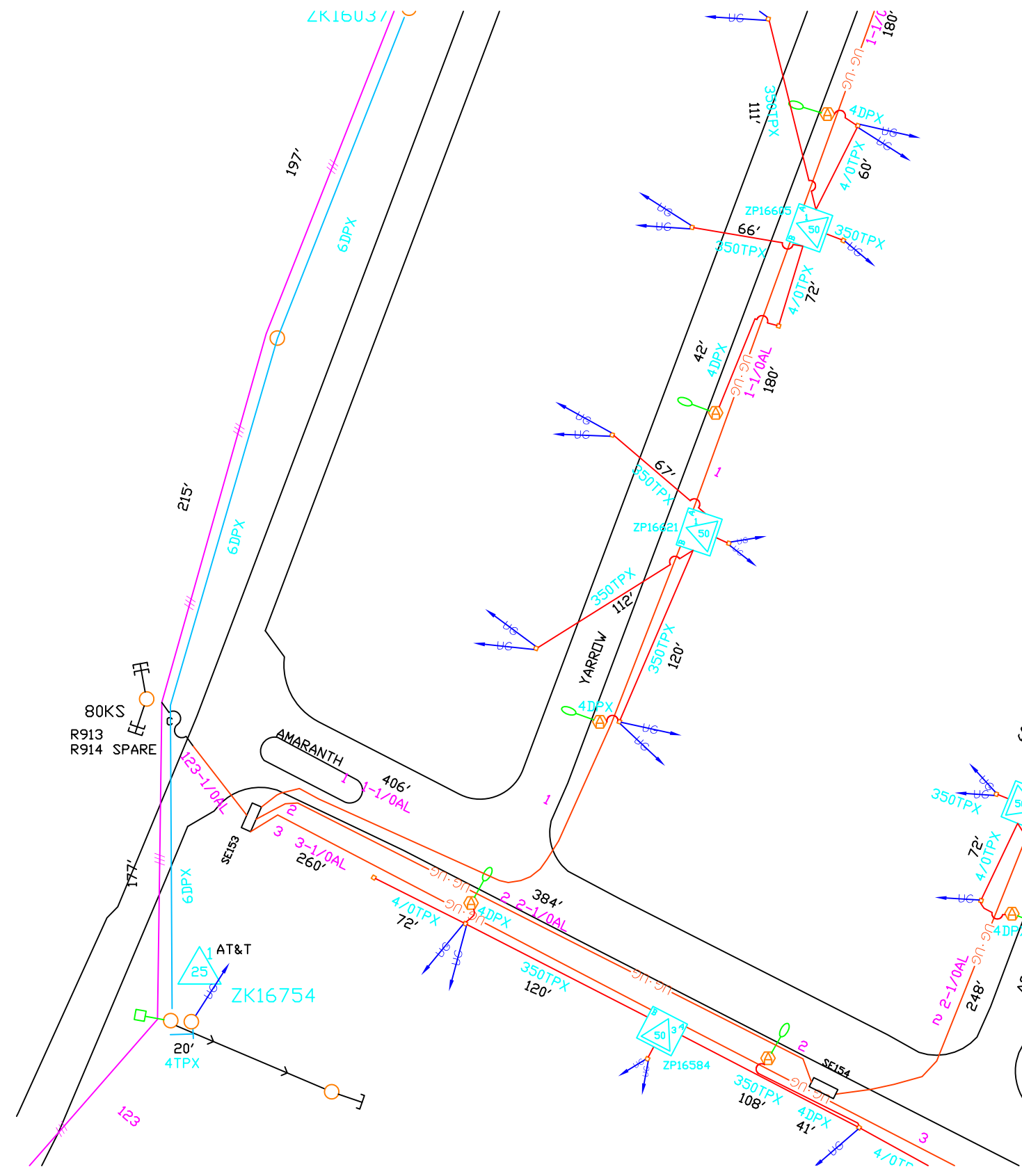
3-1/0AL
UG-UG

239'









NORTH LITTLE ROCK ELECTRIC DEPT.
Bill of Materials

Work Order: 14-12-35
Location: BEAR PAW PHASE 1

Item No.	Description	QTY	Unit	Base Price	Total \$	Record Unit
AH000SS	ANCHOR S&S 8" & 10"	1	EA	\$108.41	\$108.41	364
AH00003	3 1/2' SQUARE EXTENSIONS (FOR S&S ANCHORS)	2	EA	\$39.44	\$78.88	
AH00005	5' SQUARE EXTENSIONS (FOR S&S ANCHORS)	2	EA	\$46.95	\$93.90	
CLBC0SS	BONDING CLAMP (S&S ANCHOR)	1	EA			
AP00000	ARM PIN STD 5/8in	6	EA	\$4.15	\$24.90	
PO00018	POLE TOP PIN 18in	3	EA	\$6.00	\$18.00	
IN0000P	INSULATOR PIN (F-NECK)	9	EA	\$4.15	\$37.35	
IN000PO	INSULATOR 15KV POLYMER	4	EA	\$9.15	\$36.60	
BR00001	BRACKET 1 SPOOL	4	EA	\$4.35	\$17.40	
IN0000S	INSULATOR SPOOL	4	EA	\$0.65	\$2.60	
EN00058	EYE NUT 5/8"	5	EA	\$1.22	\$6.10	
BE00058	BOLT EYELET 5/8" (Thimble Eyelet)	1	EA	\$2.32	\$2.32	
GD00588	GROUND ROD 5/8"X 8'	20	EA	\$10.38	\$207.60	
GC00058	GROUND CLAMP 5/8"	20	EA	\$1.07	\$21.40	
CR0008S	8'WOOD STANDARD CROSSARM	7	EA	\$27.20	\$190.40	364
CR00001	CROSSARM BRACE	14	EA	\$7.35	\$102.90	364
BM00126	BOLT MA 1/2" x 6" (BRACE BOLT)	14	EA	\$0.63	\$8.82	
WO00012	WASHER ROUND 1/2"	14	EA	\$0.11	\$1.54	
CR000SA1	1PH.FIBERGLASS SWITCH ARM	4	EA	\$34.21	\$136.84	364
DB00620	DEAD-END BOLTED (SPRING LOADED) #4-1/0ACSR	4	EA	\$5.86	\$23.44	
DD00010	DEAD-END DISTRIBUTION 1/0WRAP (NEUTRAL ONLY)	2	EA	\$2.28	\$4.56	
DS00004	DEAD-END SERVICE WRAP #4	2	EA	\$0.65	\$1.30	
FL00K65	FUSE LINK K 65 AMP (COMMON DIP POLE FUSE)	4	EA	\$6.06	\$24.24	
GG0010M	10M GUY WRAP	2	EA	\$2.82	\$5.64	
GI00078	GUY INSULATOR 6-5' (FOR 10M GUY WIRE)	1	EA	\$16.24	\$16.24	
GP00000	GUY GUARD YELLOW	1	EA	\$2.92	\$2.92	
GT00058	GUY ATTACHMENT 5/8"	1	EA	\$5.15	\$5.15	
GW00058	GUY WASHER 5/8"	1	EA	\$0.75	\$0.75	
BH00122	1/2" x 2" BRASS HEX BOLT	168	EA	\$2.03	\$341.04	
BH00012	1/2" BRASS HEX NUT	168	EA	\$0.40	\$67.20	
BH012LW	1/2" BRASS LOCK WASHERS	168	EA	\$0.26	\$43.68	
BH12000	1/2" BRASS FLAT WASHERS	336	EA	\$0.50	\$168.00	
LU3504C	SECONDARY STUD SLIPFIT 4/C 10-350	42	EA	\$7.27	\$305.34	
PD00453	POLE WOOD 45 FT CLASS 3	3	EA	\$358.00	\$1,074.00	364
CL1520A	HOT LINE CLAMP	4	EA	\$7.64	\$30.56	
SR00000	STIRRUP BAIL	4	EA	\$3.00	\$12.00	
SW00100	100 AMP FUSED CUTOOUT SWITCH	4	EA	\$53.75	\$215.00	
	POLE TAG 65K	2	EA			
CR000SA1	1PH.FIBERGLASS TERMINATOR ARM (DIP POLE)	4	EA	\$34.21	\$136.84	
CR000SAB	ALUM.BRACKET FOR TERMINATOR AND ARRESTORS	4	EA	\$5.75	\$23.00	
UT00003	TERMINATOR MOUNTING BRACKET 1/0 STR	4	EA	\$9.14	\$36.56	
UT00S10	TERMINATOR STEM 1/0 STR	4	EA	\$8.07	\$32.28	
UT010ST	TERMINATOR 1/0 STR (OUTDOOR-DIP POLE)	4	EA	\$21.20	\$84.80	
UA0000D	ARRESTER DIP-POLE	4	EA	\$42.20	\$168.80	365
UL010ST	LOAD BREAK ELBOW 1/0 (COPPER TOP INCLUDED)	36	EA	\$24.40	\$878.40	
UA0000E	ARRESTER ELBOW	4	EA	\$61.00	\$244.00	
UE00001	SE CABINET 1 PHASE	4	EA	\$293.84	\$1,175.36	
UE000S1	SE CABINET 1 PHASE (FIBERGLASS SLEEVE)	4	EA	\$168.04	\$672.16	
UJ00002	2 POINT JUNCTION (FOR SE CABINETS)	8	EA	\$72.00	\$576.00	
UE0000C	1PH.PAD-TRANSFORMER (PRE-FORM)	14	EA	\$188.00	\$2,632.00	

UB0000P	INSULATED PARKING STAND	18 EA	\$32.35	\$582.30	364
UI0000C	INSULATED CAP	18 EA	\$20.36	\$366.48	
FIUG000	FAULT INDICATOR, UNDERGROUND	14 EA	\$168.59	\$2,360.26	
WR010WT	1/0 WRAPLOCK TIE	3 EA	\$5.00	\$15.00	
WR010ST	1/0 SPOOL TIE	2 EA	\$2.00	\$4.00	
WR010DA	1/0 DOUBLE ARM TIE	3 EA	\$9.00	\$27.00	
ZB02524	25KVA -1 PHASE-120/240	6 EA	\$1,599.00	\$9,594.00	
ZB05024	50KVA-1PHASE-120/240	7 EA	\$1,855.00	\$12,985.00	
ZB07524	75KVA-1PHASE-120/240	1 EA	\$2,307.00	\$2,307.00	
PVOOCSB	CONDUIT STANDOFF BRACKET-24" OR 36"(C6CSO24, C6CSO36)	8 EA	\$33.10	\$264.80	364
PVOOCSK	CONDUIT STRAP KIT (FOR USE WITH CONDUIT BRACKET)	48 EA	\$3.90	\$187.20	364
TOTAL		1274		\$38,790.26	

NORTH LITTLE ROCK ELECTRIC DEPT.
St. Light Material List

Work Order: 14-12-35

Location: BEAR PAW PHASE 1

Item No.	Description	QTY	Units	Base Price	Total \$	Record Unit
XFC00015	FUSE CART 15 AMP #KTK15 1 1/2	12	EA	\$1.44	\$17.28	
XFH00030	FUSE HLDR INLINE 30AMP	12	EA	\$17.17	\$206.04	
XLA150MH	LAMP, 150W METAL HALIDE	12	EA	\$8.80	\$105.60	
XLUCOB15M	LUMINAIRE, 150W METAL HALIDE COBRA	12	EA	\$99.30	\$1,191.60	
XPD00025	POLE ALUMINUM 25 FT	12	EA	\$678.00	\$8,136.00	364
XPE0130	PE CONTROL 105-130V	12	EA	\$3.65	\$43.80	
					\$9,700.32	

NORTH LITTLE ROCK ELECTRIC DEPT.
Wire Material List

Work Order: **13-02-25**Location: **NLR HIGH SCHOOL**

Item No.	Description	QTY	Units	Base Price	Record Total \$	Unit
GR0010M	10M GUY WIRE		FT	\$0.25		
GR0020M	20M GUY WIRE		FT	\$0.59		
WCB004S	BARE 4 SOFT DRAWN (POLE GROUND)	LB	FT	\$0.59		
WAP0002	PRIMARY 2 ACSR	LB	FT	\$1.71		365
WAP0010	PRIMARY 1/0 ACSR	LB	FT	\$1.25		365
WAP0040	PRIMARY 4/0 ACSR	LB	FT	\$0.86		365
WAP0336	PRIMARY 336.4 ACSR	LB	FT	\$0.71		365
WAP0795	PRIMARY 795 AAC	LB	FT	\$1.36		365
WAS002Q	SECONDARY 2 QUADRUPLX		FT	\$0.79		365
WAS002T	SERVICE 2 TRIPLEX		FT	\$0.59		369
WAS002T	SECONDARY 2 TRIPLEX		FT	\$0.59		365
WAS004D	SECONDARY 4 DUPLEX		FT	\$0.34		365
WAS004T	SECONDARY 4 TRIPLEX		FT	\$0.45		365
WAS010Q	SERVICE 1/0 QUADRUPLX		FT	\$1.34		369
WAS010Q	SECONDARY 1/0 QUADRUPLX		FT	\$1.34		365
WAS010T	SERVICE 1/0 TRIPLEX		FT	\$0.84		369
WAS010T	SECONDARY 1/0 TRIPLEX		FT	\$0.84		365
WAS040Q	SECONDARY 4/0 QUADRUPLX	LB	FT	\$2.29		365
WAS040Q	SERVICE 4/0 QUADRUPLX	LB	FT	\$2.29		369
WAS040T	SERVICE 4/0 TRIPLEX		FT	\$1.62		369
WAS040T	SECONDARY 4/0 TRIPLEX		FT	\$1.62		365
WAU002T	UG SECONDARY 2 TRIPLEX		FT	\$0.61		367
WAU004D	UG SECONDARY 4 DUPLEX		FT	\$0.47		369
WAU004T	UG SECONDARY 4 TRIPLEX		FT	\$0.51		367
WAU006D	UG SECONDARY 6 DUPLEX		FT	\$0.27		367
WAU010T	UG SERVICE 1/0 TRIPLEX	LB	FT	\$1.05		367
WAU010T	UG SECONDARY 1/0 TRIPLEX	LB	FT	\$1.05		367
WAU030T	UG SERVICE 3/0 TRIPLEX		FT			369
WAU030T	UG SECONDARY 3/0 TRIPLEX		FT			367
WAU040T	UG SERVICE 4/0 TRIPLEX		FT	\$1.27		369
WAU040T	UG SECONDARY 4/0 TRIPLEX		FT	\$1.27		367
WAU350T	UG SERVICE 350 TRIPLEX		FT	\$2.10		369
WAU350T	UG SECONDARY 350 TRIPLEX		FT	\$2.10		367
WAU0750	UG PRIMARY 750		FT	\$3.74		367
WAU1C10	UG PRIMARY 1 CONDUCTOR 1/0		FT	\$3.23		367
WAU3C10	UG PRIMARY 3 CONDUCTOR 1/0		FT	\$6.95		367
WCB0002	BARE #2 STR SD CU WIRE	LB	FT	\$1.10		
WCI0350	INSULATED 350 COPPER		FT	\$2.33		
WCI0500	INSULATED 500 COPPER	LB	FT	\$7.67		
WCI1000	INSULATED 1000 COPPER		FT	\$9.64		
WAI0350	INSULATED 350 ALUM		FT	\$0.63		
WAI0500	INSULATED 500 ALUM		FT	\$2.15		
WAI0750	INSULATED 750 ALUM		FT	\$1.22		

WCI0020	INSULATED 2/0		FT	\$2.61	
WCI0040	INSULATED 4/0		FT	\$4.79	
WCI010B	INSULATED 10 BLACK		FT	\$0.19	
WCI010W	INSULATED 10 WHITE		FT	\$0.19	
WAB0004	BARE 4 TIE WIRE ALUM		FT	\$2.48	
WAB0006	BARE 6 TIE WIRE ALUM		FT	\$2.48	
WCB0040	BARE 4/0		FT	\$5.92	
WCB004H	BARE 4 HARD DRAWN	LB	FT	\$5.75	365
WCB004S	BARE 4 SOFT DRAWN	LB	FT	\$0.59	
WCB006H	BARE 6 HARD DRAWN	LB	FT	\$3.78	365
WCB006S	BARE 6 SOFT DRAWN	LB	FT	\$0.39	
	#2 WP HD COPPER		FT		365
WCI0002	INSULATED 2		FT	\$1.38	
WCI0004	INSULATED 4		FT	\$1.18	
WCI0006	INSULATED 6	LB	FT	\$0.18	
WCI0008	INSULATED 8		FT	\$0.14	



Sherwood 1&2 SS

H29 (TOP)
H30 (BOTTOM)

H28

H28
H29
H30
H31
I33
I34
I35

(S1SS)

(S2SS)

U482

I34 (TOP)
I35 (BOTTOM)

I33 (West Under Transmission)

H31 (East Under Transmission)

Sallisaw Ave

N Hills Blvd

Sallisaw Ct

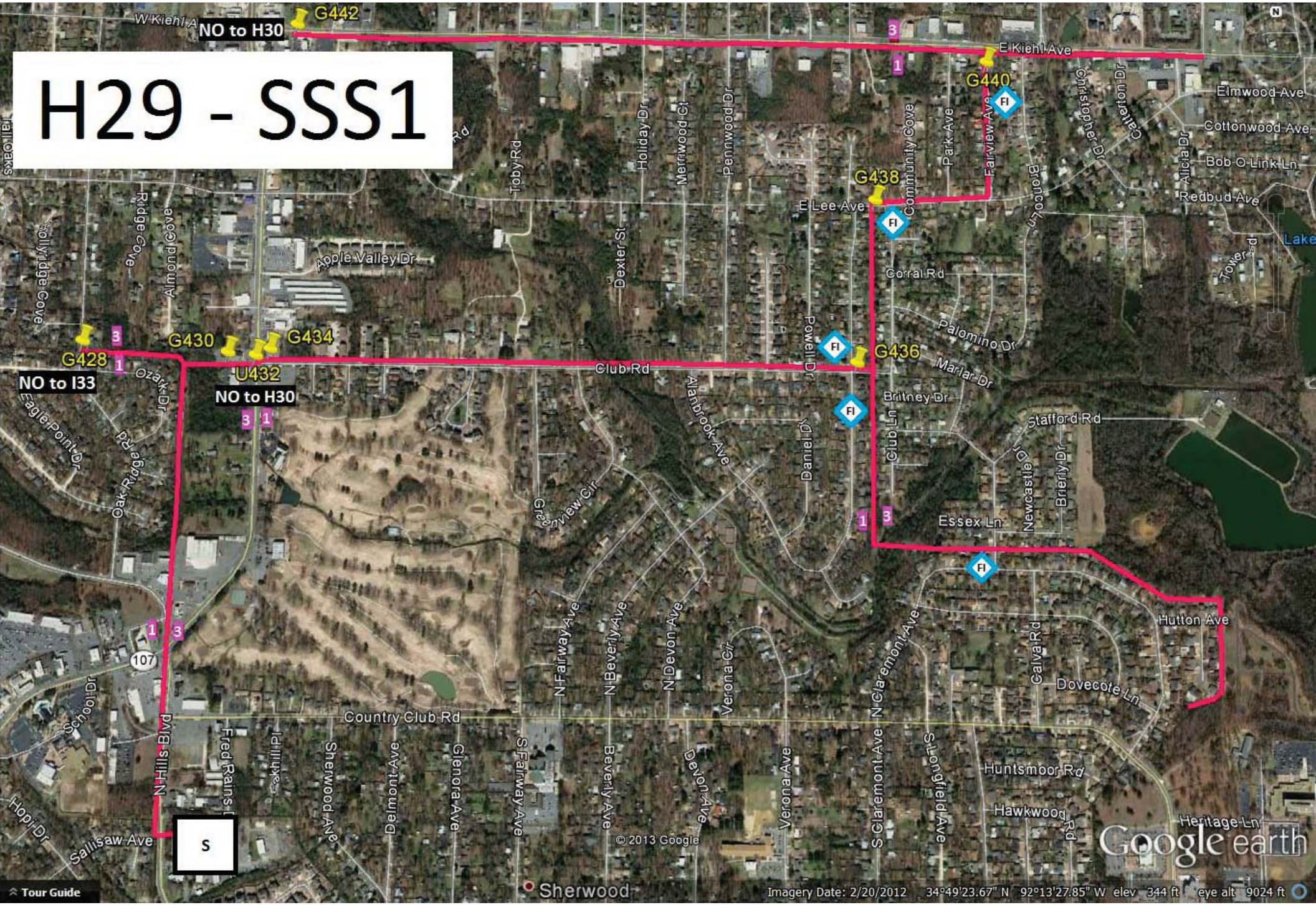
© 2013 Google

Google earth

H28-SSS1



H29 - SSS1



NO to I33

U432
NO to H30

S

Sherwood

Google earth

Imagery Date: 2/20/2012 34°49'23.67" N 92°13'27.85" W elev 344 ft eye alt 9024 ft

H30 (South) S1SS

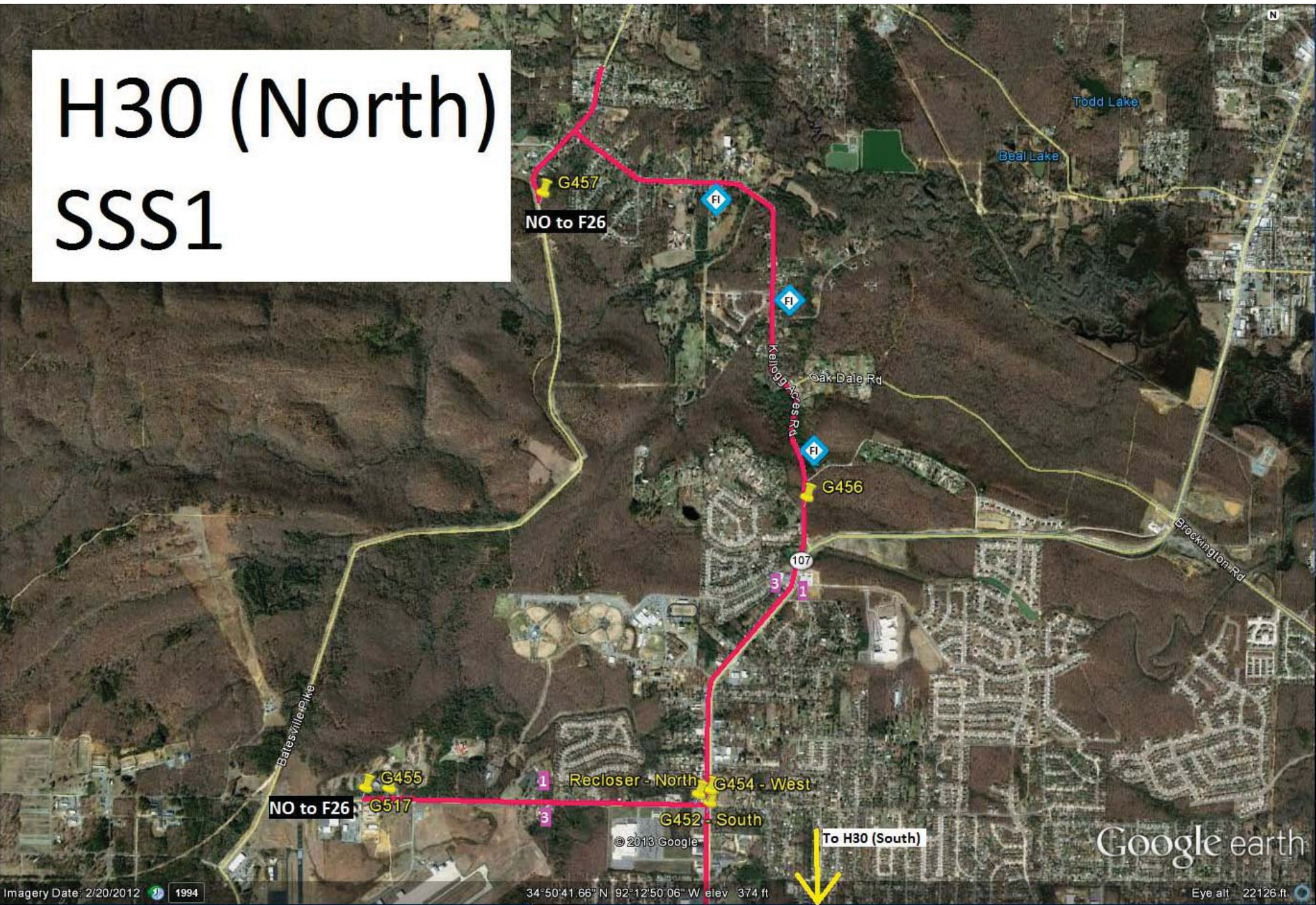


To H30 (North)

Google earth

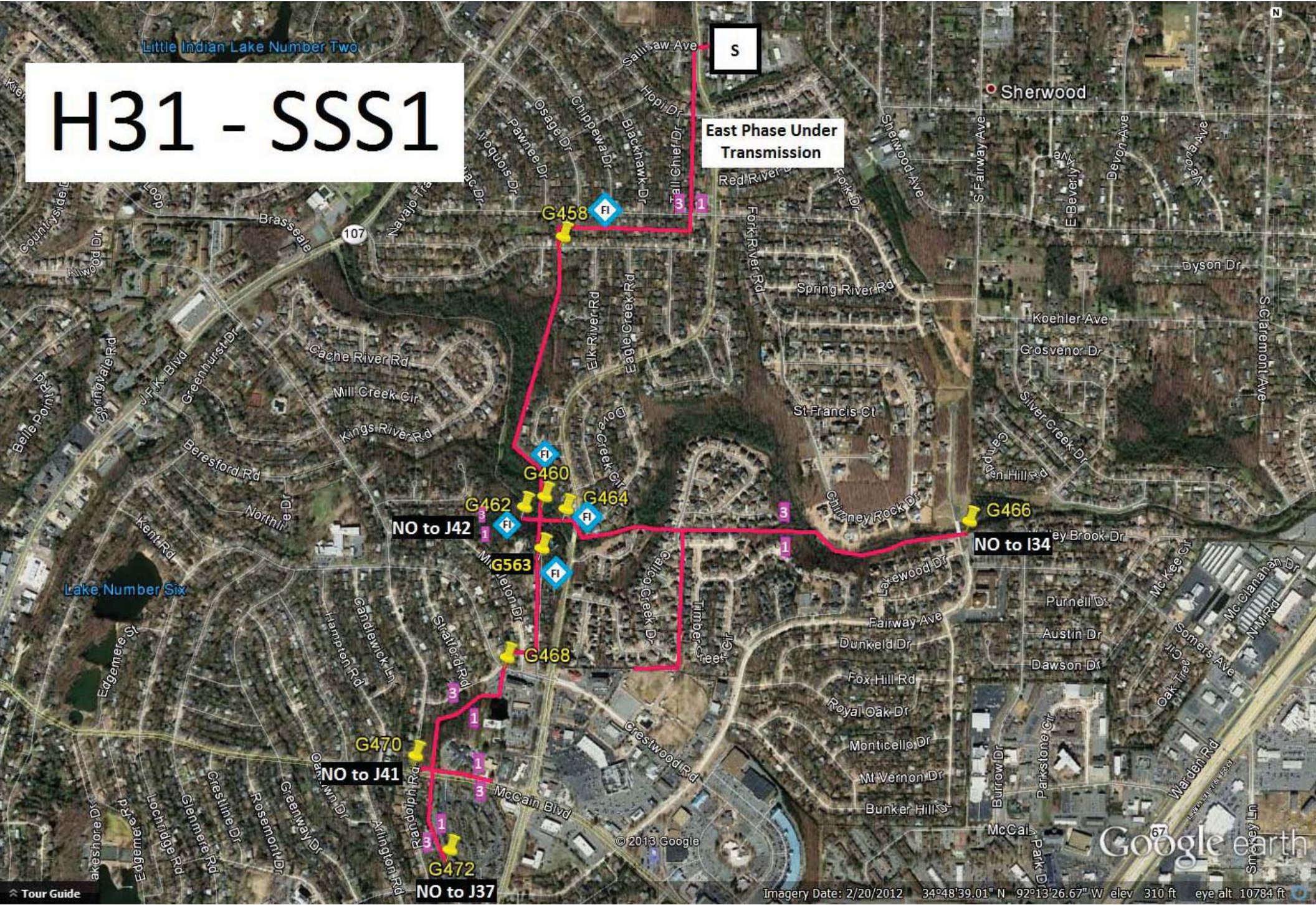
H30 (North)

SSS1



H31 - SSS1

East Phase Under Transmission



Little Indian Lake Number Two

Sherwood

107

Lake Number Six

NO to J42

NO to I34

NO to J41

NO to J37

© 2013 Google

Google earth

Imagery Date: 2/20/2012 34°48'39.01" N 92°13'26.67" W elev 310 ft eye alt 10784 ft

Tour Guide