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INDIANA UTILITY
REGULATORY COMMISSION

Petitioner's Exhibit No. 6 Vectren South Page 1 of 15

SOUTHERN INDIANA GAS AND ELECTRIC COMPANY d/b/a VECTREN ENERGY DELIVERY OF INDIANA, INC. (VECTREN SOUTH)

IURC CAUSE NO. 44910

DIRECT TESTIMONY
OF
STEVEN A. HOOVER
DIRECTOR, ENGINEERING

ON

COST ESTIMATES

SPONSORING PETITIONER'S EXHIBIT NO. 6, ATTACHMENTS SAH-1 THROUGH SAH-2

DIRECT TESTIMONY OF STEVEN A. HOOVER

| 1 | 1 | INTRODUCTION | |
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- 3 Q. Please state your name and business address.
- 4 A. My name is Steven A. Hoover. My address is One Vectren Square, Evansville, Indiana, 47708.

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- 7 Q. By whom are you employed and in what capacity?
- A. I am the Director of Engineering for Vectren Utility Holdings, Inc. ("VUHI"), the parent company of Southern Indiana Gas and Electric Company d/b/a Vectren Energy Delivery of Indiana, Inc. ("Vectren South"), Indiana Gas Company, Inc. d/b/a Vectren Energy Delivery of Indiana, Inc. ("Vectren North"), and Vectren Energy Delivery of Ohio.

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- 13 Q. Please describe your educational background.
- A. I received a Bachelor of Science degree in Mechanical Engineering Technology from the
 University of Southern Indiana in 1990.

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- 17 Q. Please describe your professional experience.
- A. I began my career with Vectren South in 1993 as a plant engineer. Over the years, I have held positions of increasing responsibility, including reliability engineer, performance engineer, production coordinator, and engineering manager of gas distribution engineering, southwest division. Prior to becoming director of gas and electric engineering in July 2016, I was chief engineer of gas engineering.

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- 24 Q. What are your present duties?
- A. I have responsibility for gas and electric engineering and technical support for the utility operations of all three VUHI utilities. My specific responsibilities include gas and electric transmission and distribution engineering, gas and electric transmission project management, gas and electric system planning, electric system asset management, and geospatial systems.

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31 Q. Have you previously testified before the Indiana Utility Regulatory Commission ("Commission")?

Yes. I most recently provided testimony on behalf of Vectren South and Vectren North in Cause No. 44894 in support of the application for certificates of public convenience and necessity to provide natural gas service to various areas in the joint applicants' territory. I provided testimony on behalf of Vectren South in Cause No. 44429 TDSIC-5 and Vectren North in Cause No. 44430 TDSIC-5 in support of capital investments related to compliance and TDSIC projects. I provided testimony on behalf of Vectren North in support of the engineering evaluation and estimated costs for the Lafayette Area Gas System Reliability Improvements in Cause No. 44430 TDSIC-3 and also testified in Cause No. 44563 to describe how Vectren North planned to assume responsibility for customers formerly served by Snow & Ogden.

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12 Q. What is the purpose of your testimony in this proceeding?

A. I will describe the methodology utilized by Vectren South to develop cost estimates for the projects that make-up our seven year transmission and distribution system improvement plan (the "TDSIC Plan"). I will also sponsor the cost estimates for individual projects.

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Q. Are you sponsoring any exhibits in this proceeding?

- 19 A. Yes. I am sponsoring the following exhibits in this proceeding:
 - Petitioner's Exhibit No. 6, Attachment SAH-1: Project Cost Estimation Level 2
 - Petitioner's Exhibit No. 6, Attachment SAH-2: Project Cost Estimation Level 4

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II. COST ESTIMATES

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Q. Please describe the methodology utilized by Vectren South to develop criteria for estimates of the projects that comprise the TDSIC Plan.

A. Vectren South's methodology for developing cost estimates was a comprehensive and detailed process utilizing both internal and external subject matter experts. The first step in the cost estimation process was to identify those projects to be included in the TDSIC Plan. Projects were identified using a three pronged approach including risk modeling, subject matter expert assessment of existing equipment and systems, and subject matter expert evaluation of emerging technologies. The testimony of Vectren South's

witness Lynnae K. Wilson describes the project identification and selection process in greater detail. From this process, over 2,300 potential projects were identified. Vectren South intends to pursue 825 of these projects during the seven year plan and has developed cost estimates for an additional 556 projects that may be substituted into the TDSIC Plan. Vectren South made its initial prioritizations based on risk analysis and efficiencies in combining like work in close geographic proximity. Vectren South then developed high level preliminary estimates based on the type and quantity of work for each project – the "work scope" - and historical cost information for the work activities. The projects were tentatively grouped into each year of the program using the individual preliminary estimates and the projected annual TDSIC Plan budget. Thus, the preliminary estimates and priorities were used to develop a draft schedule for the TDSIC Plan. The Vectren South Engineering team then determined all projects in the TDSIC Plan would be estimated consistent with the recommended practices of AACE International ("AACE"), formerly Association for the Advancement of Cost Engineering International.

Α.

Q. What is the AACE and why did Vectren South use this organization's recommended practices for classifying the estimates?

AACE is an association dedicated to furthering the concepts for total cost management and cost engineering. The association is a recognized leader in the field of cost estimating and has published many guides and recommended practices referenced and utilized by a variety of industries to establish standardized criteria and ranges for project estimates. Vectren South understands the need to provide accurate estimates with the appropriate level of precision for the TDSIC Plan and the AACE's recommended practices establish a well-known and trusted framework to accomplish this objective. AACE specifies five estimate classes, with Class 1 estimates representing those projects that have greatest level of detail and an accuracy range of -10% to 15% and Class 5 having the least amount of detail with an expected accuracy range of -50% to 100%.

Q. What AACE cost estimate class did Vectren South utilize for the projects in the TDSIC Plan?

A. Projects planned to be completed in the first two years of the TDSIC Plan were designed to a Class 2 criteria and the remaining projects have been designed to AACE Class 4

estimate criteria. Class 2 estimates, which have accuracy ranges of -15% to +20%, balance the level of detail and confidence in design with appropriate engineering resource utilization to ensure accurate estimates and work plans are developed for projects to be executed in the next one to two years. Class 4 estimates have an accuracy ranges of -30% to +50% and are appropriate for projects to be completed beyond the two year horizon by balancing a reasonable level of work scope detail and estimate accuracy while effectively utilizing engineering resources. The following table describes the characteristics of Class 4 and Class 2 cost estimates:

| | PRIMARY CHARACTERISTIC | SECONDARY CHARACTERISTIC | | | | | |
|-------------------|--|---------------------------------------|---|---|--|--|--|
| ESTIMATE CLASS | MATURITY LEVEL OF PROJECT DEFINITION DELIVERABLES Expressed as % of complete definition | END USAGE Typical purpose of estimate | METHODOLOGY Typical estimating method | EXPECTED ACCURACY RANGE Typical variation in low and high ranges | | | |
| Class 4 | 1% to 15% | Study or feasibility | Equipment factored or parametric models | L: -15% to -30% H: +20% to +50% | | | |
| Class 2 | 30% to 75% | Control or bid/tender | Detailed unit cost with forced detailed takeoff | L: -5% to -15% H: +5% to +20% | | | |

Note: The above table has been re-produced using data from "AACE International Recommended Practice No.18R-97: COST ESTIMATE CLASSIFICATION SYSTEM - AS APPLIED IN ENGINEERING, PROCUREMENT, AND CONSTRUCTION FOR THE PROCESS INDUSTRIES, Rev. November 29,2011; http://www.aacei.org/toc/toc_18R-97.pdf"

Designing all projects to a Class 2 accuracy level is not an effective or efficient use of resources due to potential changes in work scope and fluctuating material and labor

costs that occur with the passage of time. The Class 4 estimates will be refined about a year in advance of execution and then updated in the TDSIC Plan. This level of detail is consistent with the requirements of Senate Bill 560¹ (the "TDSIC Statute") as they have been construed by the Commission in previous orders. With this criteria established, the estimates were developed with a combination of internal and external engineering resources using Vectren South's engineering systems and standards.

Q. Why did Vectren South utilize external engineering firms to assist in the development of the cost estimates?

A. Over 2,300 projects were identified for potential inclusion in the TDSIC Plan, of which 1,381 total projects were selected for detailed analysis, including design and estimation, in the seven year plan and as potential substitution projects. Vectren South's electric engineering department has enough internal resources to manage only a portion of the project load included in the TDSIC Plan. Given the volume of work necessary to conduct the appropriate cost analysis, Vectren South leveraged the expertise, experience, and different perspective of external engineering firms for the development of estimates for some distribution projects and the more complex transmission and substation projects.

Q. Which engineering firms were utilized to develop these cost estimates?

A. Black and Veatch ("B&V"), EN Engineering ("ENE") and Commonwealth Associates ("CA") were employed to develop Vectren South's cost estimates. B&V and CA were engaged to complete estimates for some transmission and substation projects. ENE provided estimating services for some distribution projects.

Q. Why did Vectren South select these firms?

A. Vectren South, through various engineering services engagements with B&V over the years, has developed a good understanding of their capabilities and quality of work. In addition, B&V recently worked with Duke and NIPSCO providing similar plan development services. B&V was engaged to supplement internal Vectren South resources in the design and estimation of transmission and substation projects. Vectren South also has worked with CA on transmission line projects. Because B&V focuses

¹ Indiana Code Chapter 8-1-39 ("TDSIC Statute").

| | | · · |
|----|----|---|
| 1 | | their engineering efforts on the transmission and substation areas and does not maintain |
| 2 | | internal resources to perform design and estimating for electric distribution projects, ENE |
| 3 | | was engaged to supplement the distribution design and estimating activities related to |
| 4 | | the TDSIC Plan. ENE has been working with Vectren South for the past eight years |
| 5 | | providing various engineering services. ENE is familiar with Vectren South's system, |
| 6 | | estimating applications, standards and estimating methodology which prepared them to |
| 7 | | develop estimates for the distribution projects. These three firms supplemented Vectren |
| 8 | | South's design and estimating expertise for the TDSIC Plan development. |
| 9 | | |
| 10 | Q. | Which projects in the TDSIC Plan were estimated in collaboration with B&V, CA |
| 11 | | and ENE resources? |
| 12 | A. | Vectren South's engineering group collaborated with B&V, CA and ENE resources to |
| 13 | | develop estimates for projects in the following programs: |
| 14 | | Optical Ground Wire ("OPGW") installation |
| 15 | | Supervisory Control and Data Acquisition ("SCADA") Upgrades |
| 16 | | Transmission Line Looping |
| 17 | | System Protection Relay Upgrades |
| 18 | | 12kV Circuit Rebuilds and Looping |
| 19 | | 4kV Conversions |
| 20 | | Distribution Capacitor Replacements |
| 21 | | Underground Cable Replacements and Looping |
| 22 | | Underground Network Upgrades |
| 23 | | Substation Circuit Breaker Replacements |
| 24 | | Substation Transformer Replacements |
| 25 | | Transmission Line Rebuilds |
| 26 | | Transmission Capacitor Replacements |
| 27 | | East West Transmission Line |
| 28 | | Instrument Transformer Replacements |
| 29 | | Underslung Replacements |
| 30 | | |
| 31 | Q. | Did Vectren South develop any project cost estimates without the assistance of |

these external firms?

- 1 A. Yes. Vectren South's transmission, substation and distribution engineering and information technology teams completed 100% of the estimating efforts for the following programs:
 - Substation Battery System Replacements
 - Substation Arrestor Replacements
- Substation Physical Security Upgrades
- PCB Transformer Replacements
- Distribution Automation

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- Wood Pole Replacements
 - Mobile Asset Data Collection
- Geomagnetic Disturbance Protection

13 Q. Did Vectren South incur costs in the development and support of the TDSIC Plan?

14 A. Yes. Vectren South will incur an estimated \$3.7 million in costs with external firms, 15 made up of plan development, engineering/cost estimation, risk model creation, and 16 case support.

Q. How were the project cost estimates developed?

- A. The process used for all project estimations considered material and labor quantities associated with the defined scopes of work and Vectren South's Engineering and Construction Standards. All estimators, whether internal Vectren South or external B&V, CA or ENE resources, used a consistent set of base cost assumptions including appropriate labor rates, material costs, and other factors such as complexity of the work and location. Supplementing these base assumptions were additional activities and data sources:
 - Site visits with engineering teams to assess locational factors including accessibility and other physical constraints. Where site visits were not completed, aerial photography or geospatial data was utilized to assess locational factors;
 - Costs of recently completed projects of a similar scope;
 - National Electrical Contractors Association ("NECA") Manual of Labor Units;
 - Material and equipment costs from Vectren South's inventory management system supplemented as needed with recent pricing from vendors that supply electric equipment to Vectren South;

- Overhead costs and labor and material loadings from Vectren South's accounting system; and
 - For transmission and substation projects, labor and material data from similar projects previously estimated and/or completed by B&V was considered in the development of estimates.

The specific activities and work items necessary to complete each project were identified and documented to define the work scope. Labor rates and material costs associated with each activity were applied to the appropriate units of the activity to be completed. Labor rates were determined from historical project information and regional labor rate information provided by B&V. Material costs were estimated based on historical project information or quotes from suppliers. The cost estimates include contingency and standard overhead costs (administration, general, engineering, supervision, and material loadings).

Projects in years one and two of the TDSIC Plan were defined to the level necessary to ensure estimates were sufficiently detailed to comply with AACE Class 2 accuracy ranges. Estimates for transmission, substation and distribution projects planned for years three through seven were primarily developed using estimates for projects with similar scope from years one and two as the basis. Adjustments to the base estimates were made to incorporate significant labor or material differences identified in the years three through seven projects.

Q. Do the detailed cost estimates include an escalation to reflect inflation based on the year a project is proposed to be constructed?

A. No. Escalation cost was not included in the detailed cost estimates for discrete projects.

Instead, escalation for material, labor, and services inflation is calculated in the plan
summary worksheet to arrive at the anticipated overall cost of the TDSIC Plan. This
eliminates the need to create a new detailed estimate for each project if its scheduled
execution year is changed. Vectren South worked with B&V to determine the escalation
at 2.7% per year starting in 2018.

The escalated cost for each project, based on the proposed construction year, is provided in witness Wilson's, Petitioner's Exhibit No. 2, Attachment LKW-1.

Q. What is the definition of contingency?

A. Vectren South uses the definition provided by AACE. AACE has defined contingency as an amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs.

Α.

Q. Has Vectren South included contingencies in the cost estimates?

Yes. Estimates for years one and two transmission and substation projects include a 15% contingency placed on the labor and engineering. Material contingency was assigned on a sliding scale based on the overall cost of each project. Larger projects received less material contingency compared to smaller projects. This was done to prevent single, large material purchases on projects driving unnecessarily high material contingencies.

Vectren South, in consultation with B&V, determined to establish the labor, subcontract, equipment, and engineering contingency at 40% for transmission and substation projects in years three through seven of the TDSIC Plan. The higher contingency was necessary to compensate for the reduced project scope definition and engineering development of those projects in the later years of the program.

Estimates for years one and two distribution projects include a 5% contingency placed on the entire estimate to account for potential unknown labor or material factors. The lower contingency was determined to be suitable for the distribution projects because the project scopes were defined to a high level of detail. Estimates for years three through seven include a 12-18% contingency based on the type of project.

Q. How were contingencies used to improve the project estimates?

A. Appropriate levels of contingencies were added to each project cost estimate dependent upon the completeness of the work scope and detailed engineering and complexity of the project. The level of contingency applied to estimates was not the same for all projects. Projects with well-defined work scopes, complete detailed engineering, and less complexity – underground distribution cable replacement, for example – require less

contingency. Projects such as transmission line looping are larger in scope and complexity and were not engineered to the same level of detail due to their placement in years three through seven of the TDSIC Plan and therefore received a higher level of contingency.

All year one and two projects were estimated to meet AACE Class 2 accuracy ranges. However, site visits were conducted for all year one and two distribution and substation projects resulting in a lower applied contingency because project unknowns were minimized. Year one and two transmission projects used Vectren South's engineering documents along with aerial photography and geospatial data instead of site visits, due to terrain and accessibility, and larger contingencies were applied. Detailed engineering has not yet been completed on projects in years three through seven and these Class 4 estimates received a higher contingency for unknown factors that can influence project cost.

Α.

Q. Why is it important to include a contingency in a best estimate?

Vectren South's charge is to provide the best estimate for the TDSIC Plan. For projects that extend over multiple years, are very complex, are scheduled for later years in the TDSIC Plan, or where complete detailed engineering has not yet been completed, there are many possible risks and uncertainties that could cause project cost increases. This likelihood must be recognized in a fully transparent "best estimate" and Vectren South's contingency addresses those project uncertainties.

Q. Is it common estimating practice to include both contingency and the application of class estimate ranges?

A. Yes. A cost estimate is a prediction of the final, "most likely" cost of a project to be completed in the future. This prediction carries risk and uncertainty which the estimate ranges attempt to address by establishing potential minimum and maximum project costs based on the level of definition of the project work scope. Contingency is a necessary component of the cost estimate which is intended to address items that cannot be quantified at the current level of project definition, but will be necessary to complete the project. The contingency enhances confidence that the project final cost will be within the upper and lower limits of the estimate range.

2 Q. Is Vectren South submitting the project cost estimates to support its TDSIC Plan?

A. Yes, two project cost estimate examples are attached to my testimony as <u>Petitioner's</u>

Exhibit No. 6, Attachment SAH-1 and Attachment SAH-2. The other project cost estimates have been submitted as work papers.

Α.

Q. What level of detail is included in the cost estimates?

Vectren South has created a cost estimate for each project included in the TDSIC Plan. The cost estimates include line item break down of the costs of each project including contract labor, material, internal labor, material and labor loadings, engineering costs, land, and contingency. For further detail refer to Petitioner's Exhibit No. 6, Attachment SAH-1 and Attachment SAH-2 which contains example project estimates. All detailed individual project estimate information is included in my work papers.

Α.

Q. What level of confidence does Vectren South have in its cost estimates?

Vectren South has high confidence in the accuracy and completeness of the TDSIC Plan's project cost estimates. Years one and two projects were estimated to meet AACE Class 2 estimate ranges of -15% to +20%. The remaining projects, including the potential substitution projects, were estimated to AACE Class 4 criteria with an expected variance range of -30% to +50%. With the appropriate use of contingency values to account for uncertainty in the project, the projects' actual costs can be expected to fall within these variance ranges.

Q. Provide a detailed example of an AACE Class 2 Estimate.

A. Each AACE Class 2 Project Cost Estimate consists of a Preliminary Estimate Summary sheet and a Detailed Estimate Report (labeled Design Estimate Summary Report – Project Cost Summary for Distribution projects). Attached to my testimony as Petitioner's Exhibit No. 6, Attachment SAH-1 is a sample of a Class 2 estimate. As can be seen in the example, the Preliminary Estimate Summary contains a basic description of the work, preliminary estimate details, and a total project cost summary section which provides multiple breakdowns of the construction costs including loadings, overheads, and contingency. The Detailed Estimate Report contains summary pages of the project cost roll-up, detailed lists of activities at each work station – location where construction

is being performed, detailed Bill of Materials, and a detailed estimate of labor and material costs for construction activity. Loadings and contingencies for transmission and substation projects are not included on the detailed estimate sheets. Contingencies for distribution projects are not included on the detailed estimate sheets. These cost components are only incorporated in the Preliminary Estimate Summary.

Α.

Q. Provide a detailed example of a Class 4 Estimate.

Each AACE Class 4 Project Cost Estimate consists of a Preliminary Estimate Summary sheet and a Detailed Estimate Report. Attached to my testimony as Petitioner's Exhibit No. 6, Attachment SAH-2 is a sample of a Class 4 estimate. As with the AACE Class 2 estimates, the AACE Class 4 Preliminary Estimate Summary for years three through seven projects contains a basic description of the work, preliminary estimate details, and a total project cost summary section. The Detailed Estimate Report sheets contain detailed lists of activities and materials. Loadings and contingencies for transmission and substation projects are not included on the detailed estimate sheets. Contingencies for distribution projects are not included on the detailed estimate sheets. These cost components are only incorporated in the Preliminary Estimate Summary. These details can be seen in the example attached to my testimony.

A.

Q. Were any projects estimated differently?

Yes. Projects supporting the Substation Physical Security Upgrades program were estimated based on the Standard Vectren South bid process. Vectren South chose to select the largest site as the baseline. Responses from the bid process provided the figures that Vectren South then applied to the other sites to understand the range of total costs of the program.

The Advanced Distribution Management System and Advanced Metering Infrastructure ("AMI") Programs both went through Vectren South's standard Request for Proposal process. Details related to AMI will be discussed in the testimony of Vectren South witnesses Daniel C. Bugher and Andrew L. Trump.

Q. Did Vectren South take any additional steps to assess the accuracy and completeness of the estimates?

Yes. First, Vectren South engaged B&V to perform a cost estimate review of a minimum of 10% of all transmission and substation projects by an AACE Certified engineer. Second, a minimum of 10% of all distribution projects were reviewed for estimate accuracy by a Vectren South engineer different from the original estimator. Items considered in the secondary review are the cost estimating methodology and historical or other information used in the estimate as compared to the AACE requirements for Class 2 and Class 4 estimates. Information reviewed includes equipment costs, material costs, labor costs bases, and man-hour bases. The reviews found costs of equipment and materials, labor productivity assumptions, and labor rates were reasonable based on comparison against historical data, quotes for recent similar projects, and B&V labor rate studies applicable to project locations.

A.

In addition to verifying the costs and labor hour bases used for the estimate, the methodology was reviewed for appropriateness of the stated estimate classification in accordance with the AACE. This approach is consistent with how B&V has conducted similar cost estimate reviews for other utility clients for long-range planning studies. As indicated in the AACE table earlier in this testimony, AACE Class 2 and Class 4 estimates are applicable to the Vectren South projects and the level of project definition determines the estimate class level.

Many factors can cause significant changes in material and labor costs from month to month and year to year. In today's global economy, market forces frequently impact major equipment suppliers and their costs. These market impacts to costs are then passed on to equipment suppliers with resulting routine changes to material price quotes. Similarly, contract labor costs can fluctuate significantly in the energy industry based on demand. From a labor cost standpoint, many factors can change the level of effort and cost required to complete a project. Unforeseen changes in site conditions can increase the project duration significantly for one project, when compared to a similar project elsewhere with ideal conditions. This results in the potential for a variety of labor costs depending on a variety of factors.

It is in this context that reviews were performed with consideration for the expected accuracy range identified for each AACE estimate class. No two cost estimators will

| 1 | | arrive at exactly the same cost estimate, even when given the same general scope |
|----|------|---|
| 2 | | description of a project. Differences can result from a variety of factors, including the |
| 3 | | following: |
| 4 | | • Fluctuations and market forces impact material prices every day and can result in |
| 5 | | large changes to material costs |
| 6 | | Contract labor costs can fluctuate as demand for experienced labor changes |
| 7 | | The projects state of development/definition |
| 8 | | o This impacts the level of detailed specification an estimator has for material |
| 9 | | and equipment, as well as labor cost impacts |
| 10 | | Understanding of site conditions |
| 11 | | Not all site conditions can be defined fully when estimating a project cost |
| 12 | | |
| 13 | | These uncertainty factors with respect to cost estimates are important to keep in context, |
| 14 | | and thus range percentages and contingency are used to provide realistic estimate class |
| 15 | | accuracy. |
| 16 | | |
| 17 | | Vectren South's internal review and B&V's review indicated the cost estimating process |
| 18 | | and the estimates are reasonable. The level of detail used to develop the Vectren South |
| 19 | | transmission and distribution project cost estimates is consistent with common practice |
| 20 | | within the industry. |
| 21 | | |
| 22 | Q. | Do these estimates constitute Vectren South's best estimate of the costs for the |
| 23 | | projects in the TDSIC Plan? |
| 24 | A. | Yes. |
| 25 | | |
| 26 | | |
| 27 | III. | CONCLUSION |
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| 29 | Q. | Does this conclude your direct testimony? |
| 30 | A. | Yes. |

VERIFICATION

I, Steven A. Hoover, Director of Engineering for Vectren Utility Holdings, Inc., under penalty of perjury, affirm that the foregoing representations are true and correct to the best of my knowledge, information and belief.

SOUTHERN INDIANA GAS AND

ELECTRIC COMPANY D/B/A VECTREN ENERGY DELINERY OF INDIANA, INC.

Bv.

Steven A. Hoover Director, Engineering

Dated: February 22, 2017

| Distribution Modernization Preliminary Estima | te Summary | Group ID | Cass AVE | CKT Planned | Year 2018 | | | | | |
|--|---------------|--------------------------|--|-------------|---------------------------|------------|--|--|--|--|
| Maximo WO Number | Oracle Number | Maximo Short Description | | | | | | | | |
| 13745088 | | | E560_Elec Dist_Cass AVE CKT_4KV CONV_Cass Ave CKT CONV (Riverside Sub) Ph II | | | | | | | |
| ABM | ос | City | TDSIC Program Cat | egory | Project Engineer (VEC/EN) | | | | | |
| Elec System Improve - Distr TDSIC | Evansville | Evansville | 4kV Conv | | Chapman, Jody | Gravino, H | | | | |

Maximo Long Description of Work

This work order is phase 2 of the Cass Ave 4 kV conversion project. There are total of 3 phases to complete the Cass Ave 4 kV to 12 kV conversion. The Project will transfer the load to Riverside 12 kV. Phase 2 construction includes a circuit tie with John Street 12 kV circuit just North of the Monroe and Venice Street intersection. It consists of 50 new poles,6400' of 336AA sper,2150' of 3/0 AWAC msngr,1900' of 310AAAC,1800' of 110AAAC,300' of 310TX,1 -900A Horizontal GOAB Switch, and 35-1PH pole top transformers.

| | | Preliminary Estimate Details | | | | | | | | |
|--|------------------------------|----------------------------------|----------------|--------------|----------------------------|---------------|--|--|--|--|
| | Activity Description | 1 | Units | UoM | Unit Cost | Extended Cost | | | | |
| Poles, Towers & Fixtures (Account 364) | | | | Ea | | | | | | |
| Overhead Conductors & Devices (Account | 365) | | | Lft | | | | | | |
| Underground Conductors & Devices (Acco | ount 366 & 367) | | | Lft | | | | | | |
| Line Transformers (Account 368) | | | | Ea | | | | | | |
| Services (Account 369 & 370) | | | | Lft | | | | | | |
| Street Lighting & Signal systems | | | | Ea | | | | | | |
| Removal of Existing Facilities (Poles, OH/ | UG Conductor, Transformers (| | LS | | | | | | | |
| Land | | | LS | | | | | | | |
| Permit | | | | LS | | | | | | |
| Tree Trimming | | | | LS | | | | | | |
| Traffic Control | | | | LS | | | | | | |
| Engineering | | | | LS | | | | | | |
| | | | | | Subtotal | | | | | |
| | | Total Project Cost Summary | | | | | | | | |
| Cost Category | | P | roject Cost C | alculations | | | | | | |
| Contract Labor and Overheads | | | | | Subtotal | | | | | |
| Engineering | | Contingency - Labor and Material | | | | | | | | |
| Material | | Subtotal + Contingency | | | | | | | | |
| Land | | | | | rvision & Material Loading | | | | | |
| | | Tota l | Project Cost (| Subtotal + C | ontingency + Loadings) | | | | | |

^{*}Total project cost is in 2016 dollars.

| | Dε | esign Estimate Su | mmary Repo | rt – Project (| Cost Summary | • | | | |
|---|---|--|--|--|-----------------|------------------|-----------------------------------|--|--|
| Engineer Lead: I | | Cost Center: | a.y itopo | | - cot caninal y | Print Date: 09-D | ec-16 12:59 PM | | |
| Maximo WO Number 13745088 | Oracle Number | Total Project | Cost Car | ost Capital Hours Service Hours | | Total Hours | Construction Resource | | |
| Customer Name: | | In | vest (Install) | <u> </u> | | | | | |
| Customer Address: Customer Phone: | Descri | Account | Account Material | | Tool | Total | | | |
| | ELECTRIC SERVICES OVERHEAD CONDUCTOR POLES, TOWERS, AND FIX | 369 365 364 st (Install) Sub Total dings (Mtl and Labor) | | | | | | | |
| Person Making | | | st (Install) Total | | | | _ | | |
| Request: Contact Phone: | | Retire (A | bandon & Remo | ove) | | | | | |
| | Descri | ption | Account | Material | Labor | Tool | Total | | |
| General Description: | LINE TRANSFORMERS OVERHEAD CONDUCTOR | S & DEVICES | 368 365 | _ | | | <u> </u> | | |
| This work order is phase 2 of | POLES, TOWERS, AND FIX | KTURES | 364 | | | | | | |
| the Cass Ave 4 kV conversion | | | Remove) Sub Total | _ | | | <u> </u> | | |
| project. There are total of 3 phases to complete the Cass | | Retire (Abandon & | | | | | _ | | |
| Ave 4 k CUE Numbers and | | • | ransformers (In | stall) | | Note Transfor | mer material cost not in subtotal | | |
| Status | | | | | T | | | | |
| Maximo WO#: 13745088 | Descri | ption | Account | Material | Labor | Tool | Total | | |
| Maximo CUE Number: 78162 Ver: 1 Status: ESTIMATED | LINE TRANSFORMERS | Flectric Transforme | 368 ers (Install) Sub Total | | | | | | |
| | | | dings (Mtl and Labor) | | | | | | |
| | | Electric Transforme | rs (Install) Total | | | | | | |
| | | Electric Tr | ansformers (Re | move) | | | | | |
| | Descri | ption | Account | Material | Labor | Tool | Total | | |
| | LINE TRANSFORMERS | | 368 | | • | | | | |
| | | Electric Transformers | (Remove) Sub Total dings (Mtl and Labor) | | | | | | |
| | | | | | | | | | |
| | | lectric Transformers | | | | | | | |

| | Des | ign Estimate S | ummary | Report – Project | Cost Summary | | | | |
|-----------------------------|------------------------|----------------|----------------------------------|------------------------|-----------------------|-------------|-----------------------|--|--|
| Engineer Lead: HGRAV | INO | Cost Center: | : Print Date: 09-Dec-16 12:59 PM | | | | | | |
| Maximo WO Number | Oracle Number | Total Projec | t Cost | Capital Hours | Service Hours | Total Hours | Construction Resource | | |
| 13745088 | | | | | | | | | |
| | | | | Total Project Cost | Summary | | | | |
| | Loading Used for Ca | alculations | | | Install Plant / Capi | tal | | | |
| | A&G (Install Only) | | | Transformer La | abor & Tooling (If CP | 'E) | | | |
| | E&S (Install Only) | | | Over | heads (A&G and E& | S) | | | |
| | Mtl Stores Loading | | | Install: Tota | ire | | | | |
| | Labor Loading | | | Retire | re) | | | | |
| | Travel Time Multiplier | | | Pow | st | | | | |
| | Loading Rates Cur | rent as of | | | | | | | |
| | 12/09/2016 12:54 | :59 PM | Transform | er Labor & Tool (If No | or | | | | |
| | | | & Tool | ` | | | | | |
| | | | Overhead | ds for Services, Trans | formers, Meters (A& | G | | | |
| | | | | | and E& | .S) | | | |
| | | | | | Services To | tal | | | |
| | | | | Transformers and N | Meters (Materials On | ly) | | | |
| | | | Servi | ces Total + Meter & | Transformer Mater | ial | | | |
| | | | | | | | | | |
| | | | | | Total Project Co | st | | | |

| | | | | | ary Report – Sup | ervisor's Constr | | | | |
|---------|---------------------|--------------|--------------------|-----------------------------|--------------------------|----------------------|--------------|--------|--------------------|----------|
| | Lead: HGRAVIN | 10 | Cos | t Center: | | Print Date: 09-Dec | -16 12:59 PM | | | |
| - | WO Number 745088 | Oracle Numb | per To | tal Project Cost | Capital Hours | Service Hours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Description | on | Qty | Operation | Time Rqd |
| 1 | | ' | 0601401 | | | CONDARY CONDUCTOR | | | Install | |
| | | | | | W | O Number: 137450 |)88 | Statio | n 1 Sub Total: | 0.00 |
| 2 | | | 0104612 | | Y, SINGLE EQUIP BRKT | | | | Install | |
| 2 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Remove | |
| 2 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Install | |
| 2 | | | 0140201 | • | 3,2,EMBEDDED EARTH C | | | | Install | |
| 2 | | | 0140201 | | 6,2,EMBEDDED EARTH C | NLY | | | Remove | |
| 2 | | | 0306001 | CROSS ARM PIN ASS | | | | | Install | |
| 2 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 2 | | | 0311112 | 11FT SINGLE ARM BR | | | | | Install | |
| 2 | | | 0401210 | | AND SPOOL INSULATOR | | | | Remove | |
| 2 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, | | | | Install | |
| 2 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, | ALUMINUM CONDUC. | | - | Remove | |
| 2 | | | 0701401 0803002 | LABOR CONTINGENC | | | | - | Install | |
| 2 | | | 0809002 | LTNG ARR ASSY,LINE | | | | _ | Remove | |
| 2 | | | 0809002 | POLE GROUND ASSY | | | | _ | Install Install | |
| 2 | | | 0925010NG | | · | ON-LOADBREAK, NON-GF | ADUICAL CIT | - | Install | |
| 2 | | | 0925015NG | | | ON-LOADBREAK, NON-GF | | - | Remove | |
| 2 | | | 1005301 | TRANS CONNECTION | | ECTOR 7.2KV/DUAL VOL | | | Install | |
| 2 | | | 1010025 | 333KVA) TRANSFORMER, 1PH | I, PT, CONV, 2400-120/24 | 0V, 25KVA | | | Remove | |
| 2 | | | 1030025 | TRANSFORMER, 1PH | I, PT, CONV, 2400X7200- | 120/240V, 25KVA | | | Install | |
| | | | | | W | O Number: 137450 |)88 | Statio | n 2 Sub Total: | 0.00 |
| 3 | | | 0104612 | INS POLE BRKT ASSY | Y, SINGLE EQUIP BRKT | | | | Install | |
| 3 | | | 0104612 | INS POLE BRKT ASSY | Y, SINGLE EQUIP BRKT | | | | Remove | |
| 3 | | | 0108110 | NEUTRAL BRKT ASSE | EMBLY | | | | Remove | |
| 3 | | | 0306001 | CROSS ARM PIN ASS | SY 8-10 ARM | | | | Install | |
| 3 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 3 | | | 0311112 | 11FT SINGLE ARM BF | | | | | Install | |
| 3 | | | 0401210 | | AND SPOOL INSULATOR | | | | Remove | |
| 3 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, | | | | Remove | |
| 3 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, | | _ | | Install | |
| 3 | | | 0601401 | | | CONDARY CONDUCTOR | S | | Install | |
| 3 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 3 | | | 0803002 | LTNG ARR ASSY,LINE | 7 - | | | | Remove | |
| 3 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | Install | |
| 3 | | | 0821042 | POLE GROUND ASSY | · | ALLOADDDEAK NOV. 05 | ADUIOAL OU | | Install | |
| 3 | | | 0925015NG | | | ON-LOADBREAK, NON-GE | | | Install | |
| 3 | | | 0925040NG | | | ON-LOADBREAK, NON-GF | | | Remove | |
| 3 | | | 1005301 | TRANS CONNECTION 333KVA) | N ASSY, W/ANIMAL PROT | ECTOR 7.2KV/DUAL VOL | 1AGE (10 TO | | Install | |

| | | | Design | Estimate Summ | ary Report – Su | pervisor's Consti | ruction | | | |
|----------|----------------------|---------------|---------|---------------------------------------|--|--------------------|--------------|----------|--------------------|----------|
| Engineer | Lead: HGRAVIN | 10 | | st Center: | <u>, , , , , , , , , , , , , , , , , , , </u> | Print Date: 09-Dec | | | | |
| Maximo | WO Number 3745088 | Oracle Number | | otal Project Cost | Capital Hours | Service Hours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Descripti | on | Qty | Operation | Time Rqd |
| 3 | | | 1010050 | | I, PT, CONV, 2400-120/24 | | <u> </u> | | Remove | • |
| 3 | | | 1030050 | TRANSFORMER, 1PH | I, PT, CONV, 2400X7200- | 20/240V, 50KVA | | | Install | |
| | | | | | | O Number: 13745 | 088 | Statio | n 3 Sub Total: | 0.00 |
| 4 | | | 0108110 | NEUTRAL BRKT ASSI | | | | | Remove | |
| 4 | | | 0114712 | DEADEND BRKT ASS | • | | | | Install | |
| 4 | | | 0306001 | CROSS ARM PIN ASS | | | | | Install | |
| 4 | | | 0308216 | 8FT STD DBLARM BR | | | | | Remove | |
| 4 | | | 0311218 | 11FT DOUBLE ARM B | | | | | Install | |
| 4 | | | 0401210 | | S AND SPOOL INSULATOR END ASSEMBLY, 336 SPO | | | | Install | |
| 4 | | | 0405247 | | Y W/ TIE WIRE, DOUBLE, | | | + | Install Install | |
| 4 | | | 0405208 | | Y W/ TIE WIRE, DOUBLE, | | | + | Remove | |
| 4 | | | 0601401 | | CIES - OH ELEC DIST / SE | | RS | \dashv | Install | |
| 4 | | | 0701401 | LABOR CONTINGENO | | | | | Install | |
| 4 | | | 0809002 | LTNG ARR ASSY,LINI | | | | | Install | |
| 4 | | | 0815008 | | CLAMP ASSY, #6 SOL CU | J | | | Remove | |
| 4 | | | 0816030 | GRIP, PREFORMED, | CONDUCTOR, 3/0 AAAC | | | | Install | |
| 4 | | | 0816043 | GRIP, PREFORMED, | CONDUCTOR, 3/0 AWAC | | | | Install | |
| | | | | | W | O Number: 13745 | 088 | Statio | n 4 Sub Total: | 0.00 |
| 5 | | | 0108110 | NEUTRAL BRKT ASS | | | | | Remove | |
| 5 | | | 0108110 | NEUTRAL BRKT ASS | | | | | Install | |
| 5 | | | 0140201 | · · · · · · · · · · · · · · · · · · · | G,2,EMBEDDED EARTH C | | | | Install | |
| 5 | | | 0140201 | • | G,2,EMBEDDED EARTH C | NLY | | | Remove | |
| 5 | | | 0306001 | CROSS ARM PIN ASS | | | | _ | Install | |
| 5 | | | 0308112 | 8FT SINGLE ARM BRA | | | | _ | Remove | |
| 5 | | | 0311112 | 11FT SINGLE ARM BE | | | | | Install | |
| 5 5 | | | 0401210 | | S AND SPOOL INSULATOR S AND SPOOL INSULATOR | | | _ | Install Remove | |
| 5 | | | 0401210 | | Y W/ TIE WIRE, SINGLE, | | | | Install | |
| 5 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, | | | _ | Remove | |
| 5 | | | 0601401 | | CIES - OH ELEC DIST / SE | | RS | + | Install | |
| 5 | | | 0816130 | | AT EYE NUT, 3/0 ALUM, S | | | | Install | |
| 5 | | | 0821042 | POLE GROUND ASSY | | | | | Install | |
| | | | | | W | O Number: 13745 | 088 | Statio | n 5 Sub Total: | 0.00 |
| 6 | | | 0140201 | POLE:WOOD,40FT LC | G,2,EMBEDDED EARTH C | | - | | Install | |
| 6 | | | 0140201 | POLE:WOOD,40FT LC | G,2,EMBEDDED EARTH C | NLY | | | Remove | |
| 6 | | | 0306001 | CROSS ARM PIN ASS | SY 8-10 ARM | | | | Install | |
| 6 | | | 0308216 | 8FT STD DBLARM BR | | | | | Remove | |
| 6 | | | 0310216 | 10FT DBL ARM BRAC | | | | | Install | |
| 6 | | | 0401210 | | S AND SPOOL INSULATOR | | | | Install | |
| 6 | | | 0403203 | CONDUCTOR DEADE | END ASSEMBLY, .36 in, ' | /0-3/0 ACSR/AAAC | | | Install | |

| | Design Estimate Summary Report – Supervisor's Construction | | | | | | | | | | |
|----------|--|-------------|---------|--------------------|--------------------------|----------------------|--------------|--------|----------------|----------|--|
| Engineer | Lead: HGRAVIN | 0 | Co | st Center: | | Print Date: 09-Dec- | ·16 12:59 PM | | | | |
| Maximo | WO Number | Oracle Numb | er T | otal Project Cost | Capital Hours | Service Hours | Total Hours | (| Construction R | esource | |
| 13 | 745088 | | | | | | | | | | |
| Station | G- Macro CU | Macro CU | CU | | | Assembly Description | on | Qty | Operation | Time Rqd | |
| 6 | | | 0403208 | | ND ASSEMBLY, #6 SOL (| | | | Remove | | |
| 6 | | | 0405207 | | / W/ TIE WIRE, SINGLE, A | | | | Remove | | |
| 6 | | | 0405208 | | / W/ TIE WIRE, DOUBLE, | ALUMINUM CONDUC. | | | Install | | |
| 6 | | | 0501016 | GUY STRAND ASSY 1 | | | | | Install | | |
| 6 | | | 0501016 | GUY STRAND ASSY 1 | | | | | Install | | |
| 6 | | | 0601401 | | | CONDARY CONDUCTOR | S | | Install | | |
| 6 | | | 0701401 | LABOR CONTINGENC | IES - ELEC SERVICE | | | | Install | | |
| 6 | | | 0815003 | NEUTRAL DEADEND | CLAMP ASSY, 1/0 - 3/0 A | CSR/AAAC | | | Install | | |
| 6 | | | 0815008 | NEUTRAL DEADEND | CLAMP ASSY, #6 SOL CU | J | | | Remove | | |
| 6 | | | 0816130 | GRIP PREFORMED, A | T EYE NUT, 3/0 ALUM, S | ERVICE | | | Install | | |
| 6 | | | 0821042 | POLE GROUND ASSY | ,ROD | | | | Install | | |
| | | | | | W | O Number: 137450 | 88 | Statio | n 6 Sub Total: | 0.00 | |
| 7 | | | 0106108 | POLE TOP PIN ASSY | | | | | Install | | |
| 7 | | | 0106108 | POLE TOP PIN ASSY | | | | | Remove | | |
| 7 | | | 0108110 | NEUTRAL BRKT ASSE | EMBLY | | | | Remove | | |
| 7 | | | 0108110 | NEUTRAL BRKT ASSE | EMBLY | | | | Install | | |
| 7 | | | 0135401 | | ,4,EMBEDDED EARTH O | | | | Remove | | |
| 7 | | | 0140201 | | ,2,EMBEDDED EARTH O | NLY | | | Install | | |
| 7 | | | 0306001 | CROSS ARM PIN ASS | Y 8-10 ARM | | | | Install | | |
| 7 | | | 0306001 | CROSS ARM PIN ASS | Y 8-10 ARM | | | | Remove | | |
| 7 | | | 0308112 | 8FT SINGLE ARM BRA | ACE ASSY | | | | Remove | | |
| 7 | | | 0310112 | 10FT SINGLE ARM BR | | | | | Install | | |
| 7 | | | 0401210 | | AND SPOOL INSULATOR | | | | Remove | | |
| 7 | | | 0401210 | | AND SPOOL INSULATOR | | | | Install | | |
| 7 | | | 0405207 | | / W/ TIE WIRE, SINGLE, A | | | | Install | | |
| 7 | | | 0405207 | | / W/ TIE WIRE, SINGLE, A | | | | Remove | | |
| 7 | | | 0601401 | | | CONDARY CONDUCTOR | S | | Install | | |
| 7 | | | 0701401 | LABOR CONTINGENC | | | | | Install | | |
| 7 | | | 0821042 | POLE GROUND ASSY | ,ROD | | | | Install | | |
| | | | | | | O Number: 137450 | 88 | Statio | n 7 Sub Total: | 0.00 | |
| 8 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Install | | |
| 8 | | | 0104612 | INS POLE BRKT ASSY | , SINGLE EQUIP BRKT | | | | Install | | |
| 8 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Remove | | |
| 8 | | | 0140201 | | ,2,EMBEDDED EARTH O | | | | Remove | | |
| 8 | | | 0140201 | | ,2,EMBEDDED EARTH O | NLY | | | Install | | |
| 8 | | | 0306001 | CROSS ARM PIN ASS | | | | | Install | | |
| 8 | | | 0306001 | CROSS ARM PIN ASS | Y 8-10 ARM | | | | Remove | | |
| 8 | | | 0308216 | 8FT STD DBLARM BRA | ACE ASSY | | | | Remove | | |
| 8 | | | 0310216 | 10FT DBL ARM BRACI | | | | | Install | | |
| 8 | | | 0403203 | | ND ASSEMBLY, .36 in, 1 | | | | Install | | |
| 8 | | | 0403208 | CONDUCTOR DEADE | ND ASSEMBLY, #6 SOL (| CU | | | Remove | | |

| | | | | | ary Report – Sup | ervisor's Constr | | | | |
|----------|----------------------|---------------|----------|--------------------|--------------------------|----------------------|--------------|--------|----------------|----------|
| Engineer | Lead: HGRAVIN | 0 | Cos | st Center: | | Print Date: 09-Dec | -16 12:59 PM | | | |
| | WO Number 3745088 | Oracle Number | Тс | tal Project Cost | Capital Hours | Service Hours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Description | on | Qty | Operation | Time Rqd |
| 8 | | | 0405207 | | W/ TIE WIRE, SINGLE, A | | | | Remove | • |
| 8 | | | 0405208 | PIN INSULATOR ASSY | / W/ TIE WIRE, DOUBLE, | ALUMINUM CONDUC. | | | Install | |
| 8 | | | 0601401 | LABOR CONTINGENC | IES - OH ELEC DIST / SE | CONDARY CONDUCTOR | S | | Install | |
| 8 | | | 0701401 | LABOR CONTINGENC | IES - ELEC SERVICE | | | | Install | |
| 8 | | | 0803002 | LTNG ARR ASSY,LINE | 3KV | | | | Remove | |
| 8 | | | 0809002 | LTNG ARR ASSY,LINE | 9KV | | | | Install | |
| 8 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | Install | |
| 8 | | | 0815008 | | CLAMP ASSY, #6 SOL CU | | | | Remove | |
| 8 | | | 0816130 | | T EYE NUT, 3/0 ALUM, SI | ERVICE | | | Install | |
| 8 | | | 0821042 | POLE GROUND ASSY | | | | | Install | |
| 8 | | | 925006NG | FUSE CUTOUT ASSY: | 100A,6T,1PH,14.4KV,NOI | N-LOADBREAK, NON-GRA | APHICAL CU | | Remove | |
| 8 | | 0 | 925010NG | | | N-LOADBREAK, NON-GF | | | Install | |
| 8 | | | 1005301 | 333KVA) | | ECTOR 7.2KV/DUAL VOL | TAGE (10 TO | | Install | |
| 8 | | | 1010015 | | , PT, CONV, 2400-120/240 | | | | Remove | |
| 8 | | | 1030025 | TRANSFORMER, 1PH, | , PT, CONV, 2400X7200-1 | 20/240V, 25KVA | | | Install | |
| | | | | | WC | Number: 137450 | 88 | Statio | n 8 Sub Total: | 0.00 |
| 9 | | | 0109310 | EQUIPMENT MOUNT | | | | | Install | |
| 9 | | | 0110112 | TRANSF CLUSTER MT | | | | | Install | |
| 9 | | | 0140201 | - | ,2,EMBEDDED EARTH O | | | | Remove | |
| 9 | | | 0140201 | | ,2,EMBEDDED EARTH O | NLY | | | Install | |
| 9 | | | 0306001 | CROSS ARM PIN ASS | | | | | Install | |
| 9 | | | 0308216 | 8FT STD DBLARM BRA | | | | | Remove | |
| 9 | | | 0310216 | 10FT DBL ARM BRACE | | | | | Install | |
| 9 | | | 0401210 | | AND SPOOL INSULATOR | | | | Install | |
| 9 | | | 0403203 | | ND ASSEMBLY, .36 in, 1 | | | | Install | |
| 9 | | | 0403208 | | ND ASSEMBLY, #6 SOL (| | | | Remove | |
| 9 | | | 0405208 | | / W/ TIE WIRE, DOUBLE, | | | | Install | |
| 9 | | | 0601401 | | | CONDARY CONDUCTOR | S | | Install | |
| 9 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 9 | | | 0803002 | LTNG ARR ASSY,LINE | • | | | | Remove | |
| 9 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | Install | |
| 9 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | Install | |
| 9 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | Install | |
| 9 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 AC | | | | Install | |
| 9 | | | 0815008 | | CLAMP ASSY, #6 SOL CU | | | | Remove | |
| 9 | | | 0816130 | <u> </u> | T EYE NUT, 3/0 ALUM, SI | ERVICE | | | Install | |
| 9 | | | 0821042 | POLE GROUND ASSY | , - | NI | ADUIDAL CO | | Install | |
| 9 | | | 925015NG | | | N-LOADBREAK, NON-GR | | | Install | |
| 9 | | | 925015NG | | <u> </u> | ON-LOADBREAK, NON-GR | | | Install | |
| 9 | | 0 | 925015NG | FUSE CUTOUT ASSY: | 100A,15T,1PH,14.4KV,NC | N-LOADBREAK, NON-GR | APHICAL CU | | Install | |

| | | | Design | Estimate Summ | ary Report – Sup | ervisor's | Constru | uction | | | |
|----------|----------------------|---------------|----------|--------------------|--|--------------|------------|-------------|---------------|----------------|----------|
| Engineer | Lead: HGRAVIN | 0 | Cos | t Center: | | Print Date | : 09-Dec- | 16 12:59 PM | | | |
| | WO Number 3745088 | Oracle Number | Tot | tal Project Cost | Capital Hours | Service | Hours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU / | Assembly D | escriptio | n | Qty | Operation | Time Rqd |
| 9 | | 09 | 925025NG | FUSE CUTOUT ASSY: | :100A,25T,1PH,14.4KV,NC | N-LOADBREA | K, NON-GR | APHICAL CU | | Remove | - |
| 9 | | - | 1005301 | 333KVA) | I ASSY, W/ANIMAL PROTI | | | , | | Install | |
| 9 | | | 1005301 | 333KVA) | I ASSY, W/ANIMAL PROTI | | | ` | | Install | |
| 9 | | | 1005301 | 333KVA) | I ASSY, W/ANIMAL PROTI | | | AGE (10 TO | | Install | |
| 9 | | | 1030050 | | , PT, CONV, 2400X7200-1 | | | | | Install | |
| 9 | | | 1030050 | | , PT, CONV, 2400X7200-1 | | | | | Install | |
| 9 | | | 1030050 | | , PT, CONV, 2400X7200-1 | | ′A | | | Install | |
| 9 | | • | 1042075 | TRANSFORMER, 3PH | , PM, 2400/4160Y-208/120 | | | | | Remove | |
| | | | | | | Number: | 137450 | 88 | <u>Statio</u> | n 9 Sub Total: | 0.00 |
| 10 | | | 0135401 | | 6,4,EMBEDDED EARTH OI | | | | _ | Remove | |
| 10 | | | 0140201 | | 6,2,EMBEDDED EARTH OI | NLY | | | _ | Install | |
| 10 | | | 0501016 | GUY STRAND ASSY 1 | | AIN EDOL CED | NAINI INIC | | _ | Install | |
| 10 | | | 0516201 | | ASSY,10IN TWIN HELIX,2 CIES - OH ELEC DIST / SE | | | 2 | _ | Install | |
| 10 | | (| 0601401 | LABOR CONTINGENC | | | | | 04-41 | Install | 0.00 |
| 11 | | (| 0104612 | INS POLE BRKT ASSY | /, SINGLE EQUIP BRKT | Number: | 137450 | 88 | Station | 10 Sub Total: | 0.00 |
| 11 | | (| 0108110 | NEUTRAL BRKT ASSE | EMBLY | | | | | Remove | |
| 11 | | (| 0114712 | DEADEND BRKT ASS | EMBLY, SPACER | | | | | Install | |
| 11 | | (| 0306001 | CROSS ARM PIN ASS | Y 8-10 ARM | | | | | Remove | |
| 11 | | | 0308112 | 8FT SINGLE ARM BRA | ACE ASSY | | | | | Remove | |
| 11 | | (| 0403247 | CONDUCTOR DEADE | ND ASSEMBLY, 336 SPC | | | | | Install | |
| 11 | | (| 0405207 | PIN INSULATOR ASSY | Y W/ TIE WIRE, SINGLE, A | ALUMINUM CO | NDUC. | | | Remove | |
| 11 | | | 0501016 | GUY STRAND ASSY 1 | | | | | | Install | |
| 11 | | | 0532201 | | HOR ASSEMBLY, TRIPLE | | | | | Install | |
| 11 | | | 0601401 | | CIES - OH ELEC DIST / SE | CONDARY CO | NDUCTORS | <u> </u> | | Install | |
| 11 | | | 0701401 | LABOR CONTINGENC | | | | | | Install | |
| 11 | | | 0803002 | LTNG ARR ASSY,LINE | | | | | | Remove | |
| 11 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | | Install | |
| 11 | | | 0816043 | | CONDUCTOR, 3/0 AWAC | | | | | Install | |
| 11 | | | 0821042 | POLE GROUND ASSY | | LLOADDDEAG | (NON OD A | DIJICAL CU | | Install | |
| 11 | | | 925006NG | | :100A,6T,1PH,14.4KV,NON | | | | | Remove | |
| 11 | | | 925010NG | | :100A,10T,1PH,14.4KV,NC | | | | | Install | |
| 11 | | | 1005301 | 333KVA) | I ASSY, W/ANIMAL PROTI | | DUAL VOLI | AGE (10 10 | | Install | |
| 11 | | | 1010025 | | , PT, CONV, 2400-120/240 | | / A | | | Remove | |
| 11 | | • | 1030025 | TRANSFORMER, 1PH | , PT, CONV, 2400X7200-1 | * | | | 21 11 | Install | |
| 40 | | | 0404040 | INO DOLE DOLE ACCO | | Number: | 137450 | 88 | Station | 11 Sub Total: | 0.00 |
| 12 | | | 0104612 | | /, SINGLE EQUIP BRKT | | | | | Install | |
| 12 | | (| 0108110 | NEUTRAL BRKT ASSE | =MRLY | | | | | Remove | |

| | | | Design | Estimate Summ | ary Report – Su | ervisor's Co | nstruction | | | |
|----------|---------------|-------------|-----------|--------------------|--------------------------|-----------------|------------------|--------|-----------------|----------|
| Engineer | Lead: HGRAVIN | 0 | Cos | st Center: | | Print Date: 09 | -Dec-16 12:59 PI | И | | |
| | WO Number | Oracle Numb | er To | tal Project Cost | Capital Hours | Service Hou | irs Total Ho | urs | Construction R | Resource |
| | 745088 | | | <u> </u> | | | | | | |
| Station | G- Macro CU | Macro CU | CU | | Macro/ Macro / CU | Assembly Desc | ription | Qty | Operation | Time Rqd |
| 12 | | | 0114102 | MESSENGER BRKT A | | | | | Install | |
| 12 | | | 0140201 | | 6,2,EMBEDDED EARTH C | | | | Remove | |
| 12 | | | 0145201 | | 6,2,EMBEDDED EARTH C | NLY | | | Install | |
| 12 | | | 0306001 | CROSS ARM PIN ASS | | | | | Remove | |
| 12 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 12 | | | 0401210 | | AND SPOOL INSULATOR | | _ | | Install | |
| 12 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, | | | | Remove | |
| 12 | | | 0601401 | | CIES - OH ELEC DIST / SE | CONDARY CONDU | ICTORS | | Install | |
| 12 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 12 | | | 0803002 | LTNG ARR ASSY,LINE | | | | | Remove | |
| 12 | | | 0809002 | LTNG ARR ASSY,LINE | | ED. #0E | | | Install | |
| 12 | | | 0816130 | | T EYE NUT, 3/0 ALUM, S | ERVICE | | | Install | |
| 12 | | | 0821042 | POLE GROUND ASSY | | DALLOADDDEAK NE | ON OBABILION OU | | Install | |
| 12 | | | 0925015NG | | :100A,15T,1PH,14.4KV,N0 | | | | Install | |
| 12 | | | 0925040NG | | :100A,40T,1PH,14.4KV,N0 | | | | Remove | |
| 12 | | | 1005301 | 333KVA) | I ASSY, W/ANIMAL PROT | | L VOLTAGE (10 TO | | Install | |
| 12 | | | 1010050 | <u> </u> | , PT, CONV, 2400-120/24 | * | | | Remove | |
| 12 | | | 1030050 | TRANSFORMER, 1PH | , PT, CONV, 2400X7200- | | | | Install | |
| | | | | | | O Number: 13 | 3745088 | Statio | n 12 Sub Total: | 0.00 |
| 13 | | | 0114102 | MESSENGER BRKT A | | | | | Install | |
| 13 | | | 0140201 | | 3,2,EMBEDDED EARTH C | | | | Remove | |
| 13 | | | 0145201 | • | 3,2,EMBEDDED EARTH C | NLY | | | Install | |
| 13 | | | 0306001 | CROSS ARM PIN ASS | | | | | Remove | |
| 13 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 13 | | | 0401210 | SECONDARY CLEVIS | AND SPOOL INSULATOR | र | | | Remove | |
| 13 | | | 0401210 | | AND SPOOL INSULATOR | | | | Install | |
| 13 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | ALUMINUM CONDU | C. | | Remove | |
| 13 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 13 | | | 0816130 | | T EYE NUT, 3/0 ALUM, S | ERVICE | | | Install | |
| 13 | | | 0821042 | POLE GROUND ASSY | ,ROD | | | | Install | |
| | | | | | | Number: 13 | 3745088 | Statio | n 13 Sub Total: | 0.00 |
| 14 | | | 0104612 | INS POLE BRKT ASSY | /, SINGLE EQUIP BRKT | | | | Install | |
| 14 | | | 0114102 | MESSENGER BRKT A | | | | | Install | |
| 14 | | | 0140201 | POLE:WOOD,40FT LG | 3,2,EMBEDDED EARTH C | NLY | | | Remove | |
| 14 | | | 0145201 | * | 3,2,EMBEDDED EARTH C | NLY | | | Install | |
| 14 | | | 0306001 | CROSS ARM PIN ASS | Y 8-10 ARM | | | | Remove | |
| 14 | | | 0308112 | 8FT SINGLE ARM BRA | ACE ASSY | | | | Remove | |
| 14 | | | 0401210 | | AND SPOOL INSULATOR | | | | Remove | |
| 14 | | | 0401210 | SECONDARY CLEVIS | AND SPOOL INSULATOR | ₹ | | | Install | |
| 14 | | | 0405207 | PIN INSULATOR ASSY | Y W/ TIE WIRE, SINGLE, | ALUMINUM CONDU | C. | | Remove | |

| | | | Design | Estimate Summ | ary Report – Sup | ervisor's (| Constr | uction | | | |
|----------|---------------------|-------------|--------------------|----------------------|--|----------------|-----------|-------------|---------|----------------|----------|
| Engineer | Lead: HGRAVIN | 10 | Cos | st Center: | | Print Date: | 09-Dec- | 16 12:59 PM | | | |
| | WO Number 745088 | Oracle Numb | per To | tal Project Cost | Capital Hours | Service F | lours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly De | escriptio | n | Qty | Operation | Time Rqd |
| 14 | | 1 | 0601401 | | IES - OH ELEC DIST / SE | | | | | Install | • |
| 14 | | | 0701401 | LABOR CONTINGENC | IES - ELEC SERVICE | | | | | Install | |
| 14 | | | 0809002 | LTNG ARR ASSY,LINE | 9KV | | | | | Install | |
| 14 | | | 0816130 | GRIP PREFORMED, A | T EYE NUT, 3/0 ALUM, S | ERVICE | | | | Install | |
| 14 | | | 0821042 | POLE GROUND ASSY | ,ROD | | | | | Install | |
| 14 | | | 0925010NG | FUSE CUTOUT ASSY: | 100A,10T,1PH,14.4KV,NC | N-LOADBREAK | K, NON-GR | APHICAL CU | | Install | |
| 14 | | | 1005301 | 333KVA) | ASSY, W/ANIMAL PROT | | | AGE (10 TO | | Install | |
| 14 | | | 1030025 | TRANSFORMER, 1PH | , PT, CONV, 2400X7200-1 | 20/240V, 25KVA | A | | | Install | |
| | | | | | | Number: | 137450 | 88 | Station | 14 Sub Total: | 0.00 |
| 15 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | | Install | |
| 15 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | | Install | |
| 15 | | | 0109310 | EQUIPMENT MOUNT | | | | | | Remove | |
| 15 | | | 0114102 | MESSENGER BRKT A | | | | | | Install | |
| 15 | | | 0145201 | · | ,2,EMBEDDED EARTH O | NLY | | | | Install | |
| 15 | | | 0306001 | CROSS ARM PIN ASS | | | | | | Remove | |
| 15 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | | Remove | |
| 15 | | | 0401210 | | AND SPOOL INSULATOR | | | | | Install | |
| 15 | | | 0401210 | | AND SPOOL INSULATOR | | | | | Remove | |
| 15 | | | 0405207 | | W/ TIE WIRE, SINGLE, | ALUMINUM CON | NDUC. | | | Remove | |
| 15 | | | 0701401 | LABOR CONTINGENC | | | | | | Install | |
| 15 | | | 0803002 | LTNG ARR ASSY,LINE | • | | | | | Remove | |
| 15 | | | 0809002 | LTNG ARR ASSY,LINE | | ED) (10E | | | _ | Install | |
| 15 | | | 0816130 | | T EYE NUT, 3/0 ALUM, S | ERVICE | | | _ | Install | |
| 15 | | | 0821042 | POLE GROUND ASSY | • | NI LOADDDEAL | (NON OD | ADUIDAL OU | _ | Install | |
| 15 | | | 0925010NG | | 100A,10T,1PH,14.4KV,NC | | | | | Install | |
| 15 | | | 0925025NG | | 100A,25T,1PH,14.4KV,NC | | | | _ | Remove | |
| 15 | | | 1005301 | 333KVA) | ASSY, W/ANIMAL PROT | | | AGE (10 10 | | Install | |
| 15 | | | 1030025 | | , PT, CONV, 2400X7200-1 | | 4 | | _ | Install | |
| 15 | | | 1204030 | | XED BANK, 4KV, 300KVA | | | | _ | Remove | |
| 15 | | | 1204030 | | XED BANK, 4KV, 300KVA | | | | | Remove | |
| 15 | | | 1204030 | CAPACITOR ASSY, FI. | XED BANK, 4KV, 300KVA | | | | 21.11 | Remove | |
| 40 | | | 0404040 | INIC DOLE PRIZE ACCO | | Number: | 137450 | 88 | Station | 15 Sub Total: | 0.00 |
| 16 | | | 0104612 | | ', SINGLE EQUIP BRKT | | | | | Remove | |
| 16 16 | | | 0401210 0403247 | | AND SPOOL INSULATOR ND ASSEMBLY, 336 SPC | | | | | Install | |
| 16 | | | 0601401 | | IES - OH ELEC DIST / SE | | NDI ICTOR | 2 | | Install | |
| 16 | | | 0701401 | LABOR CONTINGENC | | CONDART CON | ADOCIOR: | J | | Install | |
| 16 | | | 0803002 | LTNG ARR ASSY,LINE | | | | | | Remove | |
| 16 | | | 0803002 | | CONDUCTOR, 3/0 AWAC | | | | | Remove | |
| 16 | | | 0816130 | | T EYE NUT, 3/0 ALUM, S | EDVICE | | | | | |
| 10 | | | 0010130 | GRIF FREFURIVIED, A | TETE NOT, 3/U ALUM, 5 | LIVIUE | | | | Install | |

| | | | Design | Estimate Summ | ary Report – Sup | ervisor's Constr | uction | | | |
|------------|-----------------------|--------------|----------------------|--------------------------|--|----------------------|--------------|---------|-------------------|----------|
| Engineer | Lead: HGRAVIN | 0 | Cos | t Center: | | Print Date: 09-Dec- | ·16 12:59 PM | | | |
| Maximo | WO Number | Oracle Numbe | er To | tal Project Cost | Capital Hours | Service Hours | Total Hours | | Construction R | esource |
| - | 745088 G- Macro CU | Macro CU | CU | Crond | Maara/Maara/CU | Accombly Decements | | Otre | Onevetion | Time Dad |
| Station 16 | G- Macro CU | Macro CU | 0821042 | POLE GROUND ASSY | | Assembly Description | on | Qty | Operation | Time Rqd |
| 16 | | | 0821042 0925040NG | | | ON-LOADBREAK, NON-GR | ADUICAL CIT | _ | Install Remove | |
| 16 | | | 1010050 | | , PT, CONV, 2400-120/240 | | APHICAL CO | | Remove | |
| 10 | | | 1010050 | TRANSFURIMER, IPH | | O Number: 137450 | 100 | Station | 16 Sub Total: | 0.00 |
| 17 | | | 0104612 | INS DOLE ROKT ASSV | /, SINGLE EQUIP BRKT | J Number. 137450 | 100 | Station | Install | 0.00 |
| 17 | | | 0104012 | DEADEND BRKT ASSI | | | | _ | Install | |
| 17 | | | 0140201 | | 3,2,EMBEDDED EARTH O | NI V | | + | Remove | |
| 17 | | | 0145201 | | 6,2,EMBEDDED EARTH O | | | - | Install | |
| 17 | | | 0308216 | 8FT STD DBLARM BRA | | 1121 | | | Remove | |
| 17 | | | 0401210 | | AND SPOOL INSULATOR | ₹ | | - | Install | |
| 17 | | | 0403208 | | ND ASSEMBLY, #6 SOL (| | | | Remove | |
| 17 | | | 0403247 | | ND ASSEMBLY, 336 SPC | | | | Install | |
| 17 | | | 0501016 | GUY STRAND ASSY 1 | · · · · · · · · · · · · · · · · · · · | | | | Install | |
| 17 | | | 0516201 | 16M GUY & ANCHOR | ASSY,10IN TWIN HELIX,2 | 24IN FBGL STRAIN INS | | | Install | |
| 17 | | | 0516701 | | ,24IN FBGL STRAIN INS | | | | Install | |
| 17 | | | 0601401 | LABOR CONTINGENC | IES - OH ELEC DIST / SE | CONDARY CONDUCTOR | S | | Install | |
| 17 | | | 0701401 | LABOR CONTINGENC | CIES - ELEC SERVICE | | | | Install | |
| 17 | | | 0809002 | LTNG ARR ASSY,LINE | 9KV | | | | Install | |
| 17 | | | 0815008 | NEUTRAL DEADEND | CLAMP ASSY, #6 SOL CU | J | | | Remove | |
| 17 | | | 0816043 | GRIP, PREFORMED, O | CONDUCTOR, 3/0 AWAC | | | | Install | |
| 17 | | | 0816130 | GRIP PREFORMED, A | T EYE NUT, 3/0 ALUM, S | ERVICE | | | Install | |
| 17 | | | 0816130 | GRIP PREFORMED, A | T EYE NUT, 3/0 ALUM, S | ERVICE | | | Remove | |
| 17 | | | 0821042 | POLE GROUND ASSY | ,ROD | | | | Install | |
| 17 | | | 0925010NG | FUSE CUTOUT ASSY: | 100A,10T,1PH,14.4KV,NC | ON-LOADBREAK, NON-GR | APHICAL CU | | Install | |
| 17 | | | 1005301 | TRANS CONNECTION 333KVA) | ASSY, W/ANIMAL PROT | ECTOR 7.2KV/DUAL VOL | TAGE (10 TO | | Install | |
| 17 | | | 1030025 | TRANSFORMER, 1PH | , PT, CONV, 2400X7200-1 | 20/240V, 25KVA | | | Install | |
| | | | | | | O Number: 137450 | 88 | Station | 17 Sub Total: | 0.00 |
| 18 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Remove | |
| 18 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Install | |
| 18 | | | 0114512 | | SEMBLY, 5-50 DEG, SPA | CER | | | Install | |
| 18 | | | 0310112 | 10FT SINGLE ARM BR | | | | | Remove | |
| 18 | | | 0401210 | | AND SPOOL INSULATOR | | | | Install | |
| 18 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | | | | Install | |
| 18 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | ALUMINUM CONDUC. | | | Remove | |
| 18 | | | 0501016 | GUY STRAND ASSY 1 | | | | | Install | |
| 18 | | | 0516201 | | ASSY,10IN TWIN HELIX,2 | | | | Install | |
| 18 | | | 0601401 | | | CONDARY CONDUCTOR | S | | Install | |
| 18 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 18 | | | 0803002 | LTNG ARR ASSY,LINE | <u>* </u> | | | | Remove | |
| 18 | | | 0809002 | LTNG ARR ASSY,LINE | 9KV | | | | Install | |

| | | | | Estimate Summ | ary Report – Suj | pervisor's (| Construction | | | |
|----------|----------------------|--------------|-----------|--------------------|-------------------------|-----------------|--------------------|----------|-----------------|----------|
| Engineer | Lead: HGRAVIN | 0 | Cos | st Center: | | Print Date: | 09-Dec-16 12:59 PM | 1 | | |
| | WO Number 8745088 | Oracle Numbe | er To | tal Project Cost | Capital Hours | Service H | lours Total Hou | irs | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly De | escription | Qty | Operation | Time Rqd |
| 18 | | 1 | 0816043 | GRIP, PREFORMED, O | CONDUCTOR, 3/0 AWAC | | • | | Install | |
| 18 | | | 0816130 | GRIP PREFORMED, A | T EYE NUT, 3/0 ALUM, S | ERVICE | | | Install | |
| 18 | | | 0817035 | NEUTRAL SWINGING | CORNER ASSY, #2-3/0 A | ACSR/AAAC | | | Install | |
| 18 | | | 0821042 | POLE GROUND ASSY | ,ROD | | | | Install | |
| 18 | | | 0925015NG | FUSE CUTOUT ASSY: | 100A,15T,1PH,14.4KV,N | ON-LOADBREAK | , NON-GRAPHICAL CU | | Install | |
| 18 | | | 0925040NG | FUSE CUTOUT ASSY: | 100A,40T,1PH,14.4KV,N | ON-LOADBREAK | , NON-GRAPHICAL CU | | Remove | |
| 18 | | | 1005301 | 333KVA) | ASSY, W/ANIMAL PROT | | UAL VOLTAGE (10 TO | | Install | |
| 18 | | | 1010050 | TRANSFORMER, 1PH | , PT, CONV, 2400-120/24 | 0V, 50KVA | | | Remove | |
| 18 | | | 1030050 | TRANSFORMER, 1PH | , PT, CONV, 2400X7200- | 120/240V, 50KVA | 1 | | Install | |
| | | | | | W | O Number: | 13745088 | Statio | n 18 Sub Total: | 0.00 |
| 19 | | | 0114512 | ANGLE BRACKET ASS | SEMBLY, 5-50 DEG, SPA | CER | | | Install | |
| 19 | | | 0140201 | POLE:WOOD,40FT LG | 3,2,EMBEDDED EARTH C | NLY | | | Remove | |
| 19 | | | 0145201 | POLE:WOOD,45FT LG | 3,2,EMBEDDED EARTH C | NLY | | | Install | |
| 19 | | | 0306001 | CROSS ARM PIN ASS | Y 8-10 ARM | | | | Remove | |
| 19 | | | 0308216 | 8FT STD DBLARM BR | ACE ASSY | | | | Remove | |
| 19 | | | 0401210 | SECONDARY CLEVIS | AND SPOOL INSULATO | ₹ | | | Install | |
| 19 | | | 0403208 | CONDUCTOR DEADE | ND ASSEMBLY, #6 SOL | CU | | | Remove | |
| 19 | | | 0405207 | PIN INSULATOR ASSY | W/ TIE WIRE, SINGLE, | ALUMINUM CON | IDUC. | | Install | |
| 19 | | | 0405208 | PIN INSULATOR ASSY | W/ TIE WIRE, DOUBLE, | ALUMINUM CO | NDUC. | | Remove | |
| 19 | | | 0601401 | LABOR CONTINGENO | IES - OH ELEC DIST / SE | CONDARY CON | IDUCTORS | | Install | |
| 19 | | | 0815008 | NEUTRAL DEADEND | CLAMP ASSY, #6 SOL CI | J | | | Remove | |
| 19 | | | 0816043 | GRIP, PREFORMED, (| CONDUCTOR, 3/0 AWAC | | | | Install | |
| 19 | | | 0817035 | | CORNER ASSY, #2-3/0 A | | | | Install | |
| 19 | | | 0821042 | POLE GROUND ASSY | | | | | Install | |
| | | | | | | O Number: | 13745088 | Station | n 19 Sub Total: | 0.00 |
| 20 | | | 0108110 | NEUTRAL BRKT ASSE | | <u> </u> | 107-10000 | <u> </u> | Remove | 0.00 |
| 20 | | | 0109310 | EQUIPMENT MOUNT | | | | | Remove | |
| 20 | | | 0114102 | MESSENGER BRKT A | | | | | Install | |
| 20 | | | 0140201 | | 6,2,EMBEDDED EARTH C | NLY | | | Remove | |
| 20 | | | 0145201 | | 6,2,EMBEDDED EARTH C | | | | Install | |
| 20 | | | 0310112 | 10FT SINGLE ARM BR | | | | | Remove | |
| 20 | | | 0405207 | | W/ TIE WIRE, SINGLE, | ALUMINUM CON | IDUC. | | Remove | |
| 20 | | | 0803002 | LTNG ARR ASSY,LINE | | | | | Remove | |
| 20 | | | 0821042 | POLE GROUND ASSY | | | | | Install | |
| 20 | | | 0925025NG | | 100A,25T,1PH,14.4KV,N | ON-LOADBREAK | NON-GRAPHICAL CU | | Remove | |
| 20 | | | 1204030 | | XED BANK, 4KV, 300KVA | | ., | | Remove | |
| 20 | | | 1204030 | <u> </u> | XED BANK, 4KV, 300KVA | | | | Remove | |
| 20 | | | 1204030 | • | XED BANK, 4KV, 300KVA | | | | Remove | |
| | | | | 2 | | O Number: | 13745088 | Station | n 20 Sub Total: | 0.00 |
| 21 | | | 0104612 | INS POLE BRKT ASSY | /, SINGLE EQUIP BRKT | J Nulliber: | 13743000 | Station | Install | 0.00 |

| | | | Design | Estimate Summa | ary Report – Sup | ervisor's Constr | ruction | | | |
|----------|---------------------|-------------|-----------|--------------------|--------------------------|----------------------|---------------|---------|----------------|----------|
| Engineer | Lead: HGRAVIN | 10 | Cos | t Center: | | Print Date: 09-Dec | :-16 12:59 PM | | | |
| Maximo | WO Number 745088 | Oracle Numb | er To | tal Project Cost | Capital Hours | Service Hours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Description | on | Qty | Operation | Time Rqd |
| 21 | | | 0108110 | NEUTRAL BRKT ASSE | EMBLY | · · · | l . | | Remove | |
| 21 | | | 0114102 | MESSENGER BRKT A | SSEMBLY | | | | Install | |
| 21 | | | 0308112 | 8FT SINGLE ARM BRA | ACE ASSY | | | | Remove | |
| 21 | | | 0308216 | 8FT STD DBLARM BRA | ACE ASSY | | | | Remove | |
| 21 | | | 0403203 | CONDUCTOR DEADER | ND ASSEMBLY, .36 in, 1 | /0-3/0 ACSR/AAAC | | | Install | |
| 21 | | | 0403208 | | ND ASSEMBLY, #6 SOL (| | | | Remove | |
| 21 | | | 0405207 | PIN INSULATOR ASSY | / W/ TIE WIRE, SINGLE, A | ALUMINUM CONDUC. | | | Remove | |
| 21 | | | 0601401 | LABOR CONTINGENC | IES - OH ELEC DIST / SE | CONDARY CONDUCTOR | RS | | Install | |
| 21 | | | 0699101 | MATERIAL CONTINGE | ENCIES - OH ELEC DIST | SECONDARY CONDUCT | TORS | | Install | |
| 21 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | Install | |
| 21 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | Install | |
| 21 | | | 0815008 | | CLAMP ASSY, #6 SOL CL | J | | | Remove | |
| 21 | | | 0821042 | POLE GROUND ASSY | • | | | | Install | |
| 21 | | | 0925025NG | FUSE CUTOUT ASSY: | 100A,25T,1PH,14.4KV,NC | ON-LOADBREAK, NON-G | RAPHICAL CU | | Install | |
| | | | | | WC | Number: 13745 | 088 | Station | 21 Sub Total: | 0.00 |
| 22 | | | 0106108 | POLE TOP PIN ASSY | | | | | Remove | |
| 22 | | | 0106108 | POLE TOP PIN ASSY | | | | | Install | |
| 22 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Remove | |
| 22 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Install | |
| 22 | | | 0401210 | | AND SPOOL INSULATOR | | | | Install | |
| 22 | | | 0401210 | | AND SPOOL INSULATOR | | | | Remove | |
| 22 | | | 0405207 | | W TIE WIRE, SINGLE, A | | | | Remove | |
| 22 | | | 0405207 | PIN INSULATOR ASSY | W TIE WIRE, SINGLE, A | ALUMINUM CONDUC. | | | Install | |
| 22 | | | 0501016 | GUY STRAND ASSY 1 | | | | | Install | |
| 22 | | | 0516201 | | ASSY,10IN TWIN HELIX,2 | | | | Install | |
| 22 | | | 0699101 | | | SECONDARY CONDUCT | TORS | | Install | |
| 22 | | | 0821042 | POLE GROUND ASSY | * | | | | Install | |
| | | | | | | Number: 13745 | 088 | Station | 22 Sub Total: | 0.00 |
| 23 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Install | |
| 23 | | | 0106108 | POLE TOP PIN ASSY | | | | | Remove | |
| 23 | | | 0106108 | POLE TOP PIN ASSY | | | | | Install | |
| 23 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Install | |
| 23 | | | 0401210 | | AND SPOOL INSULATOR | | | | Remove | |
| 23 | | | 0401210 | | AND SPOOL INSULATOR | | | | Install | |
| 23 | | | 0405207 | | / W/ TIE WIRE, SINGLE, A | | | | Remove | |
| 23 | | | 0405207 | | / W/ TIE WIRE, SINGLE, A | | | | Install | |
| 23 | | | 0601401 | | | CONDARY CONDUCTOR | | | Install | |
| 23 | | | 0699101 | | | SECONDARY CONDUCT | TORS | | Install | |
| 23 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 23 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | Install | |
| 23 | | | 0816130 | GRIP PREFORMED, A | T EYE NUT, 3/0 ALUM, S | ERVICE | | | Install | |

| | | | | | ary Report – Sup | | | | | |
|---------|---------------------|---------------|--------------------|--------------------------|--------------------------|----------------------|---------------|---------|-------------------|----------|
| | Lead: HGRAVIN | 0 | | t Center: | | Print Date: 09-Dec | :-16 12:59 PM | | | |
| - | WO Number 745088 | Oracle Number | Tot | al Project Cost | Capital Hours | Service Hours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Descripti | on | Qty | Operation | Time Rqd |
| 23 | | | 0821042 | POLE GROUND ASSY | ,ROD | | | | Install | |
| 23 | | 0: | 925010NG | | 100A,10T,1PH,14.4KV,NC | | | | Install | |
| 23 | | | 1005301 | TRANS CONNECTION 333KVA) | ASSY, W/ANIMAL PROT | ECTOR 7.2KV/DUAL VOL | TAGE (10 TO | | Install | |
| 23 | | | 1030025 | TRANSFORMER, 1PH | , PT, CONV, 2400X7200-1 | 20/240V, 25KVA | | | Install | |
| | | | | | | Number: 13745 | 088 | Station | 23 Sub Total: | 0.00 |
| 24 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Install | |
| 24 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Remove | |
| 24 | | | 0106108 | POLE TOP PIN ASSY | | | | | Install | |
| 24 | | | 0106108 | POLE TOP PIN ASSY | | | | | Remove | |
| 24 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Install | |
| 24 | | | 0401210 | | AND SPOOL INSULATOR | | | _ | Install | |
| 24 | | | 0405207 | | W/ TIE WIRE, SINGLE, A | | | | Remove | |
| 24 | | | 0405207 0701401 | LABOR CONTINGENC | W TIE WIRE, SINGLE, A | ALUMINUM CONDUC. | | | Install | |
| 24 | | | 0803002 | LTNG ARR ASSY,LINE | | | | _ | Install Remove | |
| 24 | | | 0809002 | LTNG ARR ASSY,LINE | • | | | | Install | |
| 24 | | | 0816130 | • | T EYE NUT, 3/0 ALUM, SI | EDVICE | | | Install | |
| 24 | | | 0821042 | POLE GROUND ASSY | | LIVIOL | | | Install | |
| 24 | | | 925015NG | | 100A,15T,1PH,14.4KV,NC | N-I OADBREAK NON-G | RAPHICAL CIJ | _ | Install | |
| 24 | | | 925040NG | | 100A,40T,1PH,14.4KV,NC | | | | Remove | |
| 24 | | | 1005301 | | ASSY, W/ANIMAL PROT | | | | Install | |
| 24 | | | 1010050 | | , PT, CONV, 2400-120/240 |)V, 50KVA | | | Remove | |
| 24 | | | 1030050 | TRANSFORMER, 1PH | , PT, CONV, 2400X7200-1 | 20/240V, 50KVA | | | Install | |
| | | | | | WC | Number: 13745 | 088 | Station | 24 Sub Total: | 0.00 |
| 25 | | | 0106108 | POLE TOP PIN ASSY | | | | | Remove | |
| 25 | | | 0106108 | POLE TOP PIN ASSY | | | | | Install | |
| 25 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Install | |
| 25 | | | 0401210 | | AND SPOOL INSULATOR | | | | Remove | |
| 25 | | | 0401210 | | AND SPOOL INSULATOR | | | | Install | |
| 25 | | | 0405207 | | W/ TIE WIRE, SINGLE, A | | | | Install | |
| 25 | | | 0405207 | | W/ TIE WIRE, SINGLE, A | | | | Remove | |
| 25 | | | 0601401 | | IES - OH ELEC DIST / SE | | | | Install | |
| 25 | | | 0699101 | | ENCIES - OH ELEC DIST / | SECONDARY CONDUC | TORS | | Install | |
| 25 | | | 0821042 | POLE GROUND ASSY | , - | | | | Install | |
| | | | 0.10.10.15 | NIO DOL E 55175 1 5 5 1 | | Number: 13745 | 088 | Station | 25 Sub Total: | 0.00 |
| 26 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Install | |
| 26 | | | 0104612 | | ', SINGLE EQUIP BRKT | | | | Remove | |
| 26 | | | 0106108 | POLE TOP PIN ASSY | | | | | Remove | |
| 26 | | | 0106108 | POLE TOP PIN ASSY | MDLV | | | | Install | |
| 26 | | | 0108110 | NEUTRAL BRKT ASSE | IVIDLY | | | | Install | |

| | | | Design | Estimate Summ | nary Report – Sup | ervisor's C | onstru | ction | | | |
|----------|---------------|-------------|------------------------|----------------------|--|-----------------|------------|--------------|---------|-------------------|----------|
| | Lead: HGRAVIN | 10 | | st Center: | | Print Date: (| 09-Dec-1 | 16 12:59 PM | | | |
| | WO Number | Oracle Numb | per To | otal Project Cost | Capital Hours | Service Ho | ours | Total Hours | | Construction R | esource |
| | 745088 | | <u> </u> | | | | | | | | |
| Station | G- Macro CU | Macro CU | CU | | d Macro/ Macro / CU / | | scriptio | n | Qty | Operation | Time Rqd |
| 26 | | | 0401210 | | S AND SPOOL INSULATOR | | | | | Install | |
| 26 | | | 0405207 | | SY W/ TIE WIRE, SINGLE, A | | | | | Remove | |
| 26 | | | 0405207 | | SY W/ TIE WIRE, SINGLE, A | | | | | Install | |
| 26 | | | 0699101 | | ENCIES - OH ELEC DIST / | SECONDARY CO | ONDUCTO | DRS | | Install | |
| 26 | | | 0701401 | | CIES - ELEC SERVICE | | | | | Install | |
| 26 | | | 0803002 | LTNG ARR ASSY,LINE | | | | | | Remove | |
| 26 | | | 0809002 | LTNG ARR ASSY,LINE | | -DV//OF | | | | Install | |
| 26 26 | | | 0816130 0821042 | POLE GROUND ASSY | AT EYE NUT, 3/0 ALUM, SE | ERVICE | | | | Install | |
| 26 | | | 0821042 0925010NG | | | NI LOADDDEAK | NON CDA | PUICAL CII | | Install | |
| 26 | | | 0925010NG 0925015NG | | /:100A,10T,1PH,14.4KV,NO /:100A,15T,1PH,14.4KV,NO | | | | | Install | |
| 26 | | | 1005301 | | N ASSY, W/ANIMAL PROTI | | | | | Remove Install | |
| 20 | | | 1005301 | 333KVA) | V ASST, WANIMAL FROTE | EUTUR 1.2NVIDU | JAL VOLIA | AGE (10 TO | | IIIStaii | |
| 26 | | | 1010025 | | H, PT, CONV, 2400-120/240 |)V, 25KVA | | | | Remove | |
| 26 | | | 1030025 | TRANSFORMER, 1Ph | H, PT, CONV, 2400X7200-1 | 20/240V, 25KVA | | | | Install | |
| | | | | | WC | Number: | 1374508 | 38 | Station | 26 Sub Total: | 0.00 |
| 27 | | | 0104612 | INS POLE BRKT ASS' | Y, SINGLE EQUIP BRKT | - | | - | | Remove | |
| 27 | | | 0104612 | INS POLE BRKT ASS' | Y, SINGLE EQUIP BRKT | | | | | Install | |
| 27 | | | 0106108 | POLE TOP PIN ASSY | | | | | | Remove | |
| 27 | | | 0401210 | SECONDARY CLEVIS | S AND SPOOL INSULATOR | ? | | | | Install | |
| 27 | | | 0403203 | CONDUCTOR DEADE | END ASSEMBLY, .36 in, 1. | /0-3/0 ACSR/AAA | VC | | | Install | |
| 27 | | | 0405207 | PIN INSULATOR ASS | SY W/ TIE WIRE, SINGLE, A | ALUMINUM CONE | DUC. | | | Remove | |
| 27 | | | 0601401 | LABOR CONTINGENC | CIES - OH ELEC DIST / SE | CONDARY COND | DUCTORS | | | Install | |
| 27 | | | 0699101 | MATERIAL CONTING | ENCIES - OH ELEC DIST / | SECONDARY CO | ONDUCTO | RS | | Install | |
| 27 | | | 0701401 | LABOR CONTINGENO | CIES - ELEC SERVICE | | | | | Install | |
| 27 | | | 0803002 | LTNG ARR ASSY,LINE | | | | | | Remove | |
| 27 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | | Install | |
| 27 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 AC | | | | | Install | |
| 27 | | | 0816130 | · · | AT EYE NUT, 3/0 ALUM, SE | ERVICE | | | | Install | |
| 27 | | | 0821042 | POLE GROUND ASSY | * | | | | | Install | |
| 27 | | | 0925015NG | | Y:100A,15T,1PH,14.4KV,NO | , | | | | Install | |
| 27 | | | 0925040NG | | Y:100A,40T,1PH,14.4KV,NO | | | | | Remove | |
| 27 | | | 1005301 | 333KVA) | N ASSY, W/ANIMAL PROTI | | JAL VOLT | AGE (10 TO | | Install | |
| 27 | | | 1010050 | | H, PT, CONV, 2400-120/240 | | | | | Remove | |
| 27 | | | 1030050 | TRANSFORMER, 1PF | H, PT, CONV, 2400X7200-1 | * | | | | Install | |
| | | | | | | | 1374508 | 38 | Station | 27 Sub Total: | 0.00 |
| 28 | | | 0135401 | , | G,4,EMBEDDED EARTH O | NLY | | . | | Install | |
| 28 | | | 0501008 | GUY STRAND ASSY 8 | | | | | | Install | |
| 28 | | | 0501016 | GUY STRAND ASSY 1 | | | | | | Install | |
| 28 | | | 0508601 | | ASSY,FIBERGLASS STRAI | N INS | | | | Install | |
| 28 | | | 0516701 | 16M HEAD GUY ASS' | Y,24IN FBGL STRAIN INS | | · <u> </u> | | | Install | |

| | | | Docier | Estimata Summ | any Danast C | 'uporvioor's | Conctrict | | | | |
|----------|--------------------------|---------------|--------------------|--|---------------------------------------|--------------------|-------------|-------------|-------------|--------------------|----------|
| Engine | Loadi HCDAVIII | <u> </u> | | Estimate Summ | ary Report – S | | : 09-Dec-16 | | | | |
| | Lead: HGRAVINO WO Number | | | st Center: | Canital Harris | | | | | Construction | ocource. |
| | 3745088 | Oracle Number | | otal Project Cost | Capital Hours | Service I | 10015 | Total Hours | | Construction R | |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / C | U Assembly D | escription | | Qty | Operation | Time Rqd |
| | _ | | | · | | WO Number: | 13745088 | 3 | | 28 Sub Total: | 0.00 |
| 29 | | | 0401210 | SECONDARY CLEVIS | AND SPOOL INSULA | | | | | Install | |
| 29 | | | 0501016 | GUY STRAND ASSY 1 | | | | | | Install | |
| 29 | | | 0516201 | 16M GUY & ANCHOR | · | | | | | Install | |
| 29 | | | 0699101 | MATERIAL CONTINGE | | | CONDUCTOR | RS | | Install | |
| 29 | | | 0701401 | LABOR CONTINGENC | | | | | | Install | |
| 29 | | | 0816130 | GRIP PREFORMED, A | | | | | | Install | |
| | | | 04: | | | WO Number: | 13745088 | 3 | Station | 29 Sub Total: | 0.00 |
| 30 | | | 0114712 | DEADEND BRKT ASSI | | - | | | | Install | |
| 30 | | | 0145201 | POLE:WOOD,45FT LG | | | | | | Install | |
| 30 | | | 0403247 | CUX STRAND ASSY 1 | • | DPU | | | | Install | |
| 30 | | | 0501016 | GUY STRAND ASSY 1 | | OLE PIELIA VANO |)D | | | Install | |
| 30 | | | 0532201 | 16M DBL GUY & ANCH GRIP, PREFORMED, O | | | /T\ | | | Install | |
| 30 30 | | | 0816043 | GRIP, PREFORMED, C | | IAU | | | | Install | |
| 30 | | | 0821042 | FOLE GROUND ASSY | | WO N!- | 40745000 |) | C4c4 | Install | |
| 31 | | | 0109310 | EQUIPMENT MOUNT | | WO Number: | 13745088 | <u> </u> | otation | 30 Sub Total: | 0.00 |
| 31 31 | | | 0109310 0114712 | DEADEND BRKT ASSI | | | | | - | Install Install | |
| 31 | | | 0114712 | 8FT STD DBLARM BRA | • | | | | - | Remove | |
| 31 | | | 0403203 | CONDUCTOR DEADE | | in. 1/0-3/0 ACSP/A | AAC | | | Install | |
| 31 | | | 0403203 | CONDUCTOR DEADER | | | | | | Remove | _ |
| 31 | | | 0403208 | CONDUCTOR DEADER | | | | | - | Install | |
| 31 | | | 0501016 | GUY STRAND ASSY 1 | <u> </u> | | | | | Install | |
| 31 | | | 0516701 | 16M HEAD GUY ASSY | | NS | | | | Install | |
| 31 | | | 0532201 | 16M DBL GUY & ANCH | · | |)R | | | Install | |
| 31 | | | 0601401 | LABOR CONTINGENC | · | | | | | Install | |
| 31 | | | 0803002 | LTNG ARR ASSY,LINE | | | | | | Remove | |
| 31 | | | 0809002 | LTNG ARR ASSY,LINE | E 9KV | | | | | Install | |
| 31 | | | 0815003 | NEUTRAL DEADEND | · · · · · · · · · · · · · · · · · · · | | | | | Install | |
| 31 | | | 0815008 | NEUTRAL DEADEND | , | | | | | Remove | |
| 31 | | | 0816043 | GRIP, PREFORMED, C | | /AC | | | | Remove | |
| 31 | | | 0821042 | POLE GROUND ASSY | | | | | | Install | |
| 31 | | | 0925025NG | FUSE CUTOUT ASSY: | | • | • | | | Install | |
| 31 | | | 0925040NG | FUSE CUTOUT ASSY: | | <u> </u> | | | | Remove | |
| 31 | | 0 | 0925065NG | FUSE CUTOUT ASSY: | | <u> </u> | * | | | Install | |
| <u> </u> | | | 0400 | EQUIPMENT := | | WO Number: | 13745088 | 3 | Station | 31 Sub Total: | 0.00 |
| 32 | | | 0109310 | EQUIPMENT MOUNT | | | | | | Install | |
| 32 | | | 0114102 | MESSENGER BRKT A | | | | | | Install | |
| 32 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | _[] | Remove | |
| 32 | | | 0311218 | 11FT DOUBLE ARM BI | | TOP | | | _[] | Install | |
| 32 | | | 0401210 | SECONDARY CLEVIS | AND SPOOL INSULA | IUK | | | | Install | |

| Enginoer | Load: HCDA\/IN | 0 | | st Center: | iary Report – ou | pervisor's Constr | | | | |
|----------|----------------------------|---------------|-----------|--------------------------|-------------------------|-----------------------|--------------|----------|----------------|----------|
| | Lead: HGRAVIN WO Number | Oracle Number | | | Capital Hours | Service Hours | Total Hours | <u> </u> | Construction R | ocoures |
| | 745088 | Oracle Number | | tal Project Cost | Capital Hours | Service nours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | l Macro/ Macro / CU | Assembly Description | on | Qty | Operation | Time Rqd |
| 32 | | 1 | 0403203 | CONDUCTOR DEADE | END ASSEMBLY, .36 in, | 1/0-3/0 ACSR/AAAC | 1 | | Install | - |
| 32 | | | 0403208 | | END ASSEMBLY, #6 SOL | | | | Remove | |
| 32 | | | 0601401 | | | ECONDARY CONDUCTOR | RS | | Install | |
| 32 | | | 0809002 | LTNG ARR ASSY,LIN | | | | | Install | |
| 32 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | Install | |
| 32 | | | 0815008 | | CLAMP ASSY, #6 SOL C | | | | Remove | |
| 32 | | | 0816130 | | AT EYE NUT, 3/0 ALUM, S | SERVICE | | | Install | |
| 32 | | | 0821042 | POLE GROUND ASSY | | | | | Install | |
| 32 | | (|)925065NG | FUSE CUTOUT ASSY | ::100A,65T,1PH,14.4KV,N | ON-LOADBREAK, NON-GI | RAPHICAL CU | | Remove | |
| | | | | | | O Number: 13745 | 088 | Station | 32 Sub Total: | 0.00 |
| 33 | | | 0104612 | | Y, SINGLE EQUIP BRKT | | | | Install | |
| 33 | | | 0114102 | MESSENGER BRKT A | | | | | Install | |
| 33 | | | 0135401 | · | G,4,EMBEDDED EARTH C | | | | Remove | |
| 33 | | | 0140201 | , | G,2,EMBEDDED EARTH C | DNLY | | | Install | |
| 33 | | | 0306001 | CROSS ARM PIN ASS | | | | | Remove | |
| 33 | | | 0308216 | 8FT STD DBLARM BR | | | | | Remove | |
| 33 | | | 0401210 | | S AND SPOOL INSULATO | | | | Remove | |
| 33 | | | 0403203 | | END ASSEMBLY, .36 in, | | | | Remove | |
| 33 | | | 0405208 | | Y W/ TIE WIRE, DOUBLE | | | | Remove | |
| 33 | | | 0601401 | | | ECONDARY CONDUCTOR | RS | | Install | |
| 33 | | | 0809002 | LTNG ARR ASSY,LIN | | | | | Install | |
| 33 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | CSR/AAAC | | | Remove | |
| 33 | | | 0821042 | POLE GROUND ASSY | - | | | | Install | |
| | | | | | | O Number: 13745 | 088 | Station | 33 Sub Total: | 0.00 |
| 34 | | | 0104612 | | Y, SINGLE EQUIP BRKT | | | | Remove | |
| 34 | | | 0104612 | | Y, SINGLE EQUIP BRKT | | | | Install | |
| 34 | | | 0140201 | · | G,2,EMBEDDED EARTH C | | | | Install | |
| 34 | | | 0140201 | · | G,2,EMBEDDED EARTH C | | | | Remove | |
| 34 | | | 0403203 | | END ASSEMBLY, .36 in, | | | | Install | |
| 34 | | | 0403208 | | END ASSEMBLY, #6 SOL | | | | Remove | |
| 34 | | | 0601401 | | | ECONDARY CONDUCTOR | RS | | Install | |
| 34 | | | 0701401 | | CIES - ELEC SERVICE | | | | Install | |
| 34 | | | 0803002 | LTNG ARR ASSY,LINI | | | | | Remove | |
| 34 | | | 0809002 | LTNG ARR ASSY,LINI | | 000/1440 | | | Install | |
| 34 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | Install | |
| 34 | | | 0815008 | | CLAMP ASSY, #6 SOL C | U | | | Remove | |
| 34 | | | 0821042 | POLE GROUND ASSY | | ON LOADDDEAK NOW O | DARLIOAL OLL | | Install | |
| 34 | | | 0925010NG | | | ON-LOADBREAK, NON-GI | | | Install | |
| 34 | | (| 0925015NG | | | ON-LOADBREAK, NON-GI | | | Remove | |
| 34 | | | 1005301 | TRANS CONNECTION 333KVA) | N ASSY, W/ANIMAL PROT | TECTOR 7.2KV/DUAL VOL | .TAGE (10 TO | | Install | |

| | | | Design | Estimate Summ | ary Report – Sup | ervisor's Constr | uction | | | |
|----------|----------------------|---------------|------------|--------------------|--------------------------|-----------------------|--------------|---------|----------------|----------|
| Engineer | Lead: HGRAVIN | 0 | Cos | t Center: | | Print Date: 09-Dec- | -16 12:59 PM | | | |
| | WO Number 8745088 | Oracle Number | er Tot | tal Project Cost | Capital Hours | Service Hours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Description | on | Qty | Operation | Time Rqd |
| 34 | | | 1010025 | TRANSFORMER, 1PH, | , PT, CONV, 2400-120/240 | V, 25KVA | 1 | | Remove | - |
| 34 | | | 1030025 | TRANSFORMER, 1PH, | , PT, CONV, 2400X7200-1 | 20/240V, 25KVA | | | Install | |
| | | | | | WC | Number: 137450 | 188 | Station | 34 Sub Total: | 0.00 |
| 35 | | | 0104612 | INS POLE BRKT ASSY | , SINGLE EQUIP BRKT | | | | Install | |
| 35 | | | 0104612 | INS POLE BRKT ASSY | , SINGLE EQUIP BRKT | | | | Remove | |
| 35 | | | 0108110 | NEUTRAL BRKT ASSE | MBLY | | | | Remove | |
| 35 | | | 0114102 | MESSENGER BRKT A | | | | | Install | |
| 35 | | | 0140201 | POLE:WOOD,40FT LG | ,2,EMBEDDED EARTH O | NLY | | | Install | |
| 35 | | | 0140201 | POLE:WOOD,40FT LG | ,2,EMBEDDED EARTH O | NLY | | | Remove | |
| 35 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 35 | | | 0405207 | | W/ TIE WIRE, SINGLE, A | | | | Remove | |
| 35 | | | 0601401 | | | CONDARY CONDUCTOR | S | | Install | |
| 35 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 35 | | | 0803002 | LTNG ARR ASSY,LINE | , | | | | Remove | |
| 35 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | Install | |
| 35 | | | 0821042 | POLE GROUND ASSY | , | | | | Install | |
| 35 | | | 0925010NG | | | N-LOADBREAK, NON-GR | | | Install | |
| 35 | | | 0925015NG | | | N-LOADBREAK, NON-GR | | | Remove | |
| 35 | | | 1005301 | 333KVA) | | ECTOR 7.2KV/DUAL VOLT | TAGE (10 TO | | Install | |
| 35 | | | 1010025 | | , PT, CONV, 2400-120/240 | | | | Remove | |
| 35 | | | 1030025 | TRANSFORMER, 1PH, | , PT, CONV, 2400X7200-1 | | | | Install | |
| | | | | | | Number: 137450 | 188 | Station | 35 Sub Total: | 0.00 |
| 36 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Install | |
| 36 | | | 0114102 | MESSENGER BRKT A | | | | | Install | |
| 36 | | | 0140201 | • | ,2,EMBEDDED EARTH O | | | | Remove | |
| 36 | | | 0140201 | | ,2,EMBEDDED EARTH O | NLY | | | Install | |
| 36 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 36 | | | 0403203 | | ND ASSEMBLY, .36 in, 1 | | | | Install | |
| 36 | | | 0403208 | | ND ASSEMBLY, #6 SOL C | | | | Remove | |
| 36 | | | 0405207 | | / W/ TIE WIRE, SINGLE, A | ALUMINUM CONDUC. | | | Remove | |
| 36 | | | 0501008 | GUY STRAND ASSY 8 | | | | _ | Install | |
| 36 | | | 0508601 | | SSY,FIBERGLASS STRAI | | 0 | | Install | |
| 36 | | | 0601401 | | | CONDARY CONDUCTOR | 5 | | Install | |
| 36 | | | 0809002 | LTNG ARR ASSY,LINE | | 200/4440 | | | Install | |
| 36 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 AC | | | | Install | |
| 36 | | | 0815008 | | CLAMP ASSY, #6 SOL CU | | | | Remove | |
| 36 | | | 0821042 | POLE GROUND ASSY | · | | | | Install | |
| | | | 0.10.15.15 | | | Number: 137450 | 188 | Station | 36 Sub Total: | 0.00 |
| 37 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Remove | |
| 37 | | | 0104612 | INS POLE BRKT ASSY | , SINGLE EQUIP BRKT | | | | Install | |

| | | | Design | Estimate Summ | ary Report – Su | pervisor's Constr | ruction | | | |
|----------|---------------------|-------------|----------------------|--------------------------|-------------------------|--|---------------|---------|-------------------|----------|
| Engineer | Lead: HGRAVIN | 10 | Cos | st Center: | | Print Date: 09-Dec | -16 12:59 PM | | | |
| | WO Number 745088 | Oracle Numb | ber To | tal Project Cost | Capital Hours | Service Hours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Description | on | Qty | Operation | Time Rqd |
| 37 | | 1 | 0135401 | | ,4,EMBEDDED EARTH C | | | | Remove | |
| 37 | | | 0140201 | POLE:WOOD,40FT LG | ,2,EMBEDDED EARTH C | NLY | | | Install | |
| 37 | | | 0403203 | CONDUCTOR DEADE | ND ASSEMBLY, .36 in, | 1/0-3/0 ACSR/AAAC | | | Install | |
| 37 | | | 0403208 | CONDUCTOR DEADE | ND ASSEMBLY, #6 SOL | CU | | | Remove | |
| 37 | | | 0601401 | LABOR CONTINGENC | IES - OH ELEC DIST / SE | ECONDARY CONDUCTOR | lS . | | Install | |
| 37 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 37 | | | 0803002 | LTNG ARR ASSY,LINE | <u> </u> | | | | Remove | |
| 37 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | Install | |
| 37 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | Install | |
| 37 | | | 0815008 | | CLAMP ASSY, #6 SOL CU | J | | | Remove | |
| 37 | | | 0821042 | POLE GROUND ASSY | | | | | Install | |
| 37 | | | 0925015NG | | | ON-LOADBREAK, NON-GF | | | Install | |
| 37 | | | 0925040NG | | | ON-LOADBREAK, NON-GF | | | Remove | |
| 37 | | | 1005301 | TRANS CONNECTION 333KVA) | ASSY, W/ANIMAL PROT | ECTOR 7.2KV/DUAL VOL | TAGE (10 TO | | Install | |
| 37 | | | 1010050 | TRANSFORMER, 1PH | , PT, CONV, 2400-120/24 | 0V, 50KVA | | | Remove | |
| 37 | | | 1030050 | TRANSFORMER, 1PH | PT, CONV, 2400X7200- | 120/240V, 50KVA | | | Install | |
| | | | | | W | O Number: 13745 | 088 | Station | 37 Sub Total: | 0.00 |
| 38 | | | 0104612 | INS POLE BRKT ASSY | , SINGLE EQUIP BRKT | | | | Install | |
| 38 | | | 0104612 | INS POLE BRKT ASSY | , SINGLE EQUIP BRKT | | | | Remove | |
| 38 | | | 0135401 | POLE:WOOD,35FT LG | ,4,EMBEDDED EARTH C | NLY | | | Remove | |
| 38 | | | 0140201 | POLE:WOOD,40FT LG | ,2,EMBEDDED EARTH C | NLY | | | Install | |
| 38 | | | 0401210 | SECONDARY CLEVIS | AND SPOOL INSULATOR | R | | | Remove | |
| 38 | | | 0403203 | | ND ASSEMBLY, .36 in, | | | | Install | |
| 38 | | | 0403208 | | ND ASSEMBLY, #6 SOL | | | | Remove | |
| 38 | | | 0601401 | | | CONDARY CONDUCTOR | lS | | Install | |
| 38 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 38 | | | 0803002 | LTNG ARR ASSY,LINE | | | | | Remove | |
| 38 | | | 0809002 | LTNG ARR ASSY,LINE | | 000/4440 | | | Install | |
| 38 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | Install | |
| 38 | | | 0815008 | | CLAMP ASSY, #6 SOL CU | | | | Remove | |
| 38 | | | 0816130 | | T EYE NUT, 3/0 ALUM, S | EKVICE | | | Remove | |
| 38 | | | 0821042 | POLE GROUND ASSY | | | DADLIICAL CLI | | Install | |
| 38 | | | 0925025NG | | | ON-LOADBREAK, NON-GE | | | Install | |
| 38 38 | | | 0925040NG 1005301 | | | ON-LOADBREAK, NON-GF ECTOR 7.2KV/DUAL VOL | | | Remove Install | |
| | | | | 333KVA) | | | IAGE (IU IU | | เกรโสแ | |
| 38 | | | 1010050 | | , PT, CONV, 2400-120/24 | | | | Remove | |
| 38 | | | 1030101 | TRANSFORMER, 1PH | PT, CONV, 2400X7200- | 120/240V, 100KVA | | | Install | |
| | | | | | | O Number: 13745 | 088 | Station | 38 Sub Total: | 0.00 |
| 39 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Install | |
| 39 | | | 0114102 | MESSENGER BRKT A | SSEMBLY | | | | Install | |

| Design Estimate Summary Report – Supervisor's Construction | | | | | | | | | | |
|--|-------------|-------------|---|---------------------------------------|--------------------------|---------------------------|-------------|-----------------------|---------------|----------|
| | | | St Center: Print Date: 09-Dec-16 12:59 PM | | | | | | | |
| Maximo WO Number | | Oracle Numb | er T | otal Project Cost | Capital Hours | Service Hours Total Hours | | Construction Resource | | |
| 13 | 745088 | | | | | | | | | |
| Station | G- Macro CU | Macro CU | CU | | | Assembly Description | on | Qty | Operation | Time Rqd |
| 39 | | | 0140201 | | 3,2,EMBEDDED EARTH C | | | | Install | |
| 39 | | | 0140201 | | 6,2,EMBEDDED EARTH C | NLY | | | Remove | |
| 39 | | | 0306001 | CROSS ARM PIN ASS | | | | | Remove | |
| 39 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 39 | | | 0401210 | | AND SPOOL INSULATOR | | | | Install | |
| 39 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | | | | Remove | |
| 39 | | | 0601401 | | | CONDARY CONDUCTOR | S | | Install | |
| 39 | | | 0701401 | LABOR CONTINGENC | | | | _ | Install | |
| 39 | | | 0803002 | LTNG ARR ASSY,LINE | | | | _ | Remove | |
| 39 | | | 0809002 | LTNG ARR ASSY,LINE | | | | _ | Install | |
| 39 | | | 0821042 | POLE GROUND ASSY | · | | | _ | Install | |
| 39 | | | 0925015NG | | | N-LOADBREAK, NON-GR | | _ | Install | |
| 39 | | | 0925040NG | | | N-LOADBREAK, NON-GR | | _ | Remove | |
| 39 | | | 1005301 | 333KVA) | | ECTOR 7.2KV/DUAL VOL | TAGE (10 TO | | Install | |
| 39 | | | 1010050 | TRANSFORMER, 1PH | , PT, CONV, 2400-120/24 | OV, 50KVA | | | Remove | |
| 39 | | | 1030050 | TRANSFORMER, 1PH | , PT, CONV, 2400X7200- | 20/240V, 50KVA | | | Install | |
| | | | | | W | Number: 137450 | 188 | Station | 39 Sub Total: | 0.00 |
| 40 | | | 0106108 | POLE TOP PIN ASSY | | | | | Remove | |
| 40 | | | 0114712 | DEADEND BRKT ASSI | EMBLY, SPACER | | | | Install | |
| 40 | | | 0140201 | POLE:WOOD,40FT LG | 3,2,EMBEDDED EARTH C | NLY | | | Install | |
| 40 | | | 0140201 | POLE:WOOD,40FT LG | 3,2,EMBEDDED EARTH C | NLY | | | Remove | |
| 40 | | | 0401210 | SECONDARY CLEVIS | AND SPOOL INSULATOR | ₹ | | | Remove | |
| 40 | | | 0401210 | SECONDARY CLEVIS | AND SPOOL INSULATOR | ? | | | Install | |
| 40 | | | 0403247 | CONDUCTOR DEADE | ND ASSEMBLY, 336 SPC | | | | Install | |
| 40 | | | 0405207 | PIN INSULATOR ASSY | Y W/ TIE WIRE, SINGLE, A | ALUMINUM CONDUC. | | | Remove | |
| 40 | | | 0501016 | GUY STRAND ASSY 1 | | | | | Install | |
| 40 | | | 0516201 | | ASSY,10IN TWIN HELIX,2 | | | | Install | |
| 40 | | | 0815008 | | CLAMP ASSY, #6 SOL CU | J | | | Remove | |
| 40 | | | 0816043 | | CONDUCTOR, 3/0 AWAC | | | | Install | |
| 40 | | | 0816130 | | T EYE NUT, 3/0 ALUM, S | | | | Remove | |
| 40 | | | 0816130 | | T EYE NUT, 3/0 ALUM, S | ERVICE | | | Install | |
| 40 | | | 0821042 | POLE GROUND ASSY | | | | | Install | |
| | | | | | | Number: 137450 | 188 | Station | 40 Sub Total: | 0.00 |
| 41 | | | 0114712 | DEADEND BRKT ASS | | | | | Install | |
| 41 | | | 0140201 | · · · · · · · · · · · · · · · · · · · | 6,2,EMBEDDED EARTH C | | | | Install | |
| 41 | | | 0403247 | | ND ASSEMBLY, 336 SPC | | | | Install | |
| 41 | | | 0501016 | GUY STRAND ASSY 1 | | | | | Install | |
| 41 | | | 0516201 | | ASSY,10IN TWIN HELIX,2 | 24IN FBGL STRAIN INS | | | Install | |
| 41 | | | 0816043 | | CONDUCTOR, 3/0 AWAC | | | | Install | |
| 41 | | | 0821042 | POLE GROUND ASSY | ,ROD | | | | Install | |

| | | | Design | Estimate Summa | ary Report – Sup | ervisor's Constr | uction | | | |
|----------|---------------------|--------------|-----------|---------------------------------------|--------------------------|----------------------|--------------|---------|----------------|----------|
| Engineer | Lead: HGRAVIN | 0 | Cos | st Center: | | Print Date: 09-Dec | -16 12:59 PM | | | |
| Maximo | WO Number 745088 | Oracle Numbe | r To | tal Project Cost | Capital Hours | Service Hours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Description | on | Qty | Operation | Time Rqd |
| | | | | | W | Number: 137450 | 088 | Station | 41 Sub Total: | 0.00 |
| 42 | | | 0104612 | INS POLE BRKT ASSY | ', SINGLE EQUIP BRKT | | | | Install | |
| 42 | | | 0104612 | INS POLE BRKT ASSY | , SINGLE EQUIP BRKT | | | | Remove | |
| 42 | | | 0106108 | POLE TOP PIN ASSY | | | | | Remove | |
| 42 | | | 0114712 | DEADEND BRKT ASSE | EMBLY, SPACER | | | | Install | |
| 42 | | | 0140201 | POLE:WOOD,40FT LG | ,2,EMBEDDED EARTH O | NLY | | | Install | |
| 42 | | | 0140201 | POLE:WOOD,40FT LG | ,2,EMBEDDED EARTH O | NLY | | | Remove | |
| 42 | | | 0401210 | SECONDARY CLEVIS | AND SPOOL INSULATOR | ₹ | | | Install | |
| 42 | | | 0403247 | | ND ASSEMBLY, 336 SPC | | | | Install | |
| 42 | | | 0405207 | | W/ TIE WIRE, SINGLE, A | ALUMINUM CONDUC. | | | Remove | |
| 42 | | | 0501016 | GUY STRAND ASSY 1 | | | | | Install | |
| 42 | | | 0516201 | | ASSY,10IN TWIN HELIX,2 | | | | Install | |
| 42 | | | 0601401 | LABOR CONTINGENC | IES - OH ELEC DIST / SE | CONDARY CONDUCTOR | S | | Install | |
| 42 | | | 0701401 | LABOR CONTINGENC | IES - ELEC SERVICE | | | | Install | |
| 42 | | | 0803002 | LTNG ARR ASSY,LINE | | | | | Remove | |
| 42 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | Install | |
| 42 | | | 0816043 | | CONDUCTOR, 3/0 AWAC | | | | Install | |
| 42 | | | 0821042 | POLE GROUND ASSY | | | | | Install | |
| 42 | | | 0925015NG | FUSE CUTOUT ASSY: | 100A,15T,1PH,14.4KV,NC | ON-LOADBREAK, NON-GF | RAPHICAL CU | | Install | |
| 42 | | | 0925040NG | | | ON-LOADBREAK, NON-GF | | | Remove | |
| 42 | | | 1005301 | 333KVA) | | ECTOR 7.2KV/DUAL VOL | TAGE (10 TO | | Install | |
| 42 | | | 1010050 | | , PT, CONV, 2400-120/240 | | | | Remove | |
| 42 | | | 1030050 | TRANSFORMER, 1PH, | , PT, CONV, 2400X7200-1 | 20/240V, 50KVA | | | Install | |
| | | | | | | Number: 137450 | 088 | Station | 42 Sub Total: | 0.00 |
| 43 | | | 0114102 | MESSENGER BRKT A | | | | | Install | |
| 43 | | | 0135401 | · · · · · · · · · · · · · · · · · · · | ,4,EMBEDDED EARTH O | | | | Remove | |
| 43 | | | 0140201 | · · · · · · · · · · · · · · · · · · · | ,2,EMBEDDED EARTH O | | | | Install | |
| 43 | | | 0401210 | | AND SPOOL INSULATOR | | | | Install | |
| 43 | | | 0403208 | | ND ASSEMBLY, #6 SOL (| | | | Remove | |
| 43 | | | 0601401 | | | CONDARY CONDUCTOR | S | | Install | |
| 43 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 43 | | | 0815008 | | CLAMP ASSY, #6 SOL CL | | | | Remove | |
| 43 | | | 0816130 | <u> </u> | T EYE NUT, 3/0 ALUM, S | ERVICE | | | Install | |
| 43 | | | 0821042 | POLE GROUND ASSY | ,ROD | | | | Install | |
| | | | | | | Number: 137450 | 088 | Station | 43 Sub Total: | 0.00 |
| 44 | | | 0109310 | EQUIPMENT MOUNT | | | | | Install | |
| 44 | | | 0145201 | | ,2,EMBEDDED EARTH O | NLY | | | Install | |
| 44 | | | 0310216 | 10FT DBL ARM BRACE | | | | | Install | |
| 44 | | | 0310401 | | BERGLASS DEAD END C | | | | Install | |
| 44 | | | 0403247 | CONDUCTOR DEADER | ND ASSEMBLY, 336 SPC | | | | Install | |
| | | | | | | | | | | |

| | | | Design | Estimate Summ | ary Report – Sup | ervisor's Constru | uction | | | |
|----------|---------------|--------------|--------------------|----------------------|-----------------------------------|-----------------------|-------------|---------|-------------------|----------|
| Engineer | Lead: HGRAVIN | 10 | Cos | st Center: | | Print Date: 09-Dec- | 16 12:59 PM | | | |
| | WO Number | Oracle Numbe | r To | tal Project Cost | Capital Hours | Service Hours | Total Hours | (| Construction R | esource |
| | 745088 | | | | | | | | | |
| Station | G- Macro CU | Macro CU | CU | | | Assembly Descriptio | n | Qty | Operation | Time Rqd |
| 44 | | | 0501016 | GUY STRAND ASSY 1 | | | | | Install | |
| 44 | | | 0532201 | | HOR ASSEMBLY, TRIPLE | HELIX ANCHOR | | | Install | |
| 44 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | Install | |
| 44 | | | 0816043 | | CONDUCTOR, 3/0 AWAC | | | | Install | |
| 44 | | | 0821042 | POLE GROUND ASSY | | | | | Install | |
| 44 | | | 0821401 | GOAB SWITCH GROU | | | | _ | Install | |
| 44 | | | 0936601 | SWITCH:14.4KV,900A, | GOAB,HORIZONTAL,LOA | | | | Install | |
| | | | | | | Number: 137450 | 88 | Station | 44 Sub Total: | 0.00 |
| 45 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Install | |
| 45 | | | 0104612 | | , SINGLE EQUIP BRKT | | | _ | Remove | |
| 45 | | | 0114102 | MESSENGER BRKT A | | | | _ | Install | |
| 45 | | | 0114102 | MESSENGER BRKT A | | | | _ | Remove | |
| 45 | | | 0114712 | DEADEND BRKT ASSI | | | | _ | Install | |
| 45 | | | 0401210 | | AND SPOOL INSULATOR | | | _ | Install | |
| 45 | | | 0403203 | | ND ASSEMBLY, .36 in, 1 | | | _ | Install | |
| 45 | | | 0403208 | | ND ASSEMBLY, #6 SOL (| | | _ | Remove | |
| 45 | | | 0403247 | | ND ASSEMBLY, 336 SPC | | | | Install | |
| 45 | | | 0601401 | | | CONDARY CONDUCTORS | | | Install | |
| 45 | | | 0699101 | | | SECONDARY CONDUCTO | URS | | Install | |
| 45 | | | 0701401 | LABOR CONTINGENC | | | | _ | Install | |
| 45 | | | 0803002 | LTNG ARR ASSY,LINE | | | | _ | Remove | |
| 45 45 | | | 0809002 0815003 | LTNG ARR ASSY,LINE | : 9KV CLAMP ASSY, 1/0 - 3/0 A0 | 200/4440 | | _ | Install | |
| 45 | | | 0815003 | | CLAMP ASSY, #6 SOL CL | | | _ | Install | |
| 45 | | | 0816043 | | CONDUCTOR, 3/0 AWAC |) | | _ | Remove Install | |
| 45 | | | 0816130 | | T EYE NUT, 3/0 ALUM, S | EDVICE | | | Install | |
| 45 | | | 0816130 | · | T EYE NUT, 3/0 ALUM, S | | | | Remove | |
| 45 | | | 0821042 | POLE GROUND ASSY | | LIVIOL | | | Install | |
| 45 | | - | 0925015NG | | • | N-LOADBREAK, NON-GR | APHICAL CU | | Install | |
| 45 | | | 0925025NG | | | N-LOADBREAK, NON-GR | | | Install | |
| 45 | | | 0925040NG | | | N-LOADBREAK, NON-GR | | | Remove | |
| 45 | | | 1005301 | | | ECTOR 7.2KV/DUAL VOLT | | | Install | |
| | | | | 333KVA) | | | | | | |
| | | | | | | Number: 137450 | 88 | Station | 45 Sub Total: | 0.00 |
| 46 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Install | |
| 46 | | | 0145101 | • | ,1,EMBEDDED EARTH O | | | | Install | |
| 46 | | | 0145201 | | ,2,EMBEDDED EARTH O | NLY | | | Remove | |
| 46 | | | 0310216 | 10FT DBL ARM BRACI | | | | | Install | |
| 46 | | | 0310216 | 10FT DBL ARM BRACI | | | | | Remove | |
| 46 | | | 0403203 | | ND ASSEMBLY, .36 in, 1 | | | | Install | |
| 46 | | | 0403203 | CONDUCTOR DEADE | ND ASSEMBLY, .36 in, 1 | /0-3/0 ACSR/AAAC | | | Remove | |

| | | | Design | Estimate Summ | ary Report – Sup | ervisor's (| Constr | uction | | | |
|----------|---------------|-------------|-----------|--------------------------|--------------------------|--|-----------|--------------|---------|-----------------|----------|
| Engineer | Lead: HGRAVIN | 10 | Cos | st Center: | | Print Date: | 09-Dec- | ·16 12:59 PM | | | |
| | WO Number | Oracle Numb | er To | tal Project Cost | Capital Hours | Service F | lours | Total Hours | | Construction Re | esource |
| - | 745088 | | | | | <u>, </u> | | | | | |
| Station | G- Macro CU | Macro CU | CU | | Macro/ Macro / CU | | | | Qty | Operation | Time Rqd |
| 46 | | | 0601401 | | CIES - OH ELEC DIST / SE | CONDARY CON | NDUCTOR: | S | | Install | |
| 46 | | | 0701401 | LABOR CONTINGENO | | | | | | Install | |
| 46 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | | Install | |
| 46 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | | Install | |
| 46 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | | Remove | |
| 46 | | | 0816130 | | AT EYE NUT, 3/0 ALUM, S | ERVICE | | | | Install | |
| 46 | | | 0821042 | POLE GROUND ASSY | • | | | | | Install | |
| 46 | | | 0925025NG | | :100A,25T,1PH,14.4KV,NC | | | | | Install | |
| 46 | | | 1005301 | TRANS CONNECTION 333KVA) | I ASSY, W/ANIMAL PROT | ECTOR 7.2KV/D | DUAL VOLT | TAGE (10 TO | | Install | |
| 46 | | | 1010333 | | , PT, CONV, 2400-120/240 | OV, 333KVA | | | | Remove | |
| 46 | | | 1010333 | TRANSFORMER, 1PH | , PT, CONV, 2400-120/240 | OV, 333KVA | | | | Remove | |
| 46 | | | 1030101 | TRANSFORMER, 1PH | , PT, CONV, 2400X7200-1 | 20/240V, 100KV | /A | | | Install | |
| | | | | | | O Number: | 137450 | 88 | Station | 46 Sub Total: | 0.00 |
| 47 | | | 0104612 | | Y, SINGLE EQUIP BRKT | | | | | Install | |
| 47 | | | 0140201 | , | 3,2,EMBEDDED EARTH O | | | | | Remove | |
| 47 | | | 0145101 | | 6,1,EMBEDDED EARTH O | NLY | | | | Install | |
| 47 | | | 0310216 | 10FT DBL ARM BRAC | | | | | | Remove | |
| 47 | | | 0403203 | | ND ASSEMBLY, .36 in, 1 | | | | | Install | |
| 47 | | | 0403203 | | ND ASSEMBLY, .36 in, 1 | /0-3/0 ACSR/AA | AC | | | Remove | |
| 47 | | | 0701401 | LABOR CONTINGENO | | | | | | Install | |
| 47 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | | Install | |
| 47 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | | Install | |
| 47 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | | Remove | |
| 47 | | | 0816130 | | T EYE NUT, 3/0 ALUM, S | ERVICE | | | | Install | |
| 47 | | | 0821042 | POLE GROUND ASSY | | | | | | Install | |
| 47 | | | 0925025NG | | :100A,25T,1PH,14.4KV,NC | | | | | Install | |
| 47 | | | 1005301 | TRANS CONNECTION 333KVA) | ASSY, W/ANIMAL PROT | ECTOR 7.2KV/D | DUAL VOLT | TAGE (10 TO | | Install | |
| 47 | | | 1030101 | | , PT, CONV, 2400X7200-1 | 20/240V, 100KV | /A | | | Install | |
| | | | | | | O Number: | 137450 | 88 | Station | 47 Sub Total: | 0.00 |
| 48 | | | 0104612 | INS POLE BRKT ASSY | Y, SINGLE EQUIP BRKT | | | | | Install | |
| 48 | | | 0140201 | | 3,2,EMBEDDED EARTH O | | | | | Install | |
| 48 | | | 0140201 | | 3,2,EMBEDDED EARTH O | NLY | | | | Remove | |
| 48 | | | 0306001 | CROSS ARM PIN ASS | | | | | | Remove | |
| 48 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | | Remove | |
| 48 | | | 0403203 | | ND ASSEMBLY, .36 in, 1 | | | | | Install | |
| 48 | | · | 0405207 | | Y W/ TIE WIRE, SINGLE, A | ALUMINUM CON | NDUC. | | | Remove | |
| 48 | | | 0501016 | GUY STRAND ASSY 1 | | | | | | Install | |
| 48 | | | 0516201 | | ASSY,10IN TWIN HELIX,2 | 24IN FBGL STRA | AIN INS | | | Install | |
| 48 | | | 0701401 | LABOR CONTINGENC | | | | | | Install | |
| 48 | | | 0803002 | LTNG ARR ASSY,LINE | E,3KV | | | | | Remove | |

| | | | | | ary Report – Sup | | | | | | |
|----------|---------------------|--------------|-----------|---------------------------------------|--------------------------|----------------|-----------|--------------|---------|----------------|----------|
| Engineer | Lead: HGRAVIN | 0 | Cos | t Center: | | Print Date | : 09-Dec | -16 12:59 PM | | | |
| | WO Number 745088 | Oracle Numbe | r Tot | tal Project Cost | Capital Hours | Service I | Hours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly D | escriptio | on | Qty | Operation | Time Rqd |
| 48 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | | Install | |
| 48 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 AC | CSR/AAAC | | | | Install | |
| 48 | | | 0821042 | POLE GROUND ASSY | | | | | | Install | |
| 48 | | (| 0925010NG | FUSE CUTOUT ASSY: | 100A,10T,1PH,14.4KV,NC | N-LOADBREA | K, NON-GR | RAPHICAL CU | | Install | |
| 48 | | 1 | 0925015NG | | 100A,15T,1PH,14.4KV,NC | | - | | | Remove | |
| 48 | | (| 0925025NG | | 100A,25T,1PH,14.4KV,NC | | | | | Remove | |
| 48 | | | 1005301 | 333KVA) | ASSY, W/ANIMAL PROT | | DUAL VOL | TAGE (10 TO | | Install | |
| 48 | | | 1010025 | | , PT, CONV, 2400-120/240 | | | | | Remove | |
| 48 | | | 1030025 | TRANSFORMER, 1PH | , PT, CONV, 2400X7200-1 | | Α | | | Install | |
| | | | | | | Number: | 137450 |)88 | Station | 48 Sub Total: | 0.00 |
| 49 | | | 0140201 | | ,2,EMBEDDED EARTH O | | | | | Install | |
| 49 | | | 0140201 | | ,2,EMBEDDED EARTH O | NLY | | | | Remove | |
| 49 | | | 0310112 | 10FT SINGLE ARM BR | | | | | | Remove | |
| 49 | | | 0403203 | | ND ASSEMBLY, .36 in, 1 | | | | | Install | |
| 49 | | | 0403203 | | ND ASSEMBLY, .36 in, 1 | /0-3/0 ACSR/AA | AAC | | | Remove | |
| 49 | | | 0701401 | LABOR CONTINGENC | | | | | | Install | |
| 49 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 AC | | | | | Install | |
| 49 | | | 0815003 | NEUTRAL DEADEND | CLAMP ASSY, 1/0 - 3/0 AC | CSR/AAAC | | | | Remove | |
| 49 | | | 0821042 | POLE GROUND ASSY | • | | | | | Install | |
| | | | | | | Number: | 137450 | 88 | Station | 49 Sub Total: | 0.00 |
| 50 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | | Remove | |
| 50 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | | Install | |
| 50 | | | 0140201 | · | ,2,EMBEDDED EARTH O | | | | | Remove | |
| 50 | | | 0140201 | · | ,2,EMBEDDED EARTH O | | | | | Install | |
| 50 | | | 0401210 | | AND SPOOL INSULATOR | | | | | Install | |
| 50 | | | 0401210 | | AND SPOOL INSULATOR | | | | | Remove | |
| 50 | | | 0403203 | | ND ASSEMBLY, .36 in, 1 | | AAC | | | Install | |
| 50 | | | 0403208 | | ND ASSEMBLY, #6 SOL C | | | | | Remove | |
| 50 | | | 0601401 | | IES - OH ELEC DIST / SE | CONDARY CO | NDUCTOR | S | | Install | |
| 50 | | | 0701401 | LABOR CONTINGENC | | | | | | Install | |
| 50 | | | 0803002 | LTNG ARR ASSY,LINE | | | | | | Remove | |
| 50 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | | Install | |
| 50 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A0 | | | | | Install | |
| 50 | | | 0815008 | | CLAMP ASSY, #6 SOL CU | | | | | Remove | |
| 50 | | | 0816130 | · · · · · · · · · · · · · · · · · · · | T EYE NUT, 3/0 ALUM, SI | ERVICE | | | | Install | |
| 50 | | | 0821042 | POLE GROUND ASSY | | | | | | Install | |
| 50 | | | 0925015NG | | 100A,15T,1PH,14.4KV,NC | | , | | | Install | |
| 50 | | | 0925040NG | | 100A,40T,1PH,14.4KV,NC | | | | | Remove | |
| 50 | | | 1005301 | 333KVA) | ASSY, W/ANIMAL PROT | | DUAL VOL | TAGE (10 TO | | Install | |
| 50 | | | 1010050 | TRANSFORMER, 1PH | , PT, CONV, 2400-120/240 |)V, 50KVA | | | | Remove | |

| | | | Design | Estimate Summ | ary Report – Sup | ervisor's (| Constru | uction | | | |
|----------|------------------------|---------------|--------------------|-----------------------------|----------------------------------|----------------|-----------|-------------|---------|--------------------|-----------|
| Engineer | r Lead: HGRAVIN | 10 | Cos | st Center: | | Print Date: | 09-Dec- | 16 12:59 PM | | | |
| Maximo | o WO Number 3745088 | Oracle Number | er To | tal Project Cost | Capital Hours | Service H | lours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assambly De | oscrintio | n | Qty | Operation | Time Rqd |
| 50 | G- Macio Co | Wacro Co | 1030050 | | I, PT, CONV, 2400X7200-1 | | | 11 | Qty | Install | Tille Kqu |
| | | | 1000000 | TTO TO CTUMENT, TITLE | | Number: | 137450 | 88 | Station | 50 Sub Total: | 0.00 |
| 51 | | | 0104612 | INS POLE BRKT ASSY | Y, SINGLE EQUIP BRKT | J Number. | 137 730 | 00 | Station | Install | 0.00 |
| 51 | | | 0135401 | | G,4,EMBEDDED EARTH O | NLY | | | | Remove | |
| 51 | | | 0140201 | | G,2,EMBEDDED EARTH O | | | | | Install | |
| 51 | | | 0308216 | 8FT STD DBLARM BR | ACE ASSY | | | | | Remove | |
| 51 | | | 0401210 | SECONDARY CLEVIS | AND SPOOL INSULATOR | ₹ | | | | Install | |
| 51 | | | 0403203 | CONDUCTOR DEADE | ND ASSEMBLY, .36 in, 1 | /0-3/0 ACSR/AA | AC | | | Install | |
| 51 | | | 0403208 | CONDUCTOR DEADE | ND ASSEMBLY, #6 SOL O | CU | | | | Remove | |
| 51 | | | 0601401 | | CIES - OH ELEC DIST / SE | CONDARY CON | NDUCTORS | S | | Install | |
| 51 | | | 0701401 | LABOR CONTINGENO | | | | | | Install | |
| 51 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | | Install | |
| 51 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | | Install | |
| 51 | | | 0815008 | | CLAMP ASSY, #6 SOL CL | | | | | Remove | |
| 51 | | | 0816130 | | AT EYE NUT, 3/0 ALUM, SI | ERVICE | | | | Install | |
| 51 | | | 0821042 | POLE GROUND ASSY | , | | | | | Install | |
| 51 | | | 0925006NG | | :100A,6T,1PH,14.4KV,NO | | | | _ | Install | |
| 51 | | | 1005301 | 1RANS CONNECTION 333KVA) | N ASSY, W/ANIMAL PROT | ECTOR 7.2KV/D | DUAL VOLT | AGE (10 TO | | Install | |
| 51 | | | 1030015 | | I, PT, CONV, 2400X7200-1 | 20/240V, 15KVA | 4 | | | Install | |
| | | | | | WC | Number: | 137450 | 88 | Station | 51 Sub Total: | 0.00 |
| 52 | | | 0104612 | INS POLE BRKT ASSY | Y, SINGLE EQUIP BRKT | | | | | Install | |
| 52 | | | 0106108 | POLE TOP PIN ASSY | | | | | | Install | |
| 52 | | | 0108110 | NEUTRAL BRKT ASSE | EMBLY | | | | | Install | |
| 52 | | | 0108110 | NEUTRAL BRKT ASSE | EMBLY | | | | | Remove | |
| 52 | | | 0140201 | POLE:WOOD,40FT LG | G,2,EMBEDDED EARTH O | NLY | | | | Install | |
| 52 | | | 0140201 | · | G,2,EMBEDDED EARTH O | NLY | | | | Remove | |
| 52 | | | 0306001 | CROSS ARM PIN ASS | | | | | | Remove | |
| 52 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | | Remove | |
| 52 | | | 0401210 | | AND SPOOL INSULATOR | | | | | Install | |
| 52 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | | | | | Remove | |
| 52 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | ALUMINUM CON | NDUC. | | | Install | |
| 52 | | | 0701401 | LABOR CONTINGENC | | | | | | Install | |
| 52 | | | 0803002 | LTNG ARR ASSY,LINE | | | | | | Remove | |
| 52 | | | 0809002 | LTNG ARR ASSY,LINE | | EDVICE | | | | Install | |
| 52 52 | | | 0816130 0821042 | POLE GROUND ASSY | AT EYE NUT, 3/0 ALUM, SI | EKVICE | | | | Install Install | |
| 52 | | | 0925015NG | | r,ROD :100A.15T.1PH.14.4KV.NC | NLI OADRDEAK | (NON-GP | APHICAL CLI | | Install | |
| 52 | | | 0925040NG | | :100A,151,1PH,14.4KV,NC | | , | | | Remove | |
| 52 | | | 1005301 | | N ASSY, W/ANIMAL PROT | | | | | Install | |
| 52 | | | 1010050 | , | I, PT, CONV, 2400-120/240 | OV, 50KVA | | | | Remove | |

| | | | Design | Estimate Summa | ary Report – Sur | ervisor's Consti | ruction | | | |
|------------|--------------|-------------|--------------|--------------------|-------------------------|----------------------|--------------|---------|----------------|----------|
| Engineer L | ead: HGRAVIN | 0 | | st Center: | <u> </u> | Print Date: 09-Dec | | | | |
| | WO Number | Oracle Numb | er To | otal Project Cost | Capital Hours | Service Hours | Total Hours | | Construction R | esource |
| 137 | 45088 | | | | | | | | | |
| Station | G- Macro CU | Macro CU | CU | | | Assembly Descripti | on | Qty | Operation | Time Rqd |
| 52 | | | 1030050 | TRANSFORMER, 1PH, | , PT, CONV, 2400X7200-1 | | | | Install | |
| | | | | | | Number: 13745 | 088 | Station | 52 Sub Total: | 0.00 |
| 53 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Install | |
| 53 | | | 0106108 | POLE TOP PIN ASSY | | | | | Install | |
| 53 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Remove | |
| 53 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Install | |
| 53 | | | 0140201 | | ,2,EMBEDDED EARTH O | | | | Remove | |
| 53 | | | 0140201 | | ,2,EMBEDDED EARTH O | NLY | | | Install | |
| 53 | | | 0306001 | CROSS ARM PIN ASS | | | | | Remove | |
| 53 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 53 | | | 0401210 | | AND SPOOL INSULATOR | | | | Install | |
| 53 | | | 0405207 | | / W/ TIE WIRE, SINGLE, | | | _ | Install | |
| 53 | | | 0405207 | | W/ TIE WIRE, SINGLE, | | | _ | Remove | |
| 53 | | | 0601401 | | | CONDARY CONDUCTOR | RS | _ | Install | |
| 53 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 53 | | | 0803002 | LTNG ARR ASSY,LINE | | | | _ | Remove | |
| 53 | | | 0809002 | LTNG ARR ASSY,LINE | | EDVIOE | | | Install | |
| 53 | | | 0816130 | · | T EYE NUT, 3/0 ALUM, S | ERVICE | | | Install | |
| 53 | | | 0821042 | POLE GROUND ASSY | | ALLOADDDEAK NON OD | ADUIOAL OLI | | Install | |
| 53 | | | 0925006NG | | | N-LOADBREAK, NON-GR | | | Install | |
| 53 | | | 0925010NG | | | ON-LOADBREAK, NON-GI | | | Remove | |
| 53 | | | 1005301 | 333KVA) | | ECTOR 7.2KV/DUAL VOL | .TAGE (10 TO | | Install | |
| 53 | | | 1010015 | | , PT, CONV, 2400-120/24 | | | | Remove | |
| 53 | | | 1030015 | TRANSFORMER, 1PH, | , PT, CONV, 2400X7200-1 | | | | Install | |
| | | | | | W | Number: 13745 | 088 | Station | 53 Sub Total: | 0.00 |
| 54 | | | 0106108 | POLE TOP PIN ASSY | | | | _ | Install | |
| 54 | | | 0108110 | NEUTRAL BRKT ASSE | | | | _ | Remove | |
| 54 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Install | |
| 54 | | | 0140201 | | ,2,EMBEDDED EARTH O | | | _ | Install | |
| 54 | | | 0140201 | | ,2,EMBEDDED EARTH O | NLY | | _ | Remove | |
| 54 | | | 0306001 | CROSS ARM PIN ASS | | | | | Remove | |
| 54 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 54 | | | 0401210 | | AND SPOOL INSULATOR | | | | Install | |
| 54 | | | 0405207 | | W/ TIE WIRE, SINGLE, | | | | Install | |
| 54 | | | 0405207 | | W/ TIE WIRE, SINGLE, | | | | Remove | |
| 54 | | | 0816130 | · | T EYE NUT, 3/0 ALUM, S | EKVICE | | | Install | |
| 54 | | | 0821042 | POLE GROUND ASSY | , - | . | | 24 :: | Install | |
| | | | 0.4.00.1.1.0 | NEUTDAL BRIGATAGO | | Number: 13745 | 088 | Station | 54 Sub Total: | 0.00 |
| 55 | | | 0108110 | NEUTRAL BRKT ASSE | | NII N | | | Remove | |
| 55 | | | 0145201 | POLE:WOOD,45FT LG | ,2,EMBEDDED EARTH O | NLY | | | Install | |

| | | Design | Estimate Summ | ary Report – Sup | pervisor's Constru | uction | | | |
|---------------------------|-----------------|-----------|---------------------------------------|--------------------------|-----------------------|-------------|------------------|----------------|----------|
| Engineer Lead: H | GRAVINO | Cos | t Center: | | Print Date: 09-Dec- | 16 12:59 PM | | | |
| Maximo WO Nur 13745088 | mber Oracle Nui | mber To | tal Project Cost | Capital Hours | Service Hours | Total Hours | | Construction R | esource |
| Station G- Mad | cro CU Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Description | n | Qty | Operation | Time Rqd |
| 55 | | 0145201 | | 3,2,EMBEDDED EARTH O | <u> </u> | L | | Remove | |
| 55 | | 0310216 | 10FT DBL ARM BRAC | E ASSY | | | | Remove | |
| 55 | | 0401210 | SECONDARY CLEVIS | AND SPOOL INSULATOR | ₹ | | | Install | |
| 55 | | 0403203 | CONDUCTOR DEADE | ND ASSEMBLY, .36 in, 1 | I/0-3/0 ACSR/AAAC | | | Remove | |
| 55 | | 0403203 | CONDUCTOR DEADE | ND ASSEMBLY, .36 in, 1 | /0-3/0 ACSR/AAAC | | | Install | |
| 55 | | 0405208 | PIN INSULATOR ASSY | Y W/ TIE WIRE, DOUBLE, | ALUMINUM CONDUC. | | | Remove | |
| 55 | | 0601401 | LABOR CONTINGENO | CIES - OH ELEC DIST / SE | CONDARY CONDUCTORS | 5 | | Install | |
| 55 | | 0815003 | NEUTRAL DEADEND | CLAMP ASSY, 1/0 - 3/0 A | CSR/AAAC | | | Install | |
| 55 | | 0815003 | NEUTRAL DEADEND | CLAMP ASSY, 1/0 - 3/0 A | CSR/AAAC | | | Remove | |
| 55 | | 0821042 | POLE GROUND ASSY | ,ROD | | | | Install | |
| | | | | WC | Number: 137450 | 88 | Station | 55 Sub Total: | 0.00 |
| 56 | | 0104612 | INS POLE BRKT ASSY | /, SINGLE EQUIP BRKT | | | | Remove | |
| 56 | | 0104612 | INS POLE BRKT ASSY | /, SINGLE EQUIP BRKT | | | | Install | |
| 56 | | 0140201 | | 3,2,EMBEDDED EARTH O | | | | Remove | |
| 56 | | 0140201 | | 3,2,EMBEDDED EARTH O | | | | Install | |
| 56 | | 0401210 | | AND SPOOL INSULATOR | | | | Install | |
| 56 | | 0403203 | CONDUCTOR DEADE | ND ASSEMBLY, .36 in, 1 | /0-3/0 ACSR/AAAC | | | Install | |
| 56 | | 0403208 | | ND ASSEMBLY, #6 SOL (| CU | | | Remove | |
| 56 | | 0501016 | GUY STRAND ASSY 1 | | | | | Install | |
| 56 | | 0516201 | | ASSY,10IN TWIN HELIX,2 | 24IN FBGL STRAIN INS | | | Install | |
| 56 | | 0701401 | LABOR CONTINGENO | CIES - ELEC SERVICE | | | | Install | |
| 56 | | 0803002 | LTNG ARR ASSY,LINE | | | | | Remove | |
| 56 | | 0809002 | LTNG ARR ASSY,LINE | | | | | Install | |
| 56 | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | Install | |
| 56 | | 0815008 | | CLAMP ASSY, #6 SOL CL | | | | Remove | |
| 56 | | 0816130 | | T EYE NUT, 3/0 ALUM, S | | | | Remove | |
| 56 | | 0816130 | | T EYE NUT, 3/0 ALUM, S | ERVICE | | | Install | |
| 56 | | 0821042 | POLE GROUND ASSY | , | | | | Install | |
| 56 | | 0925010NG | | | ON-LOADBREAK, NON-GR | | | Install | |
| 56 | | 0925015NG | | | ON-LOADBREAK, NON-GR | | | Remove | |
| 56 | | 1005301 | 333KVA) | | ECTOR 7.2KV/DUAL VOLT | AGE (10 TO | | Install | |
| 56 | | 1010025 | TRANSFORMER, 1PH | , PT, CONV, 2400-120/240 | OV, 25KVA | | | Remove | |
| 56 | | 1030025 | TRANSFORMER, 1PH | , PT, CONV, 2400X7200-1 | 20/240V, 25KVA | | | Install | |
| | | | | | O Number: 137450 | 88 | S <u>tati</u> on | 56 Sub Total: | 0.00 |
| 57 | | 0140201 | · · · · · · · · · · · · · · · · · · · | 3,2,EMBEDDED EARTH O | | | | Install | |
| 57 | | 0140201 | POLE:WOOD,40FT LG | 3,2,EMBEDDED EARTH O | NLY | | | Remove | |
| 57 | | 0308216 | 8FT STD DBLARM BR | ACE ASSY | | | | Remove | |
| 57 | | 0401210 | | AND SPOOL INSULATOR | | | | Install | |
| 57 | | 0403203 | CONDUCTOR DEADE | ND ASSEMBLY, .36 in, 1 | /0-3/0 ACSR/AAAC | | | Install | |
| 57 | | 0403208 | CONDUCTOR DEADE | ND ASSEMBLY, #6 SOL (| CU | | | Remove | |

| | | | Design | n Estimate Summ | ary Report – Sup | ervisor's Constr | uction | | | |
|----------|---------------------|---------------|--------------------|--------------------|---------------------------|----------------------|-------------|----------|-------------------|----------|
| Engineer | Lead: HGRAVIN | | | ost Center: | <u> </u> | Print Date: 09-Dec | | | | |
| Maximo | WO Number 745088 | Oracle Number | | otal Project Cost | Capital Hours | Service Hours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Description | on | Qty | Operation | Time Rqd |
| 57 | | 1 | 0601401 | | CIES - OH ELEC DIST / SE | | | | Install | |
| 57 | | | 0701401 | LABOR CONTINGENO | CIES - ELEC SERVICE | | | | Install | |
| 57 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | Install | |
| 57 | | | 0815008 | NEUTRAL DEADEND | CLAMP ASSY, #6 SOL CU | J | | | Remove | |
| 57 | | | 0816130 | • | AT EYE NUT, 3/0 ALUM, SI | | | | Install | |
| 57 | | | 0816130 | | AT EYE NUT, 3/0 ALUM, SI | ERVICE | | | Remove | |
| 57 | | | 0821042 | POLE GROUND ASSY | • | | | | Install | |
| | | | | | | Number: 137450 |)88 | Station | 57 Sub Total: | 0.00 |
| 58 | | | 0104612 | | Y, SINGLE EQUIP BRKT | | | | Remove | |
| 58 | | | 0104612 | | Y, SINGLE EQUIP BRKT | | | | Install | |
| 58 | | | 0106108 | POLE TOP PIN ASSY | | | | _ | Install | |
| 58 | | | 0108110 | NEUTRAL BRKT ASSI | | | | _ | Install | |
| 58 | | | 0108110 | NEUTRAL BRKT ASSI | | NU. N. | | _ | Remove | |
| 58 | | | 0140201 | | 6,2,EMBEDDED EARTH O | | | | Remove | |
| 58 | | | 0140201 | CROSS ARM PIN ASS | 6,2,EMBEDDED EARTH O | NLY | | | Install | |
| 58 | | | 0306001 | | | | | | Remove | |
| 58 58 | | | 0308112 0401210 | 8FT SINGLE ARM BRA | S AND SPOOL INSULATOR | <u> </u> | | | Remove Install | |
| 58 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | | | + | Install | |
| 58 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | | | + | Remove | |
| 58 | | | 0701401 | LABOR CONTINGENO | | ALOMINON CONDOC. | | + | Install | |
| 58 | | | 0803002 | LTNG ARR ASSY,LINE | | | | + | Remove | |
| 58 | | | 0809002 | LTNG ARR ASSY,LINE | • | | | \dashv | Install | |
| 58 | | | 0816130 | | AT EYE NUT, 3/0 ALUM, SI | ERVICE | | | Install | |
| 58 | | | 0821042 | POLE GROUND ASSY | | - | | | Install | |
| 58 | | | 925015NG | | :100A,15T,1PH,14.4KV,NC | N-LOADBREAK, NON-GF | RAPHICAL CU | | Install | |
| 58 | | 09 | 925015NG | | :100A,15T,1PH,14.4KV,NC | | | | Remove | |
| 58 | | | 1005301 | 333KVA) | N ASSY, W/ANIMAL PROT | | TAGE (10 TO | | Install | |
| 58 | | | 1010025 | TRANSFORMER, 1PH | I, PT, CONV, 2400-120/240 |)V, 25KVA | | | Remove | |
| 58 | | | 1030050 | TRANSFORMER, 1PH | I, PT, CONV, 2400X7200-1 | 20/240V, 50KVA | | | Install | |
| | | | | | WC | Number: 137450 |)88 | Station | 58 Sub Total: | 0.00 |
| 59 | | | 0106108 | POLE TOP PIN ASSY | | | | | Install | |
| 59 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Install | |
| 59 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Remove | |
| 59 | | | 0135401 | <u> </u> | 6,4,EMBEDDED EARTH O | | | | Remove | |
| 59 | | | 0140201 | | 6,2,EMBEDDED EARTH O | NLY | | | Install | |
| 59 | | | 0306001 | CROSS ARM PIN ASS | | | | | Remove | |
| 59 | | | 0310216 | 10FT DBL ARM BRAC | | | | | Remove | |
| 59 | | | 0403203 | | ND ASSEMBLY, .36 in, 1 | | | | Install | |
| 59 | | | 0405207 | PIN INSULATOR ASS' | Y W/ TIE WIRE, SINGLE, A | ALUMINUM CONDUC. | | | Install | |

| | | | | | ary Report – Sup | ervisor's Con | struction | | | |
|----------|---------------------|---------------|----------|-----------------------------|--------------------------|------------------|-----------------|---------|-----------------|----------|
| Engineer | Lead: HGRAVIN | 0 | Cos | t Center: | | Print Date: 09-I | Dec-16 12:59 PM | | | |
| | WO Number 745088 | Oracle Number | To | tal Project Cost | Capital Hours | Service Hours | s Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Descri | ption | Qty | Operation | Time Rqd |
| 59 | | | 0405208 | | Y W/ TIE WIRE, DOUBLE, | | | | Remove | • |
| 59 | | C | 0701401 | LABOR CONTINGENO | CIES - ELEC SERVICE | | | | Install | |
| 59 | | C | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | Install | |
| 59 | | C | 0816130 | GRIP PREFORMED, A | AT EYE NUT, 3/0 ALUM, SI | ERVICE | | | Remove | |
| 59 | | C | 0821042 | POLE GROUND ASSY | ,ROD | | | | Install | |
| | | | | | WC | Number: 137 | 45088 | Station | n 59 Sub Total: | 0.00 |
| 60 | | C | 0106108 | POLE TOP PIN ASSY | | | | | Install | |
| 60 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Remove | |
| 60 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Install | |
| 60 | | | 0140201 | · · | G,2,EMBEDDED EARTH O | | | | Install | |
| 60 | | | 0140201 | · · | 3,2,EMBEDDED EARTH O | NLY | | | Remove | |
| 60 | | | 0306001 | CROSS ARM PIN ASS | | | | _ | Remove | |
| 60 | | | 0308112 | 8FT SINGLE ARM BRA | | | | _ | Remove | |
| 60 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | | | _ | Remove | |
| 60 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | | | | Install | |
| 60 | | | 0601401 | | CIES - OH ELEC DIST / SE | CONDARY CONDUC | TORS | | Install | |
| 60 | | | 0701401 | LABOR CONTINGENC | | | | _ | Install | |
| 60 | | C | 0821042 | POLE GROUND ASSY | | | | | Install | |
| 61 | | | 0108110 | NEUTRAL BRKT ASSE | | Number: 137 | '45088 | Station | n 60 Sub Total: | 0.00 |
| 61 | | | 0109310 | EQUIPMENT MOUNT | | | | _ | Install | |
| 61 | | | 0140201 | | 6,2,EMBEDDED EARTH O | NLY | | | Remove | |
| 61 | | | 0140201 | • | 6,2,EMBEDDED EARTH O | | | | Install | |
| 61 | | C | 0310216 | 10FT DBL ARM BRAC | E ASSY | | | | Remove | |
| 61 | | C | 0401210 | SECONDARY CLEVIS | AND SPOOL INSULATOR | ? | | | Install | |
| 61 | | C | 0403203 | CONDUCTOR DEADE | ND ASSEMBLY, .36 in, 1 | /0-3/0 ACSR/AAAC | | | Install | |
| 61 | | C | 0403208 | CONDUCTOR DEADE | ND ASSEMBLY, #6 SOL O | CU | | | Remove | |
| 61 | | C | 0701401 | LABOR CONTINGENO | CIES - ELEC SERVICE | | | | Install | |
| 61 | | C | 0803002 | LTNG ARR ASSY,LINE | E,3KV | | | | Remove | |
| 61 | | C | 0809002 | LTNG ARR ASSY,LINE | E 9KV | | | | Install | |
| 61 | | C | 0809002 | LTNG ARR ASSY,LINE | E 9KV | | | | Install | |
| 61 | | | 0815003 | | CLAMP ASSY, 1/0 - 3/0 A | | | | Install | |
| 61 | | | 0815008 | | CLAMP ASSY, #6 SOL CL | | | | Remove | |
| 61 | | | 0816130 | | AT EYE NUT, 3/0 ALUM, SI | ERVICE | | | Install | |
| 61 | | | 0821042 | POLE GROUND ASSY | • | | | | Install | |
| 61 | | | 25010NG | | :100A,10T,1PH,14.4KV,NC | | | | Install | |
| 61 | | | 25025NG | | :100A,25T,1PH,14.4KV,NC | | | | Install | |
| 61 | | | 925025NG | | :100A,25T,1PH,14.4KV,NC | · | | | Install | |
| 61 | | | 25040NG | | :100A,40T,1PH,14.4KV,NC | • | | | Remove | |
| 61 | | 1 | 1005301 | TRANS CONNECTION 333KVA) | N ASSY, W/ANIMAL PROT | ECTOR 7.2KV/DUAL | VOLTAGE (10 TO | | Install | |

| | | | Desigr | n Estimate Summ | ary Report – Sup | ervisor's Const | ruction | | | |
|------------|---------------------|---------------|--------------------|--------------------|--|--------------------|-------------|---------|-------------------|----------|
| Engineer l | Lead: HGRAVIN | 0 | | st Center: | • | Print Date: 09-De | | | | |
| | WO Number 745088 | Oracle Number | er To | otal Project Cost | Capital Hours | Service Hours | Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Descript | ion | Qty | Operation | Time Rqd |
| 61 | | 1 | 1030025 | | , PT, CONV, 2400X7200-1 | | | | Install | • |
| | | | | | WC | Number: 13745 | 880 | Station | 61 Sub Total: | 0.00 |
| 62 | | | 0106108 | POLE TOP PIN ASSY | | | | | Install | |
| 62 | | | 0108110 | NEUTRAL BRKT ASSE | MBLY | | | | Install | |
| 62 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Remove | |
| 62 | | | 0140201 | | ,2,EMBEDDED EARTH O | | | | Install | |
| 62 | | | 0140201 | | ,2,EMBEDDED EARTH O | NLY | | | Remove | |
| 62 | | | 0306001 | CROSS ARM PIN ASS | | | | | Remove | |
| 62 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 62 | | | 0405207 | | W/ TIE WIRE, SINGLE, A | | | | Remove | |
| 62 | | | 0405207 | | W/ TIE WIRE, SINGLE, A | ALUMINUM CONDUC. | | | Install | |
| 62 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 62 | | | 0821042 | POLE GROUND ASSY | | | | | Install | |
| | | | | | | O Number: 13745 | 5088 | Station | 62 Sub Total: | 0.00 |
| 63 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Install | |
| 63 | | | 0106108 | POLE TOP PIN ASSY | | | | _ | Install | |
| 63 | | | 0108110 | NEUTRAL BRKT ASSE | | | | _ | Remove | |
| 63 | | | 0108110 | NEUTRAL BRKT ASSE | | NII N | | _ | Install | |
| 63 | | | 0140201 | • | ,2,EMBEDDED EARTH O | | | _ | Remove | |
| 63 | | | 0140201 | | ,2,EMBEDDED EARTH O | NLY | | _ | Install | |
| 63 | | | 0306001 | CROSS ARM PIN ASS | | | | _ | Remove | |
| 63 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 63 63 | | | 0401210 0405207 | | AND SPOOL INSULATOR W TIE WIRE, SINGLE, A | | | _ | Install | |
| 63 | | | 0405207 | | / W/ TIE WIRE, SINGLE, / | | | _ | Remove Install | |
| 63 | | | 0701401 | LABOR CONTINGENC | | ALUMINUM CONDUC. | | | Install | |
| 63 | | | 0803002 | LTNG ARR ASSY,LINE | | | | _ | Remove | |
| 63 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | Install | |
| 63 | | | 0816130 | | T EYE NUT, 3/0 ALUM, S | ERVICE | | | Install | |
| 63 | | | 0821042 | POLE GROUND ASSY | | | | | Install | |
| 63 | | | 0925015NG | | 100A,15T,1PH,14.4KV,NC | N-LOADBREAK, NON-G | RAPHICAL CU | | Install | |
| 63 | | | 0925040NG | | 100A,40T,1PH,14.4KV,NC | | | | Remove | |
| 63 | | | 1005301 | | ASSY, W/ANIMAL PROT | | | | Install | |
| | | | | 333KVA) | | | · . | | | |
| 63 | | | 1010050 | | , PT, CONV, 2400-120/240 | | | | Remove | |
| 63 | | | 1030050 | TRANSFORMER, 1PH | , PT, CONV, 2400X7200-1 | * | | | Install | |
| | | | | | WC | Number: 13745 | 6088 | Station | 63 Sub Total: | 0.00 |
| 64 | | | 0106108 | POLE TOP PIN ASSY | | | | | Install | |
| 64 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Install | |
| 64 | | | 0108110 | NEUTRAL BRKT ASSE | | NII N | | | Remove | |
| 64 | | | 0140201 | POLE:WOOD,40FT LG | ,2,EMBEDDED EARTH O | NLY | | | Install | |

| | | | | | ary Report – Sup | ervisor's Co | onstruction | | | |
|----------|---------------------|---------------|--------------------|--------------------|--|-------------------|------------------|-------|--------------------|----------|
| Engineer | Lead: HGRAVIN | 0 | Cos | st Center: | | Print Date: 0 | 9-Dec-16 12:59 P | M | | |
| | WO Number 745088 | Oracle Number | То | tal Project Cost | Capital Hours | Service Ho | urs Total Ho | ours | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Des | cription | Qty | Operation | Time Rqd |
| 64 | | <u>'</u> | 0140201 | POLE:WOOD,40FT LG | 3,2,EMBEDDED EARTH O | NLY | - | | Remove | - |
| 64 | | | 0306001 | CROSS ARM PIN ASS | Y 8-10 ARM | | | | Remove | |
| 64 | | (| 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 64 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | | | | Remove | |
| 64 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | ALUMINUM COND | UC. | | Install | |
| 64 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 64 | | | 0821042 | POLE GROUND ASSY | ,ROD | | | | Install | |
| | | | | | WC | Number: 1 | 13745088 | Stati | on 64 Sub Total: | 0.00 |
| 65 | | | 0106108 | POLE TOP PIN ASSY | | | | | Install | |
| 65 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Remove | |
| 65 | | | 0108110 | NEUTRAL BRKT ASSE | | | | | Install | |
| 65 | | | 0140201 | | 3,2,EMBEDDED EARTH O | | | | Install | |
| 65 | | | 0140201 | | 3,2,EMBEDDED EARTH O | NLY | | | Remove | |
| 65 | | | 0306001 | CROSS ARM PIN ASS | | | | | Remove | |
| 65 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 65 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | | | | Install | |
| 65 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A CIES - OH ELEC DIST / SE | | | | Remove | |
| 65 | | | 0601401 | LABOR CONTINGENC | | CONDARY COND | UCTORS | | Install | |
| 65 65 | | | 0701401 0821042 | POLE GROUND ASSY | | | | | Install Install | |
| 05 | | | 0021042 | FOLE GROUND ASST | • | N. Nie swele e su | 10745000 | 04-4 | | 0.00 |
| 66 | | | 0104612 | INS POLE BRKT ASSY | /, SINGLE EQUIP BRKT | Number: 1 | 13745088 | Stati | on 65 Sub Total: | 0.00 |
| 66 | | | 0104612 | | , SINGLE EQUIP BRKT | | | | Remove | |
| 66 | | | 0106108 | POLE TOP PIN ASSY | • | | | | Install | |
| 66 | | | 0106108 | POLE TOP PIN ASSY | | | | | Remove | |
| 66 | | | 0108110 | NEUTRAL BRKT ASSE | EMBLY | | | | Remove | |
| 66 | | (| 0108110 | NEUTRAL BRKT ASSE | EMBLY | | | | Install | |
| 66 | | | 0306001 | CROSS ARM PIN ASS | Y 8-10 ARM | | | | Remove | |
| 66 | | (| 0308112 | 8FT SINGLE ARM BRA | ACE ASSY | | | | Remove | |
| 66 | | (| 0401210 | SECONDARY CLEVIS | AND SPOOL INSULATOR | ₹ | | | Install | |
| 66 | | | 0405207 | PIN INSULATOR ASSY | Y W/ TIE WIRE, SINGLE, A | ALUMINUM COND | UC. | | Install | |
| 66 | | | 0405207 | PIN INSULATOR ASSY | Y W/ TIE WIRE, SINGLE, A | ALUMINUM COND | UC. | | Remove | |
| 66 | | | 0405207 | PIN INSULATOR ASSY | Y W/ TIE WIRE, SINGLE, A | ALUMINUM COND | UC. | | Remove | _ |
| 66 | | | 0601401 | LABOR CONTINGENC | IES - OH ELEC DIST / SE | CONDARY COND | UCTORS | | Install | |
| 66 | | | 0701401 | LABOR CONTINGENC | | | | | Install | |
| 66 | | | 0803002 | LTNG ARR ASSY,LINE | <u> </u> | | | | Remove | |
| 66 | | | 0809002 | LTNG ARR ASSY,LINE | | | | | Install | |
| 66 | | | 0816130 | | T EYE NUT, 3/0 ALUM, SE | ERVICE | | | Install | |
| 66 | | | 0821042 | POLE GROUND ASSY | <u>* </u> | | | | Install | |
| 66 | | | 925010NG | | 100A,10T,1PH,14.4KV,NC | | | | Install | |
| 66 | | 09 | 925015NG | FUSE CUTOUT ASSY: | 100A,15T,1PH,14.4KV,NC | N-LOADBREAK, N | NON-GRAPHICAL CU | | Remove | |

| | | | | | ary Report – Sup | | | | | |
|----------|----------------------|---------------|--------------------|---------------------------------------|---|-----------------|------------------|---------|----------------|----------|
| Engineer | Lead: HGRAVIN | 0 | Cos | st Center: | | Print Date: 09 | -Dec-16 12:59 PM | | | |
| | WO Number 3745088 | Oracle Number | То | tal Project Cost | Capital Hours | Service Hou | rs Total Hours | | Construction R | esource |
| Station | G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU | Assembly Desc | ription | Qty | Operation | Time Rqd |
| 66 | | 1 | 1005301 | | N ASSY, W/ANIMAL PROT | | | | Install | • |
| 66 | | | 1010025 | | I, PT, CONV, 2400-120/24 | 0V. 25KVA | | | Remove | |
| 66 | | | 1030025 | | I, PT, CONV, 2400X7200-1 | | | | Install | |
| | | | | , | * | <u>*</u> | 3745088 | Station | 66 Sub Total: | 0.00 |
| 67 | | | 0106108 | POLE TOP PIN ASSY | | | | Ctation | Install | 0.00 |
| 67 | | | 0108110 | NEUTRAL BRKT ASSI | EMBLY | | | | Install | |
| 67 | | | 0108110 | NEUTRAL BRKT ASSI | EMBLY | | | | Remove | |
| 67 | | | 0140201 | POLE:WOOD,40FT LC | G,2,EMBEDDED EARTH O | NLY | | | Install | |
| 67 | | | 0140201 | POLE:WOOD,40FT LO | G,2,EMBEDDED EARTH O | NLY | | | Remove | |
| 67 | | | 0306001 | CROSS ARM PIN ASS | SY 8-10 ARM | | | | Remove | |
| 67 | | | 0308112 | 8FT SINGLE ARM BRA | | | | | Remove | |
| 67 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | | | | Remove | |
| 67 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, A | ALUMINUM CONDU | C. | | Install | |
| 67 | | | 0701401 | | CIES - ELEC SERVICE | | | | Install | |
| 67 | | | 0821042 | POLE GROUND ASSY | /,ROD | | | | Install | |
| | | | | | | O Number: 13 | 3745088 | Station | 67 Sub Total: | 0.00 |
| 68 | | | 0104612 | | Y, SINGLE EQUIP BRKT | | | | Remove | |
| 68 | | | 0104612 | | Y, SINGLE EQUIP BRKT | | | | Install | |
| 68 | | | 0106108 | POLE TOP PIN ASSY | | | | | Install | |
| 68 | | | 0108110 | NEUTRAL BRKT ASS | | | | | Remove | |
| 68 | | | 0108110 | NEUTRAL BRKT ASS | | | | | Install | |
| 68 | | | 0140201 | · | 6,2,EMBEDDED EARTH O | | | | Remove | |
| 68 | | | 0140201 | • | G,2,EMBEDDED EARTH O | NLY | | | Install | |
| 68 | | | 0306001 | CROSS ARM PIN ASS | | | | | Remove | |
| 68 | | | 0308216 | 8FT STD DBLARM BR | | | | | Remove | |
| 68 | | | 0401210 | | AND SPOOL INSULATOR | | | | Install | |
| 68 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, | | | _ | Install | |
| 68 | | | 0405207 | | Y W/ TIE WIRE, SINGLE, | | | | Remove | |
| 68 68 | | | 0601401 0701401 | LABOR CONTINGENC | CIES - OH ELEC DIST / SE | CONDARY CONDU | CIURS | _ | Install | |
| 68 | | | 0803002 | LTNG ARR ASSY,LINI | | | | _ | Remove | |
| 68 | | | 0809002 | LTNG ARR ASSY,LINI | | | | | Install | |
| 68 | | | 0816130 | | = 9KV AT EYE NUT. 3/0 ALUM. S | FRVICE | | | Install | |
| 68 | | | 0821042 | POLE GROUND ASSY | - 1 1 - | LIVIOL | | | Remove | |
| 68 | | | 925010NG | | :100A,10T,1PH,14.4KV,NC | ON-LOADBREAK NO | N-GRAPHICAL CU | | Install | |
| 68 | | | 925015NG | | :100A,15T,1PH,14.4KV,NC | | | | Remove | |
| 68 | | | 1005301 | | N ASSY, W/ANIMAL PROT | | | | Install | |
| 68 | | | 1010025 | , | I, PT, CONV, 2400-120/24 | 0V, 25KVA | | | Remove | |
| 68 | | | 1030025 | · · · · · · · · · · · · · · · · · · · | I, PT, CONV, 2400X7200-1 | <u> </u> | | | Install | |
| | | | | | | | | | | |

| | | Desig | n Estimate Summa | ary Report – Sup | ervisor's | Constru | ction | | | |
|---------------|---------------------|---------|--|---|--|--|---|--|--|--|
| Lead: HGRAVIN | i <mark>O</mark> | C | ost Center: | | Print Date | : 09-Dec-1 | 6 12:59 PM | | | |
| WO Number | Oracle Num! | per T | Γotal Project Cost | Capital Hours | Service I | lours | Total Hours | | Construction R | esource |
| 3745088 | | | · , | | | | | | | |
| G- Macro CU | Macro CU | CU | Grand | Macro/ Macro / CU / | Assembly D | escription | 1 | Qty | Operation | Time Rqd |
| | | | | WC | Number: | 1374508 | 8 | Station | 68 Sub Total: | 0.00 |
| | | 0701401 | LABOR CONTINGENCI | ES - ELEC SERVICE | | | | | Install | |
| | | 0809102 | LTNG ARR ASSY,LINE | ,9KV,URD | | | | | Install | |
| | | | | WC | Number: | 1374508 | 8 | Station | 69 Sub Total: | 0.00 |
|) | WO Number 745088 | 745088 | Lead: HGRAVINO C WO Number Oracle Number 745088 G- Macro CU Macro CU CU 0701401 | Lead: HGRAVINO WO Number 745088 G- Macro CU Macro CU O701401 Cost Center: Total Project Cost Grand 0701401 LABOR CONTINGENCI | Lead: HGRAVINO WO Number 745088 G- Macro CU Macro M | Lead: HGRAVINO Cost Center: Print Date WO Number 745088 G- Macro CU Macro CU CU Grand Macro/ Macro / CU Assembly D WO Number: 0701401 LABOR CONTINGENCIES - ELEC SERVICE | Lead: HGRAVINO WO Number 745088 G- Macro CU Macro CU | WO Number 745088 G- Macro CU Macro CU CU Grand Macro/ Macro / CU Assembly Description WO Number: 13745088 0701401 LABOR CONTINGENCIES - ELEC SERVICE 0809102 LTNG ARR ASSY,LINE,9KV,URD | Lead: HGRAVINO Cost Center: Print Date: 09-Dec-16 12:59 PM | Lead: HGRAVINO Cost Center: Print Date: 09-Dec-16 12:59 PM WO Number 745088 Oracle Number Total Project Cost Capital Hours Service Hours Total Hours Construction R G- Macro CU Macro CU CU Grand Macro/ Macro / CU Assembly Description Qty Operation WO Number: 13745088 Station 68 Sub Total: 0701401 LABOR CONTINGENCIES - ELEC SERVICE Install 0809102 LTNG ARR ASSY,LINE,9KV,URD Install |

| Engineer Lead: HGRAVINO Total Project Cost Capital Hours Service Hours Total Hours Construction Resource | | | Design Estimate | Summary Repo | rt – Bill of Mate | rials | | |
|--|-------------------|--------------------------------|---------------------------------|---------------------------|-----------------------|----------------|-------------------|------------|
| Maximo WO Number 13745088 | Engineer Lead: HC | RAVINO | Cost Center: | | Print Date: 09-De | -c-16 12:59 PM | | |
| T3745088 | | | | Capital Hours | | | Construction | n Resource |
| CTY Reg | | | | | | | | |
| WO Number: 13745088 NSULATOR, PIN TYPE, 15 KV, 5-127 DIA X 5 TALL, 1 PIN HOLE, PE, USE WI SPACER CABLE 103110 EACH | | | | المستحدية المستحدية | | | | |
| WO Number: 13745088 NSULATOR, PIN TYPE, 15 KV, 5-127 DIA X 5 TALL, 1 PIN HOLE, PE, USE WI SPACER CABLE 103110 EACH | OTY Reg | | Description | | | Stock # | Unit of Measure | Oty Issued |
| INSULATOR PIN TYPE, 15 KV, 5-1/2* DIA X 5" TALL, 1 PIN HOLE, PE, USE WIS PACER CABLE 103110 | - ' | E000 | Description | | | Otook " | Offic of Micasard | wiy issued |
| CLAMP. SUSPENSION, ANGLE, ALUM, WIRE RANGE, 50' TO 1.25', 1200 LB MAY, 80 DEG 103172 EACH CROSSARIN LEDA DEN, 10 FT, 4 POSTION MIN. 80 DE UBBSPOSTION. 2-WAY DEADEND HARDWARE, DE 103273 EACH HARDWARE, AND PIN HOLE SPACING PER MS. 03-11-500 HARDWARE, AND PIN HOLE SPACING PER CLAD STL, 4 AWG, SOLID, 0.204' OD, 40% CONDUCTIVITY, 8.5 HA174 FOOT FILLS STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERRATED, 2'X 36" X 131', GALV OR COPPERWELD HOLE STAPLE: FENCE SERVARE STAPLE: | | | A VETTALL A DINILIOLE DE LICE | | | 102110 | FACIL | |
| CROSSARM: DEAD END, 10 FT, 4 POSTION MIN. 8,000 LB USSPOSITION, 2-WAY DEADEND HARDWARE. DE 103273 EACH HARDWARE AND IN HOLE SPACING PER MS. 03 11-500 TRANSFORMER: POLE MOUNT, 15 KVA, DUAL VOLTAGE 2400/160X7200/12470Y, 120/240, SINGLE PH, W/O TAPS, 103437 EACH CONVENTIONAL. GUARD: ANIMAL. 10*, POLYMER, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOLID, 0.204* OD. 40% CONDUCTIVITY, 8.5 104174 FOOT FILLS WINE CONDUCTOR, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOLID, 0.204* OD. 40% CONDUCTIVITY, 8.5 104174 FOOT STAPLE; FENCE: SERRATED, 2* X36* X13*; GALV OR COPPERWELD 104189 EACH STAPLE; FENCE: SERRATED, 2* X36* X13*; GALV OR COPPERWELD 104189 EACH MOLDING; GROUND WIRE: HOPE: 1*WD, 10*LG MOLDING; GROUND WIRE: HOPE: 1*WD, 10*LG HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 106845 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 106845 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 106845 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 106845 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 106845 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 106845 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 106845 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 106845 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 106845 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 106845 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 106845 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 106845 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 107645 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 107645 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 107645 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 107645 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 107645 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 107645 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 107645 EACH HOOC, GUY, 716* MAX WIRE SIZE; 14200 LB, ALUM ALLOY 107645 EACH HOOC, GUY, 716* MAX WIRE SIZ | | | | | | | | |
| HARDWARE AND PIN HOLE SPACING PER NS. 03-11-500 TRANSPORMER, POLE MOUNT, 15 KWA, DUAL VOLTAGE 24004-160X7200/12470Y, 120/240, SINGLE PH, W/O TAPS, CONVENTIONAL GUARD, ANIMAL, 10°, POLYMER, ELECTROSTATIC, TRANSFORMER BUSHING, RED, W/ TEETH WRE: CONDUCTOR, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOLID, 0, 204° CD, 40% CONDUCTIVITY, 8.5 FOOT FILLE STAPLE: FENCE, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOLID, 0, 204° CD, 40% CONDUCTIVITY, 8.5 FIR. B STAPLE: FENCE SERRATED, 2° X 38° X, 131°, GALV OR COPPERWELD STAPLE: FENCE SERRATED, 2° X 38° X, 131°, GALV OR COPPERWELD STAPLE: FENCE SERRATED, 2° X 38° X, 131°, GALV OR COPPERWELD WOLDING, GROUND WIRE, HOPE, 1° WD, 10° LG HOOK, GUY, 7/16° MAX WIRE SIZE, 12400 LB, ALUM ALLOY WIRE: CABLE, ELECTRICAL, POLE RISER, 15000 V. 10° CONDUCTOR, 4 AWG, CU, 7 STR, 150 MIL TPR INSULATION, NON- SHELDED 4.44 FTLB EXTRANSION, AND HOR ROD, 1-1/2° SQ SHAFT X 42° LG, GALV STL, FOR TRIPLE HELIX ANCHOR WAS CABLE, ELECTRICAL, POLE RISER, 15000 V. 10° CONDUCTOR, 4 AWG, CU, 7 STR, 150 MIL TPR INSULATION, NON- SHELDED 4.44 FTLB EXTRANSION, AND HOR ROD, 1-1/2° SQ SHAFT X 42° LG, GALV STL, FOR TRIPLE HELIX ANCHOR USASHER FLAT, ROUND, 916° ID, 1-30° CD, GALV WASHER FLAT, ROUND, 916° ID, 1-30° CD, GALV WASHER FLAT, ROUND, 11/16° ID, 1-34° CD, GALV WASHER, ILAC, ROU | | | | | ODWADE DE | | | |
| TRANSFORMER, POLE MOUNT, 16 KVA, DUAL VOLTAGE 24004160X7200712470Y, 120240, SINGLE PH, WIO TAPS, CONVENTIONAL, GUARD, ANIMAL, 10°, POLYMER, ELECTROSTATIC, TRANSFORMER BUSHING, RED, WI TEETH 104060 EACH WIRE CONDUCTOR, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOLID, 0.204° OD, 40% CONDUCTIVITY, 8.5 104174 FOOT FILLS. WIRE: CONDUCTOR, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOLID, 0.204° OD, 40% CONDUCTIVITY, 8.5 104174 FOOT FILLS. FILLS: FENCE: SERRATED, 2° X.80° X.131°, GALV OR COPPERWELD 104189 EACH | | | | N, Z-WAT DEADEND HAD | JUVAKE, DE | 103273 | EACH | |
| CONVENTIONAL GUARD: ANIMAL, 10°, POLYMER, ELECTROSTATIC, TRANSFORMER BUSHING, RED, WI TEETH WIRE: CONDUCTOR, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOLID, 0.204° OD, 40% CONDUCTIVITY, 8.5 WIRE: CONDUCTOR, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOLID, 0.204° OD, 40% CONDUCTIVITY, 8.5 WIRE: CONDUCTOR, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOLID, 0.204° OD, 40% CONDUCTIVITY, 8.5 WIRE: CONDUCTOR, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOLID, 0.204° OD, 40% CONDUCTIVITY, 8.5 STAPLE: FENCE, SERRATED, 2° X 36° X, 131°, GALV OR COPPERWELD STAPLE: FENCE, SERRATED, 2° X 36° X, 131°, GALV OR COPPERWELD MOLDING, GROUND WIRE, HDPE, 1° WD, 10 LG MOLDING, GROUND WIRE, HDPE, 1° WD, 10 LG WIRE: CABLE, ELECTRICAL, POLE RISER, 15000 V, 1 CONDUCTOR, 4 AWG, CU, 7 STR, 150 MIL TPR INSULATION, NON- SHELDED 44 BT FINAN, WIRE SIZE; 12400 LB, ALUM ALLOY WIRE: CABLE, ELECTRICAL, POLE RISER, 15000 V, 1 CONDUCTOR, 4 AWG, CU, 7 STR, 150 MIL TPR INSULATION, NON- SHELDED 44 BT FINAN, WIRE SIZE; 12400 LB, ALUM ALLOY EXTENSION, ANGHOR ROD, 1.12°, 250 SHAFT X 42° LG, GALV STL, FOR TRIPLE HELIX ANCHOR EXTENSION, ANGHOR ROD, 1.12°, 250 SHAFT X 42° LG, GALV STL, FOR TRIPLE HELIX ANCHOR WIRE: CABLE, ALUM ALLOY, WOLAMP, FOR 2° PIPE, HOT DIP GALV UNDER LISER FINAN WIRE SIZE ALUM ALLOY, WOLAMP, FOR 2° PIPE, HOT DIP GALV UNDER LISER FINAN WIRE SIZE ALUM ALLOY, WOLAMP, FOR 2° PIPE, HOT DIP GALV WASHER, FLAT, ROUND, 1116° TP, 1.32° LO, GALV WASHER, FLAT, ROUND, 1116° TP, 1.32° LO, GALV WASHER, FLAT, ROUND, 1116° TP, 1.32° CD, GALV WASHER, FLAT, ROUND, 1116° TP, | | | | 10/12470Y 120/240 SING | I F PH W/O TAPS | 103437 | FACH | |
| GUARD-ANIMAL, 107, POLYMER, ELECTROSTATIC. TRANSFORMER BUSHING, RED. WI TEETH WIRE: CONDUCTOR, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOULD, 0.204* OD, 40% CONDUCTIVITY, 8.5 104174 FOOT FTILB WIRE: CONDUCTOR, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOULD, 0.204* OD, 40% CONDUCTIVITY, 8.5 104174 FOOT FTILB STAPLE: FENCE: SERRATED, 2* X 3/8* X 131*, GALV OR COPPERWELD 104189 EACH STAPLE: FENCE: SERRATED, 2* X 3/8* X, 131*, GALV OR COPPERWELD 104189 EACH MOLDING: GROUND WIRE, HDPE; 1* WD, 10* LD MOLDING: GROUND WIRE, HDPE; 1* WD, 10* LD MOLDING: GROUND WIRE, HDPE; 1* WD, 10* LD HOOK: GUY, 7/16* MAX WIRE SIZE, 12400 LB, ALUM ALLOY WIRE: CABLE, ELECTRICAL, POLE RISER, 15000 LB, ALUM ALLOY WIRE: CABLE, ELECTRICAL, POLE RISER, 15000 LB, ALUM ALLOY SHIELDED 4.44 FTI.B EXTENSION: AND KHOR ROD, 1-1/2* SO SHAFT X 42* LG, GALV STL, FOR TRIPLE HELIX ANCHOR CLAMP: END FITTING, SIDEWALK GUY, W. CLAMP, FOR 2* PIPE, HOT DIP GALV WASHER: FLAT, ROUND, 9/16* DI, 1-3/8* OD, GALV WASHER: FLAT, ROUND, 9/16* DI, 1-3/8* OD, GALV WASHER: FLAT, ROUND, 11/16* DI, 1-3/4* OD, GALV WASHER: LOCK, SO RAN, 10* X 1* LG, GALV BRACE: CROSSARM, 10* & 11* (0* SPACING X 50* DROP BRACE: CROSSARM, 10* & 11* (0 | | | , DUAL VOLINGE 2400/4 100/4 200 | 0/124/01, 120/240, 0.110. | _L I II, vv/O I/II O, | 100-101 | 2,011 | |
| WIRE: CONDUCTOR, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOLID, 0.204* OD, 40% CONDUCTIVITY, 8.5 104174 FOOT FITAB WIRE: CONDUCTOR, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOLID, 0.204* OD, 40% CONDUCTIVITY, 8.5 104174 FOOT FITAB STAPLE: FENCE. SERRATED, 2" X 38" X. 131", GALV OR COPPERWELD 104189 EACH STAPLE: FENCE SERRATED, 2" X 38" X. 131", GALV OR COPPERWELD 104189 EACH MOLDING: GROUND WIRE; 1-10", 10" LG 104227 EACH MOLDING: GROUND WIRE; 1-10", 10" LG 104227 EACH MOLDING: GROUND WIRE; 1-10", 10" LG 104227 EACH HOOK, GUY, 7"16" MAX WIRE SIZE; 12400 LB, ALUM ALLOY 10" LB ALUM ALLOY 108845 EACH WIRE: CABLE, ELECTRICAL, POLE RISER, 15000 V, 1 CONDUCTOR, 4 AWG, CU, 7 STR, 150 MIL TPR INSULATION, NON- 113453 FOOT SHELDED 4.4 4 FT 1/18 EXTENSION ANCHOR ROD, 1-1/2" SQ SHAFT X 42" LG, GALV STL, FOR TRIPLE HELIX ANCHOR 114101 EACH CLAMP. END FITAING, SIDEWALK GUY, WI CLAMP, FOR 2" IPIPE, HOT DIP GALV 117885 EACH WASHER, FLAT, ROUND, 916" ID, 1-38" COL, GALV STL, FOR TRIPLE HELIX ANCHOR 114101 EACH INSULATOR: SUSPENSION, 15 KW, POLYMER, 3" DIA X 12-12" LG 123653 EACH INSULATOR: SUSPENSION, 15 KW, POLYMER, 3" DIA X 12-12" LG 123653 EACH INSULATOR: SUSPENSION, 15 KW, POLYMER, 3" DIA X 12-12" LG 123653 EACH WASHER, FLAT, ROUND, 916" ID, 1-34" CO, GALV WASHER, FLAT, ROUND, 116" ID, 1-34" CO, GALV 12" LG 123653 EACH WASHER, FLAT, ROUND, 116" ID, 1-34" CO, GALV 12" LG 123653 EACH WASHER, FLAT, ROUND, 116" ID, 1-34" CO, GALV 12" LG 123653 EACH WASHER, FLAT, ROUND, 116" ID, 1-34" CO, GALV 12" LG 123653 EACH WASHER, FLAT, ROUND, 116" ID, 1-34" CO, GALV 12" LG 123653 EACH BOLT, MACHINE, SO HEAD, 34" DIA X 12" LG GALV 14" LG GALV 15543 EACH 155421 EACH 155 | | | TROSTATIC. TRANSFORMER BUS | SHING. RED, W/ TEETH | | 104060 | EACH | |
| ### F7/LB WIRE: CONDUCTOR, ELECTRICAL, BARE, COPPER CLAD STL, 4 AWG, SOLID, 0.204* OD, 40% CONDUCTIVITY, 8.5 #### F0OT #### F0OT #### F0OT ### F1/LB STAPLE: FENCE. SERRATED, 2" X 38" X .131", GALV OR COPPERWELD ### STAPLE: FENCE. SERRATED, 2" X 38" X .131", GALV OR COPPERWELD ### STAPLE: FENCE. SERRATED, 2" X 38" X .131", GALV OR COPPERWELD ### F0OT ### | | | | | ONDUCTIVITY, 8.5 | | | |
| STAPLE FENCE SERRATED, 2" X 38" X .131", GALV OR COPPERWELD | | , | | 32.2 , 3.23. | ,,,,, | | | |
| STAPLE FENCE SERRATED, 2" X 38" X .131", GALV OR COPPERWELD | WIRE: CC | ONDUCTOR, ELECTRICAL, BAP | ₹E, COPPER CLAD STL, 4 AWG, S | OLID, 0.204" OD, 40% CC | ONDUCTIVITY, 8.5 | 104174 | FOOT | |
| STAPLE: FENCE. SERRATED, 2" X 38" X . 131", GALV OR COPPERWELD | FT/LB | | | | | | | |
| MOLDING: GROUND WIRE, HDPE, 1" WD, 10 LG HOOK: GUY, 71/6" MAX WIRE SIZE, 12400 LB, ALUM ALLOY 106845 | | | | | | | | |
| HOOK: GUY, 7/16" MAX WIRE SIZE, 12400 LB, ALUM ALLOY WIRE: CABLE, ELECTRICAL, POLE RISER, 15000 V, 1 CONDUCTOR, 4 AWG, CU, 7 STR, 150 MIL TPR INSULATION, NON- SHIELDED 4 44 F7/LB EXTENSION: ANCHOR ROD, 1-1/2" SQ SHAFT X 42" LG, GALV STL, FOR TRIPLE HELIX ANCHOR EXTENSION: ANCHOR ROD, 1-1/2" SQ SHAFT X 42" LG, GALV STL, FOR TRIPLE HELIX ANCHOR CLAMP: END FITTING, SIDEWALK GUY, W. CLAMP, FOR 2" PIPE, HOT DIP GALV 117885 EACH WASHER: FLAT, ROUND, 9/16" ID, 1-3/8" OD, GALV FUSSE; FUSELINE, 65 AMP, TYPE T, 23" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 11/6" ID, 1-3/4" DD, GALV INS | STAPLE: ' | FENCE. SERRATED, 2" X 3/8" Y | لا .131", GALV OR COPPERWELD | | | | | |
| WRE: CABLE, ELECTRICAL, POLE RISER, 15000 V, 1 CONDUCTOR, 4 AWG, CU, 7 STR, 150 MIL TPR INSULATION, NON- SHIELDED 4.4 FT/LB EXTENSION: ANCHOR ROD, 1-1/2° SQ SHAFT X 42° LG, GALV STL, FOR TRIPLE HELIX ANCHOR EXTENSION: ANCHOR ROD, 1-1/2° SQ SHAFT X 42° LG, GALV STL, FOR TRIPLE HELIX ANCHOR EXTENSION: ANCHOR ROD, 1-1/2° SQ SHAFT X 42° LG, GALV STL, FOR TRIPLE HELIX ANCHOR EXTENSION: ANCHOR ROD, 1-1/2° SQ SHAFT X 42° LG, GALV STL, FOR TRIPLE HELIX ANCHOR LIAMP: END FITTING, SIDEWALK GUY, WICKLAMP, FOR 2° PIPE, HOT DIP GALV 117895 EACH WASHER: FLAT, ROUND, 9/16° ID, 1-3/8° OD, GALV INSULATOR: SUSPENSION, 15 KV, POLYMER, 3° DIA X 12-1/2° LG 123653 EACH INSULATOR: SUSPENSION, 15 KV, POLYMER, 3° DIA X 12-1/2° LG 123653 EACH WASHER: FLAT, ROUND, 11/16° ID, 1-3/4° OD, GALV WASHER: FLAT, ROUND, 11/16° ID, 1-3/4° DO, GALV BOLT: MACHINE, SQ HEAD, 34° DIA X 12° LG, GALV 127845 EACH BOLT: MACHINE, SQ HEAD, 34° DIA X 12° LG, GALV 127845 EACH BOLT: MACHINE, SQ HEAD, 34° DIA X 10° LG, GALV 127845 EACH BOLT: MACHINE, SQ HEAD, 34° DIA X 10° LG, GALV 148653 PAIR BRACE: CROSSARM, 10° & 11′, 60° SPACING X 30° DROP 148653 PAIR BRACE: CROSSARM, 10° & 11′, 60° SPACING X 30° DROP 148653 PAIR BRACE: CROSSARM, 10° & 11′, 60° SPACING X 30° DROP 148653 PAIR BRACE: CROSSARM, 10° & 11′, 60° SPACING X 30° DROP 148653 PAIR BRACE: CROSSARM, 10° & 11′, 60° SPACING X 30° DROP 148653 PAIR BRACE: CROSSARM, 10° & 11′, 60° SPACING X 30° DROP 148653 PAIR BRACE: CROSSARM, 10° & 11′, 60° SPACING X 30° DROP 148653 PAIR BRACE: CROSSARM, 10° & 11′, 60° SPACING X 30° DROP 148 | | | | | | | | |
| SHIELDED 4.44 FT/LB EXTENSION. ANCHOR ROD. 1-1/2" SQ SHAFT X 42" LG, GALV STL, FOR TRIPLE HELIX ANCHOR CLAMP. END FITTING, SIDEWALK GUY, W. CLAMP, FOR 2" PIPE, HOT DIP GALV 117885 EACH WASHER: FLAT, ROUND, 9/16" ID, 1-3/8" OD, GALV FUSE: FUSELINK, 65 AMP, TYPE T, 23" LG 112845 EACH INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG 112865 EACH INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG 112865 EACH WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" OD, GALV 126941 EACH WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" OD, GALV 127845 EACH BOLT: MACHINE, SO HEAD, 3/4" DIA X12" LG, GALV 127845 EACH BOLT: MACHINE, SO HEAD, 3/4" DIA X12" LG, GALV 127845 EACH BOLT: MACHINE, SO HEAD, 3/4" DIA X12" LG, GALV 148485 EACH BOLT: MACHINE, SO HEAD, 3/4" DIA X10" LG, GALV 148485 EACH BRACE: CROSSARM, 10" & 11', 60" SPACING X 30" DROP 148663 PAIR BRACE: CROSSARM, 10" & 11', 60" SPACING X 30" DROP 148663 PAIR BRACE: CROSSARM, 10" & 11', 60" SPACING X 30" DROP 148663 PAIR BRACE: CROSSARM, 10" & 11', 60" SPACING X 30" DROP 148663 PAIR BRACE: CROSSARM, 10" & 11', 60" SPACING X 30" DROP 148663 PAIR BRACE: CROSSARM, 10" & 11', 60" SPACING X 30" DROP 148663 PAIR BRACE: CROSSARM, 10 | HOOK: G | UY, 7/16" MAX WIRE SIZE, 1240 | JO LB, ALUM ALLOY | | | | | |
| EXTENSION: ANCHOR ROD. 1-1/2" SQ SHAFT X 42" LG, GALV STL, FOR TRIPLE HELIX ANCHOR CLAMP: RND FITTING, SIDEWALK GUY, W CLAMP, FOR 2" PIPE, HOT DIP GALV 117885 EACH WASHER: FLAT, ROUND, 9/16" ID, 1-3/8" OD, GALV FUSE: FUSELINK, 65 AMP, TYPET, 23" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG 123653 EACH INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG 123653 EACH INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG 123653 EACH WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" OD, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAI | | | -R, 15000 V, 1 CONDUCTOR, 4 AW | NG, CU, 7 STR, 150 MIL T | PR INSULATION, NON- | 113453 | FOOT | |
| CLAMP, END FITTING, SIDEWALK GUY, W/ CLAMP, FOR 2" PIPE, HOT DIP GALV WASHER: FLAT, ROUND, 9/16" ID, 1-3/8" OD, GALV FUSE: FUSELINK, 65 AMP, TYPE T, 23" LG RISULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG RISULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG RISULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG RISULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG RISULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG RISULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG RISULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG RASHER: FLAT, ROUND, 11/16" ID, 1-3/4" OD, GALV RASHER: FLAT, ROUND, 11/16" ID, 1-3/4" OD, GAL | | | | | | | | |
| WASHER: FLAT, ROUND, 9/16" ID, 1-3/8" OD, GALV | | | | | | | | |
| FUSE: FUSELINK, 65 AMP, TYPE T, 23" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" OD, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BRACE: CROSSARM, 10" & 11', 60" SPACING X 30" DROP WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" OD, GALV BRACE: CROSSARM, 10" & 11', 60" SPACING X 30" DROP WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" OD, GALV BRACE: CROSSARM, 10" & 11', 60" SPACING X 30" DROP WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" DIA X 12" LG, GALV BRACE: CROSSARM, 10" & 11', 60" SPACING X 30" DROP WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" DIA X 12" LG, GALV BRACE: CROSSARM, 10" & 11', 60" SPACING X 30" DROP WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" DIA X 12" LG, GALV WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" DIA X 12" LG, GALV WASHER: LGOLE FLE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV | | | | P GALV | | | | |
| INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG | | | | | | | | |
| INSULATOR: SUSPENSION, 15 KV, POLYMER, 3" DIA X 12-1/2" LG | | | | | | | | |
| WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" OD, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 BRACE: CROSSARM, 10" & 11", 6 | | | | | | | | |
| WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" OD, GALV | | | | | | | | |
| WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" OD, GALV WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" OD, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP 148653 PAIR CLEVIS: SECONDARY, GALV STL ARRESTER: HEAVY DUTY CLASS, DISTRIBUTION, 9 KV, 7.65 KV MCOV, NON-GAPPED, GRAY OR BLACK ISOLATOR, FOR URD RISERS BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH WASHER: LOCK, STAR, 1/2", GALV | | | | | | | | |
| WASHER: FLAT, ROUND, 11/16" ID, 1-3/4" OD, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BRACE: CROSSARM, 10" & 11", 60" SPACING X 30" DROP BRACE: CROSSARM, 10" & 14", 60" SPAC | | | | | | | | |
| BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60 | | | | | | | | |
| BOLT: MACHINE, SQ HEAD, 3/4" DIA X 12" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR 15661 EACH 151661 EACH 15641 EACH 155421 EACH 155421 EACH PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV 155733 EACH PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV 155733 EACH FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH | | | | | | | | |
| BOLT: MACHINE, SQ HEAD, 3/4" DIA X 10" LG, GALV BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR CLEVIS: SECONDARY, GALV STL ARRESTER: HEAVY DUTY CLASS, DISTRIBUTION, 9 KV, 7.65 KV MCOV, NON-GAPPED, GRAY OR BLACK ISOLATOR, 151693 EACH FOR URD RISERS BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH WASHER: LOCK, STAR, 1/2", GALV | | | | | | | | |
| BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP CLEVIS: SECONDARY, GALV STL ARRESTER: HEAVY DUTY CLASS, DISTRIBUTION, 9 KV, 7.65 KV MCOV, NON-GAPPED, GRAY OR BLACK ISOLATOR, 151693 EACH FOR URD RISERS BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH WASHER: LOCK, STAR, 1/2", GALV | | | | | | | | |
| BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR CLEVIS: SECONDARY, GALV STL ARRESTER: HEAVY DUTY CLASS, DISTRIBUTION, 9 KV, 7.65 KV MCOV, NON-GAPPED, GRAY OR BLACK ISOLATOR, 151661 EACH FOR URD RISERS BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH WASHER: LOCK, STAR, 1/2", GALV | | , , , | , | | | | | |
| BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR CLEVIS: SECONDARY, GALV STL ARRESTER: HEAVY DUTY CLASS, DISTRIBUTION, 9 KV, 7.65 KV MCOV, NON-GAPPED, GRAY OR BLACK ISOLATOR, 151693 EACH FOR URD RISERS BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH WASHER: LOCK, STAR, 1/2", GALV | | | | | | | | |
| BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP 148653 PAIR CLEVIS: SECONDARY, GALV STL ARRESTER: HEAVY DUTY CLASS, DISTRIBUTION, 9 KV, 7.65 KV MCOV, NON-GAPPED, GRAY OR BLACK ISOLATOR, 151693 EACH FOR URD RISERS BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH WASHER: LOCK, STAR, 1/2", GALV | | | | | | 148653 | PAIR | |
| BRACE: CROSSARM, 10' & 11', 60" SPACING X 30" DROP CLEVIS: SECONDARY, GALV STL ARRESTER: HEAVY DUTY CLASS, DISTRIBUTION, 9 KV, 7.65 KV MCOV, NON-GAPPED, GRAY OR BLACK ISOLATOR, FOR URD RISERS BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH | | | | | | | | |
| CLEVIS: SECONDARY, GALV STL ARRESTER: HEAVY DUTY CLASS, DISTRIBUTION, 9 KV, 7.65 KV MCOV, NON-GAPPED, GRAY OR BLACK ISOLATOR, FOR URD RISERS BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH WASHER: LOCK, STAR, 1/2", GALV | BRACE: C | CROSSARM, 10' & 11', 60" SPAC | | | | 148653 | PAIR | |
| ARRESTER: HEAVY DUTY CLASS, DISTRIBUTION, 9 KV, 7.65 KV MCOV, NON-GAPPED, GRAY OR BLACK ISOLATOR, FOR URD RISERS BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLSE: FUSELINK, 6 AMP, TYPE T, 23" LG WASHER: LOCK, STAR, 1/2", GALV MASHER: LOCK, STAR, 1/2", GALV BACH 158805 EACH WASHER: LOCK, STAR, 1/2", GALV | CLEVIS: S | SECONDARY, GALV STL | | | | 151661 | EACH | |
| FOR URD RISERS BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH WASHER: LOCK, STAR, 1/2", GALV | ARRESTE | ER: HEAVY DUTY CLASS, DISTF | RIBUTION, 9 KV, 7.65 KV MCOV, N | NON-GAPPED, GRAY OF | ₹ BLACK ISOLATOR, | 151693 | EACH | |
| BOLT: DOUBLE ARMING, 5/8" DIA X 18" LG, GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH WASHER: LOCK, STAR, 1/2", GALV | FOR URD | D RISERS | | | | | | |
| PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH WASHER: LOCK, STAR, 1/2", GALV | | | | <u> </u> | | | | <u> </u> |
| PLATE: POLE EYE, 3/4" MAX CLEVIS PIN, 21000 LB, DUCTILE IRON, HOT DIP GALV FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH WASHER: LOCK, STAR, 1/2", GALV | | | • | | | | | |
| FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG 158341 EACH WASHER: LOCK, STAR, 1/2", GALV 158805 EACH WASHER: LOCK, STAR, 1/2", GALV 158805 EACH | | | | | | | | |
| FUSE: FUSELINK, 6 AMP, TYPE T, 23" LG 158341 EACH WASHER: LOCK, STAR, 1/2", GALV 158805 EACH WASHER: LOCK, STAR, 1/2", GALV 158805 EACH | | | | DIP GALV | | | | |
| WASHER: LOCK, STAR, 1/2", GALV WASHER: LOCK, STAR, 1/2", GALV 158805 EACH 158805 EACH | <u> </u> | <u> </u> | .G | | | | EACH | |
| WASHER: LOCK, STAR, 1/2", GALV 158805 EACH | | | | | | | | |
| BOLT: MACHINE, SQ HEAD, 1/2" DIA X 2" LG, GALV, W/ NUT 160685 EACH | | | | | | 158805 | | |
| | BOLT: MA | ACHINE, SQ HEAD, 1/2" DIA X 2' | Z" LG, GALV, W/ NUT | | | 160685 | EACH | |

| | | | Design Estimate | Summary Repo | rt – Bill of Mate | rials | | |
|------------|----------------|--|-------------------------------------|------------------------------|-----------------------|------------------|-----------------|-------------|
| Engineer I | Lead: HGRAVII | NO | Cost Center: | | Print Date: 09-De | ec-16 12:59 PM | | |
| Maximo V | WO Number | Oracle Number | Total Project Cost | Capital Hours | Service Hours | Total Hours | Construction | 1 Resource |
| 137 | 745088 | | | | | | | |
| | <u> </u> | | | | | | | |
| QTY Req | | | Description | | | Stock # | Unit of Measure | Qty Issued |
| | | FORMED, GUY WIRE, 8 M | | | | 166189 | EACH | |
| | | | T ON W/ 1/2" X 3" HEX HEAD BOL | T, NUT, FLAT & LOCK W | ASHER, HOT DIP | 168861 | EACH | |
| | GALV, FOR MB-1 | | | | | 170004 | | |
| | | LE, MALLEABLE IRON | | | | 170301 | EACH | |
| | | LE, MALLEABLE IRON LE, MALLEABLE IRON | | | | 170301 170301 | EACH EACH | |
| | | | , DUAL VOLTAGE 2400/4160X7200 | 10/42/70V 420/2/0 CINC | AL DR WIN TABS | 170301 | EACH EACH | |
| | CONVENTIONAL | | DUAL VOLTAGE 2400/4 100A/200 | 0/124/01, 120/240, SING | LE PH, W/U TAPS, | 1/043/ | EAUT | |
| | | WOOD, 40', CLASS 2 | | | | 170525 | EACH | |
| | | VED, SQ, 11/16" ID, 2-1/4" | X 2-1/4" GAI V | | | 172997 | EACH | |
| | | R, TRANSFORMER, MEDI | | | | 174629 | EACH | |
| | | , 5/8" DIA, 10' LG, COPPER | | | | 176517 | EACH | |
| | | E, SQ HEAD, 3/4" DIA X 14 | | | | 187741 | EACH | |
| | | | RIBUTION, 9 KV, 7.65 KV MCOV, B | BLUE ISOLATOR | - | 189061 | EACH | |
| | | FORMED, 3/0 AWG, 4/3 A | | | | 189189 | EACH | · |
| | | 1.75" DIA X 8' LG, W/ CLAM | | | | 189429 | EACH | - |
| | GUARD: GUY, 1. | 1.75" DIA X 8' LG, W/ CLAM | MP, YELLOW, PLASTIC | | | 189429 | EACH | |
| | | 1.75" DIA X 8' LG, W/ CLAM | | | | 189429 | EACH | |
| | · | IK, 25 AMP, TYPE T, 23" LO | | | | 194645 | EACH | |
| | CLEVIS: THIMBL | LE, 10,000 LB, PRESSED S | STL | | | 194669 | EACH | |
| | | CER CABLE, ANTI-SWAY, | | | | 196373 | EACH | |
| | | | K, 8", STL, W/ 3/4" DIA X 84" LG GA | ALV STL ROD, TRIPLE E | YE | 301302 | EACH | |
| | | E, SQ HEAD, 5/8" DIA X 14 | | | | 313298 | EACH | |
| | | E, SQ HEAD, 5/8" DIA X 14 | | | | 313298 | EACH | |
| | | E, SQ HEAD, 5/8" DIA X 14 | | | | 313298 | EACH | |
| | | | i/8" X .162", GALV OR CU COATED | | | 315658 | EACH | |
| | | | ER, HOT DIP GALV, W/MC2 CLAMF | <u>,P</u> | | 317618 | EACH | |
| | | LG X 3-3/4" X 5-3/4", FIR, | | | | 318378 | EACH | |
| | | LG X 3-3/4" X 5-3/4", FIR, | | | | 318378 | EACH | |
| | | TRAL, FORGED STL, HOT | | | | 322618 | EACH | |
| | | E, SQ HEAD, 5/8" DIA X 12 | | | | 324634 | EACH | |
| | | E, SQ HEAD, 5/8" DIA X 12 | | | | 324634 | EACH | |
| | | E, SQ HEAD, 5/8" DIA X 12 | | | | 324634 | EACH | |
| | | E, SQ HEAD, 5/8" DIA X 12 | | | | 324634 | EACH | |
| | | E, SQ HEAD, 5/8" DIA X 12 | | | | 324634 | EACH | |
| | | E, SQ HEAD, 5/8" DIA X 12 | * | | | 324634 324634 | EACH EACH | |
| | | E, SQ HEAD, 5/8" DIA X 12 | | | | | EACH EACH | |
| | | E, SQ HEAD, 5/8" DIA X 12 E, SQ HEAD, 5/8" DIA X 12 | | | | 324634 324634 | EACH EACH | |
| | | E, 5Q HEAD, 5/6 DIA X 12 IK, 10 AMP, TYPE T, 23" LO | * | | | 326698 | EACH | |
| | | | .G , DUAL VOLTAGE, 2400/4160X720 | 00/12470V 120/240 SIN(| OLE DHI WIO TAPS | 326754 | EACH | |
| | CONVENTIONAL | | DUAL VOLINGE, 2-100/-100/1/20 | JU/ 1241 U 1 , 12 U/2 TO , U | JLL FII, VV/O 1/11 O, | 020101 | LACIT | |
| | | SIDEWALK GUY, FOR 2" P | PIPE. HOT DIP GALV | | | 327674 | EACH | |
| | | IK, 15 AMP, TYPE T, 23" LO | | | | 335674 | EACH | |
| | | E, SQ HEAD, 5/8" DIA X 8" | | | | 341458 | EACH | |
| | | E, SQ HEAD, 5/8" DIA X 8" | | | | 341458 | EACH | - |
| | | | | | | | | |

| | | Design Estimate | Summary Repo | rt – Bill of Mater | rials | | |
|-----------------------------|----------------------------|------------------------------------|--------------------------|--------------------|------------------|-----------------|------------|
| Engineer Lead: HGRAVI | NO | Cost Center: | | Print Date: 09-De | c-16 12:59 PM | | |
| Maximo WO Number | Oracle Number | Total Project Cost | Capital Hours | Service Hours | Total Hours | Construction | Resource |
| 13745088 | | | | | | | |
| OTV Dog | | Description | | | Stock # | Unit of Measure | Oty looued |
| QTY Req | . VITIM 4 VIVIC COLID | Description | | | Stock # | | Qty Issued |
| | ALUM, 4 AWG, SOLID | | | | 342074 342074 | FOOT FOOT | |
| | FORMED, 3/0 AWG TXS, A | ACCD MESSENCED | | | 343706 | EACH | |
| | FORMED, GUY WIRE, 16 | | | | 349538 | EACH | |
| | FORMED, GUY WIRE, 16 | | | | 349538 | EACH | |
| | FORMED, GUY WIRE, 16 | | | | 349538 | EACH | |
| | | , AAAC, 3/0 AWG, 7 STR, OD .50 | 2" 5 / ET/LP CODE NAM | AE AMHEDOT | 350090 | FOOT | |
| | | NDARY, OVERHEAD, TRIPLEX, | | | 350946 | FOOT | |
| CONDUCTORS 8 | k 1, 3/0 AWG, ACSR, 6/1 S | STR, BARE, NEUTRAL, 1.56 FT/LI | B, CODE NAME MURISA | IR, ALPE, | 330940 | FOOT | |
| | | , CU, SOFT DRAWN, 4 AWG, SO | | | 352210 | FOOT | |
| | | , CU, SOFT DRAWN, 4 AWG, SO | | | 352210 | FOOT | |
| WIRE: CONDUC | TOR, ELECTRICAL, BARE | , CU, SOFT DRAWN, 4 AWG, SO | LID, OD .204", 7.9 FT/LB | | 352210 | FOOT | |
| | | M COVERED, 10/64" CONDUCTO | | | 353114 | EACH | |
| WIRE: GUY, 8M, | 7 STR, ALUMOWELD, 50 |)' COIL | | | 355506 | FOOT | |
| CUTOUT: FUSE |), NON LOADBREAK, 100 | AMP, 7.8/15 KV, SILICONE OR F | POLYMER | | 356370 | EACH | |
| | | AMP, 7.8/15 KV, SILICONE OR F | | | 356370 | EACH | |
| CUTOUT: FUSE |), NON LOADBREAK, 100 | AMP, 7.8/15 KV, SILICONE OR F | POLYMER | | 356370 | EACH | |
| CUTOUT: FUSE |), NON LOADBREAK, 100 | AMP, 7.8/15 KV, SILICONE OR F | POLYMER | | 356370 | EACH | |
| | | AMP, 7.8/15 KV, SILICONE OR F | | | 356370 | EACH | |
| INSULATOR: GU | Y STRAIN, 24" LG, FIBER | GLASS, 21 M LBS | | | 362290 | EACH | |
| INSULATOR: GU | Y STRAIN, 24" LG, FIBER | GLASS, 21 M LBS | | | 362290 | EACH | |
| INSULATOR: GU | Y STRAIN, 24" LG, FIBER | GLASS, 21 M LBS | | | 362290 | EACH | |
| SWITCH: DISCO | NNECT, LOAD INTERRUF | TER, 14.4 KV, 900 AMP, GANG | OPERATED, UPRIGHT M | OUNT | 364514 | EACH | |
| PIN: INSULATOR | , POLE TOP, 15", 1" NYL | ON HEAD | | | 370074 | EACH | |
| POLE: POWER, V | WOOD, 45', CLASS 2 | | | | 370202 | EACH | |
| CONDUIT: RIGID | , 2" X 10' LG, STL, GALV | | | | 372922 | FOOT | |
| INSULATOR: SP | OOL, 3" DIA X 3" WD, FOF | R SECONDARY CLEVIS/RACK | | | 372986 | EACH | |
| POLE: POWER, V | WOOD, 35', CLASS 4 | | | | 373882 | EACH | |
| DEADEND: PRE | ORMED, 3/0 AWG, AAAC | CONDUCTOR | | | 377458 | EACH | |
| INSULATOR: GU | Y STRAIN, 24" LG, FIBER | GLASS, 11 M LBS | | | 380970 | EACH | |
| PIN: INSULATOR | , CROSSARM, 5/8" X 5-3/ | 4", 1" NYLON HEAD, GALV STL | | | 387546 | EACH | |
| | WOOD, 45', CLASS 1 | | | | 388794 | EACH | |
| ANCHOR: POWE | R, SCREW, TRIPLE HELI | X, 10", 12", 14", W/ 1-1/2" SQ SHA | AFT, GALV STL | | 391050 | EACH | |
| CONNECTOR: E | LECTRICAL, GROUND, T | RANSFORMER TANK, 1/2"-13 TH | ID, CABLE RANGE 2/0 S | TR TO #8 SOLID | 392970 | EACH | |
| CROSSARM: 10' | LG X 3-3/4" X 4-3/4", FIR, | DISTRIBUTION | | | 394178 | EACH | |
| | LG X 3-3/4" X 4-3/4", FIR, | | | | 394178 | EACH | |
| | | IESSENGER ATTACHMENT | | | 394394 | EACH | |
| | ISION, ALUM, WIRE RAN | | | | 394586 | EACH | |
| | , SQ HEAD, 5/8" DIA X 18 | | | | 412481 | EACH | |
| TRANSFORMER CONVENTIONAL | | DUAL VOLTAGE 2400/4160X720 | 00/12470Y, 120/240, SINO | GLE PH, W/O TAPS, | 417017 | EACH | |
| NUT: LOCK, 5/8". | | | | | 419921 | EACH | |
| NUT: LOCK, 5/8" | | | | | 419921 | EACH | |
| NUT: LOCK, 5/8" | | | | | 419921 | EACH | |
| NUT: LOCK, 5/8" | | | | | 419921 | EACH | |
| NUT: LOCK, 5/8" | | | | | 419921 | EACH | |

| Maximo WO Number 13745088 | | | Design Estimate | Summary Repo | rt – Bill of Mate | rials | | |
|--|-----------------------|-----------------------|---|----------------------|------------------------|---------------|-----------------|-------------|
| 13745088 Description Stock # Unit of Measure Qty Issue | Engineer Lead: HGRAVI | INO | Cost Center: | | Print Date: 09-De | c-16 12:59 PM | | |
| 13745088 Description Stock # Unit of Measure Qty Issue | Maximo WO Number | Oracle Number | Total Project Cost | Capital Hours | Service Hours | Total Hours | Construction | Resource |
| NUT: LOCK, 5/8", GALV A19921 EACH NUT: LOCK, 5/8", GALV 419921 EACH BRACKET: SPACER CABLE, DEAD END, GALV STL ROD, TRIPLE EYE, 6000 LB BRACKET: SPACER CABLE, DEAD END, GALV STL BRACKET: POLE, 18", CUT-OUT & ARRESTER FOR ARMLESS CONSTRUCTION, FIBERGLASS 432769 EACH NUT: LOCK, 3/4", GALV | | | | | | 100011100110 | | |
| NUT: LOCK, 5/8", GALV A19921 EACH NUT: LOCK, 5/8", GALV 419921 EACH BRACKET: SPACER CABLE, DEAD END, GALV STL ROD, TRIPLE EYE, 6000 LB BRACKET: SPACER CABLE, DEAD END, GALV STL BRACKET: POLE, 18", CUT-OUT & ARRESTER FOR ARMLESS CONSTRUCTION, FIBERGLASS 432769 EACH NUT: LOCK, 3/4", GALV | QTY Reg | | Description | | | Stock # | Unit of Measure | Oty Issued |
| NUT: LOCK, 5/8", GALV 419921 EACH ANCHOR: POWER, SCREW, TWIN HELIX, 10", STL, W/ 1" DIA X 84" LG GALV STL ROD, TRIPLE EYE, 6000 LB 426281 EACH BRACKET: SPACER CABLE, DEAD END, GALV STL 429409 EACH BRACKET: POLE, 18", CUT-OUT & ARRESTER FOR ARMLESS CONSTRUCTION, FIBERGLASS 432769 EACH NUT: LOCK, 3/4", GALV 437105 EACH | | " GALV | 2000p | | | | | aty isolata |
| NUT: LOCK, 5/8", GALV 419921 EACH ANCHOR: POWER, SCREW, TWIN HELIX, 10", STL, W/ 1" DIA X 84" LG GALV STL ROD, TRIPLE EYE, 6000 LB 426281 EACH BRACKET: SPACER CABLE, DEAD END, GALV STL 429409 EACH BRACKET: POLE, 18", CUT-OUT & ARRESTER FOR ARMLESS CONSTRUCTION, FIBERGLASS 432769 EACH NUT: LOCK, 3/4", GALV 437105 EACH | | | | | | | | |
| NUT: LOCK, 5/8", GALV 419921 EACH ANCHOR: POWER, SCREW, TWIN HELIX, 10", STL, W/ 1" DIA X 84" LG GALV STL ROD, TRIPLE EYE, 6000 LB 426281 EACH BRACKET: SPACER CABLE, DEAD END, GALV STL 429409 EACH BRACKET: POLE, 18", CUT-OUT & ARRESTER FOR ARMLESS CONSTRUCTION, FIBERGLASS 432769 EACH NUT: LOCK, 3/4", GALV 437105 EACH | | | | | | | | |
| NUT: LOCK, 5/8", GALV 419921 EACH NUT: LOCK, 5/8", GALV 419921 EACH NUT: LOCK, 5/8", GALV 419921 EACH ANCHOR: POWER, SCREW, TWIN HELIX, 10", STL, W/ 1" DIA X 84" LG GALV STL ROD, TRIPLE EYE, 6000 LB 426281 EACH BRACKET: SPACER CABLE, DEAD END, GALV STL 429409 EACH BRACKET: POLE, 18", CUT-OUT & ARRESTER FOR ARMLESS CONSTRUCTION, FIBERGLASS 432769 EACH NUT: LOCK, 3/4", GALV 437105 EACH | | | | | | | | |
| NUT: LOCK, 5/8", GALV 419921 EACH NUT: LOCK, 5/8", GALV 419921 EACH ANCHOR: POWER, SCREW, TWIN HELIX, 10", STL, W/ 1" DIA X 84" LG GALV STL ROD, TRIPLE EYE, 6000 LB 426281 EACH BRACKET: SPACER CABLE, DEAD END, GALV STL 429409 EACH BRACKET: POLE, 18", CUT-OUT & ARRESTER FOR ARMLESS CONSTRUCTION, FIBERGLASS 432769 EACH NUT: LOCK, 3/4", GALV 437105 EACH | | | | | | | | |
| NUT: LOCK, 5/8", GALV ANCHOR: POWER, SCREW, TWIN HELIX, 10", STL, W/ 1" DIA X 84" LG GALV STL ROD, TRIPLE EYE, 6000 LB BRACKET: SPACER CABLE, DEAD END, GALV STL BRACKET: POLE, 18", CUT-OUT & ARRESTER FOR ARMLESS CONSTRUCTION, FIBERGLASS NUT: LOCK, 3/4", GALV 419921 EACH 429409 EACH 437105 EACH | | | | | | | | |
| ANCHOR: POWER, SCREW, TWIN HELIX, 10", STL, W/ 1" DIA X 84" LG GALV STL ROD, TRIPLE EYE, 6000 LB 426281 EACH BRACKET: SPACER CABLE, DEAD END, GALV STL 429409 EACH BRACKET: POLE, 18", CUT-OUT & ARRESTER FOR ARMLESS CONSTRUCTION, FIBERGLASS 432769 EACH NUT: LOCK, 3/4", GALV 437105 EACH | | | | | | | | |
| BRACKET: SPACER CABLE, DEAD END, GALV STL BRACKET: POLE, 18", CUT-OUT & ARRESTER FOR ARMLESS CONSTRUCTION, FIBERGLASS NUT: LOCK, 3/4", GALV 429409 EACH 432769 EACH | | | 10" STI W/ 1" DIA X 84" I G GA | LV STL ROD TRIPLE FY | F 6000 LB | | | |
| BRACKET: POLE, 18", CUT-OUT & ARRESTER FOR ARMLESS CONSTRUCTION, FIBERGLASS 432769 EACH NUT: LOCK, 3/4", GALV 437105 EACH | | | | | | | | |
| NUT: LOCK, 3/4", GALV 437105 EACH | | | | CTION FIBERGLASS | | | | |
| | | | | | | | | |
| | | | | | | | | |
| NUT: LOCK, 3/4", GALV 437105 EACH | | | | | | | | |
| NUT: LOCK, 3/4", GALV 437105 EACH | | | | | | | | |
| CLAMP: STRAIN, STRAIGHT LINE, .30" TO .60" CABLE, ALUM, 8000 LB CAP 439865 EACH | | | 0 60" CABLE ALUM 8000 LB CA | P | | | | |
| CLAMP: STRAIN, STRAIGHT LINE, .30" TO .60" CABLE, ALUM, 8000 LB CAP 439865 EACH | | | | | | | | |
| INSULATOR: PIN TYPE, 13.2 KV, 1" PIN HOLE 444153 EACH | | | | • | | | | |
| INSULATOR: PIN TYPE, 13.2 KV, 1" PIN HOLE 444153 EACH | | | | | | | | |
| SPACER: 3 PH, FOR SPACER CABLE 444825 EACH | | | | | | | | |
| WASHER: FLAT, SQ, 13/16" ID, 2-1/4" X 2-1/4", 3/16" THK, GALV 446361 EACH | | | 1/4" 3/16" THK GALV | | | | | |
| WASHER: FLAT, SQ, 13/16" ID, 2-1/4" X 2-1/4", 3/16" THK, GALV 446361 EACH | | | | | | | | |
| WIRE: TIE, COVERED, ALUM, 4 AWG, SOLID 449665 FOOT | | | | | | | | |
| TAP: COMPRESSION, CU, GROOVE-A, 4 TO 8 SOLID - GROOVE-B, 4 TO 8 SOLID 451377 EACH | | | | SOLID | | | | |
| TAP: COMPRESSION, CU, GROOVE-A, 4 TO 8 SOLID - GROOVE-B, 4 TO 8 SOLID 451377 EACH | | | | | | | | |
| TAP: COMPRESSION, CU, GROOVE-A, 4 TO 8 SOLID - GROOVE-B, 4 TO 8 SOLID 451377 EACH | | | | | | | | |
| TAP: COMPRESSION, CU, GROOVE-A, 4 TO 8 SOLID - GROOVE-B, 4 TO 8 SOLID 451377 EACH | | | | | | | | |
| SCREW: LAG, 1/2" DIA X 4" LG, TWIST DRIVE, GALV 453121 EACH | | | | | | | | |
| SCREW: LAG, 1/2" DIA X 4" LG, TWIST DRIVE, GALV 453121 EACH | | | | | | | | |
| SCREW: LAG, 1/2" DIA X 4" LG, TWIST DRIVE, GALV 453121 EACH | | | | | | | | |
| SCREW: LAG, 1/2" DIA X 4" LG, TWIST DRIVE, GALV 453121 EACH | | | | | | | | |
| SCREW: LAG, 1/2" DIA X 4" LG, TWIST DRIVE, GALV 453121 EACH | | | | | | | | |
| WIRE: CONDUCTOR, ELECTRICAL, SPACER, ALUM, 336.4 MCM COMPACT CONDUCTOR, 19 STR, 150 MIL INSULATION, 453145 FOOT OD .192", FOR USE ON 15 KV. 0.49040 lbs per ft. | WIRE: CONDUC | TOR, ELECTRICAL, SPAC | CER, ALUM, 336.4 MCM COMPAC | T CONDUCTOR, 19 STR | R, 150 MIL INSULATION, | | | |
| CLAMP: GROUND ROD, 5/8" 454561 EACH | | | | | | 454561 | EACH | |
| WIRE: GUY, 16M, 7 STR, ALUMOWELD, 250' COIL 455625 FOOT | | | 50' COIL | | | | | |
| SHACKLE: ANCHOR, 15000 LB LOAD, CLEVIS PIN & COTTER KEY, FORGED STL, HOT DIP GALV 455841 EACH | | | | ED STL, HOT DIP GALV | | | | |
| SHACKLE: ANCHOR, 15000 LB LOAD, CLEVIS PIN & COTTER KEY, FORGED STL, HOT DIP GALV 455841 EACH | | | | | | | | |
| PIN: INSULATOR, CROSSARM, 5/8" X 2-1/2", 1" NYLON HEAD, GALV STL 457177 EACH | | | | | | | | |
| NUT: LOCK, 1/2", GALV 458153 EACH | | <u> </u> | , | | | | | |
| WASHER: CURVED, SQ, 13/16" ID, 4" X 4", GALV 464961 EACH | | | , GALV | | | | | |
| WASHER: CURVED, SQ, 13/16" ID, 4" X 4", GALV 464961 EACH | | | | | | | | |
| BRACKET: 3 PH EQUIPMENT, FIBERGLASS 467641 EACH | | | | | | | | |
| BOLT: MACHINE, SQ HEAD, 5/8" DIA X 6" LG, GALV 471689 EACH | | | | | | | | |
| BOLT: MACHINE, SQ HEAD, 5/8" DIA X 6" LG, GALV 471689 EACH | | | | | | | | |
| WASHER: FLAT, SQ, 11/16" ID, 2" X 2", 1/8 THK, GALV 471913 EACH | | | , | | | | | |
| WASHER: FLAT, SQ, 11/16" ID, 2" X 2", 1/8 THK, GALV 471913 EACH | | | | | | | | |

| | | | Design Estimate | Summary Repo | rt – Bill of Mater | ials | | |
|------------|---------------|-----------------------------|------------------------------|--------------------------|--------------------|-------------|-----------------|------------|
| Engineer L | ead: HGRAVII | NO | Cost Center: | , | Print Date: 09-De | | | |
| Maximo V | VO Number | Oracle Number | Total Project Cost | Capital Hours | Service Hours | Total Hours | Construction | Resource |
| 1374 | 45088 | | | | | | | |
| QTY Req | | | Description | | | Stock # | Unit of Measure | Qty Issued |
| | WASHER: FLAT, | SQ, 11/16" ID, 2" X 2", 1/8 | THK, GALV | | | 471913 | EACH | |
| | WASHER: FLAT, | SQ, 11/16" ID, 2" X 2", 1/8 | THK, GALV | | | 471913 | EACH | |
| | WASHER: FLAT, | SQ, 11/16" ID, 2" X 2", 1/8 | THK, GALV | | | 471913 | EACH | |
| | WASHER: FLAT, | SQ, 11/16" ID, 2" X 2", 1/8 | THK, GALV | | | 471913 | EACH | |
| | WASHER: FLAT, | SQ, 11/16" ID, 2" X 2", 1/8 | THK, GALV | | | 471913 | EACH | |
| | WASHER: FLAT, | SQ, 11/16" ID, 2" X 2", 1/8 | THK, GALV | | | 471913 | EACH | |
| | WASHER: FLAT, | SQ, 11/16" ID, 2" X 2", 1/8 | THK, GALV | | | 471913 | EACH | |
| | WASHER: FLAT, | SQ, 11/16" ID, 2" X 2", 1/8 | THK, GALV | | | 471913 | EACH | |
| | WASHER: FLAT, | SQ, 11/16" ID, 2" X 2", 1/8 | THK, GALV | | | 471913 | EACH | |
| | ADAPTER: HEAD |), ANCHOR ROD, TRIPLE | EYE, 1-1/2" SQ SHAFT, FOR TR | IPLE HELIX, GALV STL | | 473097 | EACH | |
| | WIRE: ALUMOW | ELD, AWAC, 3/0 AWG, 4/3 | STR, 2700' REEL | | | 474865 | FOOT | |
| | WIRE: CONDUCT | ΓOR, ELECTRICAL, BARE, | AAAC, 1/0 AWG, 7 STR, OD 0.3 | 398", 8.6 FT/LB, CODE NA | ME, AZUSA | 480073 | FOOT | |

| | | Desi | gn Estimate Summary | Repo | rt – Detail | Cost Estima | ate | | | |
|------------------------------------|---------|---|----------------------------|----------|--------------|----------------|------------|--------|----------------|-------------------|
| Engineer Lead: HGR | AVINO | | Cost Center: | _ | | Print Date: 09 | -Dec-16 12 | :59 PM | | |
| Maximo WO Nur 13745088 | | Oracle Number | Total Project Cost | Capita | Hours | Service Hour | s Total I | lours | Construction I | Resource |
| | | | Electric Transf | ormer | s (Install) | | | · | | |
| Account # - | CU | | CU Desc | Qty | Operation | | Total | Labor | Tooling | Total Cost |
| Description | 4005004 | TDANIO CONINICATION | LACON NAVANUNAAL | | | Cost | Hours | Cost | Cost | |
| 368-LINE TRANSFORMERS | 1005301 | | UAL VOLTAGE (10 TO 333KVA) | | | | | | | |
| | 1030015 | TRANSFORMER, 1PH 120/240V, 15KVA | , PT, CONV, 2400X7200- | | | | | | | |
| | 1030025 | TRANSFORMER, 1PH 120/240V, 25KVA | , PT, CONV, 2400X7200- | | | | | | | |
| | 1030050 | TRANSFORMER, 1PH 120/240V, 50KVA | , PT, CONV, 2400X7200- | | | | | | | |
| | 1030101 | | , PT, CONV, 2400X7200- | | | | | | | |
| | | Sub Tota | al Costs & Labor Hours (w | ith trav | el loadings) | | | | | |
| | I | | Electric Transfo | rmers | (Remove) | | | | l | |
| Account # - | CU | | CU Desc | Qty | Operation | Material | Total | Labor | Tooling | Total Cost |
| Description | | | | | • | Cost | Hours | Cost | Cost | |
| 368-LINE TRANSFORMERS | 1010015 | REMOVAL ONLY, TRA 2400-120/240V, 15KVA | NSFORMER, 1PH, PT, CONV, | | <u>'</u> | | | | | |
| | 1010025 | TRANSFORMER, 1PH 25KVA | , PT, CONV, 2400-120/240V, | | | | | | | |
| | 1010050 | TRANSFORMER, 1PH 50KVA | , PT, CONV, 2400-120/240V, | | | | | | | |
| | 1010333 | TRANSFORMER, 1PH 333KVA | , PT, CONV, 2400-120/240V, | | | | | | | |
| | 1042075 | | , PM, 2400/4160Y-208/120V, | | | | | | | |
| | | | al Costs & Labor Hours (w | ith trav | el loadings) | | | · | | |
| | 1 | | Invest (Insta | I & Tra | ansfer) | | | | | |
| Account # - | CU | | CU Desc | Qty | Operation | Material | Total | Labor | Tooling | Total Cost |
| Description | | | | _ | | Cost | Hours | Cost | Cost | |
| • | 0106108 | POLE TOP PIN ASSY | | | | | | | | |
| 364-POLES, TOWERS, AND FIXTURES | | | | | | | | | | |
| | 0108110 | NEUTRAL BRKT ASSE | | | | | | | | |
| | 0110112 | TRANSF CLUSTER M | | | | | | | | |
| | 0114001 | SPACER CABLE, ANTI | | | | | | | | |
| | 0114102 | MESSENGER BRKT A | | | | | | | | |
| | 0114512 | | SEMBLY, 5-50 DEG, SPACER | | | | | | | |
| | 0114712 | DEADEND BRKT ASS | | | | | | | | |
| | 0135401 | | 4,4,EMBEDDED EARTH ONLY | | | | | | | |
| | 0140201 | | i,2,EMBEDDED EARTH ONLY | | | | | | | |
| | 0145101 | POLE:WOOD,45FT LG | ,1,EMBEDDED EARTH ONLY | | | | | | | |

| | | Desi | gn Estimate Summar | v Report – Detai | il Cost Estimate | <u> </u> | |
|--------------------------------------|--------------------|--------------------------------------|---|---------------------|------------------|----------|-----------------------|
| Engineer Lead: HGRA\ | /INO | 200. | Cost Center: | y Roport Dotai | Print Date: 09-D | | |
| Maximo WO Numb | | Oracle Number | Total Project Cost | Capital Hours | Service Hours | | Construction Resource |
| 13745088 | | | | | | | |
| | 0145201 | POLE:WOOD,45FT LG | 3,2,EMBEDDED EARTH ONLY | | | | |
| | 0306001 | CROSS ARM PIN ASS | | | | | |
| | 0310112 | 10FT SINGLE ARM BF | | | | | |
| | 0310216 | 10FT DBL ARM BRAC | | | | | |
| | 0310401 | CROSSARM | BERGLASS DEAD END | | | | |
| | 0311112 | 11FT SINGLE ARM BF | | | | | |
| | 0311218 | 11FT DOUBLE ARM B | | | | | |
| | 0401210 | | AND SPOOL INSULATOR | | | | |
| | 0501008 | GUY STRAND ASSY 8 | | | | | |
| | 0501016 0508601 | GUY STRAND ASSY 1 | SSY,FIBERGLASS STRAIN INS | | | | |
| | 0516201 | | ASSY,10IN TWIN HELIX,24IN | | | | |
| | 0010201 | FBGL STRAIN INS | ACCI, IONA I VINA I ILLIA, ZTIN | | | | |
| | 0516701 | | ,24IN FBGL STRAIN INS | | | | |
| | 0532201 | | HOR ASSEMBLY, TRIPLE HELIX | | | | |
| | | | al Costs & Labor Hours (| with travel loading | s) | | |
| | 0104612 | INS POLE BRKT ASSY | , SINGLE EQUIP BRKT | | | | |
| 365-OVERHEAD CONDUCTORS & DEVICES | 0101012 | mor old brace, noo | , onvoice equilibrium | | | | |
| | 0109310 | EQUIPMENT MOUNT | ASSY 3-PHASE | | | | |
| | 0403203 | | ND ASSEMBLY, .36 in, 1/0-3/0 | _ | | | |
| | 0403247 | CONDUCTOR DEADE | ND ASSEMBLY, 336 SPC | | | | |
| | 0405207 | ALUMINUM CONDUC. | | | | | |
| | 0405208 | ALUMINUM CONDUC. | Y W/ TIE WIRE, DOUBLE, | | | | |
| | 0601401 | SECONDARY CONDU | CIES - OH ELEC DIST / CTORS | | | | |
| | 0610211 | | 1/0AWG, 7 STRAND, BARE | | | | |
| | 0630143 | 600V | 3/0AWG, 7 STRAND, TX, XLP, | | | | |
| | 0630211 | | 3/0AWG, 7 STRAND, BARE | | | | |
| | 0699101 | MATERIAL CONTINGE SECONDARY CONDU | ENCIES - OH ELEC DIST / CTORS | | | | |
| | 0809002 | LTNG ARR ASSY,LINE | 9KV | | | | |
| | 0809102 | LTNG ARR ASSY,LINE | | | | | |
| | 0815003 | ACSR/AAAC | CLAMP ASSY, 1/0 - 3/0 | | | | |
| | 0816030 | | CONDUCTOR, 3/0 AAAC | | | | |
| | 0816043 0816130 | GRIP PREFORMED, A | CONDUCTOR, 3/0 AWAC T EYE NUT, 3/0 ALUM, | _ | | | |
| | 0817035 | | CORNER ASSY, #2-3/0 | | | | |
| | 0821042 | ACSR/AAAC POLE GROUND ASSY | ' POD | | | | |
| | 0821401 | GOAB SWITCH GROU | | | | | |
| | 00=1101 | 30 3 3 | | | | | |

| | | Desig | n Estimate Summar | y Repo | rt – Detail | Cost Estima | te | | | |
|--|--------------------|-------------------------------------|--|------------|----------------|--|---------|--------------|---------------|--------------|
| Engineer Lead: HGRA | VINO | | Cost Center: | | | Print Date: 09- | | 59 PM | | |
| Maximo WO Num | | Oracle Number | Total Project Cost | Capita | l Hours | Service Hours | | | onstruction F | Resource |
| 13745088 | | | | | | | | | | |
| | 0925006NG | | 00A,6T,1PH,14.4KV,NON- | | <u>'</u> | | | · | | |
| | 200=240110 | LOADBREAK, NON-GR | | | | | | | | |
| | 0925010NG | LOADBREAK, NON-GR | 00A,10T,1PH,14.4KV,NON- | | | | | | | |
| | 0925015NG | | 00A,15T,1PH,14.4KV,NON- | | | | | | | |
| | 000000000 | LOADBREAK, NON-GR | | | | | | | | |
| | 0925025NG | | 00A,25T,1PH,14.4KV,NON- | | | | | | | |
| | 0005005NO | LOADBREAK, NON-GR | | | | | | | | |
| | 0925065NG | LOADBREAK, NON-GR | 00A,65T,1PH,14.4KV,NON- | | | | | | | |
| | 0936601 | | GOAB,HORIZONTAL,LOADBRE | | | | | | | |
| | | AK | | | | | | | | |
| | 1404003 | | E, THREE PHASE, 15KV | | | | | | | |
| | 1430711 | | C,4/3STR,MESSENGER,BARE | | | | | | | |
| | 1433131 | INSULATION,NO COVE | .R. A,SPACER,POLY INSULATION. | | | | | | | |
| | 1433131 | | I Costs & Labor Hours (| | (al landings) | _ · · <i>′</i> · · · · · · · · · · · · · · · · · · · | | . , | · | . , |
| | | Sub Tota | Costs & Labor Hours (| willi liav | rei ioauiiigs) | | | | | |
| | 0701401 | LABOR CONTINGENCI | ES ELEC SERVICE | | | <u> </u> | | | | |
| 369-ELECTRIC SERVICES | 0701401 | LABOR CONTINGLING | LS - LEEC SERVICE | | | | | | | |
| 000 ===0 :: 0 == : : : : : : : : : : : : : : : : : | | Sub Tota | l Costs & Labor Hours (| with trav | /el loadings) | | | | | |
| | | oub rotu | . 30010 & 20001 110010 (| with trus | or loadingo, | | | | | |
| | | | Retire (Aband | don & F | Remove) | | | | | |
| Account # - | CU | С | U Desc | Qty | Operation | Material | Total | Labor | Tooling | Total Cost |
| Description | | | | | o por unon | Cost | Hours | Cost | Cost | 1000 |
| | 0106108 | POLE TOP PIN ASSY | | | | | 1100110 | 3331 | 3001 | |
| 364-POLES, TOWERS, | | | | | | | | | | |
| AND FIXTURES | | | | | | | | | | |
| | 0108110 | NEUTRAL BRKT ASSE | | _ | | | | | | |
| | 0114102 | MESSENGER BRKT AS | | | | | | | | |
| | 0135401 0140201 | | 4,EMBEDDED EARTH ONLY 2,EMBEDDED EARTH ONLY | | | | | | | |
| | 0140201 | | 2,EMBEDDED EARTH ONLY | _ | | | | | | |
| | 0306001 | CROSS ARM PIN ASSY | | _ | | | | | | |
| | 0308001 | 8FT SINGLE ARM BRAG | | _ | | | | | | |
| | | 8FT STD DBLARM BRA | | _ | | | | | | |
| | 0308216 | | | _ | | | | | | |
| | 0310112 | 10FT SINGLE ARM BRA | | | | | | | | |
| | 0310216 | 10FT DBL ARM BRACE | | | | | | | | - |
| | 0401210 | | AND SPOOL INSULATOR | | | | | | | |
| | | Sub Tota | I Costs & Labor Hours (| with trav | /ei ioadings) | | | | | |
| | 0104612 | INS POLE BRKT ASSY, | SINGLE FOUIP BRKT | | | | | | | |
| | 0109310 | EQUIPMENT MOUNT A | | | | | | | | |
| | 0403203 | | D ASSEMBLY, .36 in, 1/0-3/0 | | | | | | | |
| | 0.50200 | ACSR/AAAC | | | | | | | | |
| | 0403208 | | D ACCEMBLY #C COL CIL | | | | | | | |
| | | | D ASSEMBLY, #6 SOL CU | | | | | | | |
| | 0405207 | PIN INSULATOR ASSY ALUMINUM CONDUC. | | | | | | | | |

| | | | | | | Vection Couli |
|-----------------------|--|----------------------------|---------------------|------------------|----------------|-----------------------|
| | Desig | gn Estimate Summary | Report – Deta | il Cost Estimate |) | |
| gineer Lead: HGRAVINO | | Cost Center: | | Print Date: 09-D | ec-16 12:59 PM | |
| Maximo WO Number | Oracle Number | Total Project Cost | Capital Hours | Service Hours | Total Hours | Construction Resource |
| 13745088 | | | | | | |
| 0405208 | PIN INSULATOR ASSY ALUMINUM CONDUC. | ' W/ TIE WIRE, DOUBLE, | | | | |
| 0606530 | | E COPPER #6AWG, SOLID, PE | | | | |
| 0610510 | WIRE COPPER 1/0AW | | | | | |
| 0803002 | LTNG ARR ASSY,LINE | | | | | |
| 0815003 | NEUTRAL DEADEND (| CLAMP ASSY, 1/0 - 3/0 | | | | |
| | ACSR/AAAC | | | | | |
| 0815008 | | CLAMP ASSY, #6 SOL CU | | | | |
| 0816043 | - , - , - | CONDUCTOR, 3/0 AWAC | | | | |
| 0816130 | - , | T EYE NUT, 3/0 ALUM, | | | | |
| | SERVICE | | | | | |
| 0821042 | | , - | | | | |
| 0925006N | | 100A,6T,1PH,14.4KV,NON- | | | | |
| 20070401 | LOADBREAK, NON-GF | | | | | |
| 0925010N | | 100A,10T,1PH,14.4KV,NON- | | | | |
| 0005045N | LOADBREAK, NON-GF | | | | | |
| 0925015N | | 100A,15T,1PH,14.4KV,NON- | | | | |
| 0925025N | LOADBREAK, NON-GF | 100A,25T,1PH,14.4KV,NON- | | | | |
| U925025IN | LOADBREAK, NON-GF | | | | | |
| 0925040N | | 100A,40T,1PH,14.4KV,NON- | | | | |
| 002004014 | LOADBREAK, NON-GF | | | | | |
| 0925065N | , | 100A.65T.1PH.14.4KV.NON- | | | | |
| 00200011 | LOADBREAK, NON-GF | | | | | |
| | | al Costs & Labor Hours (v | vith travel loading | js) | | |
| 1204030 | CAPACITOR ASSY, FI | XED BANK, 4KV, 300KVAR | 6 Remove | | | |
| | Sub Tota | al Costs & Labor Hours (v | vith travel loading | gs) | | |

| | Des | ign Estim | ate Summ | ary Report – Ad | dress Summary | | | |
|-------------------------|---------------|-----------|------------|-----------------|-------------------|---|-------------|------------|
| Engineer Lead: HGRAVINO | | | Cost Cente | r: | Print Date: 09-De | c-16 12:59 PM | | |
| Maximo WO Number | Oracle Number | Total Pro | oject Cost | Capital Hours | Service Hours | Total Hours | Constructio | n Resource |
| 13745088 | | | | | | | | |
| | | | | | | | | |
| Customer Name | Custom | er Phone | Cus | tomer Address | Short D | escription of Wor | k Order | WONUM |
| | <u>.</u> | | • | | | ass AVE CKT_4KV COI ONV (Riverside Sub) Ph | | 13745088 |
| | | | | | | · | | |
| | | | | | | | | |

| | | hild Work Orders | | |
|------------|-------------------|------------------------------|---------------|--------|
| Work Order | Short Description | Work Type | Work Sub Type | Status |
| | | | | |
| | | | | |
| | | | | |
| | F | lated Work Orders | | |
| Work Order | Short Description | lated Work Orders Work Type | Work Sub Type | Status |

| Transmission Modernization Preliminary | Estimate Summary | Group ID BO | ONVILLE PIONEER | Planned Y | Year 2021 | | |
|---|--------------------------|-------------|--|-----------------|------------------|------------|--|
| Maximo WO Number | Maximo Short Description | | | | | | |
| 13964154 | TBD | | E560_Electric Distribution Substation_BOONVILLE PIONEER_Substation Circuit Breaker Replacements_BOONVILLE PIONEER 188 - 4842773 | | | | |
| ABM | OC | City | TDSIC Program Category Project Engine | | ct Engineer | r (VEC/BV) | |
| Elec Substation - Distr TDSIC Boonville Boonville | | Boonville | Substation Circuit Breaker Replac | cement: Horn, A | ndrew | JJK | |

Maximo Long Description of Work

The project involves replacing 12kV circuit breake and associated foundation. The existing relaying and control is located in the breaker control panel that will be upgraded with the new breaker. This Level estimate uses BV Project S1021 / Vectren Maximo 13626331 as the basis for this estimate.

| Preliminary Estimate Details | | | | | | | | | |
|----------------------------------|-------|-----|-----------|---------------|--|--|--|--|--|
| Activity Description | Units | UoM | Unit Cost | Extended Cost | | | | | |
| Mobilization | 1 | Lot | | | | | | | |
| Breaker Replacement | 1 | Lot | | | | | | | |
| Test Check Out | 1 | Lot | | | | | | | |
| Demobilization | 1 | Lot | | | | | | | |
| Engineering/Operations/Equipment | 1 | Lot | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | Subtotal | \$104,111 | | | | | |

| Total Project Cost Summary | | | | | | | | |
|------------------------------|--|--|--|--|--|--|--|--|
| Cost Category | | Project Cost Calculations | | | | | | |
| Contract Labor and Overheads | | Subtotal | | | | | | |
| Engineering | | Contingency - Labor and Material | | | | | | |
| Materials | | Subtotal + Contingency | | | | | | |
| Land | | Administrative & General Loading / Engineering & Supervision Loading | | | | | | |
| | | Total Project Cost (Subtotal + Contingency + Loadings) | | | | | | |

| Maximo Work Ord | | | 3964154 | | | | | Crew Rate | | | |
|---------------------|------|---------------|--|------------|---------------|---------------------|---------------|-----------|-------------|------------|------------|
| Work Order Desc: | : | E560_Electric | ic Distribution Substation_BOONVILLE PIONEER | | | | | | | | |
| | | Bre | eaker Replacements_BOONVILLE PIONEER 188 | - 4842773 | | | | | | | |
| BV Project ID: | | | S-4004 | | | | | | | | |
| BV Estimate Basis : | | | S1021 | | | | | | | | |
| Estimator: | 1 | | JJK | | | | | | | | |
| | 071/ | 11011 | | ********** | | | LABOR INSTALL | | | | |
| IIRIT | QTY | UOM | | | MATERIAL COST | Material Cost w/ Tx | LABOR INSTALL | Mhr Unit | Subcontract | Total Mhrs | Total Cost |
| | | lot | Mobilization | | | | | | | | |
| | | EA | Circuit breaker, Vacuum 15kV, 1200A, 20kAIC, 2 sets of 1200:5A MR CTs | - | | | | | | | |
| | | FT | Conductor, 500 kcmil copper | | | | | | | | |
| | | EA | Conductor, #4/0 bare copper | - | | | | | | | |
| | | EA | Grounding conductor fittings | | | | | | | | |
| | | FT | 2" RGS Conduit | | | | | | | | |
| | | FT | 2" Flexible metal conduit | - | | | | | | | |
| | | CY | Foundation - See Substation Project Summary | - | | | | | | | |
| | | Lot | Remove circuit breaker, associated | | | | | | | | |
| | | | conductors, and foundation. | | | | | | | | |
| | | EA | Lug, bolted, 500 kcmil, CU, 4-Hole Pad | | | | | | | | |
| | | EA | Transition plates | - | | | | | | | |
| | | EA | Magnecraft/Struthers-Dunn General Purpose Octal Plug-In Relay, Class 250, 240VAC, 10A (trip ckt loss of AC, close ckt loss of AC, reclose indication) | | | | | | | | |
| | | EA | Magnecraft/Struthers-Dunn General Purpose Relay, 24VDC, 13A, Class 388ML (reclose cutoff, reclose cutoff reset, inst. reclosing cutoff) | | | | | | | | |
| | | EA | ABB Type FT-1 Test Switch, 10 potential poles (1 per M571) | | | | | | | | |
| | | EA | 2-pole fuse block, 250V, 30A | | | | | | | | |
| | | EA | 250V, 10A fuses | | | | | | | | |
| | | EA | Bitronics Type M571 IED | | | | | | | | |
| | | EA | Bitronics Type M570DA remote display | | | | | | | | |
| | | EA | ABB Type FT-1 Test Switch, 4 potential poles & 6 current poles (1 per M571) | | | | | | | | |
| | | FT | 600V cable, two pair #20 AWG, shielded, for direct burial | | | | | | | | |
| | | | | | | | | | | | |

| Maximo Work Orde | | | | | | | Crew Rate | | | | |
|--------------------------|-----|--------|--|---------------|---------------|---------------------|---------------|----------|-------------|------------|------------|
| Work Order Desc: | | | _Substation Circuit | | | | | | | | |
| | | _ | blacements_BOONVILLE PIONEER 188 - | 4842773 | | | | | | | |
| BV Project ID: | | S-4004 | | | | | | | | | |
| BV Estimate Basis | : | S1021 | | | | | | | | | |
| Estimator: | | JJK | | | | | | | | | |
| IIRIT | QTY | UOM | CU DESCRIPTION | MATERIAL UNIT | MATERIAL COST | Material Cost w/ Tx | LABOR INSTALL | Mhr Unit | Subcontract | Total Mhrs | Total Cost |
| | | | | | | | | | | | |
| | | EA | SEL-451 Protection, Automation, & Bay Control System Relay | | | | | | | | |
| | | EA | ABB Type FT-1 Test Switch, 4 potential poles & 6 current poles | | | | | | | | |
| | _ | EA | ABB Type FT-1 Test Switch, 10 potential poles | | | | | | | | |
| | | lot | Test & Checkout | | | | | | | | |
| | | lot | Demobilization | | | | | | | | |
| | | | | | | | | | | | |
| | | Lot | Misc Material @ 5% | | | | | | | | |
| | | Totals | | | | | | | | | |