



CALL NO. 107

CONTRACT ID. 211032

HOPKINS COUNTY

FED/STATE PROJECT NUMBER STP 1091(029)

DESCRIPTION DIXIE ROAD(US-41A)

WORK TYPE GRADE, DRAIN & SURFACE WITH BRIDGE

PRIMARY COMPLETION DATE 11/30/2025

LETTING DATE: July 23,2021

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 am EASTERN DAYLIGHT TIME, July 23,2021. Bids will be publicly announced at 10:00 am EASTERN DAYLIGHT TIME.

PLANS AVAILABLE FOR THIS PROJECT.

DBE CERTIFICATION REQUIRED - 8%

REQUIRED BID PROPOSAL GUARANTY: Not less than 5% of the total bid.

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PART I
SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 02

CONTRACT ID - 211032
STP 1091(029)
COUNTY - HOPKINS
PCN - DE054041A2132
STP 1091(029)

DIXIE ROAD(US-41A) (MP 1.25) IMPROVE US-41A FROM INDUSTRIAL DRIVE TO YORKWOOD PLACE (MP 3.30), A
DISTANCE OF 02.05 MILES.GRADE & DRAIN WITH ASPHALT SURFACE SYP NO. 02-00137.10.
GEOGRAPHIC COORDINATES LATITUDE 37:21:11.00 LONGITUDE 87:32:18.00

COMPLETION DATE(S):
COMPLETED BY 11/30/2025 APPLIES TO ENTIRE CONTRACT

CONTRACT NOTES

PROPOSAL ADDENDA

All addenda to this proposal must be applied when calculating bid and certified in the bid packet submitted to the Kentucky Department of Highways. Failure to use the correct and most recent addenda may result in the bid being rejected.

BID SUBMITTAL

Bidder must use the Department's electronic bidding software. The Bidder must download the bid file located on the Bid Express website (www.bidx.com) to prepare a bid packet for submission to the Department. The bidder must submit electronically using Bid Express.

JOINT VENTURE BIDDING

Joint venture bidding is permissible. All companies in the joint venture must be prequalified in one of the work types in the Qualifications for Bidders for the project. The bidders must get a vendor ID for the joint venture from the Division of Construction Procurement and register the joint venture as a bidder on the project. Also, the joint venture must obtain a digital ID from Bid Express to submit a bid. A joint bid bond of 5% may be submitted for both companies or each company may submit a separate bond of 5%.

UNDERGROUND FACILITY DAMAGE PROTECTION

The contractor shall make every effort to protect underground facilities from damage as prescribed in the Underground Facility Damage Protection Act of 1994, Kentucky Revised Statute KRS 367.4901 to 367.4917. It is the contractor's responsibility to determine and take steps necessary to be in compliance with federal and state damage prevention directives. When prescribed in said directives, the contractor shall submit Excavation Locate Requests to the Kentucky Contact Center (KY811) via web ticket entry. The submission of this request does not relieve the contractor from the responsibility of contacting non-member facility owners, whom shall be contacted through their individual Protection Notification Center. Non-compliance with these directives can result in the enforcement of penalties.

REGISTRATION WITH THE SECRETARY OF STATE BY A FOREIGN ENTITY

Pursuant to KRS 176.085(1)(b), an agency, department, office, or political subdivision of the Commonwealth of Kentucky shall not award a state contract to a person that is a foreign entity required by [KRS 14A.9-010](#) to obtain a certificate of authority to transact business in the Commonwealth ("certificate") from the Secretary of State under [KRS 14A.9-030](#) unless the person produces the certificate within fourteen (14) days of the bid or proposal opening. If the foreign entity is not required to obtain a certificate as provided in [KRS 14A.9-010](#), the foreign entity should identify the applicable exception. Foreign entity is defined within [KRS 14A.1-070](#).

For all foreign entities required to obtain a certificate of authority to transact business in the Commonwealth, if a copy of the certificate is not received by the contracting agency within the time frame identified above, the foreign entity's solicitation response shall be deemed non-responsive or the awarded contract shall be cancelled.

Businesses can register with the Secretary of State at <https://secure.kentucky.gov/sos/ftbr/welcome.aspx>.

SPECIAL NOTE FOR PROJECT QUESTIONS DURING ADVERTISEMENT

Questions about projects during the advertisement should be submitted in writing to the Division of Construction Procurement. This may be done by fax (502) 564-7299 or email to kytc.projectquestions@ky.gov. The Department will attempt to answer all submitted questions. The Department reserves the right not to answer if the question is not pertinent or does not aid in clarifying the project intent.

The deadline for posting answers will be 3:00 pm Eastern Daylight Time, the day preceding the Letting. Questions may be submitted until this deadline with the understanding that the later a question is submitted, the less likely an answer will be able to be provided.

The questions and answers will be posted for each Letting under the heading "Questions & Answers" on the Construction Procurement website (www.transportation.ky.gov/contract). The answers provided shall be considered part of this Special Note and, in case of a discrepancy, will govern over all other bidding documents.

HARDWOOD REMOVAL RESTRICTIONS

The US Department of Agriculture has imposed a quarantine in Kentucky and several surrounding states, to prevent the spread of an invasive insect, the emerald ash borer. Hardwood cut in conjunction with the project may not be removed from the state. Chipping or burning on site is the preferred method of disposal.

INSTRUCTIONS FOR EXCESS MATERIAL SITES AND BORROW SITES

Identification of excess material sites and borrow sites shall be the responsibility of the Contractor. The Contractor shall be responsible for compliance with all applicable state and federal laws and may wish to consult with the US Fish and Wildlife Service to seek protection under Section 10 of the Endangered Species Act for these activities.

ACCESS TO RECORDS

The contractor, as defined in KRS 45A.030 (9) agrees that the contracting agency, the Finance and Administration Cabinet, the Auditor of Public Accounts, and the Legislative Research Commission, or their duly authorized representatives, shall have access to any books, documents, papers, records, or other evidence, which are directly pertinent to this contract for the purpose of financial audit or program review. Records and other prequalification information confidentially

disclosed as part of the bid process shall not be deemed as directly pertinent to the contract and shall be exempt from disclosure as provided in KRS 61.878(1)(c). The contractor also recognizes that any books, documents, papers, records, or other evidence, received during a financial audit or program review shall be subject to the Kentucky Open Records Act, KRS 61.870 to 61.884.

In the event of a dispute between the contractor and the contracting agency, Attorney General, or the Auditor of Public Accounts over documents that are eligible for production and review, the Finance and Administration Cabinet shall review the dispute and issue a determination, in accordance with Secretary's Order 11-004.

April 30, 2018

FEDERAL CONTRACT NOTES

The Kentucky Department of Highways, in accordance with the Regulations of the United States Department of Transportation 23 CFR 635.112 (h), hereby notifies all bidders that failure by a bidder to comply with all applicable sections of the current Kentucky Standard Specifications, including, but not limited to the following, may result in a bid not being considered responsive and thus not eligible to be considered for award:

- | | |
|--------------------------------|--|
| 102.02 Current Rating | 102.08 Preparation and Delivery of Proposals |
| 102.13 Irregular Bid Proposals | 102.14 Disqualification of Bidders |
| 102.09 Proposal Guaranty | |

CIVIL RIGHTS ACT OF 1964

The Kentucky Department of Highways, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252) and the Regulations of the Federal Department of Transportation (49 C.F.R., Part 21), issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the ground of race, color, or national origin.

NOTICE TO ALL BIDDERS

To report bid rigging activities call: 1-800-424-9071.

The U.S. Department of Transportation (DOT) operates the above toll-free “hotline” Monday through Friday, 8:00 a.m. to 5:00 p.m. eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the “hotline” to report such activities.

The “hotline” is part of the DOT’s continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

SECOND TIER SUBCONTRACTS

Second tier subcontracts are acceptable per Section 108.01 of the Standard Specifications for Road and Bridge Construction. There are special rules to DBE subcontractors satisfying DBE goals on federal-aid projects. 1st-Tier DBE Subcontractors may only enter into a 2nd-Tier subcontract with another DBE contractor.

DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

It is the policy of the Kentucky Transportation Cabinet (“the Cabinet”) that Disadvantaged Business Enterprises (“DBE”) shall have the opportunity to participate in the performance of highway construction projects financed in whole or in part by Federal Funds in order to create a level playing field for all businesses who wish to contract with the Cabinet. To that end, the Cabinet will comply with the regulations found in 49 CFR Part 26, and the definitions and requirements contained therein shall be adopted as if set out verbatim herein.

The Cabinet, contractors, subcontractors, and sub-recipients shall not discriminate on the basis of race, color, national origin, or sex in the performance of work performed pursuant to Cabinet contracts. The contractor shall carry out applicable requirements of 49 CFR 26 in the award and administration of federally assisted highway construction projects. The contractor will include this provision in all its subcontracts and supply agreements pertaining to contracts with the Cabinet.

Failure by the contractor to carry out these requirements is a material breach of its contract with the Cabinet, which may result in the termination of the contract or such other remedy as the Cabinet deems necessary.

DBE GOAL

The Disadvantaged Business Enterprise (DBE) goal established for this contract, as listed on the front page of the proposal, is the percentage of the total value of the contract.

The contractor shall exercise all necessary and reasonable steps to ensure that Disadvantaged Business Enterprises participate in a least the percent of the contract as set forth above as goals for this contract.

OBLIGATION OF CONTRACTORS

Each contractor prequalified to perform work on Cabinet projects shall designate and make known to the Cabinet a liaison officer who is assigned the responsibility of effectively administering and promoting an active program for utilization of DBEs.

If a formal goal has not been designated for the contract, all contractors are encouraged to consider DBEs for subcontract work as well as for the supply of material and services needed to perform this work.

Contractors are encouraged to use the services of banks owned and controlled by minorities and women.

CERTIFICATION OF CONTRACT GOAL

Contractors shall include the following certification in bids for projects for which a DBE goal has been established. BIDS SUBMITTED WHICH DO NOT INCLUDE CERTIFICATION OF DBE PARTICIPATION WILL NOT BE ACCEPTED. These bids will not be considered for award by the Cabinet and they will be returned to the bidder.

“The bidder certifies that it has secured participation by Disadvantaged Business Enterprises (“DBE”) in the amount of _____ percent of the total value of this contract and that the DBE participation is in compliance with the requirements of 49 CFR 26 and the policies of the Kentucky Transportation Cabinet pertaining to the DBE Program.”

The certification statement is located in the electronic bid file. All contractors must certify their DBE participation on that page. DBEs utilized in achieving the DBE goal must be certified and prequalified for the work items at the time the bid is submitted.

DBE PARTICIPATION PLAN

Lowest responsive bidders must submit the *DBE Plan/ Subcontractor Request*, form TC 14-35 DBE, within **5** days of the letting. This is necessary before the Awards Committee will review and make a recommendation. **The project will not be considered for award prior to submission and approval of the apparent low bidder’s DBE Plan/Subcontractor Request.**

The DBE Participation Plan shall include the following:

1. Name and address of DBE Subcontractor(s) and/or supplier(s) intended to be used in the proposed project;
2. Description of the work each is to perform including the work item, unit, quantity, unit price and total amount of the work to be performed by the individual DBE. The Proposal Line Number, Category Number, and the Project Line Number can be found in the “material listing” on the Construction Procurement website under the specific letting;
3. The dollar value of each proposed DBE subcontract and the percentage of total project contract value this represents. DBE participation may be counted as follows;
 - a. If DBE suppliers and manufactures assume actual and contractual responsibility, the dollar value of materials to be furnished will be counted toward the goal as follows:
 - The entire expenditure paid to a DBE manufacturer;
 - 60 percent of expenditures to DBE suppliers that are not manufacturers provided the supplier is a regular dealer in the product involved. A regular dealer must be engaged in, as its principal business and in its own name, the sale of products to the public, maintain an inventory and own and operate distribution equipment; and
 - The amount of fees or commissions charged by the DBE firms for a bona fide service, such as professional, technical, consultant, or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials, supplies, delivery of materials and supplies or for furnishing bonds, or insurance, providing such fees or commissions are determined to be reasonable and customary.

- b) The dollar value of services provided by DBEs such as quality control testing, equipment repair and maintenance, engineering, staking, etc.;
- c) The dollar value of joint ventures. DBE credit for joint ventures will be limited to the dollar amount of the work actually performed by the DBE in the joint venture;
- 4. Written and signed documentation of the bidder's commitment to use a DBE contractor whose participation is being utilized to meet the DBE goal; and
- 5. Written and signed confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment.

UPON AWARD AND BEFORE A WORK ORDER WILL BE ISSUED

Contractors must submit the signed subcontract between the contractor and the DBE contractor, along with the DBE's certificate of insurance. If the DBE is a supplier of materials for the project, a signed purchase order must be submitted to the Division of Construction Procurement.

Changes to DBE Participation Plans must be approved by the Cabinet. The Cabinet may consider extenuating circumstances including, but not limited to, changes in the nature or scope of the project, the inability or unwillingness of a DBE to perform the work in accordance with the bid, and/or other circumstances beyond the control of the prime contractor.

CONSIDERATION OF GOOD FAITH EFFORTS REQUESTS

If the DBE participation submitted in the bid by the apparent lowest responsive bidder does not meet or exceed the DBE contract goal, the apparent lowest responsive bidder must submit a Good Faith Effort Package to satisfy the Cabinet that sufficient good faith efforts were made to meet the contract goals prior to submission of the bid. Efforts to increase the goal after bid submission will not be considered in justifying the good faith effort, unless the contractor can show that the proposed DBE was solicited prior to the letting date. DBEs utilized in achieving the DBE goal must be certified and prequalified for the work items at the time the bid is submitted. One complete set (hard copy along with an electronic copy) of this information must be received in the Division of Contract Procurement no later than 12:00 noon of the tenth calendar day after receipt of notification that they are the apparent low bidder.

Where the information submitted includes repetitious solicitation letters it will be acceptable to submit a sample representative letter along with a distribution list of the firms solicited. Documentation of DBE quotations shall be a part of the good faith effort submittal as necessary to demonstrate compliance with the factors listed below which the Cabinet considers in judging good faith efforts. This documentation may include written subcontractors' quotations, telephone log notations of verbal quotations, or other types of quotation documentation.

The Good Faith Effort Package shall include, but may not be limited to information showing evidence of the following:

1. Whether the bidder attended any pre-bid meetings that were scheduled by the Cabinet to inform DBEs of subcontracting opportunities;
2. Whether the bidder provided solicitations through all reasonable and available means;
3. Whether the bidder provided written notice to all DBEs listed in the DBE directory at the time of the letting who are prequalified in the areas of work that the bidder will be subcontracting;
4. Whether the bidder followed up initial solicitations of interest by contacting DBEs to determine with certainty whether they were interested. If a reasonable amount of DBEs within the targeted districts do not provide an intent to quote or no DBEs are prequalified in the subcontracted areas, the bidder must notify the Disadvantaged Enterprise Business Liaison Officer (DEBLO) in the Office of Civil Rights and Small Business Development to give notification of the bidder's inability to get DBE quotes;
5. Whether the bidder selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise perform these work items with its own forces;
6. Whether the bidder provided interested DBEs with adequate and timely information about the plans, specifications, and requirements of the contract;
7. Whether the bidder negotiated in good faith with interested DBEs not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached;
8. Whether quotations were received from interested DBE firms but were rejected as unacceptable without sound reasons why the quotations were considered unacceptable. The fact that the DBE firm's quotation for the work is not the lowest quotation received will not in itself be considered as a sound reason for rejecting the quotation as unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a DBE quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy DBE goals;
9. Whether the bidder specifically negotiated with subcontractors to assume part of the responsibility to meet the contract DBE goal when the work to be subcontracted includes potential DBE participation;
10. Whether the bidder made any efforts and/or offered assistance to interested DBEs in obtaining the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal; and
11. Any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include DBE participation.

FAILURE TO MEET GOOD FAITH REQUIREMENT

Where the apparent lowest responsive bidder fails to submit sufficient participation by DBE firms to meet the contract goal and upon a determination by the Good Faith Committee based upon the information submitted that the apparent lowest responsive bidder failed to make sufficient reasonable efforts to meet the contract goal, the bidder will be offered the opportunity to meet in person for administrative reconsideration. The bidder will be notified of the Committee's decision within 24 hours of its decision. The bidder will have 24 hours to request reconsideration of the Committee's decision. The reconsideration meeting will be held within two days of the receipt of a request by the bidder for reconsideration.

The request for reconsideration will be heard by the Office of the Secretary. The bidder will have the opportunity to present written documentation or argument concerning the issue of whether it met the goal or made an adequate good faith effort. The bidder will receive a written decision on the reconsideration explaining the basis for the finding that the bidder did or did not meet the goal or made adequate Good Faith efforts to do so.

The result of the reconsideration process is not administratively appealable to the Cabinet or to the United States Department of Transportation.

The Cabinet reserves the right to award the contract to the next lowest responsive bidder or to rebid the contract in the event that the contract is not awarded to the low bidder as the result of a failure to meet the good faith requirement.

SANCTIONS FOR FAILURE TO MEET DBE REQUIREMENTS OF THE PROJECT

Failure by the prime contractor to fulfill the DBE requirements of a project under contract or to demonstrate good faith efforts to meet the goal constitutes a breach of contract. When this occurs, the Cabinet will hold the prime contractor accountable, as would be the case with all other contract provisions. Therefore, the contractor's failure to carry out the DBE contract requirements shall constitute a breach of contract and as such the Cabinet reserves the right to exercise all administrative remedies at its disposal including, but not limited to the following:

- Disallow credit toward the DBE goal;
- Withholding progress payments;
- Withholding payment to the prime in an amount equal to the unmet portion of the contract goal; and/or
- Termination of the contract.

PROMPT PAYMENT

The prime contractor will be required to pay the DBE within seven (7) working days after he or she has received payment from the Kentucky Transportation Cabinet for work performed or materials furnished.

CONTRACTOR REPORTING

All contractors must keep detailed records and provide reports to the Cabinet on their progress in meeting the DBE requirement on any highway contract. These records may include, but shall not be limited to payroll, lease agreements, cancelled payroll checks, executed subcontracting agreements, etc. Prime contractors will be required to complete and submit a **signed and notarized** Affidavit of Subcontractor Payment (TC 18-7) and copies of checks for any monies paid to each DBE subcontractor or supplier utilized to meet a DBE goal. These documents must be completed and signed within 7 days of being paid by the Cabinet.

Payment information that needs to be reported includes date the payment is sent to the DBE, check number, Contract ID, amount of payment and the check date. Before Final Payment is made on this contract, the Prime Contractor will certify that all payments were made to the DBE subcontractor and/or DBE suppliers.

******* IMPORTANT *******

Please mail the original, signed and completed TC (18-7) Affidavit of Subcontractor Payment form and all copies of checks for payments listed above to the following address:

Office of Civil Rights and Small Business Development
6th Floor West 200 Mero Street
Frankfort, KY 40622

The prime contractor should notify the KYTC Office of Civil Rights and Small Business Development seven (7) days prior to DBE contractors commencing work on the project. The contact in this office is Mr. Melvin Bynes. Mr. Bynes' current contact information is email address – melvin.bynes2@ky.gov and the telephone number is (502) 564-3601.

DEFAULT OR DECERTIFICATION OF THE DBE

If the DBE subcontractor or supplier is decertified or defaults in the performance of its work, and the overall goal cannot be credited for the uncompleted work, the prime contractor may utilize a substitute DBE or elect to fulfill the DBE goal with another DBE on a different work item. If after exerting good faith effort in accordance with the Cabinet's Good Faith Effort policies and procedures, the prime contractor is unable to replace the DBE, then the unmet portion of the goal may be waived at the discretion of the Cabinet.

PROHIBITION ON TELECOMMUNICATIONS EQUIPMENT OR SERVICES

In accordance with the FY 2019 National Defense Authorization Act (NDAA), 2 CFR 200.216, and 2 CFR 200.471, Federal agencies are prohibited, after August 13, 2020, from obligating or expending financial assistance to obtain certain telecommunications and video surveillance services and equipment from specific producers. As a result of these regulations, contractors and subcontractors are prohibited, on projects with federal funding participation, from providing telecommunication or video surveillance equipment, services, or systems produced by:

- Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities)
- Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities)

LEGAL REQUIREMENTS AND RESPONSIBILITY TO THE PUBLIC – CARGO PREFERENCE ACT (CPA).

(REV 12-17-15) (1-16)

SECTION 7 is expanded by the following new Article:

102.10 **Cargo Preference Act – Use of United States-flag vessels.**

Pursuant to Title 46CFR Part 381, the Contractor agrees

- To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

- To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph 1 of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

- To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

ASPHALT MIXTURE

Unless otherwise noted, the Department estimates the rate of application for all asphalt mixtures to be 110 lbs/sy per inch of depth.

INCIDENTAL SURFACING

The Department has included in the quantities of asphalt mixtures established in the proposal estimated quantities required for resurfacing or surfacing mailbox turnouts, farm field entrances, residential and commercial entrances, curve widening, ramp gores and tapers, and road and street approaches, as applicable. Pave these areas to the limits as shown on Standard Drawing RPM-110-06 or as directed by the Engineer. In the event signal detectors are present in the intersecting streets or roads, pave the crossroads to the right of way limit or back of the signal detector, whichever is the farthest back of the mainline. Surface or resurface these areas as directed by the Engineer. The Department will not measure placing and compacting for separate payment but shall be incidental to the Contract unit price for the asphalt mixtures.

FUEL AND ASPHALT PAY ADJUSTMENT

The Department has included the Contract items Asphalt Adjustment and Fuel Adjustment for possible future payments at an established Contract unit price of \$1.00. The Department will calculate actual adjustment quantities after work is completed. If existing Contract amount is insufficient to pay all items on the contract with the adjustments, the Department will establish additional monies with a change order.

ASPHALT PAVEMENT RIDE QUALITY CATEGORY A

The Department will apply Pavement Rideability Requirements on this project in accordance with Section 410, Category A.

OPTION A

Be advised that the Department will accept compaction of asphalt mixtures furnished for driving lanes and ramps, at 1 inch (25mm) or greater, on this project according to OPTION A in accordance with Section 402 and Section 403 of the current Standard Specifications. The Department will require joint cores as described in Section 402.03.02 for surface mixtures only. The Department will accept compaction of all other asphalt mixtures according to OPTION B.

MATERIAL TRANSFER VEHICLE (MTV)

Provide and use a MTV in accordance with Sections 403.02.10 and 403.03.05.

RECOMMENDATION FOR PICKUP OF ITEMS TO BE INSTALLED
ON TRAFFIC SIGNALS/LIGHTING

Item Number: 2-137.10

County: HOPKINS

Description: US 41A @ INDUSTRIAL DR.

Cabinets	Master code	
1	T-01-0020	Base Mounted 332 Cabinet
1	T-01-0105	ATC Controller
1	T-01-0106	1C w/Maxtime (this should go with item ATC controller)
6	T-01-0600	Loop Detector, Model 222
4	T-01-0700	Load Switches

Signals		
8	T-02-0009	Siemens 3 Section Signal
8	T-02-0032	Siemen 3 section backplate
8	T-02-0330	LED Module 12" red ball
8	T-02-0340	LED Module 12" yellow ball
8	T-02-0350	LED Module 12" green ball

Special items		
1	T-02-0504	Router (this includes power supply/antenna/cabling)

Poles		
4	T-04-0030	Steel Strain Pole 32 foot

Electrical Contractor Name

Electrical Contractor Supervisor

Project Engineer

Project Engineer attests that the mentioned contractor is the actual electrical contractor on this project

Signature of Project Engineer or Designee

Contact number for Supervisor

Contact number for Project Engineer

SPECIAL NOTE

The following shall not commence until 6 months prior to contract completion **or as directed by engineer:**

- 1. Construction of Baldwin Dr. south of US 41A
- 2. Pavement removal on Bean Cemetery Rd.
- 3. Access removal of Parcel 17.
- 4. Construction of Baldwin-Tucker School Connector.
- 5. Access removal of Parcel 44.

SPECIAL NOTE

SEWER RELOCATION

US 41A (HOPKINS)

ITEM NO. 02-0137.10

This Special Note will apply for all work related to furnishing, installing, testing and placing into service the newly relocated sewer main, services and appurtenances.

1.0 SCOPE OF WORK

The scope of work shall include the relocation of sewer facilities owned by the City of Madisonville. The sewer line relocation work is shown on project drawings U1 through U68. The project includes the following major work items:

- Relocate existing sewer lines
- Installation of new sewer lines
- Boring and jacking new sewer lines
- Installation of manholes and service connections

2.0 MAINTENANCE OF TRAFFIC AND EROSION CONTROL

Any required maintenance of traffic and erosion control best management practices for the sewer line relocation work shall fall under the roadway project maintenance of traffic and erosion control and is not a separate pay item. See Traffic Control Sheets and Erosion Control Sheets.

3.0 PIPELINE MATERIALS, CONSTRUCTION, TESTING AND TIE-INS

Unless otherwise indicated on the project drawings or modified by this special note, KYTC's specifications and the attached technical specifications shall apply to the sewer line relocation materials, installation, testing and tie-ins on this project.

4.0 GENERAL UTILITY NOTES AND INSTRUCTIONS APPLICABLE TO SEWER LINE RELOCATION WORK MADE A PART OF ROAD CONSTRUCTION CONTRACT

The contractor should be aware the following utility notes and KYTC Utility Bid Item Descriptions shall supersede, replace and take precedence over any and all conflicting information that may be contained in technical specifications contained in the contract, on plans supplied by the utility owner, or any utility owner specifications or information externally referenced in this contract.

Where information may have been omitted from these notes, bid item descriptions, technical specifications or plans; the KYTC Standard Specifications for Road and Bridge Construction shall be referenced.

4.1 Protection of Existing Utilities. The existing utilities shown on the plans are shown as best known at the time the plans were developed and are to be used as a guide only by the Contractor. The Contractor shall use all means at his disposal to accurately locate all existing utilities, whether shown on the plans or not, prior to excavation. The contractor shall protect these utilities during construction. Any damage to existing utilities during construction that are shown or not shown on the plans shall be repaired at the Contractor's expense.

5.0 KYTC UTILITY BID ITEM DESCRIPTIONS

5.1 Standard Sewer Bid Item Descriptions

S ENCASEMENT STEEL BORED This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to bore and install the encasement in accordance with the

plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The sizes of encasement to be paid under the size ranges specified in the bid items shall be as follows:

- Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
- Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
- Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
- Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
- Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
- Range 6 = All encasement sizes greater than 24 inches

(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.) Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

S ENCASEMENT STEEL OPEN CUT This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to open cut install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The size encasement to be paid under the size ranges specified in the bid items shall be as follows:

- Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
- Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
- Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
- Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
- Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
- Range 6 = All encasement sizes greater than 24 inches

(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.) Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

S MANHOLE Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole. Payment for manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Manholes shall include concrete base, barrel sections, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup in accordance with the specifications and standard drawings. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S MANHOLE ABANDON/REMOVE Payment under this item is for the partial removal and/or filling of any sanitary sewer manhole regardless of size or depth that no longer serves any purpose. Payment shall be made regardless of whether the manhole is or is not in conflict with other work. Any manhole requiring partial removal, but not total removal, in order to clear a conflict with other work shall be paid under this item. All manholes partially removed shall be removed to a point at least one foot below final grade, one foot below roadway subgrade, or one foot clear of any other underground infrastructure, whichever is lowest. If partial removal of an abandoned manhole is elected by the contractor, the remaining manhole structure shall be refilled with flowable fill. Payment for disposal of a sanitary sewer manhole will be made under this item only. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S MANHOLE ADJUST TO GRADE Payment under this item is for the adjustment of sanitary sewer casting elevation on all sizes of existing sanitary manholes. This work shall be performed in accordance with the sanitary sewer specifications. Payment shall be made under this bid item regardless of the amount of adjustment necessary to a sanitary sewer manhole casting or diameter of the manhole. Work under this pay item may be as simple as placing a bed of mortar under a casting; but, shall also be inclusive of installation of adjusting rings, and /or addition, removal, or replacement of barrel sections. The existing casting is to be reused unless a new casting is specified on the plans. New casting, when specified, shall be paid as a separate bid item. Anchoring of the casting shall be incidental to this item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S MANHOLE CASTING STANDARD Payment under this bid items is for furnishing of a new standard traffic baring casting for sanitary manholes meeting the requirements of the sanitary sewer specifications and standard drawings. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when installed.

S MANHOLE TAP EXISTING This bid item is to pay for all labor, equipment, and material for coring one opening in an existing manhole base, addition of a rubber seal as specified, and rework of the manhole bench to direct the additional pipe flow. The bid item shall be paid for each core opening added to a single manhole. This bid item shall also include any rework of the existing manhole bench due to the elimination of other existing pipes and flow. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in the addition, elimination, or redirect of flow. The contractor shall draw his own conclusions as to the effort and scope of work needed to comply with the specifications, standard drawings, and plans. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S MANHOLE WITH DROP Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole with drop. Payment for drop manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Drop manholes shall include concrete base, barrel sections, drop materials, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S PIPE This description shall apply to all PVC and ductile iron gravity sewer pipe bid items of every size and type 8 inches internal diameter and larger, except those bid items defined as "Special". This item includes the pipe specified by the plans and specifications, all fittings (including, but not limited to, tap tees and couplings for joining to existing similar or dissimilar pipes), polyethylene wrap (if required by specification), labor, equipment, excavation, bedding, restoration, pressure or vacuum testing, temporary testing materials, video inspection, backfill, and etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. This bid item shall include material and placement of flowable fill under existing and proposed pavement, and

wherever specified on the plans or in the specifications. No additional payment will be made for rock excavation. Measurement of quantities under this item shall be through fittings and encasements to a point at the outside face of manhole barrels, or to the point of main termination at dead ends or lamp holes. Carrier pipe placed within an encasement shall be paid under this item and shall include casing spacers and end seals. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

6.0 CONTRACT ADMINISTRATION RELATIVE TO SEWER RELOCATION WORK

All utility work is being performed as a part of a contract administered by KYTC; there is not a direct contract between the utility contractor and utility owner. The KYTC Section Engineer is ultimately responsible for the administration of the road contract and any utility work included in the contract.

7.0 SUBMITTALS AND CORRESPONDENCE

All submittals and correspondence of any kind relative to utility work included in the road contract shall be directed to the KYTC Section Engineer, a copy of which may also be supplied to the utility owner and/or utility owner engineer by the contractor to expedite handling of items like material approvals and shop drawings. All approvals and correspondence generated by the utility owner/engineer shall be directed to the KYTC Section Engineer. The KYTC Section Engineer will relay any approvals or correspondence to the utility contractor as appropriate. At no time shall any direct communication between the utility owner and utility contractor without the communication flowing through the KYTC Section Engineer be considered official and binding under the contract.

8.0 ENGINEER

Where the word "Engineer" appears in any utility owner specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the "Engineer" is the Kentucky Transportation Cabinet (KYTC) Section Engineer or designated representative and the utility owner engineer or designated representative jointly. Both engineers must mutually agree upon all decisions made with regard to the utility construction. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

9.0 INSPECTOR OR RESIDENT PROJECT REPRESENTATIVE

Where the word "Inspector" or "Resident Project Representative" appears in the utility specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the "Inspector" or "Resident Project Representative" is the utility owner inspector and KYTC inspector jointly. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

10.0 NOTICE TO UTILITY OWNERS OF THE START OF WORK

One month before construction is to start on a utility, the utility contractor shall make notice to the KYTC Section Engineer and the utility owner of when work on a utility is anticipated to start. The utility contractor shall again make confirmation notice to the KYTC Section Engineer and the utility owner one week before utility work is to actually start.

11.0 SEWER SHUTDOWNS

Shutdowns for tie-ins to the main shall be approved by the utility owner. Shutdown times will be limited to off peak periods and allowable durations will be determined by the utility owner. The opening and closing of valves and operating of other active utility facilities for main, utility line or utility service shut downs are to be performed

by the utility owner unless specific permission is given to the contractor by the utility owner to make shutdowns. If and when the utility owner gives the contractor permission to shutdown mains, utility lines or utility services, the contractor shall do so following the rules, procedures and regulations of the utility owner, as shown on the project drawings and specified in the Specifications. Any permission given by the utility owner to the contractor to shutdown active and in-service mains, utility lines or services shall be communicated to the KYTC Section Engineer by the utility owner that such permission has been given.

Notice to customers of utility shut downs is sometimes required to be performed by the utility contractor. The contractor may be required; but, is not limited to, making notice to utility customers in a certain minimum amount of time in advance of the shut down and by whatever means of communication specified by the utility owner. The means of communication to the customer may be; but is not limited to, a door hanger, notice by newspaper ad, telephone contact or any combination of communication methods deemed necessary, customary and appropriate by the utility owner. The contractor should refer to the utility owner specifications for requirements on customer notice.

Any procedure the utility owner may require the contractor to perform by specification or plan note and any expense the contractor may incur to comply with the utility owner's shut down procedure and notice to customers shall be considered an incidental expense to the utility construction.

12.0 STATIONS AND DISTANCES

All stations and distances, when indicated for utility placement in utility relocation plans or specifications, are approximate; therefore, some minor adjustment may have to be made during construction to fit actual field conditions. Any changes in excess of 6 inches of plan location shall be reviewed and approved jointly by the KYTC Section Engineer or designated representative and utility owner engineer or designated representative. Changes in location without prior approval shall be remedied by the contractor at his own expense if the unauthorized change creates an unacceptable conflict or condition.

13.0 RESTORATION

Temporary and permanent restoration of paved or stone areas due to utility construction shall be considered incidental to the utility work. No separate payment will be made for this work. Temporary restoration shall be as directed by the KYTC Section Engineer. Permanent restoration shall be "in-kind" as existing.

Restoration of seed and sod areas will be measured and paid under the appropriate seeding and sodding bid items established in the contract for roadway work.

SPECIAL NOTE

WATER RELOCATION

US 41A (HOPKINS)

ITEM NO. 02-0137.10

This Special Note will apply for all work related to furnishing, installing, testing and placing into service the newly relocated water main, services and appurtenances.

1.0 SCOPE OF WORK

The scope of work shall include the relocation of water distribution facilities owned by the City of Madisonville. The water line relocation work is shown on project drawings U1 through U68. The project includes the following major work items:

- Relocate existing water main
- Installation of new water main
- Installation of valves and hydrants
- New meters and services connections
- Boring and jacking new water main

2.0 MAINTENANCE OF TRAFFIC AND EROSION CONTROL

Any required maintenance of traffic and erosion control best management practices for the water line relocation work shall fall under the roadway project maintenance of traffic and erosion control and is not a separate pay item. See Traffic Control Sheets and Erosion Control Sheets.

3.0 PIPELINE MATERIALS, CONSTRUCTION, TESTING AND TIE-INS

Unless otherwise indicated on the project drawings or modified by this special note, KYTC's specifications and the attached technical specifications shall apply to the water line relocation materials, installation, testing and tie-ins on this project.

4.0 GENERAL UTILITY NOTES AND INSTRUCTIONS APPLICABLE TO WATER LINE RELOCATION WORK MADE A PART OF ROAD CONSTRUCTION CONTRACT

The contractor should be aware the following utility notes and KYTC Utility Bid Item Descriptions shall supersede, replace and take precedence over any and all conflicting information that may be contained in technical specifications contained in the contract, on plans supplied by the utility owner, or any utility owner specifications or information externally referenced in this contract.

Where information may have been omitted from these notes, bid item descriptions, technical specifications or plans; the KYTC Standard Specifications for Road and Bridge Construction shall be referenced.

4.1 Protection of Existing Utilities. The existing utilities shown on the plans are shown as best known at the time the plans were developed and are to be used as a guide only by the Contractor. The Contractor shall use all means at his disposal to accurately locate all existing utilities, whether shown on the plans or not, prior to excavation. The contractor shall protect these utilities during construction. Any damage to existing utilities during construction that are shown or not shown on the plans shall be repaired at the Contractor's expense.

5.0 KYTC UTILITY BID ITEM DESCRIPTIONS

5.1 Standard Water Bid Item Descriptions

W AIR RELEASE VALVE This bid item description shall apply to all air release valve installations of every size except those defined as "Special". This item shall include the air release valve, main to valve connecting line or piping, manhole,

vault, structure, access casting or doors, tapping the main, labor, equipment, excavation, proper backfill and restoration required to install the air release valve at the location shown on the plans or as directed in accordance with the specifications and standard drawings complete and ready for use. All air release/vacuum valves on a project shall be paid under one bid item regardless of size. No separate pay items will be established for size variations. Only in the case of the uniqueness of a particular air release valve would a separate bid item be established. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W CAP EXISTING MAIN This item shall include the specified cap, concrete blocking and/or mechanical anchoring, labor, equipment, excavation, backfill, and restoration required to install the cap at the location shown on the plans or as directed in accordance with the specifications. This item is not to be paid on new main installations. This pay item is only to be paid to cap existing mains. Caps on new mains are incidental to the new main. Any and all caps on existing mains shall be paid under one bid item included in the contract regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W DIRECTIONAL BORE Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized in order to minimize the impact of open cut for the installation of water main under streets, creeks, and etc. Payment under this item shall include the specified bore pipe, labor, and equipment. No separate payment shall be made for bore pipe installed in the bore whether used as a carrier pipe or an encasement of a separate carrier pipe. This item shall also include pipe anchors at each end of the bore when specified to prevent the creep or contraction of the bore pipe. Carrier pipe installed within a bore pipe shall be paid separately under pipe items. Payment under this item shall not be size specific and no separate bid items will be established for size variations. The bore pipe sizes to be included under this item shall be as shown on the plans and/or in the specifications. Any and all directional bores in each contract shall be paid under one directional bore bid item included in the contract regardless of size. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W ENCASEMENT STEEL BORED This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to bore and install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The sizes of encasement to be paid under the size ranges specified in the bid items shall be as follows:

Range 1 = All encasement sizes greater than 2 inches to and including 6 inches

Range 2 = All encasement sizes greater than 6 inches to and including 10 inches

Range 3 = All encasement sizes greater than 10 inches to and including 14 inches

Range 4 = All encasement sizes greater than 14 inches to and including 18 inches

Range 5 = All encasement sizes greater than 18 inches to and including 24 inches

Range 6 = All encasement sizes greater than 24 inches

(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.) Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W ENCASEMENT STEEL OPEN CUT This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to open cut and install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The size encasement to be paid under the size ranges specified in the bid items shall be as follows:

Range 1 = All encasement sizes greater than 2 inches to and including 6 inches

Range 2 = All encasement sizes greater than 6 inches to and including 10 inches

Range 3 = All encasement sizes greater than 10 inches to and including 14 inches

Range 4 = All encasement sizes greater than 14 inches to and including 18 inches

Range 5 = All encasement sizes greater than 18 inches to and including 24 inches

Range 6 = All encasement sizes greater than 24 inches

(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.) Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W FIRE HYDRANT ASSEMBLY Includes all labor, equipment, new fire hydrant, isolating valve and valve box, concrete pad around valve box (when specified in specifications or plans), piping, anchoring tee, anchoring couplings, fire hydrant extension, excavation, concrete blocking, granular drainage material, backfill, and restoration, to install a new fire hydrant assembly as indicated on plans and on standard drawings complete and ready for use. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W FIRE HYDRANT REMOVE This bid item includes removal of an abandoned fire hydrant, isolating valve, and valve box to the satisfaction of the engineer. The removed fire hydrant, isolating valve and valve box shall become the property of the contractor for his disposal as salvage or scrap. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W METER This item is for payment for installation of all standard water meters of all sizes 2 inches ID or less as specified on the plans. This item shall include all labor, equipment, meter, meter box, casting, yoke, and any other associated material needed for installation of a functioning water meter in accordance with the plans and specifications, complete and ready for use. This item shall include connections to the new or existing water service line. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W METER RELOCATE This item includes all labor, equipment, excavation, additional fittings, disinfection, testing, restoration, and etc., to relocate the existing water meter (whatever size exists), meter yoke, meter box, casting, and etc., from its old location to the location shown on the plans or as directed, in accordance with the specifications and standard drawings complete and ready for use. The new service pipe (if required) will be paid under short side or long side service bid items. Any and all meter relocations of 2 inches or less shall be paid under one bid item included in the contract regardless of size. Each individual relocation shall be paid individually under this item; however, no separate bid items will be established for meter size variations of 2 inches ID or less. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W METER VAULT SIZE RANGE 1 OR 2 This item is for payment for installation of an underground structure for housing of a larger water meter, fittings, and valves as required by the plans and specifications. This item shall include all labor, equipment, excavation, concrete, manhole castings or access doors, the specified meter(s) valve(s), all piping, and fitting materials associated with installing a functioning meter and vault in accordance with the plans, standard drawings, and specifications, complete and ready for use. The size shall be the measured internal diameter of the meter and piping to be installed. The size meter vault to be paid under size 1 or 2 shall be as follows:

Size Range 1 = All meter and piping sizes greater than 2 inches up to and including 6 inches

Size Range 2 = All meter and piping sizes greater than 6 inches

This item shall be paid EACH (EA) when complete. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

W PIPE This description shall apply to all PVC, ductile iron, and polyethylene/plastic pipe bid items of every size and type to be used as water main, except those bid items defined as "Special". This item includes the pipe specified by the plans and specifications, all fittings (including, but not limited to, bends, tees, reducers, plugs, and caps), tracing wire with test boxes (if required by specification), polyethylene wrap (when specified), labor, equipment, excavation, bedding, restoration, testing, sanitizing, backfill, and etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. No additional payment will be made for rock excavation. This bid item includes material and placement of flowable fill under existing and proposed pavement, and wherever else specified on the plans or in the specifications. **This item shall include all temporary and permanent materials and equipment required to pressure test and sanitize mains including, but not limited to, pressurization pumps, hoses, tubing, gauges, main taps, saddles, temporary main end caps or plugs and blocking, main end taps for flushing, chlorine liquids or tablets for sanitizing, water for testing/sanitizing and flushing (when not supplied by the utility), chlorine neutralization equipment and materials, and any other items needed to accomplish pressure testing and sanitizing the main installation.** This item shall also include pipe anchors, at each end of polyethylene pipe runs when specified to prevent the creep or contraction of the pipe. Measurement of quantities under this item shall be through fittings, encasements, and directional bores (only when a separate carrier pipe is specified within the directional bore pipe). Measurements shall be further defined to be to the center of tie-in where new pipe contacts existing pipe at the center of connecting fittings, to the outside face of vault or structure walls, or to the point of main termination at dead ends. No separate payment will be made under pipe items when the directional bore pipe is the carrier pipe. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W PLUG EXISTING MAIN This item shall include the specified plug, concrete blocking and/or anchoring, labor, equipment, excavation, backfill, and restoration required to install the plug in an existing in-service main that is to remain at the location shown on the plans or as directed in accordance with the specifications. Any and all plugs on all existing in-service mains shall be paid under one bid item included in the contract regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

NOTE: This utility bid item is not to be paid on new main installations or abandoned mains. This pay item is to plug existing in-service mains only. Plugs on new mains are incidental to the new main just like all other fittings.

NOTE: Plugging of existing abandon mains shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications For Road And Bridge Construction and paid using Bid Code 01314 Plug Pipe.

W SERVICE LONG SIDE This bid item description shall apply to all service line installations of every size bid up to and including 2 inch inside diameter, except those service bid items defined as "Special". This item includes the specified piping material, main tap, tapping saddle (if required), and corporation stop materials, coupling for connecting the new piping to the surviving existing piping, encasement of 2 inches or less internal diameter (if required by plan or specification), labor, equipment, excavation, backfill, testing, disinfection, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for service installations where the ends of the service connection are on opposite sides of the public roadway and the service line crosses the centerline of the public roadway as shown on the plans. The length of the service line is not to be specified. Payment under this item shall not be restricted by a minimum or maximum length. The contractor shall draw his own conclusions as to the length of piping that may be needed. Payment under this item shall include boring, jacking, or excavating across the public roadway for placement. Placement of a service across a private residential or commercial entrance alone shall not be reason to make payment under this item. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. This pay item does not include installation or relocation of meters. Meters will be paid separately. No additional payment will be made for rock excavation or for special bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W SERVICE SHORT SIDE This bid item description shall apply to all service line installations of every size up to and including 2 inch internal diameter, except those service bid items defined as "Special". This item includes installation of the specified piping material of the size specified on plans, encasement of 2 inches or less internal diameter (if required by plan or specification), main tap, tapping saddle (if required), corporation stop, coupling for connecting the new piping to the surviving existing piping, labor, equipment, excavation, backfill, testing, disinfection, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for service installations where both ends of the service connection are on the same side of the public roadway, or when an existing service crossing a public roadway will remain and is being extended, reconnected, or relocated with all work on one side of the public roadway centerline as shown on the plans. The length of the service line is not to be specified and shall not be restricted to any minimum or maximum length. Payment shall be made under this item even if the service crosses a private residential or commercial entrance; but, not a public roadway.

Private or commercial entrances shall not be considered a public roadway in defining payment under this item. The contractor shall draw his own conclusions as to the length of piping that may be needed. This pay item does not include installation or relocation of meters. Meters will be paid separately. No additional payment will be made for rock excavation or for bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W SERVICE RELOCATE This item is for the relocation of an existing water service line where a meter is not involved, and where an existing service line can easily be adjusted by excavating alongside and moving the line horizontally and/or vertically a short distance without cutting the service line to avoid conflicts with road construction. This item shall include excavation, labor, equipment, bedding, and backfill to relocate the line in accordance with the plans and specifications complete and ready for use. Payment under this item shall be for each location requiring relocation. Payment shall be made under this item regardless of service size or relocation length. No separate pay items will be established for size or length variation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W TAPPING SLEEVE AND VALVE SIZE 1 OR 2 This item shall include the specified tapping sleeve, valve, valve box, concrete pad around valve box (when required in specifications or plans), labor, and equipment to install the specified tapping sleeve and valve, complete and ready for use in accordance with the plans and specifications. The size shall be the measured internal diameter of the live pipe to be tapped. The size tapping sleeve and valve to be paid under sizes 1 or 2 shall be as follows:

Size 1 = All live tapped main sizes up to and including 8 inches

Size 2 = All live tapped main sizes greater than 8 inches

Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W VALVE This description shall apply to all valves of every size required in the plans and specifications except those bid items defined as "Special". Payment under this description is to be for gate or butterfly valves being installed with new main. This item includes the valve as specified in the plans and specifications, polyethylene wrap (if required by specification), labor, equipment, excavation, anchoring (if any), valve box and valve stem extensions, backfill, concrete pad around valve box (if required by specification), restoration, testing, disinfection, and etc., required to install the specified valve at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. If required on plans and/or proposed adjoining DIP is restrained, valves shall be restrained. Valve restraint shall be considered incidental to the valve and adjoining pipe. This description does not apply to cut-in valves. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

6.0 CONTRACT ADMINISTRATION RELATIVE TO WATER RELOCATION WORK

All utility work is being performed as a part of a contract administered by KYTC; there is not a direct contract between the utility contractor and utility owner. The KYTC Section Engineer is ultimately responsible for the administration of the road contract and any utility work included in the contract.

7.0 SUBMITTALS AND CORRESPONDENCE

All submittals and correspondence of any kind relative to utility work included in the road contract shall be directed to the KYTC Section Engineer, a copy of which may also be supplied to the utility owner and/or utility owner engineer by the contractor to expedite handling of items like material approvals and shop drawings. All approvals and correspondence generated by the utility owner/engineer shall be directed to the KYTC Section Engineer. The KYTC Section Engineer will relay any approvals or correspondence to the utility contractor as appropriate. At no time shall any direct communication between the utility owner and utility contractor without the communication flowing through the KYTC Section Engineer be considered official and binding under the contract.

8.0 ENGINEER

Where the word "Engineer" appears in any utility owner specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the "Engineer" is the Kentucky Transportation Cabinet (KYTC) Section Engineer or designated representative and the utility owner engineer or designated representative jointly. Both engineers must mutually agree upon all decisions made with regard to the utility construction. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

9.0 INSPECTOR OR RESIDENT PROJECT REPRESENTATIVE

Where the word "Inspector" or "Resident Project Representative" appears in the utility specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the "Inspector" or "Resident Project Representative" is the utility owner inspector and KYTC inspector jointly. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

10.0 NOTICE TO UTILITY OWNERS OF THE START OF WORK

One month before construction is to start on a utility, the utility contractor shall make notice to the KYTC Section Engineer and the utility owner of when work on a utility is anticipated to start. The utility contractor shall again make confirmation notice to the KYTC Section Engineer and the utility owner one week before utility work is to actually start.

11.0 WATER SHUTDOWNS

Shutdowns for tie-ins to the main shall be approved by the utility owner. Shutdown times will be limited to off peak periods and allowable durations will be determined by the utility owner. The opening and closing of valves and operating of other active utility facilities for main, utility line or utility service shut downs are to be performed by the utility owner unless specific permission is given to the contractor by the utility owner to make shutdowns. If and when the utility owner gives the contractor permission to shutdown mains, utility lines or utility services, the contractor shall do so following the rules, procedures and regulations of the utility owner, as shown on the project drawings and specified in the Specifications. Any permission given by the utility owner to the contractor to shutdown active and in-service mains, utility lines or services shall be communicated to the KYTC Section Engineer by the utility owner that such permission has been given.

Notice to customers of utility shut downs is sometimes required to be performed by the utility contractor. The contractor may be required; but, is not limited to, making notice to utility customers in a certain minimum amount of time in advance of the shut down and by whatever means of communication specified by the utility owner. The means of communication to the customer may be; but is not limited to, a door hanger, notice by newspaper ad, telephone contact or any combination of communication methods deemed necessary, customary and appropriate by the utility owner. The contractor should refer to the utility owner specifications for requirements on customer notice.

Any procedure the utility owner may require the contractor to perform by specification or plan note and any expense the contractor may incur to comply with the utility owner's shut down procedure and notice to customers shall be considered an incidental expense to the utility construction.

12.0STATIONS AND DISTANCES

All stations and distances, when indicated for utility placement in utility relocation plans or specifications, are approximate; therefore, some minor adjustment may have to be made during construction to fit actual field conditions. Any changes in excess of 6 inches of plan location shall be reviewed and approved jointly by the KYTC Section Engineer or designated representative and utility owner engineer or designated representative. Changes in location without prior approval shall be remedied by the contractor at his own expense if the unauthorized change creates an unacceptable conflict or condition.

13.0RESTORATION

Temporary and permanent restoration of paved or stone areas due to utility construction shall be considered incidental to the utility work. No separate payment will be made for this work. Temporary restoration shall be as directed by the KYTC Section Engineer. Permanent restoration shall be “in-kind” as existing.

Restoration of seed and sod areas will be measured and paid under the appropriate seeding and sodding bid items established in the contract for roadway work.



Kentucky Transportation Cabinet

Division of Highway Design

TRAFFIC MANAGEMENT PLAN

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County: HOPKINS Item No.: 2-137.10

Federal Project No.: STP 1091(029)

Project Description:

Widening from Yorkwood Place to Industrial Drive (MP 1.25 to MP 3.3) in Hopkins County.

Roadway Classification: ☒ Urban ☐ Rural

☐ Local ☐ Collector ☒ Arterial ☐ Interstate

ADT (current) 14,000 AM Peak Current PM Peak Current % Trucks 12

Project Designation: ☐ Significant ☐ Other:

Traffic Control Plan Design:

Taper and Diversion Design Speeds 55 mph

Minimum Lane Width 11ft Minimum Shoulder Width 8 ft

Minimum Bridge Width N/A

Minimum Radius 1190' Maximum Grade 6%

Minimum Taper Length 50' Minimum Intersection Level of Service N/A

Existing Traffic Queue Lengths N/A Projected Traffic Queue Lengths No Delay

Comments:



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TRAFFIC MANAGEMENT PLAN

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Item No. 137.10

Discussion:

1) Public Information Plan			
a) Prepare with assistance from <input type="checkbox"/> KYTC or <input checked="" type="checkbox"/> Keirsten Jaggars, D2 PIO			
b) Identify Trip Generators		N/A	
f) Railroad Involvement			N/A
c) Identify Types of Road Users		N/A	
g) Address Pedestrians, Bikes Mass Transit			N/A
d) Public Information Message		N/A	
h) Address Timing, Frequency, Updates, Effectiveness of Plan			N/A
e) Public Information Strategies to be used		N/A	
i) Police & Other Emergency Services			N/A



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TRAFFIC MANAGEMENT PLAN

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2) Temporary Traffic Control Plan (For Each Phase of Construction)	
Phase I	
Exposure Control Measures	Positive Protection Measures
a) Is Road Closure Allowed Type: Ramp Referenced	a) Address Drop Off Protection Criteria Referenced
b) Detour Conditions Referenced	b) Temporary Barrier Requirements Referenced
c) Working Hour Restrictions N/A	c) Evaluation of Existing Guardrail Conditions Referenced
d) Holiday or Special Event Work Restrictions N/A	d) Address Temporary Drainage Referenced
e) Evaluation of Intersection LOS N/A	Uniformed Law Enforcement Officers N/A
f) Evaluation of Queue Lengths N/A	Payment for Traffic Control*
g) Evaluation of User Costs and Incentives/Disincentives N/A	a) Method of Project Bidding Referenced
h) Address Pedestrians, Bikes, Mass Transit N/A	b) Special Notes Referenced
Work Vehicles and Equipment Referenced	*Payment for traffic control items shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction
Comments:	



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Division of Highway Design
TRAFFIC MANAGEMENT PLAN

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Item No. 2-137.10

2) Temporary Traffic Control Plan (For Each Phase of Construction)			
Phase 2			
Exposure Control Measures		Positive Protection Measures	
a) Is Road Closure Allowed Type: RAMP	Referenced	a) Address Drop Off Protection Criteria	Referenced
b) Detour Conditions	Referenced	b) Temporary Barrier Requirements	Referenced
c) Working Hour Restrictions	N/A	c) Evaluation of Existing Guardrail Conditions	Referenced
d) Holiday or Special Event Work Restrictions	N/A	d) Address Temporary Drainage	Referenced
e) Evaluation of Intersection LOS	N/A	Uniformed Law Enforcement Officers	N/A
f) Evaluation of Queue Lengths	N/A	Payment for Traffic Control*	
g) Evaluation of User Costs and Incentives/Disincentives	N/A	a) Method of Project Bidding	Referenced
h) Address Pedestrians, Bikes, Mass Transit	N/A	b) Special Notes	Referenced
Work Vehicles and Equipment	Referenced	*Payment for traffic control items shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction	
Comments:			



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Item No. 2-137.10

2) Temporary Traffic Control Plan (For Each Phase of Construction)			
Phase 3			
Exposure Control Measures		Positive Protection Measures	
a) Is Road Closure Allowed Type: RAMP	Referenced	a) Address Drop Off Protection Criteria	Referenced
b) Detour Conditions	Referenced	b) Temporary Barrier Requirements	Referenced
c) Working Hour Restrictions	N/A	c) Evaluation of Existing Guardrail Conditions	Referenced
d) Holiday or Special Event Work Restrictions	N/A	d) Address Temporary Drainage	Referenced
e) Evaluation of Intersection LOS	N/A	Uniformed Law Enforcement Officers	N/A
f) Evaluation of Queue Lengths	N/A	Payment for Traffic Control*	
g) Evaluation of User Costs and Incentives/Disincentives	N/A	a) Method of Project Bidding	Referenced
h) Address Pedestrians, Bikes, Mass Transit	N/A	b) Special Notes	Referenced
Work Vehicles and Equipment	Referenced	*Payment for traffic control items shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction	
Comments:			



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TRAFFIC MANAGEMENT PLAN

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Item No. 2-137.10

APPROVAL:

Larry S. Krueger PE

6/16/21

Project Manager

Date

Project Delivery and Preservation Manager

Date

Engineering Support Manager

Date

FHWA Representative

Date

Revisions to the TMP require review/approval by the signatories.

COUNTY OF	ITEM NO.	SHEET NO.
HOPKINS	2-137-10	R85

MAINTENANCE OF TRAFFIC – CONSTRUCTION SIGNING SUMMARY

TYPE	DIMENSIONS	AREA	CONSTRUCTION SEQUENCE					TOTAL AREA*
			PHASE 1A	PHASE 1B	PHASE 1I	PHASE 1II	PHASE 1IV	
W20-1	48" X 48"	16.00	9	0	0	0	0	9
G20-2	36" X 18"	4.50	II	0	0	0	0	45.50
W1-4	48" X 48"	16.00	0	4	6	1	0	176.00
W13-IP	24" X 24"	4.00	4	4	6	1	0	44.00
W1-6	48" X 24"	8.00	0	3	5	2	0	80.00
TOTAL PROJECT – ITEM 0262			20	II	17	4	0	52

* QUANTITIES CARRIED TO GENERAL SUMMARY.

MAINTENANCE OF TRAFFIC – BID ITEMS

ITEM NO.	DESCRIPTION	UNIT	CONSTRUCTION SEQUENCE					TOTAL PROJECT*
			PHASE I A	PHASE 1B	PHASE 1II	PHASE 1III	PHASE 1IV	
06510	PAVE STRIPING-TEMP PAINT-4 IN	LF	0	14,400	20,700	14,915	9900	59,915
02651	DIVERSIONS (BY-PASS DETOURS)	LS	1	3	0	0	0	4

* QUANTITIES CARRIED TO GENERAL SUMMARY.

MAINTENANCE OF TRAFFIC

GENERAL NOTES

The Contractor shall maintain a two-lane traveled way with a minimum 14-foot travel lane width and a minimum 10-foot shoulder on one-way traffic may be allowed during non-peak hours with prior approval of the Engineer, provided adequate signing and flaggers are on the location. For this project, the work zone shall be defined as 6:00 PM, 9:00 AM, and 3:30 PM, each weekday.

Existing and proposed traffic signals shall be relocated to the center of the intersection. Existing traffic signals shall be covered or relocated, as directed by the Engineer, when traffic is shifted to a detour or onto the completed pavement.

PAVEMENT EDGE DROP-OFFS

Difference in Elevation for Travel Lanes

A pavement edge that traffic is expected to cross in a lane change situation should not have an elevation difference greater than 1/4 inch. The drop-off should be placed in advance and throughout the drop-off area.

Pavement Drop-Off

Pavement edges that traffic is not expected to cross, except accidentally, should be treated as follows:

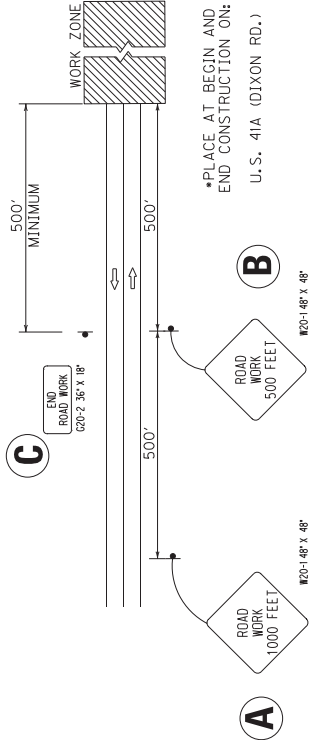
Less Than One and One Half Inches - No protection required. Warning signs should be placed in advance and throughout the drop-off area.

Two to Four Inches - Place plastic drums, vertical panels or traffic barrels or cones in advance of the drop-off area at 50 feet per hour or greater. Cones may be used in place of plastic drums, panels and barricades during day light hours. For curves, devices should be placed every 50 feet. Spacing for tapers should be in accordance with the Manual on Uniform Traffic Control Devices.

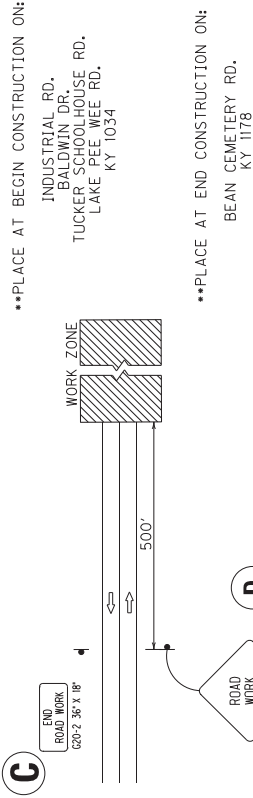
Greater Than Four Inches - Positive separation or wedge with 3:1 or flatter slope needed. If there is eight feet or more of slope, the drop-off should be placed in advance of the drop-off area. Panels or barricades may be used. If concrete barriers are used, special reflective devices or steady burn lights should be used for overnight installations.

For temporary conditions, drop-offs greater than four inches may be protected with plastic drums, vertical panels or barricades placed in advance of the drop-off area while work is being done in the drop-off area.

Reasonable means of ingress and egress shall be maintained to all properties within the Project limits. Access to Fire Hydrants must also be maintained at all times.



ADVANCE WARNING SIGN SETUP NO. 1*



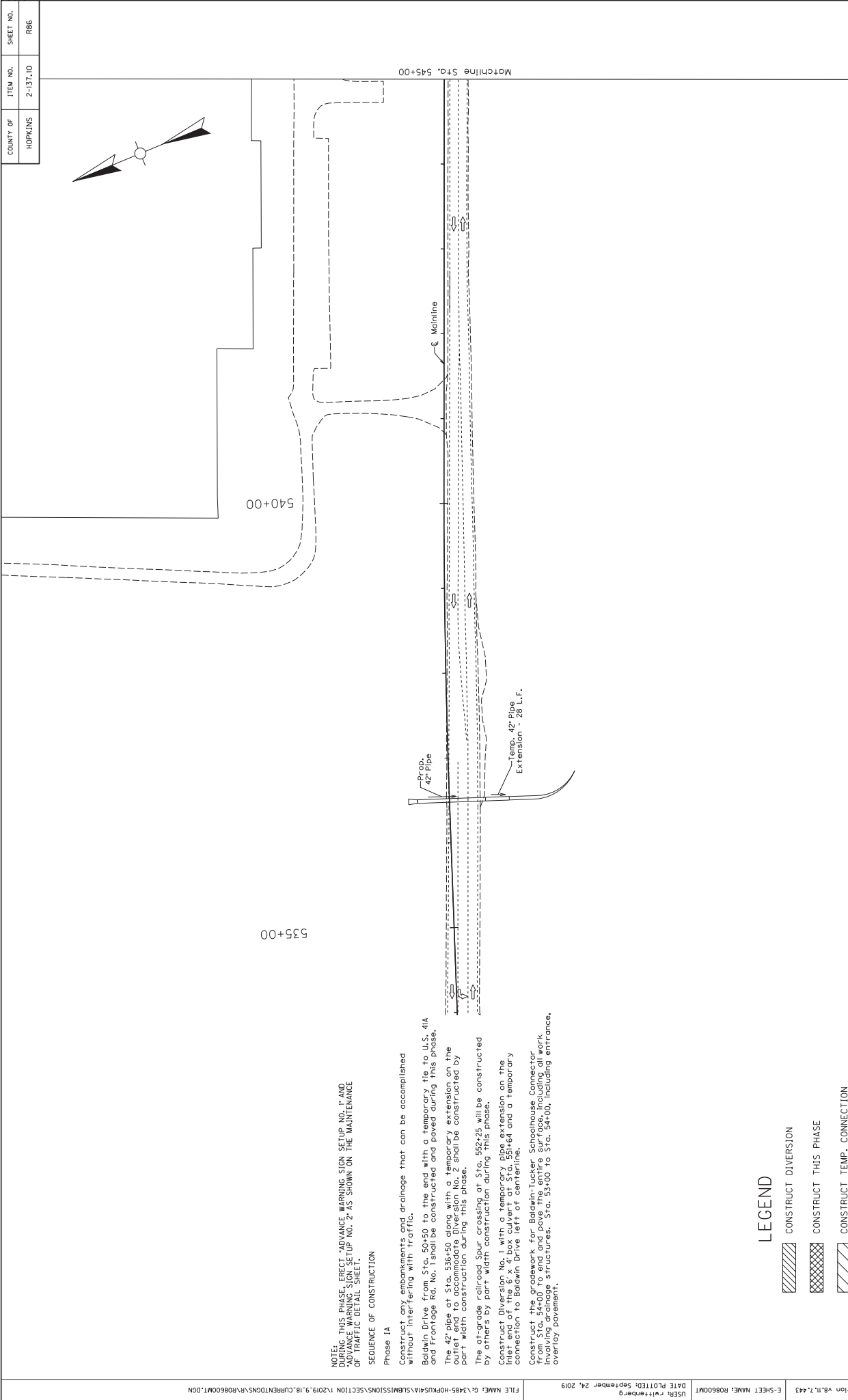
ADVANCE WARNING SIGN SETUP NO. 2**



MAINTENANCE OF TRAFFIC
DETAIL SHEET

SCALE: 1"= 50'

COUNTY OF	ITEM NO.	SHEET NO.
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NOTE:
DURING THIS PHASE, ERECT "ADVANCE WARNING SIGN SETUP NO. 1" AND "TRAFFIC CONTROL SIGN SETUP NO. 2" AS SHOWN ON THE MAINTENANCE OF TRAFFIC DETAIL SHEET.

SEQUENCE OF CONSTRUCTION

Phase 1A

Construct any embankments and drainage that can be accomplished without interfering with traffic.

Baldwin Drive from Sta. 50+50 to the end with a temporary tie to U.S. 41A and Frontage Rd. No. 1 shall be constructed and paved during this phase.

The 42" pipe at Sta. 535+50 along with a temporary extension on the outlet pipe to accommodate Division No. 2 shall be constructed by part width construction during this phase.

The at-grade railroad spur crossing at Sta. 552+25 will be constructed by others by part width construction during this phase.

Construct Diversion No. 1 with a temporary slope extension on the inlet end of the 6' x 4' box culvert at Sta. 551+64 and a temporary connection to Baldwin Drive left of centerline.

Construct the gradework for Baldwin-Tucker Schoolhouse Connector from Sta. 54+00 to end and pave the entire surface, including all work involving drainage structures, Sta. 53+00 to Sta. 54+00, including entrance, overpass pavement.

- LEGEND
- CONSTRUCT DIVERSION

CONSTRUCT THIS PHASE

CONSTRUCT TEMP. CONNECTION

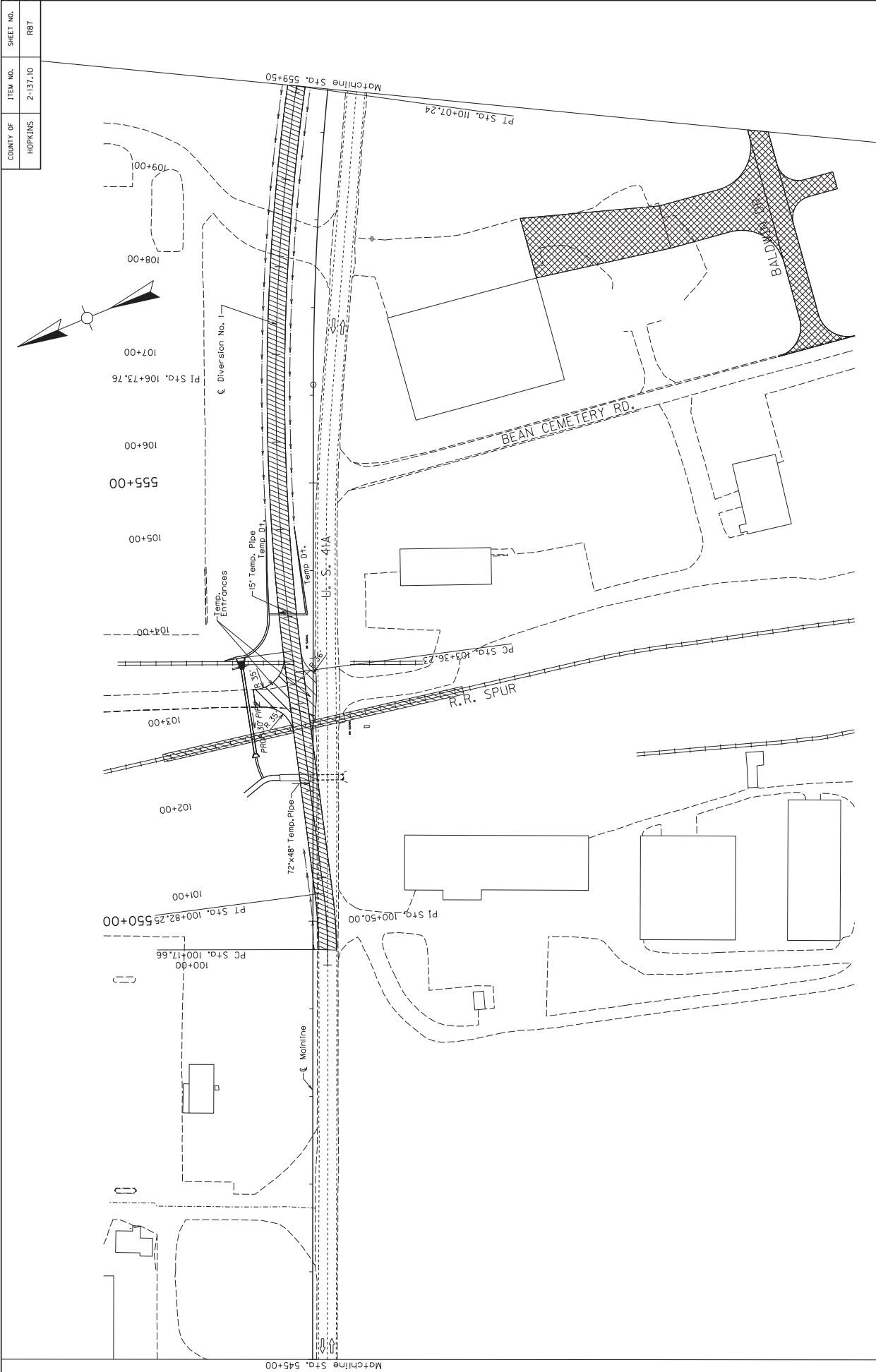
DIRECTION OF TRAFFIC



SCALE: 1"= 50'

MAINTENANCE OF TRAFFIC
PHASE 1A

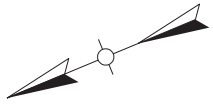
COUNTY OF	ITEM NO.	SHEET NO.
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MAINTENANCE OF TRAFFIC
PHASE 1A

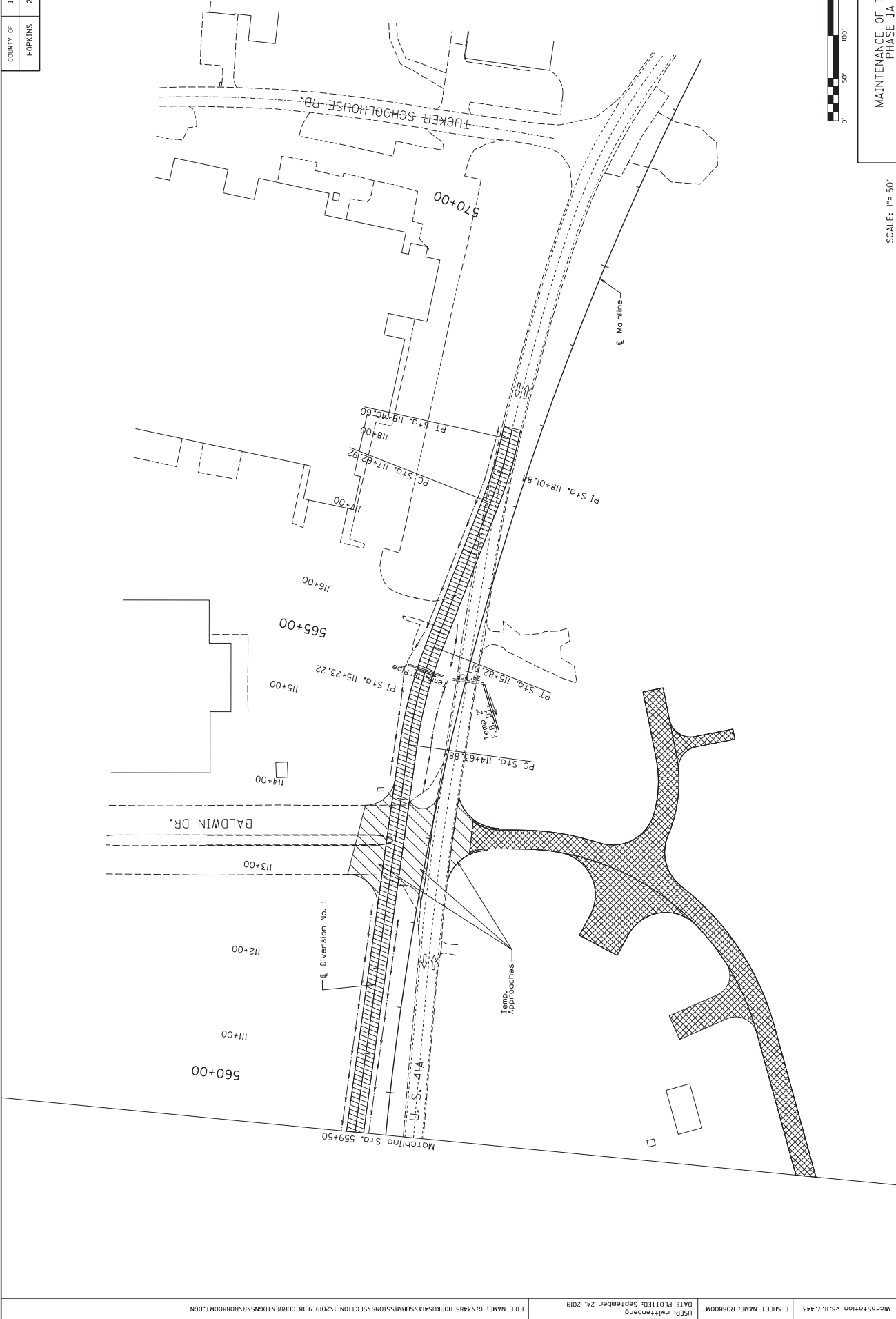
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COUNTY OF	ITEM NO.	SHEET NO.
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MAINTENANCE OF TRAFFIC
PHASE 1A

SCALE: 1"= 50'



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MAINTENANCE OF TRAFFIC
PHASE IB

SCALE: 1" = 50'

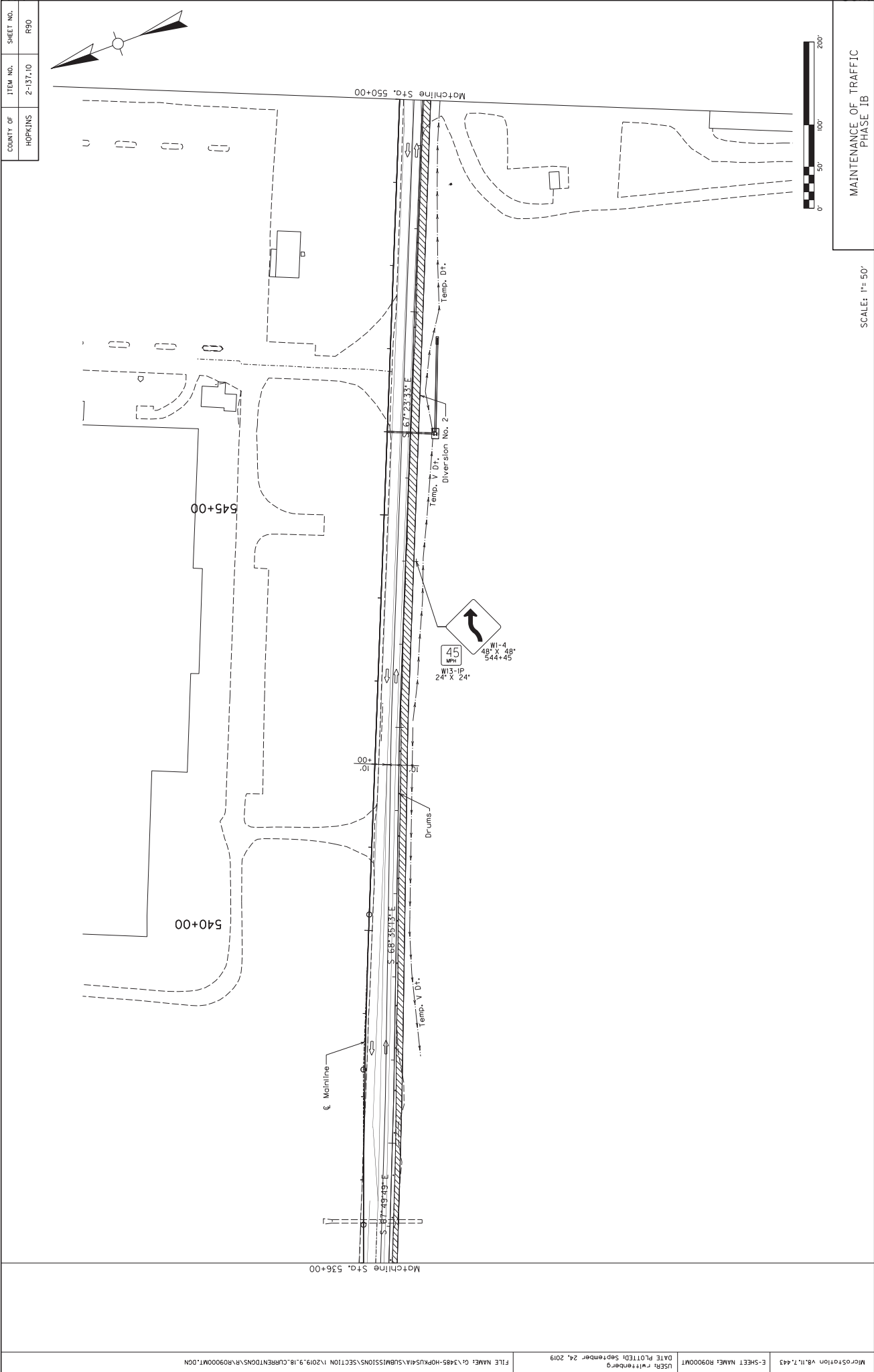
← DIRECTION OF TRAFFIC

LEGEND

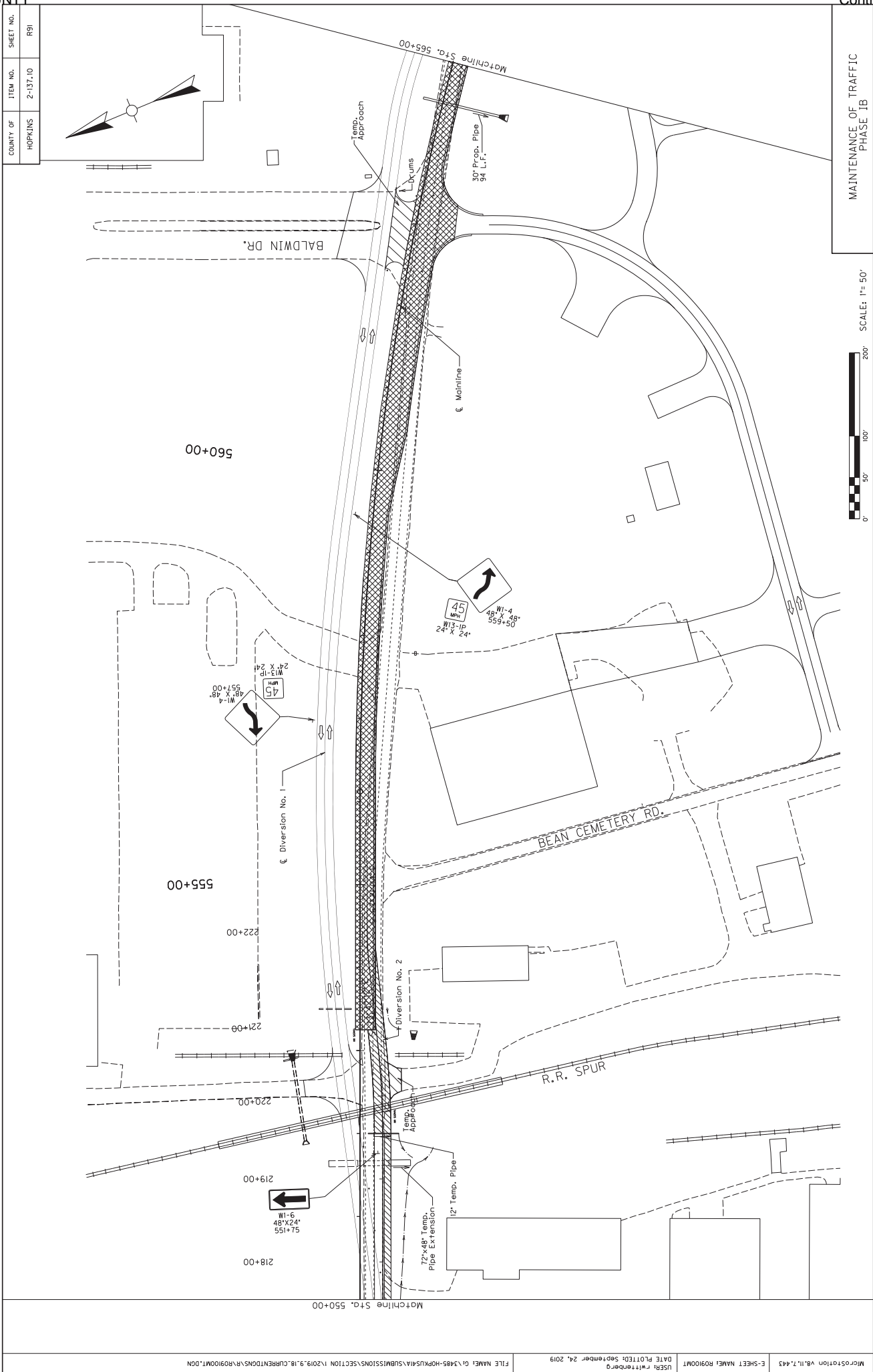
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|  | CONSTRUCT DIVERSION |
|  | CONSTRUCT THIS PHASE |
|  | CONSTRUCT TEMP. CONNECTION |

Phase IB

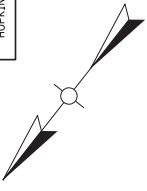
1. Shift traffic on the existing segment to the left in two 10' lanes from the beginning of the project to Diversion No. 1.
2. Shift traffic onto Diversion No. 1.
3. Traffic from Beem Cemetery Rd. shall be shifted to the intersection of Baldwin Dr. right of centerline while the traffic is being shifted to Diversion No. 1.
4. Construct Diversion Nos. 2 and 3.
5. Construct DBI Type 1, the 18" outlet pipe and the right half of 18 pipe at Sta. 546+00.
6. Construct the right and center lanes of the mainline except for the final surface course from Sta. 553+25 to Sta. 569+00 and for Sta. 512+00 to Sta. 535+50.
7. Construct the full width mainline pavement except for the final surface course from Sta. 512+00 to Sta. 524+00 and a temporary lane to the south of Wacker Schoolhouse Rd.
8. Construct Sta. Beedles Rd. and the temporary connection to construct six access lanes off traffic to the north of the line from Sta. 461+50 to Sta. 481+50 under traffic by part-width construction.
9. Construct the grade work for Approach Rd. Rt. of Sta. 634+00 and pave from Sta. 512+5 to the end, except for final surface course.
10. Construct Diversion No. 4 while making a temporary connection to Sta. 634+00 and construct Sta. 634+00 to Sta. 638+00, allowing the existing access to Parcel No. 47, right of Sta. 638+00.



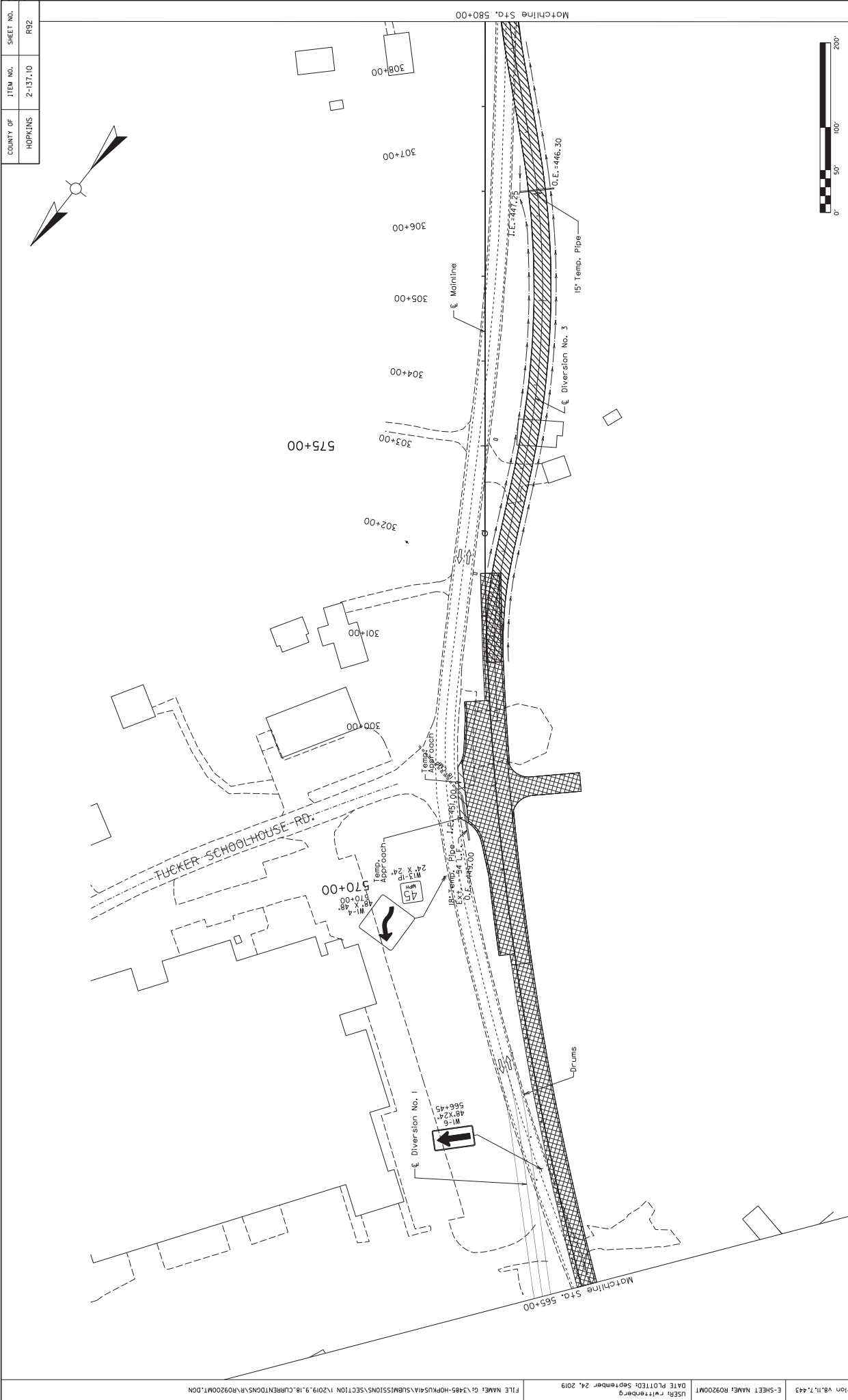
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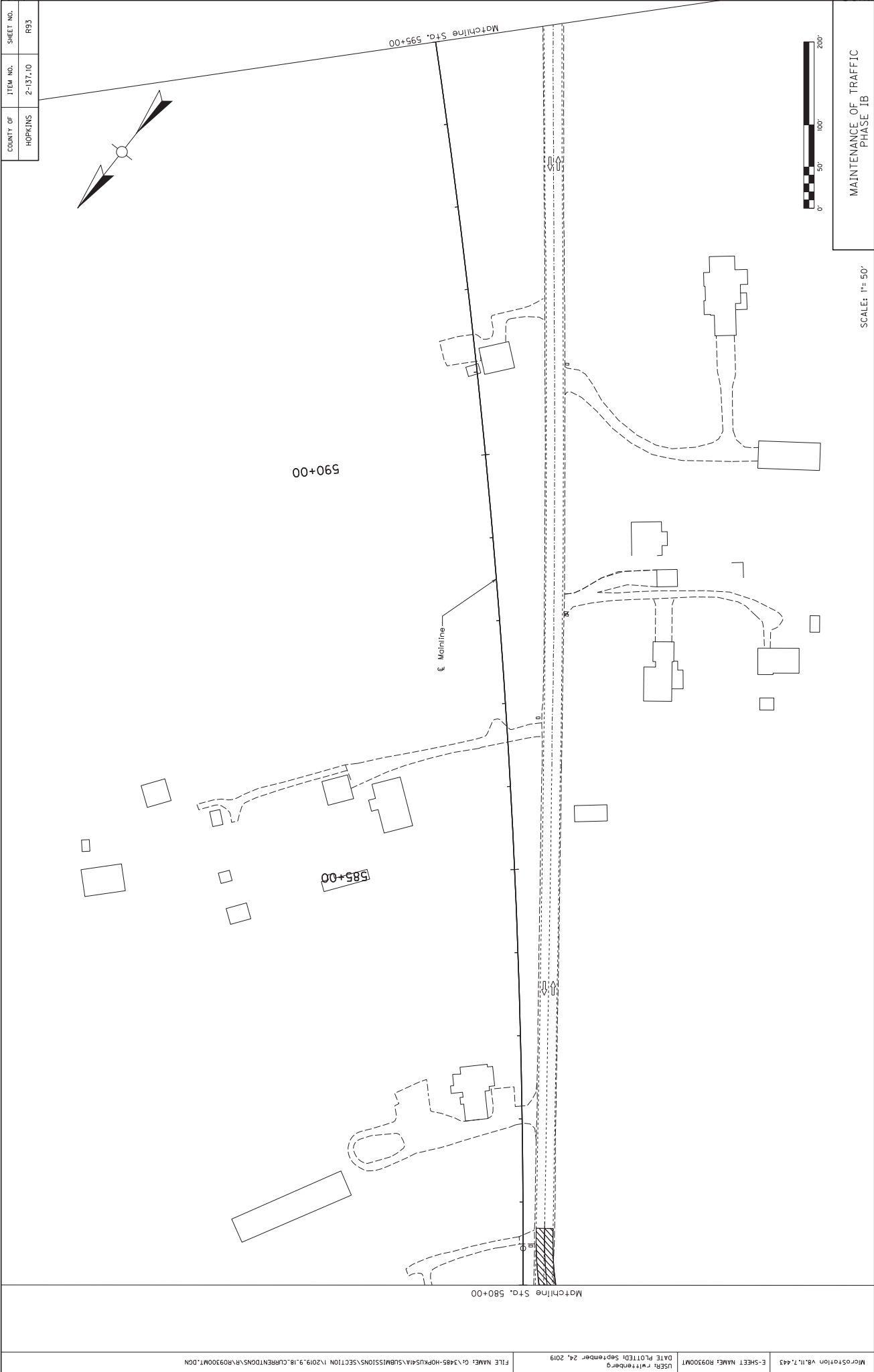


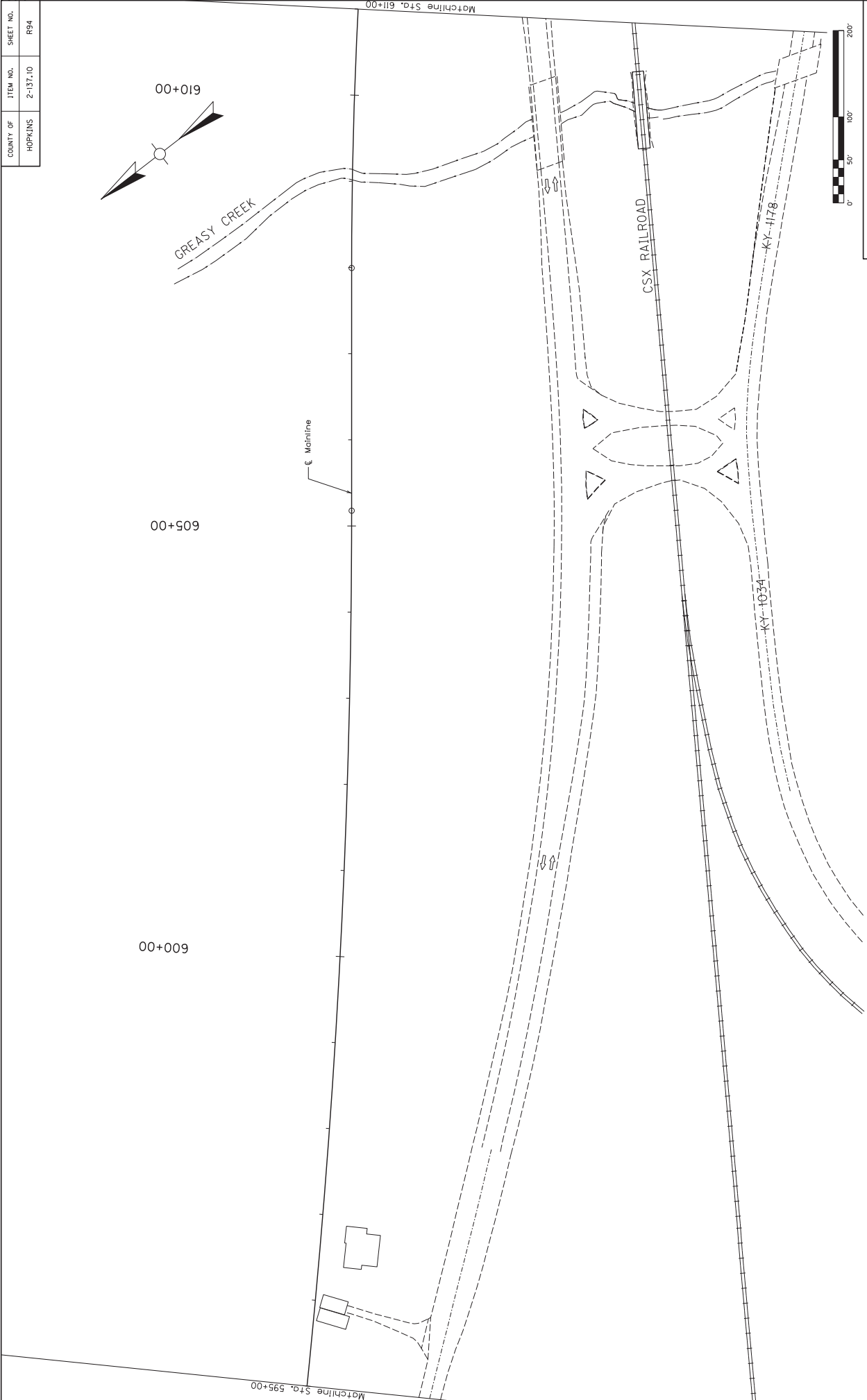
COUNTY OF	SHEET NO.
HOPKINS	R92
ITEM NO.	2-137.10



MAINTENANCE OF TRAFFIC
PHASE 1B
SCALE: 1"= 50'

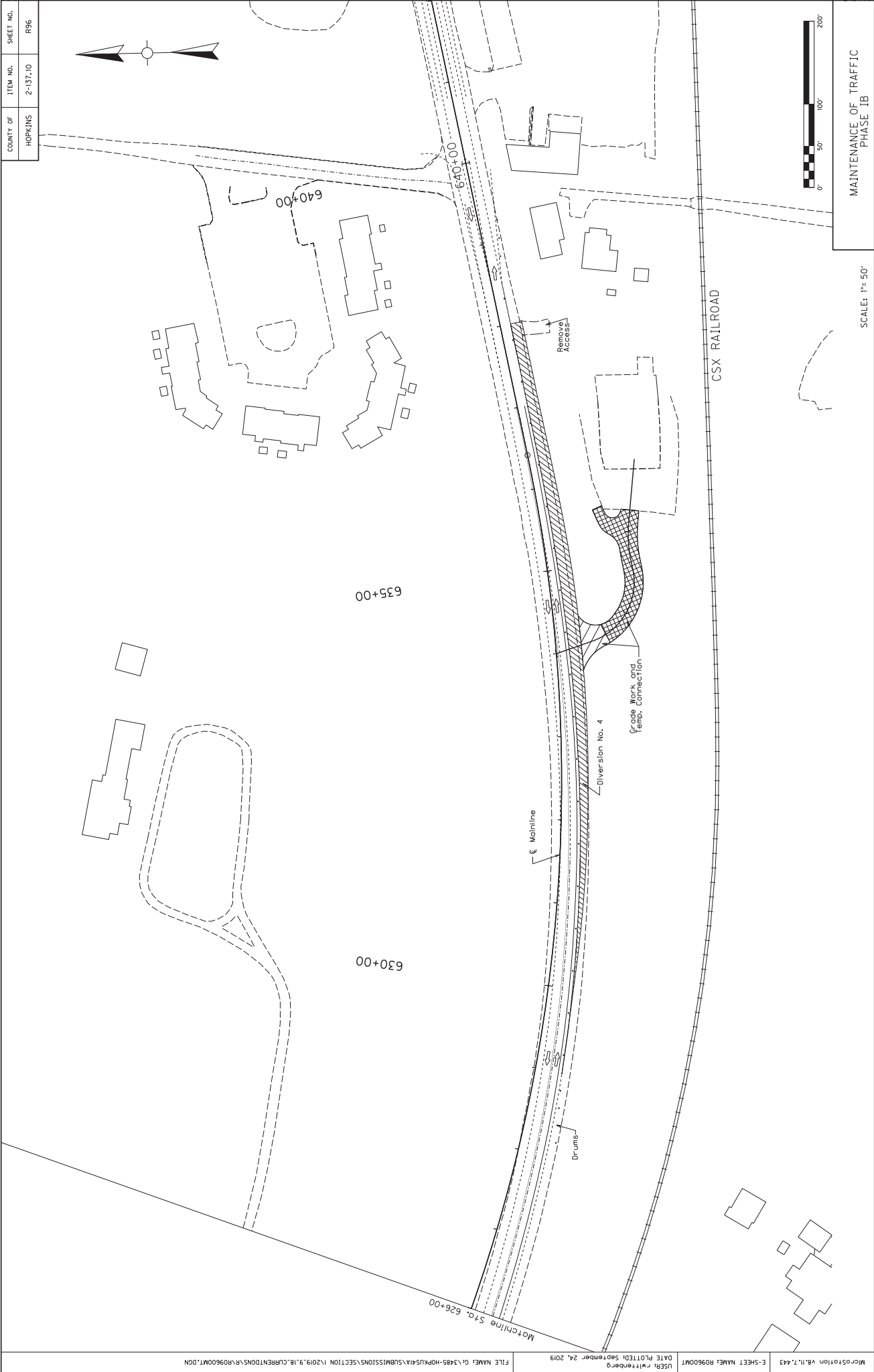


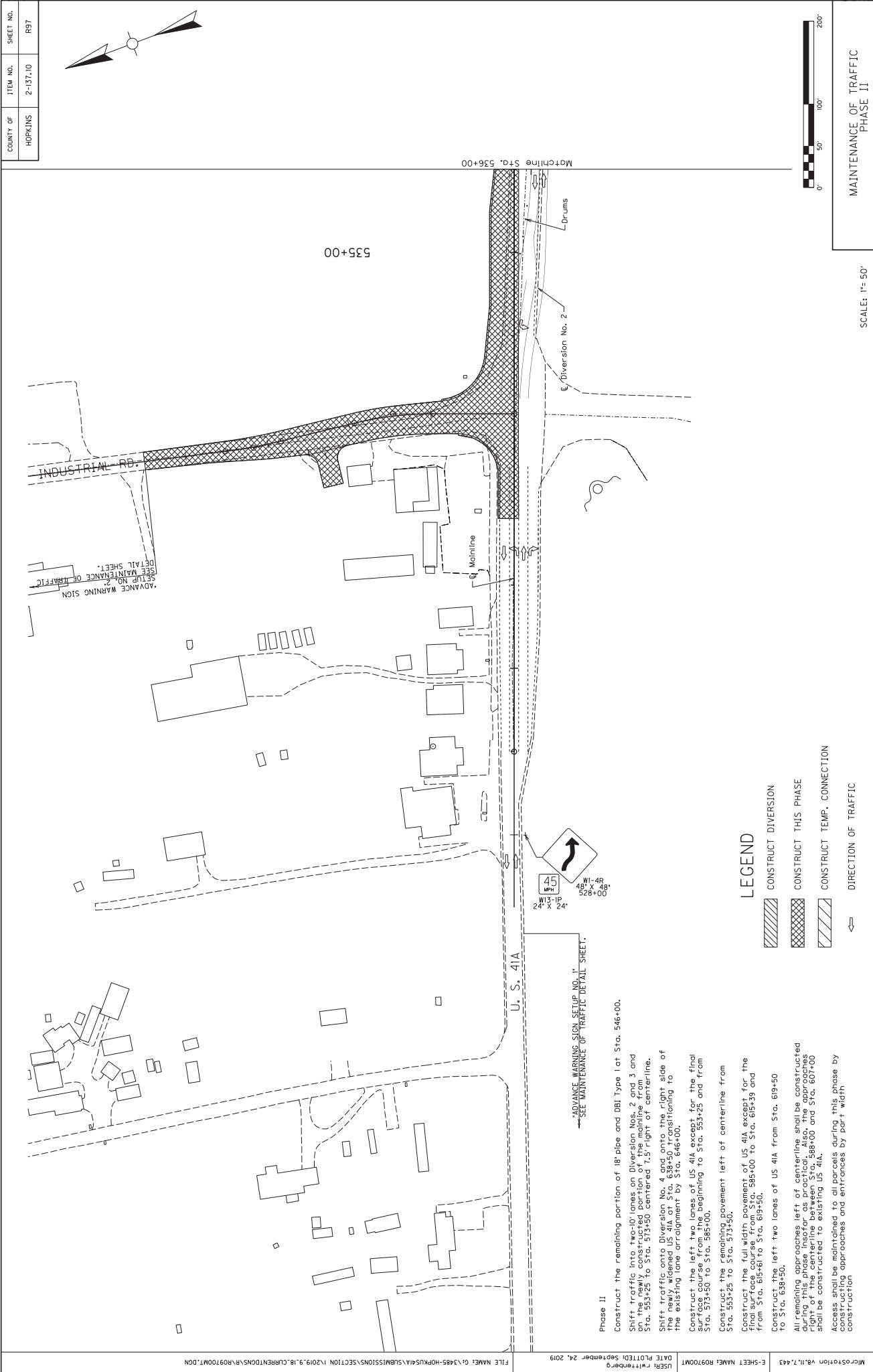




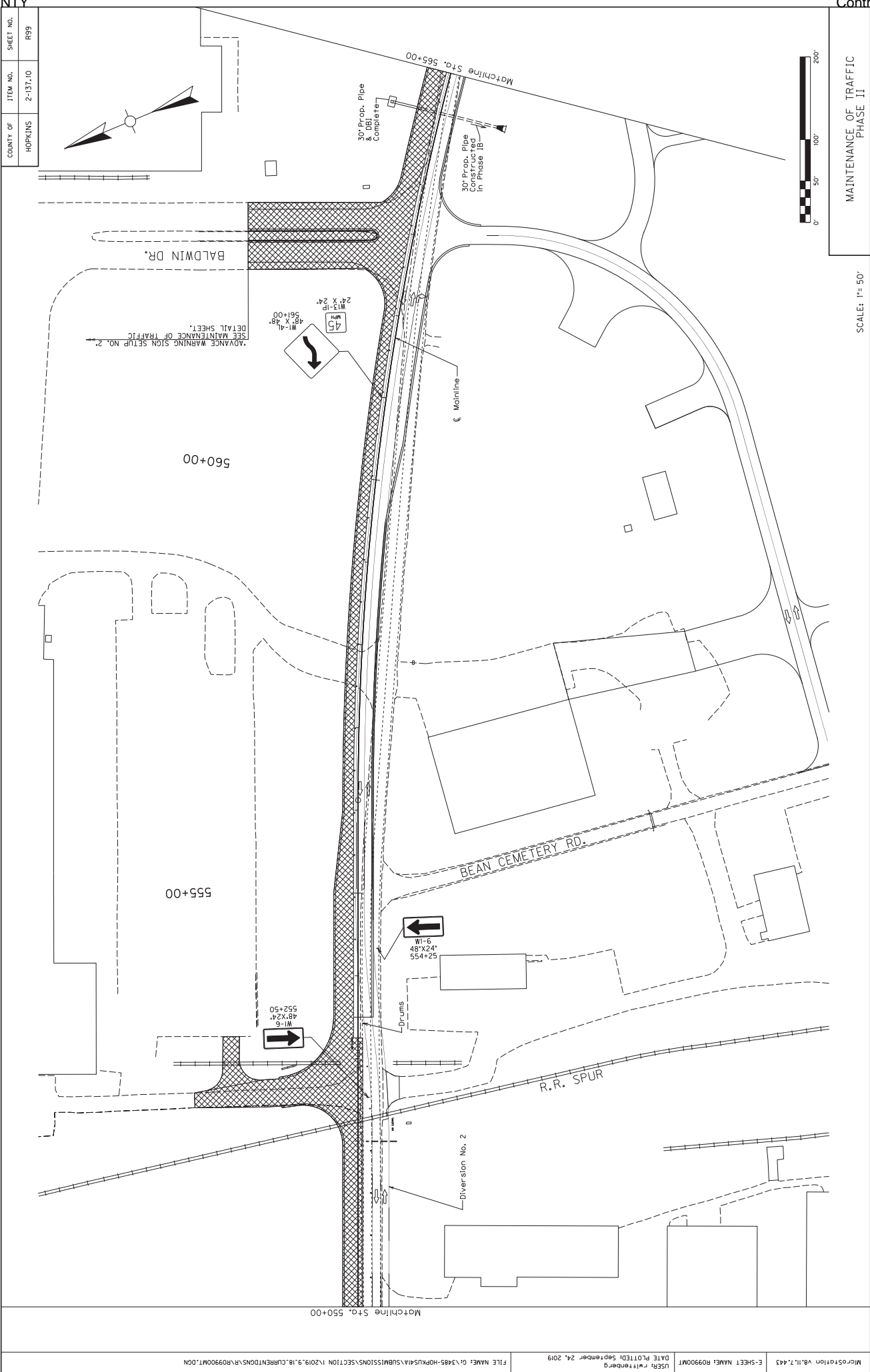
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HOPKINS	2-137.10	R94

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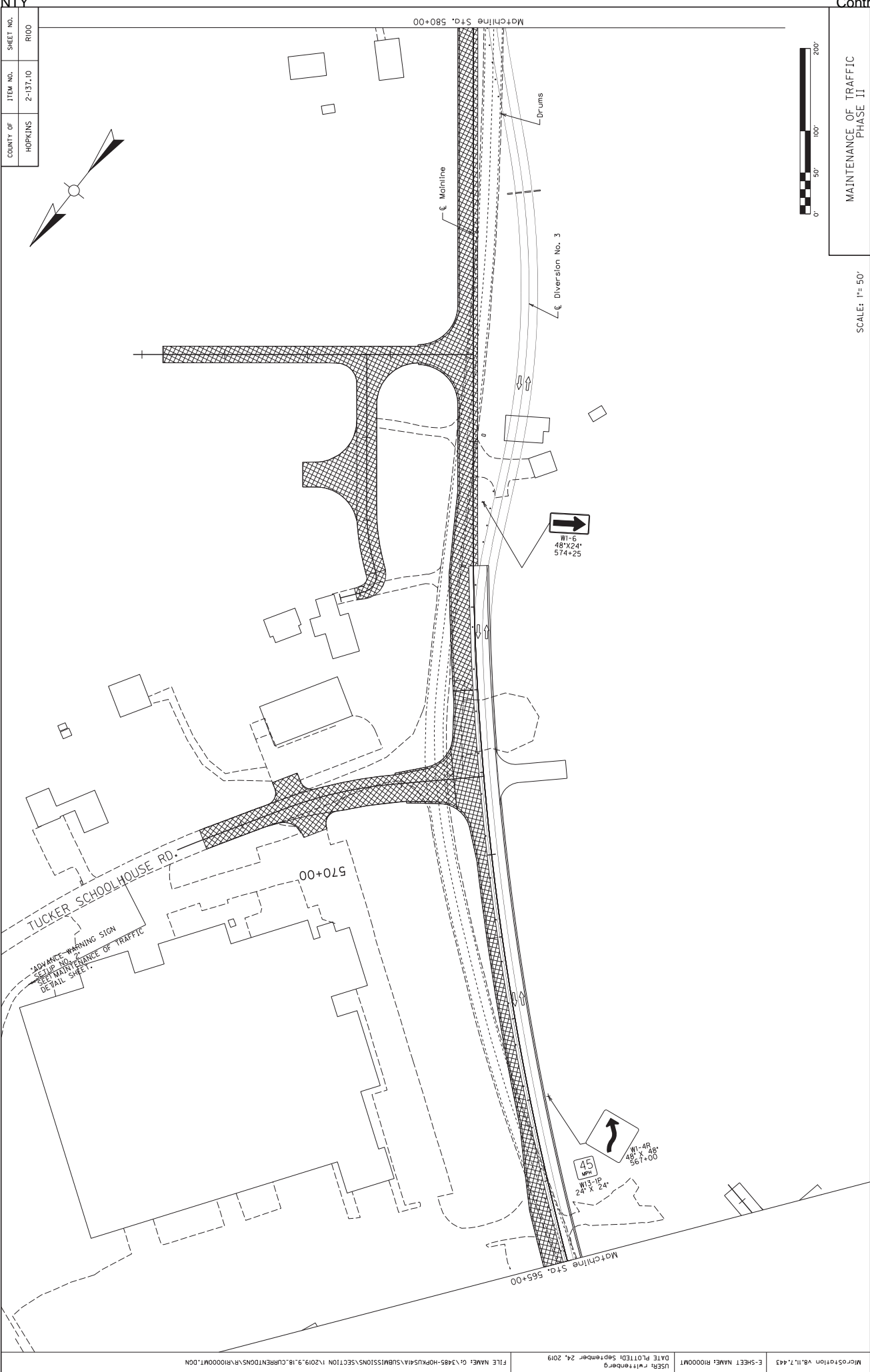


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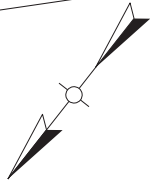
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HOPKINS	2-137.10	R99

MAINTENANCE OF TRAFFIC
PHASE II

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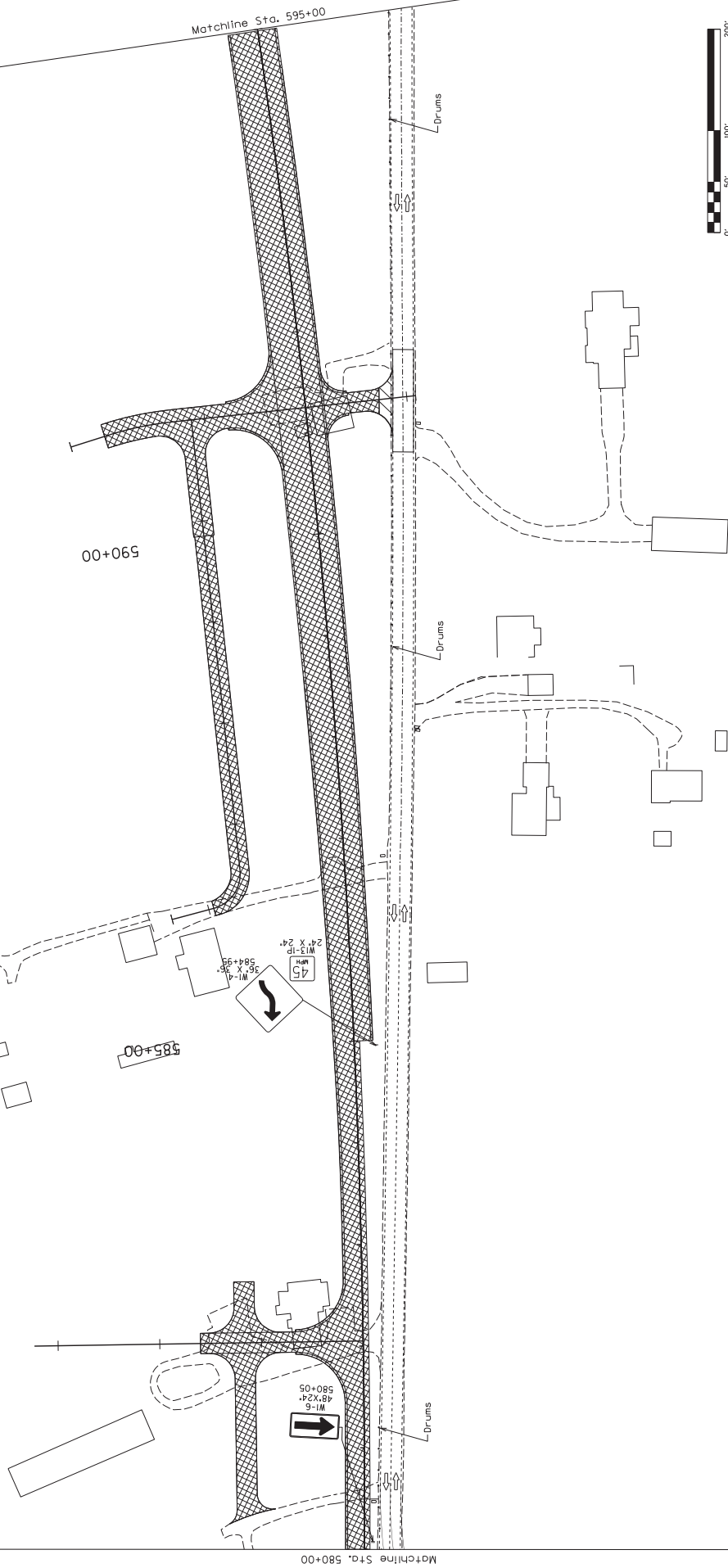


COUNTY OF	ITEM NO.	SHEET NO.
HOPKINS	2-137.10	RI01

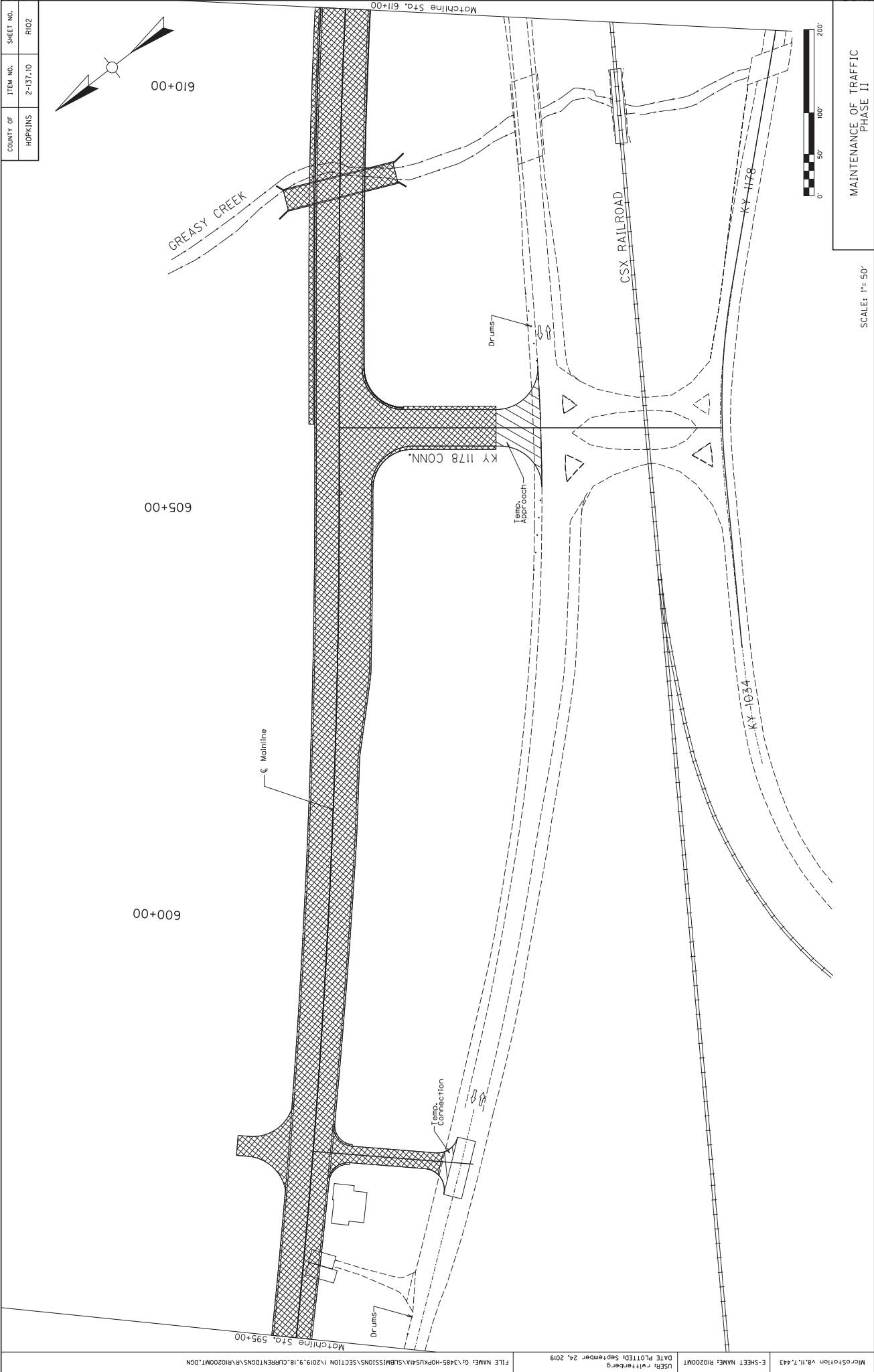


MAINTENANCE OF TRAFFIC PHASE II

SCALE: 1"= 50'



Matchline Std. 580+00

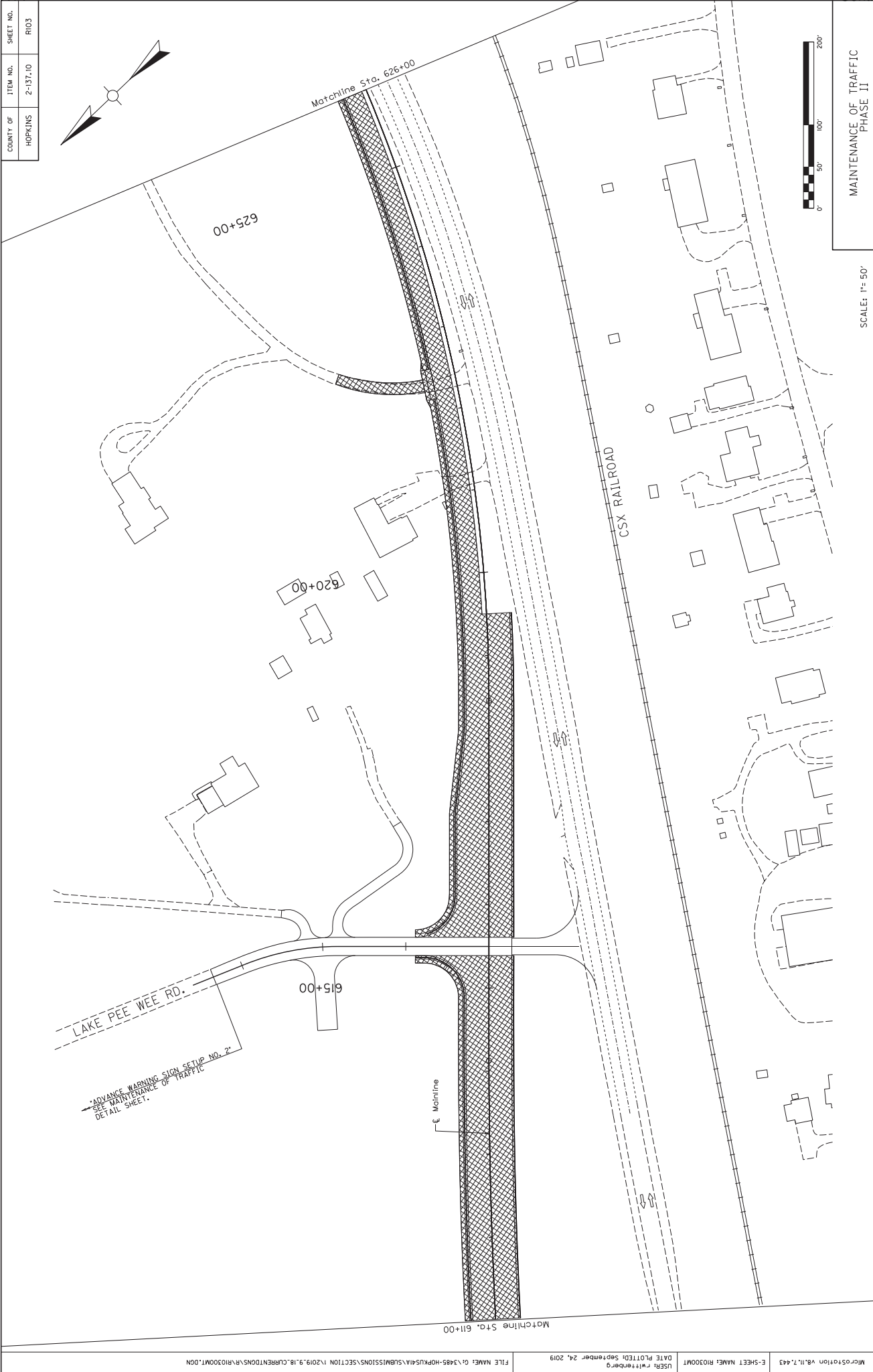


COUNTY OF	ITEM NO.	SHEET NO.
HOPKINS	2-137.10	R102

MAINTENANCE OF TRAFFIC
PHASE II

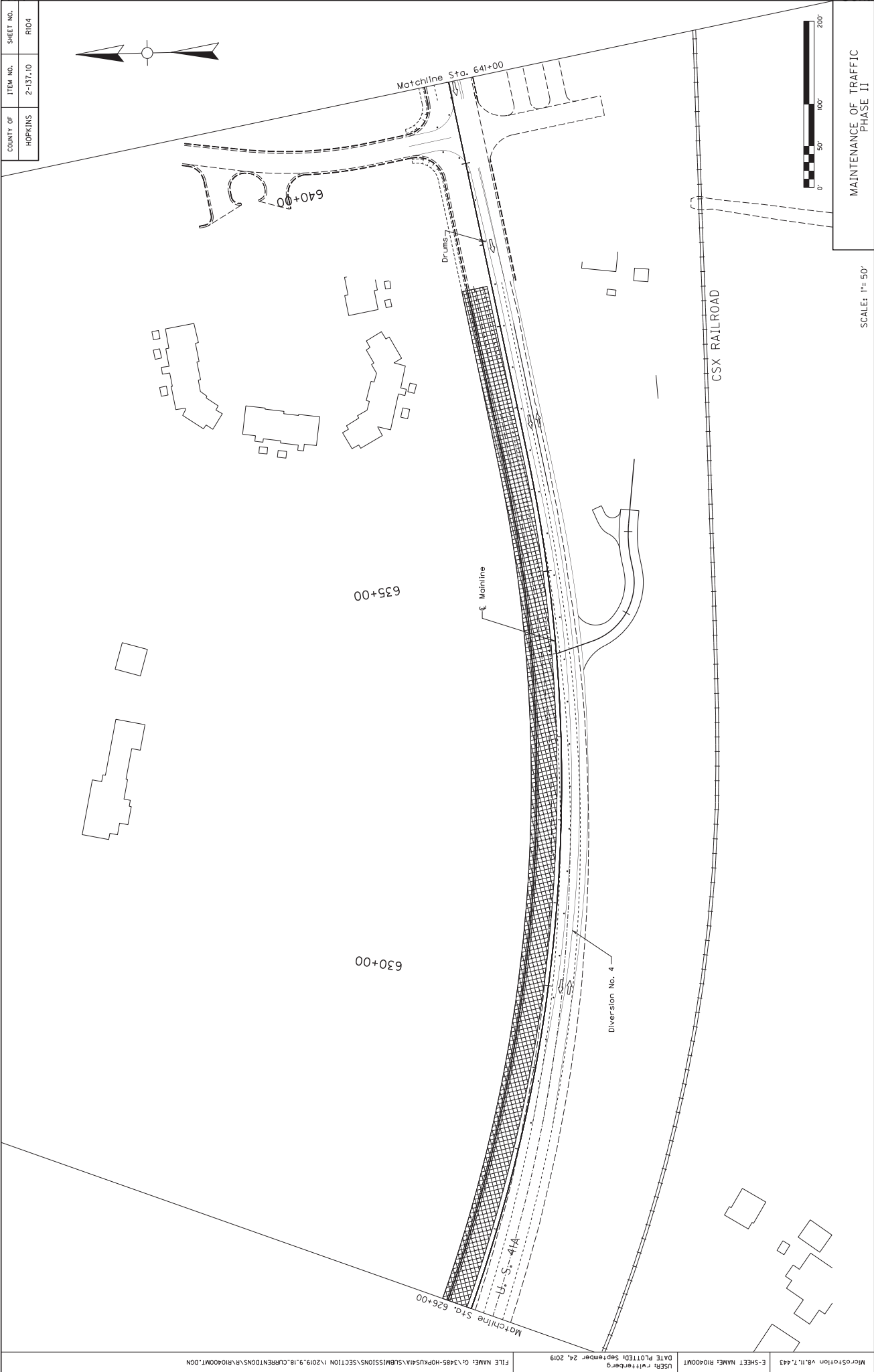
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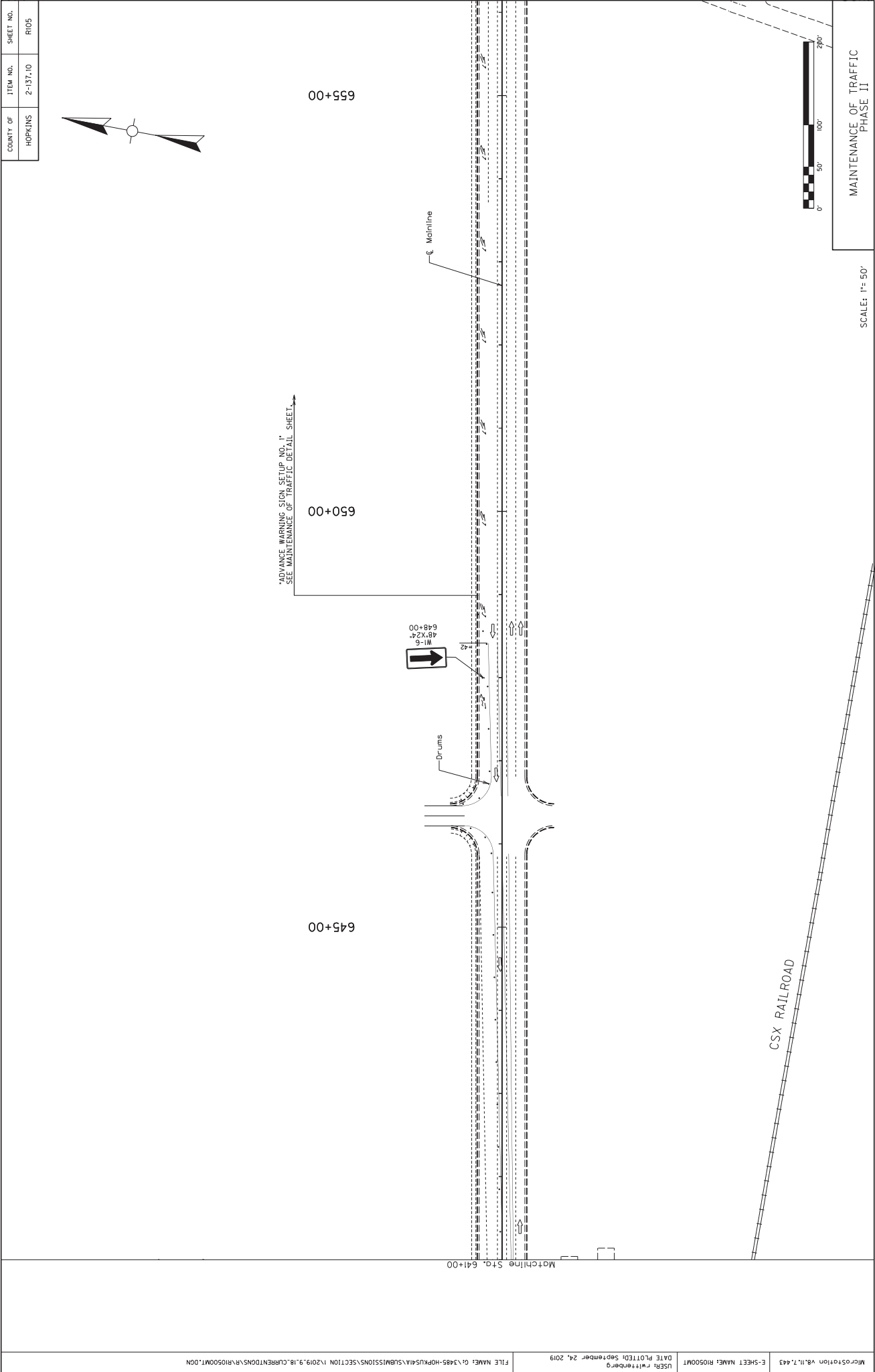
COUNTY OF	ITEM NO.	SHEET NO.
HOPKINS	2-137.10	R103



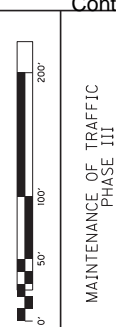
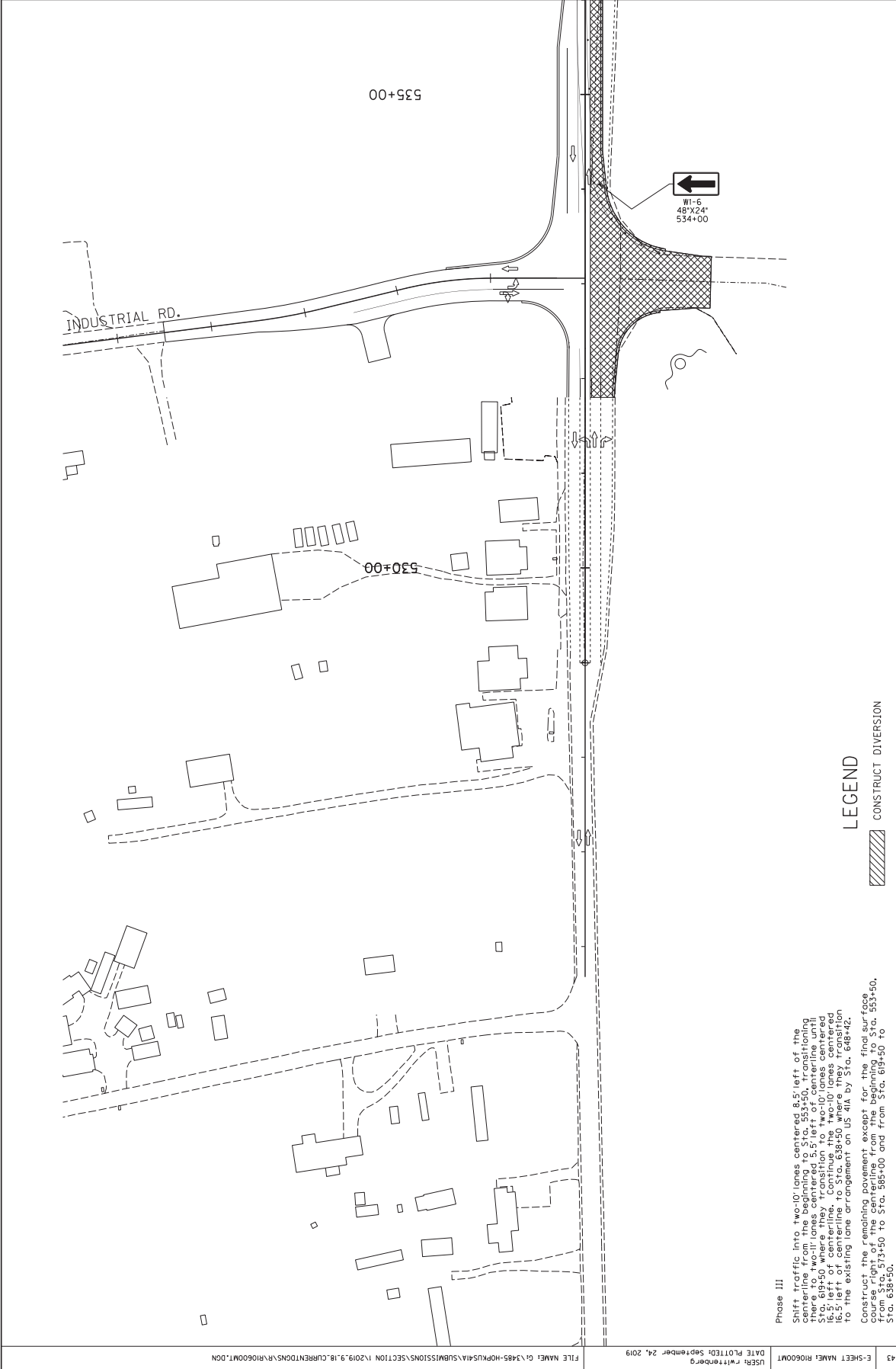
MAINTENANCE OF TRAFFIC
PHASE II

SCALE: 1"= 50'





COUNTY OF	ITEM NO.	SHEET NO.
HOPKINS	2-137.10	R106



MAINTENANCE OF TRAFFIC
PHASE III

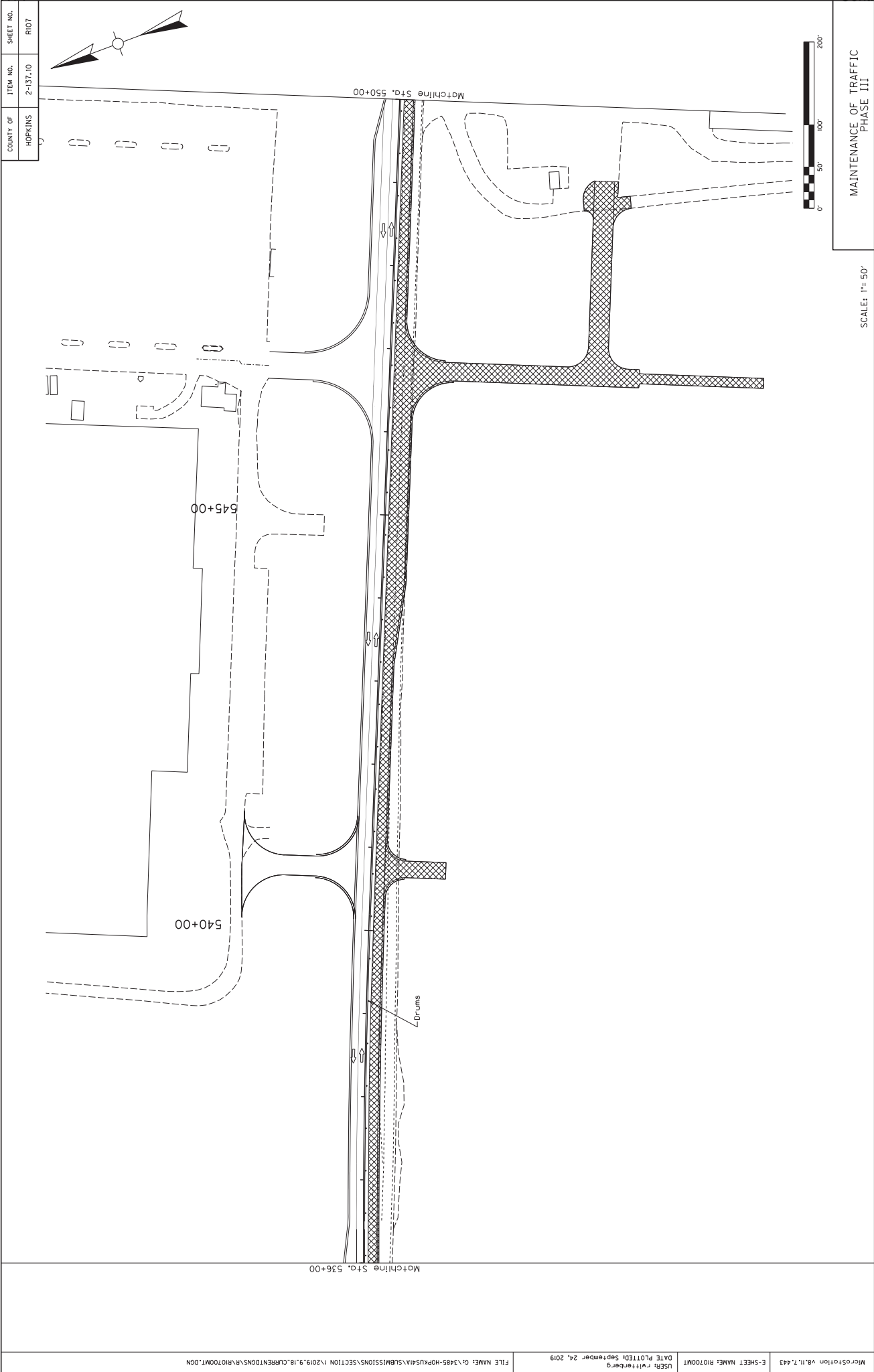
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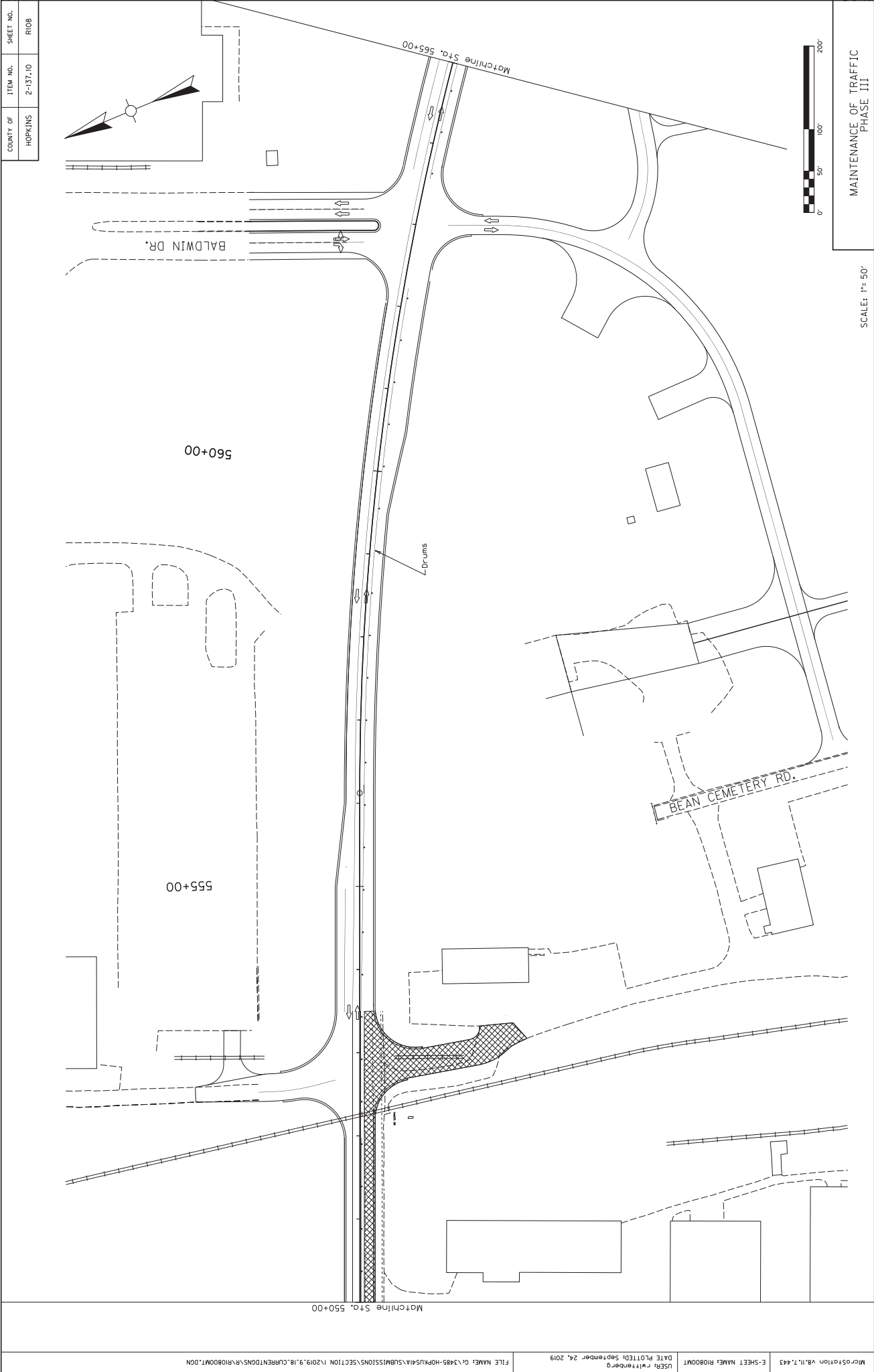
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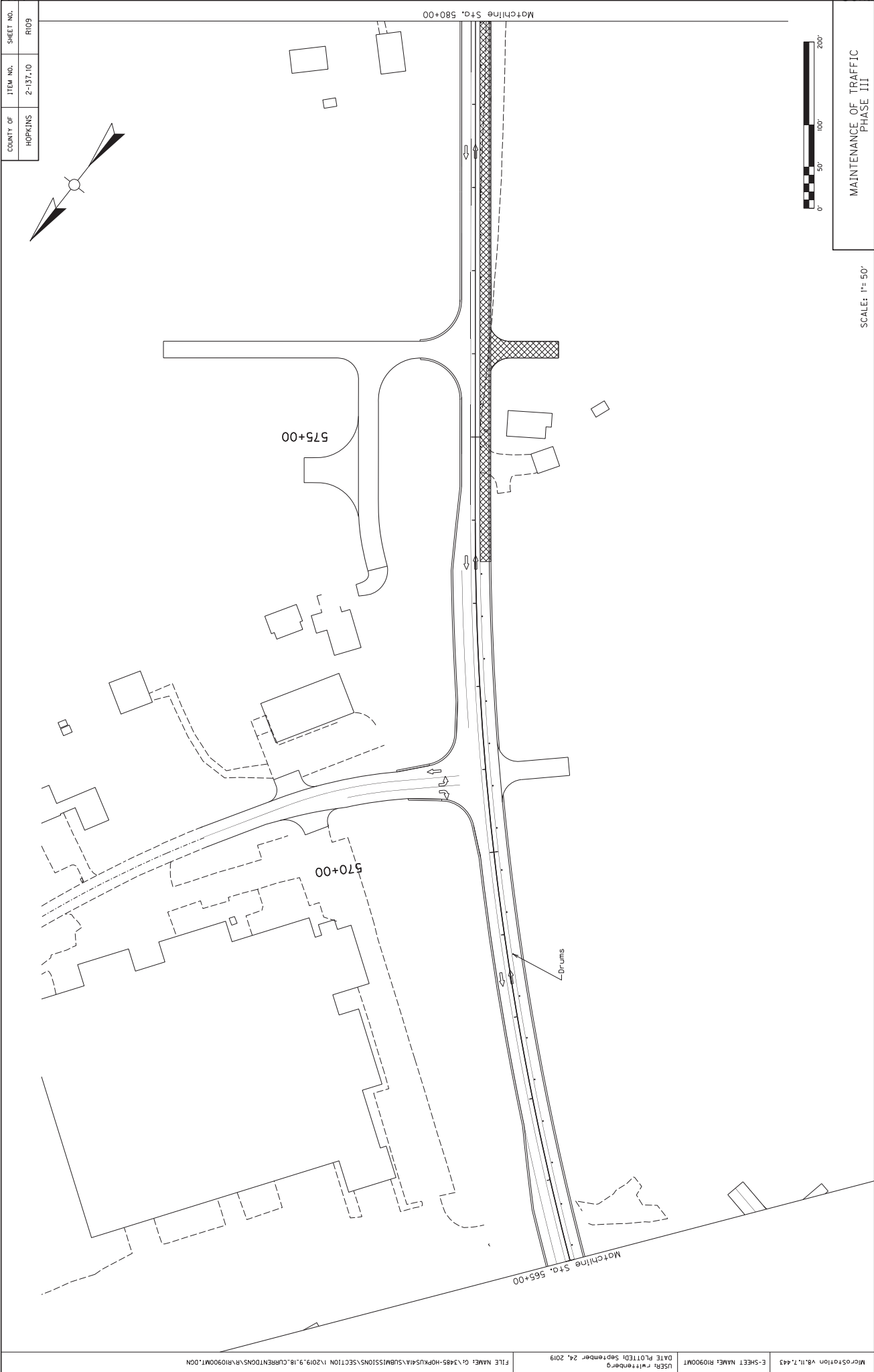
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- CONSTRUCT THIS PHASE
- CONSTRUCT TEMP. CONNECTION
- DIRECTION OF TRAFFIC

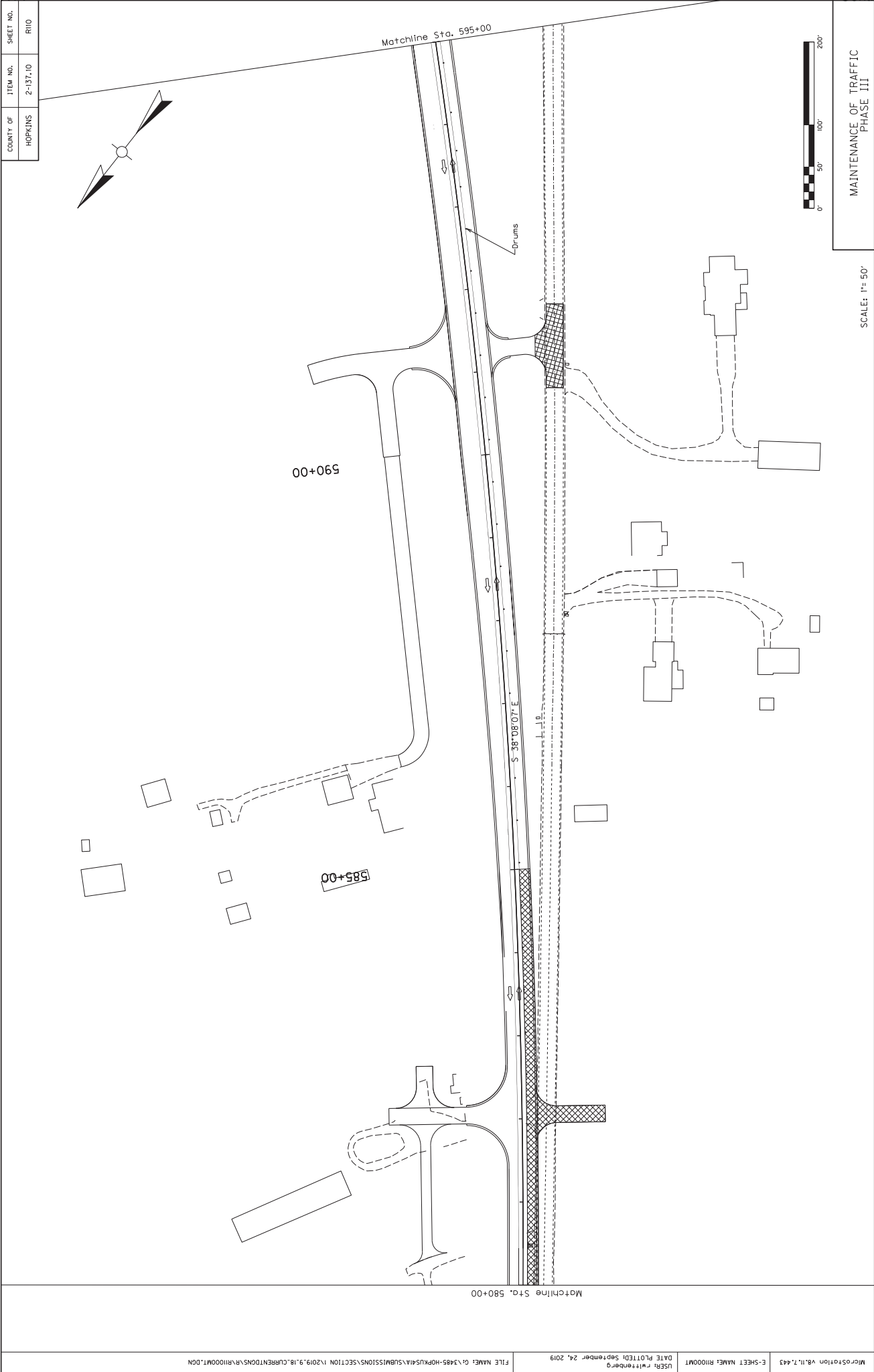
Phase III
Shift traffic into two-lane centered 8.5' left of the centerline from the beginning of Sta. 535+00. Construct the two-lane centered 8.5' left of centerline from Sta. 619+50 where they transition to two-lane centered 16.5' left of centerline. Continue the two-lane centered 16.5' left of centerline to the existing lane arrangement on US 41A by Sta. 648+42.
Construct the remaining pavement except for the final surface course right of the centerline from the beginning to Sta. 553+50. From Sta. 573+50 to Sta. 585+00 and from Sta. 619+50 to Sta. 638+50.
Construct the remainder of the approaches right of centerline.

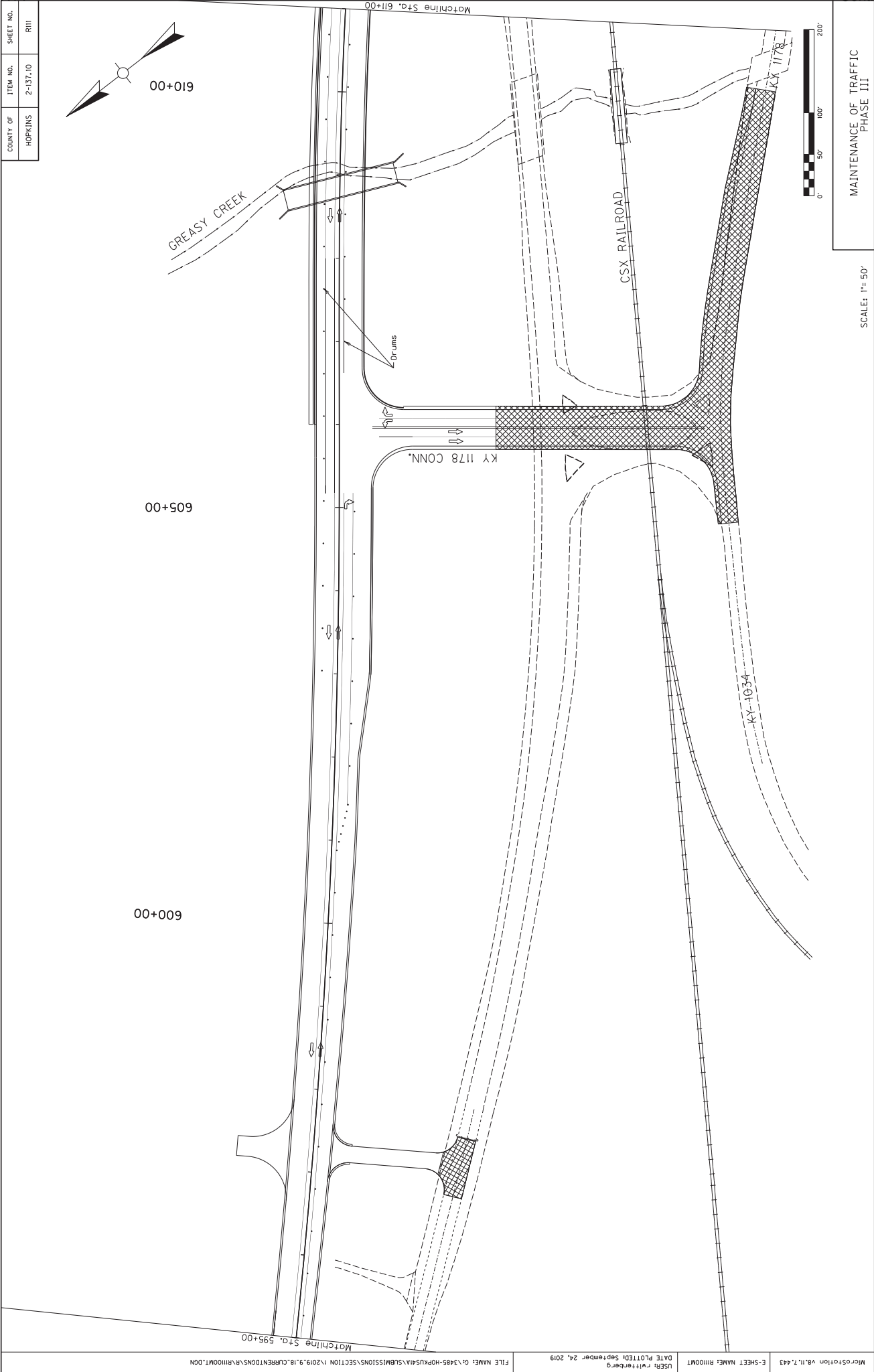
Phase IV
Complete the final asphalt surface and striping while shifting traffic into its final location.



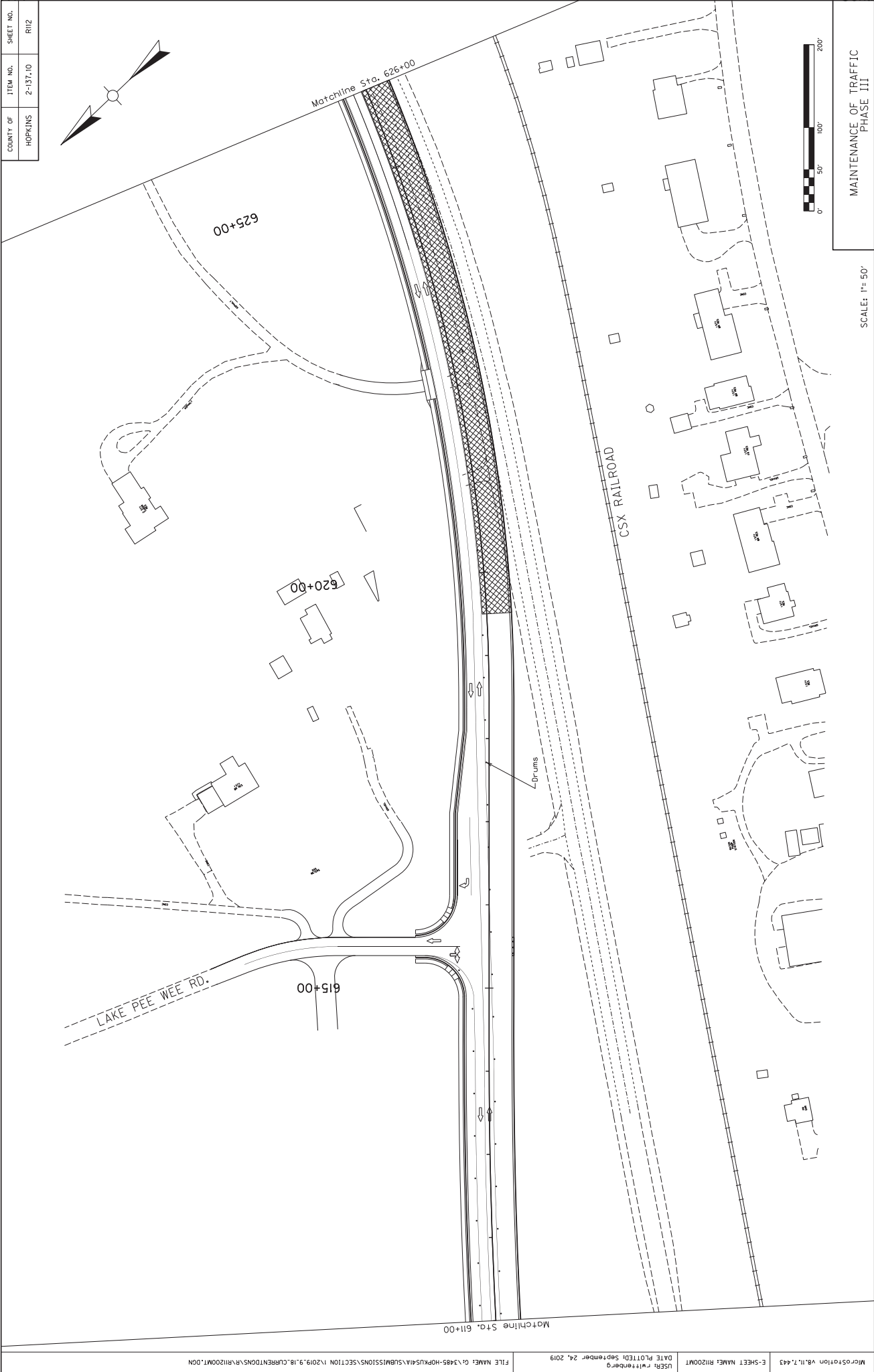


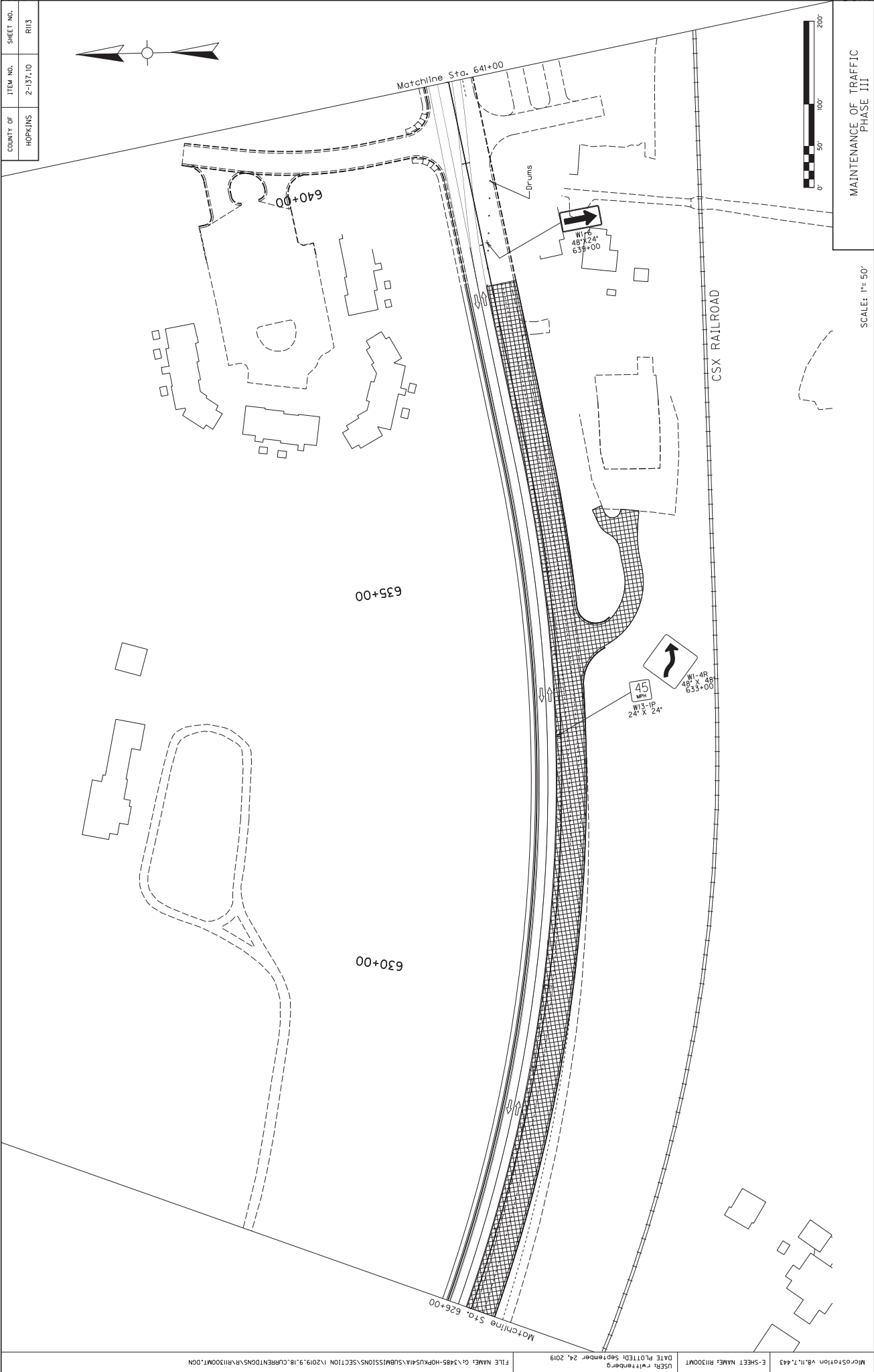




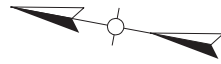


COUNTY OF	ITEM NO.	SHEET NO.
HOPKINS	2-137.10	RII2





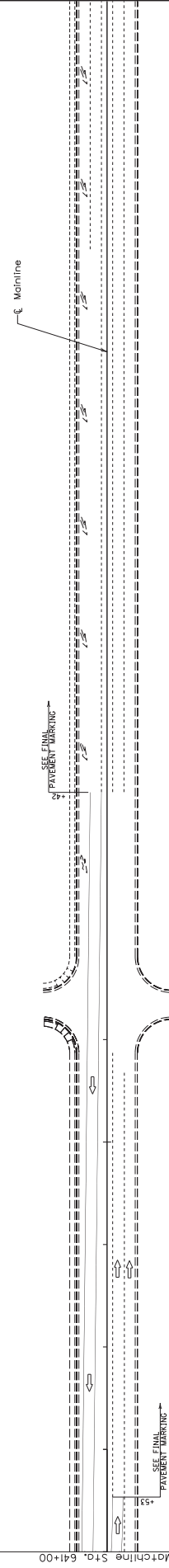
COUNTY OF	ITEM NO.	SHEET NO.
HOPKINS	2-137.10	R114



655+00

650+00

645+00



SCALE: 1"= 50'

MAINTENANCE OF TRAFFIC
PHASE III

CSX RAILROAD

SPECIAL NOTE

For Tree Removal

**Hopkins County
WIDEN US-41A TO 5-LANES FROM US-41 WEST TO
KINGDOM HALL ROAD IN MADISONVILLE.
Item No. 2-137**

NO CLEARING OF TREES 5 INCHES OR GREATER (DIAMETER BREAST
HEIGHT) FROM JUNE 1- JULY 31.

**If there are any questions regarding this note, please contact David Waldner,
Director, Division of Environmental Analysis, 200 Mero Street, Frankfort, KY
40601, Phone: (502) 564-7250.**

SPECIAL NOTE FOR CONCRETE SLURRY

If diamond grinding, grooving or any other process which produces slurry is required on roadways or bridges, the contractor shall ensure that all concrete slurry associated with these processes is collected, managed, and disposed of appropriately. The waste material shall be disposed of at a permitted disposal facility, in accordance with the Kentucky Standard Specifications for Road and Bridge Construction and the Environmental Performance Standards outlined in 401 KAR 47:030, or managed as a material for beneficial reuse. Any fines or remediation related to improper disposal shall be the sole responsibility of the contractor.

Disposal of concrete slurry will not be paid separately and shall be considered incidental to other bid items.

8/20/2019

SPECIAL NOTE FOR PIPELINE INSPECTION

1.0 DESCRIPTION. The Department will perform visual inspections on all pipe on the project. A video inspection will be required on projects having more than 250 linear feet of storm sewer and/or culvert pipe and on routes with an ADT of greater than 1,000 vehicles. Conduct video inspections on all pipe located under the roadway and 50 percent of the remaining pipe not under the roadway. Storm sewer runs and outfall pipes not under the roadway take precedence over rural entrance pipes. Contractors performing this item of work must be prequalified with the Department in the work type J51 (Video Pipe Inspection and Cleaning). Deflection testing shall be completed using a mandrel in accordance with the procedure outlined below or by physical measurement for pipes greater than 36 inches in diameter. Mandrel testing for deflection must be completed prior to the video inspection testing. Unless otherwise noted, Section references herein are to the Department's Standard Specifications for Road and Bridge Construction, current edition.

2.0 VIDEO INSPECTION. Ensure pipe is clear of water, debris or obstructions. Complete the video inspection and any necessary measurement prior to placing the final surface over any pipe. When paving will not be delayed, take measurements 30 days or more after the completion of earthwork to within 1 foot of the finished subgrade. Notify the Engineer a minimum of 24 hours in advance of inspection and notify the Engineer immediately if distresses or locations of improper installation are logged.

2.1 INSPECTION FOR DEFECTS AND DISTRESSES

A) Begin at the outlet end and proceed through to the inlet at a speed less than or equal to 30 ft/minute. Remove blockages that will prohibit a continuous operation.

B) Document locations of all observed defects and distresses including but not limited to: cracking, spalling, slabbing, exposed reinforcing steel, sags, joint offsets, joint separations, deflections, improper joints/connections, blockages, leaks, rips, tears, buckling, deviation from line and grade, damaged coatings/paved inverts, and other anomalies not consistent with a properly installed pipe.

C) During the video inspection provide a continuous 360 degree pan of every pipe joint.

D) Identify and measure all cracks greater than 0.1" and joint separations greater than 0.5".

E) Video Inspections are conducted from junction to junction which defines a pipe run. A junction is defined as a headwall, drop box inlet, curb box inlet, manhole, buried junction, or other structure that disturbs the continuity of the pipe. Multiple pipe inspections may be conducted from a single set up location, but each pipe run must be on a separate video file and all locations are to be referenced from nearest junction relative to that pipe run.

F) Record and submit all data on the TC 64-765 and TC 64-766 forms.

3.0 MANDREL TESTING. Mandrel testing will be used for deflection testing. For use on Corrugated Metal Pipe, High Density Polyethylene Pipe, and Polyvinyl Chloride Pipe, use a mandrel device with an odd number of legs (9 minimum) having a length not less than the outside diameter of the mandrel. The diameter of the mandrel at any point shall not be less than the diameter specified in Section 3.6. Mandrels can be a fixed size or a variable size.

3.1 Use a proving ring or other method recommended by the mandrel manufacturer to verify mandrel diameter prior to inspection. Provide verification documentation for each size mandrel to the Engineer.

3.2 All deflection measurements are to be based off of the AASHTO Nominal Diameters. Refer to the chart in section 3.6.

3.3 Begin by using a mandrel set to the 5.0% deflection limit. Place the mandrel in the inlet end of the pipe and pull through to the outlet end. If resistance is met prior to completing the entire run, record the maximum distance achieved from the inlet side, then remove the mandrel and continue the inspection from the outlet end of the pipe toward the inlet end. Record the maximum distance achieved from the outlet side.

3.4 If no resistance is met at 5.0% then the inspection is complete. If resistance occurred at 5.0% then repeat 3.1 and 3.2 with the mandrel set to the 10.0% deflection limit. If the deflection of entire pipe run cannot be verified with the mandrel then immediately notify the Engineer.

3.5 Care must be taken when using a mandrel in all pipe material types and lining/coating scenarios. Pipe damaged during the mandrel inspection will be video inspected to determine the extent of the damage. If the damaged pipe was video inspected prior to mandrel inspection then a new video inspection is warranted and supersedes the first video inspection. Immediately notify the Engineer of any damages incurred during the mandrel inspection and submit a revised video inspection report.

3.6 AASHTO Nominal Diameters and Maximum Deflection Limits.

Base Pipe Diameter	AASHTO Nominal Diameter	Max. Deflection Limit	
		5.0%	10.0%
(inches)	(inches)	(inches)	
15	14.76	14.02	13.28
18	17.72	16.83	15.95
24	23.62	22.44	21.26
30	29.53	28.05	26.58
36	35.43	33.66	31.89
42	41.34	39.27	37.21
48	47.24	44.88	42.52
54	53.15	50.49	47.84
60	59.06	56.11	53.15

4.0 PHYSICAL MEASUREMENT OF PIPE DEFLECTION. Alternate method for deflection testing when there is available access or the pipe is greater than 36 inches in diameter, as per 4.1. Use a contact or non-contact distance instrument. A leveling device is recommended for establishing or verifying vertical and horizontal control.

4.1 Physical measurements may be taken after installation and compared to the AASHTO Nominal Diameter of the pipe as per Section 3.6. When this method is used, determine the smallest interior diameter of the pipe as measured through the center point of the pipe (D2). All measurements are to be taken from the inside crest of the corrugation. Take the D2 measurements at the most deflected portion of the pipe run in question and at intervals no greater than ten (10) feet through the run. Calculate the deflection as follows:

$$\% \text{ Deflection} = [(AASHTO \text{ Nominal Diameter} - D2) / AASHTO \text{ Nominal Diameter}] \times 100\%$$

Note: The Engineer may require that preset monitoring points be established in the culvert prior to backfilling. For these points the pre-installation measured diameter (D1) is measured and recorded. Deflection may then be calculated from the following formula:

$$\% \text{ Deflection} = [(D1 - D2) / D1] (100\%)$$

4.2 Record and submit all data.

5.0 DEDUCTION SCHEDULE. All pipe deductions shall be handled in accordance with the tables shown below.

FLEXIBLE PIPE DEFLECTION	
Amount of Deflection (%)	Payment
0.0 to 5.0	100% of the Unit Bid Price
5.1 to 9.9	50% of the Unit Bid Price ⁽¹⁾
10 or greater	Remove and Replace ⁽²⁾

⁽¹⁾ Provide Structural Analysis for HDPE and metal pipe. Based on the structural analysis, pipe may be allowed to remain in place at the reduced unit price. ⁽²⁾ The Department may allow the pipe to remain in place with no pay to the Contractor in instances where it is in the best interest to the public and where the structural analysis demonstrates that the pipe should function adequately.

RIGID PIPE REMEDIATION TABLE PIPE	
Crack Width (inches)	Payment
≤ 0.1	100% of the Unit Bid Price
Greater than 0.1	Remediate or Replace ⁽¹⁾

⁽¹⁾ Provide the Department in writing a method for repairing the observed cracking. Do not begin work until the method has been approved.

6.0 PAYMENT. The Department will measure the quantity in linear feet of pipe to inspect. The Department will make payment for the completed and accepted quantities under the following:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
24814EC	Pipeline Inspection	Linear Foot
10065NS	Pipe Deflection Deduction	Dollars

Special Note for Bridge Demolition, Renovation and Asbestos Abatement

If the project includes any bridge demolition or renovation, the successful bidder is required to notify Kentucky Division for Air Quality (KDAQ) via filing of form (DEP 7036) a minimum of 10 working days prior to commencement of any bridge demolition or renovation work.

Any available information regarding possible asbestos containing materials (ACM) on or within bridges to be affected by the project has been included in the bid documents. These are to be included with the Contractor's notification filed with the KDAQ. If not included in the bid documents, the Department will provide that information to the successful bidder for inclusion in the KDAQ notice as soon as possible. If there are no documents stating otherwise, the bidders should assume there are no asbestos containing materials that will in any way affect the work.



Matthew G. Bevin
Governor

**COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET**
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Greg Thomas
Secretary

Asbestos Inspection Report

To: Pam Broadston

District: 2

Date: October 18, 2019

Conducted By: O'Dail Lawson

Report Prepared By: O'Dail Lawson

Project and Structure Identification

Project Number: Hopkins 02-0137.00

Structure ID: 054B00082N

Structure Location: US 41 (Nebo Road) over Greasy Creek

Sample Description: Any suspect materials collected were negative for asbestos.

Inspection Date: October 14th, 2019

Results and Recommendations

The results of the samples collected were negative for the presence of asbestos above 1%.
No abatement is required at this time.

It is recommended that this report accompany the 10-Day Notice of Intent for Demolition ([DEP7036 Form](#)) which is to be submitted to the Kentucky Division of Air Quality prior to abatement, demolition, or renovation of any building or structure in the Commonwealth.





Fax: (502) 495-0566

BULK SAMPLE ASBESTOS ANALYSIS

Analysis N #	# 910183	Address:	Hopkins - 02 - 137 054B00082N
Client Name:	K Y T C		(US 41 Over Greasy Creek)
Sampled By:	O'Dail Lawson		

[illegible]

Date Analyzed : 18-Oct-19

Reviewed By: Hirshwar Murali
Signature

The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government. Partial Reproduction of any part of this report is strictly prohibited. Samples shall be retained for (30) days.

AIHA #1 02459



Chain of Custody Record

Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West

Frankfort, Kentucky 40622

(502) 564-7251 fax (502) 564-5655

[illegible]

ENVIRONMENTAL TRAINING CONCEPTS, INC
P.O. Box 99603 Louisville, KY 40269
(502)640-2951

Certification Number: ETC-AIR-041619-00415

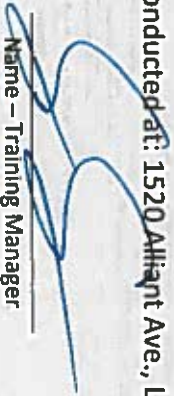
O'Dail Lawson

has on 04-16-2019, attended and successfully completed the requirements and passed the examination with a score of 70% of better on the entitled course.

ASBESTOS INSPECTOR REFRESHER

Training was in accordance with 40 CFR Part 763 (AHERA) approved by the Commonwealth of Kentucky, the Indiana Department of Environmental Management and Tennessee Department of Environment & Conservation The above student received requisite training for Asbestos Accreditation under Title II of the Toxic Substance Act (TSCA).

Conducted at: 1520 Alliant Ave., Louisville, KY


Name - Training Manager

Expiration Date: 04-16-2020


Name - Instructor



KENTUCKY TRANSPORTATION CABINET
Department of Highways
DIVISION OF RIGHT OF WAY & UTILITIES

TC 62-226
Rev. 01/2016
Page 1 of 1

RIGHT OF WAY CERTIFICATION

<input checked="" type="checkbox"/>	Original	<input type="checkbox"/>	Re-Certification	RIGHT OF WAY CERTIFICATION	
ITEM #		COUNTY	PROJECT # (STATE)		PROJECT # (FEDERAL)
2-137.10		Hopkins	FD04 C054 7334401R		N/A
PROJECT DESCRIPTION					
Widen US 41A to five lanes from US 41 to Kingdom Hall Road in Madisonville (Section 1).					
<input type="checkbox"/> No Additional Right of Way Required					
Construction will be within the limits of the existing right of way. The right of way was acquired in accordance to FHWA regulations under the Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970, as amended. No additional right of way or relocation assistance were required for this project.					
<input type="checkbox"/> Condition # 1 (Additional Right of Way Required and Cleared)					
All necessary right of way, including control of access rights when applicable, have been acquired including legal and physical possession. Trial or appeal of cases may be pending in court but legal possession has been obtained. There may be some improvements remaining on the right-of-way, but all occupants have vacated the lands and improvements, and KYTC has physical possession and the rights to remove, salvage, or demolish all improvements and enter on all land. Just Compensation has been paid or deposited with the court. All relocations have been relocated to decent, safe, and sanitary housing or that KYTC has made available to displaced persons adequate replacement housing in accordance with the provisions of the current FHWA directive.					
<input type="checkbox"/> Condition # 2 (Additional Right of Way Required with Exception)					
The right of way has not been fully acquired, the right to occupy and to use all rights-of-way required for the proper execution of the project has been acquired. Some parcels may be pending in court and on other parcels full legal possession has not been obtained, but right of entry has been obtained, the occupants of all lands and improvements have vacated, and KYTC has physical possession and right to remove, salvage, or demolish all improvements. Just Compensation has been paid or deposited with the court for most parcels. Just Compensation for all pending parcels will be paid or deposited with the court prior to AWARD of construction contract					
<input checked="" type="checkbox"/> Condition # 3 (Additional Right of Way Required with Exception)					
The acquisition or right of occupancy and use of a few remaining parcels are not complete and/or some parcels still have occupants. All remaining occupants have had replacement housing made available to them in accordance with 49 CFR 24.204. KYTC is hereby requesting authorization to advertise this project for bids and to proceed with bid letting even though the necessary right of way will not be fully acquired, and/or some occupants will not be relocated, and/or the just compensation will not be paid or deposited with the court for some parcels until after bid letting. KYTC will fully meet all the requirements outlined in 23 CFR 635.309(c)(3) and 49 CFR 24.102(j) and will expedite completion of all acquisitions, relocations, and full payments after bid letting and prior to AWARD of the construction contract or force account construction.					
Total Number of Parcels on Project		35	EXCEPTION (S) Parcel #		ANTICIPATED DATE OF POSSESSION WITH EXPLANATION
Number of Parcels That Have Been Acquired			036		See comments below
Signed Deed		34			
Condemnation		1			
Signed ROE					
Notes/ Comments (Use Additional Sheet if necessary)					
Parcel 36 - The property has been acquired. The parcel owner is in the process of constructing a new building on the remainder of their site. Relocation of the business anticipated to be complete by December 1, 2019. Parcel 13 - ROE obtained through IOJ dated 9/9/17.					
LPA RW Project Manager			Right of Way Supervisor		
Printed Name			Printed Name		Jennifer K Cox
Signature			Signature		2019.10.09
Date			Date		08:48:59 -05'00'
Right of Way Director			FHWA		
Printed Name			Printed Name		
Signature		2019.10.09 10:52:51	Signature		
Date		-05'00'	Date		

UTILITIES AND RAIL CERTIFICATION NOTE

**Hopkins County
2-137.1**

GENERAL PROJECT NOTE ON UTILITY PROTECTION

Water, Sewer, & Electric is included in the roadway contact.

**The Roadway contractor is required to use one of the following Electrical Contactors listed below
for the City of Madisonville Electrical work.**

Groves

3135 Grapevine Road
Madisonville, KY 42431

Toll Free [1-800-342-2656](tel:1-800-342-2656)

Phone [270-825-1437](tel:270-825-1437)

Fax [270-825-1485](tel:270-825-1485)

5 Star electric

170 Bean Cemetery Rd
Madisonville, KY 42431-9677

[\(270\) 399-7262](tel:270-399-7262)

T&D

175 State Route 109 N
Clay, KY 42404

Phone: [\(270\) 664-2349](tel:270-664-2349)

Fax: [\(270\) 664-2000](tel:270-664-2000)

UTILITIES AND RAIL CERTIFICATION NOTE

Hopkins County
2-137.1

NOTE: DO NOT DISTURB THE FOLLOWING UTILITIES LOCATED WITHIN THE PROJECT DISTURB LIMITS

N/A

The Contractor is fully responsible for protection of all utilities listed above

THE FOLLOWING COMPANIES ARE RELOCATING/ADJUSTING THEIR UTILITIES WITHIN THE PROJECT LIMITS AND WILL BE COMPLETE PRIOR TO CONSTRUCTION

N/A

THE FOLLOWING COMPANIES HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE COMPANY OR THE COMPANY’S SUBCONTRACTOR AND IS TO BE COORDINATED WITH THE ROAD CONTRACT

Spectrum Cable: Will Require 6 months to relocate after the electrical work that is included in the roadway contract is complete.

Mediacom: Will complete their work 3 months after Spectrum is relocated.

Wind Stream Communication: Will complete their work 4 months after Mediacom cable is complete.

AT&T: will complete their work within 10 Months after Wind Stream is complete.

Atmos Energy: Has completed their relocation work.

Texas Gas: Plans to begin work in September of 2021 with a December 2021 completion date.

Kenergy: has completed their relocation work.

THE FOLLOWING COMPANIES HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE ROAD CONTRACTOR AS INCLUDED IN THIS CONTRACT

The City of Madisonville has included the relocation of the Water, Sewer, and Electric facilities in the roadway contact.

UTILITIES AND RAIL CERTIFICATION NOTE

Hopkins County
2-137.1

THE FOLLOWING RAIL COMPANIES HAVE FACILITIES IN CONJUNCTION WITH THIS PROJECT AS NOTED

☒ **No Rail Involved** ☐ **Minimal Rail Involved (See Below)** ☐ **Rail Involved (See Below)**

See special notes for Rail Road protection in the proposal.

UNDERGROUND FACILITY DAMAGE PROTECTION – BEFORE YOU DIG

The contractor shall make every effort to protect underground facilities from damage as prescribed in the Underground Facility Damage Protection Act of 1994, Kentucky Revised Statute KRS 367.4901 to 367.4917. It is the contractor's responsibility to determine and take steps necessary to be in compliance with federal and state damage prevention directives. The contractor is instructed to contact KY 811 for the location of existing underground utilities. Contact shall be made a minimum of two (2) and no more than ten (10) business days prior to excavation.

The contractor shall submit Excavation Locate Requests to the Kentucky Contact Center (KY 811) via web ticket entry. The submission of this request does not relieve the contractor from the responsibility of contacting non-member facility owners, whom are to be contacted through their individual Protection Notification Center. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area. Non-compliance with these directives can result in the enforcement of penalties.

UTILITIES AND RAIL CERTIFICATION NOTE

Hopkins County
2-137.1

SPECIAL CAUTION NOTE – PROTECTION OF UTILITIES

The contractor will be responsible for contacting all utility facility owners on the subject project to coordinate his activities. The contractor will coordinate his activities to minimize and, where possible, avoid conflicts with utility facilities. Due to the nature of the work proposed, it is unlikely to conflict with the existing utilities beyond minor facility adjustments. Where conflicts with utility facilities are unavoidable, the contractor will coordinate any necessary relocation work with the facility owner and Resident Engineer. The Kentucky Transportation Cabinet maintains the right to remove or alter portions of this contract if a utility conflict occurs.

The utility facilities as noted in the previous section(s) have been determined using data garnered by varied means and with varying degrees of accuracy: from the facility owners, a result of S.U.E., field inspections, and/or reviews of record drawings. The facilities defined may not be inclusive of all utilities in the project scope and are not Level A quality, unless specified as such. It is the contractor's responsibility to verify all utilities and their respective locations before excavating.

BEFORE YOU DIG

The contractor is instructed to call 1-800-752-6007 to reach KY 811, the one-call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that owners of underground facilities are not required to be members of the KY 811 one-call Before-U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area.

Please Note: The information presented in this Utility Note is informational in nature and the information contained herein is not guaranteed.

AREA UTILITIES CONTACT LIST

UTILITIES AND RAIL CERTIFICATION NOTE

<div>Hopkins County 2-137.1</div>

<u>Utility Company/Agency</u>	<u>Contact Name</u>	<u>Contact Information</u>
AT&T	Scott Roche	502-348-4528
City of Madisonville (Water/Sewer & Electric)	Eric Hickman	270-824-2187
Atmos Energy	Chase Downing	270-685-8128
Mediacom	Brien Ramey	270-703-4364
Wind Stream	James Galvin	270-765-1818
Texas Gas	Amanda Isom	270-688-5854
Kenergy	Tracy Benson	270-724-6105
Spectrum Communications	Justin Sturgeon	812-253-2767

GENERAL UTILITY NOTES AND INSTRUCTIONS APPLICABLE TO ALL UTILITY WORK MADE A PART OF THE ROAD CONSTRUCTION CONTRACT

The contractor should be aware the following utility notes and KYTC Utility Bid Item Descriptions shall supersede, replace and take precedence over any and all conflicting information that may be contained in utility owner supplied specifications contained in the contract, on plans supplied by the utility owner, or any utility owner specifications or information externally referenced in this contract.

Where information may have been omitted from these notes, bid item descriptions, utility owner supplied specifications or plans; the KYTC Standard Specifications for Road and Bridge Construction shall be referenced.

PROTECTION OF EXISTING UTILITIES

The existing utilities shown on the plans are shown as best known at the time the plans were developed and are to be used as a guide only by the Contractor. The Contractor shall use all means at his disposal to accurately locate all existing utilities, whether shown on the plans or not, prior to excavation. The contractor shall protect these utilities during construction. Any damage to existing utilities during construction that are shown or not shown on the plans shall be repaired at the Contractor's expense.

PREQUALIFIED UTILITY CONTRACTORS

Some utility owners may require contractors that perform relocation work on their respective facilities as a part of the road contract be prequalified or preapproved by the utility owner. Those utility owners with a prequalification or preapproval requirement are as follows:

No contractors are required to be prequalified or preapproved by the utility owner(s) to perform utility relocation work under this contract.

The bidding contractor needs to review the above list and choose from the list of approved subcontractors at the end of these general notes as identified above before bidding. When the list of approved subcontractors is provided, only subcontractors shown on the following list(s) will be allowed to work on that utility as a part of this contract.

When the list of approved subcontractors for the utility work is not provided in these general notes, the utility work can be completed by the prime contractor. If the prime contractor chooses to subcontract the work, the subcontractor shall be prequalified with the KYTC Division of Construction Procurement in the

work type of “Utilities” (I33). Those who would like to become prequalified may contact the Division of Construction Procurement at (502) 564-3500. Please note: it could take up to 30 calendar days for prequalification to be approved. The prequalification does not have to be approved prior to the bid, but must be approved before the subcontract will be approved by KYTC and the work can be performed.

CONTRACT ADMINISTRATION RELATIVE TO UTILITY WORK

All utility work is being performed as a part of a contract administered by KYTC; there is not a direct contract between the utility contractor and utility owner. The KYTC Section Engineer is ultimately responsible for the administration of the road contract and any utility work included in the contract.

SUBMITTALS AND CORRESPONDENCE

All submittals and correspondence of any kind relative to utility work included in the road contract shall be directed to the KYTC Section Engineer, a copy of which may also be supplied to the utility owner by the contractor to expedite handling of items like material approvals and shop drawings. All approvals and correspondence generated by the utility owner shall be directed to the KYTC Section Engineer. The KYTC Section Engineer will relay any approvals or correspondence to the utility contractor as appropriate. At no time shall any direct communication between the utility owner and utility contractor without the communication flowing through the KYTC Section Engineer be considered official and binding under the contract.

ENGINEER

Where the word “Engineer” appears in any utility owner specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the “Engineer” is the Kentucky Transportation Cabinet (KYTC) Section Engineer or designated representative and the utility owner engineer or designated representative jointly. Both engineers must mutually agree upon all decisions made with regard to the utility construction. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

INSPECTOR OR RESIDENT PROJECT REPRESENTATIVE

Where the word “Inspector” or “Resident Project Representative” appears in the utility specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the “Inspector” or “Resident Project Representative” is the utility owner inspector and KYTC inspector jointly. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

NOTICE TO UTILITY OWNERS OF THE START OF WORK

One month before construction is to start on a utility, the utility contractor shall make notice to the KYTC Section Engineer and the utility owner of when work on a utility is anticipated to start. The utility contractor shall again make confirmation notice to the KYTC Section Engineer and the utility owner one week before utility work is to actually start.

UTILITY SHUTDOWNS

The Contractor shall not shut down any active and in-service mains, utility lines or services for any reason unless specifically given permission to do so by the utility owner. The opening and closing of valves and operating of other active utility facilities for main, utility line or utility service shut downs are to be performed by the utility owner unless specific permission is given to the contractor by the owner to make shutdowns. If and when the utility owner gives the contractor permission to shutdown mains, utility lines or utility services, the contractor shall do so following the rules, procedures and regulations of the utility owner. Any permission given by the utility owner to the contractor to shutdown active and in-service mains, utility lines or services shall be communicated to the KYTC Section Engineer by the utility owner that such permission has been given.

Notice to customers of utility shut downs is sometimes required to be performed by the utility contractor. The contractor may be required; but, is not limited to, making notice to utility customers in a certain minimum amount of time in advance of the shut down and by whatever means of communication specified by the utility owner. The means of communication to the customer may be; but is not limited to, a door hanger, notice by newspaper ad, telephone contact, or any combination of communication methods deemed necessary, customary and appropriate by the utility owner. The contractor should refer to the utility owner specifications for requirements on customer notice.

Any procedure the utility owner may require the contractor to perform by specification or plan note and any expense the contractor may incur to comply with the utility owner's shut down procedure and notice to customers shall be considered an incidental expense to the utility construction.

CUSTOMER SERVICE AND LATERAL ABANDONMENTS When temporary or permanent abandonment of customer water, gas, or sewer services or laterals are necessary during relocation of utilities included in the contract, the utility contractor shall perform these abandonments as part of the contract as incidental work. No separate payment will be made for service line and lateral abandonments. The contractor shall provide all labor, equipment and materials to accomplish the temporary or permanent abandonment in accordance with the plans, specifications and/or as directed by the engineer. Abandonment may include, but is not limited to, digging down on a water or gas main at the tap to turn off the tap valve or corporation stop and/or capping or plugging the tap, digging down on a sewer tap at the main and plugging or capping the tap, digging down on a service line or lateral at a location shown on the plans or agreeable to the engineer and capping or plugging, or performing any other work necessary to abandon the service or lateral to satisfactorily accomplish the final utility relocation.

STATIONS AND DISTANCES

All stations and distances, when indicated for utility placement in utility relocation plans or specifications, are approximate; therefore, some minor adjustment may have to be made during construction to fit actual field conditions. Any changes in excess of 6 inches of plan location shall be reviewed and approved jointly by the KYTC Section Engineer or designated representative and utility owner engineer or designated representative. Changes in location without prior approval shall be remedied by the contractor at his own expense if the unauthorized change creates an unacceptable conflict or condition.

RESTORATION

Temporary and permanent restoration of paved or stone areas due to utility construction shall be considered incidental to the utility work. No separate payment will be made for this work. Temporary restoration shall be as directed by the KYTC Section Engineer. Permanent restoration shall be “in-kind” as existing.

Restoration of seed and sod areas will be measured and paid under the appropriate seeding and sodding bid items established in the contract for roadway work.

BELOW ARE NOTES FOR WHEN “INST” ITEMS ARE IN THE CONTRACT MEANING THE UTILITY COMPANY IS PROVIDING CERTAIN MATERIALS FOR UTILITY RELOCATION

MATERIAL

Contrary to Utility Bid Item Descriptions, those bid items that have the text “**Inst**” at the end of the bid item will have the major components of the bid item provided by the utility owner. No direct payment will be made for the major material component(s) supplied by the utility company. All remaining materials required to construct the bid item as detailed in utility bid item descriptions, in utility specifications and utility plans that are made a part of this contract will be supplied by the contractor. The contractor’s bid price should reflect the difference in cost due to the provided materials.

The following utility owners have elected to provide the following materials for work under this contract:

No materials are being supplied by the utility owner(s). All materials are to be supplied by the contractor per bid item descriptions, utility specifications and utility plans.

SECURITY OF SUPPLIED MATERIALS

If any utility materials are to be supplied by the utility owner, it will be the responsibility of the utility contractor to secure all utility owner supplied materials after delivery to the project site. The utility contractor shall coordinate directly with the utility owner and their suppliers for delivery and security of the supplied materials. Any materials supplied by the utility owner and delivered to the construction site that are subsequently stolen, damaged or vandalized and deemed unusable shall be replaced with like materials at the contractor’s expense.

Standard Water Bid Item Descriptions

W AIR RELEASE VALVE This bid item description shall apply to all air release valve installations of every size except those defined as “Special”. This item shall include the air release valve, main to valve connecting line or piping, manhole, vault, structure, access casting or doors, tapping the main, labor, equipment, excavation, proper backfill and restoration required to install the air release valve at the location shown on the plans or as directed in accordance with the specifications and standard drawings complete and ready for use. All air release/vacuum valves on a project shall be paid under one bid item regardless of size. No separate pay items will be established for size variations. Only in the case of the uniqueness of a particular air release valve would a separate bid item be established. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

BOLLARDS This item is for payment for furnishing and installing protective guard posts at above ground utility installations. A bollard may consist of, but not limited to, a steel post set in concrete or any other substantial post material. This item shall include all labor, equipment, and materials needed for complete installation of the bollard as specified by the utility owner specifications and plans. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

NOTE: A bid code for this item has been established in standard roadway bid items and shall be used for payment of this item. The bid code is 21341ND

W CAP EXISTING MAIN This item shall include the specified cap, concrete blocking and/or mechanical anchoring, labor, equipment, excavation, backfill, and restoration required to install the cap at the location shown on the plans or as directed in accordance with the specifications. This item is not to be paid on new main installations. This pay item is only to be paid to cap existing mains. Caps on new mains are incidental to the new main. Any and all caps on existing mains shall be paid under one bid item included in the contract regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W DIRECTIONAL BORE Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized in order to minimize the impact of open cut for the installation of water main under streets, creeks, and etc. Payment under this item shall include the specified bore pipe, labor, and equipment. No separate payment shall be made for bore pipe installed in the bore whether used as a carrier pipe or an encasement of a separate carrier pipe. This item shall also include pipe anchors at each end of the bore when specified to prevent the creep or contraction of the bore pipe. Carrier pipe installed within a bore pipe shall be paid separately under pipe items. Payment under this item shall not be size specific and no separate bid items will be established for size variations. The bore pipe sizes to be included under this item shall be as shown on the plans and/or in the specifications. Any and all directional bores in each contract shall be paid under one directional bore bid item included in the contract regardless of size. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W ENCASEMENT CONCRETE Includes all labor, equipment, excavation, concrete, reinforcing steel, backfill, restoration, and etc., to construct the concrete encasement of the water main as shown on the plans, and in accordance with the specifications and standard drawings. Payment under this item shall be in addition to the carrier pipe as paid under separate bid items. Carrier pipe is not included in this bid item. Any and all concrete encasement shall be paid under one bid item included in the contract regardless of the size of the carrier pipe or the volume of concrete or steel reinforcement as specified in the plans and specifications. No separate bid items will be established for size variations. Measurement of pay quantity shall be from end of concrete to end of concrete. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W ENCASEMENT STEEL BORED This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to bore and install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The sizes of encasement to be paid under the size ranges specified in the bid items shall be as follows:

- Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
- Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
- Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
- Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
- Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
- Range 6 = All encasement sizes greater than 24 inches

(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.) Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W ENCASEMENT STEEL OPEN CUT This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to open cut and install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The size encasement to be paid under the size ranges specified in the bid items shall be as follows:

- Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
- Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
- Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
- Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
- Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
- Range 6 = All encasement sizes greater than 24 inches

(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.) Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W FIRE HYDRANT ADJUST Includes all labor, equipment, excavation, materials, and backfill to adjust the existing fire hydrant using the fire hydrant manufacturer's extension kit for adjustments of 18" or less. Adjustments greater than 18" require anchoring couplings and vertical bends to adjust to grade. The Contractor will supply and install all anchor couplings, bends, fire hydrant extension, concrete blocking, restoration, granular drainage material, etc, needed to adjust the fire hydrant complete and ready for use as shown on the plans, and in accordance with the specifications and standard drawings. This also includes allowing for the utility owner inspector to inspect the existing fire hydrant prior to adjusting, contractor returning unusable fire hydrants to the utility owner warehouse and picking up a replacement hydrant. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete and ready for use.

W FIRE HYDRANT ASSEMBLY Includes all labor, equipment, new fire hydrant, isolating valve and valve box, concrete pad around valve box (when specified in specifications or plans), piping, anchoring tee, anchoring couplings, fire hydrant extension, excavation, concrete blocking, granular drainage material, backfill, and restoration, to install a new fire hydrant assembly as indicated on plans and on standard drawings complete and ready for use. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W FIRE HYDRANT RELOCATE This item includes all labor and equipment to remove the existing fire hydrant from its existing location and reinstalling at a new location. This item shall include a new isolating valve and valve box, concrete pad around valve box (when required in specifications or plans), new piping, new anchoring tee, anchoring couplings, fire hydrant extensions, concrete blocking, restoration, granular drainage material, excavation, and backfill as indicated on plans, specifications, and on standard drawings complete and ready for use. This item shall also include allowing for utility owner inspector to inspect the existing fire hydrant prior to reuse, contractor returning unusable fire hydrants to the utility owner warehouse and picking up a replacement hydrant for use, if the existing fire hydrant is determined unfit for reuse. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W FIRE HYDRANT REMOVE This bid item includes removal of an abandoned fire hydrant, isolating valve, and valve box to the satisfaction of the engineer. The removed fire hydrant, isolating valve and valve box shall become the property of the contractor for his disposal as salvage or scrap. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W FLUSH HYDRANT ASSEMBLY This item shall include the flushing hydrant assembly, service line, tapping the main, labor, equipment, excavation, backfill, and restoration required to install the flush hydrant at the location shown on the plans and in accordance with the specifications and standard drawings, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W FLUSHING ASSEMBLY This item shall include the flushing device assembly, service line, meter box and lid, tapping the main, labor, equipment, excavation, backfill, and restoration required to install the

flushing device at the location shown on the plans and in accordance with the specifications and standard drawings, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W LEAK DETECTION METER This item is for payment for installation of a water meter at main valve locations where shown on the plans for detection of water main leaks. The meter shall be of the size and type specified in the plans or specifications. This item shall include all labor, equipment, meter, meter box or vault, connecting pipes between main and meter, main taps, tapping saddles, casting, yoke, and any other associated material needed for installation of a functioning water meter in accordance with the plans and specifications, complete and ready for use. No separate payment will be made under any other contract item for connecting pipe or main taps. Any and all leak detection meters shall be paid under one bid item included in the contract regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete and ready for use.

W LINE MARKER This item is for payment for furnishing and installing a water utility line marker as specified by the utility owner specifications and plans. A line marker may consist of a post or monument of whatever materials specified and shall include markings and/or signage on same as specified by plans or specifications. This item shall include all labor, equipment, and materials needed for complete installation of the marker. This item shall be paid EACH (EA) when complete.

W MAIN POINT RELOCATE This item is intended for payment for horizontal and/or vertical relocation of a short length of an existing main at the locations shown on the plans. This bid item is to be used to relocate an existing water main at point locations such as to clear a conflict at a proposed drainage structure, pipe or any other similar short relocation situation, and where the existing pipe material is to be reused. The contractor shall provide any additional pipe or fitting material needed to complete the work as shown on the plans and specifications. The materials provided shall be of the same type and specification as those that exist. Substitution of alternative materials shall be approved by the engineer in advance on a case by case basis. New polyethylene wrap is to be provided (if wrap exists or is specified in the specifications to be used). If it is necessary that the pipe be disassembled for relay, payment under this item shall also include replacement of joint gaskets as needed. Bedding and backfill shall be provided and performed the same as with any other pipe installation as detailed in the plans and specifications. Payment under this item shall be for each location requiring an existing main to be relocated horizontally or vertically regardless of pipe size or relocation length. No separate pay items will be established for pipe size variations or relocation segment length variations. Water Main Relocate shall not be paid on a linear feet basis; but, shall be Paid EACH (EA) at each location when complete and placed in service. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

W METER This item is for payment for installation of all standard water meters of all sizes 2 inches ID or less as specified on the plans. This item shall include all labor, equipment, meter, meter box, casting, yoke, and any other associated material needed for installation of a functioning water meter in accordance with the plans and specifications, complete and ready for use. This item shall include connections to the new or existing water service line. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W METER ADJUST This item includes all labor, equipment, excavation, materials, backfill, restoration, and etc., to adjust the meter casting to finished grade (whatever size exists) at the location shown on the plans or as directed in accordance with the specifications and standard drawings complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W METER RELOCATE This item includes all labor, equipment, excavation, additional fittings, disinfection, testing, restoration, and etc., to relocate the existing water meter (whatever size exists), meter yoke, meter box, casting, and etc., from its old location to the location shown on the plans or as directed, in accordance with the specifications and standard drawings complete and ready for use. The new service pipe (if required) will be paid under short side or long side service bid items. Any and all meter relocations of 2 inches or less shall be paid under one bid item included in the contract regardless of size. Each individual relocation shall be paid individually under this item; however, no separate bid items will be established for meter size variations of 2 inches ID or less. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W METER VAULT SIZE RANGE 1 OR 2 This item is for payment for installation of an underground structure for housing of a larger water meter, fittings, and valves as required by the plans and specifications. This item shall include all labor, equipment, excavation, concrete, manhole castings or access doors, the specified meter(s) valve(s), all piping, and fitting materials associated with installing a functioning meter and vault in accordance with the plans, standard drawings, and specifications, complete and ready for use. The size shall be the measured internal diameter of the meter and piping to be installed. The size meter vault to be paid under size 1 or 2 shall be as follows:

Size Range 1 = All meter and piping sizes greater than 2 inches up to and including 6 inches
Size Range 2 = All meter and piping sizes greater than 6 inches

This item shall be paid EACH (EA) when complete. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

W METER/FIRE SERVICE COMBO VAULT This item is for payment for installation of an underground structure for housing of a water meter and fire service piping, fittings, and valves as required by the plans and specifications. This item shall include all labor, equipment, excavation, concrete, manhole castings or access doors, the specified meter(s), valve(s), all piping, and fitting materials associated with installing a functioning meter and fire service vault in accordance with the plans and specifications, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W METER WITH PRESSURE REDUCING VALVE (PRV) This item is for payment for installation of all standard water meters with pressure reducing valves (PRV) of all sizes 2 inches ID or less as specified on the plans. This item shall include all labor, equipment, meter, PRV, meter box, casting, yoke, and any other associated material needed for installation of a functioning water meter with PRV in accordance with the plans and specifications, complete and ready for use. This item shall include connections to the new or existing water service line. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

This item shall be paid EACH (EA) when complete.

W PIPE This description shall apply to all PVC, ductile iron, and polyethylene/plastic pipe bid items of every size and type to be used as water main, except those bid items defined as “Special”. This item includes the pipe specified by the plans and specifications, all fittings (including, but not limited to, bends, tees, reducers, plugs, and caps), tracing wire with test boxes (if required by specification), polyethylene wrap (when specified), labor, equipment, excavation, bedding, restoration, testing, sanitizing, backfill, and etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. No additional payment will be made for rock excavation. This bid item includes material and placement of flowable fill under existing and proposed pavement, and wherever else specified on the plans or in the specifications. **This item shall include all temporary and permanent materials and equipment required to pressure test and sanitize mains including, but not limited to, pressurization pumps, hoses, tubing, gauges, main taps, saddles, temporary main end caps or plugs and blocking, main end taps for flushing, chlorine liquids or tablets for sanitizing, water for testing/sanitizing and flushing (when not supplied by the utility), chlorine neutralization equipment and materials, and any other items needed to accomplish pressure testing and sanitizing the main installation.** This item shall also include pipe anchors, at each end of polyethylene pipe runs when specified to prevent the creep or contraction of the pipe. Measurement of quantities under this item shall be through fittings, encasements, and directional bores (only when a separate carrier pipe is specified within the directional bore pipe). Measurements shall be further defined to be to the center of tie-in where new pipe contacts existing pipe at the center of connecting fittings, to the outside face of vault or structure walls, or to the point of main termination at dead ends. No separate payment will be made under pipe items when the directional bore pipe is the carrier pipe. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W PLUG EXISTING MAIN This item shall include the specified plug, concrete blocking and/or anchoring, labor, equipment, excavation, backfill, and restoration required to install the plug in an existing in-service main that is to remain at the location shown on the plans or as directed in accordance with the specifications. Any and all plugs on all existing in-service mains shall be paid under one bid item included in the contract regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

NOTE: This utility bid item is not to be paid on new main installations or abandoned mains. This pay item is to plug existing in-service mains only. Plugs on new mains are incidental to the new main just like all other fittings.

NOTE: Plugging of existing abandon mains shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications For Road And Bridge Construction and paid using Bid Code 01314 Plug Pipe.

W PRESSURE REDUCING VALVE This description shall apply to all pressure reducing valves (PRV) of every size required in the plans and specifications except those bid items defined as “Special”. Payment under this description is to be for PRVs being installed with new main. This item includes the PRV as specified in the plans and specifications, polyethylene wrap (if required by specification), labor, equipment, excavation, anchoring (if any), pit or vault, backfill, restoration, testing, disinfection, and etc., required to install the specified PRV at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. If required on plans and/or proposed adjoining DIP is restrained, PRVs shall be restrained. PRV restraint shall be considered incidental to the

PRV and adjoining pipe. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W PUMP STATION This item is for payment for installation of pumps and an above or below ground structure for housing of the pumps. This item shall include all pumps, piping, fittings, valves, electrical components, building materials, concrete, any other appurtenances, labor, equipment, excavation, and backfill, to complete the pump station installation as required by the plans, standard drawings, and specifications, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LUMP SUM (LS) when complete.

W REMOVE TRANSITE (AC) PIPE This item shall include all labor, equipment, and materials needed for removal and disposal of the pipe as hazardous material. All work shall be performed by trained and certified personnel in accordance with all environmental laws and regulations. Any and all transite AC pipe removed shall be paid under one bid item included in the contract regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W SERVICE LONG SIDE This bid item description shall apply to all service line installations of every size bid up to and including 2 inch inside diameter, except those service bid items defined as "Special". This item includes the specified piping material, main tap, tapping saddle (if required), and corporation stop materials, coupling for connecting the new piping to the surviving existing piping, encasement of 2 inches or less internal diameter (if required by plan or specification), labor, equipment, excavation, backfill, testing, disinfection, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for service installations where the ends of the service connection are on opposite sides of the public roadway and the service line crosses the centerline of the public roadway as shown on the plans. The length of the service line is not to be specified. Payment under this item shall not be restricted by a minimum or maximum length. The contractor shall draw his own conclusions as to the length of piping that may be needed. Payment under this item shall include boring, jacking, or excavating across the public roadway for placement. Placement of a service across a private residential or commercial entrance alone shall not be reason to make payment under this item. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. This pay item does not include installation or relocation of meters. Meters will be paid separately. No additional payment will be made for rock excavation or for special bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W SERVICE SHORT SIDE This bid item description shall apply to all service line installations of every size up to and including 2 inch internal diameter, except those service bid items defined as "Special". This item includes installation of the specified piping material of the size specified on plans, encasement of 2 inches or less internal diameter (if required by plan or specification), main tap, tapping saddle (if required), corporation stop, coupling for connecting the new piping to the surviving existing piping, labor, equipment, excavation, backfill, testing, disinfection, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and

ready for use. This bid item is to pay for service installations where both ends of the service connection are on the same side of the public roadway, or when an existing service crossing a public roadway will remain and is being extended, reconnected, or relocated with all work on one side of the public roadway centerline as shown on the plans. The length of the service line is not to be specified and shall not be restricted to any minimum or maximum length. Payment shall be made under this item even if the service crosses a private residential or commercial entrance; but, not a public roadway. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. The contractor shall draw his own conclusions as to the length of piping that may be needed. This pay item does not include installation or relocation of meters. Meters will be paid separately. No additional payment will be made for rock excavation or for bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W SERVICE RELOCATE This item is for the relocation of an existing water service line where a meter is not involved, and where an existing service line can easily be adjusted by excavating alongside and moving the line horizontally and/or vertically a short distance without cutting the service line to avoid conflicts with road construction. This item shall include excavation, labor, equipment, bedding, and backfill to relocate the line in accordance with the plans and specifications complete and ready for use. Payment under this item shall be for each location requiring relocation. Payment shall be made under this item regardless of service size or relocation length. No separate pay items will be established for size or length variation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W STRUCTURE ABANDONMENT This item is to be used to pay for abandonment of larger above or below ground water structures such as meter vaults, fire pits, pump stations, tanks, and etc. Payment under this item shall not be limited to size or scope; however structures with connecting pipes of 2 inches or less shall not be paid under this item; but, shall be considered incidental to water construction, (i.e., abandonment of standard water meters up to and including 2 inches would not be paid under this item). Payment under this item shall include all labor, equipment, and compacted fill or flowable fill for abandonment of the structure in place and restoration complete. No separate bid items will be established for size or structure variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W STRUCTURE REMOVAL This item is to be used to pay for removal of larger above or below ground water structures such as meter vaults, fire pits, pump stations, tanks, and etc. Payment under this item shall not be limited to size or scope; however structures with connecting pipes of 2 inches or less shall not be paid under this item; but, shall be considered incidental to water construction, (i.e., removal of standard water meters up to and including 2 inches would not be paid under this item). Payment under this item shall include all labor, equipment, and compacted backfill for removal of the structure and restoration complete. No separate bid items will be established for size or structure variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W TAPPING SLEEVE AND VALVE SIZE 1 OR 2 This item shall include the specified tapping sleeve, valve, valve box, concrete pad around valve box (when required in specifications or plans), labor, and equipment to install the specified tapping sleeve and valve, complete and ready for use in accordance with

the plans and specifications. The size shall be the measured internal diameter of the live pipe to be tapped. The size tapping sleeve and valve to be paid under sizes 1 or 2 shall be as follows:

Size 1 = All live tapped main sizes up to and including 8 inches

Size 2 = All live tapped main sizes greater than 8 inches

Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W TIE-IN This bid description shall be used for all main tie-in bid items of every size except those defined as "Special". This item includes all labor, equipment, excavation, fittings, sleeves, reducers, couplings, blocking, anchoring, restoration, disinfection, testing and backfill required to make the water main tie-in as shown on the plans, and in accordance with the specifications complete and ready for use. Pipe for tie-ins shall be paid under separate bid items. This item shall be paid EACH (EA) when complete.

W VALVE This description shall apply to all valves of every size required in the plans and specifications except those bid items defined as "Special". Payment under this description is to be for gate or butterfly valves being installed with new main. This item includes the valve as specified in the plans and specifications, polyethylene wrap (if required by specification), labor, equipment, excavation, anchoring (if any), valve box and valve stem extensions, backfill, concrete pad around valve box (if required by specification), restoration, testing, disinfection, and etc., required to install the specified valve at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. If required on plans and/or proposed adjoining DIP is restrained, valves shall be restrained. Valve restraint shall be considered incidental to the valve and adjoining pipe. This description does not apply to cut-in valves. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W VALVE ANCHOR EXISTING This bid item is intended to pay for installation of restraint hardware on an existing valve where no restraint exists to hold the valve in place to facilitate tie-ins and other procedures where restraint is prudent. This work shall be performed in accordance with water specifications and plans. This bid item shall include all labor equipment, excavation, materials and backfill to complete restraint of the designated valve, regardless of size, at the location shown on the plans, complete and ready for use. Materials to be provided may include, but is not limited to, retainer glands, lugs, threaded rod, concrete, reinforcing steel or any other material needed to complete the restraint. Should the associated valve box require removal to complete the restraint, the contractor shall reinstall the existing valve box, the cost of which shall be considered incidental to this bid item. No separate bid items are being provided for size variations. All sizes shall be paid under one bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W VALVE BOX ADJUST Includes all labor, equipment, valve box and valve stem extensions (if required), excavation, backfill, concrete pad around valve box (when specified in specifications or plans), restoration, and etc., to adjust the top of the box to finished grade complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W VALVE CUT-IN This bid description is for new cut-in valve installations of all sizes where installation is accomplished by cutting out a section of existing main. This item shall include cutting the existing pipe, supplying the specified valve, couplings or sleeves, valve box, concrete pad around valve box (when required in specifications or plans), labor, equipment, and materials to install the valve at the locations shown on the plans, or as directed by the engineer, complete and ready for use. Any pipe required for installation shall be cut from that pipe removed or supplied new by the contractor. No separate payment will be made for pipe required for cut-in valve installation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W VALVE VAULT This item is for payment for installation of an underground structure for housing of specific valve(s) as required by the plans and specifications. This item shall include all labor, equipment, excavation, concrete, manhole castings or doors, the specified valve(s), all piping, and fitting materials associated with installing a functioning valve vault in accordance with the plans, standard drawing, and specifications, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

Standard Sanitary Sewer Bid Item Descriptions

S BYPASS PUMPING This item shall include all labor, equipment, and materials needed to complete a bypass pumping and/or hauling operation for diversion of sewage during sanitary sewer construction. Examples of such operations when bypass pumping and/or hauling may be necessary is during force main tie-ins, manhole invert reconstruction, insertion of new manholes into existing mains, or other similar construction. There may be more than one bypass pumping/hauling operation on a project. This item shall be paid for each separate bypass pumping/hauling operation occurrence as called out on the plans or directed by the engineer and actually performed. There will be no separate bid items defined for length, duration, or volume of sewage pumped or hauled in each occurrence. If a bypass pumping/hauling operation is called out on the plans; but, conditions are such that the bypass pumping/hauling operation is not needed or utilized, no payment will be made under this item. The contractor shall draw his own conclusions as to what labor, equipment, and materials may be needed for each bypass pumping/hauling occurrence. The contractor should be prepared to handle the maximum volume of the sewer being bypassed, even during a storm event. This item shall not be paid separately, but shall be considered incidental, when bypass pumping and/or hauling is needed during cast-in-place-pipe (CIPP) and/or point repair operations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA).

S CIPP LATERAL SERVICE INVESTIGATION This item shall include all equipment, materials, labor and incidentals necessary to enter the sewer in compliance with all safety/confined space requirements and perform the identification, assessment and pre-measurement of all existing and abandoned laterals for the placement of Cured-In-Place-Pipe lining. This item shall be in payment for all lateral service investigation for all sewer segments to be lined as a part of this contract. This bid item shall include bypass pumping when required. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Payment for this item shall be LUMP SUM (LS).

S CIPP LATERAL REINSTATEMENT This item is to pay for installing a Cured-In-Place-Pipe liner in service laterals and service/mainline connections to stabilize structural defects and construction inadequacies. This bid item shall include all labor, equipment, materials and incidentals necessary to perform the service lateral reinstatement in accordance with the plans and specifications. Work under this item shall include bypass pumping, sewer flow control, pre-installation cleaning, sealing connections to existing sewer main, pre- and post- construction CCTV inspection and final testing of the CIPP system. This item shall also include the "top hat" required by the specifications. All CIPP lateral reinstatements shall be paid under this item regardless of the size or length of reinstatement. No separate bid items of varying sizes or length of CIPP lateral reinstatement will be provided in the contract. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Payment for this item shall be EACH (EA) for each CIPP lateral reinstatement complete and ready for use.

S CIPP LINER This bid Item is to pay for rehabilitation of existing sanitary sewers using the Cured-In-Place-Pipe method. This bid item description applies to all CIPP sizes included in the contract.

All CIPP Liner items of all varying sizes shall include all labor, materials, customer notification, testing, necessary permits, ingress and egress procedures, bypass pumping, pre-construction video, sediment and root removal, dewatering, traffic control, erosion and sediment control, excavation pits, removal and replacement of manhole frames and covers as necessary to facilitate the lining work, sealing at manholes and service connections, clearing and grubbing, pipeline cleaning, re-cleaning and video inspection as many times as necessary, debris collection and disposal, root removal, pre- and post-construction video inspection, all digital inspection footage, final report preparation and approval, the cost of potable water from the Owner, required compliance tests, site restoration, site cleanup, sealing of liner at manholes, acceptance testing and all other rehabilitation work and incidentals not included under other pay items necessary to complete the rehabilitation per the plans and specifications. There will be no separate payment for acceptance testing of the lined pipe; but shall be considered incidental to this item. Pay under this item shall be by each size bid in the contract. Pay measurement shall be from center of manhole to center of manhole. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

S CIPP PROTRUDING LATERAL REMOVAL This item includes all equipment, materials, labor and incidentals necessary to enter the sewer in compliance with all safety/confined space requirements, remove a sufficient amount of the protruding tap to insure a proper and safe Cured-In-Place-Pipe lining insertion and perform pre-installation CCTV. This bid item shall include bypass pumping when required. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Payment for this item shall be EACH (EA) for each protruding lateral removed.

S CONCRETE PIPE ANCHOR This item shall be constructed on the sewer pipe at the locations shown on the plans in accordance with sanitary sewer specifications and standard drawings. Payment for concrete anchors will be made at the contract unit price each in place complete and ready for use. Each concrete anchor of sewer pipe or force main shall be paid under one bid item per contract regardless of the sizes of carrier pipe being anchored in the contract. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S DIRECTIONAL BORE Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized in order to minimize the impact of open cut for the installation of force main or gravity sewer under streets, creeks, and etc. Payment under this item shall include the specified bore pipe, labor, and equipment. No separate payment shall be made for bore pipe installed in the bore whether used as a carrier pipe or an encasement of a separate carrier pipe. This item shall also include pipe anchors at each end of the bore when specified to prevent the creep or contraction of the bore pipe. Carrier pipe installed within a bore pipe shall be paid separately under pipe items. Payment under this item shall not be size specific and no separate bid items will be established for size variations. The bore pipe sizes to be included under this item shall be as shown on the plans and/or in the specifications. Any and all directional bores in each contract shall be paid under one directional bore bid item included in the contract regardless of size. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

S ENCASEMENT CONCRETE Includes all labor, equipment, excavation, concrete, reinforcing

steel, backfill, restoration, and etc., to construct the concrete encasement of the sewer or force main as shown on the plans, and in accordance with the specifications and standard drawings. Payment under this item shall be in addition to the carrier pipe as paid under separate bid items. Carrier pipe is not included in this bid item. Any and all concrete encasement shall be paid under one bid item included in the contract regardless of the size of the carrier pipe or the volume of concrete or steel reinforcement as specified in the plans and specifications. No separate bid items will be established for size variations. Measurement of pay quantity shall be from end of concrete to end of concrete. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

S ENCASEMENT STEEL BORED This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to bore and install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The sizes of encasement to be paid under the size ranges specified in the bid items shall be as follows:

- Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
- Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
- Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
- Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
- Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
- Range 6 = All encasement sizes greater than 24 inches

(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.) Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

S ENCASEMENT STEEL OPEN CUT This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to open cut install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The size encasement to be paid under the size ranges specified in the bid items shall be as follows:

- Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
- Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
- Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
- Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
- Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
- Range 6 = All encasement sizes greater than 24 inches

(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.) Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

S FORCE MAIN This description shall apply to all PVC and ductile iron and polyethylene/plastic pipe bid items of every size and type, except those bid items defined as “Special”. This item includes the pipe specified by the plans and specifications, all fittings (including, but not limited to, bends, tees, reducers, plugs, and caps), tracing wire with test boxes (if required by specification), polyethylene wrap (when specified), labor, equipment, excavation, bedding, restoration, testing, backfill, and etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. No additional payment will be made for rock excavation. This bid item includes material and placement of flowable fill under existing and proposed pavement, and wherever else specified on the plans or in the specifications. This item shall also include pipe anchors on polyethylene pipe runs as shown on the plans or required by the specifications to prevent the creep or contraction of the pipe. Measurement of quantities under this item shall be through fittings, encasements, and directional bores (only when a separate carrier pipe is specified within the directional bore pipe). No separate payment will be made under pipe items when the directional bore pipe is the carrier pipe. Measurements shall be further defined to be to the center of tie-in where new pipe contacts existing pipe at the center of connecting fittings, to the outside face of vault or structure walls, or to the point of main termination at dead ends. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

S FORCE MAIN AIR RLS/VAC VLV This bid item description shall apply to all force main air release/vacuum valve installations of every size except those defined as “Special”. This item shall include the air release/vacuum valve, main to valve connecting line or piping, manhole/vault/structure, access casting or doors, tapping the main, labor, equipment, excavation, proper backfill and restoration required to install the air release/vacuum valve at the location shown on the plans or as directed in accordance with the specifications and standard drawings complete and ready for use. All air release/vacuum valves on a project shall be paid under one bid item regardless of size. No separate pay items will be established for size variations. Only in the case of the uniqueness of a particular air release/vacuum valve would a separate bid item be established. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S FORCE MAIN DIRECTIONAL BORE Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized in order to minimize the impact of open cut for the installation of sewer or force main under streets, buildings, creeks, and etc. Payment under this item shall include the specified bore pipe, labor, and equipment. No separate payment shall be made for bore pipe installed in the bore whether used as a carrier pipe or an encasement of a separate carrier pipe. This item shall also include pipe anchors at each end of the bore when specified to prevent the creep or contraction of the bore pipe. Carrier pipe installed within a bore pipe shall be paid separately under pipe items. Payment under this item shall not be size specific and no separate bid items will be established for size variations. The bore pipe sizes to be included under this item shall be as shown on the plans and/or in the specifications. Any and all directional bores in each contract shall be paid under one directional bore bid item included in the contract regardless of size. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

S FORCE MAIN POINT RELOCATE This item is intended for payment for horizontal and/or vertical relocation of a short length of an existing main at the locations shown on the plans. This bid item is to be used to relocate an existing force main at point locations such as to clear a conflict at a

proposed drainage structure, pipe or any other similar short relocation situation, and where the existing pipe material is to be reused. The contractor shall provide any additional pipe or fitting material needed to complete the work as shown on the plans and specifications. The materials provided shall be of the same type and specification as those that exist. Substitution of alternative materials shall be approved by the engineer in advance on a case by case basis. New polyethylene wrap is to be provided (if wrap exists or is specified in the specifications to be used). If it is necessary that the pipe be disassembled for relay, payment under this item shall also include replacement of joint gaskets as needed. Bedding and backfill shall be provided and performed the same as with any other pipe installation as detailed in the plans and specifications. Payment under this item shall be for each location requiring an existing main to be relocated horizontally or vertically regardless of pipe size or relocation length. No separate pay items will be established for pipe size variations or relocation segment length variations. Force Main Relocate shall not be paid on a linear feet basis; but shall be paid EACH (EA) at each location when complete and placed in service. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

S FORCE MAIN TAP SLEVE/VALVE RANGE 1 OR 2 This item shall include the specified tapping sleeve, valve, valve box, concrete pad around valve box (when required in specifications or plans), labor, and equipment to install the specified tapping sleeve and valve, complete and ready for use in accordance with the plans and specifications. The size shall be the measured internal diameter of the live pipe to be tapped. The size tapping sleeve and valve to be paid under sizes 1 or 2 shall be as follows:

Range 1 = All live tapped main sizes up to and including 8 inches

Range 2 = All live tapped main sizes greater than 8 inches

Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S FORCE MAIN TIE-IN This bid description shall be used for all force main tie-in bid items of every size except those defined as "Special". This item includes all labor, equipment, excavation, fittings, sleeves, reducers, couplings, blocking, anchoring, restoration, testing and backfill required to make the force main tie-in as shown on the plans and in accordance with the specifications complete and ready for use. This bid item shall include purge and sanitary disposal of any sewage from any abandoned segments of force main. Pipe for tie-ins shall be paid under separate bid items. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S FORCE MAIN VALVE This description shall apply to all force main valves of every size required in the plans and specifications, except those bid items defined as "Special". Payment under this description is to be for gate or butterfly force main valves being installed with new force main. This item includes the valve as specified in the plans and specifications, polyethylene wrap (if required by specification), labor, equipment, excavation, anchoring (if any), valve box and valve stem extensions, backfill, concrete pad around valve box (if required by specification), restoration, testing, and etc., required to install the specified valve at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. If required on plans and/or proposed adjoining DIP is restrained, force main valves shall be restrained. Force main valve restraint shall be considered incidental to the force main valve and adjoining pipe. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be

referenced. This item shall be paid EACH (EA) when complete.

S FORCE MAIN VALVE BOX ADJUST Includes all labor, equipment, valve box and valve stem extensions (if required), excavation, backfill, concrete pad around valve box (when specified in specifications or plans), restoration, and etc., to adjust the top of the force main valve box to finished grade complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S LATERAL CLEANOUT This item shall be for payment for installation of a cleanout in a service lateral line. This item shall include furnishing and installation of a tee, vertical pipe of whatever length required, and threaded cap. The cleanout shall extend from the lateral to final grade elevation. The size of the cleanout shall be equivalent to the size of the lateral. The cleanout materials shall meet the same specification as those for the lateral. The cleanout shall be installed at the locations shown on the plans or as directed by the engineer. Only one pay item shall be established for cleanout installation. No separate pay items shall be established for size or height variances. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S LATERAL LOCATE This bid item is to pay for all labor, equipment, and materials needed in locating an existing sanitary sewer service lateral for tie-in of the lateral to new mainline sewers and/or for the relocation of a lateral. This bid item shall be inclusive of any and all methods and efforts required to locate the lateral for tie-in or relocation of the lateral. Locating methods to be included under this items shall include, but are not limited to, those efforts employing the use of video cameras from within an existing sanitary sewer main or lateral, electronic locating beacons and/or tracers inserted into the sanitary sewer main or lateral, careful excavation as a separate operation from mainline sewer or lateral excavation, the use of dyes to trace the flow of a lateral, or any combination of methods required to accurately locate the lateral. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA).

S LATERAL LONG SIDE This bid item description shall apply to all service lateral installations of every size up to and including 6 inch internal diameter, except those lateral bid items defined as "Special". This item includes the specified piping material, main tap, bends, clean outs, labor, equipment, excavation, backfill, testing, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for service lateral installations where the ends of the lateral connection are on opposite sides of the public roadway. The new lateral must cross the centerline of the public roadway to qualify for payment as a long side lateral. The length of the service lateral is not to be specified. Payment under this item shall not be restricted by a minimum or maximum length. The contractor shall draw his own conclusions as to the length of piping that may be needed. Payment under this item shall include boring, jacking, or excavating across the public roadway for placement. Placement of a service lateral across a private residential or commercial entrance alone shall not be reason to make payment under this item. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. No additional payment will be made for rock excavation or for bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S LATERAL SHORT SIDE This bid item description shall apply to all service lateral installations of every size up to and including 6 inch, except those lateral bid items defined as “Special”. This item includes the specified piping material, main tap tee, bends, clean outs, labor, equipment, excavation, backfill, testing, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for lateral installations where both ends of the lateral connection are on the same side of the public roadway, or when an existing lateral crossing a public roadway will remain and is being extended, reconnected, or relocated with all work on one side of the public roadway centerline as shown on the plans. The length of the service lateral is not to be specified and shall not be restricted to any minimum or maximum length. Payment shall be made under this item even if the lateral crosses a private residential or commercial entrance; but, not a public roadway. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. The contractor shall draw his own conclusions as to the length of piping that may be needed. No additional payment will be made for rock excavation or for bedding required in rock excavation. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S LINE MARKER This item is for payment for furnishing and installing a sewer utility line marker as specified by the utility owner specifications and plans. A line marker may consist of a post or monument of whatever materials specified and shall include markings and/or signage on same as specified by plans or specifications. This item shall include all labor, equipment, and materials needed for complete installation of the marker. This item shall be paid EACH (EA) when complete.

S MANHOLE Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole. Payment for manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Manholes shall include concrete base, barrel sections, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup in accordance with the specifications and standard drawings. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S MANHOLE ABANDON/REMOVE Payment under this item is for the partial removal and/or filling of any sanitary sewer manhole regardless of size or depth that no longer serves any purpose. Payment shall be made regardless of whether the manhole is or is not in conflict with other work. Any manhole requiring partial removal, but not total removal, in order to clear a conflict with other work shall be paid under this item. All manholes partially removed shall be removed to a point at least one foot below final grade, one foot below roadway subgrade, or one foot clear of any other underground infrastructure, whichever is lowest. If partial removal of an abandoned manhole is elected by the contractor, the remaining manhole structure shall be refilled with flowable fill. Payment for disposal of a sanitary sewer manhole will be made under this item only. Please refer to the Utility Company’s

Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S MANHOLE ADJUST TO GRADE Payment under this item is for the adjustment of sanitary sewer casting elevation on all sizes of existing sanitary manholes. This work shall be performed in accordance with the sanitary sewer specifications. Payment shall be made under this bid item regardless of the amount of adjustment necessary to a sanitary sewer manhole casting or diameter of the manhole. Work under this pay item may be as simple as placing a bed of mortar under a casting; but, shall also be inclusive of installation of adjusting rings, and /or addition, removal, or replacement of barrel sections. The existing casting is to be reused unless a new casting is specified on the plans. New casting, when specified, shall be paid as a separate bid item. Anchoring of the casting shall be incidental to this item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S MANHOLE CASTING STANDARD Payment under this bid items is for furnishing of a new standard traffic baring casting for sanitary manholes meeting the requirements of the sanitary sewer specifications and standard drawings. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when installed.

S MANHOLE CASTING WATERTIGHT Payment under this bid item is for furnishing of a new watertight traffic baring casting for sanitary manholes meeting the requirements of the sanitary sewer specifications and standard drawings. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when installed.

S MANHOLE RECONSTRUCT INVERT This bid item is to pay for all labor, equipment, and material for rework of the manhole bench to redirect or eliminate flow, such as when the flow of a pipe or pipes are being removed or redirected. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in elimination or redirect of flow. This item shall also include providing and placement of a rubber seal or boot as required by utility specification, standard drawing or plan. The contractor shall draw his own conclusions as to the effort and scope of work needed to comply with the specifications, standard drawings, and plans. No payment shall be made under this bid when MANHOLE TAP EXISTING, or MANHOLE TAP EXISTING ADD DROP are being paid at the same location, as this type of work is included in those items. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S MANHOLE TAP EXISTING This bid item is to pay for all labor, equipment, and material for coring one opening in an existing manhole base, addition of a rubber seal as specified, and rework of the manhole bench to direct the additional pipe flow. The bid item shall be paid for each core opening added to a single manhole. This bid item shall also include any rework of the existing manhole bench due to the elimination of other existing pipes and flow. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in the addition, elimination, or redirect of flow. The contractor shall draw his own conclusions as to the effort and scope of work needed to comply with the

specifications, standard drawings, and plans. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S MANHOLE TAP EXISTING ADD DROP This bid item is to pay for all labor, equipment, and material for coring one opening in an existing manhole base, addition of a rubber seal as specified, addition of a vertical drop pipe to the outside of the manhole, placement of reinforcing steel and concrete to encase vertical pipe, and rework of the manhole bench to direct the additional pipe flow. The bid item shall be paid for each drop added to a single manhole. This bid item shall also include any rework of the existing manhole bench due to the elimination of other existing pipes and flow. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in the addition, elimination, or redirect of flow. The contractor shall draw his own conclusions as to the effort and scope of work needed to comply with the specifications, standard drawings, and plans. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S MANHOLE WITH DROP Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole with drop. Payment for drop manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Drop manholes shall include concrete base, barrel sections, drop materials, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S MANHOLE WITH LINING Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole with corrosion resistant lining. Payment for manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Manholes shall include concrete base, barrel sections, cone section or slab top, steps, lining, excavation, backfilling, air testing, restoration, and cleanup in accordance with the standard drawings. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S MANHOLE WITH TRAP Payment under this item is for the installation of a new manhole with

trap. Payment for trap manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Trap manholes shall include concrete base, manhole structure and trap materials, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup. All materials, except casting, shall be new and unused. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S PIPE This description shall apply to all PVC and ductile iron gravity sewer pipe bid items of every size and type 8 inches internal diameter and larger, except those bid items defined as "Special". This item includes the pipe specified by the plans and specifications, all fittings (including, but not limited to, tap tees and couplings for joining to existing similar or dissimilar pipes), polyethylene wrap (if required by specification), labor, equipment, excavation, bedding, restoration, pressure or vacuum testing, temporary testing materials, video inspection, backfill, and etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. This bid item shall include material and placement of flowable fill under existing and proposed pavement, and wherever specified on the plans or in the specifications. No additional payment will be made for rock excavation. Measurement of quantities under this item shall be through fittings and encasements to a point at the outside face of manhole barrels, or to the point of main termination at dead ends or lamp holes. Carrier pipe placed within an encasement shall be paid under this item and shall include casing spacers and end seals. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

S PIPE POINT REPAIR This item is to be used to pay for repair of short lengths of existing sanitary sewer pipe that, through prior video inspection or other means, are known to have pre-existing failure. Pipe Point Repair may be needed in preparation for installation of cured-in-place-pipe (CIPP) lining or other instances where failure is known and repair is prudent. The size of pipe shall not be defined in separate bid items. All diameter sizes of point repair shall be paid under this one item. The materials to be used to make the repair shall be as defined on the plans or in the specifications. This bid item shall include all excavation, pipe materials, joining materials to connect old and new pipe, bedding, and backfill to complete the repair at the locations shown on the plans or as directed by the engineer, complete and ready for use. This bid item shall include bypass pumping when required. Measurement shall be from contact point to contact point of old and new pipe. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

S PUMP STATION This item is for payment for installation of sanitary pump stations including above or below ground structure for housing of the pumps. This item shall include all pumps, piping, fittings, valves, electrical components, building materials, concrete, any other appurtenances, labor, equipment, excavation, and backfill, to complete the pump station installation as required by the plans, standard drawings, and specifications, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall

be referenced. This item shall be paid LUMP SUM (LS) for each when complete.

S STRUCTURE ABANDON This item is to be used to pay for abandonment of larger above or below ground sewer structures such as air release/vacuum valve vaults, pump stations, tanks, etc. Payment under this time shall not be limited to size or scope; however structures with connecting pipes of 2 inches or less shall not be paid under this item; but, shall be considered incidental to sewer construction, (i.e., abandonment of standard air release/vacuum valves up to and including 2 inches would not be paid under this item). Payment under this item shall include all labor, equipment, and compacted fill or flowable fill for abandonment of the structure in place and restoration complete. No separate bid items will be established for size or structure variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

S STRUCTURE REMOVAL This item is to be used to pay for removal of larger above or below ground sewer structures such as air release/vacuum valve vaults, pump stations, tanks, and etc. Payment under this time shall not be limited to size or scope; however, structures with connecting pipes of 2 inches or less shall not be paid under this item; but, shall be considered incidental to sewer construction, (i.e., removal of standard air release/vacuum valves and their structure up to and including 2 inches would not be paid under this item). Payment under this item shall include all labor, equipment, and compacted backfill for removal of the structure and restoration complete. No separate bid items will be established for size or structure variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

Standard Electric and Communications Bid Item Descriptions

BOLLARDS This item is for payment for furnishing and installing protective guard posts at above ground utility installations. A bollard may consist of, but not limited to, a steel post set in concrete or any other substantial post material. This item shall include all labor, equipment, and materials needed for complete installation of the bollard as specified by the utility owner specifications and plans. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item paid EACH (EA) when complete.

NOTE: A bid code for this item has been established in standard roadway bid items and shall be used for payment of this item. The bid code is 21341ND.

EC DIRECTIONAL BORE Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized in order to minimize the impact of open cut for the installation of conduit under streets, creeks, etc. Payment under this item shall include the specified encasement pipe, conduit(s), void filler material (including grout, aggregate, bentonite, or other material as specified), casing spacers (as specified), labor, and equipment. No separate payment will be made for encasement pipe and/or conduits used within the limits of the directional bore. Payment under this item shall not be size specific and no separate bid items will be established for size or number of conduit variations to be installed. The encasement pipe, conduit sizes, and conduit numbers to be included under this item shall be as shown on the plans and/or in the specifications. Any and all directional bores in each contract shall be paid under one directional bore bid item included in the contract regardless of bore size, encasement size, conduit size, or number of conduits. Some bores may not require the use of an encasement; but, may only require pulling the conduit directly into the bore. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

EC DUCT These items shall include all labor, equipment, and material to excavate, install, and backfill the specified bank of duct at locations shown in the plans in accordance with the specifications and standard drawings complete and ready for use. These bid items shall include all necessary appurtenances, connections, fittings, plugs, tees, bends, collars, racks or spacers, pull string, granular or concrete encasement, compacted earth or flowable fill backfill, and etc. Flowable fill, where specified on the plans and specifications, shall be considered incidental to the duct items. No separate payment will be made for flowable fill, unless directed to be used contrary to plans and specifications. All excavation shall be unclassified. No additional payment will be made for rock excavation. Duct shall be measured as the horizontal distance from outside face of structure to outside face of structure; or, to the point of duct termination at dead ends or poles. No additional payment will be made for vertical conduit. No separate bid items will be provided due to varying duct sizes. Any and all duct sizes and configurations shall be paid under these items. The only variations in bid items shall be in the number of duct in a bank and if the duct is or is not to be concrete encased. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

EC ELECTRIC MANHOLE, ELECTRIC PIT, ELECTRIC PULL BOX, COMMUNICATIONS MANHOLE, COMMUNICATIONS PULL BOX These items shall include all labor, equipment, excavation, materials, and backfill to install the specified manhole, pit, or pull box at the locations as shown on the plans in accordance with the specifications and standard drawings complete and ready for use. No separate bid items will be provided for varying sizes of structures. All structures shall be paid under the appropriate bid item regardless of size. Where structures are specified to be backfilled with flowable fill, the cost of the flowable fill shall be considered incidental to the bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

EC LINE MARKER This item is for payment for furnishing and installing an electric or communications utility line marker as specified by the utility owner specifications and plans. A line marker may consist of a post or monument of whatever materials specified and shall include markings and/or signage on same as specified by plans or specifications. This item shall include all labor, equipment, and materials needed for complete installation of the marker. This item shall be paid EACH (EA) when complete.

EC POLE REMOVE AND STOCKPILE This item shall include all labor and equipment required in the removal of a wood, steel, or other type utility pole regardless of material or size. No separate pole removal bid items will be provided for pole material type or size variations. This item also includes removal of any associated attachments to the pole including, but not limited to, cross-arms, hangers, brackets, insulators, downguys, etc. All removed materials shall be stockpiled on site at a location or locations previously agreed to between the utility owner and contractor for pickup and disposal by the utility owner. Stockpile locations shall be accessible to the utility owner's road vehicles. Any pole removed that still has cross-arms, protruding insulators and/or protruding brackets attached shall have such items removed by the contractor so poles can be stacked neatly for pickup. Removed cross-arms, insulators and brackets shall be stacked separately for pickup. This item shall be paid EACH (EA) when the poles and attachments are stockpiled and ready for pickup.



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Madisonville Municipal Utilities
KY Transportation Cabinet**

Contract No: 6531-C1
Date: June 4, 2021
Rev.: 02

U.S. 41A – UTILITY RELOCATION PROJECT-SECTION 2

CONTRACT NO. 6531-C1

**MADISONVILLE MUNICIPAL UTILITIES
Madisonville, Kentucky**

June 2021

**P. Anthony Hanson
KY PE License #17402**



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**SECTION 00 01 07
SEALS PAGE**

DESIGN PROFESSIONALS OF RECORD

Electrical Engineer:

1. P. Anthony Hanson
2. KY PE License #17402

END OF SECTION 00 01 07



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REVISION HISTORY

Revision No.	Date	Description
00	7/15/2019	Issued for Bids.
01	10/9/2019	Issued for Bids.
02	6/4/2021	Issued for Bids.

END OF SECTION 00 01 10

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SECTION 00 01 15
LIST OF EXHIBITS AND DRAWINGS

EXHIBIT	DESCRIPTION
EXHIBIT A	

CONTRACT DRAWINGS
Utility Plan Sheets (U69-U89)
Unit and Framing Drawings 1-58
Steel Pole Drawings (KYMMU41A2101-KYMMU41A2106)

END OF SECTION 00 01 15



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SECTION 00 41 13
BID FORM

1.01 LUMP SUM BID

BID ITEM A: INSTALLS New Construction	
BID ITEM B: REMOVALS Retire Construction	
BID ITEM C: TRANSFERS Transfer Construction	
TOTAL BID	

Note: Contractor must submit with this bid a bill of material with catalog numbers of all material provided.

1.01 CONTRACT PRICE MODIFICATIONS

Owner reserves the right to adjust measurements by an amount no greater than 25% of measurements specified. Adjustments to the Contract Price will be at the unit prices quoted below. These prices will be used in determining responsiveness but will not be used in determining the Bidder's Bid Price.

DESCRIPTION	UNIT OF MEAS.	UNIT PRICE
Rock Excavation	Per foot	\$
Installation of rock anchor	Per anchor	\$
Furnish and install conduit	Per foot	\$
Remove topped pole (pull stub)	Per pole	\$



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**SECTION 01 10 00
SUMMARY OF WORK**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Project Description
- B. Description of Work
- C. General Work Requirements
- D. Work Site Location
- E. Owner and Contractor-furnished Materials
- F. Work By Others
- G. Site Visits

1.02 PROJECT DESCRIPTION

- A. The Kentucky Transportation Cabinet (KTC) is improving Hwy 41A in Madisonville, KY. With the improvements for the highway project, sections of the existing overhead and underground 12kV electric facilities will have to be relocated outside road construction limits where possible. Construction will consist of installing, removing and transferring facilities, as well as installing overhead equipment, services, and street lighting.

1.03 DESCRIPTION OF WORK

Contractor shall perform the tasks as outlined below.

- A. The work is along Hwy 41A.
 - 1. 12kV Removal: Remove 1.25 miles of single and double circuit framing on steel poles and wood poles. Removal of guying, gang-operated switch, riser, street lights, secondary, transformers and other equipment is also required. Remove single circuit and single-phase wood poles, framing, conductor as indicated on construction drawings in various locations along the length of this route. Remove existing single circuit 397 ACSR and double circuit three-phase conductor 795ACSR and 397ACSR Neutral. Removals are indicated on Plan View drawings.
 - 2. 12kV Overhead Install: Install mile single and double circuit framing on wood and steel poles. Install framing, guying, anchors, gang-operated switch, three-phase riser, street lights, secondary, transformers, equipment and new conductor. New steel poles will be installed with rock backfill. Along this route, install single circuit and single-phase wood poles, framing, conductor and equipment. Installs are indicated on Plan View drawings.
 - 3. 12kV Underground-Install three-phase risers, 550' of 4-3" duct bank and pull 750mcm cable and terminate. A sectionalizing cabinet will be installed at the corner of 41A and Industrail Rd.
 - 4. 12kV Transfer: Transfer and splice existing taps were required.

1.04 GENERAL WORK REQUIREMENTS



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- A. The scope of Work includes the installation of a complete and functional system for serving distribution customers. The general scope of tasks is described as follows:
1. Contractor shall furnish all material per contract drawings except pole mounted transformers.
 2. Contractor shall be responsible for layout and of the proposed modifications. Engineer shall provide survey locations of structures and anchors.
 3. Contractor shall submit a complete material list, with supplier, catalog information and catalog cut detail to Engineer for review and approval.
 4. Contractor shall be responsible for providing supervisor(s) and personnel qualified to perform the Work as specified.
 5. The methods of framing and construction practices must conform to the latest and best current practice for the type of construction required for the application. The system shall be complete with all necessary accessories for proper operation.
 6. If any departure from the Contract or Contract Drawings is deemed necessary by Contractor, details of such departure and the reasons therefor shall be submitted as soon as practicable to Engineer and Owner for approval. No such departures shall be made without prior written approval of Owner.
 7. Contractor is advised that existing distribution line outages shall be held to an absolute minimum, may be prohibited at times, and at all times shall not remove any substation from service. The duration of outages may be restricted to maintain a satisfactory operating condition. In general, Contractor shall maintain the system in such condition that, in the event of any emergency, service can be restored with minimum effort and lost time. All outages must be approved in advance by Owner and Engineer.
 8. Contractor shall coordinate with other pole-mounted utilities.
 9. Contractor shall be responsible for providing for proper handling, storing and protection of materials.
 10. Contractor shall be responsible for demolition, removing and disposing of existing wood poles and equipment as specified.
 11. Contractor shall disassemble, store, protect and return removed materials to Owner's warehouse.
 12. Contractor shall be responsible for transferring existing facilities, removing old facilities, and installing new facilities, as identified on the Contract Drawings.
 13. All pole top assembly units include installation, proper requirements for sagging of primary and neutral conductors.
 14. All pole change-outs includes the transferring, dead-ending and reattachment of conductors.
 15. Contractor shall be responsible for landscape and concrete repair (due to construction activities including restoring, planting, seeding new areas and areas disturbed during construction) per KTC specification.
 16. Contractor shall be responsible for cleaning-up and disposing of debris and waste as project progresses.



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17. Contractor is advised that construction will involve performing work adjacent to and on energized electrical power facilities owned by Owner and others.
18. Contractor shall be responsible for coordinating construction activities with Owner, other agencies and utilities as required by these specifications and associated permits.
19. Actual construction shall be based on the Contract Drawings. Any change to the Contract Drawings must be approved by Owner. Within 10 days after return of approved prints, copies shall be furnished to Owner for retention as a matter of record. Prior to completion of the Work, the originals, available from Owner, shall be revised to show all changes subsequent to original plans and submitted for retention as a matter of record.
20. Contractor shall attend progress and scheduling meetings in person or by teleconference as allowed by Owner.
21. Contractor shall be responsible for providing barricading and traffic control during construction activities. Contractor shall abide by all Federal, State, local and Transportation Cabinet regulations. Use Proper Transportation Cabinet traffic control procedures.
22. Contractor shall attend kickoff, progress and closeout meeting scheduled by Owner/Kentucky Transportation Cabinet.
23. Owner will perform walkthrough inspection after completion; Contractor shall remedy identified issues before closeout.
24. Owner and Engineer reserves the right to make ground inspections. Contractor shall make any corrections required to bring project into compliance with original specifications at no cost to Owner.
25. Construction is not complete until Contractor has energized lines at operating voltage after Owner's inspection.
26. It is the responsibility of Contractor to verify the location of any and all underground utilities including water, gas, telephone, and sewage either privately or publicly owned. Contractor assumes sole responsibility for damages to facilities in or near work area if damage occurs. Contractor shall abide by state and utility notifications "One Call Law".
27. Temporary work necessary in the normal course of construction should be identified prior to bidding. No additional payment will be made.

1.05 WORK SITE LOCATION

- A. Within and outside the service territory of the City of Madisonville, Kentucky on Hwy 41A and Hwy 41 (Main St).

1.06 CONTRACTOR-FURNISHED ITEMS

- A. All materials are Contractor-furnished except pole mounted transformers.
- B. Contractor shall be responsible for inventorying all units, construction drawings, and construction documents for material quantity requirements. All units are to be complete, functional and meet applicable safety standards.

1.07 WORK BY OTHERS

- A. Owner will coordinate necessary outages and notifications of affected customers. Contractor shall notify Owner of customer outages with sufficient notice.



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- B. Owner will provide a switch/hot line tag selection upon Contractor's request.
- C. Owner will provide pole-mounted transformer.

1.08 SITE VISITS

- A. The Work stated and specified herein involves construction adjacent to energized overhead electric lines. Engineer has attempted to depict construction conditions as accurately as possible; however, Contractor is strongly advised to undertake the following:
 - 1. Review all construction documents and visit the proposed location of construction. Contractor should visit the location for types of soil and terrain construction might encounter.
 - 2. Pay special attention to scheduling Work activities to permit expeditious accomplishment of the requirements.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION 01 11 00



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**SECTION 02 41 00
DEMOLITION**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Existing Conditions
- B. Continuity of Electrical Service
- C. Coordination
- D. Preparation for Demolition
- E. Execution of Demolition

1.02 EXISTING CONDITIONS

- A. Conduct demolition to minimize interference with adjacent structures.
- B. Provide, erect, and maintain temporary barriers and security devices.

1.03 CONTINUITY OF ELECTRICAL SERVICE

- A. Maintain electrical service to customers during construction, wherever feasible.
- B. Coordinate customer outages with Owner designated utility personnel and customers.

1.04 COORDINATION

Arrange for required power outages with Owner, customers, and other utilities as appropriate.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 PREPARATION FOR DEMOLITION

- A. Locate and protect existing utilities.
- B. Prevent movement or settlement of adjacent structures. Provide bracing and shoring.
- C. Protect existing landscaping, materials, appurtenances, and structures that are not to be demolished.

3.02 EXECUTION FOR DEMOLITION

- A. Demolish indicated structures and appurtenances in an orderly and careful manner. Take all precautions necessary for working near exposed, energized electrical equipment.
- B. Cease operations and notify Engineer immediately if adjacent structures appear to be endangered. Do not resume operations until corrective measures have been taken.
- C. Remove demolished materials from site as Work progresses. Leave site in clean condition.



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- D. Demoed materials become the property of Contractor and are to be disposed of in accordance with applicable codes, with the exception of the following materials of which Owner will retain ownership: Transformers, switches, capacitors, lights and other materials specified by Owner.
- E. Remove materials to be reinstalled or retained in manner to prevent damage.
- F. Remove and promptly dispose of contaminated, vermin infested, special or dangerous materials encountered.
- G. Do not burn or bury materials onsite.
- H. Resurface areas disturbed by demolition activities with surfacing equal to the existing surfacing.
- I. Rough grade and compact areas affected by demolition to maintain site grades and contours.
- J. Backfill excavated areas, open pits, and holes caused as a result of demolition.
- K. Do not use explosives.
- L. Immediately notify Owner of damage to materials specified for reinstallation or return to stores.
- M. Damaged materials shall not be reinstalled.
- N. Materials returned to stores in damaged condition without notification to Owner will not be credited.

END OF SECTION 02 41 00



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**SECTION 33 71 16.23
GALVANIZED STEEL POLE STRUCTURES**

PART 1 – GENERAL

1. SCOPE

This specification covers the design, materials, welding, inspection, protective coatings, drawings and delivery of steel single pole structures. The proposal submitted by the manufacturer shall include poles and other necessary items to make a complete structure.

2. CODES AND STANDARDS

Codes, standards, or other documents referred to in this specification shall be considered as part of this specification. The following codes and standards are referenced:

- 2.1. Any specifications or document of organizations (such as ASCE) referred to in the Specification is to be considered as part of this Specification.
- 2.2. Referenced specifications or documents shall be the latest edition unless specifically stated otherwise. The following codes and standards have been referenced:
 - 2.2.1. American Society of Civil Engineers (ASCE) Standard, Design of Steel Transmission Pole Structures, Manual 72, latest edition.
 - 2.2.2. American Society for Testing and Materials (ASTM), various standards, latest revision.
 - 2.2.3. American Concrete Institute (ACI), Building Code Requirements for Reinforced Concrete, ACI 318, latest edition.
 - 2.2.4. American Welding Society (AWS), Structural Welding Code, AWS D1.1, latest edition.
 - 2.2.5. American National Standards Institute (ANSI), National Electrical Safety Code, ANSI C2, latest edition.
 - 2.2.6. Society for Protective Coatings (SSPC, formerly Steel Structure Painting Council)/ National Association of Corrosion Engineers (NACE) Surface Preparations Specification, SSPC/NACE SP-6/NACE 3.

3. CONFLICT BETWEEN THIS SPECIFICATION, DRAWINGS, AND REFERENCED DOCUMENTS

In the event of conflict between this Specification and referenced documents, the requirements of this Specification shall take precedence. In the case of conflict between several referenced documents, the more stringent requirement shall be followed if not otherwise referenced. If a conflict exists between this Specification or the referenced documents and the attached drawings, the attached drawings shall be followed. If clarification is necessary, please contact the Owner or their engineer.

4. GENERAL REQUIREMENTS

The design, fabrication, allowable stresses, process, tolerances and inspection shall conform to ASCE Standard, "Design of Steel Transmission Pole Structures" (Manual 72), and latest addition, with the following additions and/or exceptions. The structure shall be capable of withstanding all specified loading cases including secondary stresses from foundation movements when specified, but not considering the possible restraining effects of conductors or shield wires. The structure shall withstand the loads without failure, permanent distortion or exceeding any specified deflection limitations.



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5. DESIGN REQUIREMENTS

- 5.1. Wind pressures shown in the loading criteria shall be multiplied by the appropriate shape factor applied to the poles. Pressures in psf shall be computed as follows:

$$p = W \times C_d$$

Where p = pressure on projected area of the pole normal to wind, W = wind pressure, and Cd = shape (or drag) factor.

Shape factors for computing the wind on poles = 1.0 for 12 sided structures.

- 5.2. The maximum design unit stress shall be the minimum yield strength as stated in applicable ASTM specifications for the particular application and types of loads, including load factors.
- 5.3. Poles shall be designed with a minimum number of joints. Field welding shall not be allowed as part of the design of a new pole. The shaft joints to be made in the field shall be slip joints or bolted flange joints. Slip joint length shall be at least 1-1/2 times the largest inside diameter of the female section. Bolted flange joints shall be used for medium angle, heavy angle, and switch structures.
- 5.3.1. Manufacturer shall verify slip joint fit before shipment. Joints should not interfere with joints, step nuts, ladder clips, or jacking nuts.
- 5.3.2. Sufficient jacking lugs and permanent orientation marks shall be provided at all slip joints to ensure proper alignment and complete overlap of the joint.
- 5.3.3. Manufacturer shall pay special attention to jacking force on slip joints based on vertical loads on the structures.
- 5.3.4. Design of anchor bolts shall be in accordance with the ACI-318-11 Edition, Building Code Requirements for Reinforced Concrete, assuming a concrete strength of 3,000 psi.
- 5.3.5. When anchor bolts are specified, they shall have the top 2 feet galvanized. Anchor bolts shall be threaded at the top end a distance equal to the baseplate thickness plus the thickness of three anchor bolt nuts plus 2-1/2". Each anchor bolt shall include two heavy hex nuts.
- 5.3.6. Welding on anchor bolts will only be allowed in the bottom 12 inches. Only one length of anchor bolt shall be used on each pole. Anchor bolts/clusters shall be plainly marked to indicate the structure type, structure number, orientation, and top of concrete.
- 5.3.7. Anchor bolts shall be designed to be shipped as a rigid cage with top and bottom plates holding the anchor bolts in place. The anchor bolt thread shall be protected during shipping. The anchor bolts shall be welded to the holding plate in the bottom of the cage. The top template shall be designed to be removable and to support the assembled cage during lifting and setting operations without detrimental deformations. Bolt clusters shall be designed to be rigid enough to withstand the normal jolts of shipping, handling and installation with no displacement of bolts from the proper positions within the cluster.
- 5.3.8. The removable template at the top shall be marked to show the centerline for tangent structures and the angle bisector for angle structures. Matching marks are to be on the base plate of the structure so proper alignment can be made.



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- 5.4. Minimum plate thickness for all pole components shall be 3/16 inch.
- 5.5. Poles shall have nearly a uniform taper throughout their entire length. The maximum difference in tapers between two pole sections measured by the diameters shall be .10 inch/ft. for poles with variable taper.
- 5.6. All poles shall meet the deflection limitations included in the provided .lca files. All self-supporting angle and deadends shall be precambered to remain plumb when the calculated deflection at the top exceed the deflection limitations.
 - 5.6.1. Pole height shall be the height of the pole from the top of the baseplate, or designated groundline, to the top.
- 5.7. Arms shall be designed so the end of the arm is at the specified height under a loading of initial conductor tension, 60°F, no wind, and no-load factors. Arms shall not deflect vertically more than 3 inches at the end of the arm under heavy ice conditions (without any load factors applied).
 - 5.7.1. Arms shall be upswept or straight, tapered, steel tubular members, of any cross-sectional type, which meet the dimensions shown on the attached.
 - 5.7.2. Arm end plate connection details for hardware attachment shall be typical of those shown on the attached drawings. The arms shall be hermetically sealed when a painted finish is specified. Galvanized arms shall have drain holes where appropriate. If weathering steel is used for the arms, attachments and the arm shall be designed to avoid trapping or holding moisture.
- 5.8. Lifting lugs/vangs are not desired. The manufacturer shall supply all instructions for handling and erection of poles and arms.
- 5.9. In the design of connections for vangs, brackets, or stiffeners attached to the pole shaft, care shall be taken to distribute the loads sufficiently to protect the wall of the pole from local buckling.
- 5.10. Each pole shall be permanently marked on the pole shaft 60 inches above groundline and on the bottom of baseplate or bearing plate with the following identifying information: structure type, height, structure number, ultimate groundline moment, owner name, and date manufactured. The method of identification shall be approved by the owner.
- 5.11. Weathering steel structures shall be designed to eliminate water and refuse traps.
 - 5.11.1. Tubular sections shall be sealed from moisture entering the inside of the pole. Factory drilled pole holes shall be plugged to prevent moisture intrusion during shipping. For field drilled poles and factory drilled poles, manufacturer shall provide silicon sealant to seal all through-bolt holes. Non-drilled poles when assembled shall be effectively sealed to prevent moisture intrusion.
 - 5.11.2. Connections shall be designed to reduce the effect of pack-out by preventing moisture from entering the joint or by designing the connection to allow moisture to easily drain off.
 - 5.11.3. Plastic plugs shall be installed in all nuts welded to the structure and all tapped holes.

6. MATERIAL

- 6.1. All material shall comply with the applicable requirements of ASTM specifications. Any modifications from ASTM specifications must be approved by the Owner or the Owner's



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representative.

- 6.1.1. Poles, arms and conductor brackets shall conform with ASTM A36, ASTM A572, ASTM 581, ASTM A588, ASTM A871 or ASTM A595.
- 6.1.2. Base plate shall conform with ASTM A572, ASTM A588, ASTM A633, or ASTM A595.
- 6.1.3. Anchor bolts shall conform to ASTM A615, Grade 60 or 75.
- 6.1.4. Other bolts and nuts shall conform, as applicable, to ASTM A307, ASTM A325, ASTM A354, ASTM A394, or ASTM A687. Locknuts shall be provided for each structure bolt, or American Nut Company (ANCO) type self-locking nuts may be used. Locknuts shall be the galvanized MF type or ANCO type.
- 6.1.5. Anchor bolts, structural plate, and weld material shall meet ASCE requirements for Charpy tests.
- 6.1.6. For galvanized structures, steel used for the pole shaft and arms shall have a silicon content less than 0.06%.

7. FABRICATION

- 7.1. All welding shall be in accordance with the American Welding Society Code AWS D1.1, latest edition. Welders shall be qualified in accordance with AWS D1.1 welding procedures.
 - 7.1.1. One hundred percent penetration welds shall be required in, but not limited to, following areas:
 - A. Circumferential welds (C-welds) joining structural members
 - B. Longitudinal welds in the female portion of the joint within the slip joint area plus 6 inches
 - C. Welds at butt joints with backup strips
 - D. Longitudinal welds for a minimum length of 3 inches adjacent to C-welds, flange welds, base welds and ends of tubes.
 - 7.1.2. Full penetration, or equivalent 90% partial penetration with fillet overlay to develop the shaft capacity, shall be used for arm-to-arm brackets, vang-to-plate reinforcement, and arm box joints.
 - 7.1.3. Quality and acceptability along the entire length of full penetration welds shall be determined by visual and ultrasonic inspection.
 - 7.1.4. All other penetration welds shall have 60% minimum penetration. Quality and acceptability of all welds other than full penetration welds shall be determined by visual inspection, supplemented by magnetic particle, ultrasonic, or dye penetrant inspection.
 - 7.1.5. All weld back-up strips shall be welded continuous for the length of the welds. Care shall be exercised in the design of welded connections to avoid areas of high stress concentration that could be subject to fatigue or brittle fractures.
 - 7.1.6. Field welding shall not be permitted except with Owner's or Owner's representative's approval and the manufacturer's direction in repairing the pole.



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- 7.1.7. All parts of the structure shall be neatly finished and free from kinks or twists. All holes, blocks, and chips shall be made with sharp tools and shall be clean-cut without torn or ragged edges.
- 7.1.8. Before being laid out or worked in any manner, structural material shall be straight and clean.
- 7.1.9. Shearing and cutting shall be performed carefully and all portions of the work shall be finished neatly. Copes and re-entrant cuts shall be filleted before cutting.
- 7.1.10. Forming and bending during fabrication shall be done by methods that will prevent embrittlement or loss of strength in the material being worked.
- 7.1.11. Holes for connection bolts shall be 1/8 inch larger than the normal diameter of the bolts. Holes in the flange plates for bolted splices shall be 1/8 inch larger than the bolt diameter. The details of all connections and splices shall be subject to the approval of the Owner or the Owner's representative.
- 7.1.12. Holes in the steel plates which are punched must be smooth and cylindrical without excessive tear or depressions. Any burrs that remain after punching shall be removed by grinding, reaming, etc.
- 7.1.13. Holes of any diameter may be drilled in plate of any thickness. Care shall be taken to maintain accuracy when drilling stacks of plates.
- 7.1.14. Holes may be made by use of a machine guided oxygen torch. Flame cut edges shall be reasonably smooth to minimize stress concentrations.
- 7.1.15. The overall length of the structure should not be less than 6 inches of the specified length and not more than 12".
- 7.1.16. Manufacturer must supply a galvanizing touch-up kit for galvanized poles or a silicon sealant for weathering steel poles.



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7.2. Tolerances

Manufacturing tolerances shall be limited to the following:

Pole Length	<u>One piece</u> : ± 2 inches, or $\pm 1/8$ inch per 10 feet of length, whichever is greater
	<u>Assembled pole with flange connections</u> : Same as for one piece
	<u>Assembled pole with slip joint connections</u> : The accumulation of the slip joint tolerances not to exceed $-6"$, $+12"$
Pole Diameter	-0 inch, $+1/4$ inch
Pole End Squareness	$\pm 1/2$ inch per foot of pole diameter
Pole Sweep	$1/8$ inch per 10 ft of pole length
Pole Twist	None Acceptable
Slip Joint tolerances	Tolerances per manufacturer's recommendations and total pole length requirements above.
Pole Taper	See above specification
Location of Groups of Bolt Holes from Top of Pole	± 1.0 inch
Location of Centerline Between Groups of Bolt Holes	± 1.0 inch
Location of Holes Within a Group of Bolt Holes	$\pm 1/8$ inch
Bolt Hole diameters	See above specification
Bolt Hole Alignment	Not to vary from the longitudinal pole centerline of that group of holes by more than $1/6$ inch
Location of Identification Plate	± 2.0 inches

7.3. Grounding

- 7.3.1. A grounding connection shall be welded to the pole shaft, 30 inches above the ground line (6" above ground sleeve). The grounding connection will be a stainless-steel nut welded over a $5/8"$ diameter hole for use with a $1/2"-13$ thread bronze ground clamp.
- 7.3.2. Grounding pad face shall not be painted or covered with other coatings. The grounding nut thread and grounding pad threads shall be protected from coatings.
- 7.3.3. Treaded inserts installed for grounding shall be made of Type 316 stainless steel and provided with standard $1/2$ inch, 13 UNC threads. Threads shall be protected from unapproved coatings.



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7.4. Climbing Devices

7.4.1. Design Loads:

- A. Step bolts and removable steps: The attachment to the pole for step bolts shall be designed to support a minimum of a 400-pound worker and equipment plus overload factor as defined in Paragraph 7.4.2. The load shall be at the outer edge of the step or bolt.
- B. Removable Ladders: The attachment to the pole for removable ladders shall be designed to support a minimum of a 400-pound worker and equipment plus overload factor as defined in Paragraph 7.4.2.

7.4.2. Load Factor: A load factor of 2.5 shall be applied to the design loads in 7.4.1. These loads shall be supported without failure.

7.4.3. Location: Climbing devices shall start 15 feet above ground line and extend to the pole top unless specified by the Owner. The climbing device shall be spaced such that each step is 1 foot, 6 inches apart and orientated to provide maximum ease of climbing. They shall be located to avoid interference with other attachments.

7.4.4. Finish: Step bolts, removable steps, and removable ladders shall match the finish of the poles.

7.4.5. Intent of step/ladder: This system is intended for climbing the pole and working on the structure. It is not intended to replace the worker's fall arrest system.

7.5. Splices

7.5.1. Poles shall be designed with a minimum number of joints. Field welding shall not be allowed as part of the design of a new pole. The shaft joints to be made in the field shall be slip joints or bolted flange joints. Slip joints shall be designed for a nominal lap that will develop the full required design strength of the pole at that point. The minimum lap shall meet the requirements of ASCE Manual No. 72. All welds on both sections of the pole, in the area of the splice, shall be complete penetration welds for at least a length equal to the maximum lap dimension.

7.5.2. Manufacturer shall verify slip joint fit, through dimensional measurement or actual fit-up, before shipment. Joints should not interfere with threaded inserts, step nuts, ladder clips or jacking nuts.

7.5.3. Sufficient jacking lugs and permanent orientation marks shall be provided at all slips joints to ensure proper alignment and complete overlap of the joint.

7.5.4. The axis of the pole shall not be distorted after the pole is mated. Shims shall not be allowed to straighten the pole unless approved by the Owner. The Owner reserves the right to reject a pole based on the improper mating of a pole splice.

7.6. Appurtenances

7.6.1. Appurtenance material shall be supplied by the Owner. The Owner shall provide the pole manufacturer connector and/or member locations, orientations, size, types and strength capacities.



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7.6.2. The steel pole manufacturer and the Owner shall work together to assure design coordination and fit up of all appurtenance connections and members to poles.

7.7. Finishes

The following finishes are acceptable: galvanizing, zinc primer combined with paint, weathering steel and a below grade coating.

7.7.1. Galvanizing: All poles and structural components, which are hot-dip galvanized, shall meet all the requirements of ASTM A123 or ASTM A153. Galvanization shall be at a minimum 3.5 mils to 4 mils thick. Measures shall be taken to prevent warping and distortion according to ASTM A384 and to prevent embrittlement according to ASTM A143. Poles made of ASTM A588 steel shall not be galvanized due to the high silicon content of the steel. One gallon of zinc enriched paint shall be provided with each 5 poles.

7.7.2. Zinc Primer Combined with Paint: Poles which are to be painted shall be hermetically sealed to prevent corrosion of interior surfaces. After shot or sand blasting and cleaning in accordance with the surface preparations specification, SSPC/NACE SP-6/NACE 3, a zinc primer of 3 mils dry film thickness (DFT) and two coats of finish paint, each 3 mils DFT shall be applied to all exterior surfaces in accordance with the paint supplier's recommendations. One gallon each of primer and finish paint shall be supplied with each five poles. A guarantee against flaking or fading of the paint for a minimum of 5 years shall be provided.

7.7.3. Weathering Steel: Steel shall conform to ASTM A588 or A871. After fabrication, poles made of weathering steel shall be cleaned of oil, scale, etc., in accordance with the Steel Structure Painting Council's "Surface Preparation Specification", SSPC-SP6, to ensure uniform and rapid formation of the protective oxide layer.

7.7.4. Coatings for the Embedded Portion of the Pole: A minimum of 16 mil Dry Film Thickness of two component hydrocarbons extended polyurethane coating that is resistant to ultraviolet light shall be applied on the exposed surface of the embedded portion of the pole. The coating shall extend from the butt to the top of the ground collar, or 24 inches above ground line for poles without ground collars. Other coatings shall be approved by the Owner prior to their use. One-quart container of touch-up shall be provided with each 5 poles.

7.7.5. Bolts and nuts with yield strengths less than 100,000 psi shall be hot-dip galvanized per ASTM A153 and ASTM A143, or mechanically coated with zinc in accordance with ASTM B695, Class 50. Bolting materials with yield strengths in excess of 100,000 psi shall not be hot-dip galvanized. Instead, they shall be painted with zinc enriched paint or mechanically coated with zinc per ASTM B695, Class 50. Bolts and nuts made from weathering steel do not require a galvanizing coating.

7.7.6. Compliance with coating thickness requirements shall be checked with a magnetic thickness gauge.



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7.8. Markings

- 7.8.1. Each pole shall be permanently marked on the pole shaft 60 inches above ground line and on the bottom side of the bearing plate with the following identifying information, unless specified otherwise by the Owner:
 - A. Manufacturer's name
 - B. Structures Number
 - C. Length and class of pole
 - D. Ultimate moment capacity of the pole
 - E. Pole weight
- 7.8.2. The identification information listed above shall be permanently marked on the transverse side of the pole. The Owner shall approve the method of identification. The lettering shall be at least $\frac{3}{4}$ inch in height.
- 7.8.3. Where slip joints are used, mark the top of the male section and the bottom of the female section with $\frac{1}{4}$ inch weld alignment marks which, when the joint is fully installed, shall be no more than 18 inches apart. Install additional marks on the male section to guide initial installation.
- 7.8.4. Information on the butt of the pole may be applied with permanent paint, with $\frac{1}{2}$ inch wide brush. Paint identification markings may not be used in any other location.
- 7.8.5. Each section of a spliced pole shall be marked such that the intended mate section can be easily identified. The markings shall be permanent and legible and contain at least the following information:
 - A. Pole Length and Class (each section and total pole),
 - B. Structure number (if known).
- 7.8.6. Ground collars to protect the pole ground line area from corrosive environments are required per Attachment "B". Length of the ground collar shall be as specified in Attachment "B".
 - A. Ground collars shall have a minimum thickness of 3/16 inch; and shall not be considered in strength calculations. A seal weld shall be provided around the ground collar at the top and bottom of the ground collar.

8. SHIPPING AND DELIVERY

8.1. Shipping

- 8.1.1. Each shipment shall be accompanied by a bill of materials, identifiable by pole type and number. Bolts and miscellaneous hardware will be identified by the list for match up with the respective pole shaft. All parts that are required for any one pole shall be in one shipment, if possible.
- 8.1.2. The Owner and Owner's representative shall be notified, prior to shipment, that such shipment is to take place and they reserve the right to inspect the components prior to shipment. The notification shall give quantities, weight, name of common carrier used, and expected time of arrival. ***Owner shall be notified 48-hours prior to all deliveries.***
- 8.1.3. Salt-treated wood blocking and urethane foams shall not be used when shipping or storing weathering steel poles.
- 8.1.4. Transportation and site handling shall be performed with acceptable equipment and methods by qualified personnel. The manufacturer shall exercise precaution to protect poles against damage in transit.



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8.1.5. Handling instructions shall be included with the pole shipment if special handling is required.

8.2. Delivery

8.2.1. The Owner may take delivery at a designated location with the delivering carrier's equipment. The manufacturer shall coordinate with the Owner to ensure smooth and efficient delivery of poles.

8.2.2. The Owner will provide all labor, equipment and materials for the unloading of poles at the project site. A pole is considered delivered when the pole is lifted from the trailer or semi-trailer of the delivery carrier.

9. DRAWINGS AND INFORMATION TO BE SUPPLIED BY THE MANUFACTURER

9.1. Information to be Supplied with the Proposal

9.1.1. Calculated shipping weight of each structure.

9.1.2. Ultimate groundline reactions (including load factors) in poles and guy wires. (including shear, moment and axial reactions)

9.1.3. Type of material of major components (ASTM number).

9.1.4. Description of pole shaft, including thickness, length, diameter, cross-sectional geometry, and method of fastening each shaft component.

9.1.5. Data showing the design of the arm, arm connections, arm attachment plates and brackets.

9.1.6. Sketches or draft drawings of structure and structure attachments.

9.1.7. The cost of each pole by size and length. Also, the total order cost for each class and length of pole.

9.2. Documentation to be Supplied for Owner's Approval Prior to Fabrication

Documentation includes final design calculations for pole shaft, base plate, anchor bolts, arms, and other appurtenances, including their connections for all structures. The following information shall be supplied:

9.2.1. For the loading cases with load factors, the total shear, axial forces, moments, stresses or stress ratios, section moduli, cross-sectional areas, deflections, w/t's for polygonal and D/t's for round cross sections at all splices, at arm attachment points (top and bottom), and at least every 10 feet along the pole

9.2.2. For critical loading case, shear and axial forces, moments, stresses, section moduli, cross sectional area at the arm connections, bolt stresses in the arm connection, and deflection at the end of the arm.

9.2.3. Anticipated deflections at the top of the pole and at the ends of the arm shall be indicated for each pole for the normal, everyday loading condition of 60°F, no wind, no load factors.

9.2.4. For all specified loading cases, reactions and groundline moments shall be supplied.



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9.2.5. Detail drawings for each structure type giving weights of structure components, dimensions, and bill of materials.

9.2.6. Assembly instructions and erection drawings. Slip joint lengths and allowable tolerances. Special handling instructions.

10. INSPECTION AND TESTING

- 10.1. The Owner and the Owner's representative shall have free entry at all times during fabrication, to all parts of the manufacturer's plant, to inspect any part of the production of the poles covered by this specification.
- 10.2. Steel members that are bent or warped or otherwise improperly fabricated shall be properly repaired or replaced at the sole discretion of the Owner.
- 10.3. The cost of tests made by the manufacturer (except full scale load tests on poles), including cost of the certified test reports shall be considered included in the bid price.
- 10.4. The manufacturer shall make tests in accordance with ASTM A370 and A673 to verify that the material used in the structures meets the impact properties.
- 10.5. Mill test reports showing chemical and physical properties of all materials furnished under this specification shall be maintained by the manufacturer for a period of 5 years and shall be traceable to the pole.
- 10.6. All plates over 1 ½ inch thick shall be ultrasonically tested to assure against defects that could lead to lamellar tearing.
- 10.7. Qualification of welders or welding operators will be verified as to conformance with the provisions of AWS D1.1.
- 10.8. The manufacturer shall make certified welding reports for each pole. The reports covering welding shall include all welds of a pole. Each weld shall be clearly identified; and the report shall consist of the method of testing, whether the weld is acceptable, the identification of the pole, the date, and the name and signature of the inspector.
- 10.9. The structures which are to have full-scale load tests performed on them are listed below:
 - 10.9.1. NO STRUCTURES REQUIRE FULL-SCALE LOAD TESTS
 - 10.9.2. Details of the test procedures and methods of measuring and recording test loads and deflections shall be specified by the manufacturer prior to testing and shall be subject to the review and approval of the owner or his representative.
 - 10.9.3. Deflections shall be recorded in the transverse and longitudinal directions when applicable. Deflection measurements shall be taken under the no load condition both before and after testing.
 - 10.9.4. Material procurement for test poles shall be identical to material procurement procedures for regular production run poles.
 - 10.9.5. A full report listing results shall be submitted after completion of all testing. Copies of mill test reports shall be included in the load test report. The report shall also include a complete description of the load tests with diagrams and photographs.
 - 10.9.6. The owner or his representative reserves the right to be present during testing and shall be notified 2 weeks prior to the start of structure fabrication.



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11. APPROVAL, ACCEPTANCE AND OWNERSHIP

- 11.1. **Final designs must be approved by the Owner or Owner's representative before material ordering and fabrication.** Material ordering and fabrication prior to approval will be at supplier's risk. It is understood that award of this contract does not constitute acceptance of design calculations submitted with the bid; if corrections are required in the final structure designs due to manufacturer's errors, omissions, or misinterpretations of the specifications, the quoted price shall not change. Approval of the drawings and calculations by the Owner or the Owner's representative does not relieve the supplier of responsibility for the adequacy of the design, correctness of dimensions, details on the drawings, and the proper fit of parts.
- 11.2. After delivery, the poles will be inspected and shall be free of dirt, oil blisters, flux, black spots, dross, teardrop edges, flaking paint or zinc; and, in general, shall be smooth, attractive, and unscarred. Poles not meeting this requirement shall be repaired or replaced by the manufacturer at no additional cost to the Owner. Final decision to repair rather than replace a pole shall be at the Owner's sole discretion.
- 11.3. All final drawings shall become the property of the Owner, who shall have full rights to reproduce drawings and use them as the Owner sees fit.

END OF SECTION 33 71 16.23



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**SECTION 33 71 16.43
POLE CONSTRUCTION, INSTALLATION, AND REMOVAL**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Poles
- B. Installation Notes
- C. Pole Handling
- D. Pole Structure Erection
- E. Pole Installation
- F. Pole Removal

1.02 QUALITY ASSURANCE

Installation and removal work shall be done in a thorough and workmanlike manner, in accordance with the Contract. Work shall comply with applicable ordinances and codes. The 2017 (or latest edition) of the National Electric Safety Code (ANSI-C2) shall be followed, except where local regulations or these Specifications are more stringent, in which case the most stringent qualifications shall be met.

PART 2 – PRODUCTS

2.01 POLES

- A. Poles shall be Contractor-furnished.

PART 3 - EXECUTION

3.01 INSTALLATION NOTES

- A. Coordination shall be provided as follows:
 - 1. Contractor and all Subcontractors for the various branches of work employed on the Project shall cooperate fully with each other to facilitate the progress of the work, and to avoid all interferences between the various parts of the work.
 - 2. Contractor shall cooperate fully with any other contractor that is engaged in work on the Project for Owner or any other contractor working in the Project area.
- B. Practices relative to right-of-way shall be observed by Contractor during construction as follows:
 - 1. The right-of-way shall consist of an area as determined by Owner extending on both sides of the center line of the route of the Project lines.
 - 2. All rights-of-way and easements across private or public property required for performance of the work herein will be obtained by Owner. Access to the Project area outside the rights-of-way limits specified shall be the responsibility of Contractor. Owner shall be informed of all arrangements made for such access. Promptly restore to at least the conditions which existed prior to the commencement of work any ruts or damage made by equipment whether on or off the right-of-way.



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3.02 POLE HANDLING

Poles shall be handled with care so as not to damage the pole. Poles shall not be dragged along the ground. Poles stored after delivery shall be arranged with care and shall be placed so that no pole will come in contact with standing water or the ground.

3.03 POLE STRUCTURE ERECTION

- A. The depth of setting shall be as follows unless otherwise specified on the construction drawings:

POLE HEIGHT (Per Ft.)	SETTING DEPTH	
	In Earth (Ft.)	In Rock (Ft.)
35	5.5	3.5
40	6.0	4.0
45	6.5	4.5
50	7.0	5.0
55	7.5	5.5
60	8.0	6.0
70	9.0	7.0
75	9.5	7.5
80	10.0	8.0
85	10.5	8.5
90	11.0	9.0

- B. Poles shall be set plumb and in alignment if not raked.
- C. Poles shall be set no deeper than 3" than the values in the table above. No pole will be set less than "earth" depth without Engineer's approval.
- D. Poles set in holes partly in earth and partly in rock shall be set to the depths shown for "earth". Holes may be shortened only upon Engineer's approval.
- E. Excavation is unclassified.
- F. All holes shall be dug in the correct locations and shall be large enough to provide space for use of power tamping bars all around poles to the full depth of the holes. The poles shall be carefully placed in the holes so that the structure grounding materials will not be damaged or displaced.
- G. Holes will be hand dug where requested by Underground Protective Services markings or Engineer.
- H. Structure Setting Tolerances
1. Transportation Department will stake new pole locations. Owner will verify staking locations
 2. Poles shall be set according to the Drawings and Construction Schedule. No pole will be moved without Engineer's approval.
 3. Each structure shall be set within 1.5" of the centerline specified.
 4. Contractor will install a permanent identifiable mark 15' above pole butt as a check of setting depth. This mark may be a tack or other mark as approved by Engineer. Tolerance of $\pm 1"$.



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5. Angle poles will be raked at $\frac{1}{2}''$ for each 10' above ground.

I. Backfill of Pole Structures

1. Poles shall be properly aligned before backfilling. Tangent poles to be set plumb in both directions. Angle poles raked as required.
2. Backfill shall contain enough natural or added moisture to be approximately equal to density of surrounding soils. Backfill shall be material excavated from hole unless directed by Engineer. All backfill shall be placed in 6" layers and each layer power tamped to a density, after completion, equal to surrounding soils. Where rocks, gravel, sand, swampy or murky type soils are encountered in hole digging, this shall not be used as backfill. Do not use sod or grassy soil or place foreign objects in the backfill.
3. Holes excavated for aggregate backfill shall be a minimum 4" greater in diameter than the pole butt or bearing plate if used.
4. Holes, over excavated, shall be backfilled with crushed rock until hole depth is that of appropriate setting depth of specified pole at no cost to Owner. Holes with excessive moisture shall be over excavated by 1'-0 and backfilled with crushed rock in over excavation.

J. Excavation shall not be left open for more than two days.

3.04 POLE INSTALLATION

- A. Consists of one pole in place. The first digits indicate length: the following shows classification. Thus, "70/H3" signifies a 70-foot class H3 wood-equivalent pole. Similar designations may be used for varying pole manufacturers.
- B. Site restoration at pole and along access to pole is a part of unit requirements.
- C. Pole Top Assemblies shall be installed as follows:
 1. Assemblies shall be framed in accordance with drawings.

3.05 POLE REMOVAL

- A. Includes all poles of the same height, regardless of pole class, and designated by the same unit.
- B. Includes pulling and salvage of all poles designated as removals.
- C. Includes immediate backfill of holes with solidly tamped earth in 6" maximum thickness layers and refill to the ground line of any settlement that occurs during the contract period.
- D. When backfilling holes at pole removal locations, do not dig holes in the landscape to obtain backfill. Obtain backfill dirt by scooping or scraping within the designated right-of-way or by fill dirt obtained locally. Do not dig seeded areas within highway or public rights-of-way. Do not place foreign objects in backfill.
- E. Includes the replacement of the surrounding surface where concrete, asphalt, or other man-made surfaces are encountered.
- F. Contractor must coordinate the removal of foreign utilities before removing pole. Contractor is responsible for pole removal after foreign utilities have been relocated.

END OF SECTION 33 71 16.43



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**SECTION 33 71 17
WOOD POLE AND CROSSARMS**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Wood Poles
- B. Wood Crossarms
- C. Wood Pole Structure Erection
- D. Wood Pole Handling

1.02 QUALITY ASSURANCE

Installation work shall be done in a thorough and workmanlike manner, in accordance with the Contract. Work shall comply with applicable ordinances and codes. All work shall conform to 2017 (or latest edition) of the National Electric Safety Code (ANSI-C2) and National Electric Code shall be followed, except where local regulations or these Specifications are more stringent, in which case the most stringent qualifications shall be met.

PART 2 – PRODUCTS

2.01 WOOD POLES

- A. Wood poles shall be Contractor-furnished Southern Pine.
- B. Owner reserves the right to inspect materials at storage area.
- C. Poles shall be warranted to this specification. Any pole found no in conformance, within 1 year of delivery date, shall be replaced as promptly as possible by manufacturer.
- D. Wood poles shall be marked with manufactures information. Items on the marking should include:
 - 1. Manufactures code or trademark.
 - 2. QA mark.
 - 3. Manufacture location and treatment year.
 - 4. Code letters for species, preservative (SP for Southern Pine).
 - 5. Length/class of pole.

2.02 WOOD CROSSARMS

- A. WQC inspected.
- B. Penta treated.
- C. 8'x3-3/4"x4-3/4" REA spec holes
- D. 10'x3-3/4"x4-3/4" REA spec holes



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PART 3 - EXECUTION

3.01 WOOD POLE STRUCTURE ERECTION

- A. Contractor is responsible for compacting excavated areas to minimize settlement of roads and ground. If settlement occurs, Contractor is responsible for repair for a warranty period of one year.
- B. The depth of setting wood poles shall be 10% plus 2' in earth and 10% in rock or where depth is indicated on construction drawings.
- C. Poles shall be set no deeper than 3" than the values in the table above. No pole will be set less than "earth" depth without Engineer's approval.
- D. Poles set in holes partly in earth and partly in rock shall be set to the depths shown for "earth". Holes may be shortened only upon Engineer's approval.
- E. Excavation is unclassified.
- F. Unless directed by Owner, it will not be permissible to cut off the top of any pole. It will not be permissible to cut off the bottom of any pole.
- G. All holes shall be dug in the correct locations and shall be large enough to provide space for use of power tamping bars all around poles to the full depth of the holes. The poles shall be carefully placed in the holes so that the structure grounding materials will not be damaged or displaced.
- H. Holes will be hand dug where requested by Underground Protective Services markings or Engineer.
- I. Structure Setting Tolerances
 - 1. Owner will inspect staked pole locations before construction setting activities. 48 hour notice shall be given for approval inspection.
 - 2. Poles shall be set according to the Drawings and Construction Schedule. No pole will be moved without Engineer's approval.
 - 3. Each structure shall be set within 2" of the centerline specified.
 - 4. Contractor will install a permanent identifiable mark 15' above pole butt as a check of setting depth.
 - 5. Angle poles will be raked not less than 1/2" for each 10' above ground.
 - 6. Poles shall be set so that the crossarm gains face in opposite directions on every other pole. However at line deadends, the last two poles shall be set so that the pole gains face the deadend.
- J. Backfill of Wood Pole Structures
 - 1. Poles shall be properly aligned before backfilling. Tangent poles to be set plumb in both directions. Angle poles raked as required.
 - 2. Loose dirt shall be removed from all holes and bottom tamped with hydraulic tamp. All backfill shall be done with a hydraulic tamp from bottom of hole to grade.



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3. Backfill shall contain enough natural or added moisture to be approximately equal to density of surrounding soils. Backfill shall be material excavated from hole unless directed by Engineer. All backfill shall be placed in 6" layers and each layer power tamped to a density, after completion, equal to surrounding soils. Where rocks, gravel, sand, swampy or murky type soils are encountered in hole digging, this shall not be used as backfill. Do not use sod or grassy soil or place foreign objects in the backfill.
 4. Holes excavated for aggregate backfill shall be a minimum 4" greater in diameter than the pole butt or bearing plate if used.
 5. Holes, over excavated, shall be backfilled with crushed rock until hole depth is that of appropriate setting depth of specified wood pole at no cost to Owner. Holes with excessive moisture shall be over excavated by 1'-0 and backfilled with crushed rock in over excavation.
- K. Excavation shall not be left open for more than two days.
- L. Additional pole holes shall not be tolerated. Should unnecessary or improperly bored holes compromise the strength, the pole shall be replaced by Contractor at Contractor's expense.

3.02 WOOD POLE HANDLING

- A. Poles shall be handled with care so as not to damage the wood or the preservative treatment. Pole tongs or Cant hooks shall be handled so as to avoid excessive tearing of the wood. Contractor shall not use tongs or cant hooks on any portion of the pole required to go underground. Poles shall not be dragged along the ground. Poles stored after delivery shall be arranged with care and shall be placed so that no pole will come in contact with standing water or the ground.
- B. Poles shall be set plumb and in alignment if not raked.

END OF SECTION 33 71 17



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**SECTION 33 71 19
ELECTRICAL UNDERGROUND DUCTBANK**

PART 1 – GENERAL

1.01 SUMMARY

- A. Ductbank
- B. Conduit
- C. Spacing Blocks
- D. Fittings
- E. Ball Marker
- F. Execution

1.02 REFERENCES

- A. ASTM (American Society for Testing and Materials)
- B. NFPA 70 (National Fire Protection Association) – National Electric Code
- C. NEMA TC2 and TC3 (National Electrical Manufacturers Association)
- D. MMED (Madisonville Municipal Electric Department) Policies and Procedures

1.03 SUBMITTALS

- A. Record Documents
 - 1. Show dimensioned locations of underground ductbank from nearest permanent structure or survey control points.
 - 2. Show as built ductbank elevations and cover.

1.04 QUALITY ASSURANCE

- A. Listing and Labeling: Provide products that are listed and labeled as defined in NFPA 70, article 100, and marked for intended use for the location and environment in which they are installed.
- B. ANSI C2 “National Electric Safety Code” for components and installation.
- C. Testing and Inspection for Contractor Quality Control: Contractor shall perform inspection and tests described below, and, based upon the results of those inspections and tests, shall take action required and submit specified reports to Owner.
 - 1. Sampling and Testing Materials: Certificates of Compliance for encasement slurry.

1.05 FIELD CONDITIONS

If the field conditions warrant change in the routing or configuration of ductbanks and/or location, shape and size of manholes, obtain Engineer's approval for such field changes. Such changes shall be done at no additional cost to Owner and the Contract Price is deemed to be inclusive of such changes.

PART 2 – PRODUCTS

2.01 DUCTBANK

The duct system shall consist of conduits as shown on the Contract Drawings.



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2.02 CONDUIT

- A. Risers including elbow shall be Aluminum Sch 80. PVC will be installed underground after elbow.
- B. Conduit for underground ductbanks shall be PVC Schedule 40 suitable for gravel encasement. The conduit size shall be as shown on the Contract Drawings.
- C. All duct shall be tightly jointed and sealed with a PVC rating sealer to be approved by Engineer.
- D. Conduit shall be straight and true and shall be furnished in lengths of 20 feet. A cross section taken at any point perpendicular to duct shall not vary more than 1/8 inch from a true circle.
- E. Conduits shall be complete with all couplings, adaptors, bends and supports as required or shown on the Contract Drawings. All couplings and fittings shall be the products of conduit manufacturer and shall be secured to the conduit with an adhesive in strict accordance with the manufacturer's recommendations. End bells are required to provide smooth and rounded surfaces at the edge of the duct to prevent injury to the cable during normal movement.
- F. Changes in directions in duct runs exceeding a total of 10 degrees, either vertical or horizontal, shall be accomplished by long sweep bends having a minimum radius of curvature of 2 feet. At the end of the conduit run, manufactured elbows having a minimum radius of 60 inches may be used. Standard radius bends, elbows or other fittings shall not be used.
- G. All above grade conduit and elbow shall aluminum for one cable per conduit at risers. Conduits to be grounded.

2.03 SPACING BLOCKS

Spacing blocks shall be made of PVC or other suitable non-metallic, non-decaying material, with spacing as indicated on Contract Drawings

2.04 FITTINGS

PVC conduit and tube fittings: NEMA TC2 and TC3

PART 3 – EXECUTION

3.01 DUCTBANK

- A. Duct shall be tied in place by means of tie wire or spacers around the outside of duct and fastened to the bottom spacer to prevent movement during placement of concrete. Ductbank shall also be anchored to ground to prevent floating of conduits. In no case shall complete wire loop be installed around ductbank.

3.02 CONDUIT

- A. The conduits shall be a minimum of 48" deep, unless otherwise indicated.
- B. The joints shall be staggered 6 - 8" with spacers approximately 5' apart.
- C. Conduit shall be installed in not less than 20 foot lengths, except at the ends of runs or at bends. Conduit shall be free of cracks and chipped ends. Have available at the job site a sufficient quantity of conduit so that cracked pieces or those with chipped ends may be discarded.
- D. All field cuts of PVC conduit shall be made with a hack saw. Cuts shall be smooth and square to conduit axis. The cut end of conduit shall be reamed smooth. Field-cut conduits shall be joined with double-ended couplings designed for the purpose.



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- E. Repairs to conduits shall not be permitted. All individual lengths of broken, cracked, chipped or impaired conduit shall be removed and replaced with new conduit.
- F. When changes in the formation of a bank of conduits within a duct run are necessary, the transition shall be accomplished in as straight alignment as possible, maintaining continuous earth support under the conduits.
- G. After the conduits and reinforcements are in place with proper spacing and joints made tight, the entire assembly is raised from the bottom of the trench on concrete or plastic blocks placed at intervals, so that concrete bed of specified depth is formed below the conduit assembly. The entire conduit envelope assembly shall be firmly anchored in position to prevent "floating" when concrete or backfill is placed.
- H. After the installation is complete, a flexible duct rodding device shall be passed through each completed conduit to check for continuity and cleanliness.
- I. Following the duct rodding device, a mandrel not less than 1/4-inch smaller than the inside diameter of the conduit preceded by a wire brush tied to the same string shall be pulled through the conduit once in each direction. When the conduit is partially or fully obstructed with mud, dirt, or gravel, the duct shall be flushed clean by use of water from a long flushing nozzle attached to a water hose which shall be pushed into the conduit and applied until the conduit is clear. After cleaning, the procedure outlined above for rodding and wire brushing shall be followed. Any damaged conduit shall be replaced with a new conduit.
- J. After all obstructions have been removed and the conduits wire-brushed clean, a nylon cord of suitable strength shall be threaded in each conduit of ductbank and tied to the nearest pulling eye with a six foot length left at each end. Immediately upon completion of threading the conduit with a nylon cord, both ends of the conduit shall be plugged to prevent entry of foreign matter before the cables are pulled.
- K. Install a pull line in each conduit including spare conduit.

END OF SECTION 33 71 19



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**SECTION 33 71 23
INSULATORS, LINE HARDWARE, CROSSARMS AND ANCHORS**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Materials
- B. Insulators
- C. Hardware
- D. Crossarms
- E. Guys
- F. Anchors
- G. Street Lights
- H. Cutout
- I. Arrester
- J.

1.02 QUALITY ASSURANCE

- A. Installation work shall be done in a thorough and workmanlike manner, in accordance with the Contract. Work shall comply with applicable ordinances and codes. All work shall conform to the following specifications, the 2017 (or latest edition) of the National Electric Safety Code (ANSI-C2) and National Electric Code shall be followed, except where local regulations or these Specifications are more stringent, in which case the most stringent qualifications shall be met.
- B. Contractor is responsible for inventorying all units, construction drawings, and construction documents for material quantity requirements. All units are to be complete, functional and meet applicable safety standards.
- C. All insulator ties, connectors, and guy grips are considered part of the units and will be supplied by Contractor at no additional cost.

PART 2 – PRODUCTS

2.01 INSULATORS

- A. Suspension Insulators
 - 1. 12kV Application
 - a. 60 Hz, Dry Flashover 80 kV
 - b. 60 Hz, Wet Flashover 50 kV
 - c. Critical Impulse, Positive 125 kV
 - d. Leakage Distance 11 1/2" min inches
 - e. Specified Mechanical Load (SML) 20,000 lbs.
 - f. Routine Test Load (RTL) 10,000 lbs.
 - g. ANSI Classification ANSI class 52-4 or equivalent
 - h. Insulation Test Standard ANSI C29.2
 - i. Approved Manufacturers: PPC #81012- No substitutions



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B. Vertical Post Insulators Application and Specifications

1. 12kV Application – Pin type
- a. 60 Hz, Dry Flashover

65 kV
- b. 60 Hz, Wet Flashover

35 kV
- c. Critical Impulse, Positive

105 kV
- d. Leakage Distance

9 inches
- e. Maximum Design Cantilever Load (MDCL) 3000 lbs.
- f. Base End Fittings

1.0" Threaded
- g. ANSI Classification

ANSI class 55-4 or equivalent
- h. Insulation Test Standard

ANSI C29.1
- i. Approved Manufacturers

Victor, Gamma Insulators, PPC
2. 12kV Application – Porcelain post type
- a. 60 Hz, Dry Flashover

80 kV
- b. 60 Hz, Wet Flashover

60 kV
- c. Critical Impulse, Positive

130 kV
- d. Leakage Distance

14 inches
- e. Maximum Design Cantilever Load (MDCL) 2800 lbs.
- f. Base End Fittings

3/4" Stud
- g. ANSI Classification

ANSI class 57-11 or equivalent
- h. Insulation Test Standard

ANSI C29.1
- Approved Manufacturers

Victor, Gamma Insulators, PPC

C. Neutral Insulator and Clevis

1. ANSI Class
- 53-2
2. Cantilever Strength
- 3000lbs.
3. Color
- Gray/Skyline
4. Glaze
- Standard
5. Approved Manufacturers
- Joslyn, Hubbell, Hughes Brothers



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D. Fiberglass Crossarms

1. Tangent
 - a. Length: 10 foot
 - b. Color: Gray
 - c. Mount: Center
 - d. Manufacturer: Shakespeare- No substitutions
 - e. Catalog Numbers
 - 1) 10 foot: HTB120N12602 3/4" BOLT
2. Deadend
 - a. Length: 10 foot
 - b. Color: Gray
 - c. Mount: Center
 - d. Manufacturer: Shakespeare- No substitutions
 - e. Catalog Numbers
 - 1) 10 foot: XDB12012482

E. Fiberglass Guy Strain Insulators

1. Ultimate Strength: 30k.
2. Length: 78 inch as specified by Contract Drawings
3. End fitting hardware shall meet all applicable ASTM standards
4. End fitting hardware types: Clevis-Clevis, with one roller as specified on Contract Drawings.
5. Color: Gray
6. Rod: Fiberglass with ultra-violet protective coating
7. Manufacturer: Chance or equivalent

F. Street Lights and Masts

1. American Electric Lighting
 - a. 400 WATT - 32540SCAMT1R3DG- No substitutions
 - b. 400W LAMP- Sylvania cat# LU400/ECO/PLUS No substitutions
 - c. Photo Control: dp-124-1.5-1704-j50 No substitutions
 - d. Mast Arm- 10': Hapco #85-004 No substitutions

G. Cutout

1. ABB-No substitutions



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- a. 100A-X1JCLNLM11-K
 - b. Fuses- Cooper/Kearney QA-Coordinate fuse size with Owner
- H. Arrester
- 1. Maclean/Joslyn-No substitutions
 - a. ZHP010-0C00100

2.02 LINE HARDWARE

- A. Materials for use with ACSR conductors shall be forged steel or ductile iron, hot- dip galvanized in accordance with ASTM A153, or aluminum in accordance with ASTM 4-356-76.
- B. Dead-end Clamps: Quadrant strain for 12kV applications.
 - 1. Approved Manufacturers: Anderson or equivalent
 - a. Quadrant clamp-Large Conductor
 - b. Straight opening/Side opening-#2 ACSR
- C. Line/Line Line/Tap Connector
 - 1. Approved Manufactures: Blackburn/TB Kearney Dies
- D. Cotter Pins: Stainless steel, Type 302 or 304
- E. Bolts
 - 1. Manufactured in accordance with ANSI C135.1
 - 2. Galvanized in accordance with ASTM A153-73
 - 3. Each bolt shall be furnished with one standard square nut.
 - 4. Size and type shall be furnished as specified in the Contract Drawings.
 - 5. Locknuts shall be used to back-up all threaded bolt nuts.
 - 6. Approved Manufactures: Maclean/Joslyn
- F. Washers
 - 1. Galvanized in accordance with ASTM A153-73
 - 2. Size and type shall be furnished as specified in the Contract Drawings.
- G. Attachment hardware such as anchor shackles, links, and clevises shall be galvanized in accordance with ASTM A153 and supplied in sizes and types as specified in the Contract Drawings.

2.03 GUY RODS, ANCHORS AND ACCESSORIES

- A. Contractor must have the capability to install all types of anchors in all types of soils.
- B. Anchors shall be power-installed, screw type twin 8-inch, 10-inch Helix.
- C. Anchors shall be power-installed, screw type single 10-inch Helix.
- D. Rod extensions shall be 3-1/2 or 7 feet in length.



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- E. Twin helix anchors shall have a minimum 27,000lb holding power in Class 5 soil.
- F. Single helix anchors shall have a minimum 17,000lb holding power in Class 5 soil.
- G. Guy grips for use with steel guy stranding:
 - 1. 7/16-inch EHS 7 strand: Preformed Line Products GDE-1108
 - 2. 3/8-inch EHS 7 strand: Preformed Line Products GDE-1107
- H. Guy guards:
 - 1. Guy guards: yellow, plastic, full round, 8 feet with bolted connections, 75- mil thickness.
- I. Guying attachments shall be ductile iron, hot-dip galvanized in accordance with ASTM A-536, ASTM A153, respectively, and compatible with the ultimate guy strand(s) strength as specified in the Contract Drawings.
- J. Stirrup and hot line clamp
 - 1. Stirrup: Anderson AHLS954022E
 - 2. Hotline Clamp: Anderson BC20

PART 3 – EXECUTION

3.01 INSULATORS

- A. Handle insulators with care. Protect fiberglass continuously with packaging until installed.
- B. Insulators shall be thoroughly cleaned of all foreign material before installation. Cotter pins must be fully inserted in insulator caps. If suspension insulators are raised separately from the pole structure, they shall be lifted from one (1) end of the assembly only. Bending of insulator strings, resulting in deformation of fittings or hardware, including cotter pins, shall result in rejection of the string, in which case Contractor shall re-fabricate the string at no cost to Owner. The movements of insulator strings for construction purposes shall be accomplished by pulling the string from the bottom. All movement of insulator string away from or back to vertical shall be controlled movement. All post insulators shall be handled in a manner to prevent damage. Damaged, chipped or cracked insulators shall be replaced by Contractor.
- C. Do not transport insulators and fiberglass units in any manner that will scratch, mar, or deface coating.

3.02 HARDWARE

- A. Before installation, inspect hardware for missing parts, visual defects, and damage to galvanizing. Clean hardware by removing dirt, corrosion, and foreign matter. Repair damage to galvanizing to Engineer's satisfaction.
- B. Tighten all hardware firmly, using properly-installed lock washers, lock nuts and spring washers.
- C. Provide a washer at each point where a bolt head or nut bears on the surface of a pole or crossarm. Provide a locknut with each nut, eye nut, or other fastener on all bolts or threaded hardware.
- D. Bore or drill all bolt holes such that the attached hardware and bolt is on the same horizontal or vertical plane. If required, bore bolt holes so they are in a level plane and in-line with deadend pulls, or at right angles to the line in tangent construction.
- E. Bolt exposure shall be restricted to 2" maximum exposure. Contractor shall use correct size and



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length. Do not cut bolts to achieve this tolerance.

- F. Tighten nuts firmly with properly installed lock washers, lock nuts, spring washers, and cotter pins. Orient nuts and cotter pins toward pole or downward, as applicable. Spread and bend back straight cotter pins in hardware bolts so as to be shielded by the outer face of the unit to prevent corona. Do not use wrenches. Do not flake or damage galvanizing.
- G. Hardware and other attachments to the pole shall be tightened to the point where sufficient compression is obtained to offset the effects of future pole shrinkage. Each item of hardware shall be thoroughly tightened and shall be set with locknuts and where necessary or suitable to the application with spring-type lock washers. Suitable flat, curved or reinforced washers shall be used to provide adequate bearing on wood surfaces.
- H. Anchor shackles shall be installed, as required by Contract Drawings.

3.03 GUYS

- A. Guys shall be provided where and as required by the Contract Drawings, and at other locations where required by changes in proposed line routing. Guys shall be of the strength, size and types specified herein. Where necessary, additional extension lengths shall be provided to screw anchors to ensure its placement into firm soil and shall be included as Work of this Contract. Guys shall be installed sufficiently tight to snug hardware, to prevent radio noise, and to set the anchor. The ground line at the top anchor rod shall be marked prior to loading. Creepage in excess of 1.5" shall be considered excessive, requiring anchors to be re-set as Work of this Contract. All hardware fittings and connections shall be tight. All down guys shall be equipped with approved guy guards.
- B. Install all guy strands prior to conductor stringing operations. Guys shall be evenly pre-tensioned such that structure loads remain balanced during stringing.
- C. Place all guys before conductors are transferred or installed. Attach guys to poles as specified in the Drawings. Ensure proper adjustment of guys when transferring and tensioning conductors so that loading on structures is balanced.
- D. All guys shall be installed prior to loading the structures. If, after loading the structures, Owner determines that final adjustments to the guys are necessary, Contractor shall make such adjustments to the satisfaction of Owner at no additional cost.
- E. Guy insulators shall be installed as specified in the Contract Drawings.
- F. Install guy anchors in-line with slope of guy strand. Install double-guy anchors on a slope equal to the average slope of guy strands.
- G. Guys must be of size and types shown on the Contract Drawings. Test anchors at the time of installation for 100 percent of manufacturer- specified holding capacity using the sheer pin/torque method or other methods recommended by the anchor manufacturer and approved by Engineer. Contractor shall submit written documentation of anchor tests, before conductor installation, indicating pole number, type of anchor, and proof of holding capacity.
- H. Field drill holes for guy attachments as indicated on construction drawings on wood and steel poles. Field drilling on steel poles will require a zinc-rich touchup paint to prevent exposure to bare steel.

3.04 ANCHORS

- A. Anchors must be of size and types shown on the Drawings.
 - B. Install anchors according to the manufacturer's written instructions. Install anchors and verify
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the holding capacity of all new anchors before conductors are transferred or installed.

- C. All anchors and rods shall be in line on the bi-sector of multiple strain anchors. Each anchor rod shall be aligned with its connected guys and shall extend not less than 3", not more than 9" above the ground surface after the connected structure has been loaded.
- D. The backfill of all anchor holes must be thoroughly tamped the full depth.
- E. Excavation shall not be left open for more than two days.
- F. Contractor shall have all equipment required to install the screw anchors according to manufacturer's instructions. Torque capacity of the driving rig shall be at least 120 percent of the installation torque specified by the anchor manufacturer. The driving rig must be capable of applying an axial downward force on the anchor, as recommended by the manufacturer. This axial force shall be applied consistently throughout anchor installation to insure the anchor advances the proper depth for each revolution, as specified by the anchor manufacturer.
- G. Drive all anchors, adding extension shafts and couplings, as required, until the manufacturer's recommended installation torque is achieved. The anchor must then be advanced for the distance specified by the manufacturer while maintaining torque. If the torque decreases, continue driving until the specified torque is reached again, and maintain torque for the specified distance.
- H. Immediately notify Engineer if difficulties are experienced during installation. Engineer will instruct Contractor whether to proceed with installation or to remove the screw anchor and install an alternate anchor.
- I. All anchor assemblies requiring abandonment in soil shall be cut off 18 inches below grade. All anchor assemblies requiring abandonment in rock shall be cut off at grade.
- J. Unless an alternate location is specifically approved by Engineer, all anchors shall be installed within 6 inches of the location specified on the Contract Drawings.

END OF SECTION 33 71 23



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**SECTION 33 71 25
CONDUCTOR, GUY WIRE AND GROUNDING WIRE**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Conductor and Accessories
- B. Wire Sagging and Clipping
- C. Splices, Deadends, and Connections
- D. Grounding
- E. Inspection and Testing

1.02 SUBMITTALS

- A. Provide stringing plans and setup locations.
- B. Engineer will provide sag charts for installation.
- C. Test results of ground resistance.

1.03 QUALITY ASSURANCE

Installation work shall be done in a thorough and workmanlike manner, in accordance with the Contract. Work shall comply with applicable ordinances and codes. The 2017 (or latest edition) of the National Electric Safety Code (ANSI-C2) shall be followed, except where local regulations or these Specifications are more stringent, in which case the most stringent qualifications shall be met.

PART 2 – PRODUCTS

2.01 CONDUCTOR AND ACCESSORIES

- A. All materials are Contractor-furnished.
- B. 12kV Primary conductor shall be:
 - 1. 795 ACSR 26/7 “Drake”
 - 2. 397 ACSR 18/1 “Chickadee”
 - 3. # 2 ACSR 7/1 “Sparate”
- C. Neutral conductor shall be:
 - 1. 4/0 ACSR 6/1 “Penguin”
 - 2. 397 ACSR 18/1 “Chickadee”
 - 3. # 2 ACSR 7/1 “Sparate”

2.02 GROUNDING MATERIALS

- A. All grounding materials will be Contractor-furnished.
- B. Ground rods for overhead distribution: Copper-clad or copper-bonded, 5/8-inch minimum diameter by 8 feet in length.
- C. Grounds and Accessories: Ground clamps for 5/8-inch rod, safety set screw, Joslyn J8492.



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D. Use #6 solid copper, soft-drawn for pole down leads.

E. Pole Ground Nut: Ground Vise, Anderson GC-207

PART 3 – EXECUTION

3.01 WIRE SAGGING AND CLIPPING

- A. Follow practice recommended in the latest edition of IEEE No. 524 “IEEE Guide to the Installation of Overhead Transmission Line Conductors”.
- B. Installation shall provide necessary clearances between conductors and ground, between conductors, or between conductors and other surfaces. All necessary precautions shall be taken to ensure that the conductors, poles, insulators, or other facilities are not damaged. Particular care must be taken to ensure that the conductors are not damaged in any manner. Conductors must not be drawn across the ground and shall not be drawn over crossarms without proper protection. Conductor installation shall be accomplished, using approved sheaves and other equipment. All sections of conductor damaged by application of gripping attachments shall be repaired or replaced prior to completion of Work
- C. Initial or Final Sag tables, as applicable, shall be provided by Engineer. Sagging of the conductor by the controlled tension method is acceptable.
- D. Tighten all guys before the conductors are transferred to new structures.
- E. Contractor’s sagging procedure must be approved by Engineer. Regardless of the procedure used, the resulting final sags must be within a tolerance of ± 3 ” of the specified sags.
- F. Determine sag temperature by using an accurate thermometer placed in the open at a height approximately equal to the sagged height of the wire.
- G. After sagging the wire, record, in a format approved by Engineer, all pertinent sagging information including but not limited to temperature, span length, time, and sag. Provide such information to Engineer in writing.
- H. Make up jumper loops such that they present a smooth, uniformly curving appearance. Form the jumper such that the completed jumper meets clearance requirements from live parts to ground as given in the NESC current at the time of bid opening.

3.02 SPLICES, DEADENDS, AND CONNECTIONS

- A. Make full-tension splices, if required, in the presence of Owner’s representative.
- B. Thoroughly clean conductor surfaces of all foreign matter at the fitting location. Remove conductor sections damaged by the application of gripping attachments before the conductors are spliced with the permanent compression splices.
- C. Remove all wrapping, binding, and excess grease and compound at the completion of pressing operations. The strands of the conductors or wire must be snugly seated when the splice is completed. Remove slight bends in the fitting using a method that protects the fitting from damage.
- D. Remove all burrs and die marks from splices, deadend fittings, and jumper terminals.
- E. Install the compression splices in accordance with manufacturer instructions. Use manufacturer-recommended filler compound. Select the correct die by matching the index numbers stamped on both the fitting and die set. Do not allow the weight of the conductor or wire to be applied to the dies.



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- F. Install compression deadend assemblies in accordance with manufacturer recommendations.

3.03 GROUND RODS - OVERHEAD LINES

- A. Driven grounds shall consist of a system of 5/8 inch by 8 foot sectional ground rods, complete with coupling sleeves and driving studs, connected vertically and driven a minimum of 2 rods deep. The ground rods shall be bonded to each other and to the pole down-leads with #6 C.W. bare conductor. If refusal is encountered before full depth is reached and relocation of rod is impractical, remove rod and drill a 2"-diameter vertical hole to full depth, place ground rod, and fill remaining space with bentonite clay. Used only as approved by Owner.
- B. Install ground rods as shown on the drawings.
- C. Placing ground rods in "pole embedment hole" is not acceptable.
- D. All guy wires shall be bonded to the pole ground and neutral in accordance with NESC requirements. Guy markers shall be installed on all guys.

3.04 GROUNDING CONNECTIONS

Clean electrical contact surfaces with solvent or abrasion, as recommended by connector manufacturer, to provide a clean contact. Apply a liberal coat of oxidation inhibiting compound to all buried and bimetallic connections. Remove excess compound after installation. Torque connection bolts as recommended by the manufacturer.

3.05 INSPECTION AND TESTING

Before energizing any circuit, inspect the complete section of line circuit that will be energized to verify that the circuit segment is complete and free from all extraneous connections and unsafe conditions. Test each section of line that will be energized for absence of shorts and grounds, as well as for conductor continuity and correct phasing. Notify Owner not less than 48 hours in advance of scheduled times for energizing line circuits.

END OF SECTION 33 71 25



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**SECTION 33 71 26.05
DISTRIBUTION LINE SWITCHES**

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Distribution Switches

1.02 SUBMITTALS

- A. Shop Drawings
 - 1. Erection details including bill of material
- B. Ratings
 - 1. Electrical ratings including nominal and maximum continuous operating voltage, rated withstand voltage, continuous and momentary asymmetrical current and maximum load interrupting capability
 - 2. Mechanical strength rating of frame for balanced and unbalanced conductor tension loading

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Distribution switches shall be shipped with all three switch poles and interphase operating mechanism preassembled to the switch mounting crossarm. Each three-pole switch assembly shall be crated in a manner suitable for stacking. Operating pipes shall be shipped unassembled and banded together, one set per switch, properly identified and protected against damage. All loose parts and operating mechanism hardware shall be shipped in a common container properly identified.
- B. Shipping Requirements:
 - 1. Switches shall be assembled, with insulators, and fully adjusted before shipment.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Test: Successfully passed ice tests on a prototype model as outlined on ANSI "Test Code for High Voltage Air Switches."
- B. After fabrication, hot-dip galvanize bases, operating mechanisms and other steel parts in accordance with ASTM A 123. Do not drill, cut or alter after galvanizing.
- C. Switch terminal pads: NEMA 2-hole tinned.

2.02 DISTRIBUTION SWITCHES

- A. Disconnect
- B. Three-phase gang-operated switches supplied for distribution applications shall be horizontal side-break, upright mounting, with three switch assemblies rigidly attached to a common, steel, pole-mounted crossarm.
- C. Three-phase gang-operated switches supplied for distribution applications shall be vertical side-break, upright mounting, with three switch assemblies rigidly attached to a common, steel, pole-mounted crossarm.



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- D. Approved manufacturer: Disconnect Hubbell/Chance - No substitutions
Gang Operated S&C Omni-Rupter - No substitutions

1. Disconnect catalog# M3D66B
2. Horizontal catalog #: 14743R4-A2-D-P1-V1-ED-711R4-S2
3. Vertical catalog#: 14753R4-B-ED-713R4-S2-V1

E. Disconnect

1. Nominal Operating Voltage, kV: 15.5
2. Basic Impulse Level, kV: 110
3. Minimum Load Interrupting Rating, Amps: 600

F.

- G. Gang operated supplied switches shall meet the following electrical requirements:

1. Nominal Operating Voltage, kV: 14.4
2. Maximum Operating Voltage, kV: 17
3. Basic Impulse Level, kV: 110
4. Continuous Rating, Amps: 900
5. Momentary Asymmetrical Rating, kA 25
6. Minimum Load Interrupting Rating, Amps: 900

2.03 ACCESSORIES

- A. Grounding strap and clamps for attachment to the vertical operating shaft. Strap to be braided copper wire, tinned, at least 24 inches long with two 9/16 inch holes at one end for attachment to the pole grounding.
- B. Switch blade position indicator located near operator.
- C. Provision for padlocking in either OPEN or CLOSED position.
- D. Operator: As specified on Contract Drawings

PART 3 – EXECUTION

3.01 GENERAL

- A. Follow manufacturer-provided instructions and recommendations for the following:
 1. Receiving and storage
 2. Assembly and adjustment of switch components
 3. Inspection of complete switch assembly



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4. Switches shall be made with compression type connectors. Drilling and hole boring and other miscellaneous items shall be considered part of unit or pole assembly and included in bid cost.

END OF SECTION 33 71 26.05



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**SECTION 33 71 50
MEDIUM VOLTAGE POWER CABLE AND ACCESSORIES**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Installation of 15kV, 750 aluminum cable
 - 2. Cable fittings and accessories
 - 3. Sectionalizing cabinet, Elbows and Junctions

1.02 REFERENCES

- A. Reference Standards
 - 1. ANSI/IEEE C2, National Electrical Safety Code
 - 2. ASTM B33, B189, B3, B8, B172, B173, B174, B230, B231, B496, Copper and Aluminum Conductor Specifications
 - 3. AEIC CS8, Cross-linked Polyethylene (XLPE) Shielded Power Cables Rated 5 through 46kV
 - 4. IEEE-48, Test Procedures and Requirements for High Voltage Alternating Current Cable Terminations
 - 5. IEEE-404, Standard for Power Cable Joints
 - 6. NEMA WC74, 5–46kV Shielded Power Cable for Use in the Transmission and Distribution of Electric Energy
 - 7. ICEA/IEEE 400, Guide for Making High-Direct-Voltage Tests on Power Cable Systems in the Field.
 - 8. UL 1072, Medium Voltage Power Cables
 - 9. ICEA 5-66-524, Specification for Cross-Linked Thermosetting Polyethylene Insulated Wire and Cable for the Transmission and Distribution of Electric Power
 - 10. NETA Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems, 2003

1.03 SUBMITTALS

- A. Shop Drawings:
 - 1. Pulling lubricants
 - 2. Cable terminations
- B. Cable test results
- C. Cable Splices Qualifications: Provide proof of certification, training, names of personnel, years of experience performed with selected accessories.



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1.04 QUALITY ASSURANCE

- A. Installer: Specializing in installation of medium voltage cable and accessories with minimum of three years' experience.

PART 2 - PRODUCTS

1) MEDIUM VOLTAGE POWER CABLE

- A. Conductor shall be rated as follows:

1. 15kV Power Cable – Phase Conductor, three single cross-linked polyethylene AL conductors per Phase, 15kV, 750 AL, 133% insulation level, 220 Mil XLPE insulated, with 1/3 concentric neutral, and PVC outer jacket

2) POWER CABLE TERMINATORS

- A. Riser pole terminators

1. Single conductor terminators capable of indoor/outdoor cable terminations as required.
2. 15kV, 1/3 concentric neutral power cables terminating in distribution vaults and power transformers.
 - a. Ratings and characteristics:
 - 1) Rated voltage: 15kV
 - 2) Conductor:
 - i) 750 mcm AL. per Contract Drawings
 - 3) Skirts: Used on outdoor installations
 - 4) Voltage withstand: ac, 1 min., 50kV; dc, 15 min., 75kV.
 - 5) Impulse withstand 1.2 × 50 microseconds, crest: 110kV.
 - 6) Two bolt termination.
3. Manufacturer: Raychem Corporation. (Catalog no. to be determined by cable specifications of selected manufacturer) Raychem HVT
4. Accessories: ground braids and clamps.

3) CABLE PULLING LUBRICANT

- A. Lubricity: Coefficient of dynamic friction less than or equal to 0.15 on PVC-jacketed cable and PVC conduit with 200 lbs./ft. of normal pressure.
- B. Temperature range: 20°F – 110°F
- C. Compatible with PVC-jacketed cable
- D. Non-toxic, non-flammable, water-based gel
- E. Manufacturer: American Polywater, Stillwater, MN, Type Polywater® J. or Polywater® Plus Silicone™
- F. Listing: UL



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4) CABLE IDENTIFICATION TAGS

- A. Type: Horizontal-reading, strapped to cables with mylar, self-locking tabs at each end of holder.
- B. Tags: Polyethylene, with black 1-inch high characters on a yellow background, integrally molded with locking grid, injection molded.
- C. Holders: Black polyethylene.
- D. Marking as follows: Feeder or circuit number and phase, e.g. "201A."
- E. Furnish blank yellow characters to fully fill the holder, as required.

5) SECTIONALIZING CABINET, ELBOW, JUNCTION

- 1. 3 phase sectionalizing cabinet and ground sleeve.
 - (a) Cabinet Catalog Number: Durham AM306622263-No substitution
 - (b) Ground Sleeve Catalog Number: Electri-glass fiberglass- No substitution
- 2. 15kv 600A Elbow w/ test point.
 - (c) Elbow Catalog Number: Elastimold K656LRP0380 - No substitution
- 3. 15kv 600A Junction.
 - (d) 3 point Junction Catalog Number: Cooper #DJ625A3B - No substitution

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install cables in accordance with ANSI and IEEE C2.
 - 1. Do not exceed cable pulling tensions and bending radius recommended by manufacturer.
 - 2. Pull cable using specified lubricants and cable pulling equipment. Locate reels conveniently for feeding cable into the conduit without causing excessive bending or possible injury to cable by abrasion and place on reel stands.
 - 3. Pull all cables together where several cables are to occupy one conduit.
 - 4. Seal cable ends when pulling into conduit. Do not leave cable ends exposed to moisture unless splicing is to be done immediately.
 - 5. Station sufficient personnel along the cable route at all conduit entrances and exits to direct the passage of cable as required.
 - 6. Protect the cable from chafing on the ground, conduit edges or other sharp surfaces during pulling. Provide timbers and flexible cable pulling tubes to guide and protect the cable.
 - 7. Apply identification tags to cables at terminal points, conduit entrances and manholes. Refer to Contract Drawings for the numbering sequence for the cables.
 - 8. Permanently support cable ends prior to terminating. Support vertical cable runs having a total vertical drop in excess of 15 feet at the top and as specified in NEC Article 300-19 with cable grips or other approved devices, with provision for cable expansion and contraction.



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9. Clamp or snub each cable and tie for proper support at each terminal connection and splice so that strain on the cable is not transmitted to the terminal connection or splice.

3.02 CABLE IDENTIFICATION

- A. Mark all cables with cable circuit and phase identification tags specified in PART 2 above.
- B. Securely fasten cable identification tags to cables at each end of tag holder with self-locking nylon ties, in visible locations at each termination and at intermediate pull boxes, manholes, trenches or other points of access.

3.03 CABLE TERMINATIONS

- A. Perform cable phase identification and phasing tests before initiation of terminating activities.
- B. Perform “megger” insulation resistance test on each cable to ground prior to terminating. Record temperature, humidity, duration of test and voltage for each test and submit to Engineer. Use 2500 volt motor-operated megger.
- C. Minimum acceptable megger reading is 10 megohms.
- D. Make further tests to isolate problem if specified test values are not met.
- E. Replace cable installation with new cable if required insulation resistance cannot be obtained.
- F. Complete termination in accordance with manufacturer's instructions.
- G. Ground all cable shields to grounding conductor.

3.04 TESTING CABLES

- A. New Cables
 1. Test all sections of cables.
 2. Conduct a high potential (HI POT) dc test at NETA specified values for 15 consecutive minutes. Record leakage current with time.

3.05 FIELD QUALITY CONTROL

- A. Coordinate installation and final testing with Engineer. Notify Engineer at least 48 hours in advance of testing. Provide Engineer the opportunity to witness any and all tests. Submit all test results to Engineer within 36 hours of the test.
- B. Except where noted otherwise, the following tests may be performed by Contractor or by an independent testing firm regularly employed in the testing of medium-voltage cables.
 1. DC high-potential (Hi-Pot) testing shall be performed by an independent testing firm.
- C. Tests shall be performed for all medium-voltage cable installed by this project.
- D. Tests shall be performed after making up splices and terminations, but before landing cable run at either source or load, and before electrical circuitry has been energized except as noted below:
 1. If desired, cables may be tested prior to making up splices and termination. However, such tests shall not replace the need to fully test the cable assembly after termination. Test voltages used prior to termination shall not exceed the cable manufacturer's recommended limits.
- E. Perform inspections and tests in accordance with NETA ATS 2003 7.3.3.



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F. Perform Visual and Mechanical Inspection per NETA ATS 7.3.3.1 and the following:

1. Perform Visual and Mechanical Inspection at each end of cable and at any exposed transitional area.

END OF SECTION 33 71 50



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**SECTION 33 71 75
OVERHEAD ELECTRICAL SYSTEM CONSTRUCTION**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Description of Units
- B. Construction

1.02 QUALITY ASSURANCE

- A. Installation work shall be done in a thorough and workmanlike manner, in accordance with the Contract. Work shall comply with applicable ordinances and codes. The 2017 (or latest edition) of the National Electric Safety Code (ANSI-C2) shall be followed, except where local regulations or these Specifications are more stringent, in which case the most stringent qualifications shall be met.
- B. If any materials, equipment or workmanship shall be deemed defective after delivery or installation before final acceptance of project. The replacement or remedy of shall be at the expense of Contractor.
- C. In the event Owner determines the construction contains numerous defects, it shall be the duty of Contractor to have inspection, if any, made by an engineer approved by Owner.

PART 2 - PRODUCTS

2.01 DESCRIPTION OF UNITS

- A. Special units and descriptions are included in Contract. Remainder of unit descriptions will be found in REA/RUS Bulletin 50-3 Standard D-804: Specifications and Drawings for 7.2/12.5 kV Line Construction.
- B. Fiberglass braceless crossarms and manufacturer provided material will be used in place of wood crossarms and braces on steel poles. Crossarms to be installed as shown on construction drawings provided in this contract. It is Contractor's responsibility to verify what material is supplied from manufacturer.
- C. Maintain careful and accurate records of all materials removed or reused as specified.
- D. The construction assemblies are on a unit basis so that Owner may authorize any combination, addition or deletion, of construction units desired. The descriptions apply to those assemblies on the Contract Drawings on the Assembly Guide Drawings and includes all necessary labor and Owner-furnished material required to make the assemblies complete, including testing and submitting report forms where required, as follows:
 - 1. Installation (Add) Units
 - a. Specified by designation of the assembly unit to be installed, e.g. "ADD: C1.1" signifies the installation of a C1.1 assembly unit as identified on the Assembly drawings.
 - b. Maintain careful and accurate records of all materials removed or reused as specified.
 - 2. Pole Installation
 - a. Consists of one pole in place. The first digits indicate length: the following shows classification. Thus, "45-3" signifies a 45-foot class 3 wood or steel wood-equivalent



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poles. Similar designations may be used for varying pole manufacturers. If “S” is indicated steel pole is to be installed.

- b. Site restoration at pole and along access to pole is a part of unit requirements.
 - c. Includes the “covering” up of existing conductors and/or the transfer of conductors to “Hot Arms” for work clearance/code requirements.
3. Overhead Conductor Installation
- a. Conductor is measured horizontal distance between conductor supports. The unit includes tie wires, clamping, sleeves for splicing, and connectors; jumpers and connections at deadends, junctions and taps. Includes report form submittal.
 - b. Unit will include the spreading of existing conductors onto hot arms as required.
4. Pole Top Assembly Installation
- a. Consists of the hardware, crossarms and their appurtenances, insulators, connectors, hot-line clamps, and stirrups, etc., except tie wire required to support the conductors. Unit does not include the pole ground download wire.
 - b. Includes the “covering” up of existing conductors and/or the transfer of conductors to “Hot Arms” for work clearance/code requirements.
5. Gang-Operated Switch
- a. Specified by the term “GOAB”. Consists of insulators, switch, crossarms, terminal pads, switch base, controls. Refer to manufacturer specifications for installation instructions.
6. Ground Installation
- a. Consists of the ground wire, staples, ground molding where required, ground rod, all connectors, clamps and associated hardware as indicated on the various guide drawings. Includes testing and report form submittal.
7. Guy Installation
- a. Consists of the necessary length, both overhead and down guys, of guy wire, all bolts and fasteners, lag screws, guy bonding bolt, deadend hardware, grounding jumpers and connectors. Guy markers are part of this assembly.
8. Anchor Installation
- a. Consists of the anchor with rod complete with applicable bonding clamp and ready for attaching the guy wire, including testing, and report form submittal. Anchor rod extensions required to meet the holding capacity will be additional units.
9. Transfer Assembly
- a. Transfer unit will be used when a unit may be removed and installed from one set up of truck as determined by Owner.
 - b. Consists of furnishing of all labor for removing and reinstalling the unit specified from one location to another on the same or new pole, as required. Material in the transfer unit such as brackets, braces and etc. may be reused if in satisfactory condition and only when approved by Owner.
 - c. Includes the removal and reattachment of any or all conductors associated with the unit,



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any sagging or re-sagging, tying, untying and re-tying, armor rodding or re-armor rodding, all splices, connectors, etc., and any other labor required to make a complete assembly.

- d. Splicing of guy wire is not acceptable.

10. Removal Units

- a. All assembly units specified by the "REMOVE" shown as green and followed by the assembly unit designation of existing assembly unit to be removed.
- b. Includes the furnishing of all labor for removal of existing units of construction from existing lines, disassembling into material items, and all labor and transportation for the returning of all materials in groups of like items to the warehouse of the Owner in an orderly manner, or transporting elsewhere to the site of the Project or for reuse in the prosecution of this Contract as specified.
- c. Do not place removed materials or equipment where it will be damaged by or cause damage to vehicular traffic, livestock, persons and property. Immediately remove from the job site.
- d. Includes, in addition to the removal of the assembly itself, any necessary transferring, holding and handling, re-sagging, splicing, re-armor rodding, and retying and all connectors and reconnecting of all conductors, jumpers and leads in those cases where an existing assembly will be removed and replaced by a new assembly and where any existing conductor is to be reused.

11. Pole Removal

- a. Includes all poles of the same height, regardless of pole class, and designated by the same unit.
- b. Includes pulling and salvage of all poles designated as removals. Poles are not to be cut off unless specified.
- c. Includes immediate backfill of holes with solidly tamped earth in 6" maximum thickness layers and refill to the ground line of any settlement that occurs during the contract period.
- d. When backfilling holes at pole removal locations, do not dig holes in the landscape to obtain backfill. Obtain backfill dirt by scooping or scraping within the designated right-of-way or by fill dirt obtained locally. Do not dig seeded areas within highway or public rights-of-way. Do not place foreign objects in backfill.
- e. Includes the replacement of the surrounding surface where concrete, asphalt, or other man-made surfaces are encountered.
- f. Poles that are designated to be "removed" shall not have the tops cut off unless the existing pole conflicts with the safe operation and construction of the new facilities.
- g. Joint Use Poles designated for "removal" shall not be topped without providing prior notification to Owner. Before topping any Joint Use pole designated for "removal", Contractor shall be responsible for contacting Owner to coordinate the occupying Joint Use Utility and request that said Utility vacate the subject pole. Contractor shall provide Owner verification of contact if requested. If the Joint Use Utility cannot or will not vacate the pole, Contractor may top the pole, if such pole conflicts with the safe operation and construction of the new facilities. This function is considered "means and methods", and no additional compensation will be made for topping poles designated for removal or for coordinating work with the Joint



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- h. Unless prior approval has been received from Owner. Contractor, for the duration of the construction contract, shall be responsible for the removal of all “topped” poles previously designated for “removal” and upon removal will be compensated the “removal” unit bid price.
- 12. Pole-Top Assembly Removal
 - a. Includes, in addition to the removal of the assembly itself, any necessary holding and handling, resagging, splicing, re-armor rodding, and retying and all connectors and reconnecting of all conductors, jumpers and leads in those cases where an existing assembly will be removed and replaced by a new assembly and where any existing conductor is to be reused.
 - b. Includes any holding or handling of mainline or tap conductors at tap lines, angles, and deadends where such is involved, and reinstalling of any conductor as required by the assembly. The new unit of construction will be specified separately.
- 13. Conductor Removal
 - a. Includes the removal unit for each size of conductor or cable shown by the "Remove" followed by the conductor or cable type.
 - b. Includes removal in the longest practical length, preferably between deadends, without unnecessary kinking or nicking. It also includes coiling or reeling of all conductors, and removing and retaining possession of all tie wire, armor rods, jumpers, and miscellaneous connectors.
- 14. Guy Removal
 - a. Includes all guys, attachments, hardware, grounds, and insulation regardless of length, type of attachment, size of guy strand or accessories. Thus, REMOVE: "E" signifies removal of any down guy or span guy assembly including attachment, hardware, grounds, and insulation.
 - b. Includes removal and coiling of guy strand in the longest practical length and the dismantling of all three-bolt clamps, guy attachments, bonding bolts and guy guards.
- 15. Anchor Removal
 - a. Includes only anchor rod removal in the anchor removal units. The anchors will be left in the ground. Rods unable to be removed will be cut off 18” below grade.

PART 3 - EXECUTION

3.01 CONSTRUCTION

- A. Removing and Replacing Fences, Sod, etc. shall be completed as follows:
- B. Contractor shall carefully remove and store all interfering fences, mailboxes, culverts, shrubs, flowers, other planting, etc. After installation of work and backfilling, reinstalling these items and restoring to at least the conditions which existed prior to commencement of work using materials and workmanship to match those of original construction and installation.
- C. Coordination shall be provided as follows:
 - 1. Contractor and all Subcontractors for the various branches of work employed on the Project shall cooperate fully with each other to facilitate the progress of the work, and to avoid all interferences between the various parts of the work.



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2. Contractor shall cooperate fully with any other contractor that is engaged in work on the Project for Owner or any other contractor working in the Project area.
- D. Poles shall be installed per Section 33 71 16.43 - Pole Construction, Installation, and Removal.
- E. Pole Top Assemblies shall be installed as follows:
 1. Pole top assemblies shall be framed in accordance with drawings.
 2. Switches shall be installed in accordance with manufacture specifications.
- F. Insulators shall be installed per Section 33 71 23 – Insulators, Hardware and Anchors.
- G. Practices relative to right-of-way shall be observed by Contractor during construction as follows:
 1. The ROW shall consist of an area as determined by the state highway markers on both sides of the center line of the route of the Project lines.
 2. Limit the movement of crews and equipment so as to cause as little damage as possible to cultivated land, pastures, bridges, crops, orchards, or other property, and endeavor to avoid marring the lands. Replace all fences which are necessarily opened or moved during the construction of the Project, in as good condition as they were found and take precautions to prevent the escape of livestock. Contractor shall be responsible for all damage and loss, outside right-of-way, as specified herein, caused by the construction of the Project.
 3. All rights-of-way and easements across private or public property required for performance of the work herein will be obtained by Owner. Access to the Project area outside the rights-of-way limits specified shall be the responsibility of Contractor. Owner shall be informed of all arrangements made for such access. Promptly restore to at least the conditions which existed prior to the commencement of work any ruts or damage made by equipment whether on or off the right-of-way.

END OF SECTION 33 71 75



U.S. 41A – Section 2 Utility Relocation	Contract No: <u>6531-C1</u>
Madisonville Municipal Utilities	Date: <u>June 4, 2021</u>
KY Transportation Cabinet	Rev.: <u>02</u>

**U.S. 41A – Section 2 Utility Relocation
Madisonville Municipal Utilities
KY Transportation Cabinet**

Contract No: 6531-C1
Date: June 4, 2021
Rev.: 02

Contract Drawings



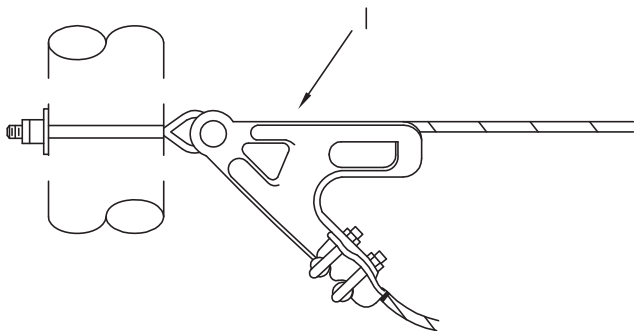
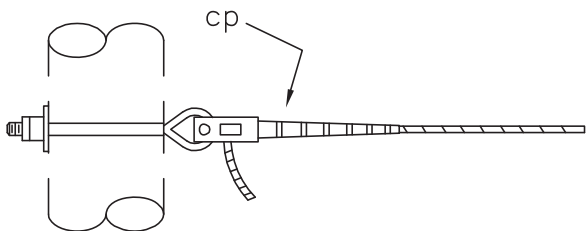
U.S. 41A – Section 2 Utility Relocation
Madisonville Municipal Utilities
KY Transportation Cabinet

Contract No: 6531-C1
Date: June 4, 2021
Rev.: 02

Unit and Framing Drawings

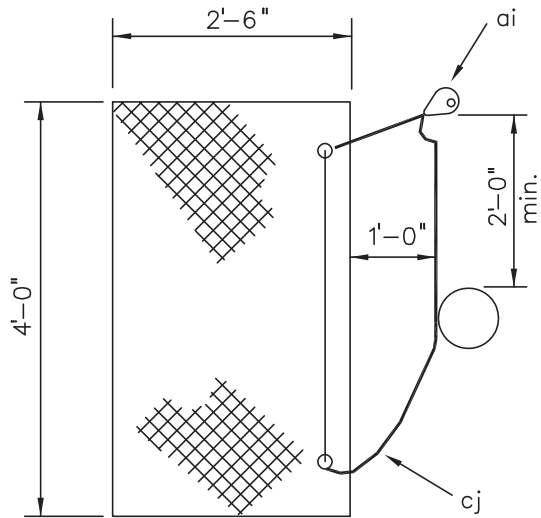
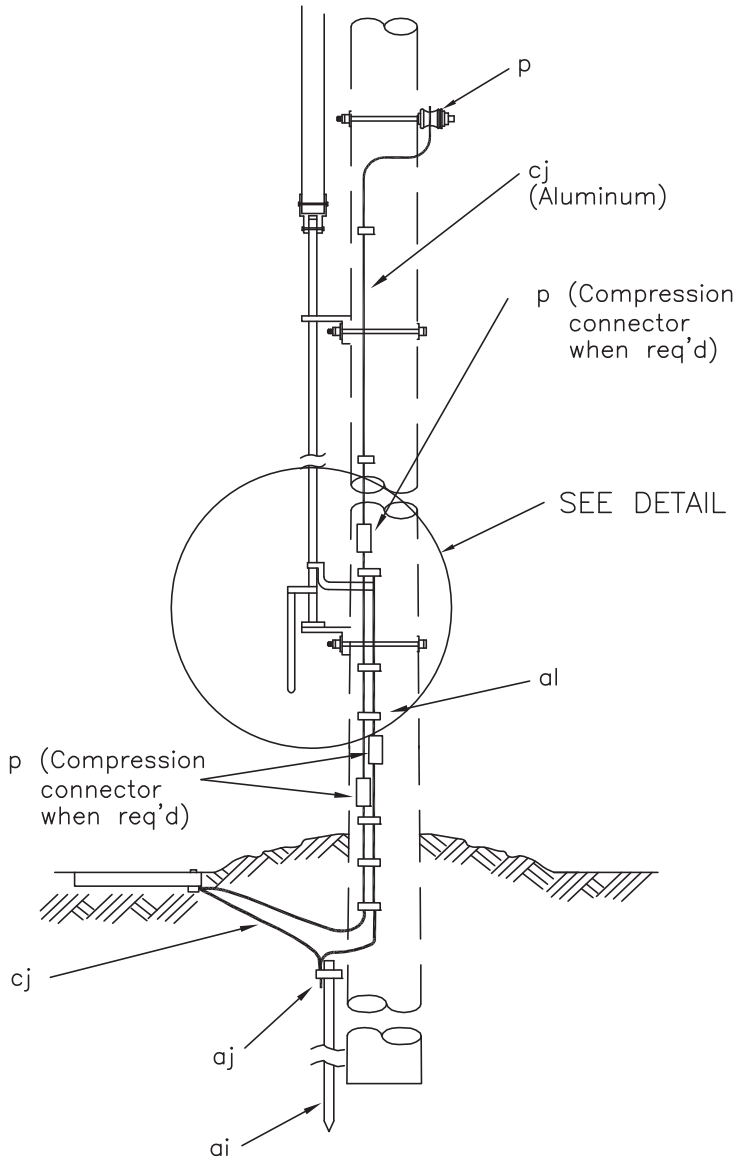


NOTE: For use with copper or copperweld–copper conductors only.

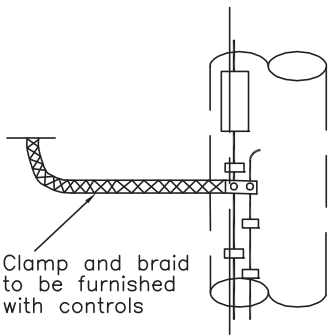
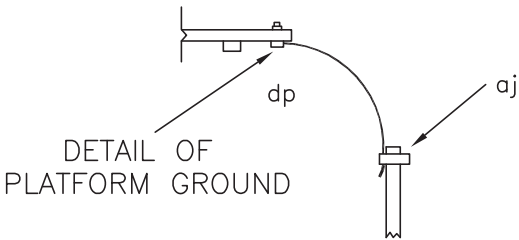


- NOTES:
- 1. Item “by” may be substituted for item “cp” shown.
 - 2. Specify “ej” clamp instead of “I” clamp for conductors larger than #4/0 ACSR.
 - 3. Armor tape required for conductors in galvanized fittings not having aluminum liners.
 - 4. Bend pigtails away from line conductors to avoid chafing.

ASSEMBLY: L2		.3	.4	.5	(Not Shown)
ITEM	MATERIAL	QTY	QTY	QTY	
I	Clamp, deadend (distribution)	1		1	
by	Deadend, automatic or formed type				
cp	Deadend, compression type		1		
		NEUTRAL DEADEND TYING ASSEMBLIES INSTALL			
					L2.3,L2.4,L2.5
					(M42–13)



DETAIL OF PLATFORM



DETAIL

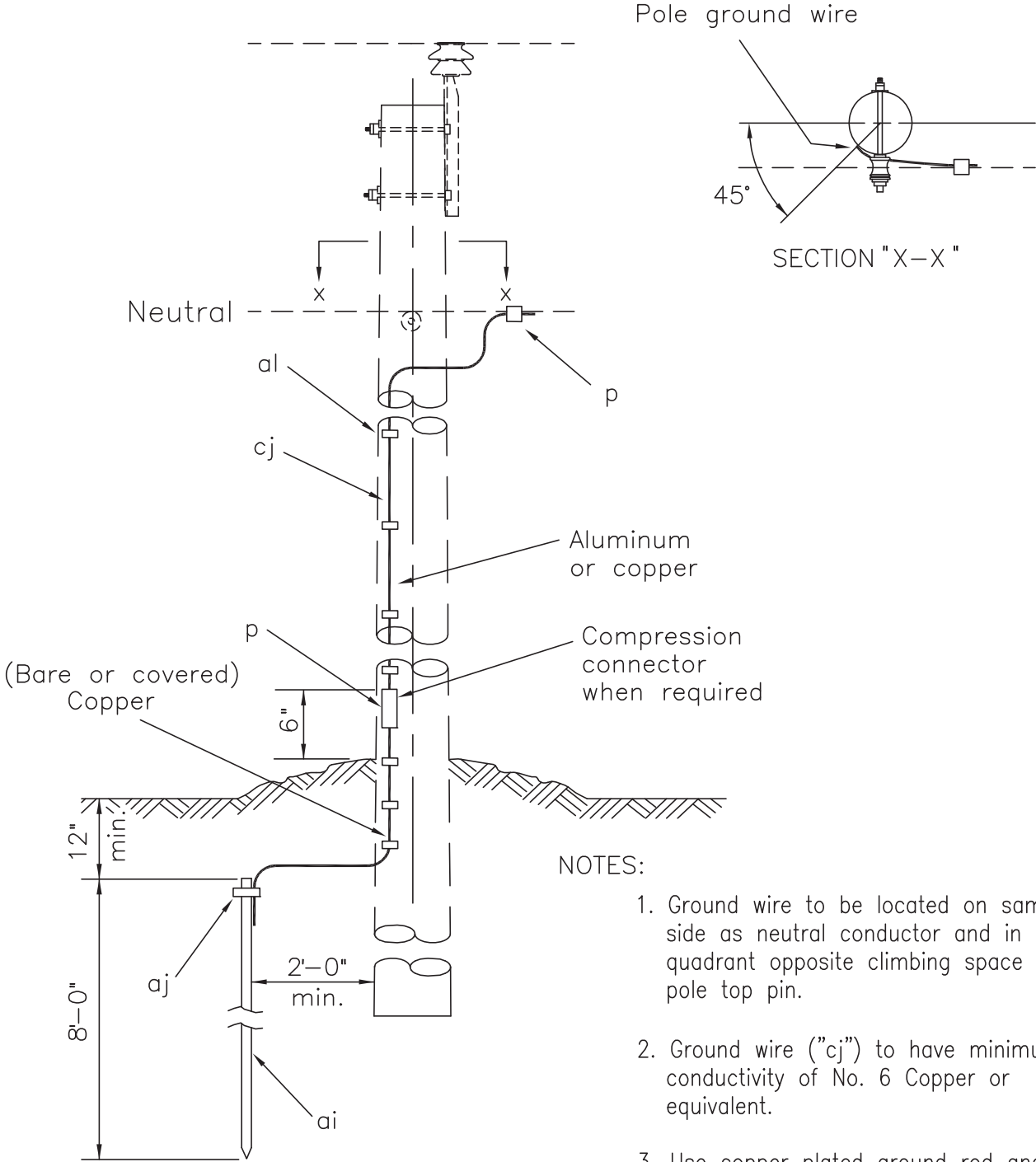
NOTE: Wear rubber gloves when operating switch.

USE GROUND NUT FOR STEEL POLES.

ITEM	QTY	MATERIAL
p		Connector, compression, as req'd
ai	1	Rod, ground, 5/8 min. dia., (galv.)
aj	1	Clamp, ground rod, (galvanized steel)
al		Staple, ground wire, (galv.), as req'd
cj		Wire pole ground, as req'd Soft annealed iron, 5/16" with class C galvanizing
dp	2	Clamp, ground wire, with lock washer
	1	Platform, grounding plate, galv. iron

GROUNDING ASSEMBLY – PLATFORM TYPE
(FOR SECTIONALIZING AIRBREAK SWITCH)
INSTALL

H4.1
(M2-15A)

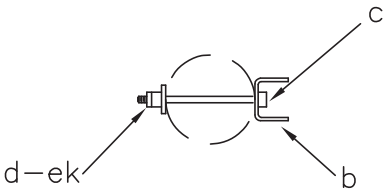


- NOTES:
- 1. Ground wire to be located on same side as neutral conductor and in quadrant opposite climbing space or pole top pin.
 - 2. Ground wire ("cj") to have minimum conductivity of No. 6 Copper or equivalent.
 - 3. Use copper plated ground rod and copper ground wire and staples, or use galvanized steel ground rod, staples and soft annealed iron, 3-strand, 5/16" ground wire with class C galvanizing.

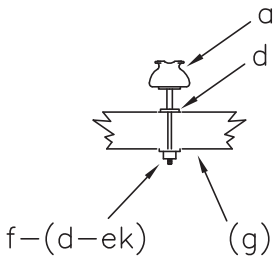
ITEM	QTY	MATERIAL
P		Connector, compression, as req'd
ai	1	Rod, ground, 5/8" min. diameter
aj	1	Clamp, ground rod
al		Staple, ground wire, as reg'd
cj		Wire, pole ground, as req'd

GROUNDING ASSEMBLY – GROUND ROD TYPE
INSTALL

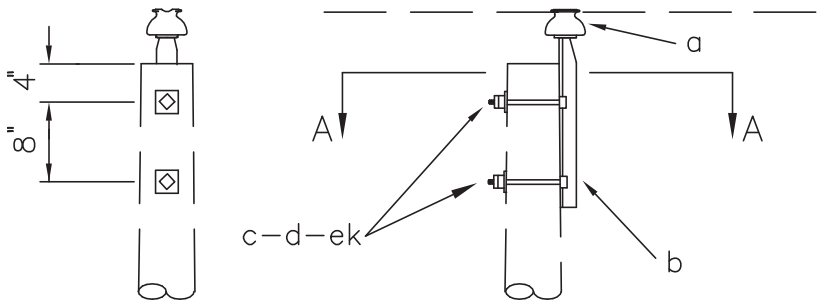
H1.1
(M2-11)



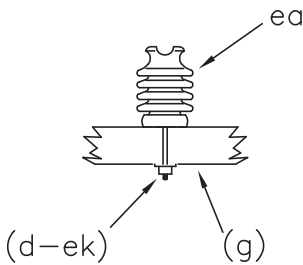
SECTION A-A



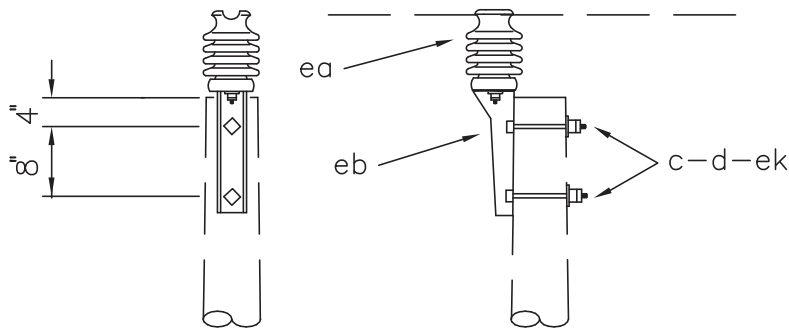
A1.011



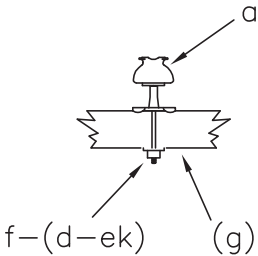
A1.01



A1.011P



A1.01P



A1.011L

ASSEMBLY: A1.

ITEM	MATERIAL	QTY	QTY	QTY	QTY	QTY
a	Insulator, pin type (12.47/7.2 kV)	1		1		1
b	Pin, pole top, 20"	1				
c	Bolt, machine, 5/8" x req'd length	2	2			
d	Washer, square, 2 1/4"	2	2	1		
f	Pin, crossarm steel, 5/8" x 10 3/4"			1		
f	Pin, crossarm steel, clamp type					1
ea	Insulator, post type (12.47/7.2 kV)		1		1	
eb	Bracket, pole top		1			
ek	Locknuts	2	2			

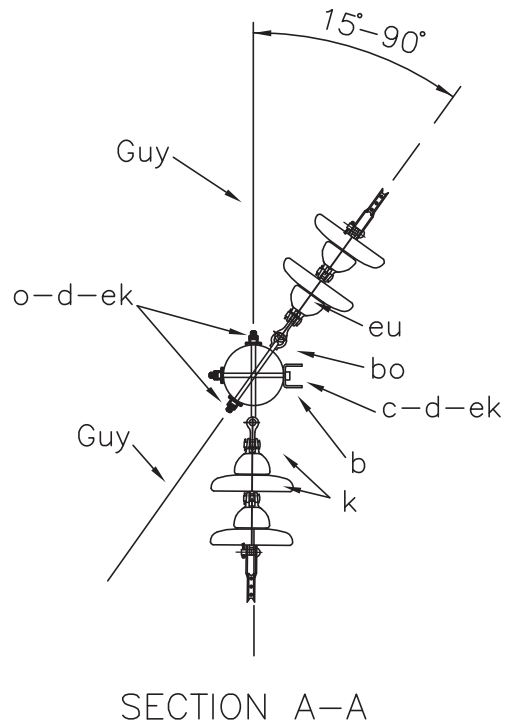
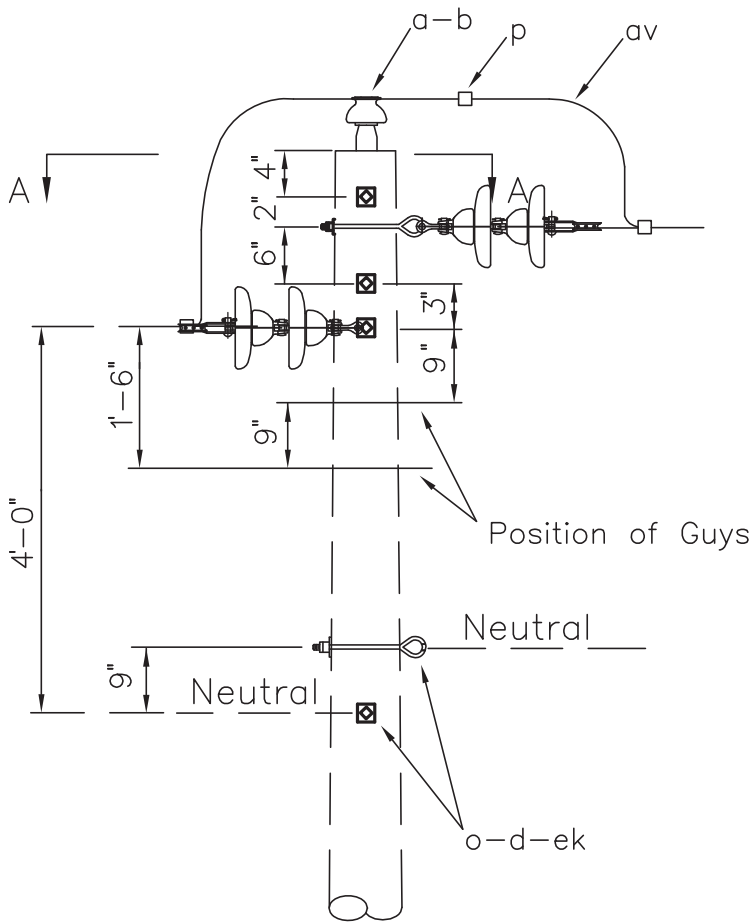
ASSEMBLY NUMBERS	
NEW	(OLD)
A1.01	(M5-2)
A1.01P	(M5-18)
A1.011	(M5-5)
A1.011P	(M5-7)
A1.011L	

DESIGN PARAMETERS:

SINGLE SUPPORT-PRIMARY
INSTALL

1 - PHASE PRIMARY
12.47/7.2 kV

A1.01,A1.01P
A1.011,A1.011P
A1.011L



NOTES:

- 1. Use 3" curved washers, "d", on eyebolts, "o".
- 2. Other combinations of deadend assemblies (A5.1 through A5.9) may be used, (e.g., one A1.01 plus two A5.3's; or one A1.01 plus one A5.1 plus one A5.7). Record alternative assemblies separately on staking sheets. CAUTION: Use the appropriate permitted longitudinal loads.

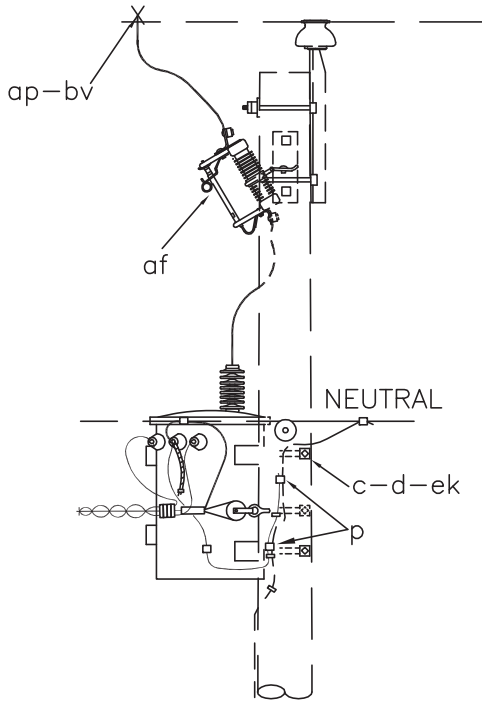
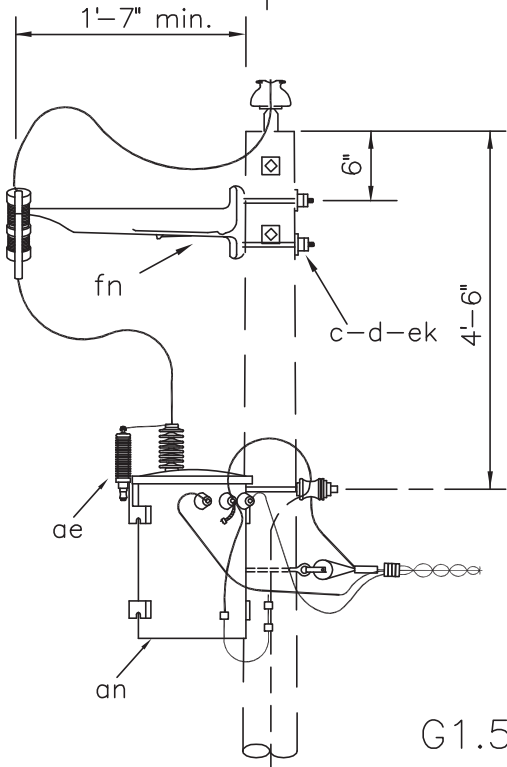
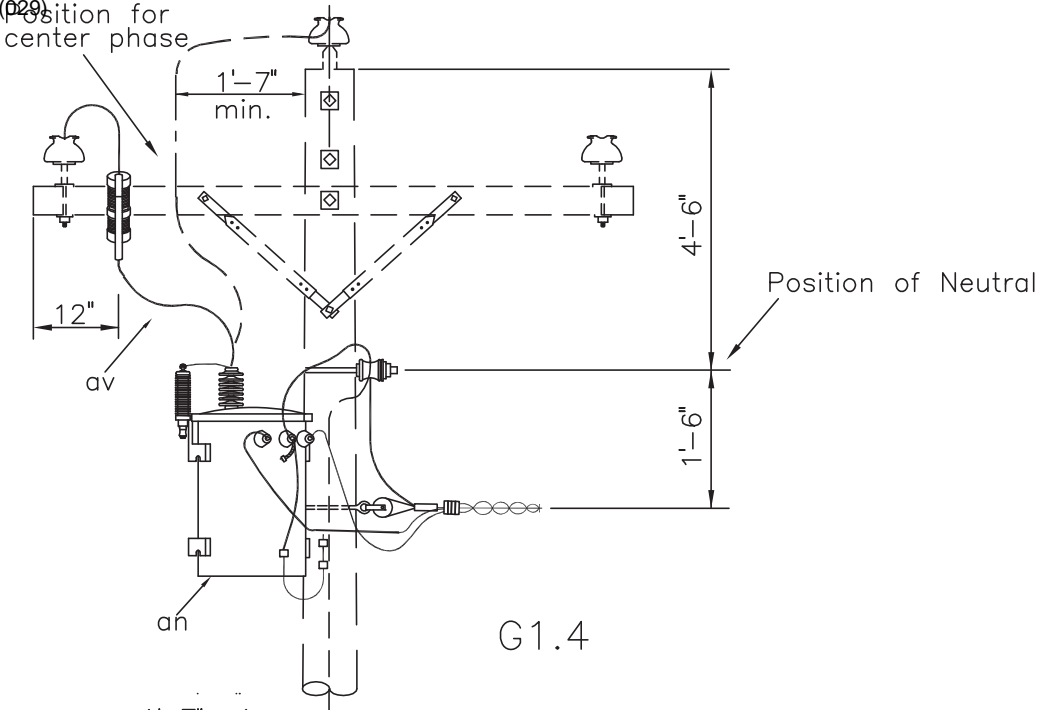
ITEM	QTY	MATERIAL
a	1	Insulator, pin type (12.47/7.2 kV)
b	1	Pin, pole top, 20
c	2	Bolt, machine, 5/8 x req'd length
d	2	Washer, square, 2 1/4
d	4	Washer, square, 3, curved
k	4	INSULATOR, SUSPENSION 10" X 5 3/4"
o	4	Bolt, eye, 5/8 x req'd length
p		Connectors, as req'd
av		Jumpers, as req'd
bo	1	Shackle, anchor
ek	6	Locknuts
eu	1	Link, extension, insulated
(du)	(1)	(Link, Extension)(Optional)

DESIGN PARAMETERS:
PERMITTED LONGITUDINAL
LOAD = 5000 lbs./Conductor

DEADEND ANGLE (15°-90°)

1 - PHASE PRIMARY
12.47/7.2 kV

A4.2



NOTE: Rotate cutout so the blade faces climbing face of pole.

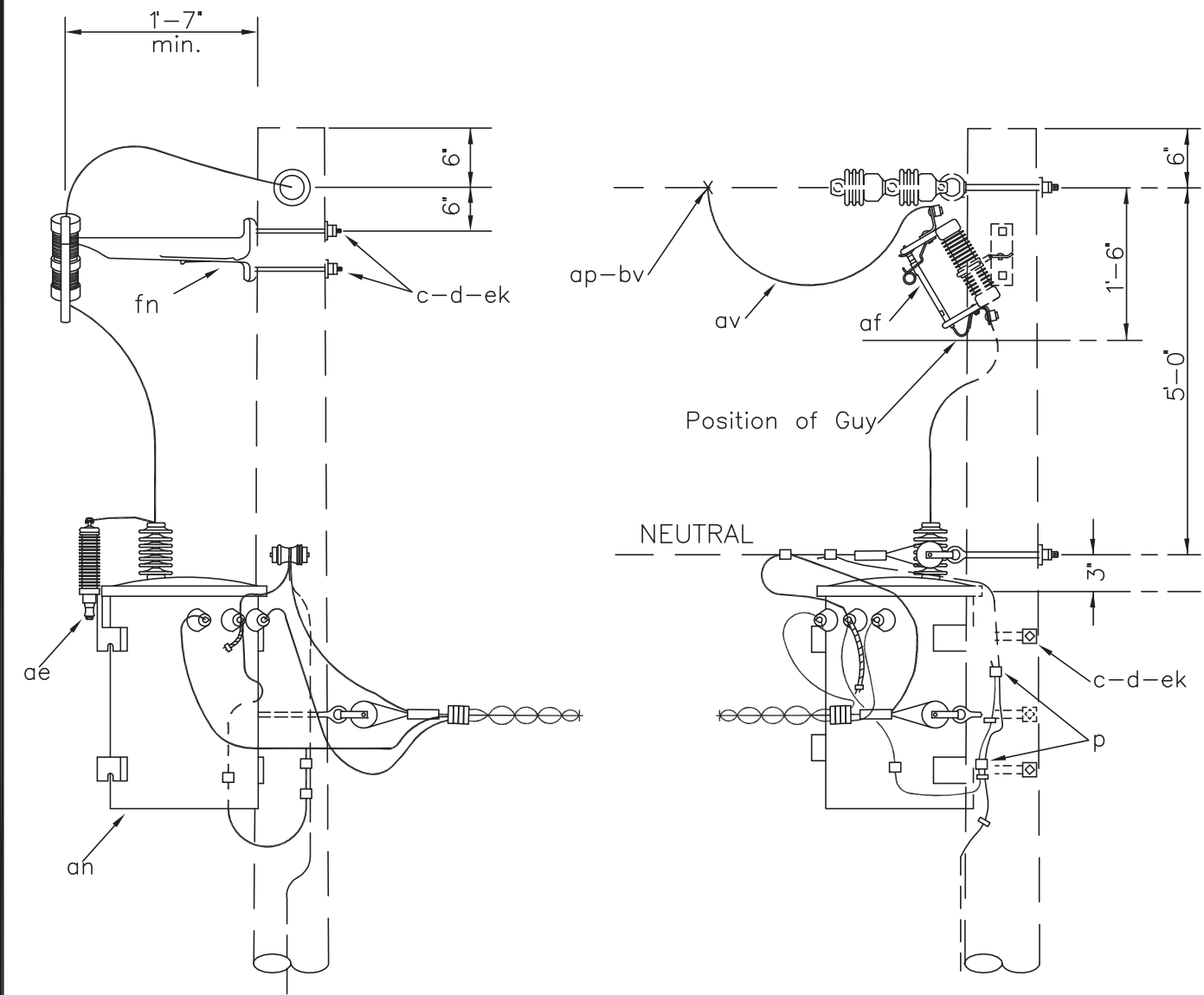
ASSEMBLY: G1		.4	.5
ITEM	MATERIAL	QTY	QTY
c	Bolt, machine, 5/8" x req'd length	2	4
d	Washer, square, 2 1/4"	2	4
P	Connectors, as req'd		
ae	Arrester, surge (9 kV)	1	1
af	Cutout, dist., open (15 kV)	1	1
an	Transformer, 12.47 kV, conventional	1	1

ASSEMBLY: G1		.4	.5
ITEM	MATERIAL	QTY	QTY
ap	Bolted Clamp, hot line	1	1
av	Jumpers, stranded, as req'd		
bv	Rod, armor, as req'd		
ek	Locknuts,	2	4
fn	Bracket, extension		1

DESIGN PARAMETERS:

SINGLE-PHASE, CONVENTIONAL TRANSFORMER
(TANGENT POLE)

		G1.4
	12.47/7.2 kV	G1.5



NOTE: Rotate cutout so that the blade faces climbing face of pole.

ITEM	QTY	MATERIAL	ITEM	QTY	MATERIAL
c	4	Bolt, machine, 5/8" x req'd length	ap	1	Bolted Clamp, hot line
d	4	Washer, square, 2 1/4"	av		Jumpers, stranded, as req'd
p		Connectors, as req'd	bv	1	Rod, armor as req'd
ae	1	Arrester, surge (9 kV)	ek	4	Locknuts
af	1	Cutout, dist. open (15 kV)	fn	1	Bracket, extension
an	1	Transformer, 12.47 kV, conventional			

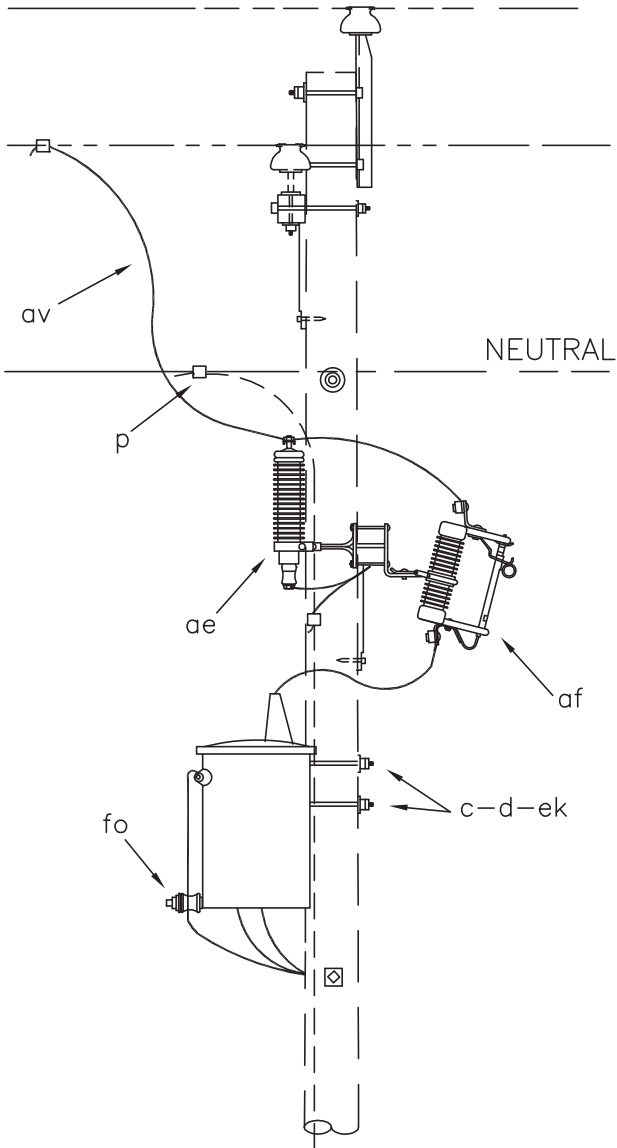
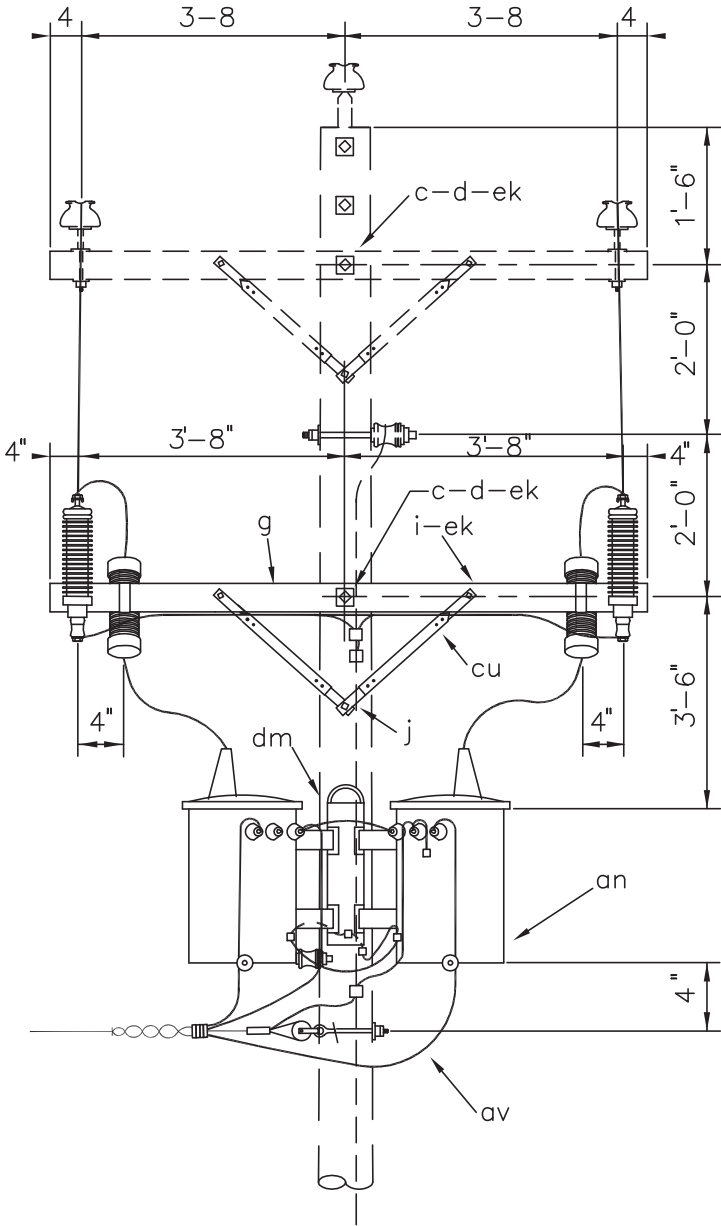
DESIGN PARAMETERS:

SINGLE-PHASE, CONVENTIONAL TRANSFORMER
(DEADEND POLE)

APRIL 2005

12.47/7.2 kV

G1.6



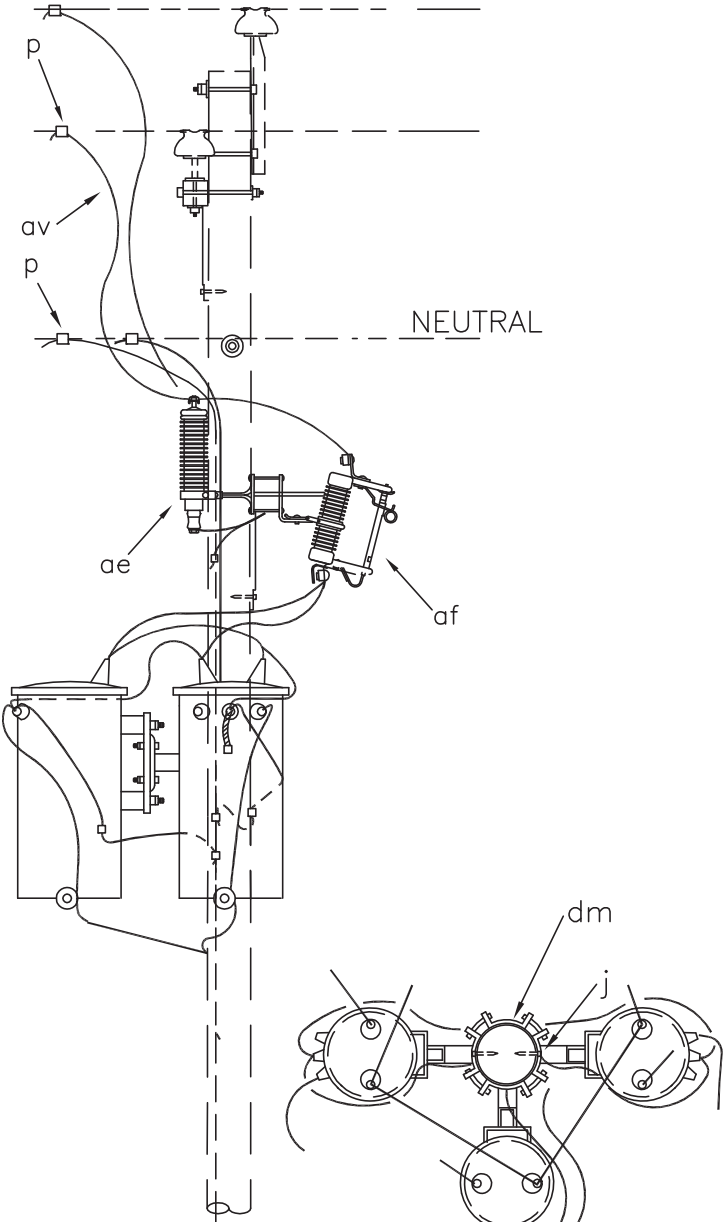
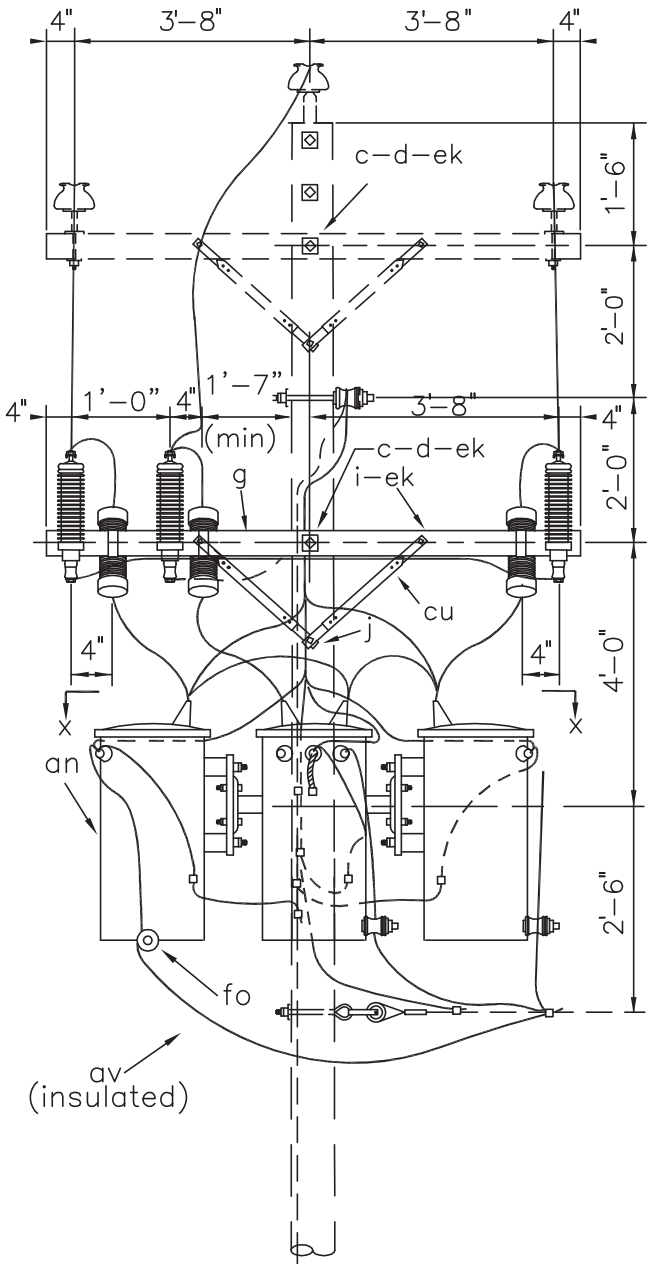
ITEM	QTY	MATERIAL
c	3	Bolt, machine, 5/8" x req'd length
d	4	Washer, square, 2 1/4"
g	1	Crossarm, 3 5/8" x 4 5/8" x 8'-0"
i	2	Bolt, carriage, 3/8" x 4 1/2"
j	1	Screw, lag, 1/2" x 4"
p		Connectors, as req'd
p		Connectors, compression, as req'd
ae	2	Arrester, surge, (9 kV)

ITEM	QTY	MATERIAL
af	2	Cutout, dist. open (15 kV)
an	2	Transformer, 12.47 kV, conv.
av		Jumpers, bare, stranded, as req'd
av		Jumpers, service, as req'd
cu	2	Brace, 28"
dm	1	Bracket, transformer
ek	5	Locknuts
fo	2	Bracket, transformer, insul.

DESIGN PARAMETERS:

TWO-PHASE TRANSFORMER BANK
OPEN-WYE PRIMARY
OPEN-DELTA, 4 WIRE SECONDARY
REMOVAL ONLY

		G2.1 (G210-)
	12.47/7.2 kV	



SECTION X-X

NOTES:

1. See Drawing "Q3.3" for additional connection and metering details.

ITEM	QTY	MATERIAL
d	2	Washer, square, 2 1/4"
g	1	Crossarm, 3 5/8" x 4 5/8" x 8'-0"
i	2	Bolt, carriage, 3/8" x 4 1/2"
j		Screw, lag, 1/2" x 4", as req'd
n	1	Bolt, dble arm, 5/8" x req'd length
p		Connectors, as req'd
p		Connectors, compression, as req'd
ae	3	Arrester, surge, (9 kV)

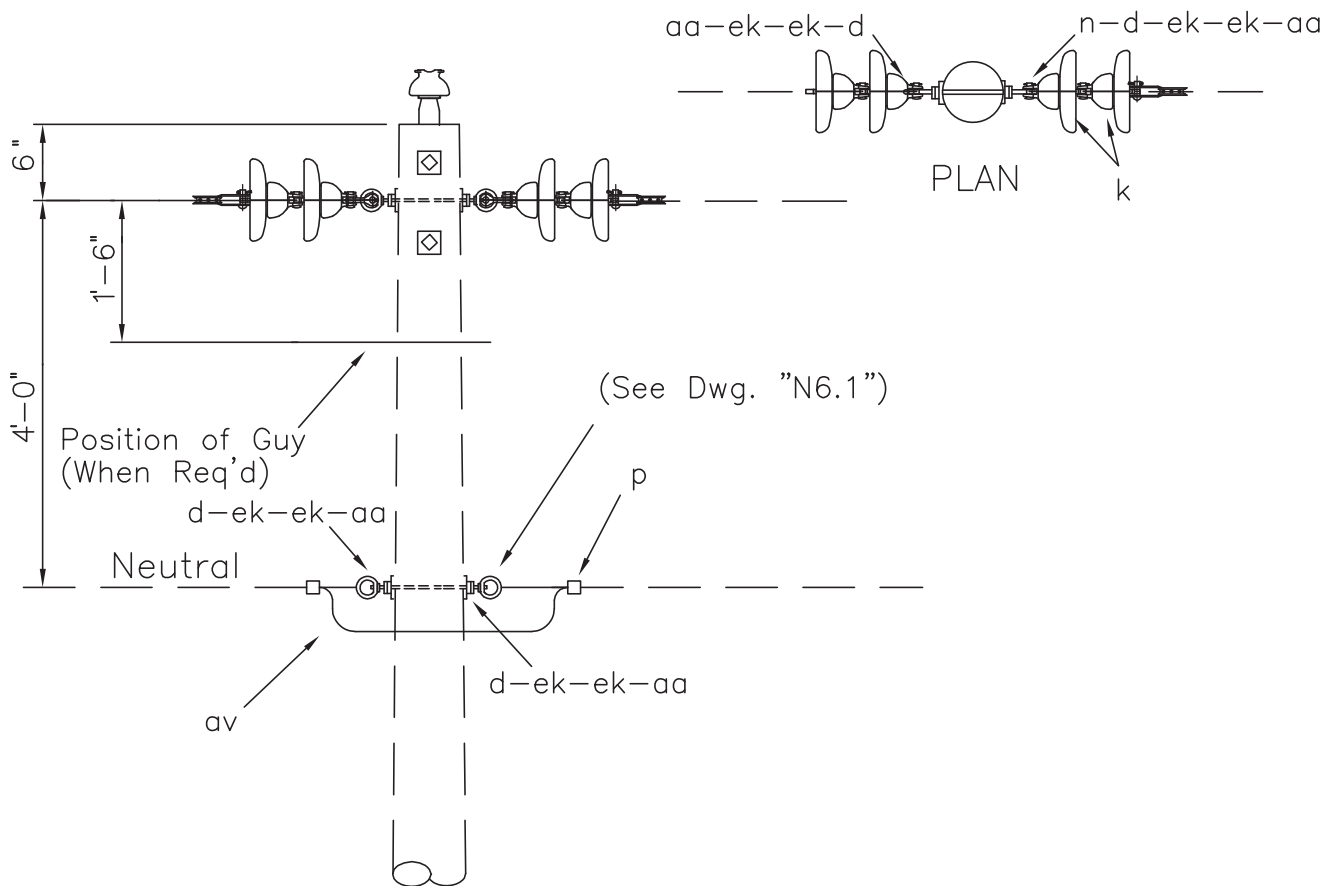
ITEM	QTY	MATERIAL
af	3	Cutout, dist. open (15 kV)
an	3	Transformer, 12.47 kV, conventional
av		Jumpers, bare, stranded
av		Jumpers, service, as req'd
cu	2	Brace, 28"
dm	1	Bracket, transformer, cluster with adapter plates as req'd
ek	5	Locknuts
fo	3	Bracket, transformer, insulated

DESIGN PARAMETERS:

THREE-PHASE TRANSFORMER BANK
GROUNDED-WYE PRIMARY
GROUNDED WYE, 4 WIRE SECONDARY
INSTALL

3 - PHASE PRIMARY
12.47/7.2 kV

G3.3
(G312-)



- NOTES:
- 1. Single deadend assemblies A5.02 or A5.03 may optionally be installed
 - 2. Maximum line angle may be increased to 15° by installing anchor shackles, item "bo", to (horizontal) eyenuts and installing side guy as req'd.

ITEM	QTY	MATERIAL
o	*	Bolt, eye, 5/8" x req'd length
bo	*	Shackle, anchor
eu	*	Link, extension, insulated
d	4	Washer, square, 3", curved
k	4	INSULATOR, SUSPENSION 10" X "5 3/4"
n	2	Bolt,double arming,5/8" x req'd length
p		Connectors, as req'd
aa	4	Nut, eye, 5/8" (or as req'd)
av		Jumpers, as req'd
ek	8	Locknuts (or as req'd)
	1	A1.01

* Optional – Quantity as req'd

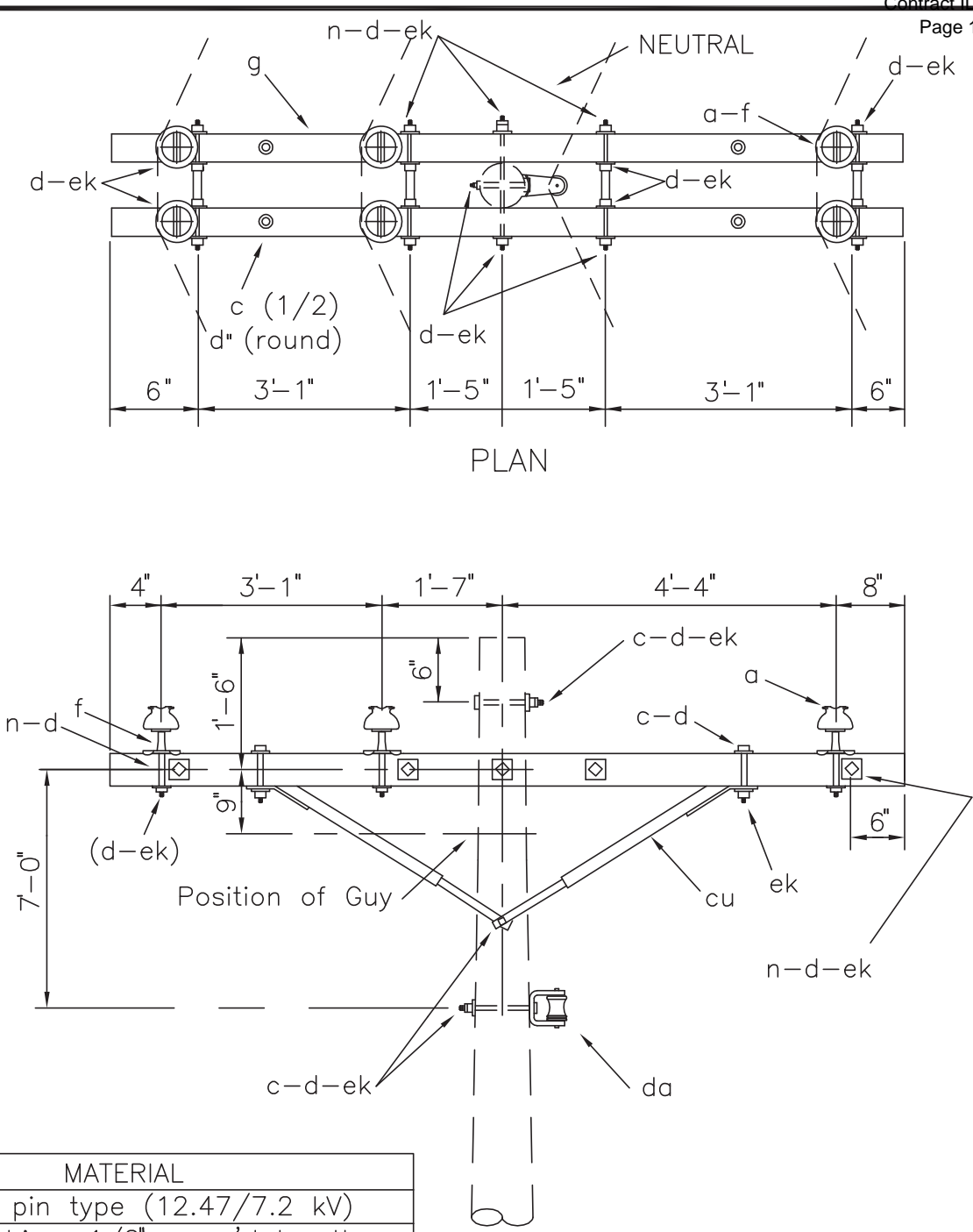
DESIGN PARAMETERS:
PERMITTED
LONGITUDINAL LOAD=
5000 lbs./Conductor

MAXIMUM LINE
ANGLE = 5° (See Note)

DOUBLE DEADEND (STRAIGHT)

1 – PHASE PRIMARY
12.47/7.2 kV

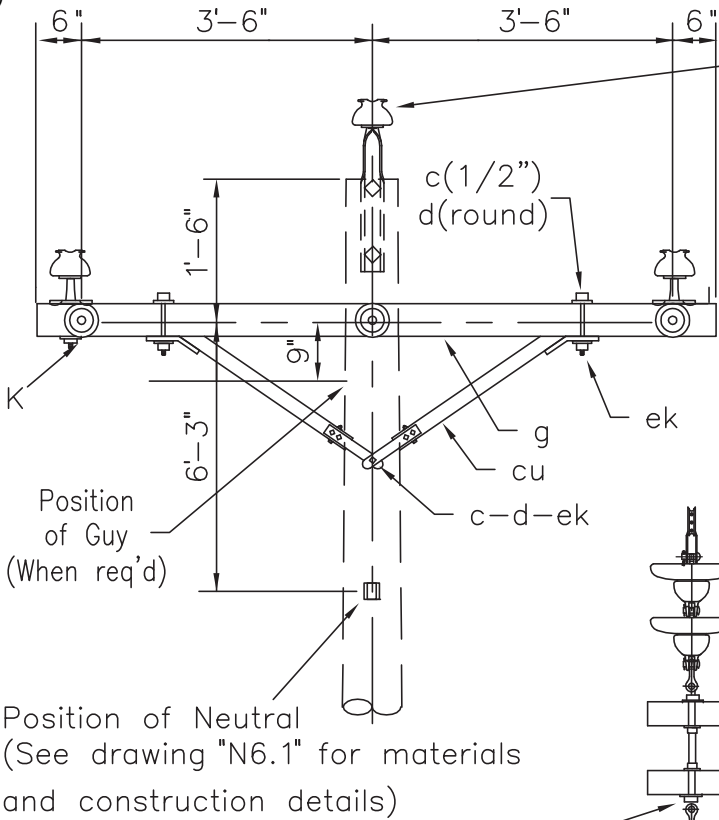
A6.1 (A6)



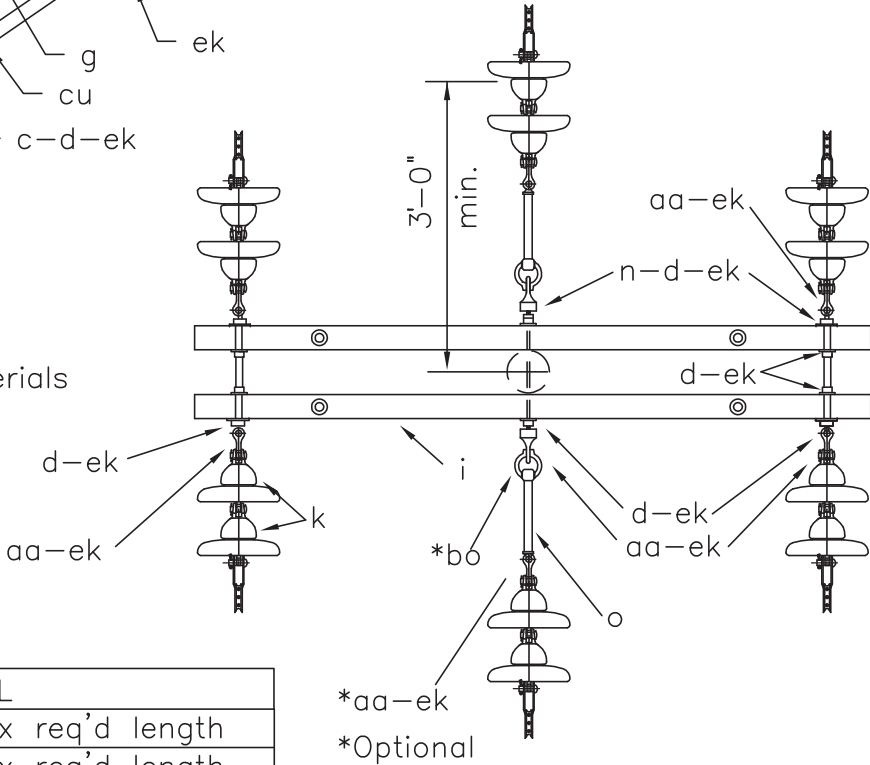
ITEM	QTY	MATERIAL
a	6	Insulator, pin type (12.47/7.2 kV)
c	4	Bolt, machine, 1/2" x req'd length
c	3	Bolt, machine, 5/8" x req'd length
d	4	Washer, round, 1 3/8"
d	22	Washer, square, 2 1/4"
f	6	Pin, crossarm, steel, clamp type
g	2	Crossarm, 3 5/8" x 4 5/8" x 10'-0"
n	5	Bolt, double arm, 5/8" x req'd length
cu	2	Brace, wood, 60" span
da	1	Bracket, w/ 3" x 3" spool insulator
ek	25	Locknuts

NOTE:
Neutral assembly may be installed on opposite side of pole when necessary to increase midspan conductor clearance.

WOOD POLE	DOUBLE SUPPORT ON 10 FOOT CROSSARMS (LARGE CONDUCTORS)		
	INSTALL		
		3 - PHASE PRIMARY 12.47/7.2 kV	C2.52L (C2-2)



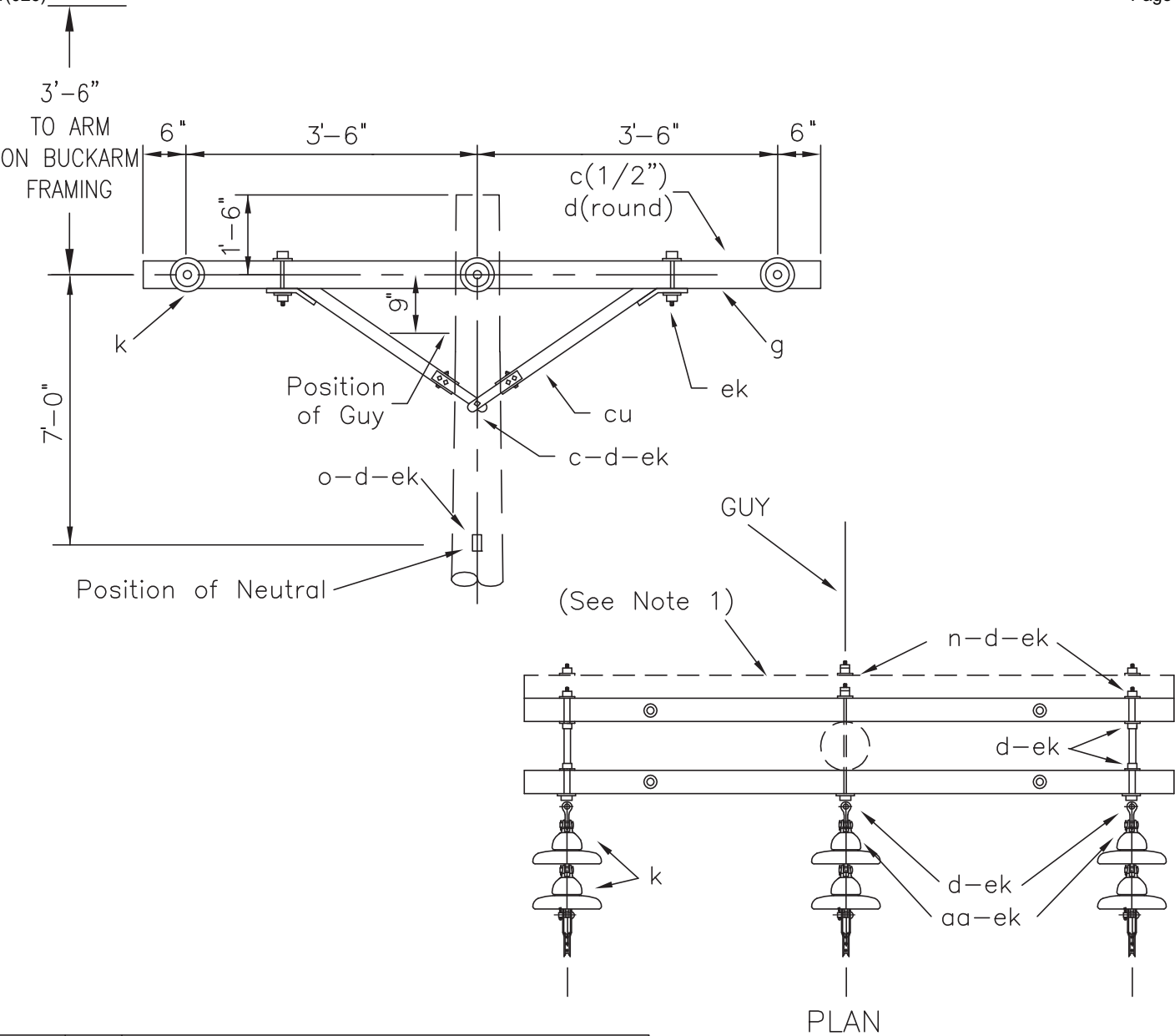
(NOTE: Install "A1.01" when extending conductor across assembly.)



ITEM	QTY	MATERIAL
c	1	Bolt, machine, 5/8" x req'd length
c	4	Bolt, machine, 1/2" x req'd length
d	4	Washer, round, 1 3/8"
d	2	Washer, square, 3", curved
d	11	Washer, square, 2 1/4"
g	2	Crossarm, 3 5/8" x 4 5/8" x 8'-0
k	12	INSULATOR, SUSPENSION 10" X 5 3/4"
n	4	Bolt,double arming,5/8"x req'd length
o	2	Bolt, eye, 5/8" x req'd length
p		Connectors, as req'd
aa	8	Nut, eye, 5/8"
av		Jumpers, as req'd
bo	2	Shackle, anchor
cu	2	Brace, wood, 60" span
ek	27	Locknuts
a	6	Insulator, pin type (12.47/7.2 kV)
	6	Quad Clamp, Bolted

- NOTES:
- Double arming bolt, item "n," and eye nut, item "aa," may be replaced with double arming eye bolt, item "dy."
 - Maximum line angle may be increased to 15° by installing anchor shackles, item "bo," to (horizontal) eye nuts and installing side guys as req'd.
 - Designate as C6.31L for assembly with three crossarms.

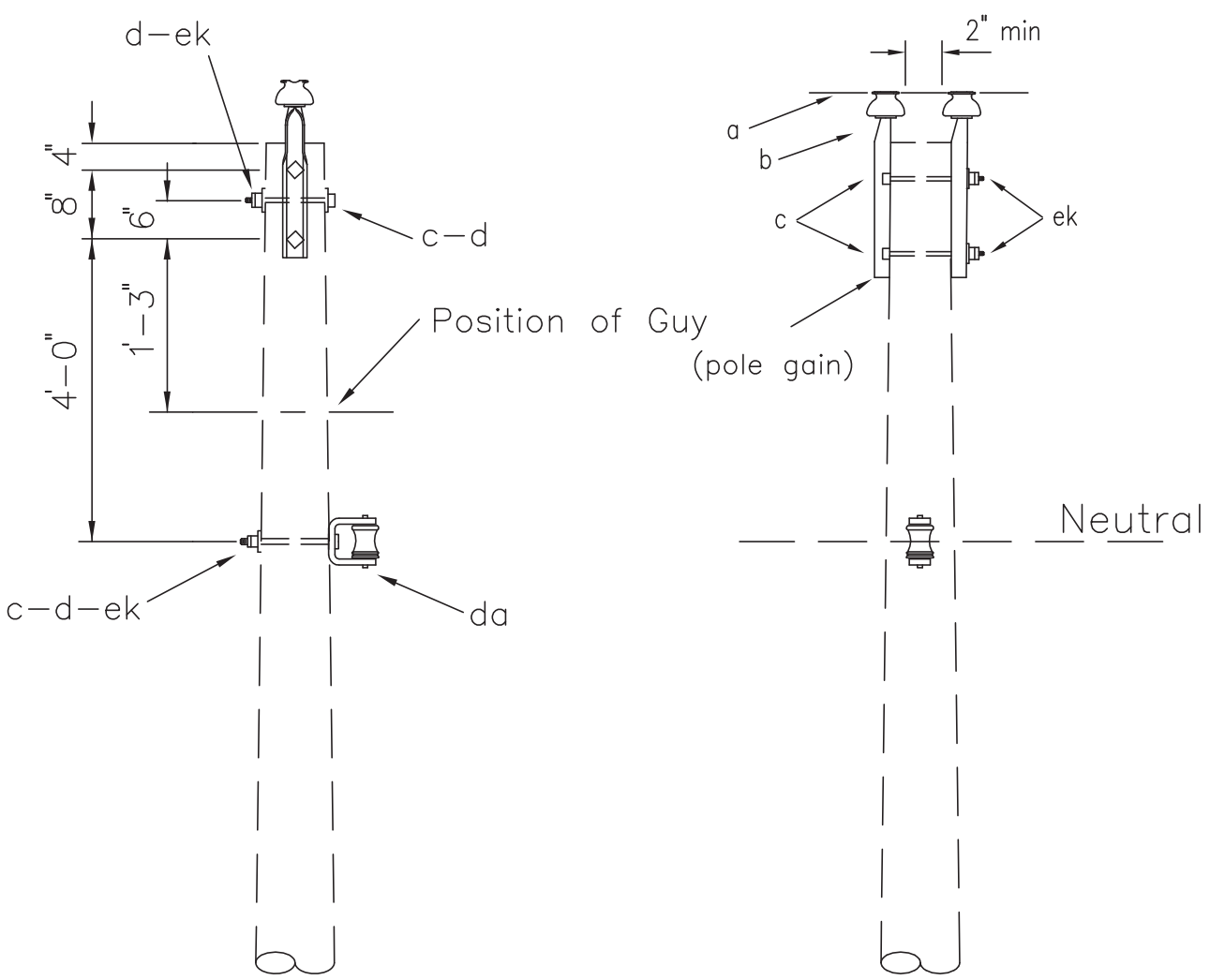
DESIGN PARAMETERS:		DOUBLE DEADEND ON CROSSARMS (LARGE CONDUCTORS) INSTALL	
MAXIMUM LINE ANGLE = 5° (See Note 2)			
WOOD POLE			
		3 – PHASE PRIMARY 12.47/7.2 kV	C6.21L C6.31L (C8–3)



ITEM	QTY	MATERIAL
c	4	Bolt, machine, 1/2" x req'd length
d	4	Washer, round, 1 3/8"
d	1	Washer, square, 3", curved
d	11	Washer, square, 2 1/4"
g	2	Crossarm, 3 5/8" x 4 5/8" x 8'-0"
k	6	INSULATOR, SUSPENSION 10" X 5 3/4"
n	3	Bolt,double arming,5/8"x req'd length
o	1	Bolt, eye, 5/8" x req'd length
aa	3	Nut, eye, 5/8"
cu	2	Brace, wood, 60" span
ek	18	Locknuts
	3	Quad Clamp, Bolted

- NOTES:
1. Designate as "C5.31L" for assembly with three crossarms.
 2. Double arming eye bolt, item "dy," may be used instead of double arming bolt, item "n," and eye nut, item "aa."

WOOD POLE	SINGLE DEADEND ON CROSSARMS (LARGE CONDUCTORS) INSTALL		
		3 - PHASE PRIMARY 12.47/7.2 kV	C5.21L,C5.31L



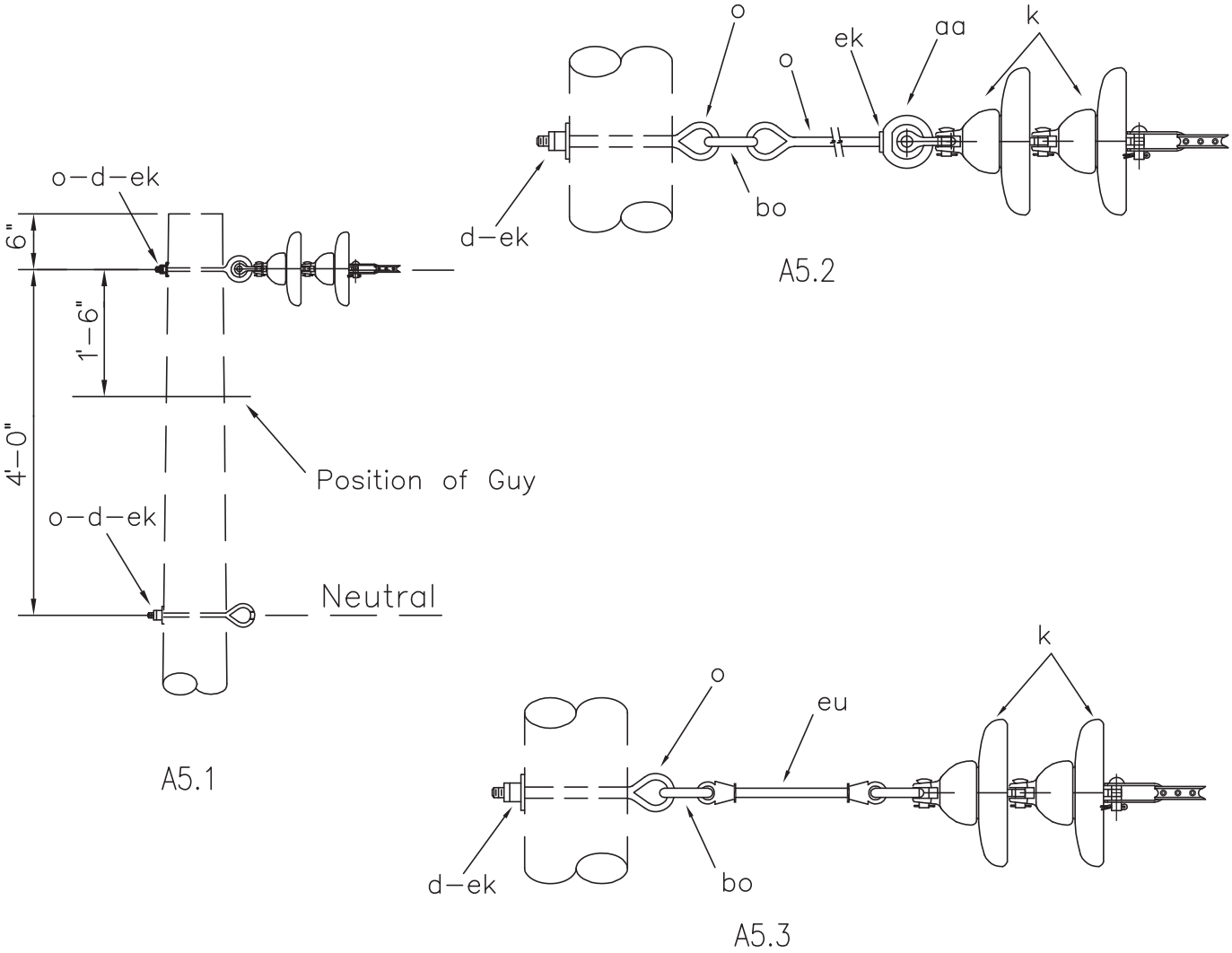
ITEM	QTY	MATERIAL
a	2	Insulator, pin type (12.47/7.2 kV)
b	2	Pin, pole top
c	4	Bolt, machine, 5/8" x req'd length
d	3	Washer, square, 2 1/4"
da	1	Bracket, insulated
ek	4	Locknuts

WOOD POLE

DOUBLE SUPPORT
INSTALL

1 - PHASE PRIMARY
12.47/7.2 kV

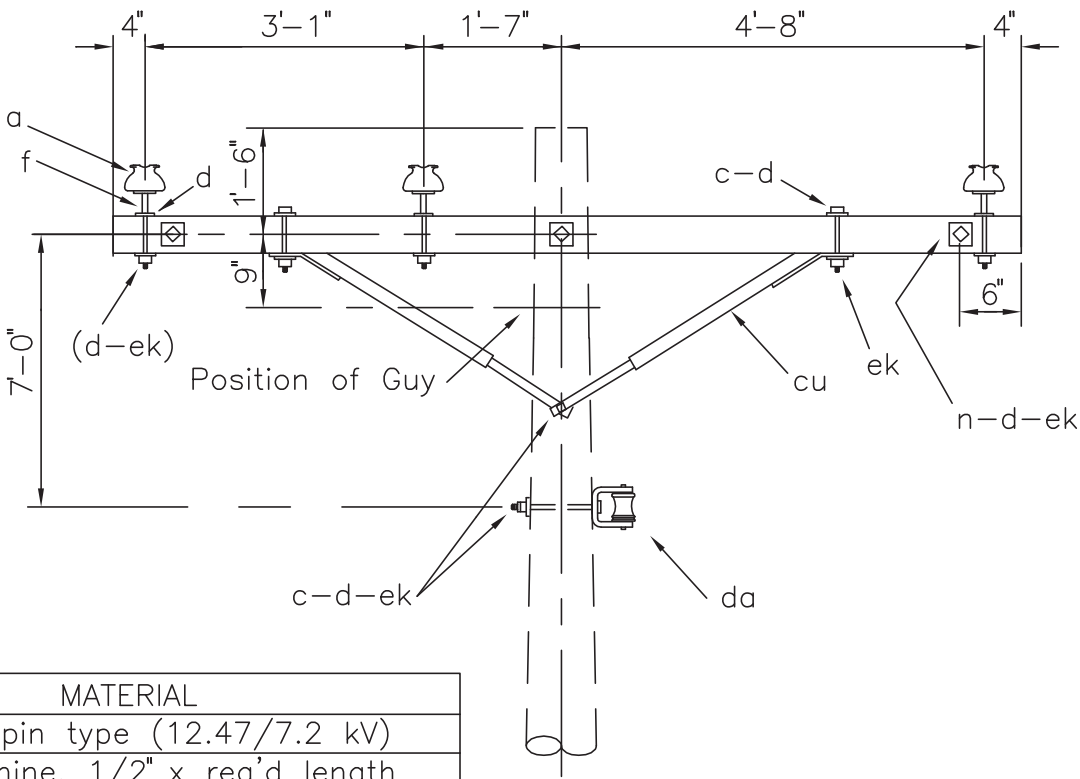
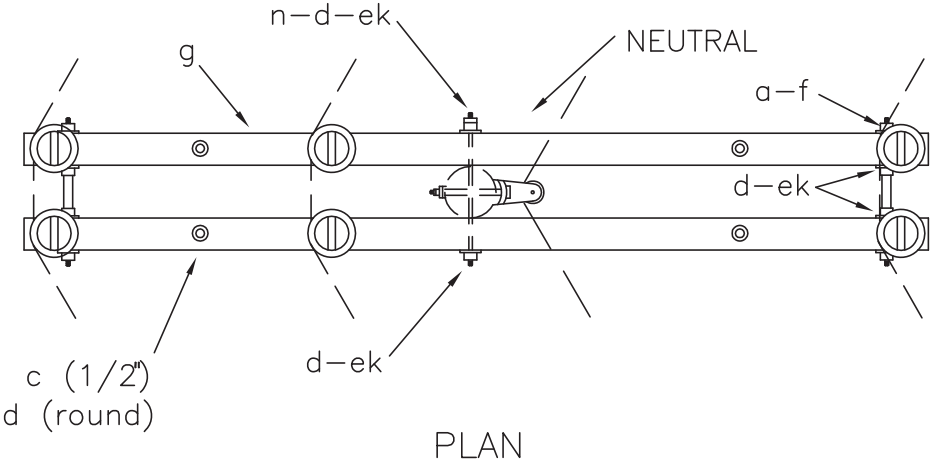
A21 (A1-1)



NOTE: When connecting to existing bolt end, use eyenut "aa" and locknut "ek" instead of eyebolt subassembly "o-d-ek".

ASSEMBLY: A5		.1	.2	.3
ITEM	MATERIAL	QTY	QTY	QTY
d	Washer, square, 3", curved	2	2	2
k	INSULATOR, SUSPENSION 10" X 5 3/4"	2	2	2
o	Bolt, eye, 5/8"x req'd length	2	3	2
P	Connectors, as req'd			
aa	Nut, eye		1	
av	Jumper's, as req'd			
bo	Shackle, anchor		1	1
ek	Locknuts	2	3	2
eu	Link, extension, insulated			1
(du)	(Link, extension) – (optional)			(1)
	Deadend Clamp–side opening	2	2	2

DESIGN PARAMETERS:		SINGLE DEADENDS	
PERMITTED LONGITUDINAL LOAD = 5000 lbs./Conductor		INSTALL	
WOOD POLE			A5.1,A5.2,A5.3 (A5),(A5-2)
		1 – PHASE PRIMARY 12.47/7.2 kV	



ITEM	QTY	MATERIAL
a	6	Insulator, pin type (12.47/7.2 kV)
c	4	Bolt, machine, 1/2" x req'd length
c	2	Bolt, machine, 5/8" x req'd length
d	4	Washer, round, 1 3/8"
d	18	Washer, square, 2 1/4"
f	6	Pin, crossarm, steel, 5/8" X 10 3/4"
g	2	Crossarm, 3 5/8" x 4 5/8" x 10'-0"
n	3	Bolt, double arm, 5/8" x req'd length
cu	2	Brace, wood, 60" span
da	1	Bracket, insulated
ek	16	Locknuts

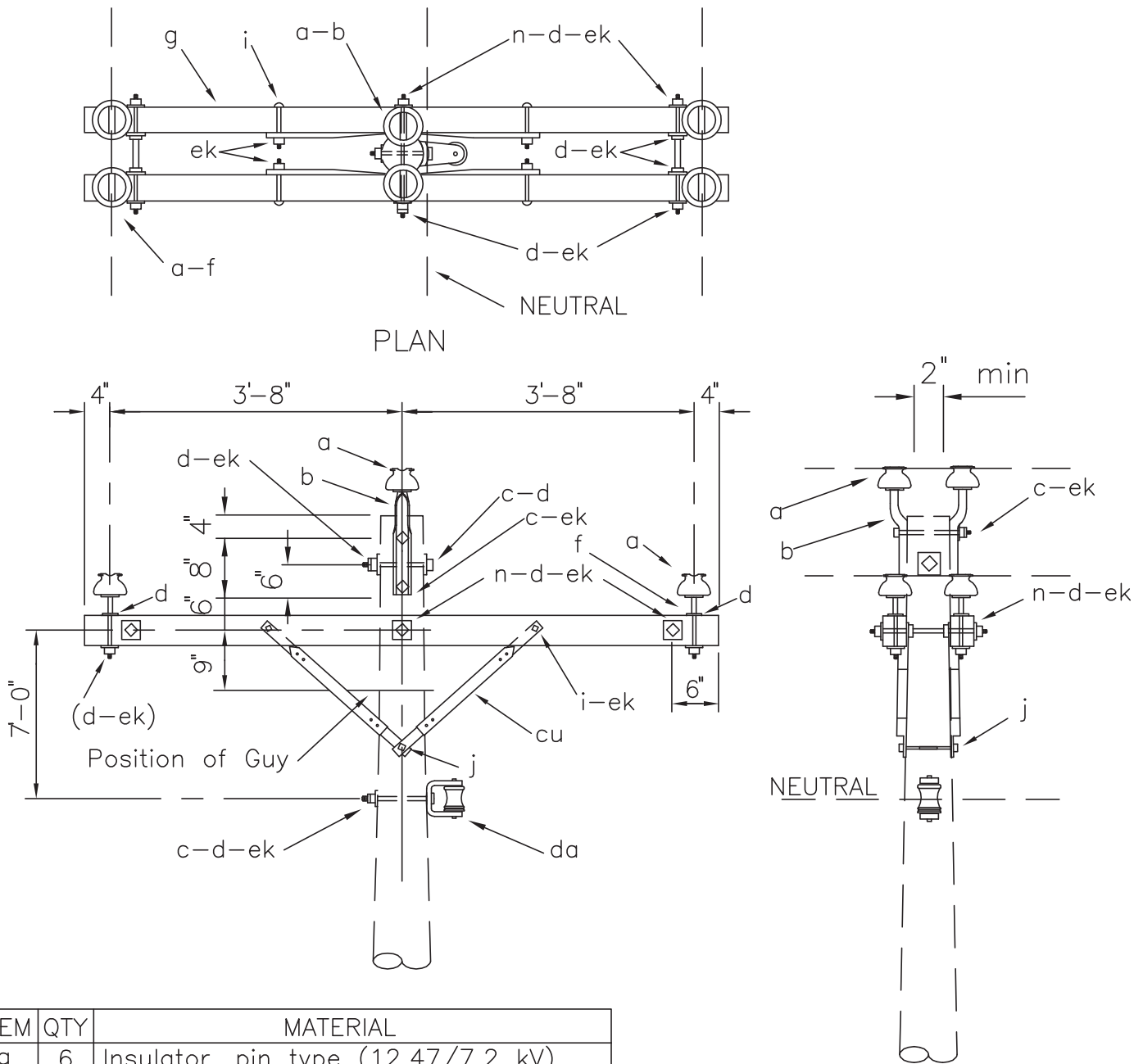
NOTE:
Neutral assembly may be installed on opposite side of pole when necessary to increase midspan conductor clearance.

WOOD POLE

DOUBLE SUPPORT ON 10 FOOT CROSSARMS

3 - PHASE PRIMARY
12.47/7.2 kV

C2.52
(C2-1)



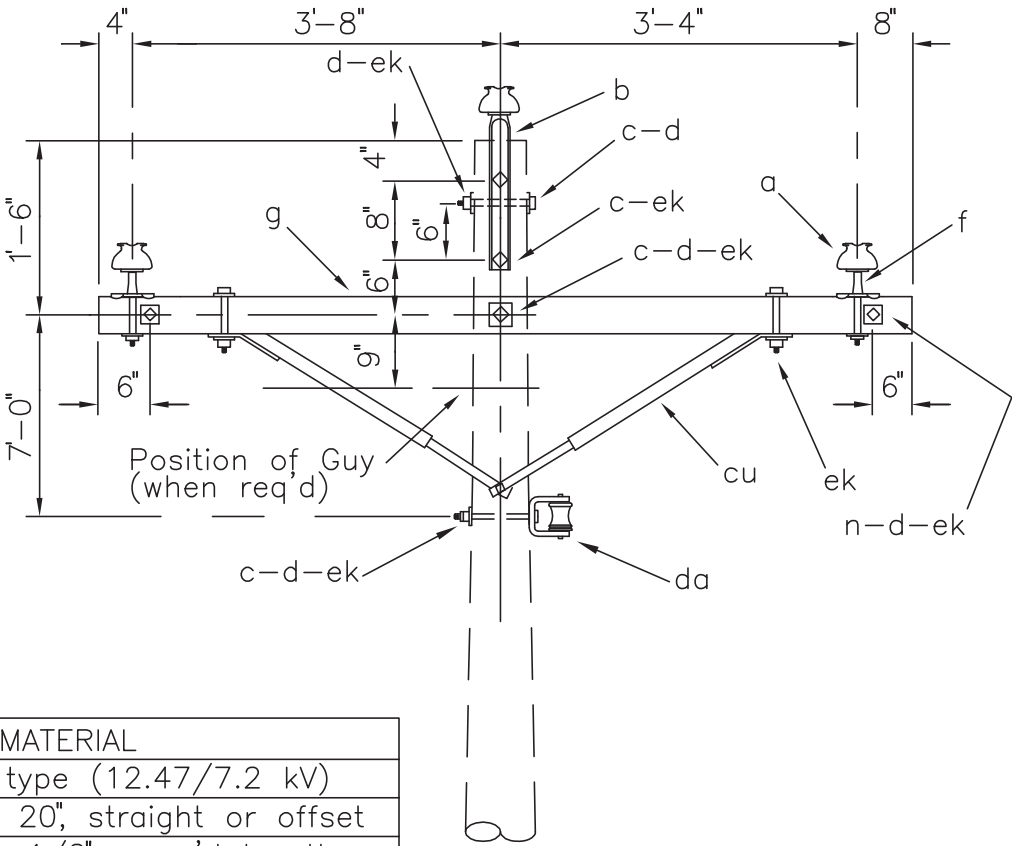
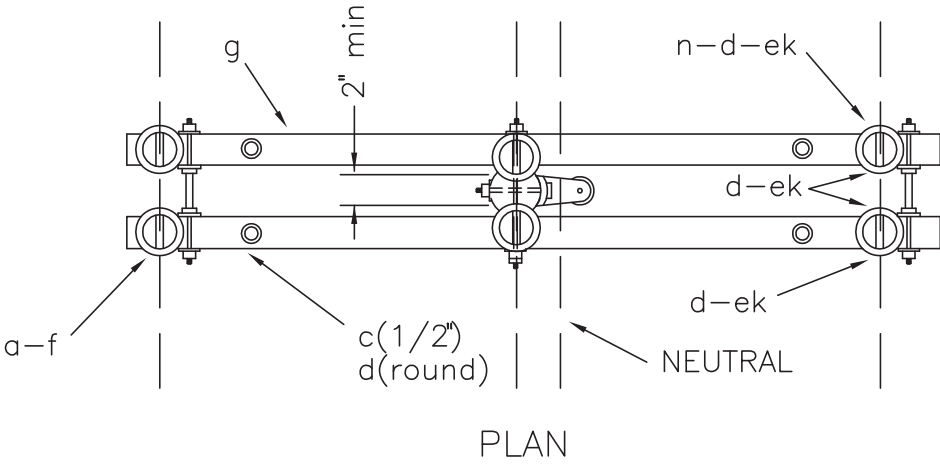
ITEM	QTY	MATERIAL
a	6	Insulator, pin type (12.47/7.2 kV)
b	2	Pin, pole top, 20", straight or offset
c	4	Bolt, machine, 5/8" x req'd length
d	17	Washer, square, 2 1/4"
f	4	Pin, crossarm, steel, 5/8" x 10 3/4"
g	2	Crossarm, 3 5/8" x 4 5/8" x 8' 0"
i	4	Bolt, carriage, 3/8" x 4 1/2"
j	2	Screw, lag, 1/2" x 4"
n	3	Bolt, double arming, 5/8"xreq'd length
cu	4	Brace, 28"
da	1	Bracket, insulated
ek	18	Locknuts

WOOD POLE

DOUBLE SUPPORT ON CROSSARMS

3 - PHASE PRIMARY
12.47/7.2 kV

C2.21
(C2)



ITEM	QTY	MATERIAL
a	6	Insulator, pin type (12.47/7.2 kV)
b	2	Pin, pole top, 20", straight or offset
c	4	Bolt, machine, 1/2" x req'd length
c	5	Bolt, machine, 5/8" x req'd length
d	4	Washer, round, 1 3/8"
d	14	Washer, square, 2 1/4"
f	4	Pin, crossarm, steel, clamp type
g	2	Crossarm, 3 5/8" x 4 5/8" x 8' 0"
n	3	Bolt, double arming, 5/8" x req'd length
cu	2	Brace, wood, 60" span
da	1	Bracket, insulated
ek	19	Locknuts

DOUBLE SUPPORT ON CROSSARMS
(LARGE CONDUCTORS)
INSTALL

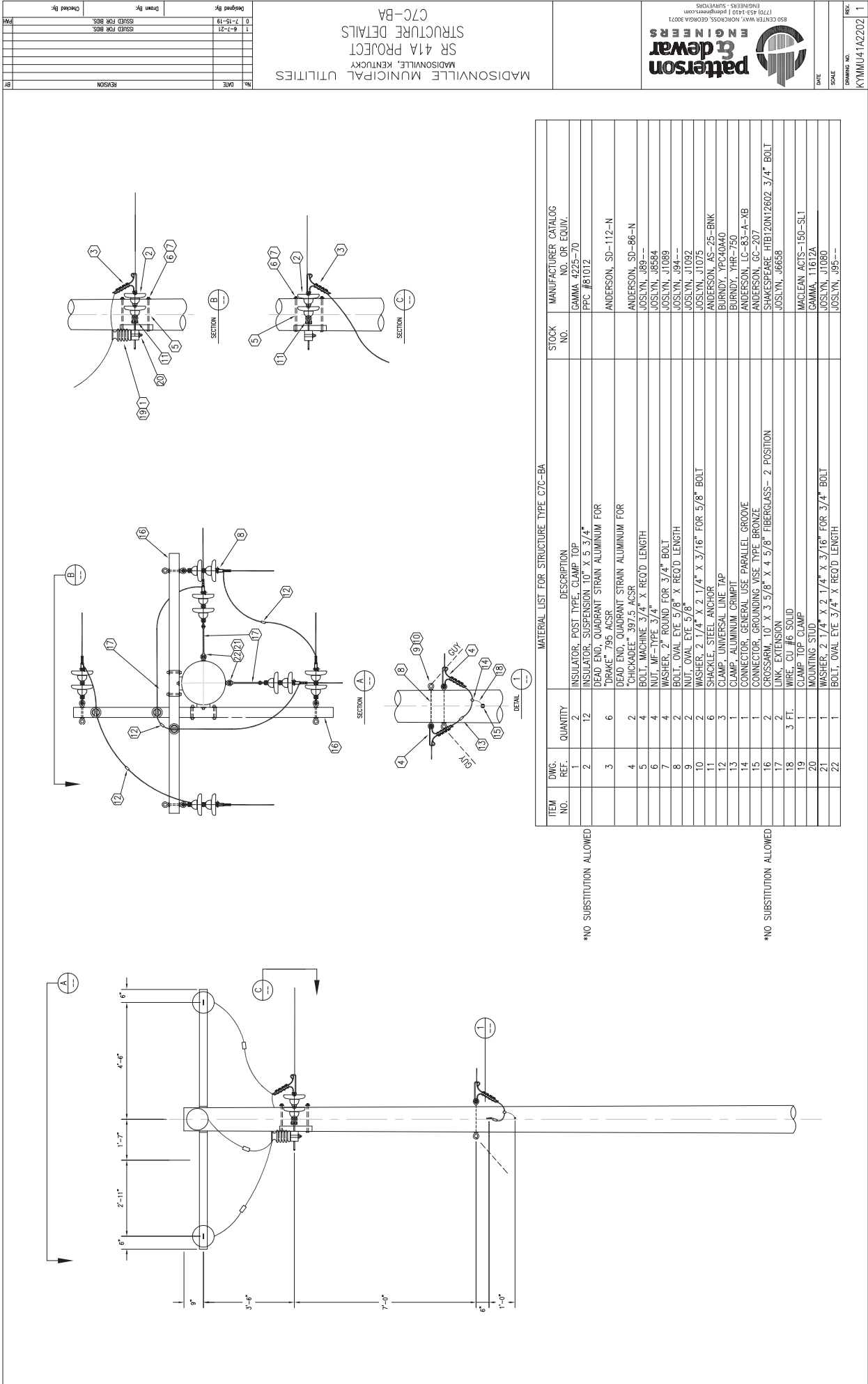
3 - PHASE PRIMARY
12.47/7.2 kV

C2.21L
(C1-3)

SAVED: 7/14/2019 1:15 AM BY BDORRIS

6/7/2021 8:48 AM BY BDORRIS

U:\K\K\Y MADISONVILLE\DP\41A RELOCATION\WP\CAD\POLE AND ASSEMBLY DWGS\FINAL DESIGN\FINAL DETAIL DRAWINGS\SEC 2



FILE LOCATION: U:\K\K\Y MADISONVILLE\DWG\CAD\POLE AND ASSEMBLY\DWGS\FINAL DESIGN\FINAL DETAIL DRAWINGS\SEC 2

DATE: 7/14/2019 1:36 AM BY BDOORIS

PLOTTED: 6/7/2021 8:50 AM BY BDOORIS

NOTE: 1. INSTALL 4" WASHER BETWEEN INSULATOR AND ARM AND ON BOTTOM OF ARM.

The drawing shows a side view of a pole and arm assembly. The pole has a diameter of 6 inches. The arm has a length of 3'-1" and a width of 1'-5". The arm is supported by a bracket that is 3'-1" wide and 1'-5" high. The bracket is attached to the pole with a 4" washer. The arm is supported by a bracket that is 3'-1" wide and 1'-5" high. The bracket is attached to the pole with a 4" washer. The arm is supported by a bracket that is 3'-1" wide and 1'-5" high. The bracket is attached to the pole with a 4" washer.

SECTION A-A

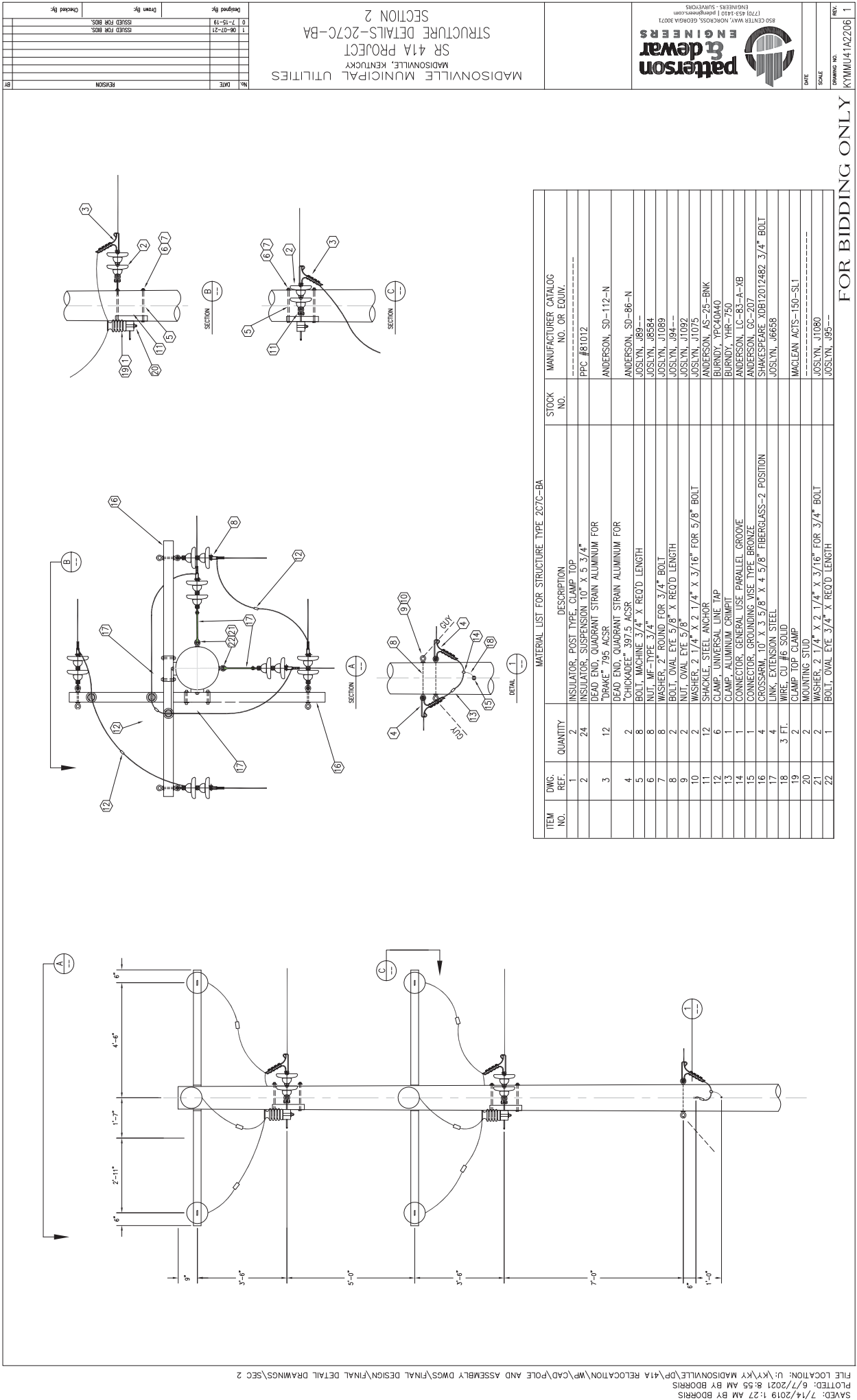
SECTION B-B

DETAIL 1-1

ITEM NO.	DWG. REF.	QUANTITY	DESCRIPTION	STOCK NO.	MANUFACTURER CATALOG NO. OR EQUIV.
1	12	1	INSULATOR, POST TYPE, CLAMP TOP		GAMMA 4275-70
2	4	4	CROSSARM, 10" X 3 5/8" X 4 5/8" FIBERGLASS		SHAKESPEARE HIB120N12602
3	4	4	BOLT, MACHINE 3/4" X REQ'D LENGTH		
4	1	1	BOLT, MACHINE 5/8" X REQ'D LENGTH		
5	4	4	NUT, MF-TYPE 3/4"		JOSLYN J8584
6	33	33	NUT, MF-TYPE 5/8"		JOSLYN J8583
7	4	4	WASHER, 2" ROUND FOR 3/4" BOLT		JOSLYN J1089
8	1	1	WASHER, 2 1/4" X 2 1/4" X 3/16" FOR 5/8" BOLT		JOSLYN J1075
9	1	1	CLEVIS, SPOOL INSULATOR		JOSLYN J1300
10	1	1	INSULATOR, SPOOL		JOSLYN J101
11	8	8	BOLTS, DOUBLE ARMING 5/8" X REQ'D LENGTH		JOSLYN J88--
12	32	32	WASHER, 1 3/4" ROUND FOR 5/8" BOLT		JOSLYN J1088
13	1	1	CONNECTOR, GENERAL USE PARALLEL GROOVE		ANDERSON LC-83-A-XB
14	1	1	CONNECTOR, GROUNDING VISE TYPE BRONZE		ANDERSON GC-207
15	3	3	WIRE, CU #6 SOLID		
16	12	12	CLAMP TOP CLAMP		MACLEAN ACTS-150-SL1
17	12	12	MOUNTING STUD		GAMMA 11612A
18	24	24	4" WASHER		

*NO SUBSTITUTION ALLOWED

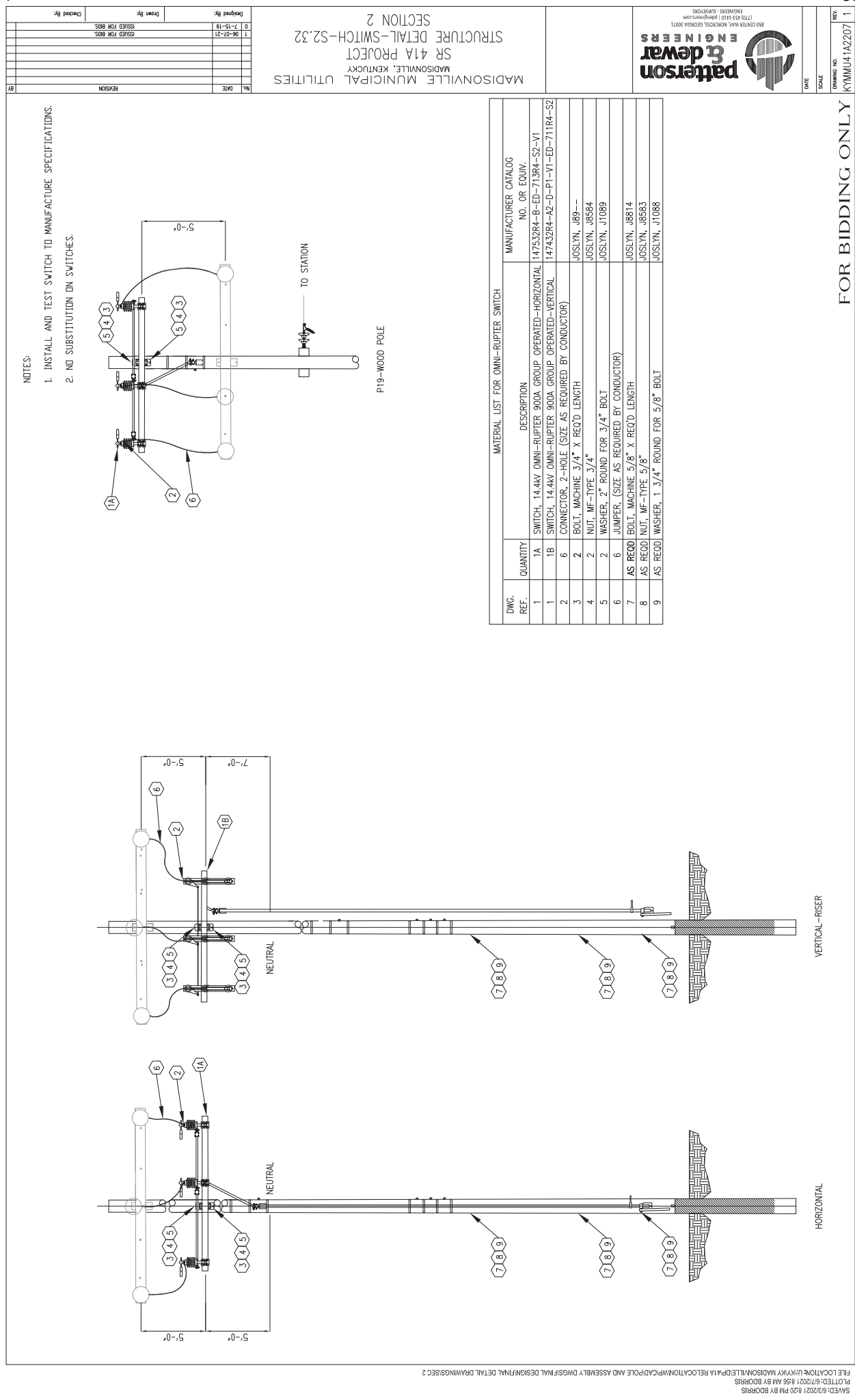




MADISONVILLE MUNICIPAL UTILITIES
SR 41A PROJECT
STRUCTURE DETAILS-2C7C-BA
SECTION 2

No.	DATE	REVISION
1	06-07-21	
2	07-15-19	
3		
4		
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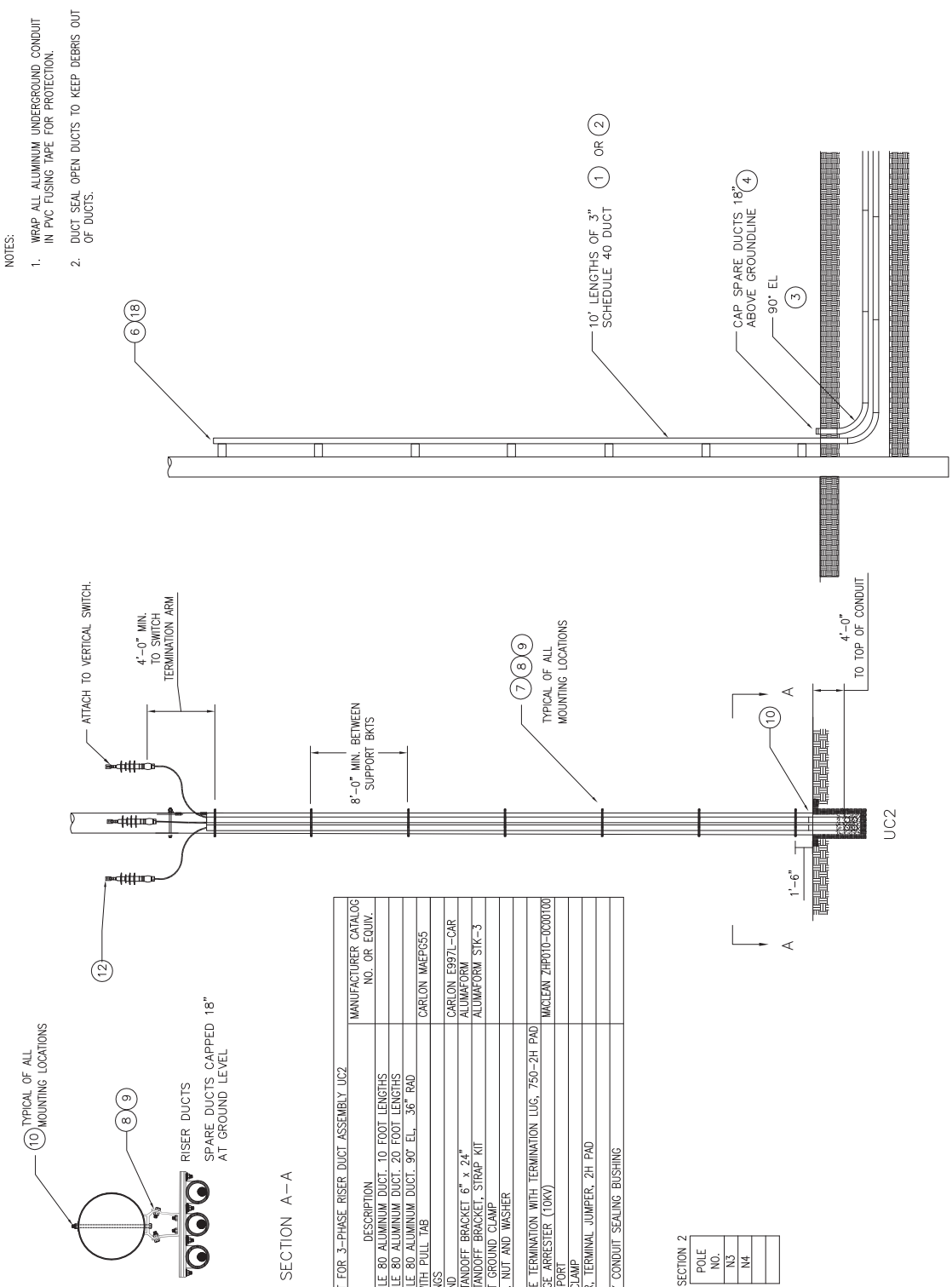
Designed By: _____
Drawn By: _____
Checked By: _____
ISSUED FOR BIDS



[illegible]

MADISONVILLE MUNICIPAL UTILITIES
MADISONVILLE, KENTUCKY
SR 41A PROJECT
4-3" 3-PHASE RISER CONDUIT DETAIL
SECTION 2-UC2

ITEM NO.	DWG. REF.	QUANTITY	DESCRIPTION	MATERIAL LIST FOR 3-PHASE RISER DUCT ASSEMBLY UC2	MANUFACTURER CATALOG NO. OR EQUIV.
1	AS REQ'D	3	3" SCHEDULE 80 ALUMINUM DUCT, 10 FOOT LENGTHS		
2	AS REQ'D	3	3" SCHEDULE 80 ALUMINUM DUCT, 20 FOOT LENGTHS		
3	AS REQ'D	3	3" SCHEDULE 80 ALUMINUM DUCT, 90' EL., 36" RAD		
4	AS REQ'D	3	3" PLUG WITH PULL TAB		CARLON MAEP055
5	AS REQ'D	3	3" COUPLINGS		
6	3	3	3" BELL END		
7	AS REQ'D	3	CONDUIT STANDOFF BRACKET 6" x 24"		CARLON E997L-CAR
8	AS REQ'D	3	CONDUIT STANDOFF BRACKET, STRAP KIT		ALUMAFORM
9	AS REQ'D	3	CONDUIT GROUND CLAMP		ALUMAFORM SW-3
10	AS REQ'D	3	3/8" BOLT, NUT AND WASHER		
11	AS REQ'D	3	15KV CABLE TERMINATION WITH TERMINATION LUG, 750-2H PAD		
12	3	3	RISER SURGE ARRESTER (10KV)		MACLEAN ZHP010-UC00100
13	3	3	CABLE SUPPORT		
14	3	3	CABLE CLAMP		
15	3	3	PARALLEL CLAMP		
16	6	6	CONNECTOR, TERMINAL JUMPER, 2H PAD		
17	AS REQ'D	17	JUMPERS		
18	3	3	0Z GEDNEY CONDUIT SEALING BUSHING		



SECTION 2	POLE NO.
	N3
	N4

NOTES:

1. WRAP ALL ALUMINUM UNDERGROUND CONDUIT IN PVC FUSING TAPE FOR PROTECTION.
2. DUCT SEAL OPEN DUCTS TO KEEP DEBRIS OUT OF DUCTS.

SECTION A-A

FILE LOCATION: U:\K\K\K MADISONVILLE\DWG\FINAL RELOCATION\WP\CAD\POLE AND ASSEMBLY DWGS\FINAL DESIGN\FINAL DETAIL DRAWINGS\SEC 2
PLOTTED: 6/7/2021 9:16 AM BY BDOORIS
SAVED: 6/7/2021 9:16 AM BY BDOORIS

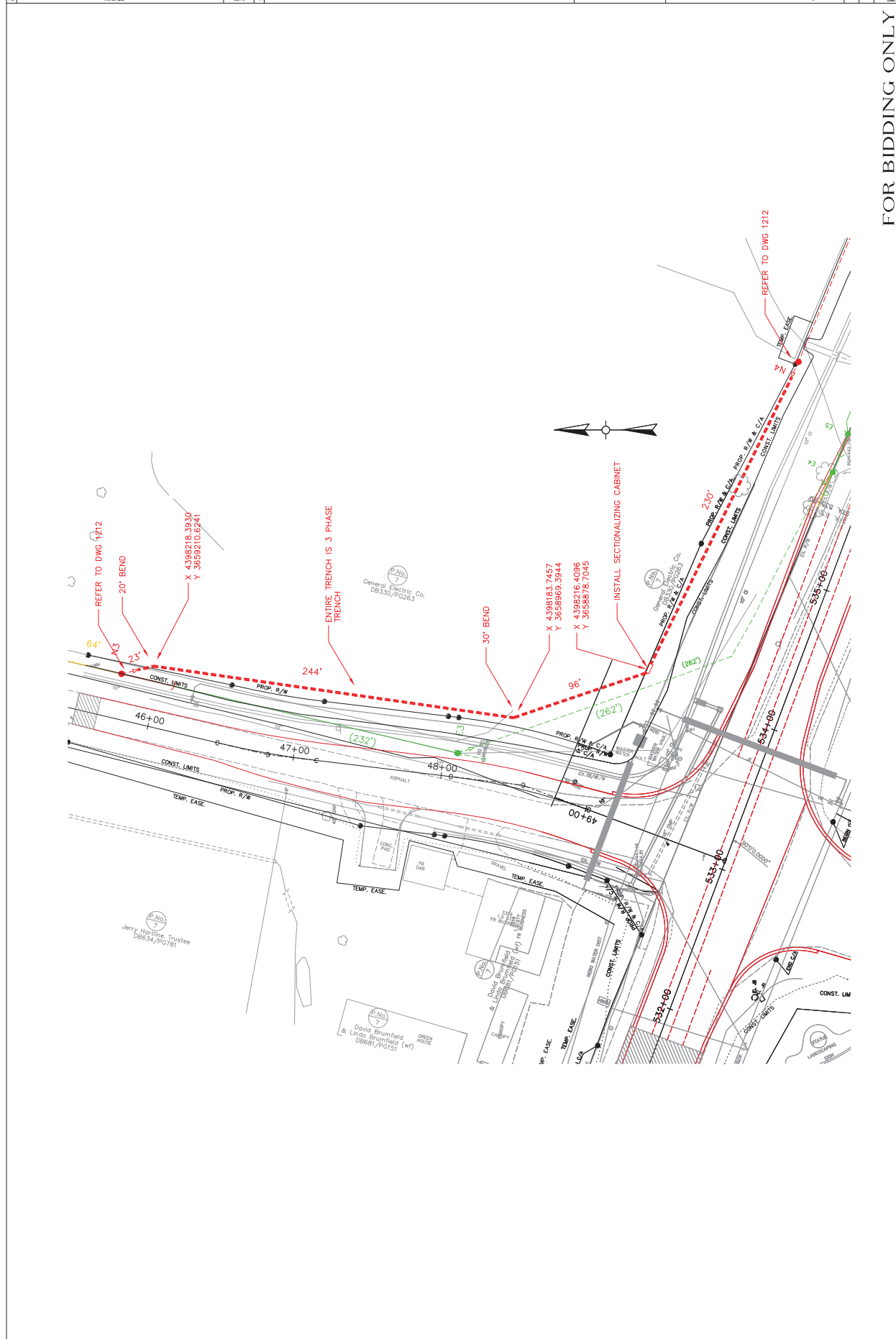




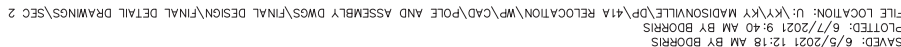
MADISONVILLE MUNICIPAL UTILITIES
SR 41A PROJECT
N3 TO N4 UNDERGROUND DETAILS

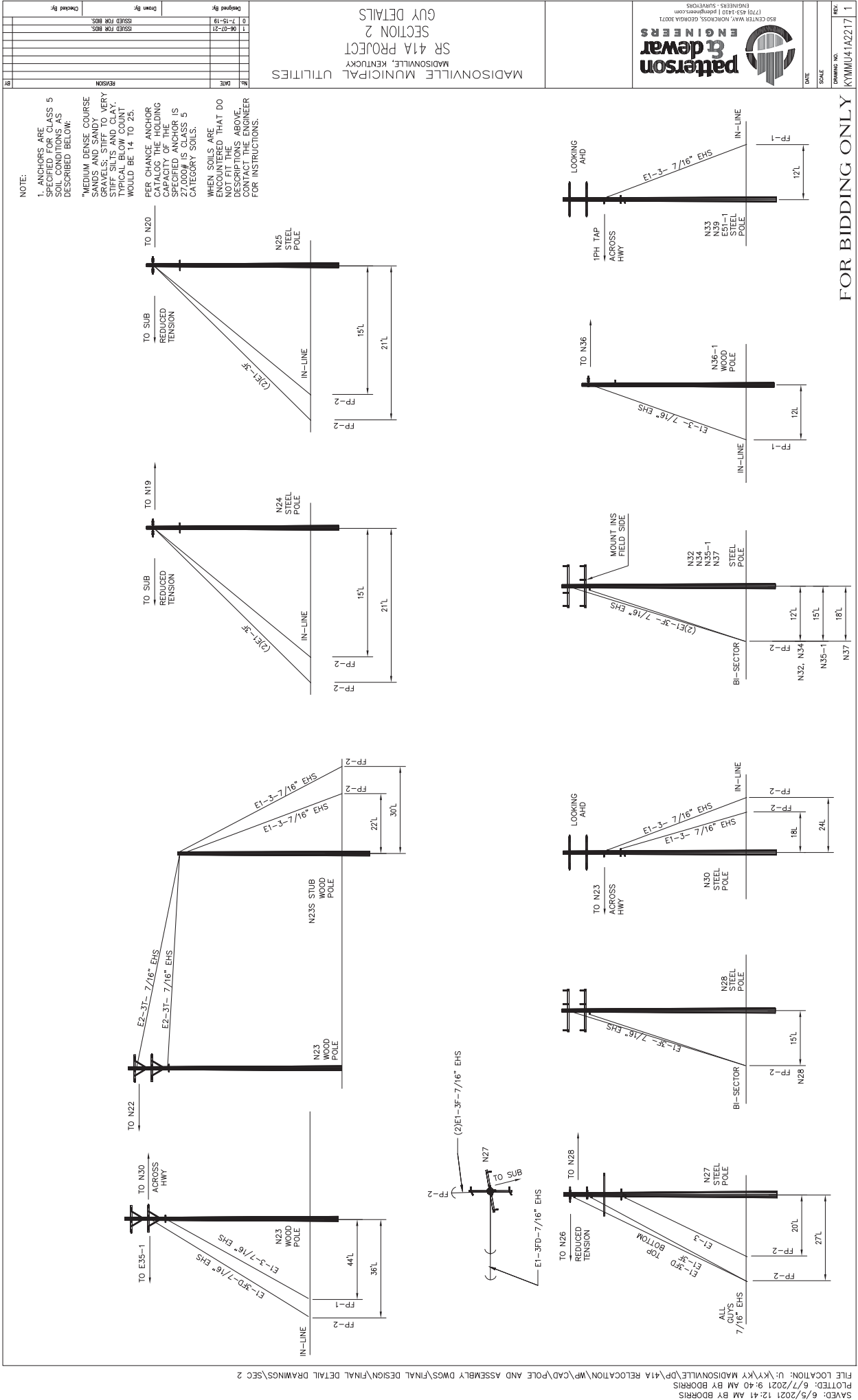


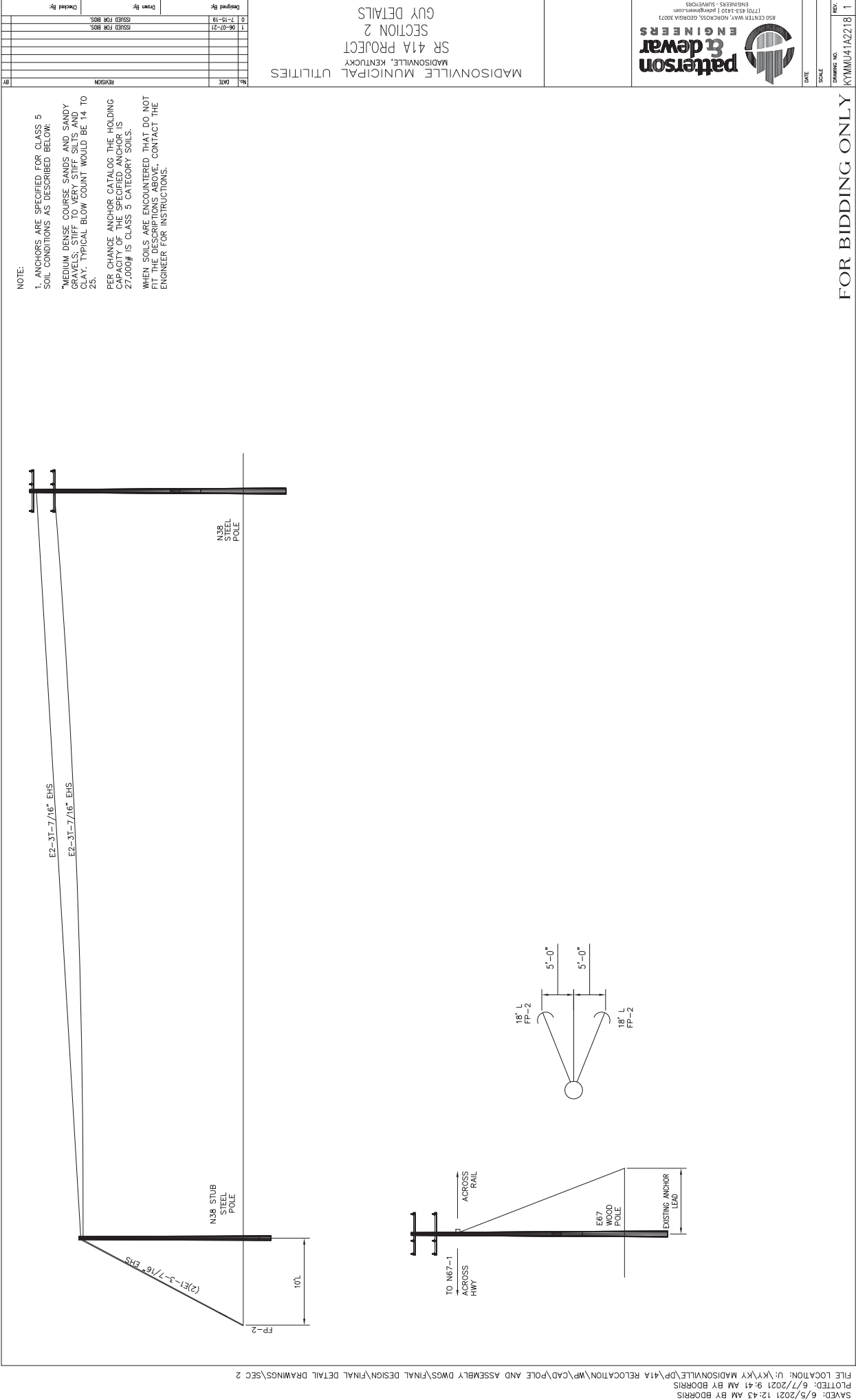
FOR BIDDING ONLY

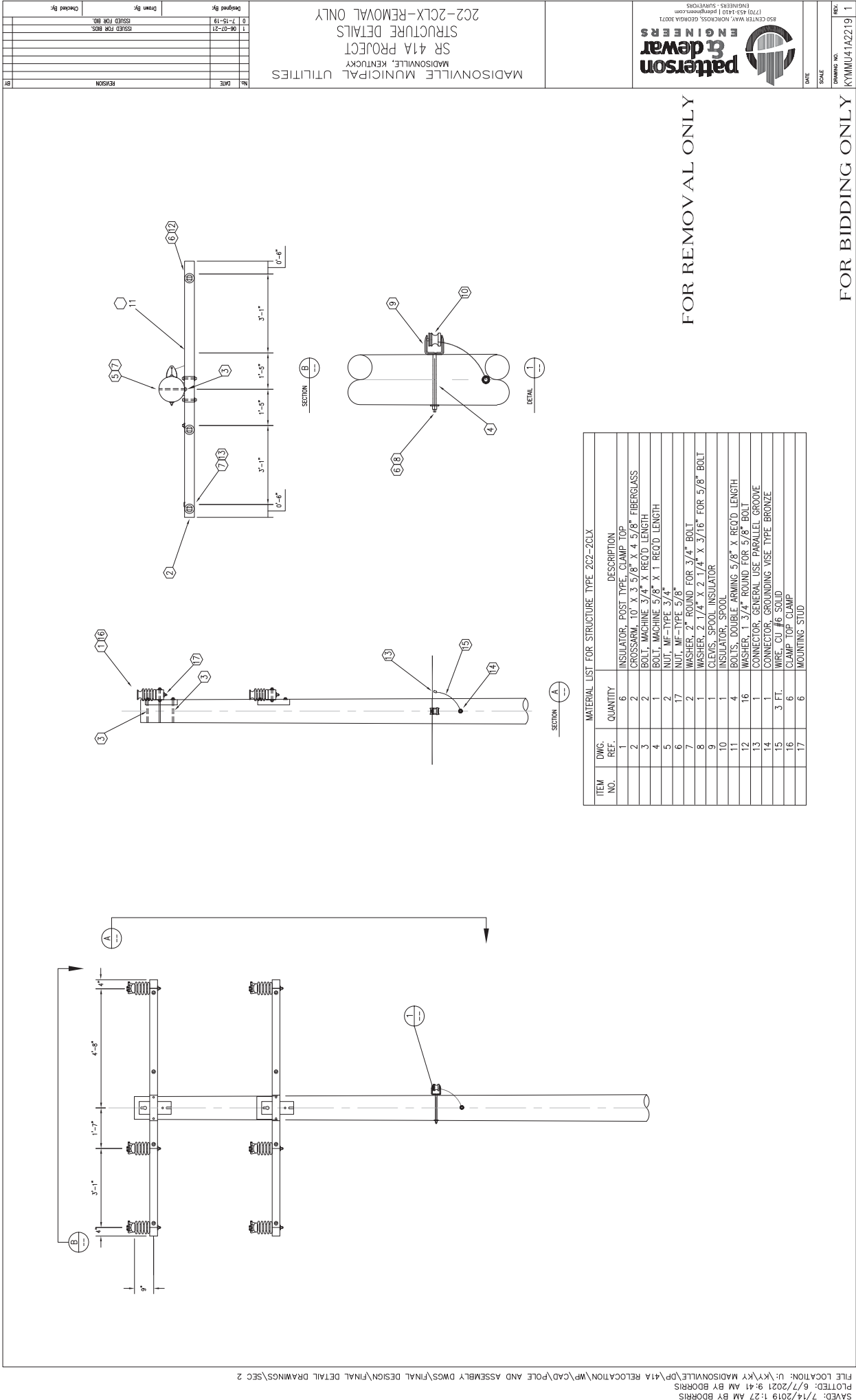


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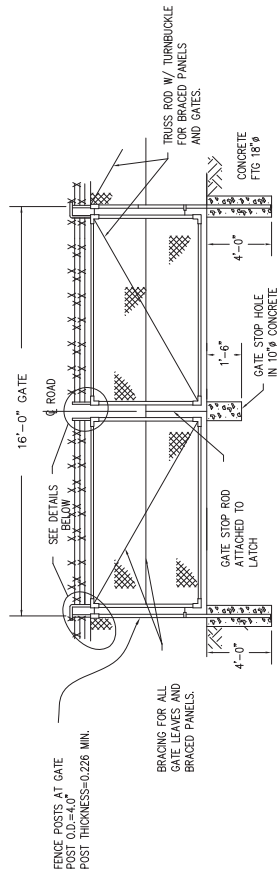




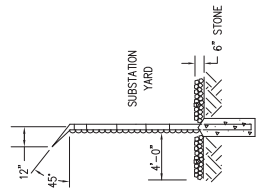


DATE	SCALE	DRAWING NO.	REV.
		141412720	1
 <p>patterson & dewar ENGINEERS</p>		<p>1850 CENTER WAY, JACKSONVILLE, GEORGIA 32211 (770) 453-1410 info@pde.com ENGINEERS - SURVEYORS</p>	
<p>MADISONVILLE MUNICIPAL UTILITIES SR 41A PROJECT KENTUCKY SUBSTATION GATE</p>			
NO.	DATE	REVISION	BY
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	11-15-19	ISSUED FOR RFI	
DESIGNED BY:		CHECKED BY:	
DRAWN BY:			

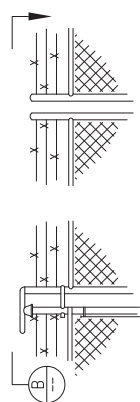
FOR BIDDING ONLY



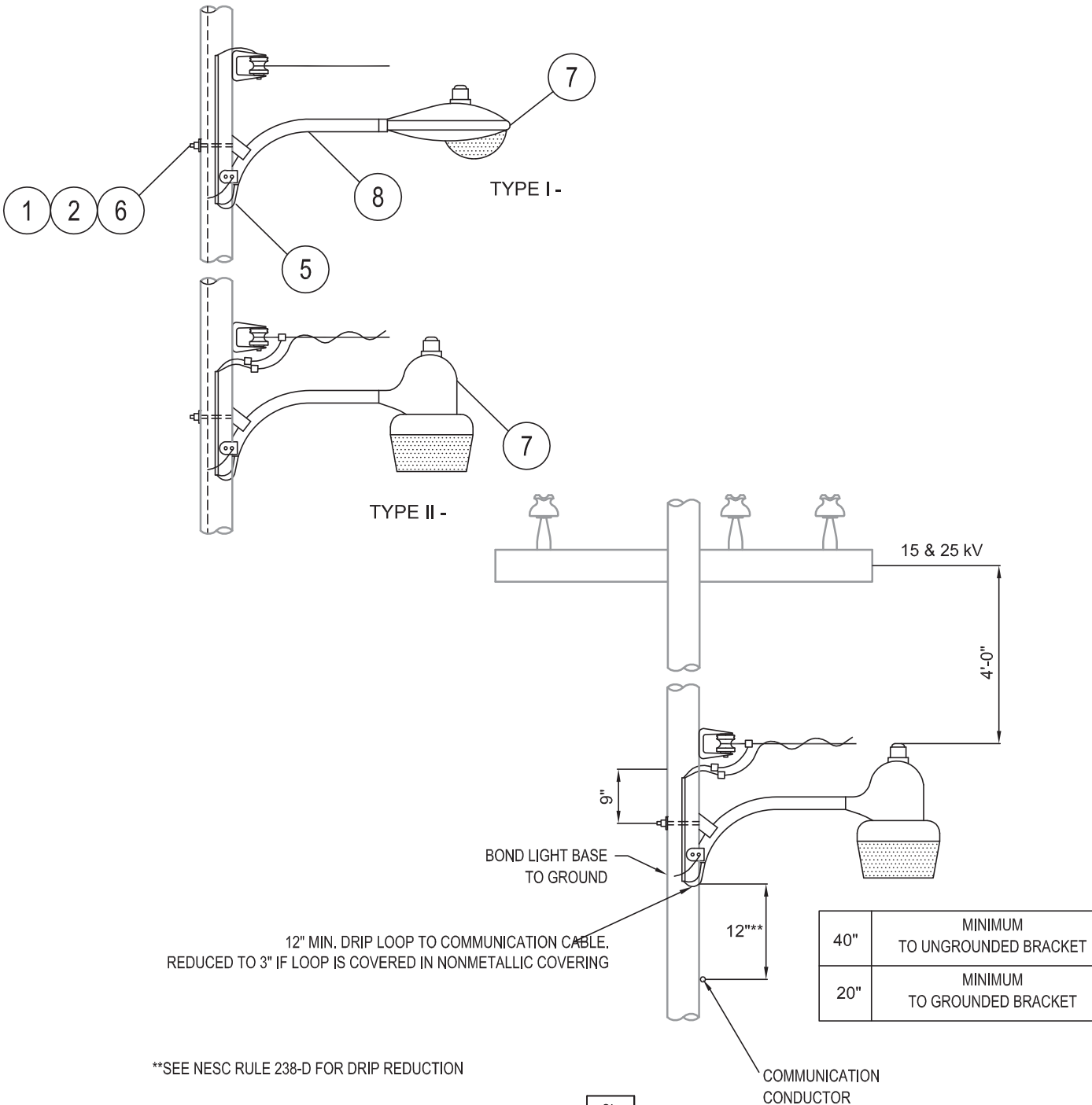
ENTRANCE GATE DETAIL
SCALE - NTS



TYPICAL LINE POST
SCALE = NTS



GATE BARBED WIRE DETAIL
SCALE = NTS



**SEE NESC RULE 238-D FOR DRIP REDUCTION

ITEM	MATERIAL	SL
		QTY
1	BOLT, MACHINE, 1/2" X REQ'D LENGTH	1
2	WASHER, 2 1/4" SQUARE WITH 11/16" HOLE	1
3	BRACKET GROUNDING CONNECTOR	1
4	JUMPER AND LEAD CONNECTORS, AS REQ'D	AS REQD
5	COPPER JUMPER, LENGTH AS REQ'D	AS REQD
6	LOCKNUT, 1/2" , MF TYPE	1
7	SECURITY LIGHT (SPECIFY WATTAGE)	1
8	MAST	1

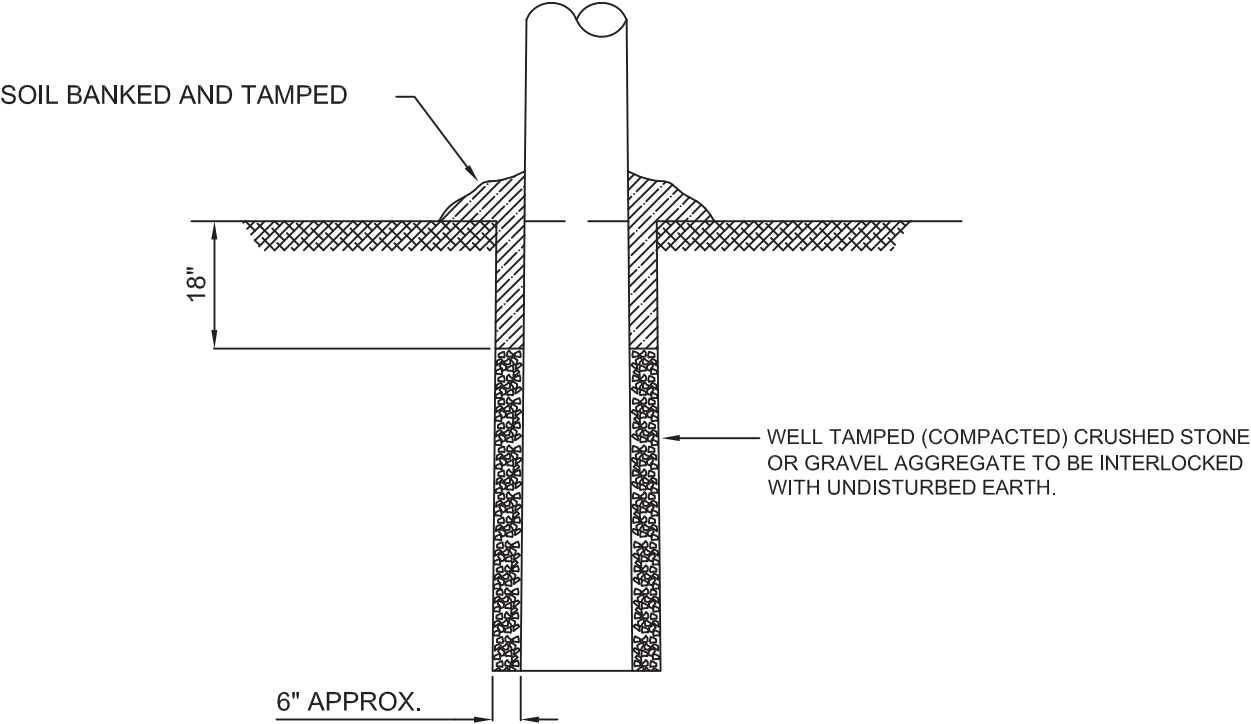


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Engineers - Surveyors - Construction Management

STREET LIGHT


DATE:	MADISONVILLE MUNICIPAL UTILITIES MADISONVILLE, KENTUCKY	SL
SCALE: NTS	41A RELOCATION SECTION 2	

PLOTTED: 6/7/2021 10:15 AM BY BDORRIS
FILE LOCATION: U:\KYKY MADISONVILLE\41A RELOCATION\WP\CAD\POLE AND ASSEMBLY DWG\SFINAL DESIGN\FINAL DETAIL DRAWINGS\SEC 2\SL.DWG



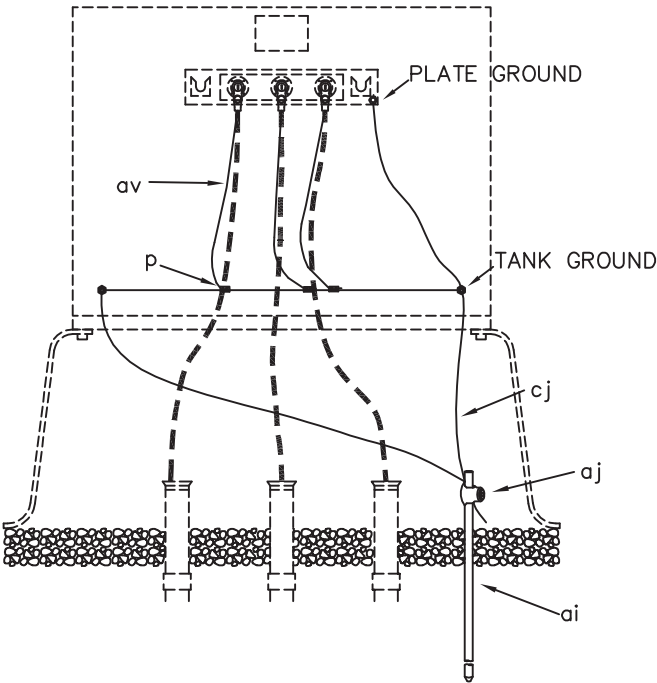
THE AGGREGATE SHALL BE WELL MIXED IN STOCK PILE SO THAT MATERIALS DISTRIBUTED TO INDIVIDUAL POLES SHALL ESSENTIALLY CONFORM TO SPECIFICATIONS.

SIZE OF GRAVEL OR CRUSHED STONE		SIZE OF MESH IN INCHES	
100% by weight to pass 1" screen		1.00	
60%-90% by weight to pass 1/2" screen		0.500	
40%-60% by weight to pass No.4 screen		0.187	
25%-50% by weight to pass No.8 screen		0.0937	
20%-40% by weight to pass No.16 screen		0.0469	
15%-30% by weight to pass No.40 screen		0.0165	

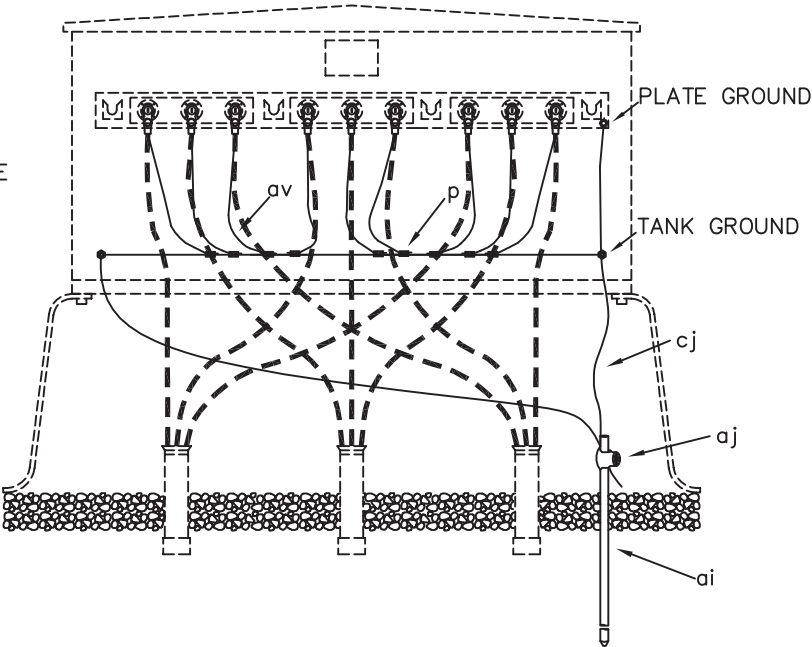
<div><div><div>patterson & dewar</div><div>ENGINEERS</div></div><div>850 Center Way Norcross, GA 30071 (770) 453-1410 pdengineers.com Engineers - Surveyors - Construction Management</div></div>	STEEL POLE BACKFILL		
	DATE:	MADISONVILLE MUNICIPAL UTILITIES MADISONVILLE, KENTUCKY 41A RELOCATION SECTION 2	TM-104
	SCALE: NTS		

PLOTTED: 6/7/2021 9:59 AM BY BDORRIS
FILE LOCATION: U:\KYYK\ MADISONVILLE\DP41A RELOCATION\WPCAD\POLE AND ASSEMBLY DWGS\FINAL DESIGN\FINAL DETAIL DRAWINGS\SEC 2\TM-104.DWG

SINGLE PHASE
APPLICATION



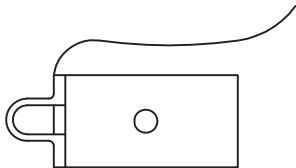
THREE PHASE
APPLICATION



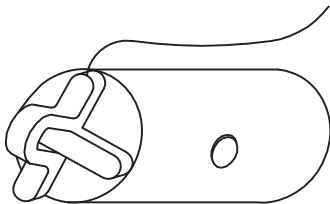
ITEM	MATERIAL	UH3.1	UH3.2
p	Connector, as required		
ai	Rod, ground	1	1
aj	Clamp, ground rod	1	1
av	Jumper, copper, as required		
cj	Wire, ground, as required		

- NOTES:
1. TIE CONCENTRIC NEUTRALS TOGETHER BEFORE TAP TO GROUND LOOP OR SIZE GROUND LOOP LARGE ENOUGH TO ASSURE SAME CONDUCTIVITY AS CABLE NEUTRAL.

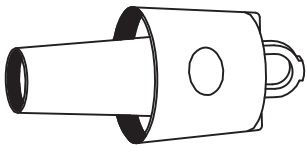
GROUNDING ASSEMBLY FOR
SECTIONALIZING ENCLOSURES
(1 ROD)



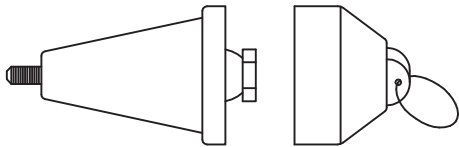
UM6.C2 INSULATED PROTECTIVE CAP
200 AMP LOAD BREAK (FORMERLY UM6-10)



UM6.C6 INSULATED PROTECTIVE CAP
600 AMP DEAD BREAK (FORMERLY UM6-11)



UM6.PL2 BUSHING WELL PLUG
200 AMP LOAD BREAK (FORMERLY UM6-7)



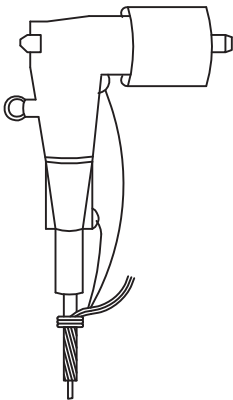
UM6.PL6 INSULATING PLUG TEE CONNECTOR
600 AMP DEAD BREAK (FORMERLY UM6-17)

NOTES:
UM6.C (CAP DESCRIPTION)
2 FOR 200 AMP LOAD BREAK CAP
6 FOR 600 AMP DEAD BREAK CAP

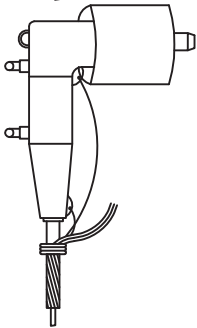
UM6.PL (PLUG DESCRIPTION)
2 FOR 200 AMP BUSHING WELL INSERTS
6 FOR 600 AMP TEE CONNECTOR

ITEM	MATERIAL	UM6.C2	UM6.C6	UM6.PL2	UM6.PL6
Uhb	Insulated protective cap, 200 AMP	1			
Uhb	Insulated protective cap, 600 AMP		1		
Uhb	Bushing well plug, 200 AMP			1	
Uhb	Insulating plug tee connector, 600 AMP				1

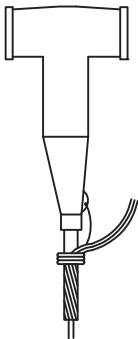
	CAPS AND PLUGS				
					UM6.C
					UM6.PL



LOAD BREAK ELBOW – 200 AMP LOAD BREAK
UM6.EL2.WIRE SIZE
(FORMERLY UM6–1)



FUSED ELBOW TERMINATION 200 AMP LOAD BREAK
UM6.EL2F.FUSE SIZE.WIRE SIZE
UM6.EL2F.30.WIRE SIZE FOR 30 AMP FUSE
(FORMERLY UM6–2)

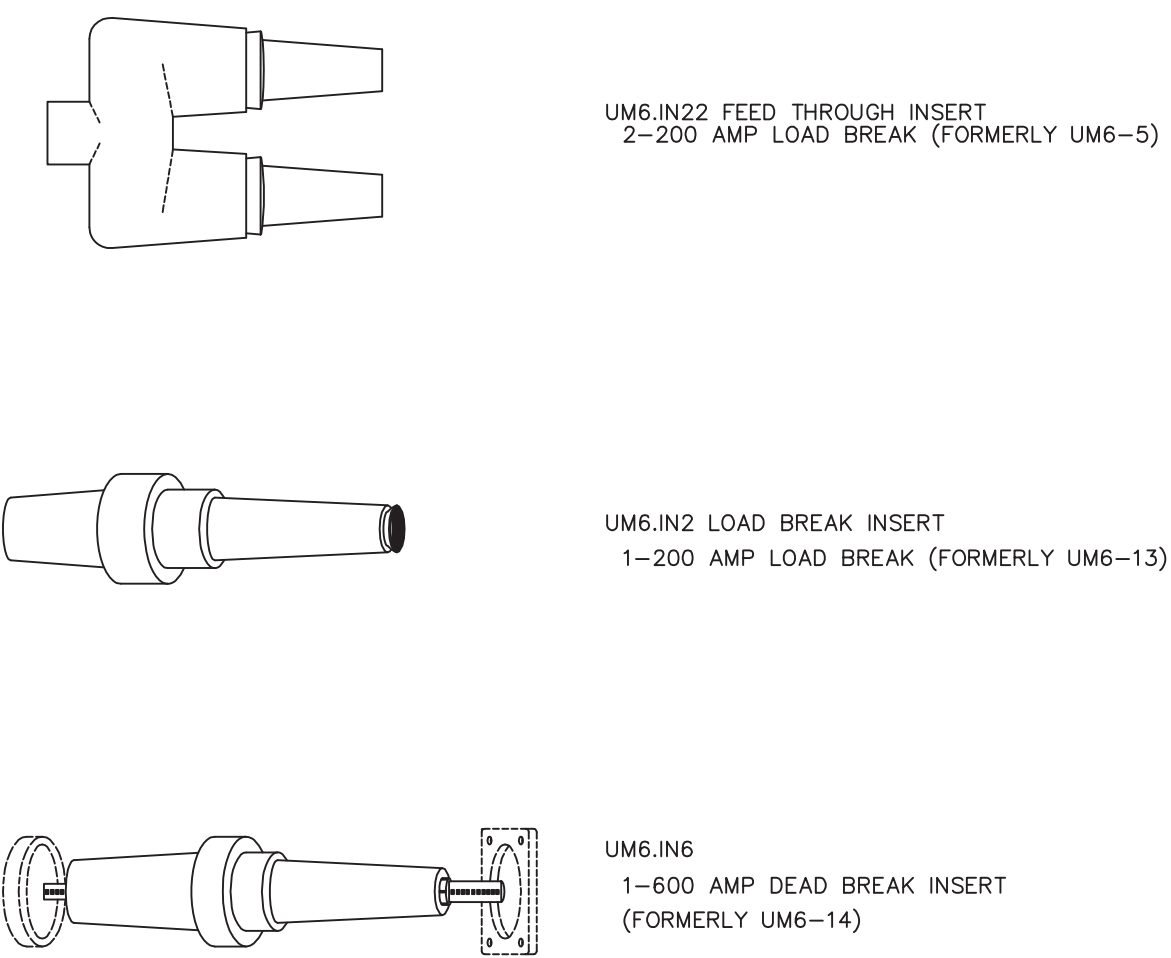


DEAD BREAK TERMINATION 600 AMP
UM6.EL6.WIRE SIZE
DEAD BREAK TERMINATION 900 AMP
UM6.EL9.WIRE SIZE
(FORMERLY UM6–3)

NOTES:
APPEND "R" SUFFIX TO INDICATE LONGER ELBOW
FOR REPAIR OR REPLACEMENT

ITEM	MATERIAL	UM6.EL2	UM6.EL2F	UM6.EL6	UM6.EL9
Uhp	Elbow, 200 AMP, load break	1			
Uhp	Fused elbow, 200 AMP, load break		1		
Uhb	Dead break termination, 600 AMP			1	
Uhb	Dead break termination, 900 AMP				1

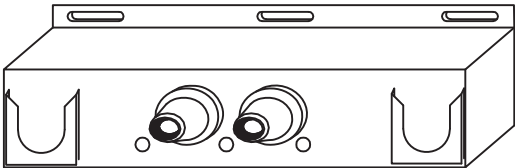
	ELBOWS		
			UM6.EL



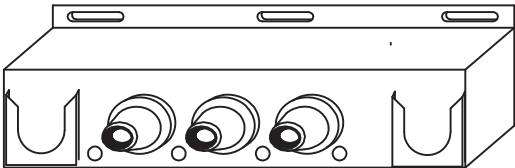
DEFINE THE NUMBER AND TYPE OF POINTS FOR EACH MODULE
2 FOR 200 AMP LOAD BREAK
6 FOR 600 AMP DEAD BREAK

ITEM	MATERIAL	UM6.IN22	UM6.IN2	UM6.IN6
Uhb	Feed through insert, 200 AMP	1		
Uhb	Load break insert, 200 AMP		1	
Uhb	Dead break insert, 600 AMP			1

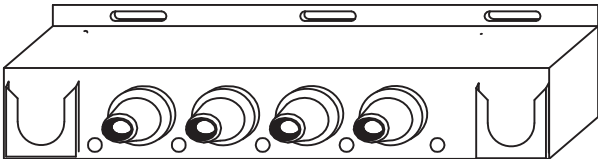
	INSERTS		
			UM6.IN



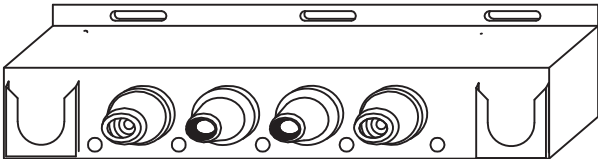
UM6.JN22 TWO POINT TERMINATION
2–200 AMP LOAD BREAK (FORMERLY UM6–20)



UM6.JN222 THREE POINT TERMINATION
3–200 AMP LOAD BREAK (FORMERLY UM6–21)



UM6.JN2222 FOUR POINT TERMINATION
4–200 AMP LOAD BREAK (FORMERLY UM6–22)

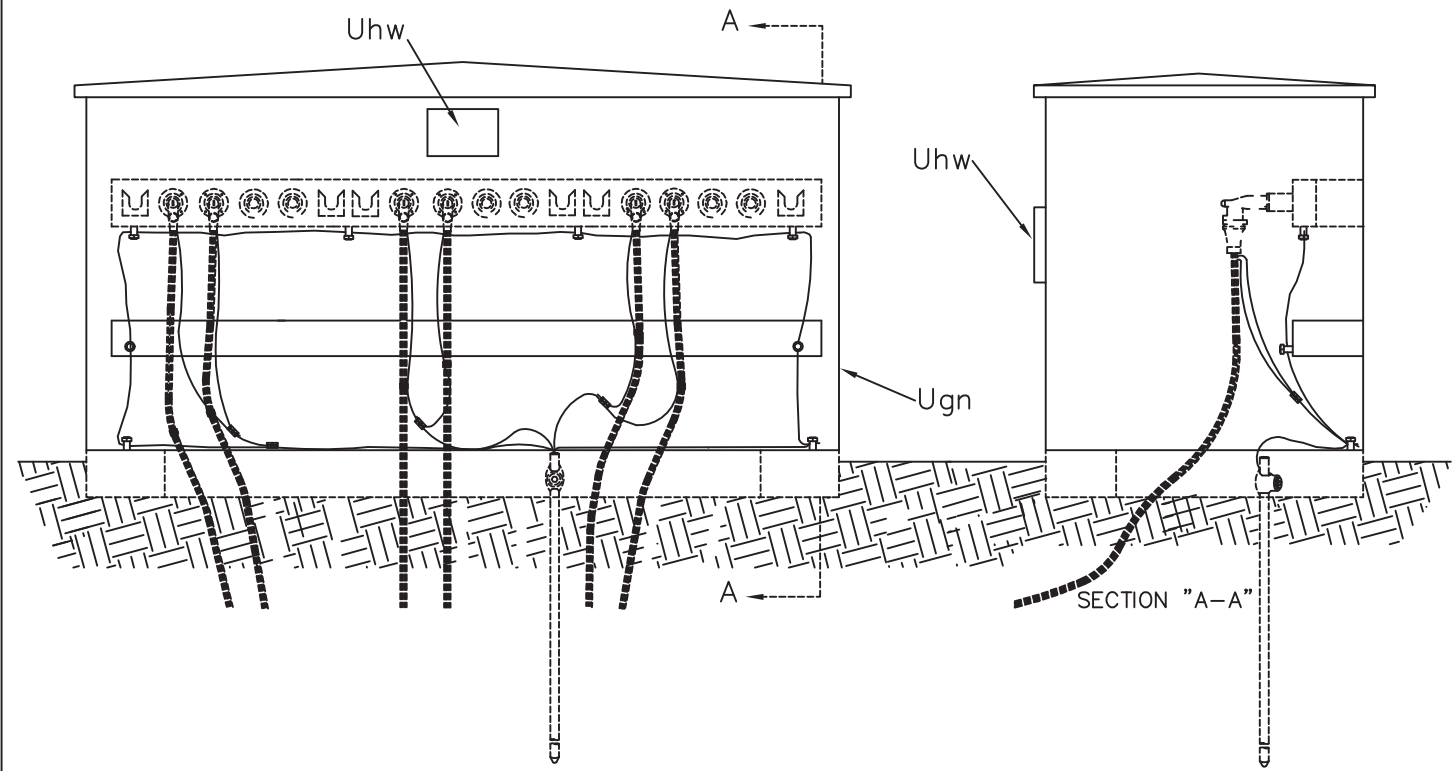


UM6.JN6226 FOUR POINT TERMINATION
2–600 AMP DEAD BREAK
2–200 AMP LOAD BREAK

ITEM	QTY.	MATERIAL
Uhq	1	Multipoint junction

DEFINE THE NUMBER OF POINTS
AND TYPE OF POINT FOR EACH MODULE
2 FOR 200 AMP LOAD BREAK
6 FOR 600 AMP DEAD BREAK
9 FOR 900 AMP DEAD BREAK

			MULTIPOINT JUNCTIONS		
					UM6.JN



XXUSX.PJ.XXXX

- MODULE DESCRIPTION ONE NUMBER FOR EACH POINT
USE "2" FOR 200 AMP LOAD BREAK
USE "6" FOR 600 AMP DEAD BREAK
- PRIMARY JUNCTION
- NUMBER OF PHASES
- PRIMARY VOLTAGE (PHASE TO PHASE)

EXAMPLES:

15US1.PJ.2222 = 15kV 1 PHASE ENCLOSURE WITH 4 POINT 200 AMP MODULES.

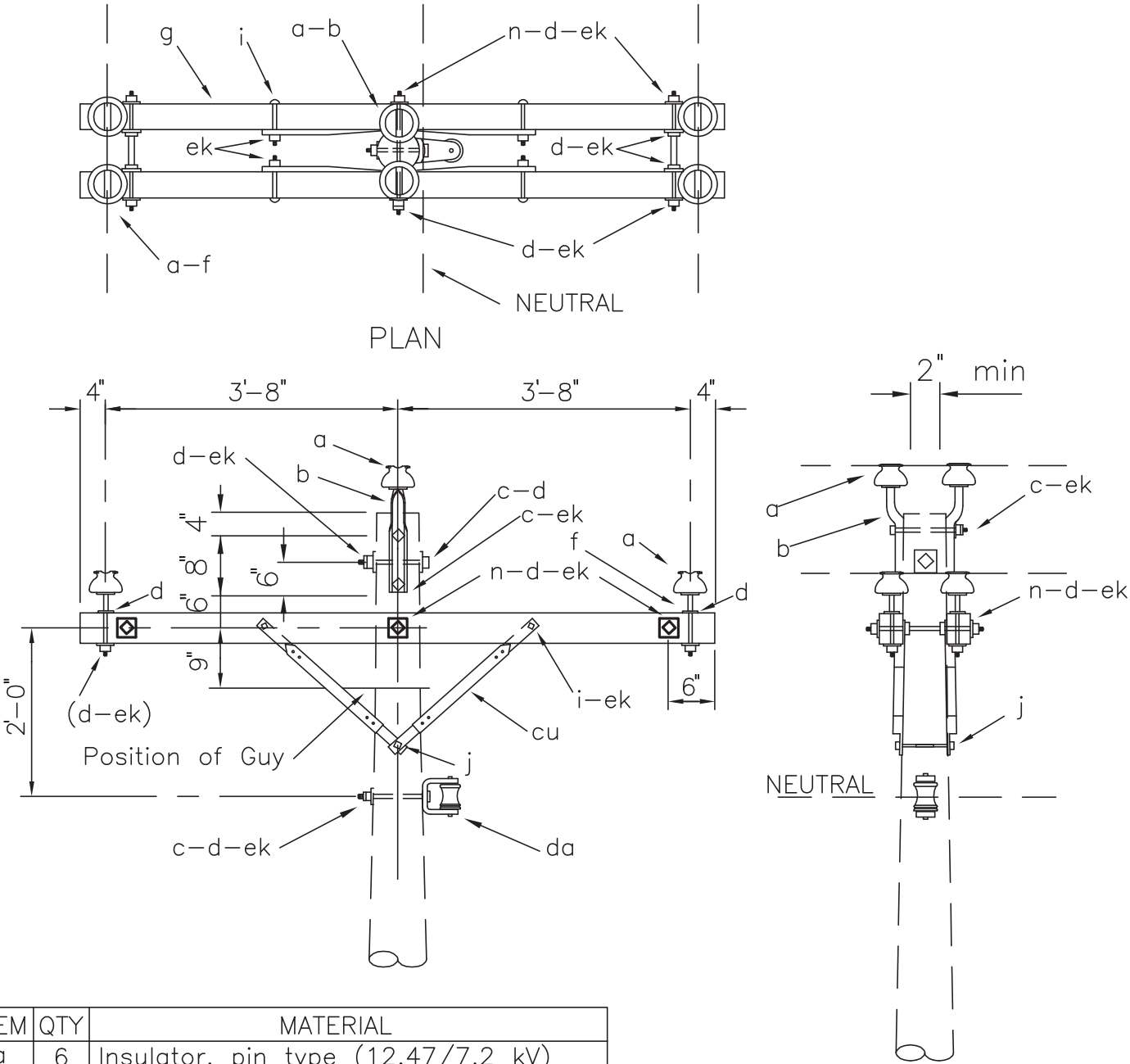
25US3.PJ.6226 = 25kV 3 PHASE ENCLOSURE WITH 4 POINT MODULES WITH 600 AMP IN AND OUT WITH 200 AMP TAPS.

ITEM	1.PJ	3.PJ	MATERIAL
Ugn	1		Single Phase Enclosure
Ugn		1	Three Phase Enclosure
Uhq	1	3	Module as Defined
Uhw	2	2	Safety Signs as Required

NOTES:

1. SPECIFY FOUNDATION, ARRESTERS, ELBOWS, CAPS AND GROUNDING SEPERATELY

			SINGLE AND THREE PHASE PRIMARY JUNCTIONS	
				US1.PJ.
				US3.PJ.



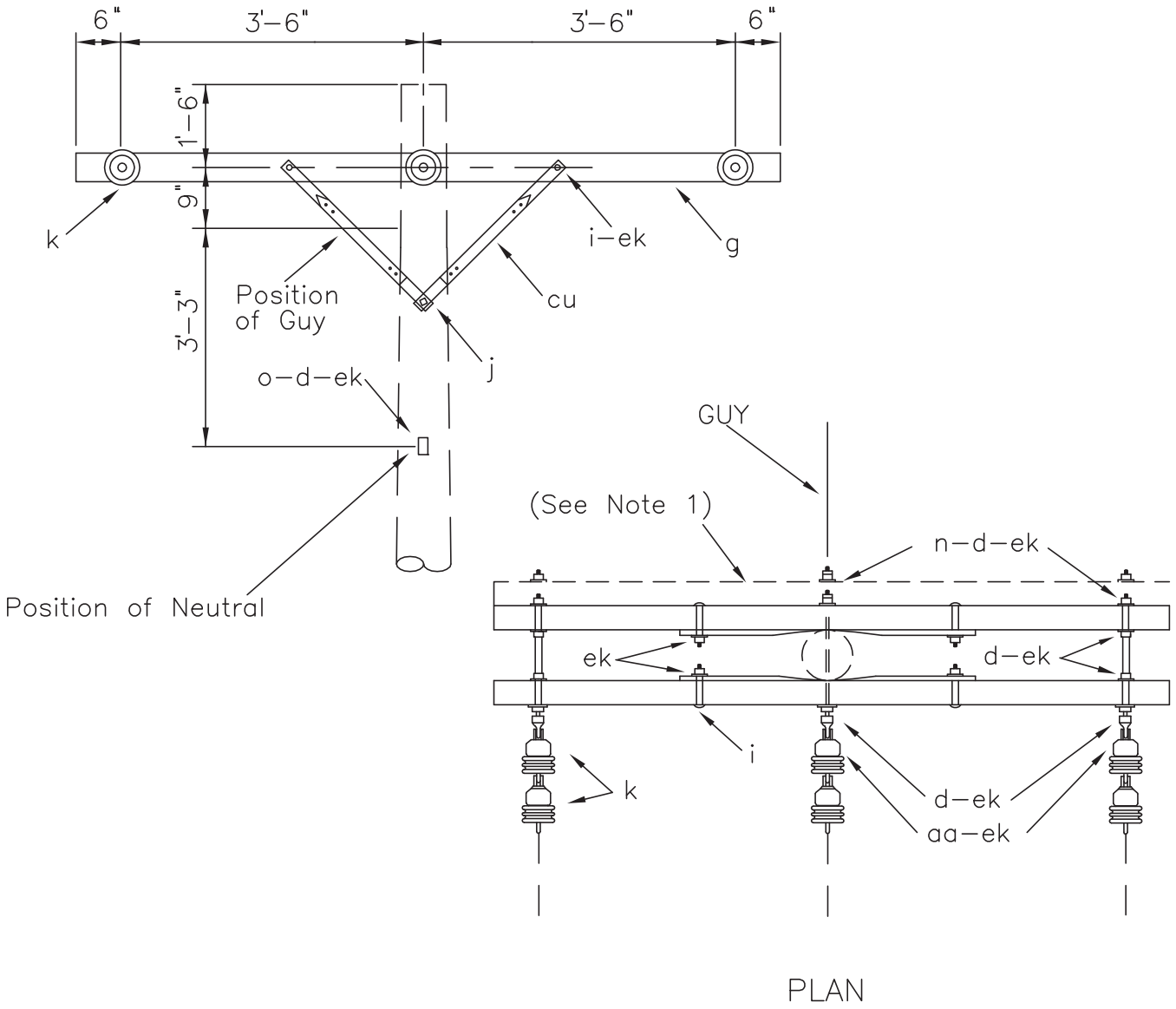
ITEM	QTY	MATERIAL
a	6	Insulator, pin type (12.47/7.2 kV)
b	2	Pin, pole top, 20", straight or offset
c	4	Bolt, machine, 5/8" x req'd length
d	17	Washer, square, 2 1/4"
f	4	Pin, crossarm, steel, 5/8" x 10 3/4"
g	2	Crossarm, 3 5/8" x 4 5/8" x 8' 0"
i	4	Bolt, carriage, 3/8" x 4 1/2"
j	2	Screw, lag, 1/2" x 4"
n	3	Bolt, double arming, 5/8"xreq'd length
cu	4	Brace, 28"
da	1	Bracket, insulated
ek	18	Locknuts

DESIGN PARAMETERS:

DOUBLE SUPPORT ON CROSSARMS
REMOVALS ONLY

3 – PHASE PRIMARY
12.47/7.2 kV

C2.21
(C2)



ITEM	QTY	MATERIAL
d	1	Washer, square, 3", curved
d	10	Washer, square, 2 1/4"
g	2	Crossarm, 3 5/8" x 4 5/8" x 8'-0"
i	4	Bolt, carriage, 3/8" x 4 1/2"
j	2	Screw, lag, 1/2" x 4"
k	6	Insulator, suspension, 4 1/4"
n	3	Bolt,double arming,5/8" x req'd length
o	1	Bolt, eye, 5/8" x req'd length
aa	3	Nut, eye, 5/8"
cu	4	Brace, 28"
ek	18	Locknuts

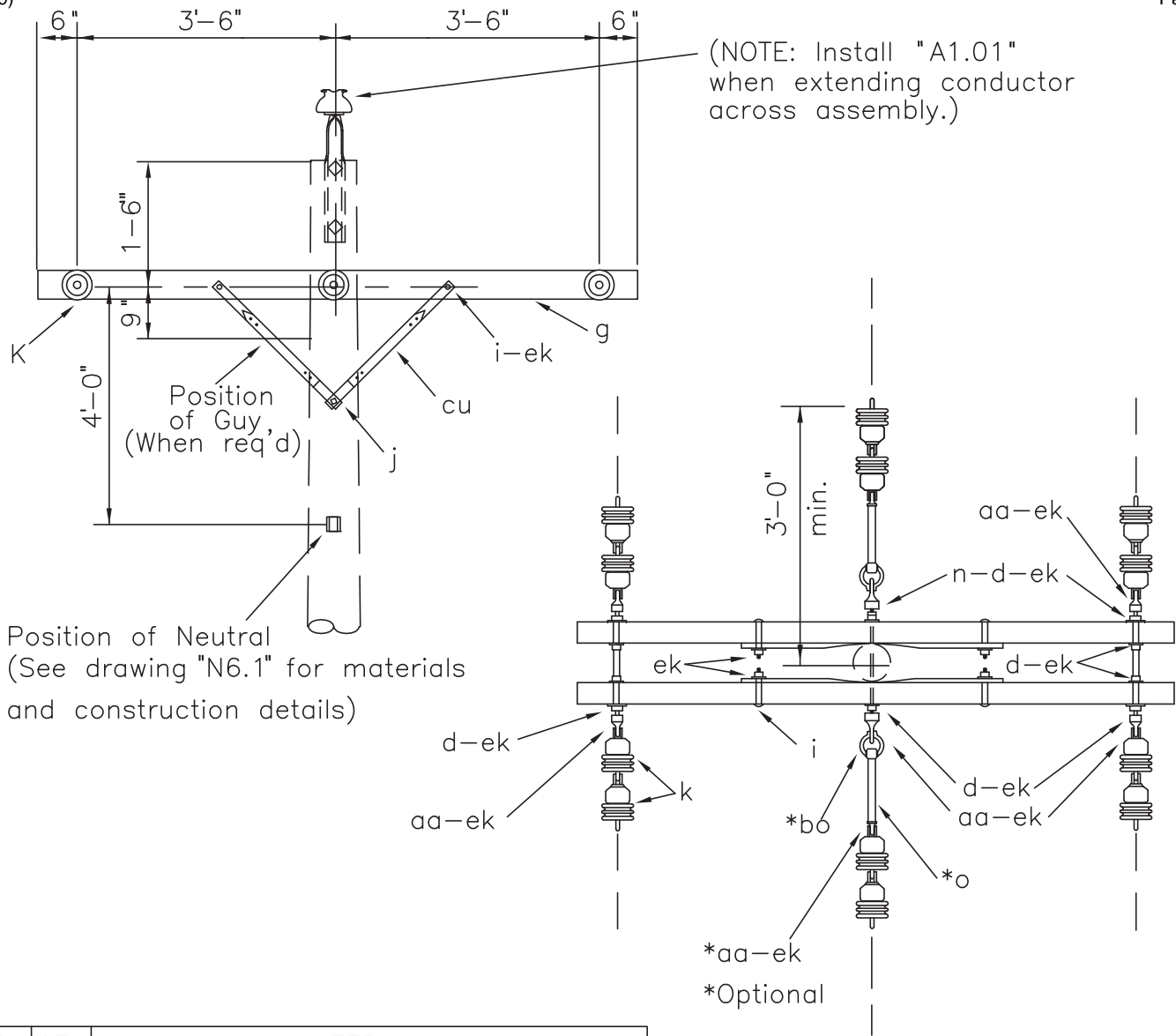
- NOTES:
1. Designate as "C5.31" for assembly with three crossarms.
 2. Double arming eye bolt, item dy, may be used instead of double arming bolt, item "n", and eye nut, item "aa".
 3. Other neutral assemblies may be used. See Section N. Adjust material as needed.

DESIGN PARAMETERS:

SINGLE DEADEND ON CROSSARMS
REMOVALS ONLY

3 - PHASE PRIMARY
12.47/7.2 kV

C5.21,C5.31
(C7),(C7-1)



ITEM	QTY	MATERIAL
d	2	Washer, square, 3", curved
d	10	Washer, square, 2 1/4"
g	2	Crossarm, 3 5/8" x 4 5/8" x 8'-0"
i	4	Bolt, carriage, 3/8" x 4 1/2"
j	2	Screw, lag, 1/2" x 4"
k	12	Insulator, suspension, 4 1/4"
n	4	Bolt,double arming,5/8" x req'd length
o	2	Bolt, eye, 5/8" x req'd length
p		Connectors, as req'd
aa	8	Nut, eye, 5/8"
av		Jumpers, as req'd
bo	2	Shackle, anchor
cu	4	Brace, 28"
ek	26	Locknuts

- NOTES:
- Double arming bolt, item "n," and eye nut, item "aa," may be replaced with double arming eye bolt, item "dy."
 - Maximum line angle may be increased to 15° by installing anchor shackles, item "bo," to (horizontal) eye nuts and installing side guys as req'd.
 - Designate as C6.31 for assembly with three crossarms.

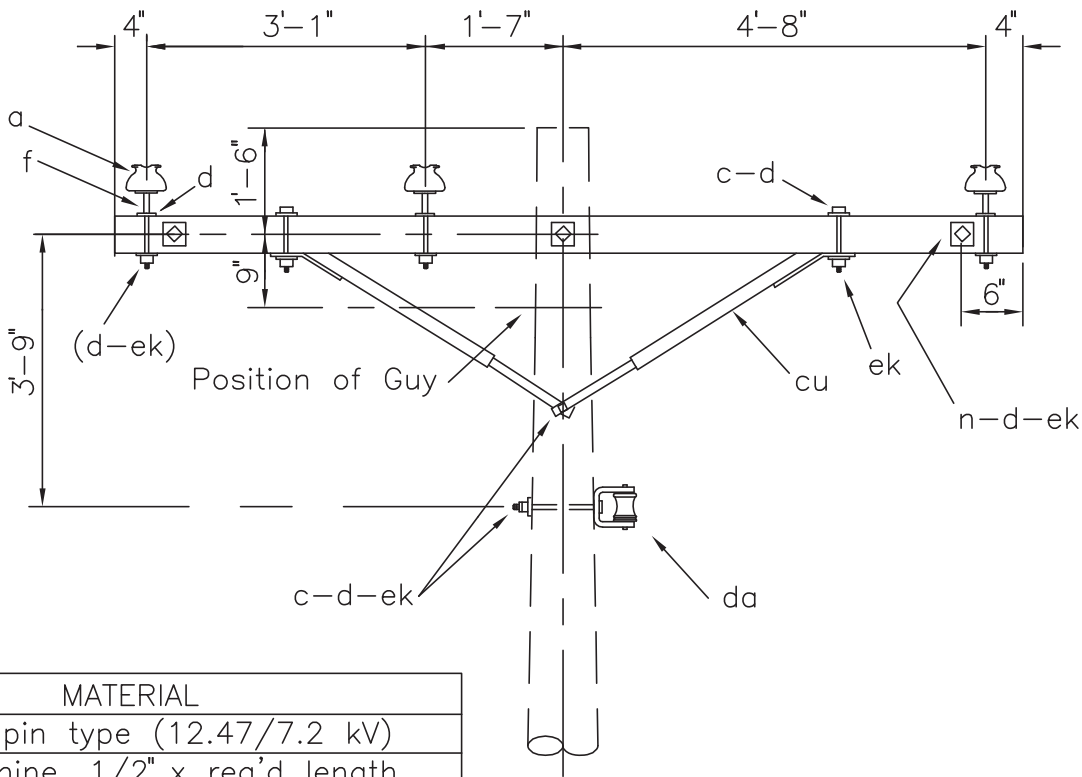
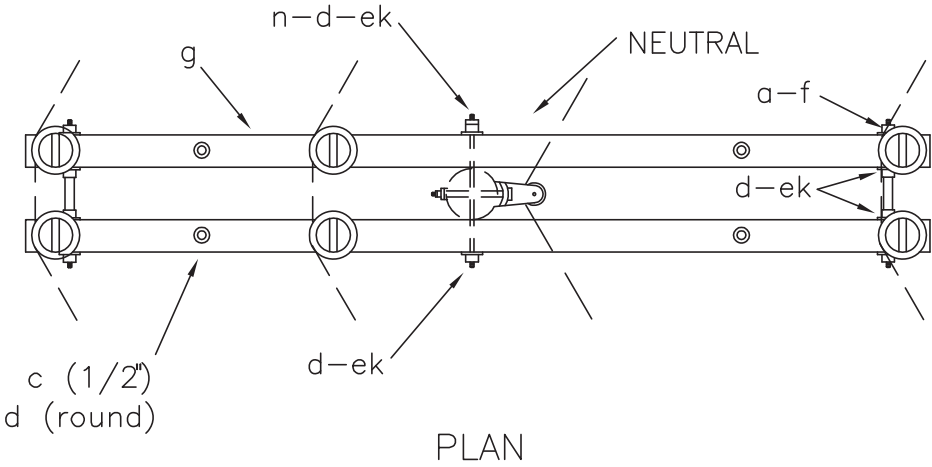
DESIGN PARAMETERS:

PERMITTED UNBALANCED
CONDUCTOR TENSION:
See Table A (Exhibit 2)

MAXIMUM LINE ANGLE = 5°
(See Note 2)

DOUBLE DEADEND ON CROSSARMS
REMOVALS ONLY

	3 – PHASE PRIMARY 12.47/7.2 kV	C6.21 (C8) C6.31
--	-----------------------------------	---------------------



ITEM	QTY	MATERIAL
a	6	Insulator, pin type (12.47/7.2 kV)
c	4	Bolt, machine, 1/2" x req'd length
c	2	Bolt, machine, 5/8" x req'd length
d	4	Washer, round, 1 3/8"
d	18	Washer, square, 2 1/4"
f	6	Pin, crossarm, steel, 5/8" X 10 3/4"
g	2	Crossarm, 3 5/8" x 4 5/8" x 10'-0"
n	3	Bolt, double arm, 5/8" x req'd length
cu	2	Brace, wood, 60" span
da	1	Bracket, insulated
ek	16	Locknuts

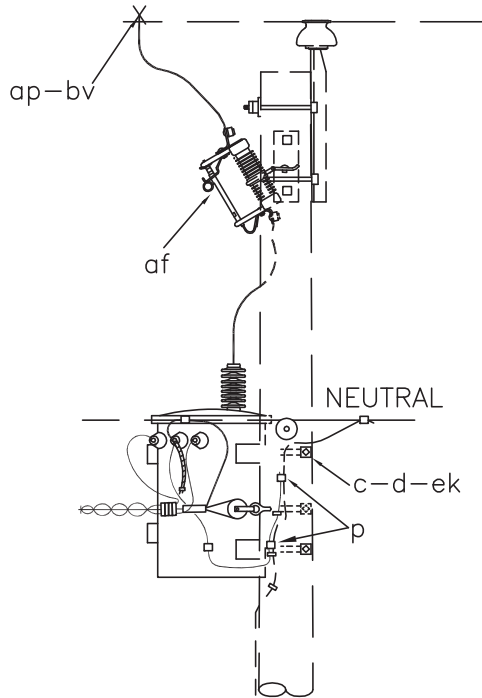
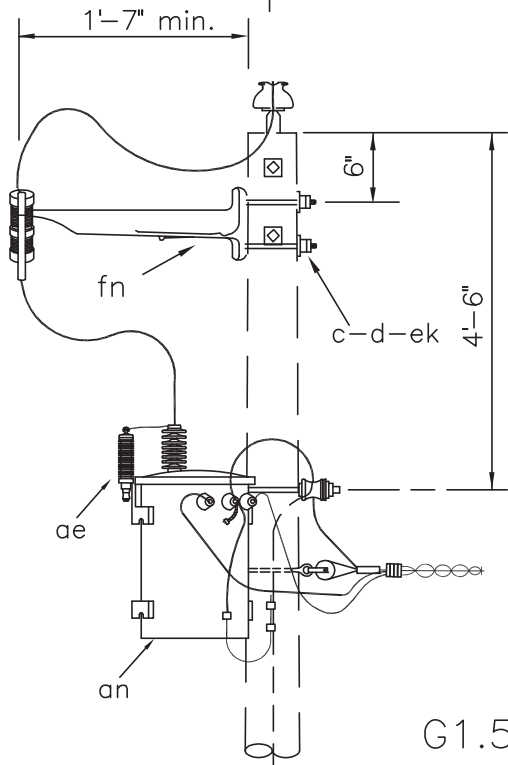
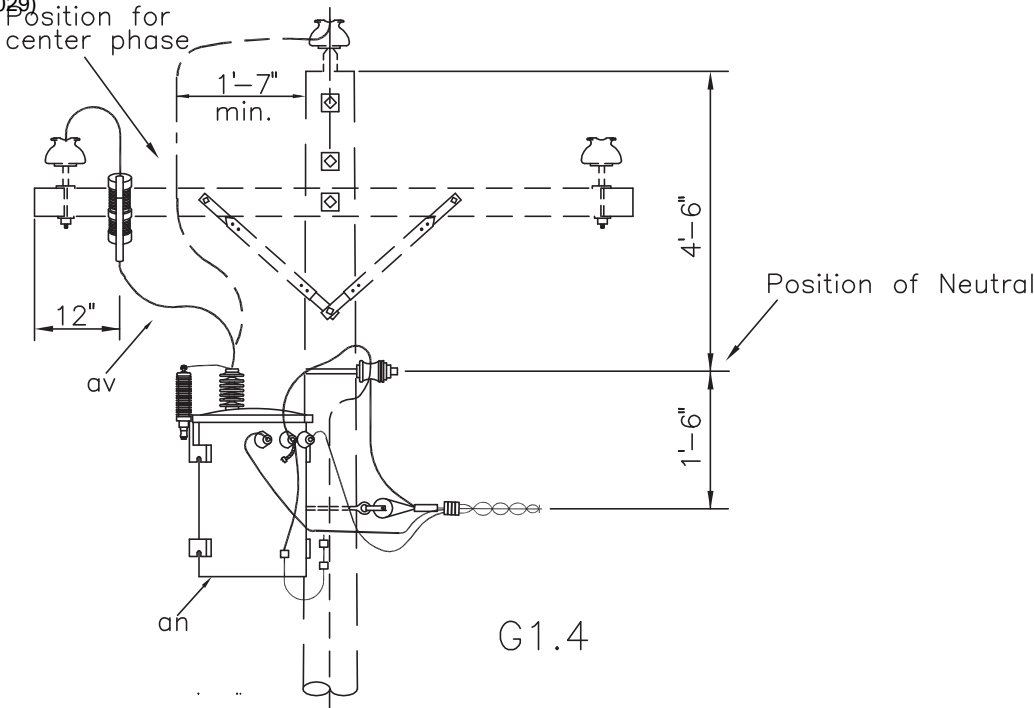
NOTE:
Neutral assembly may be installed on opposite side of pole when necessary to increase midspan conductor clearance.

DESIGN PARAMETERS:

DOUBLE SUPPORT ON 10 FOOT CROSSARMS
REMOVALS ONLY

3 - PHASE PRIMARY
12.47/7.2 kV

C2.52X
(C2-1)



NOTE: Rotate cutout so the blade faces climbing face of pole.

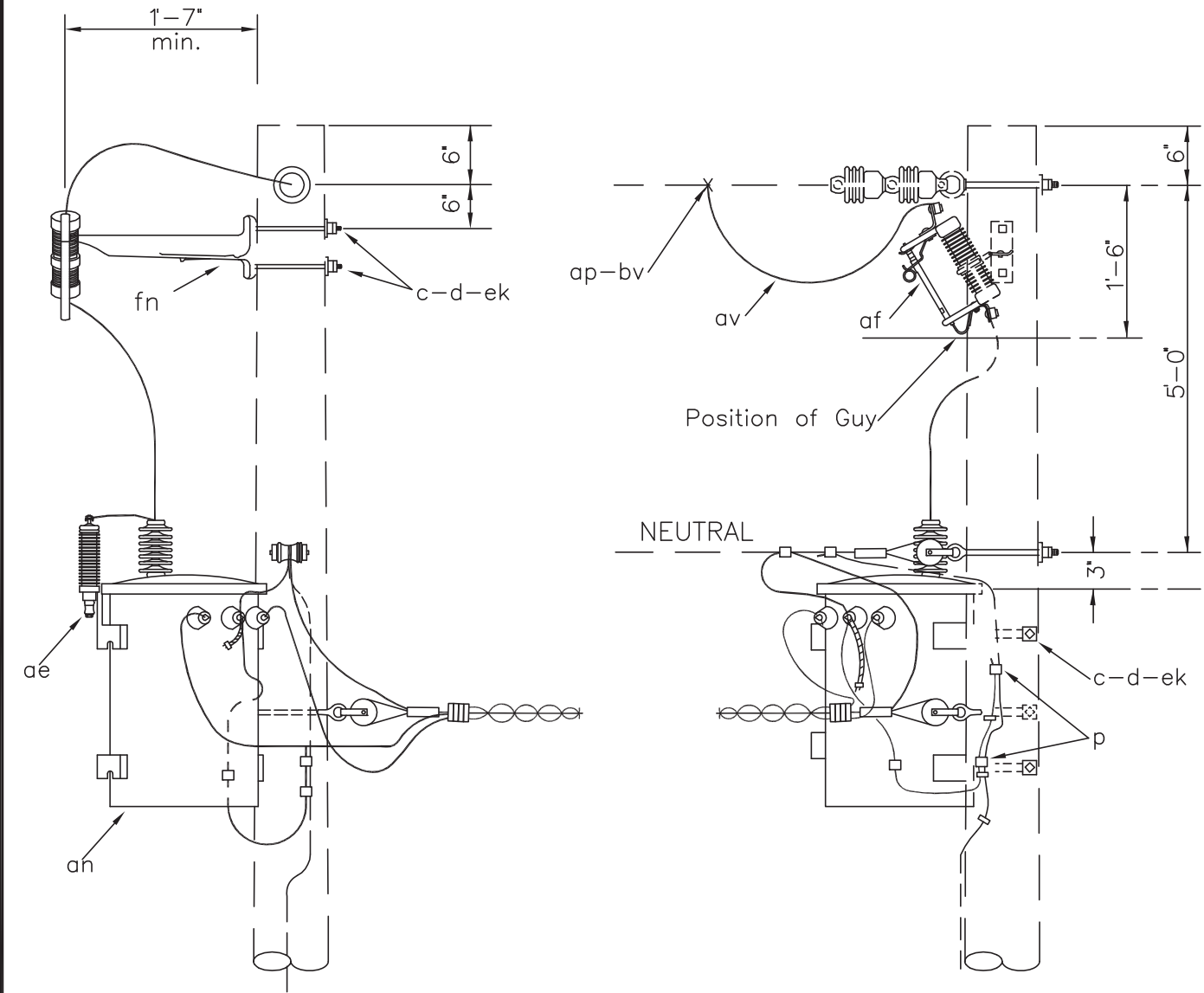
ASSEMBLY: G1				ASSEMBLY: G1			
ITEM	MATERIAL	QTY	.4	QTY	ITEM	MATERIAL	QTY
c	Bolt, machine, 5/8" x req'd length	2	.4	4	ap	Clamp, hot line	1
d	Washer, square, 2 1/4"	2	.4	4	av	Jumpers, stranded, as req'd	
p	Connectors, as req'd				bv	Rod, armor, as req'd	
ae	Arrester, surge (9 kV)	1	.4	1	ek	Locknuts,	2
af	Cutout, dist., open (15 kV)	1	.4	1	fn	Bracket, extension	1
an	Transformer, 12.47 kV, conventional	1	.4	1			

DESIGN PARAMETERS:

SINGLE-PHASE, CONVENTIONAL TRANSFORMER

12.47/7.2 kV

G1.4
G1.5



NOTE: Rotate cutout so that the blade faces climbing face of pole.

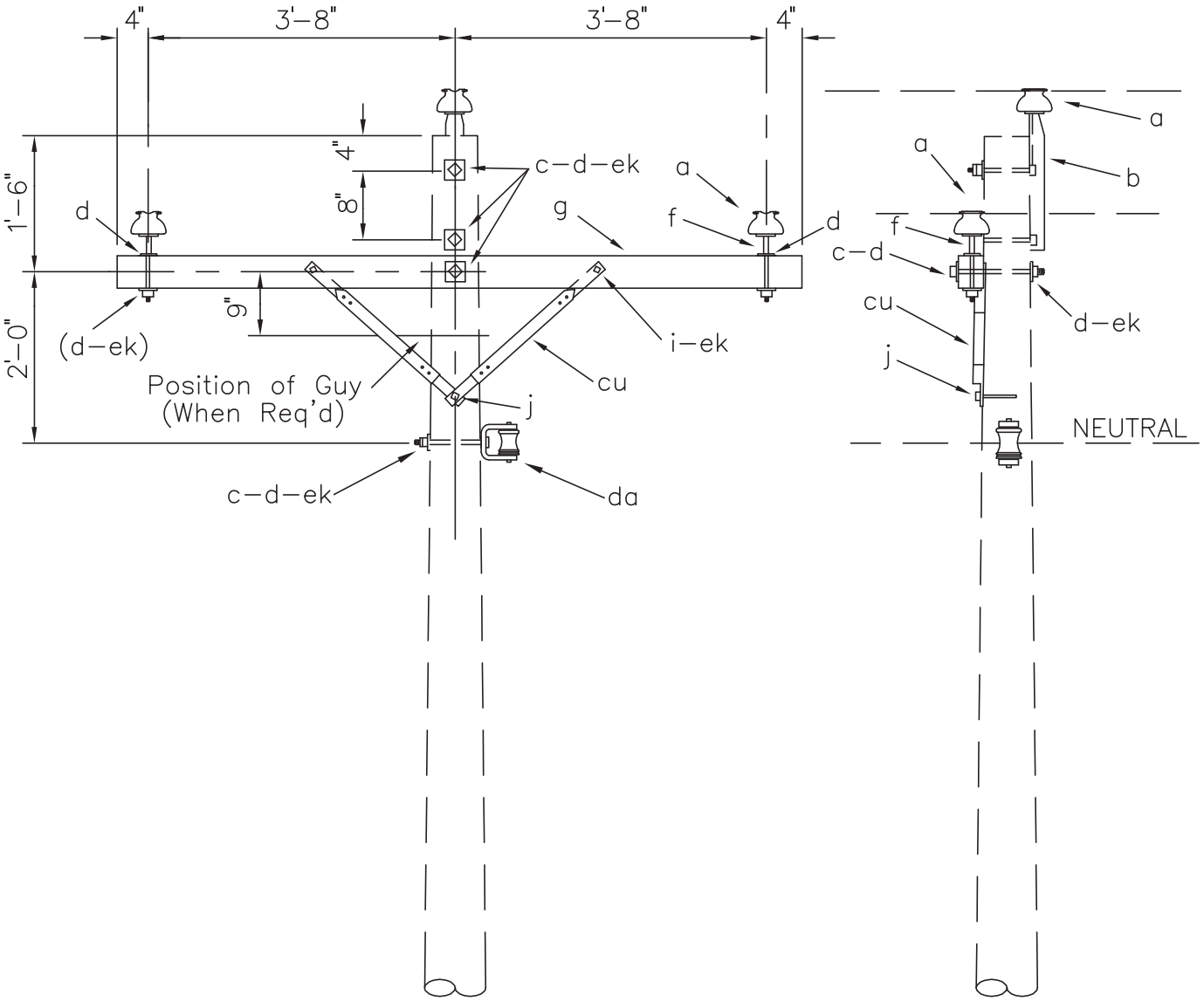
ITEM	QTY	MATERIAL	ITEM	QTY	MATERIAL
c	4	Bolt, machine, 5/8" x req'd length	ap	1	Bolted Clamp, hot line
d	4	Washer, square, 2 1/4"	av		Jumpers, stranded, as req'd
p		Connectors, as req'd	bv	1	Rod, armor as req'd
ae	1	Arrester, surge (9 kV)	ek	4	Locknuts
af	1	Cutout, dist. open (15 kV)	fn	1	Bracket, extension
an	1	Transformer, 12.47 kV, conventional			

DESIGN PARAMETERS:

SINGLE-PHASE, CONVENTIONAL TRANSFORMER
(DEADEND POLE)

12.47/7.2 kV

G1.6



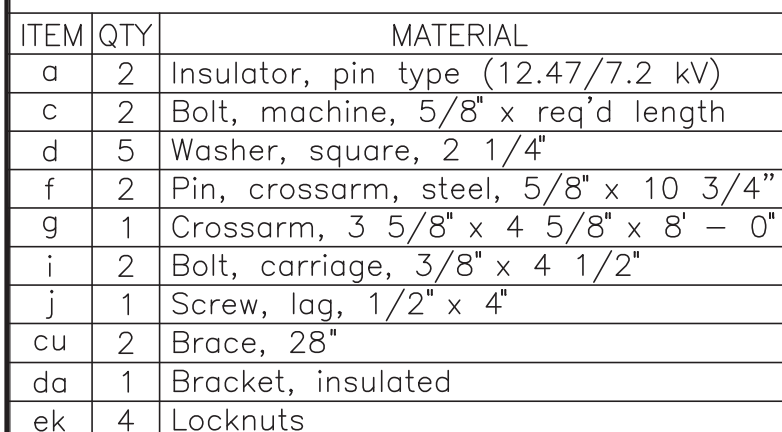
ITEM	QTY	MATERIAL
a	3	Insulator, pin type (12.47/7.2 kV)
b	1	Pin, pole top, 20°
c	4	Bolt, machine, 5/8" x req'd length
d	7	Washer, square, 2 1/4"
f	2	Pin, crossarm, steel, 5/8" x 10 3/4"
g	1	Crossarm, 3 5/8" x 4 5/8" x 8' - 0"
i	2	Bolt, carriage, 3/8" x 4 1/2"
j	1	Screw, lag, 1/2" x 4"
cu	2	Brace, 28"
da	1	Bracket, insulated
ek	6	Locknuts

DESIGN PARAMETERS:

SINGLE SUPPORT ON CROSSARM
REMOVALS ONLY

3 - PHASE PRIMARY
12.47/7.2 kV

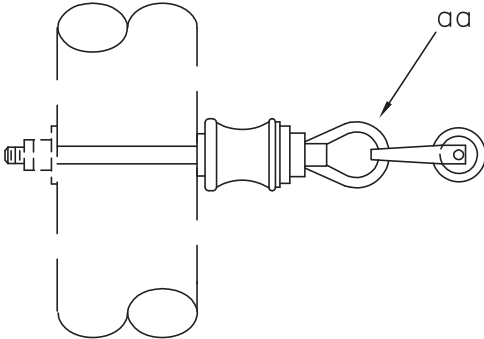
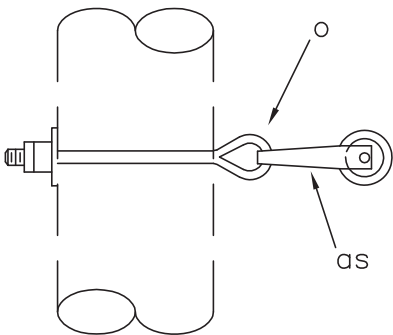
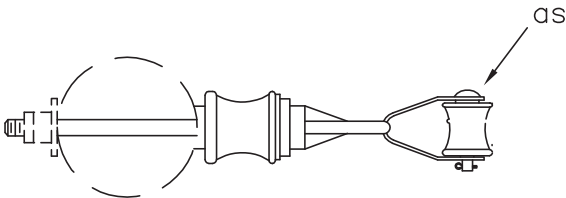
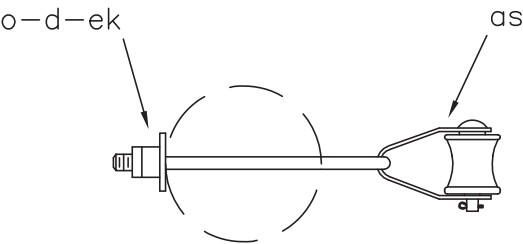
C1.13



See TABLE II

2 - PHASE PRIMARY
12.47/7.2 kV

B1.13

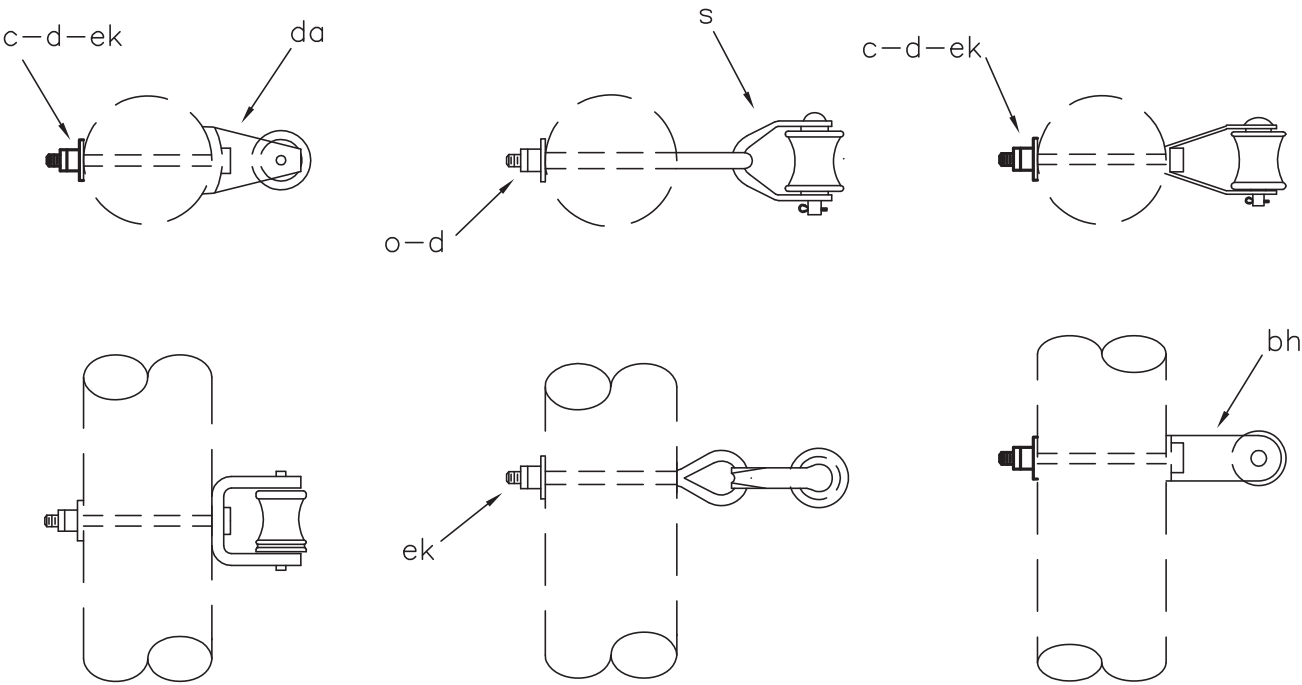


K1.4

K1.5

ASSEMBLY: K1		.4	.5
ITEM	MATERIAL	QTY	QTY
d	Washer, 2 1/4" square	1	
o	Bolt, eye, 5/8" X req'd length	1	
aa	Nut, eye		1
as	Clevis, service, swinging, insulated	1	1
ek	Locknuts	1	

DESIGN PARAMETERS:		SERVICE ASSEMBLIES (POLE MOUNTED)	
PERMITTED LONGITUDINAL LOAD: 1,500 lbs. (ANSI Class 53-2 Insulator) 2,250 lbs. (ANSI Class 53-4 Insulator)			K1.4,K1.5 (K11,K11L),(K15C)

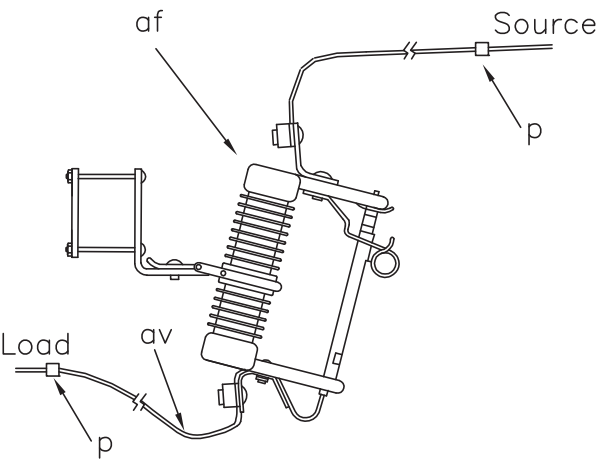


K1.1

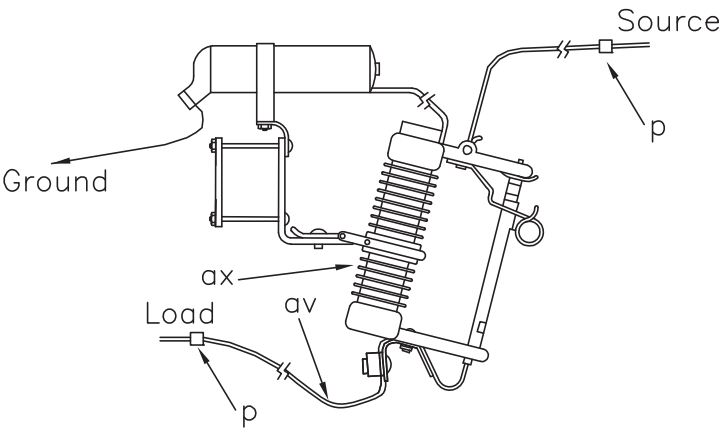
K1.2

K1.3

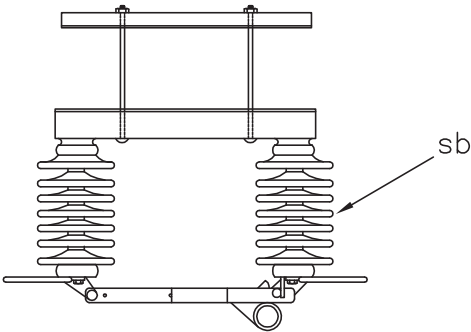
ASSEMBLY: K1					ASSEMBLY NUMBERS	
ITEM	MATERIAL	QTY	QTY	QTY	NEW	(OLD)
c	Bolt, machine, 5/8" X req'd length	1		1	K1.1	(K14C)
d	Washer, 2 1/4" square	1	1	1	K1.2	(K11C)
o	Bolt, eye, 5/8" X req'd length		1		K1.3	(K14)
s	Clevis, secondary, swinging, insulated		1			(K14L)
bh	Clevis, service, deadend, insulated			1		
ek	Locknuts	1	1	1		
da	Bracket, insulated	1				
DESIGN PARAMETERS:		SERVICE ASSEMBLIES (POLE MOUNTED)				
PERMITTED LONGITUDINAL LOADING:						
1,500 lbs. (ANSI Class 53-2 Insulator)						
2,250 lbs. (ANSI Class 53-4 Insulator)						
		K1.1,K1.2,K1.3				



S1.01



S1.02

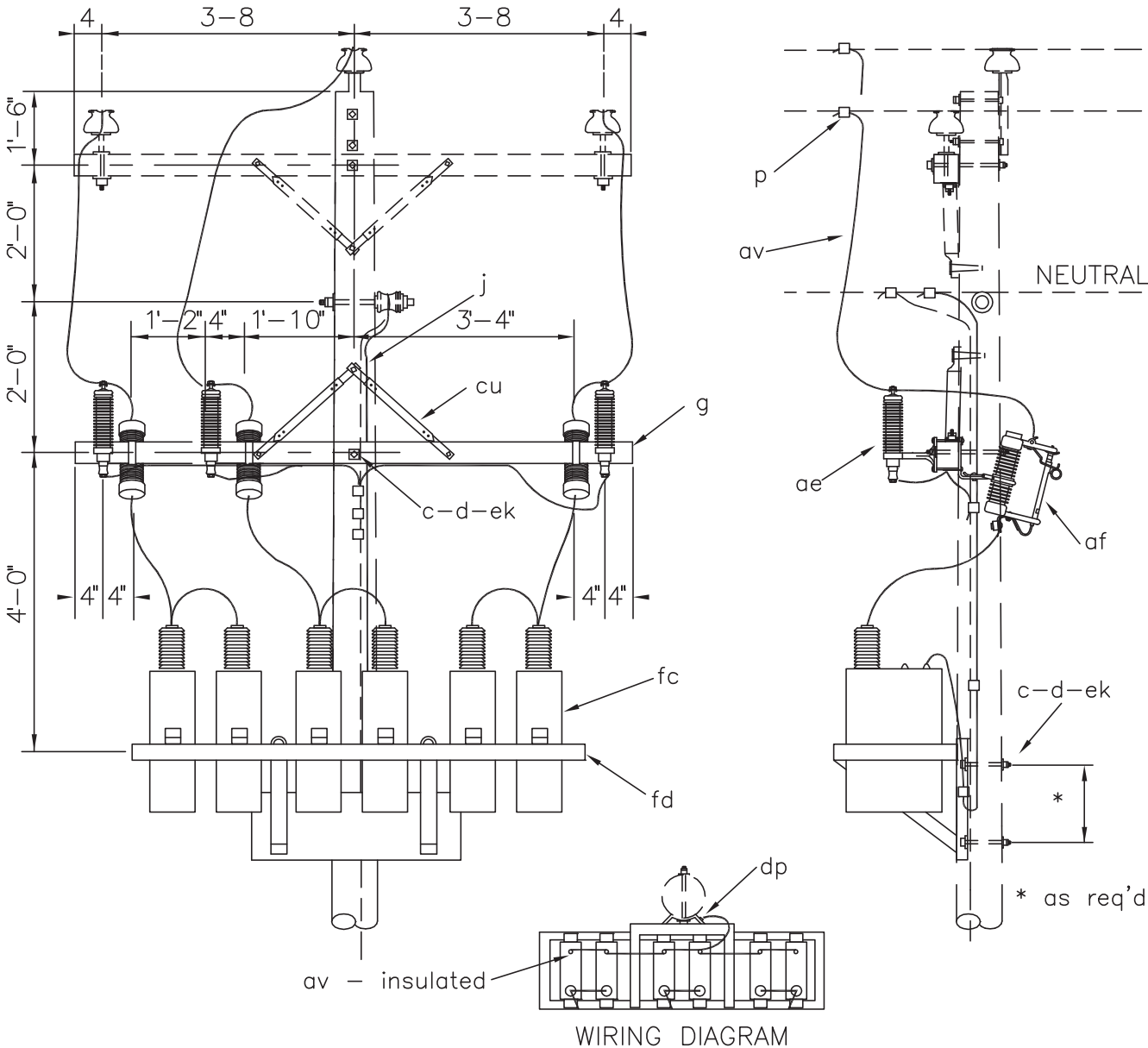


S2.01

NOTES: Specify cutouts to be furnished with fuse tube or switch blade.

"S2.01" may be used with assembly "C6.21" (mount braces above crossarm). See "S2.32".

		ASSEMBLY: S		
ITEM	MATERIAL	1.01 QTY	1.02 QTY	2.01 QTY
P	Connector, as req'd			
af	Cutout, dist., open (15 kV)	1		
ax	Cutout, & Arrester Comb. (9 kV)		1	
av	Jumpers, as req'd			
sb	Switch, disconnect (15 kV)			1
		MISCELLANEOUS CUTOUTS AND DISCONNECT SWITCH		
				S1.01,S1.02,S2.01 (M5-9),(M5-10)
		12.47/7.2 kV		



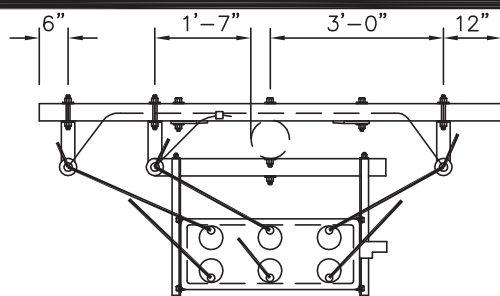
- NOTE:
- 1. Specify insulating caps for primary terminal bushings.
 - 2. For two-phase assemblies, omit capacitors and other material on center phase; designate assembly as "Y3.2."

ITEM	QTY	MATERIAL
c	3	Bolt, machine, 5/8" x req'd length
d	4	Washer, square, 2 1/4"
g	1	Crossarm, 3 5/8" X 4 5/8" X 8-0"
i	2	Bolt, carriage, 3/8" x 4 1/2"
j	1	Screw, lag, 1/2" x 4"
p		Connectors, as req'd
p		Connectors, compression, as req'd
ae	3	Arrester, surge (9 kV)
af	3	Cutout, dist., loadbreak, (15 kV)

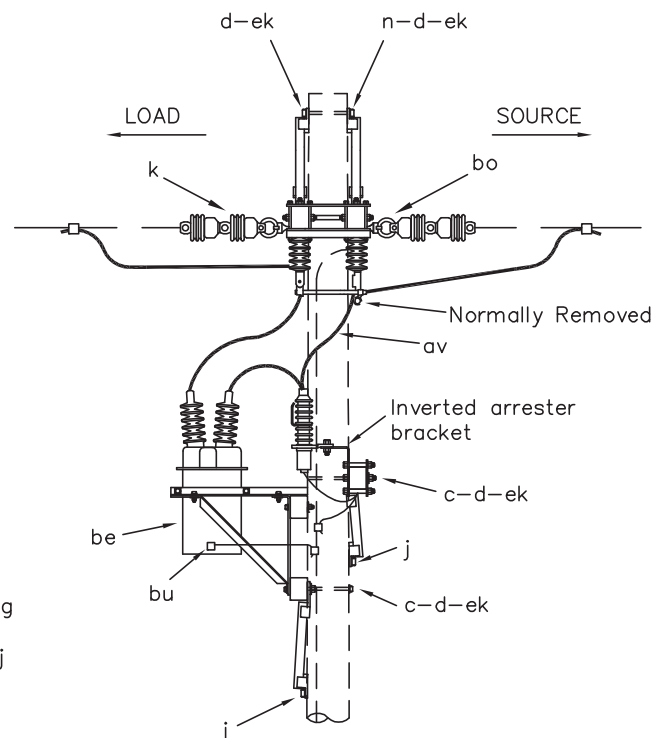
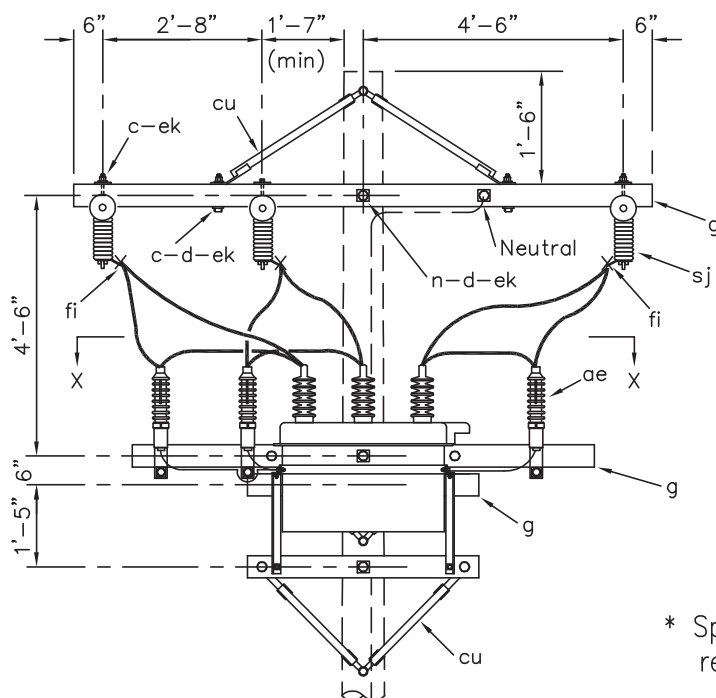
ITEM	QTY	MATERIAL
av		Jumpers, bare, stranded, as req'd
av		Jumpers, insulated, as req'd
cu	2	Brace, 28"
dp	1	Clamp, ground wire
ek	5	Locknuts
fc		Capacitor, shunt, 12.47/7.2 kV (specify number and kVAR)
fd	1	Hanger, capacitor

THREE PHASE CAPACITOR BANK

3 - PHASE PRIMARY 12.47/7.2 kV	Y3.2,Y3.3 (M9-12),(M9-13)
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SECTION X-X



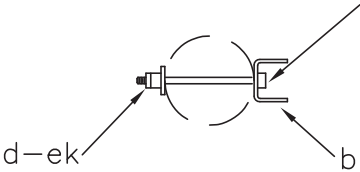
* Specify this item to be furnished by recloser manufacturer.

ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
c	3	Bolt, machine, 5/8"x req'd length	aa	2	Nut, eye, 5/8"
c	4	Bolt, machine, 1/2"x req'd length	ae	3	Surge arrester
d	12	Washer, sq. 2-1/4"x 3/16", 13/16"hole	av	-	Jumpers, stranded, as req'd
d	4	Washer, rd. 1-3/8" dia., 9/16" hole	be	1	Recloser, oil circuit - 3 phase
g	2	Crossarm, 3-5/8"x 4-5/8"x 10'-0"	*	1	Mounting bracket for 3 phase recloser
g	1	Crossarm, 3-5/8"x 4-5/8"x 8'-0"	bo	6	Shackle, anchor
g	2	Crossarm, 3-5/8"x 4-5/8"x 4'-0"	bu	1	Connector, solderless
j	2	Screw, lag, 5/8"x req'd length	cu	2	Brace, crossarm, wood, 60" span
k	12	Insulator, suspension	cu	4	Brace, crossarm, wood, 28"
l	6	Clamp, deadend	ek	-	Locknuts, as req'd
n	3	Bolt, double arming, 5/8"x req'd length	fi	6	Connector, hot line
p	-	Connectors, as req'd	sj	3	Switch, recloser by-pass

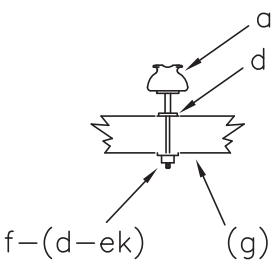
THREE-PHASE OIL CIRCUIT RECLOSER WITH BY-PASS SWITCHES

3 - PHASE PRIMARY
12.47/7.2 kV

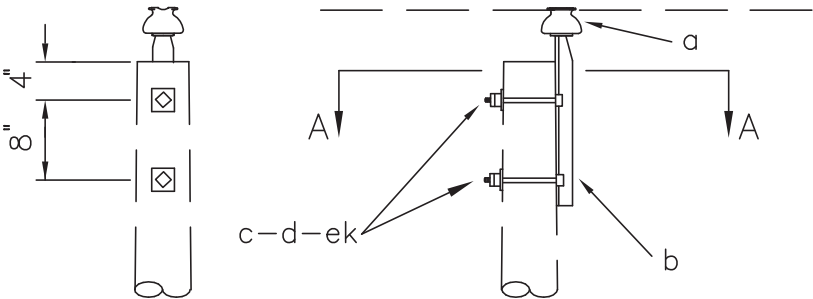
R3.3
(M3-30)



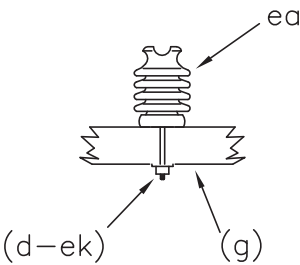
SECTION A-A



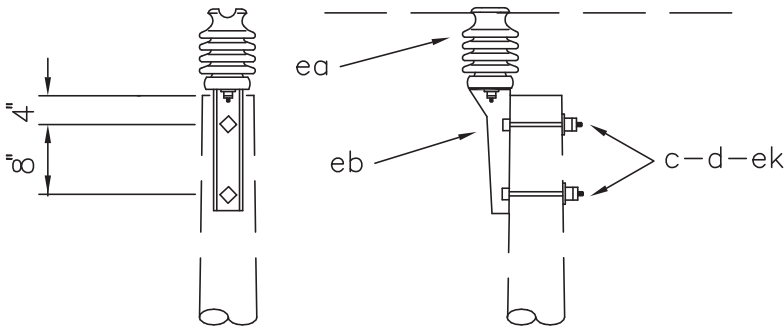
A1.011



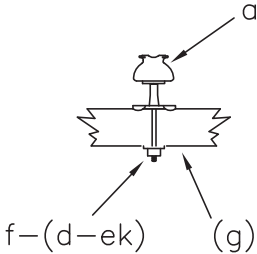
A1.01



A1.011P



A1.01P



A1.011L

ASSEMBLY: A1.

ITEM	MATERIAL	QTY	QTY	QTY	QTY	QTY
a	Insulator, pin type (12.47/7.2 kV)	1		1		1
b	Pin, pole top, 20"	1				
c	Bolt, machine, 5/8" x req'd length	2	2			
d	Washer, square, 2 1/4"	2	2	1		
f	Pin, crossarm steel, 5/8" x 10 3/4"			1		
f	Pin, crossarm steel, clamp type					1
ea	Insulator, post type (12.47/7.2 kV)		1		1	
eb	Bracket, pole top		1			
ek	Locknuts	2	2			

ASSEMBLY NUMBERS	
NEW	(OLD)
A1.01	(M5-2)
A1.01P	(M5-18)
A1.011	(M5-5)
A1.011P	(M5-7)
A1.011L	

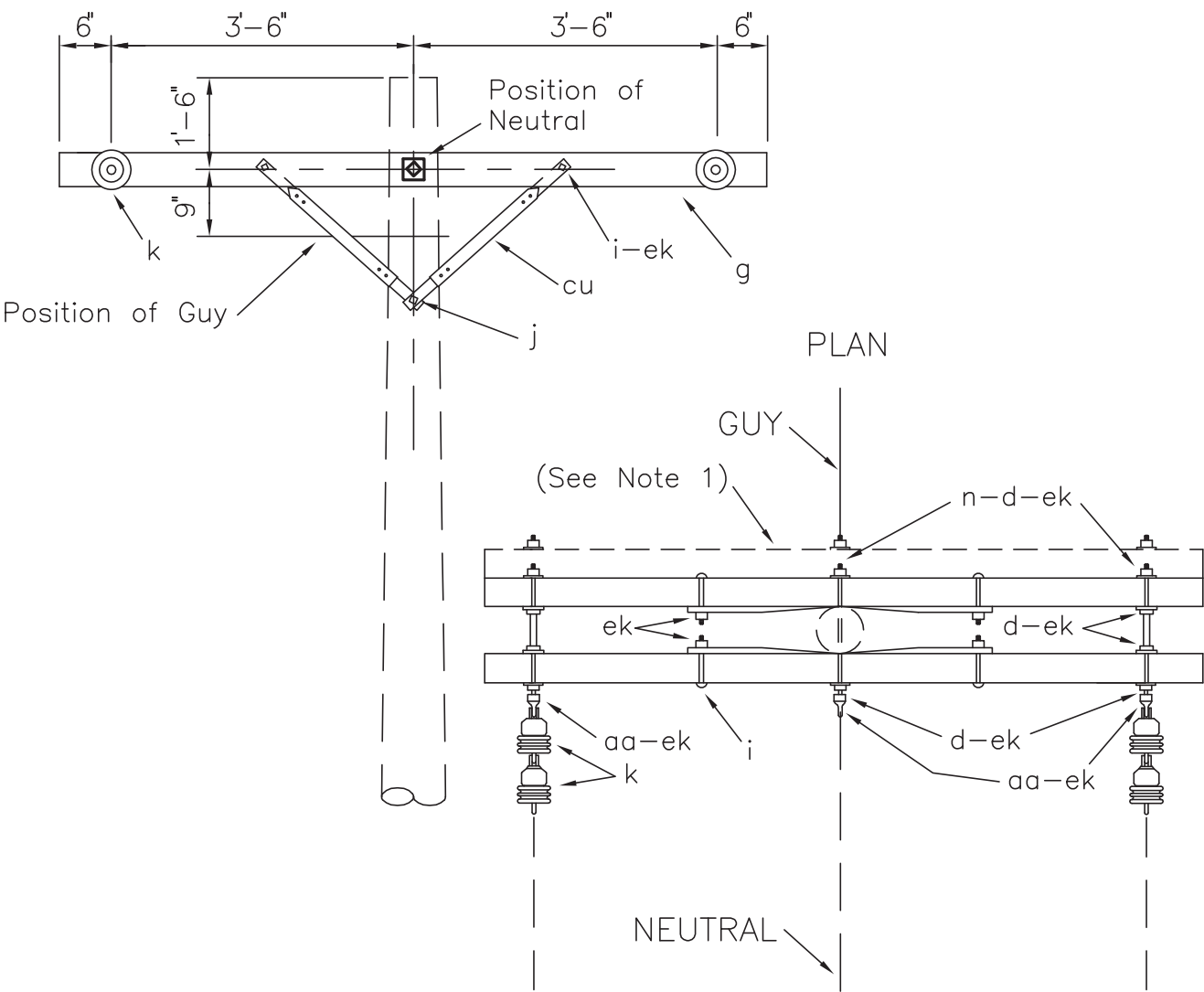
DESIGN PARAMETERS:

- A1.01: See TABLE I
- A1.01P: See TABLE II
- A1.011: See TABLE II
- A1.011P: See TABLE II
- A1.011L: See TABLE III

SINGLE SUPPORT-PRIMARY

1 - PHASE PRIMARY
12.47/7.2 kV

A1.01,A1.01P
A1.011,A1.011P
A1.011L



NOTES:

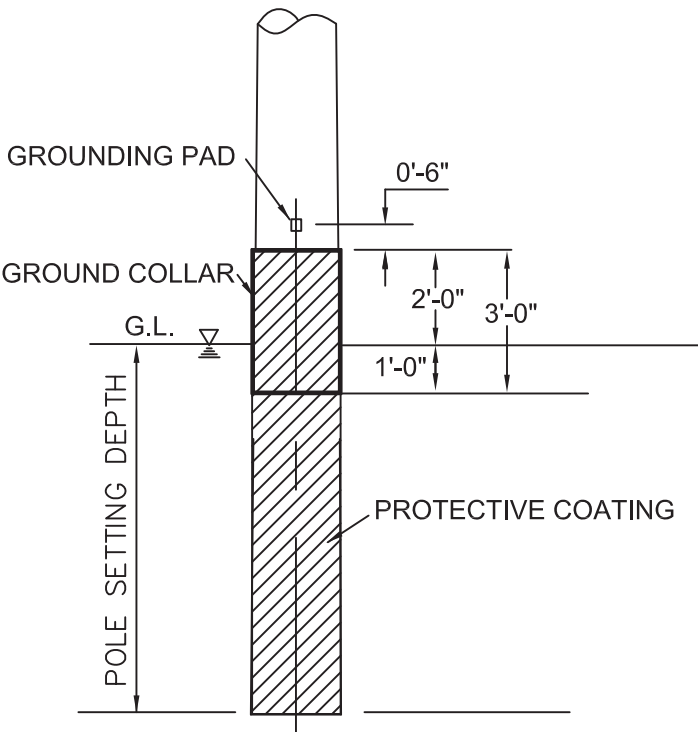
1. Designate as B5.31 for assembly with three crossarms.
2. Double arming eye bolt, item "dy", may be used instead of double arming bolt, item "n", and eyenut, item "aa".
3. See assembly B6.21 for alternative neutral position and materials.

ITEM	QTY	MATERIAL
d	10	Washer, square, 2 1/4"
g	2	Crossarm, 3 5/8" x 4 5/8" x 8'-0"
i	4	Bolt, carriage, 3/8" x 4 1/2"
j	2	Screw, lag, 1/2" x 4"
k	4	Insulator, suspension, 4 1/4"
n	3	Bolt,double arming,5/8" x req'd length
aa	3	Nut, eye, 5/8"
cu	4	Brace, 28"
ek	17	Locknuts

DESIGN PARAMETERS:

SINGLE DEADEND ON CROSSARMS
REMOVALS ONLY

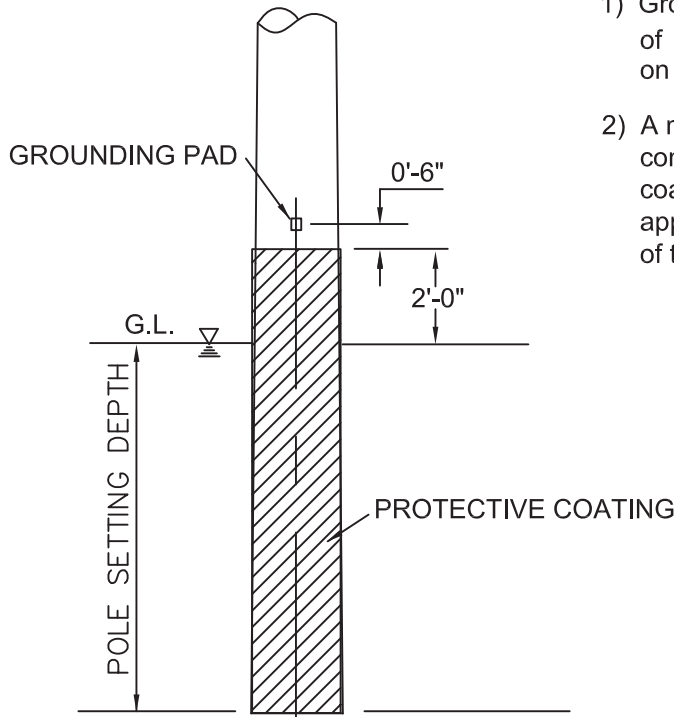
2 – PHASE PRIMARY 12.47/7.2 kV	B5.21 (B7) B5.31 (B7-1)
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PROTECTIVE COATING
WITH GROUND COLLAR

NOTES:

- 1) Ground collars shall have a minimum thickness of $\frac{3}{16}$ ", having a length of 3 feet and shall be located on the centerline of the designated centerline.
- 2) A minimum of 16 mil dry film thickness of two component hydrocarbon extended polyurethane coating that is resistant to ultraviolet light shall be applied to the exposed surface of the embedded portion of the pole.



PROTECTIVE COATING
WITHOUT GROUND COLLAR



850 Center Way | Norcross, GA 30071
(770) 453-1410 | pdengineers.com
Engineers - Surveyors - Construction Management

LIGHT DUTY STEEL POLE
POLE COLLAR & PROTECTIVE COATING

DATE: 09-12-18

SCALE: NONE

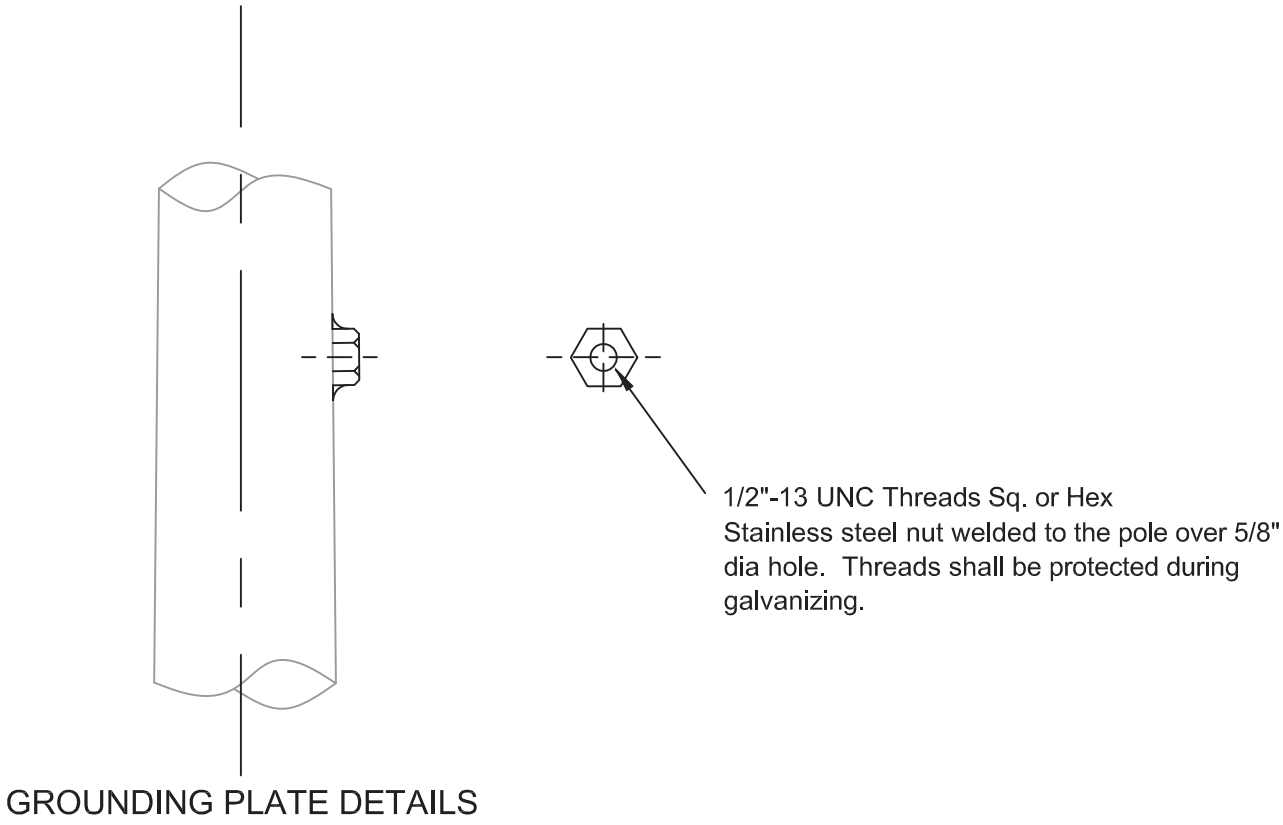
ATTACHMENT "B"



U.S. 41A – Section 2 Utility Relocation
Madisonville Municipal Utilities
KY Transportation Cabinet

Contract No: 6531-C1
Date: June 4, 2021
Rev.: 02

Steel Pole Drawings



GROUNDING PLATE DETAILS

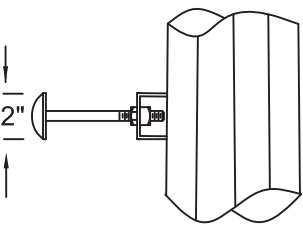
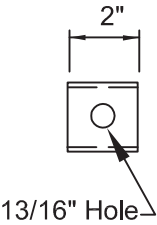
LIGHT DUTY STEEL POLE
GROUNDING DETAIL



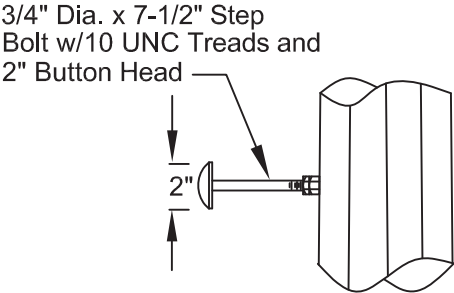
850 Center Way | Norcross, GA 30071
(770) 453-1410 | pdengineers.com
Engineers - Surveyors - Construction Management

DATE: 09-12-18

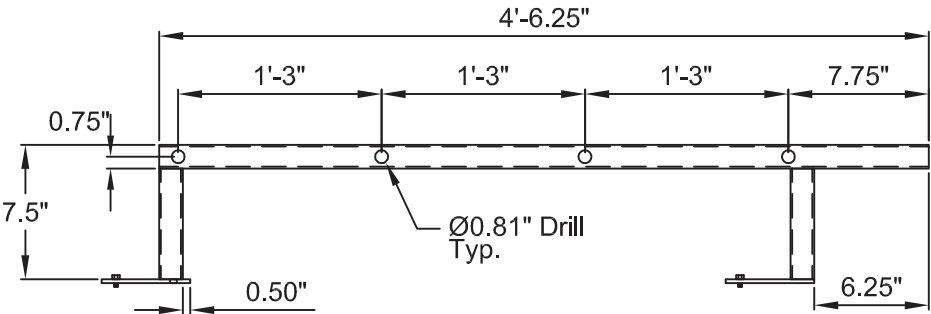
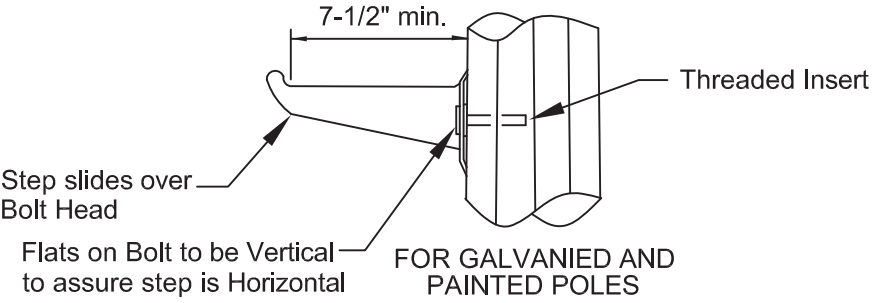
SCALE: NONE



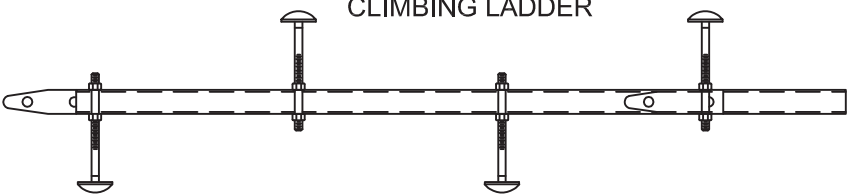
FOR GALVANIZED, WEATHERING & PAINTED STEEL



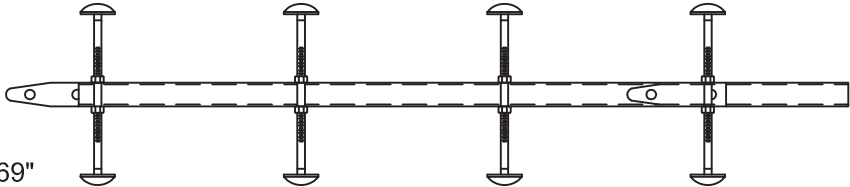
FOR SELF-WEATHERING STEEL



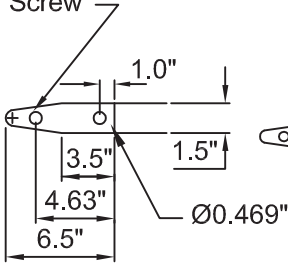
CLIMBING LADDER



WORKING LADDER



Ø0.469" Drill & Tap 1/2"-13UNC ±.021 For Galv. Screw



NOTES:

1) ALL MOUNTING BOLTS, CLIPS, INSERTS OR ANY OTHER DEVICE SHALL BE A MINIMUM OF 6" AWAY FROM ANY DRILLED HOLE TO AVOID INTERFERENCE WITH MOUNTING POLE EYE PLATES, INSULATORS, DAVIT ARMS OR OTHER ASSEMBLIES



patterson & dewar
ENGINEERS

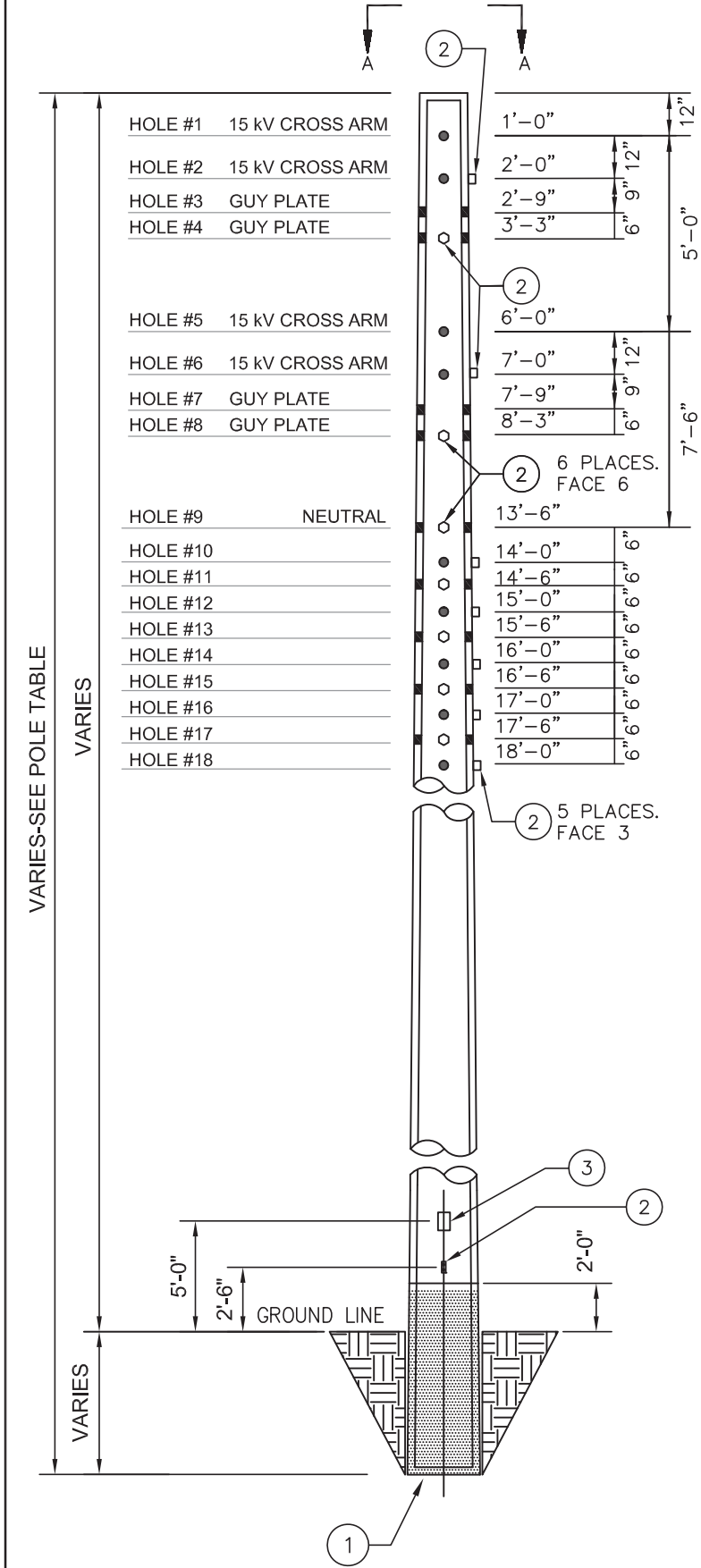
850 Center Way | Norcross, GA 30071
(770) 453-1410 | pdengineers.com
Engineers - Surveyors - Construction Management

LIGHT DUTY STEEL POLE
CLIMBING DETAIL

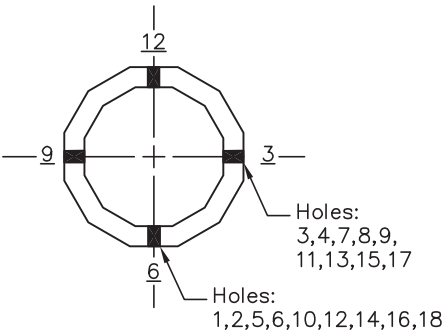
DATE: 09-12-18

SCALE: NONE

ATTACHMENT "C"



ITEM NO.	QTY.	DESCRIPTION
1	1	BEARING PLATE
2	15	WELDED NUT FOR GROUNDING
3	1	NAME PLATE



STR. #	LENGTH/CLASS	EMBED LENGTH
N28	50'/H1	7'-0"
N29	55'/H1	7'-6"
N31	50'/H1	7'-0"
N32	50'/H1	7'-0"
N34	55'/H1	9'-0"
N35	55'/H1	7'-6"
N35-1	55'/H1	7'-6"
N37	55'/H1	7'-6"
N38	55'/H1	7'-6"
N38-1	55'/H1	7'-6"

NOTE:
1) Holes to be:
1 1/16" diameter: 9-18
1 3/16" diameter: 1-8
2) Pole Identification Plate shall be installed on "A" face, 5 FT above ground line.



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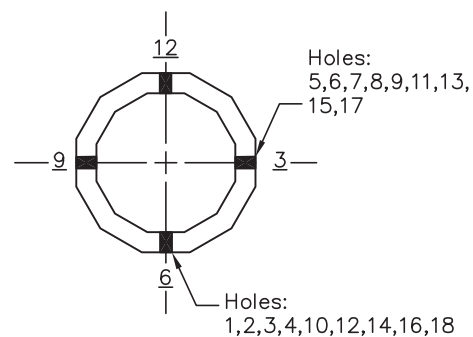
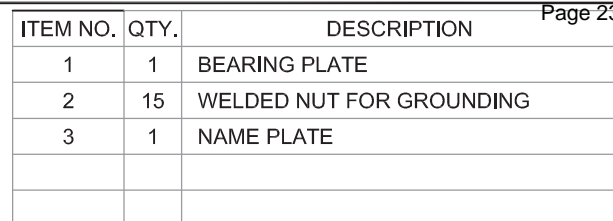
MADISONVILLE MUNICIPAL UTILITIES
MADISONVILLE, KENTUCKY

41A RELOCATION

DATE: 6-4-21

SCALE: NONE

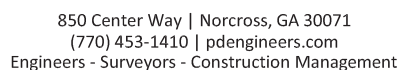
LIGHT DUTY STEEL POLE DRILLING GUIDE



SECTION "A-A"

STR. #	LENGTH/CLASS
N33	55'/H1

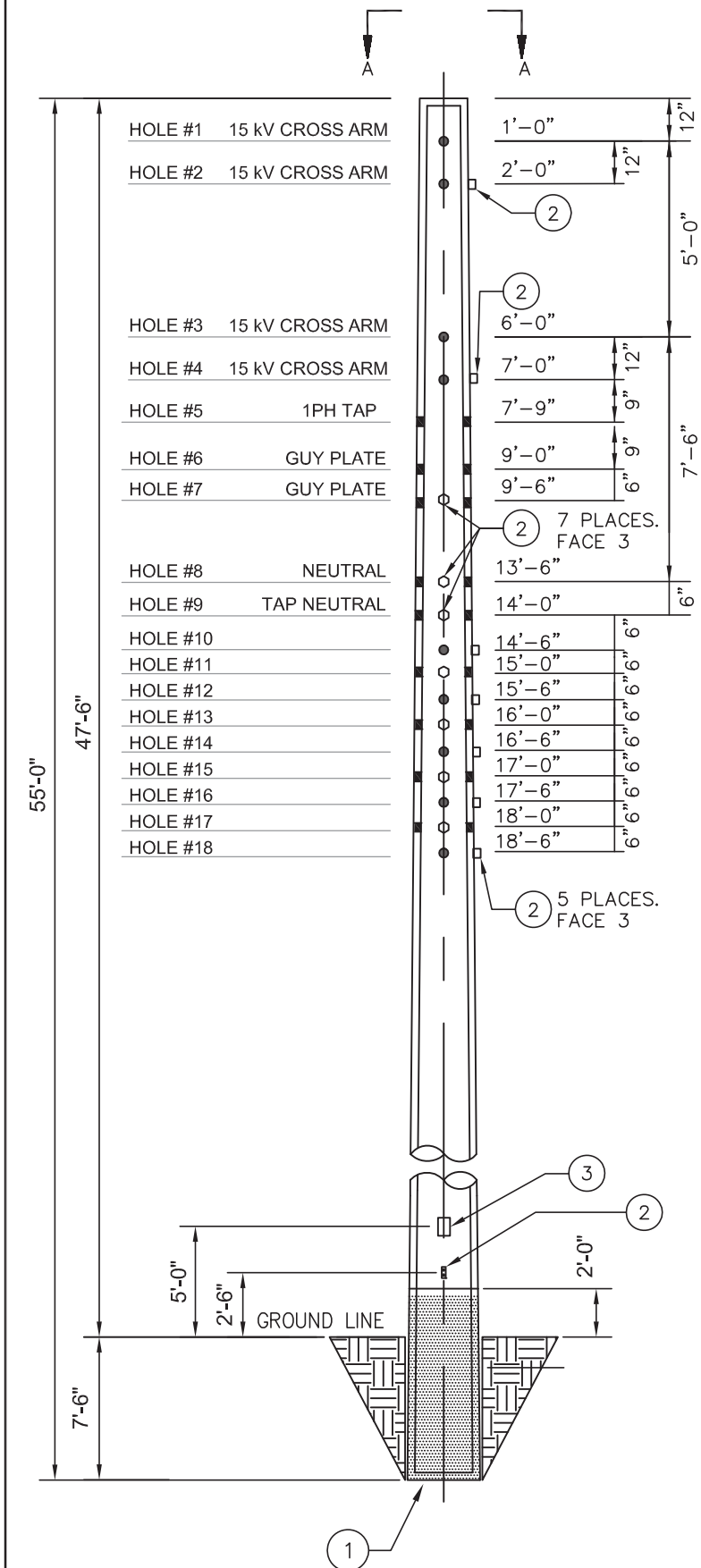
3) Embedment of pole is 10%+2' of total pole length.



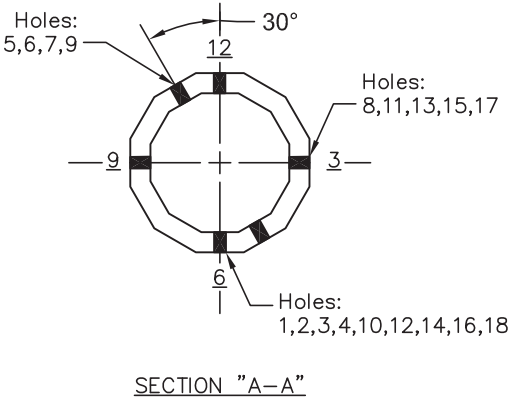
41A RELOCATION

SCALE: NONE

LIGHT DUTY STEEL POLE DRILLING GUIDE



ITEM NO.	QTY.	DESCRIPTION
1	1	BEARING PLATE
2	15	WELDED NUT FOR GROUNDING
3	1	NAME PLATE



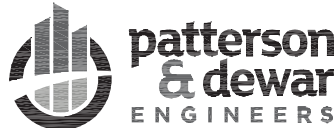
STR. #	LENGTH/CLASS
N36	55'/H1

NOTE:

1) Holes to be:
1 1/16" diameter: 5,8-18
1 3/16" diameter: 1-4,6,7

2) Pole Identification Plate shall be installed on "A" face,
5 FT above ground line.

3) Embedment of pole is 10%+2' of total pole length.



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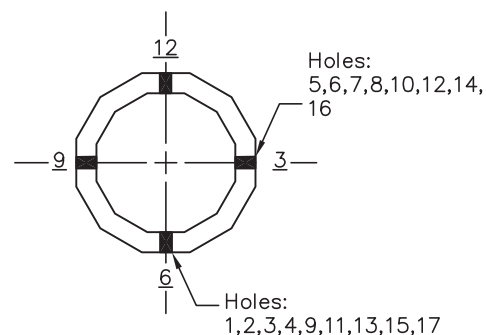
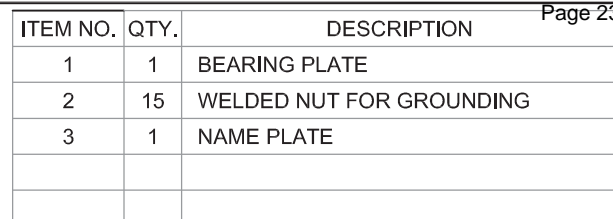
MADISONVILLE MUNICIPAL UTILITIES
MADISONVILLE, KENTUCKY

41A RELOCATION

DATE: 6-4-21

SCALE: NONE

LIGHT DUTY STEEL POLE DRILLING GUIDE



SECTION "A-A"

STR. #	LENGTH/CLASS
N27	50'/H4
N30	55'/H1

1) Holes to be:
 $1\frac{1}{16}$ " diameter: 7-17
 $1\frac{3}{16}$ " diameter: 1-6

2) Pole Identification Plate shall be installed on "A" face,
5 FT above ground line.

3) Embedment of pole is 10%+2' of total pole length.



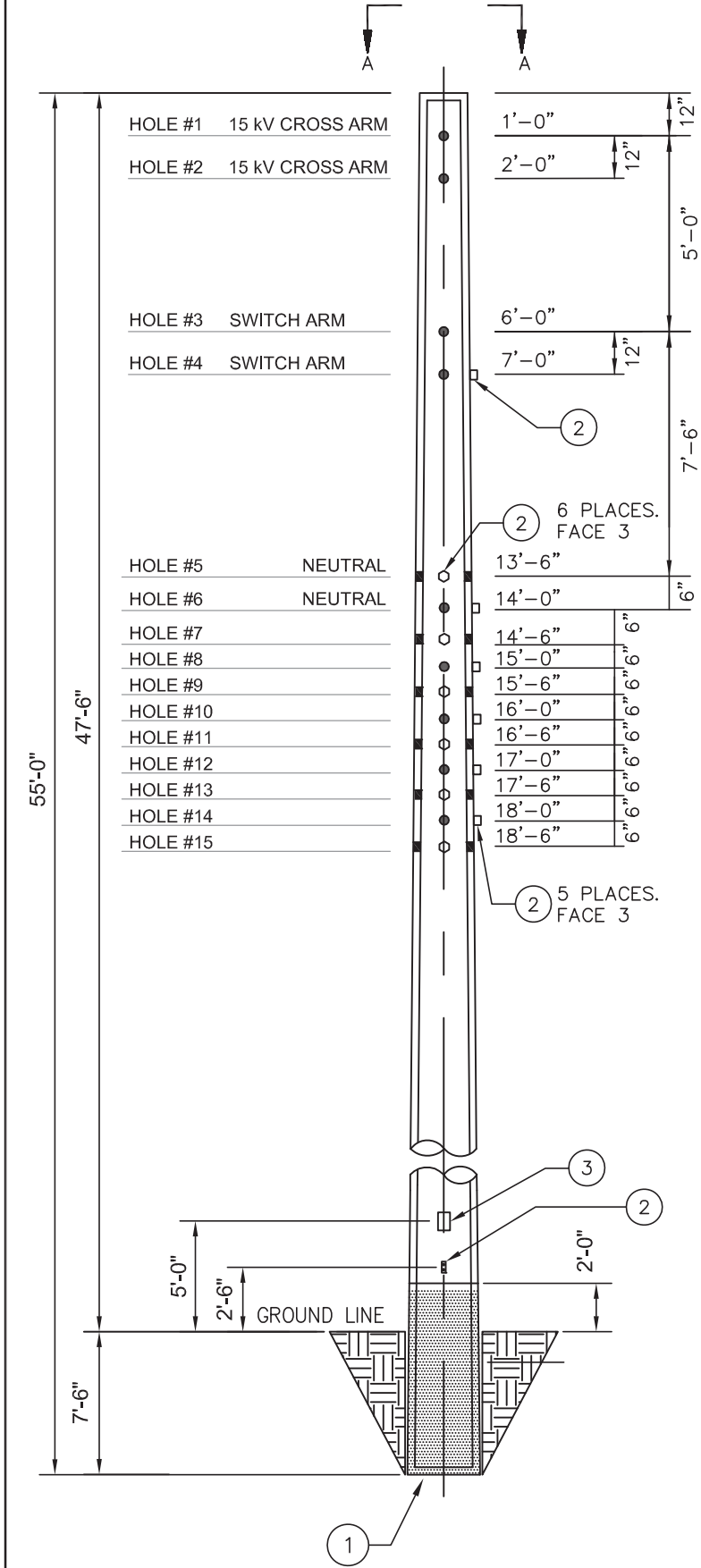
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MADISONVILLE, KENTUCKY

41A RELOCATION

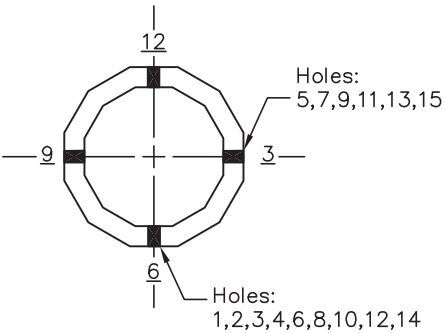
DATE: 6-4-21

SCALE: NONE

LIGHT DUTY STEEL POLE DRILLING GUIDE



ITEM NO.	QTY.	DESCRIPTION
1	1	BEARING PLATE
2	13	WELDED NUT FOR GROUNDING
3	1	NAME PLATE



STR. #	LENGTH/CLASS
N24	55'/H1
N25	55'/H1

- NOTE:
- Holes to be:
 - $\frac{1}{16}$ " diameter: 3-15
 - $\frac{3}{16}$ " diameter: 1,2
 - Pole Identification Plate shall be installed on "A" face, 5 FT above ground line.
 - Embedment of pole is 10%+2' of total pole length.



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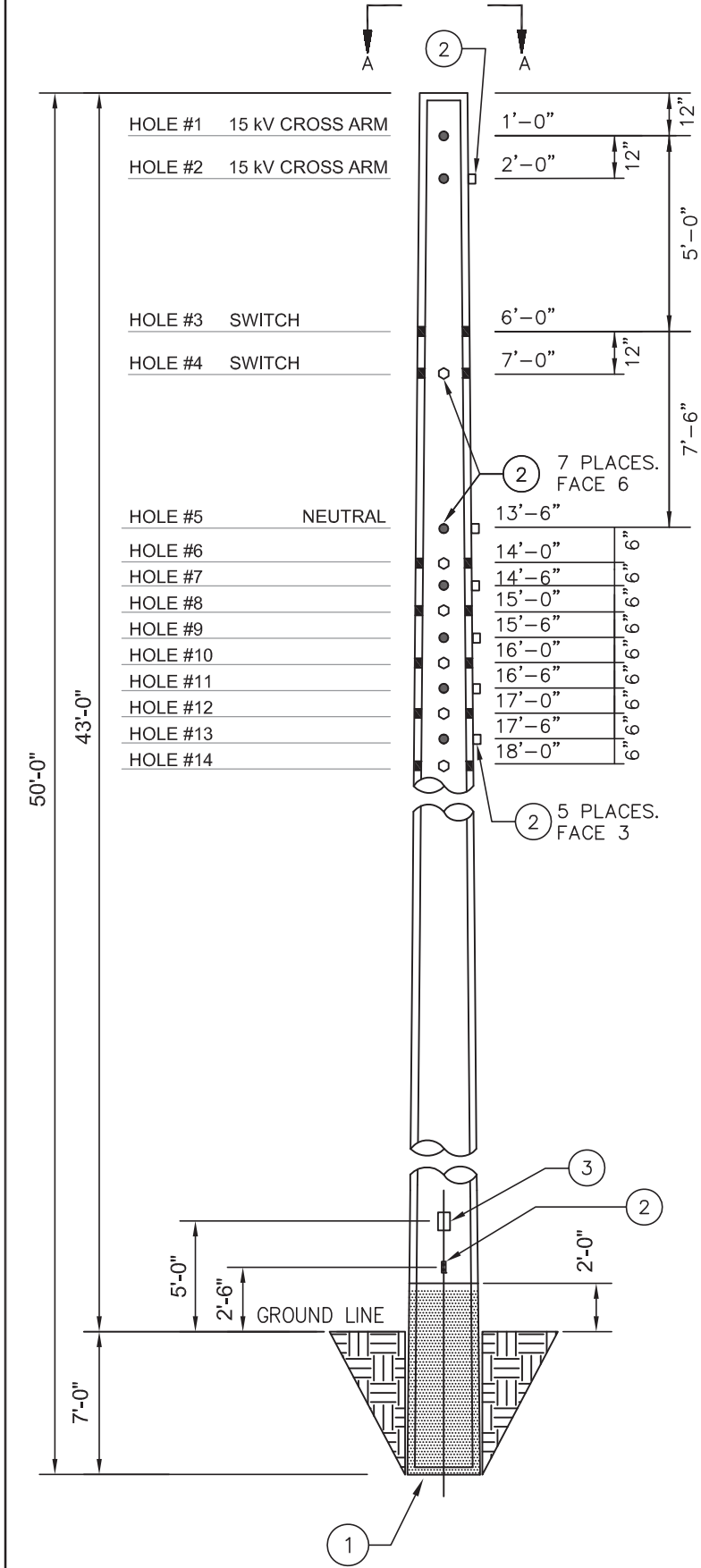
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MADISONVILLE, KENTUCKY

41A RELOCATION

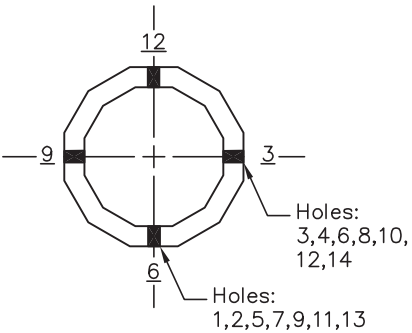
DATE: 6-4-21

SCALE: NONE

LIGHT DUTY STEEL POLE DRILLING GUIDE



ITEM NO.	QTY.	DESCRIPTION
1	1	BEARING PLATE
2	14	WELDED NUT FOR GROUNDING
3	1	NAME PLATE



STR. #	LENGTH/CLASS	EMBED LENGTH
N26	50'/H1	7'-0"

NOTE:

1) Holes to be:

1 1/16" diameter: 3-14

1 3/16" diameter: 1,2

2) Pole Identification Plate shall be installed on "A" face, 5 FT. above ground line.



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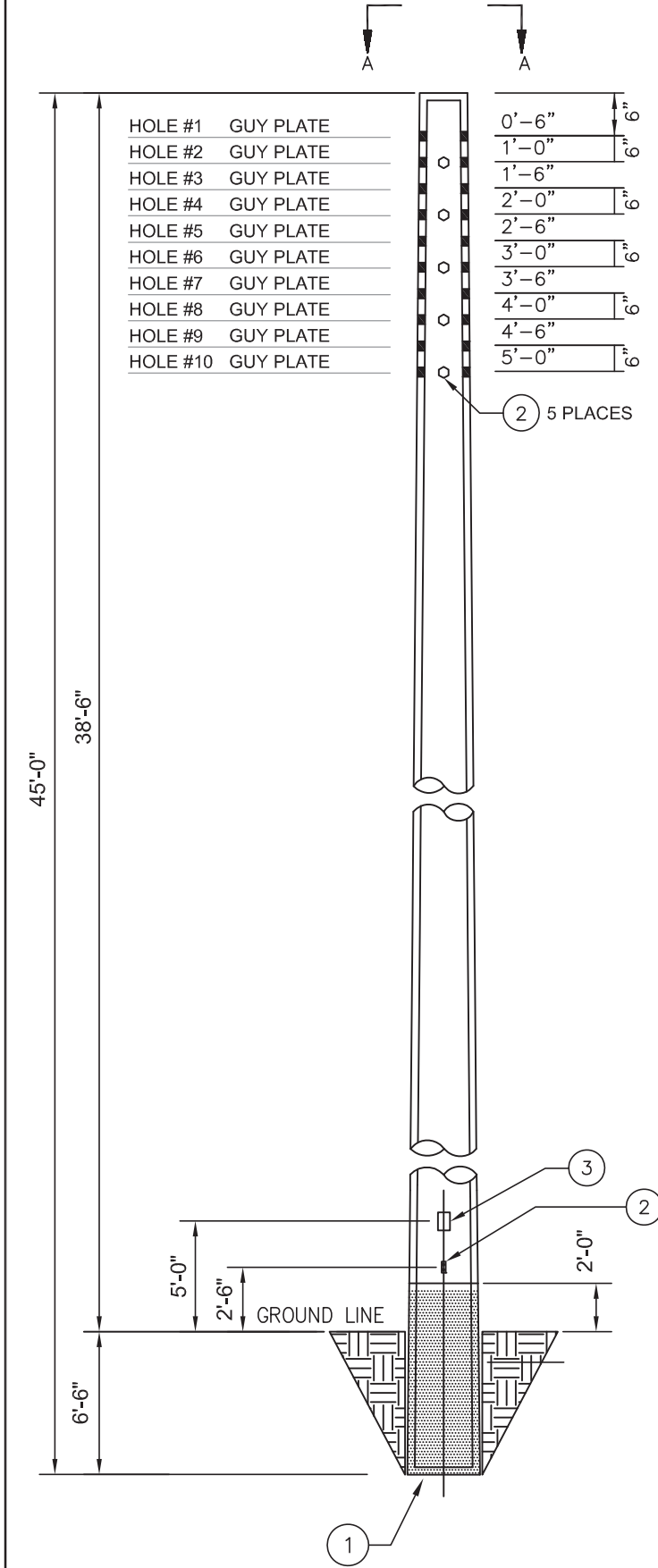
MADISONVILLE MUNICIPAL UTILITIES
MADISONVILLE, KENTUCKY

41A RELOCATION

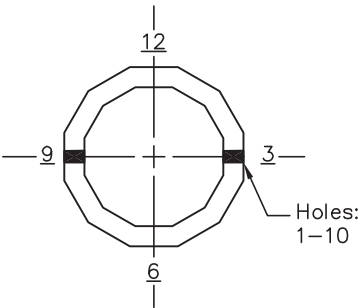
DATE: 6-4-21

SCALE: NONE

LIGHT DUTY STEEL POLE DRILLING GUIDE



ITEM NO.	QTY.	DESCRIPTION
1	1	BEARING PLATE
2	6	WELDED NUT FOR GROUNDING
3	1	NAME PLATE



SECTION "A-A"

STR. #	LENGTH/CLASS
N38-S	45'/1

NOTE:
1) Holes to be:

13/16" diameter: 1-10

2) Pole Identification Plate shall be installed on "A" face,
5 FT above ground line.

3) Embedment of pole is 10%+2' of total pole length.



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MADISONVILLE MUNICIPAL UTILITIES
MADISONVILLE, KENTUCKY

41A RELOCATION

DATE: 6-4-21
SCALE: NONE

LIGHT DUTY STEEL POLE DRILLING GUIDE
STUB POLE

Technical Specifications

For

US 41A (Hopkins)

Item No. 02-0137.10

May, 2021

City of Madisonville, KY

Prepared by:

**HDR Engineering, Inc.
4645 Village Square Drive, Suite F
Paducah, KY 42001**

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SECTION 02221 TRENCHING, BEDDING AND BACKFILLING

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Excavation of all materials encountered in trench excavation, including earth, rock or other materials, whether wet or dry.
- B. Provide necessary sheeting, shoring and bracing.
- C. Dewater excavation as required.
- D. Undercut unsuitable materials and replace as required.
- E. Prepare a stable, satisfactory trench bottom.
- F. Place and compact granular beds, check dams, and backfill as appropriate.
- G. Dispose of any unsuitable or excess materials.

1.2 PRECAUTIONS

- A. In accordance with the Kentucky State Law the Contractor shall properly notify underground utility owners prior to beginning excavation activities. Kentucky State Law requires notification to the statewide one-call center, Kentucky One-Call, at least two (2) working days prior to excavation, but not more than ten (10) working days in advance of beginning the work. Locate requests, including emergency locate requests, to Kentucky One-Call shall be processed in accordance with Kentucky State Law. Contact Kentucky One-Call at 811 to process a locate ticket. The City of Madisonville will not locate its water and sewer utilities without a locate ticket from Kentucky One-Call.
- B. Protect all structures, utilities, sidewalks, pavements, fences, vegetation and other features to remain.
- C. Protect all benchmarks, property pins, survey points and similar items. If disturbed or damaged by construction operations, the Contractor shall pay the cost of restoration by a registered surveyor.
- D. Follow all Federal, State, County, TVA, KYTC, and Railroad regulations when working in Rights-of-Way not owned by City or in utility easement.

- E. Establish all erosion prevention and sediment control devices.
- F. Precautions shall be taken to eliminate tracking of soil, mud, rock and gravel onto streets and roadways.

1.3 DUST CONTROL

- A. When ordered by Engineer or his representative, furnish and distribute over traveled road surfaces which have not been fully restored, an application of regular flake calcium chloride having a minimum calcium chloride content of 77 percent, or a brine solution consisting of 1.5 pound of calcium chloride and one pound of sodium chloride per 100 gallons of water applied by a pressure distributor. Rate of application shall be 3 pounds/square yard for the flake calcium chloride, and 0.48 gallon/square yard for brine solution.
- B. Whenever dust control is necessary, it shall be considered an integral part of the work, and no separate payment shall be made for it.

1.4 MAINTENANCE OF TRAFFIC AND CLOSING OF STREETS

- A. Carry on the work in a manner which will cause a minimum of interruption to traffic, and do not close to through travel more than two consecutive blocks, including the cross street intersected. Where traffic must cross open trenches, provide bridges at street intersections and driveways. Post signs indicating that a street is closed and necessary detour signs for the proper maintenance of traffic. Before closing any streets notify responsible municipal, state, county, emergency, transit and school system authorities.
- B. Place and maintain barricades, fences, construction signs, lights and flagmen as required during the progress of the construction work and until it is safe for traffic to use the roads and streets. The rules and regulations of OSHA, KYTC and other appropriate authorities respecting traffic safety provisions shall be observed.

PART 2 – PRODUCTS

2.1 BEDDING AND BACKFILL MATERIALS

- A. Crushed stone material, No. 9 aggregate and Dense Graded Aggregate (DGA) as shown on the project details.
- B. Class II Material: Coarse sands and gravels with a maximum particle dimension of 1-1/2 inch including variously graded sands and gravels containing small percentages of fines, generally granular and non-cohesive, either wet or dry.
- C. Class III Material: Fine sand and clayey gravels, including fine sands, sand-clay mixtures, and gravel-clay mixtures.
- D. Class IV Material: Silt, silty clays, and clays, including inorganic clays and silts of medium to high plasticity and liquid limits.
- E. In rock cuts, paved areas, roadways or other areas where free drainage bedding or backfill material is required, use crushed stone material.
- F. Flowable Fill: Per Kentucky Standard Specifications.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Pre-construction photographs and video shall be taken by the Contractor, with special attention to improved areas, to aid in restoring landscaping and other items to their initial condition.
- B. Protect all features to remain.
- C. Put in place all traffic and other safety provisions as required.

3.2 EXCAVATION

- A. Unless specifically shown otherwise on the Bid Form, all excavation is unclassified, and includes excavation to subgrade elevations regardless of the character of materials and obstructions encountered. It is to be understood that any reference to rock, earth or any other material on the drawings is not to be taken as an indication of classified excavation or the quantity of either rock, earth or any other material involved.
- B. The Bidder should make such investigations as deemed necessary to determine existing conditions and shall draw his own conclusions as to the conditions to be encountered. When rock borings, soundings or test pit data are provided, they are for information only and do not guarantee existing conditions.
- C. Align the trench as shown on the Contract Drawings. Deviations due to obstructions are discussed in Paragraph 3.8 of this Section.
- D. Perform excavation in such a manner as to form a suitable trench in which to place the pipe and so as to cause the least inconvenience to the public.
- E. The Contractor shall be responsible for stripping, storing and protecting topsoil that is to be removed prior to excavation. This topsoil is to be reused during the cleanup and restoration. The Contractor is responsible for obtaining and providing other topsoil as may be necessary to restore the excavated area to its original topsoil quantity and quality.
- F. Pavement cuts shall be made along neat, straight lines with either a pavement breaker or pavement saw prior to the excavation. Cut pavement to be a minimum of 1 foot outside of trench cut. Coordinate all street cuts with the State, County and City Street Departments as applicable.
- G. Trenches shall be excavated to the depths indicated on the Contract Drawings. Trench depth shall be sufficient to provide a minimum cover of 42 inches (Sewer) and 42 inches (Water) over the top of the pipe in non- traffic areas and 42 inches (Sewer) and 42 inches (Water) in areas subject to vehicular traffic. Depth of cover is measured from finished grade to top of the pipe. Where approved by the Owner, additional pipe protection such as use of ductile iron pipe or concrete encasement may be used where minimum cover is not possible. Increased depth may be required as noted on the Contract Drawings to avoid obstructions, avoid requiring an air release valve and other reasons.
- H. Excavated material shall be placed a minimum of two feet back from the edge of the trench.

- I. When unstable soil or other unsuitable material is encountered at the trench bottom, undercut these materials to a depth required to assure support of the pipeline or as directed by the Engineer and backfill to the proper grade with compacted crushed stone. The top six (6) inches shall be Class I angular material.
- J. Remove rock encountered in trench excavation to a minimum depth of four (4) inches below the bottom of the pipe barrel, backfill with Class I angular material, and compact to uniformly support the pipe. In no case shall solid rock exist within four inches of the finished pipeline.
- K. Maximum width at the crown of the pipe shall be two (2) feet plus the nominal diameter of the pipe, unless specifically approved otherwise by the Engineer due to unusual bracing and shoring requirements. Trenches constructed by mechanical trenching are allowed only with prior approval of Engineer. Over-excavation will be required at locations for fittings and valves and construction of concrete thrust blocks.
- L. Trenches four (4) feet or more in depth should be provided with a means of egress. Spacing between ladders or other means of egress must be such that a worker will not have to travel more than 25 feet laterally to the nearest means of egress.
- M. Open excavations shall be barricaded when the Contractor is not at the site. At a minimum, this shall consist of orange polyethylene barricade safety fence.

3.3 SHEETING, SHORING AND BRACING

- A. Furnish, put in place, and maintain such sheeting, shoring and bracing, as may be required to support the sides of the excavation and to prevent movement as required by OSHA. Damages resulting from improper shoring or failure to shore shall be the sole responsibility of the Contractor.
- B. Comply with all OSHA standards in determining where and in what manner sheeting, shoring and bracing are to be accomplished. The sheeting, shoring and bracing system shall be designed by a professional engineer licensed in the State of Kentucky and shall be subject to approval by the Engineer. However, such approval does not relieve the Contractor of the sole responsibility for the safety of all employees, the effectiveness of the system, and any damages or injuries resulting from the lack or inadequacy of the sheeting, shoring and bracing.
- C. The Contractor may use a trench box, which is a prefabricated movable trench shield composed of steel plates welded to a heavy steel frame. The trench box shall be designed to provide protection equal to or greater than that of an appropriate shoring system.

- D. Do not leave sheeting, shoring or bracing materials in place unless called for in the Contract Drawings, ordered by the Engineer, or deemed necessary or advisable for the safety or protection of new or existing work or features. Remove these materials in such a manner that the new structure or any existing structure or property, whether public or private, will not be endangered or damaged and that cave-ins and slides are avoided.

3.4 DISPOSAL OF MATERIALS

- A. Whenever practicable, all materials removed by excavation that are suitable for backfilling pipe trenches or for other purposes shown on the drawings or directed by the Engineer shall be used for those purposes.
- B. Any materials not so used shall be considered waste materials and disposed of by the Contractor. Waste materials may be deposited in spoil areas at locations approved of by the Engineer, or shall be properly disposed of off-site if there is no approved spoil area.

3.5 UNAUTHORIZED EXCAVATION

- A. Unauthorized excavation is defined as all excavation outside or below the proposed lines and grades shown on the Contract Drawings or that which is directed by the Engineer.
- B. Backfill areas of unauthorized excavation with the type of material necessary to ensure the stability of the structure or construction involved.
- C. Unauthorized excavation and/or backfill to replace same shall not be a pay item.

3.6 DEWATERING

- A. The Contractor shall furnish, install and operate all necessary equipment to keep excavated areas free of water while work is in progress. Dewatering equipment shall be of adequate size and quantity to assure maintaining proper conditions for installing pipe, concrete, bedding, backfill or other material or structure in the excavation. The Cost of Dewatering is incidental to the project cost.
- B. Well-pointing shall be performed if required.

- C. Take particular precautions to prevent the displacement of structures or pipelines as a result of accumulated water. Any pipe displaced due to accumulated water shall be replaced by the Contractor at his expense.
- D. Dewatering operations shall be performed in a manner so as not to cause injury to public or private property or nuisance to the public nor contribute to pollution to surface water.

3.7 OBSTRUCTIONS

- A. Obstructions shown on the Contract Drawings are for information only and do not guarantee their exact locations nor that other obstructions are not present. The crossing of existing mains and services, which are approximately perpendicular to the proposed ditch line, is considered normal construction practice. The Contractor shall have the responsibility of making these crossings and repairing any damages to such crossings without additional reimbursement.
- B. Whenever unknown obstructions are encountered during the progress of the work that directly interfere with the vertical or horizontal alignment of the pipeline, the Engineer shall have the authority to order a deviation from the grade or alignment or for the removal, relocation or reconstruction of the obstructing utility or structure. Likewise, the Contractor may request to relocate the proposed line or request reimbursement for relocating the existing line or performing unusual shoring beyond what is normally required for trench stabilization.
- C. When utilities or obstructions are not shown on the Contract Drawings but are present off the roadway at the location of the proposed pipeline route, the Contractor may request to relocate the pipeline in the roadway if necessary to avoid disturbing the utility or obstructions. If the relocation is approved by the Engineer into a paved area, the Contractor shall receive compensation for additional granular backfill and pavement replacement as measured and paid for as set forth in Section 01026, Paragraph 3.2.
- D. Exercise due care in excavating adjacent to existing obstructions and do not disturb same unless absolutely necessary.
- E. In the event existing utilities are disturbed, repair or replace as quickly as possible to the condition existing prior to their disturbance at no cost to the Owner. If required by the Owner, pay for the repair or replacement work performed by the forces of the utility company or other appropriate party.
- F. If replacement or repair of disturbed obstructions is not performed after a reasonable period of time, the Owner may have the necessary work done and deduct the cost of same from payments to the Contractor.

3.8 BEDDING OF GRAVITY SEWER MAINS

- A. Always maintain proper grade and alignment during the bedding and tamping process. Any pipe damaged or displaced during this process shall be replaced by the Contractor at his expense.
- B. Provide crushed stone for bedding of all gravity sanitary sewer pipe regardless of pipe material. Dig bell holes so that the barrel of the pipe will rest for its entire length upon the prepared bedding to assure uniform support of the pipe.
- C. Completely encapsulate each PVC sewer pipe section per the detail on the drawings.
- D. Where gravity sewer pipe, regardless of pipe material, is laid within a rock cut, completely encapsulate each pipe section with a minimum of 4 inches of crushed stone on the top, both sides and the bottom of the pipe.

3.9 BEDDING OF WATER MAINS AND SEWER FORCE MAINS

- A. Water mains and sewer force mains may be laid on a stable earth bed in a trench cut in natural ground. Excavate the trench in such a manner as to form a suitable bed on which to place the pipe. Where unstable soil or other unsuitable material is encountered at the trench bottom, undercut and replace these materials as discussed in Paragraph 3.2 of this Section.
- B. Where water lines and sewer force mains are laid within a rock cut, completely encapsulate each pipe section with a minimum of four (4) inches of crushed stone on the top, and 4" minimum on both sides and the bottom of the pipe.
- C. Dig bell holes so that the barrel of the pipe will rest for its entire length upon the natural earth trench bed or prepared bedding to assure uniform support of the pipe.

3.10 INITIAL BACKFILLING OF WATER MAINS AND SEWER FORCE MAINS

- A. Do not begin backfilling before the Engineer or his representative has inspected or approved the grade and alignment of the pipe, the bedding of the pipe, and the joints between the pipes. If backfill material is placed over the pipe before an inspection is made, the Engineer or his representative may require the Contractor to reopen the trench in order for an inspection to be made at no cost to the Owner. If construction allows, leave trench open at the joints until a pressure test is completed.

- B. Perform initial backfilling by hand or by carefully dumping small quantities of fill from a loader bucket, until fill has progressed to six (6) inches above the top of the pipe.

3.11 FINAL BACKFILLING OF WATER MAINS, SEWER FORCE MAINS AND GAS LINES

- A. Final backfilling shall be performed as soon as practicable after inspection and initial backfilling is complete. Adequate precautions shall be taken to insure proper placement and compaction of backfill without disturbing or damaging pipe. Fill shall be properly compacted and suitable precautions shall be taken to insure permanent stability for pipe. Utilities shall be provided with adequate cover or additional protection as described in Paragraph 3.2 of this Section.
- B. Backfilling in unimproved areas:
 - 1. Dispose of all soft, yielding or organic material that is unsuitable for trench backfill and replace with suitable material. The maximum dimension of individual stones and broken rock within the backfill should not exceed six (6) inches.
 - 2. Deposit, spread and compact backfill in even layers no greater than 12 inches deep to the surface with suitable equipment in such a manner so as not to disturb the pipe. If earth material for backfill is, in the opinion of the Engineer or his representative, too dry to allow thorough compaction, the Contractor shall add enough water so that the backfill can be properly compacted.
 - 3. Neatly round sufficient surplus excavated material over the trench to compensate for settlement of the backfill.
 - 4. The top 12 inches of backfill material shall consist of fine loose earth free from large clods, vegetable matter, debris, stone and/or other objectionable materials.
 - 5. Properly dispose of all excess excavated material.
 - 6. Prior to final acceptance, finish grade, restore topsoil and reestablish landscaping as required.
- C. Backfilling beneath flexible and rigid pavements:
 - 1. Refer to trench details as shown on the drawings.
 - 2. Compact each layer thoroughly by rolling, ramming and tamping with tools suitable for that purpose in such a manner so as not to disturb the pipe.
- D. Backfilling of shoulders along streets and highways:
 - 1. Backfilling methods and materials for shoulders along streets and highways shall be in accordance with the requirements of governing State, County or City departments maintaining the particular roadway or highway.
 - 2. Replace with similar materials, all shoulders that may be damaged or destroyed as a result of pipe trenching.
 - 3. Backfilling of shoulders shall not be directly measured for payment.
 - 4. Where shoulders along state highways have sealed coat surfaces, replace with double bituminous seal in accordance with KYTC requirements.

5. Where KYTC or local authority requires trenches to be backfilled entirely with granular material in the shoulder of roads, granular material so placed shall not be a pay item, but included in the prices per linear foot of pipe unless provided for specifically on the Bid Form.
 6. Backfill in state highways may also be performed utilizing flowable fill.
- E. Crushed stone for pavement and shoulder replacement:
1. Where possible, salvage and reuse all base material that is removed during construction.
 2. Wet and thoroughly compact crushed stone and blade to tie into the existing surface prior to final acceptance.
 3. Base material placed as a portion of pavement replacing items will not be measured for payment.

3.12 CHECK DAMS

- A. Check dams shall be installed in the bedding and backfill of new or replaced gravity sewer lines to limit the drainage area subject to the French drain effect of gravel bedding. Major rehabilitation projects should also include check dams in the design.
- B. Check dams shall consist of compacted clay bedding and backfill at least three (3) feet thick to the top of the trench and cut into the walls of the trench two (2) feet. Alternatively, concrete may be used, keyed into the trench walls.
- C. Check dam material within one foot of the sewer main shall be carefully hand placed and compacted. No gravel backfill or bedding shall be used in the check dam area.
- D. Check dams shall be installed upstream of each manhole.
- E. All stream crossings shall include concrete check dams on both sides of the crossing.

END OF SECTION

SECTION 02713 WATER DISTRIBUTION SYSTEM

PART 1 – GENERAL

1.1 WORK INCLUDED

Installation, testing, and disinfection of water lines and appurtenances.

1.2 RELATED WORK

A. Section 02221: Trenching, Bedding and Backfilling

PART 2 – MATERIALS, STORAGE AND HANDLING

2.1 MANUFACTURER'S RECOMMENDATION

Care shall be exercised in the delivery, storage and handling of all materials prior to their incorporation into the work. Follow all manufacturers' recommendations for delivery and storage (except where these specifications differ.) Acceptance of questionable material shall be based solely on the Engineer's interpretation of fabrication, delivery, storage and installation practices of the material in question.

2.2 STORED PIPE

Contractor shall take special care to ensure that no foreign matter including, but not limited to soil, trash, trench water or other debris enters the pipe at any time. Upon arrival of pipe shipment, Contractor shall completely seal pipe openings in a manner acceptable to the Engineer.

2.3 STORED FITTINGS

Contractor shall take special care to ensure that no foreign matter including, but not limited to soil, trash, trench water or other debris enters pipe appurtenances at any time. Upon arrival of pipe shipment, Contractor shall completely seal pipe openings in a manner acceptable to the Engineer.

2.4 INSTALLED PIPE

The installed pipe in the trench shall be plugged at the close of work each day or during any prolonged break period, including anytime workers are absent from the job site (lunch breaks, etc.). The only acceptable method for plugging the installed pipe is with a watertight M.J. cap or M.J. plug.

2.5 FAILURE TO FOLLOW SPECIFICATIONS

Failure to take such preventative measures mentioned in these specifications, or flooding or contamination of the main for any reason, shall require the Contractor to clean the line with a hydraulically propelled foam pig (or other suitable pigging device acceptable to the Engineer) and slug chlorinate the line as specified in Subpart 4.8 of this Section. The Contractor shall also be required to take whatever other measures required by the Engineer in accordance with these specifications or AWWA C-651 to remove the contamination. All such procedures shall be fully documented and submitted for approval by the Engineer.

PART 3 – PRODUCTS

3.1 POLYVINYL CHLORIDE PIPE (PVC) AND FITTINGS

- A. Provide PVC pipe meeting ASTM D02241 or AWWA C900.
- B. ASTM D02241 Pipe:
 - 1. Manufactured from virgin, National Sanitation Foundation (NSF) approved Type 1, Grade 1 impact improved resin suitable for use in transporting potable water.
 - 2. Pipe and fittings pressure rated for 200 psi.
 - 3. Use only where the maximum pressure shall not exceed 90 psi.
 - 4. Maximum Standard Dimensional Ratio (SDR) of 21.
 - 5. Joints sealed with a rubber ring and non-toxic lubricant as provided by the manufacturer meeting or exceeding the requirements of ASTM D3139 and ASTM F477.
 - 6. Clearly mark with the manufacturer's name, nominal diameter, SDR, ASTM D02241, pressure rating, and NSF approval seal.
 - 7. Furnish in standard laying lengths of twenty (20) feet.
 - 8. Color of pipe shall be blue or white.
- C. AWWA C-900 Pipe:
 - 1. PVC 1120 pipe manufactured from virgin, National Sanitation Foundation (NSF) approved compounds meeting the requirements of ASTM D1784.
 - 2. Pipe and fittings pressure rated for 200 psi.
 - 3. Outside diameter equivalent to the same outside diameter of cast iron pipe.
 - 4. The minimum wall thickness of the bell, at any point, shall conform to the DR requirements of the pipe.
 - 5. Furnish in standard laying lengths of twenty (20) feet.
 - 6. Clearly mark with the manufacturer's name, nominal diameter, DR, PVC 1120, pressure class, AWWA C900, and NSF approval seal.
 - 7. Color of pipe shall be blue or white.
 - 8. To be used in areas where service pressure exceeds 90 psi.

- D. PVC Fittings: Not allowed for water mains.

3.2 DUCTILE IRON PIPE AND FITTINGS

- A. Pipe:
1. Manufactured in accordance with ANSI A21.51 (AWWA C151).
 2. A cement lining meeting the requirements of ANSI 21.4 (AWWA C104).
 3. A minimum of 1 mil thick bituminous coating on the outside surface.
 4. Clearly mark with manufacturer's name, D.I. or Ductile, weight, class or nominal thickness, and casting period.
 5. Unless otherwise specified or shown on the plans, ductile iron pipe shall be pressure class 350 for sizes up through 12-inch. Sizes 14-inch and larger shall be class 250.
 6. All ductile iron pipe shall be furnished and installed with restrained joint locking gaskets, U.S. Pipe Field Lok 350 or approved equivalent.
- B. Fittings: All fittings and specials for pipe 3" in diameter and larger shall be cast or ductile iron.
1. Fittings 3" – 24": Pressure rated at 350 psi meeting the requirements of ANSI 21- 53/AWWA C153 for compact fittings.
 2. Fittings 30" – 36": Pressure rated at 250 psi meeting the requirements of ANSI 21.10/AWWA C110 for full size fittings or ANSI 21.53/AWWA C153 for compact size fittings.
 3. Joints meeting the requirements of ANSI 21.11/AWWA C111.
 4. All mechanical joint ductile iron fittings shall be equipped with mechanical joint restraint devices as specified in Subpart 3.10.
- C. Restraining Wedge-Action Gaskets:
1. Ductile iron pipe with push-on type joints, size 6-inch through 24-inch diameter, shall use restraining wedge-action gaskets meeting the requirements of ANSI A21.11/AWWA C111.
 2. Gaskets for 6" – 18" DI pipe: Pressure rated at 350 psi working pressure.
 3. Gaskets for 20" – 24" DI pipe: Pressure rated at 250 psi working pressure.
 4. Acceptable products are: McWane SURE STOP 350 Gasket, U.S. Pipe Field Lok 350 Gasket, Gripper Gasket LLC, American Fast-Grip Gasket.

3.3 POLYETHYLENE ENCASEMENT

- A. All ductile iron pipe shall be furnished and installed with polyethylene encasement in accordance with the ANSI/AWWA C105/A21.5 standard. Encasement shall be low-density film with minimum thickness of 8 mils. Installation shall be per the manufacturer's instructions.

3.4 HIGH DENSITY POLYETHYLENE PIPE (HDPE) FOR HORIZONTAL DIRECTIONAL DRILLING

- A. HDPE pipe shall only be used for directional bores as approved by the Engineer.
- B. Pipe shall have a DR number 9 with a working pressure of 200 psi and be sized to provide inside diameter equal to or greater than the size shown on the plans.
- C. Materials: Polyethylene pipe and fittings shall be made from resin meeting the requirements of the Plastic Pipe Institute as PE 3408. The resin shall meet the requirements of ASTM D3350- 02 with a cell classification of 345464C. The requirements of this cell classification are:

<i>HDPE Resin Specifications</i>			
Property	Specification	Unit	Typical Value
Material Designation	PPI/ASTM		PE 3408
Material Approval	NSF #14		
Material Classification	ASTM D1248		III C5 P34
Cell Classification	ASTM D3350-02		345464C
o Density	ASTM D1505	g/cm3	0.955
o Melt Index	ASTM 1238	gm/10 min	0.11
o Flexural Modulus	ASTM D790	psi	135,000
o Tensile Strength	ASTM D638	psi	3,200
o Slow Crack Growth			
- ESCR	ASTM D1693	hours in 100%	>5,000
- PENT	ASTM F1473	hours	>100
- HDB @73 deg F	ASTM D1693	psi	1,600
- UV Stabilizer	ASTM D1603	%C	2.5%

- D. Butt Fusion Fittings: HDPE fittings shall be PE 3408, HDPE, Cell Classification of 346464C as determined by ASTM D3350-02, and approved for potable water use by the AWWA. Butt fusion fittings shall have a manufacturing standard of ASTM D3261. Molded and fabricated fittings shall have a pressure rating equal to the pipe unless otherwise specified in the plans. Fabricated fittings are to be manufactured using data loggers. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the Quality Control records. All fittings shall be suitable for use as pressure conduit, and per AWWA C906, have a nominal burst value of 3.5 times the working pressure rating of the fitting.
- E. Pipe Manufacturer's Quality Control: The pipe manufacturer shall have an ongoing Quality Control program for incoming and outgoing materials. HDPE resins for manufacturing of pipe shall be checked for density, melt flow rate, and contamination. The manufacturer of the HDPE resin shall certify the Cell Classification as indicated in Subpart 3.4 C above. These incoming resins shall be

approved by plant Quality Control and verified as approved by NSF before being converted to pipe. Pipe shall be checked for outside diameter, wall thickness, length, roundness and surface finish on the inside, outside and end cut.

- F. HDPE pipe shall be joined together at the transition points to other mechanical joint adapters. Mechanical joint adapters shall have a manufacturing standard of ASTM D3261. They shall have a pressure rating equal to the pipe.
- G. A minimum of 100 feet of restrained joint ductile iron pipe shall be provided on the pipe preceding and the pipe following the HDPE. Appropriate restraint methods include using restrained joints equivalent to American Flex Ring or U.S. Pipe T.R. Flex.

3.5 SERVICE PIPE

- A. Polyethylene Pipe:
Crosslinked Polyethylene pipe (Rehau Municipex) is acceptable for service lines from the main to the meter, and between the meter and the building in accordance with the Standard Plumbing Code. Crosslinked Polyethylene (PEXa) pipe shall meet the following criteria:
 - 1. Manufactured using the high pressure peroxide method of crosslinking.
 - 2. Certified to AWWA C 904 *Cross-linked Polyethylene (PEX) Pressure Pipe, ½ in. through 3 in. for Water Service* by approved testing agency. Certified to standards ASTM F876, CSA B137.5, NSF 14 and NSF 61, by approved testing agencies, with a standard materials designation code of 3306.
 - 3. Demonstrates ability to satisfy the performance requirements of Section F.7 of Plastics Pipe Institute (PPI) Technical Report 3 (TR-3) for polyethylene materials in order to apply a 0.63 design factor resulting in a temperature/pressure rating of 200 psi @ 73.4°F (1380 kPa @ 23°C).
 - 4. Shall be rated for 160 psi @ 73.4°F (1103 kPa @ 23°C) and 100 psi @ 180°F (690 kPa @ 82°C) per PPI TR-4.
 - 5. Shall have co-extruded UV Shield made from UV-resistant high-density polyethylene, color Blue.
 - 6. Shall have minimum recommended UV exposure time of one (1) year when tested in accordance with ASTM F2657, or as per manufacturer's recommendations.
 - 7. Shall be compatible with cold-expansion compression-sleeve fittings certified to ASTM F2080 for installations as cold as -40°F.
 - 8. Shall be approved for use with AWWA C800 fittings when using manufacturer's recommended insert.
 - 9. Shall be approved by manufacturer for use with manual plastic pipe squeeze-off tools for temporary stoppage of flow.

10. Shall be approved by manufacturer to be repaired using hot air, if kinked in the field.
11. Shall have minimum markings: PEXa 3306, CSA B137.5, ASTM F876, F2023 and F2080, NSF-pw-g.

B. Copper Pipe:

1. Seamless copper tubing meeting the requirements of ASTM B88, Type K for $\frac{3}{4}$ " through 2". Copper tubing 1" and smaller shall be soft. Copper tubing larger than 1" may be hard or soft. All underground copper to copper connection is to be by compression coupling, no solder sweat joints.
2. Contain not less than 99.90% copper and not more than 0.04% phosphorous.
3. Suitable for use with a working water pressure of 160 psi.
4. $\frac{3}{4}$ " nominal diameter unless otherwise specified or shown on the Plans.
5. Service pipe shall be used to connect the corporation stop with the meter yoke. Use the minimum length required to make a straight-line connection including a goose neck. The minimum length of service shall be 5 feet in order to facilitate the location of the services with metallic pipe locators.
6. No 3" copper service pipe shall be allowed. No 3" piping on Madisonville's side of the water meter shall be allowed.
7. All copper service piping shall be buried at a minimum depth of 24" below finished grade unless otherwise approved.

C. Ductile Iron Pipe:

For service lines 4-inches and larger, ductile iron pipe meeting the requirements set forth in Subpart 3.2 shall be used.

3.6 WATER SERVICE ASSEMBLIES

A. Water Meters (all water meters are issued by the City of Madisonville):

1. AWWA C700.
2. $\frac{5}{8}$ " x $\frac{3}{4}$ " unless otherwise specified or shown on the Plans.
3. Frost proof with a cast bronze casing and a hinged cover.
4. Direct reading register, in gallons, unless otherwise specified.
5. Disc or piston operated with magnetic drive.
6. A suitable non-corrosive strainer located over the inlet to the measuring chamber.
7. The name of the manufacturer imprinted in the lid of the register box and the meter serial number imprinted thereon.
8. Meters shall be located in non-traffic areas.
9. Water services shall be located near the center of the lot in non-traffic areas so that they are not in driveways. Water meters shall be located in a landscaped area near the property line unless otherwise approved by the Engineer.

B. Water Main Connections:

1. Tap water mains in the upper half of the pipe at a 45-degree angle.
 2. Do not exceed the pipe manufacturer's recommended maximum tap size.
 3. Use service saddles on all taps for PVC pipe. Water service tapping saddles for services 2" or less shall be of total brass or bronze construction with no ferrous materials. Saddles are to have double straps or extra wide single straps and shall employ a dual o-ring seal. Saddles shall be Ford or pre-approved equal.
 4. Service taps on line under construction that has not been tested and inspected by the City may be made by a qualified Contractor. Taps on existing City mains must be made by authorized City personnel unless specifically authorized by the Engineer's office.
 5. For all 2" taps on ductile iron lines, a ductile iron epoxy coated body saddle with double stainless steel straps shall be furnished. For ¾" to 1" connections, ductile iron mains shall be drilled and tapped with no need for a saddle.
- C. Corporation Stops/Service Valves: Corporation stops are required for all ¾" and 1" services. Services of 2" diameter shall use a 2" ball valve with a square operating nut. All corporation stops shall have a minimum rating of 200 psi. All service valves shall have a standard valve box installed and brought to grade. Corporation stops shall meet the following criteria:
1. AWWA C800
 2. Cast of certified waterworks red brass, composed of 85% copper and 5% each of tin, lead, and zinc.
 3. Water tight and individually tested for leaks.
 4. Waterway diameter approximately equal to the nominal size of the stop.
 5. Coat or cap all threads for protection prior to installation.
 6. Manufactured by Ford or pre-approved equal.
- D. Meter Yokes:
1. Copper tubing with an integral brace and meter stop.
 2. Minimum rise of 7".
 3. Provide with outlets designed for the use of polyethylene or copper service pipe.
 4. Manufactured by Ford. or pre-approved equal.
- E. Curb Valves: All water services less than 2" diameter must terminate with a curb ball valve immediately prior to the meter yoke location. Approved model is Ford or pre-approved equal. Curb ball valves that are buried prior to the installation of a yoke shall have a bolt or pin placed in the stop wing to prevent the ball valve from being accidentally opened during back fill.
- F. Meter Boxes:
1. Water meters shall be located in a landscaped area near the property line unless otherwise approved by the Engineer.
 2. The depth of the meter yoke inlet for 5/8" – 1" meters shall be 18" to 24".
 3. The depth of the meter yoke inlet for 1 ½" – 6" meters shall be 24" to 36".

4. Meter box to be of sufficient size to facilitate easy installation and removal of the water meter.
 5. Where the service assemblies include a pressure reducing valve, sufficiently size box for installation of the pressure reducing valve in the meter box.
- G. Pressure Reducing Valves for Service Assemblies: Pressure reducing valves are the responsibility of the customer and may be installed at any point downstream of the meter in accordance with the Standard Plumbing Code and the City's "Cross Connection Control Policy and Program". Pressure reducing valves are required where the static pressure is greater than 80 psi.
- H. Service Materials: No galvanized pipe, galvanized nipples, black iron, glued plastic or sweated fittings are to be used between the main and the meter yoke. Threaded brass, slip joints, mechanical joints, and bronze/brass compression fittings are allowed.

3.7 VALVES AND VALVE BOXES

- A. Gate Valves
1. AWWA C509 or C515.
 2. Iron body, resilient seat, non-rising stem type.
 3. Stuffing boxes: O-ring seal type with two (2) rings in the stem located above the thrust collar.
 4. 2" square wrench nut for operation of the valve.
 5. Minimum design working water pressure of 200 psi for valves with diameters of 2" – 12" and 150 psi for valves with diameter of 14" – 54", unless otherwise specified or shown on the plans.
 6. Joints: ANSI A21.11 (AWWA C111).
 7. Bonnet or body markings: Manufacturer's name, year of casting, size, pressure rating, and open direction labeled with an arrow.
 8. Epoxy coat interior and exterior in accordance with AWWA C550.
 9. Shall be Mueller A-2360, M&H 7571, American Flow Control 2500 or pre-approved equal.
- B. Valve Boxes:
1. Cast iron, 2-piece or 3-piece, screw type with shaft diameter of not less than 5" (Tyler/Union 6850 or equal).
 2. Comply with AWWA M44.
 3. Heavy roadway type equipped with a cover containing the word "WATER" in raised letters on the top.
 4. Base of such size as to permit its installation without allowing it to come in contact with either the valve or the pipe.
 5. In paved areas, the top of the box casting shall be made level with the adjacent pavement. In unpaved areas, the box shall be 1" above the adjacent ground and

encircled with a concrete collar 4" thick and 2' in diameter. Pre-cast concrete valve collars may also be used around valve boxes.

- C. Tapping Valves and Sleeves:
 - 1. Tapping valves shall meet all the requirements of Subpart 3.7 A above and shall be Mueller T2360-16, M&H 4751-01 or pre-approved equal.
 - 2. Tapping sleeves shall be Mueller H-304, Ford FTSS, JCM 452, Smith Blair 665, Dresser Style 630 or pre-approved equal.
 - 3. Tapping sleeves shall be two-piece fabricated stainless steel with adjusting/tightening bolts on each side. The fabricated sleeve must contain all stainless materials and be rated for the anticipated working pressure. Sleeves must have a stainless steel outlet flange. Sleeves with ductile iron or carbon steel flanges will not be accepted. Care must be used to assure that all bolts are equally tightened. The tapping valve is to be solidly supported with brick or block and carefully bedded to prevent shifting due to settling back fill.
 - 4. After valve is bolted to sleeve, and with valve closed, remove test plug from the tap on sleeve and air test sleeve to 100 psi prior to making tap.
 - 5. For taps made on 16-inch lines and larger, a ductile iron tapping sleeve, Mueller H-615 shall be required.

3.8 AIR RELEASE ASSEMBLIES FOR WATER MAINS

- A. Furnish 1" nominal diameter for 8" mains and smaller and 2" nominal diameter for 10" mains and larger, unless otherwise specified or shown on the Plans.
- B. Air release assemblies and combination air release assemblies shall consist of:
 - 1. Double strap, bronze service clamp with neoprene gasket for PVC lines (see Paragraph 3.6).
 - 2. Double stainless steel strap, epoxy coated ductile iron body saddle shall be used in 2-inch assemblies for ductile iron (see Paragraph 3.6)
 - 3. Brass pipe of the nominal diameter required by the size of the valve. No galvanized pipe is allowed.
 - 4. Red brass corporation stop.
 - 5. Brass elbow. No galvanized materials are allowed.
 - 6. Bronze gate valve with hand-wheel or a metallic-body ball valve with 2-inch square nut.
 - 7. Air release valve.
- C. Air and Vacuum Release Valves (Combination Valves):
 - 1. All potable water lines shall have air and vacuum release valves installed as they are indicated on the plans.
 - 2. The body/base of these valves shall be made from stainless steel or cast iron, and all operating parts are to be made of engineered corrosion resistant plastic materials or stainless steel.
 - 3. The valve shall be designed to allow larger than normal automatic orifice to provide efficient air release and minimize potential debris build up and clogging.

4. The working pressure shall be 250 psi and shall have a 2-inch threaded connection.
5. All air and vacuum release valves shall be model ARI D-040, Crispin Valve Model C, APCO Model 1800, or pre-approved equal.
- D. Automatic Air Release Valves:
 1. All potable water lines shall have automatic air release valves as shown on the plans.
 2. Valve shall be made from stainless steel or cast iron and all operating parts are to be made of engineered corrosion resistant plastic materials or stainless steel.
 3. The valve shall be designed to allow larger than normal automatic orifice to provide efficient air release and minimize potential debris build up and clogging.
 4. The working pressure shall be 250 psi and tested to 360 psi.
 5. All air release valves shall be model ARI S-050-C, Crispin Valve Model PL, APCO Model 200, or pre-approved equal.
- E. Install air release assemblies and combination air release valves in a pre-cast concrete manhole, 48" in diameter and 48" deep, nominal diameter cast iron frame and cover. Cover to be marked "WATER".
- F. Place crushed stone from 12" below the bottom of the main to the top of the main inside the pre-cast manhole.

3.9 FIRE HYDRANTS AND BLOW-OFF HYDRANTS

- A. Fire Hydrants:
 1. AWWA C502. Mueller Super Centurion, Kennedy Guardian K81-D, or Clow Medallion are the standard for Madisonville.
 2. Cast iron bodies, fully bronze mounted, designed for operation at a working water pressure of 150 psi.
 3. Furnish with two 2-1/2" thread brass hose nozzles and one threaded 4-1/2" brass pumper nozzle.
 4. Compression type main valve 5-1/4" diameter faced with a suitable yielding such as rubber..
 5. So designed that, when it is installed, no excavation is required to remove the main valve or the movable parts of the drain valve.
 6. Inside diameter of barrel: at least 120 percent of the hydrant valve size.
 7. Inlet connection: minimum of 6" mechanical joint on all lines, unless otherwise specified or shown on the Plans.
 8. Equipped with safety flange located not more than 10" above ground and a two-piece shaft break-away assembly.
 9. Shop paint and mark in accordance with AWWA C502. Open right hydrants red. Open left hydrants yellow.
 10. Cast markings: manufacturer's name, size of the main valve, year of manufacture, and direction of opening.
 11. Field touch-up, if the surface has been marred, with paint supplied by the manufacturer of the same color and type as that used during shop painting.

12. 4' bury hydrants are the standard. Where the line depth justifies additional depth, hydrant extensions shall be installed.
13. All hydrants shall be installed utilizing hydrant (swivel) tees. Unless otherwise shown on the plans, tees with all mechanical joint ends shall be used if field conditions require hydrant isolation valve to be placed away from the water main.
14. All hydrants shall be installed with a 6-inch isolation gate valve in valve box.
15. Fire hydrants shall not be installed on water lines less than 6-inch in diameter.
16. A fire hydrant shall not be located closer than five (5) feet from any driveway.

B. Blow-Off Hydrants:

1. Post type having cast iron bodies, fully bronze mounted and designed for operation at a working water pressure of 150 psi.
2. Furnish with either two 1-1/2" or 2-1/2" threaded brass hose nozzles.
3. Compression type main valve 2-1/8" minimum diameter faced with a suitable yielding material such as rubber, leather or balata.
4. So designed that, when it is installed, no excavation is required to remove the main valve or the movable part of the drain valve.
5. Inside diameter of the barrel: at least 3".
6. Inlet connection: 2" mechanical joint, unless otherwise specified or shown on the plans.
7. Equipped with a safety flange located not more than 2" above the ground.
8. Open on counter-clockwise operation, unless otherwise specified.
9. Cast markings: manufacturer's name, size of the main valve, year of manufacture, and direction of opening.
10. Field touch-up, if the surface has been marred, with paint supplied by the manufacturer of the same color type as that used during shop painting.
11. Type of post hydrant: Mueller A-411 or M & H (Style 33 or 233).

3.10 MECHANICAL JOINT RESTRAINT DEVICE

- A. Pipe restraint: It is the intention of these specifications that all mechanical joint fittings and valves be restrained at each opening with approved mechanical joint restraint devices. Restrained fittings **do not** eliminate or replace the requirement for sufficient concrete thrust blocking and/or restrained pipe joints.
- B. PVC Restraint Devices:
1. Restraint devices shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C111/A21.11.
 2. Devices shall have a working pressure rating equal to that of the pipe on which it is used. Ratings are for water pressure and must include a minimum safety factor of 2:1.
 3. Restraint devices shall have torque bolts.

4. Megalug series 2000 PV produced by EBAA Iron or equal.
- C. Ductile Iron Pipe Restraint Devices:
1. Restraint devices shall consist of multiple gripping wedges incorporated into a follower gland meeting the requirements of ANSI/AWWA C110/A21.10.
 2. Devices shall have a working pressure rating of 350 psi for 3" to 16" and 250 psi for 18" and larger. Ratings are for water pressure and must include a minimum safety factor of 2:1.
 3. Restraint devices shall have torque bolts.
 4. Megalug Series 1100 produced by EBAA Iron or equal.
- D. Restraint Devices - General:
1. Gland body, wedges and wedge activating components shall be cast from grade 65-45- 12 ductile iron material in accordance with ASTM A536.
 2. Installation shall be performed using conventional tools and installation procedures as specified in AWWA C600 while retaining full mechanical joint deflection during assembly as well as allowing joint deflection after assembly.
 3. Proper activation of the gripping wedges shall be ensured with torque-limiting twist- off nuts.

3.11 CROSS CONNECTION

- A. All commercial properties must have backflow protection installed on incoming water lines (domestic, fire and irrigation). The type and location of commercial property backflow prevention devices shall be as follows:
1. Reduced Pressure Assemblies for domestic and irrigation.
 2. Double Check Assemblies (with fire meter) or Double Check Detector Assemblies (where approved by the Engineer without fire meter) for all fire systems unless the system contains chemicals or is connected to an alternate water source.
 3. Backflow prevention devices shall be installed downstream of the meter before the first branch off the main line serving the building(s). Outdoor installations require protective enclosures. Inside installations require adequate drains.
- B. Residential properties are required to install backflow protection on irrigation and fire systems. Multi-story, Multi- Family (3-story or more) buildings are required to have backflow prevention on domestic, irrigation and fire system lines. Backflow prevention devices may also be required for other properties as directed by City due to connections to alternate water sources such as wells or connection with equipment that could alter water quality. The type and location of residential property backflow prevention devices shall be as follows:
1. Reduced Pressure Assemblies for all irrigation services and any domestic lines deemed necessary by the City.
 2. Double Check Assemblies for all residential fire systems.

3. Backflow prevention devices shall be installed downstream of the meter before the first branch off the main line serving the building(s). Outdoor installations require protective enclosures. Inside installations require adequate drains.
- C. **Except for fire systems**, all backflow prevention installations are required to have a strainer installed immediately upstream of the device.

PART 4 - EXECUTION

4.1 PREPARATION

- A. Follow all material storage and handling requirements in accordance with Section 02713, Part 2.
- B. Prior to laying pipe, prepare a suitable bedding according to Section 02221.
- C. Before placing pipe in the trench, remove temporary pipe plug, field inspect for cracks or other defect; remove defective pipe from the construction site.
- D. Swab the interior of the pipe to remove all undesirable material.
- E. Prepare the bell end and remove undesirable material from the gasket and gasket recess.
- F. Locate water lines in relation to other piped utilities.

4.2 INSTALLING WATER LINES

- A. Install PVC pipe in accordance with AWWA C605.
- B. Install ductile iron pipe (DIP) in accordance with AWWA C600.
- C. Lay all pipe on a uniform grade and with deflections not exceeding the pipe manufacturer's recommendations.
- D. After applying gasket lubricant, take extreme care to keep the spigot end from contacting the ground.
- E. Hone the pipe with suitable tools or equipment to provide a smooth beveled edge on plain end sections or field cut sections.
- F. Closely follow the manufacturer's instruction in laying and joining pipe.

- G. Cut pipe for inserting valves, fittings, etc., in a neat and workmanlike manner without damaging the pipe so as to leave a smooth end at right angles to the axis of the pipe.
- H. Cover pipe with a watertight mechanical joint cap or plug during each installation of pipe segment and at conclusion of each day's construction activities.
- I. The location of all water mains installed under these specifications shall be marked by the use of a continuous blue tape, minimum three inches in width, made of minimum 5 mil thick polyethylene plastic with a 0.5 mil thick aluminum metallic core or backing. The tape shall be buried in the trench, above the pipe, no more than two feet below the surface. The tape shall be marked indelibly with the words "Water Main Below" or similar wording to warn unwary excavators.
- J. An insulated minimum 12-gauge solid copper-coated steel tracer wire shall also be installed in the ditch immediately along the water line, either attached to or periodically wrapped around the line. Wire shall have HDPE insulating jacket. Care shall be taken to ensure the buried wire is not broken. The wire shall be branched off at intervals of 500' ± to connect to hydrants, valve boxes, or services to allow convenient surface access to the wire for pipe locator connection. Wire shall be terminated (unconnected) with a wire nut and enough "loose" wire to extend 24 inches outside the valve box. Tracer wire shall be installed on all water mains including ductile iron water main.
- K. The Contractor shall stamp the concrete curb with a "W" where water services are located. The end of each service stub shall be marked with a 6-foot long 4x4 wooden post or metal fence post embedded 2 feet in the ground and be marked with blue paint.
- L. Installing Crosslinked polyethylene (PEXa) municipal water service pipe: Follow manufacturer's installation guide for handling pipe on the jobsite, preparing the trench, making connections, placing the pipe, and backfilling the trench. Install with tracer wire per Subpart 4.2 K of this specification.
- M. Installing HDPE Water Lines (directional drilling applications):
 - 1. HDPE pipe shall be assembled utilizing field-site butt fusion joints.
 - 2. Personnel performing butt fusion joining shall be certified by pipe manufacturer.
 - 3. Each piece of pipe must be held by a clamping device so it will not move.
 - 4. Pipe ends shall be faced to establish clean mating surfaces.
 - 5. Pipe profiles must be rounded and aligned with each other to prevent mismatch of pipe walls.
 - 6. Heat the ends of the pipe to the pipe manufacturer's recommended temperature, interface pressure, and time duration.

7. Keep heater faces clean to prevent molten plastic from sticking to the heater faces.
8. After heating, remove heater tool and bring molten pipe ends together with sufficient pressure to form a homogenous joint.
9. Hold the molten joint immobile under pressure until cooling has occurred and joint achieves strength.
10. Test line per the requirements of this Section.

4.3 SEPARATION OF WATER AND SEWER LINES

- A. Maintain a 10-foot horizontal separation, measured edge to edge, between any new or proposed water main and any existing or proposed sanitary sewer.
- B. Where conditions cause the required horizontal separation to be impractical, the water main may be laid closer provided it is laid in a separate trench and the elevation of the top of the sewer is at least 18 inches below the bottom of the water main.
- C. Where a sewer crosses under a water main, the top of the sewer shall be at least 18 inches below the bottom of the main.
- D. Where conditions cause the required vertical separation to be impractical, the water main shall be relocated to provide the required separation or else reconstructed with mechanical joint ductile iron pipe for a distance of 10 feet on each side of the sewer with a full joint of the water main centered over the sewer.
- E. Where sewers must be constructed over water mains or less than 18 inches below the water main, the sewer shall be designed and constructed equal to water main standards and pressure tested to assure water tightness.
- F. Additional protection such as concrete encasement shall be installed where directed by the Engineer.

4.4 INSTALLING APPURTENANCES

- A. Set all valves, fittings, hydrants, and other special fittings in a neat workmanlike manner. Tapping valves are to be supported with blocking and surrounding bedding carefully compacted to prevent settlement.
- B. Use thrust blocks, pipe anchors, or other approved means to prevent displacement of other fittings as shown on the Project Documents. Do not allow concrete to cover nuts and bolts on fittings. Gate valves on fire hydrant leads are to be restrained or blocked independently of the hydrant blocking so that the hydrant may be excavated and removed with the valve closed. Mechanical restraint is to be by the use of MegaLug devices or other similar devices. Underground use of galvanized all thread

rod is not allowed except unless specifically approved by the Engineer. Fittings for taps made on the reverse side of the main must be restrained joints. All mechanical joints are to be restrained with mechanical joint restraining devices as set forth in Paragraph 3.9. These restraining devices do not eliminate the requirement for sufficient concrete thrust blocking and/or restrained joint pipe.

- C. Erect hydrants to stand plumb with the pumper nozzle facing the road. Nozzles shall be installed a minimum of 18 inches above bury line.
- D. Enhance drainage of hydrants by using 6 cubic feet of gravel around base of hydrant. Do not allow concrete thrust block to obstruct drain holes.
- E. Close dead end pipe with a mechanical joint solid sleeve and plug, and equip with blow-off assemblies, where shown on the drawings.

4.5 CONNECTING NEW SYSTEM TO EXISTING SYSTEM

- A. Initial filling of the new line shall be made at only one point and shall be via a metered backflow prevention assembly (large sizes may not be metered at option of City), installed by the Contractor, and then removed by the Contractor and returned to the City after acceptance of the line. The Contractor is responsible for providing all necessary sleeves, reducers, or other fittings to install and remove the backflow assembly from the main.
- B. All connection of new main extensions to existing systems shall be valved to prevent existing customers from being included in the new system area during testing and disinfection procedures.
- C. Connections of new mains to existing mains shall normally be made by the use of a tapping valve in order to avoid disrupting service to existing customers.
- D. Any wet connections involving the shutdown of existing system valves shall be specifically approved by and coordinated with the Engineer's Office. Such coordination shall include the responsibility of the Contractor in notifying affected customers and scheduling shutdowns to minimize customer inconvenience. An authorized shutdown shall not relieve the Contractor from liabilities resulting from shutdowns such as damaged water heaters, discolored water, etc. The turning of valves shall be scheduled with the City's representative.
- E. Manipulation of valves for filling or flushing lines shall be minimized to avoid accumulations of air and discolored water in the affected areas. No water valves shall be operated by anyone other than City of Madisonville personnel.

- F. Once new systems are fully activated, following disinfection, flushing and testing, the Contractor shall inspect each valve that has been installed or manipulated to ensure that all valves are in fully open position.
- G. The Contractor will be charged for the consumption volume of water by flushing, filling, leaks, etc. that exceeds twice the volume of the installed pipe.

4.6 HIGHWAY AND RAILROAD CROSSINGS

- A. Perform highway crossings by the open cut method, unless otherwise shown on the Drawings or required by the appropriate authorities.
- B. Boring and jacking, tunneling, or horizontal directional drilling of crossings, if necessary, will be performed in accordance with the appropriate specification sections.

4.7 WATER LINE PRESSURE TEST

- A. All newly laid pipe or any valved section thereof shall be subjected to hydrostatic pressure testing. Conduct hydrostatic testing in accordance with AWWA C600 for ductile iron pipe or AWWA C605 for PVC pipe.
- B. Where practicable, pipelines shall be tested in lengths between line valves or plugs of no more than 3,000 feet.
- C. Hydrostatic testing shall be conducted only with potable water. Due to the inherent safety hazard potential associated with testing components and systems with compressed air or other compressed gases, pressure testing shall never be accomplished using compressed air.
- D. The Contractor shall furnish all gauges, recording devices, meters, pumps, pipe, connections and other equipment required to conduct the test and shall maintain said equipment in condition for accurate testing as determined by the Owner. Gauges used for pressure tests shall be oil-filled gauges.
- E. Hydrostatic test results shall be recorded on an appropriate chart recorder. The Contractor shall furnish a recording gauge and water meter for recording pressure charts and for measuring makeup water used during the hydrostatic testing. Recording pressure charts shall be submitted to the Owner at the conclusion of testing. The pressure recording device shall be suitable for outside service, with a range from 0–300 psig, 24-hour spring wound clock, designed for 9-inch charts, and shall be approved by the Engineer. For Contractor's information only, such pressure recording devices may be available from Foxboro Company, Foxboro,

Massachusetts; Bristol Division of ACCO, Waterbury, Connecticut; or Weksler Instruments Corporation, Freeport, New York.

- F. Prior to testing, the Contractor shall place sufficient backfill to prevent pipe movement. When local conditions require that the trenches be backfilled immediately after the pipe has been laid, the testing may be carried out after backfilling has been completed but before placement of permanent surfacing. The Contractor shall ensure that thrust blocking or other types of restraining systems will provide adequate restraint prior to pressurizing the pipeline.
- G. Cross Connection Control: When existing water mains are used to supply test water, they should be protected from backflow contamination by temporarily installing a double check valve assembly between the test and supply main or by other means approved by the Engineer. Prior to pressure and leakage testing, the temporary backflow protection should be removed and the main under test isolated from the supply main.
- H. Test Pressure Requirements:
 - 1. The test pressure shall not be less than 1.25 times the stated working pressure of the pipeline measured at the highest elevation along the test section and not less than 1.5 times the stated working pressure at the lowest elevation of the test section, but not greater than 200 psi.
 - 2. The test pressure shall not exceed the thrust restraint design pressure or 1.5 times the pressure rating of the pipe or joint, whichever is less (as specified by the manufacturer).
 - 3. The test pressure shall not exceed the rated working pressure of the valves when the pressure boundary of the test section includes closed, resilient seated gate valves or butterfly valves.
 - 4. Valves shall not be operated in either direction at a differential pressure exceeding the rated valve working pressure. A test pressure greater than the rated valve working pressure can result in trapped test pressure between the gates of a double-disc gate valve. For tests exceeding the rated valve working pressure, the test setup should include a provision, independent of the valve, to reduce the line pressure to the rated valve working pressure on completion of the test. The valve can then be opened enough to equalize the trapped pressure with the line pressure, or the valve can be fully opened if desired.
- I. Test Procedure:
 - 1. Each valved section of pipeline shall be slowly filled with potable water using a metered backflow-protected assembly. When venting air from pipelines, it is important to limit the pipeline fill rate to avoid excessive surge pressures when the water reaches the air venting opening(s).
 - 2. Before applying the specified test pressure, air shall be expelled completely from the pipeline section under test. If permanent air vents are not located at all high

points, corporation cocks shall be installed at such points to expel air as the line is filled with water. After all the air has been expelled, close the corporation cocks and apply the test pressure. At the conclusion of the pressure test, remove the corporation cocks and plug or leave in place at the discretion of the Engineer.

3. The specified test pressure shall be applied using a suitable pump connected to the pipeline in a manner satisfactory to the Engineer. The specified test pressure shall be based on the elevation of the lowest point of the pipeline or section under test and corrected to the elevation of the test gauge, in accordance with test pressure requirements specified herein.
4. The pipeline shall be allowed to stabilize at the test pressure before conducting the hydrostatic test. This may require several cycles of pressurizing and bleeding trapped air prior to beginning the test. It is recommended that the line remain pressurized for a minimum of 24 hours before testing in order for joints to tighten and pockets of air to dissolve in the water.
5. The hydrostatic test shall be at least 2 hours in duration after reaching the specified test pressure where joints are exposed and at least 8 hours where joints are covered.
6. The test pressure shall not vary by more than +/- 5 psi for the duration of the test. Test pressure shall be maintained within this tolerance by adding makeup water through the pressure test pump into the pipeline. The amount of makeup water added shall be accurately measured (in gallons per hour) by suitable methods and shall not exceed the applicable testing allowance as specified herein.

J. Visual Inspection:

Any exposed pipe, fittings, valves, hydrants and joints shall be examined carefully during the hydrostatic pressure test. Any damaged or defective materials that are discovered during or following the pressure test shall be repaired or replaced at the Contractor's expense, and the test shall be repeated until satisfactory results are obtained. Water main repair and replacement shall be in accordance with Subpart 4.7 L.

K. Testing Allowance:

1. Testing allowance shall be defined as the maximum quantity of makeup water that is added into a pipeline undergoing hydrostatic pressure testing, or any valved section thereof, in order to maintain pressure within +/- 5 psi of the specified test pressure (after the pipeline has been filled with water and the air has been expelled).
2. No pipe installation will be accepted if the quantity of makeup water is greater than that determined by the following formula:

$$\frac{L = S \cdot D \cdot (P)^{1/2}}{148,000}$$

Where:

L = testing allowance (makeup water), in gallons per hour
S = length of pipe tested, in feet

D = nominal diameter of the pipe, in inches

P = average test pressure during the hydrostatic test, in pounds per square inch (gauge pressure)

3. This formula is based on a testing allowance of 10.5 gpd/mile/inch of nominal diameter at a pressure of 150 psi. Values of testing allowance at various pressures are shown in the following table. When testing against closed metal-seated valves, an additional testing allowance per closed valve of 0.0078 gal/hr/inch of nominal valve size shall be allowed. When hydrants are in the test section, the test shall be made against the main valve of the hydrant.

Hydrostatic Testing Allowance per 1,000 feet of pipeline (gallons per hour)*											
Average Test Pressure (psi)	Nominal Pipe Diameter (inches)										
	4	6	8	10	12	14	16	18	20	24	30
250	0.43	0.64	0.85	1.07	1.28	1.50	1.71	1.92	2.14	2.56	3.21
225	0.41	0.61	0.81	1.01	1.22	1.42	1.62	1.82	2.03	2.43	3.04
200	0.38	0.57	0.76	0.96	1.15	1.34	1.53	1.72	1.91	2.29	2.87
175	0.36	0.54	0.72	0.89	1.07	1.25	1.43	1.61	1.79	2.15	2.68
150	0.33	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.66	1.99	2.48
125	0.30	0.45	0.60	0.76	0.91	1.06	1.21	1.36	1.51	1.81	2.27
100	0.27	0.41	0.54	0.68	0.81	0.95	1.08	1.22	1.35	1.62	2.03
75	0.23	0.35	0.47	0.59	0.70	0.82	0.94	1.05	1.17	1.40	1.76
50	0.19	0.29	0.38	0.48	0.57	0.67	0.76	0.86	0.96	1.15	1.43

**If the pipeline under test contains sections of various diameters, the allowable leakage will be the sum of the computed leakage for each size.*

- L. Acceptance of the installation shall be determined on the basis of testing allowance only. Should any test of pipe laid disclose leakage greater than that specified, the Contractor shall, at his own expense, locate and repair the defective joints until the leakage is within the specified allowance. All visible leaks are to be repaired regardless of the allowance used for testing. Hydrostatic test results shall be recorded on an appropriate chart recorder as specified herein. A copy of the test chart shall be provided to the Engineer.
- M. To repair or replace damaged or defective water main pipe, the Contractor shall maintain positive pressure on the main (valves left partially open) while he excavates around and under (2' clearance) the pipe so that water can be pumped out of the excavation pit before it enters the newly constructed main during the repair process. Contractor shall have adequate pumping capacity to prevent any trench water or debris from entering the main during this process. The interior of all pipe and fittings shall be sprayed with a 1% hypochlorite solution before they are installed in the repair process. To produce this one percent hypochlorite solution, one gallon of 5% hypochlorite bleach can be diluted with four (4) gallons of water. Flooding or contamination of the main during this process shall invoke Paragraph 2.5 of Section 02713.

STANDARD OPERATION PROCEDURES FOR WATER MAIN DISINFECTION

4.8 CLEANING AND DISINFECTING OF WATER LINES

- A. Disinfection Tests: Conduct disinfection tests in accordance with AWWA C-651.
- During construction, take precautions to protect pipe interiors, fittings, and valves against contamination. Follow all Material Storage and Handling Requirements in Section 02713 Part 2.
 - All chlorine products shall be NSF approved chlorine. Pool chlorine products shall not be used.
 - The Granular Method shall be used as the standard disinfection method on all newly installed pipelines unless prior approval for the continuous feed or slug method is obtained from the Engineer or his representative.
 - Granular Method (Standard Method):
 - Chlorine product shall be OxyChem ACL 60 Disinfecting Granules (sodium dichloroisocyanurate) with approximately 62% available chlorine or approved equal.
 - Place granular chlorine in the pipe at the beginning of the line, beginning of each branch line, and at 500-foot intervals (every 25 pipe joints).
 - Place enough granular chlorine in the pipe to achieve a 25 ppm dosage in the pipeline. Contractor shall obtain granular chlorine in pre-measured bottles from the City of Madisonville to ensure proper dosage is achieved (see Table I).
 - Slowly fill the pipeline with water and eliminate all air pockets. Hold the disinfection solution in the pipeline for 24 hours.
 - Flush thoroughly to clear the strong chlorine solution from the pipelines before bacteriological sampling (see Item 8 of this section).

TABLE I - GRANULAR METHOD	
GRANULAR CHLORINE DOSE SIZE FOR 500 FT OF PIPE AT 25 PPM	
Pipe Diameter (in)	Dose Size (oz)
2	0.5
4	2
6	4
8	7
10	11
12	16
16	28
24	63
30	99
36	142

5. Continuous Feed Method (Special Approval Required):

- a) Granular chlorine may be placed (optional) in the pipeline during construction (see Granular Method).
- b) Thoroughly flush the pipeline to remove all sediments and air pockets.
- c) Add a continuous dose of chlorine while flowing water slowly into the new main until a 25 ppm chlorine concentration is reached throughout the new pipelines. Contractor shall use Sodium Hypochlorite to obtain the 25 ppm dosage (see Table II for total amount of Sodium Hypochlorite to be fed to establish 25 ppm dosage for 500 feet of pipe). In the alternative, granular chlorine can be mixed to obtain the 25 ppm concentration (see Table I for total amount of granular chlorine to be fed to establish 25 ppm concentration for 500 feet of pipe). Measure the chlorine residual at various locations to confirm proper residual has been achieved.
- d) Hold the disinfection solution in the lines for 24 hours and confirm that the chlorine residual is at least 10 ppm after 24 hours.
- e) Flush thoroughly to clear the strong solution from the pipelines before bacteriological sampling (see Subpart 4.8 A.8.)

TABLE II – CONTINUOUS FEED METHOD			
SODIUM HYPOCHLORITE DOSE SIZE FOR 500 FT OF PIPE AT 25 PPM			
Pipe Diameter (in)	Sodium Hypochlorite Volume (gal)		
	5.0%	6.15%	10.0%
2	0.04	0.03	0.02
4	0.16	0.13	0.08
6	0.37	0.30	0.18
8	0.65	0.53	0.33
10	1.0	0.83	0.51
12	1.5	1.2	0.73
16	2.6	2.1	1.3
24	5.9	4.8	2.9
30	9.2	7.5	4.6
36	13.2	10.7	6.6

6. Slug Method (Special Approval Required):
- a) Granular chlorine may be placed (optional) in the pipeline during construction (see Granular Method).
 - b) Thoroughly flush the line to remove all sediments and air pockets.
 - c) Admit water to the new main very slowly and dose with enough chlorine to produce a residual of at least 100 ppm. Contractor shall use Sodium Hypochlorite or granular chlorine according to Table III to obtain the 100 ppm concentration. The objective is to produce a column of 100 ppm chlorine solution which will move slowly as a slug through the new pipeline. The column or slug of highly chlorinated water must be long enough to contact all surfaces of the pipe interior for at least 3 hours. Measure chlorine residuals in

the slug as it moves down the pipeline. The residual must be maintained over 50 ppm.

- d) For emergency line repair situations only, to be performed only by, or in the presence of, authorized City personnel, and where no service connections exist, the standard 100 ppm concentration can be substituted for a 300 ppm solution and the contact time can be reduced from the standard 3 hours to 15 minutes. Table IV indicates the Sodium Hypochlorite and granular chlorine dose sizes to be used for this method. Refer to Paragraph 4.08B for appropriate situations and procedures.
- e) Flush thoroughly to clear the strong chlorine solution from the pipelines before bacteriological sampling.

TABLE III – SLUG METHOD				
CHLORINE DOSE SIZE FOR 500 FT OF PIPE AT 100 PPM				
Pipe Diameter (in)	Sodium Hypochlorite Volume (gal) (oz. of weight)			Granular Chlorine
	5.0%	6.15%	10.0%	62%
2	0.2	0.1	0.1	2.1
4	0.7	0.5	0.3	7.1
6	1.5	1.2	0.7	16
8	2.6	2.1	1.3	28
10	4.1	3.3	2.0	44
12	5.9	4.8	2.9	63
16	10	8.5	5.2	112
24	23	19	12	253
30	37	30	18	395
36	53	43	26	569

TABLE IV – SLUG METHOD				
CHLORINE DOSE SIZE FOR 500 FT OF PIPE AT 300 PPM				
Pipe Diameter (in)	Sodium Hypochlorite Volume (gal) (oz. of weight)			Granular Chlorine
	5.0%	6.15%	10.0%	62%
2	0.5	0.4	0.2	6.3
4	2.0	1.6	1.0	21
6	4.4	3.6	2.2	48
8	7.8	6.4	3.9	84
10	12	10	6.1	132
12	18	14	8.8	190
16	31	25	16	336
24	70	57	35	758
30	110	90	55	1185
36	159	129	79	1706

7. While chlorine is being applied, do not manipulate valves so that the treatment dosage will not flow back into the line that is supplying the water. Continue application of chlorine until the entire line being treated is filled with the chlorine solution.
8. Final Flushing: Conduct final flushing in accordance with AWWA C651.
 - a) After applicable retention period, flush heavily chlorinated water from the line until chlorine concentration in water leaving the main is no higher than that generally prevailing in the system, or less than 2 mg/l. Unless special approval is obtained from Engineer, all water shall be flushed through de-chlorinating diffusers rated to remove the appropriate chlorine concentration (Arden Industries' Bazooka with Liquid Calcium Thiosulfate Feed or pre-approved equal). The City may, at its option, provide such devices to the Contractor while the line is flushed. The Contractor must contact the Inspector prior to flushing any water from the newly constructed line. The Inspector shall provide de-chlorinating diffuser(s) to the Contractor before flushing. If no diffusers are available through the city, the Contractor shall be required to provide diffusers. The Inspector shall approve the flushing location. The Inspector shall also check the chlorine level in the main before final flushing. If the residual chlorine level is out of the effective range of the de-chlorinating diffuser, the Inspector shall require the Contractor to wait until the residual level has dropped to within the range of the de-chlorinating diffuser before flushing.
 - b) In the alternative, but only with special approval from the Engineer, neutralizing chemicals may be applied externally as the water reaches the ground. Perform such flushing only at sites where Engineer has approved. If no approved point of discharge is available, neutralizing chemicals must be applied to the water in order to neutralize the chlorine residual. The amount of chemicals required to neutralize various residual chlorine concentrations in 100,000 gallons of water are shown in Table V.
 - c) Flushing Velocity: The velocity of water used to flush the line shall be at least 2 fps. The flow rates required to produce this velocity varies depending on pipe diameter. To approximate this velocity; refer to Table VI to select the proper number of taps or 2-½" Fire Hydrant Nozzles to open at the end of the line.
 - d) Minimum Flushing Time: At minimum, the line shall be flushed to remove two complete volumes of water through the newly constructed pipeline, approximately 7 minutes per 500 ft. The Disinfection, Flushing, and Pressure Testing Worksheet presents the minimum flushing time for various lengths of pipe.
 - e) Additional Flushing: After flushing pipe for minimum time specified in Item d, check for trapped air at Air Release Valves, Blow-offs and services at high points. Verify that all mud, air cloudiness, or other discoloration is absent from

flushing stream. If such problems exist, continue to flush line until the stream is clear.

- f) Once a line has been flushed, test to make certain that the residual chlorine in the water is within acceptable limits.
- g) It must be noted that flushing is no substitute for taking preventative measures before and during the laying of water lines. Certain contaminants – especially those in caked deposits – are difficult or even impossible to remove by flushing, no matter how high the velocity. Furthermore, in pipe with diameters of 16" or more, it can be difficult to achieve even the minimum recommended flushing velocity of 2.5 fps.

TABLE V - REQUIRED CHEMICALS TO NEUTRALIZE CHLORINE CONCENTRATION (PER 100,000 GALLONS OF				
Residual Chlorine Concentration	Sulfur Dioxide (SO₂) lb	Sodium Bisulfite (NaHSO₃) lb	Sodium Sulfite (Na₂SO₃) lb	Sodium Thiosulfate (Na₂S₂O₃·5H₂O) lb
1	0.08	1.2	1.4	1.2
2	1.7	2.5	2.9	2.4
3	8.3	12.5	14.6	12.0
4	41.7	62.6	73.0	60.0

TABLE VI - MINIMUM NUMBER OF OPENINGS TO PRODUCE 2.5 FPS. (AT 40 PSI			
Pipe Diameter (in)	Number of 1" Taps	Number of 2" Taps	Number of 2-1/2" FH Nozzles
2	1	---	---
4	1	1	1
6	---	1	1
8	---	1	1
10	---	2	1
12	---	2	2
16	---	4	2
24	---	-	4
30	---	---	6
36	---	---	8

- 9. Bacteriological Testing:
Contractor to coordinate with City's Water Personnel regarding the bacteriological testing and procedure.

Section B and C below are for Authorized City Personnel or Contractors working under direct supervision of Authorized City Personnel.

B. Positive Pressure Method:

1. Contact 811 to have all other utilities located; notify Service Department and Water Treatment Plant of areas affected.
 2. All attempts will be made to repair line under "wet" conditions to avoid or eliminate possible contaminants from entering the system.
 3. Close nearest isolation valves on the downstream side of the leak. Reduce the flow from the upstream side of the leak by throttling back the remaining valve, leaving positive pressure on the line. DO NOT OPEN ANY FIRE HYDRANTS TO REDUCE LINE PRESSURE PRIOR TO OPENING THE TRENCH TO A DEPTH OF AT LEAST 18-INCHES BELOW THE LINE. This will prevent contaminants from entering the system. Complete the repair trench excavation.
 4. After excavation of the repair trench is complete (to a depth of at least 18-inches below the line) close the remaining valve after removing the standing water to fully expose the pipe 360 degrees. Treat any standing water now remaining in the repair trench with ½ oz. of Granular Chlorine (62% purity) for every one hundred gallons of trench water to achieve a 25-ppm solution.
 5. To ensure a clean repair, inspect around the pipe in and near the damaged area and remove any debris, soil, or other material from the damaged area. Swab or spray the damaged area of the pipe and interior of all repair clamps or other appropriate devices with a 1% hypochlorite solution (5.2 fluid oz. of 6.15% bleach/quart of water) before installation. Complete the repair.
 6. Open the appropriate valve(s) and flush the water main toward the repair location from both directions if valve and hydrant locations permit. Continue flushing until all discolored water is eliminated and satisfactory chlorine residual is reached.
 7. Before the water main is returned to full service, collect a single water sample at a point nearest the repaired section. If direction of flow can be determined, the sample should be collected from downstream of the break repair. If direction of flow cannot be determined, samples should be collected from above and below the break repair. These samples should be coded "D". This sample is to be delivered as soon as possible to the Water Treatment Plant for bacteriological testing.
 8. Check all valves to insure they have been returned to the open position.
 9. If the test results are negative, the test results will serve as a record of compliance and no future work is required.
 10. Fill out all appropriate forms indicating disinfection procedures.
 11. If the test results are positive, then additional sampling should be undertaken immediately. A total of three (3) additional samples should be taken. The first additional sample should be taken from the original sampling location and the other two additional samples should be taken above and below the original sampling location. These three samples should be coded "R". If all three samples are negative, then no further work is required. If any of the additional samples is positive, then follow the normal repeat monitoring procedure.
- C. Dewatered Method: If it is not possible to maintain positive pressure as stated above and the pipe must be dewatered prior to opening and preparing the repair trench,

then the entire section of pipe must be disinfected in accordance with Section 6 of this document (Slug Method), which is derived from Section 4.7.4 of AWWA C651-99.

1. Contact Kentucky One Call to have all other utilities located; notify the Service Department and Water Treatment Plant of areas affected.
2. Close the nearest isolation valves on all sides of main break.
3. If there are customers in the isolated area, turn off all services at the lock wing on the meter yokes. Remove the meters. This will prevent the disinfectant from entering the customer's premises.
4. In order to lessen the possibility of additional contaminates from entering the exposed line, after excavation of the repair trench is complete, pump the water down below the main line. Treat the standing water in the repair trench with ½ oz. of granular chlorine for every one hundred gallons of trench water to achieve a 25-ppm solution.
5. Clean the area around the pipe. Swab or spray the interior of all repair pipe and fittings with a 1 percent hypochlorite solution (5.2 fluid oz. of 6.15% bleach/quart of water) before installation.
6. The line should be properly disinfected by the slug method using a chlorine dosage of 100 mg/L and a contact time of at least 3 hours for areas where service connections are present.
7. In areas where no service connections exist the line can be properly disinfected by the slug method using a chlorine dosage of 300 mg/L and a contact time of at least 15 minutes.
8. After the disinfectant has been added to the line by using a sodium hypochlorite solution or calcium hypochlorite granules, an upstream valve should be opened slightly, along with an opened downstream hydrant, to allow air and highly discolored contaminated water to be removed. The slow flowing concentrated slug will gradually move through the pipe allowing all parts to be exposed to the disinfectant.
9. Once the highly discolored contaminated water has been flushed, the valve and flushing hydrant should be closed to allow for the prescribed disinfectant contact time.
10. After the prescribed contact time has been reached, prepare to treat (de-chlorinate) the highly chlorinated water to be flushed from the isolated line if there is a possibility that the discharge will cause any damage to the environment.
11. Open the upstream valve and the downstream hydrant and flush until all discolored water is eliminated, de-chlorinating the discharge if necessary. Test for highly chlorinated water remaining in the line and continue flushing if necessary until elimination is successful and the concentration is no higher than that in the prevailing water in the surrounding area.
12. Before the water main is returned to full service, collect a single water sample at a point nearest the repaired section. If direction of flow can be determined, the sample should be collected from downstream of the break repair. If direction of flow cannot be determined, samples should be collected from above and below

the break repair. These samples should be coded "D". This sample is to be delivered as soon as possible to the Water Treatment Plant for bacteriological testing.

13. Open the customer's services at the lock wings and flush the service lines. Reinstall meters.
14. Open the remaining valves in the isolated area.
15. Flush the area again at the highest hydrant in the area to insure the elimination of any discolored water.
16. If the test results are negative, the test results will serve as a record of compliance and no future work is required.
17. Fill out all appropriate forms indicating disinfection procedures.
18. If the test results are positive, then additional sampling should be undertaken immediately. A total of three (3) additional samples should be taken. The first additional sample should be taken from the original sampling location and the other two additional samples should be taken above and below the original sampling location. These three samples should be coded "R". If all three samples are negative, then no further work is required. If any of the additional samples is positive, then follow the normal repeat monitoring procedure.

END OF SECTION

SECTION 02722 SANITARY SEWER SYSTEMS

PART 1 - GENERAL

1.1 WORK INCLUDED

The work included in this Section includes the installation and testing of sanitary sewerage systems. All sanitary sewerage systems shall conform to the design and construction standards promulgated by the Kentucky Division of Water (KDOW).

1.2 RELATED WORK

A. Section 02221: Trenching, Bedding and Backfilling

1.3 DELIVERY, STORAGE AND HANDLING

Care shall be exercised in the delivery, storage and handling of all materials prior to their incorporation into the work. Follow all manufacturers' recommendations for delivery and storage (except where these specifications differ). Acceptance of questionable material shall be based solely on the Engineer's interpretation of fabrication, delivery, storage and installation practices of the material in question.

PART 2 – PRODUCTS

2.1 GENERAL

New sanitary sewer pipe may generally be constructed of PVC pipe as specified in Subparts 2.2 and 2.3 of this Section, with the following exceptions:

- A. Sanitary sewers shall be specially coated and lined ductile iron pipe where indicated on the Contract Drawings. All other locations shall be PVC.
- B. Open cut sanitary sewers crossing drainage ditches and swales, storm drain discharge, wet weather streams, USGS blue-line streams, and other erosive environments shall be specially coated and lined ductile iron pipe and will be provided with concrete encasement.
- C. Sanitary sewers with less than the required 42 inches of cover in non-traffic areas and 48 inches in areas subject to vehicular traffic shall be specially coated and lined ductile iron pipe.

- D. Where additional pipe protection is required due to loads, insufficient cover, erosive environments, crossing other utilities, etc., specially coated and lined ductile iron pipe, restrained joints, concrete encasement and other methods shall be required as directed by the Engineer.
- E. Sanitary sewer pipe installed by horizontal directional drilling shall be HDPE pipe unless otherwise approved by the Engineer. See Section 02727 for product specifications of HDPE pipe.

2.2 POLYVINYL CHLORIDE (PVC) GRAVITY SEWER PIPE

- A. Manufactured from virgin, National Sanitation Foundation (NSF) approved resin conforming to ASTM D1784, suitable for use as a gravity sewer conduit with provisions for contraction and expansion at each joint, with a rubber ring and standard lengths of 20-feet and 12.5-feet plus or minus one (1) inch.
- B. Joints shall meet the requirements of ASTM D3212. Joint design shall be tested and certified to result in no leakage under prescribed laboratory test conditions of joint alignment, load conditions, pressure and vacuum, and deflection. Pipe and fittings shall have integral bell with elastomeric seal joint. The gaskets used for joining PVC sewer pipe shall conform to ASTM F477.
- C. PVC gravity sewer main pipe 8 inches to 15 inches in diameter shall meet and/or exceed the requirements of ASTM D3034, SDR 35. PVC gravity sewer pipe installed at depths greater than 12 feet shall conform to SDR 26.
- D. Gravity sewer mains shall be at least 8 inches in diameter.
- E. All PVC gravity service line pipe and fittings from the sewer main to the sewer cleanout assembly shall conform to SDR 35 unless depth exceeds 12 feet, in which case service lines and fittings shall conform to SDR 26.
- F. Color of PVC gravity sewer pipe shall be green or white.
- G. All PVC gravity sewer pipe shall be clearly marked with the manufacturer's name, nominal diameter, SDR, ASTM designation, and NSF approval seal.

2.3 POLYVINYL CHLORIDE (PVC) PRESSURE SEWER PIPE AND FITTINGS

- A. Manufactured from virgin National Sanitation Foundation (NSF) approved resin, PVC 1120 made from PVC compounds 12454-A or 12454-B as defined in ASTM D1784.
- B. PVC pressure sewer pipe 4 inches to 12 inches in diameter shall meet and/or exceed the requirements of ASTM D2241, SDR 21, Pressure Class 200 or AWWA C900, DR14, Pressure Class 200.

- C. PVC pressure sewer pipe shall have bell and spigot push-on joints manufactured in accordance with ASTM D3139. The bell shall consist of an integral wall section with a solid cross-section elastomeric gasket securely locked in place to prevent displacement during assembly. The gasket shall be reinforced with a steel band or other rigid material and shall conform to ASTM F477. The gasket and annular groove shall be designed and shaped so that when the joint is assembled, the gasket will be radially compressed to the pipe and locked in place against displacement, thus forming a positive seal.
- D. Color of PVC pressure sewer pipe shall be green or white.
- E. All PVC pressure sewer pipe shall be clearly marked with the manufacturer's name, nominal diameter, type of material, SDR or Class, ASTM or AWWA designation, and NSF approval seal.
- F. All fittings for PVC pressure sewer mains shall be ductile iron with mechanical joints as described in Subpart 2.4 of this section. The gaskets shall be duck-tipped transition gaskets for use with PVC pipe. All adaptors, fittings and transition gaskets necessary to connect ductile iron fittings to PVC shall be furnished.

2.4 DUCTILE IRON SEWER PIPE AND FITTINGS

- A. Ductile iron pressure sewer pipe shall conform to the latest revisions of ANSI/AWWA C151/A21.51 and ANSI/AWWA C111/A21.11.
- B. Unless otherwise specified or shown on the Contract Drawings, ductile iron sewer pipe shall be Pressure Class 350 for sizes 12-inch and smaller.
- C. Unless otherwise specified or shown on the Contract Drawings, ductile iron sewer pipe shall be furnished with push-on joints, with mechanical joint fittings and valves. Exposed piping shall be flanged.
- D. Ductile iron sewer pipe shall be specially coated and lined as detailed in Subpart 2.5 of this Section.
- E. All pipe shall be new and shall have the manufacturer's name, AWWA or ASTM designation, weight, pressure class and nominal diameter stamped on the outside of each pipe.
- F. Standard and special fittings shall be mechanical joint ductile iron fittings meeting the requirements of ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53, as applicable. Fittings shall have a pressure rating of 350 psi for 24-inch and smaller piping. Fittings shall at a minimum have the same pressure rating as the connecting

pipe. Ductile iron fittings shall be specially coated and lined as detailed in Subpart 2.5 of this Section.

2.5 SPECIAL COATINGS AND LININGS FOR DUCTILE IRON PIPE AND FITTINGS

- A. All ductile iron pipe and fittings shall be coated outside with a minimum 1 mil-thick bituminous coating per AWWA C151 for ductile iron pipe, AWWA C115 for flanged pipe and AWWA C110 and C153 for fittings.
- B. All ductile iron pipe and fittings shall be lined with 40 mils nominal dry film thickness of "Protecto 401 Ceramic Epoxy." The lining material shall be an amine cured novalac epoxy containing at least 20% by volume of ceramic quartz pigment.
- C. Lining application shall be performed by an applicator approved by the coating manufacturer, in accordance with the manufacturer's instructions and under controlled conditions at the applicator's shop or the pipe manufacturer's plant.

All ductile iron pipe and fitting linings shall be inspected in accordance with the manufacturer's recommendations. The pipe or fitting manufacturer shall submit a certified affidavit of compliance with the manufacturer's instructions and requirements specified herein.

2.6 JOINT RESTRAINT DEVICES

- A. Mechanical Joint Restraint Devices
 - 1. All mechanical joint fittings and valves shall be restrained at each opening with approved mechanical joint restraint devices. Restrained fittings **do not** eliminate or replace the requirement for sufficient concrete thrust blocking and/or restrained pipe joints.
 - 2. Restraint devices for joining plain end pipe to mechanical joint fittings, pipe and valves shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C111/A21.11 for PVC pipe or ANSI/AWWA C110/A21.10 for ductile iron pipe.
 - 3. Devices for PVC pipe shall have a working pressure rating equal to that of the pipe on which it is used. Ratings are for water pressure and must include a minimum safety factor of 2:1.
 - 4. Devices for ductile iron pipe shall have a working pressure rating of 350 psi for 3 to 16 inch and 250 psi for 18 inch and larger. Ratings are for water pressure and must include a minimum safety factor of 2:1.
 - 5. Gland body, wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron materials in accordance with ASTM A536.
 - 6. Mechanical joint restraint shall require conventional tools and installation procedures per AWWA C600, while retaining full mechanical joint deflection

during assembly as well as allowing joint deflection after assembly. Proper actuation of the gripping wedges shall be ensured with torque limiting twist off nuts.

7. Mechanical joint restraint shall be Megalug Series 2000PV or Megalug Series 1100 produced by EBAA Iron Inc. or approved equal.
- B. Bell Restraint Harness Devices
1. Bell restraint harnesses for push-on joint PVC pipe shall be Series 1600, 2800, or 6500 as manufactured by EBAA Iron, Inc., Series 1350 or 1390 by Uni-Flange, or approved equal.
 2. Bell restraint harnesses for push-on joint ductile iron pipe shall be Series 1700 by EBAA Iron, Inc., or approved equal.

2.7 COMPRESSION COUPLINGS

- A. When joining together dissimilar types of pipe, such as PVC and vitrified clay pipe, for repairing and rejoining sections of gravity sewer, for joining new pipe to existing pipe and for connecting the first full joint of pipe to a short stub through a manhole wall, compression couplings complying with ASTM C425 shall be used.
- B. Compression couplings shall be resistant to corrosion by soil and sewage and shall provide a permanent watertight joint. The compression couplings shall be of synthetic rubber or rubber-like material and the bands for attaching the couplings shall be of stainless steel.

2.8 PRECAST CONCRETE MANHOLES

- A. All precast concrete manholes shall conform to the requirements of AASHTO M-199 SR and ASTM C478, including steel reinforcement.
- B. All concrete used in connection with the construction of precast manholes shall be at minimum 4,000 psi concrete.
- C. The precast manufacturer shall use XYPEX additive. XYPEX ADMIX C-1000/dye shall be added to the concrete during batching at a rate of 2-3 percent by weight of Portland cement. The amount of cement shall remain the same and not be reduced. Precast concrete structures shall have a reddish tint to verify the XYPEX admix.
- D. Base, riser and top sections shall have tongue and groove joints.
- E. The Contractor may choose to order new precast base sections with monolithic bottoms and inverts already formed and manhole bases and risers with pipe openings and integrally cast resilient pipe connectors in place. Manhole steps may also be provided cast-in-place. It shall be the Contractor's responsibility to provide

manholes with properly located and sized pipe openings and properly formed inverts. Manholes not constructed in accordance with the Contract Drawings are subject to rejection and replacement at no additional cost to the Owner.

- F. Unless otherwise specified, all manholes shall have an inside diameter of not less than 4 feet and a vertical wall height of not less than 30 inches. Drop manholes shall be a minimum of 5 feet in diameter and 6-foot diameter manholes shall be used on sewers 30 inches and larger.
- G. Top sections shall be eccentric cones where cover over the pipe exceeds 4 feet. Top sections shall be flat top where cover over the pipe is 4 feet or less.
- H. The clear opening in the manhole shall be not less than 24 inches. 30-inch diameter openings may be required at the Engineer's discretion in special circumstances such as shallow manholes less than 4 feet deep or manholes on large diameter trunk sewers.
- I. All manholes with drop assemblies or force main entrances shall be epoxy coated or utilize an interior construction such as the A-Lok® system to prevent H₂S deterioration of the manhole interior.

2.9 MANHOLE INVERTS

Manhole inverts shall be constructed of concrete with a minimum 28-day compressive strength of 3,000 psi. Inverts shall be shaped so as to form a smooth, even U-shaped channel with curves formed with as large a radius as is permitted by the size of the manhole. The height of the channel shall be at least $\frac{1}{2}$ the pipe diameter for pipes less than 15 inches in diameter and at least $\frac{3}{4}$ the pipe diameter for pipes 15 inches in diameter and larger. The bench shall be sloped to drain to the channel, but no more steeply than a slope of 1 in 12.

2.10 JOINT SEALANT FOR PRECAST MANHOLES AND WET WELLS

Joint sealant for precast manholes and wet wells shall provide permanently flexible, watertight joints, shall retain workability over a wide temperature range, shall form permanent bonds to concrete substrates and shall not shrink, harden or oxidize upon aging. Joint sealant material shall consist of pre-molded rubber or butyl rubber. Sealants shall meet the requirements of Federal Specification SS-S-210A and AASHTO M-198.

2.11 CASTINGS FOR FRAME AND COVERS

- A. Castings shall be gray cast iron conforming to the requirements of ASTM A48, Class 30. Castings shall be made accurately to the required dimensions, shall be sound, smooth, clean, free from scale, lumps, blisters and other defects. Castings shall be machined to provide solid bearing so that covers rest securely in the frames with no rocking.

- B. Castings shall be thoroughly cleaned before rusting begins and coated with bituminous paint that will produce an acceptable finish that is not affected by exposure to hot or cold weather.
- C. Standard frames and covers shall be traffic duty weighing not less than 410 pounds and shall have a minimum 24-inch clear opening. The covers shall be the solid indented type with no holes except watertight pick notches, with the words "SANITARY SEWER" cast in raised letters thereon. Standard manhole frames and covers shall be Neenah Casting No. R-1726-A or approved equal.
- D. Watertight frames and covers shall be traffic duty weighing not less than 485 pounds and shall be the double cover type with rubber gaskets. The surface cover shall be the solid type with no holes except watertight pick notches, with the words "SANITARY SEWER" cast in raised letters thereon. The inner cover shall be of the solid type with no holes, shall have not less than two lifting handles and shall have a neoprene sealing gasket with at least 3/8-inch diameter cross section. The inner cover shall be mechanically sealed by means of a removable steel locking bar located over the inner cover with a centrally located stainless steel tightening bolt. This bolt shall be fitted for a tee-handle or bent-handle that shall be included with each cover. The bolt shall have ACME threads for durability. The inner cover shall have appropriate reinforcing ribs to prevent cracking or distortion when tightened. The inner cover shall have sufficient clearance to allow easy installation of the cover. Watertight manhole frames and covers shall be approved prior to construction.
- E. Covers shall include the City logo where directed by the Engineer.
- F. Covers shall be bolted to the frame where indicated on the drawings or as otherwise specified.
- G. Frame shall be bolted to the precast concrete section with four, 1/2-inch diameter expansion anchor bolts.
- H. Castings with 30-inch openings may be used in special circumstances such as shallow manholes less than 4 feet deep or manholes on large diameter trunk sewers. Refer to Engineer for these special applications.

2.12 MANHOLE STEPS

- A. Manhole steps conforming to ASTM C478 shall be made of copolymer polypropylene plastic conforming to the latest revision of ASTM D-4101 and shall have a 1/2-inch diameter Grade 60 Steel reinforcing rod meeting the latest revision of ASTM A615 through its center.
- B. Each step shall be 12 inches in width and capable of supporting a load of 1,000 pounds in the center of the step when projected 6 inches from the wall. Each step shall be equipped with non-skid grooves. Rung spacing shall be 12 inches.

2.13 RESILIENT PIPE CONNECTIONS AT MANHOLES

- A. Resilient pipe connectors shall be manufactured in accordance with ASTM C923 and shall provide a positive watertight joint and minimum of 10 degrees deflection in any direction. There shall be no water leakage through the connector when pipe is in its maximum deflected position. Connectors shall be manufactured of durable rubber, which offers superior resistance to water, sewage, oils, acid, ozone, weathering and aging. Connectors shall be securely sealed to the cut out in the manhole wall by means of stainless steel expansion sleeves, bands or rings and to the pipe by means of stainless steel clamps or bands. Connectors shall be KOR-N-SEAL as manufactured by NPC, Inc., or approved equal.
- B. Compression-type connectors cast integrally into the manhole wall shall be A-Lok or equal.
- C. When making a main or service connection to an existing manhole or to any manhole for which a factory installed booted opening has not been provided, a hole shall be cored into the manhole with minimal damage to the structure and a resilient pipe connector such as KOR-N-SEAL installed.
- D. When setting a manhole over an existing sewer line, the exterior of the pipe shall be thoroughly cleaned and a double wrap of Ram Neck or equivalent bitumastic material placed around the pipe to form a gasket over which the concrete for the new manhole base is poured, in order to form a watertight connection.

2.14 MANHOLE FRAME SEALS

- A. Frame seals shall consist of a flexible internal rubber sleeve, interlocking extensions and stainless steel expansion bands as manufactured by Cretex Specialty Products or pre-approved equal. Frame seals shall be installed in areas designated by the Engineer.
- B. The seal shall remain flexible throughout a 25-year design life, allowing repeated vertical movement of the frame of not less than 2 inches and/or repeated horizontal movement of not less than ½ inch. The sleeve portion of the seal shall be double, triple, or quadruple pleated with a minimum unexpanded vertical height of 8 inches, 10 inches, or 13 inches respectively. The sleeve and extension shall have a minimum thickness of 3/16 inches and shall be made from a high quality rubber compound conforming to the applicable material requirements of ASTM C923, with a minimum 1500 psi tensile strength, a maximum 18% compression set and a hardness (durometer) of 48±5. The area of the seal that compresses against the manhole frame/casting and the chimney/cone shall have a series of sealing fins to facilitate a watertight seal. These sealing fins shall have teardrop holes or air pockets to allow the sealing area to conform to minor surface irregularities that may be encountered.
- C. The expansion bands used to compress the sleeve against the manhole shall be integrally formed from 16-gauge stainless steel conforming to the applicable portion of ASTM C-923, Type 304, with no welded attachments, and shall have a minimum

width of 1¾ inches.

- D. The bands shall have a minimum adjustment range of 2-½ diameter inches and the mechanism used to expand the band shall have the capacity to develop the pressures necessary to make a watertight seal. The band shall be permanently held in this expanded position by the positive locking mechanism located on the overlapping edge of the band.

PART 3 – EXECUTION

3.1 WATER AND SEWER LINE SEPARATION

- A. Maintain a 10-foot horizontal separation, measured edge to edge, between any new or proposed sanitary sewer and any existing or proposed water main.
- B. Where conditions cause the required horizontal separation to be impractical, the sewer may be laid closer provided it is laid in a separate trench and the elevation of the top of the sewer is at least 18 inches below the bottom of the water main.
- C. Where a sewer crosses under a water main, the top of the sewer shall be at least 18 inches below the bottom of the main.
- D. Where conditions cause the required vertical separation to be impractical, the water main shall be relocated to provide the required separation or else reconstructed with mechanical joint ductile iron pipe for a distance of 10 feet on each side of the sewer with a full joint of the water main centered over the sewer.
- E. Where sewers must be constructed over water mains or less than 18 inches below the water main, the sewer shall be designed and constructed equal to water main standards and pressure tested to assume water tightness.
- F. Additional protection such as concrete encasement shall be installed where directed by the Engineer.

3.2 GRAVITY SEWER INSTALLATION

- A. Properly excavate trench to required lines and depths and install any necessary sheeting, shoring and bracing in accordance with Section 02221.
- B. Prepare a satisfactory trench bottom and install suitable bedding in accordance with Section 02221.

- C. Lay pipe true to the lines and grades from the grade and alignment stakes, or equally usable references.
- D. Carefully inspect all pipe and each fitting prior to its placement in the trench, and reject and remove any damaged or defective pipe or fitting from the job site.
- E. Dig bell holes large enough to allow ample room for the pipe joints to be properly made. Carefully grade the crushed stone bedding between bell holes such that each pipe barrel will rest for its entire length upon the prepared bedding to assure uniform support of the pipe.
- F. Lay pipe progressively up grade, with bell upstream in such a manner as to form close, concentric joints with smooth bottom inverts. Swab the interior of the pipe to remove all foreign material. Prepare the bell and remove undesirable material from the gasket and gasket recess. Joining of all pipe shall be in accordance with manufacturer's specifications.
- G. When cutting short lengths of PVC pipe, a pipe cutter will be used, and care shall be taken to make the cut at right angles to the centerline of the pipe. In the case of push-on pipe, the cut ends shall be tapered with a portable grinder or coarse file to match the manufactured taper.
- H. Compression couplings shall be used where indicated on the Contract Drawings or as specified in Paragraph 2.7 of this Section.
- I. Gravity sewer pipe shall be of the size and material indicated on the Contract Drawings and as specified in Part 2 of this Section. No sewer main shall be less than 8 inches in diameter.
- J. Gravity sewer pipe shall be installed at the grade indicated on the Contract Drawings. Sewer pipe shall be installed with slopes equal to or exceeding the minimum slopes provided in the following table.

Nominal Sewer Size	Minimum Slope in Feet Per 100 Feet
<u>8 inch</u>	0.40
10 inch	0.28
12 inch	0.22
14 inch	0.17
15 inch	0.15
16 inch	0.14
18 inch	0.12
21 inch	0.10
24 inch	0.08
27 inch	0.067
30 inch	0.058

- K. Additional pipe protection such as use of specially lined ductile iron pipe or concrete encasement shall be installed where indicated on the Contract Drawings or as directed by the Engineer. Pipe protection may be required for shallow sewers, areas subject to erosion, very heavy traffic, utility crossings, along property lines where future fence posts could be anticipated, etc.
- L. As the work progresses, thoroughly clean the interior of the pipe in place. After each joint of pipe has been laid, carefully inspect it and remove all foreign material from its interior. Upon completion of a section between any two manholes, it shall be possible to view a complete circle of light when looking through the pipe.
- M. Do not allow walking on complete pipelines until backfill has been placed to a depth of at least 6 inches above the crown of the pipe.
- N. When laying pipe ceases at the end of the workday or any other disruption, close the open ends of the pipe with a suitable watertight plug to prevent the entrance of foreign materials.
- O. Trench backfill and check dams shall be placed in accordance with Section 02221.
- P. Making connections to existing manholes by core drilling a hole in the wall of the existing structure, installing a resilient pipe connector such as Kor-N-Seal, and securing the sewer pipe in the connector in accordance with the manufacturer's recommendations. Shape or re-shape the invert of the manhole to accommodate the new flow channel.
- Q. Measurement of the depth to determine depth classification shall be the vertical distance between the original ground surface elevation and the invert of the pipe as shown on the Contract Drawings except where the profile has been revised and approved by the Owner.

3.3 PRECAST CONCRETE MANHOLE INSTALLATION

- A. Manholes shall be installed at the end of each sewer main, at all changes in grade, size, or alignment, at all intersections, and at distances not greater than 400 feet for sewers 16 inches or less and 500 feet for sewers larger than 16 inches. Where a sewer main extension is expected in the foreseeable future, the manhole shall be installed with a stub at least to the property line shared by the current and future development.
- B. Provide a stable, satisfactory subgrade for the new manhole. Dewater the excavation as required. Any unstable or otherwise unsuitable material encountered at the subgrade shall be undercut and replaced with compacted Class I angular material.

- C. Provide a bedding of at least 6 inches of compacted DGA as crushed stone base material for the manhole.
- D. Manholes shall be installed such that they are fully and uniformly supported, set plumb in true alignment and at the proper grade in accordance with the Contract Drawings.
- E. Where concrete foundations are to be cast-in-place, the concrete shall have a compressive strength of at least 4,000 psi. The base section shall be carefully blocked above the prepared base stone so that it is plumb and in true alignment and the concrete foundation poured beneath it. The concrete foundation shall be at least 8 inches thick. Riser sections shall not be added until the concrete foundation has been allowed to set for at least 24 hours.
- F. Seal joints between sections with an approved joint sealant.
- G. Where pipe openings and integrally cast resilient pipe connectors have not been provided complete, the Contractor shall make connections to manholes by core drilling a hole in the wall of the structure, installing a resilient pipe connector such as Kor-N-Seal, and securing the sewer pipe in the connector in accordance with the manufacturer's recommendations. Shape the invert of the manhole to accommodate the flow channel as specified herein.
- H. Thoroughly wet and then completely fill all lift holes, any defects and all interior joints with non-shrink grout and smooth them to ensure watertightness.
- I. Where indicated on the Contract Drawings, the manhole encapsulation system shall be installed on the outside surface of all joints including the manhole casting to manhole connection. The manhole and casting shall be clean and dry prior to application of a primer as recommended by the manufacturer. Installation shall be in accordance with the manufacturer's recommendations.
- J. Trench check dams shall be installed upstream of each manhole as specified in Section 02221.
- K. Backfill manholes in accordance with the requirements for trenching and backfilling as specified in Section 02221.
- L. When completed, the manhole shall be free from channel obstructions and leakage.
- M. All manhole inverts shall be finished with mortar to provide a smooth transition from the manhole into the pipe entrances and exits.
- N. Measurement of the depth to determine depth classification shall be the vertical distance from the finished casting elevation to the invert of the outlet pipe as shown on the Contract Drawings unless the profile has been revised and approved by the Owner.

3.4 MANHOLE FRAME AND COVERS INSTALLATION

- A. All castings shall be of the types, dimension, and weights as shown on the Contract Drawings and as specified in Paragraph 2.11 of this Section and shall be set at the required elevation. Bolted watertight manhole covers are required in areas subject to flooding. Bolted down covers are also to be installed in all unimproved areas such as wooded areas that are subject to unsupervised vandalism.
- B. The manhole sidewall shall be adjusted with either steel or concrete grade adjustment rings as required to bring the casting to the required grade. No more than 6 inches of grade adjustment rings will be permitted on newly constructed manholes.
- C. Where manholes are constructed in paved areas, the frame and cover shall be tilted so as to conform to the exact slope, crown and grade of the existing adjacent pavement.
- D. A full circle of an approved joint sealant shall be placed between the manhole ring frame and the masonry portion of the manhole to assure water tightness. The frame shall be further secured to the manhole by the use of mortar or grout placed from the outside edge of the masonry structure to a point approximately 1 inch below the top of the casting. Manhole frames shall be bolted to the manhole using four ½-inch diameter stainless steel expansion anchor bolts.
- E. Manhole frame seals shall be installed on sanitary manholes in accordance with the manufacturer's recommendations where indicated on the Contract Drawings or as directed by the Engineer.
- F. Existing manhole frames shall be adjusted utilizing John Bouchard & Sons, Inc. manhole adjusting riser rings.

3.6 DROP ASSEMBLY INSTALLATION

- A. Drop assemblies are also required in pump station wet wells where the difference between the invert elevation of the inlet pipe and the level control cutoff point is greater than 24 inches. Down pipes shall be terminated approximately 3 inches above the level control cutoff point.
- B. Drop assemblies shall be internal to the manhole or wet well. External drops shall not be permitted unless specifically approved by the Owner.
- C. Drop assemblies shall be constructed of PVC. The down pipe shall be 12 inches in diameter. A cross fitting shall be provided at the pipe entrance to the manhole to provide access for cleaning blockages. Stainless steel straps and anchors spaced no greater than 6 feet apart shall be installed to support the assembly. A 90 degree sweeping elbow shall be installed at the bottom of the drop pipe and a suitable invert shall be formed.

- D. Drop manholes shall be a minimum of 5 feet in diameter. All manholes with drop assemblies shall be epoxy coated or utilize an interior construction such as the A-Lok® system to prevent H₂S deterioration of the manhole interior.

3.7 SEWER FORCE MAIN INSTALLATION

- A. Properly excavate trench to required lines and grades and install any necessary sheeting, shoring and bracing in accordance with Section 02221.
- B. Prepare a satisfactory trench bottom in accordance with Section 02221.
- C. Lay the force main true to the lines and grades indicated on the Contract Drawings. Particular care shall be taken to ensure the line is maintained on a positive or negative grade and that increased depth is provided where indicated on the Contract Drawings so that no undesired local high point is created. The Contractor shall relay any force main pipe with undesired high points at no additional expense to the Owner.
- D. Unless otherwise directed by the Engineer, lay pipe with the bell ends facing the direction of laying.
- E. Carefully inspect all pipe, valves and fittings prior to placement in the trench, and reject and remove any damaged or defective pipe from the job site.
- F. Dig bell holes large enough to allow ample room for the pipe joints to be properly made. Carefully grade the bottom of the trench between bell holes such that each pipe barrel will rest for its entire length upon the trench bottom to assure uniform support of the pipe.
- G. All pipe and fittings shall be carefully lowered into the trench to prevent damage to the materials and to any protective coatings and linings. Specially lined ductile iron pipe and fittings must be handled only from the outside. No forks, chains, hooks, timber, etc. shall be placed inside the pipe and fittings for lifting, positioning or laying.
- H. The interior of all pipe, valves and fittings shall be thoroughly cleaned to remove any accumulated mud, debris, etc. before being laid. The spigot end shall be cleaned and the bell cleaned and prepared. If the pipe cannot be laid without allowing earth and debris from entering the pipe, a suitable cover such as canvas or a plug shall be used to assure the pipe remains clean until it is joined to the next pipe. Joining of all pipe shall be in accordance with the manufacturer's recommendations.
- I. Cut pipe for inserting valves, fittings, etc. in a neat and workmanlike manner without damaging the pipe. Follow the manufacturer's recommendations concerning how to cut and machine the pipe in order to leave a smooth end at right angles to the axis of

- the pipe. Hone the pipe with suitable tools to provide a smooth beveled edge on field cut sections.
- J. When pipe laying ceases at the end of the workday or any other disruption, such as inclement weather, close the open ends of the pipe with a suitable watertight plug or wrap to prevent entrance of foreign materials.
 - K. Wherever pipe must be deflected from a straight line, the amount of deflection shall not exceed that necessary for the joint to be satisfactorily made. The deflection shall in no case exceed that recommended by the pipe manufacturer.
 - L. At high points on the line profile, where a change from a positive to a negative grade occurs, an air relief or combination air/vacuum relief valve shall be installed as specified in the Contract Drawings.
 - M. Force main valves shall be installed where indicated on the Contract Drawings. Valves and stems shall be installed plumb.
 - N. All valves and fittings are to be restrained with mechanical joint restraining devices. These restraining devices do not eliminate the requirement for sufficient concrete thrust blocking and/or restrained joint pipe. The distance from the fitting to the end of the restraint shall not be less than that indicated on the Contract Drawings.
 - O. Concrete thrust blocks shall be installed at all fittings in accordance with the Contract Drawings. The concrete shall be Class B concrete per KYTC specifications. The thrust block shall be constructed between the fitting and undisturbed soil with a bearing area at least the size indicated on the Contract Drawings, and shall be constructed such that the fittings, valves and joints are accessible for repairs. All pipe, fittings and valves that will be in contact with the concrete shall be wrapped with polysheet to prevent bonding with the thrust block.
 - P. Backfill shall be as specified in Section 02221.
 - Q. Carsonite markers shall be installed where indicated on the Contract Drawings.
 - R. Where the force main discharges into a gravity sewer manhole, the force main entrance to the receiving gravity manhole shall be within 6 inches of the lowest invert of the manhole. Deflector fittings or new inverts shall be installed if necessary to reduce the turbulence of the incoming flow. All manholes with force main discharges shall be epoxy coated or shall utilize an interior construction such as the A-Lok® system to prevent H₂S deterioration of the manhole interior.
 - S. New force main connections to existing force mains shall be as shown on the Contract Drawings.

3.8 IDENTIFYING TAPE AND TRACER WIRE

- A. The location of all force mains, regardless of material type, installed under these specifications shall be marked by the use of a continuous tape, minimum three inches in width, made of 5 mil polyethylene plastic with a 0.5 mil thick aluminum metallic core or backing. The tape shall be buried in the trench, above the pipe, not more than two feet below the surface. The tape shall be marked indelibly with the words "Sewer Main Below" or similar wording to warn unwary excavators, and shall be green in color.
- B. An insulated minimum 12-gauge tracer wire shall also be installed in the trench immediately along sewer force mains, either attached to or periodically wrapped around the line. The wire shall be branched off to connect to valve boxes and air release valves to allow convenient surface access to the wire for pipe locator connection.

3.9 BYPASS PUMPING

- A. Where flow stoppage may be necessary and the flow is so great as to require pumping, the Contractor shall bypass the sewage around the section or sections of gravity sewer line that are out of service by plugging an existing upstream manhole and pumping sewage to a downstream manhole. The pump and bypass lines shall be of adequate capacity and size to handle the flow. Likewise, bypass pumping may be required at pump stations through pump-around ports, where available. Alternatively, situations may demand that pumping and hauling be performed. The Contractor shall perform whatever bypass operations are necessary to complete the required work and prevent overflow or spillage of raw sewage.
- B. **UNDER NO CIRCUMSTANCES WILL THE DUMPING OF RAW SEWAGE ON PRIVATE PROPERTY, OR INTO STREAMS, STORM SEWER OR CITY STREETS BE ALLOWED.**
- C. Except as may be approved by the Owner's Inspector, temporary connections shall be made at the end of each working day so that overnight pumping is not required. Bypassing of sewage shall be considered a subsidiary obligation of the Contract and no separate payment shall be made for this work unless specifically listed as a pay item on the Bid Form.

3.10 STREAM CROSSINGS

A Stream Crossing permit must be obtained from KDOW where utilities cross USGS-designated blue-line streams or where utility line construction otherwise disturbs these streams. Construction shall comply with the Contract Drawings and with the provisions of the permit and SWPPP. Upon completion of construction, the stream and its banks

shall be stabilized and/or returned as nearly as possible to their original condition. Cleanup, grading, seeding, planting or restoration of the work area shall be carried out as early as practical as the construction proceeds and in accordance with the Permit.

PART 4 – TESTING

4.1 GENERAL

- A. Testing and inspection of the completed work shall be accomplished by one or more of the following methods:
 - 1. Visual Inspection
 - 2. Closed Circuit Television (CCTV)/Video Inspection
 - 3. Leak Testing of Gravity Mains
 - 1. Low-Pressure Air Testing
 - 2. Infiltration Testing
 - 3. Exfiltration Testing
 - 4. Deflection Testing of Gravity Mains
 - 5. Vacuum Testing of Manholes
 - 6. Hydrostatic Testing of Force Mains
 - 7. Valve Testing
- B. Upon completion of construction, the Contractor shall remove all sand, dirt, rock and other foreign materials from the sewers and shall conduct his own inspection and testing to locate and repair any defects, and determine when sewers are ready for final inspection and testing by the Owner's Inspector. After all apparent defects have been corrected; the Contractor shall notify the Owner and request a final inspection.
- C. The Owner will not conduct a final inspection until receiving written notice from the contractor that the construction is completed in accordance with approved Contract Drawings and Specifications. This notification shall include a report of the results of the inspection and testing performed on the sanitary sewer system components.

4.2 VISUAL INSPECTION

- A. Unscheduled visual inspection of the sewer and construction site by the Owner's Inspector shall occur during the course of the construction. The Inspector shall make visual inspection of pipe, fittings, valves and other materials to be incorporated into the work before they are installed. Items found to be defective or otherwise not in accordance with Contract Drawings and Specifications shall be immediately removed from the site.
- B. Visual inspection of grade and alignment, bedding, pipe jointing, manholes, etc. will proceed as work progresses. Acceptance of work at this stage in no way relieves the Contractor of responsibility and does not preclude additional testing at the discretion of the Owner. Any sags, humps, bends or other evidence of misalignment shall be

cause for rejection. Improper construction and work not in accordance with the Contract Drawings and Specifications shall also be cause for rejection.

- C. Upon completion of the work, all sewers and manholes shall be inspected for foreign matter such as sand or mud brought in by infiltration or inflow, and any such matter shall be removed before final acceptance. If visual inspection of lines, manholes or other items reveals leaks, structural failures or other defects, the Contractor shall repair such immediately.

4.3 CCTV/VIDEO INSPECTION

- A. The Contractor shall conduct an internal inspection and digital recording of the sewer system using a television instrument. As an alternate to the Contractor performing the television inspection, the Contractor may choose to use the services of the City's crews at a cost determined by the General Manager or his designated representative. The Contractor shall be responsible for correcting all deficiencies discovered by the CCTV inspection at no cost to the Owner.
- B. A remote controlled, adequately lit camera that will travel the length of each section of gravity sewer main from manhole to manhole shall be used to televise all newly installed sewers. The camera shall be of suitable design and manufactured for the express purpose of televising gravity sanitary sewer mains. The camera's path shall be recorded with an onscreen display of footage traveled. Auditory notations by the camera operator regarding locations of service connections, pipe defects, indications of faulty installation and all other important points of interest shall be recorded as permanent record. The view recorded by the camera shall also include an object of reference to assist the viewer in determining the scale of objects within the pipe.
- C. Video quality shall be such that the condition of all interior sections of the main and service laterals on that section of the main are easily discernible. The camera shall allow for articulation that enables a clear view of service laterals in a direction perpendicular to the direction of the main and at a variety of vertical angles to allow viewing of laterals at varying slopes. The image must be clear to the test cap or first bend of the service lateral.
- D. Audio quality shall be adequate to clearly understand remarks of the camera operator.
- E. Video inspection shall commence immediately after line cleaning so that any sag or changes in grade shall be revealed and evidenced by puddling in areas where positive slope is not maintained.
- F. The Contractor shall be responsible for correcting all deficiencies discovered by the CCTV inspection at no cost to the Owner.
- G. At the time of the request for final inspection, the Contractor shall submit to the Engineer's Office on CD-ROM or DVD media 2 copies of digital files that represent the videotaping of all sewer mains in a project or development. The video record of each section of gravity main between manholes shall be represented by a separate

MPEG or AVI format digital file. The disc and its jacket shall be clearly labeled with the name of the subdivision or project and its phase and/or section, as well as the installation date. All references to manholes and mains with regard to videotaping shall be by the same naming convention as that shown on construction plans approved by the City. An index file shall be provided with each disc that explains the meaning of each file name and identifies the CCTV company that produced it.

4.4 LOW-PRESSURE AIR TESTING

- A. Low-pressure air testing is the preferred method of leak testing of gravity sewer mains up through 24 inches in diameter when above groundwater. If the groundwater level is 2 feet or more above the top of the pipe at the upstream end, air testing shall not be used.
- B. Labor, equipment and supplies required for all tests shall be furnished by the Contractor. The test shall be observed by the Owner's Inspector.
- C. Low-pressure air tests shall be made with equipment specifically designed and manufactured for the purpose of testing pipelines using low-pressure air. The equipment shall be provided with an air regulator valve or air safety valve set such that the internal air pressure in the pipeline cannot exceed 8 psig (gauge pressure). Test equipment shall be top quality, in good condition and approved by the Inspector. Plugs shall have a sealing length equal to or greater than the diameter of the pipe being tested and external bracing of the plugs should not be required in order for the plug to hold against internal air pressure. The test equipment shall include accurate, oil-filled pressure gauges to monitor test pressure, safety relief valve(s) and quick-release air bleed valve(s).
- D. The procedure for low-pressure air testing shall be in accordance with ASTM F1417 unless modified herein.
 - 1. Clean the section of sewer line to be tested by flushing or other means prior to conducting the low-pressure air test.
 - 2. Isolate the section of sewer line to be tested by suitable test plugs and plug all sewer services to be included in the test to prevent air leakage. Such sewer service caps shall be readily removable, and their removal shall provide a socket suitable for making a lateral connection or extension. All plugs and caps shall be securely braced to prevent blow-out against internal pressures. One of the plugs or caps should have an inlet tap, or other provision for connecting a hose to a portable air control source. Allow no one in the manholes while pressurizing the line or during the test.
 - 3. Immediately following this check or cleaning, test the pipe installation with low-pressure air. Supply the air slowly to the plugged pipe installation until the internal air pressure reaches 4.0 psi more than the average backpressure of any groundwater that may submerge the pipe (an additional 0.43 psi should be added for each foot of groundwater above the pipe). Allow at least 2 minutes for temperature stabilization.
 - 4. After the stabilization period and with 3.5 psi minimum pressure (above the average backpressure) in the pipeline, air supply shall be disconnected and the time measured which results in a 1 psi pressure drop.

5. The time required in minutes for the pressure in the section under test to decrease from 3.5 psi to 2.5 psi shall not be less than that shown in the table below.

Low-Pressure Air Test Requirements							
Pipe Dia. (inches)	Min. Time (min:sec)	Length for Min. Time (feet)	Time for Longer Length	Specified Time for Length Shown (min:sec)			
				100 ft	200 ft	300 ft	400 ft
8	7:34	298	1.520*L	7:34	7:34	7:36	10:08
10	9:26	239	2.374*L	9:26	9:26	11:52	15:49
12	11:20	199	3.418*L	11:20	11:24	17:05	22:47
15	14:10	159	5.342*L	14:10	17:48	26:42	35:36
18	17:00	133	7.692*L	17:00	25:38	38:27	51:16
21	19:50	114	10.470*L	19:50	34:54	52:21	69:48
24	22:40	99	13.674*L	22:47	45:34	68:22	91:10

6. It is not necessary to hold the test for the entire period of time indicated in the above table when it is evident that the rate of air loss is zero or less than the allowable, and is authorized by the Inspector.
7. Upon completion of the test, open the bleeder valve and allow all air to escape. Plugs should not be removed until all air pressure in the test section has been reduced to atmospheric pressure.
8. Failure of any section of the pipeline to meet the requirements of this test shall cause the Contractor to determine, at his own expense, the source(s) of leakage. The Contractor shall excavate and repair or replace all defective materials or workmanship, and repeat all testing until results are satisfactory at no additional cost to the Owner.

4.5 INFILTRATION TESTING

- A. Gravity sewers shall be leak tested by an infiltration test if the groundwater is more than 2 feet above the crown of the pipe for the full length of the section to be tested.
- B. Pipe shall be tested for infiltration after the backfill has been placed and the groundwater allowed to return to normal elevation. If an inspection of the completed pipeline or any part thereof shows pipes or joints that allow noticeable infiltration of water, the defective work or material shall be replaced or repaired as directed by the Owner. All visible leaks shall be repaired prior to testing.
- C. The length of line to be tested shall not be less than the length between adjacent manholes and not more than the total length of each size of pipe. The measured infiltration shall not exceed 2.0 gallons per inch of diameter per day per 100 feet of pipe in each section tested.

- D. Rates of infiltration shall be determined by means of V-notch weirs, pipe spigots, or by plugs in the end of the pipe installed in an approved manner and at such times and locations as may be directed by the Engineer.
- E. Failure of any section of the pipeline to meet the requirements of this test shall cause the Contractor to determine, at his own expense, the source(s) of leakage. The Contractor shall excavate and repair or replace all defective materials or workmanship, and repeat all testing until results are satisfactory at no additional cost to the Owner.

4.6 EXFILTRATION TESTING

- A. Where required by the Engineer, leakage testing by exfiltration shall be made by creating a head in the pipeline to be tested by filling the line and either manhole or temporary riser on one end of the line with water. The length of pipe to be tested shall be such that the head over the crown at the upstream end is not less than 2 feet and the head over the downstream crown is not more than 5 feet.
- B. The pipe shall be filled with water in such a manner that the air can be released from the pipe while it is being filled. Before any measurements are made, the pipe shall be kept full of water long enough to allow absorption and the escape of any trapped air to take place. Following this, a test period of at least one hour shall begin. Provisions shall be made for measuring the amount of water required to maintain the water at a constant level during the test period. If the quantity of water required to maintain a constant head in the pipe does not exceed 2.0 gallons per inch of diameter per day per 100 feet of pipe and if all the leakage is not confined to a few joints, workmanship shall be considered satisfactory.
- C. Failure of any section of the pipeline to meet the requirements of this test shall cause the Contractor to determine, at his own expense, the source(s) of leakage. The Contractor shall excavate and repair or replace all defective materials or workmanship, and repeat all testing until results are satisfactory at no additional cost to the Owner.

4.7 DEFLECTION TESTING

- A. Flexible PVC pipe shall pass a go/no-go Mandrel sized to 95% of the actual pipe diameter with the pipe in place and properly backfilled. No testing shall be performed until the pipe has been laid and backfilled for 30 days and any necessary line cleaning is complete.
- B. The Mandrel size shall be based upon the maximum possible inside diameter for the type of pipe being tested, taking into account the manufacturing tolerances of the pipe.
- C. The Mandrel shall have an odd number of legs, or vanes, with a quantity of such equal to or greater than nine. The legs of the Mandrel shall be permanently attached to the Mandrel.

- D. The Mandrel shall be constructed of steel, aluminum, or other material approved by the Engineer or his representative, and shall have sufficient rigidity so the legs of the Mandrel will not deform when pulling through a pipe.
- E. A Mandrel with variable sizes shall not be allowed. The Mandrel dimensions shall be checked by the Engineer or his representative before use by the Contractor.
- F. Failure of any section of the pipeline to meet the requirements of this test shall cause the Contractor to determine, at his own expense, the source(s) of deformity. The Contractor shall excavate and repair or replace all defective materials or workmanship, and repeat all testing until results are satisfactory at no additional cost to the Owner.

4.8 VACUUM TESTING OF SEWER MANHOLES

- A. All new manholes are to be vacuum tested as soon as is practicable after assembly is completed. No standing water shall be allowed in the manhole excavation that may affect the accuracy of the test. Leakage testing on newly rehabilitated manholes shall be accomplished in accordance with ASTM C1244-05A rather than as specified in this Paragraph.
- B. All lifting holes and exterior joints shall be filled and pointed with non-shrink grout for concrete manholes or sealed with compatible sealant for other materials.
- C. All pipes and other entrances into the manhole should be suitably plugged and blocked in such a manner as to prevent displacement of the plugs while the vacuum is being pulled.
- D. Installation and operation of the vacuum equipment and indicating devices shall be in accordance with equipment specifications and instructions provided by the manufacturer. Gauges used for manhole testing shall be oil-filled gauges.
- E. The casting opening shall be sealed with an appropriate testing/sealing device and a vacuum of 10.0 inches of mercury (5 PSIG) pulled on the manhole (DO NOT PUT A POSITIVE PRESSURE ON THE MANHOLE). The time for the vacuum to drop to 9.0 inches of mercury shall be recorded.
- F. Acceptance manholes shall be defined as when the time to drop from 10.0 inches to 9.0 inches of mercury meets or exceeds the following:

Minimum Time (seconds) to Drop From 10.0 Inches to 9.0 Inches of Mercury			
Manhole Diameter	Manhole Depth		
	4 feet to 10 feet	10 feet to 15 feet	15 feet to 25 feet
4 feet	75	90	105
5 feet	90	105	120
6 feet	105	120	135

- G. If the manhole fails the test, necessary repairs shall be made at the Contractor's expense and the vacuum test repeated until the manhole passes the test. A significant number of leaks on a single manhole may be considered as a basis for rejection and replacement at the Contractor's expense.
- H. If the manhole joint mastic or gasket is displaced during the vacuum test, the manhole shall be disassembled and the seal replaced.

4.9 HYDROSTATIC TESTING OF SEWER FORCE MAINS

- A. All newly laid pipe or any valved section thereof shall be subjected to hydrostatic pressure testing. Conduct hydrostatic testing in accordance with AWWA C600 for ductile iron pipe or AWWA C605 for PVC pipe.
- B. Where practicable, pipelines shall be tested in lengths between line valves or plugs of no more than 3,000 feet.
- C. Hydrostatic testing shall be conducted only with potable water. Due to the inherent safety hazard potential associated with testing components and systems with compressed air or other compressed gases, pressure testing shall never be accomplished using compressed air.
- D. The Contractor shall furnish all gauges, recording devices, meters, pumps, pipe, connections and other equipment required to conduct the test and shall maintain said equipment in condition for accurate testing as determined by the Owner. Gauges used for pressure tests shall be oil-filled gauges.
- E. Hydrostatic test results shall be recorded on an appropriate chart recorder. The Contractor shall furnish a recording gauge and water meter for recording pressure charts and for measuring makeup water used during the hydrostatic testing. Recording pressure charts shall be submitted to the Owner at the conclusion of testing. The pressure recording device shall be suitable for outside service, with a range from 0–200 psig, 24-hour spring wound clock, designed for 9-inch charts, and shall be approved by the Owner. Such pressure recording devices may be available from Foxboro Company, Foxboro, Massachusetts; Bristol Division of ACCO, Waterbury, Connecticut; or Weksler Instruments Corporation, Freeport, New York.
- F. Prior to testing, the Contractor shall place sufficient backfill to prevent pipe movement. When local conditions require that the trenches be backfilled immediately after the pipe has been laid, the testing may be carried out after backfilling has been completed but before placement of permanent surfacing. The Contractor shall ensure that thrust blocking or other types of restraining systems will provide adequate restraint prior to pressurizing the pipeline.

- G. Cross Connection Control: When existing water mains are used to supply test water, they should be protected from backflow contamination by temporarily installing a double check valve assembly between the test and supply main or by other means approved by the Owner. Prior to pressure and leakage testing, the temporary backflow protection should be removed and the main under test isolated from the supply main.
- H. Test Pressure Requirements:
1. The test pressure shall not be less than 1.25 times the stated working pressure of the pipeline measured at the highest elevation along the test section and not less than 1.5 times the stated working pressure at the lowest elevation of the test section.
 2. The test pressure shall not exceed the thrust restraint design pressure or 1.5 times the pressure rating of the pipe or joint, whichever is less (as specified by the manufacturer).
 3. The test pressure shall not exceed the rated working pressure of the valves when the pressure boundary of the test section includes closed, resilient seated gate valves or butterfly valves.
 4. Valves shall not be operated in either direction at a differential pressure exceeding the rated valve working pressure. A test pressure greater than the rated valve working pressure can result in trapped test pressure between the gates of a double-disc gate valve. For tests exceeding the rated valve working pressure, the test setup should include a provision, independent of the valve, to reduce the line pressure to the rated valve working pressure on completion of the test. The valve can then be opened enough to equalize the trapped pressure with the line pressure, or the valve can be fully opened if desired.
- I. Test Procedure:
1. Each valved section of pipeline shall be slowly filled with potable water using a metered backflow-protected assembly provided by the Owner. When venting air from pipelines, it is important to limit the pipeline fill rate to avoid excessive surge pressures when the water reaches the air venting opening(s).
 2. Before applying the specified test pressure, air shall be expelled completely from the pipeline section under test. If permanent air vents are not located at all high points, corporation cocks shall be installed at such points to expel air as the line is filled with water. After all the air has been expelled, close the corporation cocks and apply the test pressure. At the conclusion of the pressure test, remove the corporation cocks and plug or leave in place at the discretion of the Owner.
 3. The specified test pressure shall be applied using a suitable pump connected to the pipeline in a manner satisfactory to the Owner. The specified test pressure shall be based on the elevation of the lowest point of the pipeline or section under test and corrected to the elevation of the test gauge, in accordance with test pressure requirements specified herein.

4. The pipeline shall be allowed to stabilize at the test pressure before conducting the hydrostatic test. This may require several cycles of pressurizing and bleeding trapped air prior to beginning the test. It is recommended that the line remain pressurized for a minimum of 24 hours before testing in order for joints to tighten and pockets of air to dissolve in the water.
 5. The hydrostatic test shall be at least 2 hours in duration after reaching the specified test pressure where joints are exposed and at least 8 hours where joints are covered.
 6. The test pressure shall not vary by more than +/- 5 psi for the duration of the test. Test pressure shall be maintained within this tolerance by adding makeup water through the pressure test pump into the pipeline. The amount of makeup water added shall be accurately measured (in gallons per hour) by suitable methods and shall not exceed the applicable testing allowance as specified herein.
- J. Visual Inspection: Any exposed pipe, fittings, valves, hydrants and joints shall be examined carefully during the hydrostatic pressure test. Any damaged or defective materials that are discovered during or following the pressure test shall be repaired or replaced at the Contractor's expense, and the test shall be repeated until satisfactory results are obtained.

K. Testing Allowance:

1. Testing allowance shall be defined as the maximum quantity of makeup water that is added into a pipeline undergoing hydrostatic pressure testing, or any valved section thereof, in order to maintain pressure within +/- 5 psi of the specified test pressure (after the pipeline has been filled with water and the air has been expelled).
2. No pipe installation will be accepted if the quantity of makeup water is greater than that determined by the following formula:

$$L = \frac{S \cdot D \cdot (P)^{1/2}}{148,000}$$

Where:

L = testing allowance (makeup water), in gallons per hour
S = length of pipe tested, in feet
D = nominal diameter of the pipe, in inches
P = average test pressure during the hydrostatic test, in pounds per square inch (gauge pressure)

3. This formula is based on a testing allowance of 10.5 gpd/mile/inch of nominal diameter at a pressure of 150 psi. Values of testing allowance at various pressures are shown in the following table. When testing against closed metal-seated valves, an additional testing allowance per closed valve of 0.0078 gal/hr/inch of nominal valve size shall be allowed.

Average Test Pressure	Hydrostatic Testing Allowance per 1,000 feet of pipeline (gallons per hour)*										
	Nominal Pipe Diameter (inches)										
	4	6	8	10	12	14	16	18	20	24	30
250	0.43	0.64	0.85	1.07	1.28	1.50	1.71	1.92	2.14	2.56	3.21
225	0.41	0.61	0.81	1.01	1.22	1.42	1.62	1.82	2.03	2.43	3.04
200	0.38	0.57	0.76	0.96	1.15	1.34	1.53	1.72	1.91	2.29	2.87
175	0.36	0.54	0.72	0.89	1.07	1.25	1.43	1.61	1.79	2.15	2.68
150	0.33	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.66	1.99	2.48
125	0.30	0.45	0.60	0.76	0.91	1.06	1.21	1.36	1.51	1.81	2.27
100	0.27	0.41	0.54	0.68	0.81	0.95	1.08	1.22	1.35	1.62	2.03
75	0.23	0.35	0.47	0.59	0.70	0.82	0.94	1.05	1.17	1.40	1.76
50	0.19	0.29	0.38	0.48	0.57	0.67	0.76	0.86	0.96	1.15	1.43

- L. Acceptance of the installation shall be determined on the basis of testing allowance. Should any test of pipe laid disclose leakage greater than that specified, the Contractor shall, at his own expense, locate and repair the defective joints until the leakage is within the specified allowance. All visible leaks are to be repaired regardless of the allowance used for testing. Hydrostatic test results shall be recorded on an appropriate chart recorder as specified herein. A copy of the test chart shall be provided to the Owner.

4.10 VALVE TESTING

Upon completion of the work, the Contractor shall operate all buried valves in the presence of the Owner's Inspector to verify proper operation of each valve.

END OF SECTION

SECTION 02725 BORING AND JACKING

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. All water and sewer mains installed in a bore under streets, highways and railroads must be cased as specified herein.
- B. Copper water services 2" in diameter or smaller and schedule 40 PVC, HDPE or ductile iron sewer services may be installed without casing. The bore for any such uncased service shall not be greater than 2 inches larger than the maximum OD of the carrier pipe. Services encroaching KYTC right-of-way may be required to be cased at the discretion of KYTC.

1.2 RELATED WORK

- A. Section 02713: Water Distribution Systems
- B. Section 02722: Sanitary Sewer Systems

1.3 REGULATIONS AND PERMITS

- A. Permits for crossing highways or railroads will be obtained by the Owner. The Contractor shall verify that such permits have been obtained before construction commences.
- B. For highway crossings, the Contractor shall satisfy KYTC to the extent of the Owner's posted Surety Bonds.

PART 2 - PRODUCTS

2.1 STEEL CASING PIPE

- A. Encasement pipe shall be smooth wall welded steel with minimum yield strength of 35,000 psi. A protective bituminous coating shall be applied to the outside of the pipe.
- B. Steel casing pipe shall be of sufficient strength to meet the loading conditions of H-20 loading for highway crossings and Cooper E-80 loading for railroad crossings, and shall have the minimum pipe diameter and wall thickness shown in the following table. Where mechanical joint pipe requires a larger diameter casing pipe than push-

on joint pipe, a separate line item for MJ pipe has been provided in the following table. Where bell restraint harnesses have been specified for the carrier pipe, an appropriately sized casing pipe shall be specified to accommodate the restraints and required casing spacers.

Carrier Pipe Nominal Diameter (inches)	Minimum Steel Casing Pipe Diameter (inches)	Minimum Wall Thickness (inches)	
		Highway Crossing	Railroad Crossing
4	12	0.188	0.188
6	14	0.250	0.250
8	16	0.250	0.250
8 MJ	18	0.250	0.250
10	18	0.250	0.250
10 MJ	20	0.250	0.281
12	20	0.250	0.281
12 MJ	24	0.250	0.312
14 - 16	24	0.250	0.312
16 MJ	30	0.312	0.406
18 - 21	30	0.312	0.406
24 - 27	36	0.375	0.469
30	42	0.500	0.562
36	48	0.500	0.594
36 MJ	54	0.500	0.719

2.2 CARRIER PIPE

Carrier pipe installed in the casing pipe shall be as indicated on the Contract Drawings.

2.3 CASING SPACERS

- A. Casing spacers shall be provided so that the carrier pipe is in a centered/restrained position. The casing spacers shall be constructed of circular stainless steel bands that bolt together to form a shell around the carrier pipe and shall be lined with PVC or EPDM to protect the carrier pipe and prevent slippage. The spacer shall be designed with risers and runners to support the carrier pipe within the casing.
- B. The shell shall be minimum 14-gauge T-304 stainless steel and shall be manufactured in minimum widths of 8 inches and 12 inches. The riser shall be constructed of minimum 10- gauge T-304 stainless steel and shall be sized to support all loads and shall support the carrier pipe within the casing in the centered/restrained position. The runners shall be a minimum width of 2 inches and be constructed of glass-reinforced polymer with beveled ends.

- C. The spacers shall at a minimum be positioned at 1 to 2 feet on either side of the joint and at the midpoint. Additional spacers may be required where recommended by the manufacturer and/or Engineer.
- D. Casing spacers shall be Models CSS8 and CSS12 by CCI Pipeline Systems or S8G-2 and S12G-2 by Pipeline Seal and Insulator, Inc.

2.4 END SEALS

A wrap-around self-curing rubber end seal shall be applied to each end of the casing pipe. End seals shall be Model ESW by CCI Pipeline Systems or Model "W" by PSI, Inc.

PART 3 – EXECUTION

3.1 GENERAL REQUIREMENTS

- A. Perform all crossings according to the requirements of the governing highway department.
- B. Notify the appropriate authorities involved and request their supervisory services during construction.
- C. Provide necessary safeguards to protect the crossing.
- D. Where bored highway installations are not shown on the Contract Drawings, open cut the crossing and provide a casing pipe only if required by the governing highway department or Engineer.
- E. All uncased roadway punches shall be approved by the City Engineer prior to construction.
- F. Excavation shall be unclassified and no distinction shall be made between rock and other materials excavated.
- G. No extra payment will be provided for tunneling through rock. The contractor shall provide whatever means necessary to complete road bores even if rock is encountered. All line items referencing road bores shall include boring or tunneling as required. No change orders shall be issued if rock is encountered during road boring.

3.2 INSTALLATION

- A. Perform all crossings in the manner shown on the drawings, except as otherwise directed by the governing highway department or railroad company.
- B. Dry bore an opening under the crossing.
- C. Jack the casing pipe, of the type and size specified, into the bored opening.
- D. Install the appropriate carrier pipe into the casing pipe.
- E. Test the carrier pipe according to the appropriate Utility Sections (02713 or 02722).
- F. Alignment and grade shall be installed and maintained per the Contract Drawings.
- G. Bores which are not on horizontal or vertical alignment shall be re-bored.
Abandoned bore holes shall be filled with flowable fill.
- H. Install carrier pipe with casing spacers to maintain alignment inside casing pipe.
Casing spacers shall be installed one (1) foot from each end of the pipe joint and at the midpoint.
- I. Install casing end seals and casing vents upon completion of installation of carrier pipe.

END OF SECTION

N O T I C E

DEPARTMENT OF THE ARMY CORPS OF ENGINEERS KENTUCKY DIVISION OF WATER

LETTER OF PERMISSION AUTHORIZATION AND INDIVIDUAL WATER QUALITY CERTIFICATION

PROJECT: US 41A Widening from Industrial Drive to Yorkwood Place
Hopkins County, KY
KYTC Item No. 2-137.1

The Section 404 and 401 activities for this project have been permitted under the authority of the Department of the Army "Letter of Permission" and by a Kentucky Division of Water "Individual Water Quality Certification". In order for the authorizations to be valid, the attached conditions must be followed. The contractor shall post a copy of the authorizations in a conspicuous location at the project site for the duration of construction and comply with all permit conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the Corps of Engineers. A copy of any request to the Corps of Engineers to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P.O. BOX 59
LOUISVILLE KY 40201-0059
FAX: (502) 315-6677
<http://www.lrl.usace.army.mil/>

October 7, 2016

Operations Division
Regulatory Branch (South)
ID No. LRL-2016-457-ncc

Mr. John Purdy
Kentucky Transportation Cabinet, DEA
200 Mero Street
Frankfort, Kentucky 40622

Dear Mr. Purdy:

This is in regard to your application for a Department of the Army (DA) permit, dated April 14, 2016, concerning a plan to widen U.S. Highway 41A (KYTC Item No. 2-137.00) between Industrial Road and Yorkwood Place in Madisonville, Hopkins County, Kentucky. We have reviewed your application and have made the following determinations: the work is minor in nature, will not have a significant impact on the environment, and should encounter no opposition.

Based on these determinations, your proposed work satisfies the Letter of Permission criteria, as specified in our regulations. Therefore, you are authorized, in accordance with 33 USC 403, to discharge fill material into 821 linear feet (0.043 acre) of ephemeral streams, 769 linear feet (0.74 acre) of intermittent streams, 385 linear feet (0.088 acre) of Greasy Creek, 0.24 acre of emergent wetlands, 0.24 acre of scrub-shrub wetlands, and 0.11 acre of forested wetlands. This permission is granted with the following Special Conditions:

- a. The project shall be constructed in accordance with plans included in the May 3, 2016, application for Kentucky Transportation Cabinet, Item No. 2-137.00 and all subsequent information received regarding changes to the original submittal.
- b. The permittee shall mitigate for impacts to summer roosting habitat for the Indiana bat and the northern long-eared bat through the Programmatic Imperiled Bat Conservation Memorandum of Agreement (CMOA) and the Conservation Strategy for Forest Dwelling Bats between the KYTC and USFWS.

- c. The permittee shall not perform tree clearing from April 1 through October 14 to avoid impacts to the Indiana bat and the northern long-eared bat.
- d. To compensate for wetland impacts, the permittee shall provide a receipt from the KDFWR In-Lieu Fee Stream and Wetland Mitigation Program for the purchase of 5.13 Adjusted Mitigation Units (AMUs). AMUs must be purchased prior to the discharge of fill into "waters of the U.S." The Corps ID number LRL-2016-457-ncc must accompany the payment.
- e. To compensate for stream impacts, the permittee shall provide a receipt from the KDFWR In-Lieu Fee Stream and Wetland Mitigation Program for the purchase of 2,220.30 AMUs. AMUs must be purchased prior to the discharge of fill into "waters of the U.S." The Corps ID number LRL-2016-457-ncc must accompany the payment. Inquiries regarding credit purchase may be made directly to KDFWR by calling Mr. Clifford Scott (502) 564-5101, by email at: clifford.scott@ky.gov, or in writing at: Kentucky Department of Fish and Wildlife Resources, Division of Fisheries, #1 Sportman's Lane, Frankfort, Kentucky 40601.
- f. The permittee shall ensure any work near the Bean Cemetery will be monitored by KYTC Archaeological Staff.
- g. The time limit for completing the work authorized ends on **30 October 2021**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least 1 month before the above date is reached.
- h. Upon completion of construction you are to notify the District Engineer. The enclosed Completion Report form must be completed and returned to this office.
- i. You must agree to comply with the enclosed General Conditions.

This authorization will be effective as soon as we receive your signed acceptance of these conditions. Please sign and date the duplicate copy of this letter in the space provided and return the signed copy in the enclosed envelope. Note that we also perform periodic inspections to ensure compliance with our permit conditions and appropriate Federal laws.

This letter contains both a proffered permit and a preliminary jurisdictional determination for your proposed project. If you object to this Letter of Permission decision, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. However, a preliminary JD is not appealable and impacting "waters of

the United States" identified in the preliminary JD will result in you waiving the right to request an approved JD at a later date. An approved JD may be requested (which may be appealed), by contacting me for further instruction.

Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this Letter of Permission decision you must submit a completed RFA form to the Lakes and Rivers Division Office at the following address:

U.S. Army Engineer Division,
ATTN: Appeal Review Officer CELRD-PD-REG
550 Main Street - Room 10524
Cincinnati, Ohio 45202-3222

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **December 6, 2016**.

It is not necessary to submit an RFA form to the Division office if you do not object to the decision in this letter.

Copies of this letter will be sent to the appropriate coordinating agencies (see enclosure for addresses).

FOR THE DISTRICT ENGINEER:



Norma C. Condra
Project Manager
Regulatory Branch

Enclosures

(I accept the conditions of this authorization):



Kentucky Transportation Cabinet

10/25/14

Date

COORDINATING AGENCIES

Mr. Duncan Powell
USEPA, Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303-8960

Mr. Lee Andrews
U.S. Fish & Wildlife Service
JC Watts Federal Building
330 West Broadway, Room 265
Frankfort, KY 40601

Ms. Stephanie Hayes
Kentucky Energy & Environment Cabinet
Division of Water
300 Sower Boulevard, 3rd Floor
Frankfort, KY 40601

Mr. Craig Potts
Executive Director
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Mr. Gregory Johnson, Commissioner
Kentucky Department of Fish and Wildlife Resources
#1 Sportsman's Lane
Frankfort, KY 40601

GENERAL CONDITIONS:

1. Discharges of dredged or fill material into "waters of the U.S." must be minimized or avoided to the maximum extent practicable at the project site (i.e. on-site). In determining the minimal impact threshold, the Districts will consider the direct, secondary, and cumulative impacts of the fill or work and any mitigation measures.
2. The permittee shall provide a mitigation/monitoring plan for impacts resulting from the placement of fill into "waters of the U.S." in excess of 300 linear feet of intermittent or perennial stream; the filling of greater than 0.10 acre (4,356 sq. feet) of waters of the U.S; or work causing more than minimal effects, to compensate for impacts to the "waters of the U.S." These impact thresholds are applied for each crossing. When mitigation is required, the permittee will develop the mitigation site concurrently with, or in advance of, the site construction unless the Corps determines on a project specific basis that it is not practical to do so. This will ensure that aquatic functions are not lost for long periods of time (e.g. temporal loss) which could adversely affect water quality and wildlife. The requirement for conservation easements or deed restrictions will be determined on a project specific basis.
3. The permittee shall ensure that sedimentation and soil erosion control measures are in place prior to commencement of construction activities. These measures will remain in place and be properly maintained throughout construction. Sedimentation and soil control measures shall include the installation of straw bale barriers, silt fencing and/or other approved methods to control sedimentation and erosion. Sedimentation and erosion controls will not be placed in "waters of the U.S." except if specifically approved by the District.
4. The permittee shall ensure that areas disturbed by any construction activity, including channel and stream banks, are immediately stabilized and revegetated with a combination of non-invasive plants (grasses, legumes and shrubs) which are compatible with the affected area and will not compete with native vegetation.
5. The permittee shall ensure that no in-stream construction activity is performed during periods of high stream flow or during the fish spawning season (April 1 through June 30) without first contacting the Kentucky Department of Fish and Wildlife Resources (KDFWR) for their expertise on impacts to the fishery resource. Additionally, the discharge of dredged and/or fill material in known waterfowl breeding and wintering areas must be avoided to the maximum extent practicable.
6. The permittee will ensure that the activity authorized will not disrupt movement of those aquatic species indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's specific purpose is to impound water.
7. The permittee shall ensure that all construction equipment is refueled and maintained on an upland site away from existing streams, drainageways and wetland areas. Heavy equipment working in wetlands must be placed on mats or other measures must be taken to minimize soil disturbance.

8. The permittee must comply with any case specific special conditions added by the Corps or by the State Section 401 Water Quality Certification (WQC). The conditions imposed in the State Section 401 WQC are also conditions of this LOP.

9. The permittee shall ensure that no activity authorized by the LOP may cause more than a minimal adverse effect on navigation.

10. The permittee shall ensure proper maintenance of any structure or fill authorized by the LOP, in good condition and in conformance with the terms and conditions of the LOP, including maintenance to ensure public safety. The permittee is not relieved of this requirement if the permitted activity is abandoned, although the permittee may make a good faith transfer to a third party. Should the permittee wish to cease to maintain the authorized activity or desire to abandon it without a good faith transfer, the permittee must obtain a modification to the LOP from the Corps, which may require restoration of the area.

11. The permittee shall not perform any work within any Wild and Scenic Rivers or in any river officially designated as a "study river" for possible inclusion in the system, unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity authorized by the LOP will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal Land Management agency in the area (e.g. U.S. Forest Service, Bureau of Land Management, the National Parks Service, or the U.S. Fish and Wildlife Service).

12. The permittee shall not perform any work under the LOP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. The permittee shall notify the Corps and coordinate the proposed action with the USFWS to determine if any listed species or critical habitat might be affected and/or adversely modified by the proposed work. No activity is authorized under the LOP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed. At the direction of the Corps, the permittee shall complete the necessary consultation with the USFWS, satisfying the requirements of Section 7(a)(2) of the Endangered Species Act. The permittee shall not begin work until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. Authorization of an activity under the LOP does not authorize the "take" of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. Fish and Wildlife Service, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act.

Obligations under Section 7 of the Act must be reconsidered by the Corps Districts if (1) new information reveals impacts of the proposed action may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during consultation, or (3) new species are listed or critical habitat designated that might be affected

by the proposed action.

13. The permittee shall not perform any activity under the LOP which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places until the District Engineer has complied with the provisions of 33 CFR Part 325, Appendix C. The permittee must notify the District Engineer if the activity authorized by the LOP may affect any historic properties listed, determined to be eligible or which the permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin construction until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the Kentucky Heritage Council.

If the permittee discovers any previously unknown historic or archaeological remains while accomplishing the activity authorized by the LOP, work must be immediately stopped and this office immediately notified regarding the discovery. The District will initiate the Federal, Tribal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

14. The permittee shall not perform any work under the LOP where the discharge of dredged and/or fill material will occur in the proximity of a public water supply intake.

15. No activity, including structures or work in "waters of the U.S." or discharges of dredged or fill material may consist of unsuitable materials (e.g. trash, debris, car bodies, asphalt, etc.) and that materials used for construction or discharge must be free from toxic pollutants in toxic amounts.

16. The permittee shall, to the maximum extent practicable, design the project to maintain pre-construction downstream flow conditions. Furthermore, the work must not permanently restrict or impede the passage of normal or expected high flows and the structure or discharge of fill must withstand expected high flows. The project must provide, to the maximum extent practicable, for retaining excess flows from the site and for establishing flow rates from the site similar to pre-construction conditions.

17. The permittee shall ensure that all temporary fills, authorized under the LOP, be removed in their entirety and the affected areas returned to pre-construction elevation.

18. Representatives from the Corps of Engineers and/or the State of Kentucky may inspect any authorized activity or mitigation site at any time deemed necessary to ensure compliance with the terms and conditions of the LOP, Section 401 WQC, and applicable laws.

19. All work authorized by this LOP must be completed within five years after the date of the Corps authorization letter. If you find you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least three months before the expiration date.

20. The permittee, after completion of work under the LOP, shall submit a signed certification letter regarding the completed work and required mitigation, if applicable. The certification letter will include a statement that the work was done in accordance with the LOP authorization including compliance with all general and special conditions and completion of mitigation work.

21. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished with the terms and conditions of the LOP.

22. For Section 10 waters, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.



MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

AARON B. KEATLEY
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

August 16, 2016

David Waldner
Kentucky Transportation Cabinet (KYTC)
200 Mero St
Frankfort, KY 40622

Re: Letter of Permission No.: 2016-074-7
AI No.: 49717; Activity ID: APE20160002
KYTC Item No.: 2-137.00
USACE ID No.: LRL-2016-457-ncc
Greasy Creek, UTs to Greasy Creek, and
adjacent wetlands
Hopkins County, Kentucky

Dear Mr. Waldner:

This letter transmits to you a copy of our General Water Quality Certification for the Letter of Permission Authorizing Transportation Projects for the Kentucky Transportation Cabinet – US 41 A Project in Hopkins County, Kentucky, in accordance with plans included in the “Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification” dated April 14, 2016 and the Addendum dated August 3, 2016, including impacts to 1975 linear feet of ephemeral, intermittent, and perennial stream (0.20 acres of channel fill) and 2.16 acres of wetland.

An individual Water Quality Certification is not necessary for this activity provided that this project has satisfies the Transportation Letter of Permission from the U.S. Army Corps of Engineers (Letter of Permission for Transportation Projects, Corps ID No. LRL-2006-259, issued October 03, 2007 and revised October 28, 2010) and all conditions of the attached General Water Quality Certification - Letter of Permission Authorizing Transportation Projects are met.

Although an Individual WQC is not needed, other permits from the Division of Water may be required. If the project will disturb one acre or more of land, or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land, a Kentucky Pollution Discharge Elimination System (KPDES) stormwater permit shall be required from the Surface Water Permits Branch. This permit requires the development of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must include erosion prevention and sediment control measures. Contact: Surface Water Permits Branch (SWPB) Support (502-564-3410 or SWPBsupport@ky.gov)

All future correspondence on this project must reference **AI No. 49717**. If you should have any questions concerning this letter, please contact Cody Thayer of my staff, at (502) 782-7090 or Cody.Thayer@ky.gov.

Sincerely,

A handwritten signature in black ink that reads "Stephanie Hayes". The signature is written in a cursive style with a large, stylized 'S' and 'H'.

Stephanie Hayes, Supervisor
Water Quality Certification Section
Kentucky Division of Water

Attachment

cc: John Purdy, KYTC: Frankfort (via email: JPURDY@ky.gov)
Danny Peake, KYTC: Frankfort (via email: Danny.Peake@ky.gov)
Dave Harmon, KYTC: Frankfort (via email: Dave.Harmon@ky.gov)
Norma Condra, USACE: Louisville (via email: Norma.C.Condra@usace.army.mil)
Lee Andrews, USFWS: Frankfort (via email: Teresa_Hyatt@fws.gov)
Randy Thomas, KDOW: Madisonville Regional Office (via email: randy.thomas@ky.gov)
Joanna Ashford, KDOW: Green and Tradewater Rivers Basin Coordinator
(via email: Joanna.Ashford@ky.gov)



MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

AARON B. KEATLEY
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

**General Certification -- Letter of Permission Authorizing Transportation
Projects (LRL-2006-259-pgj- Date: 28 Oct 2010)**

This general certification is issued February 26, 2016, by the Kentucky Division of Water, 401 Water Quality Certification Program in conformity with the requirements of Sections 301, 302, 304, 306 and 401, as amended (33 U.S.C. §1341), of the Clean Water Act, as well as Kentucky Statute KRS 224.16-050 and Kentucky Administrative Regulations Title 401, Chapter 9 and 10.

For this and all general permits, the definition of surface water is as per 401 KAR 10:001 Chapter 10, Section 1(80): Surface Waters mean those waters having well-defined banks and beds, either constantly or intermittently flowing; lakes and impounded waters; marshes and wetlands; and any subterranean waters flowing in well-defined channels and having a demonstrable hydrologic connection with the surface. Lagoons used for waste treatment and effluent ditches that are situated on property owned, leased, or under valid easement by a permitted discharger are not considered surface waters of the commonwealth.

In addition to all the restrictions and conditions of the U.S. Army Corps of Engineers, Louisville District Letter of Permission Issuance (LRL-2006-259-pgj) hereby incorporated into this general certification (included herein), the following 401 Water Quality Certification criteria applies to all transportation projects certified under a Certified Letter of Permission issued by the Kentucky Division of Water, 401 Water Quality Certification Program:

1. The activity will not qualify for this general certification if it is proposed to occur within surface waters of the Commonwealth identified by the Kentucky Division of Water as Outstanding State or National Resource Water, Cold Water Aquatic Habitat, or Exceptional Water.
2. The activity will not qualify for this general certification if it is proposed to occur within surface waters of the Commonwealth identified as perpetually-protected (e.g. deed restriction, conservation easement) stream and/or wetland mitigation sites permitted by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act.

Certification of Transportation Letter of Permission

Page 2

3. The Kentucky Division of Water may require an individual certification for any project if the project is likely to have adverse impacts to water quality or degrade the waters of the Commonwealth so that existing uses of the water body or downstream waters are precluded.
4. Activities qualifying for coverage under this General Water Quality Certification are subject to the following conditions:
 - The proposed relocation of an existing stream or channel will be designed and constructed to ensure the stability of the relocated stream or channel. Stream habitat enhancements, such as bioengineering methods and/or best management practices for protecting water quality will be considered, on a case-by-case basis, during the design process. Documentation must be provided if stream habitat enhancements will not be used for the proposed stream relocation.
 - Erosion and sedimentation pollution control plans and Best Management Practices must be designed, installed, and maintained in effective operating condition at all times during construction activities so that state water quality are maintained (401 KAR Chapter 10).
 - Sediment and erosion control measures, such as check-dams constructed of any material, silt fencing, hay bales, etc., shall not be placed within surface waters of the Commonwealth, either temporarily or permanently, without notifying the Kentucky Division of Water. If placement of sediment and erosion control measures in surface waters is unavoidable, design and placement of temporary erosion control measures shall not be conducted in such a manner that may result in instability of streams that are adjacent to, upstream, or downstream of the structures. All sediment and erosion control devices shall be removed and the natural grade restored within the completion timeline of the activities.
 - Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.
 - Removal of riparian vegetation in the right-of-way shall be limited to that necessary.
 - To the maximum extent practicable, all in-stream work under this certification shall be performed under low-flow conditions.
 - Heavy equipment, e.g. bulldozers, backhoes, draglines, etc., if required for this project, should not be used or operated within the stream channel. In those instances in which such in-stream work is unavoidable, then it should be performed in low-flow or no-flow instances or in such a manner and duration as to minimize turbidity and disturbance to substrates and bank or riparian vegetation.

Certification of Transportation Letter of Permission
Page 3

- Fill shall not be of such composition that it will adversely affect the biological, chemical, or physical properties of the receiving waters and associated water quality standards. If rip-rap is utilized, it should be of such weight and size that bank stress or slump conditions will not be created because of its placement.
- If there are water supply intakes located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the public supply system when such work will be done.
- Should evidence of stream and/or wetland pollution impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Environmental Response Team (ERT) shall be notified immediately by calling 1-800-928-2380 or 502-564-2380.

This general certification does not have an expiration date, however if the need for changes develop or if the U.S. Army Corps of Engineers, Louisville District makes modifications to the Letter of Permission (LRL-2006-259-pgj- Date: 28 Oct 2010) then a certification modification may be issued. Non-compliance with the conditions of this general certification or failure to maintain Kentucky state water quality standards may result in civil penalties.

-
1. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.
 2. All dredged material shall be removed to an upland location and/or graded on adjacent areas (so long as such areas are not regulated wetlands), to obtain original streamside elevations, i.e. overbank flooding shall not be artificially obstructed.
 3. In areas not riprapped or otherwise stabilized, revegetation of stream banks and riparian zones shall occur concurrently with project progression. At a minimum, revegetation will approximate pre-disturbance conditions.
 4. To the maximum extent practicable, all instream work under this certification shall be performed during low flow.
 5. Heavy equipment, e.g. bulldozers, backhoes, draglines, etc., if required for this project, should not be used or operated within the stream channel. In those instances where such instream work is unavoidable, then it shall be performed in such a manner and duration as to minimize resuspension of sediments and disturbance to substrates and bank or riparian vegetation.
 6. Any fill or riprap including refuse fill, shall be of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters and/or cause violations of water quality standards. If riprap is utilized, it is to be of such weight and size that bank stress or slump conditions will not be created because of its placement.
 7. If there are water supply intakes located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the operator when work will be done.
 8. Removal of existing riparian vegetation should be restricted to the minimum necessary for project construction.
 9. Should evidence of stream pollution or jurisdictional wetland impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Kentucky Division of Water shall be notified immediately by calling 800/928-2380.

KyTC BMP Plan for Project PCN ## - #####



Kentucky Transportation Cabinet

Highway District 2 (1)

And

_____ (2), Construction

Kentucky Pollutant Discharge Elimination System

Permit KYR10

Best Management Practices (BMP) plan

Groundwater protection plan

For Highway Construction Activities

For

**RE-CONSTRUCTION AND WIDENING OF
US41A FROM KINGDOM HALL TO KY 1178**

Project: PCN ## - #####

KyTC BMP Plan for Project PCN ## -

Project information

Note – (1) = Design (2) = Construction (3) = Contractor

1. Owner – Kentucky Transportation Cabinet, District 2
2. Resident Engineer: (2)
3. Contractor name: (2)
Address: (2)

Phone number: (2)
Contact: (2)
Contractors agent responsible for compliance with the KPDES permit requirements (3):
4. Project Control Number (2)
5. Route (Address) : US 41A
6. Latitude/Longitude (project mid-point) dd/mm/ss, dd/mm/ss:

Lat: 37/20/47, Long: 87/30/16
7. County (project mid-point): HOPKINS
8. Project start date (date work will begin): (2)
9. Projected completion date: (2)

KyTC BMP Plan for Project PCN ## -

A. Site description:

1. Nature of Construction Activity (from letting project description): Re-construction and widening of US 41A from Kingdom Hall to KY 1178
2. Order of major soil disturbing activities (2) and (3)
3. Projected volume of material to be moved : 267,606 C. Y.(1)
4. Estimate of total project area (acres) : 62.9 acres(1)
5. Estimate of area to be disturbed (acres) : 47.1 acres(1)
6. Post construction runoff coefficient will be included in the project drainage folder. Persons needing information pertaining to the runoff coefficient will contact the resident engineer to request this information.
7. Data describing existing soil condition: See Geotech report if available. See Roadway Plans(1) & (2)
8. Data describing existing discharge water quality (if any): (1) & (2)
9. Receiving water name: (1)
10. TMDLs and Pollutants of Concern in Receiving Waters: N/A(1 DEA)
11. Site map – Project layout sheet plus the erosion control sheets in the project plans that depict Disturbed Drainage Areas (DDAs) and related information. These sheets depict the existing project conditions with areas delineated by DDA (drainage area bounded by watershed breaks and right of way limits), the storm water discharge locations (either as a point discharge or as overland flow) and the areas that drain to each discharge point. These plans define the limits of areas to be disturbed and the location of control measures. Controls will be either site specific as designated by the designer or will be annotated by the contractor and resident engineer before disturbance commences. The project layout sheet shows the surface waters ,wetlands, organic enrichment, nutrient and dissolved oxygen.
12. Potential sources of pollutants:

The primary source of pollutants is solids that are mobilized during storm events. Other sources of pollutants include oil/fuel/grease from servicing

KyTC BMP Plan for Project PCN ## -

and operating construction equipment, concrete washout water, sanitary wastes and trash/debris. (3)

B. Sediment and Erosion Control Measures:

1. Plans for highway construction projects will include erosion control sheets that depict Disturbed Drainage Areas (DDAs) and related information. These plan sheets will show the existing project conditions with areas delineated by DDA within the right of way limits, the discharge points and the areas that drain to each discharge point. Project managers and designers will analyze the DDAs and identify Best Management Practices (BMPs) that are site specific. The balance of the BMPs for the project will be listed in the bid documents for selection and use by the contractor on the project with approval by the resident engineer.

Projects that do not have DDAs annotated on the erosion control sheets will employ the same concepts for development and managing BMP plans.

2. Following award of the contract, the contractor and resident engineer will annotate the erosion control sheets showing location and type of BMPs for each of the DDAs that will be disturbed at the outset of the project. This annotation will be accompanied by an order of work that reflects the order or sequence of major soil moving activities. The remaining DDAs are to be designated as "Do Not Disturb" until the contractor and resident engineer prepare the plan for BMPs to be employed. The initial BMP's shall be for the first phase (generally Clearing and Grubbing) and shall be modified as needed as the project changes phases. The BMP Plan will be modified to reflect disturbance in additional DDA's as the work progresses. All DDA's will have adequate BMP's in place before being disturbed.
3. As DDAs are prepared for construction, the following will be addressed for the project as a whole or for each DDA as appropriate:
 - Construction Access – This is the first land-disturbing activity. As soon as construction begins, bare areas will be stabilized with gravel and temporary mulch and/or vegetation.
 - At the beginning of the project, all DDAs for the project will be inspected for areas that are a source of storm water pollutants. Areas that are a source of pollutants will receive appropriate cover or BMPs to arrest the introduction of pollutants into storm water. Areas that have not been opened by the contractor will be

KyTC BMP Plan for Project PCN ## -

inspected periodically (once per month) to determine if there is a need to employ BMPs to keep pollutants from entering storm water.

- Clearing and Grubbing – The following BMP's will be considered and used where appropriate.
 - Leaving areas undisturbed when possible.
 - Silt basins to provide silt volume for large areas.
 - Silt Traps Type A for small areas.
 - Silt Traps Type C in front of existing and drop inlets which are to be saved
 - Diversion ditches to catch sheet runoff and carry it to basins or traps or to divert it around areas to be disturbed.
 - Brush and/or other barriers to slow and/or divert runoff.
 - Silt fences to catch sheet runoff on short slopes. For longer slopes, multiple rows of silt fence may be considered.
 - Temporary Mulch for areas which are not feasible for the fore mentioned types of protections.
 - Non-standard or innovative methods.
- Cut & Fill and placement of drainage structures - The BMP Plan will be modified to show additional BMP's such as:
 - Silt Traps Type B in ditches and/or drainways as they are completed
 - Silt Traps Type C in front of pipes after they are placed
 - Channel Lining
 - Erosion Control Blanket
 - Temporary mulch and/or seeding for areas where construction activities will be ceased for 21 days or more.
 - Non-standard or innovative methods
- Profile and X-Section in place – The BMP Plan will be modified to show elimination of BMP's which had to be removed and the addition of new BMP's as the roadway was shaped. Probably changes include:
 - Silt Trap Type A, Brush and/or other barriers, Temporary Mulch, and any other BMP which had to be removed for final grading to take place.
 - Additional Silt Traps Type B and Type C to be placed as final drainage patterns are put in place.
 - Additional Channel Lining and/or Erosion Control Blanket.
 - Temporary Mulch for areas where Permanent Seeding and Protection cannot be done within 21 days.
 - Special BMP's such as Karst Policy
- Finish Work (Paving, Seeding, Protect, etc.) – A final BMP Plan will result from modifications during this phase of construction. Probably changes include:
 - Removal of Silt Traps Type B from ditches and drainways if they are protected with other BMP's which are sufficient to

KyTC BMP Plan for Project PCN ## -

control erosion, i.e. Erosion Control Blanket or Permanent Seeding and Protection on moderate grades.

- Permanent Seeding and Protection
 - Placing Sod
 - Planting trees and/or shrubs where they are included in the project
- BMP's including Storm Water Management Devices such as velocity dissipation devices and Karst policy BMP's to be installed during construction to control the pollutants in storm water discharges that will occur after construction has been completed are : Seeding and Protection, Erosion Control Blanket, Grassed Waterways (1)

C. Other Control Measures

1. No solid materials, including building materials, shall be discharged to waters of the commonwealth, except as authorized by a Section 404 permit.
2. Waste Materials

All waste materials that may leach pollutants (paint and paint containers, caulk tubes, oil/grease containers, liquids of any kind, soluble materials, etc.) will be collected and stored in appropriate covered waste containers. Waste containers shall be removed from the project site on a sufficiently frequent basis as to not allow wastes to become a source of pollution. All personnel will be instructed regarding the correct procedure for waste disposal. Wastes will be disposed in accordance with appropriate regulations. Notices stating these practices will be posted in the office.

3. Hazardous Waste

All hazardous waste materials will be managed and disposed of in the manner specified by local or state regulation. The contractor shall notify the Resident Engineer if there any hazardous wastes being generated at the project site and how these wastes are being managed. Site personnel will be instructed with regard to proper storage and handling of hazardous wastes when required. The Transportation Cabinet will file for generator, registration when appropriate, with the Division of Waste Management and advise the contractor regarding waste management requirements.

4. Spill Prevention

The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff.

KyTC BMP Plan for Project PCN ## -

➤ **Good Housekeeping:**

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer's label
- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The site contractor will inspect daily to ensure proper use and disposal of materials onsite

➤ **Hazardous Products:**

These practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable
- Original labels and material safety data sheets (MSDS) will be reviewed and retained
- Contractor will follow procedures recommended by the manufacturer when handling hazardous materials
- If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed

The following product-specific practices will be followed onsite:

➤ **Petroleum Products:**

Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum

KyTC BMP Plan for Project PCN ## -

products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55 gallon capacity and larger.

➤ **Fertilizers:**

Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will be covered with mulch or blankets or worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

➤ **Paints:**

All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.

➤ **Concrete Truck Washout:**

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water

➤ **Spill Control Practices**

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area. Equipment and materials will include as appropriate, brooms, dust pans, mops, rags, gloves, oil absorbents, sand, sawdust, and plastic and metal trash containers.
- All spills will be cleaned up immediately after discovery.

KyTC BMP Plan for Project PCN ## -

- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- Spills of products will be cleaned up promptly. Wastes from spill clean up will be disposed in accordance with appropriate regulations.

D. Other State and Local Plans

This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials. (1)

E. Maintenance

1. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.
- Maintenance of BMPs during construction shall be a result of weekly and post rain event inspections with action being taken by the contractor to correct deficiencies.
 - Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for the purpose of post construction storm water management with specific guidance for any non-routine maintenance. (1)

KyTC BMP Plan for Project PCN ## -

F. Inspections

Inspection and maintenance practices that will be used to maintain erosion and sediment controls:

- All erosion prevention and sediment control measures will be inspected at least once each week and following any rain of one-half inch or more.
- Inspections will be conducted by individuals that have successfully completed the KEPSC-RI course as required by Section 213.02.02 of the Standard Specifications for Road and Bridge Construction, current edition.
- Inspection reports will be written, signed, dated, and kept on file.
- Areas at final grade will be seeded and mulched within 14 days.
- Areas that are not at final grade where construction has ceased for a period of 21 days or longer and soil stock piles shall receive temporary mulch no later than 14 days from the last construction activity in that area.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of being reported.
- Built-up sediment will be removed from behind the silt fence before it has reached halfway up the height of the fence.
- Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts.
- Sediment basins will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 70 percent of the design capacity and at the end of the job.
- Diversion dikes and berms will be inspected and any breaches promptly repaired. Areas that are eroding or scouring will be repaired and re-seeded / mulched as needed.
- Temporary and permanent seeding and mulching will be inspected for bare spots, washouts, and healthy growth. Bare or eroded areas will be repaired as needed.
- All material storage and equipment servicing areas that involve the management of bulk liquids, fuels, and bulk solids will be inspected weekly for conditions that represent a release or possible release of pollutants to the environment.

G. Non – Storm Water discharges

It is expected that non-storm water discharges may occur from the site during the construction period. Examples of non-storm water discharges include:

KyTC BMP Plan for Project PCN ## -

- Water from water line flushings.
- Water from cleaning concrete trucks and equipment.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- Uncontaminated groundwater and rain water (from dewatering during excavation).

All non-storm water discharges will be directed to the sediment basin or to a filter fence enclosure in a flat vegetated infiltration area or be filtered via another approved commercial product.

H. Groundwater Protection Plan (3)

This plan serves as the groundwater protection plan as required by 401 KAR 5:037.

- Contractors statement: (3)

The following activities, as enumerated by 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan, will or may be may be conducted as part of this construction project:

_____ 2. (e) land treatment or land disposal of a pollutant;

_____ 2. (f) Storing, ..., or related handling of hazardous waste, solid waste or special waste, ..., in tanks, drums, or other containers, or in piles, (This does not include wastes managed in a container placed for collection and removal of municipal solid waste for disposal off site);

_____ 2. (g) Handling of materials in bulk quantities (equal or greater than 55 gallons or 100 pounds net dry weight transported held in an individual container) that, if released to the environment, would be a pollutant;

_____ 2. (j) Storing or related handling of road oils, dust suppressants,, at a central location;

_____ 2. (k) Application or related handling of road oils, dust suppressants or deicing materials, (does not include use of chloride-based deicing materials applied to roads or parking lots);

_____ 2. (m) Installation, construction, operation, or abandonment of wells, bore holes, or core holes, (this does not include bore holes for the purpose of explosive demolition);

KyTC BMP Plan for Project PCN ## - #####

Or, check the following only if there are no qualifying activities

_____ There are no activities for this project as listed in 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan.

The contractor is responsible for the preparation of a plan that addresses the

401 KAR 5:037 Section 3. (3) Elements of site specific groundwater protection plan:

- (a) General information about this project is covered in the Project information;
- (b) Activities that require a groundwater protection plan have been identified above;
- (c) Practices that will protect groundwater from pollution are addressed in section C. Other control measures.
- (d) Implementation schedule – all practices required to prevent pollution of groundwater are to be in place prior to conducting the activity;
- (e) Training is required as a part of the ground water protection plan. All employees of the contractor, sub-contractor and resident engineer personnel will be trained to understand the nature and requirements of this plan as they pertain to their job function(s). Training will be accomplished within one week of employment and annually thereafter. A record of training will be maintained by the contractor with a copy provide to the resident engineer.
- (f) Areas of the project and groundwater plan activities will be inspected as part of the weekly sediment and erosion control inspections
- (g) Certification (see signature page.)

Contractor and Resident Engineer Plan certification

The following certification applies to all parties that are signatory to this BMP plan:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Further, this plan complies with the requirements of 401 KAR 5:037. By this certification, the undersigned state that the individuals signing the plan have reviewed the terms of the plan and will implement its provisions as they pertain to ground water protection.

Resident Engineer and Contractor Certification:

(2) Resident Engineer signature

Signed _____ title _____
Typed or printed name² signature

(3) Signed _____ title _____,
 Typed or printed name¹ _____ signature _____

1. Contractors Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

2. KyTC note: to be signed by the Chief District Engineer or a person designated to have the authority to sign reports by such a person (usually the resident engineer) in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601 Reference the Project Control Number (PCN) and KPDES number when one has been issued.

KyTC BMP Plan for Project PCN ## - #####

Sub-Contractor Certification

The following sub-contractor shall be made aware of the BMP plan and responsible for implementation of BMPs identified in this plan as follows:

Subcontractor

Name:
Address:
Address:

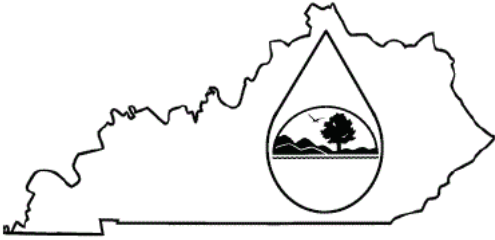
Phone:

The part of BMP plan this subcontractor is responsible to implement is:

I certify under penalty of law that I understand the terms and conditions of the general Kentucky Pollutant Discharge Elimination System permit that authorizes the storm water discharges, the BMP plan that has been developed to manage the quality of water to be discharged as a result of storm events associated with the construction site activity and management of non-storm water pollutant sources identified as part of this certification.

Signed _____title_____, _____
Typed or printed name¹signature

1. Sub Contractor Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.



KENTUCKY POLLUTION DISCHARGE
ELIMINATION SYSTEM (KPDES)

Notice of Intent (NOI) for coverage of Storm Water Discharge
Associated with Construction Activities Under the KPDES Storm
Water General Permit KYR100000

Click here for Instructions
(Controls/KPDES_FormKYR10_Instructions.htm)

Click here to obtain information and a copy of the KPDES General Permit.
(<http://dep.ky.gov/formslibrary/Documents/KYR10PermitPage.pdf>)

(*) indicates a required field; (✓) indicates a field may be required based on user input or is an optionally required field

Reason for Submittal:(*) Application for New Permit Coverage		Agency Interest ID: Agency Interest ID		Permit Number:(✓) KPDES Permit Number	
If change to existing permit coverage is requested, describe the changes for which modification of coverage is being sought:(✓) 					
ELIGIBILITY: Stormwater discharges associated with construction activities disturbing individually one (1) acre or more, including, in the case of a common plan of development, contiguous construction activities that cumulatively equal one (1) acre or more of disturbance.					
EXCLUSIONS: The following are excluded from coverage under this general permit: 1) Are conducted at or on properties that have obtained an individual KPDES permit for the discharge of other wastewaters which requires the development and implementation of a Best Management Practices (BMP) plan; 2) Any operation that the DOW determines an individual permit would better address the discharges from that operation; 3) Any project that discharges to an Impaired Water listed in the most recent Integrated Report, §305(b) as impaired for sediment and for which an approved TMDL has been developed.					
SECTION I -- FACILITY OPERATOR INFORMATION (PERMITTEE)					
Company Name:(✓) Kentucky Transportation Cabinet - District 2		First Name:(✓) Wade		M.I.: MI	Last Name:(✓) Clements
Mailing Address:(*) 1840 N Main Street		City:(*) Madisonville		State:(*) Kentucky	Zip:(*) 42431
eMail Address:(*) wade.clements@ky.gov		Business Phone:(*) 270-824-7080		Alternate Phone: Phone	
SECTION II -- GENERAL SITE LOCATION INFORMATION					
Project Name:(*) US41A Widening from KY 1178 to US41		Status of Owner/Operator(*) State Government		SIC Code(*) 1611 Highway and Street Const	
Company Name:(✓) Kentucky Transportation Cabinet - District 2		First Name:(✓) Wade		M.I.: MI	Last Name:(✓) Clements
Site Physical Address:(*) US41A Widening from KY 1178 to US41					
City:(*) Madisonville		State:(*) Kentucky		Zip:(*) 42431	
County:(*) Hopkins	Latitude(decimal degrees)(*)DMS to DD Converter (https://www.fcc.gov/media/radio/dms-decimal) 37.346388		Longitude(decimal degrees)(*) -87.50444		
SECTION III -- SPECIFIC SITE ACTIVITY INFORMATION ?					
Project Description:(*) US41A Widening from KY 1178 to US41					
a. For single projects provide the following information					

Total Number of Acres in Project:(√)	Total Number of Acres Disturbed:(√)
52.1	40.7
Anticipated Start Date:(√)	Anticipated Completion Date:(√)
3/1/2018	

b. For common plans of development provide the following information

Total Number of Acres in Project:(√)	Total Number of Acres Disturbed:(√)
# Acre(s)	# Acre(s)
Number of individual lots in development, if applicable:(√)	Number of lots in development:(√)
# lot(s)	# lot(s)
Total acreage of lots intended to be developed:(√)	Number of acres intended to be disturbed at any one time:(√)
Project Acres	Disturbed Acres
Anticipated Start Date:(√)	Anticipated Completion Date:(√)

List Building Contractor(s) at the time of Application:(*)

+ Company Name

SECTION IV -- IF THE PERMITTED SITE DISCHARGES TO A WATER BODY THE FOLLOWING INFORMATION IS REQUIRED ?

Discharge Point(s):

	Unnamed Tributary?	Latitude	Longitude	Receiving Water Name	
1	Yes	37.342250	-87.519953	Fork of Greasy Creek	Delete
2	Yes	37.342992	-87.518702	Fork of Greasy Creek	Delete
3	Yes	37.343287	-87.516125	Fork of Greasy Creek	Delete
4	Yes	37.343376	-87.515598	Fork of Greasy Creek	Delete
5	Yes	37.344178	-87.510972	fork of Greasy Creek	Delete
6	Yes	37.344540	-87.507146	Fork of Greasy Creek	Delete
7	Yes	37.344641	-87.509392	Fork of Greasy Creek	Delete
8	Yes	37.345450	-87.507146	Fork of Greasy Creek	Delete
9	Yes	37.345944	-87.504991	Fork of Greasy Creek	Delete
10	Yes	37.345989	-87.502177	Fork of Greasy Creek	Delete

SECTION V -- IF THE PERMITTED SITE DISCHARGES TO A MS4 THE FOLLOWING INFORMATION IS REQUIRED ?

Name of MS4:

City of Madisonville-MADISONVILLE

Date of application/notification to the MS4 for construction site permit coverage:

12/1/2017

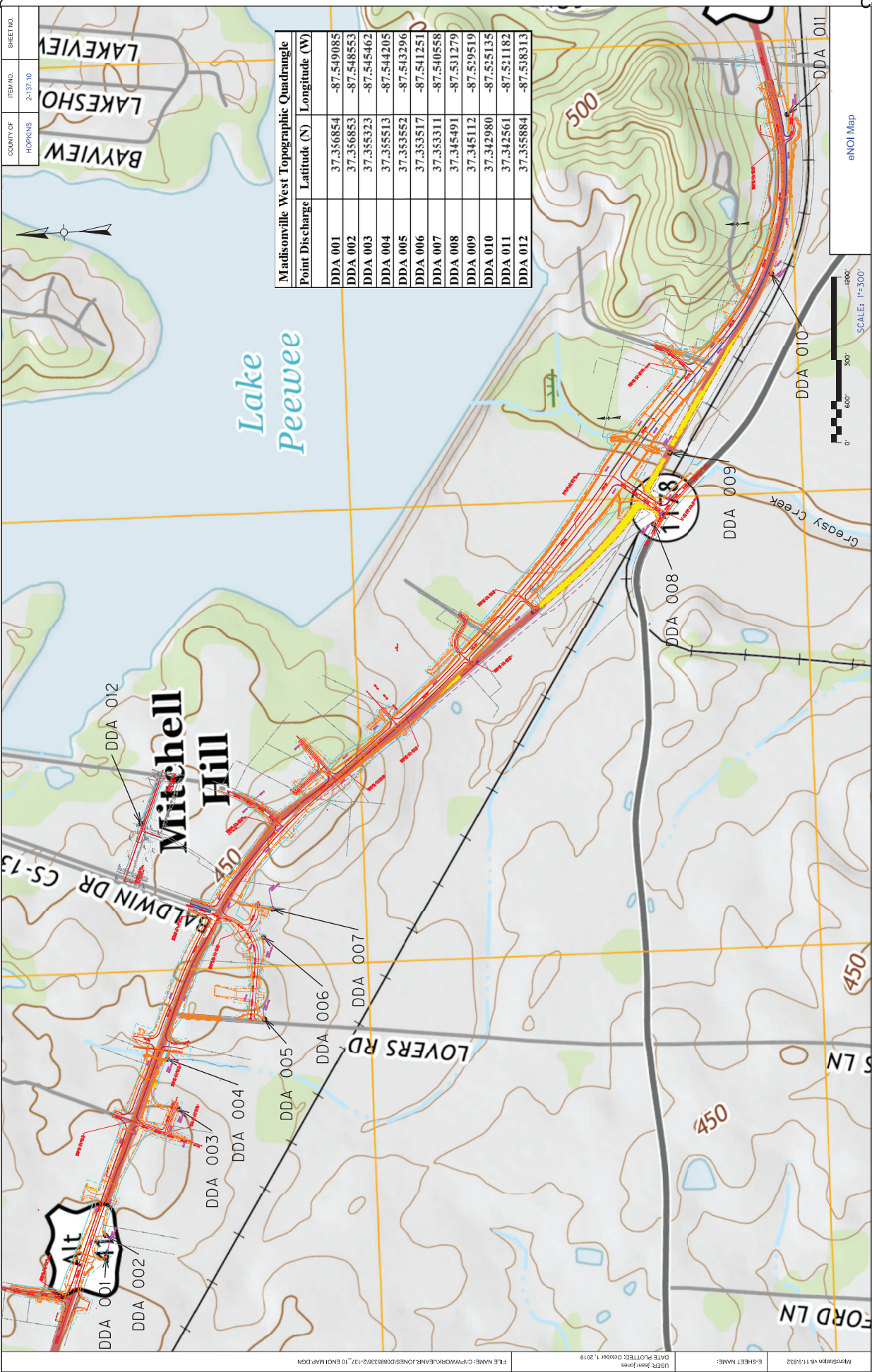
Discharge Point(s):(*)

+ Latitude Longitude

SECTION VI -- WILL THE PROJECT REQUIRE CONSTRUCTION ACTIVITIES IN A WATER BODY OR THE RIPARIAN ZONE?

Will the project require construction activities in a water body or the riparian zone?: (*)	No
If Yes, describe scope of activity: (√)	describe scope of activity
Is a Clean Water Act 404 permit required?:(*)	No

Is a Clean Water Act 401 Water Quality Certification required?:(*)		No	
SECTION VII -- NOI PREPARER INFORMATION			
First Name:(*) Charlotte	M.I.: M	Last Name:(*) Cotton	Company Name:(*) Kentucky Transportation Cabinet - District 2
Mailing Address:(*) 1840 N Main Street	City:(*) Madisonville	State:(*) Kentucky	Zip:(*) 42431
eMail Address:(*) charlotte.cotton@ky.gov		Business Phone:(*) 270-824-7080	Alternate Phone: Phone
SECTION VIII -- ATTACHMENTS			
Facility Location Map:(*)	Upload file		
Supplemental Information:	Upload file		
SECTION IX -- CERTIFICATION			
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.			
Signature:(*) Wade Clements PE CDE		Title:(*) Chief District Engineer	
First Name:(*) Wade	M.I.: MI	Last Name:(*) Clements	
eMail Address:(*) wade.clements@ky.gov	Business Phone:(*) 270-824-7080	Alternate Phone: Phone	Signature Date:(*) Date
<div>Click to Save Values for Future Retrieval</div> <div>Click to Submit to DEP</div>			



SYR8161

03 OCT 2019

Item No.	2 - 137.1			Project Mgr.	KYTC\JOHN.RUDD		
				County	HOPKINS	Route	US-41 A
CAP #	Date of Promise	Promise made to:	Location of Promise				
1	03-OCT-19	JOHN RUDD	PARCEL 8				
CAP Description							
- THERE SHOULD BE NO FORESEEN UTILITY INTERRUPTIONS OR OUTAGES THAT WOULD CAUSE SUSPENSION, INTERRUPTION, OR ADVERSE EFFECT, EVEN ON A TEMPORARY BASIS OF UTILITY LINES AND/OR SERVICES PROVIDING SERVICE TO PARCEL 8. IN ORDER TO PREVENT UTILITY INTERRUPTIONS OR OUTAGES, THE NEW UTILITY SERVICES WILL BE PUT INTO SERVICE BEFORE REMOVING THE EXISTING UTILITY SERVICES.							
2	03-OCT-19	JOHN RUDD	PARCEL 14				
CAP Description							
THE CONTRACTOR WILL EXCAVATE THE DIRT WITHIN THE AREA OF ACQUISITION THAT IS REQUIRED BY THE CONSTRUCTION OF THE NEW ROAD AND/OR ENTRANCES. THE ROADWAY EXCAVATION QUANTITY REMOVED FROM PARCEL 14 SHALL BE STOCKPILED ON PARCEL 14 IN AN AREA DESIGNATED BY THE PARCEL OWNER. THE STOCKPILED MATERIAL WILL NOT BE COMPACTED. THE PARCEL OWNER AGREES TO THE EXTENSION OF THE ENTRANCE CONSTRUCTION AT STATION 57+50 RT ON BALDWIN DRIVE, OUTSIDE OF THE DESIGNATED/ACQUIRED TEMPORARY EASEMENT FOR NO ADDITIONAL COMPENSATION OR ACQUISITION OF ANY ADDITIONAL EASEMENT AREA.							
3	03-OCT-19	JOHN RUDD	PARCEL 15				
CAP Description							
THE PROPERTY OWNER OF PARCEL 15 ALLOWS KYTC AND ITS CONTRACTORS TO CONSTRUCT THE ENTRANCE AT STATION 54+50 RT ON BALDWIN DRIVE AS SHOWN ON THE PLANS, EVEN THOUGH THIS ENTRANCE IS NOT WITHIN A TEMPORARY EASEMENT. REASONABLE CARE BY THE TRANSPORTATION CABINET AND ITS AUTHORIZED CONTRACTORS WILL BE GIVEN TO AVOID DAMAGE DURING THIS OPERATION AND TO CORRECT, WITHIN REASON, ANY DAMAGE DONE TO THE PROPERTY.							
4	03-OCT-19	JOHN RUDD	PARCEL 22				
CAP Description							
THE PRESENT ACCESS ON PARCEL 44 ABOUT MAINLINE STATION 565+50 LT SHALL REMAIN OPEN FOR UNENCUMBERED ACCESS BY TRACTOR TRAILERS TO PARCEL 22 UNTIL THE BALDWIN-TUCKER SCHOOLHOUSE CONNECTOR AND ENTRANCE OFF THE CONNECTOR IS OPENED TO TRAFFIC. THE CONSTRUCTION OF THE BALDWIN-TUCKER SCHOOLHOUSE CONNECTOR AND ENTRANCE WILL BE PERFORMED IN PHASE 1A BEFORE THE DIVERSION OF US 41A IS CONSTRUCTED.							
5	03-OCT-19	JOHN RUDD	PARCEL 35				
CAP Description							
THERE ARE TWO PROPOSED ACCESS POINTS FOR PARCEL 35, ONE AT STATION 591+25 LT AND ONE AT STATION 597+25 LT. ONE OF THE TWO ACCESS SHALL REMAIN OPEN AT ALL TIMES DURING THE CONSTRUCTION OF THE WIDENING OF US 41A.							

Contract Id: _____ Contractor: _____

Section Engineer: _____ District & County: _____

DESCRIPTION	UNIT	QTY LEAVING PROJECT	QTY RECEIVED@BB YARD
GUARDRAIL (Includes End treatments & crash cushions)	LF	_____	_____
STEEL POSTS	EACH	_____	_____
STEEL BLOCKS	EACH	_____	_____
WOOD OFFSET BLOCKS	EACH	_____	_____
BACK UP PLATES	EACH	_____	_____
CRASH CUSHION	EACH	_____	_____
NUTS, BOLTS, WASHERS	BAG/BCKT	_____	_____
DAMAGED RAIL TO MAINT. FACILITY	LF	_____	_____
DAMAGED POSTS TO MAINT. FACILITY	EACH	_____	_____

***Required Signatures before Leaving Project Site**

Printed Section Engineer’s Representative_____ & Date_____

Signature Section Engineer’s Representative_____ & Date_____

Printed Contractor’s Representative_____ & Date_____

Signature Contractor’s Representative_____ & Date_____

***Required Signatures after Arrival at Bailey Bridge Yard (All material on truck must be counted & the quantity received column completed before signatures)**

Printed Bailey Bridge Yard Representative_____ & Date_____

Signature Bailey Bridge Yard Representative_____ & Date_____

Printed Contractor’s Representative_____ & Date_____

Signature Contractor’s Representative_____ & Date_____

****Payment for the bid item remove guardrail will be based upon the quantities shown in the Bailey Bridge Yard received column. Payment will not be made for guardrail removal until the guardrail verification sheets are electronically submitted to the Section Engineer by the Bailey Bridge Yard Representative.**

PART II

SPECIFICATIONS AND STANDARD DRAWINGS

SPECIFICATIONS REFERENCE

Any reference in the plans or proposal to previous editions of the *Standard Specifications for Road and Bridge Construction* and *Standard Drawings* are superseded by *Standard Specifications for Road and Bridge Construction, Edition of 2019* and *Standard Drawings, Edition of 2020*.

SUPPLEMENTAL SPECIFICATIONS

The contractor shall use the Supplemental Specifications that are effective at the time of letting.
The Supplemental Specifications can be found at the following link:

<http://transportation.ky.gov/Construction/Pages/Kentucky-Standard-Specifications.aspx>

SPECIAL NOTE FOR TURF REINFORCING MAT

1.0 DESCRIPTION. Install turf reinforcement mat at locations specified in the Contract or as the Engineer directs. Section references herein are to the Department's Standard Specifications for Road and Bridge Construction, current edition.

2.0 MATERIALS.

2.1 Turf Reinforcement Mat (TRM). Use a Turf Reinforcement Mat defined as permanent rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh and/or other elements, processed into a three-dimensional matrix of sufficient thickness and from the Department's List of Approved Materials. Mats must be 100% UV stabilized materials. For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting exclusively. Ensure product labels clearly show the manufacturer or supplier name, style name, and roll number. Ensure labeling, shipment and storage follows ASTM D-4873. The Department will require manufacturer to provide TRMs that are machine constructed web of mechanically or melt bonded nondegradable fibers entangled to form a three dimensional matrix. The Department will require all long term performance property values in table below to be based on non degradable portion of the matting alone. Approved methods include polymer welding, thermal or polymer fusion, or placement of fibers between two high strength biaxially oriented nets mechanically bound by parallel stitching with polyolefin thread. Ensure that mats designated in the plans as Type 4 mats, are not to be manufactured from discontinuous or loosely held together by stitching or glued netting or composites. Type 4 mats shall be composed of geosynthetic matrix that exhibits a very high interlock and reinforcement capacities with both soil and root systems and with high tensile modulus. The Department will require manufacturer to use materials chemically and biologically inert to the natural soil environments conditions. Ensure the blanket is smolder resistant without the use of chemical additives. When stored, maintain the protective wrapping and elevate the mats off the ground to protect them from damage. The Department will not specify these materials for use in heavily acidic coal seam areas or other areas with soil problems that would severally limit vegetation growth.

- A) Dimensions. Ensure TRMs are furnished in strips with a minimum width of 4 feet and length of 50 feet.
- B) Weight. Ensure that all mat types have a minimum mass per unit area of 7 ounces per square yard according to ASTM D 6566.
- C) Performance Testing: The Department will require AASHTO's NTPEP index testing. The Department will also require the manufacturer to perform internal MARV testing at a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory for tensile strength, tensile elongation, mass per unit area, and thickness once every 24,000 yds of production or whatever rate is required to ensure 97.7% confidence under ASTM D4439& 4354. The Department will require Full scale testing for slope and channel applications shear stress shall be done under ASTM D 6459, ASTM D 6460-07 procedures.

2.2 Classifications

The basis for selection of the type of mat required will be based on the long term shear stress level of the mat of the channel in question or the degree of slope to protect and will be designated in the contract. The Type 4 mats are to be used at structural backfills protecting critical

11F

structures, utility cuts, areas where vehicles may be expected to traverse the mat, channels with large heavy drift, and where higher factors of safety, very steep slopes and/or durability concerns are needed as determined by project team and designer and will be specified in the plans by designer.

Turf Reinforcement Matting					
Properties ¹	Type 1	Type 2	Type 3	Type 4	Test Method
Minimum tensile Strength lbs/ft	125	150	175	3000 by 1500	ASTM D6818 ²
UV stability (minimum % tensile retention)	80	80	80	90	ASTM D4355 ³ (1000-hr exposure)
Minimum thickness (inches)	0.25	0.25	0.25	0.40	ASTM D6525
Slopes applications	2H:1V or flatter	1.5H:1V or flatter	1H:1V or flatter	1 H: 1V or greater	
Shear stress lbs/ft ² Channel applications	6.0 ⁴	8.0 ⁴	10.0 ⁴	12.0 ⁴	ASTM D6459 ASTM D6460-07

¹ For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting alone.

²Minimum Average Roll Values for tensile strength of sample material machine direction.

³Tensile Strength percentage retained after stated 1000 hr duration of exposure under ASTM D4355 testing. Based on nondegradable components exclusively.

⁴Maximum permissible shear design values based on short-term (0.5 hr) vegetated data obtained by full scale flume testing ASTM D6459, D6460-07. Based on nondegradable components exclusively. Testing will be done at Independent Hydraulics Facility such as Colorado State University hydraulics laboratory, Utah State University hydraulics laboratory, Texas Transportation Institute (TTI) hydraulics and erosion control laboratory.

2.3 Quality Assurance Sampling, Testing, and Acceptance

- A) Provide TRM listed on the Department's List of Approved Materials. Prior to inclusion on the LAM, the manufacturer of TRM must meet the physical and performance criteria as outlined in the specification and submit a Letter Certifying compliance of the product under the above ASTM testing procedures and including a copy of report from Full Scale Independent Hydraulics Facility that Fully Vegetated Shear Stress meets shear stress requirements tested under D6459 and D6460-07.
- B) Contractors will provide a Letter of Certification from Manufacturer stating the product name, manufacturer, and that the product MARV product unit testing results meets Department criteria. Provide Letters once per project and for each product.
- C) Acceptance shall be in accordance with ASTM D-4759 based on testing performed by a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory using Procedure A of ASTM D-4354.

Current mats meeting the above criteria are shown on the Department’s List of Approved Materials.

2.4 Fasteners. When the mat manufacturer does not specify a specific fastener, use steel wire U-shaped staples with a minimum diameter of 0.09 inches (11 gauge), a minimum width of one inch and a minimum length of 12 inches. Use a heavier gauge when working in rocky or clay soils and longer lengths in sandy soils as directed by Engineer or Manufacturer’s Representative. Provide staples with colored tops when requested by the Engineer.

3.0 CONSTRUCTION. When requested by the Engineer, provide a Manufacturer’s Representative on-site to oversee and approve the initial installation of the mat. When requested by the Engineer, provide a letter from the Manufacturer approving the installation. When there is a conflict between the Department’s criteria and the Manufacturer’s criteria, construct using the more restrictive. The Engineer and Manufacturer’s Representative must approve all alternate installation methods prior to execution. Construct according to the Manufacturer’s recommendations and the following as minimum installation technique:

3.1 Site Preparation. Grade areas to be treated with matting and compact. Remove large rocks, soil clods, vegetation, roots, and other sharp objects that could keep the mat from intimate contact with subgrade. Prepare seedbed by loosening the top 2 to 3 inch of soil.

3.2 Installation. Install mats according to Standard Drawing Sepias “Turf Mat Channel Installation” and “Turf Mat Slope Installation.” Install mats at the specified elevation and alignment. Anchor the mats with staples with a minimum length of 12 inches. Use longer anchors for installations in sandy, loose, or wet soils as directed by the Engineer or Manufacturer’s Representative. The mat should be in direct contact with the soil surface.

4.0 MEASUREMENT. The Department will measure the quantity of Turf Reinforcement Mat by the square yard of surface covered. The Department will not measure preparation of the bed, providing a Manufacturer’s Representative, topsoil, or seeding for payment and will consider them incidental to the Turf Reinforcement Mat. The Department will not measure any reworking of slopes or channels for payment as it is considered corrective work and incidental to the Turf Reinforcement Mat. Seeding and protection will be an incidental item.

5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
23274EN11F	Turf Reinforcement Mat 1	Square Yard
23275EN11F	Turf Reinforcement Mat 2	Square Yard
23276EN11F	Turf Reinforcement Mat 3	Square Yard
23277EN11F	Turf Reinforcement Mat 4	Square Yard

June 15, 2012

PART III

EMPLOYMENT, WAGE AND RECORD REQUIREMENTS

FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar

with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions

of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-

Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly

rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;
- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is

evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this

covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

**KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS**

**EMPLOYMENT REQUIREMENTS
RELATING TO
NONDISCRIMINATION OF EMPLOYEES
(APPLICABLE TO FEDERAL-AID SYSTEM CONTRACTS)**

**AN ACT OF THE KENTUCKY GENERAL ASSEMBLY
TO PREVENT DISCRIMINATION IN EMPLOYMENT**

**KRS CHAPTER 344
EFFECTIVE JUNE 16, 1972**

The contract on this project, in accordance with KRS Chapter 344, provides that during the performance of this contract, the contractor agrees as follows:

1. The contractor shall not fail or refuse to hire, or shall not discharge any individual, or otherwise discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, national origin, sex, disability or age (forty and above); or limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, sex, disability or age forty (40) and over. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor shall not print or publish or cause to be printed or published a notice or advertisement relating to employment by such an employer or membership in or any classification or referral for employment by the employment agency, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, except that such a notice or advertisement may indicate a preference, limitation, or specification based on religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, when religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, is a bona fide occupational qualification for employment.

3. If the contractor is in control of apprenticeship or other training or retraining, including on-the-job training programs, he shall not discriminate against an individual because of his race, color, religion, national origin, sex, disability or age forty (40) and over, in admission to, or employment in any program established to provide apprenticeship or other training.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

Revised: January 25, 2017

Standard Title VI/Non-Discrimination Assurances

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, **Federal Highway Administration**, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the **Federal Highway Administration** to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the **Federal Highway Administration**, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the **Federal Highway Administration** may determine to be appropriate, including, but not limited to:
 - a. withholding payments to the contractor under the contract until the contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the **Federal Highway Administration** may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

Standard Title VI/Non-Discrimination Statutes and Authorities

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “contractor”) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 -- 12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration’s Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*).

EXECUTIVE BRANCH CODE OF ETHICS

In the 1992 regular legislative session, the General Assembly passed and Governor Brereton Jones signed Senate Bill 63 (codified as KRS 11A), the Executive Branch Code of Ethics, which states, in part:

KRS 11A.040 (7) provides:

No present or former public servant shall, within six (6) months following termination of his office or employment, accept employment, compensation, or other economic benefit from any person or business that contracts or does business with, or is regulated by, the state in matters in which he was directly involved during the last thirty-six (36) months of his tenure. This provision shall not prohibit an individual from returning to the same business, firm, occupation, or profession in which he was involved prior to taking office or beginning his term of employment, or for which he received, prior to his state employment, a professional degree or license, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved during the last thirty-six (36) months of his tenure in state government. This subsection shall not prohibit the performance of ministerial functions, including but not limited to filing tax returns, filing applications for permits or licenses, or filing incorporation papers, nor shall it prohibit the former officer or public servant from receiving public funds disbursed through entitlement programs.

KRS 11A.040 (9) states:

A former public servant shall not represent a person or business before a state agency in a matter in which the former public servant was directly involved during the last thirty-six (36) months of his tenure, for a period of one (1) year after the latter of:

- a) The date of leaving office or termination of employment; or
- b) The date the term of office expires to which the public servant was elected.

This law is intended to promote public confidence in the integrity of state government and to declare as public policy the idea that state employees should view their work as a public trust and not as a way to obtain private benefits.

If you have worked for the executive branch of state government within the past six months, you may be subject to the law's prohibitions. The law's applicability may be different if you hold elected office or are contemplating representation of another before a state agency.

Also, if you are affiliated with a firm which does business with the state and which employs former state executive-branch employees, you should be aware that the law may apply to them.

In case of doubt, the law permits you to request an advisory opinion from the Executive Branch Ethics Commission, 3 Fountain Place, Frankfort, Kentucky 40601; telephone (502) 564-7954.

Revised: January 27, 2017

"General Decision Number: KY20210040 03/05/2021

Superseded General Decision Number: KY20200040

State: Kentucky

Construction Type: Highway

Counties: Allen, Ballard, Butler, Caldwell, Calloway, Carlisle, Christian, Crittenden, Daviess, Edmonson, Fulton, Graves, Hancock, Henderson, Hickman, Hopkins, Livingston, Logan, Lyon, Marshall, McCracken, McLean, Muhlenberg, Ohio, Simpson, Todd, Trigg, Union, Warren and Webster Counties in Kentucky.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/01/2021
1	01/15/2021
2	03/05/2021

BRIN0004-002 06/01/2017

BALLARD, BUTLER, CALDWELL, CARLISLE, CRITTENDEN, DAVIESS, EDMONSON, FULTON, GRAVES, HANCOCK, HENDERSON, HICKMAN, HOPKINS, LIVINGSTON, LYON, MARSHALL, MCCracken, MCLEAN, MUHLENBERG, OHIO, UNION, and WEBSTER COUNTIES

Rates Fringes

BRICKLAYER

Ballard, Caldwell, Carlisle, Crittenden, Fulton, Graves, Hickman, Livingston, Lyon, Marshall, and McCracken Counties.....	\$ 30.50	15.16
Butler, Edmonson, Hopkins, Muhlenberg, and Ohio Counties.....	\$ 26.80	12.38
Daviess, Hancock, Henderson, McLean, Union, and Webster Counties.....	\$ 30.00	15.16

BRTN0004-005 06/01/2017

ALLEN, CALLOWAY, CHRISTIAN, LOGAN, SIMPSON, TODD, TRIGG, and
WARREN COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 26.80	12.38

CARP0357-002 04/01/2020

	Rates	Fringes
CARPENTER.....	\$ 29.81	19.92
DIVER.....	\$ 45.09	19.92
PILEDRIVERMAN.....	\$ 30.06	19.92

* ELEC0369-006 05/26/2020

BUTLER, EDMONSON, LOGAN, TODD & WARREN COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 33.21	17.85

ELEC0429-001 01/01/2020

ALLEN & SIMPSON COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 27.72	13.48

ELEC0816-002 06/30/2020

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN,
FULTON (Except a 5 mile radius of City Hall in Fulton), GRAVES,
HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN & TRIGG COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 34.06	25.50%+7.25

Cable spicers receive \$.25 per hour additional.

ELEC1701-003 01/01/2020

DAVIESS, HANCOCK, HENDERSON, HOPKINS, MCLEAN, MUHLENBERG, OHIO,
UNION & WEBSTER COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 31.52	30%+7.25

Cable spicers receive \$.25 per hour additional.

ELEC1925-002 01/01/2021

FULTON COUNTY (Up to a 5 mile radius of City Hall in Fulton):

	Rates	Fringes
CABLE SPLICER.....	\$ 26.10	14.77
ELECTRICIAN.....	\$ 25.60	14.75

ENGI0181-017 07/01/2020

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 33.95	17.25
GROUP 2.....	\$ 31.09	17.25
GROUP 3.....	\$ 31.54	17.25
GROUP 4.....	\$ 30.77	17.25

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - A-Frame Winch Truck; Auto Patrol; Backfiller; Batcher Plant; Bituminous Paver; Bituminous Transfer Machine; Boom Cat; Bulldozer; Mechanic; Cableway; Carry-All Scoop; Carry Deck Crane; Central Compressor Plant; Cherry Picker; Clamshell; Concrete Mixer (21 cu. ft. or Over); Concrete Paver; Truck-Mounted Concrete Pump; Core Drill; Crane; Crusher Plant; Derrick; Derrick Boat; Ditching & Trenching Machine; Dragline; Dredge Operator; Dredge Engineer; Elevating Grader & Loaders; Grade-All; Gurries; Heavy Equipment Robotics Operator/Mechanic; High Lift; Hoe-Type Machine; Hoist (Two or More Drums); Hoisting Engine (Two or More Drums); Horizontal Directional Drill Operator; Hydrocrane; Hyster; KeCal Loader; LeTourneau; Locomotive; Mechanic; Mechanically Operated Laser Screed; Mechanic Welder; Mucking Machine; Motor Scraper; Orangepeel Bucket; Overhead Crane; Piledriver; Power Blade; Pumpcrete; Push Dozer; Rock Spreader, attached to equipment; Rotary Drill; Roller (Bituminous); Rough Terrain Crane; Scarifier; Scoopmobile; Shovel; Side Boom; Subgrader; Tailboom; Telescoping Type Forklift; Tow or Push Boat; Tower Crane (French, German & other types); Tractor Shovel; Truck Crane; Tunnel Mining Machines, including Moles, Shields or similar types of Tunnel Mining Equipment

GROUP 2 - Air Compressor (Over 900 cu. ft. per min.); Bituminous Mixer; Boom Type Tamping Machine; Bull Float; Concrete Mixer (Under 21 cu. ft.); Dredge Engineer; Electric Vibrator; Compactor/Self-Propelled Compactor; Elevator (One Drum or Buck Hoist); Elevator (When used to Hoist Building Material); Finish Machine; Firemen & Hoist (One Drum); Flexplane; Forklift (Regardless of Lift Height); Form Grader; Joint Sealing Machine; Outboard Motor Boat; Power Sweeper (Riding Type); Roller (Rock); Ross Carrier; Skid Mounted or Trailer Mounted Concrete Pump; Skid Steer Machine with all Attachments; Switchman or Brakeman; Throttle Valve Person; Tractair & Road Widening Trencher; Tractor (50 H.P. or Over); Truck Crane Oiler; Tugger;

Welding Machine; Well Points;& Whirley Oiler

GROUP 3 -All Off Road Material Handling Equipment, including
Articulating Dump Trucks; Greaser on Grease Facilities
servicing Heavy Equipment

GROUP 4 - Bituminous Distributor; Burlap & Curing Machine;
Cement Gun; Concrete Saw; Conveyor; Deckhand Oiler; Grout
Pump; Hydraulic Post Driver; Hydro Seeder; Mud Jack; Oiler;
Paving Joint Machine; Power Form Handling Equipment; Pump;
Roller (Earth); Steerman; Tamping Machine; Tractor (Under
50 H.P.); & Vibrator

CRANES - with booms 150 ft. & Over (Including JIB), and where
the length of the boom in combination with the length of
the piling equals or exceeds 150 ft. - \$1.00 above Group 1
rate

EMPLOYEES ASSIGNED TO WORK BELOW GROUND LEVEL ARE TO BE PAID
10% ABOVE BASIC WAGE RATE. THIS DOES NOT APPLY TO OPEN CUT
WORK.

IRON0070-005 06/01/2020

BUTLER COUNTY (Eastern eighth, including the Townships of
Decker, Lee & Tilford);
EDMONSON COUNTY (Northern three-fourths, including the
Townships of Asphalt, Bee Spring, Brownsville, Grassland, Huff,
Kyrock, Lindseyville, Mammoth Cave, Ollie, Prosperity, Rhoda,
Sunfish & Sweden)

	Rates	Fringes
IRONWORKER		
Structural; Ornamental;		
Reinforcing; Precast		
Concrete Erectors.....	\$ 30.42	23.15

IRON0103-004 04/01/2020

DAVIESS, HANCOCK, HENDERSON, HOPKINS, MCLEAN, OHIO, UNION &
WEBSTER COUNTIES
BUTLER COUNTY (Townships of Aberdeen, Bancock, Casey,
Dexterville, Dunbar, Elfie, Gilstrap, Huntsville, Logansport,
Monford, Morgantown, Provo, Rochester, South Hill & Welchs
Creek);
CALDWELL COUNTY (Northeastern third, including the Township of
Creswell);
CHRISTIAN COUNTY (Northern third, including the Townships of
Apex, Crofton, Kelly, Mannington & Wynns);
CRITTENDEN COUNTY (Northeastern half, including the Townships
of Grove, Mattoon, Repton, Shady Grove & Tribune);
MUHLENBERG COUNTY (Townships of Bavier, Beech Creek Junction,
Benton, Brennen, Browder, Central City, Cleaton, Depoy,
Drakesboro, Eunis, Graham, Hillside, Luzerne, Lynn City,
Martwick, McNary, Millport, Moorman, Nelson, Paradise,
Powderly, South Carrollton, Tarina & Weir)

	Rates	Fringes
Ironworkers:.....	\$ 29.50	24.385

IRON0492-003 05/01/2020

ALLEN, LOGAN, SIMPSON, TODD & WARREN COUNTIES
BUTLER COUNTY (Southern third, including the Townships of Boston, Berrys Lick, Dimple, Jetson, Quality, Sharer, Sugar Grove & Woodbury);
CHRISTIAN COUNTY (Eastern two-thirds, including the Townships of Bennettstown, Casky, Herndon, Hopkinsville, Howell, Masonville, Pembroke & Thompsonville);
EDMONSON COUNTY (Southern fourth, including the Townships of Chalybeate & Rocky Hill);
MUHLENBERG COUNTY (Southern eighth, including the Townships of Dunnior, Penrod & Rosewood)

	Rates	Fringes
Ironworkers:.....	\$ 29.55	15.06

IRON0782-006 08/01/2020

BALLARD, CALLOWAY, CARLISLE, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCracken & TRIGG COUNTIES
CALDWELL COUNTY (Southwestern two-thirds, including the Townships of Cedar Bluff, Cider, Claxton, Cobb, Crowtown, Dulaney, Farmersville, Fredonia, McGowan, Otter Pond & Princeton);
CHRISTIAN COUNTY (Western third, Excluding the Townships of Apex, Crofton, Kelly, Mannington, Wynns, Bennettstown, Casky, Herndon, Hopkinsville, Howell, Masonville, Pembroke & Thompsonville);
CRITTENDEN COUNTY (Southwestern half, including the Townships of Crayne, Dycusburg, Frances, Marion, Mexico, Midway, Sheridan & Told)

	Rates	Fringes
Ironworkers:		
Projects with a total contract cost of \$20,000,000.00 or above.....	\$ 30.13	25.17
All Other Work.....	\$ 28.54	23.75

LAB00189-005 07/01/2020

BALLARD, CALLOWAY, CARLISLE, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL & MCCracken COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 23.26	15.62
GROUP 2.....	\$ 23.51	15.62
GROUP 3.....	\$ 23.56	15.62
GROUP 4.....	\$ 24.16	15.62

LABORER CLASSIFICATIONS

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level D; Flagperson;

Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushhammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Blaster; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Drillers (All Types); Powdermen & Blasters; Troxler & Concrete Tester if Laborer is Utilized

LAB00189-006 07/01/2020

ALLEN, BUTLER, CALDWELL, CHRISTIAN, DAVIESS, EDMONSON, HANCOCK, HOPKINS, LOGAN, MCLEAN, MUHLENBERG, OHIO, SIMPSON, TODD, TRIGG & WARREN COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 23.26	15.62
GROUP 2.....	\$ 23.51	15.62
GROUP 3.....	\$ 23.56	15.62
GROUP 4.....	\$ 24.16	15.62

LABORER CLASSIFICATIONS

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder;

Burner & Welder; Bushhammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Blaster; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Drillers (All Types); Powdermen & Blasters; Troxler & Concrete Tester if Laborer is Utilized

LAB00561-001 07/01/2020

CRITTENDEN, HENDERSON, UNION & WEBSTER COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 23.66	16.10
GROUP 2.....	\$ 23.91	16.10
GROUP 3.....	\$ 23.96	16.10
GROUP 4.....	\$ 24.56	16.10

LABORER CLASSIFICATIONS

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushhammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Blaster; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Drillers (All Types); Powdermen & Blasters; Troxler & Concrete Tester if Laborer is Utilized

PAIN0032-002 09/01/2020

BALLARD COUNTY

	Rates	Fringes
Painters:		
Bridges.....	\$ 35.01	17.93
All Other Work.....	\$ 32.71	17.93
Spray, Blast, Steam, High & Hazardous (Including Lead Abatement) and All Epoxy - \$1.00 Premium		

PAIN0118-003 06/01/2014

EDMONSON COUNTY:

	Rates	Fringes
Painters:		
Brush & Roller.....	\$ 18.50	11.97
Spray, Sandblast, Power Tools, Waterblast & Steam Cleaning.....	\$ 19.50	11.97

PAIN0156-006 04/01/2015

DAVIESS, HANCOCK, HENDERSON, MCLEAN, OHIO, UNION & WEBSTER COUNTIES

	Rates	Fringes
Painters:		
BRIDGES		
GROUP 1.....	\$ 27.60	12.85
GROUP 2.....	\$ 27.85	12.85
GROUP 3.....	\$ 28.60	12.85
GROUP 4.....	\$ 29.60	12.85
ALL OTHER WORK:		
GROUP 1.....	\$ 26.45	12.85
GROUP 2.....	\$ 26.70	12.85
GROUP 3.....	\$ 27.45	12.85
GROUP 4.....	\$ 28.45	12.85

PAINTER CLASSIFICATIONS

- GROUP 1 - Brush & Roller
- GROUP 2 - Plasterers

GROUP 3 - Spray; Sandblast; Power Tools; Waterblast;
Steamcleaning; Brush & Roller of Mastics, Creosotes, Kwinch
Koate & Coal Tar Epoxy

GROUP 4 - Spray of Mastics, Creosotes, Kwinch Koate & Coal
Tar Epoxy

PAIN0500-002 06/01/2020

CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON,
GRAVES, HICKMAN, HOPKINS, LIVINGSTON, LYON, MARSHALL, MCCracken
& TRIGG COUNTIES:

	Rates	Fringes
Painters:		
Bridges.....	\$ 27.75	15.10
All Other Work.....	\$ 21.50	15.10

Waterblasting units with 3500 PSI and above - \$.50 premium
Spraypainting and all abrasive blasting - \$1.00 premium
Work 40 ft. and above ground level - \$1.00 premium

PLUM0184-002 07/01/2018

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN,
FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCracken
and TRIGG COUNTIES

	Rates	Fringes
Plumber; Steamfitter.....	\$ 35.06	18.18

PLUM0502-004 08/01/2020

ALLEN, BUTLER, EDMONSON, SIMPSON & WARREN

	Rates	Fringes
Plumber; Steamfitter.....	\$ 36.92	20.78

PLUM0633-002 07/01/2020

DAVIESS, HANCOCK, HENDERSON, HOPKINS, LOGAN, MCLEAN,
MUHLENBERG, OHIO, TODD, UNION & WEBSTER COUNTIES:

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 32.17	19.30

TEAM0089-003 04/01/2020

ALLEN, BUTLER, EDMONSON, LOGAN, SIMPSON & WARREN COUNTIES

	Rates	Fringes
Truck drivers:		
Zone 1:		
Group 1.....	\$ 20.82	23.49
Group 2.....	\$ 21.00	23.49

Group 3.....	\$ 21.08	23.49
Group 4.....	\$ 21.10	23.49

GROUP 1 - Greaser; Tire Changer

GROUP 2 - Truck Mechanic; Single Axle Dump; Flat Bed; All Terrain Vehicles when used to haul materials; Semi Trailer or Pole Trailer when used to pull building materials and equipment; Tandem Axle Dump; Driver of Distributors

GROUP 3 - Mixer All Types

GROUP 4 - Winch and A-Frame when used in transporting materials; Ross Carrier; Fork Lift when used to transport building materials; Driver on Pavement Breaker; Euclid and Other Heavy Earth Moving Equipment; Low Boy; Articulator Cat; Five Axle Vehicle

TEAM0215-003 04/01/2020

DAVIESS, HANCOCK, HENDERSON, HOPKINS, MCLEAN, MUHLENBERG, OHIO & WEBSTER COUNTIES

	Rates	Fringes
TRUCK DRIVER		
Group 1.....	\$ 22.45	23.49
Group 2.....	\$ 22.68	23.49
Group 3.....	\$ 22.75	23.49
Group 4.....	\$ 22.76	23.49

GROUP 1: Greaser, Tire Changer

GROUP 2: Truck Mechanic

GROUP 3: Single Axle Dump; Flat Bed; All Terrain Vehicle when used to haul materials; Semi Trailer or Pole Trailer when used to pull building materials and equipment; Tandem Axle Dump; Driver of Distributors; Mixer All Types

GROUP 4: Euclid and other heavy earth moving equipment; Low Boy; Articulator Cat; 5 Axle Vehicle; Winch and A- Frame when used in transporting materials; Ross Carrier; Fork Lift when used to transport building materials; Driver on Pavement Breaker

TEAM0236-001 04/01/2020

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCracken,TODD & TRIGG COUNTIES

	Rates	Fringes
TRUCK DRIVER		
Group 1.....	\$ 20.82	23.49
Group 2.....	\$ 21.00	23.49
Group 3.....	\$ 21.00	23.49
Group 4.....	\$ 21.00	23.49
Group 5.....	\$ 21.08	23.49

GROUP 1: Greaser, Tire Changer

GROUP 2: Truck Mechanic

GROUP 3: Single Axle Dump; Flat Bed; All Terrain Vehicle when used to haul materials; Semi Trailer or Pole Trailer when used to pull building materials and equipment; Tandem Axle Dump; Drivers of Distributors

GROUP 4: Euclid and other heavy earth moving equipment; Low Boy; Articulator Cat; Five Axle Vehicle; Winch and A-Frame when used in transporting materials; Ross Carrier

GROUP 5: Mixer All Types

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of

the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

Fringe benefit amounts are applicable for all hours worked except when otherwise noted.

No laborer, workman or mechanic shall be paid at a rate less than that of a Journeyman except those classified as bona fide apprentices.

Apprentices or trainees shall be permitted to work as such subject to Administrative Regulations adopted by the Commissioner of Workplace Standards. Copies of these regulations will be furnished upon request from any interested person.

Before using apprentices on the job the contractor shall present to the Contracting Officer written evidence of registration of such employees in a program of a State apprenticeship and training agency approved and recognized by the U. S. Bureau of Apprenticeship and Training. In the absence of such a State agency, the contractor shall submit evidence of approval and registration by the U. S. Bureau of Apprenticeship and Training.

The contractor shall submit to the Contracting Officer, written evidence of the established apprenticeship-journeyman ratios and wage rates in the project area, which will be the basis for establishing such ratios and rates for the project under the applicable contract provisions.

TO: EMPLOYERS/EMPLOYEES

PREVAILING WAGE SCHEDULE:

The wages indicated on this wage schedule are the least permitted to be paid for the occupations indicated. When an employee works in more than one classification, the employer must record the number of hours worked in each classification at the prescribed hourly base rate.

OVERTIME:

Overtime is to be paid to an employee at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweek. Wage violations or questions should be directed to the designated Engineer or the undersigned.

Director
Division of Construction Procurement
Frankfort, Kentucky 40622
502-564-3500

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY
(Executive Order 11246)**

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

GOALS FOR MINORITY PARTICIPATION IN EACH TRADE	GOALS FOR FEMALE PARTICIPATION IN EACH TRADE
3.5%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4, 3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of \$10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed. The notification shall be mailed to:

**Evelyn Teague, Regional Director
Office of Federal Contract Compliance Programs
61 Forsyth Street, SW, Suite 7B75
Atlanta, Georgia 30303-8609**

4. As used in this Notice, and in the contract resulting from this solicitation, the "**covered area**" is Hopkins County.

PART IV

INSURANCE

Refer to
Kentucky Standard Specifications for Road and Bridge Construction,
current edition

PART V

BID ITEMS

Report Date 7/1/21

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	34,565.00	TON		\$	
0020	00020		TRAFFIC BOUND BASE	346.00	TON		\$	
0030	00078		CRUSHED AGGREGATE SIZE NO 2 ROADBED PREPARATION	59,887.00	TON		\$	
0040	00190		LEVELING & WEDGING PG64-22	424.00	TON		\$	
0050	00205		CL3 ASPH BASE 1.50D PG64-22	17,056.00	TON		\$	
0060	00214		CL3 ASPH BASE 1.00D PG64-22	29,618.00	TON		\$	
0070	00324		CL3 ASPH SURF 0.50B PG64-22	8,079.00	TON		\$	
0080	00356		ASPHALT MATERIAL FOR TACK	100.00	TON		\$	
0090	01810		STANDARD CURB AND GUTTER	6,225.00	LF		\$	
0100	02101		CEM CONC ENT PAVEMENT-8 IN	48.00	SQYD		\$	
0110	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		\$	
0120	02677		ASPHALT PAVE MILLING & TEXTURING	339.00	TON		\$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0130	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	9.00	EACH		\$	
0140	02091		REMOVE PAVEMENT	10,991.00	SQYD		\$	
0150	02159		TEMP DITCH	5,410.00	LF		\$	
0160	02160		CLEAN TEMP DITCH	2,705.00	LF		\$	
0170	02200		ROADWAY EXCAVATION	179,165.00	CUYD		\$	
0180	02242		WATER	400.00	MGAL		\$	
0190	02351		GUARDRAIL-STEEL W BEAM-S FACE	612.50	LF		\$	
0200	02360		GUARDRAIL TERMINAL SECTION NO 1	6.00	EACH		\$	
0210	02381		REMOVE GUARDRAIL	3,385.00	LF		\$	
0220	02391		GUARDRAIL END TREATMENT TYPE 4A	6.00	EACH		\$	
0230	02429		RIGHT-OF-WAY MONUMENT TYPE 1	190.00	EACH		\$	
0240	02432		WITNESS POST	9.00	EACH		\$	
0250	02483		CHANNEL LINING CLASS II	8,281.00	TON		\$	
0260	02484		CHANNEL LINING CLASS III	1,724.00	TON		\$	
0270	02545		CLEARING AND GRUBBING (APPROXIMATELY 70 ACRES)	1.00	LS		\$	
0280	02562		TEMPORARY SIGNS	493.50	SQFT		\$	
0290	02585		EDGE KEY	274.00	LF		\$	
0300	02602		FABRIC-GEOTEXTILE CLASS 1	38,504.00	SQYD		\$	
0310	02603		FABRIC-GEOTEXTILE CLASS 2	14,236.00	SQYD		\$	
0320	02607		FABRIC-GEOTEXTILE CLASS 2 FOR PIPE	9,930.00	SQYD	\$2.00	\$	\$19,860.00
0330	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		\$	
0340	02651		DIVERSIONS (BY-PASS DETOURS) (NUMBER 1 STA 100+00 - STA 118+50)	1.00	LS		\$	
0350	02651		DIVERSIONS (BY-PASS DETOURS) (NUMBER 2 STA 200+00 - STA 221+05)	1.00	LS		\$	
0360	02651		DIVERSIONS (BY-PASS DETOURS) (NUMBER 3 STA 300+00 - STA 309+00)	1.00	LS		\$	
0370	02651		DIVERSIONS (BY-PASS DETOURS) (NUMBER 4 STA 400+00 - STA 409+08)	1.00	LS		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0380	02690		SAFELoading	56.14	CUYD		\$	
0390	02696		SHOULDER RUMBLE STRIPS	13,119.00	LF		\$	
0400	02701		TEMP SILT FENCE	5,410.00	LF		\$	
0410	02703		SILT TRAP TYPE A	51.00	EACH		\$	
0420	02704		SILT TRAP TYPE B	51.00	EACH		\$	
0430	02705		SILT TRAP TYPE C	51.00	EACH		\$	
0440	02706		CLEAN SILT TRAP TYPE A	51.00	EACH		\$	
0450	02707		CLEAN SILT TRAP TYPE B	51.00	EACH		\$	
0460	02708		CLEAN SILT TRAP TYPE C	51.00	EACH		\$	
0470	02720		SEWALK-4 IN CONCRETE	1,797.00	SQYD		\$	
0480	02726		STAKING	1.00	LS		\$	
0490	02731		REMOVE STRUCTURE (EX. 3-SPAN BRIDGE KY 1178 STA.15+93 276' LT.)	1.00	LS		\$	
0500	05950		EROSION CONTROL BLANKET	20,496.00	SQYD		\$	
0510	05952		TEMP MULCH	163,474.00	SQYD		\$	
0520	05953		TEMP SEEDING AND PROTECTION	122,605.00	SQYD		\$	
0530	05963		INITIAL FERTILIZER	25.00	TON		\$	
0540	05964		MAINTENANCE FERTILIZER	13.00	TON		\$	
0550	05985		SEEDING AND PROTECTION	242,163.00	SQYD		\$	
0560	05990		SODDING	1,083.00	SQYD		\$	
0570	05992		AGRICULTURAL LIMESTONE	150.00	TON		\$	
0580	06401		FLEXIBLE DELINEATOR POST-M/W	13.00	EACH		\$	
0590	06510		PAVE STRIPING-TEMP PAINT-4 IN	59,915.00	LF		\$	
0600	06514		PAVE STRIPING-PERM PAINT-4 IN	59,226.00	LF		\$	
0610	06563		PAVE MARKING-R/R XBUCKS 16 IN	240.00	LF		\$	
0620	06568		PAVE MARKING-THERMO STOP BAR-24IN	283.00	LF		\$	
0630	06574		PAVE MARKING-THERMO CURV ARROW	42.00	EACH		\$	
0640	06575		PAVE MARKING-THERMO COMB ARROW	5.00	EACH		\$	
0650	06578		PAVE MARKING-THERMO MERGE ARROW	3.00	EACH		\$	
0660	10020NS		FUEL ADJUSTMENT	145,123.00	DOLL	\$1.00	\$	\$145,123.00
0670	10030NS		ASPHALT ADJUSTMENT	215,912.00	DOLL	\$1.00	\$	\$215,912.00
0680	20550ND		SAWCUT PAVEMENT	1,233.00	LF		\$	
0690	21289ED		LONGITUDINAL EDGE KEY	949.00	LF		\$	
0700	23158ES505		DETECTABLE WARNINGS	24.00	SQFT		\$	
0710	23274EN11F		TURF REINFORCEMENT MAT 1	1,229.00	SQYD		\$	
0720	23276EN11F		TURF REINFORCEMENT MAT 3	248.00	SQYD		\$	
0730	24489EC		INLAID PAVEMENT MARKER	671.00	EACH		\$	

Section: 0003 - DRAINAGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0740	00440		ENTRANCE PIPE-15 IN	433.00	LF		\$	
0750	00441		ENTRANCE PIPE-18 IN	122.00	LF		\$	
0760	00445		ENTRANCE PIPE-30 IN	56.00	LF		\$	
0770	00461		CULVERT PIPE-15 IN	150.00	LF		\$	
0780	00462		CULVERT PIPE-18 IN	126.00	LF		\$	
0790	00464		CULVERT PIPE-24 IN	528.00	LF		\$	
0800	00466		CULVERT PIPE-30 IN	201.00	LF		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0810	00468		CULVERT PIPE-36 IN	112.00	LF		\$	
0820	00469		CULVERT PIPE-42 IN	80.00	LF		\$	
0830	00521		STORM SEWER PIPE-15 IN	698.00	LF		\$	
0840	00522		STORM SEWER PIPE-18 IN	584.00	LF		\$	
0850	00524		STORM SEWER PIPE-24 IN	169.00	LF		\$	
0860	00526		STORM SEWER PIPE-30 IN	246.00	LF		\$	
0870	00528		STORM SEWER PIPE-36 IN	1,239.00	LF		\$	
0880	00529		STORM SEWER PIPE-42 IN	746.00	LF		\$	
0890	01000		PERFORATED PIPE-4 IN	1,140.00	LF		\$	
0900	01005		PERFORATED PIPE EDGE DRAIN-4 IN	16,436.00	LF		\$	
0910	01010		NON-PERFORATED PIPE-4 IN	1,159.00	LF		\$	
0920	01015		INSPECT & CERTIFY EDGE DRAIN SYSTEM	1.00	LS		\$	
0930	01024		PERF PIPE HEADWALL TY 2-4 IN	1.00	EACH		\$	
0940	01028		PERF PIPE HEADWALL TY 3-4 IN	25.00	EACH		\$	
0950	01032		PERF PIPE HEADWALL TY 4-4 IN	17.00	EACH		\$	
0960	01202		PIPE CULVERT HEADWALL-15 IN	4.00	EACH		\$	
0970	01204		PIPE CULVERT HEADWALL-18 IN	3.00	EACH		\$	
0980	01208		PIPE CULVERT HEADWALL-24 IN	3.00	EACH		\$	
0990	01210		PIPE CULVERT HEADWALL-30 IN	3.00	EACH		\$	
1000	01214		PIPE CULVERT HEADWALL-42 IN	1.00	EACH		\$	
1010	01370		METAL END SECTION TY 1-15 IN	3.00	EACH		\$	
1020	01371		METAL END SECTION TY 1-18 IN	3.00	EACH		\$	
1030	01373		METAL END SECTION TY 1-24 IN	4.00	EACH		\$	
1040	01374		METAL END SECTION TY 1-30 IN	4.00	EACH		\$	
1050	01396		METAL END SECTION TY 3-42 IN	2.00	EACH		\$	
1060	01432		SLOPED BOX OUTLET TYPE 1-15 IN	1.00	EACH		\$	
1070	01433		SLOPED BOX OUTLET TYPE 1-18 IN	5.00	EACH		\$	
1080	01434		SLOPED BOX OUTLET TYPE 1-24 IN	2.00	EACH		\$	
1090	01451		S & F BOX INLET-OUTLET-24 IN	7.00	EACH		\$	
1100	01452		S & F BOX INLET-OUTLET-30 IN	1.00	EACH		\$	
1110	01453		S & F BOX INLET-OUTLET-36 IN	2.00	EACH		\$	
1120	01456		CURB BOX INLET TYPE A	26.00	EACH		\$	
1130	01490		DROP BOX INLET TYPE 1	13.00	EACH		\$	
1140	01577		DROP BOX INLET TYPE 14	1.00	EACH		\$	
1150	01642		JUNCTION BOX-18 IN	2.00	EACH		\$	
1160	24814EC		PIPELINE INSPECTION	5,040.00	LF		\$	

Section: 0004 - BRIDGE- US41A OVER GREASY CREEK STA. 608+86 24'X10' CULVERT

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1170	08003		FOUNDATION PREPARATION	1.00	LS		\$	
1180	08100		CONCRETE-CLASS A	595.10	CUYD		\$	
1190	08150		STEEL REINFORCEMENT	107,726.00	LB		\$	

Section: 0005 - BRIDGE -US41A OVER UNNAMED STA. 551+64 6'X4' CULVERT

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1200	02625		REMOVE HEADWALL	2.00	EACH		\$	
1210	08003		FOUNDATION PREPARATION	1.00	LS		\$	
1220	08100		CONCRETE-CLASS A	54.20	CUYD		\$	
1230	08150		STEEL REINFORCEMENT	4,729.00	LB		\$	

Section: 0006 - UTILITY-ELECTRICAL

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1240	24725EC		UTILITY RELOCATION	1.00	LS		\$	

Section: 0007 - SEWER

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1250	15017		S ENCASEMENT STEEL BORED RANGE 4	100.00	LF		\$	
1260	15018		S ENCASEMENT STEEL BORED RANGE 5	100.00	LF		\$	
1270	15023		S ENCASEMENT STEEL OPEN CUT RANGE 4	30.00	LF		\$	
1280	15092		S MANHOLE	10.00	EACH		\$	
1290	15093		S MANHOLE ABANDON/REMOVE	7.00	EACH		\$	
1300	15094		S MANHOLE ADJUST TO GRADE	1.00	EACH		\$	
1310	15095		S MANHOLE CASTING STANDARD	13.00	EACH		\$	
1320	15099		S MANHOLE TAP EXISTING	3.00	EACH		\$	
1330	15101		S MANHOLE WITH DROP	3.00	EACH		\$	
1340	15104		S PIPE DUCTILE IRON 08 INCH	180.00	LF		\$	
1350	15106		S PIPE DUCTILE IRON 12 INCH	447.00	LF		\$	
1360	15112		S PIPE PVC 08 INCH	1,807.00	LF		\$	

Section: 0008 - WATERLINE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1370	14001		W AIR RELEASE VALVE 3/4 INCH	4.00	EACH		\$	
1380	14003		W CAP EXISTING MAIN	15.00	EACH		\$	
1390	14004		W DIRECTIONAL BORE	85.00	LF		\$	
1400	14008		W ENCASEMENT STEEL BORED RANGE 3	100.00	LF		\$	
1410	14009		W ENCASEMENT STEEL BORED RANGE 4	80.00	LF		\$	
1420	14010		W ENCASEMENT STEEL BORED RANGE 5 20 IN	215.00	LF		\$	
1430	14010		W ENCASEMENT STEEL BORED RANGE 5 24 IN	130.00	LF		\$	
1440	14016		W ENCASEMENT STEEL OPEN CUT RANGE 5	30.00	LF		\$	
1450	14019		W FIRE HYDRANT ASSEMBLY	5.00	EACH		\$	
1460	14021		W FIRE HYDRANT REMOVE	5.00	EACH		\$	
1470	14028		W METER 3/4 INCH	14.00	EACH		\$	
1480	14030		W METER RELOCATE	1.00	EACH		\$	
1490	14031		W METER VAULT	1.00	EACH		\$	
1500	14036		W PIPE DUCTILE IRON 06 INCH	550.00	LF		\$	
1510	14037		W PIPE DUCTILE IRON 08 INCH	3,605.00	LF		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1520	14038		W PIPE DUCTILE IRON 10 INCH	1,645.00	LF		\$	
1530	14039		W PIPE DUCTILE IRON 12 INCH	3,495.00	LF		\$	
1540	14074		W PLUG EXISTING MAIN	2.00	EACH		\$	
1550	14081		W SERVICE RELOCATE	3.00	EACH		\$	
1560	14089		W TAPPING SLEEVE AND VALVE SIZE 1 6 IN	3.00	EACH		\$	
1570	14089		W TAPPING SLEEVE AND VALVE SIZE 1 8 IN	4.00	EACH		\$	
1580	14090		W TAPPING SLEEVE AND VALVE SIZE 2 10 IN	2.00	EACH		\$	
1590	14090		W TAPPING SLEEVE AND VALVE SIZE 2 12 IN	5.00	EACH		\$	
1600	14090		W TAPPING SLEEVE AND VALVE SIZE 2 14 IN	2.00	EACH		\$	
1610	14105		W VALVE 06 INCH	3.00	EACH		\$	
1620	14107		W VALVE 10 INCH	3.00	EACH		\$	
1630	14108		W VALVE 12 INCH	5.00	EACH		\$	
1640	14148		W SERV COPPER LONG SIDE 3/4 IN	6.00	EACH		\$	
1650	14152		W SERV COPPER SHORT SIDE 3/4 IN	8.00	EACH		\$	
1660	14156		W METER REMOVE	14.00	EACH		\$	
1670	14159		W PIPE DUCTILE IRON 14 INCH	795.00	LF		\$	
1680	14162		W VALVE 14 INCH	3.00	EACH		\$	

Section: 0009 - DEMOBILIZATION &/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1690	02568		MOBILIZATION	1.00	LS		\$	
1700	02569		DEMOBILIZATION	1.00	LS		\$	



SPECIAL NOTES FOR PROTECTION OF RAILROAD INTEREST

CSX TRANSPORTATION, INC.

I. AUTHORITY OF RAILROAD ENGINEER AND STATE ENGINEER:

- A. *The authorized representative of the Railroad Company, hereinafter referred to as Railroad Engineer, shall have final authority in all matters affecting the safe maintenance of Railroad operations and property.*
- B. *The authorized representative of the State, hereinafter referred to as the Engineer, shall have authority over all other matters as prescribed herein and in the Project Specifications.*

II. NOTICE OF STARTING WORK:

- A. *The Contractor shall not commence any work on Railroad rights of way until he has complied with the following conditions:*
 - 1. Given the Railroad written notice, with copy to the Engineer who has been designated to be in charge of the work, **at least ten (10) days in advance** of the date he proposes to begin work on Railroad rights of way. The notice must refer to Railroad Agreement with the State by the date of the Agreement. **If flagging service is required, such notice shall be submitted at least thirty (30) days in advance** of the date scheduled to commence work. The Railroad's Contact information is on the Summary Sheet.
 - 2. Obtain written authorization from the Railroad to begin work on Railroad rights of way, such authorization to include an outline of specific conditions with which he must comply.
 - 3. Obtain written approval from the Railroad of Railroad Protective Insurance Liability coverage as required by paragraph 14 herein.
 - 4. Furnish a schedule for all work within the Railroad rights of way as required by paragraph 7, B, 1.
- B. *The Railroad's written authorization to proceed with the work shall include the names, addresses, and telephone numbers of the Railroad's representatives who are to be notified as hereinafter required. Where more than one representative is designated, the area of responsibility of each representative shall be specified.*

III. INTERFERENCE WITH RAILROAD OPERATIONS:

- A. *The Contractor shall so arrange and conduct his work that there will be no interference with Railroad operations, including train, signal, telephone and telegraphic services, or damage to the property of the Railroad Company or to poles, wires, and other facilities of tenants on the rights of way of the Railroad Company. The Contractor shall store materials so as to prevent trespassers from causing damage to trains or Railroad property and shall not use Railroad property without written permission from the Railroad. Whenever work is to affect the operations or safety of trains, the method of doing such work shall first be submitted to the Railroad Engineer for approval, but such approval shall not relieve the Contractor from liability. Any work to be performed by the Contractor which requires flagging service or inspection service (watchman) shall be deferred by the Contractor until the flagging protection required by the Railroad is available at the job site.*
- B. *Should conditions arising from, or in connection with the work, require that immediate and unusual provisions be made to protect train operations and property of the Railroad, the Contractor shall make such provisions. If in the judgment of the Railroad Engineer, or his representative, such provisions are insufficient, the Railroad Engineer may require or provide such provisions, as he deems necessary at Contractor's cost and expense. In any event, such unusual provisions shall be at the Contractor's expense and without cost and/or time to the Railroad or the State.*

IV. TRACK CLEARANCES

- A. *The minimum track clearances to be maintained by the Contractor during construction are shown on the Project Plans. However, before undertaking any work within Railroad rights of way, or before placing any obstruction over any track, the Contractor shall:*
1. Notify the Railroad's representative **at least 72 hours in advance** of the work.
 2. Receive assurance from the Railroad's representative that arrangements have been made for flagging service as necessary.
 3. Receive permission from the Railroad's representative to proceed with the work.
 4. Ascertain that the State Engineer has received copies of notice to the Railroad and of the Railroad's response thereto, and has approved the contractor's methods.

V. CONSTRUCTION PROCEDURES

A. General:

1. Construction work on Railroad property shall be:
 - a) Subject to the inspection and approval of the Railroad.
 - b) In accord with the Railroad's written outline of specific conditions.
 - c) In accord with the Railroad's general rules, regulations and requirements including those relating to safety, fall protection and personal protective equipment, which the Contractor shall obtain from the Railroad.
 - d) In accord with all Special Notes, Summaries, and Addendums.
2. The Railroad requires a submission of construction procedure that meets the requirements of these Special Notes and attachments. The Railroad's **submittal review period is thirty (30) days. Resubmissions will be reviewed within (30) days.**
3. All requirements of the *Construction Submission Criteria* shall be met. Requirements in addition to those in the *Construction Submission Criteria* are listed below in this document:

B. Excavation:

1. The sub grade of an operated track shall be **maintained with edge of berm at least 15'0" from centerline of track and not more than 24 inches below top of rail.** Contractor will not be required to make existing section meet this specification if substandard, in which case the existing section will be maintained.
2. Additionally, the Railroad Engineer may require installation of orange construction fencing for protection of the work area located on Railroad right of way.

C. Excavation of Structures:

1. The Contractor will be required to take special precaution and care in connection with excavating and shoring pits, and in driving piles, or sheeting for footings adjacent to tracks to provide adequate lateral support for the tracks and the loads which they carry, without disturbance of track alignment and surface, and to avoid obstructing track clearances with working equipment, tools or other material. The procedure for doing such work, including need of and plans for shoring, shall first be submitted, with the stamp of an Engineer in the State of Kentucky, and approved by

the Engineer and the Railroad Engineer, but such approval shall not relieve the Contractor from liability.

2. Additionally, a walkway with handrail protection may be required as noted in Section XI herein.

D. Demolition, Erection, Hoisting

1. Railroad tracks and other railroad property must be protected from damage during the procedure. No crane or equipment may be set on the rails or track structure and no material may be dropped on Railroad property.
2. Loads shall not be supported while any trains are passing if that piece of equipment has the capacity to **foul a 50' envelope.**
3. The Railroad may require the Contractor to install filter fabric over the track and ballast to prevent any concrete dust or other construction debris from fouling the ballast. This will be determined during actual construction activities by the Railroad or its representatives. Fabric should extend at least 25 feet beyond the outside edges of the bridge. Fabric will remain in place until all construction activities are complete.
4. Temporary construction clearance: Ensure all falsework, bracing, or forms have a minimum vertical clearance of 23 feet above the top of the highest rail and a minimum horizontal clearance of 12 feet measured perpendicular to the centerline of the nearest track.

E. Blasting:

1. The Contractor shall obtain advance written approval of the Railroad Engineer and the Engineer for use of explosive on or adjacent to Railroad property. The request for permission to use explosives shall include a detailed blasting plan. If permission for use of explosives is granted, the Contractor will be required to comply with the following:
 - a) No blasting shall be done without the presence of an authorized representative of the Railroad. **At least 10 days advance notice** to the person designated in the Railroad's notice of authorization to proceed (see Section II.B above) will be required to arrange for the presence of an authorized Railroad representative and such flagging as the Railroad may require.

2. The Railroad representative will:
 - a) Determine the approximate location of trains and advise the Contractor the approximate amount of time available for the blasting operation and clean-up.
 - b) Have the authority to order discontinuance of blasting if, in his opinion, blasting is too hazardous or is not in accord with these Special Notes.

F. Maintenance of Railroad Facilities:

1. The Contractor will be required to maintain all ditches and drainage structures free of silt or other obstructions which may result from his operations and provide and maintain any erosion control measures as required. The Contractor shall provide erosion control measures during construction and use methods that accord with applicable state standard specifications for road and bridge construction, including either (1) silt fence; (2) berm or temporary ditches; (3) sediment basin; (4) aggregate checks; and (5) channel lining. The Contractor will promptly repair eroded areas with Railroad rights of way and to repair any other damage to the property of the Railroad or its tenants at the Contractor's expense.
2. All maintenance and repair of damages due to the Contractor's operations shall be done at the Contractor's expense.

G. Storage of Materials and Equipment:

1. Materials and equipment shall not be stored where they will interfere with Railroad operations, nor on the rights of way of the Railroad Company without first having obtained permission from the Railroad Engineer, and such permission will be with the understanding that the Railroad Company will not be liable for damage to such material and equipment from any cause and that the Railroad Engineer may move or require the Contractor to move, at the Contractor's expense, such material and equipment.
2. All grading or construction machinery that is left parked near the track unattended by a watchman shall be effectively immobilized so that it cannot be moved by unauthorized persons. The Contractor shall protect, defend, indemnify and save Railroad, and any associated, controlled or affiliated corporation, harmless from and against all losses, costs, expenses, claim or liability for loss or damage to property or the loss of life or personal injury, arising out of or incident to the Contractor's failure to immobilize grading or construction machinery.

H. Cleanup:

1. Upon completion of the work, the Contractor shall remove from within the limits of the Railroad rights of way, all machinery, equipment, surplus materials, falsework, rubbish or temporary buildings of the Contractor, and leave said rights of way in a neat condition satisfactory to the Railroad Engineer or his authorized representative.

VI. DAMAGES:

- A. The Contractor shall assume all liability for any and all damages to his/her work, employees, equipment and materials caused by Railroad traffic.*
- B. Any cost incurred by the Railroad for repairing damages to its property or to property of its tenants, caused by or resulting from the operations of the Contractor, shall be paid directly to the Railroad by the Contractor.*

VII. FLAGGING SERVICES:

A. When Required:

1. Flagging services will not be provided until the contractor's insurance has been reviewed & approved by the Railroad.
2. Under the terms of the agreement between the Department and the Railroad, the **Railroad has sole authority to determine the need for flagging** required to protect its operations. In general, the requirements of such services will be whenever the Contractor's personnel or equipment are likely to be, working on the Railroad's rights of way, or across, over, adjacent to, or under a track, or when such work has disturbed or is likely to disturb a railroad structure or the railroad roadbed or surface and alignment of any track to such extent that the movement of trains must be controlled by flagging. If any element (workers, equipment, tools, scaffolding, etc.) may exist or fall within 50 -feet of the edge of track, a flagman is necessary.
3. Normally, the Railroad will assign one flagman to a project; but in some cases, more than one may be necessary, such as yard limits where three-(3) flagmen may be required. However, if the Contractor works within distances that violate instructions given by the Railroad's authorized representative or performs work that has not been scheduled with the Railroad's authorized representative, a flagman or flagmen may be required until the project has been completed.

B. Scheduling and Notification:

1. Not later than the time that approval is initially requested to begin work on Railroad rights of way, Contractor shall furnish to the Railroad and the Department a schedule for all work required to complete the portion of the project within Railroad rights of way and arrange for a job site meeting between the Contractor, the Department, and the Railroad's authorized representative. Flagman or Flagmen may not be provided until the job site meeting has been conducted and the Contractor's work scheduled.
2. The Contractor will be required to give the Railroad representative **at least 10 working days of advance written notice** of intent to begin work within Railroad rights of way. If it is necessary for the Railroad to advertise a flagging job for bid, it **may take up to 30-days to obtain service**. Once begun, when work is suspended at any time for any reason, the Contractor will be required to give the Railroad representative **at least 72 hours in advance** before resuming work on Railroad rights of way. Such notice shall include sufficient details of the proposed work to enable the Railroad representative to determine if flagging will be required. If such notice is in writing, the Contractor shall furnish the Engineer a copy; if notice is given verbally it shall be confirmed in writing with copy to the Engineer. If flagging is required, no work shall be undertaken until the flagman, or flagmen is present at the job site. It **may take up to 30 days to obtain flagging initially** from the Railroad. When flagging begins the flagman is usually assigned by the Railroad to work at the project site on a continual basis until no longer needed and may be unable to be called for on a spot basis. If flagging becomes unnecessary and is suspended, it **may take up to 30 days to again obtain flagging services** from the Railroad. Due to labor agreements, it is necessary to give **5 working days notice before flagging service may be discontinued** and responsibility for payment stopped.
3. If, after the flagman is assigned to the project site, emergencies arise which require the flagman's presence elsewhere, and then the Contractor shall delay work on Railroad rights of way until such time as the flagman is again available. Any additional costs resulting from such delay shall be borne by the Contractor and not the Department or Railroad.
4. When demobilizing, the Contractor shall contact the flagman to avoid unnecessary flagging charges. This communication shall be documented.

C. *Payment:*

1. **The Cabinet will be responsible for paying the Railroad directly for any and all costs of flagging,** which may be required to accomplish the construction. **The Contractor shall adhere to the Special Note for Railroad Flagging, if applicable, and may be charged for flagging in excess of the allowable days, per said Special Note.**
2. The estimated cost of flagging is listed on the Summary Sheet. The charge to the Cabinet by the Railroad will be the actual cost based on the rate of pay for the Railroad's employees who are available for flagging service at the time the service is required.
3. Work by a flagman (M/W) in excess of 8 hours per day or 40 hours per week or on rest days, but not more than 16 hours a day will result in overtime pay at 1 ½ times the appropriate rate. Work by a flagman (M/W) in excess of 16 hours per day will result in overtime pay at 2 times the appropriate rate. Flagman (M/W) working in excess of 16 hours must receive a minimum of 5 hours of rest between shifts or their next shift of work is paid at the overtime rate of 2 times the appropriate rate. If work is performed on a holiday, the flagging rate is 2 ½ times the normal rate.

Work by a flagman (T&E) in excess of 8 hours per day or 40 hours per week, but not more than 12 hours a day will result in overtime pay at 1 ½ times the appropriate rate. After a 12 hour work day the flagman (T&E) must be provided with 12 hours of rest. Flagman (T&E) who work six days consecutive days must receive two days off.

Flagman's work day begins and ends at his reporting location.
4. Railroad work involved in preparing and handling bills will also be charged to the Contractor. Charges to the Department by the Railroad shall be in accordance with applicable provisions of Subchapter B, Part 140, Subpart I and Subchapter G, Part 646, Subpart B of the Federal-Aid Policy Guide issued by the Federal Highway Administration on December 9, 1991, including all current amendments. Flagging costs are subject to change. The above estimates of flagging cost are provided for information only and are not binding in any way.

D. Verification:

1. The Contractor and Project Engineer will review and sign the Railroad flagman's time sheet, attesting that the flagman was present during the time recorded. Flagman may be removed by Railroad if form is not signed. If flagman is removed, the Contractor will not be allowed to re-enter the Railroad rights of way until the issue is resolved. Any complaints concerning flagman or flagmen must be resolved in a timely manner. If need for flagman or flagmen is questioned, please contact the Railroad's Representative listed on the Project Summary Sheet. All verbal complaints must be confirmed in writing by the Contractor within 5 working days with copy to the Highway Engineer. All written correspondence should be addressed to the Railroad's Representative listed on the Project Summary Sheet.
2. The Railroad flagman assigned to the project will be responsible for notifying the Project Engineer upon arrival at the job site on the first day (or as soon thereafter as possible) that flagging services begin and on the last day that he performs such services for each separate period that services are provided. The Project Engineer will document such notification in the project records. When requested, the Project Engineer will also sign the flagman's diary showing daily time spent and activity at the project site.

VIII. HAUL ACROSS RAILROAD:

- A. Where the plans show or imply that materials of any nature must be hauled across a Railroad, unless the plans clearly show that the State has included arrangements for such haul in its agreement with the Railroad, the Contractor will be required to make all necessary arrangements with the Railroad regarding means of transporting such materials across the Railroad. The Contractor will be required to bear all costs incidental, including flagging, to such crossings whether services are performed by his own forces or by Railroad personnel.*
- B. No crossing may be established for use of the Contractor for transporting materials or equipment across the tracks of the Railroad Company unless a license agreement or right of entry is granted and executed for its installation, maintenance, necessary watching and flagging thereof and removal, all at the expense of the Contractor. **The approval process for an agreement normally takes 90-days.***

IX. WORK FOR THE BENEFIT OF THE CONTRACTOR:

- A. All temporary or permanent changes in wire lines on the Railroad or other facilities which are considered necessary to the project are shown on the plans; included in the force account agreement between the State and the Railroad or will be covered by appropriate revisions to same which will be initiated and approved by the State and/or the Railroad.*
- B. Should the Contractor desire any changes in addition to the above, then he shall make separate arrangements with the Railroad for same to be accomplished at the Contractor's expense.*

X. COOPERATION AND DELAYS:

- A. It shall be the Contractor's responsibility to arrange a schedule with the Railroad for accomplishing stage construction involving work by the Railroad or tenants of the Railroad. In arranging his schedule he shall ascertain, from the Railroad, the lead time required for assembling crews and materials and shall make due allowance therefore.*
- B. Train schedules cannot be provided to the Contractor. It is the Contractor's responsibility to contact the Railroad in order to arrange "Track Time." This "Track Time" will be an agreed upon prearranged time period (duration) that the Railroad will, without undue burden, schedule no train traffic to facilitate the Contractor's work on or near Railroad right-of-way. This track time must be arranged during the submission review process.*
- C. No charge or claims of the Contractor against either the Department or the Railroad will be allowed for hindrance or delay on account of railroad traffic; any work done by the Railroad or other delay incident to or necessary for safe maintenance of Railroad traffic or for any delays due to compliance with these Special Notes.*
- D. The Contractor shall cooperate with others participating in the construction of the Project to the end that all work may be carried on to the best advantage.*
- E. The Railroad does not assume any responsibility for work performed by others in connection with the Project. No claims of the Contractor against the Railroad for any inconvenience, delay, or additional cost incurred by the Contractor on account of operations by others shall be filed.*

XI. TRAINMAN'S WALKWAYS:

- A. *Along the outer side of each exterior track of multiple operated track, and on each side of single operated track, an unobstructed continuous space suitable for trainman's use in walking along trains, extending to a line not less than ~~12-40~~ feet from centerline of track, shall be maintained. Any temporary impediments to walkways and track drainage encroachments or obstructions allowed during work hours while Railroad's protective service is provided shall be removed before the close of each day. If there is any excavation near the walkway, a handrail, with 12'-0" minimum clearance from centerline of track, shall be placed.*

XII. GUIDELINES FOR PERSONNEL ON RAILROAD RIGHTS OF WAY:

- A. *All persons shall wear hard hats and reflective vest. Appropriate eye and hearing protection must be used. Working in shorts is prohibited. Shirts must cover shoulders, back and abdomen. Working in tennis or jogging shoes, sandals, boots with high heels, cowboy and other slip on type boots is prohibited. High top (6-inch or more) safety-toe shoes with laces, oil-resistant soles, and a distinct separation between heel and sole are required.*
- B. *No one is allowed within 25' of the centerline of the track without specific authorization from the flagman.*
- C. *All persons working near track when train is passing are to look out for dragging bands, chains and protruding or shifting cargo.*
- D. *No one is allowed to cross tracks without specific authorization from the flagman.*
- E. *All work within 25' of track must stop when train is passing.*
- F. *No steel tape or chain will be allowed to cross or touch rails without permission.*

XIII. GUIDELINES FOR EQUIPMENT ON RAILROAD RIGHTS OF WAY:

- A. *No crane or boom equipment will be allowed to set up to work or park within boom distance plus 15' of centerline of track without specific permission from Railroad Engineer.*
- B. *No crane or boom equipment will be allowed to foul track or lift a load over the track without flag protection and track time.*
- C. *All employees will stay with their machines when crane or boom equipment is pointed toward track.*
- D. *All cranes and boom equipment under load will stop work while a train is passing (including pile driving).*

- E. Swinging loads must be secured to prevent movement while train is passing.*
- F. No loads will be suspended above a moving train.*
- G. No equipment will be allowed within **50' of centerline of track** without specific authorization of the flagman.*
- H. Trucks, tractors or any equipment will not touch ballast line without specific permission from railroad official and flagman.*
- I. No equipment or load movement **within 50' or above a standing train or other equipment** without specific authorization of the flagman.*
- J. All operating equipment within **50' of track must halt operations when a train is passing**. All other operating equipment may be halted by the flagman if the flagman views the operation to be dangerous to the passing train.*
- K. All equipment, loads and cables are prohibited from touching rails.*
- L. While clearing and grubbing, no vegetation will be removed from railroad embankment with heavy equipment without specific permission from the Railroad Engineer and flagman.*
- M. No equipment or materials will be parked or stored on Railroad's property unless specific permission is granted from the Railroad Engineer.*
- N. All unattended equipment that is left parked on Railroad property shall be effectively immobilized so that it cannot be moved by unauthorized persons.*
- O. All cranes and boom equipment will be turned away from track after each work day or whenever unattended by an operator.*

XIV. INSURANCE:

- A. In addition to any other forms of insurance or bonds required under the terms of the contract and specifications, the Contractor will be required to carry insurance of the following kinds:*
 - 1. Commercial General Liability coverage at their sole cost and expense with limits of not less than **\$5,000,000** in combined single limits for bodily injury and/or property damage per occurrence, and such policies shall name the Railroad as an additional insured.*
 - 2. Statutory Worker's Compensation and Employers Liability Insurance with limits of not less than **\$1,000,000**, which insurance must contain a waiver of subrogation against the Railroad and its affiliates.*

3. Commercial automobile liability insurance with limits of not less than **\$1,000,000** combined single limit for bodily injury and/or property damage per occurrence, and such policies shall name the Railroad as an additional insured.
4. Railroad Protective Liability (RPL) insurance with limits of not less than **\$5,000,000** combined single limit for bodily injury and/or property damage per occurrence and an aggregate annual limit of **\$10,000,000**, which insurance shall satisfy the following additional requirements:
 - a. The Railroad Protective Insurance Policy must be on the ISO/RIMA Form of Railroad Protective Insurance – Insurance Services Office (ISO) Form CG 00 35.
 - b. The Railroad must be the named insured on the Railroad Protective Insurance Policy
 - c. Name and Address of the Contractor must be shown on the Declarations page.
 - d. Description of operations must appear on the Declarations page and must match the Project description, including project or contract identification numbers.
 - e. Terrorism Risk Insurance Act (TRIA) coverage must be included.
 - f. Authorized endorsements must include:
 - (i). Pollution Exclusion Amendment – CG 28 31, unless using form CG 00 35 version 96 and later.
 - g. Authorized endorsements may include:
 - (i). Broad form Nuclear Exclusion – IL 00 21
 - (ii). 30-day Advance Notices of Non-renewal or cancellation
 - (iii). Required State Cancellation Endorsement
 - (iv). Quick Reference or Index – CL/IL 240
 - h. Authorized endorsements may not include:
 - (i). A Pollution Exclusion Endorsement except CG 28 31
 - (ii). An Endorsement that excludes TRIA coverage
 - (iii). An Endorsement that limits or excludes Professional Liability coverage
 - (iv). A Non-Cumulation of Liability or Pyramiding of Limits Endorsement

- (v). A Known Injury Endorsement
- (vi). A Sole Agent Endorsement
- (vii). A Punitive or Exemplary Damages Exclusion
- (viii). A 'Common Policy Conditions' Endorsement
- (ix). Policies that contain any type of deductible
- (x). Any endorsement that is not named in Section 4 (f) or (g) above that the Railroad deems unacceptable

- 5. All insurance companies must be A. M. Best rated A- and Class VII or better.
- 6. Such additional or different insurance as the Railroad may require.

B. Additional Terms:

- 1. Contractor must submit the original Railroad Protective Liability policy, Certificates of Insurance, and all notices and correspondence regarding the insurance policy to the contact listed on the Project Summary Sheet.
- 2. The Contractor may not begin work on the Project until it has received the Railroad's written approval or the required insurance.

C. Insurance policies shall follow the requirements of Subchapter G, Part 646, Subpart A of the Federal-Aid Policy Guide issued by the Federal Highway Administration on December 9, 1991, including all current amendments.

D. If any part of the work is sublet, similar insurance and evidence thereof in the same amounts as required of the Prime Contractor shall be provided by or in behalf of the subcontractor to cover his operations. Endorsements to the Prime Contractor's policies specifically naming subcontractors and describing their operations will be acceptable for this purpose.

E. All insurance herein before specified shall be carried until all work required to be performed under the terms of the contract has been satisfactorily completed within the limits of the rights of way of the Railroad as evidenced by the formal acceptance by the Department. Insuring Companies may cancel insurance by permission of the Department and Railroad or on thirty (30) days written notice to the Department and Railroad Insurance Contacts as listed on the Project Summary Sheet.

XV. FAILURE TO COMPLY:

- A. These Special Notes are supplemental and amendatory to the current version of the Kentucky Department of Highways' Standard Specifications for Road and Bridge Construction and amendments thereof, and where in conflict therewith, these Special Notes shall govern.*
- B. In the event the Contractor violates or fails to comply with any of the requirements of these Special Notes:*
 - 1. The Railroad Engineer may require that the Contractor vacate Railroad property.
 - 2. The Engineer may withhold any and all monies due the Contractor on pay estimates.
 - 3. Any such orders shall remain in effect until the Contractor has remedied the situation to the satisfaction of the Railroad Engineer and the Engineer.

XVI. PAYMENT FOR COST OF COMPLIANCE:

- A. No separate payment will be made for any extra cost incurred on account of compliance with these Special Notes. All such cost shall be included in prices bid for other items of the work as specified in the payment items.*



Kentucky Transportation Cabinet
Division of Right of Way & Utilities

SUMMARY FOR KYTC PROJECTS THAT INVOLVE A RAILROAD

Date: 6/25/2021 (enter using M/d/yyyy format)

This project actively involves the below listed railroad company. This Project Summary provides an abbreviated listing of project specific railroad data. The detailed needs of the specified railroad company are included in the Special Notes for Protection of Railroad Interest in the proposal package. By submitting a bid, the contractor attests that they have dutifully considered and accepted the provisions as defined in both documents.

GENERAL ROAD PROJECT INFORMATION (This section must be provided by KYTC)

County: Hopkins
Federal Number: N/A
State Number: FD04 054 73344 01U
Route: US 41A
Project Description: Widen US 41A to 5 Lanes
Item Number: 02-137.10 Highway Milepost: 000-004

GENERAL RAIL INFORMATION (The below sections must be provided by Railroad Company)

Rail Company Name: CSX Transportation, Inc.
AAR-DOT# (if applicable): 345 483N Railroad Milepost: OMB 277.91
Freight: Train Count (6am to 6pm): 2 Train Count (6pm to 6am): 2 Train Count (24 hr total): 4 Max Speed: 20 mph
Passenger: Train Cnt. (6am to 6pm): N/A Train Cnt. (6pm to 6am): N/A Train Cnt. (24 hr total): N/A Max Speed: N/A mph
(This information is necessary to acquire the necessary insurances when working with Railroad Right of Way)

INSURANCE REQUIREMENTS

The named insured, description of the work and designation of the job site to be shown on the Policy are as follows:

- (a) Named Insured: CSX Transportation, Inc.
- (b) The project description should be as indicated in the General Road Project Information section.
- (c) The designation of the jobsite is the route, Milepost, and AAR-DOT# listed above.

FLAGGING INFORMATION

Flagging Estimate:

KYTC will be responsible for paying all flagging costs. Contractor shall adhere to the Special Note for Railroad Flagging if applicable.

Hourly Rate:

\$1445.38 per day based on a 12 hour day effective as of the date of this document.

Work by a flagman in excess of 8 hours per day or 40 hours per week, but not more than 12 hours a day will result in overtime pay at 1 ½ times the appropriate rate. Work by a flagman in excess of 12 hours per day will result in overtime pay at 2 times the appropriate rate. If work is performed on a holiday, the flagging rate is 2 ½ times the normal rate.

Forecasted Rate Increases:

Rates will increase to \$0.00 per hour based on a 0 hour day effective _____ (enter using M/d/yyyy format).

RAILROAD CONTACTS

(to be provided by Railroad Company)

General Railroad Contact:

Troy Creasy
CSX Transportation, Inc.
Project Manager - Public Projects
4900 Old Osborne Tpk., Suite 200
Richmond, VA 23231
(Phone) 804-226-7718
(Email) Troy_Creasy@csx.com

Regional Representative (Roadmaster):

Wayne Roberts
CSX Transportation, Inc.
Track Supervisor
775 N Kentucky Ave.
Madisonville, KY 42431
(Phone) 317-417-1902
(Email) wayne_roberts@csx.com

Insurance contact:

CSX Corporation
Insurance Department

(Phone) _____
(Email) insurancedocuments@csx.com

Railroad Designer Contact:

Contractor or In-House Employee? Consultant

Larry Shaw, PE
Sr. Project Manager
Benesch
201 N. Illinois St., 16th Floor South Tower
Indianapolis, IN 46204
(Phone) 317-610-3241
(Email) LShaw@benesch.com

Railroad Construction Contact:

Contractor or In-House Employee? Consultant

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The project specific information provided herein is valid as of the date indicated. However, the specific information may be subject to change due to the normal business operations of all parties. The terms and conditions defined here, and in the bid proposal in its entirety, are inclusive and constant.

APPENDIX

CSX TRANSPORTATION

CONSTRUCTION SUBMISSION CRITERIA

INTRODUCTION

- SECTION I: Definitions
- SECTION II: Construction Submissions
- SECTION III: Hoisting Operations
- SECTION IV: Demolition Procedure
- SECTION V: Erection Procedure
- SECTION VI: Temporary Excavation and Shoring
- SECTION VII: Track Monitoring

INTRODUCTION

The intent of this document is to guide outside agencies and their Contractors when performing work on, over, or with potential to impact CSX property (ROW). Work plans shall be submitted for review to the designated CSX Engineering Representative for all work which presents the potential to affect CSX property or operations; this document shall serve as a guide in preparing these work plans. All work shall be performed in a manner that does not adversely impact CSX operations or safety; as such, the requirements of this document shall be strictly adhered to, in addition to all other applicable standards associated with the construction. Applicable standards include, but are not limited to, CSX Standards and Special Provisions, CSX Insurance Requirements, CSX Pipeline Occupancy Criteria, as well as the governing local, county, state and federal requirements. It shall be noted that this document and all other CSX standards are subject to change without notice, and future revisions will be made available at the CSX website: www.csx.com.

I. DEFINITIONS

- 1. Agency – The project sponsor (i.e., State DOT, Local Agencies, Private Developer, etc.)
- 2. AREMA – American Railway Engineering and Maintenance-of-Way Association – the North American railroad industry standards group. The use of this term shall be in specific reference to the AREMA Manual for Railway Engineering.
- 3. Construction Submission – The Agency or its representative shall submit six (6) sets of plans, supporting calculations, and detailed means and methods procedures for the specific proposed activity. All plans, specifications, and supporting calculations shall be signed/sealed by a Professional Engineer as defined below.
- 4. Controlled Demolition – Removal of an existing structure or subcomponents in a manner that positively prevents any debris or material from falling, impacting, or otherwise affecting CSX employees, equipment or property. Provisions shall be made to ensure that there is no impairment of railroad operations or CSX’s ability to access its property at all times.
- 5. Contractor – The Agency’s representative retained to perform the project work.
- 6. Engineer – CSX Engineering Representative or a GEC authorized to act on the behalf of CSX.
- 7. Flagman – A qualified CSX employee with the sole responsibility to direct or restrict movement of trains, at or through a specific location, to provide protection for workers.
- 8. GEC – General Engineering Consultant who has been authorized to act on the behalf of CSX.
- 9. Horizontal Clearance – Distance measured perpendicularly from centerline of any track to the nearest obstruction at any elevation between TOR and the maximum vertical clearance of the track.
- 10. Professional Engineer – An engineer who is licensed in State or Commonwealth in which the project is to occur. All plans, specifications, and supporting calculations shall be prepared by the Licensed Professional Engineer and shall bear his/her seal and signature.
- 11. Potential to Foul – Work having the possibility of impacting CSX property or operations; defined as one or more of the following:
 - a. Any activity where access onto CSX property is required.

b. Any activity where work is being performed on CSX ROW.

c. Any excavation work adjacent to CSX tracks or facilities, within the Theoretical Railroad Live Load Influence Zone, or where the active earth pressure zone extends within the CSX property limits.

d. The use of any equipment where, if tipped and laid flat in any direction (360 degrees) about its center pin, can encroach within twenty five feet (25'-0") of the nearest track centerline. This is based upon the proposed location of the equipment during use, and may be a function of the equipment boom length. Note that hoisting equipment with the potential to foul must satisfy the 150% factor of safety requirement for lifting capacities.

e. Any work where the scatter of debris, or other materials has the potential to encroach within twenty five feet (25'-0") of the nearest track centerline.

f. Any work where significant vibration forces may be induced upon the track structure or existing structures located under, over, or adjacent to the track structure.

g. Any other work which poses the potential to disrupt rail operations, threaten the safety of railroad employees, or otherwise negatively impact railroad property, as determined by CSX.

12. ROW – Right of Way; Refers to CSX Right-of-Way as well as all CSX property and facilities. This includes all aerial space within the property limits, and any underground facilities.

13. Submission Review Period - a minimum of thirty (30) days in advance of start of work. Up to thirty (30) days will be required for the initial review response. Up to an additional thirty (30) days may be required to review any/all subsequent submissions or resubmission.

14. Theoretical Railroad Live Load Influence Zone – A 1 horizontal to 1 vertical theoretical slope line starting at bottom corner of tie.

15. TOR – Top of Rail. This is the base point for clearance measurements. It refers to the crown (top) of the steel rail; the point where train wheels bear on the steel rails.

16. Track Structure – All load bearing elements which support the train. This includes, but is not limited to, the rail, ties, appurtenances, ballast, sub-ballast, embankment, retaining walls, and bridge structures.

17. Vertical Clearance – Distance measured from TOR to the lowest obstruction within six feet (6'-0") of the track centerline, in either direction.

II. GENERAL SUBMISSION REQUIREMENTS

A. A construction work plan is required to be submitted by the Agency or its Contractor, for review and acceptance, prior to accessing or performing any work with Potential to Foul.

B. The Agency or its representative shall submit six (6) sets of plans, specifications, supporting calculations, and detailed means and methods procedures for the specific proposed work activity.

C. Construction submissions shall include all information relevant to the work activity, and shall clearly and concisely explain the nature of the work, how it is being performed, and what measures are being taken to ensure that railroad property and operations are continuously maintained.

D. All construction plans shall include a map of the work site, depicting the CSX tracks, the CSX right of way, proposed means of access, proposed locations for equipment and material staging (dimensioned from nearest track centerline), as well as all other relevant project information. An elevation drawing may also be necessary in order to depict clearances or other components of the work.

E. Please note that CSX will not provide pricing to individual contractors involved in bidding projects. Bidding contractors shall request information from the agency and not CSX.

F. The Contractor shall install a geotextile fabric ballast protection system to prevent construction or demolition debris and fines from fouling ballast. The geotextile ballast protection system shall be installed and maintained by the Contractor to the satisfaction of the Engineer.

G. The Engineer shall be kept aware of the construction schedule. The Contractor shall provide timely communication to the Engineer when scheduling the work such that the Engineer may be present during the work. The Contractor's schedule shall not dictate the work plan review schedule, and flagging shall not be scheduled prior to receipt of an accepted work plan.

H. At any time during construction activities, the Engineer may require revisions to the previously approved procedures to address weather, site conditions or other circumstances that may create a potential hazard to rail operations or CSX facilities. Such revisions may require immediate interruption or termination of ongoing activities until such time the issue is resolved to the Engineer's satisfaction. CSX and its GEC shall not be responsible for any additional costs or time claims associated with such revisions.

I. Blasting will not be permitted to demolish a structure over or within CSX's right-of-way. When blasting off of CSX property but with Potential to Foul, vibration monitoring, track settlement surveying, and/or other protective measures may be required as determined by the Engineer.

J. Blasting is not permitted adjacent to CSX right-of-way without written approval from the Chief Engineer, CSX.

K. Mechanical and chemical means of rock removal must be explored before blasting is considered. If written permission for the use of explosives is granted, the Agency or Contractor must submit a work plan satisfying the following requirements:

1. Blasting shall be done with light charges under the direct supervision of a responsible officer or employee of the Agency or Contractor.
2. Electronic detonating fuses shall not be used because of the possibility of premature explosions resulting from operation of two-way train radios.
3. No blasting shall be done without the presence of an authorized representative of CSX. Advance notice to the Engineer is required to arrange for the presence of an authorized CSX representative and any flagging that CSX may require.

4. Agency or Contractor must have at the project site adequate equipment, labor and materials, and allow sufficient time, to clean up debris resulting from the blasting and correct any misalignment of tracks or other damage to CSX property resulting from the blasting. Any corrective measures required must be performed as directed by the Engineer at the Agency's or Contractor's expense without any delay to trains. If Agency's or Contractor's actions result in the delay of any trains including passenger trains, the Agency or Contractor shall bear the entire cost thereof.

5. The Agency or Contractor may not store explosives on CSX property.

6. At any time during blasting activities, the Engineer may require revisions to the previously approved procedures to address weather, site conditions or other circumstances that may create a potential hazard to rail operations or CSX facilities. Such revisions may require immediate interruption or termination of ongoing activities until such time the issue is resolved to the Engineer's satisfaction. CSX and its GEC shall not be responsible for any additional costs or time claims associated with such revisions.

III. HOISTING OPERATIONS

A. All proposed hoisting operations with Potential to Foul shall be submitted in accordance with the following:

1. A plan view drawing shall depict the work site, the CSX track(s), the proposed location(s) of the lifting equipment, as well as the proposed locations for picking, any intermediate staging, and setting the load(s). All locations shall be dimensioned from centerline of the nearest track. Crane locations shall also be dimensioned from a stationary point at the work site for field confirmation.

2. Computations showing the anticipated weight of all picks. Computations shall be made based upon the field-verified plans of the existing structure. Pick weights shall account for the weight of concrete rubble or other materials attached to the component being removed; this includes the weight of subsequent rigging devices/components. Rigging components shall be sized for the subsequent pick weight.

3. All lifting equipment, rigging devices, and other load bearing elements shall have a rated (safe lifting) capacity that is greater than or equal to 150% of the load it is carrying, as a factor of safety. Supporting calculations shall be furnished to verify the minimum capacity requirement is maintained for the duration of the hoisting operation.

4. Dynamic hoisting operations are prohibited when carrying a load with the Potential to Foul. Cranes or other lifting equipment shall remain stationary during lifting. (i.e., no moving picks).

5. For lifting equipment, the manufacturer's capacity charts, including crane, counterweight, maximum boom angle, and boom nomenclature is to be submitted.

6. A schematic rigging diagram must be provided to clearly call out each rigging component from crane hook to the material being hoisted. Copies of catalog or information sheets shall be provided to verify rigging weights and capacities.

7. For built-up rigging devices, the contractor shall submit the following:

i. Details of the device, calling out material types, sizes, connections and other properties.

ii. Load test certification documents and/or design computations bearing the seal and signature of a Professional Engineer. Load test shall be performed in the configuration of its intended use as part of the subject demolition procedure.

iii. Copies of the latest inspection reports of the rigging device. The device shall be inspected within one (1) calendar year of the proposed date for use.

8. A detail shall be provided showing the crane outrigger setup, including dimensions from adjacent slopes or facilities. The detail shall indicate requirements for bearing surface preparation, including material requirements and compaction efforts. As a minimum, outriggers and/or tracks shall bear on mats, positioned on level material with adequate bearing capacity.

9. A complete written narrative that describes the sequence of events, indicating the order of lifts and any repositioning or re-hitching of the crane(s).

IV. DEMOLITION PROCEDURE

A. The Agency or its Contractor shall submit a detailed procedure for a controlled demolition of any structure on, over, or adjacent to the ROW. The controlled demolition procedure must be approved by the Engineer prior to beginning work on the project.

B. Existing Condition of structure being demolished:

1. The Contractor shall submit as-built plans for the structure(s) being demolished

2. If as-built plans are unavailable, the Contractor shall perform an investigation of the structure, including any foundations, substructures, etc. The field measurements are to be made under the supervision of the Professional Engineer submitting the demolition procedure. Findings shall be submitted as part of the demolition means and methods submittal for review by the Engineer.

3. Any proposed method for temporary stabilization of the structure during the demolition shall be based on the existing plans or investigative findings, and submitted as part of the demolition means and methods for review by the Engineer.

C. Demolition work plans shall include a schematic plan depicting the proposed locations of the following, at various stages of the demolition:

1. All cranes and equipment, calling out the operating radii.

2. All proposed access and staging locations with all dimensions referenced from the center line of the nearest track

3. Proposed locations for stockpiling material or locations for truck loading

4. The location, with relevant dimensions, of all tracks, other railroad facilities; wires, poles, adjacent structures, or buried utilities that could be affected, showing that the proposed lifts are clear of these obstructions.

5. Note that no crane or equipment may be set on the CSX rails or track structure and no material may be dropped on CSX property.

D. Demolition submittal shall also include the following information:

1. All hoisting details, as dictated by Section III of this document.
2. A time schedule for each of the various stages must be shown as well as a schedule for the entire lifting procedure. The proposed time frames for all critical subtasks (i.e., torch/saw cutting various portions of the superstructure or substructure, dismantling splices, installing temporary bracing, etc.) shall be furnished so that the potential impact(s) to CSX operations may be assessed and eliminated or minimized.
3. The names and experience of the key Contractor personnel involved in the operation shall be included in the Contractor's means and methods submission.
4. Design and supporting calculations shall be prepared, signed, and sealed by the Professional Engineer for items including the temporary support of components or intermediate stages shall be submitted for review. A guardrail will be required to be installed in a track in the proximity of temporary bents or shoring towers, when located within twelve feet (12'-0") from the centerline of the track. The guardrail will be installed by CSX forces, at the expense of the Agency or its contractor.

E. Girders or girder systems shall be stable at all times during demolition. Temporary bracing shall be provided at the piers, abutments, or other locations to resist overturning and/or buckling of the member(s). The agency shall submit a design and details of the proposed temporary bracing system, for review by the Engineer. Lateral wind forces for the temporary conditions shall be considered in accordance with AREMA, Chapter 8, Section 28.6.2. The minimum lateral wind pressure shall be fifteen pounds per square foot (15 psf).

F. Existing, obsolete, bridge piers shall be removed to a minimum of three feet (3'-0") below the finished grade, final ditch line invert, or as directed by the Engineer.

G. A minimum quantity of twenty five (25) tons of CSX approved granite track ballast may be required to be furnished and stockpiled on site by the Contractor, or as directed by the Engineer.

H. The use of acetylene gas is prohibited for use on or over CSX property. Torch cutting shall be performed utilizing other materials such as propane.

I. CSX's tracks, signals, structures, and other facilities shall be protected from damage during demolition of existing structure or replacement of deck slab.

J. Demolition Debris Shield

1. On-track or ground-level debris shields (such as crane mats) are prohibited for use by CSX.
2. Demolition Debris Shield shall be installed prior to the demolition of the bridge deck or other relevant portions of the structure. The demolition debris shield shall be erected from the underside of the bridge over the track area to catch all falling debris. The debris shield shall not be the primary means of debris containment.
 - i. The demolition debris shield design and supporting calculations, all signed/sealed by a Professional Engineer, shall be submitted for review and acceptance.
 - ii. The demolition debris shield shall have a minimum design load of 50 pounds per square foot (50 psf) plus the weight of the equipment, debris, personnel, and all other loads.

- iii. The Contractor shall verify the maximum particle size and quantity of the demolition debris generated during the procedure does not exceed the shield design loads. Shield design shall account for loads induced by particle impact; however the demolition procedure shall be such that impact forces are minimized. The debris shield shall not be the primary means of debris containment.
- iv. The Contractor shall include installation/removal means and methods for the demolition debris shield as part of the proposed Controlled Demolition procedure submission.
- v. The demolition debris shield shall provide twenty three feet (23'-0") minimum vertical clearance, or maintain the existing vertical clearance if the existing clearance is less than twenty three feet (23'-0").
- vi. Horizontal clearance to the centerline of the track should not be reduced unless approved by the Engineer.
- vii. The Contractor shall clean the demolition debris shield daily or more frequently as dictated either by the approved design parameters or as directed by the Engineer.

K. Vertical Demolition Debris Shield

- 1. This type of shield may be required for substructure removals in close proximity to CSX track and other facilities, as determined by the Engineer.
- 2. The Agency or its Contractor shall submit detailed plans with detailed calculations, prepared, signed, and sealed by a Professional Engineer, of the protection shield.

V. ERECTION PROCEDURE

- A. The Agency or its Contractor shall submit a detailed procedure for erection of a structure with Potential to Foul. The erection procedure must be approved by the Engineer prior to beginning work on the project.
- B. Erection work plans shall include a schematic plan depicting the following, at all stages of the construction:
 - 1. All proposed locations of all cranes and equipment, calling out the operating radii.
 - 2. All proposed access and staging locations with all dimensions referenced from the center line of the nearest track.
 - 3. All proposed locations for stockpiling material or locations for truck loading.
 - 4. The location, with relevant dimensions, of all tracks, other railroad facilities; wires, poles, adjacent structures, or buried utilities that could be affected, showing that the proposed lifts are clear of these obstructions.
- C. No crane or equipment may be set on the CSX rails or track structure and no material may be dropped on CSX property.
- D. For erection of a structure over the tracks, the following information shall be submitted for review and acceptance by the Engineer, at least thirty (30) days prior to erection:
 - 1. As-built beam seat elevations – field surveyed upon completion of pier/abutment construction.
 - 2. Current Top of Rail (TOR) elevations – field measured at the time of as-built elevation collection.
 - 3. Computations verifying the anticipated minimum vertical clearance in the final condition which accounts for all deflection and camber, based upon the current TOR and as-built beam seat elevations. The anticipated minimum

vertical clearance shall be greater than or equal to that which is indicated by the approved plans. Vertical clearance (see definitions) is measured from TOR to the lowest point on the overhead structure at any point within six feet (6'-0") from centerline of the track. Calculations shall be signed and sealed by a Professional Engineer.

E. Girders or girder systems shall be stable at all times during erection. No crane may unhook prior to stabilizing the beam or girder.

1. Lateral wind forces for the temporary conditions shall be considered in accordance with AREMA, Chapter 8, Section 28.6.2. The minimum lateral wind pressure shall be fifteen pounds per square foot (15 psf).
2. Temporary bracing shall be provided at the piers, abutments, or other locations to resist overturning and/or buckling of the member(s). The agency shall submit a design and details of the proposed temporary bracing system, for review by the Engineer.
3. Temporary bracing shall not be removed until sufficient lateral bracing or diaphragm members have been installed to establish a stable condition. Supporting calculations, furnished by the Professional Engineer, shall confirm the stable condition.

F. Erection procedure submissions shall also include the following information:

1. All hoisting details, as dictated by Section III of this document.
2. A time schedule for each of the various stages must be shown as well as a schedule for the entire lifting procedure. The proposed time frames for all critical subtasks (i.e., performing aerial splices, installing temporary bracing, installation of diaphragm members, etc.) shall be furnished so that the potential impact(s) to CSX operations may be assessed and eliminated or minimized.
3. The names and experience of the key Contractor personnel involved in the operation shall be included in the Contractor's means and methods submission.
4. A guardrail will be required to be installed in a track in the proximity of temporary bents or shoring towers, when located within twelve feet (12'-0") from the centerline of the track. The guardrail will be installed by CSX forces, at the expense of the Agency or its Contractor.
5. Design and supporting calculations prepared by the Professional Engineer for items including the temporary support of components or intermediate stages shall be submitted for review.

VI. TEMPORARY EXCAVATION AND SHORING

A. The Agency or its Contractor shall submit a detailed design and procedure for the installation of a sheeting/shoring system adjacent to the tracks. Shoring protection shall be provided when excavating with Potential to Foul, or as otherwise determined by CSX. Shoring shall be provided in accordance with the AREMA, except as noted below.

B. Shoring may not be required if all of the following conditions are satisfied:

1. The excavation does not encroach within the Theoretical Live Load Influence Zone. Please refer to Figure 1.
2. The track structure is situated on level ground, or in a cut section, and on stable soil.
3. The excavation does not adversely impact the stability of a CSX facility (i.e., signal bungalow, drainage facility, undergrade bridge, building, etc), or the stability of any structure on, over, or adjacent to CSX property with potential to foul.
4. Shoring is not required by any governing federal, state, local or other construction code.

C. Shoring is required when excavating the toe of an embankment. Excavation of any embankment which supports an active CSX track structure without shoring will not be permitted.

D. Trench boxes are not an acceptable means of shoring. Trench boxes are prohibited for use on CSX property or within the Theoretical Railroad Live Load Influence Zone.

E. Shoring shall be a cofferdam-type, which completely encloses the excavation. However, where justified by site or work conditions, partial cofferdams with open sides away from the track may be permissible, as determined by the Engineer.

F. Cofferdams shall be constructed using interlocking steel sheet piles, or when approved by the Engineer, steel soldier piles with timber lagging. Wales and struts shall be included when dictated by the design.

G. The use of tiebacks can be permissible for temporary shoring systems, when conditions warrant. Tiebacks shall have a minimum clear cover of 6'-0", measured from the bottom of the rail. Upon completion of the work, tiebacks shall be grouted, cut off, and remain in place.

H. All shoring systems on, or adjacent to CSX right-of-way, shall be equipped with railings or other fall protection, compliant with the governing federal, state or local requirements. Area around pits shall be graded to eliminate all potential tripping hazards.

I. Interlocking steel sheet piles shall be used for shoring systems qualifying one or more of the following conditions:

1. Within 18'-0" of the nearest track centerline
2. Within the live load influence zone
3. Within slopes supporting the track structure
4. As otherwise deemed necessary by the Engineer.

J. Sheet piles qualifying for one or more of the requirements listed in Section VI.I (above) of this document shall not be removed. Sheet piles shall be left in place and cut off a minimum of 3'-0" below the finished grade, the ditch line invert, or as otherwise directed by the Engineer. The ground shall be backfilled and compacted immediately after sheet pile is cut off.

K. The following design considerations shall be considered when preparing the shoring design package:

1. Shoring shall be designed to resist a vertical live load surcharge of 1,880 lbs. per square foot, in addition to active earth pressure. The surcharge shall be assumed to act on a continuous strip, eight feet six inches (8'-6") wide. Lateral pressures due to surcharge shall be computed using the strip load formula shown in AREMA Manual for Railway Engineering, Chapter 8, Part 20.
2. Allowable stresses in materials shall be in accordance with AREMA Chapter 7, 8, and 15.3.
3. A minimum horizontal clearance of ten feet (10'-0") from centerline of the track to face of nearest point of shoring shall be maintained, provided a twelve feet (12'-0") roadbed is maintained with a temporary walkway and handrail system.

4. For temporary shoring systems with Potential to Foul, piles shall be plumb under full dead load. Maximum deflection at the top of wall, under full live load, shall be as follows:

- i. One-half (1/2) inch for walls within twelve feet (12'-0") of track centerline (Measured from centerline of the nearest track to the nearest point of the supporting structure).
- ii. One (1) inch for walls located greater than twelve feet (12'-0") from track centerline

L. Shoring work plans shall be submitted in accordance with Section II of this document, as well as the following additional requirements:

- 1. The work plan shall include detailed drawings of the shoring systems calling out the sizes of all structural members, details of all connections. Both plan and elevation drawings shall be provided, calling out dimensions from the face of shoring relative to the nearest track centerline. The elevation drawing shall also show the height of shoring, and track elevation in relation to bottom of excavation.
- 2. Full design calculations for the shoring system shall be furnished.
- 3. A procedure for cutting off the sheet pile, backfilling and restoring the embankment.

VII. TRACK MONITORING

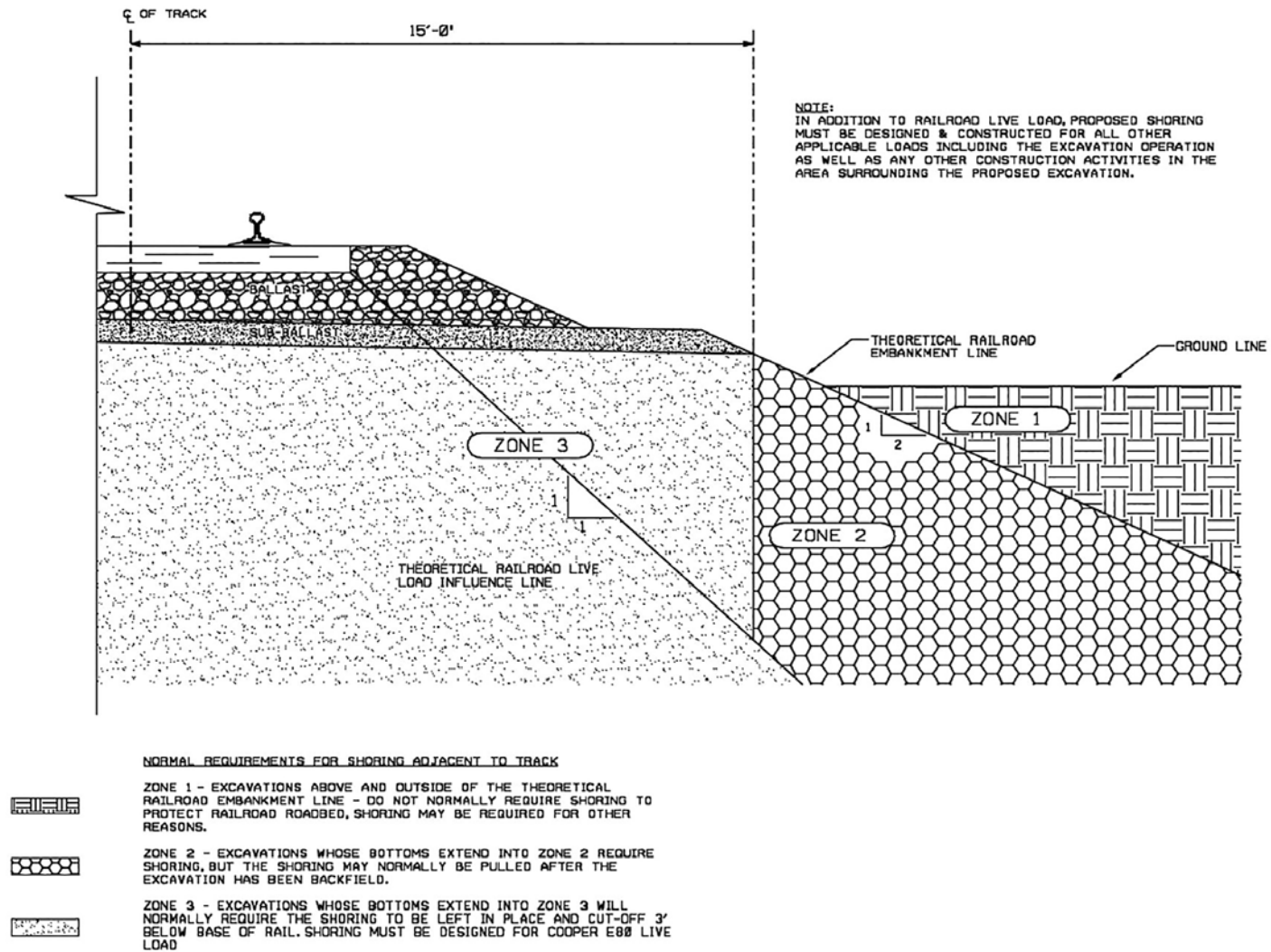
A. When work being performed has the potential to disrupt the track structure, a work plan must be submitted detailing a track monitoring program which will serve to monitor and detect both horizontal and vertical movement of the CSX track and roadbed.

B. The program shall specify the survey locations, the distance between the location points, and frequency of monitoring before, during, and after construction. CSX reserves to the right to modify the survey locations and monitoring frequency as necessary during the project.

C. The survey data shall be collected in accordance with the approved frequency and immediately furnished to the Engineer for analysis.

D. If any movement has occurred as determined by the Engineer, CSX will be immediately notified. CSX, at its sole discretion, shall have the right to immediately require all contractor operations to be ceased, have the excavated area immediately backfilled and/or determine what corrective action is required. Any corrective action required by CSX or performed by CSX including the monitoring of corrective action of the contractor will be at project expense.

FIGURE 1: Theoretical Live Load Influence Zone



Madisonville, Hopkins County, KY
KYTC Project No. FD04 054 73344 01U
CSXT Milepost: 0MB-277.91
CSXT OP No.: KY0350

EXHIBIT D

CONTRACTOR’S ACCEPTANCE

To and for the benefit of the *Company*, (“*Company*”) and to induce the *Company* to permit Contractor on or about *Company’s* property for the purposes of performing work in accordance with the Agreement dated _____, 20__, between the Commonwealth of Kentucky Transportation Cabinet, Department of Highways and the *Company*, Contractor hereby agrees to abide by and perform all applicable terms of the Agreement, including, particularly Exhibits B and C as included herein.

Contractor: _____
By: _____
Name: _____
Title: _____
Date: _____



SPECIAL NOTES FOR
PROTECTION OF RAILROAD INTEREST

City of Madisonville

I. AUTHORITY OF RAILROAD ENGINEER AND STATE ENGINEER:

- A. *The authorized representative of the Railroad Company, hereinafter referred to as Railroad Engineer, shall have final authority in all matters affecting the safe maintenance of Railroad operations and property.*
- B. *The authorized representative of the State, hereinafter referred to as the Engineer, shall have authority over all other matters as prescribed herein and in the Project Specifications.*

II. NOTICE OF STARTING WORK:

- A. *The Contractor shall not commence any work on Railroad rights of way until he has complied with the following conditions:*
 - 1. Given the Railroad written notice, with copy to the Engineer who has been designated to be in charge of the work, **at least ten (10) days in advance** of the date he proposes to begin work on Railroad rights of way. The notice must refer to Railroad Agreement with the State by the date of the Agreement. **If flagging service is required, such notice shall be submitted at least thirty (30) days in advance** of the date scheduled to commence work. The Railroad’s Contact information is on the Summary Sheet.
 - 2. Obtain written authorization from the Railroad to begin work on Railroad rights of way, such authorization to include an outline of specific conditions with which he must comply.
 - 3. Obtain written approval from the Railroad of Railroad Protective Insurance Liability coverage as required by paragraph 14 herein.
 - 4. Furnish a schedule for all work within the Railroad rights of way as required by paragraph 7, B, 1.
- B. *The Railroad's written authorization to proceed with the work shall include the names, addresses, and telephone numbers of the Railroad's representatives who are to be notified as hereinafter required. Where more than one representative is designated, the area of responsibility of each representative shall be specified.*

III. INTERFERENCE WITH RAILROAD OPERATIONS:

- A. *The Contractor shall so arrange and conduct his work that there will be no interference with Railroad operations, including train, signal, telephone and telegraphic services, or damage to the property of the Railroad Company or to poles, wires, and other facilities of tenants on the rights of way of the Railroad Company. The Contractor shall store materials so as to prevent trespassers from causing damage to trains or Railroad property and shall not use Railroad property without written permission from the Railroad. Whenever work is to affect the operations or safety of trains, the method of doing such work shall first be submitted to the Railroad Engineer for approval, but such approval shall not relieve the Contractor from liability. Any work to be performed by the Contractor which requires flagging service or inspection service (watchman) shall be deferred by the Contractor until the flagging protection required by the Railroad is available at the job site.*
- B. *Should conditions arising from, or in connection with the work, require that immediate and unusual provisions be made to protect train operations and property of the Railroad, the Contractor shall make such provisions. If in the judgment of the Railroad Engineer, or his representative, such provisions are insufficient, the Railroad Engineer may require or provide such provisions, as he deems necessary at Contractor's cost and expense. In any event, such unusual provisions shall be at the Contractor's expense and without cost and/or time to the Railroad or the State.*

IV. TRACK CLEARANCES

- A. *The minimum track clearances to be maintained by the Contractor during construction are shown on the Project Plans. However, before undertaking any work within Railroad rights of way, or before placing any obstruction over any track, the Contractor shall:*
1. Notify the Railroad's representative **at least 72 hours in advance** of the work.
 2. Receive assurance from the Railroad's representative that arrangements have been made for flagging service as necessary.
 3. Receive permission from the Railroad's representative to proceed with the work.
 4. Ascertain that the State Engineer has received copies of notice to the Railroad and of the Railroad's response thereto, and has approved the contractor's methods.

V. CONSTRUCTION PROCEDURES

A. General:

1. Construction work on Railroad property shall be:
 - a) Subject to the inspection and approval of the Railroad.
 - b) In accord with the Railroad's written outline of specific conditions.
 - c) In accord with the Railroad's general rules, regulations and requirements including those relating to safety, fall protection and personal protective equipment, which the Contractor shall obtain from the Railroad.
 - d) In accord with all Special Notes, Summaries, and Addendums.
2. The Railroad requires a submission of construction procedure that meets the requirements of these Special Notes and attachments. The Railroad's **submittal review period is thirty (30) days. Resubmissions will be reviewed within (30) days.**
3. All requirements of the *Construction Submission Criteria* shall be met. Requirements in addition to those in the *Construction Submission Criteria* are listed below in this document:

B. Excavation:

1. The sub grade of an operated track shall be **maintained with edge of berm at least 15'0" from centerline of track and not more than 24 inches below top of rail.** Contractor will not be required to make existing section meet this specification if substandard, in which case the existing section will be maintained.
2. Additionally, the Railroad Engineer may require installation of orange construction fencing for protection of the work area located on Railroad right of way.

C. Excavation of Structures:

1. The Contractor will be required to take special precaution and care in connection with excavating and shoring pits, and in driving piles, or sheeting for footings adjacent to tracks to provide adequate lateral support for the tracks and the loads which they carry, without disturbance of track alignment and surface, and to avoid obstructing track clearances with working equipment, tools or other material. The procedure for doing such work, including need of and plans for shoring, shall first be submitted, with the stamp of an Engineer in the State of Kentucky, and approved by

the Engineer and the Railroad Engineer, but such approval shall not relieve the Contractor from liability.

2. Additionally, a walkway with handrail protection may be required as noted in Section XI herein.

D. Demolition, Erection, Hoisting

1. Railroad tracks and other railroad property must be protected from damage during the procedure. No crane or equipment may be set on the rails or track structure and no material may be dropped on Railroad property.
2. Loads shall not be supported while any trains are passing if that piece of equipment has the capacity to **foul a 50' envelope.**
3. The Railroad may require the Contractor to install filter fabric over the track and ballast to prevent any concrete dust or other construction debris from fouling the ballast. This will be determined during actual construction activities by the Railroad or its representatives. Fabric should extend at least 25 feet beyond the outside edges of the bridge. Fabric will remain in place until all construction activities are complete.
4. Temporary construction clearance: Ensure all falsework, bracing, or forms have a minimum vertical clearance of 23 feet above the top of the highest rail and a minimum horizontal clearance of 12 feet measured perpendicular to the centerline of the nearest track.

E. Blasting:

1. The Contractor shall obtain advance written approval of the Railroad Engineer and the Engineer for use of explosive on or adjacent to Railroad property. The request for permission to use explosives shall include a detailed blasting plan. If permission for use of explosives is granted, the Contractor will be required to comply with the following:
 - a) No blasting shall be done without the presence of an authorized representative of the Railroad. **At least 10 days advance notice** to the person designated in the Railroad's notice of authorization to proceed (see Section II.B above) will be required to arrange for the presence of an authorized Railroad representative and such flagging as the Railroad may require.

2. The Railroad representative will:
 - a) Determine the approximate location of trains and advise the Contractor the approximate amount of time available for the blasting operation and clean-up.
 - b) Have the authority to order discontinuance of blasting if, in his opinion, blasting is too hazardous or is not in accord with these Special Notes.

F. Maintenance of Railroad Facilities:

1. The Contractor will be required to maintain all ditches and drainage structures free of silt or other obstructions which may result from his operations and provide and maintain any erosion control measures as required. The Contractor shall provide erosion control measures during construction and use methods that accord with applicable state standard specifications for road and bridge construction, including either (1) silt fence; (2) berm or temporary ditches; (3) sediment basin; (4) aggregate checks; and (5) channel lining. The Contractor will promptly repair eroded areas with Railroad rights of way and to repair any other damage to the property of the Railroad or its tenants at the Contractor's expense.
2. All maintenance and repair of damages due to the Contractor's operations shall be done at the Contractor's expense.

G. Storage of Materials and Equipment:

1. Materials and equipment shall not be stored where they will interfere with Railroad operations, nor on the rights of way of the Railroad Company without first having obtained permission from the Railroad Engineer, and such permission will be with the understanding that the Railroad Company will not be liable for damage to such material and equipment from any cause and that the Railroad Engineer may move or require the Contractor to move, at the Contractor's expense, such material and equipment.
2. All grading or construction machinery that is left parked near the track unattended by a watchman shall be effectively immobilized so that it cannot be moved by unauthorized persons. The Contractor shall protect, defend, indemnify and save Railroad, and any associated, controlled or affiliated corporation, harmless from and against all losses, costs, expenses, claim or liability for loss or damage to property or the loss of life or personal injury, arising out of or incident to the Contractor's failure to immobilize grading or construction machinery.

H. *Cleanup:*

1. Upon completion of the work, the Contractor shall remove from within the limits of the Railroad rights of way, all machinery, equipment, surplus materials, falsework, rubbish or temporary buildings of the Contractor, and leave said rights of way in a neat condition satisfactory to the Railroad Engineer or his authorized representative.

VI. **DAMAGES:**

- A. *The Contractor shall assume all liability for any and all damages to his/her work, employees, equipment and materials caused by Railroad traffic.*
- B. *Any cost incurred by the Railroad for repairing damages to its property or to property of its tenants, caused by or resulting from the operations of the Contractor, shall be paid directly to the Railroad by the Contractor.*

VII. **FLAGGING SERVICES:**

- A. *When Required:*
1. Flagging services will not be provided until the contractor's insurance has been reviewed & approved by the Railroad.
 2. Under the terms of the agreement between the Department and the Railroad, the **Railroad has sole authority to determine the need for flagging** required to protect its operations. In general, the requirements of such services will be whenever the Contractor's personnel or equipment are likely to be, working on the Railroad's rights of way, or across, over, adjacent to, or under a track, or when such work has disturbed or is likely to disturb a railroad structure or the railroad roadbed or surface and alignment of any track to such extent that the movement of trains must be controlled by flagging. If any element (workers, equipment, tools, scaffolding, etc.) may exist or fall within 50 -feet of the edge of track, a flagman is necessary.
 3. Normally, the Railroad will assign one flagman to a project; but in some cases, more than one may be necessary, such as yard limits where three-(3) flagmen may be required. However, if the Contractor works within distances that violate instructions given by the Railroad's authorized representative or performs work that has not been scheduled with the Railroad's authorized representative, a flagman or flagmen may be required until the project has been completed.

B. Scheduling and Notification:

1. Not later than the time that approval is initially requested to begin work on Railroad rights of way, Contractor shall furnish to the Railroad and the Department a schedule for all work required to complete the portion of the project within Railroad rights of way and arrange for a job site meeting between the Contractor, the Department, and the Railroad's authorized representative. Flagman or Flagmen may not be provided until the job site meeting has been conducted and the Contractor's work scheduled.
2. The Contractor will be required to give the Railroad representative **at least 10 working days of advance written notice** of intent to begin work within Railroad rights of way. If it is necessary for the Railroad to advertise a flagging job for bid, it **may take up to 30-days to obtain service**. Once begun, when work is suspended at any time for any reason, the Contractor will be required to give the Railroad representative **at least 72 hours in advance** before resuming work on Railroad rights of way. Such notice shall include sufficient details of the proposed work to enable the Railroad representative to determine if flagging will be required. If such notice is in writing, the Contractor shall furnish the Engineer a copy; if notice is given verbally it shall be confirmed in writing with copy to the Engineer. If flagging is required, no work shall be undertaken until the flagman, or flagmen is present at the job site. It **may take up to 30 days to obtain flagging initially** from the Railroad. When flagging begins the flagman is usually assigned by the Railroad to work at the project site on a continual basis until no longer needed and may be unable to be called for on a spot basis. If flagging becomes unnecessary and is suspended, it **may take up to 30 days to again obtain flagging services** from the Railroad. Due to labor agreements, it is necessary to give **5 working days notice before flagging service may be discontinued** and responsibility for payment stopped.
3. If, after the flagman is assigned to the project site, emergencies arise which require the flagman's presence elsewhere, and then the Contractor shall delay work on Railroad rights of way until such time as the flagman is again available. Any additional costs resulting from such delay shall be borne by the Contractor and not the Department or Railroad.
4. When demobilizing, the Contractor shall contact the flagman to avoid unnecessary flagging charges. This communication shall be documented.

C. *Payment:*

1. **The Cabinet will be responsible for paying the Railroad directly for any and all costs of flagging,** which may be required to accomplish the construction. **The Contractor shall adhere to the Special Note for Railroad Flagging, if applicable, and may be charged for flagging in excess of the allowable days, per said Special Note.**
2. The estimated cost of flagging is listed on the Summary Sheet. The charge to the Cabinet by the Railroad will be the actual cost based on the rate of pay for the Railroad's employees who are available for flagging service at the time the service is required.
3. Work by a flagman (M/W) in excess of 8 hours per day or 40 hours per week or on rest days, but not more than 16 hours a day will result in overtime pay at 1 ½ times the appropriate rate. Work by a flagman (M/W) in excess of 16 hours per day will result in overtime pay at 2 times the appropriate rate. Flagman (M/W) working in excess of 16 hours must receive a minimum of 5 hours of rest between shifts or their next shift of work is paid at the overtime rate of 2 times the appropriate rate. If work is performed on a holiday, the flagging rate is 2 ½ times the normal rate.

Work by a flagman (T&E) in excess of 8 hours per day or 40 hours per week, but not more than 12 hours a day will result in overtime pay at 1 ½ times the appropriate rate. After a 12 hour work day the flagman (T&E) must be provided with 12 hours of rest. Flagman (T&E) who work six days consecutive days must receive two days off.

Flagman's work day begins and ends at his reporting location.
4. Railroad work involved in preparing and handling bills will also be charged to the Contractor. Charges to the Department by the Railroad shall be in accordance with applicable provisions of Subchapter B, Part 140, Subpart I and Subchapter G, Part 646, Subpart B of the Federal-Aid Policy Guide issued by the Federal Highway Administration on December 9, 1991, including all current amendments. Flagging costs are subject to change. The above estimates of flagging cost are provided for information only and are not binding in any way.

D. Verification:

1. The Contractor and Project Engineer will review and sign the Railroad flagman's time sheet, attesting that the flagman was present during the time recorded. Flagman may be removed by Railroad if form is not signed. If flagman is removed, the Contractor will not be allowed to re-enter the Railroad rights of way until the issue is resolved. Any complaints concerning flagman or flagmen must be resolved in a timely manner. If need for flagman or flagmen is questioned, please contact the Railroad's Representative listed on the Project Summary Sheet. All verbal complaints must be confirmed in writing by the Contractor within 5 working days with copy to the Highway Engineer. All written correspondence should be addressed to the Railroad's Representative listed on the Project Summary Sheet.
2. The Railroad flagman assigned to the project will be responsible for notifying the Project Engineer upon arrival at the job site on the first day (or as soon thereafter as possible) that flagging services begin and on the last day that he performs such services for each separate period that services are provided. The Project Engineer will document such notification in the project records. When requested, the Project Engineer will also sign the flagman's diary showing daily time spent and activity at the project site.

VIII. HAUL ACROSS RAILROAD:

- A. Where the plans show or imply that materials of any nature must be hauled across a Railroad, unless the plans clearly show that the State has included arrangements for such haul in its agreement with the Railroad, the Contractor will be required to make all necessary arrangements with the Railroad regarding means of transporting such materials across the Railroad. The Contractor will be required to bear all costs incidental, including flagging, to such crossings whether services are performed by his own forces or by Railroad personnel.*
- B. No crossing may be established for use of the Contractor for transporting materials or equipment across the tracks of the Railroad Company unless a license agreement or right of entry is granted and executed for its installation, maintenance, necessary watching and flagging thereof and removal, all at the expense of the Contractor. **The approval process for an agreement normally takes 90-days.***

IX. WORK FOR THE BENEFIT OF THE CONTRACTOR:

- A. *All temporary or permanent changes in wire lines on the Railroad or other facilities which are considered necessary to the project are shown on the plans; included in the force account agreement between the State and the Railroad or will be covered by appropriate revisions to same which will be initiated and approved by the State and/or the Railroad.*
- B. *Should the Contractor desire any changes in addition to the above, then he shall make separate arrangements with the Railroad for same to be accomplished at the Contractor's expense.*

X. COOPERATION AND DELAYS:

- A. *It shall be the Contractor's responsibility to arrange a schedule with the Railroad for accomplishing stage construction involving work by the Railroad or tenants of the Railroad. In arranging his schedule he shall ascertain, from the Railroad, the lead time required for assembling crews and materials and shall make due allowance therefore.*
- B. *Train schedules cannot be provided to the Contractor. It is the Contractor's responsibility to contact the Railroad in order to arrange "Track Time." This "Track Time" will be an agreed upon prearranged time period (duration) that the Railroad will, without undue burden, schedule no train traffic to facilitate the Contractor's work on or near Railroad right-of-way. This track time must be arranged during the submission review process.*
- C. *No charge or claims of the Contractor against either the Department or the Railroad will be allowed for hindrance or delay on account of railroad traffic; any work done by the Railroad or other delay incident to or necessary for safe maintenance of Railroad traffic or for any delays due to compliance with these Special Notes.*
- D. *The Contractor shall cooperate with others participating in the construction of the Project to the end that all work may be carried on to the best advantage.*
- E. *The Railroad does not assume any responsibility for work performed by others in connection with the Project. No claims of the Contractor against the Railroad for any inconvenience, delay, or additional cost incurred by the Contractor on account of operations by others shall be filed.*

XI. TRAINMAN'S WALKWAYS:

- A. *Along the outer side of each exterior track of multiple operated track, and on each side of single operated track, an unobstructed continuous space suitable for trainman's use in walking along trains, extending to a line not less than ~~12-40~~ feet from centerline of track, shall be maintained. Any temporary impediments to walkways and track drainage encroachments or obstructions allowed during work hours while Railroad's protective service is provided shall be removed before the close of each day. If there is any excavation near the walkway, a handrail, with 12'-0" minimum clearance from centerline of track, shall be placed.*

XII. GUIDELINES FOR PERSONNEL ON RAILROAD RIGHTS OF WAY:

- A. *All persons shall wear hard hats and reflective vest. Appropriate eye and hearing protection must be used. Working in shorts is prohibited. Shirts must cover shoulders, back and abdomen. Working in tennis or jogging shoes, sandals, boots with high heels, cowboy and other slip on type boots is prohibited. High top (6-inch or more) safety-toe shoes with laces, oil-resistant soles, and a distinct separation between heel and sole are required.*
- B. *No one is allowed within 25' of the centerline of the track without specific authorization from the flagman.*
- C. *All persons working near track when train is passing are to look out for dragging bands, chains and protruding or shifting cargo.*
- D. *No one is allowed to cross tracks without specific authorization from the flagman.*
- E. *All work within 25' of track must stop when train is passing.*
- F. *No steel tape or chain will be allowed to cross or touch rails without permission.*

XIII. GUIDELINES FOR EQUIPMENT ON RAILROAD RIGHTS OF WAY:

- A. *No crane or boom equipment will be allowed to set up to work or park within boom distance plus 15' of centerline of track without specific permission from Railroad Engineer.*
- B. *No crane or boom equipment will be allowed to foul track or lift a load over the track without flag protection and track time.*
- C. *All employees will stay with their machines when crane or boom equipment is pointed toward track.*
- D. *All cranes and boom equipment under load will stop work while a train is passing (including pile driving).*

- E. Swinging loads must be secured to prevent movement while train is passing.*
- F. No loads will be suspended above a moving train.*
- G. No equipment will be allowed within **50' of centerline of track** without specific authorization of the flagman.*
- H. Trucks, tractors or any equipment will not touch ballast line without specific permission from railroad official and flagman.*
- I. No equipment or load movement **within 50' or above a standing train or other equipment** without specific authorization of the flagman.*
- J. All operating equipment within **50' of track must halt operations when a train is passing**. All other operating equipment may be halted by the flagman if the flagman views the operation to be dangerous to the passing train.*
- K. All equipment, loads and cables are prohibited from touching rails.*
- L. While clearing and grubbing, no vegetation will be removed from railroad embankment with heavy equipment without specific permission from the Railroad Engineer and flagman.*
- M. No equipment or materials will be parked or stored on Railroad's property unless specific permission is granted from the Railroad Engineer.*
- N. All unattended equipment that is left parked on Railroad property shall be effectively immobilized so that it cannot be moved by unauthorized persons.*
- O. All cranes and boom equipment will be turned away from track after each work day or whenever unattended by an operator.*

XIV. INSURANCE:

- A. In addition to any other forms of insurance or bonds required under the terms of the contract and specifications, the Contractor will be required to carry insurance of the following kinds:*
 - 1. Commercial General Liability coverage at their sole cost and expense with limits of not less than **\$5,000,000** in combined single limits for bodily injury and/or property damage per occurrence, and such policies shall name the Railroad as an additional insured.*
 - 2. Statutory Worker's Compensation and Employers Liability Insurance with limits of not less than **\$1,000,000**, which insurance must contain a waiver of subrogation against the Railroad and its affiliates.*

3. Commercial automobile liability insurance with limits of not less than **\$1,000,000** combined single limit for bodily injury and/or property damage per occurrence, and such policies shall name the Railroad as an additional insured.
4. Railroad Protective Liability (RPL) insurance with limits of not less than **\$5,000,000** combined single limit for bodily injury and/or property damage per occurrence and an aggregate annual limit of **\$10,000,000**, which insurance shall satisfy the following additional requirements:
 - a. The Railroad Protective Insurance Policy must be on the ISO/RIMA Form of Railroad Protective Insurance – Insurance Services Office (ISO) Form CG 00 35.
 - b. The Railroad must be the named insured on the Railroad Protective Insurance Policy
 - c. Name and Address of the Contractor must be shown on the Declarations page.
 - d. Description of operations must appear on the Declarations page and must match the Project description, including project or contract identification numbers.
 - e. Terrorism Risk Insurance Act (TRIA) coverage must be included.
 - f. Authorized endorsements must include:
 - (i). Pollution Exclusion Amendment – CG 28 31, unless using form CG 00 35 version 96 and later.
 - g. Authorized endorsements may include:
 - (i). Broad form Nuclear Exclusion – IL 00 21
 - (ii). 30-day Advance Notices of Non-renewal or cancellation
 - (iii). Required State Cancellation Endorsement
 - (iv). Quick Reference or Index – CL/IL 240
 - h. Authorized endorsements may not include:
 - (i). A Pollution Exclusion Endorsement except CG 28 31
 - (ii). An Endorsement that excludes TRIA coverage
 - (iii). An Endorsement that limits or excludes Professional Liability coverage
 - (iv). A Non-Cumulation of Liability or Pyramiding of Limits Endorsement

- (v). A Known Injury Endorsement
- (vi). A Sole Agent Endorsement
- (vii). A Punitive or Exemplary Damages Exclusion
- (viii). A 'Common Policy Conditions' Endorsement
- (ix). Policies that contain any type of deductible
- (x). Any endorsement that is not named in Section 4 (f) or (g) above that the Railroad deems unacceptable

- 5. All insurance companies must be A. M. Best rated A- and Class VII or better.
- 6. Such additional or different insurance as the Railroad may require.

B. Additional Terms:

- 1. Contractor must submit the original Railroad Protective Liability policy, Certificates of Insurance, and all notices and correspondence regarding the insurance policy to the contact listed on the Project Summary Sheet.
- 2. The Contractor may not begin work on the Project until it has received the Railroad's written approval or the required insurance.

C. Insurance policies shall follow the requirements of Subchapter G, Part 646, Subpart A of the Federal-Aid Policy Guide issued by the Federal Highway Administration on December 9, 1991, including all current amendments.

D. If any part of the work is sublet, similar insurance and evidence thereof in the same amounts as required of the Prime Contractor shall be provided by or in behalf of the subcontractor to cover his operations. Endorsements to the Prime Contractor's policies specifically naming subcontractors and describing their operations will be acceptable for this purpose.

E. All insurance herein before specified shall be carried until all work required to be performed under the terms of the contract has been satisfactorily completed within the limits of the rights of way of the Railroad as evidenced by the formal acceptance by the Department. Insuring Companies may cancel insurance by permission of the Department and Railroad or on thirty (30) days written notice to the Department and Railroad Insurance Contacts as listed on the Project Summary Sheet.

XV. FAILURE TO COMPLY:

- A. *These Special Notes are supplemental and amendatory to the current version of the Kentucky Department of Highways' Standard Specifications for Road and Bridge Construction and amendments thereof, and where in conflict therewith, these Special Notes shall govern.*

- B. *In the event the Contractor violates or fails to comply with any of the requirements of these Special Notes:*
 - 1. The Railroad Engineer may require that the Contractor vacate Railroad property.
 - 2. The Engineer may withhold any and all monies due the Contractor on pay estimates.
 - 3. Any such orders shall remain in effect until the Contractor has remedied the situation to the satisfaction of the Railroad Engineer and the Engineer.

XVI. PAYMENT FOR COST OF COMPLIANCE:

- A. *No separate payment will be made for any extra cost incurred on account of compliance with these Special Notes. All such cost shall be included in prices bid for other items of the work as specified in the payment items.*

SUMMARY FOR KYTC PROJECTS THAT INVOLVE A RAILROAD

Date: 7/6/2021 (enter using M/d/yyyy format)

This project actively involves the below listed railroad company. This Project Summary provides an abbreviated listing of project specific railroad data. The detailed needs of the specified railroad company are included in the Special Notes for Protection of Railroad Interest in the proposal package. By submitting a bid, the contractor attests that they have dutifully considered and accepted the provisions as defined in both documents.

GENERAL ROAD PROJECT INFORMATION (This section must be provided by KYTC)

County: Hopkins
Federal Number: N/A
State Number: FD04 054 73344 01U
Route: US 41A
Project Description: Widen US 41A to 5 Lanes
Item Number: 02-137.10 Highway Milepost: 000-004

GENERAL RAIL INFORMATION (The below sections must be provided by Railroad Company)

Rail Company Name: City of Madisonville
AAR-DOT# (if applicable): To be Assigned Railroad Milepost: To be Assigned
Freight: Train Count (6am to 6pm): 0 Train Count (6pm to 6am): 0 Train Count (24 hr total): 0 Max Speed: N/A mph
Passenger: Train Cnt. (6am to 6pm): N/A Train Cnt. (6pm to 6am): N/A Train Cnt. (24 hr total): N/A Max Speed: N/A mph
(This information is necessary to acquire the necessary insurances when working with Railroad Right of Way)

INSURANCE REQUIREMENTS

The named insured, description of the work and designation of the job site to be shown on the Policy are as follows:

- (a) Named Insured: City of Madisonville
- (b) The project description should be as indicated in the General Road Project Information section.
- (c) The designation of the jobsite is the route, Milepost, and AAR-DOT# listed above.

FLAGGING INFORMATION

Flagging Estimate:
Flagging is not expected for this crossing. If any flagging is required, KYTC will be responsible for paying all flagging costs. Contractor shall adhere to the Special Note for Railroad Flagging if applicable.

Hourly Rate:
\$1,019.00 per day based on a 12 hour day effective as of the date of this document.

Work by a flagman in excess of 8 hours per day or 40 hours per week, but not more than 12 hours a day will result in overtime pay at 1 ½ times the appropriate rate. Work by a flagman in excess of 12 hours per day will result in overtime pay at 2 times the appropriate rate. If work is performed on a holiday, the flagging rate is 2 ½ times the normal rate.

Forecasted Rate Increases:
Rates will increase to \$0.00 per hour based on a 0 hour day effective (enter using M/d/yyyy format).

RAILROAD CONTACTS

(to be provided by Railroad Company)

General Railroad Contact:

Eric Hickman
City of Madisonville

67 North Main Street
Madisonville, KY 42431
(Phone) 270-824-2120
(Email) EHickman@Madisonvillegov.com

Regional Representative (Roadmaster):

N/A

(Phone) _____
(Email) _____

Insurance contact:

Eric Hickman
City of Madisonville

67 North Main Street
Madisonville, KY 42431
(Phone) 270-824-2120
(Email) EHickman@Madisonvillegov.com

Railroad Designer Contact:

Contractor or In-House Employee? In-House
Eric Hickman
City of Madisonville

67 North Main Street
Madisonville, KY 42431
(Phone) 270-824-2120
(Email) EHickman@Madisonvillegov.com

Railroad Construction Contact:

Contractor or In-House Employee? Consultant
Conrad McMillin
General Manager
Road and Rail Services
Louisville, KY 40218

(Phone) 314-308-1999
(Email) CMcMillin@roadandrail.com

KENTUCKY TRANSPORTATION CABINET CONTACTS

(to be provided by KYTC)

KYTC Railroad Coordinator:

Allen Rust, PE
Div. of Right of Way & Utilities
Kentucky Transportation Cabinet
200 Mero Street, 5th Floor East
Frankfort, Kentucky 40622
(Phone) 502-782-4950
(Email) allen.rust@ky.gov

KYTC Construction Procurement Director:

Rachel Mills, Director
Div. of Construction Procurement
Kentucky Transportation Cabinet
200 Mero Street, 3rd Floor West
Frankfort, Kentucky 40622
(Phone) 502-782-5152
(Email) Rachel.Mills@ky.gov

KYTC Construction Director:

Matt Simpson, Director
Div. of Construction
Kentucky Transportation Cabinet
200 Mero Street, 3rd Floor West
Frankfort, Kentucky 40622
(Phone) 502-564-4780
(Email) Matt.Simpson@ky.gov



The project specific information provided herein is valid as of the date indicated. However, the specific information may be subject to change due to the normal business operations of all parties. The terms and conditions defined here, and in the bid proposal in its entirety, are inclusive and constant.