

**Greenville Utilities Commission
Specifications and Bid Documents**

November 1, 2021



**Request for Proposal:
Engineering, Design, & Project Management
Recurring Services for North Carolina
Department of Transportation Electric
Utility Relocation Projects**

Response Due Date, December 1, 2021 4:00 pm (EDST)

Notice to Proposers:

Greenville Utilities Commission is committed to the health and safety of our customers and employees. We are taking the spread of COVID-19 very seriously and continue to monitor the latest Local, State, and Federal guidance.

1.0 **Greenville Utilities Commission Background**

The Greenville Utilities Commission was initially chartered by the North Carolina General Assembly in 1905. The latest amendment to the Charter occurred in 1992. It is organized as an independent agency of the City of Greenville and operates the City's electric, water, sewer and gas utilities. Each of the four utilities is required to be accounted for through four individual budgets.

The Commission members are appointed by the City Council. Five members represent the City and two members represent the County. The members are appointed on three- year staggered terms with eligibility for an additional three-year appointment. The City Manager serves as the eighth and full voting member of the Board of Commissioners.

The Commission presently employs approximately 458 people in nine departments.

The Electric Department presently employs approximately 138 people in seven sections: administration, engineering, substation and controls, distribution, systems dispatch, load management and meter.

The Electric Department serves the citizens of Greenville and approximately 75% of surrounding Pitt County. We have the second largest public power system in the state in terms of both the number of customers served and quantity of electricity purchased and distributed.

Greenville Utilities is the largest member of the North Carolina Eastern Municipal Power Agency (NCEMPA), representing 32 cities in Eastern North Carolina. NCEMPA's electricity is provided through a purchase power contract with Duke Energy Progress that expires in 2043, with early termination available in 2035.

Greenville Utilities takes delivery from Duke Energy Progress at 230 kV from three locations. Greenville Utilities steps the voltage down to 115 kV and delivers power to various distribution substations on six transmission circuits. Greenville Utilities operates and maintains 77 miles of 115 kV transmission & 34.5 kV sub-transmission lines. We also operate 1,200 miles of 12.47 kV overhead distribution lines and 1,600 miles of 12.47 kV underground distribution lines. In addition, the department maintains 19 distribution substation sites with combined base rating capacity of 720 MVA, two sub-transmission sites (115-34.5 kV) at a combined base rating capacity of 50 MVA, and three 115 kV transmission substations with a combined base load capacity of 120 MVA.

GUC distributes electricity to 71,000 customers with an annual peak demand of approximately 350 MW.

2.0 **Project Description**

The purpose of this document is to outline the technical requirements for the successful vendor to provide recurring/on-going engineering, design, and project management services for Greenville Utilities Commission's (GUC) electric distribution/transmission system projects in conjunction with North Carolina Department of Transportation (NCDOT) Utility Relocation Projects.

GUC owns/maintains significant electric transmission and distribution system facilities located within or in close proximity to NCDOT rights of ways. Many NCDOT roadway projects (i.e. new construction, reconstructions, or maintenance) require the temporary and/or permanent relocation of GUC electric transmission and distribution system facilities within the identified project limits. Typically, GUC staff will work in close coordination with NCDOT representatives to: identify GUC facilities in conflict with NCDOT construction plans, develop relocation plans for facilities, prepare relocation cost estimates, execute Utility Relocation Agreements (URAs), prepare construction documents, and perform construction of relocation facilities. GUC is seeking the services of a qualified vendor to provide all engineering, design, and project management services for NCDOT Utility Relocation Projects.

3.0 Vendor Scope of Work

The successful vendor shall be responsible for but not limited to the following scope of work for GUC's NCDOT Utility Relocation Projects:

- a. Review proposed NCDOT project plans and schedules within GUC's electric service territory.
- b. Prioritize Utility Relocation Projects based on NCDOT construction schedules.
- c. Work closely with GUC staff/representatives to identify GUC facilities in conflict with proposed NCDOT construction plans.
- d. Draft electric relocation plans with NCDOT and submit to GUC for review/approval.
- e. Prepare utility engineering cost estimates for GUC review/approval
- f. Prepare utility relocation cost estimates for GUC review/approval.
- g. Work with NCDOT staff/representatives to prepare Utility Relocation Agreements (URAs) and Utility Engineering Agreements (UEAs) for GUC review and execution.
- h. Utilize GUC's and other applicable codes/standards to prepare construction documents, plans, drawings, and material list etc. for GUC review/approval.
- i. Prepare construction schedules in conjunction with NCDOT project schedules.
- j. Prepare bid packages for contract construction crews (or utilize in-house crews) to perform work in accordance with plans.
- k. Oversee contract construction crews and ensure that work is completed in accordance with approved plans and applicable standards etc.
- l. Provide digital and hard copy "As-Builts" for all construction work performed.
- m. Attend any/all required NCDOT project meetings on behalf of GUC.
- n. Provide any/all required communication, documentation, transmittals, submittals etc. on behalf of GUC for NCDOT projects.
- o. Provide regular (i.e. weekly, monthly, quarterly etc.) project updates to GUC and/or NCDOT.
- p. Responsible for contracting/performing any Geo-technical and/or other required engineering services/studies required for project completion.
- q. Responsible for contracting/performing any Railroad and/or third party encroachment agreements required for project completion.
- r. Responsible for compliance with NCDOT Audit Requirement (see Appendix F)

4.0 **GUC Responsibility**

GUC shall be responsible for the following scope of work in relation to GUC's NCDOT Utility Relocation Projects:

- a. Responsible for assigning staff member(s) to NCDOT projects to act as liaison/coordinator with Vendor and/or NCDOT.
- b. Attend NCDOT project meetings as required.
- c. Provide maps, documentation, other data etc. regarding existing GUC electric facilities.
- d. Assist Vendor with in-field surveys etc. to identify GUC electric facilities in conflict with proposed NCDOT construction plans.
- e. Review all documentation, estimates, plans, bid packages, etc. submitted by Vendor on GUC's behalf.
- f. Provide GUC construction standards for Vendor to prepare/design cost estimates, construction documents, plans, drawings etc.
- g. Provide GUC standard material list and unit pricing for Vendor to prepare/design cost estimates, construction documents, plans, drawings, etc.
- h. Provide all material required for construction.
- i. Review Vendor invoices and approve for payment.
- j. Submit invoice to NCDOT for reimbursement, in accordance with Utility Relocation Agreement (URA).
- k. Conduct final inspection of all construction and review/approve As-Built drawings.

5.0 **Vendor Proposal/Submission**

Vendor shall submit the following information in their proposal in or to be considered responsive:

- a. Company Profile and Vendor contact information (phone, email, fax, etc.).
- b. Detailed Statement of Qualifications to provide sufficient evidence of competency/experience in providing requested services.
- c. Comprehensive list of previous projects completed in the last 5 years providing similarly requested services. Vendor shall include client list and contact information. Inclusion of previous project documentation (i.e. designs, plans etc.) is highly encouraged.
- d. Statement of Project Methodology to provide sufficient evidence of Vendor comprehension of requirements. Vendor shall clearly delineate any requirements in Section 3.0 that are excluded from Vendor's proposal.
- e. Summary of key project personnel and experience. Include hourly rate at which personnel will be billed.
- f. Summary of any/all identified sub-contractors/consultants that will be assigned to projects. Include contact information.

6.0 **Evaluation Criteria**

Vendor selection shall be based on evaluation and rating of Vendor's demonstrated competence and qualifications/performance for the type of services requested. The following guidelines shall be used as a minimum criterion for Vendor rating:

- a. Quality of approach and methodology that demonstrates an understanding of the project requirements.
- b. Quality, extent, and relevance of Vendor's staff/experience in providing services.

- c. Quality of references from past customers of vendor.
- d. Vendor's response time for services.
- e. Overall cost

7.0 **Proposal Process**

GUC engineering staff will review all complete proposals and select up to three (3) firms for a 90 minute presentation/interview. The engineering firm will have one week to prepare for the presentation/interview. The interview will consist of 30 minutes for presentation and 60 minutes for question and answer.

8.0 **Appendix**

The following appendix are included in this request for proposal to aid in the Vendor's preparation of proposal:

- a. Appendix A: GUC Electric Service Territory Map
- b. Appendix B: Sample Utility Relocation Agreement (URA)
- c. Appendix C: Template Utility Engineering Agreement (UEA)
- d. Appendix D: Sample Utility Relocation Plan
- e. Appendix E: Greenville Utilities Overhead Construction Standards. Note: Standards are provided for reference only and not intended for construction.
- f. Appendix F: NCDOT Audit Requirements Memorandum

9.0 **Term**

It is the intent of these specification for the Commission to enter a contract with the successful Vendor for recurring services. The terms of the agreement shall be reviewed/updated annually. Either party, with ninety (90) days written notice, may cancel the agreement without penalty or liability.

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GREENVILLE UTILITIES COMMISSION

REQUEST FOR PROPOSALS

PROPOSAL DEADLINE

Proposals, subject to the conditions made a part hereof, will be received by the Office of the Procurement Manager, Greenville Utilities Commission, 401 S. Greene Street, Greenville, North Carolina 27834 until **4:00 PM (EDST) on December 1, 2021.**

PREPARATION OF PROPOSAL

Proposals must be in sealed envelopes clearly marked on the outside with the name of the proposal and the proposal receipt date and time. Proposals shall be addressed to the **Office of the Procurement Manager, Greenville Utilities Commission, 401 S. Greene Street, Greenville, North Carolina 27834.**

EVALUATION AND AWARD

GUC reserves the right to reject any and all proposals, to waive any and all informalities, and to disregard all nonconforming or conditional proposals or counter proposals. In evaluating proposals, GUC shall consider whether the proposals comply with the prescribed requirements, plus all alternates or options requested. GUC reserves the right to include or exclude any option or alternative(s). If interviews are necessary, interviews with selected respondents will be scheduled and conducted. If a proposal is to be awarded, it will be awarded to the best qualified responsible, responsive respondent whose evaluation by GUC indicates that the award will be in GUC's best interests.

MINORITY BUSINESS PARTICIPATION PROGRAM

GUC has adopted an Affirmative Action and Minority and Women Business Enterprise Plan (M/WBE) Program. Firms submitting a proposal are attesting that they also have taken affirmative action to ensure equality of opportunity in all aspects of employment, and to utilize M/WBE suppliers of materials and/or labor.

CONFLICT OF INTEREST

In general, conflicts of interest relate to the potential for self-gain usually, but not always, of a fiscal nature. Potential for self-gain can serve to undermine the judgment or objectivity of vendors providing consultation services. A potential or actual conflict of interest exists when commitments and obligations to GUC are likely to be compromised by a vendor's other interests or commitments, especially economic, particularly if those interests or commitments are not disclosed. Not all conflicting interests are necessarily impermissible. Timely and complete disclosure of potential conflicts of interest may be a satisfactory remedy and protects the consultant from suspicion and accusations of breach of professional integrity. Vendors are asked to disclose any situation or relationship that might be regarded as potential conflict of interest with, but not limited to, their expected duties and recommendations as defined in this RFP.

VENDOR INCURRED COSTS

All costs that may be incurred to prepare proposals, attend meetings, attend site inspections, provide requested follow-up information, make formal and informal presentations, and for the entire contract negotiations process if applicable, shall be the sole responsibility of each vendor. GUC is not responsible under any circumstances for reimbursement of any costs that may be incurred by vendors during the proposal preparation, subsequent selection or negotiation stages.

PROPOSAL WITHDRAWAL

A proposer must notify GUC in writing of its request to withdraw a proposal within seventy-two (72) hours after the proposal receipt date and time, not including Saturdays, Sundays, or holidays. In order to justify withdrawal, the respondent must demonstrate that a substantial error exists and that the proposal was submitted in good faith.

AFFIRMATIVE ACTION

The Provider will take affirmative action in complying with all Federal and State requirements concerning fair employment and employment of the handicapped, and concerning the treatment of all employees, without discrimination by reason of race, color, religion, sex, national origin, or physical handicap.

MEDIATION/BINDING ARBITRATION

In the event of any dispute between the Parties, the Parties agree to submit any dispute to nonbinding mediation before a mutually agreeable Mediator prior to initiating litigation. If the Parties are unable to agree upon a Mediator within thirty (30) days after demand therefore, either Party may petition a Court of competent jurisdiction for the designation of a qualified Mediator for these purposes. Each Party shall bear its own costs and expenses of participating in the mediation (including, without limitation, reasonable attorneys' fees), and each Party shall bear one-half (1/2) of the costs and expenses of the Mediator. Unless otherwise agreed, the Parties will hold the mediation in Greenville, North Carolina. The matters discussed or revealed in the mediation session shall not be disclosed in any subsequent litigation.

In the event the matter is not resolved in mediation, either Party may request arbitration. The parties shall jointly select an Arbitrator, and shall be bound by the decision of the Arbitrator with respect to any dispute between the parties with respect to this Agreement. If the parties are unable to mutually agree upon an Arbitrator, the Parties shall each select an Arbitrator, and the two Arbitrators so selected shall select a third Arbitrator, and the decision of the majority of the Arbitrators shall be conclusive and binding upon the Parties. The Parties at all times agree to equally split the costs of any Arbitrator(s) selected in an effort to resolve the dispute between the Parties. Any party desiring to resolve a dispute under the terms of this Agreement shall notify the other Party in writing, and the Parties shall seek to agree upon a mutually agreed upon Arbitrator within a period of ten (10) days from the date of such written demand. If the Parties are unable to agree within such ten (10) day period, the Parties shall each select an Arbitrator, and the two (2) Arbitrators so selected shall select a third Arbitrator within fifteen (15) days from the date of the written demand for arbitration, and a decision shall be rendered by the Arbitrator(s) so selected within five (5) days after such Arbitrator(s) is selected.

INDEMNITY PROVISION

Provider agrees to indemnify and save GREENVILLE UTILITIES COMMISSION of the City of Greenville, Pitt County, North Carolina, and the City of Greenville, North Carolina, its co-owners, joint ventures, agents, employees, and insurance carriers harmless from any and all losses, claims, actions, costs, expenses including reasonable attorney fees, judgments, subrogations, or other damages resulting from injury to any person (including injury resulting in death), or damage (including loss or destruction) to property of whatsoever nature of any person arising out of or incident to the performance of the terms of this Contract by Provider, including, but not limited to, Provider's employees, agents, subcontractors, and others designated by Provider to perform work or services in, about, or attendant to, the work and services under the terms of this Contract. Provider shall not be held responsible for any losses, expenses, claims, subrogations, actions, costs, judgments, or other damages, directly, solely, and proximately caused by the negligence of Greenville Utilities Commission of the City of Greenville, Pitt County, North Carolina. Insurance covering this indemnity agreement by the Provider in favor of Greenville Utilities Commission of the City of Greenville, Pitt County, North Carolina, and the City of Greenville, North Carolina, shall be provided by Provider.

GOVERNING LAWS

All contracts, transactions, agreements, etc., are made under and shall be governed by and construed in accordance with the laws of the State of North Carolina.

ADMINISTRATIVE CODE

Bids, proposals, and awards are subject to applicable provisions of the North Carolina Administrative Code.

CONFIDENTIAL INFORMATION

Except as provided by statute and rule of law, GUC will keep trade secrets which the Provider does not wish disclosed confidential. Each page shall be identified in boldface at the top and bottom as "CONFIDENTIAL" by the Provider. Cost information shall not be deemed confidential. The determination of whether a matter is confidential will be determined by North Carolina law.

GOOD FAITH STATEMENT

All information provided by GUC in this RFP is offered in good faith. Individual item(s) are subject to change at any time. GUC makes no certification that any item(s) are without error. GUC is not responsible or liable for any use of the information or for any asserted claims.

UNIFORM GUIDANCE

Contracts funded with federal grant or loan funds must be procured in a manner that conforms with all applicable federal laws, policies, and standards, including those under the Uniform Guidance (2 C.F.R. Part 200).

E-VERIFY LETTER OF COMPLIANCE

1. I have submitted a proposal for contract or desire to enter into a contract with the Greenville Utilities Commission;

2. As part of my duties and responsibilities pursuant to said proposal and/or contract, I affirm that I am aware of and in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):

3. ____ After hiring an employee to work in the United States I verify the work authorization of said employee through E-Verify and retain the record of the verification of work authorization while the employee is employed and for one year thereafter; or

4. ____ I employ less than fifteen (15) employees in the State of North Carolina.

5. As part of my duties and responsibilities pursuant to said proposal and/or contract, I affirm that to the best of my knowledge and subcontractors employed as a part of this proposal and/or contract, are in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):

6. ____ After hiring an employee to work in the United States the subcontractor verifies the work authorization of said employee through E-Verify and retains the record of the verification of work authorization while the employee is employed and for one year thereafter; or

7. ____ Employ less than fifteen (15) employees in the State of North Carolina.

Specify subcontractor: _____

_____ (Company Name)

By: _____ (Typed Name)

_____ (Authorized Signatory)

_____ (Title)

_____ (Date)

CONTACT INFORMATION & QUESTIONS

Questions regarding this Request for Proposal should be received by or before noon, November 12, 2021. All questions shall be directed via e-mail to the attention of Cleve Haddock, CLGPO, Procurement Manager at: haddocgc@guc.com, (252) 551-1533.

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Vendor List

Rich Zinser

Burns & McDonnell
Business Development Manager \ Transmission & Distribution Services
O 803-412-6454 M 803-412-6454
rlzins@burnsmcd.com / burnsmcd.com
400 South Tryon St. \ Suite 800 \ Charlotte, NC 28202

David S. Huffstetler

Booth & Associates, LLC
Senior Vice President \ Transmission and Distribution Services
O 919-851-8770 M 919-218-2310
HuffstetlerDS@booth-assoc.com
5811 Glenwood Avenue \ Suite 109 \ Raleigh, NC 27612

Michael C. Dougherty

Southeastern Consulting Engineers, Inc.
President
O 704-523-6045 M 704-572-8347
Mike@scepower.com
P.O. Box 240436 \ Charlotte, North Carolina 28224

Dave Mitchell

Ampirical
National Sales Manager
C 985-789-6726
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1654 Ochsner Boulevard, Covington, LA 70433

Dan Reilly

Stanley Consultants
Business Development Manager
M 630-708-0037
reillydan@stanleygroup.com
8501 W. Higgins Road, Suite 730, Chicago, IL 60631

Ben Wadsworth

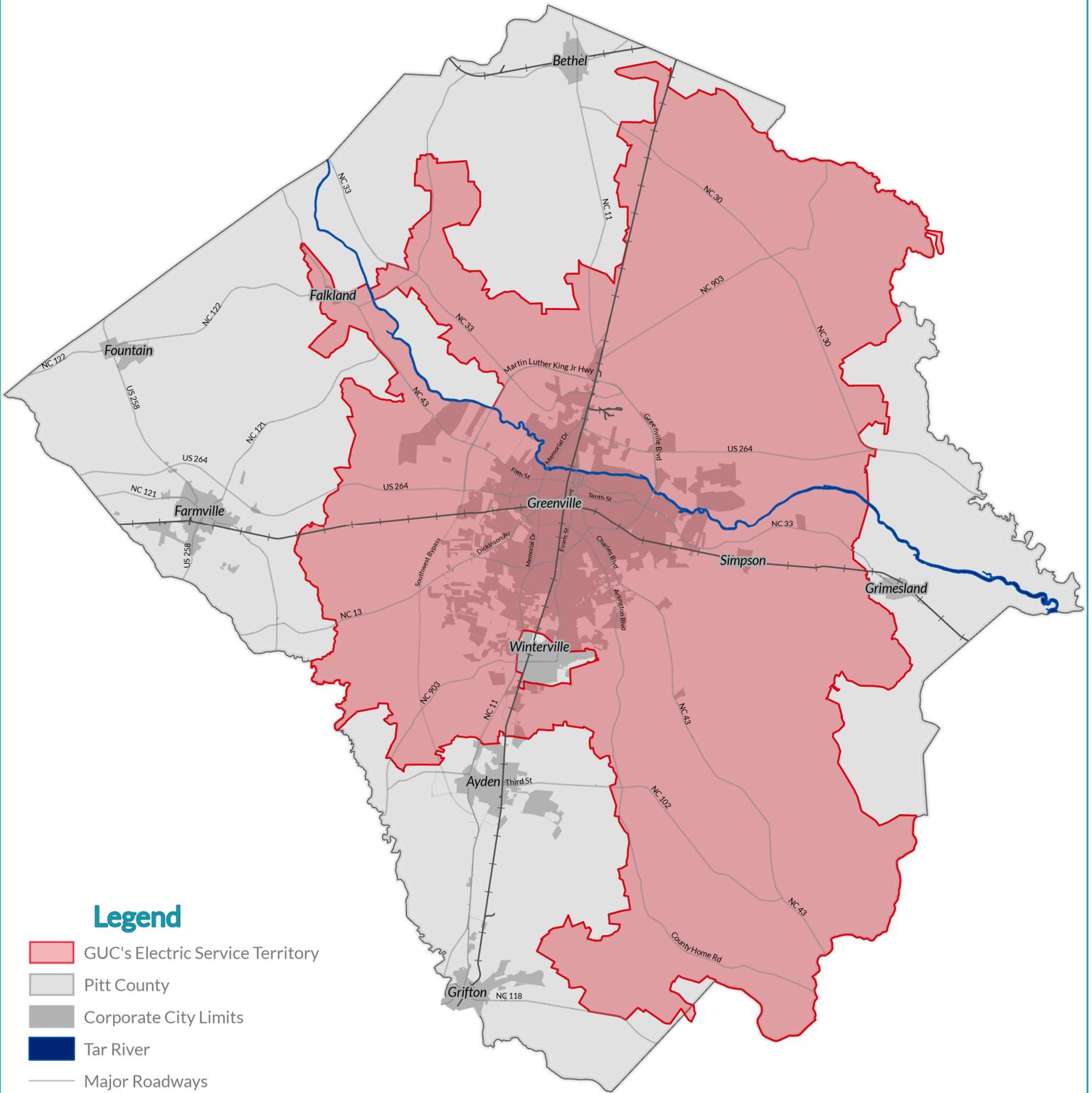
Pickett and Associates, Inc.
Manager of Engineering
O 919-355-5530 M 352-210-0191
bwadsworth@pickettusa.com
909 Capability Drive, Suite 2700, Raleigh, NC 27606

Ray Pigott

Pike Engineering
Senior Director
M: (919) 368-6080
Rpigott@pike.com
123 North White Street, Fort Mill, SC 29715

Appendix A: GUC Electric Service Territory

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Legend

- GUC's Electric Service Territory
- Pitt County
- Corporate City Limits
- Tar River
- Major Roadways
- Railroads



Date Exported: 8/1/2019 10:10 AM

Source Data: Pitt County Planning Department, City of Greenville, & Greenville Utilities Commission



Appendix B: Sample Utility Relocation Agreement

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UTILITY RELOCATION AGREEMENT

NCDOT HIGHWAY WBS ELEMENT NO. W-5702L

TRANSPORTATION IMPROVEMENT PROGRAM NO. 44848.1.12

COUNTY Pitt

2/5/2019

This agreement made this _____ day of _____, _____, by

and between the Department of Transportation, an agency of the State of North

Carolina, hereinafter referred to as the DEPARTMENT, and

Greenville Utilities Commission - Electric Inc. hereinafter referred to as the

COMPANY:

WITNESSETH:

THAT WHEREAS, the DEPARTMENT will submit a project for construction as follows:

Department roadway project at the intersection of SR-1755 (Black Jack - Simpson Road) and SR-1744 (Mills Road). Proposed work at this intersection includes skew revisions, vegetation removal and channelization at the intersection.

known as route SR-1755 in Pitt County,

North Carolina to be designated as N.C. State Highway Project and/or WBS

Element W-5702L and, WHEREAS, the construction of said project will

require certain adjustments to be made to the existing facilities of the COMPANY;

NOW, THEREFORE, in order to facilitate the orderly and expeditious relocation of the said facilities of COMPANY, the DEPARTMENT and the COMPANY have agreed as follows:

1. That the scope, description, and location of work to be undertaken by the COMPANY are as follows

The relocation of Greenville Utilities Commission's electrical facilities for the improvements of the Black Jack Simpson Road and Mills Road intersection.

2. That any work performed under this agreement shall comply with DEPARTMENT's "POLICIES AND PROCEDURES FOR ACCOMMODATING UTILITIES ON HIGHWAY RIGHTS OF WAY" dated January 1, 1975, and such amendments thereto as may be in effect at the date of this agreement. The work to be performed by the COMPANY shall conform with Federal Highway Administration's Federal-Aid Policy Guide, Subchapter G, Part 645, Subpart A hereinafter referred to as FAPG dated December 9, 1991, and such amendments thereto as may be in effect at the date of this agreement. The provisions of said FAPG and amendments thereto are incorporated in this agreement by reference as fully as if herein set out. Any work performed under this agreement not in compliance with FAPG shall constitute unauthorized work and the DEPARTMENT shall be relieved of participating in the costs of such unauthorized work unless such work is done pursuant to a supplemental agreement attached to and made a part hereof.

3. That the COMPANY will prepare an estimate, broken down as to estimated cost of labor, construction overhead, materials and supplies, handling charges, transportation and equipment, rights of way, preliminary engineering and construction engineering, including an itemization of appropriate credits for salvage and betterments, and accrued depreciation all in sufficient detail to provide the DEPARTMENT a reasonable basis for analysis. Unit costs, such as broad gauge units of property, may be used for estimating purposes where the COMPANY uses such units in its own operations. The COMPANY will also prepare plans, sketches or drawings showing their existing facilities, temporary and permanent changes to be made with reference to the DEPARTMENT's new right of way using appropriate nomenclature, symbols, legend, notes, color coding or the like. The before mentioned estimate and plans are attached hereto and made a part hereof. The DEPARTMENT will not reimburse the COMPANY for any utility relocations or changes not necessitated by the construction of the highway project, nor for changes made solely for the benefit or convenience of the COMPANY, its contractor, or a highway contractor.

4. That the DEPARTMENT's authority, obligation, or liability to pay for relocations as set forth in this agreement is based on the COMPANY having a right of occupancy in its existing location by reason of the fee, an easement or other real property interest, the damaging or taking of which is compensable in eminent domain.

5. That payment for all work done hereunder shall be made in accordance with the requirements of FAPG unless payment is being made pursuant to a supplemental agreement attached to and made a part of this agreement.

6. That the construction work provided for in this agreement will be performed by the method or methods as specified below:

BY COMPANY'S REGULAR FORCE: The COMPANY proposes to use its regular construction or maintenance crews and personnel at its standard schedule of wages and working hours in accordance with the terms of its agreement with such employees.

BY EXISTING WRITTEN CONTINUING CONTRACT: The COMPANY proposes to use an existing written continuing contract under which certain work as shown by the COMPANY's estimate is regularly performed for the COMPANY and under which the lowest available costs are developed.

BY CONTRACT: The COMPANY does not have adequate staff or equipment to perform the necessary work with its own forces. The COMPANY proposes to award a contract to the lowest qualified bidder who submits a proposal in conformity with the requirements and specifications for the work to be performed as set forth in an appropriate solicitation for bids.

7. a. It is contemplated by the parties hereto that the construction of this State Highway Project will begin on or about the ___ day of _____, ____.

b. Based on the best information available at the present time to the COMPANY, indicate applicable paragraph below:

Materials are available and it is expected that work will be complete prior to highway construction.

All work will take place during highway construction and arrangements for said work will be coordinated with highway construction operations at preconstruction conference.

Work will begin promptly upon notification by DEPARTMENT; however, it is not expected to be complete prior to highway construction. Any remaining work will be coordinated with highway construction operations at preconstruction conference.

Other (Specify)



8. That the method used by the COMPANY in developing the relocation costs shall be as indicated by Paragraph (a), (b), or (c) as follows:

- a. Actual direct and related indirect costs accumulated in accordance with a work order accounting procedure prescribed by the applicable Federal or State regulatory body.
- b. Actual direct and related indirect costs accumulated in accordance with an established accounting procedure developed by the COMPANY and approved by the DEPARTMENT.
- c. On a lump-sum basis where the estimated cost to the DEPARTMENT does not exceed \$100,000.00. Except where unit costs are used and approved, the estimate shall show such details as man-hours by class and rate; equipment charges by type, size, and rate; materials and supplies by items and price; and payroll additives and other overhead factors.

9. Indicate if (a) or (b) is applicable:

- a. That the replacement facility is not of greater functional capacity or capability than the one it replaces, and includes no COMPANY betterments.
- b. That the replacement facility involves COMPANY betterments, or is of greater functional capacity or capability than the one it replaces.

10. That the total estimated cost of the work proposed herein, including all cost to the DEPARTMENT and COMPANY less any credit for salvage, is estimated to be -----

\$ 31,919.50

The estimated non-betterment cost to the DEPARTMENT, including all cost less any credits for salvage, betterments, accrued depreciation and additional work done by the COMPANY will be -----

\$ 31,919.50

The estimated cost to the COMPANY including betterments, and any additional work done by the COMPANY will be -----

\$ 0.00

DS
DK

(The above costs shall be supported by attached estimate and plans)

11. That in the event it is determined there are changes in the scope of work, extra work, or major changes from the statement of work covered by this agreement, reimbursement shall be limited to costs covered by a modification of this agreement or a written change or extra work order approved by the DEPARTMENT.

12. Periodic progress billings of incurred costs may be made by COMPANY to the DEPARTMENT not to exceed monthly intervals; however, total progress billing payments shall not exceed 95% of the approved non-betterment estimate. Progress billing forms may be obtained from the Area Utility Agent.

13. One final and detailed complete billing of all cost shall be made by COMPANY to the DEPARTMENT at the earliest practicable date after completion of work and in any event within six months after completion of work. The statement of final billing shall follow as closely as possible the order of the items in the estimate portion of this agreement.

14. That the DEPARTMENT shall have the right to inspect all books, records, accounts and other documents of the COMPANY pertaining to the work performed by it under this agreement at any time after work begins and for a period of 3 years from the date final payment has been received by the COMPANY.

15. That the COMPANY obligates itself to erect, service and maintain the facilities to be retained and installed over and along the highway within the DEPARTMENT right of way limits in accordance with the mandate of the Statute and such other laws, rules, and regulations as have been or may be validly enacted or adopted, now or hereafter.

16. That if, in the future, it becomes necessary due to highway construction or improvement to adjust or relocate utilities covered in this agreement being relocated at DEPARTMENT expense that are crossing or otherwise occupying highway right of way, the non-betterment cost of same will be that of the DEPARTMENT.

17. That if, at any time, the DEPARTMENT shall require the relocation of or changes in the location of the encroaching facilities covered in this agreement being relocated at COMPANY expense, the COMPANY binds itself, its successors and assigns, to promptly relocate or alter the facilities, in order to conform to the said requirements, without any cost to the DEPARTMENT.

18. That the COMPANY agrees to relinquish their rights in that portion of right of way vacated by their existing facilities now absorbed within DEPARTMENT right of way.

19. Proper temporary and permanent measures shall be used to control erosion and sedimentation in accordance with all local, State and Federal regulations.

20. The COMPANY agrees to comply with the environmental rules and regulations of the State of North Carolina. Violation to the NC Sedimentation Pollution Control Act, Clean Water Act, NC Coastal Management Act, or other environmental commitment outlined in the project permits may result in work stoppage, penalties and/or construction delays.

21. The COMPANY agrees to comply with Buy America. United States Codes (USC) 313 and Code of Federal Regulations 23 CFR 635.410: Requires the use of domestic steel and iron in all federally funded construction projects.

IN WITNESS WHEREOF, the parties hereby have affixed their names by their duly authorized officers the day and year first above written.

DEPARTMENT OF TRANSPORTATION

DocuSigned by:
David Kramer
BY: B6D01D62292146C...
~~AREA UTILITY AGENT~~
Division Utility Engineer

ATTEST OR WITNESS

witness signature below

(TITLE)

Greenville Utilities Commission
(NAME OF COMPANY)

BY: Gray Clemens

TITLE: General Manager / CEO

Approved as to Form
[Signature]
Philip A. Dixon
General Counsel

Pre-Audit Certificate
This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.
[Signature]
Finance Officer

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

Appendix C: Template Utility Engineering Agreement

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UTILITY PRELIMINARY ENGINEERING AGREEMENT (PAYABLE)

WBS ELEMENT: _____

TRANSPORTATION IMPROVEMENT PROGRAM NO.: _____

COUNTY: _____

This agreement made this _____ day of _____, _____, by and

between the Department of Transportation, an agency of the State of North

Carolina, hereinafter referred to as the DEPARTMENT, and _____

_____ hereinafter referred to as the COMPANY:

WITNESSETH:

THAT WHEREAS, the DEPARTMENT will submit a project for construction as follows:

known as route _____ in _____ County, North Carolina to be designated as N.C. State Highway Project and/or WBS Element _____ and,

WHEREAS, the construction of said project will require certain engineering of plans for adjustments to be made to the existing facilities of the COMPANY;

NOW, THEREFORE, in order to facilitate the orderly and expeditious relocation of the said facilities of COMPANY, the DEPARTMENT and the COMPANY have agreed as follows:

1. That the DEPARTMENT has agreed to reimburse the COMPANY for preliminary engineering charges associated with certain adjustments to be made to the existing facilities of the COMPANY.

2. That any work performed under this agreement shall comply with DEPARTMENT's "POLICIES AND PROCEDURES FOR ACCOMMODATING UTILITIES ON HIGHWAY RIGHTS OF WAY" dated January 1, 1975, and such amendments thereto as may be in effect at the date of this agreement. The work to be performed by the COMPANY shall conform with Federal Highway Administration's Federal-Aid Policy Guide, Subchapter G, Part 645, Subpart A hereinafter referred to as FAPG dated December 9, 1991, and such amendments

thereto as may be in effect at the date of this agreement. The provisions of said FAPG and amendments thereto are incorporated in this agreement by reference as fully as if herein set out. Any work performed under this agreement not in compliance with FAPG shall constitute unauthorized work and the DEPARTMENT shall be relieved of participating in the costs of such unauthorized work unless such work is done pursuant to a supplemental agreement attached to and made a part hereof.

3. That the COMPANY or COMPANY Engineering firm will prepare an estimate, broken down as to estimated cost of preliminary engineering, overhead rate, job classification pay rate, indirect cost rates, cost of capital rate and estimated man-day hours all in sufficient detail to provide the DEPARTMENT a reasonable basis for analysis. The before mentioned estimate is attached hereto and made a part hereof. The DEPARTMENT will not reimburse the COMPANY for any preliminary engineering not necessitated by the construction of the highway project, nor for changes made solely for the benefit or convenience of the COMPANY.

4. That payment for all work done hereunder shall be made in accordance with the requirements of FAPG unless payment is being made pursuant to a supplemental agreement attached to and made a part of this agreement.

5. That the preliminary engineering work provided for in this agreement will be performed by the method or methods as specified below:

BY COMPANY'S REGULAR FORCE: The COMPANY proposes to use its regular personnel at its standard schedule of wages and working hours in accordance with the terms of its agreement with such employees.

BY EXISTING WRITTEN CONTINUING CONTRACT: The COMPANY proposes to use an existing written continuing contract under which certain work as shown by the COMPANY's estimate is regularly performed for the COMPANY and under which the lowest available costs are developed. The COMPANY shall submit a copy of the continuing contract (including rates) to the DEPARTMENT for review and approval.

BY CONTRACT: The COMPANY does not have adequate staff to perform the necessary engineering design with its own forces. The COMPANY submits to DEPARTMENT a draft advertisement for review and approval, and in accordance with NC General Statute 143-64.31 and 23 CFR 172, will select firms qualified to provide such service on the basis of demonstrated competence and qualification for the type of professional services and to negotiate a contract for those services at a fair and reasonable fee with the best qualified firm. The COMPANY shall submit overhead rates to the DEPARTMENT for review and approval in accordance with DEPARTMENT audit requirements. Refer to DEPARTMENT requirements at the following site:

<https://connect.ncdot.gov/projects/Roadway/Private%20Engineering%20Firm%20Resources/NC DOT%20Audit%20Requirements%20Fiscal%20Form.pdf>

6. a. It is contemplated by the parties hereto that the construction of this State Highway Project will begin on or about the _____

b. Based on the best information available at the present time to the COMPANY, indicate applicable paragraph below:

- Preliminary Engineering will be complete allowing adequate time for materials and completion of certain adjustments prior to highway construction.
- Preliminary Engineering will be complete prior to highway construction; however, certain adjustments are not expected to be complete prior to highway construction.
- Other (Specify)

7. Indicate if (a) or (b) is applicable:

- a. That preliminary engineering is for the adjustments of existing facilities in conflict with said project.
- b. That the preliminary engineering involves COMPANY's request for new facilities in addition to adjustments of existing facilities in conflict with said project.

8. That the total estimated cost of the preliminary engineering proposed herein, including all cost to the DEPARTMENT and COMPANY, is estimated to be----- \$ _____

The estimated preliminary engineering cost to the DEPARTMENT, including all cost less any preliminary engineering for new facilities requested by the COMPANY.----- \$ _____

The estimated cost to the COMPANY for any additional preliminary engineering charges for new facilities requested by the COMPANY will be----- \$ _____

(The above costs shall be supported by attached estimate)

9. That in the event it is determined there are changes in the scope of work, extra work, or major changes from the statement of work covered by this agreement, reimbursement shall be limited to costs covered by a modification of this agreement or a written change or extra work order approved by the DEPARTMENT.

10. Periodic progress billings of incurred costs may be made by COMPANY to the DEPARTMENT not to exceed monthly intervals; however, total progress billing payments shall not exceed 95% of the approved non-betterment estimate. Progress billing forms may be obtained from the Area Utility Agent. One final and detailed complete billing of all costs shall be made by COMPANY to the DEPARTMENT at the earliest practicable date after completion of work and in any event within 6 months after completion of work. The statement of final billing shall

follow as closely as possible the order of the items in the estimate portion of this agreement.

11. That the DEPARTMENT shall have the right to inspect all books, records, accounts and other documents of the COMPANY pertaining to the work performed by it under this agreement at any time after work begins and for a period of 3 years from the date final payment has been received by the COMPANY.

12. That in the future, the DEPARTMENT submits a project for construction to be designated with a different NC State Highway Project number and/or WBS element than stated in this agreement and it becomes necessary due to highway construction or improvement to adjust or relocate utilities covered under this agreement, the DEPARTMENT does not obligate itself to participate in future payments for preliminary engineering.

IN WITNESS WHEREOF, the parties hereby have affixed their names by their duly authorized officers the day and year first above written.

DEPARTMENT OF TRANSPORTATION

BY: _____

TITLE: _____

ATTEST OR WITNESS

(NAME OF COMPANY)

BY: _____

BY: _____

TITLE: _____

TITLE: _____

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

Appendix D: Sample Utility Relocation Plan

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NOTE:
 ALL UTILITY WORK SHOWN ON THIS SHEET IS DONE BY OTHERS.
 NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

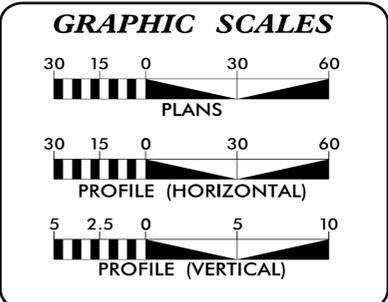
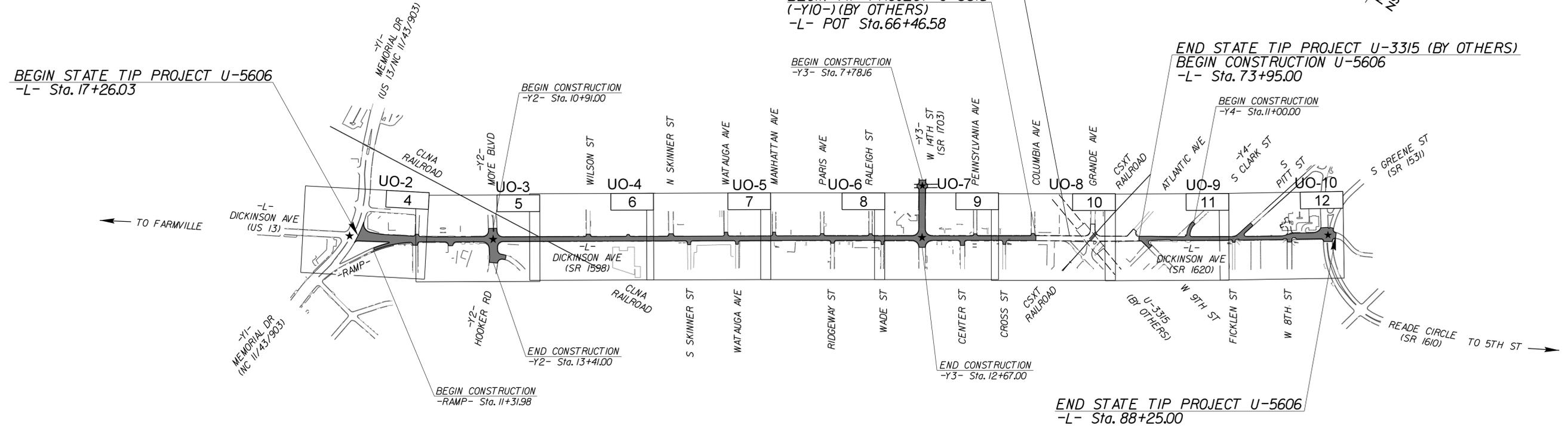
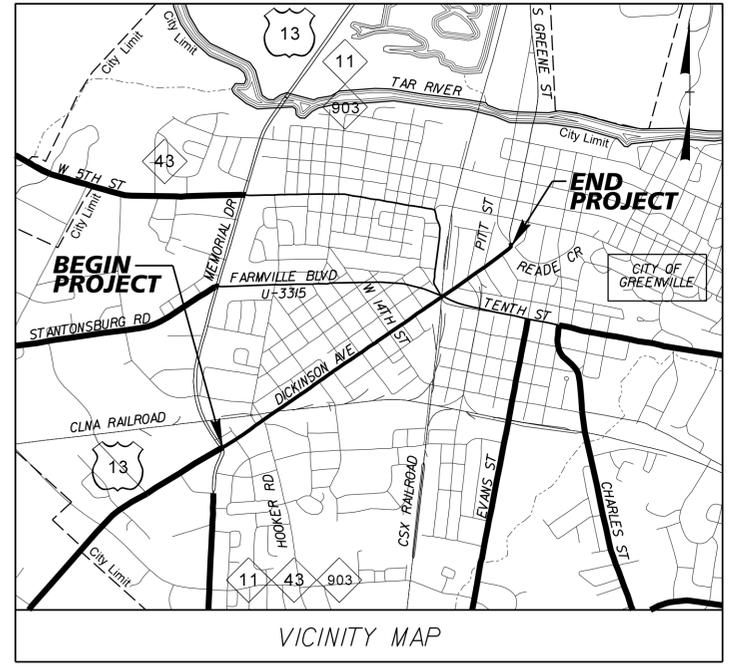
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS
 PITT COUNTY**

LOCATION: SR 1598/SR 1620 (DICKINSON AVENUE) - FROM NC 11 (MEMORIAL DRIVE) TO SR 1610 (READE CIRCLE)

TYPE OF WORK: POWER DISTRIBUTION, GAS, TELEPHONE & CATV RELOCATION

TIP PROJECT: U-5606



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO-1	TITLE SHEET
UO-2 THRU UO-10	UBO PLAN SHEETS

- UTILITY OWNERS WITH CONFLICTS**
- (A) POWER - GREENVILLE UTILITIES COMMISSION
 - (B) GAS - GREENVILLE UTILITIES COMMISSION
 - (C) TELEPHONE - CENTURYLINK
 - (D) TELEPHONE - CONTERRA NETWORKS
 - (E) TELEPHONE - CROWN CASTLE FIBER
 - (F) CATV - SUDDENLINK

PREPARED IN THE OFFICE OF:

CH ENGINEERING

3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

UTILITIES PROJECT ENGINEER
 Mary Jo Lee, P.E.

**DIVISION OF HIGHWAYS
 UTILITIES UNIT**
 1555 MAIL SERVICES CENTER
 RALEIGH, NC 27699-1555
 PHONE (919) 707-6690
 FAX (919) 250-4151

NABIL HAMDAN	UTILITIES REGIONAL ENGINEER
VACANT	UTILITIES ENGINEER
VACANT	UTILITIES ENGINEER
DAYTON MARTIN	REG. UTILITIES COORDINATOR

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

-L-
 PI Sta 22+35.26
 $\Delta = 3' 21' 08.7" (LT)$
 $D = 1' 38' 13.3"$
 $L = 204.79'$
 $T = 102.42'$
 $R = 3,500.00'$
 SE = SEE PLANS
 RO = SEE PLANS

-YI-
 PI Sta 18+66.67
 $\Delta = 43' 31' 23.9" (RT)$
 $D = 7' 00' 00.0"$
 $L = 621.76'$
 $T = 326.75'$
 $R = 818.51'$
 SE = EXISTING
 RO = EXISTING

-RAMP-
 PI Sta 12+83.37
 $\Delta = 28' 58' 33.3" (RT)$
 $D = 7' 12' 25.3"$
 $L = 402.05'$
 $T = 205.42'$
 $R = 795.00'$
 SE = EXISTING
 RO = EXISTING

BEGIN TIP PROJECT U-5606
 BEGIN CONSTRUCTION
 -L- POT Sta. 17+26.03

-L- POT Sta. 16+82.31 =
 -YI- POC Sta. 19+12.05
 $\Delta = 114' 25' 52.69"$

GUC (GAS)

GUC (ELEC)

GUC (ELEC)
 RETAINED

CENTURYLINK
 RETAINED

DICKINSON AVE (US 13)
 $N 58' 25' 04.2" E$

DICKINSON AVE (SR 1598)
 $N 58' 25' 04.2" E$

CENTURYLINK
 RETAINED

GUC (GAS)
 ABANDONED EXISTING
 4" STEEL GAS LINE

GUC (ELEC)
 SL = STREETLIGHT

GUC (ELEC)
 RETAINED

GUC (GAS)



8/17/99

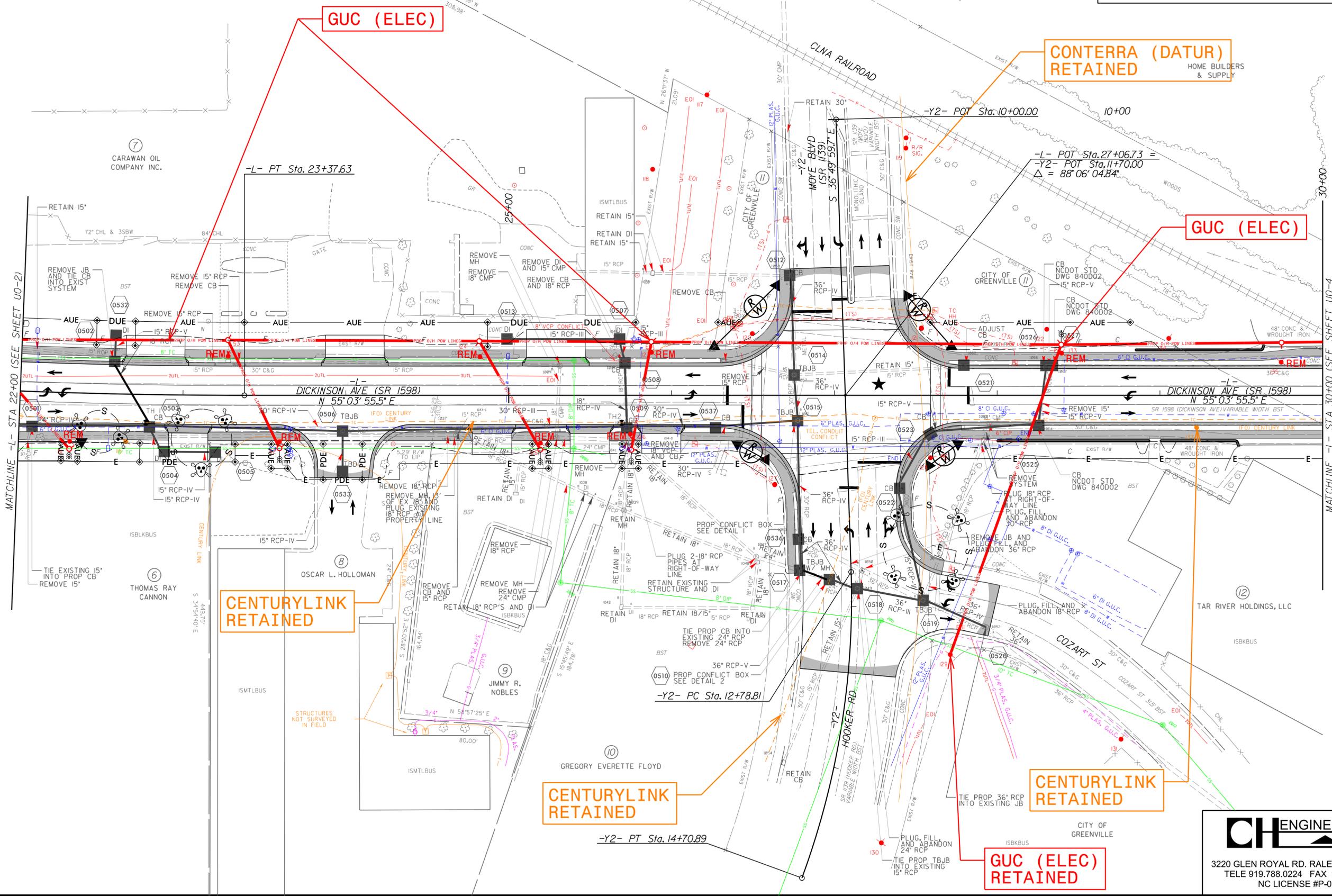
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MATCHLINE -L- STA 22+00 (SEE SHEET U0-3)

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

-L-	-Y2-
PI Sta. 22+35.26	PI Sta. 13+76.05
$\Delta = 3^\circ 21' 08.7" (LT)$	$\Delta = 22^\circ 00' 37.0" (RT)$
$D = 1^\circ 38' 13.3"$	$D = 1^\circ 27' 33.0"$
$L = 204.79'$	$L = 192.08'$
$T = 102.42'$	$T = 97.24'$
$R = 3,500.00'$	$R = 500.00'$
SE = SEE PLANS	SE = EXISTING
RO = SEE PLANS	RO = EXISTING



**CENTURYLINK
RETAINED**

**CENTURYLINK
RETAINED**

**GUC (ELEC)
RETAINED**

**CENTURYLINK
RETAINED**

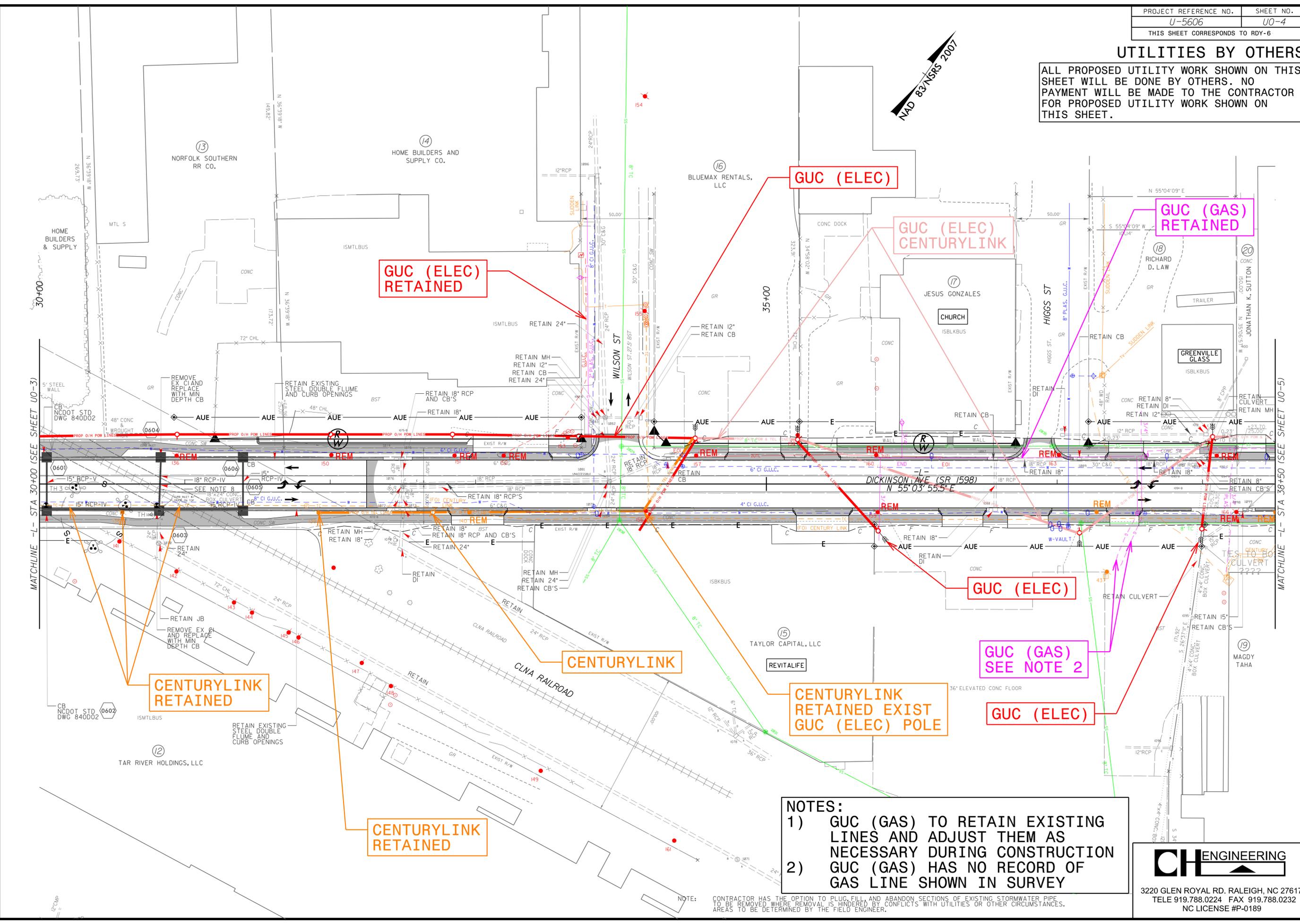


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 NC LICENSE #P-0189

8/17/99
 4/6/2021
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UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.



- NOTES:**
- 1) GUC (GAS) TO RETAIN EXISTING LINES AND ADJUST THEM AS NECESSARY DURING CONSTRUCTION
 - 2) GUC (GAS) HAS NO RECORD OF GAS LINE SHOWN IN SURVEY

NOTE: CONTRACTOR HAS THE OPTION TO PLUG, FILL, AND ABANDON SECTIONS OF EXISTING STORMWATER PIPE TO BE REMOVED WHERE REMOVAL IS HINDERED BY CONFLICTS WITH UTILITIES OR OTHER CIRCUMSTANCES. AREAS TO BE DETERMINED BY THE FIELD ENGINEER.

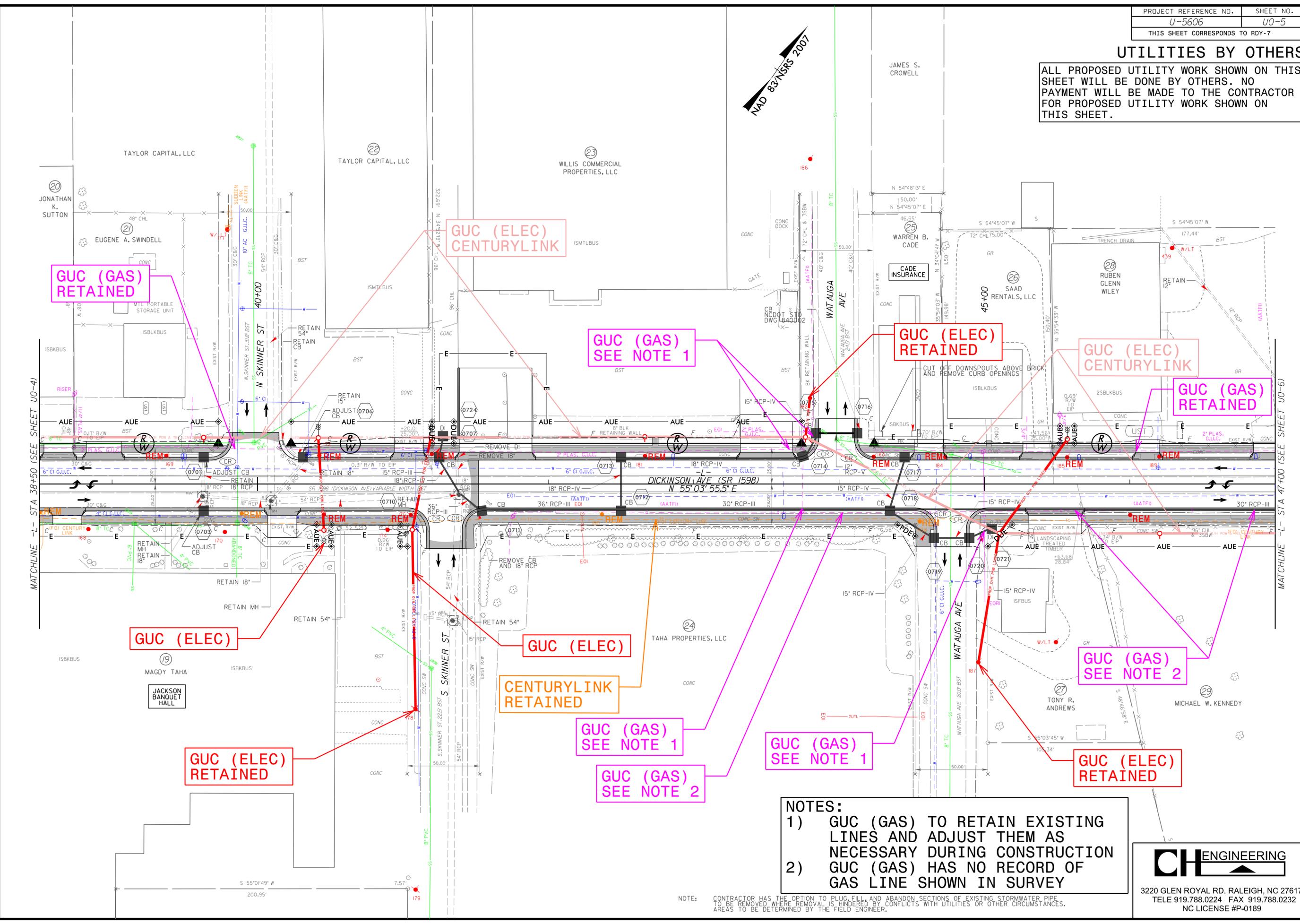


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 IN-SERIAL

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.



- NOTES:**
- 1) GUC (GAS) TO RETAIN EXISTING LINES AND ADJUST THEM AS NECESSARY DURING CONSTRUCTION
 - 2) GUC (GAS) HAS NO RECORD OF GAS LINE SHOWN IN SURVEY

NOTE: CONTRACTOR HAS THE OPTION TO PLUG, FILL, AND ABANDON SECTIONS OF EXISTING STORMWATER PIPE TO BE REMOVED WHERE REMOVAL IS HINDERED BY CONFLICTS WITH UTILITIES OR OTHER CIRCUMSTANCES. AREAS TO BE DETERMINED BY THE FIELD ENGINEER.

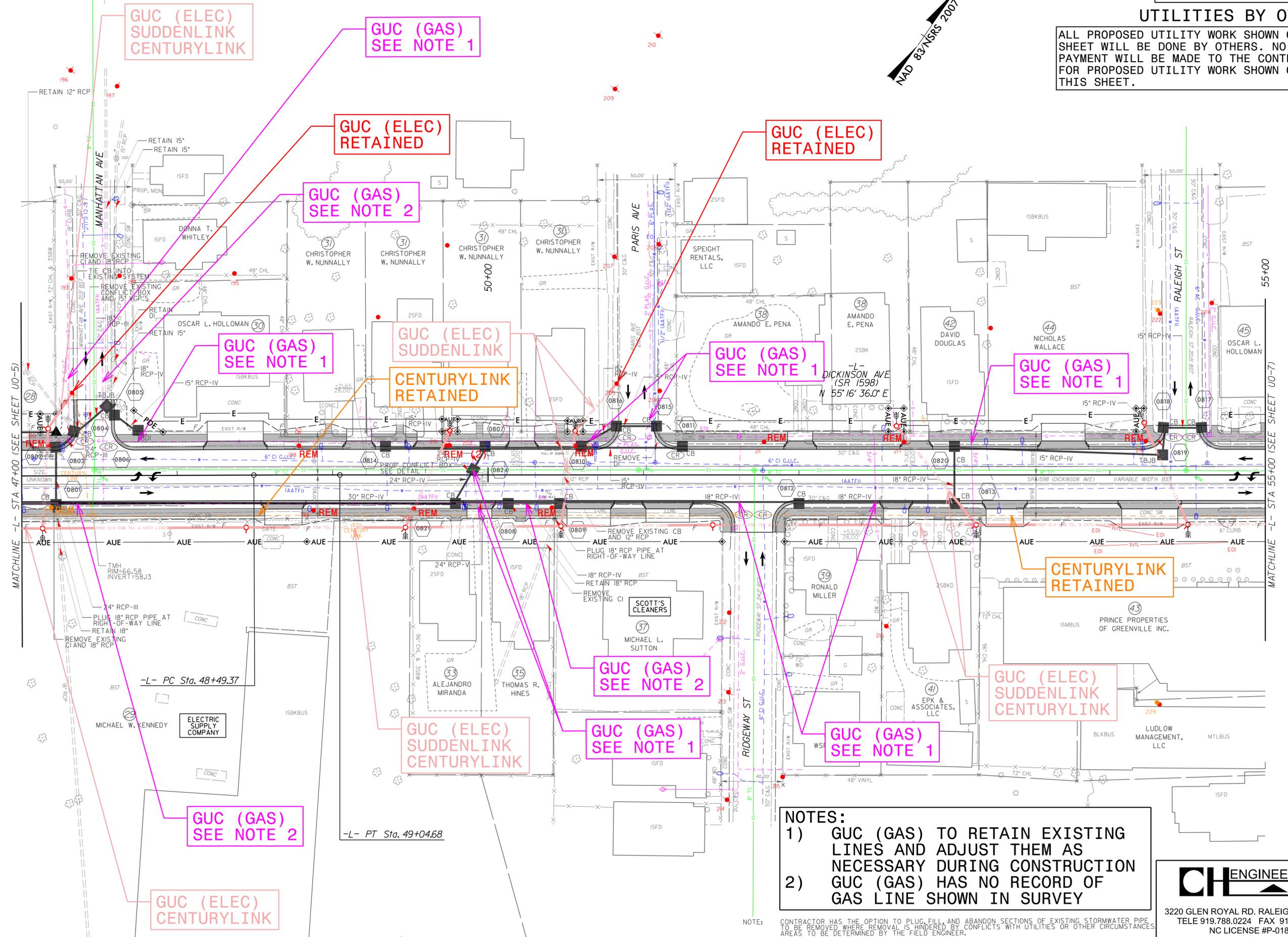


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 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

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 IN-SURVEY

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.



- NOTES:**
- 1) GUC (GAS) TO RETAIN EXISTING LINES AND ADJUST THEM AS NECESSARY DURING CONSTRUCTION
 - 2) GUC (GAS) HAS NO RECORD OF GAS LINE SHOWN IN SURVEY

NOTE: CONTRACTOR HAS THE OPTION TO PLUG, FILL, AND ABANDON SECTIONS OF EXISTING STORMWATER PIPE TO BE REMOVED WHERE REMOVAL IS HINDERED BY CONFLICTS WITH UTILITIES OR OTHER CIRCUMSTANCES AREAS TO BE DETERMINED BY THE FIELD ENGINEER.



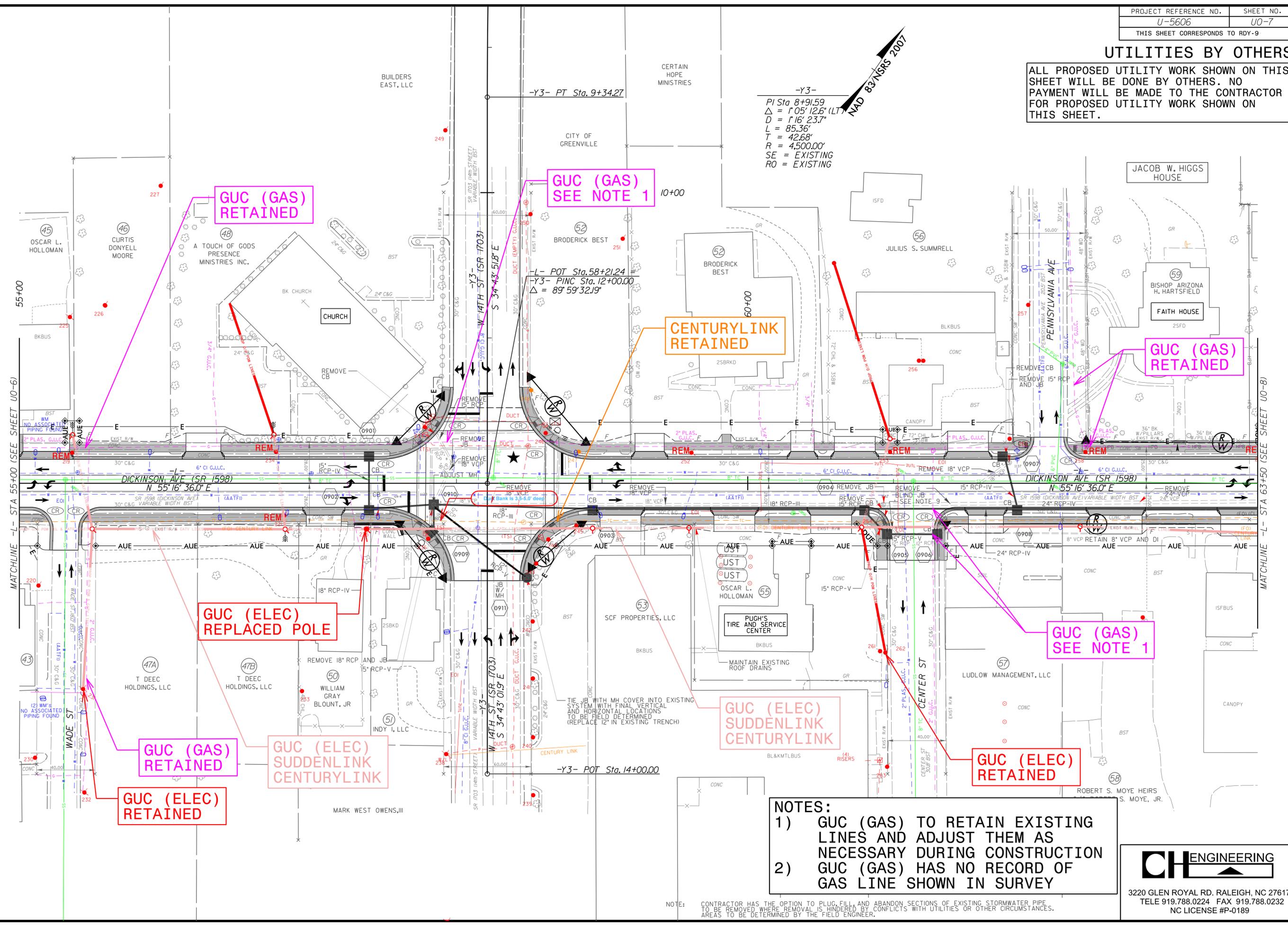
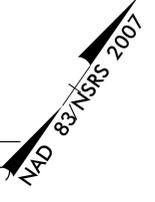
3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

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UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

-Y3-
 PI Sta 8+91.59
 $\Delta = 1'05''12.6''$ (LT)
 $D = 1'16''23.7''$
 $L = 85.36'$
 $T = 42.68'$
 $R = 4,500.00'$
 SE = EXISTING
 RO = EXISTING



GUC (GAS) RETAINED

GUC (GAS) SEE NOTE 1

CENTURYLINK RETAINED

GUC (GAS) RETAINED

GUC (ELEC) REPLACED POLE

GUC (GAS) SEE NOTE 1

GUC (GAS) RETAINED

GUC (ELEC) SUDDENLINK CENTURYLINK

GUC (ELEC) SUDDENLINK CENTURYLINK

GUC (ELEC) RETAINED

- NOTES:**
- 1) GUC (GAS) TO RETAIN EXISTING LINES AND ADJUST THEM AS NECESSARY DURING CONSTRUCTION
 - 2) GUC (GAS) HAS NO RECORD OF GAS LINE SHOWN IN SURVEY

NOTE: CONTRACTOR HAS THE OPTION TO PLUG, FILL, AND ABANDON SECTIONS OF EXISTING STORMWATER PIPE TO BE REMOVED WHERE REMOVAL IS HINDERED BY CONFLICTS WITH UTILITIES OR OTHER CIRCUMSTANCES. AREAS TO BE DETERMINED BY THE FIELD ENGINEER.



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 NC LICENSE #P-0189

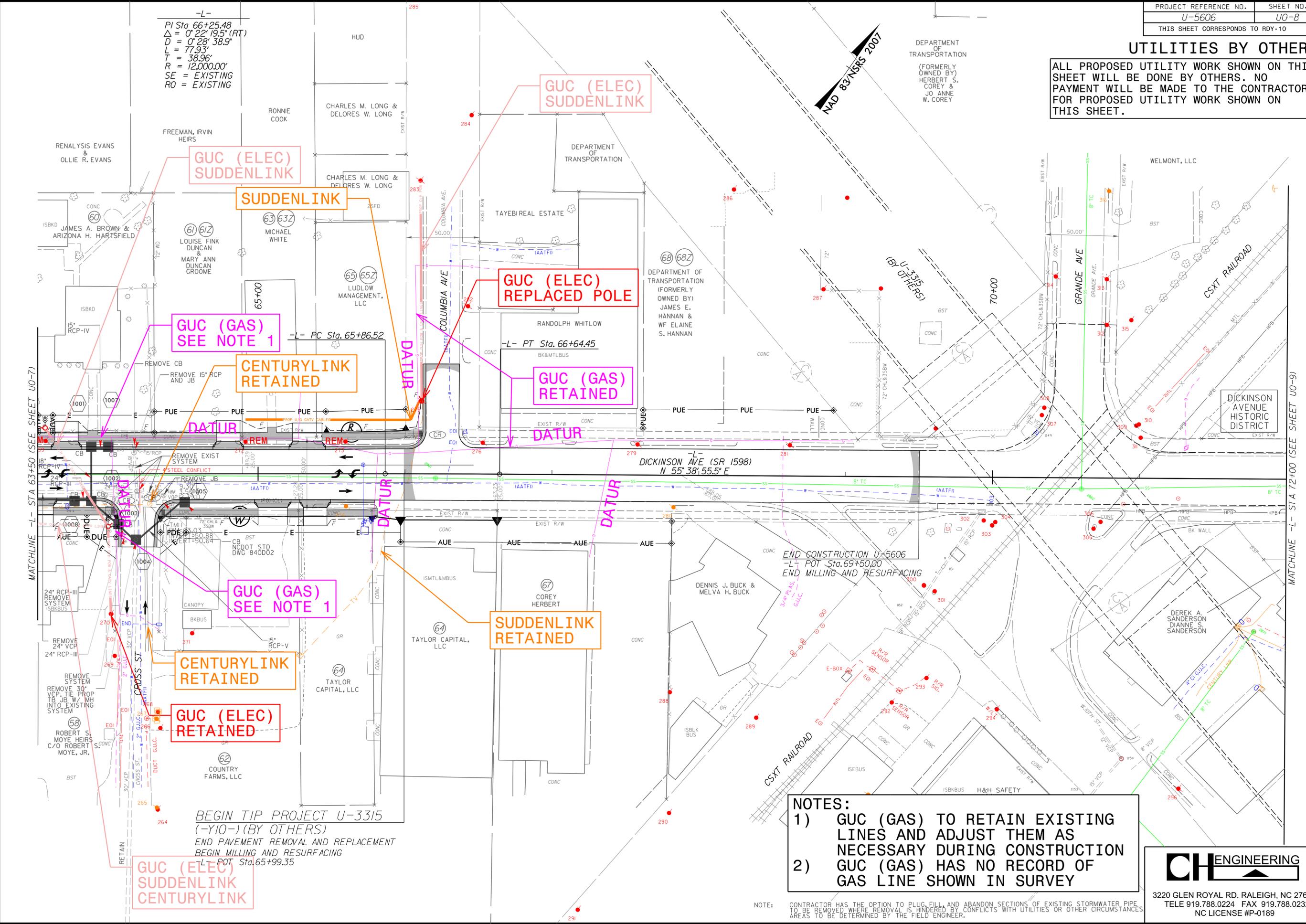
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UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

DEPARTMENT OF TRANSPORTATION
(FORMERLY OWNED BY HERBERT S. COREY & JO ANNE W. COREY)



-L-
PI Sta 66+25.48
 $\Delta = 0^\circ 22' 19.5''$ (RT)
 $D = 0' 28' 38.9''$
 $L = 77.93'$
 $R = 38.96'$
 $R = 12,000.00'$
SE = EXISTING
RO = EXISTING

MATCHLINE -L- STA 63+50 (SEE SHEET U0-7)

MATCHLINE -L- STA 72+00 (SEE SHEET U0-9)

NOTES:
1) GUC (GAS) TO RETAIN EXISTING LINES AND ADJUST THEM AS NECESSARY DURING CONSTRUCTION
2) GUC (GAS) HAS NO RECORD OF GAS LINE SHOWN IN SURVEY

NOTE: CONTRACTOR HAS THE OPTION TO PLUG, FILL, AND ABANDON SECTIONS OF EXISTING STORMWATER PIPE TO BE REMOVED WHERE REMOVAL IS HINDERED BY CONFLICTS WITH UTILITIES OR OTHER CIRCUMSTANCES AREAS TO BE DETERMINED BY THE FIELD ENGINEER.



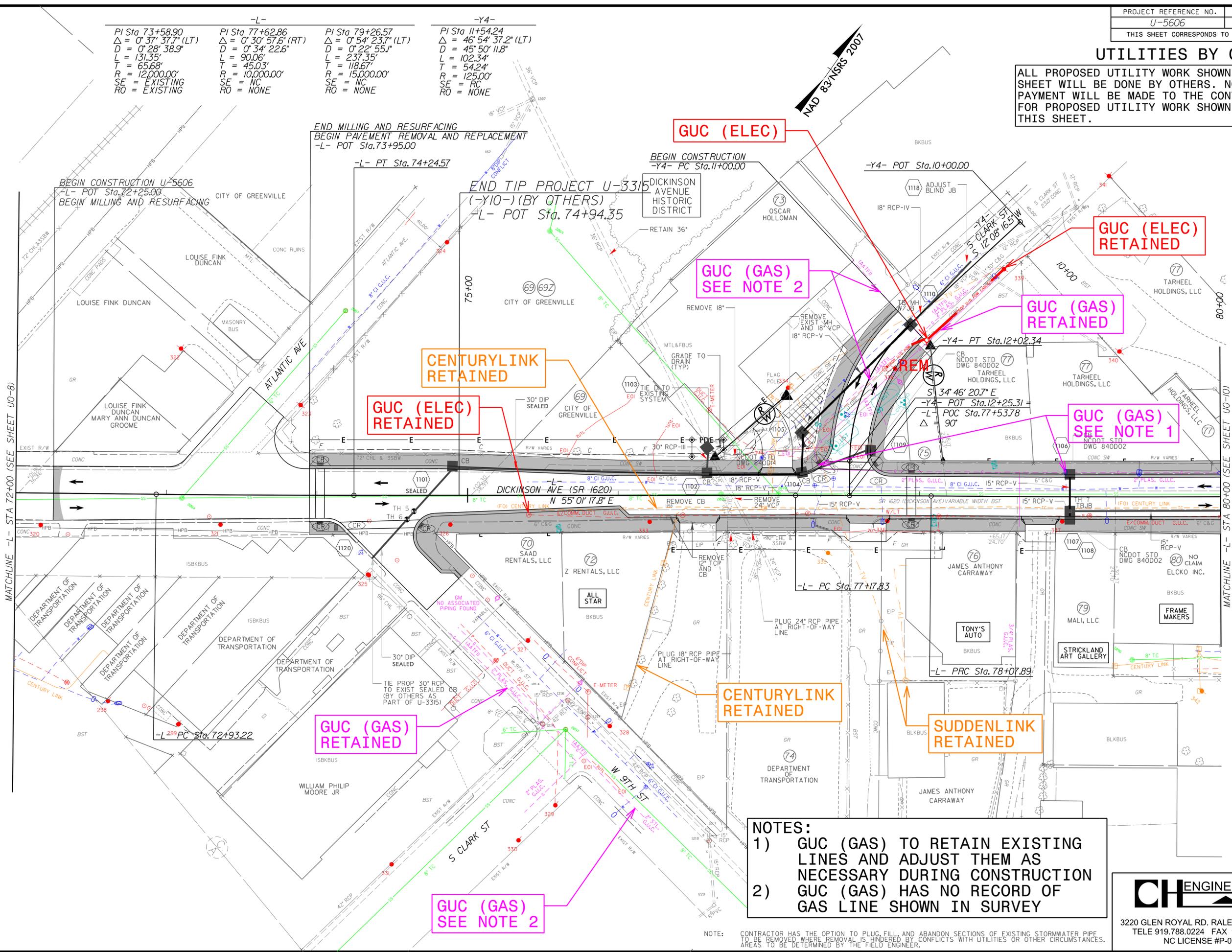
3220 GLEN ROYAL RD. RALEIGH, NC 27617
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NC LICENSE #P-0189

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UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

-L-	-L-	-L-	-Y4-
PI Sta 73+58.90	PI Sta 77+62.86	PI Sta 79+26.57	PI Sta 11+54.24
$\Delta = 0^{\circ} 37' 37.7''$ (LT)	$\Delta = 0^{\circ} 30' 57.6''$ (RT)	$\Delta = 0^{\circ} 54' 23.7''$ (LT)	$\Delta = 46^{\circ} 54' 37.2''$ (LT)
D = 0' 28' 38.9"	D = 0' 34' 22.6"	D = 0' 22' 55.1"	D = 45' 50' 11.8"
L = 131.35'	L = 90.06'	L = 237.35'	L = 102.34'
T = 65.68'	T = 45.03'	T = 118.67'	T = 54.24'
R = 12,000.00'	R = 10,000.00'	R = 15,000.00'	R = 125.00'
SE = EXISTING	SE = NC	SE = NC	SE = RC
RO = EXISTING	RO = NONE	RO = NONE	RO = NONE



CENTURYLINK RETAINED

GUC (ELEC) RETAINED

GUC (ELEC)

GUC (GAS) SEE NOTE 2

GUC (ELEC) RETAINED

GUC (GAS) RETAINED

GUC (GAS) SEE NOTE 1

GUC (GAS) RETAINED

CENTURYLINK RETAINED

SUDDENLINK RETAINED

GUC (GAS) SEE NOTE 2

- NOTES:**
- 1) GUC (GAS) TO RETAIN EXISTING LINES AND ADJUST THEM AS NECESSARY DURING CONSTRUCTION
 - 2) GUC (GAS) HAS NO RECORD OF GAS LINE SHOWN IN SURVEY

NOTE: CONTRACTOR HAS THE OPTION TO PLUG, FILL, AND ABANDON SECTIONS OF EXISTING STORMWATER PIPE TO BE REMOVED WHERE REMOVAL IS HINDERED BY CONFLICTS WITH UTILITIES OR OTHER CIRCUMSTANCES. AREAS TO BE DETERMINED BY THE FIELD ENGINEER.



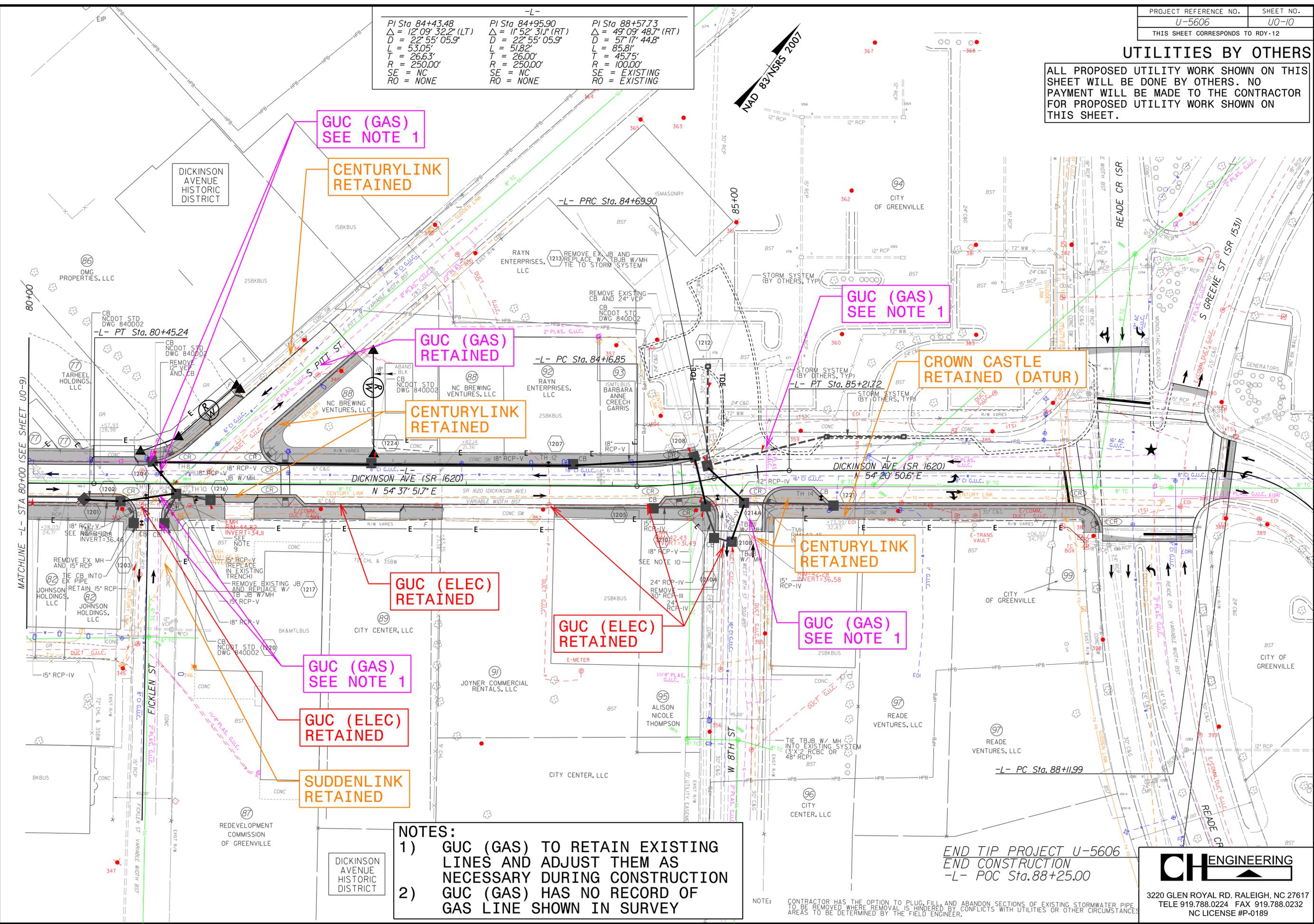
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UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

-L-		
PI Sta 84+43.48	PI Sta 84+95.90	PI Sta 88+57.73
$\Delta = 12^{\circ}09'32.2"$ (LT)	$\Delta = 11^{\circ}52'31.1"$ (RT)	$\Delta = 49^{\circ}09'48.7"$ (RT)
D = 22'55'05.9"	D = 22'55'05.9"	D = 57'17'44.8"
L = 53.05'	L = 51.82'	L = 85.81'
T = 26.63'	T = 26.00'	T = 45.75'
R = 250.00'	R = 250.00'	R = 100.00'
SE = NC	SE = NC	SE = EXISTING
RO = NONE	RO = NONE	RO = EXISTING



NOTES:
 1) GUC (GAS) TO RETAIN EXISTING LINES AND ADJUST THEM AS NECESSARY DURING CONSTRUCTION
 2) GUC (GAS) HAS NO RECORD OF GAS LINE SHOWN IN SURVEY

END TIP PROJECT U-5606
 END CONSTRUCTION
 -L- POC Sta. 88+25.00



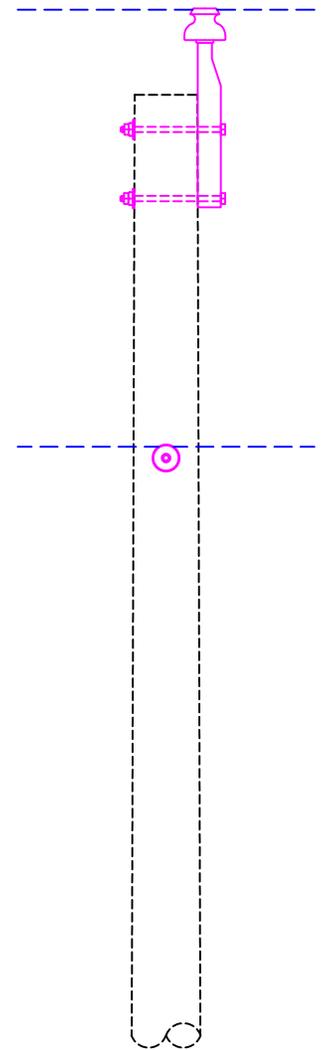
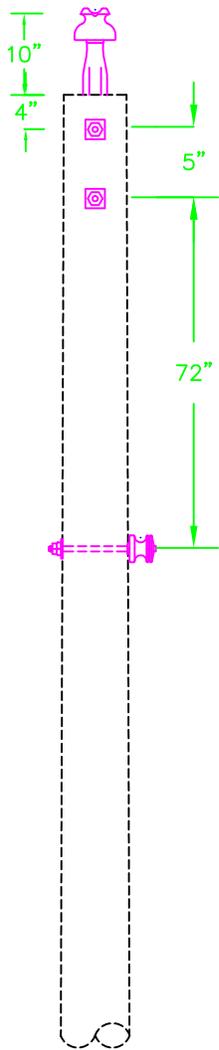
3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

NOTE: CONTRACTOR HAS THE OPTION TO PLUG, FILL, AND ABANDON SECTIONS OF EXISTING STORMWATER PIPE TO BE REMOVED WHERE REMOVAL IS HINDERED BY CONFLICTS WITH UTILITIES OR OTHER CIRCUMSTANCES AREAS TO BE DETERMINED BY THE FIELD ENGINEER.

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 4/6/2021
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 IN-SURVEY

Appendix E: GUC Overhead Construction Standards

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LIST OF MATERIALS

QTY.	DESCRIPTION
1	PIN TYPE INSULATOR
1	18" POLE TOP PIN
2	5/8" X 10" MACHINE BOLT
1	SPOOL INSULATOR
3	2 1/4" SQUARE WASHER
1	5/8" x 10" SPOOL BOLT
1	PREFORMED WRAPLOCK TIE
1	PREFORMED SPOOL TIE

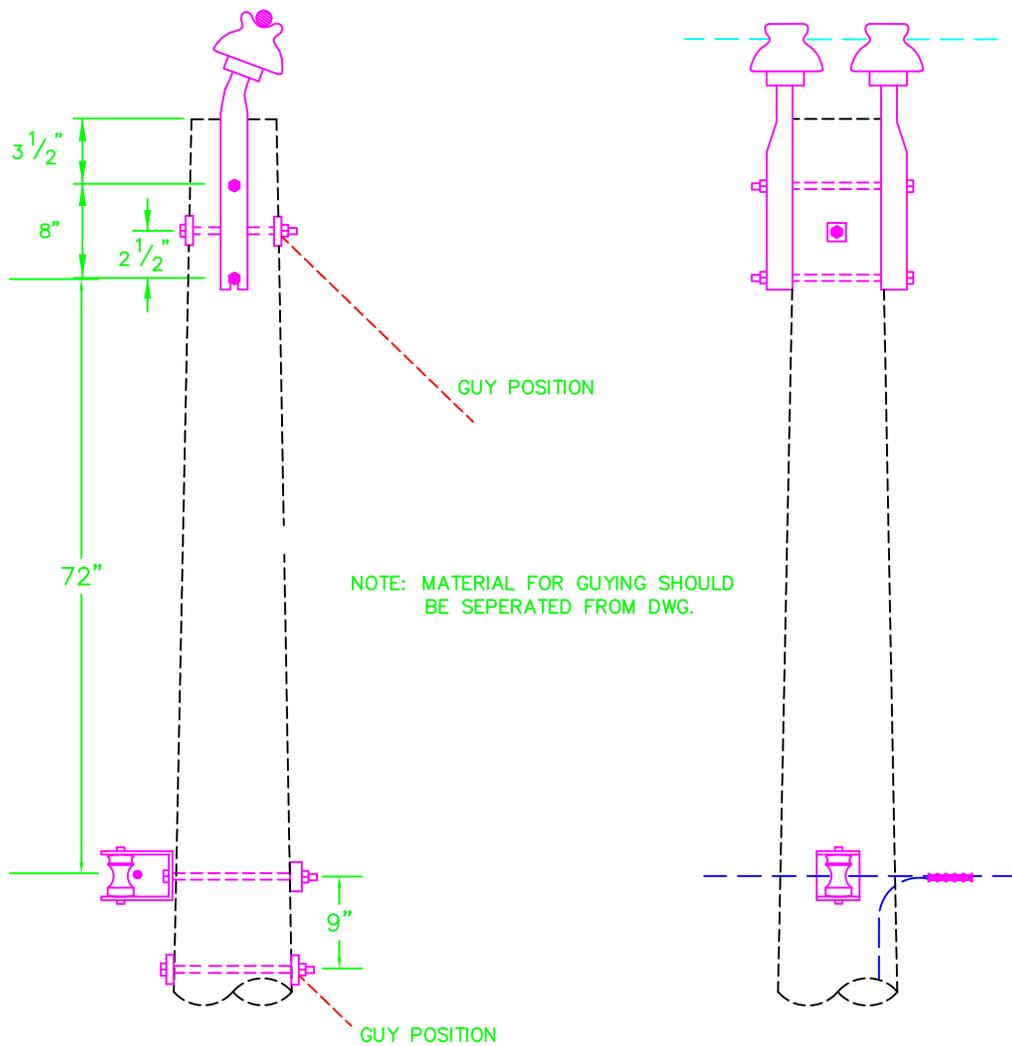
GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA



7.2KV PRIMARY, SINGLE PHASE
SINGLE PRIMARY SUPPORT

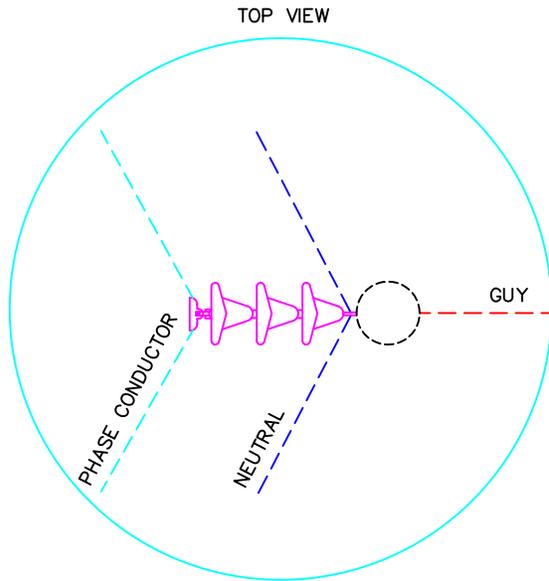
DWN.	RSG	DATE:	9/15/95
CKD.	EGS	APPD.	
SCALE:		NONE	
DATE	REVISION	DATE	REVISION
10/90	1		

DWG. NO.
A1

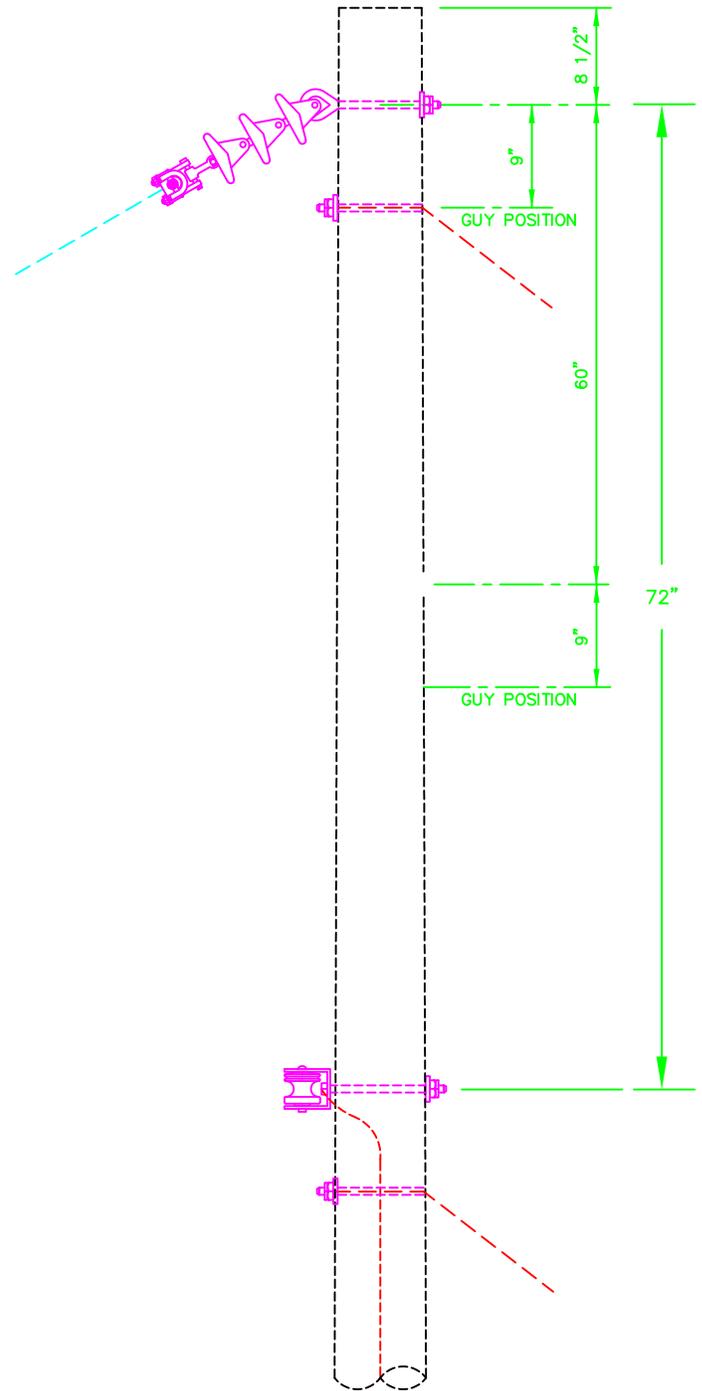


NOTE: LINE ANGLE FOR A DOUBLE-PIN INSULATORS SHOULD BE (1° - 12°)

LIST OF MATERIALS		GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA			
QTY.	DESCRIPTION	 7.2KV SINGLE PHASE, DOUBLE PRIMARY SUPPORT, LIGHT ANGLE STRUCTURE			
3	5/8" x 10" MACHINE BOLTS				
3	2 1/4" SQUARE WASHERS	CKD.	EGS	APPD.	
2	24" ANGLE POLE TOP PINS	SCALE:	NTS	DWG. NO. A2	
2	NO. 77 PIN TYPE INSULATORS	DATE	REVISION		
1	NO. J151 SPOOL INSULATOR				
1	DOUBLE SUPPORT PREFORMED SIDE TIES				
1	PREFORMED SPOOL TIE				
1	NO. 1342 SEC. CLEVIS				



NOTE: ANGLE FOR A SUSPENSION TURN SHOULD BE BETWEEN 13° and 30°



LIST OF MATERIALS

QTY.	DESCRIPTION
*	USE 3/4" EYEBOLT W/795 CONDUCTOR
1	5/8" X 10" EYE BOLT
1	5/8" X 10" MACHINE BOLT
2	P143 CURVED WASHER, 3"
3	SUSPENSION INSULATOR, 6"
1	CONDUCTOR SUSPENSION CLAMP WITH CONNECTING PIECE
1	No. 1342 SECONDARY CLEVIS
1	No. J151 SPOOL INSULATOR
1	PREFORMED SPOOL TIE

GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA

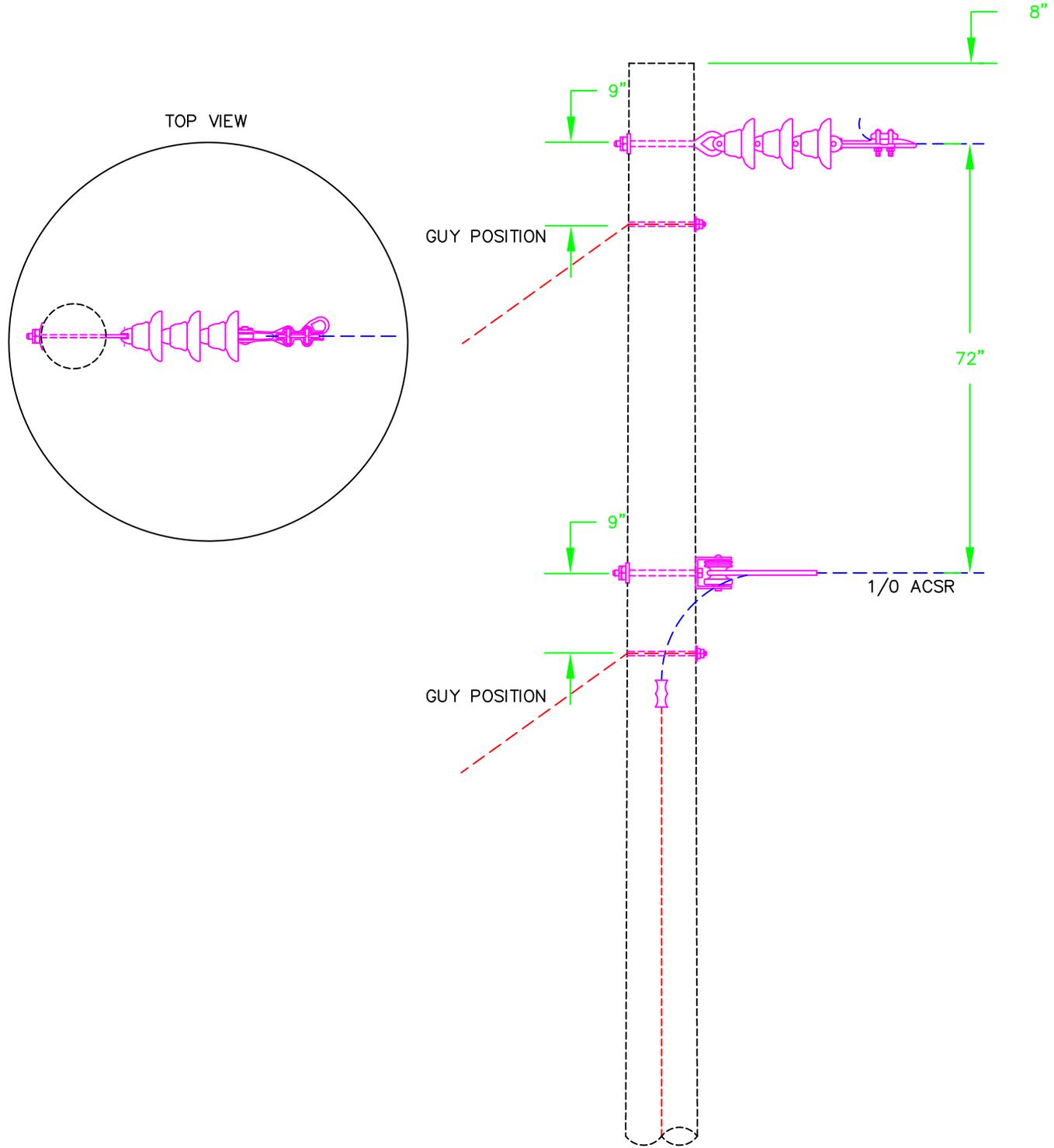


12.5/7.2kv SINGLE PHASE VERTICAL CONSTRUCTION
UNITARY, POLYMER, MEDIUM ANGLE - OR BELLS

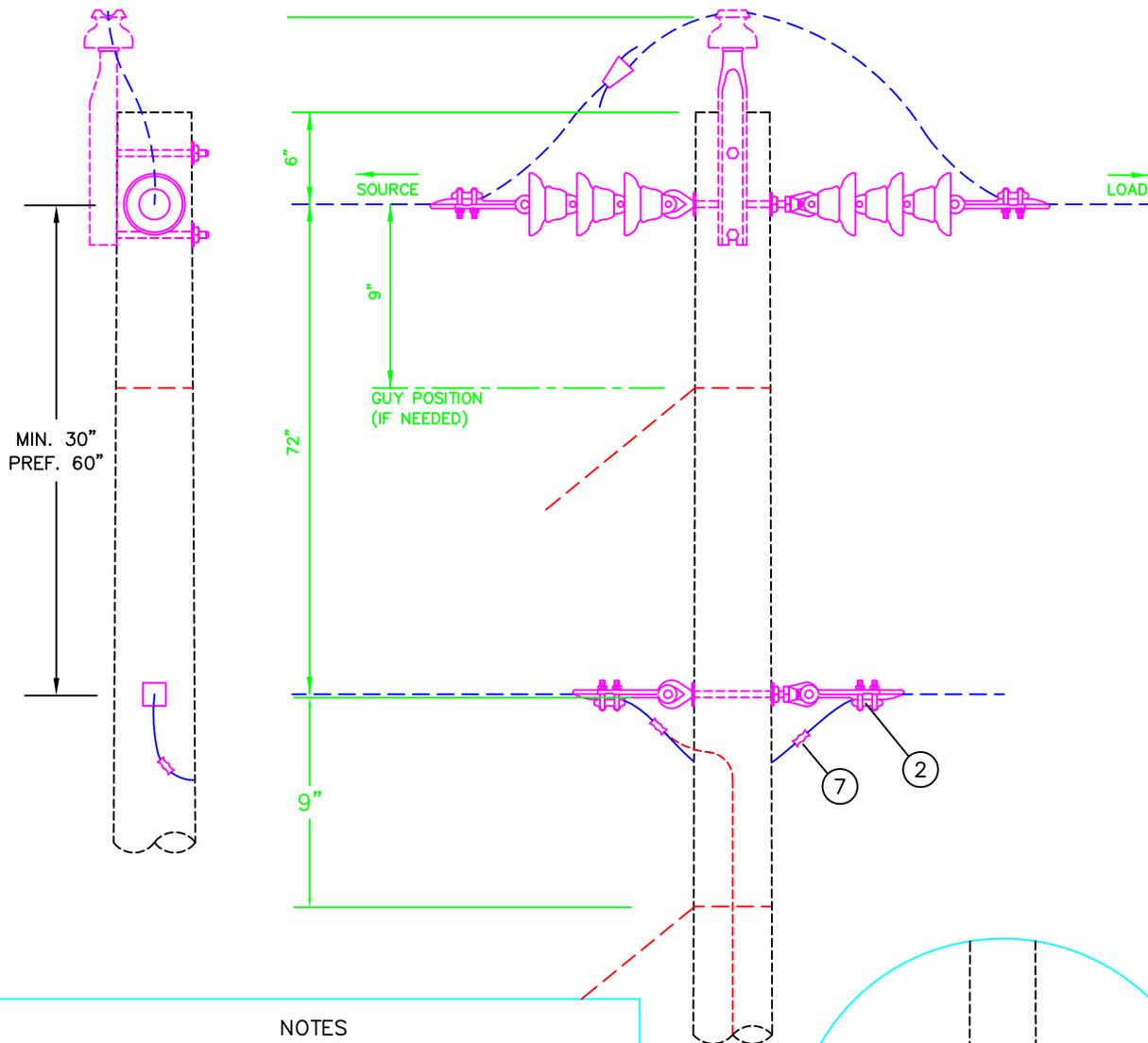
DWN.	RSG	DATE:	9/15/95
CKD.	EGS	APPD.	
SCALE:		NONE	
DATE	REVISION	DATE	REVISION

DWG. NO.

A3



LIST OF MATERIALS		GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA			
QTY.	DESCRIPTION	 7.2KV SINGLE PHASE VERTICAL CONSTRUCTION DEADEND - SUSPENSION			
1	5/8" X 10" EYE BOLT				
1	5/8" X 10" MACHINE BOLT	CKD.	EGS	APPD.	EGS
2	P143 CURVED WASHER, 3"	SCALE:	NONE	DWG. NO. A4	
3	SUSPENSION INSULATOR 25kv	DATE	REVISION		
1	FEED-THRU TYPE CONDUCTOR DEADEND CLAMP				
1	No. 1342 SECONDARY CLEVIS				
1	No. J151 SPOOL INSULATOR				
1	PREFORMED CONDUCTOR DEADEND, 1/0 ACSR				



NOTES

1. AS A SUBSTITUTE TO THE 3-6" SUSPENSION BELLS, USE A ONE PIECE POCCLAIN(UNITARY) OR 25KV POLYMER SUSPENSION INSULATOR ON EACH SIDE.
2. IF FUSE IS USED, MOUNT CUT-OUT ON ANGLE BRACKET AS PER (L-2)
3. PRIMARY TO NEUTRAL SEPERATION AT POLE IS PREFERRED TO 60". OTHERWISE, SEPERATION SHALL BE DETERMINED BY MINIMUM MID-SPAN SEPERATION. IN NO CASE SHALL SEPERATION BE LESS THAN 30".

LIST OF MATERIALS

QTY.	DESCRIPTION
6	SUSPENSION INSULATOR
4	FEED-THRU TYPE CONDUCTOR DEADEND CLAMP
-	5/8" X 10" MACHINE BOLT
2	5/8" X 10" EYE BOLT
2	5/8" EYE NUT
4	2 1/4" SQUARE WASHER
1	CONNECTOR, SQUEEZE-ON
1	CONNECTOR, AMPACT
2	LOCKNUTS, 5/8"
-	No. 1342 SECONDARY CLEVIS
-	No. J151 SPOOL INSULATOR
-	P143 CURVED WASHER, 3"
-	PREFORMED CONDUCTOR DEADEND 1/0

ALTERNATE NEUTRAL ATTACHMENT
USED FOR 1/0 ACSR ONLY

GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA

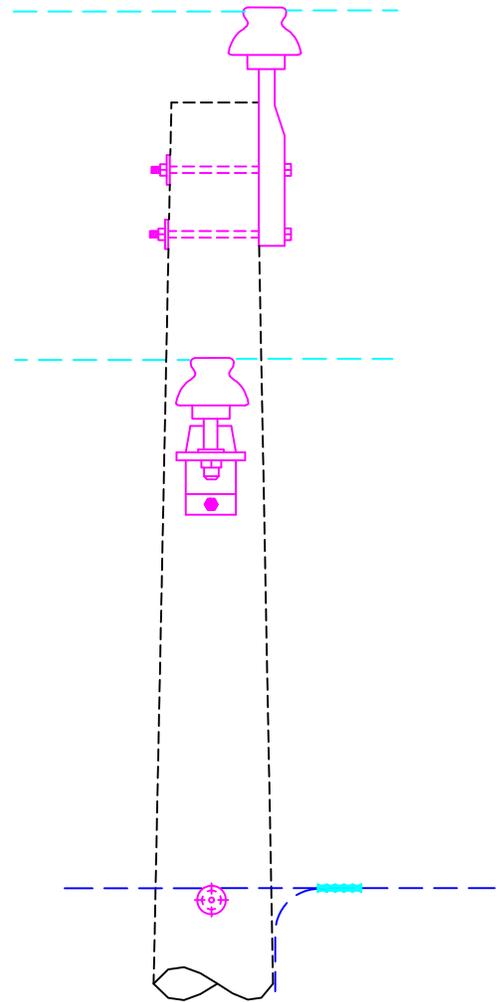
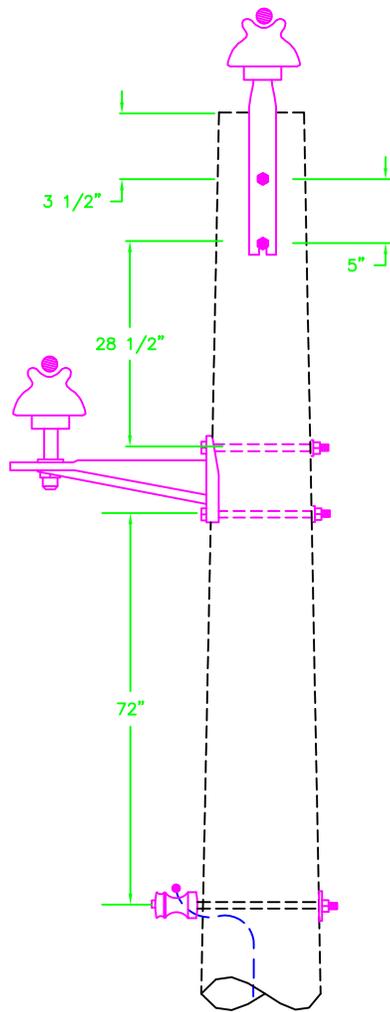


7.2KV PRIMARY, SINGLE PHASE
VERTICAL DEADEND (DOUBLE)

DWN.	RSG	DATE:	4/26/95
CKD.	EGS	APPD.	EGS
SCALE:		NONE	
DATE	REVISION	DATE	REVISION
10/90	1		

DWG. NO.

A6



NOTES

1. DESIGN LIMITS FOR MAXIMUM TRANSVERSE LOAD IS 500lbs. PER CONDUCTOR.
2. MAX. LINE ANGLE WITHIN LOAD LIMITS IS 5°
3. TYPICAL LOAD DESIGN ANGLE IS 1 - 12°
4. PRIMARY TO NEUTRAL SEPERATION AT POLE IS PREFERRED TO BE 72". OTHERWISE SEPERATION SHALL BE DETERMINED BY MINIMUM MID-SPAN SEPERATION. IN NO CASE SHALL IT BE LESS THAN 30".

LIST OF MATERIALS

QTY.	DESCRIPTION
4	5/8" X 10" MACHINE BOLTS
1	5/8" X 10" SPOOL BOLT
5	2 1/4" SQUARE WASHERS
1	POLE TOP PIN, 18"
1	MIF BRACKETS
1	NO. 887 SHORT SHANK PINS
2	NO. 77 PIN TYPE INSULATORS, 15KV
1	NO. J151 SPOOL INSULATOR
2	PREFORMED WRAPLOCK TIES
1	PREFORMED SPOOL TIE

336.4 MCM MAX. CONDUCTOR SIZE

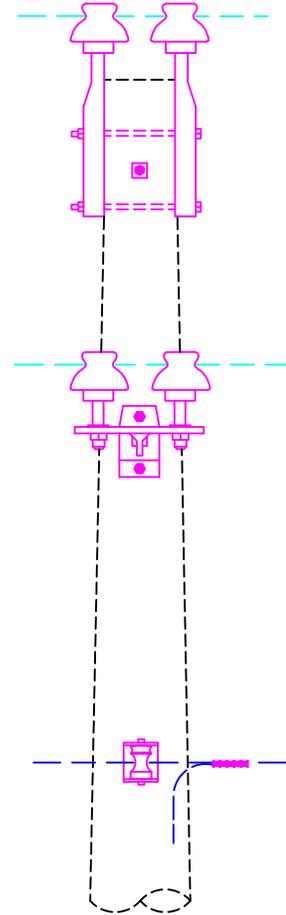
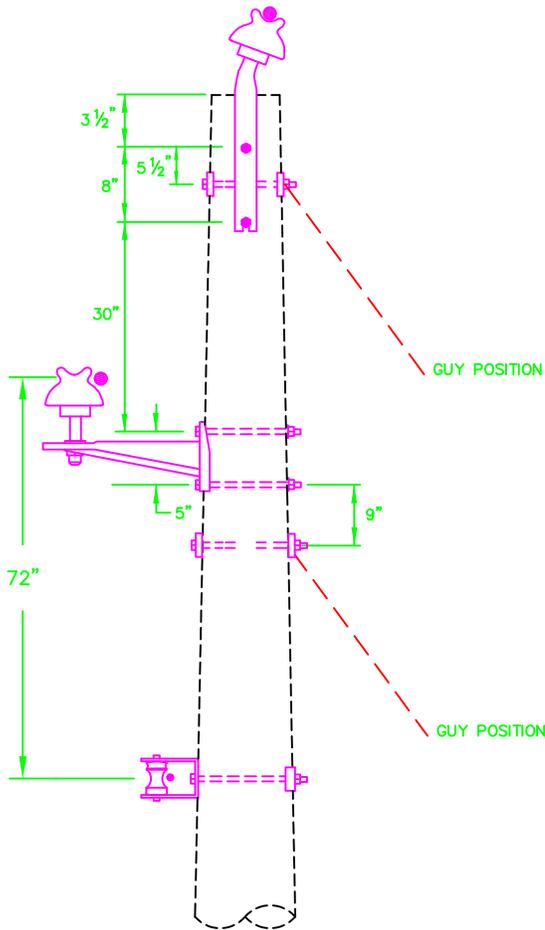
GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA



12.5/7.2KV 2-PHASE
M.I.F. CONSTRUCTION, TANGENT STRUCTURE

DWN.	RSG	DATE:	9/15/95
CKD.	EGS	APPD.	
SCALE:		NTS	
DATE	REVISION	DATE	REVISION
10/90	1		

DWG. NO.
B1



NOTES

1. DESIGN LIMITS FOR MAXIMUM TRANSVERSE LOAD IS 1000lbs.. PER CONDUCTOR.
2. MAX LINE ANGLE WITHIN LOAD LIMITS IS 5°
3. TYPICAL ANGLE FOR LOAD IS 1 - 12°

LIST OF MATERIALS

QTY.	DESCRIPTION
5	5/8" x 10" MACHINE BOLTS
2	2 1/4" SQUARE WASHERS
2	24" ANGLE POLE TOP PINS
1	MIF BRACKETS
2	NO. 887 SHORT SHANK PINS
4	NO. 77 PIN TYPE INSULATORS
1	NO. J151 SPOOL INSULATOR
1	DOUBLE SUPPORT TIE
1	PREFORMED SPOOL TIE
1	NO. 1342 SEC. CLEVIS
1	DOUBLE SIDE TIE

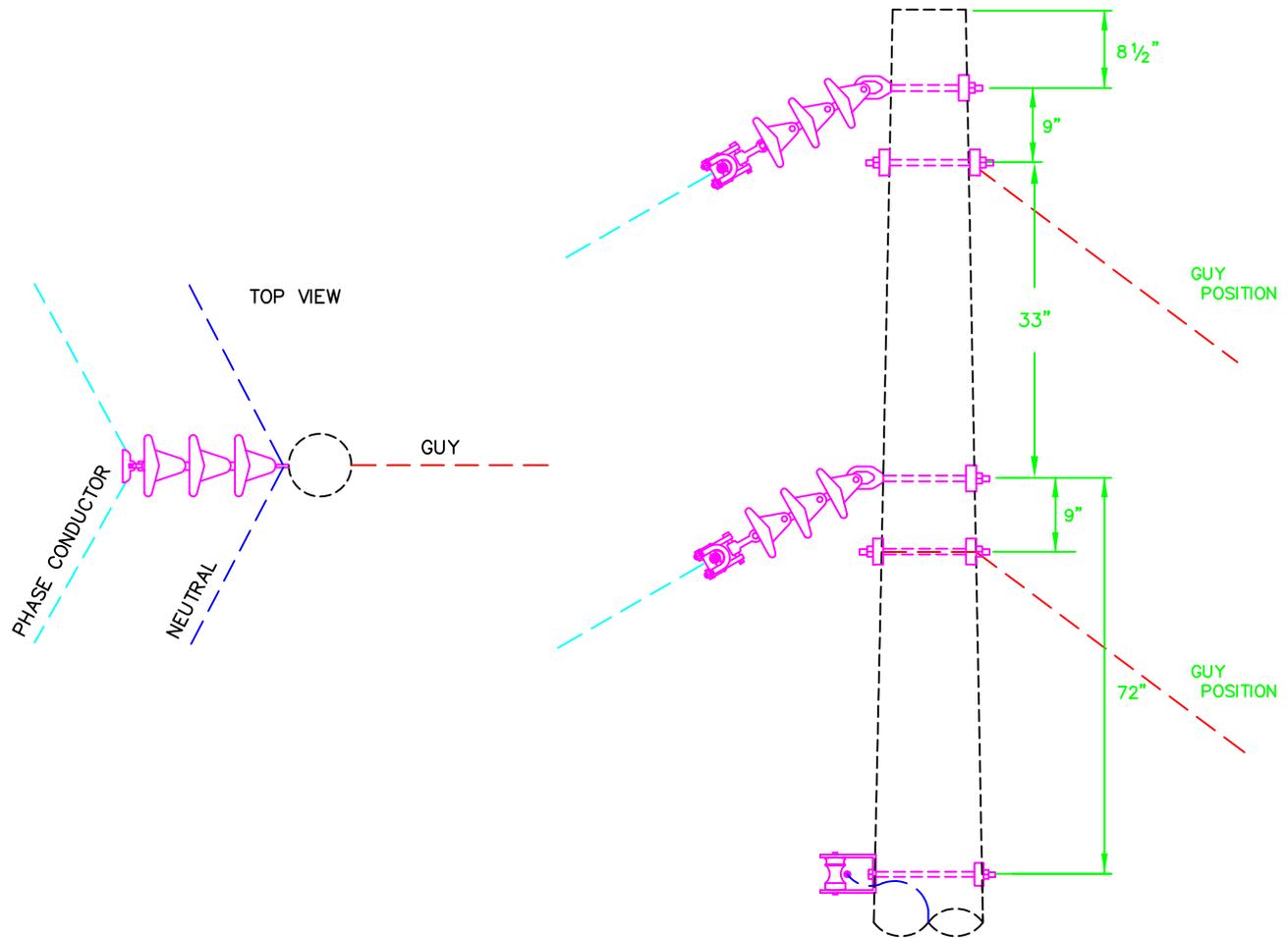
GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA



12.5/7.2KV 2-PHASE
M.I.F. CONSTRUCT. LT. ANGLE STRUCTURE

DWN.	RSG	DATE:	4/24/95
CKD.		APPD.	
SCALE:		NTS	
DATE	REVISION	DATE	REVISION
10/90	1		

DWG. NO.
B2H



LIST OF MATERIALS

1. DESIGN LIMITS FOR MAXIMUS TRANSVERSE LOAD IS 4000LBS. PER CONDUCTOR
2. WHERE LINE ANGLE IS BETWEEN 15° AND 30° DESIGN A VERTICAL CONSTRUCTION (1/0 ACSR). DESIGN A VERTICAL CONSTRUCTION BETWEEN 12° AND 30° FOR 336 ACSR.
3. MAXIMUM ANGLE TO BE USED WITH THIS DESIGN IS 30°. FOR ANGLES GREATER THAN 30°, DOUBLE DEAD-END CONSTRUCTION IS TO BE USED.
4. PRIMARY TO NEUTRAL SEPERATION AT POLE IS PREFERRED TO BE 60°. OTHERWISE SEPERATION SHALL BE DETERMINED BY MINIMUM MID-SPAN SEPERATION. IN NO CASE SHALL SEPERATION BE LESS THAN 30".

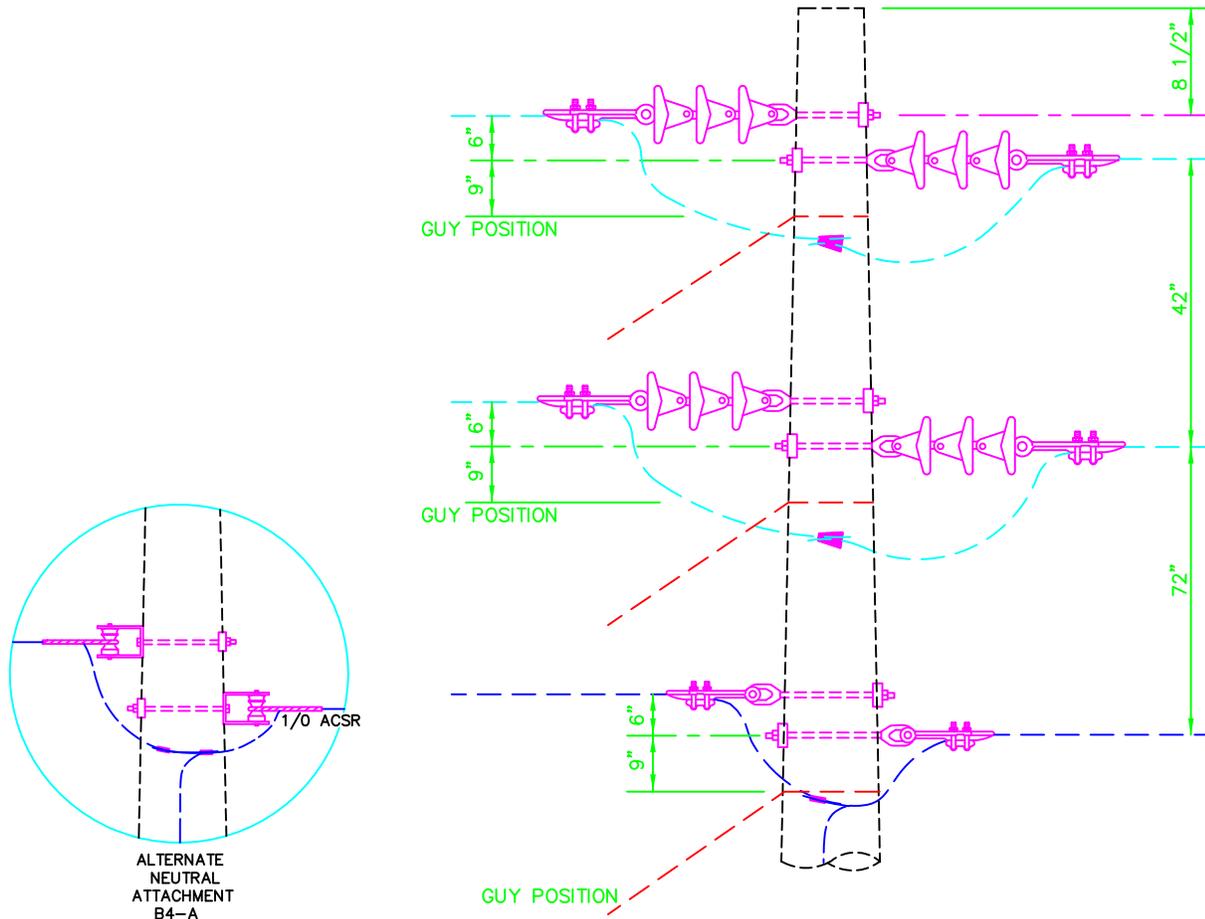
GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA



12.5/7.2KV 2-PHASE
VERT. CONSTRUCT. MEDIUM ANGLE STRUCTURE

DWN.	RSG	DATE: 4/24/95	
CKD.	EGS	APPD.	
SCALE: NTS			
DATE	REVISION	DATE	REVISION

DWG. NO.
B3

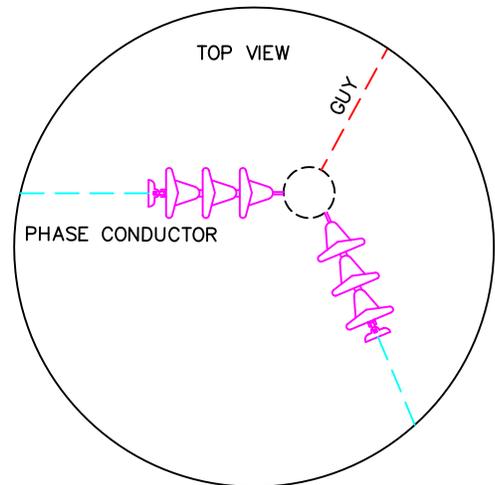


NOTES

1. AS A SUBSTITUTE TO THE 3-6" SUSPENSION BELLS, USE A ONE PIECE PORCELAIN (UNITARY) OR 25KV POLYMER SUSPENSION INSULATOR ON EACH SIDE.
2. IF FUSED IS USED, MOUNT CUT OUT ON ANGLE BRACKET AS PER (L-2)
3. PRIMARY TO NEUTRAL SEPERATION AT POLE IS PREFERRED TO BE 60" OTHERWISE, SEPERATION SHALL BE DETERMINED BY MINIMUM MID-SPAN SEPERATION. IN NO CASE SHALL SEPERATION BE LESS THAN 30."
4. TYPICAL ANGLE FOR LOAD IS 31 - 90°

LIST OF MATERIALS

QTY.		DESCRIPTION
B4	B4-A	
12	12	INSULATOR, SUSPENSION, 6"
6	4	CONDUCTOR CLAMP, DEADEND, FEED-THRU
		TYPE
4	4	5/8" x 10", EYE BOLT
6	6	P143 CURVED WASHER, 3"
-	2	5/8" x 12" MACHINE BOLTS
-	2	NO. 1342 SEC. CLEVIS
-	2	NO. J151 SPOOL INSULATOR
-	2	PERFORMED CONDUCTOR DEADEND 1/0
2	2	CONNECTOR, AMPACT
1	1	CONNECTOR, SQUEEZE-ON
6	6	LOCKNUTS, 5/8"
2	-	5/8" x 12" EYE BOLT



GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA

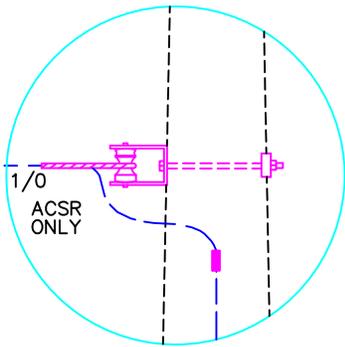


12.5/7.2KV 2-PHASE VERT. CONSTRUCT
DOUBLE DEADEND, HEAVY ANGLE STRUCT.

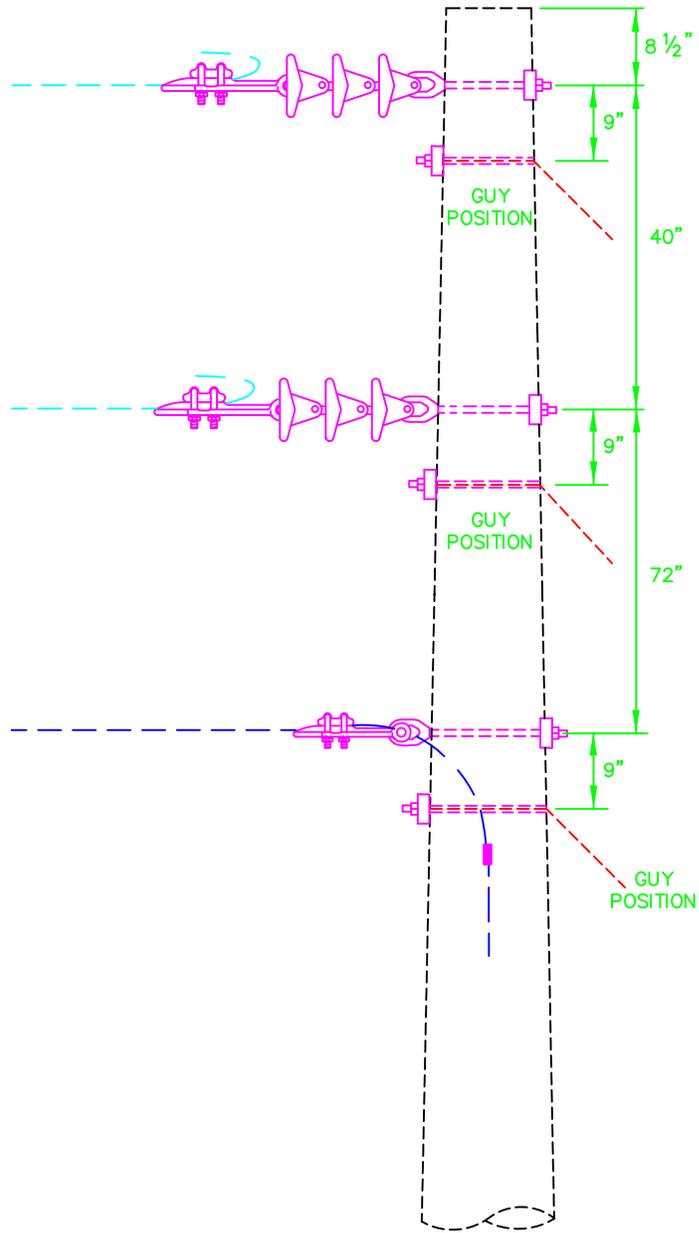
DWN.	RSG	DATE:	4/25/95
CKD.	EGS	APPD.	
SCALE:		NTS	
DATE	REVISION	DATE	REVISION

DWG. NO.
B4,
B4-A

NOTE: B5S, B5-AS
 SUBSTITUTE A ONE PIECE
 PORCELAIN (UNITARY) OR 25KV
 POLYMER SUSPENSION INSULATOR
 FOR THE 3-6" PORCELAIN
 SUSPENSION BELLS SHOWN



ALTERNATE
 NEUTRAL
 ATTACHMENT
 B5-A



LIST OF MATERIALS

QTY.		DESCRIPTION
B5	B5-A	
6	6	INSULATOR, SUSPENSION, 6"
3	2	CONDUCTOR CLAMP, DEADEND, FEED-THRU TYPE
2	2	5/8" x 10", EYE BOLT
3	3	P143 CURVED WASHER, 3"
-	1	5/8" x 12" MACHINE BOLT
-	1	NO. 1342 SEC. CLEVIS
-	1	NO. J151 SPOOL INSULATOR
-	1	PREFORMED CONDUCTOR DEADEND 1/0
1	-	5/8" x 12", EYE BOLT

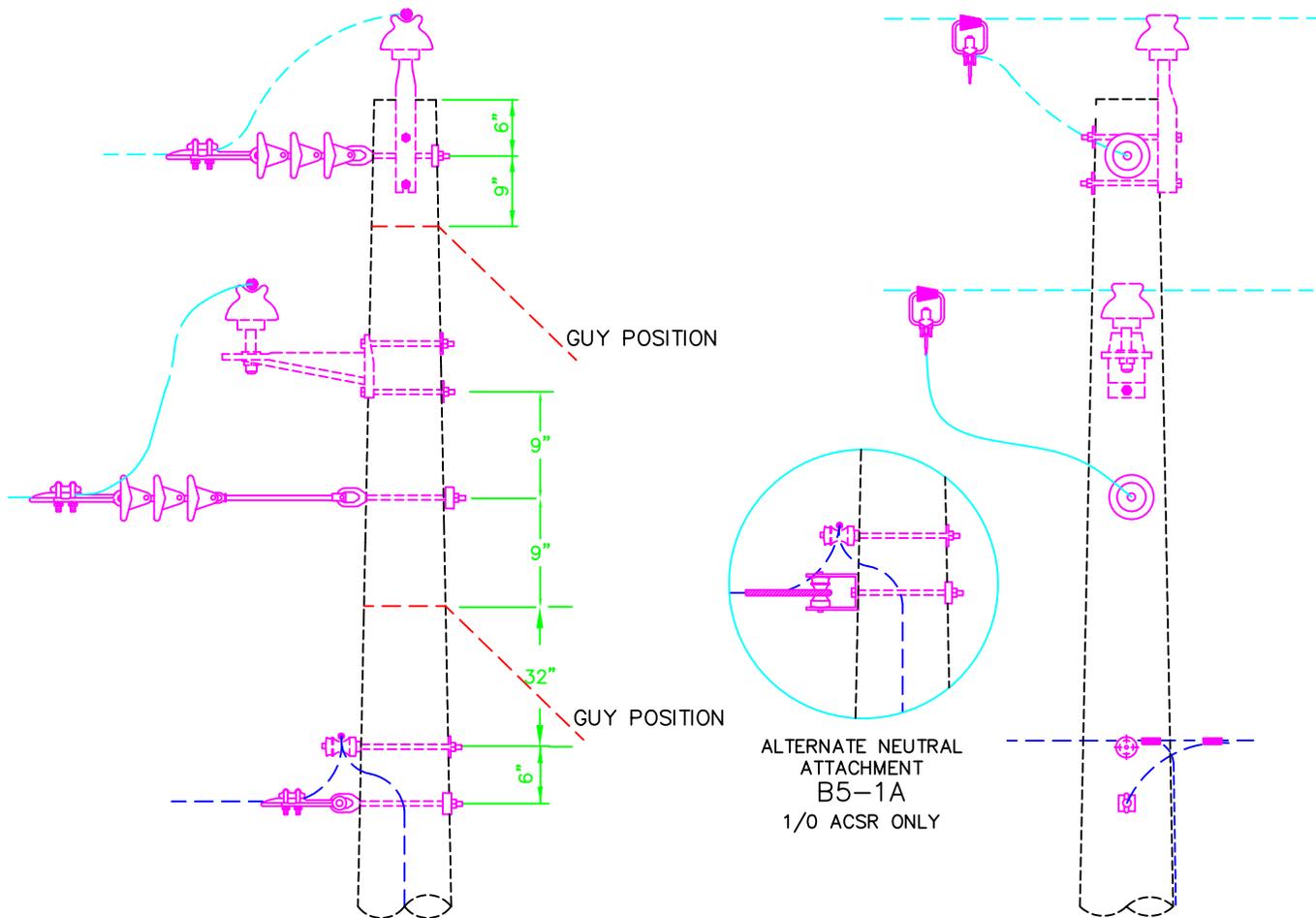
GREENVILLE UTILITIES COMMISSION
 GREENVILLE, NORTH CAROLINA

12.5/7.2KV 2-PHASE
 VERT. CONSTRUCT. DEADEND STRUCTURE



DWN.	RSG	DATE:	11/21/89
CKD.	EGS	APPD.	
SCALE:	NTS		
DATE	REVISION	DATE	REVISION

DWG. NO.
 B5,
 B5-A



NOTES

1. AS A SUBSTITUTE TO THE 3-6" SUSPENSION BELLS, USE A ONE PIECE PORCELAIN(UNITARY) OR 25KV POLYMER SUSPENSION INSULATOR.
2. BOND TAP NEUTRAL TO MAIN LINE NEUTRAL AND POLE GROUND.

1. AS A SUBSTITUTE TO THE 3-6" SUSPENSION BELLS, USE A ONE PIECE PORCELAIN(UNITARY) OR 25KV POLYMER SUSPENSION INSULATOR
2. TAP PULL-OFF TO PRIMARY SEPARATION IS PREFERRED TO BE 24" FROM PULL-OFF TO BOTTOM BOLT OF MIF BRACKET. IN NO CASE SHALL SEPARATION BE LESS THAN 6" FROM PULL-OFF TO BOTTOM BOLT OF MIF BRACKET.
3. BOND TAP NEUTRAL TO MAIN LINE NEUTRAL AND POLE GROUND.
4. IF FUSE IS USED, MOUNT TOP PHASE CUT-OUT ON ANGLE BRACKET(L-2). SIDE PHASE MOUNT ON MIF BRACKET(L-3), USE SQUEEZE-ON FOR SOLID TAP CONNECTIONS.
5. PRIMARY TO NEUTRAL SEPARATION AT POLE IS PREFERRED TO BE 60". OTHERWISE, SEPERATION SHALL BE DETERMINED BY MINIMUM MID-SPAN SEPARATION. IN NO CASE SHALL SEPARATION BE LESS THAN 42".

LIST OF MATERIALS

QTY.		DESCRIPTION
B5-1	B5-1A	
3	2	5/8" x 10" EYE BOLT
-	1	5/8" x 10" MACHINE BOLT
3	3	LOCKNUTS, 5/8"
3	3	P143 CURVED WASHER
6	6	SUSPENSION INSULATOR, 6"
3	2	CONDUCTOR CLAMP, DEADEND, FEED-THRU TYPE
-	1	NO. 1342 SEC. CLEVIS
-	1	NO. J151 SPOOL INSULATOR
-	1	PREFORMED CONDUCTOR DEADEND
1	1	CONNECTOR, SQUEEZE-ON
3	1	CONNECTOR, AMPACT
-	2	TAP STIRRUP
-	2	HOT LINE CLAMP
1	1	EXTENSION LINK - 14"

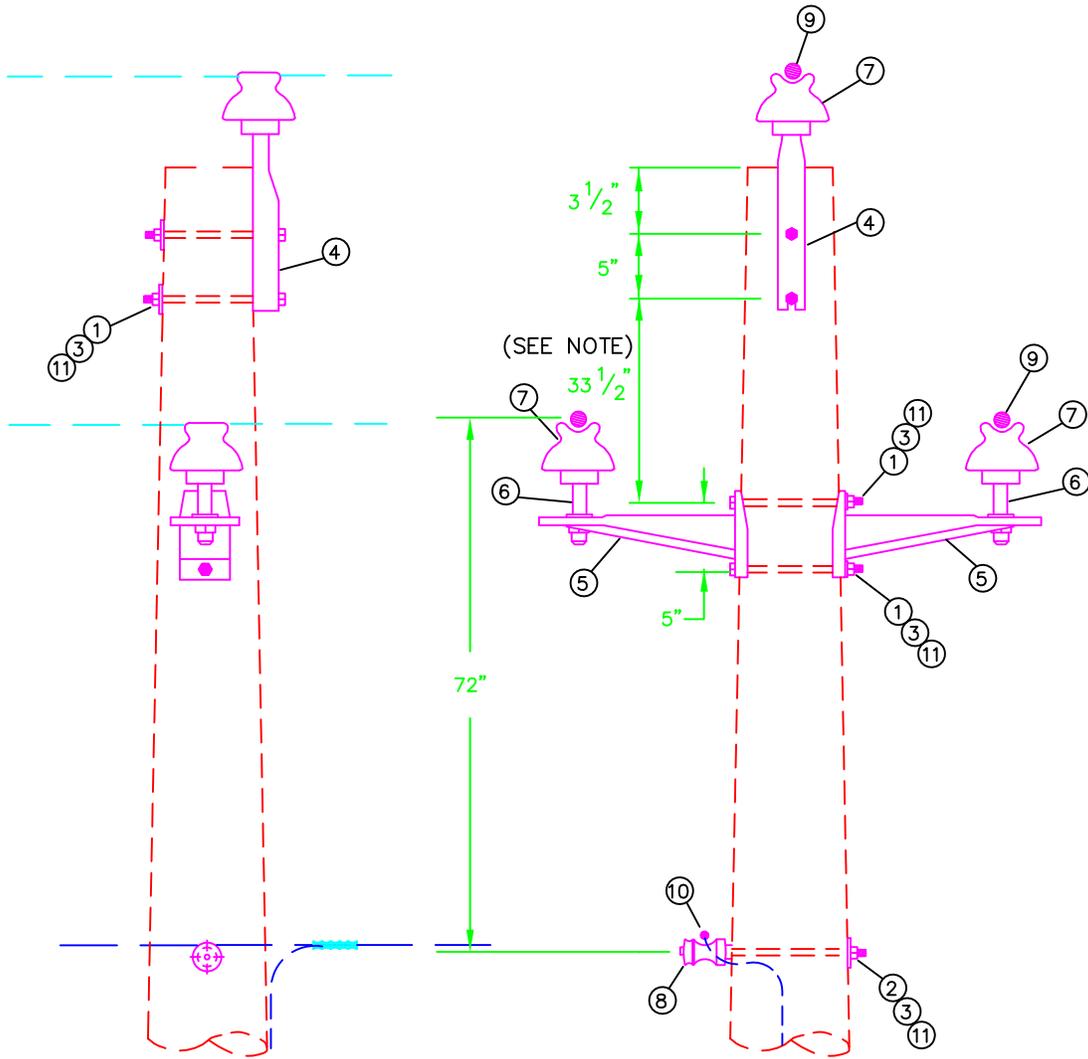
GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA



12.5/7.2KV 2-PH, VERT. CONSTRUCTION
2-PHASE TAP

DWN.	RSG	DATE:	11/27/89
CKD.	HBM	APPD.	EMcK
SCALE:	NTS	89-3008	
DATE	REVISION	DATE	REVISION
10/90	1		

DWG. NO.
B5-1
B5-1A



LIST OF MATERIALS

ITEM	C1H	DESCRIPTION
1	4	5/8" X 10" MACHINE BOLTS
2	1	5/8" X 10" SPOOL BOLT
3	3	2 1/4" SQUARE WASHERS
4	1	18" POLE TOP PIN
5	2	MIF BRACKETS
6	2	NO. 887 SHORT SHANK PINS
7	3	NO. 77 PIN TYPE INSULATORS, 15 KV
8	1	NO. J151 SPOOL INSULATOR
9	3	PREFORMED WRAPLOCK TIES
10	1	PREFORMED SPOOL TIE

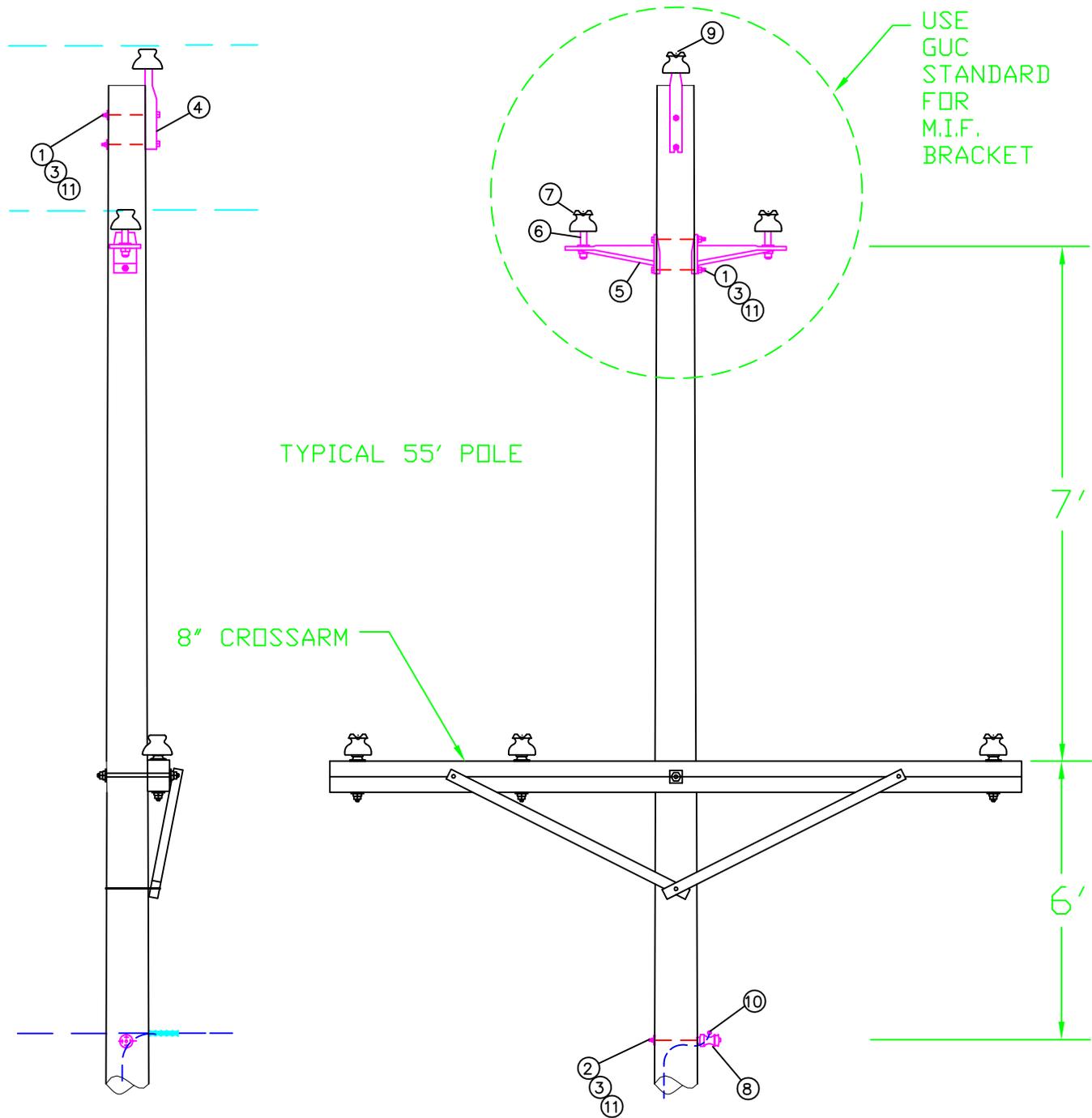


GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA

12.5/7.2 KV 3-PHASE M.I.F. CONSTRUCTION
TANGENT STRUCTURE

DWN. R.G.P.		DATE: 12/5/88	
CKD. H.G.B.		APPD. E.McK.	
SCALE: N.T.S.			
DATE	REVISION	DATE	REVISION
10/90	1		

DWG. NO.
C1H
C1H-A



TYPICAL 55' POLE

8" CROSSARM

USE GUC STANDARD FOR M.I.F. BRACKET

7'

6'

LIST OF MATERIALS

ITEM	C1H	DESCRIPTION
1	4	5/8" X 10" MACHINE BOLTS
2	1	5/8" X 10" SPOOL BOLT
3	3	2 1/4" SQUARE WASHERS
4	1	18" POLE TOP PIN
5	2	MIF BRACKETS
6	2	NO. 887 SHORT SHANK PINS
7	3	NO. 77 PIN TYPE INSULATORS, 15 KV
8	1	NO. J151 SPOOL INSULATOR
9	3	PREFORMED WRAPLOCK TIES
10	1	PREFORMED SPOOL TIE

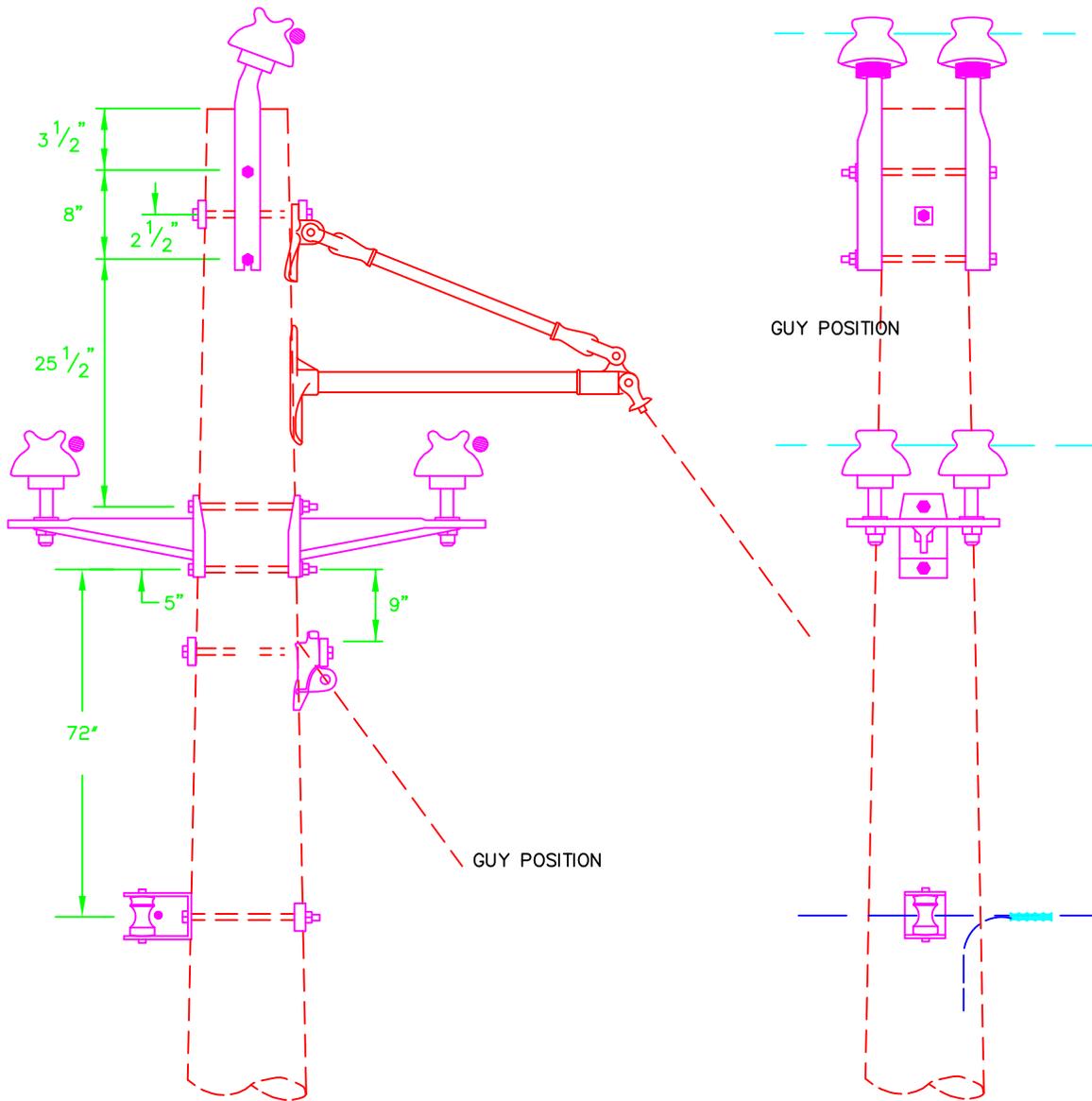


GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA

12.5/7.2 KV 3-PHASE M.I.F. CONSTRUCTION
TANGENT STRUCTURE

DWN. RSG		DATE: 8/20/07	
CKD. JWB		APPD.	
SCALE: N.T.S.			
DATE	REVISION	DATE	REVISION
8/20/07	1		

DWG. NO.
C1H
C1H-A



LIST OF MATERIALS

QTY.	DESCRIPTION
6	5/8" x 10" MACHINE BOLTS
4	2 1/4" SQUARE WASHERS
3	P143 CURVED WASHER
2	24" ANGLE POLE TOP PINS
2	MIF BRACKETS
4	NO. 887 SHORT SHANK PINS
6	NO. 77 PIN TYPE INSULATORS
1	NO. J151 SPOOL INSULATOR
2	PREFORMED SIDE TIES
1	PREFORMED SPOOL TIE
1	NO. 1342 SEC. CLEVIS
1	DOUBLE SUPPORT TIES

NOTES

1. TYPICAL ANGLE FOR LOAD IS 1 - 12°

GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA

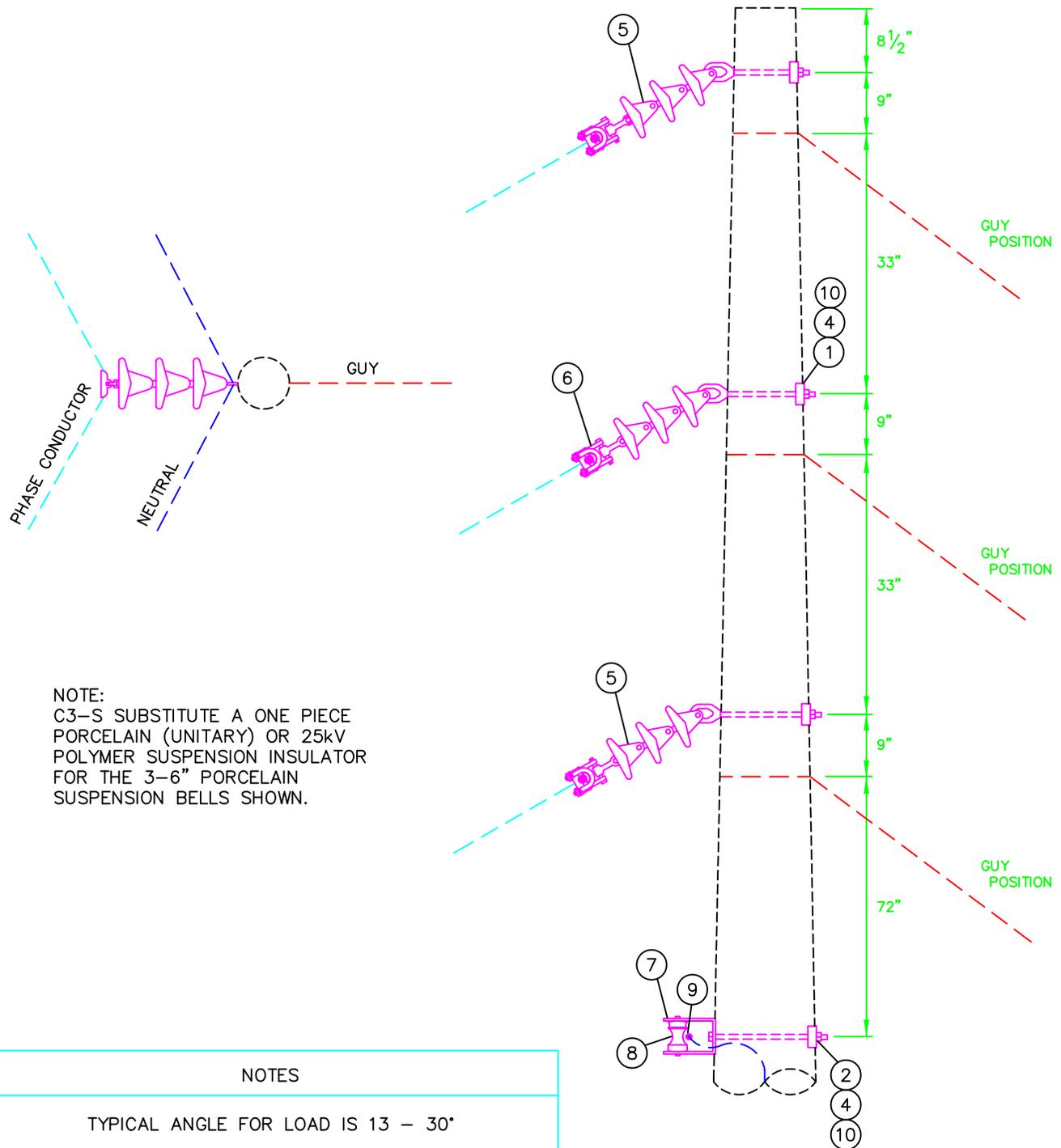


12.5/7.2 KV 3-PHASE M.I.F. CONSTRUCTION
LIGHT ANGLE STRUCTURE

DWN. RSG	DATE: 5/5/95
CKD. EGS	APPD. EGS
SCALE: N.T.S.	
DATE	REVISION

DWG. NO.

C2



NOTE:
 C3-S SUBSTITUTE A ONE PIECE
 PORCELAIN (UNITARY) OR 25kV
 POLYMER SUSPENSION INSULATOR
 FOR THE 3-6" PORCELAIN
 SUSPENSION BELLS SHOWN.

NOTES

TYPICAL ANGLE FOR LOAD IS 13 - 30°

LIST OF MATERIALS

ITEM	QTY.	DESCRIPTION
1	3	5/8" X 10" EYE BOLT
2	1	5/8" X 12" MACHINE BOLT
4	4	P143 CURVED WASHER
5	9	INSULATOR, 6" SUSPENSION BELL
6	3	CONDUCTOR CLAMP, SUSPENSION WITH CONNECTING PIECE
7	1	NO. 1342 SEC. CLEVIS
8	1	NO. J151 SPOOL INSULATOR
9	1	PREFORMED SPOOL TIE
10	1	LOCKNUTS, 5/8"

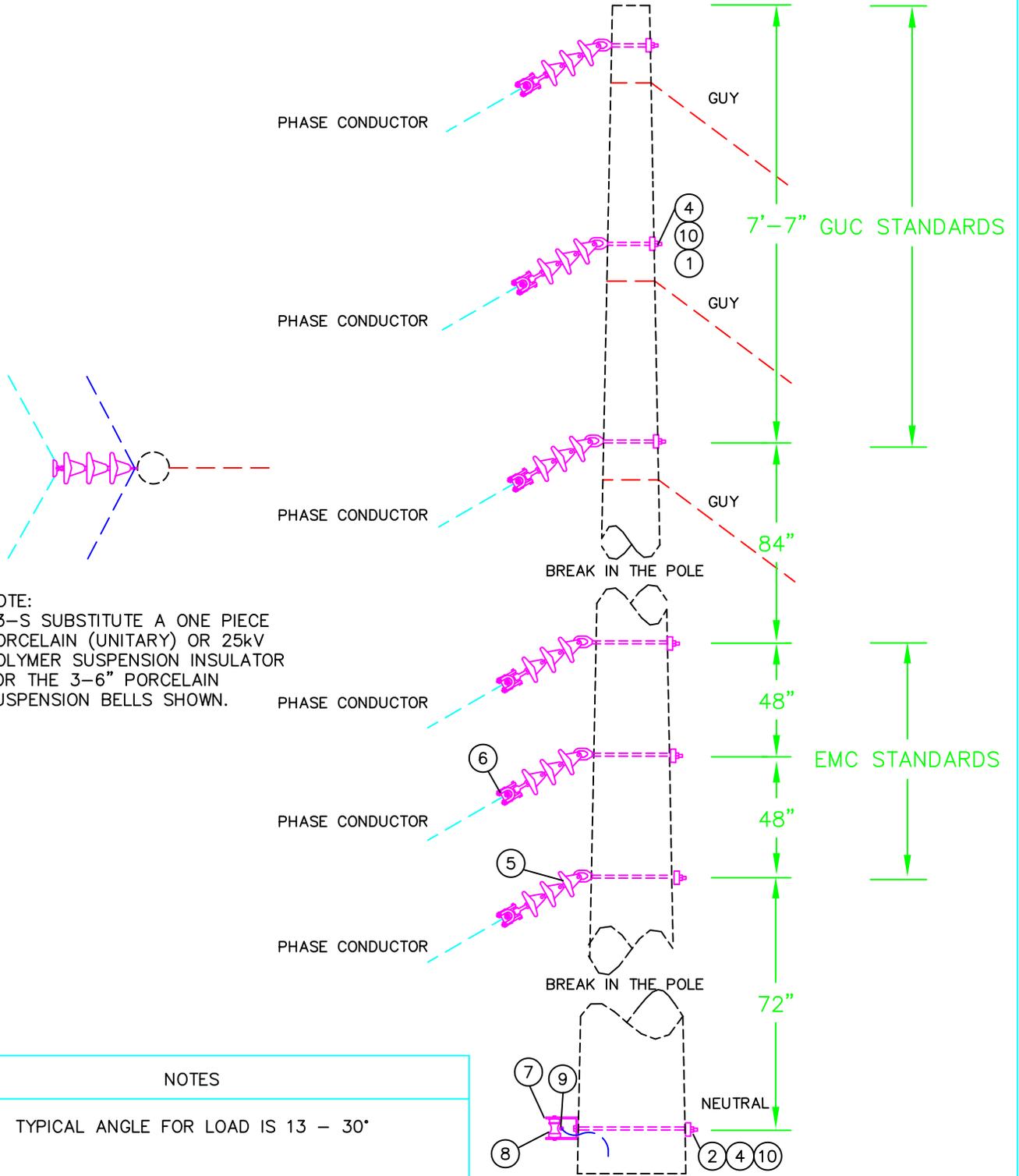
GREENVILLE UTILITIES COMMISSION
 GREENVILLE, NORTH CAROLINA



12.5/7.2 KV 3-PHASE VERT. CONTRUC.
 MEDIUM ANGLE

DWN. RSG		DATE: 11/15/88	
CKD. H.G.B.		APPD. E.McK.	
SCALE: N.T.S. 140-2318-4			
DATE	REVISION	DATE	REVISION
10/90	1		

DWG. NO.
 C3
 C3-S



NOTE:
 C3-S SUBSTITUTE A ONE PIECE
 PORCELAIN (UNITARY) OR 25KV
 POLYMER SUSPENSION INSULATOR
 FOR THE 3-6" PORCELAIN
 SUSPENSION BELLS SHOWN.

NOTES

TYPICAL ANGLE FOR LOAD IS 13 - 30°

LIST OF MATERIALS

ITEM	QTY.	DESCRIPTION
1	3	5/8" X 10" EYE BOLT
2	1	5/8" X 12" MACHINE BOLT
4	4	P143 CURVED WASHER
5	9	INSULATOR, 6" SUSPENSION BELL
6	3	CONDUCTOR CLAMP, SUSPENSION WITH CONNECTING PIECE
7	1	NO. 1342 SEC. CLEVIS
8	1	NO. J151 SPOOL INSULATOR
9	1	PREFORMED SPOOL TIE
10	1	LOCKNUTS, 5/8"

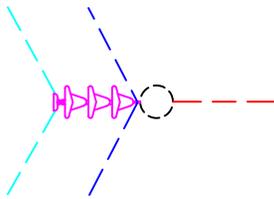
GREENVILLE UTILITIES COMMISSION
 GREENVILLE, NORTH CAROLINA



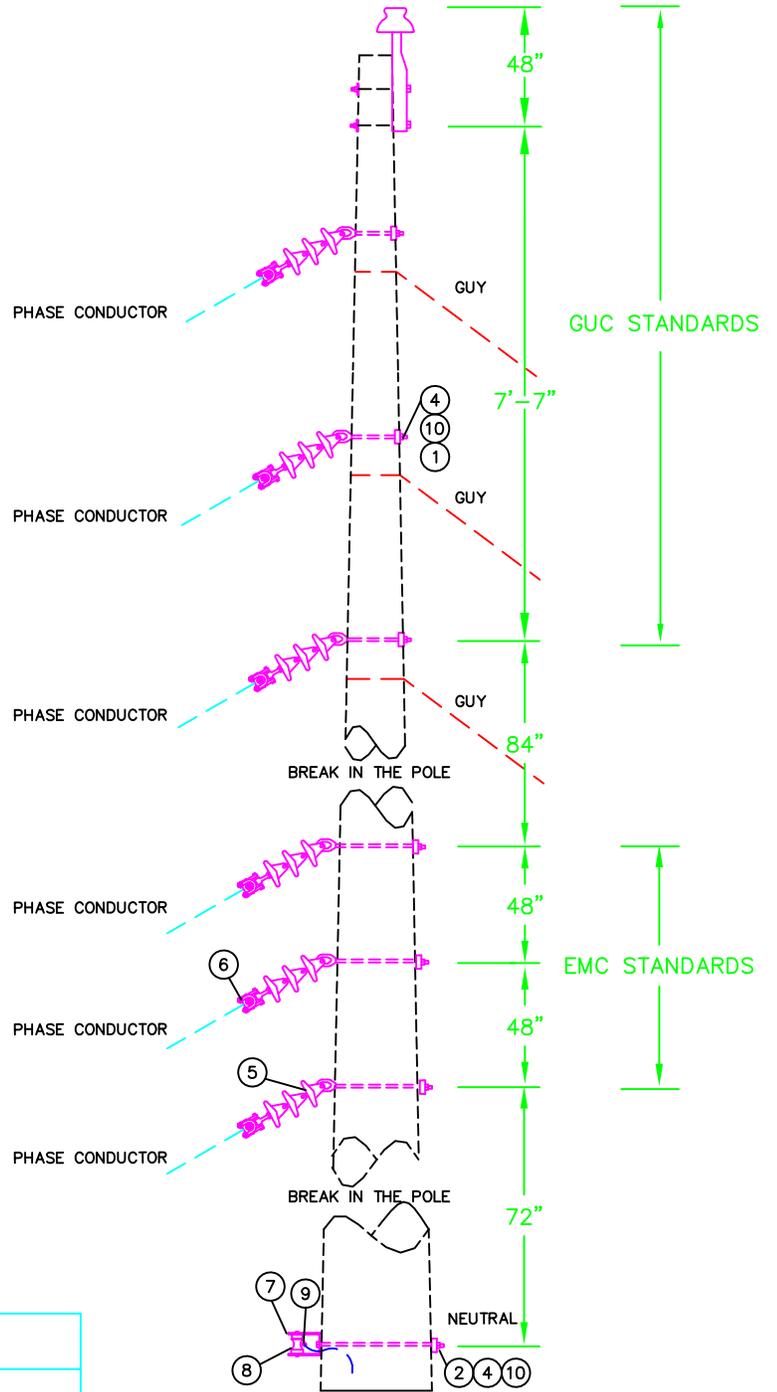
12.5/7.2 KV 3-PHASE VERT. CONTRUC.
 MEDIUM ANGLE

DWN. RSG		DATE: 11/15/88	
CKD. JWB		APPD. E.McK.	
SCALE: N.T.S.		140-2318-4	
DATE	REVISION	DATE	REVISION
10/90	1		

DWG. NO.
 C3
 C3-S



NOTE:
C3-S SUBSTITUTE A ONE PIECE
PORCELAIN (UNITARY) OR 25kV
POLYMER SUSPENSION INSULATOR
FOR THE 3-6" PORCELAIN
SUSPENSION BELLS SHOWN.



NOTES

TYPICAL ANGLE FOR LOAD IS 13 - 30°

LIST OF MATERIALS

ITEM	QTY.	DESCRIPTION
1	3	5/8" X 10" EYE BOLT
2	1	5/8" X 12" MACHINE BOLT
4	4	P143 CURVED WASHER
5	9	INSULATOR, 6" SUSPENSION BELL
6	3	CONDUCTOR CLAMP, SUSPENSION WITH CONNECTING PIECE
7	1	NO. 1342 SEC. CLEVIS
8	1	NO. J151 SPOOL INSULATOR
9	1	PREFORMED SPOOL TIE
10	1	LOCKNUTS, 5/8"

GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA



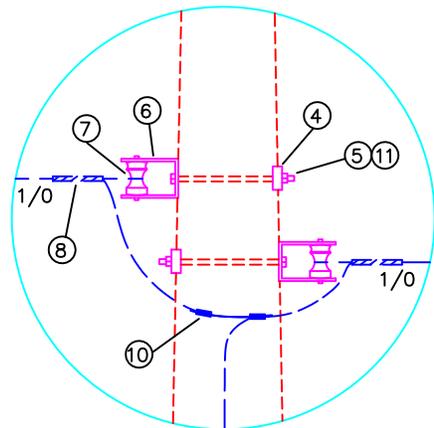
12.5/7.2 KV 3-PHASE VERT. CONTRUC.
MEDIUM ANGLE

DWN. RSG		DATE: 11/15/88	
CKD. JWB		APPD. E.McK.	
SCALE: N.T.S. 140-2318-4			
DATE	REVISION	DATE	REVISION
10/90	1		

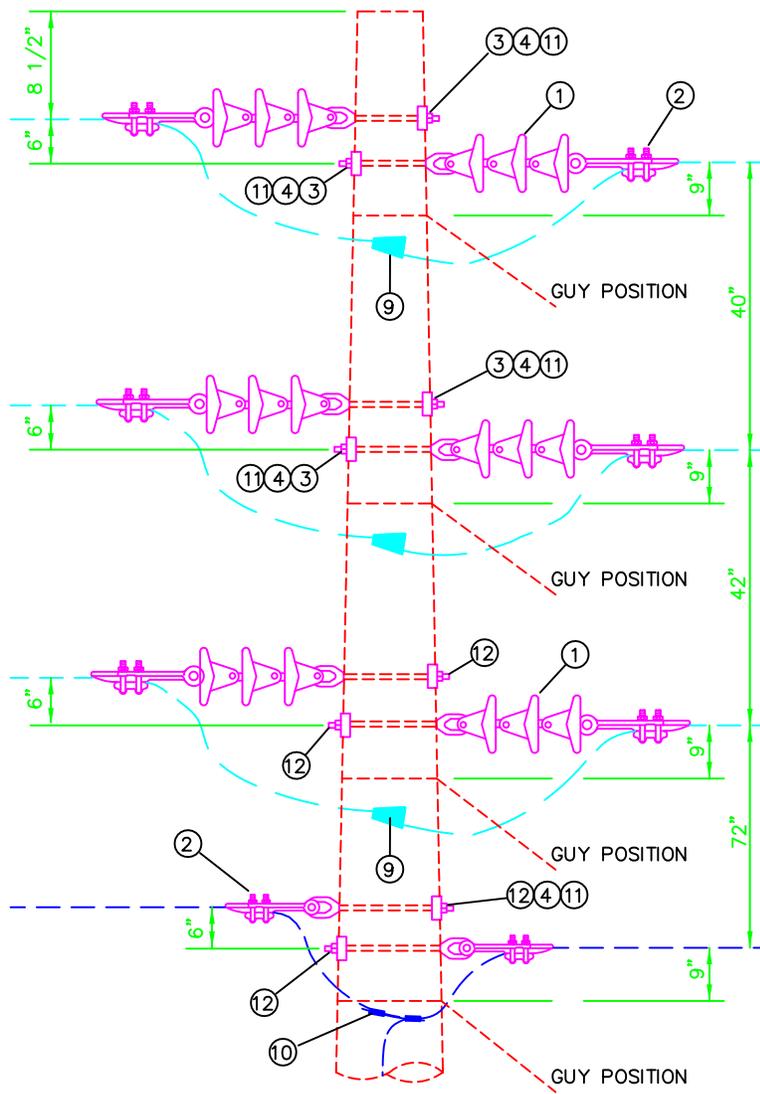
DWG. NO.
C3
C3-S

WHEN USED OF TRANSMISSION UNDERBUILD CONSTRUCTION FRAME POLE FOR TOP PHASE TO BE 9' BELOW BOTTOM TRANSMISSION CONDUCTOR.

NOTE: C4-S, C4-AS SUBSTITUTE A ONE PIECE PORCELAIN (UNITARY) OR 25KV POLYMER SUSPENSION INSULATOR FOR THE 3-6" PORCELAIN SUSPENSION BELLS SHOWN, EACH PHASE.



ALTERNATE NEUTRAL ATTACHMENT
C4-A
C4-AS



a - 72"
b - 54"

a - 45' POLE MAINLINE, ROADWAY CONST. NEUT. @ 25'
b - 40' POLE TAP LINE LIMITED ACCESS NEUT. @ 22'

LIST OF MATERIALS

ITEM	C4	C4-A	DESCRIPTION
1	18	18	INSULATOR, SUSPENSION, 6"
2	8	6	CONDUCTOR CLAMP, DEADEND, FEED-THRU TYPE
3	4	4	5/8" X 10", EYE BOLT
4	8	8	P143 CURVED WASHER
5	-	2	5/8" X 12" MACHINE BOLTS
6	-	2	NO. 1342 SEC. CLEVIS
7	-	2	NO. J151 SPOOL INSULATOR
8	-	2	PERFORMED CONDUCTOR DEADEND, 1/0
9	3	3	CONNECTOR, AMPACT
10	1	2	CONNECTOR, SQUEEZE-ON
11	8	8	LOCKNUTS, 5/8"
12	4	2	5/8" x 12" EYE BOLT

336.4 MCM MAX. CONDUCTOR SIZE

GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA

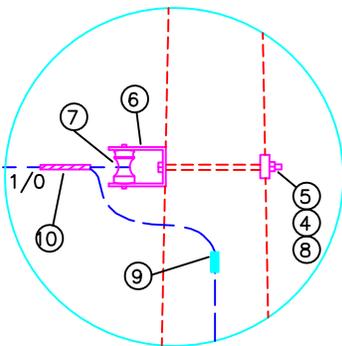


12.5/7.2 KV 3-PHASE VERT. CONSTRUCT
DOUBLE DEAD-END, HEAVY ANGLE

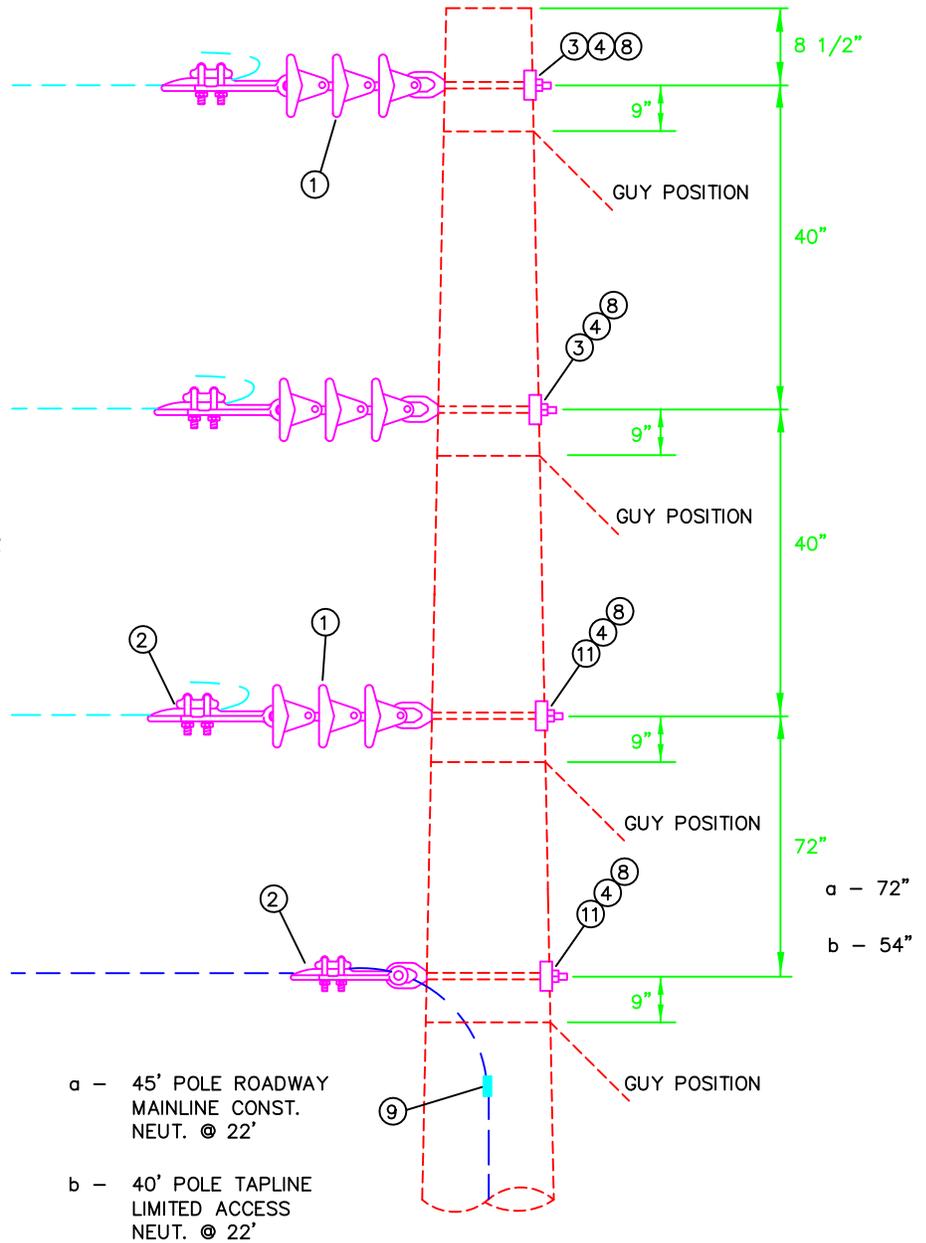
DWN. RSG		DATE: 12/5/88	
CKD. H.G.B.		APPD. E.McK.	
SCALE: N.T.S.			
DATE	REVISION	DATE	REVISION
10/90	1		

DWG. NO.
C4
C4S
C4-A
C4-AS

NOTE: C5S, C5-AS
 SUBSTITUTE A ONE PIECE
 PORCELAIN (UNITARY) OR 25KV
 POLYMER SUSPENSION INSULATOR
 FOR THE 3-6" PORCELAIN
 SUSPENSION BELLS SHOWN,
 EACH PHASE.



ALTERNATE
 NEUTRAL
 ATTACHMENT
 C5
 C5-A



- a - 45' POLE ROADWAY
 MAINLINE CONST.
 NEUT. @ 22'
- b - 40' POLE TAPLINE
 LIMITED ACCESS
 NEUT. @ 22'

LIST OF MATERIALS

ITEM	C5	C5-A	DESCRIPTION
1	9	9	INSULATOR, SUSPENSION, 6"
2	4	3	CONDUCTOR CLAMP, DEADEND, FEED-THRU TYPE
3	2	2	5/8" X 10", EYE BOLT
4	4	3	P143 CURVED WASHER
5	-	1	5/8" X 12" MACHINE BOLTS
6	-	1	NO. 1342 SEC. CLEVIS
7	-	1	NO. J151 SPOOL INSULATOR
8	4	4	LOCKNUTS, 5/8"
9	1	1	CONNECTOR, SQUEEZE-ON
10	1	1	PREFORMED CONDUCTOR DEADEND
11	2	1	5/8" X 12" EYE BOLT

336.4 MCM MAX. CONDUCTOR SIZE

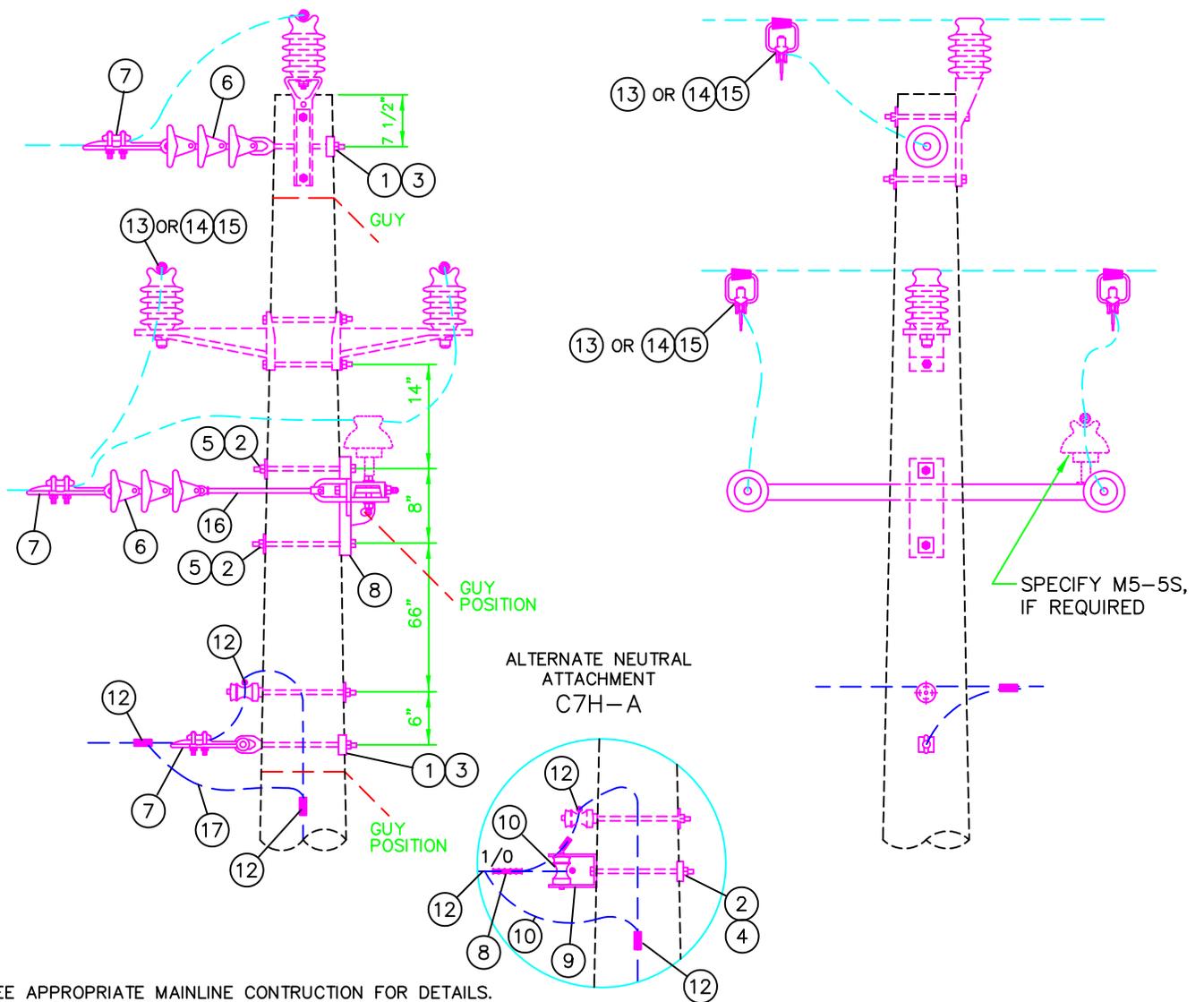
GREENVILLE UTILITIES COMMISSION
 GREENVILLE, NORTH CAROLINA



12.5/7.2 KV 3-PHASE VERT. CONST.
 DEAD-END

DWN. RSG		DATE: 12/5/88	
CKD. H.G.B.		APPD. E.McK.	
SCALE: N.T.S.			
DATE	REVISION	DATE	REVISION
10/90	1		

DWG. NO.
 C5
 C5S
 C5-A
 C5-AS



SEE APPROPRIATE MAINLINE CONSTRUCTION FOR DETAILS.

LIST OF MATERIALS

ITEM	QTY.		DESCRIPTION
	C7H	C7H-A	
1	2	1	5/8" X 10" EYE BOLT
2	2	3	5/8" X 10" MACHINE BOLT
3	4	4	LOCKNUTS, 5/8"
4	2	2	P143 CURVED WASHER, 3"
5	2	2	2 1/4" SQUARE WASHER
6	9	9	SUSPENSION BELL INSULATORS, 6"
7	4	3	CONDUCTOR CLAMP, DEADEND, FEED-THRU TYPE
8	1	1	STEEL ARM, M.I.F., 58", PAX 188U
9	-	1	NO. 1342 SEC. CLEVIS
10	-	1	NO. J151 SPOOL INSULATOR
11	-	1	PREFORMED CONDUCTOR DEADEND 1/0
12	3	3	CONNECTOR, SQUEEZE-ON
13	3	3	CONNECTOR, AMPACT
14	-	3	TAP STIRRUP - AMPACT
15	-	3	HOT LINE CLAMP
16	2	2	EXTENSION LINK - 14"
17	*	*	No. 6 CU.

NOTE: C7H-S, C7H-AS SUBSTITUTE A ONE PIECE PORCELAIN (UNITARY) OR 25KV POLYMER SUSPENSION INSULATOR FOR THE 3-6" PORCELAIN SUSPENSION BELLS SHOWN, EACH PHASE.

336.4 MCM MAX. CONDUCTOR SIZE

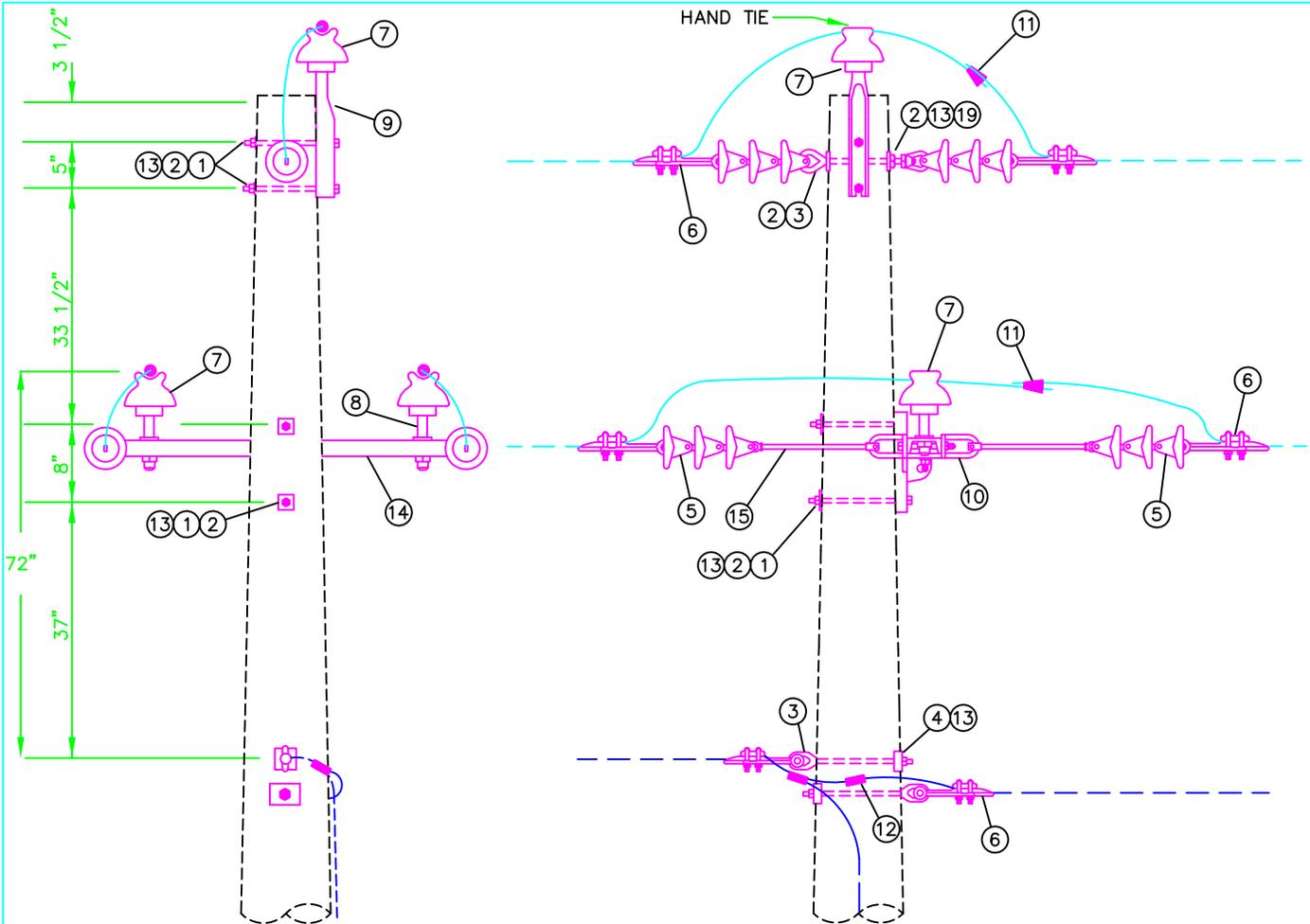
GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA



12.5/7.2KV 3-PHASE - DEADEND - TAP
M.I.F. CONSTRUCTION

DWN. RSG		DATE: 5/19/89	
CKD. H.G.B.		APPD. E.McK.	
SCALE: N.T.S. 140-2318			
DATE	REVISION	DATE	REVISION
10/90	1		

DWG. NO.
C7H
C7HS
C7H-A
C7H-AS



NOTE: C8HS, C8H-AS
 SUBSTITUTE A ONE PIECE
 PORCELAIN (UNITARY) OR 25kV
 POLYMER SUSPENSION INSULATOR
 FOR THE 3-6" PORCELAIN
 SUSPENSION BELLS SHOWN,
 EACH PHASE.

336.4 MCM MAX. CONDUCTOR SIZE

LIST OF MATERIALS

ITEM	C8H	C8H-A	DESCRIPTION
1	4	6	MACHINE BOLT, 5/8" X 10"
2	4	4	WASHER, SQUARE 2 1/4"
3	3	1	5/8" X 10" EYE BOLT
4	2	2	P143 CURVED WASHER
5	18	18	INSULATORS, SUSPENSION 6"
6	8	6	CONDUCTOR CLAMP, DEADEND, FEED THRU TYPE
7	3	3	PIN TYPE INSULATOR, NO. 77, 15KV
8	2	2	SHORT SHANK PIN, NO. 887
9	1	1	POLE TOP PIN, 18"
10	2	2	EYE NUT 3/4"
11	3	3	CONNECTOR, AMPACT
12	1	1	CONNECTOR, SQUEEZE-ON
13	7	7	LOCKNUTS, 5/8"
14	1	1	STEEL DEADEND BRACKET, MIF, 58" PAX188U
15	4	4	EXTENSION LINK, 14"
16	-	2	No. 1342 SECONDARY CLEVIS
17	-	2	No. J151 SPOOL INSULATORS
18	-	2	PREFORMED CONDUCTOR DEADEND 1/0
19	1	1	EYE NUT 5/8"

ALTERNATE NEUTRAL ATTACHMENT 1/0 ACSR
 C8HS
 C8H-AS

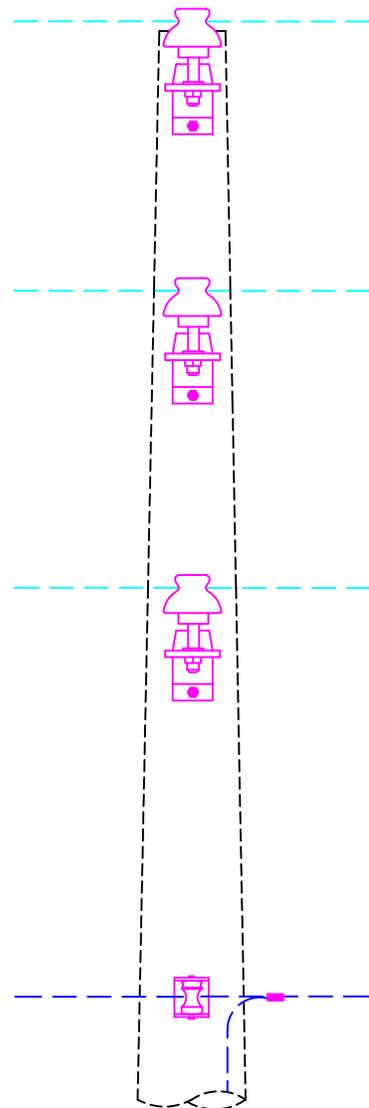
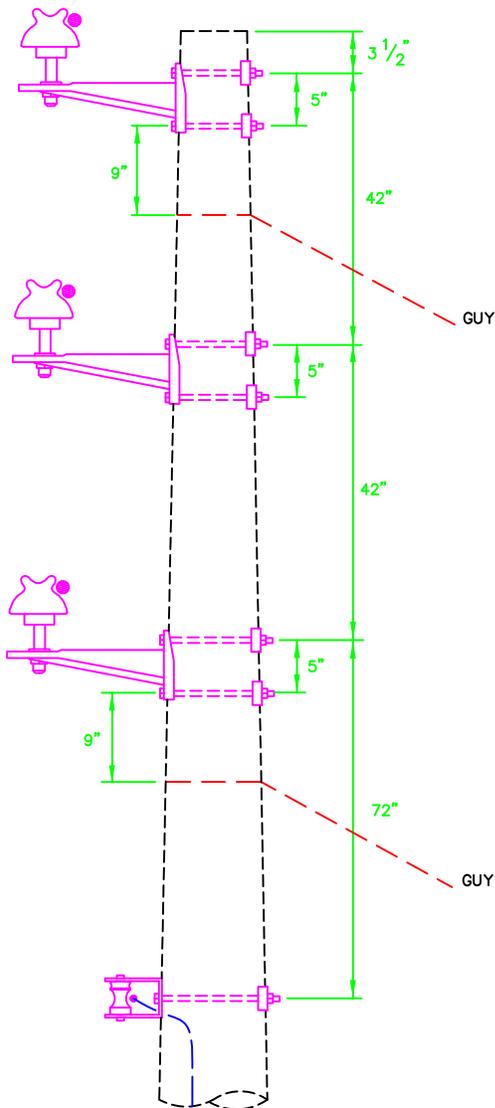


GREENVILLE UTILITIES COMMISSION
 GREENVILLE, NORTH CAROLINA

12.5/7.2 KV - 3-PHASE DOUBLE DEADEND
 STEEL CROSSARM CONSTRUCTION

DWN. M.E.C.		DATE: 6/1/89	
CKD. H.G.B.		APPD. E.McK.	
SCALE: N.T.S. 140-2318-4			
DATE	REVISION	DATE	REVISION
10/90	1		

DWG. NO.
 C8H
 C8HS
 C8H-A
 C8H-AS



NOTES

1. PRIMARY TO PRIMARY SEPARATION AT POLE IS TO BE 42" MINIMUM.
2. PRIMARY TO NEUTRAL SEPARATION AT POLE IS PREFERRED TO BE 42". OTHERWISE, SEPARATION SHALL BE DETERMINED BY MINIMUM MID-SPAN SEPARATION. IN NO CASE SHALL SEPARATION BE LESS THAN 30".
3. FOR A TYPICAL STRAIGHT LINE CONSTRUCTION, USE TOP GROOVE STRAIGHT LINE TIE
4. TYPICAL ANGLE FOR LOAD IS 1 - 3°, USE 2 PIN SIDE GROOVE DOUBLE SIDE TIE.

LIST OF MATERIALS

QTY.	DESCRIPTION
7	5/8" X REQ'D LENGTH MACHINE BOLT
7	2 1/4" FLAT WASHER
3	MIF BRACKETS
3	No. 887 SHORT SHANK PINS
3	No. 77 PIN TYPE INSULATORS - 15 KV
1	NO. 1342 CLEVIS
1	NO. J151 SPOOL INSULATOR
3	PREFORMED SIDE TIES
1	PREFORMED SPOOL TIE

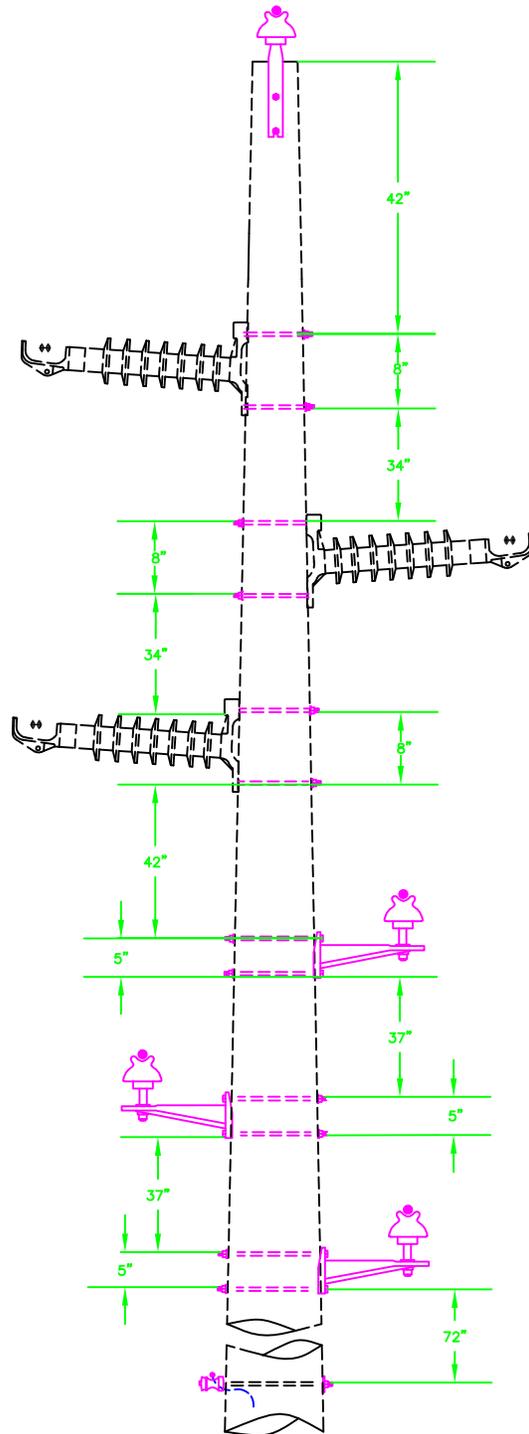
GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA



12.5/7.2 KV 3-PHASE M.I.F. CONSTRUCTION
VERTICAL LIGHT ANGLE - PIN TYPE

DWN. RSG		DATE: 5/4/95	
CKD. EGS		APPD. EGS	
SCALE: N.T.S.			
DATE	REVISION	DATE	REVISION

DWG. NO.
C1A



LIST OF MATERIALS

QTY.	DESCRIPTION
4	5/8" X 10" MACHINE BOLTS
1	5/8" X 10" SPOOL BOLT
5	2 1/4" SQUARE WASHERS
1	POLE TOP PIN, 18"
1	MIF BRACKETS
1	NO. 887 SHORT SHANK PINS
2	NO. 77 PIN TYPE INSULATORS, 15KV
1	NO. J151 SPOOL INSULATOR
2	PREFORMED WRAPLOCK TIES
1	PREFORMED SPOOL TIE

336.4 MCM MAX. CONDUCTOR SIZE

GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA



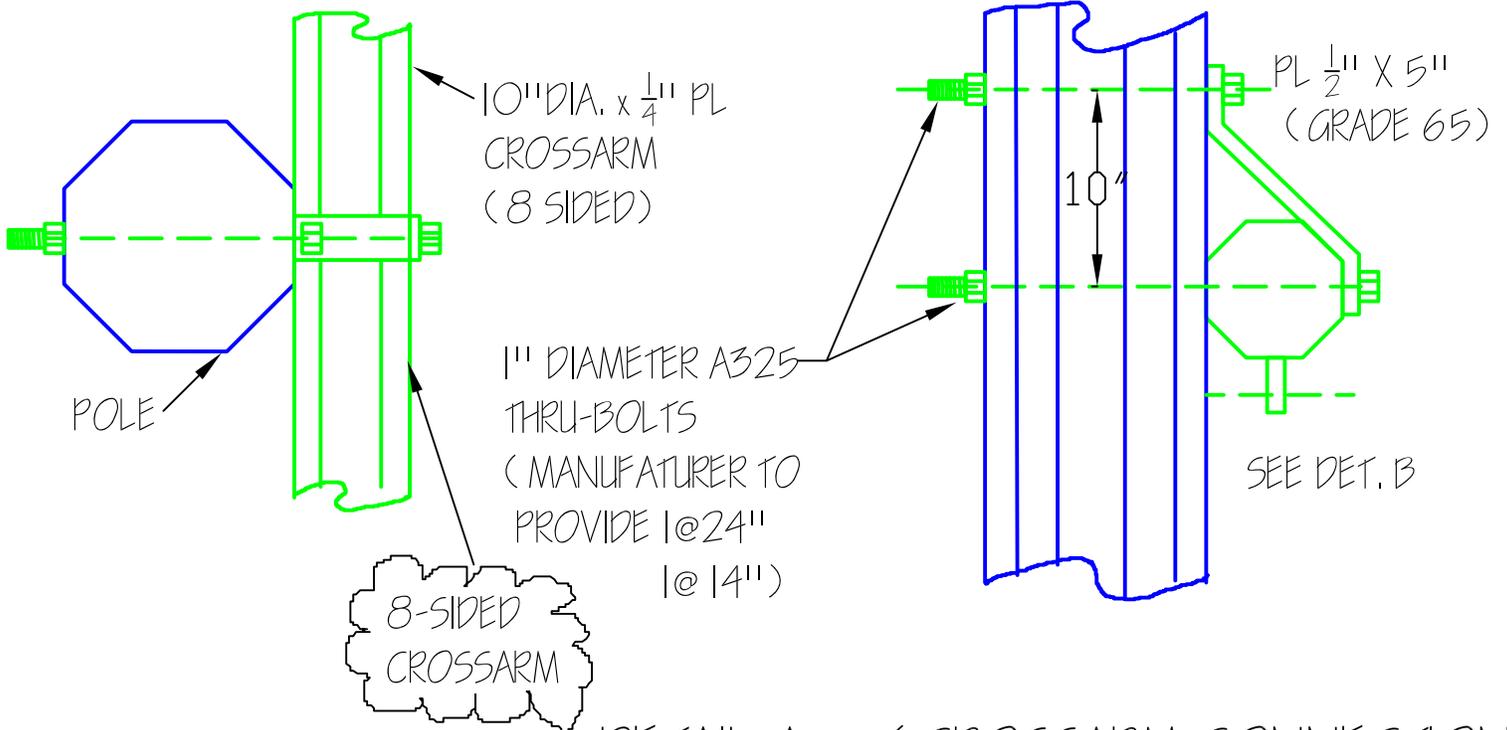
12.5/7.2KV 2-PHASE
M.I.F. CONSTRUCTION, TANGENT STRUCTURE

DWN.	RSG	DATE:	9/15/95
CKD.	EGS	APPD.	
SCALE:		NTS	
DATE	REVISION	DATE	REVISION
10/90	1		

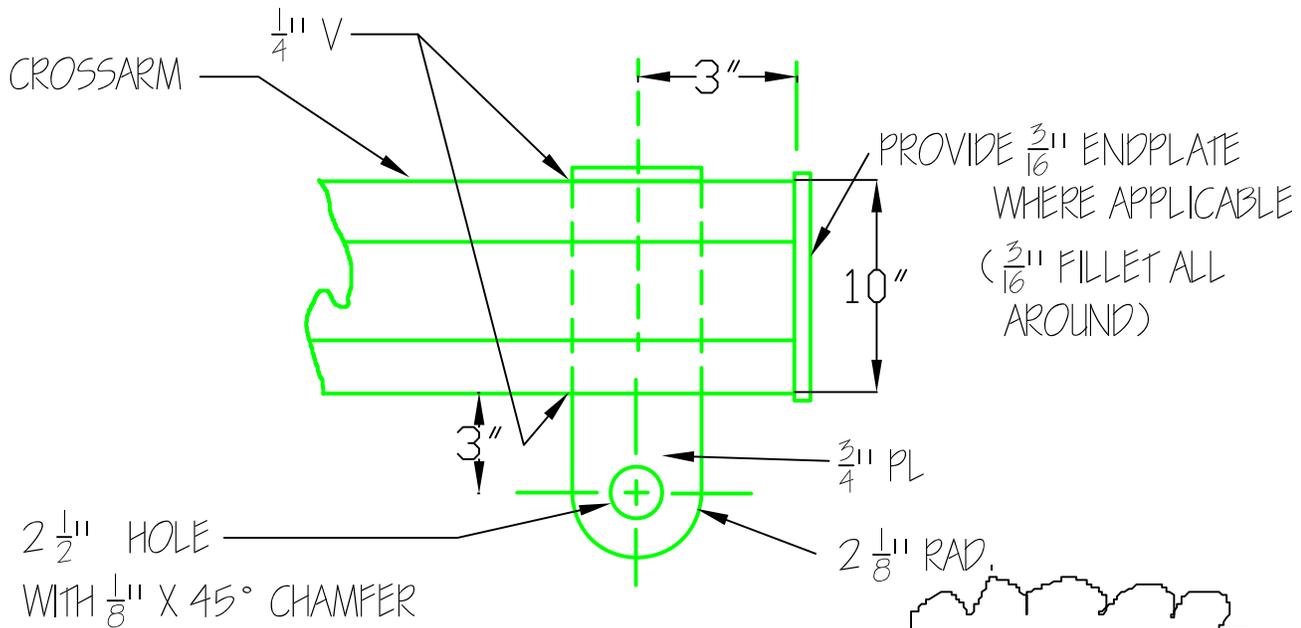
DWG. NO.

B1

CROSSARM DETAIL DRAWING



DETAIL A (CROSSARM CONNECTION)



DETAIL B

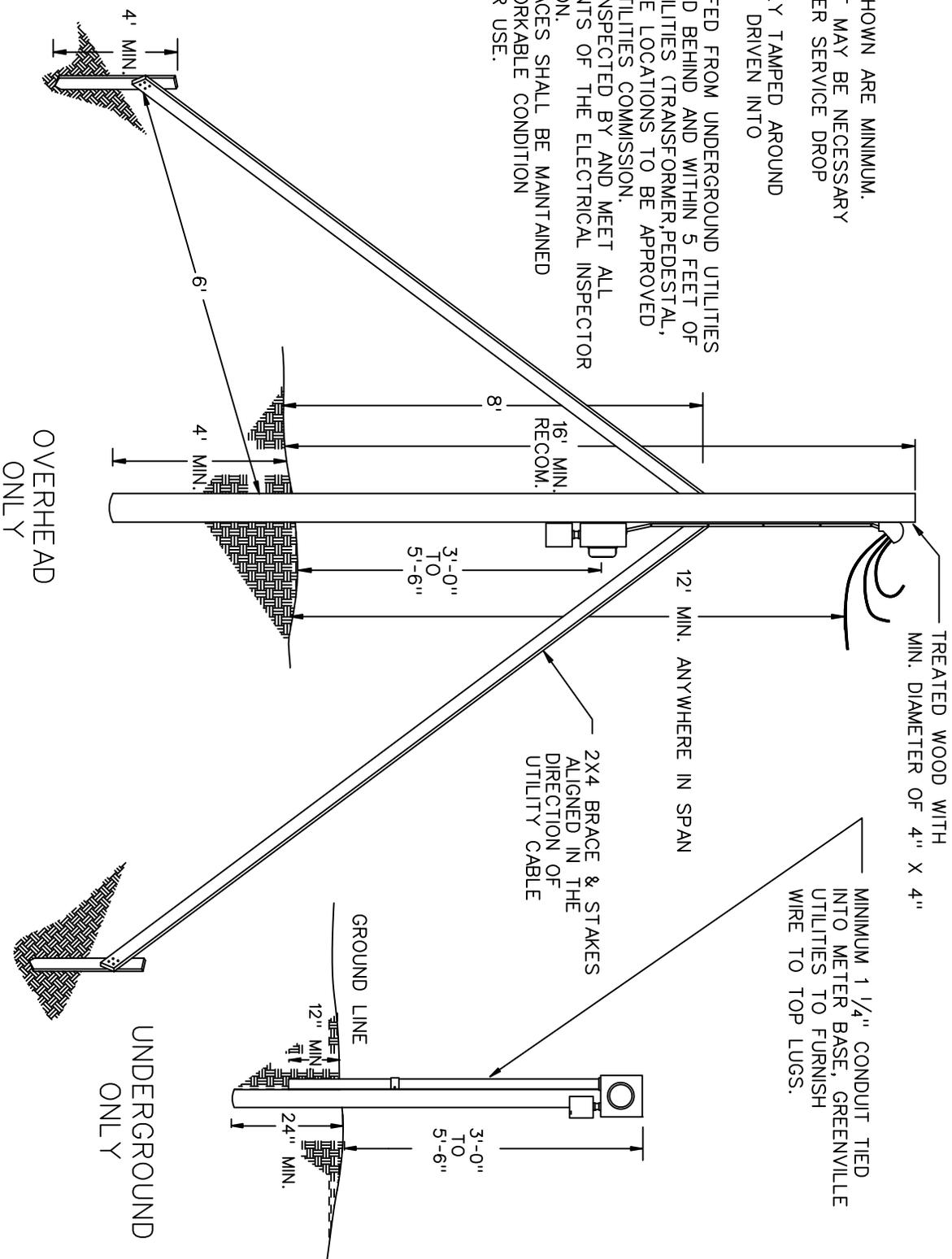
TYPICAL VANG DETAIL

3 PER CROSSARM

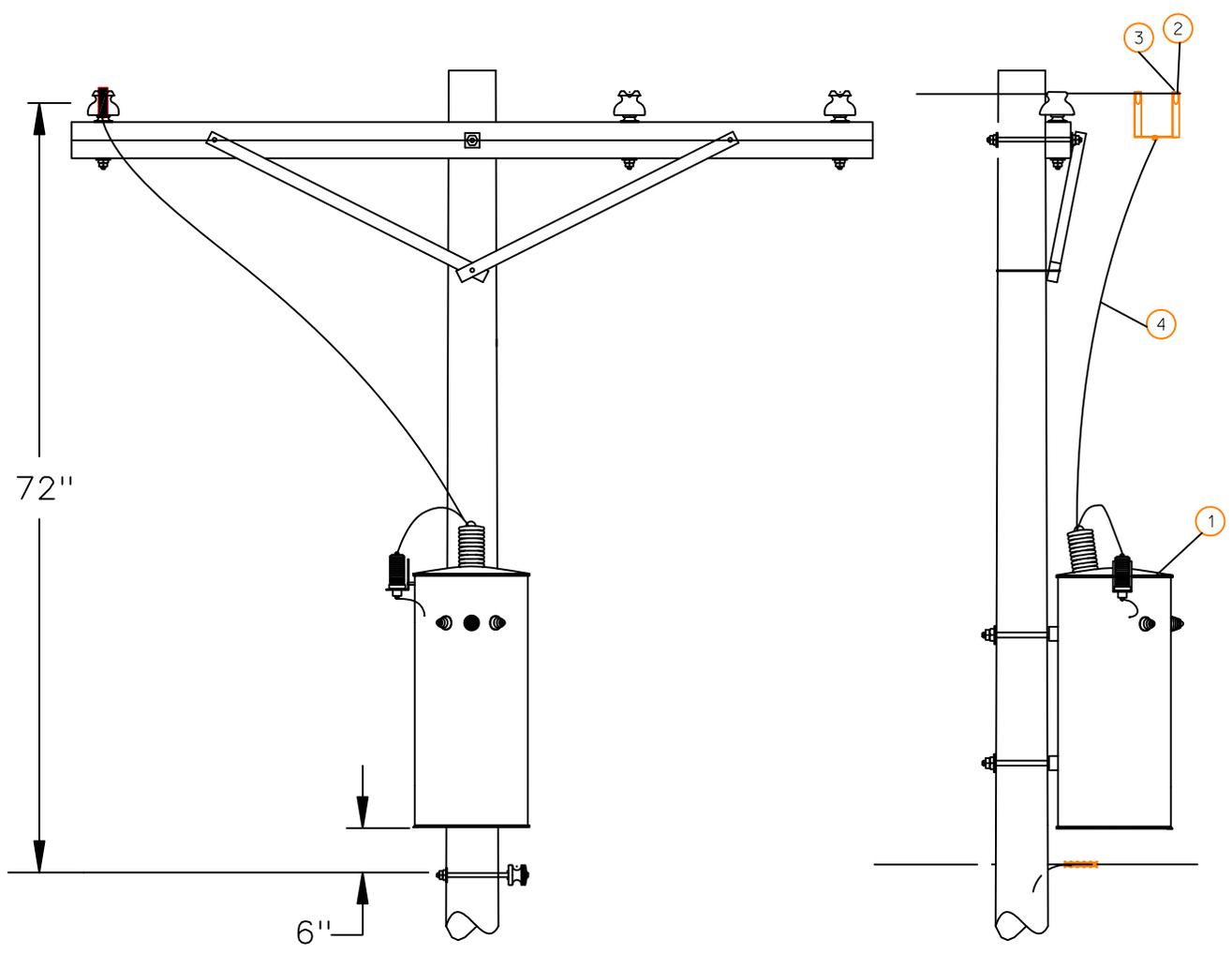


GENERAL NOTES:

1. ALL DIMENSIONS SHOWN ARE MINIMUM.
2. ADDITIONAL HEIGHT MAY BE NECESSARY TO PROVIDE PROPER SERVICE DROP CLEARANCE.
3. SOIL TO BE FIRMLY TAMPED AROUND POLE AND STAKES DRIVEN INTO FIRM EARTH.
4. SERVICES TO BE FED FROM UNDERGROUND UTILITIES SHOULD BE PLACED BEHIND AND WITHIN 5 FEET OF THE UTILITIES FACILITIES (TRANSFORMER, PEDESTAL, ETC.). ALL SERVICE LOCATIONS TO BE APPROVED BY GREENVILLE UTILITIES COMMISSION.
5. SERVICES TO BE INSPECTED BY AND MEET ALL OTHER REQUIREMENTS OF THE ELECTRICAL INSPECTOR HAVING JURISDICTION.
6. SERVICES AND BRACES SHALL BE MAINTAINED IN A SAFE AND WORKABLE CONDITION THROUGHOUT THEIR USE.



TYPICAL TEMPORARY SERVICE INSTALLATIONS ON GUCCO SYSTEM



LIST OF MATERIALS

ITEM	DESCRIPTION	QTY.
1	TRANSFORMER	1
2	STIRRUP	1
3	HOT LINE CLAMP	1
4	STINGER	1
5	MACHINE BOLTS	2
6	2 1/4" FLAT WASHERS	2

GREENVILLE UTILITIES COMMISSION
GREENVILLE, NORTH CAROLINA



12.5/7.2KV 3-PHASE TANGENT
CONSTRUCTION, WOOD CROSSARM
WITH TRANSFORMER

DWN.	RSG	DATE:	1/4/94
CKD.	EJS	APPD.	
SCALE: NONE			
DATE	REVISION	DATE	REVISION

DWG. NO.

T12

Appendix F: NCDOT Audit Requirements Memorandum

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

March 30, 2020

NCDOT Audit Requirements

The following audit information is required:

1. Architect and Engineering (A/E) firms with total applicable contract fees of \$500,000 or greater for the previous calendar year shall submit an audit or examination level attestation of Direct Labor, Fringe Benefits, and Indirect Costs (overhead) prepared by an independent Certified Public Accountant or governmental agency. The audit report must be received by the Department within six months from the end of the firm's fiscal year. Applicable contract fees include payments made by NCDOT or North Carolina Municipalities using Federal-aid Highway Program (FAHP) funding. Contracts for engineering and design related services which utilize Federal-aid Highway Program funds and are directly related to an ultimate construction project must comply with the requirements established in 23 CFR 172.

The report should include the following:

- a. A statement that the audit was performed in accordance with the *Government Auditing Standards*, promulgated by the U.S. Government Accountability Office.
- b. A Facilities Capital Cost of Money (FCCM), if applicable, for the most recently completed fiscal year. This is also referred to as Cost of Capital (COC).
- c. A statement that the consultant's method of estimating costs for proposals is consistent with the accounting system.
- d. A statement indicating the existence of an adequate accounting system that meets the Department's audit requirement, as evidenced by certification by an independent Certified Public Accountant or governmental agency. The system must be adequate to support billings made to the Department and other clients.
- e. The auditor and A/E firm should follow the guidance provided in the most current AASHTO Uniform Audit and Accounting Guide.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
OFFICE OF INSPECTOR GENERAL
1507 MAIL SERVICE CENTER
RALEIGH, NC 27699-1507

Telephone: (919) 707-4582
Fax: (919) 715-2710
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1 SOUTH WILMINGTON STREET
RALEIGH, NC 27699-1507

2. A/E firms with anticipated total contract fees under \$500,000 for the upcoming calendar year may not be required to submit an indirect cost rate audit. They may submit a self- certified FAR compliant overhead report and statement describing their accounting system, certified by a principal with ample knowledge of the system, in lieu of an audit report and accounting system certification prepared by an independent Certified Public Accountant or governmental agency; however, the Department reserves the right to require an audit by an independent CPA or governmental agency for these firms if deemed necessary by risk assessment.
3. NCDOT may allow a “safe harbor” overhead rate if the firm is unable to calculate or produce an acceptable computation. This safe harbor rate is low compared to industry average, currently **110%**, thus encouraging firms to maintain their records to be able to prepare an acceptable computation.
4. Firms doing business with NCDOT and having *embedded employees* within NCDOT offices must use an approved/audited field rate or an approved project-specific overhead rate for these employees. If an approved rate has not been established, then a negotiated rate will be determined; currently **90.00%**. NCDOT will review all proposed overhead rates for embedded employees on a case by case basis.
5. The *Internal Control Questionnaire* (ICQ) and *Certification of Final Indirect Costs* (CCL), forms must be completed each fiscal year and submitted with the overhead computation (available on the NCDOT Private Engineering Firm Resources website:).
<https://connect.ncdot.gov/business/consultants/Pages/Guidelines-Forms.aspx>
6. NCDOT has developed the Consultant Rate Schedule (CRS). Consultants are to enter employee payrates and overhead rates into this system along with proper documentation. Proper documentation for payrates would be a check stub or printout from the payroll accounting system. All documentation must show the employee name, personnel number and hourly rate of pay. Overhead documentation consists of the following: *overhead schedule* or *CPA audit report* if audited by a CPA firm, *Cost Certification Form*, *NCDOT Acceptance Letter* and *Internal Control Questionnaire*. If a Cognizant audit, the following are required: *CPA audit report*, *Cost Certification Form*, *Internal Control Questionnaire* and letter from the state that conducted the cognizant review showing the approved audited overhead rates.

The contracting firm will be responsible for ensuring all audit requirements are met for their sub-consultants.

NCDOT will issue a letter of acceptance of the submitted indirect cost rate(s) once they are approved.



Lonnetta Raynor – Manager
NCDOT Office of Inspector General
Consultant, Utility, Rail and Turnpike
1507 Mail Service Center
Raleigh, NC 27699-1507
Office: (919) 707-4582