CITY OF GRAND ISLAND

Working Together for a Better Tomorrow. Today.

BID SPECIFICATION PACKAGE

for

PLATTE GENERATING STATION UNIT 1 GENERATOR PROTECTION RELAYS AND TRANSFORMER PROTECTION RELAYS

C 131515

Bid Opening Date/Time

Tuesday, June 28, 2022 at 2:00 p.m. (local time)
City of Grand Island, City Hall
100 East 1st Street, P.O. Box 1968
Grand Island, NE 68802-1968

Contact Information

Ryan Kruse
City of Grand Island – Utilities Department
Platte Generating Station
Email: rkruse@giud.com
Phone: 308/385-5496

Date issued: June 10, 2022

ADVERTISEMENT TO BIDDERS
FOR
PGS UNIT 1 GENERATOR PROTECTION RELAYS AND TRANSFORMER PROTECTION RELAYS
FOR
CITY OF GRAND ISLAND, NEBRASKA

Sealed bids for PGS Unit 1 Generator Protection Relays and Transformer Protection Relays will be received at the office of the City Clerk, 100 E. First Street, P.O. Box 1968, Grand Island, Nebraska 68802, until **Tuesday, June 28, 2022 at 2:00 p.m. local time,** FOB the City of Grand Island, freight prepaid. Bids will be publicly opened at this time in the Grand Island City Hall City Clerk's Office located on 1st floor of City Hall. **Submit an original and three copies if submitting by mail.** Bid package and any Addendas are also available on-line at www.grand-island.com under Business-Bids and Request for Proposals-Bid Calendar under the bid opening date. Bidding documents, plans and specifications for use in preparing bids may be downloaded from the QuestCDN website www.QuestCDN.com for a $30.00 fee. Submitting through QuestCDN requires one original document of the bid to be uploaded. **Bids received after the specified time will not be considered**.

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Successful bidder shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

Each bidder shall submit with the bid a certified check, a cashiers check, or bid bond payable to the City of Grand Island Treasurer in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the bidder and the entering into a contract within fifteen (15) days at the bid price if accepted by the City. **Your certified check, cashiers check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information and correct number of copies in clearly marked and separate envelopes will result in your bid not being opened or considered.** Only surety companies authorized to do business in the State of Nebraska may issue bid bonds.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The Purchaser reserves the right to reject any or all bids, to waive irregularities therein, and to accept whichever bid that may be in the best interest of the City, at its sole discretion.

No bidder may withdraw his/her bid for a period of thirty (30) days after date of bid opening.

RaNae Edwards, City Clerk

Advertised

(All bids must be submitted on this form)

PGS UNIT 1 GENERATOR PROTECTION RELAYS AND TRANSFORMER PROTECTION RELAYS
BID DATA FORM

CITY OF GRAND ISLAND
GRAND ISLAND, NE

THE undersigned Bidder, having examined the plans, specifications, general and special conditions, and other proposed contract documents, and all addenda thereto, and being acquainted with and fully understanding all conditions relative to the location, arrangement and specified materials and equipment for the proposed work, HEREBY proposes to provide generator protection relays and transformer relays that are compatible with the existing relays that are in service FOB the City of Grand Island, freight prepaid, at the following price:

ITEM DESCRIPTION	EXTENDED COST
Phase One Base Bid:	
Materials	$ _____
Applicable Sales tax*	$ _____
Phase Two Base Bid:	
Installation and Commissioning	$ _____
Applicable Sales tax*	$ _____
Total Base Bid	**$ _____**

*** If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.5% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.**

☐ **Exceptions Noted -** Bidder acknowledges there are *Exceptions* and/or *Clarifications* noted to the above bid, and those exceptions are fully explained on a separate sheet, clearly marked, and included with the Bid.

_____
Bidder Company Name Date

_____
Company Address City State Zip

_____
Print Name of Person Completing Bid Signature

Email:_____ Telephone No._____

Bids shall include an itemized list of all applicable materials, labor, travel living expenses, taxes, permits, and/or delivery charges to Grand Island, Nebraska. An itemized list for Phase 1 and Phase 2 shall be separate. A lead time of the protective relays shall be provided.

☐ By checking this box, Bidder acknowledges the specified completion date of the project is **May 5, 2023.**

According to Nebraska Sales and Use Tax Requirements, Section 1-017, Contractors, check which option you have selected to file with the Nebraska Department of Revenue:

Nebraska law provides a sales and use tax exemption on contractor labor charges for the construction, repair, or annexation of any structure used for the generation, transmission, or distribution of electricity. Separately stated contractor labor would be exempt, all materials are taxable according to the contractor's option.

Option 1 (Section 1-017.05)_____ Option 2 (Section 1-017.06)_____ Option 3 (Section 1-017.07)_____

If the Nebraska sales and use tax election is not filed or noted above, the contractor will be treated as a retailer under Option 1 for sales and use tax purposes.

☐ By checking this box, Bidder acknowledges that Addenda Number(s) _____ were received and considered in Bid preparation.

Note: If Bidder supplies individual unit pricing information as supplemental pricing to the base material and labor cost above, said individual pricing is proprietary information and should not be released under a public records request. The total base bid is not considered proprietary information and will be released pursuant to City Procurement Code.

The City reserves the right to reject any bid section(s) submitted by the successful bidder. In submitting the bid, it is understood that the right is reserved by the City to reject any and all bids; to waive irregularities therein and to accept whichever bid that may be in the best interest of the City. It is understood that this bid may not be withdrawn by the bidder until after thirty (30) days from bid opening.

In submitting the bid, the bidder acknowledges the bid guarantee will be forfeited to and become the property of the City of Grand Island, Nebraska, as liquidated damages should this bid be accepted and a contract be awarded to them and they fail to enter into a contract in the form prescribed and to furnish the required bonds within fifteen (15) days, but otherwise the aforesaid bid guarantee will be returned upon signing the Contract and delivering the approved bonds.

Insurance: Bidder acknowledges that their bid includes compliance with the attached insurance requirements.

The Bidder agrees to furnish the required performance and payment bond and to enter into a contract within fifteen (15) days after acceptance of this Bid, and further agrees to complete all work covered by the foregoing bid in accordance with specified requirements. No work shall commence until the Certificate of Insurance and bonds (when required) are approved by the City and the Contract is executed. The proposed work can commence after the Contract is signed and the required bond is approved.

End of Bid Data Form

CHECKLIST FOR BID SUBMISSION

FOR

PGS UNIT 1 GENERATOR PROTECTION RELAYS AND TRANSFORMER PROTECTION RELAYS

Bids must be received by the City Clerk before *2:00 p.m. on Tuesday, June 28, 2022*.

The following items must be completed for your bid to be considered.

- ❑ Submittal of bid documents:
  - ❑ **Option 1 – Mailing**: A signed original and three (3) copies of the bidding documents. Failure to submit the correct number of copies may result in your bid not being considered.
    - ❑ Note: Your certified check, cashiers check or bid bond should be clearly marked in a separate envelope attached to the signed original bid.
  - ❑ **Option 2 – QuestCDN (online)**: Purchase the bid specification through QuestCDN at their $30.00 fee. Upload the signed original of the Bid Data Form, along with any supporting material required to meet the bid specification through QuestCDN. Upload your bid bond online through QuestCDN. *Bidders using Certified check or Cashiers' Check must mail said check and must be received by the office of the City Clerk no later than the scheduled bid opening date and time and clearly marked with the project name.*
- ❑ Bidders must complete and sign the Bid Data Form provided in these Documents. All blank spaces must be filled in. Bidders shall acknowledge receipt of any Addenda information on the Bid Data Form.
- ❑ Selection of Nebraska Sales Tax Option. If the Nebraska sales and use tax election is not filed or noted above, the Contractor will be treated as a retailed under Option 1 for sales and use tax purposes.
- ❑ A reference list of at least three (3) projects of similar scope and complexity.
- ❑ A summary of the experience of the service supervisor proposed for this project.
- ❑ Firm lump sum pricing; firm unit pricing in case adjustments are necessary, and breakout of sales tax pricing.
- ❑ A proposed construction/test schedule.
- ❑ A description of the system proposed, including equipment, controls, alarms and operation.
- ❑ Exceptions to the specification or Owner's Contract Document.
- ❑ A copy of your OSHA compliant Confined Space Procedure and Respiratory Protection Procedure.
- ❑ Acknowledgment of Addenda Number(s) _____.

Please check off each item as completed to ensure compliance. If you have any questions, please feel free to contact our office prior to the bid opening date/time.

INSTRUCTIONS TO BIDDERS

1. GENERAL INFORMATION.

   The following instructions outline the procedure for preparing and submitting Bids. Bidders must fulfill all requirements as specified in these Documents.

2. TYPE OF BID.

   Bidders shall be required to submit prices for all items listed in the Bid Data Form.

3. PREPARATION OF BIDS.

   Bidders shall use only the Bid Data Form provided in these Documents. All blank spaces in the Bid Data Form must be filled in, preferably in BLACK ink, in both words and figures where required. No changes to the wording or content of the forms is permitted. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures.

   Prices stated shall be f.o.b. with freight and full insurance paid by Bidder, to the job site located in Grand Island, Nebraska.

   The Bidder shall acknowledge receipt of all Addenda in the Bid Data Form. Bids received without acknowledgement or without the Addendum enclosed will be considered informal.

   Individual unit pricing as listed on the Bid Data Form or supplied as supplemental information may be deemed proprietary information and not be released under a public records request. The total amount of the bid is not considered proprietary information and will be released pursuant to City Procurement Code.

4. SUBMISSION OF BIDS.

   All Bids must be submitted intact with the correct number of copies no later than the time prescribed, at the place, and in the manner set forth in the ADVERTISEMENT FOR BIDS. Bids must be made on the Bid Data Form provided herein. Each Bid mailed must be submitted intact in a sealed envelope, so marked as to indicate its contents without being opened, and delivered in person or addressed and mailed in conformance with the instructions in the ADVERTISEMENT FOR BIDS.

5. BID SECURITY.

   Bids must be accompanied by cash, a certified check, or cashier's check drawn on a bank which is insured by the Federal Deposit Insurance Corporation, or a bid bond issued by a Surety authorized to issue such bonds in the state where the Work is located, in the amount of 5 percent of the bid amount payable to OWNER. This bid security shall be given as a guarantee that the Bidder will not withdraw their Bid for a period of thirty (30) days after bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract within the time specified.

   The Attorney-in-Fact that executes this bond on behalf of the Surety must attach a notarized copy of his/her power of attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond. Where State Statue requires, certification by a resident agent shall also be provided.

6. RETURN OF BID SECURITY.

Within fifteen (15) days after the award of the Contract, the OWNER will return the bid securities to all Bidders whose Bids are not to be further considered in awarding the Contract. All other retained bid securities will be held until the Contract has been finally executed, after which all bid securities, other than Bidders' bonds and guarantees which have been fortified, will be returned to the respective Bidders whose Bids they accompanied.

7. BASIS OF AWARD.

The award will be made by the OWNER on the basis of the Bid from the lowest responsive, responsible Bidder which, in the OWNER's sole and absolute judgment will best serve the interest of the OWNER. All Bids will be considered on the following basis:

- Delivery time
- Bid price
- Cost of installation
- Suitability to project requirements
- Conformance with the terms of the Bid Documents
- Responsibility and qualification of Bidder

The OWNER reserves the right to reject all Bids, or any Bid not in conformance with the intent of the Bid Documents, and to waive any informalities and irregularities in said Bids.

8. EXECUTION OF CONTRACT.

The successful Bidder shall, within fifteen (15) days after receiving notice of award, sign and deliver to the OWNER the Contract hereto attached together as required in these Bid Documents. Within fifteen (15) days after receiving the signed Contract from the successful Bidder, the OWNER's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

9. TIME OF COMPLETION.

The time of completion of the Work to be performed under this Contract is the essence of the Contract. The time allowed for the completion of the Work is stated in the Bid Data Form.

10. GRATUITIES AND KICKBACKS.

City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

11. FISCAL YEAR.

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

CONTRACT AGREEMENT

THIS AGREEMENT made and entered into by and between **[SUCCESSFUL BIDDER]**, hereinafter called the Contractor, and the **CITY OF GRAND ISLAND, NEBRASKA**, hereinafter called the City.

WITNESSETH:

THAT, WHEREAS, in accordance with law, the City has caused contract documents to be prepared and an advertisement calling for bids to be published for *PGS UNIT 1 GENERATOR PROTECTION RELAYS AND TRANSFORMER PROTECTION RELAYS;* and

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined, and canvassed the bids submitted, and has determined the aforesaid Contractor to be the lowest responsive and responsible bidder, and has duly awarded to said Contractor a contract therefore, for the sum or sums named in the Contractor's bid, a copy thereof being attached to and made a part of this Contract;

NOW, THEREFORE, in consideration of the compensation to be paid to the Contractor and of the mutual agreements herein contained, the parties have agreed and hereby agree, the City for itself and its successors, and the Contractor for itself, himself/herself, or themselves, and its, his/her, or their successors, as follows:

ARTICLE I. That the following documents shall comprise the Contract, and shall together be referred to as the "Agreement" or the "Contract Documents";

1. This Contract Agreement.
2. City of Grand Island's Specification for this project.
3. [NAME OF SUCCESSFUL BIDDER] bid signed and dated [DATE OF BID].

In the event of any conflict between the terms of the Contract Documents, the provisions of the document first listed shall prevail.

ARTICLE II. That the Contractor shall (a) furnish all tools, equipment, superintendence, transportation, and other construction materials, services and facilities; (b) furnish, as agent for the City, all materials, supplies and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good substantial and workmanlike manner and in accordance with the requirements, stipulations, provisions, and conditions of the Contract documents as listed in the attached General Specifications, said documents forming the Contract and being as fully a part thereof as if repeated verbatim herein, perform, execute, construct and complete all work included in and covered by the City's official award of this Contract to the said Contractor, such award being based on the acceptance by the City of the Contractor's bid;

ARTICLE III. That the City shall pay to the Contractor for the performance of the work embraced in this Contract and the Contractor will accept as full compensation therefore the sum (subject to adjustment as provided by the Contract) of **[DOLLAR AMOUNT] ($00.00)** for all services, materials, and work covered by and included in the Contract award and designated in the foregoing Article II; payments thereof to be made in cash or its equivalent in the manner provided in the General Specifications.

The total cost of the Contract includes:

Phase One Base Bid - Materials	$	.00
Applicable Sales Tax:	$	.00
Phase Two Base Bid:		
Installation and Commissioning	$	.00
Applicable Sales Tax	$	.00
Total	$	.00

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

ARTICLE IV. The Contractor hereby agrees to act as agent for the City in purchasing materials and supplies for the City for this project. The City shall be obligated to the vendor of the materials and supplies for the purchase price, but the Contractor shall handle all payments hereunder on behalf of the City. The vendor shall make demand or claim for payment of the purchase price from the City by submitting an invoice to the Contractor. Title to all materials and supplies purchased hereunder shall vest in the City directly from the vendor. Regardless of the method of payment, title shall vest immediately in the City. The Contractor shall not acquire title to any materials and supplies incorporated into the project. All invoices shall bear the Contractor's name as agent for the City. This paragraph will apply only to these materials and supplies actually incorporated into and becoming a part of the finished product of the PGS UNIT 1 GENERATOR PROTECTION RELAYS AND TRANSFORMER PROTECTION RELAYS.

ARTICLE V. That the Contractor shall start work as soon as possible after the Contract is signed and the required bonds and insurance are approved, and that the Contractor shall deliver the equipment, tools, supplies, and materials F.O.B. Platte Generating Station, and complete the work on or before ***MAY 5, 2023.***

ARTICLE VI. The Contractor agrees to comply with all applicable State fair labor standards in the execution of this Contract as required by Section 73-102, R.R.S. 1943. The Contractor further agrees to comply with the provisions of Section 48-657, R.R.S. 1943, pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. During the performance of this Contract, the Contractor and all subcontractors agree not to discriminate in hiring or any other employment practice on the basis, of race, color, religion, sex, national origin, age or disability. The Contractor agrees to comply with all applicable Local, State and Federal rules and regulations. The Contractor agrees to maintain a drug-free workplace policy and will provide a copy of the policy to the City upon request. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

ARTICLE VII. Gratuities and kickbacks: City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request

for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

[SUCCESSFUL BIDDER]

By_____ Date _____

Title_____

CITY OF GRAND ISLAND, NEBRASKA

By_____ Date _____
Mayor

Attest:_____
City Clerk

The Contract is in due form according to law and hereby approved.

_____ Date _____
Attorney for the City

REQUEST FOR BIDS - GENERAL SPECIFICATIONS

The Bid shall be in accordance with the following and with all attached BID DATA and DETAILED SPECIFICATIONS.

All prices are to be furnished and installed FOB, Grand Island, Nebraska. **All prices shall be firm, and shall include all sales and use taxes as lawfully assessed under laws and regulations of the State of Nebraska.** * If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.5% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.

Mailed bids shall include the following on the **outside** of the mailing envelope: **"PGS Unit 1 Generator Protection Relays and Transformer Protection Relays".** All bids submitted by mail must include **an original and three copies** of the bid. The bid specification and on-line bidding forms are also available at http://www.grand-island.com/business/bids-and-request-for-proposals/bid-calendar under the bid opening date and "Click here for bid document link" through QuestCDN for a $30.00 fee. If submitting through QuestCDN, **one** original document of the bid is required to be uploaded. No verbal bids will be considered. All sealed bids are due no later than **Tuesday**, **June 28, 2022 at 2:00 p.m. local time**. to:

Mailing Address: City Clerk
City Hall
P. O. Box 1968
Grand Island, NE 68802-1968

Street Address: City Clerk
City Hall
100 E. First Street
Grand Island, NE 68801

Bids will be opened at this time in the City Hall City Clerk's Office located on 1st floor of City Hall. Any bid received after the specified date will not be considered.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Contractor shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

The equipment and materials must be new, the latest make or model, unless otherwise specified. Prior to approving the invoice for payment, the City reserves the right to thoroughly inspect and test the equipment to confirm compliance with specifications. Any equipment or material which does not meet the City's requirements will be returned at vendor's expense for correction. The invoice will be paid after approval at the next regularly scheduled City Council meeting and occurring after departmental approval of invoice; the City Council typically meets the second and fourth Tuesday of each month. Invoices must be received well in advance of Council date to allow evaluation and processing time.

Each bidder shall submit with the bid a certified check, a cashier's check, or bid bond payable to the City of Grand Island in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the Bidder and the entering into a contract within fifteen (15) days at the bid price if accepted by the City. **Your certified check, cashier's check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information and correct number of copies in clearly marked and separate envelopes will result in your bid not being opened or considered.** Only surety companies authorized to do business in the State of Nebraska may issue bid bonds.

Successful bidder shall comply with the City's insurance requirements; All bids shall be valid for at least thirty (30) working days after the bid deadline for evaluation purposes.

All bids must be on the bid form and must be signed and dated to be accepted. If exceptions and/or clarifications are noted to the bid, those exceptions must be fully explained on a separate sheet, clearly marked, and included with the Bid. Any changes that are found made to the original bid specification, other than Owner generated Addendums, would result in your bid not being considered. Please contact Ryan Kruse at 308-385-5495 or email rkruse@giud.com for questions concerning this specification.

PGS Unit 1 Generator Protection Relays and Transformer Protection Relays

Request for Bids

City of Grand Island – Platte Generating Station

Table of Contents

PGS Unit 1 Generator Protection Relays and Transformer Protection Relays

Request for Bids - Detailed Specification
City of Grand Island – Platte Generating Station

General Information

Brief Project Scope

The Grand Island Utilities Department is soliciting bids for engineering services and equipment upgrade for Generator protection relays and transformer relays. The Grand Island Utilities Department maintains and operates a 122 MVA, 13.8 kV, Hydrogen Cooled Generator. There are three (3) transformers that are part of the protection system which are the Generator Step-Up transformer, Normal Supply transformer, and Reserve Supply transformer. Our existing protection relays are obsolete and are no longer being manufactured. Rather than risk potential failure of a protection relay with no direct replacement, these relays shall be replaced by relays that are supported by the manufacturer and have readily available replacements. This project will be split into two phases: Phase 1: Procurement of Equipment and Phase 2: Installation and Commissioning of equipment.

Location

The following address is where the project will take place:

Platte Generating Station
1035 W. Wildwood Drive
Grand Island, NE 68801

The location of the protection relays at this site is in a climate-controlled building. This site is gated, and a gate card can be issued, if needed. The location of the protective relays are located on the second floor of the main generator building.

Equipment Details

The existing equipment that is installed is as follows:

Qty.	Manufacturer	Model
1	Beckwith - Multi-Function Generator Protective Relay	M-3430
1	Beckwith – Multi-Function Generator Protective Relay	M-3425
3	GE Multilin	SR745

Schedule

Phase one: procurement of equipment, shall be completed by September 30th, 2022. *Phase two*: installation and commissioning of the protection relays at Platte Generating Station, shall be performed

and completed within the dates of the scheduled outage. This outage is tentatively scheduled for **April 20st to May 6th, 2023**. The installation and commissioning shall be planned and organized to be completed within fourteen (14) days. The selected firm can begin work starting on Monday April 20th, 2023, and all scheduled testing and inspection shall be completed by May 5th, 2023. A schedule shall be provided with bid with the time of arrival, scheduled work hours, and time of departure.

Access to Platte Generating Station will be always available. A keycard to the gate can be requested and administered to the contractor. There is only one gate to enter/exit the plant site. There is a $25.00 charge for all keycards not returned upon completion of scheduled work. Contractor may determine working hours to fit the project needs. If any assistance is needed by plant personnel, it is limited to daytime normal working hours Monday through Friday 7:00 a.m. to 3:30 p.m.

Site Visit

A site visit is not required. However, it is recommended. A site visit can be scheduled and arranged per request. Site visits can be arranged by contacting Ryan Kruse (308) 385-5495.

Safety

The contractor shall follow all NFPA 70E standards at any time working around electrical equipment. The contractor shall abide by all OSHA regulations while on plant site. Platte Generating Station also has safety policies that must be followed. A short (approximately 15 minute) safety orientation will be given prior to starting any work at the plant site.

Qualifications

The firm shall be a firm that specializes in utility generation and transformer protective relaying, coordination, and commissioning generator protective relays and transformer protection relays. The contractor shall provide three (3) recent projects of similar scope that shall be furnished with bid. The technicians/engineers performing the installation and commissioning on this project shall be qualified and have a minimum experience of five (5) years in transformer and generator protective relay installation and commissioning.

Coordination

The testing and inspection will take place during an outage. However, Contractor shall work with Owner's operation and engineering personnel to prevent or minimize any power outages throughout the plant. Owner reserves the right to request daily progress reports. Any delays, problems, emergency situations shall be brought to Owner's attention.

Material, Equipment, and Services

The Owner shall provide construction power and a drinking water source. All other tools, materials, equipment needed to perform testing and inspection shall be provided by Contractor. All testing equipment must be calibrated and have detailed records of calibration.

Submittals

Data to be Submitted

1. Provide a detailed description or listing of the material and services the Contractor proposes to furnish including all equipment, performance data, scope of design and engineering, shop testing procedures and drawings and documents to be provided.

2. Include a description of any work that shall be completed by the owner or that shall be sub-contracted.

3. Provide a description of how the new system will interface with the existing systems and equipment from both a design and installation standpoint.

4. Provide a description of recommended construction plan requiring minimum plant outage duration, including recommended construction sequence, equipment installation requirements and degree of shop assembly.

5. Include expected man-hours to install each component for the equipment and systems being furnished.

6. Include a complete description of the equipment, design features description, drawings, brochures, operation and maintenance requirements, bills of material, and all requirements for customer supplied interface items.

7. Pricing shall include:
   (a) All applicable material, equipment, licensing, and/or software.
   (b) Labor
   (c) Travel Expenses
   (d) Living expenses
   (e) Permits required
   (f) All shipping, delivery, and handling of equipment, tools, and material used for project shall be included in the bid.
   (g) Taxes NOTE: Platte Generating Station is not tax exempt and is subject to 7.5% sales tax. Refer to Nebraska Department of Revenue's web site: www.revenue.state.ne.us

   This pricing shall be itemized separately.

Detailed Information

Detailed Scope

The following provides information regarding the relays and scope of this project.

Existing Generator Relays:

The existing generator protection relays are Beckwith M-3430 and M-3425. The M-3430 is a Multi-Function Generator Protection Relay that uses digital signal processing technology and provides fifteen (15) different protective relaying functions. The available relay functions are as listed:

NOTE: The relay functions listed below are not all being used in our generation protection system.

- Dual-zone phase distance protection for phase fault backup (21)
- Overexcitation (V/Hz) protection (24)
- Sensitive dual-setpoint reverse power detection suitable for sequential tripping (32)
- Dual-zone offset-mho loss-of-field protection (40)
- Sensitive negative-sequence overcurrent protection and alarming (46)

- Generator breaker failure protection (50BF)
- Inadvertent generator energizing protection (50/27)
- Phase overvoltage (59) and undervoltage (27) protection
- 100% stator ground fault protection (59N/27TN)
- VT fuse-loss detection and blocking (60FL)
- Four-step over/underfrequency protection (81)
- Generator phase differential protection (87)

The M-3430 includes eight (8) programmable outputs and six (6) programmable inputs, oscillograph recordings, 32-target storage, metering of all measured parameters, communications ports (RS-232 and RS-485), 1 amp and 5 amp rated CT inputs, additional trip inputs for externally connected devices, IRIG-B time synchronization.

The M-3425 is a Multi-Function Generator Protection Relay that uses digital signal processing technology and provides twenty-three (23) protective relaying functions. The available relay functions are as listed:

- Dual-zone phase distance protection for phase fault backup (21)
- Overexcitation (V/Hz) protection (24)
- Phase Undervoltage (27) protection
- 100% Stator Ground Fault protection via third harmonic neutral undervoltage (27TN)
- Sensitive dual-setpoint Reverse Power, Low Forward Power or Overpower detection, one of which can be used for sequential tripping (32)
- Dual-zone, offset-mho Loss-of-Field protection (40)
- Sensitive Negative Sequence Overcurrent protection and alarm (46)
- Instantaneous Overcurrent (50) protection
- Inadvertent Generator Energizing protection (50/27)
- Generator Breaker Failure protection (50BF)
- Definite Time Overcurrent (50DT) can be used for split phase differential
- Instantaneous Overcurrent (50N) protection
- Neutral Inverse Time Overcurrent (51N)
- Three-phase Inverse Time Overcurrent (51V)
- Phase Overvoltage (59)
- Generator Ground Fault protection (59N)
- VT Fuse-Loss detection and blocking
- (60FL)
- Out-of-Step protection (78)
- Four-step Over/Underfrequency (81) protection
- Two-step Rate of Change of Frequency (81R)
- Generator Phase Differential protection (87)
- Ground Differential (87GD) protection

The M-3425 includes eight (8) programmable outputs and six (6) programmable inputs, oscillograph recordings, 32-target storage, metering of all measured parameters, communications ports (RS-232 and RS-485), 1 amp and 5 amp rated CT inputs, additional trip inputs for externally connected devices, IRIG-B time synchronization.

Existing Transformer Relays

The existing transformer protection relays are GE Multilin SR-745 Transformer Management Relays. These relays are capable of two or three winding transformers. These relays provide numerous protection functions. There are three (3) of these relays being used. One (1) for the Normal Supply Transformer, one (1) for the Reserve Supply Transformer, and one (1) for the Generator Step-Up Transformer.

Generator Information

The Generator is a 122 MVA, 13.8kV, hydrogen-cooled generator. This generator is driven by a steam turbine with steam being produced by coal fire. The following information is the nameplate data on the generator:

Turbine	
Turbine No.	197789
Rating	100 MW
RPM	3600
Stages	22
Steam Pressure	1800 PSIG
Steam Temperature	1000 °F
Steam Exhaust Pressure	2.5”HGA

Generator					
Hyd-Cooled Gen No.	316X282		Rating	Cap.	Cap.
Poles	2	Gas (98% purity) PSIG	30	15	0.5
Phase	3	KVA	122000	112240	85400
Connection	Wye	Armature Amperage	5104	4696	3573
Frequency	60 Hz	Armature Voltage	13800	13800	13800
Temp ratings not to exceed		Field Amperage	621	588	498
Armature by Detector	100°C	Excitation Voltage	375	375	375
Field by Resistance	120°C	Power Factor	0.90	0.90	0.90
Max Cold Gas Temp.	46°C				
Inlet Water	95°F				

Transformer Information

There are three transformers that will need upgraded protection relays. The following will provide information on each one.

Generator Step-Up Transformer

Manufacturer	ABB Power T&D Company Inc.	Oil		9215 Gal
Serial	LNL9353	Impedance @ 75000KVA, 115000 to 13800 Volts		8.03%
Phase	3	Configuration		Delta-Wye
Frequency	60Hz	Winding	Voltage	Max Amperes
Type	SL		126500	639
Class	OA/FA/FA		123625	654
Mfg. Date	7/97		120750	669

Winding	115000GRD. Y/66395 Volts 13800 Volts	High Voltage (Wye)	117875	686
55°C Avg Rise	75000/100000/125000 KVA		115000	703
65°C Avg Rise	84000/112000/140000 KVA	Low Voltage (Delta)	13800	5855

The voltage from neutral to ground during a fault must not exceed 15000 Volts.

Normal Supply Transformer

Manufacturer	Westinghouse	Oil		2572 Gal
Serial	RBS-2283-1	Impedance @ 12000KVA, 13800 to 4160 Volts		5.5%
Phase	3	Configuration		Delta-Wye
Frequency	60Hz	Winding	Voltage	Max Amperes
Type	SL	High Voltage (Delta)	14490	796.9
Class	OA/FA/FA		14145	816.3
Mfg. Date	1979		13800	836.7
BIL	HV winding 110 kV		13455	850.2
BIL	LV winding 75KV, LV winding Neut 75 kV, LV Neut. Bush. 110 kV		13110	890.8
55°C Avg Rise	75000/100000/125000 KVA			
65°C Avg Rise	84000/112000/140000 KVA	Low Voltage (Wye)	4160	2776

The Low Voltage neutral is rated at 20000 amperes.

Reserve Supply Transformer

Manufacturer	Westinghouse	Oil		4771 Gal
Serial	RBS-2282-1	Impedance @ 15000KVA, 120750 to 4160 Volts @ 5250KVA, 120750 to 2812 Volts @ 5250KVA, 4160 to 2812 Volts		 6.9% 2.8% 0.6%
Phase	3	Configuration		Delta-Wye
Frequency	60Hz	Winding	Voltage	Max Amperes
Type	SL	High Voltage (Wye)	126500	114.1
Class	OA/FA/FA		123625	116.8
Mfg. Date	1979		120750	119.5
BIL	HV winding 110 kV		117875	122.5
BIL	LV winding 75KV, LV winding Neut 75 kV, LV Neut. Bush. 110 kV		115000	125.5
55°C Avg Rise	15000/20000/25000 KVA			
65°C Avg Rise	16800/22400/28000 KVA	Low Voltage (Wye)	4160	3470

Delta connected tertiary winding is provided for the circulation of the Third Harmonic Currents and stabilization of the neutral. The tertiary winding short circuit current must be limited to a maximum of 25 times rated current based on 5250 KVA for two seconds. Voltage from neutral to ground during a fault must not exceed 25000 Volts.

Other Equipment

Platte Generating Station protection system also includes other relays that shall be observed and work in conjunction with the relays specified in this request for proposal.

New Equipment Details

Generator Protection Relays

The proposed relays must provide the following protection functions, at minimum:

- Dual-zone phase distance protection for phase fault backup (21)
- Overexcitation (V/Hz) protection (24)
- Phase Undervoltage (27) protection
- 100% Stator Ground Fault protection via third harmonic neutral undervoltage (27TN)
- Sensitive dual-setpoint Reverse Power, Low Forward Power or Overpower detection, one of which can be used for sequential tripping (32)
- Dual-zone, offset-mho Loss-of-Field protection (40)
- Sensitive Negative Sequence Overcurrent protection and alarm (46)
- Instantaneous Overcurrent (50) protection
- Inadvertent Generator Energizing protection (50/27)
- Generator Breaker Failure protection (50BF)
- Definite Time Overcurrent (50DT) can be used for split phase differential
- Instantaneous Overcurrent (50N) protection
- Neutral Inverse Time Overcurrent (51N)
- Three-phase Inverse Time Overcurrent (51V)
- Phase Overvoltage (59)
- Generator Ground Fault protection (59N)
- VT Fuse-Loss detection and blocking
- (60FL)
- Out-of-Step protection (78)
- Four-step Over/Underfrequency (81) protection
- Two-step Rate of Change of Frequency (81R)
- Generator Phase Differential protection (87)
- Ground Differential (87GD) protection

CT's and PTs

The proposed protection relays must be compatible with the existing relays that are in service. The ratios of the Current Transformers and Potential Transformers can be referenced in the drawing (EWE1002).

Transformer Protection Relays

The proposed transformer protection relays must provide the protection functions identical to the existing protection relays including but not limited to:

- Volts-Per-Hertz (24)

- Over/Underfrequency (81)
- Frequency Decay Rate (81R)
- Differential Protective Relay (87)
- Instantaneous Differential (50/87)
- Instantaneous Ground Overcurrent (50G)
- Instantaneous Phase Overcurrent (50P)
- Instantaneous Neutral Overcurrent (50N)
- Inverse time overcurrent Ground (51G)
- Inverse Time Overcurrent Phase (51P)
- Inverse Time Overcurrent Neutral (51N)
- Overvoltage relay (59)
- Negative-sequence relay (46)
- Lock-out Relay for faults/overcurrents (86)
- Monitoring and protecting three (3) windings

CTs and PTs

The proposed protection relays must be compatible with the existing relays that are in service. The ratios of the Current Transformers and Potential Transformers can be referenced in the drawing (EWE1002).

Other Options

Listed below are options to be included in the proposed relays.

- harmonic derating
- Total Harmonic Distortion monitoring
- Fuse protection and self-powered resettable fault interrupters,
- Metering voltage, current, active, reactive, and apparent power
- Metering Frequency
- Display of information in real time
- Data logging
- Fault and Error recordings
- Communications via RS-232 and RS-485 with options for MODBUS and TCP/IP.
- IRIG-B Time Code Synchronizing Standards (Modulated and Unmodulated)
- Software and licensing must be compatible with Windows 10.
- 125VDC and 120 VAC Power supply options
- Sensing inputs: Minimum four (4) Voltage Inputs rated at 50-140 VAC, ability to withstand 240VAC continuous and 360 Vac for 10 seconds. Minimum seven (7) Current Inputs rated nominally of 5A or 1A at 60 Hz, ability to withstand two times (2I) Continuous and one hundred times (100I) for 1 second.
- Minimum of six (6) programmable status input contacts.
- Minimum of eight (8) programmable output contacts. At least three (3) need to be form C contacts.
- Human-Machine Interface – allows users to see real time data and settings. Must be password protected.

Installation and Commissioning (Phase2)

The following are items regarding the installation and commissioning of the protective relays.

- Prepare plans and specifications for furnishing the protective relay installation, configuration, and commissioning.
- Planning and configuration shall be collaborated PGS personnel.
- The protective relays will be installed in an existing cabinet enclosure. Dimensions can be given upon request.
- Relays shall be fully assembled, tested, and calibrated.
- The settings shall meet the requirements of North American Electric Reliability Corporation (NERC) Reliability Standards including and is not limited to: PRC- 024-2, PRC-025-2, PRC-026-1, PRC-027-1, and PRC-019-2.
- The settings shall maintain a safe and reliable operation of the equipment.
- Existing settings, curves, and other pertinent information should be referenced.
- Firm shall provide references of three (3) job references of similar scope.
- Training to select PGS personnel shall be included for one (1) day.

Documentation

Upon completion of the project, Contractor shall provide all test results, measurements, settings, charts, manuals, calculations used to determine settings, redline drawings, and notes regarding the installation and commissioning of the protection relays. This can be presented in hard copy or pdf on a flash drive.

Provided with this request for bids are drawings to reference. These drawings include:

- APK2003 Synchronizing Model
- APK2004A Generator Protection D.C.
- APK2004B Generator Protection D.C
- APK2005 Generator Protection D.C
- APK2010 Gen & Normal XFMR Lockout 86T Model
- APK2010A Reserve XFMR Lockout 86T Model
- APK2011 Inadvertent Energization Lockout 86IE
- EWE1002 One Line Diagram
- PGS101 Generator AC Elementary
- PGS102 Sub D AC Elementary 115KV
- PGS102A Sub D AC Elementary 115kV
- PGS103 Normal Supply XFMR AC Elementary
- PGS104 Reserve Supply XFMR AC Elementary
- PGS108 Sub D Bus Potential Sync AC Elementary
- PGS108A PGS Control Room Synchronizing Scheme
- PGS111 PGS and Sub D Transformer Differential 87U, 87NT, 87RT
- PGS113 Sub D Bus Differential North & South Relay DC Elementary

The list below details the required documents to be delivered to the City of Grand Island Utility Department after completion of the project.

- Hardcopy and pdf user manuals for the protection relays and associated software.
- Updated redline drawings.
- Schematics for the protection relays.
- Detailed configuration and settings.
- Maintenance and testing recommendations.

- References and calculations used to determine relay settings.
- Charts and curves based off settings.

Bids

Bids shall include an itemized list of all applicable material, labor, travel living expenses, taxes, permits, and/or deliver charges to Grand Island, Nebraska.

An itemized list for Phase one and Phase two shall be separate.

A lead time of the protective relays shall be provided.

The bids shall be held for up to 30 days.

Bids will be evaluated by the Owner based on price, schedule, quality, economy of operation, qualifications, availability of equipment and installation/commissioning services, adherence to specifications, company experience and adaptability of equipment used for this project. The Owner reserves the right to reject any proposals, all bids, waive informalities, and to accept whichever bid that may be in the best interest of the Owner, at its sole discretion.

REQUEST FOR BIDS - SITE CONDITIONS

PLATTE GENERATING STATION
UNIT 1 GENERATOR PROTECTION RELAYS AND TRANSFORMER PROTECTION RELAYS

Site Visit: Bidders shall visit the site in order to inform themselves of the conditions under which the work is to be performed, concerning the site of the work, the nature of the existing facilities, the obstacles which may be encountered, the sequence of the work, and all other relevant matters concerning the work to be performed. No extra compensation shall be allowed by reason of the failure of such bidder to fully inform themselves of said site conditions prior to the bidding. The Contractor shall employ, so far as possible, such methods and means in the carrying out of their work as will not cause any interruption or interference with the City's operations and any other contractors.

A site visit may be arranged by contacting Ryan Kruse at (308) 385-5496.

Signature of person visiting site: _____

Signature of Utilities personnel witnessing visit: _____

Date of Visit: _____

MINIMUM INSURANCE REQUIREMENTS
CITY OF GRAND ISLAND, NEBRASKA

The successful bidder shall obtain insurance from companies authorized to do business in Nebraska of such types and in such amounts as may be necessary to protect the Bidder and the interests of the City against hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Bidder's operations and completed operations. Failure to maintain adequate coverage shall not relieve Bidder of any contractual responsibility or obligation. Minimum insurance coverage shall be the amounts stated herein or the amounts required by applicable law, whichever are greater.

1. WORKERS COMPENSATION AND EMPLOYER'S LIABILITY

This insurance shall protect the Bidder against all claims under applicable State workers compensation laws. This insurance shall provide coverage in every state in which work for this project might be conducted. The liability limits shall not be less than the following:

Workers Compensation	Statutory Limits
Employers Liability	$100,000 each accident
	$100,000 each employee
	$500,000 policy limit

2. BUSINESS AUTOMOBILE LIABILITY

This insurance shall be written in comprehensive form and shall protect the Bidder, Bidder's employees, or subcontractors from claims due to the ownership, maintenance, or use of a motor vehicle. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	$ 500,000 Combined Single Limit

3. COMPREHENSIVE GENERAL LIABILITY

The comprehensive general liability coverage shall contain no exclusion relative to explosion, collapse, or underground property. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	$ 500,000 each occurrence
	$1,000,000 aggregate

4. UMBRELLA LIABILITY INSURANCE

This insurance shall protect the Bidder against claims in excess of the limits provided under employer's liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the form of the primary insurance, including the application of the primary limits. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	$1,000,000 each occurrence
	$1,000,000 general aggregate

5. ADDITIONAL REQUIREMENTS

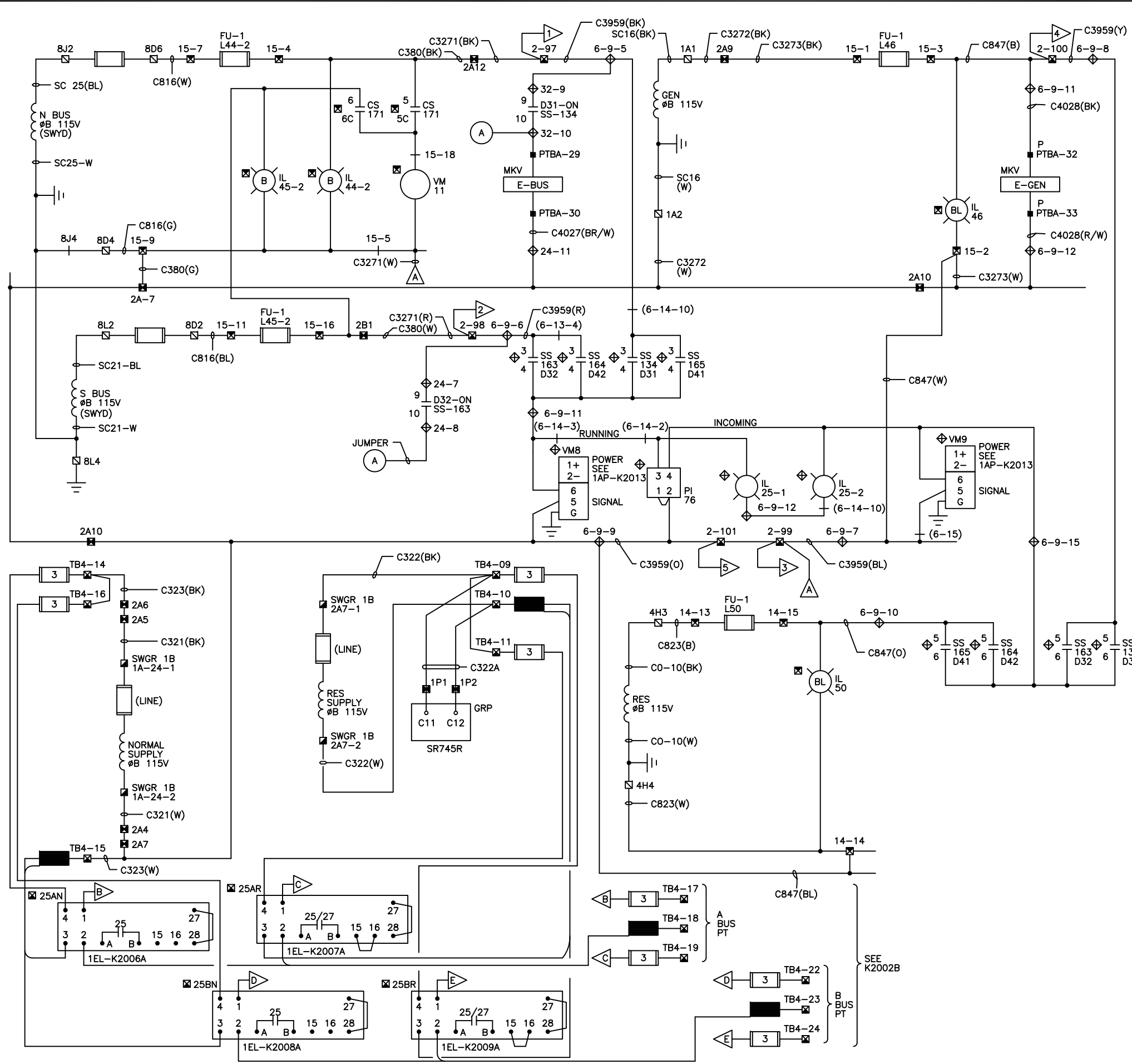
The City may require insurance covering a Bidder or subcontractor more or less than the standard requirements set forth herein depending upon the character and extent of the work to be performed by such Bidder or subcontractor.

Insurance as herein required shall be maintained in force until the City releases the Bidder of all obligations under the Contract.

The Bidder shall provide and carry any additional insurance as may be required by special provisions of these specifications.

6. CERTIFICATE OF INSURANCE

Satisfactory certificates of insurance shall be filed with the City prior to starting any work on this Contract**. The certificates shall show the City as an additional insured on all coverage except Workers Compensation. The certificate shall state that thirty (30) days written notice shall be given to the City before any policy is cancelled (strike the "endeavor to" wording often shown on certificate forms). If the Bidder cannot have the "endeavor to" language stricken, the Bidder may elect to provide a new certificate of insurance every thirty (30) days during the contract. Bidder shall immediately notify the City if there is any reduction of coverage because of revised limits or claims paid which affect the aggregate of any policy.**



LEGEND:

- ◈ OCC
- ▣ GRP
- ⊠ AUX PANEL
- ◪ 5KV SWITCHGEAR
- ▨ LINE PANEL
- ⊠ CAB 101 (MEC)
- N TO TRANSDUCERS INTERNAL TO MEC CAB 101 SEE 1AP-K2001D
- X CONTINUED ON THIS DWG
- ( ) REFERENCE ONLY. NO TERMINALS REQ'D
- MKV MARK V CONTROL CAB

REFERENCE DRAWINGS:

PGS – 102, 103, 104, 108, 108(A), 224
1AP-K2001
1AP-K2014
IC-5A
1AP-K2002B
1EL-K2008
1EL-K2009
64.1601.05-P1005, P1022 OCC-11 WIRING
64.1602.05-P1005, P1006 MEC 101 WIRING

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
3	01-17-03	CONFORMED TO CONSTR RECORDS	DKR		GAM	
2	0131-96	CONFORMED TO CONST RECORDS				
1	07-13-95	REVISED AS SHOWN	TER	CGB	GAM	
0	06-13-95	ISSUED FOR CONSTRUCTION	TER	CBM	GAM	

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA.

SIGNED GARY A. MAILEN

DATE 06-13-95 REG NO. E-7944

BLACK & VEATCH

ENGINEER	TER	DRAWN	ECL
CHECKED	C. MEHTA	DATE	06-13-95

CITY OF GRAND ISLAND
PLATTE GENERATING STATION

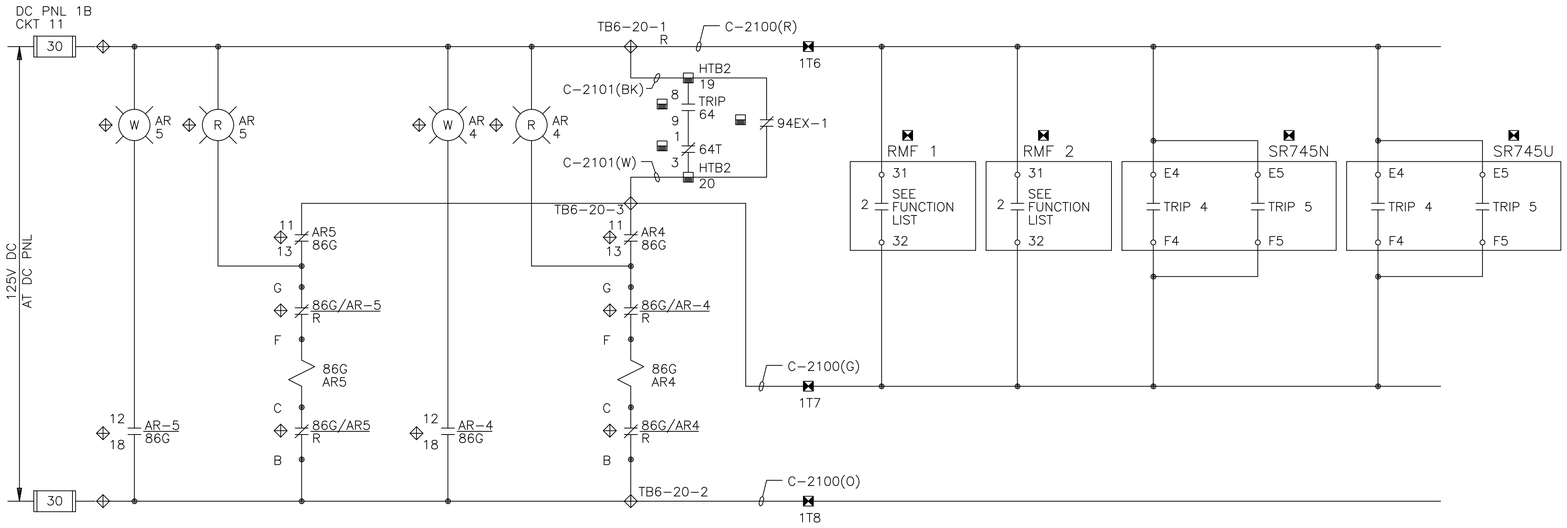
SCHEMATIC DIAGRAM
SYNCHRONIZING

PROJECT	DRAWING NUMBER	REV
23114	1AP-K2003	3

CODE

AREA

NOTES:
1. ALL DEVICES LOCATED AT GRP EXCEPT AS NOTED
2. SEE 1AP–K2011 FOR RMF ALARMS



RMF1 & RMF2 RELAY OUTPUT 2 FUNCTION LIST

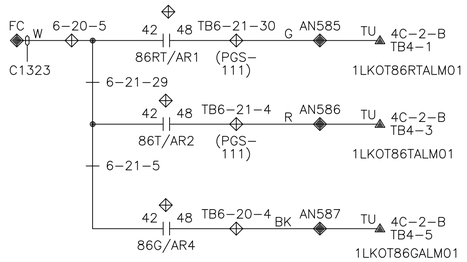
1 – VOLT/HERTZ (24)
2 – NEUTRAL 3RD HARMONIC UNDERVOLTAGE (27TN)
3 – REVERSE POWER (32–1)
4 – REVERSE POWER (32–2) SEQUENTIAL TRIPPING
5 – LOSS–OF–FIELD (40)
6 – VOLTAGE RESTRAINT OVERCURRENT (51V)
7 – STATOR GF (59N)
8 – PHASE DIFFERENTIAL (87)
9 – OVERVOLTAGE (59)
10 – NEG SEQ OVERCURRENT (46)

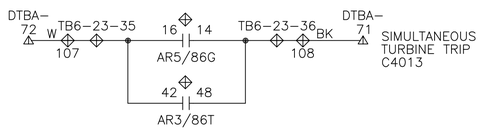
SR745N TRIP 4 & TRIP 5 FUNCTION LIST

1 – SECONDARY GROUND TIME OVERCURRENT (51G)

SR745U TRIP 4 & TRIP 5 FUNCTION LIST

1 – PRIMARY GROUND TIME OVERCURRENT (51G)





11
86G/AR4

DECK	CONTACTS	POSITION TRIP	POSITION RESET	REFERENCE DRAWING
1	1 – 13		X	*
	12 – 18	X		*
	15 – 17		X	1AP–K2005
	16 – 14	X		1AP–K2005A
2	21 – 23		X	1EL–K2006A
	22 – 28	X		1EL–K2006A
	25 – 27		X	
	26 – 24	X		1AP–K2006A
3	31 – 33		X	
	32 – 38	X		1AP–K2010
	35 – 37		X	
	36 – 34	X		
4	41 – 43		X	1EL–K2044
	42 – 48	X		*
	45 – 47		X	
	46 – 44	X		*
5	51 – 53		X	
	52 – 58	X		
	55 – 57		X	
	56 – 59	X		*

LOCKOUT RELAY – SHOWN RESET

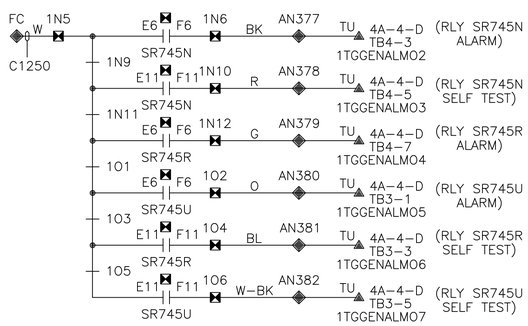
W R
LOCKOUT
RESET
TRIP
86G(AR4)
MAN RESET

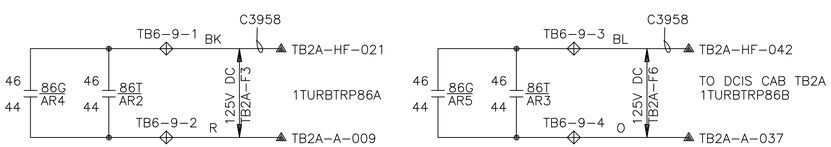
11
86G/AR5

DECK	CONTACTS	POSITION TRIP	POSITION RESET	REFERENCE DRAWING
1	1 – 13		X	*
	12 – 18	X		*
	15 – 17		X	
	16 – 14	X		*
2	21 – 23		X	
	22 – 28	X		1AP–K2010
	25 – 27		X	
	26 – 24	X		
3	31 – 33		X	
	32 – 38	X		1AP–K2005A
	35 – 37		X	
	36 – 34	X		1AP–K2006A
4	41 – 43		X	
	42 – 48	X		1EL–K2008A
	45 – 47		X	1EL–K2008A
	46 – 44	X		*
5	51 – 53		X	
	52 – 58	X		
	55 – 57		X	
	56 – 59	X		*

LOCKOUT RELAY – SHOWN RESET

W R
LOCKOUT
RESET
TRIP
86G(AR5)
MAN RESET





TRIP 64 – EXCITER FIELD GROUND DETECTOR COIL ENERGIZED ON FIELD GROUND FAULT
64T – EXCITER FIELD GROUND DETECTOR TEST COIL ENERGIZED ON TEST
94EX–1 – EXCITER INSTANTANEOUS TRIP COIL DE–ENERGIZED ON A EXCITER FAULT

– LEGEND –
EX2000 CABINET
GRP
OCC–11
ANN TC
* THIS SH

REF DWGS:
1AP–K2011 (RMF1, RMF2)
1CO–K2001C
1CO–K2001D
GE 0153D2084 SH. 1 (6–46)
PGS–111
1IC–K2805A GRP WIRING
64.0202.005–P1101,–P1102

64.1601.05–P1008, P1007, P1004, P1022, P1024, P1042
P1025 ⟶ OCC SECT 11 WIRING

GE DRAWING NO 0153D2084 SH 11

CITY OF
GRAND ISLAND, NEBR
DEPARTMENT OF UTILITIES

GENERATOR PROTECTION D C

REVISIONS			DRAWN BY T GLOVER
1/12/83	TWB	UPDATED	DATE 8/3/81
2/18/83	DLJ	UPDATED	CHECKED BY B GILPIN
1/19/84	T.W.B	UPDATED	DATE 8/3/81
			APPROVED BY B GILPIN
			DATE 8/3/81

SHEET OF | DWG PGS–110
SCALE | NO

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
3	07–28–95	REVISED AS SHOWN	TER	ILE	GAM	
2	06–13–95	REVISED AS SHOWN	TER	CGB	GAM	
1	06–09–95	ISSUED FOR CONSTRUCTION	TER	CBM	GAM	
5	01–17–03	CONFORMED TO CONST RECORDS	DKR		GAM	

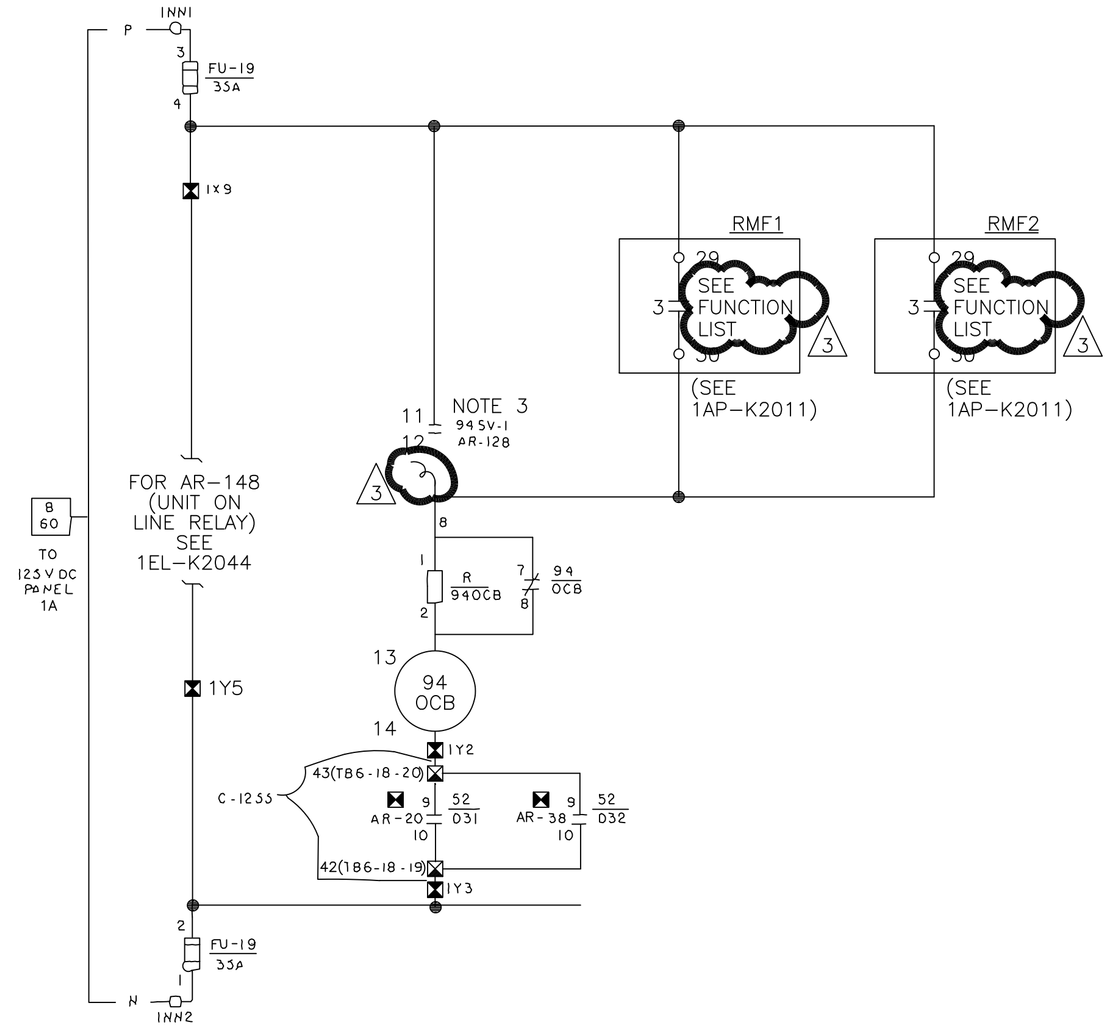
I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA.
SIGNED GARY A. MAILEN
DATE 06–08–86 REG NO. E–7944

BLACK & VEATCH
ENGINEER TER | DRAWN KAM
CHECKED C. MEHTA | DATE 06–09–95

CITY OF GRAND ISLAND
PLATTE GENERATING STATION

SCHEMATIC DIAGRAM
GENERATOR PROTECTION D.C. SHEET 1

PROJECT 23114–1AP–K2004A | DRAWING NUMBER | REV 5
CODE | AREA
PGS–110



NOTES:

1. SEE 1EL-K2044 FOR 94/SV AND AR128.
2. ALL DEVICES SHOWN ARE LOCATED ON GRP EXCEPT AS NOTED.

   AR-20 BREAKER D31 CLOSED. SEE 1AP-K2005A
   AR-38 BREAKER D32 CLOSED. SEE 1AP-K2006A
   AR-128 TURBINE TRIPPED. SEE 1EL-K2044

3. REMOVE AND TAPE CONDUCTOR FROM AR-128-12.

   RMF1 BECKWITH M-3430 RELAY, MULTIFUNCTION
   RMF2 BECKWITH M-3425 RELAY, MULTIFUNCTION

   RMF1 RELAY OUTPUT 3 FUNCTION LIST

81-1	UNDERFREQUENCY PICKUP #1
81-2	OVERFREQUENCY PICKUP #2

   RMF2 RELAY OUTPUT 3 FUNCTION LIST

21-2	PHASE DISTANCE PICKUP #2
51V	INV. TIME OVERCURRENT W/VOLT RESTRAINT
81-1	UNDERFREQUENCY PICKUP #2
81-2	OVERFREQUENCY PICKUP #2

94/OCB (LOCATED IN SECTION 1 OF GRP)

CONTACT	SHEET	FUNCTION
2X6 1-2 2X7	5A	D31 TC1
2W6 3-4 2W7	6A	D32 TC1
2Q1 5-6 2Q2		SPARE
7-8	THIS	94/OCB
2Q3 9-10 2Q4	PGS 122	D31 BKR FAILURE
2Q5 11-12 2Q6	PGS 122	D32 BKR FAILURE

THE REGISTRANT OF THE NEWLY APPLIED SEAL DATED 09/16/2008, ONLY ASSUMES RESPONSIBILITY FOR THE CHANGES AS INDICATED BY THE FOLLOWING REVISION(S) 3

- LEGEND -

☒ MEC CAB 101
* THIS SH
⊠ GRP

REF DWGS:
1CO-K2001C
1CO-K2001D
1EL-K2004
GE 0153D2084 SH. 1 (6-46)
PGS-111
1IC-K2805A GRP WIRING
64.1602.05-P1005, P1006, MEC 101 WIRING
130757-1IC-K2808A GRP SECT 1 WIRING
130757-1IC-K2808B GRP SECT 2 WIRING

GE DRAWING NO 0153D2089 SH 11

DIRECTOR OF UTILITY OPERATIONS — DATE

DEVELOPER — DATE

CITY OF
GRAND ISLAND, NEBR
DEPARTMENT OF UTILITIES

REVISIONS		
1/12/83	TWB	UPDATED
2/18/83	DLJ	UPDATED
1/19/84	T.W.B	UPDATED

DRAWN BY T GLOVER
DATE 8/3/81
CHECKED BY B GILPIN
DATE 8/3/81
APPROVED BY B GILPIN
DATE 8/3/81

GENERATOR PROTECTION D C

SHEET OF
SCALE
DWG NO PGS-110

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
3	09-16-08	CONFORMED TO CONST REC #162852	RDF	OAM	CGB	
2	01-17-03	CONFORMED TO CONST RECORDS	DKR		GAM	
1	01-31-96	CONFORMED TO CONST RECORDS				
0	06-09-95	ISSUED FOR CONSTRUCTION	TER	CBM	GAM	

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA
SIGNED GARY A. MAILEN
DATE 6/9/95 REG NO. E-7944

BLACK & VEATCH
ENGINEER TER DRAWN KAM
CHECKED C. MEHTA DATE 06-09-95

CITY OF GRAND ISLAND
PLATTE GENERATING STATION

SCHEMATIC DIAGRAM
GENERATOR PROTECTION D.C. SHEET 2

PROJECT 23114-1AP-K2004B
DRAWING NUMBER PGS-110
REV 3
CODE
AREA

BK C-970

BK, C806 2X3 1C3

1AP-K2006 TO D32-CLOSE COIL A B

BK 2V1 4(6-16-1)

BK, C970 BK, C3820 6-16-1

2Q10 16-14 13 SS-ON SS-134 14 16-15 2Q11

P PTBA-40 P PTBA-39 2X4 33 86IE 31 2V2 16-2 17 AR-2 86T 15 17 AR-4 86G 15 16-13

2Q7 1 SS-ON SS-134 2 6-16-11 1 CS-C CS-135 2 6-16-12

P PTBA-35 MKV AUTO SYNC P PTBA-42 2Q8 MKV SYNC CHK P PTBA-38 2Q9

W CS 135 G CS 135 6-16-G 16(6-16-G) 6-16-3 1 AR 18 2 7(6-16-3)

AR 18 13 14 17(6-16-A) 6-16-A 21 CS 135 22 9 CS 135 10

AR 19 13 14

AR 19A 13 14

G IL 21 1 13-1 13-2

C3876 TB1A-E-081 1A-4-C TB2-3 1GENOCB31XB 1B-7-12-14 1A-4-C TB2-4 TB1A-E-082 C3876

4C-1-B TB2-4 TU W 37(6-18-4) 5 6 AR18 5 6 AR36 36(6-18-3) BK AN583 TU 4C-1-B TB2-3 GEN BKR TRIP 1GENXFMRALM06 C1322

40(6-18-9) BK 5 6 AR19 52b 5 6 AR37 52b 41(6-18-10) R TB3A-E-023 TB3A-HF-033

TO DCIS-CAB TB3A ATTEMPT TRIP 1GENBRKRTRIP C3823

MKV SYNC P PTBA-41 2W12

C4031BK 16-40 16 SS-163 15 D32-ON 16-42 D 1AP-K2006 TO D32 125VDC-

16 SS-134 15 D31-ON 16-41 4031R

13 D32 SS-ON SS-163 14 16-16 2Q12 C 1AP-K2006 TO D32 CLOSE COIL

2X5 W, C806 11 IC4 86LB D32 11C

2X2 1FD1

13 86BN 13C 5 5C BK C-3291 103 104 W, C-3291 105 R

2000Ω 4L GIL 3L IC2 C806R 2X2 R 2V3 CL C970R

CONTINUED ON 1AP-K2005A

1 3 7 13

1 8C 15A 2 45

C3291R

1 62CS-T CLOSE 2 47

69 48 63C 88 29 52 LC 52 b 52V C 5.4A RES 20 52Y 24 52Y

6 2

CONTINUED ON 1AP-K2005A

BKR DC D31

OFF ON

11 SS-134

DECK	CONTACTS HANDLE END	POSITION OFF	POSITION ON	REFERENCE DRAWING
1	1 o-o 2		X	*
	3 o-o 4		X	1AP-K2003
2	5 o-o 6		X	1AP-K2003
	7 o-o 8		X	*
3	9 o-o 10		X	1AP-K2003
	11 o-o 12		X	*
4	13 o-o 14		X	*
	15 o-o 16		X	*

CS-135

DECK	CONTACTS HANDLE END	POSITION TRIP	POSITION NORMAL AFTER TRIP	POSITION NORMAL AFTER CLOSE	POSITION CLOSE	REFERENCE DRAWING
1	1 o-o 2				X	*
	3 o-o 4				X	
2	5 o-o 6	X				K2005A
	7 o-o 8	X				
3	9 o-o 10		X	X		*
	11 o-o 12		X	X		
4	13 o-o 14			X	X	1EL-K2044
	15 o-o 16			X	X	1EL-K2073-2
5	17 o-o 18	X	X			
	19 o-o 20	X	X			
6	21 o-o 22			X	X	*
	23 o-o 24			X	X	

G W R R

TRIP CLOSE

SPRING RETURN TO NORMAL. KEY LOCK. KEY REMOVABLE IN CENTER POSITION

51 o 52 53 b 54 55 o 56 57 b 58 59 o 60 61 b' 62 63 o' 64 65 o'' 66 67 o'' 68

K2005A

BKR AC D31

C4031,BR

16-17 7 D31 SS-ON 8 SS-134 16-18 C4031,Y 2S2 C810,W 1F B11 C3292,BK/W 63 D31 52a 64 C3292,BL/BK 1F R12

7 D32 SS-ON 8 SS-163 16-19 C4031,R/BK 2S3 C810,R 1F F11 C3295,BK/W 63 D32 52a 64 C3295,BL/BK 1F R12 C810,G 2S4 C4032,BR

2S1 C4032,Y P PTBA-36 MKV L52G PTBA-37 C4032,BR 2S4

C4027 32-11 11 SS-134 D31-ON 12 32-12 C4027

QD1 DTBA-63 MKV D31-SEL QD1 DTBA-64

AR18 1 2 * 3 4 5 6 * 7 8 9 10 11 12

AR19 1 2 3 4 5 6 * 7 8 9 10 11 12

AR19A 1 2 3 4 5 6 7 8 9 10 1EL-K2017A 11 12

LEGEND:

OCC-11

CAB 101

GRP

AUX PNL

LINE PNL

DCIS CAB

REF DWGS:
1AP-K2002
1AP-K2003
1AP-K2004A
1AP-K2009
1AP-K2010
1AP-K2011
64.0202-P1203 DCIS EXT CONN DIAGRAM
64.0202-P1204 DCIS EXT CONN DIAGRAM
64.0202-P1117 DCIS EXT CONN DIAGRAM
64.1601.05-P1005, P1022, P1042, P1043 OCC-11 WIRING
64.1602.05-P1005, P1006 MEC 101 WIRING

GE DRAWING NO 0153D2084 SH 20

REVISIONS		
1/11/83	DLJ	UPDATED
3/2/83	DLJ	UPDATED
5/2/83	DLJ	UPDATED

DRAWN BY T GLOVER
DATE 4/20/82
CHECKED BY B GILPIN
DATE 4/20/82
APPROVED BY B GILPIN
DATE 4/20/82

CITY OF GRAND ISLAND, NEBR
DEPARTMENT OF UTILITIES

D3I AND D32 D C ELEMENTRY

SHEET OF
DWG NO PGS-119
SCALE

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
3	01-31-96	CONFORMED TO CONST RECORDS				
2	07-28-95	REVISED AS SHOWN	TER	ILE	GAM	
1	06/09/95	ISSUED FOR CONSTRUCTION	TER	CBM	GAM	
4	01-17-03	CONFORMED TO CONST RECORDS	DKR		GAM	

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA

SIGNED GARY A. MAILEN

DATE 6/9/95 REG NO. E-7944

BLACK & VEATCH

ENGINEER TER DRAWN C. MEHTA

CHECKED KAM DATE 06-09-95

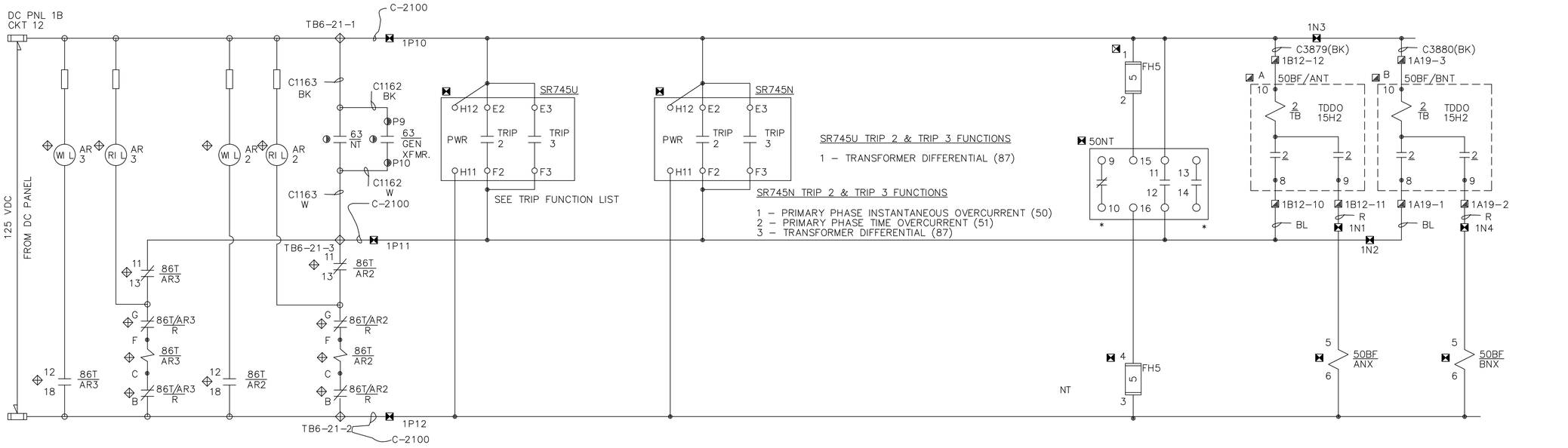
CITY OF GRAND ISLAND
PLATTE GENERATING STATION

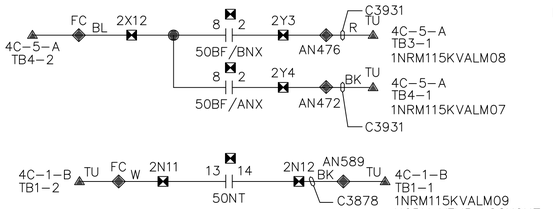
SCHEMATIC DIAGRAM
GENERATOR PROTECTION D.C. SHEET 2

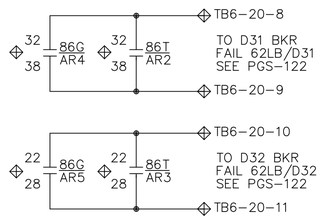
PROJECT 23114-1AP-K2005 DRAWING NUMBER REV 4

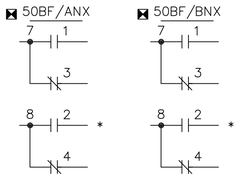
CODE AREA

PGS-119









NOTES:

1. ALL DEVICES LOCATED AT GRP UNLESS OTHERWISE NOTED
2. SEE 1EL-K2006B &-K2008B FOR BF/ANT,/BNT DETAILS
3. 50NT IS A 51 RELAY WITH AN INSTANTANEOUS FUNCTION.

◈ 86T(AR3)

DECK	CONTACTS	POSITION TRIP	POSITION RESET	REFERENCE DRAWING
1	1 – 13		X	*
	12 – 18	X		*
	15 – 17		X	
	16 – 14	X		1AP-K2005A
2	21 – 23		X	
	22 – 28	X		*
	25 – 27		X	1EL-2008A
	26 – 24	X		1EL-2008A
3	31 – 33		X	
	32 – 38	X		1AP-K2005A
	35 – 37		X	
	36 – 34	X		1AP-K2006A
4	41 – 43		X	
	42 – 48	X		1AP-K2004A
	45 – 47		X	
	46 – 44	X		1AP-K2004A
5	51 – 53		X	
	52 – 58	X		
	55 – 57		X	
	56 – 54	X		

LOCKOUT RELAY SHOWN RESET

(W) (R)

LOCKOUT: RESET / TRIP

86T (AR3) MR

◈ 86T(AR2)

DECK	CONTACTS	POSITION TRIP	POSITION RESET	REFERENCE DRAWING
1	1 – 13		X	*
	12 – 18	X		*
	15 – 17		X	1AP-K2005
	16 – 14	X		1AP-K2005A
2	21 – 23		X	1EL-K2006A
	22 – 28	X		1EL-K2006A
	25 – 27		X	1AP-K2006A
	26 – 24	X		1AP-K2006A
3	31 – 33		X	
	32 – 38	X		*
	35 – 37		X	
	36 – 34	X		
4	41 – 43		X	1EL-K2044
	42 – 48	X		1AP-K2004A
	45 – 47		X	
	46 – 44	X		1AP-K2004A
5	51 – 53		X	
	52 – 58	X		
	55 – 57		X	
	56 – 54	X		

LOCKOUT RELAY SHOWN RESET

(W) (R)

LOCKOUT: RESET / TRIP

86T (AR2) MR

LEGEND

- ▽ BUS DIFFERENTIAL JUNCTION BOX
- ▽ 13.8KV FEEDER PANEL
- □ BUS DIFF. & AUX. PANEL
- ⧄ TRANSFORMER PANEL
- ⊠ INTERNAL TERMINAL
- ○ CONNECTED WIRES
- ◑ LOCAL
- ⧓ GEN RELAY PANEL
- ◈ OCC-11
- ◆ ANN TC
- ▲ DCIS CAB
- ◪ 5KV SWGR (A OR B)
- * THIS SHEET

REF DWGS:
1AP-K2004B
1AP-K2006B-50BF/ANT
1AP-K2008B-50BF/BNT
1CO-K2001D
6-47
64.0202.05-P1192 DCIS CONN DIAGRAM
64.0202.05-P1199 DCIS CONN DIAGRAM
64.1601.05-P1007, P1008, P1024 OCC-11 WIRING

CITY OF GRAND ISLAND
UTILITIES DEPARTMENT

REVISIONS	DRAWN BY E.J.M	P.G.S. AND SUBSTATION "D" TRANSFORNER DIFFERENTIAL 87U,87NT,87RT	
1-13-94 AS PER CONSTRUCTION RECORDS	DATE 10/12/90		
	CHECKED BY T.W.B		
	DATE 10/12/90		
	APPROVED BY G.P.G	SHEET OF	DWG NO. PGS-111
	DATE 10/12/90	SCALE: -NONE-	

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
3	07-28-95	REVISED AS SHOWN	TER	ILE	GAM	
2	06-13-95	REVISED AS SHOWN	TER	CGB	GAM	
5	01-17-03	CONFORMED TO CONST RECORDS	DKR		GAM	
4	01-31-96	CONFORMED TO CONST RECORDS				

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA.
SIGNED GARY A. MAILEN
DATE 06-08-95 REG NO. E-7944

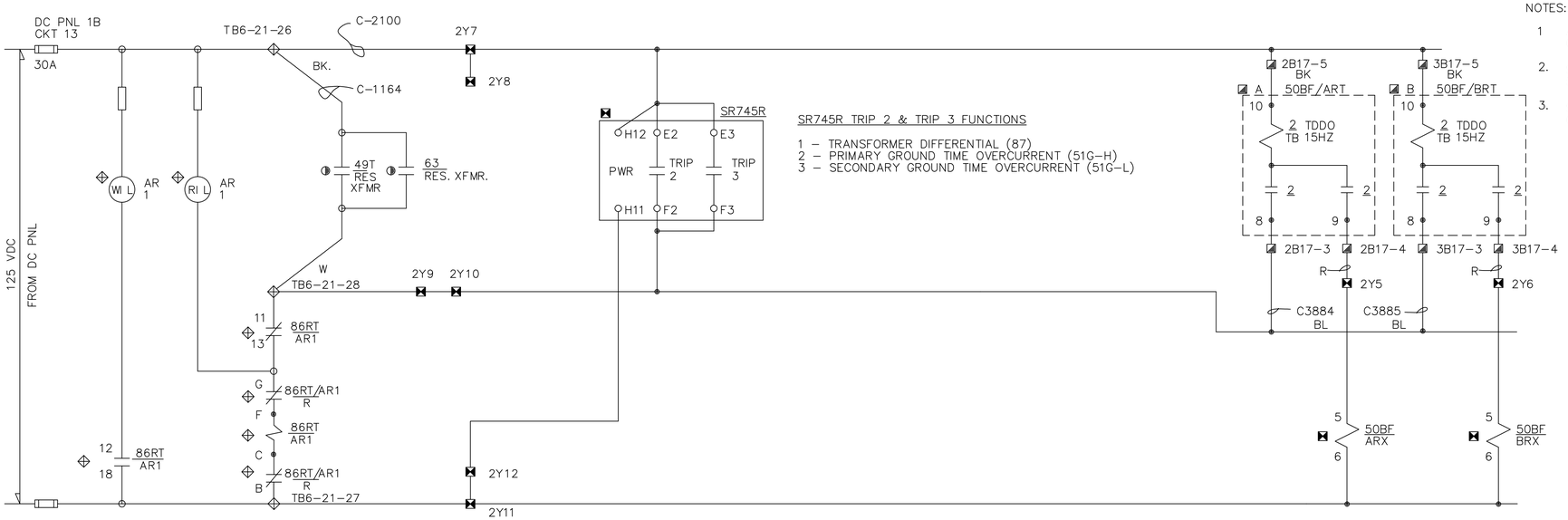
BLACK & VEATCH

ENGINEER	TER	DRAWN	KAM
CHECKED	C. MEHTA	DATE	06-09-95

CITY OF GRAND ISLAND
PLATTE GENERATING STATION

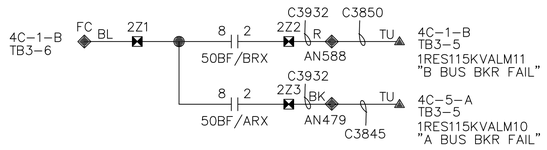
SCHEMATIC DIAGRAM
GEN & NORMAL TRANSFORMER LOCKOUT 86T

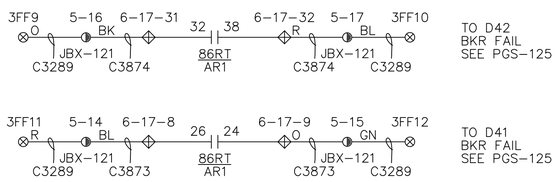
PROJECT	DRAWING NUMBER	REV
23114-1AP-K2010		5
CODE	PGS-111	
AREA		

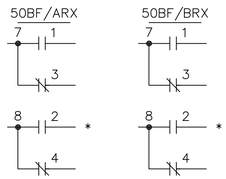


NOTES:

1. ALL DEVICES LOCATED AT GRP UNLESS OTHERWISE NOTED
2. SEE 1EL–K2006B AND K2008B FOR 50BF/ART,/BRT DETAILS.
3. SEE 1AP–K2012 FOR SWITCHGEAR CIRCUIT C3884, C3885 TERMINATIONS.



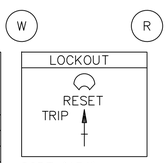




◈ 86RT(AR1)

DECK	CONTACTS	POSITION TRIP	POSITION RESET	REFERENCE DRAWING
1	11–13		X	*
	12–18	X		*
	15–17		X	1AP–K2007
	16–14	X		1AP–K2007
2	21–23		X	1AP–K2008
	22–28	X		1AP–K2008
	25–27		X	
	26–24	X		*
3	31–33		X	
	32–38	X		*
	35–37		X	
	36–34	X		1EL–K2007A
4	41–43		X	1EL–K2007A
	42–48	X		1AP–K2004B
	45–47		X	
	46–44	X		1EL–K2009A
5	51–53		X	1EL–K2009A
	52–58	X		1AP–K2010
	55–57		X	
	56–54	X		

LOCKOUT RELAY SHOWN RESET



LEGEND

- ▽ BUS DIFFERENTIAL JUNCTION BOX
- ▽ 13.8KV FEEDER PANEL
- □ BUS DIFF. & AUX. PANEL
- ⧄ TRANSFORMER PANEL
- ⊠ INTERNAL TERMINAL
- ○ CONNECTED WIRES
- ◑ JBX–121 OR LOCAL
- ⧓ GEN RELAY PANEL
- ◈ OCC–11
- ◆ PLANT ANN LOGIC CAB (OLD)
- * THIS SHEET
- ◪ 5KV SWGR (A OR B)

CITY OF GRAND ISLAND
UTILITIES DEPARTMENT

REVISIONS	DRAWN BY E.J.M	P.G.S. AND SUBSTATION "D" TRANSFORNER DIFFERENTIAL 87U,87NT,87RT	
1–13–94 AS PER CONSTRUCTION RECORDS	DATE 10/12/90		
	CHECKED BY T.W.B		
	DATE 10/12/90		
	APPROVED BY G.P.G	SHEET OF	DWG NO. PGS–111
	DATE 10/12/90	SCALE: –NONE–	

REF DWGS:
1AP–K2004B
1CO–K2001D
1EL–K2006B
1EL–K2008B
6–47
64.0202.05–P1199 DCIS CONN DIAGRAMS
64.0202.05–P1204 DCIS CONN DIAGRAMS
1AP–K2014C DCIS CONN DIAGRAMS
1CO–K2025 DCIS CONN DIAGRAMS
PGS–125 DCIS CONN DIAGRAMS
PGS–222 DCIS CONN DIAGRAMS
64.1601.05–P1006, P1008, P1023, P1024, P1041 OCC–11 WIRING

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
3	07–28–95	REVISED AS SHOWN	TER	ILE	GAM	
2	07–05–95	REVISED AS SHOWN	CGB	ILE	GAM	
5	01–17–03	CONFORMED TO CONST RECORDS	DKR		GAM	
4	01–31–96	CONFORMED TO CONST RECORDS				

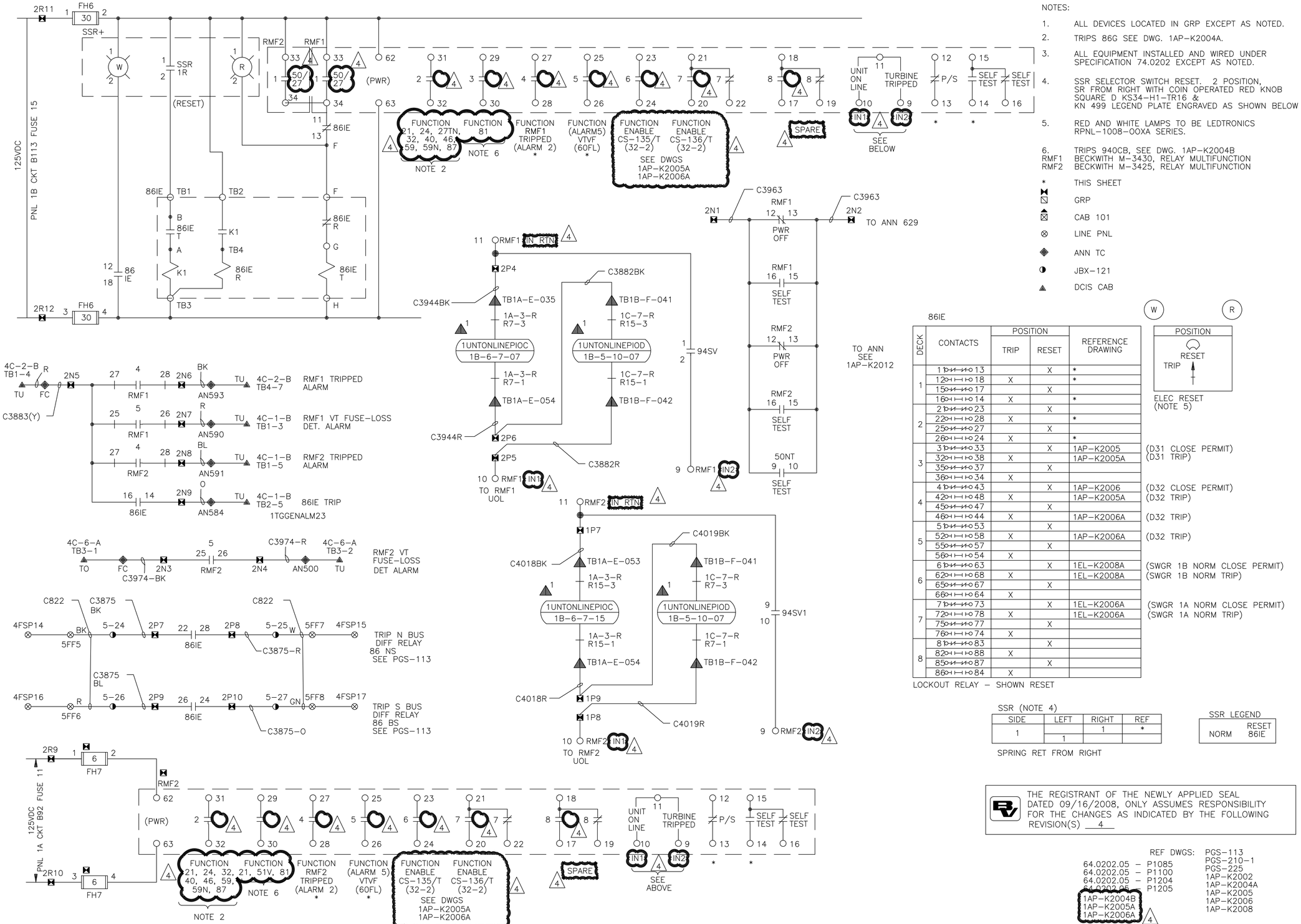
I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA.
SIGNED GARY A. MAILEN
DATE 06/08/95 REG NO. E–7944

BLACK & VEATCH
ENGINEER TER DRAWN KAM
CHECKED C. MEHTA DATE 06–09–95

CITY OF GRAND ISLAND
PLATTE GENERATING STATION

SCHEMATIC DIAGRAM
RESERVE TRANSFORMER LOCKOUT 86RT

PROJECT DRAWING NUMBER: 23114–1AP–K2010A
REV: 5
CODE
AREA
PGS–111



NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
3	01-17-03	CONFORMED TO CONST RECORDS	DKR		GAM	
2	01-31-96	CONFORMED TO CONST RECORDS				
1	7-28-95	ISSUED FOR CONSTRUCTION	TER	ILE	GAM	
4	09-16-08	CONFORMED TO CONST REC #162852	RDF	OAM	CGB	

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA

SIGNED GARY A. MAILEN

DATE 5/23/95 REG NO. E-7944

BLACK & VEATCH

ENGINEER	TER	DRAWN	KAM
CHECKED	ILE	DATE	7-21-95

CITY OF GRAND ISLAND
PLATTE GENERATING STATION

SCHEMATIC DIAGRAM
INADVERTENT ENERGIZATION LOCKOUT 86IE

PROJECT	DRAWING NUMBER	REV
23114	1AP-K2011	4

CODE

AREA

FUNCTION LEGEND

A	AMMETER
AS	AMMETER SWITCH
ET	ELAPSED TIME METER
F	FREQUENCY METER
RES	RESISTER
G	GROUND
N	NEUTRAL
V	VOLTMETER
VS	VOLTMETER SWITCH
W	WATT METER
WH	WATT HOUR
VAR	VARMETER
VM	VAR HOUR
TZD	TRANSDUCER
VHZ	VOLTS PER HERTZ
X2	SIGNAL MULTIPLIER
21	SYSTEM BACK-UP RELAY
25	SYNCHRONIZING CHECK
27	UNDER VOLTAGE
40	LOSS OF EXCITATION
41	FIELD CIRCUIT BREAKER
43	TRANSFER DEVICE
46	CURRENT UNBALANCE (NEG SEQUENCE)
49	THERMAL RELAY
50-51	INSTANTANEOUS OVERCURRENT-TIME OVERCURRENT
59-1	OVEREXCITATION
59-2	OVEREXCITATION
60	VOLTAGE BALANCE RELAY
62	TIMING RELAY
63	SUDDEN PRESSURE RELAY
64	GROUND DETECTOR RELAY
70	ELECTRICALLY OPERATED RHEOSTAT
86	LOCK-OUT RELAY
87	DIFFERENTIAL RELAY
94	TRIPPING RELAY
81	FREQUENCY RELAY
32	DIRECTIONAL POWER RELAY
41T	VOLTS/HZ FIELD BREAKER LOCKOUT RELAY
RMF	RELAY MULTIFUNCTIONAL
50/27	INADVERTANT ENERGIZATION
MMR	MOTOR MANAGEMENT RELAY
FR	FEEDER RELAY

NOTES:

1. RELAYS LOCATED IN GENERATOR RELAY PANEL UNLESS INDICATED OTHERWISE.
2. INSTRUMENTATION AND CONTROLS SHOWN WIRED TO SWITCHGEAR IS IN THAT SWITCHGEAR UNLESS INDICATED OTHERWISE.

LEGEND

▣	GENERATOR RELAY PANEL
◈	OPERATORS CONTROL CONSOLE
◩	5KV SWITCHGEAR 1A
◪	5KV SWITCHGEAR 1B
◐	LOCAL (AT DEVICE)
⧅	BOTTOM ASH CONTROL PANEL
◧	COAL HANDLING CONTROL PANEL
Ⓐ	CUSTOMERS ANNUNCIATION
⊠	MISC EQUIPMENT CABINET
▩	AUXILIARY PANEL
△	TRANSDUCER
TD	TEST DEVICE
⎍	PULSE

DRAWING REVISED BY BLACK & VEATCH ONLY FOR AREAS PERTAINING TO CONTROL SYSTEMS UPGADE WORK.
REVISION NUMBER 0.1

REDRAWN FROM
77-8-EW-2 REV 7

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
2	01-31-96	CONFORMED TO CONSTR RECORDS				
1	07-28-95	ISSUED FOR CONSTRUCTION	TER	MAS	GAM	
0	06-14-95	ISSUED FOR 74.0202 BID	TER		GAM	

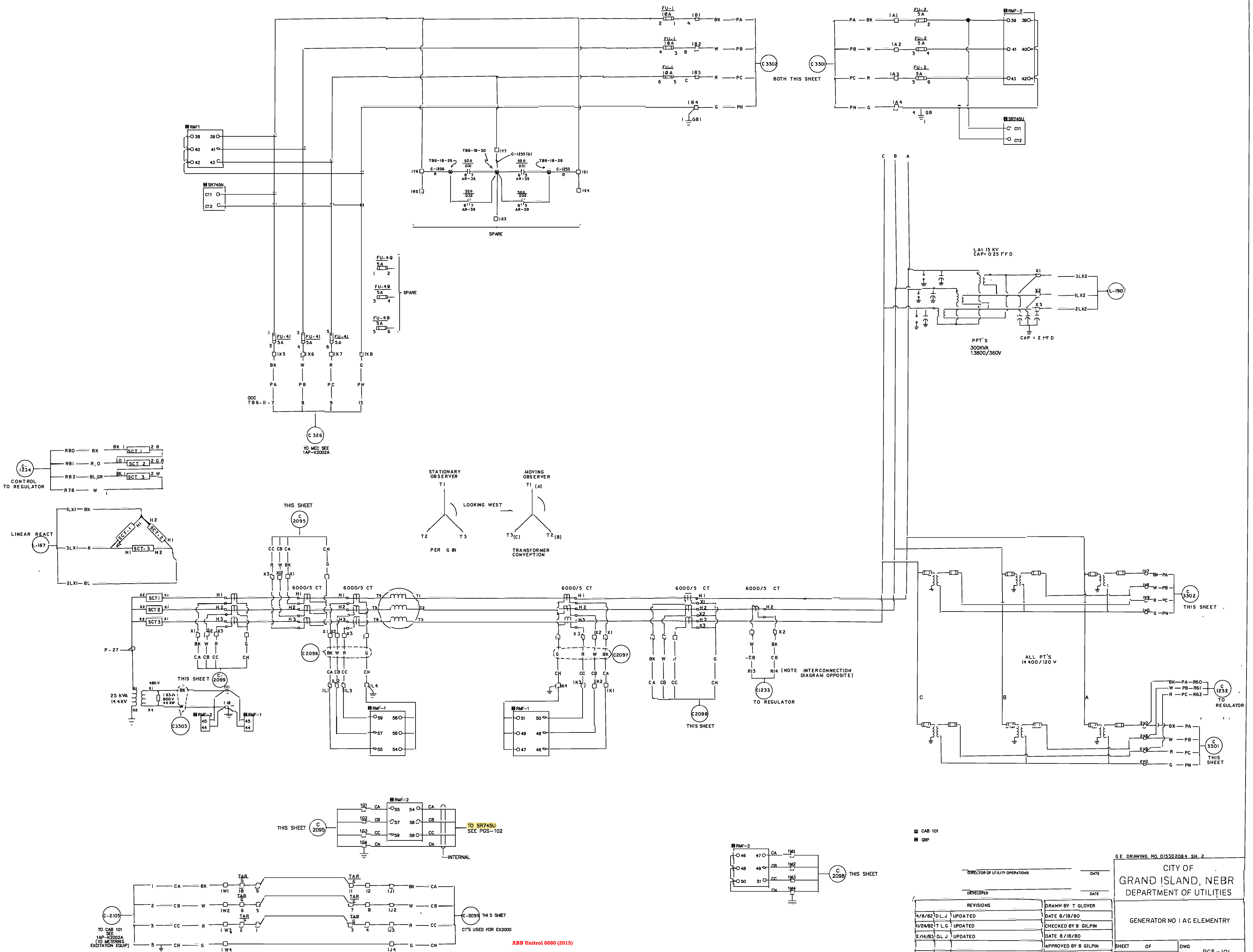
I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA.
SIGNED GARY A. MAILEN
DATE 06-14-95 REG NO. E7944

BLACK & VEATCH
ENGINEER TER DRAWN GMM
CHECKED MAS DATE 07-21-95

GRAND ISLAND
PLATTE GENERATING STATION

PLATTE GENERATING STATION - UNIT NO. 1
ONE LINE DIAGRAM

PROJECT DRAWING NUMBER 23114-1EW-E1002
REV 2
CODE
AREA
77-8-EW-2



G E DRAWING NO. 0153D2084 SH 2

DIRECTOR OF UTILITY OPERATIONS	DATE
DEVELOPER	DATE

CITY OF
GRAND ISLAND, NEBR
DEPARTMENT OF UTILITIES

GENERATOR NO I AC ELEMENTRY

REVISIONS			
4/8/82	D.L.J	UPDATED	DRAWN BY T GLOVER
11/24/82	T.L.G	UPDATED	DATE 8/18/80
2/14/83	D.L.J	UPDATED	CHECKED BY B GILPIN
			DATE 8/18/80
			APPROVED BY B GILPIN
			DATE 8/18/80

SHEET OF — SCALE — DWG NO PGS-101

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
1	01-17-03	CONFORMED TO CONSTR RECORDS	DKR		GAM	
0	07-27-95	ISSUED FOR CONSTRUCTION	TER	MAS	GAM	

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA

SIGNED GARY A. MAILEN
DATE 07-18-95 REG NO. E-7944

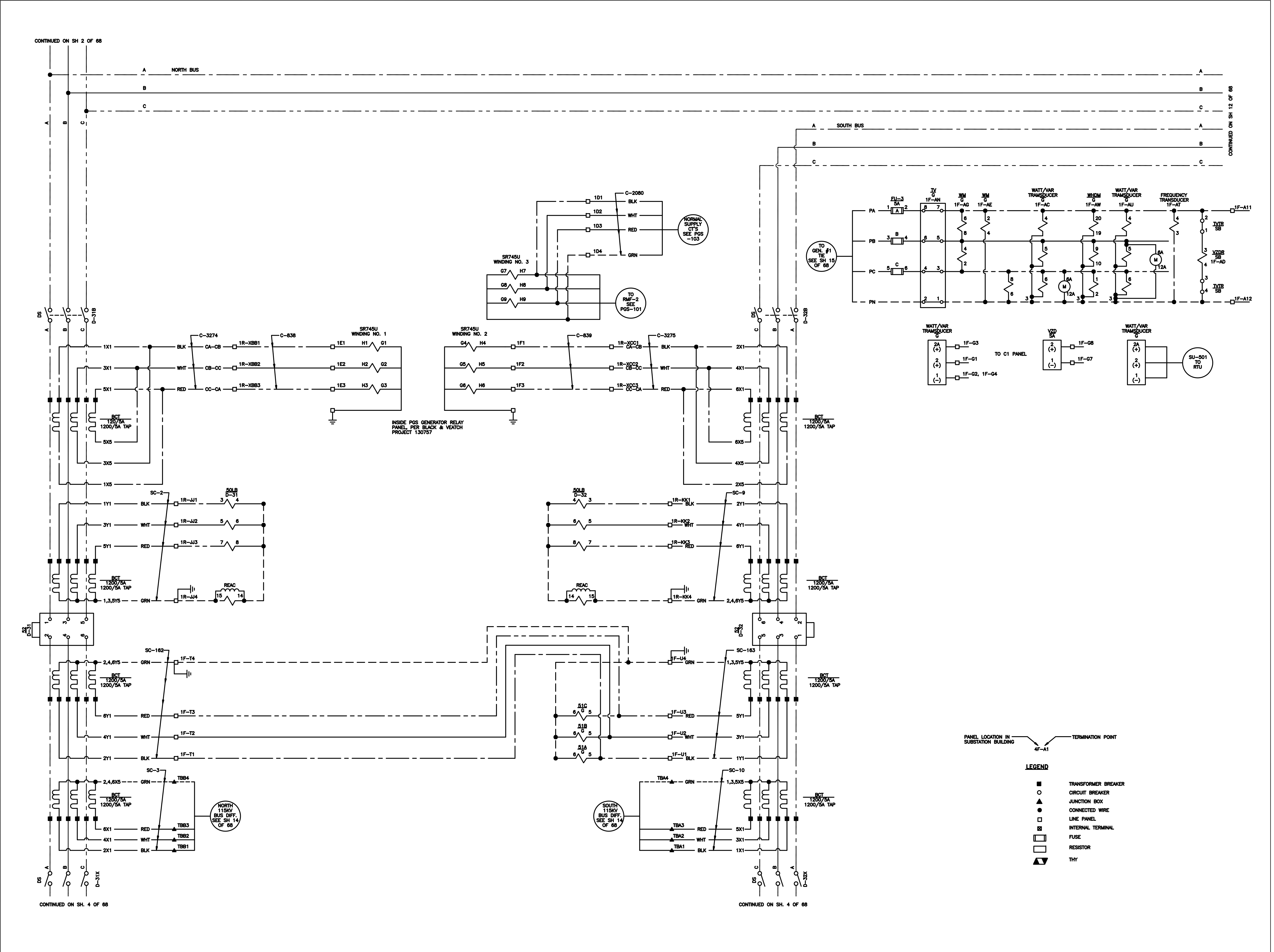
BLACK & VEATCH

ENGINEER	TER	DRAWN	LAB
CHECKED	MAS	DATE	07-21-95

CITY OF GRAND ISLAND
PLATTE GENERATING STATION

GENERATOR NO. 1 AC ELEMENTARY

PROJECT	DRAWING NUMBER	REV
23114-PGS-101		1
CODE	PGS-101	
AREA		



NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
0	01-17-03	CONFORMED TO CONSTRUCTION RECORDS	DKR		DAM	

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SIGNED GARY A. MAILEN
DATE 06-14-95 REG NO. E7944

BLACK & VEATCH

ENGINEER | DRAWN | CHECKED | DATE

CITY OF GRAND ISLAND
PLATTE GENERATING STATION

SUBSTATION "D" AC ELEMENTARY 115KV
P.G.S. UNIT NO. 1 SET-UP TRANSFORMER

PROJECT / DRAWING NUMBER: 23114-PGS-102
REV: 0
CODE
AREA

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	PLM
0	01-17-03	CONFORMED TO CONSTRUCTION RECORDS	DKR	GAM		

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPER-VISION AND THAT I AM A DULY REGISTERED PRO-FESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF

SIGNED _____ REG NO. _____

DATE _____

BLACK & VEATCH

ENGINEER	DRAWN
CHECKED	DATE

CORPORATION

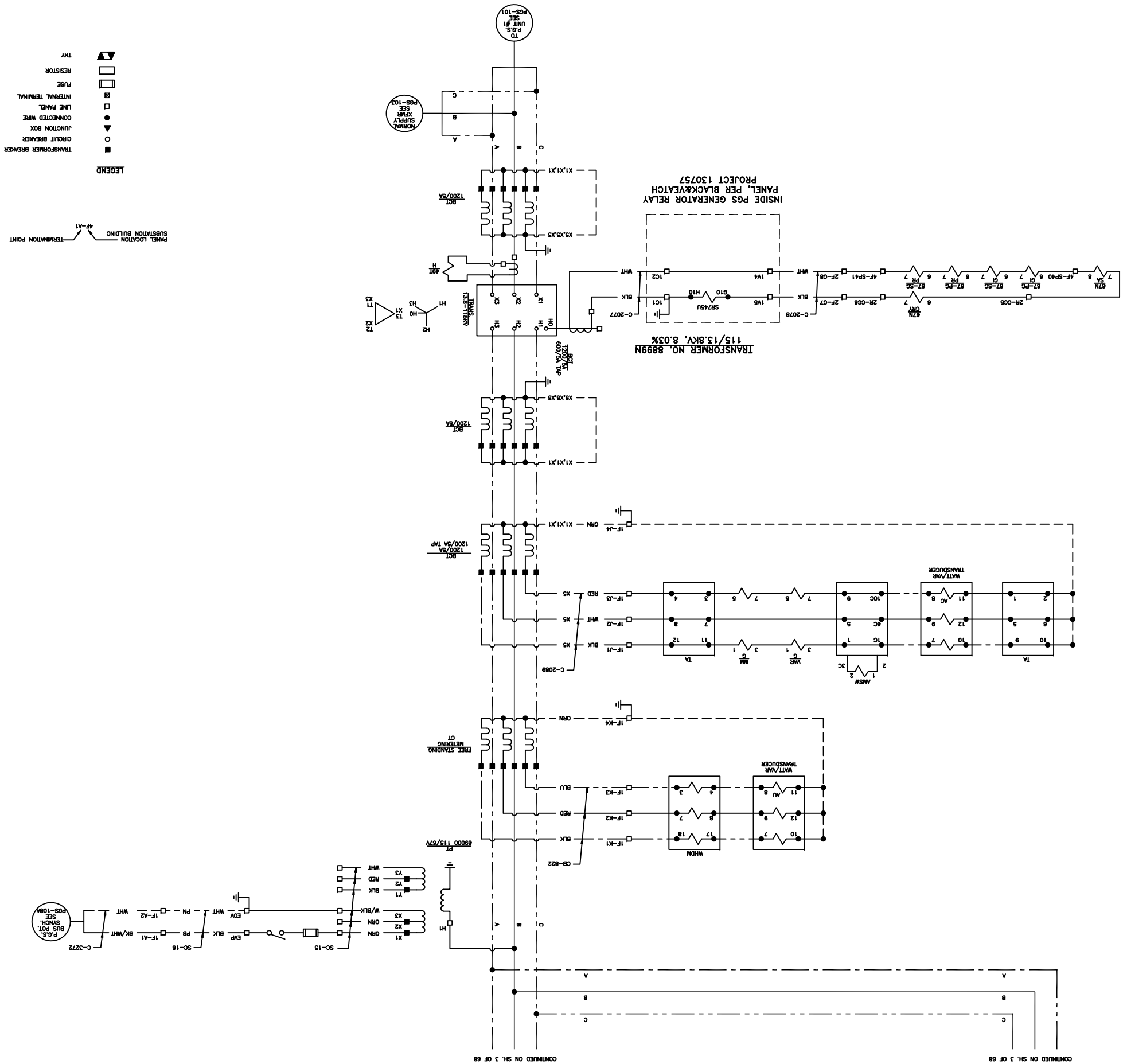
PLATTE GENERATING STATION

SUBSTATION "D" AC ELEMENTARY 115KV
P.G.S. UNIT NO. 1 SET-UP TRANSFORMER

PROJECT	DRAWING NUMBER	REV
	23114-PGS-102A	0

CODE

AREA



GENERAL ELECTRIC

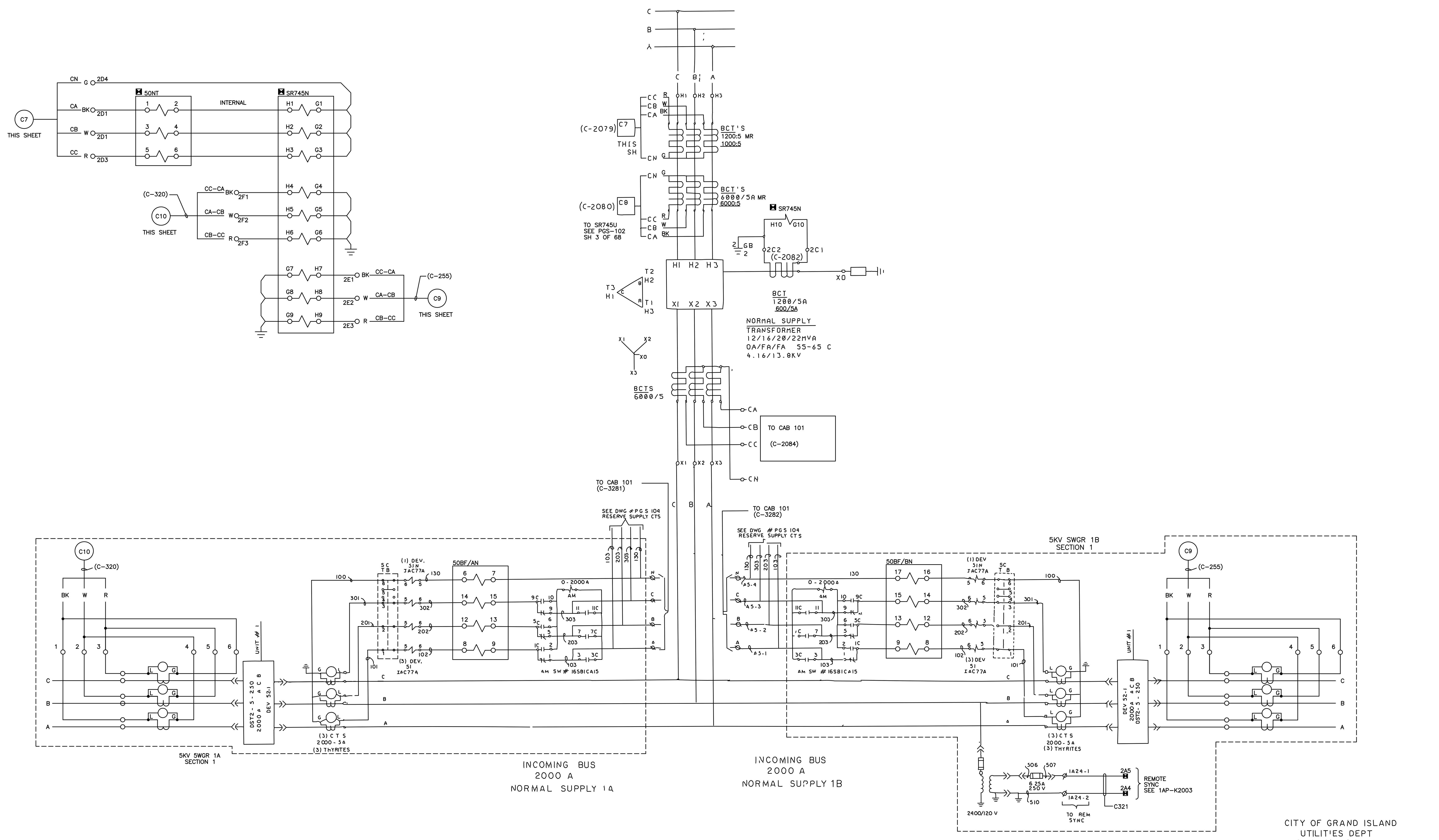
FILE NAME: ELEM
WINDOW #: 1-C

ELEMENTARY DIAGRAM

0153D2084	NORM. SUPPLY TRANSF. 1 AC ELEM
CONT ON SH 5 SH NO. 4	REQ 413-48990 S O 981678

CITY OF GRAND ISLAND NEBRASKA
PLATTE GENERATOR NO 1
SUBSTATION D

LOCATED IN GENERATOR RELAY PANEL.



CITY OF GRAND ISLAND
UTILITIES DEPT
DWG NO PGS-103

REVISED 9/20/83 TWB

REVISED BY LD&B PER CONSTRUCTION RECORDS 12-82 JGM

3	ENG CHG 7/24/80	B.R MENNEN	1	MADE BY B R MENNEN	ENGR: DFB	APPROVALS	PSMBD BURLINGTON, IOWA
4	FIELD CHGS	R. Cook 7/1/92	2	DATE MADE: 84-16-80	DATE ISSUED: 06 27 80		0153D2084 CONT ON SH 5 SH. NO 4

100

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
1	01-17-03	CONFORMED TO CONSTR RECORDS	DKR		GAM	
0	07-27-95	ISSUED FOR CONSTRUCTION	TER	MAS	GAM	

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SIGNED GARY A. MAILEN
DATE 07-18-95 REG NO. E-7944

BLACK & VEATCH

ENGINEER	TER	DRAWN	LAB
CHECKED	MAS	DATE	07-21-95

CITY OF GRAND ISLAND
PLATTE GENERATING STATION

NORMAL SUPPLY TRANSFORMER AC ELEMENTARY

PROJECT: 23114-PGS-103
DRAWING NUMBER: PGS-103
REV: 1
CODE
AREA

115KV NORTH BUS

115KV SOUTH BUS

A B C

C B A

6X1 4X1 2X1 1200/5 TAP 1200/5 CT

CC—CA—BLU CA—CB—RED CB—CC—BLK

2X5 4X5 6X5

THIS CO-8 SHEET

THIS CO-7 SHEET

CA—CB—BLU CB—CC—BLK CC—CA—RED

5X1 3X1 1X1 1X5 3X5 5X5 1200/5 TAP 1200/5 CT

6Y1 CC—BLU 4Y1 CB—RED 2Y1 CA—BLK 1200/5 TAP 1200/5 CT 2,4,6Y5 CN—ORN

THIS CO-4 SHEET

6 4 2 5 3 1 D42

1,3,5Y5 CN—ORN 1200/5 TAP 1200/5 CT 1Y1 CA—BLK 3Y1 CB—RED 5Y1 CC—BLU

THIS CO-6 SHEET

1,3,5X5 CN—ORN 1200/5 TAP 1200/5 CT 1X1 CA—BLK 3X1 CB—BLU 5X1 CC—RED

BUS DIFF. CO-2 DWG. NO. PGS—109

THIS CO-3 SHEET

5Y1 CC—BLU 3Y1 CB—RED 1Y1 CA—BLK 1,3,5Y5 CN—ORN 1200/5 TAP 1200/5 CT

D41 1 3 5 2 4 6

THIS CO-5 SHEET

2,4,5Y5 CN—ORN 1200/5 TAP 1200/5 CT 2Y1 CA—BLK 4Y1 CB—RED 6Y1 CC—BLU

BUS DIFF. CO-1 DWG. NO. PGS—109

2,4,6X5 CN—GRN 1200/5 TAP 1200/5 CT 2X1 CA—BLK 4X1 CB—WHT 6X1 CC—RED

RSTI

THIS SHEET CO-6

GN ORN CC BLU CB RED CA BLK

51RTD 2F PANEL 4BB4 4BB3 4BB2 4BB1

2 1 4 3 6 5 7 8 4AA1 4AA2 4AA3 4AA4

BLK CA RED CB BLU CC ORN CN CO-5 THIS SHEET

50LB D41

4CC1 4CC2 4CC3 4CC4 4 3 6 5 8 7 REAC 14 15

BLK CA RED CB BLU CC ORN CN CO-3 THIS SHEET

50LB D42

4DDA1 4DDA2 4DDA3 4DDA4 4 3 6 5 8 7 REAC 14 15

BLK CA RED CB BLU CC ORN CN CO-4 THIS SHEET

69000/115/67V

Y3 Y2 Y1 BLU ORN RED/BLK

X3 X2 X1 BLK RED BLU

EVO EVP WHT PN BLK PB

SEE DWG.NO.PGS—108 & 1AP—K2003 CO-10

CO-9

H2 H1

C-3277 SR745R

BLK CA 1XFF1 2K1 H1 G1

BLU CB 1XFF2 WHT 2K2 H2 G2

RED CC 1XFF3 RED 2K3 H3 G3

THIS CO-7 SHEET

C-3276

BLK CA 1XDD1 2J1 H4 G4

BLU CB XDD2 WHT 2J2 H5 G5

RED CC XDD3 RED 2J3 H6 G6

THIS CO-8 SHEET

H7 G7 H8 G8 H9 G9

2M1 BLK CA 2M2 WHT CB 2M3 RED CC 2M4 GRN CN

X1 X2 H1 H2

C 2094 THIS SHEET

2L1 BLK CA 2L2 WHT CB 2L3 RED CC 2L4 GRN CN

87B/RT A 87B/RT B 87B/RT C

C 2093 THIS SHEET

C11 IP1 2A7-1 C12 IP2 2A7-2 C 322A THIS SHEET & SEE 1AP—K2002B

MP S1 DWG.NO. PGS—108

FU—4 5A PA PB PC PN GB3

TV RT 3AH 3F WM RT 3F VARM RT 2F WHDM OUT RT 2AU 2F WATT/VAR TRANSDUCER RT 2AT

6A M 12A

AM RT

TA RT 1—2C 5—6C 9—10C GB3

3FAK VARM 3FAL WM C-820

3P1 BLK CA S26 3P2 WHT CB S14 3P3 RED CC S2 3P4 GRN CN S4,S16,S28

600/5 CT 300/5 TAP

WATT/VAR TRANSDUCER 2FAT WHDM OUT RT 2AU

C1 BLK CA S31 C2 RED CB S19 C3 BLU CC S7 C4 ORN CN S8,20&32

2F—GND CB—821 600/5 CT 100/5 TAP

RSTI THIS SHEET

H1 H2 H3

15000/ 20000/ 25000KVA 55° C.RISE 121KV/4.16KV

H0 X0 X1 X2 X3

TERT.

C-2087 SR745R H10 G10 2H2 CN 2H1 CP WHT BLK M22 J4 X4 M20 J2 X2 1200/5 CT 600/5 TAP

C-2086 1200/5 CT 600/5 TAP X4 M28 BLK 2G1 F12 X2 K2 M26 WHT 2G2 E12 GB 2 30 SR745R

49T HC CT

IN TRANS

TO BTC AMMETER C 2085

CN GRN M4,M10,M16 K9 K13 K17 X4

CC RED M1 K6 X1

CB WHT M7 K10 X1

CA BLK M13 K14 X3

4000/5 CT 4000/5 TAP

C B A

AM SW #16SBICA15 50BF/AR (3)DEV 51 IAC77A

TO NORMAL SUPPLY (UNIT #1) SEE P.O.S.#103

C3A 1,2,3 GRN CN RED CC WHT CB BLK CA

2000/5 11 120 21 220 31 320

UNIT#2,1A UNIT#2,1B DST2—5—250 2000A.AC.B. DEV.52—2

(3)C.T. 'S 2000—5A (3)THYRITES

C 2093 THIS SHEET

C 2094 THIS SHEET

0—2000A

(1)DEV. 51 N IAC77A

S.C.T.B.

2400/120V

1E 508 6.25A/250V 509 2A7-1 520 2A7-2 TB4-09 TB4-10 C322

2A7-1 2A7-2 C 322A THIS SHEET

REMOTE SYNC SEE 1AP—K2002B

CITY OF GRAND ISLAND UTILITIES DEPARTMENT

REVISIONS		
REVISED 3/24/93 E.J.M	DRAWN BY E. M.	SUBSTATION "D" RESERVE SUPPLY TRANSFORMER A.C. ELEMENTARY
REVISED 2/7/94 E.J.M	DATE 08/15/90	
2/18/94 AS PER CONSTRUCTION RECORDS	CHECKED BY R.D.B.	
REVISED 4/3/95 — NEW MYLAR	DATE 2/14/94	
	APPROVED BY G. P. G.	SHEET 1 OF 1
	DATE 2/15/94	SCALE NONE

DWG. NO PGS—104

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
2	01-17-03	CONFORMED TO CONSTR RECORDS	DKR		GAM	
1	01-31-96	CONFORMED TO CONSTR RECORDS				
0	07-27-95	ISSUED FOR CONSTRUCTION	TERM	AB	GAM	

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA

SIGNED GARY A. MAILEN

DATE 07-18-95 REG NO. E-7944

BLACK & VEATCH

ENGINEER TER DRAWN LAB

CHECKED MAS DATE 07-21-95

CITY OF GRAND ISLAND PLATTE GENERATING STATION

SUBSTATION "D" RESERVE SUPPLY TRANSFORMER A.C. ELEMENTARY

PROJECT 23114—PGS—104 DRAWING NUMBER REV 2

CODE AREA PGS—104

CITY OF GRAND ISLAND
UTILITIES DEPARTMENT

REVISIONS			DRAWN BY E.J.M.
2/15/82	T.L.G		DATE 2/1/94
1/17/90	E.J.M		CHECKED BY R.D.B.
1/26/94	E.J.M		DATE 2/4/94
2/8/94	E.J.M	AS PER CONSTRUCTION RECORDS	APPROVED BY G.P.G.
			DATE 2/7/94

SUBSTATION "D"
BUS POTENTIAL SYNC.
A.C. ELEMENTARY

SHEET 1 OF 1
SCALE NONE
DWG. NO. PGS-108

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
1	01-31-96	CONFORMED TO CONSTR RECORDS				
0	07-27-95	ISSUED FOR CONSTRUCTION	TER	ILE	GAM	

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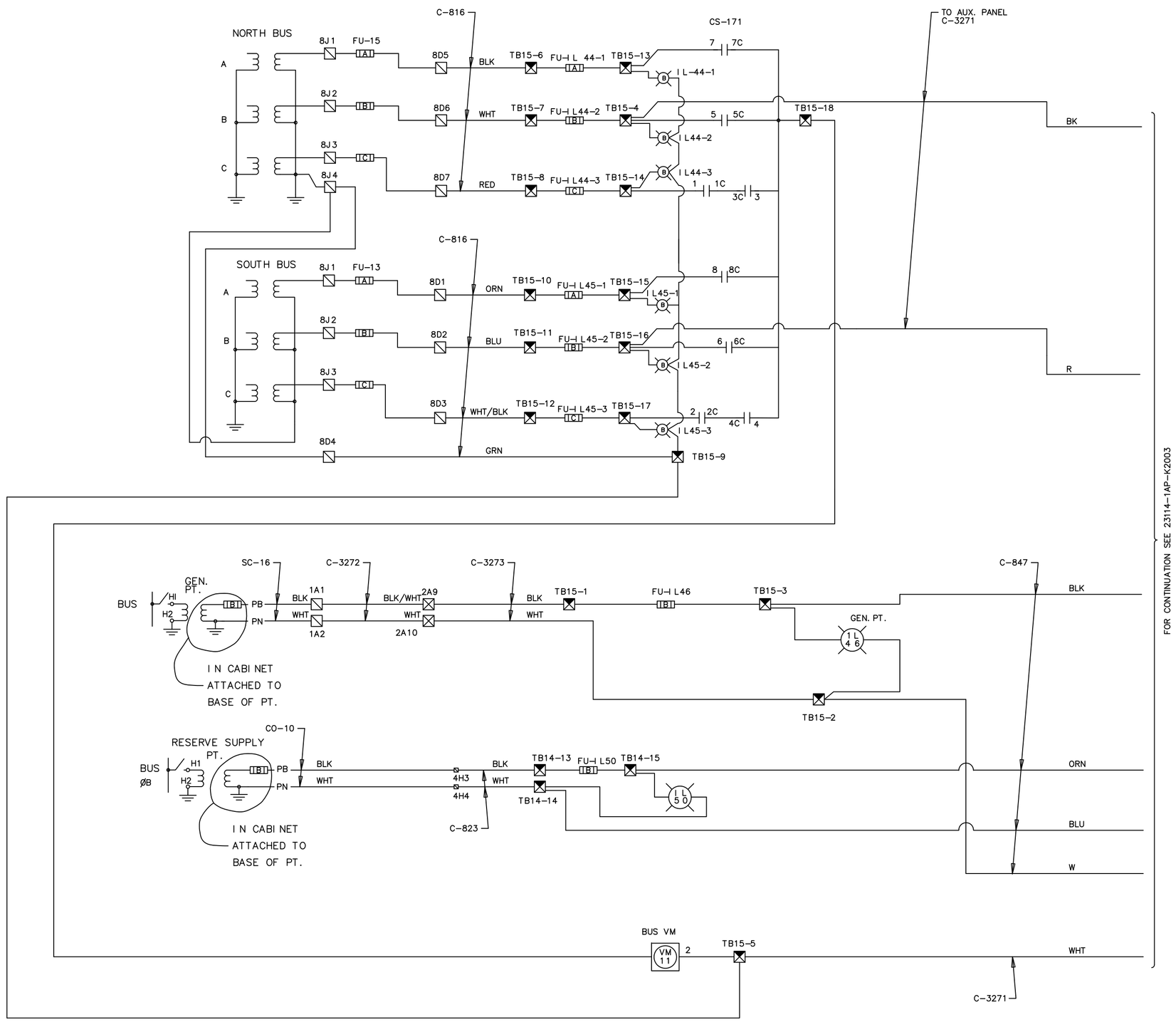
SIGNED GARY A. MAILEN
DATE 07-18-95 REG NO. E-7944

BLACK & VEATCH
ENGINEER TER DRAWN LAB
CHECKED ILE DATE 07-21-95

GRAND ISLAND
PLATTE GENERATING STATION
SUBSTATION "D" BUS POTENTIAL SYNC
A.C. ELEMENTARY

PROJECT 23114-PGS-108
DRAWING NUMBER
REV 1
CODE
AREA
PGS-108



LEGEND

- ▽ BUS DIFFERENTIAL JUNCTION BOX
- ▽ 13.8KV FEEDER PANEL
- □ BUS DIFF. & AUX. PANEL
- ⌀ TRANSFORMER PANEL
- ⌀ LINE PANEL
- ⊠ INTERNAL TERMINAL
- ○ CONNECTED WIRES
- ⊠ GEN. PANEL TERMINAL
- ⊠ AUX PANEL

CITY OF GRAND ISLAND
UTILITIES DEPARTMENT

REVISIONS	DRAWN BY E. J. M	P.G.S. STATION CONTROL ROOM SYNCHRONIZING SCHEME D31,D32,D41,D42	
3/23/93 E.J.M	DATE 12/28/89		
1-20-94 AS PER CONSTRUCTION RECORDS	CHECKED BY G. P. G.		
	DATE 12/29/89		
	APPROVED BY G. P. G.	SHEET 1 OF 1	DWG NO. PGS-108(A)
	DATE 12/29/89	SCALE: NONE	

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
1	01-31-96	CONFORMED TO CONSTR RECORDS				
0	07-27-95	ISSUED FOR CONSTRUCTION	TER	ILE	DAM	

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SIGNED GARY A MAILEN
DATE 07-18-95 REG NO. E-7944

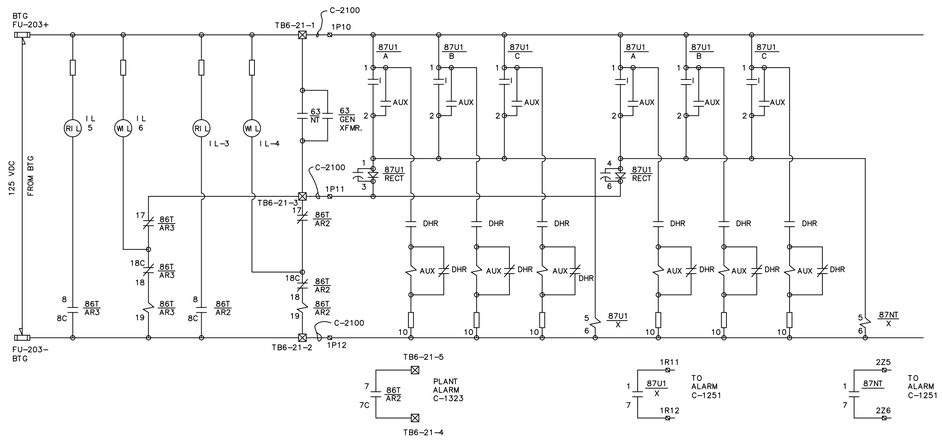
BLACK & VEATCH

ENGINEER	TER	DRAWN	LAB
CHECKED	ILE	DATE	07-21-95

CITY OF GRAND ISLAND
PLATTE GENERATING STATION

P.G.S. STATION CONTROL ROOM
SYNCHRONIZING SCHEME D31, D32, D41, D42

PROJECT	DRAWING NUMBER	REV
23114-PGS-108A		1
CODE	PGS-108A	
AREA		



LEGEND

- ▽ BUS DIFFERENTIAL JUNCTION BOX
- ▽ 13.8KV FEEDER PANEL
- □ BUS DIFF. & AUX. PANEL
- ⧄ TRANSFORMER PANEL
- ⧅ LINE PANEL
- ⊠ INTERNAL TERMINAL
- ○ CONNECTED WIRES
- ⊠ BTG PANEL TERMINAL

86T AR3

CONTACT	SHEET	FUNCTION
1 | 1C	50-410	TURBINE TRIP (ETD-TC)
2 | 2C	6-58	D31 BKR. FAILURE
3 | 3C	6-58	D32 BKR. FAILURE
4 | 4C	2550-54	TRIP BOILER (FSSS)
5 | 5C		SPARE
6 | 6C	EL-8	5KV NORMAL BKR 1B TRIP
7 | 7C		SPARE
8 | 8C	THIS	RED INDICATING LIGHT
9 | 9C		SPARE
10 | 10C		SPARE
11 | 11C		SPARE
12 | 12C	EL-8	5KV NORMAL BKR. 1B CLOSE CKT.
13 | 13C		SPARE
14 | 14C		SPARE
15 | 15C		SPARE
16 | 16C		SPARE

86T AR2

CONTACT	SHEET	FUNCTION
1 | 1C	EL-2	D31 TC1
2 | 2C	EL-2	D31 TC2
3 | 3C	EL-3	D32 TC1
4 | 4C	EL-3	D32 TC2
5 | 5C	EL-39	GEN. FIELD BKR. TRIP
6 | 6C	EL-6	5KV NORMAL BKR. 1A TRIP
7 | 7C	THIS	PLANT ALARM
8 | 8C	THIS	RED INDICATING LIGHT
9 | 9C	EL-2	D31 CLOSE CKT.
10 | 10C	EL-3	D32 CLOSE CKT.
11 | 11C	EL-39	SPARE
12 | 12C	EL-8	5KV NORMAL BKR. 1A CLOSE CKT.
13 | 13C		SPARE
14 | 14C		SPARE
15 | 15C		SPARE
16 | 16C		SPARE

86RT AR-1

CONTACT	SHEET	FUNCTION
1 | 1C	PGS-126	D41 TC1
2 | 2C	PGS-126	SPARE
3 | 3C	PGS-126	D42 TC1
4 | 4C	PGS-126	SPARE
5 | 5C	EL-7	5KV RESERVE 1A BKR. TRIP
6 | 6C	EL-9	5KV RESERVE 1B BKR. TRIP
7 | 7C	THIS	PLANT ALARM
8 | 8C	THIS	RED INDICATING LIGHT
9 | 9C	PGS-125	D41 BKR. FAILURE
10 | 10C	PGS-125	D42 BKR. FAILURE
11 | 11C	EL-7	5KV RESERVE 1A BKR. CLOSE CKT.
12 | 12C	EL-9	5KV RESERVE 1B BKR. CLOSE CKT.
13 | 13C	PGS-126	D41 BLK. CLOSE
14 | 14C	PGS-126	D42 BLK. CLOSE
15 | 15C		SPARE
16 | 16C		SPARE

CITY OF GRAND ISLAND
UTILITIES DEPARTMENT

REVISIONS		
1-13-94 AS PER CONSTRUCTION RECORDS	DRAWN BY E.J.M	P.G.S. AND SUBSTATION "D" TRANSFORNER DIFFERENTIAL 87U,87NT,87RT
	DATE 10/12/90	
	CHECKED BY T.W.B	
	DATE 10/12/90	
	APPROVED BY G.P.G	SHEET OF
	DATE 10/12/90	SCALE: -NONE-
		DWG NO. PGS-111

RELEASED FOR CONSTRUCTION

SIGNED DATE

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
0		ISSUED FOR CONSTRUCTION				

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA

SIGNED

DATE REG NO.

BLACK & VEATCH

ENGINEER DRAWN

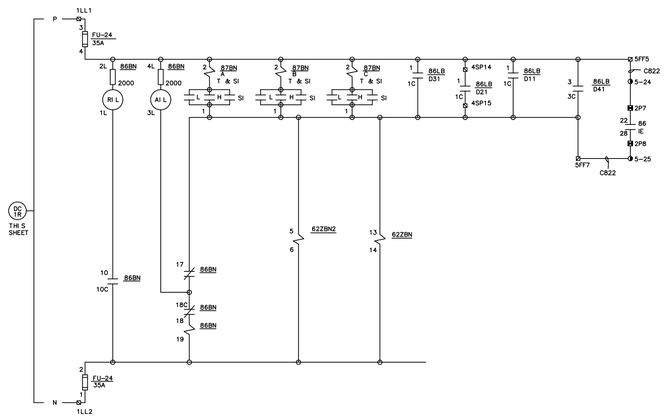
CHECKED DATE

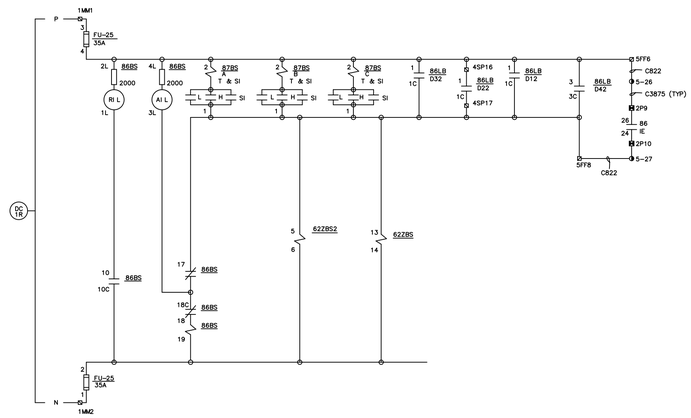
CITY OF GRAND ISLAND
PLATTE GENERATING STATION

PROJECT 23114-PGS-111 DRAWING NUMBER REV 0

CODE PGS-111

AREA





86BN

CONTACT	SHEET	FUNCTION
1 — 1C		TRIP D11 TC1
2 — 2C		TRIP D21 TC1
3 — 3C		TRIP D31 TC1
4 — 4C	PGS-109	87BN/A
5 — 5C	PGS-109	87BN/B
6 — 6C	PGS-109	87BN/C
7 — 7C	1AP-K2007	TRIP D-41
8 — 8C	PGS-112	TRIP 43NB
9 — 9C	PGS-112	TRIP 43N
10 — 10C	THIS	RI L
11 — 11C		BLK D11 CLOSE
12 — 12C		BLK D21 CLOSE
13 — 13C		BLK D31 CLOSE
1CC3 14 — 14C 1CC4	1AP-K2007	BLK D41 CLOSE
1CC5 15 — 15C 1CC6		SPARE
1CC7 16 — 16C 1CC8		SPARE

62ZBN

CONTACT	SHEET	FUNCTION
1 — 2		62LB D11
3 — 4		62LB D21
5 — 6		62LB D31
7 — 8		SPARE
9 — 10		D21 TC2
11 — 12		D31 TC2

62ZBN2

CONTACT	SHEET	FUNCTION
1 — 7	PGS-123	NORTH BUS TRIP INDICATION
2 — 8	PGS-123	62LB D41

86BS

CONTACT	SHEET	FUNCTION
1 — 1C		TRIP D12 TC1
2 — 2C		TRIP D22 TC1
3 — 3C		TRIP D32 TC1
4 — 4C	PGS-109	87BS/A
5 — 5C	PGS-109	87BS/B
6 — 6C	PGS-109	87BS/C
7 — 7C	1AP-K2008	TRIP D-42
8 — 8C	PGS-112	TRIP 43SB
9 — 9C	PGS-112	TRIP 43S
10 — 10C	THIS	RI L
11 — 11C		BLK D12 CLOSE
12 — 12C		BLK D22 CLOSE
13 — 13C		BLK D33 CLOSE
1BB3 14 — 14C 1BB4	1AP-K2008	BLK D42 CLOSE
1BB5 15 — 15C 1BB6		SPARE
1BB7 16 — 16C 1BB8		SPARE

62ZBS

CONTACT	SHEET	FUNCTION
1 — 2		62LB/D12
3 — 4		62LB/D21
5 — 6		62LB/D31
7 — 8		SPARE
9 — 10		D22 TC2
11 — 12		D32 TC2

62ZBS2

CONTACT	SHEET	FUNCTION
1 — 7	PGS-123	SOUTH BUS TRIP INDICATION
2 — 8	PGS-125	62LB D42

LEGEND

- ▽ BUS DIFFERENTIAL JUNCTION BOX
- ▽ 13.8KV FEEDER PANEL
- □ BUS DIFF. & AUX. PANEL
- ⊠ TRANSFORMER PANEL
- ⊠ LINE PANEL
- ⊠ INTERNAL TERMINAL
- ○ CONNECTED WIRES
- ■ GEN. PANEL TERMINAL
- ◑ JBX-121

REF
1AP-K2011

PGS-126 REPLACED BY 1AP-K2007,8

CITY OF GRAND ISLAND
UTILITIES DEPARTMENT

REVISIONS	DRAWN BY E.J.M
REVISED 3-30-93 E.J.M	DATE 10-1-90
1-20-94 AS PER CONSTRUCTION RECORDS	CHECKED BY T.W.B
	DATE 10-1-90
	APPROVED BY G.P.G
	DATE

SUBSTATION "D"
BUS DIFF.
NORTH & SOUTH RELAY
D.C. ELEMENTARY

SHEET 1 OF 1
SCALE: -NONE-
DWG NO. PGS-113

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM
1	01-31-96	CONFORMED TO CONSTR RECORDS				
0	07-27-95	ISSUED FOR CONSTRUCTION	TER	ILE	GAM	

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA
SIGNED GARY A. MAILEN
DATE 07-18-95 REG NO. E-7944

BLACK & VEATCH
ENGINEER TER DRAWN LAB
CHECKED ILE DATE 07-21-95

GRAND ISLAND
PLATTE GENERATING STATION
SUBSTATION "D" BUS DIFFERENTIAL
NORTH & SOUTH RELAY D.C. ELEMENTARY

PROJECT 23114-PGS-113
DRAWING NUMBER PGS-113
REV 1
CODE
AREA