



Solicitation Cover Page

1. **Solicitation #: 881**
2. **Solicitation Issue Date: 11/21/23**
3. **Brief Description of Requirement:**

Major Material: Cleveland 345

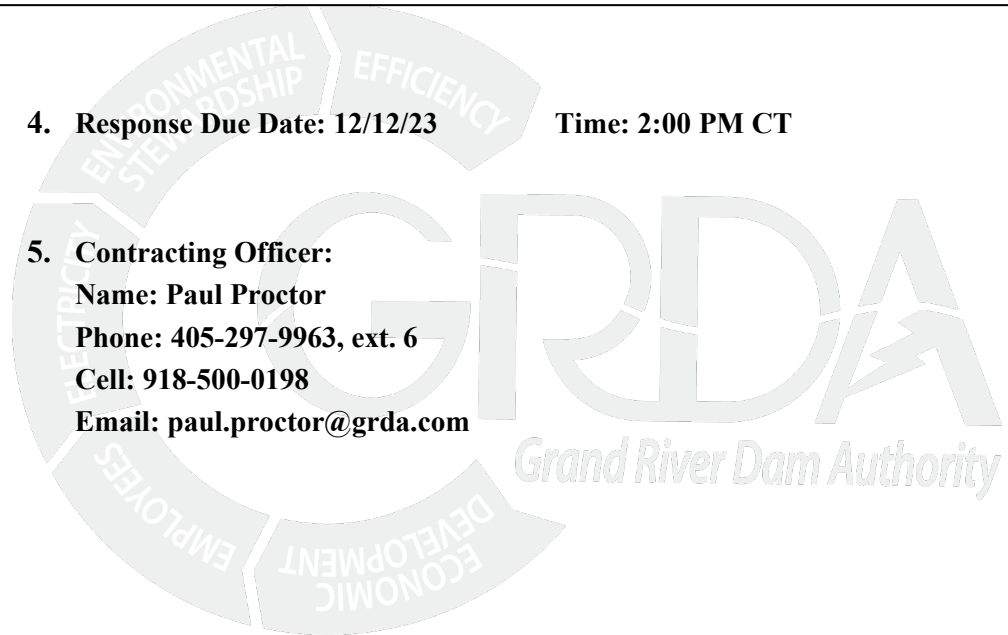
4. **Response Due Date: 12/12/23** **Time: 2:00 PM CT**

5. **Contracting Officer:**
Name: Paul Proctor
Phone: 405-297-9963, ext. 6
Cell: 918-500-0198
Email: paul.proctor@grda.com

We deliver affordable, reliable **ELECTRICITY**, with a focus on **EFFICIENCY** and a commitment to **ENVIRONMENTAL STEWARDSHIP**.

We are dedicated to **ECONOMIC DEVELOPMENT**, providing resources and supporting economic growth.

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This is a standard bid process. Please submit your bid via email to paul.proctor@grda.com by **December 12, 2023 at 2:00 PM CST.** All questions must be submitted in writing via email to paul.proctor@grda.com by **December 8, 2023 at 2:00 PM CST.**

A completed non-collusion certificate is required and must be submitted with your bid if pricing is over \$5,000.00.

This RFQ form must be signed by an authorized representative of your company in the space provided in the lower right-hand corner of the form.

EVALUATION

The award to the successful bidder will be based on the best value bid received that meets the specifications listed below and the requirements herein. This includes, but is not limited to, the following in no order of precedence: price, delivery, adherence to specifications and ability to meet the needs of the project.

This RFQ is for sole brand or no sub items and only the brand name, model, and part number(s) will be accepted for any items listed below that include the designation “sole brand” or “no sub.” Bidders must identify if they are an authorized distributor for this item and if the manufacturer’s warranty applies to this purchase. Bidders must also identify if the item being bid on is refurbished or new.

Any other items listed below that contain a brand name, model and part number are for comparable quality and identification purposes only and equivalent bids may be submitted.

GRDA will take into consideration past performance and delivery leady times in the evaluation. **The preferred delivery date for this order is 6/17/24.**

***** GRDA will accept partial bids for this project*****

Preference may be given to vendors that accept EPay as method of payment if analysis estimates that such appears to result in a lower cost to GRDA. Additional payment terms may also be taken into consideration in the analysis process.

******* Please read the General Bidding Instructions attached to this RFQ for further instructions. *******

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Relay Panel Specification

4/19/2023



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CLEVELAND 345 INTERCONNECT

Feeder 113 Line Panel & Communications Rack

Abstract

Bid and fabrication specification for relay panel and various other equipment required for an upgrade of an line protection in an existing control building, delivered and offloaded at the GRDA warehouse in Pryor, Oklahoma for the Grand River Dam Authority.



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1 SCOPE

1.1 GENERAL REQUIREMENTS

This specification presents a general description, design criteria and the minimum requirements for construction, performance, specific equipment and material properties and characteristics, and testing for fabrication of control panels and wiring, as well as components to for upgrade of an existing Substation Control Building, housing control/monitoring equipment.

The completed equipment shall be suitable for shipment to the customer's project site or warehouse as indicated below. The relay panels shall be designed and fabricated so the fieldwork at the installation site is minimized.

Construction of the relay panels shall be performed in the highest manner of workmanship using only new and unused, top-quality materials.

1.2 IDENTIFICATION OF PARTIES

1.2.1 "Owner":

Grand River Dam Authority
9933 E. 16th Street, Tulsa, Oklahoma 74128
Telephone: (918)-256-0721

Correspondence with *Owner* shall be directed to:

Attn: Paul Proctor, Procurement Specialist
paul.proctor@grda.com

and/or

Parker Rainbolt, Substation Engineer
Parker.rainbolt@grda.com

1.2.2 “Engineer”:

Electrical Consultants, Inc.
117 S. 7th St
Jenks, OK 74037
Telephone: (918) 296-7911

Correspondence with *Engineer* shall be directed to:
Attn: David Sherwin, P.E., David.sherwin@eciusa.com
Correspondence of a technical nature shall be directed to the *Engineer*.

and/or

Parker Rainbolt, Substation Engineer
Parker.rainbolt@grda.com

1.2.3 “Seller”:

The firm, company, or corporation whom the *Owner* selects for the purpose of supplying the modular control building described in these specifications.

1.3 CORRESPONDENCE PLAN

1.3.1 Pre-Award

All correspondence prior to award shall be directed to *Owner* as identified below.

Paul Proctor, Procurement Specialist
Grand River Dam Authority
201 NW 63rd St. Ste 305; Oklahoma City, OK 73116
Telephone: (406) 297-9963 ext. 6
paul.proctor@grda.com

1.3.2 Post- Award

All subsequent correspondence and drawing submittals after award shall be directed to *Owner* and *Engineer* as identified below.

1.3.3 Delivery

Control panel delivery shall be coordinated with *Owner* and *Engineer* as well as with a GRDA foreman or construction inspector to be identified prior to shipment.

1.4 BID REQUIREMENTS

1.4.1 Data to be Provided with Bid

Seller shall provide the following data and information to allow the *Owner* and *Engineer* to make an accurate evaluation of the *Seller's* product or equipment, as follows:

- a. Outline drawings (plan view and elevation), or illustrations showing proposed general arrangement and layout with approximate physical dimensions and weights for the relay panels. Outline drawings or other bid data shall also confirm *Seller's* intent to provide all requested enclosure accessories.

- b. Provide a letter of bid transmittal that clearly states any exceptions taken by the Seller to the specifications, Proposal Data Sheets, and/or Terms and Conditions at time of bid. The *Owner* and *Engineer* may not accept Seller's "Standard Conditions of Sale" or similar standard policies for purposes of stating exceptions to the specifications.
- c. A list of items requiring field assembly shall be included, along with an itemized list of any special tools required and if cost for *Seller* to furnish.
- d. Proposed warranty, including option for extended warranty, if available.

1.4.2 Or-Equal Clause and Substitutions

- a. Where specifications or drawings identify an item of material or equipment by manufacturer's name and model/type, "or equal", products of equal quality and performance by other manufacturers may be substituted provided that such substitution is of equal design and quality, and that this substitution is acceptable to the *Owner* and *Engineer*.
- b. Furnish descriptive information, data, and/or drawings to demonstrate to *Engineer* that material or equipment proposed is equal to that originally specified. *Seller* shall be responsible for proving the equality of any proposed substitutions.
- c. The *Engineer* shall have final decision regarding the acceptability of proposed substitutions of material or equipment.
- d. In determining acceptability of proposed substitutions, the *Engineer* and *Owner* will consider proposed equipment, material stocking and spare parts as well as any effects to project schedule and cost.
- e. Approval of substitutions by the *Engineer* or *Owner* shall not in any way, excuse the Seller of responsibility for providing workmanship, material, and equipment equal to that specified.

1.4.3 Interpretations:

Clarifications and interpretations during the project shall be requested from the *Engineer*. The *Engineer* will issue an opinion on all questions and provide any necessary written clarifications. The *Engineer's* interpretation shall be accepted as final.

1.5 DELIVERY

1.5.1 General

Bids shall include delivery, freight prepaid, to the location specified below in section 1.5.3.

Seller shall assume all responsibility for the safe delivery of equipment shipped DAP destination.

All required components shall be delivered by means of a single shipment, or as mutually agreed to by the *Owner* and the *Seller*. Shipping papers, crates, drawings, manuals, etc. shall bear the following job references:

Grand River Dam Authority
Cleveland 345 Interconnect
PO Number
Relay Panels
Purchase Order Number & Manufacturer's Order Number

Seller, or any of *Seller's* agents making direct shipment, shall transmit by First Class mail, on the same day shipment goes forward to *Owner*:

- Packing List – Two (2) copies
- Bill of Lading – Original and two (2) copies

Owner's Purchase Order Number shall be shown on all shipping papers and parcels.

Domestic shipping shall be by motor freight as completely assembled as possible insofar as is consistent with good shipping practice. Any components packaged separately shall be so secured that they cannot shift, tip, or drop during shipment. Suitable coverings shall be provided for protection during shipment of all units or components. Any required conveyance across waterways shall be by barge or ship as determined to be best means by the Seller. The equipment shall be carefully blocked and secured for shipment. If items must be disassembled for shipment, they shall be tagged or stenciled with proper identification. A complete packing list shall also accompany each shipment.

Prior to shipment, the Seller shall inform the Owner of the estimated time in shipment, routing, shipping company and PRO number, if shipped by common carrier. Shipments will not be received on weekends; nor are weekends included when figuring time for notification of delivery. Notification shall be given at the time the shipment leaves the plant; additionally, notification shall be given 48 hours prior to arrival at the destination. Notification shall be directed to the Owner as identified in Section 1.2.1 of these specifications.

1.5.2 Coordination

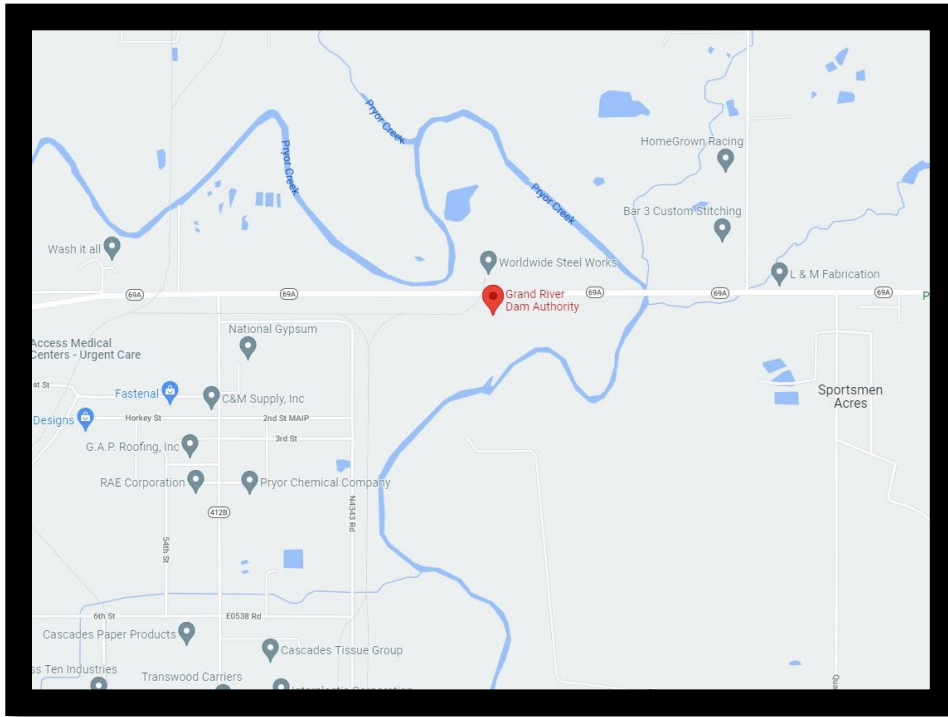
Delivery date shall be on or before that specified by the Seller in the Proposal. The control building and all required accessories shall be delivered by means of a single shipment. Seller is requested to provide an optional cost for all transportation, off-loading and placing on pad at jobsite. Where the building design includes shipping splits, Seller shall also provide an optional cost to supervise and direct assembly of control building at the project site.

Prior to shipment, the Seller shall inform the *Owner* and appointed GRDA Foreman or Construction Inspector of the estimated time in shipment, routing, shipping company and PRO number, if shipped by common carrier. Shipments will not be received on weekends; nor are weekends included when figuring time for notification of delivery. Notification shall be given at the time the shipment leaves the plant; additionally, notification shall be given 72 hours prior to arrival at the destination. Notification shall be directed to the Owner as identified in Section 1.2.1 of these specifications.

1.5.3 Location

The delivery address is:

GRDA Transmission Warehouse
Attn: Laurel Swift/Cleveland 345 Interconnect
635 Hwy 69A
Pryor, OK 74361



2 APPLICABLE STANDARDS

The design, material, manufacture, testing and performance of the Relay Panels shall meet the requirements of the applicable sections of the latest revisions of the standards listed below:

- ◆ ANSI American National Standards Institute
- ◆ AISC American Institute of Steel Construction
- ◆ ASTM American Society for Testing and Materials
- ◆ NEMA National Electrical Manufacturers Association
- ◆ AWS American Welding Institute
- ◆ IEEE Institute of Electrical and Electronics Engineers, Inc.
- ◆ NEC National Electric Code
- ◆ NFPA National Fire Protection Association
- ◆ SSPC Steel Structures Painting Council (Society for Protective Coatings)
- ◆ OSHA Occupational Safety and Health Administration
- ◆ AISI American Iron and Steel Institute
- ◆ ICEA Insulated Cable Engineers Association
- ◆ NESC National Electric Safety Code

3 RELAY EQUIPMENT

Terminal boards for current circuits and control shall be rated 30-amp, 150° C, 600 volt and shall be one piece molded phenolic with barriers and screw connections. Twelve-point terminal boards shall be GE Type EB-25 or equivalent. Shorting strip terminal boards used for termination of current circuits shall be four-point GE type EB-27, or equivalent.

Terminal boards for annunciation and supervisory shall be rated 24 Amp, 85° C, 600 volt and shall have end barriers and end anchors as required. DIN rail for mounting shall be included. Associate jumpers and marking system shall be utilized as recommended by manufacturer. Boards shall be Allen Bradley, Type 1492-HM2, or equal.

Spare terminal boards shall be provided on each panel to the extent of 10% used or a minimum of two spare twelve-point terminal boards, whichever is greater.

3.1 RELAY, CONTROL AND COMMUNICATION EQUIPMENT

Relay and Control Panels, as well as Communications Panels, indicated on the "Control Building Equipment Layout" will be furnished by *Seller*. *Seller* shall provide a design having adequate wire way provisions, and grounding provisions for relay panel and rack equipment. Panel elevations are provided for bidding purposes. The complete electrical schematics and wiring for the control building, as well as additional information for the cabling/installation of the termination cabinet, relay control panels and communications panels will be provided at a later date. Panels included in this bid are detailed in the attached panel list.

3.1.1 Panel Construction

1. The panel assembly shall be 90 inches high by 30 inches wide and 24 inches deep formed from 11-gauge sheet steel, U.S.S. gauge commercial grade, hot-rolled, pickled, and oiled steel. The relay and control panel shall be vertical type construction with top and bottom cable entry. Flat surfaces on the plan of any panel shall not deviate more than 1/8" from the true plane, provided with rack type drilling for equipment plates to be mounted allowing the flexibility for change after the panels are installed, with allowance for 48 standard 1 3/4" rack units and shall be manufactured in accordance to GRDA Drawings. The sides shall extend to the floor, thus providing a rigid structure.
2. The relay and control panel will be a self-contained unit with factory wiring complete to conveniently located terminal blocks for the field incoming leads. The equipment plates are designed in increments of typical rack units of 1-3/4" allowing for the easy insertion of rack mounted equipment. The combination of non-rack mountable components shall be mounted on removable steel mounting plates. All of this contributes to a pleasing overall switchboard appearance that is readily accessible and easily maintainable.
3. The panel shall be bolted to a 3" channel base (5.0 lbs./ft.) with 5/8" holes accessible for fastening to the floor. The channel shall extend under the front, both sides, and the open back. The panel shall be self-supporting. The sides and front must be permanently attached to this channel (welded is recommended).
4. The panel manufacturer shall make provisions for mounting auxiliary relays, diodes, and fuse blocks, etc., on the rear of the panels. Mounting of this equipment shall not hinder accessibility to the terminals of the front-mounted devices. All rear mounted subpanels (if required as indicated on drawings) shall be hinged in place to allow for future relocation, if required. Provisions shall be made to mount a hinged rear auxiliary equipment panel on the rear of the assembly, as required. When opened, the hinged rear panels allow free access to the back of the front panel components. The components that are mounted on the rear subpanel shall be placed on it so that when the subpanel is closed the components are inside the panel (that is not exposed to the area behind the panel).

5. Continuous ¼ inch by 1 inch cross-section bare copper horizontal ground bus shall be provided across the top or bottom (as listed on the drawings) in each relay and control panel. Panels located adjacent to each other shall be furnished with a similar copper ground bus section for interconnection of each panel's ground bus to form one continuous ground bus. Each panel's ground bus shall be furnished with holes tapped every 1" for 10-32 machine screws. The horizontal ground bus will be joined to two (2) vertical ground buses located one on each side of relay and control panel near the cable entrance area for termination of incoming cable ground wires. The vertical ground buses shall also be furnished with holes tapped every 1" for 10-32 machine screws. The entire panel ground bus system shall be interconnected and form one continuous ground bus system. The ground bus shall be equipped with a solder-less connector for # 2/0 AWG copper cable at each end for connection to the ground grid.
6. Where required for future equipment installation, cover plates for cutouts are to be furnished when so indicated on the drawings. Cover plates shall be furnished for all areas of the front of the panel where other devices are not located. They shall be painted the same color as the panel.
7. After fabrication and before devices or cover plates are installed, the panel and parts including channel base, brackets, and interior parts shall be primed and painted with a minimum of one coat of primer and a finish coat of ANSI No. 61 light gray enamel paint on the exterior and standard white enamel for the interior.
8. All relay and control panels shall be designed to accommodate the addition of future panels on either side or the panel may be removed from a line-up and a new panel inserted.
9. The relay and control panels shall be open back design with necessary framing, cross bracing, and stiffeners to form a rigid self supporting structure.
10. Provisions shall be made to support instrument cases that exceed 12" in depth with rear instrument case supports.
11. Vertical raceways shall be bolted to the right and left sides to the back of the panel front and will be suitable for either top or bottom cable entrances. Roof sheets and floor channels shall be bolted to the panel assembly.

3.1.2 Finish

1. All mill scale, oxides, and other coatings shall be removed prior to painting. Exposed surfaces shall be finished smooth, thoroughly cleaned, and filled as necessary to provide a smooth uniform base for painting. Surface preparation prior to paint shall be accomplished by acid washing all metallic parts to etch the surfaces for proper paint adhesion. The washed product must be air-dried, dried with compressed air, or passed through a dry-off oven prior to applying the finish paint.
2. All metallic surfaces subject to corrosion shall be protected by suitable coatings. Surfaces that will be inaccessible after assembly shall be protected for the life of the equipment.

3.1.3 Panel Wiring

1. Control wiring shall be securely supported and connected to terminal blocks and panel equipment.
2. Vertical (terminal block) Panduit shall be used for wire runs containing more than ten wires. The Panduit shall be mounted on Unistrut and securely fastened to the panels. Adhesives are not acceptable. Panduit covers are to be easily accessible and removable.
3. Wiring extending from Panduit wire troughs to the instruments shall be neatly formed and securely fastened with suitable black nylon wire ties. Bends in the wiring shall be carefully made to avoid damaging the insulation and conductor.
4. Switchboard control wire shall be stranded, tinned, copper, with 600-volt flame-proof insulation, NEC type SIS, or approved equal. Green type SIS or approved equal wire shall be used for all grounding conductors. Wire sizes shall be as follows:

• Current Transformer Circuits	#12 AWG, 65 strands
• AC & DC Auxiliary Power Circuits	#14 AWG, 41 strands
• Potential Circuits	#14 AWG, 41 strands
• Control Circuits	#14 AWG, 41 strands
• Annunciator Circuits	#18 AWG, 26 strands
• Transducer Output Circuits	#16 AWG, Shielded Pair
• Revenue Metering Circuits	#10 AWG, 105 strands
5. Control devices, protective relays and 12-point terminal blocks shall be terminated with crimp-type, non-insulated ring tongue terminals. All lugs shall be ring tongue non-insulated Burndy YAV style manufactured by Burndy or equivalent. The lugs shall be crimped with a ratchet type crimping tool as recommended by the lug manufacturer. When installing the lugs, care must be used in the removal of the conductor insulation so the wire will not be cut or nicked.
6. Wire termination shall be limited to two wires per screw on terminal blocks and relay terminals as indicated on wiring diagrams. All terminations shall be made with non-insulated ring lug terminals. Burndy YAV style is required unless written authorization is granted by *Engineer*.
7. Where through-the-panel mounted items are indicated as “future,” they are to be provided as cutouts and cover plates. In general, no wiring will be required to items indicated as future.
8. If wiring to future devices is required, it will be so indicated on the panel front-view, and shall be terminated on suitable “dummy” devices with terminal numbers as shown on the wiring diagram.
9. Temporary wiring installed at the factory for equipment testing shall be removed prior to shipment.
10. Each end of each wire shall be marked with circuit name and address of equipment and terminal of remote end. All wiring shall be labeled with Raychem wire labels.

11. Wiring and equipment shall not block space available for future equipment, nor access to wire ducts, terminal blocks, or equipment terminals.
12. All internal wiring shall be terminated with no more than two (2) conductors per terminal point, and on only one side of a terminal block, the other side shall remain open for field cabling connections.
13. All wiring between panels shall terminate on the external side of a terminal block. All wiring leaving the panel shall leave from a terminal block and not from any other devices within the panel.

3.1.4 Panel Equipment and Materials

1. The panel builder shall procure all relays, switches, meters, lamps, terminal blocks, fuse cutouts, transducers, etc., unless specifically noted on the panel front view and equipment list. No substitutions to the equipment listed on panel front-view drawings will be permitted without written authorization from GRDA.
2. All terminal blocks shall be rated 600 volts, 30 amps, and General Electric type EB25 or EB27, 12 point or AVO "Sliding-link" type M-25012 with white marking strip, or equal, as approved in writing by GRDA.
3. Terminal blocks shall be provided with white identification strips which shall be marked, in black, as indicated on the wiring diagrams. All wire numbers shall be legible and clearly visible. A minimum of 15 percent spare terminals shall be supplied, excluding current transformer terminal blocks where spare terminals are not required.
4. Terminal blocks for current transformer secondary circuits shall be of the short circuiting type and shall be GE EB-27.
5. Terminal Blocks shall be grouped as to service (i.e. CT leads, lighting, control, interconnecting wiring, etc.) and the grouped blocks shall be located in the same location in each panel. Each terminal shall be identified as noted on the wiring diagrams.
6. Devices not shown with specific dimensions on the front-view and equipment list drawing, such as rear-mounted items, are to be installed as close as possible to their relative location, as indicated on the panel wiring diagram.
7. All relays, including auxiliary relays, regardless of whether mounted on the front or the rear of the panel, shall be enclosed and have covers. Open-type relays without covers are not acceptable.
8. All relays, switches, terminal blocks, instruments, etc., shall have brass or tinned brass terminal screws or nuts installed in all terminals including the spare terminals.
9. All fuse blocks shall be barrier type Bakelite fuse blocks for use with cartridge type fuses, rated 250 volts, 30 amps, and shall be Bryant type M-3 or Bussmann Class H with screw terminals.
10. Relay software/firmware versions have been standardized within GRDA. The version number will be provided to the vendor after award.

3.1.5 Device and Wire Identification

Nameplates for front mounted devices shall be installed as shown on the front view with suitable adhesive. Nameplates for rear-mounted devices shall be applied below devices above eye level (approximately 5'4" above floor) and above devices below eye level. Nameplate size, letter size, material, and color shall be specified on the panel front view drawings. In addition, each device on the panel shall be permanently identified on the rear with the letter coordinated system used to locate equipment on the wiring diagram for the point-to-point wiring system. Such identification shall not be placed on removable covers.

All terminal block points shall be clearly and permanently labeled with the wire identifications shown on the drawings. Each individual wire shall be labeled at each end with wire number using Raychem shrinkable wire sleeves (or equal), using heat impregnated lettering.

3.1.6 Communication Panel

Not Needed

3.2 RELAY PANEL TESTING

GRDA shall have the right to inspect at the factory, at any time during the process of manufacture or assembly, all equipment covered by this specification, and shall be advised at least five working days prior to any schedule tests so that they can arrange to have their representative present during such tests.

All tests shall be made in accordance with latest approved applicable IEEE and ANSI standards. Vender shall furnish GRDA with three copies of the results of all tests specified and/or required.

Test procedures and results shall be subject to the approval of GRDA's Project Engineer. All test procedures and certified copies of test data and reports shall be submitted to GRDA prior to the preparation for shipment of the switchboard. The Manufacturer shall schedule the test far enough in advance of the shipping date to allow time to correct any errors or omissions discovered during testing.

The following tests shall be performed as a minimum:

- Complete visual inspection of all components and physical appearance of the structure for damage, looseness, paint, and wire bundles.
- Perform a visual inspection of wire terminations for proper insertion of the stripped wire into the lug, for proper crimp of the lug, for tightness of crimp, and for the connection of the lug to the device terminal.
- Check all components and identification labels against the Bill of Material and Nameplate List.
- Check device markings on the rear of the panel.
- Check all relays and other devices to ensure freedom of moving parts. Remove any shipping material that would prevent the operation of the device (i.e., time dials, moving contacts) during test.
- Perform a wiring continuity check per ANSI C37.21.5.3.2 utilizing the electrical schematics and perform a simulated operation and sequence test to functionally check all circuits for proper operation and correctness of wiring.
- Check relays and other devices to ensure that all internal voltage and current taps are at the proper settings.

During these tests, the following requirements apply:

- a) The circuit schematics shall be used as a basis for performing tests.
- b) Component instruction books shall be used, as required, to perform relay acceptance tests.
- c) Apply AC voltage and current of the proper phase and magnitude to the required circuit.
- d) Apply DC voltage of the proper magnitude to the required circuit.
- e) Allow equipment to be energized for a sufficient time for normal operating temperatures to be reached.
- f) Check all relays, meters, recorders, and transducers for proper operation and/or output to specified voltage and current ranges.
- g) Check off schematics and record readings (i.e., meter reading and transducer outputs) on the appropriate schematic.

The electrical test shall demonstrate freedom from unintentional ground and accuracy of the wiring of all switchboard-mounted devices. The test shall include point-to-point continuity tests and electrical insulation tests in accordance with applicable ANSI Standards (Note: Megger or other high voltage tests shall not be applied to any coaxial shielded cables or solid state components). The Manufacturer shall be responsible for proper protection of instruments and devices that may be damaged by high voltage tests. Tests and checks shall be made by the Manufacturer before shipment to ensure that all electrical equipment and wiring furnished and installed by the Manufacturer is in proper operating condition and that the wiring is in exact accordance with the wiring diagram, and that all wiring will function as intended. The Manufacturer's tests shall include a functional test of each panel. This test shall be carried out by providing dc power, ac current and potentials as required, and proving each specific circuit through the operation of the relays forming that circuit. Relay studs or terminal blocks shall not be shorted to simulate the operation of any relay unless that relay is located on panels or equipment not supplied by this Manufacturer. Circuit isolation, by removal of fuses, shall be verified against the schematic diagrams. Opening and closing of all relay contacts shall be verified. All wiring for instruments shipped separately or at a later date than the switchboard shall be completed and tested prior to shipment of the switchboard. The expense of any necessary reworking of the wiring to make it conform to the wiring diagrams shall be back-charged to the Manufacturer.

4 FACTORY ASSEMBLY AND TESTING

Control building shall be fully assembled for complete testing and inspection prior to shipping. *Seller* shall have QA procedures and be able to provide documentation to ensure that all electrical and mechanical systems are installed correctly and function properly before shipment. Mechanical inspections shall be performed on doors, locks, door stops, louvers, etc. for proper operation. Electrical inspections shall verify all AC and DC circuits and ground connections. Control wiring continuity will be verified. HVAC, lights, and vent fan will all have power applied and have proper operation verified before shipment.

Complete wiring and function tests will be made. *Seller* shall furnish all facilities necessary to perform such production tests and give prior notice to *Owner* before performing them. Verification of these tests shall be supplied as a part of the Instruction Book.

Field tests shall be made at the expense of *Owner*. If requested and at *Owner's* expense, *Seller* shall have qualified service personnel available to perform or assist with the field tests.

When unloading services is requested, *Seller* shall provide pricing for unloading of building and placing on foundation(s), as well as all required field assembly. Field installation and testing of *Owner's* equipment interconnection wiring will be performed by *Owner*.

5 FIELD INSTALLATION

5.1 UNLOADING AND LIFTING INSTRUCTIONS

Seller shall submit detailed written instructions and diagrams to show plan for lifting and setting. Information to include spreader requirements and lead lengths to provide vertical plumb and level lifting. Detailed written instructions and diagrams showing safe lifting procedures shall be sent to individual shown on the purchase order a minimum of four (4) weeks prior to shipment.

5.2 FIELD ASSEMBLY

Not Required

6 WARRANTY

- a. All parts and material shall be new and free from defects or imperfections. All workmanship shall meet or exceed accepted construction practices, resulting in a neat and professionally finished appearance.
- b. The *Seller* shall be responsible for correcting any defects in material, equipment, and workmanship discovered within a minimum of one year after erection is completed. All manufacturers' warranties for equipment shall be transferred in their entirety to the *Owner*.

7 ACCEPTANCE OF EQUIPMENT

- a. After delivery, the equipment will be inspected by GRDA for visible damage, missing items, and signs of poor workmanship. Equipment or materials that are not acceptable shall be repaired, corrected, or replaced by the Fabricator at no additional cost to GRDA before the steel is accepted.
- b. Acceptance does not occur until all equipment and documentation required by the specification and necessary to install the equipment is received by GRDA.
- c. Acceptance of the equipment by GRDA does not relieve the Fabricator of the responsibility for the adequacy of materials and proper operation of equipment.

8 TERMS OF PAYMENT AND CONDITIONS

- a. All proposals, bids, or quotations shall be FOB Substation Foundation.
- b. No partial payments shall be made for partial shipments.
- c. Conditions of the "Acceptance of Equipment" must be met before any payment will be made.

9 EVALUATION OF BIDS

Bids shall be evaluated based on the following:

- Price: original cost and life cost (the bid may include an option for different prices for different delivery dates).
- Delivery: as needed for the project
- Adherence to this specification
- Suitability: ability to meet the needs of the project

The bid must include enough technical data and information to allow the evaluator to understand what is being bid, and how this meets the needs of the project.

Any and/or all exceptions shall be specifically enumerated with reference to the item in the specification that they are taking exception to. If these are not specifically listed, it will be assumed that the bidder will meet the specification and will be held to it.

Appendix A: RELAY PANEL LIST

Seller shall furnish and install relay panels as indicated in the below list and attached drawings.

PNL NO.	DESCRIPTION	FRONT VIEW DWG
TERMINATION CABINETS (FOR REFERENCE)		
RELAY & CONTROL PANELS		
202	Feeder 113 Line Panel	S116PP202

Appendix B: CONTROL BUILDING DRAWING LIST (FOR REFERENCE)

DWG NO.	DESCRIPTION

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CLEVELAND 345 SUBSTATION

Specifications – Material Package #1

Technical Specifications

GRAND RIVER DAM AUTHORITY

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GENERAL SPECIFICATIONS

1.0 General

This section covers the general description, scope of the work, and supplementary requirements for equipment and materials included under these specifications.

The equipment and materials covered by these specifications will be incorporated in the GRDA's electric system.

The address for all shipments, unless specifically requested otherwise, will be GRDA Transmission Warehouse, 635 E Hwy 69A Pryor, OK 74362-1128. Please confirm shipping location prior to shipment.

1.1 Work Included Under These Specifications

The work under these specifications shall include furnishing the following structures and equipment:

- High Voltage Switches
- Steel Structures
- Bus Material

Equipment, materials, and accessories furnished shall be delivered to GRDA's warehouse where they will be received, unloaded, stored, and erected under separate specifications. Receiving, unloading, and storing shall not be construed as an acceptance of the work.

1.2 Work Not Included Under These Specifications

The following items of work will be furnished by GRDA unless otherwise stated in the PROPOSAL DOCUMENTS or the TECHNICAL SPECIFICATIONS.

- Unloading and field erection of all equipment
- Foundations
- Operating personnel for startup and tests

1.3 Submittal of Engineering Data

Drawings and other engineering data for the specified equipment and materials are essential to the design and subsequent construction of the entire project.

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The Packager will be required to submit drawings and engineering data in accordance with the schedule and requirements specified herein to assure compliance with the overall construction and operating schedule.

The Packager shall allow for a reasonable amount of time for mailing, processing, and GRDA's review of drawings and data in his Engineering Schedule and Procurement/Production/Shipping Schedule.

1.3.1 Drawings

Drawings shall be in sufficient detail to indicate the kind, size, arrangement, component weight, breakdown for shipment, and operation of component materials and devices; the external connections, anchorages, and supports required; the dimensions needed for installation and correlation with other materials and equipment; and the information specifically requested in the Schedule of Submittals.

Packager shall fully complete and certify drawings for compliance with the Purchase Order requirements. Drawings shall have title block entries that clearly indicate the drawing is certified.

Each submitted drawing shall be project unique and shall be clearly marked with the name of the project, unit designation, GRDA's Purchase Order title, GRDA's Purchase Order file number, project equipment or structure nomenclature, component identification numbers, and GRDA's name. Equipment, instrumentation, and other components requiring GRDA-assigned identification tag numbers shall be clearly identified on the drawings. If standard drawings are submitted, the applicable equipment and devices furnished for the project shall be clearly marked.

Transmittal letters shall identify which Schedule of Submittals item (by item number) is satisfied by each drawing or group of drawings. The transmittal letter shall include the manufacturer's drawing number, revision number, and title for each drawing attached. Each drawing title shall be unique and shall be descriptive of the specific drawing content. Transmittal letters for resubmitted drawings shall include the GRDA's drawing numbers.

Catalog pages are not acceptable, except as drawings for standard non-engineered products and when the catalog pages provide all dimensional data, all external termination data, and mounting data. The catalog page shall be submitted with a typed cover page clearly indicating the name of the project, unit designation, specification title, specification number, component identification numbers, model number, Packager's drawing number, and GRDA's name.

Drawings shall be submitted with all numerical values in English as the primary units. Drawings with metric values only will not be accepted.

1.3.2 Drawing Submittal

Packager shall use this form for all submittals.

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Drawings shall be submitted electronically in AutoCAD version 2018 or earlier. MicroStation format files are not acceptable. If Packager does not have the capability to provide AutoCAD version 2018 or earlier drawings, an alternative submittal format shall be used as mutually agreed between GRDA and Packager. Technical data shall be submitted in native file format (Microsoft Word or Excel, other). Approval drawings may be submitted in Adobe *.pdf format.

1.3.3 Drawing Processing

Packager's schedule shall allow a minimum of two (2) weeks for mailing, processing, and review of drawings and data by GRDA.

Unless this Purchase Order indicates that a drawing or engineering data submittal by Packager is to be for GRDA's information only, GRDA, upon receipt of submittals, shall review and return same to Packager, marked "Approved for Construction", "Approved as Corrected", or "Not-Approved, Correct and Resubmit". The timing of Packager's submittals and GRDA's review shall be in accordance with the Completion Dates for same as set forth in the Purchase Order. The submittal of any drawing or other submittal document by Packager to GRDA under this Purchase Order will be certification by Packager that the information set forth therein is accurate in all material respects.

1.3.4 Approved for Construction

Upon receipt of a submittal marked "Approved for Construction", Packager may proceed with its Work to the extent of and in accordance with the submittal. Packager shall not resubmit unless the drawing or document is revised, in which case it shall be resubmitted as a new document revision.

1.3.5 Approved as Corrected

Upon receipt of a submittal marked "Approved as Corrected" and if Packager concurs with GRDA's comments, Packager shall incorporate same and may proceed with its Work to the extent of and in accordance with the annotated submittal. Packager shall submit to GRDA within fourteen calendar days a revision to the original submittal, in which GRDA's comments have been incorporated. If Packager determines that it cannot incorporate GRDA's comments without prejudice to Packager's warranty or other obligations under this Purchase Order, Packager shall so advise GRDA in writing within seven calendar days of its receipt of GRDA's comments, stating the reasons therefore. Packager may proceed with its Work to the extent of and in accordance with the annotated submittal only upon GRDA and Packager resolving GRDA's comments.

1.3.6 Not-Approved, Correct and Resubmit

Upon receipt of a submittal marked "Not-Approved, Correct and Resubmit," Packager shall immediately take all necessary action to revise its submittal in accordance with GRDA's comments, the Specification, and the Drawings, and shall resubmit to GRDA for review the corrected original submittal, voiding previous information and adding new documents if required.

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In no event shall Packager proceed with the affected Work until its revised submittals have been returned to Packager marked "Approved for Construction" or "Approved as Corrected" by GRDA.

1.3.7 Resubmittals

If during or subsequent to the completion of the submittal process, Packager makes further changes to the equipment and materials shown on submittals that have been reviewed by GRDA, the changes shall be clearly marked on the submittal by Packager and the submittal process shall be repeated. If changes are made by Packager after delivery to the Jobsite, as-built drawings indicating the changes shall be prepared by Packager and submitted to GRDA for review. Any resubmittal of information shall clearly identify the revisions by footnote or by a form of back-circle, with revision block update, as appropriate.

1.3.8 GRDA's Review

GRDA's review of drawings and other submittals will cover only general conformity of the data to the Specifications and Drawings, external connections, interfaces with equipment and materials furnished under separate specifications, and dimensions that affect plant arrangements. GRDA's review does not include a thorough review of all dimensions, quantities, and details of the equipment, material, device, or item indicated or the accuracy of the information submitted. Review and comment by GRDA of Packager's Drawings or other submittals shall not relieve Packager of its sole responsibility to meet the Completion Dates requirement of this Purchase Order and to supply Goods that conform to the requirements of this Purchase Order.

1.3.9 File Returns to Packager.

Electronic files of drawings will be returned to Packager via e-mail.

1.4 Schedule

The time of completion of the work is a basic consideration of the contract. This shall include the completion of various activities in accordance with the milestone time periods and dates listed in addition to the timely delivery of the equipment and materials.

1.4.1 Activity Periods and Dates

The time periods and dates listed in the Schedule of Activities indicate the latest dates by which the listed activities shall be completed. Data, drawings, and lists for planning, engineering and documentation may be submitted earlier than the indicated dates at the Packager's option.

1.4.2 Schedule of Activities

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The Packager shall provide equipment, materials, engineering data, labor, and services in accordance with the following:

<u>Activity</u>	<u>Weeks After Receipt of Award</u>	
Contract Award Recommendation	December 18 th , 2023	
Board Meeting for Approval	January 10 th , 2024	
<u>Packager to deliver drawings to GRDA</u>	<u>Preliminary</u>	<u>Certified</u>
Equipment outlines, dimensions, and weights	3 weeks	6 weeks
Material List	6 weeks	10 weeks
AutoCAD files of all final certified drawings		4 weeks before shipment
Packager to deliver “proof copy” of instruction manuals to GRDA	17 weeks	
Packager to deliver five copies of accepted instruction manuals for each substation or facility as directed by the GRDA	20 weeks	
<u>Packager to deliver equipment to warehouse</u>		
161kV Switches	20 weeks ARO	
Substation Steel	20 weeks ARO	
Substation Bus Material	20 weeks ARO	

Preferred entirety of material to be delivered
6/17/24

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1.5 Shipment

The address for all shipments, unless specifically requested otherwise, will be the GRDA Transmission Warehouse at 635 E Hwy 69A, Pryor, OK 74362-1128, after it has passed the tests and has been inspected for compliance to the specification.

The Packager shall notify GRDA one week prior to shipment. Notification shall be to:

John Ladd, Senior Project Manager
Phone: 918-824-7528

Or

Steven Kroll, Sr. Manager, T&D Engineering
Phone: 918-610-9669

Or

Parker Rainbolt, Substation Engineer
Phone: 918-610-9789

1.6 Documentation

Packager will prepare engineering documents using AutoCAD® 2018 and Microsoft WORD. Electronic copies (two) of these documents will be made available on CD-ROM or e-mail.

Packager shall submit two copies of each of the approval drawings.

All correspondence and drawing submittals **after award** shall be sent to GRDA:

The address for all correspondence and drawing submittals is:

Parker Rainbolt, Substation Engineer
Grand River Dam Authority
9933 E. 16th Street
Tulsa, Oklahoma 74128
e-mail: parker.rainbolt@grda.com

John Ladd, Senior Project Manager
Grand River Dam Authority

GRAND RIVER DAM AUTHORITY

9933 E. 16th Street
Tulsa, Oklahoma 74128
Email: John.Ladd@grda.com

Steven Kroll, Sr. Manager, T&D Engineering
Grand River Dam Authority
9933 E. 16th Street
Tulsa, Oklahoma 74128
Email: steven.kroll@grda.com

All correspondence **prior to award** shall be sent to GRDA:

Paul Proctor, Procurement Specialist
201 NW 63rd St. Ste. 305
Oklahoma City, Oklahoma 73116
Email: paul.proctor@grda.com
Office number: (405) 213-0511, ext. 6

The Packager shall provide one (1) CD copy (in .pdf format) and one (1) paper copy of the instruction book. The book(s) shall be suitably bound in a 3 ring binder and furnished with an index. Catalog data sheets and renewal parts data need not be furnished and will not be accepted in lieu of the instruction book.

All drawings shall use GRDA title blocks and GRDA drawing numbers. These will be furnished upon award of the project.

All correspondence, documents, and shipments shall be labeled with the appropriate project name.

1.7 Approval

The Packager shall comply with all requirements of this specification. Any exceptions taken by the Packager shall be approved in writing by the Purchaser prior to fabrication.

All material, equipment, specifications, and drawings shall be approved by the Purchaser prior to shipment.

1.8 Warranty

All parts and material shall be new and free from defects or imperfections. All workmanship shall meet or exceed accepted construction practices, resulting in a neat and professionally finished appearance.

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The Packager shall be responsible for correcting any defects in material, equipment, and workmanship discovered within a minimum of one year after erection is completed. All Packagers' warranties for equipment shall be transferred in their entirety to the Purchaser.

1.9 Acceptance of Equipment

After delivery, the equipment will be inspected by GRDA for visible damage, missing items, and signs of poor workmanship. Equipment or materials that are not acceptable shall be repaired, corrected, or replaced by the Fabricator at no additional cost to GRDA before the steel is accepted.

Acceptance does not occur until all equipment and documentation required by the specification and necessary to install the equipment is received by GRDA.

Acceptance of the equipment by GRDA does not relieve the Fabricator of the responsibility for the adequacy of materials and proper operation of equipment.

1.10 Terms of Payment and Conditions

All proposals, bids, or quotations shall be FOB Destination.

No partial payments shall be made for partial shipments.

Conditions of the "Acceptance of Equipment" must be met before any payment will be made.

1.11 Evaluation of Bids

Bids shall be evaluated based on the following:

- Delivery: as needed for the project
- Price: original cost and life cost (the bid may include an option for different prices for different delivery dates).
- Suitability: ability to meet the needs of the project
- Previous performance

The bid must include enough technical data, **equipment cutsheets**, and information to allow the evaluator to understand what is being bid, and how this meets the needs of the project.

Any and/or all exceptions shall be specifically enumerated with reference to the item in the specification that they are taking exception to. If these are not specifically listed, it will be assumed that the bidder will meet the specification, and will be held to it.

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1.15 Drawing List

Cleveland 345 Substation Drawings

S116PS43	161kV 1-PH CVT Structure (GS-408)
S116PS44	161kV Switch Structure (GS-416)

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SUBSTATION STEEL – 138 kV

Technical Specifications

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GRAND RIVER DAM AUTHORITY

1 SCOPE

- 1.1 This specification states the minimum requirements for the design conditions, performance criteria, deflections, drawings and calculations, materials, fabrication, protective coatings, quality assurance and shipping requirements for low-profile tapered-tubular steel substation structures. Loading and configuration information shall supplement this specification. GRDA does not necessarily provide ‘shop ready’ drawings. It is the responsibility of the vendor to verify the design to the loading information and generate any needed shop drawings from the drawings provided.

2 DEFINITIONS

- 2.1 Purchaser – GRDA or GRDA’s authorized representative purchasing low-profile tapered-tubular steel substation structures.
- 2.2 Fabricator – Company supplying low-profile tapered-tubular steel substation structures.
- 2.3 NEMA Class A Structure – Class “A” structures are those intended for the support of high-voltage equipment (i.e., air switches, interrupter switches, and circuit interrupting devices).
- 2.4 NEMA Class B Structure – Class “B” structures are those on which the deflections within the limits do not affect the performance of supported equipment (i.e., dead end structures, bus supports and miscellaneous equipment supports).
- 2.5 Stress Critical Structure – A structure where the design is typically controlled by stress, is tension loaded or is subject to cyclic loading.
- 2.6 Deflection Critical Structure – A structure where the design is typically controlled by Deflection.
- 2.7 Joint Penetration – A measurement from the surface of the parent material to the weld root.
- 2.8 Inspection and Test Plan – A written procedure defining hold points, for inspecting and testing methods.
- 2.9 Component – An item or sub-assembly designated for field installation.
- 2.10 Equipment Cut-Sheets – Drawings of the equipment, which includes the equipment weight, center of gravity, wind area and mounting footprint.

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3 REFERENCES

3.1 Unless shown on the drawings, references may be made to the latest applicable revision of American National Standards Institute specifications as commonly used by domestic electric utilities. The following abbreviations shall be used:

Specification	Abbreviation	Reference
3.1.1	ASCE	American Society of Civil Engineers
3.1.1.1	ASCE 72	Design of Steel Transmission Pole Structures
3.1.2	NESC	National Electric Safety Code
3.1.3	NEMA	National Electrical Manufacturers Association
3.1.3.1	NEMA TT-1	Standard for Tapered Tubular Steel Structures
3.1.3.2	NEMA SG 6	Power Switching Equipment
3.1.4	AISC	Code of Standard Practice for Steel Buildings & Bridges
3.1.4.1	AISC ASD	Manual of Steel Construction – Allowable Stress Design
3.1.5	AWS	American Welding Society
3.1.5.1	AWS D1.1	Structural Welding Code - Steel
3.1.6	ACI	American Concrete Institute
3.1.6.1	ACI 318-83	Building Code Require. for Reinforced Concrete, 1983
3.1.7	IEEE	Institute of Electrical & Electronic Engineers
3.1.8	UBC	Uniform Building Code
3.1.9	ASNT	American Society of Nondestructive Testing
3.1.10	ASTM	American Society for Testing & Materials
3.1.11	ANSI	American National Standards Institute

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4 DESIGN CONDITIONS

- 4.1 As a minimum, the following conditions shall be used for structure design.
- 4.1.1 ICE + WIND: The structure is to be loaded with all equipment, structure dead weight and a coating of radial ice on both equipment and structure. The degree of loading due to ice shall be considered as light, medium, or heavy in accordance with the geographical areas shown in the loading map in ANSI C2, Part 2, Section 250. A wind pressure will be applied to the ice-coated equipment and to the structure. The wind speed will be 80 miles per hour.
- 4.1.2 EXTREME WIND: The structure is to be loaded with all equipment and structure dead weight without ice. A wind pressure shall be applied to the equipment and structure. The extreme wind speed will be 100 miles per hour.
- 4.1.3 SEISMIC: Where applicable, the structure is to be loaded with all equipment and structure dead weight without ice or wind. Seismic loading shall be applied to the equipment and structure as recommended by UBC.
- 4.1.4 SHORT CIRCUIT: A horizontal force, equal to 100% of the rated cantilever strength of the insulator, shall be applied perpendicular to the rigid bus at the top of the insulator. No horizontal or vertical forces from wind, ice or seismic shall be considered on bus or equipment. Short circuit reactions plus extreme wind shall be applied to the structure.
- 4.2 WIND PRESSURE
- 4.2.1 Calculate wind pressure as follows: $P = 0.00256 \times V^2 \times C_d$
Where: P = Wind pressure in pounds per square foot
V = Wind velocity in miles per hour
C_d = Drag coefficient:
1.0 for 12 or more sided surfaces
1.3 for 8 or 6 sided surfaces
1.6 for flat surfaces
- 4.2.2 Apply the wind in the most severe direction. Investigate a diagonal wind load for the design of anchor bolts. Wind shade factors are not allowed. Increase the wind profile of equipment by the radial ice thickness before calculating the wind load.
- 4.3 ICE LOAD
- 4.3.1 To account for the increase in equipment and structure weight due to ice, multiply the dead weight of the equipment and structure by these factors:
¼ in. – use 1.25 ½ in. – use 1.50
- 4.4 RIGID BUS
- 4.4.1 Unless otherwise shown on the drawings, round aluminum bus, schedule 40, of the following diameter and span length will be assumed:
- | | | | |
|------------------------|-----------------|---------------------|---------------------|
| Equipment Voltage (kV) | <u>≥/345 kV</u> | <u>230 to 161kV</u> | <u>138 to 15 kV</u> |
| Bus Diameter (in.) | 6 | 4 | 3 |
| Bus Span (ft.) | 50 | 40 | 30 |
- 4.5 WIRE LOAD
- 4.5.1 Unless shown on the drawings, terminate wires on structures at a horizontal line angle of +/-15 degrees and at a vertical angle of 0 degrees.

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- 4.5.2 Unless shown on the drawings, the initial wire tension for design shall be 15,000 lbs./wire.
- 4.5.3 Design for terminating wires on one side of the structure. Consider effects of wires terminated on both sides of the structure with transverse wind and maximum line angle.
- 4.6 EQUIPMENT
 - 4.6.1 The Purchaser shall provide the Fabricator with the equipment classification.
 - 4.6.2 Unless shown on the drawings or Equipment Cut-Sheets, the rated cantilever strength shall be taken as the value assigned for a “Standard Strength” insulator.
- 4.7 ANCHOR BOLTS
 - 4.7.1 Anchor bolts, furnished by the Fabricator, are considered as a part of the structure and shall be designed for leveling the structure.
 - 4.7.2 The distance from the top of the concrete to the bottom of the steel base plate shall be 1 inch plus one anchor bolt diameter.
 - 4.7.3 Grout shall not be applied between the top of concrete and the bottom of steel.
 - 4.7.4 Bolt holes for anchor bolts shall be oversized $\frac{1}{4}$ ” for anchor bolts less than and equal to $\frac{3}{4}$ ” diameter. Bolt holes for anchor bolts shall be oversized $\frac{5}{16}$ ” for anchor bolts greater than and equal to 1” diameter.
- 4.8 SLIP JOINTS
 - 4.8.1 Slip joints shall not be used.

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5 PERFORMANCE CRITERIA

5.1 STRESS

- 5.1.1 For design conditions 4.1.1, 4.1.2 and 4.1.3, structural member stress shall remain below the allowable stress as defined by AISC ASD.
- 5.1.2 For design condition 4.1.4, structural member stress shall not exceed the yield strength of the material or the allowable stress as defined by ASCE 72.
- 5.1.3 Width to Thickness ratios or diameter to thickness ratios for tubular steel members shall be in accordance with the requirements set forth in ASCE 72.
- 5.1.4 Computer aided analysis and design shall include secondary moments from non-Linear effects (p-delta) for structure stresses.
- 5.1.5 Anchor bolts shall be long enough to transfer the foundation loads into the footing through bond stress.
 - 5.1.5.1 For design conditions 4.1.1, 4.1.2 and 4.1.3, smooth bar anchor bolts shall be designed with a bond stress of 50% of the value calculated in NEMA TT-1, Appendix A. Deformed bar anchor bolts shall be designed for bond stress at 60% of the value calculated by the ACI 318-83 (see ASCE 72).
 - 5.1.5.2 For design condition 4.1.4, smooth bar anchor bolts shall be designed with a bond stress calculated by NEMA TT-1, Appendix A. Deformed bar anchor bolts shall be designed for bond stress calculated by the ACI 318-83 (See ASCE 72).
 - 5.1.5.3 Unless shown on the drawings, the compressive strength of concrete shall be 3000 psi.

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6 DEFLECTIONS

6.1 For design condition 4.1.1, member deflections shall be limited as follows:

6.1.1 EQUIPMENT STAND – NEMA Class A Structure

<u>Horizontal members—with respect to their supports:</u>	<u>Vertical members—at equip. mounting elev.:</u>
Horizontal deflection – Span/200	Horizontal deflection – Height/100
Vertical deflection – Span/200	Angular deflection - 0.01 Radian
Angular deflection – 0.005 Radian	

6.1.2 EQUIPMENT STAND – NEMA Class B Structure

<u>Horizontal members – with respect to their supports:</u>	<u>Vertical members-at equip. mounting elev.:</u>
Horizontal deflection – Span/100	Horizontal deflection – Height/50
Vertical deflection – Span/200	Angular deflection – 0.02 Radian
Angular deflection – 0.005 Radian	

6.1.3 LINE TERMINATION STRUCTURE – NEMA Class A Structure

<u>Horizontal members supporting equipment – with respect to their supports:</u>	<u>Vertical members – at equip. mounting elevations:</u>
Horizontal deflection – Span/200	Horizontal deflection – Height/100
Vertical deflection – Span/200	

6.1.4 Line termination Structures requiring both NEMA Class A and NEMA Class B limits shall meet Class A limits at Class A equipment elevation and Class B limits for elevations above those equipment mounting elevations.

6.1.5 LINE TERMINATION STRUCTURE & MASTS – NEMA Class B Structure

<u>Horizontal members-with respect to their supports:</u>	<u>Vertical members-with respect to the structure base:</u>
Horizontal deflection – Span/100	Horizontal deflection – Height/50
Vertical deflection – Span/200	

6.2 Do not apply deflection limits to design conditions 4.1.2, 4.1.3 or 4.1.4.

GRAND RIVER DAM AUTHORITY

7 DRAWINGS AND CALCULATIONS

- 7.1 GRDA Equipment Cut-Sheets showing mounting hole dimensions with the purchase order, if they are available at the time of order.
- CCVT dimensions available
 - Switch packaged with steel, to be determined during design.
- 7.2 Equipment mounting bolts are to be furnished by the GRDA. Anchor bolts and cages shall be furnished by the Steel Fabricator. Switch mounting bolts are to be provided by substation packager.
- 7.3 The Fabricator shall prepare detailed structure drawings for manufacturing and assembly purposes. These drawings shall include the following:
- 7.3.1 Anchor bolt details and patterns
 - 7.3.2 Assembly and erection details
 - 7.3.3 Structure members, connections and equipment mounting details.
- 7.4 The Fabricator shall mail (1) set of design calculations and foundation loads, in accordance with the Purchase Order, to the GRDA Project Engineer (mailing address is listed later in this specification).
- 7.5 Approval and final drawings will be sent in accordance with the Purchase Order, to the GRDA Project Engineer e-mail address, as electronic media.
- 7.5.1 If requested by the GRDA, paper or reproducible copies of approval and final drawings shall be transmitted to the GRDA Project Engineer's mailing address.
 - 7.5.2 The engineer assigned to review these drawings is:
Parker Rainbolt, Substation Engineer, email: parker.rainbolt@grda.com
 - 7.5.3 The drawings are to be submitted in .pdf format for approval, and AutoCad for final drawings. Check with the engineer for the proper version of cad drawing.
- 7.6 Fabrication shall not begin until all drawings are marked "APPROVED" or "APPROVED AS NOTED" and have been returned to the Fabricator.

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8 MATERIALS

8.1 All steel materials shall conform to ASTM specifications, as required by design, and shall be suitable for use in welded and galvanized structures. The steel is to be manufactured in the United States. The vendor is to supply certification that the steel is manufactured by a domestic source in the US.

8.2 Unless shown on the drawings, all steel material shall conform to one of these ASTM specifications:

8.2.1 STRUCTURES – A-36, A-53 Gr. B, A-500 Gr. B, A-572, A-588, A-595, A-633 Gr. E and A-871.

8.2.2 ANCHOR BOLTS – A-36 bar with A-563 Gr. A nuts A-615 Gr. 75 (NORSCO 75S) deformed bar with A-194 Gr. 2H nuts.

8.2.3 CONNECTION BOLTS – A-325 Type(s) I and III with Anco locknuts A-354 Gr. BC with Anco locknuts .

8.3 Steel that will receive a galvanized finish shall be limited in silicon content as follows:

8.3.1 $Si < 0.06\%$ or $0.15\% < Si < 0.40\%$

8.3.2 This limit is not available for A-500 Gr. B material.

8.4 Charpy “V” notch test qualifications shall be determined in accordance with ASTM A-370, A-673 and ASCE 72. These qualifications will not be required for A-36, A-53 Gr. B, A-500 Gr. B or A-595 materials.

8.5 Provide weld material that is compatible with the parent material, as defined by AWS D1.1. The weld material must meet the Charpy “V” notch test qualifications in this specification for the lowest toughness qualification of the plates being joined.

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9 FABRICATION

- 9.1 Fabrication tolerances shall conform to the AISC, AWS D1.1. Fabrication shall be performed in strict compliance with the shop detail drawings.
- 9.2 Stress Critical Structures shall meet the requirements of AWS D1.1, Section 9.
- 9.3 Deflection Critical Structures shall meet the requirements of AWS D1.1, Section 8.
- 9.4 Holes in plates may be punched, drilled or burned. All burned holes shall be done by machine-guided torch, no manual burning will be allowed.
- 9.5 Plates may be sheared or burned. All burning shall be done by machine-guided torch, no manual burning will be allowed.
- 9.6 The roughness of gas-cut surfaces shall not exceed the tolerance defined by AWS D1.1.
- 9.7 **SPECIAL WELD CONSIDERATIONS**
 - 9.7.1 **Shaft/Base plate or Shaft/Splice plate:**
 - 9.7.1.1 The weld shall be 100% joint penetration for all Stress Critical structures.
 - 9.7.1.2 The weld shall be as required by design stress for all Deflection-Critical structures.
 - 9.7.2 All circumferential welds between shaft sections shall be 100% joint penetration.
 - 9.7.3 **Longitudinal Welds – Other than at a slip joint:**
 - 9.7.3.1 The weld shall be 60% joint penetration in all materials $\frac{3}{4}$ " thick or less.
 - 9.7.3.2 The weld shall be 80% joint penetration in all materials thicker than $\frac{3}{4}$ ".
 - 9.7.3.3 The weld shall be 100% joint penetration for a minimum length of six inches from any base plate/splice weld or any circumferential weld requiring 100% joint penetration.
 - 9.7.4 **Longitudinal Welds – In Slip Joints:**
 - 9.7.4.1 The weld at the end of the female section shall be 100% joint penetration for a minimum length equal to the slip joint design length plus six inches.
 - 9.7.4.2 The weld at the end of the male section shall be 100% joint penetration for a minimum length of six inches.
 - 9.7.5 **Other Welds:**
 - 9.7.5.1 All other welds shall be fillet, bevel or a combination of both, as required by design.
- 9.8 Clearly mark components by stamping prior to galvanizing. Stamped marks shall be a minimum of $\frac{1}{2}$ " high letters.
- 9.9 Perform welding using welders, welding operators and tackers in accordance with AWS D1.1.

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10 PROTECTIVE COATINGS

- 10.1 All materials to be coated shall be completely fabricated prior to the coating process.
 - 10.1.1 Preparation and fabrication for galvanized structures shall be in accordance with ASTM A-385.
 - 10.1.2 Galvanize members in accordance with ASTM A-123.
 - 10.1.3 Safeguards against embrittlement shall be in accordance with ASTM A-143.
 - 10.1.4 A Magnetic Coating Thickness Gauge per ASTM E-376 shall measure the galvanized coating thickness.
 - 10.1.5 Repair damaged hot dip galvanized surfaces in accordance with A-780.
 - 10.1.6 Galvanize fasteners in accordance with ASTM A-153.
 - 10.1.7 Anchor bolts shall be galvanized the threaded length plus at least six inches.

11 QUALITY ASSURANCE

- 11.1 Inspection criteria shall be as defined in AISC, AWS D1.1.
- 11.2 Inspectors shall be qualified to ANSI recommended practice SNT-TC-1A.
- 11.3 All welding, welder certification and weld procedures shall meet the requirements of AWS D1.1
- 11.4 All material shall meet the certification requirements of AISC.
- 11.5 The Fabricator shall maintain a system, which allows verification of all materials meeting specified requirements.
- 11.6 Certified test reports shall be available, upon request by GRDA.
- 11.7 All cold-formed parts, in material over ½” thick, shall have the corners inspected along the entire length for cracks by a magnetic particle procedure. All discontinuities shall be repaired and re-inspected per the requirements of AWS D1.1.
- 11.8 All other formed parts shall be subjected to close visual inspection.
- 11.9 The Fabricator shall maintain an Inspection and Test Plan available for review by GRDA.
- 11.10 GRDA shall specify, in the Request for Quotation, any special inspection, load testing or pre-shipment assembly requirements.
- 11.11 The bidding company shall have on staff a licensed professional engineer to oversee the quality of completed product.

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12 SHIPPING REQUIREMENTS

- 12.1 All materials shall be shipped with distinct marks for positive identification at the site.
 - 12.1.1 The identification system will use component numbers as shown on the fabrication drawing submitted for approval.
 - 12.1.2 Every component shall be marked with the assembly number assigned to it in the fabrication drawings.
- 12.2 All materials shall be carefully loaded for protection during shipment.
 - 12.2.1 Small parts, lightweight components and fasteners shall be carefully boxed, crated or otherwise protected for shipment.
 - 12.2.2 Components requiring bundling shall be banded with rustproof strapping to prevent staining.
 - 12.2.3 All material shall be properly blocked on cars or trucks to prevent damage to the coating or distortion of members during transit.
 - 12.2.4 All material shall be arranged to allow safe unloading at the site.
- 12.3 Each shipment shall have a detailed packing list included, specific to that shipment. Each crate shall be labeled with the content of the crate.
- 12.4 All shipments shall be made to:

Grand River Dam Authority
GRDA Transmission Warehouse
635 E Hwy 69A
Pryor, OK 74362-1128

GRDA may provide an alternate shipping location with the Purchase Order. Please confirm shipping location before shipment.

- 12.5 GRDA shall be provided with a 48 hour (week day) pre-delivery notification by the fabricator. Notification shall be to:

Parker Rainbolt, Substation Engineer
Phone: 918-610-9789

Steven Kroll, P.E., Sr. Manager, T&D Engineering
Phone: 918-610-9669

John Ladd, P.E., Project Manager
Phone: 918-824-7528

13 GUARANTEE

- 13.1 The Fabricator shall furnish warranty for all materials and workmanship for a period of one (1) calendar year from the date of receipt against all defects due to faulty workmanship or materials and shall agree to replace same at no expense to GRDA.

GRAND RIVER DAM AUTHORITY

14 DOCUMENTATION

- 14.1 The Fabricator shall provide one (1) CD copy(or other digital media) and one (1) paper copy, per substation, of the final drawings.
- 14.2 All drawings will be generated using AutoCAD V. 2010 software by AutoDesk. Electronic copies of the final drawings in the DWG file format will be required.
- 14.3 Required documents shall consist of:

- Bill of Material
- Steel Detail Drawings
- Steel Assembly Drawings
- Calculations

- 14.4 The address for all correspondence and drawing submittals is:

Parker Rainbolt, Substation Engineer
Grand River Dam Authority
9933 E. 16th Street
Tulsa, OK 74145
Email: parker.rainbolt@grda.com

Steven Kroll, P.E., Sr. Manager, T&D Engineering
Grand River Dam Authority
9933 E. 16th Street
Tulsa, OK 74145
Email: steven.kroll@grda.com

John Ladd, Project Manager
Grand River Dam Authority
9933 E. 16th Street
Tulsa, OK 74145
e-mail: John.Ladd@grda.com

- 14.5 The address for shipment is:
 - Grand River Dam Authority
 - 9933 E. 16th Street
 - Tulsa, OK 74145
- 14.6 All correspondence, documents, and shipments shall be labeled with the appropriate project name.

15 ACCEPTANCE OF EQUIPMENT

- 15.1 After delivery, the steel will be inspected by GRDA for visible damage, missing items, and signs of poor workmanship. Equipment or materials that are not acceptable shall

GRAND RIVER DAM AUTHORITY

- be repaired, corrected, or replaced by the Fabricator at no additional cost to GRDA before the steel is accepted.
- 15.2 Acceptance does not occur until all equipment and documentation required by the specification and necessary to install the equipment is received by GRDA.
 - 15.3 Acceptance of the equipment by GRDA does not relieve the Fabricator of the responsibility for the adequacy of materials and proper operation of equipment.

TERMS OF PAYMENT AND CONDITIONS

- 16.1 All proposals, bids, or quotations shall be FOB Destination.
- 16.2 No partial payments shall be made for partial shipments.
- 16.3 Conditions of the “Acceptance of Equipment” must be met before any payment will be made.

EVALUATION OF BIDS

- 17.1 Bids shall be evaluated based on the following:
 - Price: original cost and life cost (the bid may include an option for different prices for different delivery dates).
 - Delivery: as needed for the project
 - Suitability: ability to meet the needs of the project

The bid must include enough technical data and information to allow the evaluator to understand what is being bid, and how this meets the needs of the project.

Any and/or all exceptions shall be specifically enumerated with reference to the item in the specification that they are taking exception to. If these are not specifically listed, it will be assumed that the bidder will meet the specification, and will be held to it.

GRAND RIVER DAM AUTHORITY

Group Operated Switches

Technical Specifications

GRAND RIVER DAM AUTHORITY

DATA SHEET

This sheet is to be filled out for each type of switch.

QUANTITY of SWITCHES for this DATA SHEET: 2

Substation Name: Cleveland 345

VOLTAGE (L-L): **161** kV
BIL: 150 kV
AMPACITY (Continuous): **2000** A
AMPACITY (Momentary): STD
TYPE OF MECHNISM: **Double End Break**

MOUNTING: **Vertical**

PHASE SPACING: 9 Feet
SWITCH STAND: See Steel DWGS

OPERATOR: **Swing Handle (2)**

Direction of Rotation: **CCW**

SPECIAL FEATURES: N/A

Switch Tag(s):
Swing Handle Switches: 114, 115

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GENERAL REQUIREMENTS

I. PROPOSAL

- A. The Vendor/Manufacturer shall provide a bid proposal for the listed switches (on the Data Sheet) and shall comply with the following specifications. The vendor/Manufacturer shall call out specifically and label as such, any exceptions to these specifications in his proposal.
- B. The Vendor/Manufacturer's bid shall be on a lump sum price basis for which he agrees to furnish the disconnect switches covered in the specification. ***Without limitations, it is to be understood that the prices bid are to be firm and not subject to adjustment due to changes in the costs of material, labor, or any other factors except for those specifically authorized in these specifications.***
- C. The proposal shall state the time in weeks after receipt of the purchase order, when the approval drawings specified will be submitted to the Company. At no time shall this exceed a period of six (6) weeks.
- D. The proposal shall state a firm shipping date.
- E. Proposal shall state the emergency overload ratings for four (4), eight (8), and twenty-four (24) hours without loss of switch life.
- F. With the bid document, Bidder shall state the width and thickness of the silver plating on the switch contacts (female) and on the switch arm contact (male).
- G. ***With the bid documents, the Bidders shall furnish any drawings, pictures, or other descriptive data needed to explain fully the type of equipment proposed.*** These drawings shall be in sufficient detail to indicate the kind, size, arrangement, weights, breakdown for shipment, and operation of component materials and devices; the external connections, anchorages, and supports required; the dimensions needed for installation, and correlation with other materials and equipment.

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I. GENERAL

- A. This specification covers the furnishing of the switches listed on the Data Sheet. The switches shall be complete with insulators, operating arms and mechanism, mounting brackets, hardware, and documentation.
- B. As used herein "switch" means a disconnect switch including operating mechanism whether manual or motor operated with all operating piping and interphase rods, shop and field erection nuts, bolts, and fasteners as well as station post insulators.
- C. The disconnect switches and their appurtenances shall conform to this specification and shall conform to the requirements for the latest published IEEE Standard for air switches and bus supports and the NEMA Standard for power switching equipment.

II. SPECIFICATIONS

A. Disconnect Switches

- 1. Disconnect switches shall be of the 3-pole group-operated type, for either vertical or horizontal mounting with ANSI 70 light gray station post insulators.
- 2. Mechanical strength of switch and insulators shall be coordinated with all forces to which they may be subjected during normal use and shall meet the latest applicable NEMA and USA Standards. The switches shall be designed such that no appreciable interphase forces will be transmitted to the switch support structure during switch operation. Switches shall either open or close satisfactorily under a deposit of hard ice 3/4 inch in thickness. Switch-blades shall be counter balanced to prevent them from falling closed from any open position.
- 3. All electrical contacts shall be silver to silver. The Vendor/manufacturer shall state the width and thickness of the silver plating on the switch contacts (female) and on the switch arm contact (male) with the bid document.
- 4. Stub-type arcing horns shall be provided to minimize arcing of main switch contacts.
- 5. Terminal pads of switches shall be suitable for use with aluminum connections, and the drill pattern shall comply with NEMA pad dimensions. The typical drill pattern should allow the use of four 1/2-inch diameter bolts

GRAND RIVER DAM AUTHORITY

on 1 ¾ inch centers, and if different, shall be stated in the proposal. Terminals will be furnished by others.

6. If the switch is to operate at a voltage of or greater than 199 kV line to ground, 345 kV phase to phase, then adequate corona suppression shall be engineered into the switch such that detectable corona is not present at operating voltage.
7. If disconnect switches are specified for manual operation, they shall be designed with the provision for future replacement of the manual operating mechanism with a motor operated mechanism.
8. All bearings shall be sealed-type, non-rusting ball or roller.
9. Current path(s) through the switch shall not go through the bearings, springs, or hardware.

B. Operating Mechanism

1. Switches shall be furnished with an operating mechanism complete with vertical operating pipes, interphase rods, couplings, guide bearings, flexible braid grounding strap, and offsets as required for operation from the switch stand to provide group operations of all three blades from one operating mechanism. An indicator showing the status of the open and closed positions of the switch shall be provided at each operating mechanism. Each mechanism shall have provisions for padlocking in either position.
2. Manually operated switches.
 - a. The switch handle or gear box is to be designed for mounting approximately 2'-6" above the switch structure foundation and shall be readily operated by one man.
3. Motor operated switches. (*Not Required*)
 - a. Motor shall be for DC operation. The supply motor current information shall be provided with the bid. The motor and control voltage shall be 125VDC, unless listed otherwise on the Data Sheet. Operating time of motor operator is to be approximately 10 seconds or less. Motor operated mechanism cabinet shall be weatherproof. A cabinet heater shall be furnished with thermostat to operate on 120 or 240 VAC.
 - b. An auxiliary switch shall be furnished with at least 8 individually and fully adjustable contacts, which are to include four "a" and four "b" contacts.

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- c. Mechanism shall have capability of manual operation with handle to be furnished. Motor operation shall be electrically disconnected during manual hand cranking of switch.
- d. Motor operator mechanism shall have capability of being manually tested at the mechanism cabinet. Remote control of motor operator shall be inhibited during manual testing of motor operator.
- e. The requirements of the latest revision of ANSI C37.32-2002 for power operated mechanisms shall apply.
- f. If switches are to be motor operated, the centerline of the motor mechanism cabinet shall be approximately 2'-6" above the switch structure foundation.

C. GROUNDING

The switch shall be supplied with an 18" long ground strap and the necessary hardware to attach the strap to the operating pipe and the switch stand steel. The strap shall have the same ampacity (or greater) than a 4/0 copper cable.

D. EQUIPMENT NAMEPLATE

Each switch, motor operator, and operating pipe will have nameplate identifying the following information:

- A. Manufacturer.
- B. Rating in amperes.
- C. Voltage in kV for switches; operating voltage for motor operator.
- D. Instruction book number.
- E. Catalog number.
- F. Year manufactured.

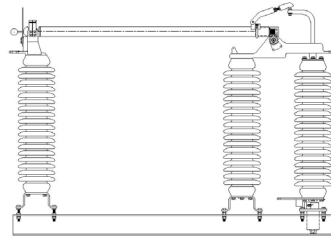
E. DIMENSIONS

The switch shall meet the dimensions as shown on the following table for the applicable voltage. That dimension shall be the distance measured from the top of the terminal pads ("paddle") to the bottom of the switch base as shown for the following basic configurations.

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Typical



Typical

KV	Dimension "A" (inches)	Dimension "B" (inches)	Dimension Double End
15	25	25	25
69	44	44	44
115	64	64	64
138	72	72	72
161	80	80	80
230	102	102	102
345	130	130	130

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III. PREPARATION FOR SHIPMENT AND SHIPMENT

- A. All disconnect switches shall be carefully prepared for shipment including packaging, tagging, and boxing of small parts in substantial containers. Particular care shall be used in placing suitable separators between heavy pieces and extra long pieces, and also general use of non-abrading dunnage materials in such a manner as to prevent damage to porcelain insulators and zinc coatings in transit.
- B. Any particular shipment shall include complete switches with no extra pieces or missing pieces.
- C. Proposal shall be based on F.O.B. warehouse not F.O.B. shipping point transportation allowed.
- D. Notify GRDA Project Manager two business days before delivery as to exact time of arrival to arrange for receiver and unloader to be present. Notify: John Ladd

**GRAND RIVER DAM AUTHORITY
Engineering and Technology Center
9933 E. 16th Street
Tulsa, OK 74145
Telephone (918) 610-9888**

IV. CORRESPONDENCE

All technical correspondence, transmittal letters, technical information, approval drawings, final reproducible drawings, prints, and instruction books should be mailed to:

**GRAND RIVER DAM AUTHORITY
9933 E. 16th Street
Tulsa, OK 74145
ATTN: Parker Rainbolt**

V. DOCUMENTS/DRAWINGS

- A. The Vendor/manufacturer shall furnish three (3) copies of outline drawings and detail and assembly drawings for approval. Each drawing submitted shall be clearly marked with the name of the project, GRDA's name, and GRDA's purchase order number. When catalog pages are submitted, the applicable items shall be indicated. These approval drawings shall be submitted as soon as possible but no later than six weeks after award of purchase.

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- B. A drawing index listing all drawings, instruction manuals, complete parts list with appropriate identifying part numbers, and switch and motor operator adjustment instructions to be submitted for the equipment furnished under these specifications, shall be included with the initial submittal of approval drawings.
- C. In addition to the above drawings, the Vendor/manufacturer shall furnish reproducible copies of all drawings after any corrections made for approval as follows:
- One (1) copy of drawing index
 - One (1) copy of each final drawing
 - One (1) copy of parts list
1. AutoCAD Release 2018 drawings by electronic submittal are preferred by Grand River Dam Authority. The Vendor/manufacturer may provide these drawings in AutoCAD Release 2018 in lieu of hardcopy reproducible drawings as described below.
 2. If AutoCAD drawings are not provided, the manufacturer shall provide reproducible drawings. These reproducible drawings shall be of a right reading translucent for a minimum 0.003 thickness Mylar base, wash-off type, photographic or equal, with sufficient tooth to take pencil or ink line. The reproducible shall not exceed a maximum of 24" X 36".
 3. The drawings are to be mailed to GRDA as soon as possible, and in any event, no later than six (6) weeks prior to date of shipment of equipment covered by these specifications.
 4. The final drawing will show information described under approval drawings.
- D. If complete bills of material are not included on above drawings, then six (6) separate copies, fully describing equipment shall be supplied as soon as possible after drawing approval.
- E. Bill of material shall include a detailed list of all parts, containing part number, description of part, and identification number. The identification number will be shown on drawings such that location of each part is evident. Exploded type drawing would be desirable to show this information.
- F. Six (6) copies of all other drawings and data describing the equipment furnished shall be sent to the Company prior to shipment of the equipment.

VI INSTRUCTION MANUALS

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- A. The seller shall furnish six (6) complete and final copies of instruction manuals for each purchase order, and/or substation, and/or type of switch no later than thirty (30) days prior to shipment of the equipment.
- B. The instruction manuals shall cover complete installation including any special factory or field adjustment instructions, operating and maintenance instructions, drawings and parts lists for each item of equipment furnished.
- C. The instruction manuals shall be bound in the manufacturer's standard heavy duty binders, suitable for rough usage. The front cover shall be assembled so that GRDA's name, location of equipment, name of equipment, and basic capacity rating of equipment can be read.
- D. Where applicable, a list of recommended spare parts with the price of each item and a schedule of required lubricants, as recommended for each item, shall be included in the instruction manual.
- E. The instruction manuals shall show all nameplate information and shop order numbers of each item of equipment.

VII WARRANTY

Any equipment specified herein or part thereof that shall develop defects not disclosed prior to acceptance by GRDA within one year after energization or eighteen months after delivery, whichever occurs first, shall be promptly replaced by the Vendor/manufacturer free of charge to GRDA.

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Bus Material

Technical Specifications

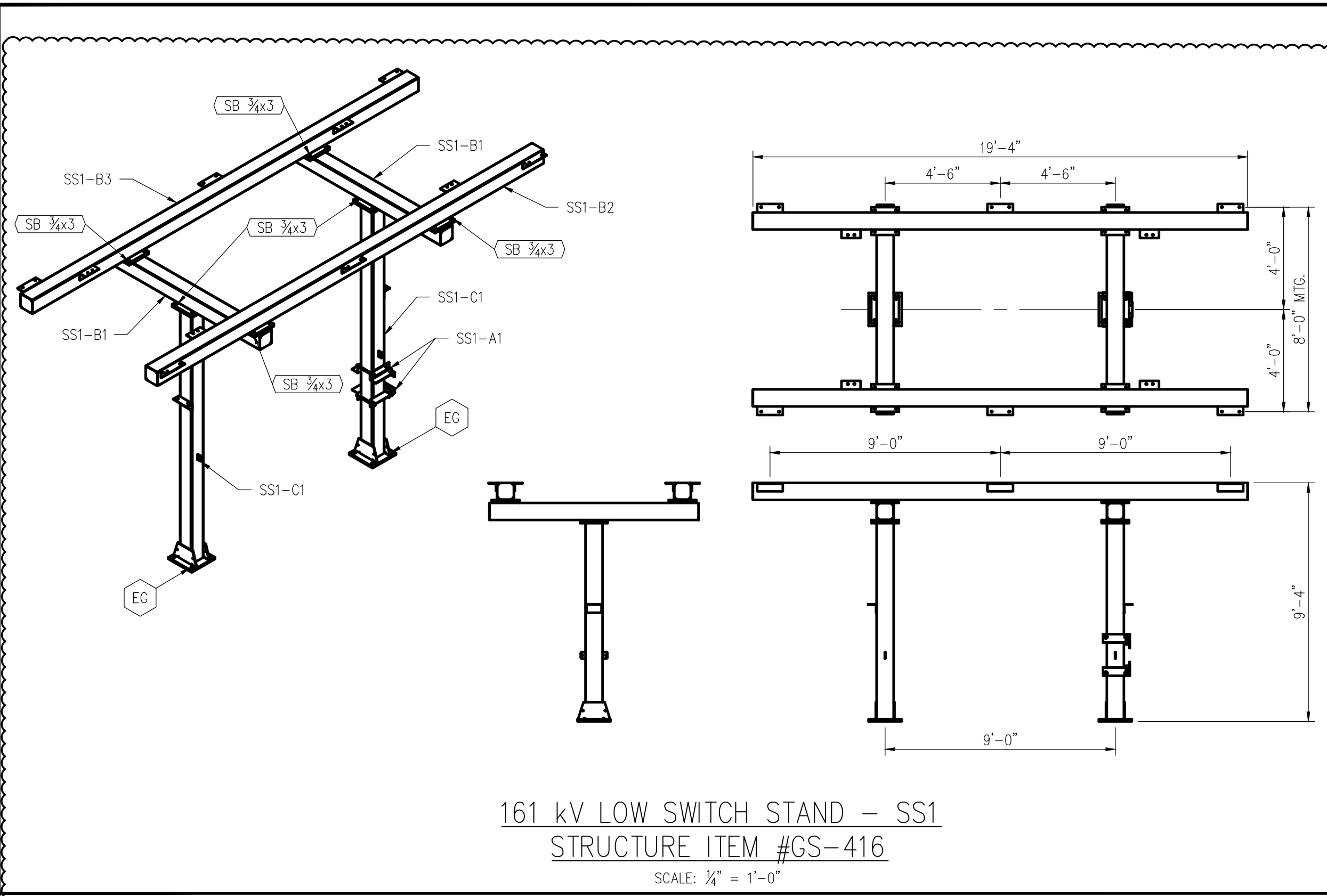
GRAND RIVER DAM AUTHORITY

1. Conductors

All electrical high voltage (distribution voltage and above) rigid bus used in new construction in the GRDA System is to be aluminum. 6063-T6 alloy schedule 40 tubular aluminum bus tubing is to be used. Also accepted will be rectangular bus bar. Aluminum angle and web are not included in GRDA Standards.

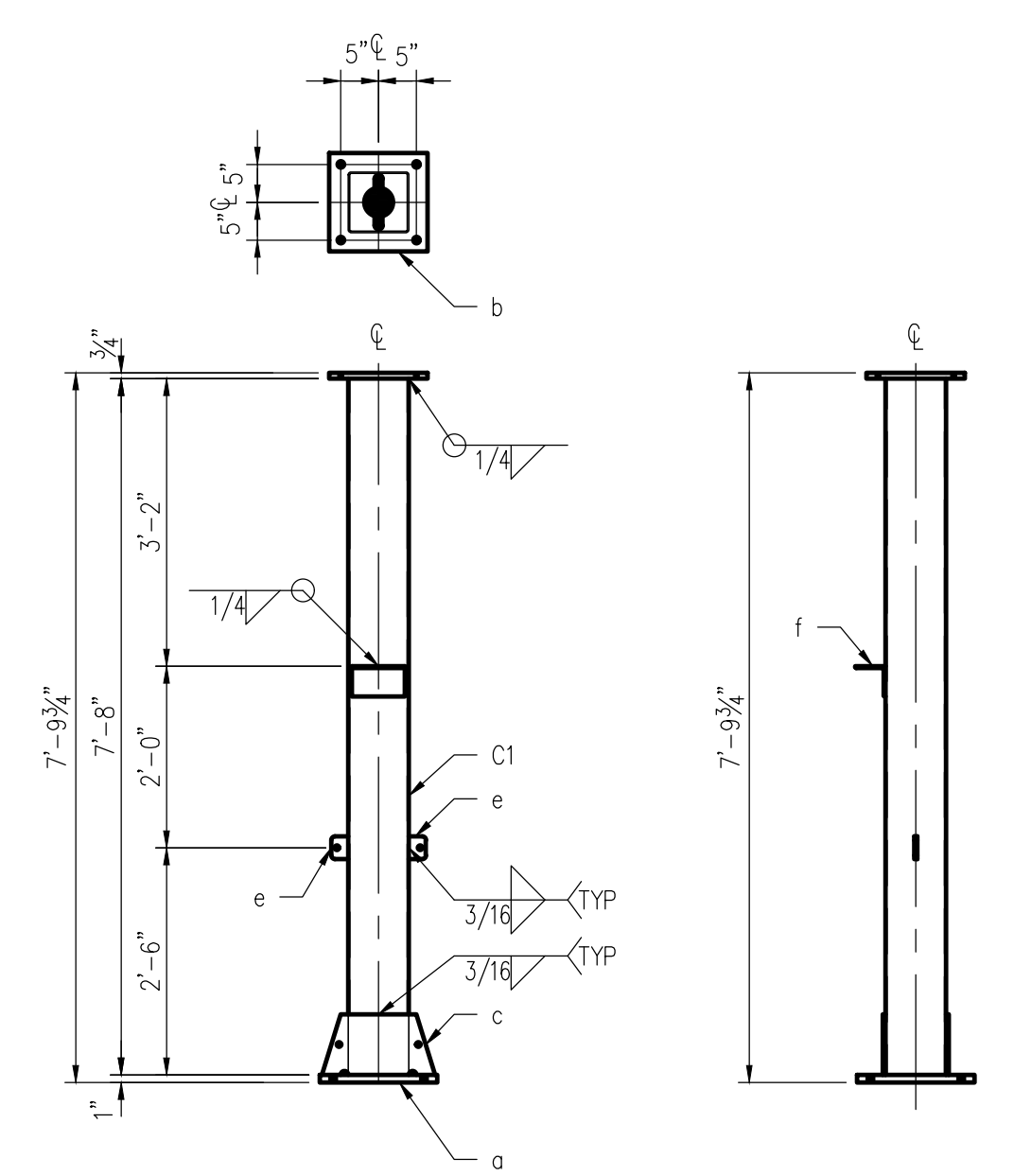
The 6063-T6 alloy is important to GRDA Standards. Different alloys are not as strong, and stresses would be unacceptable for long bus runs.

BUS MATERIAL	
Type	Quantity
Tubing Schedule 40 (6063-T6) 4" x 20FT	120FT
1272 AAC, 61 Strand, NARCISSUS	240 FT
4/0 AAC, 7 Strand, OXLIP	120 FT

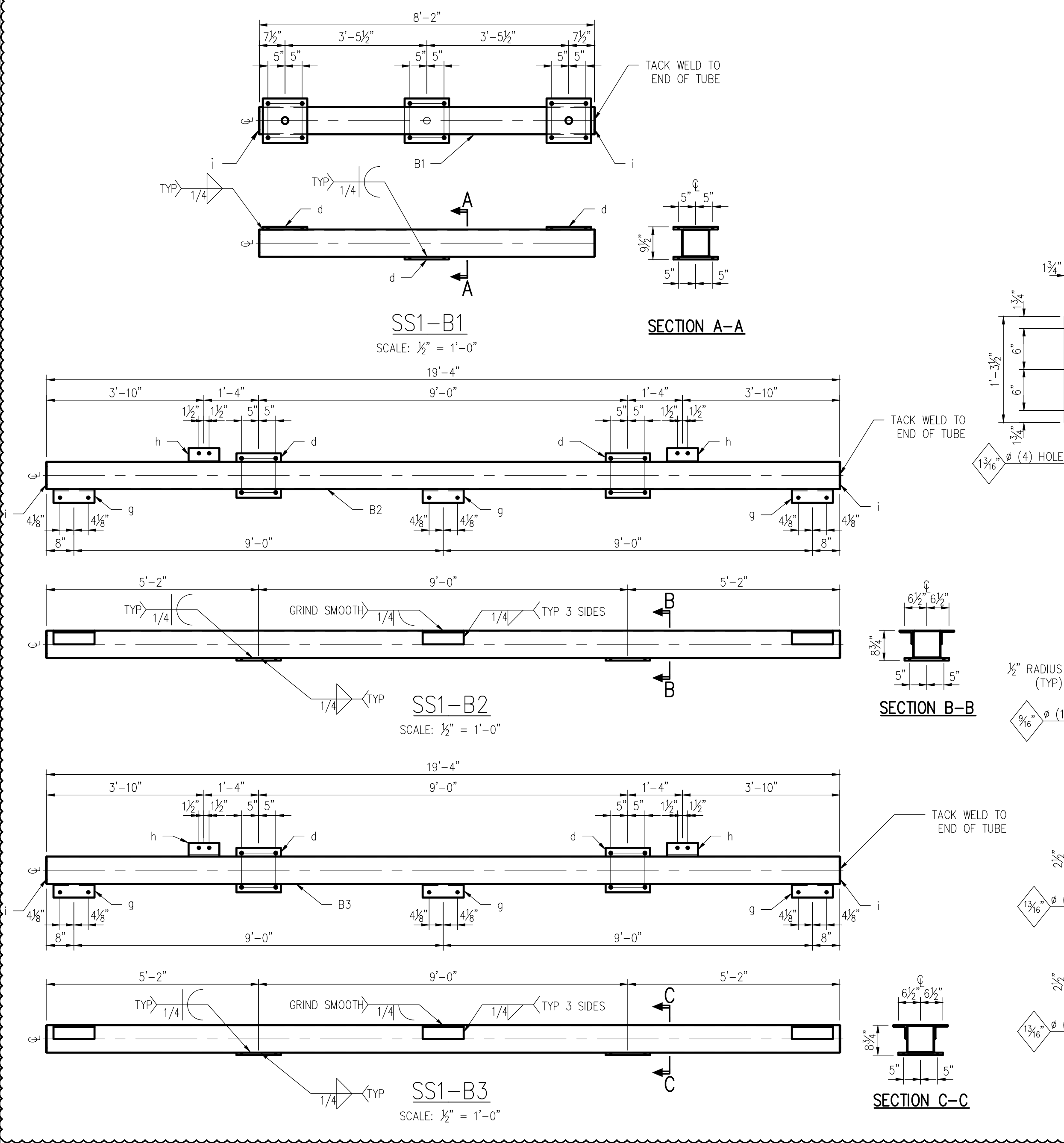


161 kV LOW SWITCH STAND - SS1
STRUCTURE ITEM #GS-416
SCALE: 1/4" = 1'-0"

HOLD FOR DESIGN



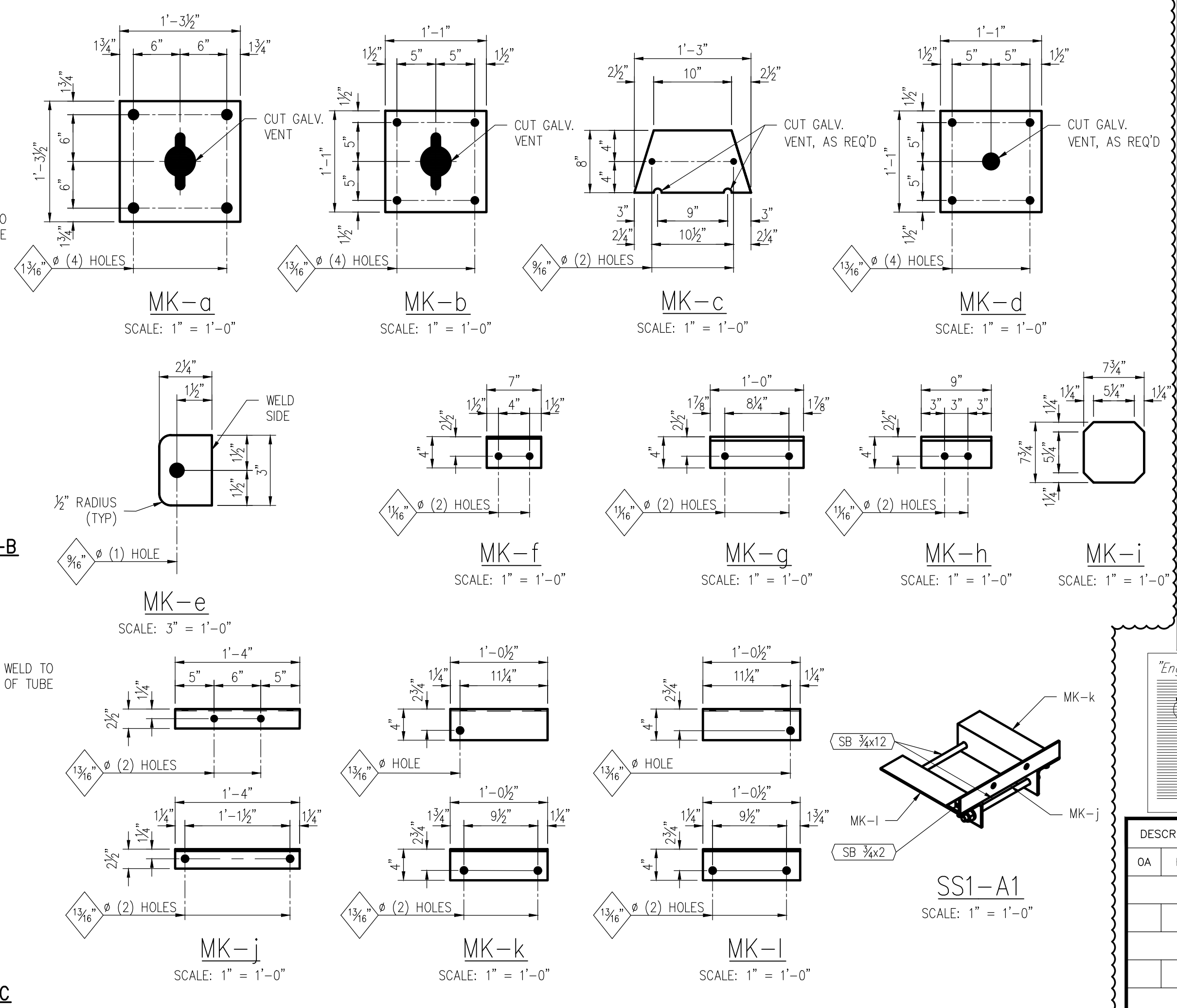
SS1-C1
SCALE: 1/2" = 1'-0"



SS1-B1
SCALE: 1/2" = 1'-0"

SS1-B2
SCALE: 1/2" = 1'-0"

SS1-B3
SCALE: 1/2" = 1'-0"



MK-a
SCALE: 1" = 1'-0"

MK-b
SCALE: 1" = 1'-0"

MK-c
SCALE: 1" = 1'-0"

MK-d
SCALE: 1" = 1'-0"

MK-e
SCALE: 3" = 1'-0"

MK-f
SCALE: 1" = 1'-0"

MK-g
SCALE: 1" = 1'-0"

MK-h
SCALE: 1" = 1'-0"

MK-i
SCALE: 1" = 1'-0"

MK-j
SCALE: 1" = 1'-0"

MK-k
SCALE: 1" = 1'-0"

MK-l
SCALE: 1" = 1'-0"

SS1-A1
SCALE: 1" = 1'-0"

DESIGN NOTES
EQUIPMENT MANUFACTURER = PASCOR
TYPE = "VBPA", 161 kV, 2000 AMP, 750 kV BIL, HORIZONTAL MOUNT
BUS HEIGHT = 20'-0"
BUS = 5" S.P.S. ALUMINUM
SWITCH TERMINAL HEIGHT = 6'-4"

PROJECT SPECIFIC NOTES
BUS HEIGHT = 16'-0"
SWITCH TERMINAL HEIGHT = 6'-8"
BUS = 4" S.P.S. ALUMINUM
EQUIPMENT MANUFACTURER = ROYAL

LEGEND
A-A INDICATES SECTION VIEW "A-A"
A SH1 INDICATES ELEVATION NUMBER
INDICATES DRAWING ON WHICH ELEVATION APPEARS
1 INDICATES DETAIL NUMBER
INDICATES DRAWING ON WHICH DETAIL APPEARS
Ø 3/16 (4) HOLES HOLE DIAMETER AND QUANTITY SYMBOL
SB 3/4x3/4 INDICATES ITEM ON STRUCTURE BOLT LIST
EG INDICATES ITEM ON ANCHOR BOLT LIST
BS1-C1 INDICATES STRUCTURE AND MEMBER MARK NUMBER

ANCHOR BOLT REQUIREMENTS
ITEM QUANTITY DETAIL (SEE NOTE 9)
EG 8
DETAIL: (2) HEAVY HEX NUTS
(2) FLAT WASHERS
(1) HEAVY HEX NUT
THREAD 1-8 UNC
1"Ø F1554, GRADE 55, GALVANIZED
TACK
A.B. DETAIL
SCALE: 1" = 1'-0"

NOTES
1. SHAPES AND PLATES ASTM A36 U.N. WIDE FLANGES ASTM A992
2. TUBING AND PIPE ASTM A500 GRADE B (FY-46 KSI).
3. ALL STEEL HOT DIP GALV. AFTER FAB. ASTM-A123.
4. WELDING ELECTRODE GRADE-70X.
5. ALL HOLES 1/16"Ø FOR 3/4"Ø GALV. A325 BOLTS, UNLESS NOTED.
6. PIECE MARKS STAMPED INTO METAL WITH NOT LESS THAN 3/8" HIGH CHARACTERS BEFORE GALV.
7. BENT PLATES OF EQUAL THICKNESS AND DIMENSIONS MAY BE SUBSTITUTED FOR C AND MC SHAPES, WITH ENGINEERS APPROVAL.
8. FABRICATOR SHALL PROVIDE GALVANIZING VENTILATION OPENINGS AS REQUIRED.
9. ALL ANCHOR BOLTS & NUTS SHALL BE GALVANIZED F1554 GR55 AND ASTM A563 GRADE DH RESPECTIVELY.
10. ALL STRUCTURE BOLTS & NUTS SHALL BE GALVANIZED A325 AND HEAVY HEX, ASTM A563 GRADE DH RESPECTIVELY.
11. STRUCTURE BOLT QUANTITIES INCLUDE 5% OVERAGE, MINIMUM 1 EXTRA.
12. REFER TO WRITTEN SPECIFICATIONS FOR MATERIALS & FABRICATION REQUIREMENTS.
13. CONTRACTOR SHALL USE THREAD LUBRICATION PRODUCTS, FASTENAL "SLICK STICK", OR SIMILAR, ON ALL STRUCTURE BOLTS. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR TENSION INDICATING WASHER INSTALLATION.

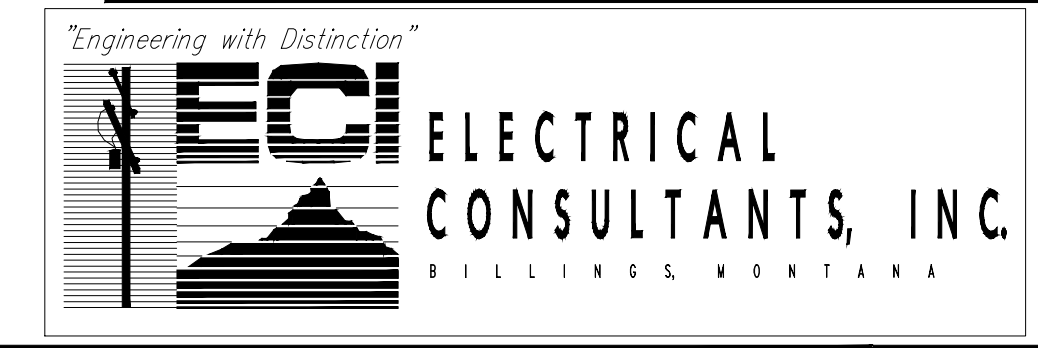
BILL OF MATERIALS		LENGTH		REMARKS
MARK	QTY	FT.	IN.	
	2	FOR ONE COLUMN SS1-C1		
C1	ONE	HSS8x8x3/4	7	8
a	ONE	PL 1x15 1/2	1	3 1/2 (WELD)
b	ONE	PL 3/4x13	1	1 (WELD)
c	2	PL 3/8x8	1	3 (WELD)
e	2	PL 3/8x2 1/4	0	3 (WELD)
f	ONE	L4x4x1/4	0	7 (WELD)
	2	FOR ONE BEAM SS1-B1		
B1	ONE	HSS8x8x3/4	8	2
d	3	PL 3/4x13	1	1 (WELD)
i	2	PL 3/8x7 3/4	0	7 3/4 (WELD)
	ONE	FOR ONE BEAM SS1-B2		
B2	ONE	HSS8x8x3/4	19	4
d	2	PL 3/4x13	1	1 (WELD)
g	3	L4x4x1/2	1	0 (WELD)
h	2	L4x4x3/8	0	9 (WELD)
i	2	PL 3/8x7 3/4	0	7 3/4 (WELD)
	ONE	FOR ONE BEAM SS1-B3		
B3	ONE	HSS8x8x3/4	19	4
d	2	PL 3/4x13	1	1 (WELD)
g	3	L4x4x1/2	1	0 (WELD)
h	2	L4x4x3/8	0	9 (WELD)
i	2	PL 3/8x7 3/4	0	7 3/4 (WELD)
	2	FOR ONE ASSEMBLY SS1-A1		
j	ONE	L2 1/2x2 1/2x1/4	1	4 (BOLT)
k	ONE	L4x4x1/4	1	1/2 (BOLT)
l	ONE	L4x4x1/4	1	1/2 (BOLT)

TOTAL STEEL WEIGHT FOR THIS STRUCTURE
BLACK WEIGHT=2265 GALV WEIGHT=2344

STRUCTURE BOLT LIST		
ITEM	QUANTITY (SEE NOTE 11)	DESCRIPTION (SEE NOTE 10)
SB 3/4x3	26	3/4"Ø x 3" WITH NUT, F/W, TENSION INDICATING WASHER AND LOCKNUT.
SB 3/4x12	5	3/4"Ø x 12" THREADED ROD WITH NUT, F/W AND LOCKNUT EACH END.
SB 3/4x2	5	3/4"Ø x 2" WITH NUT, F/W, TENSION INDICATING WASHER AND LOCKNUT.

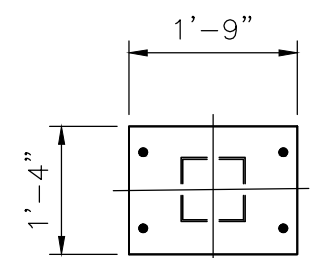
STANDARD DRAWING MODIFICATION				
NO	DESCRIPTION	ENG	APR	DATE
A	UPDATED PHASE SPACING TO 9FT. SHORTENED COLUMN	NTS	KLM	02/14/22

STANDARD DRAWING: 161SS-3-13.6667-10.0-A.DWG

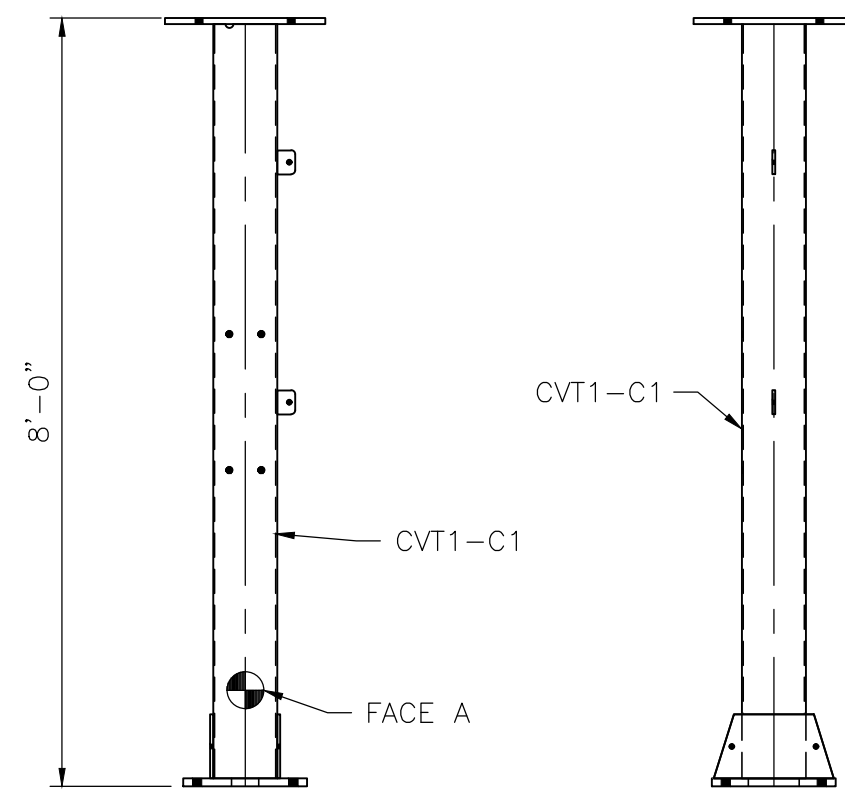


DESCRIPTION: ISSUED FOR BID				
QA	RF023-01222	08NOV23	NTS	RBM
REV NO.	JOB NO.	DATE	DESIGN ENGR	DFTFR
			DESIGN CHECK	ISSUE APPROVD

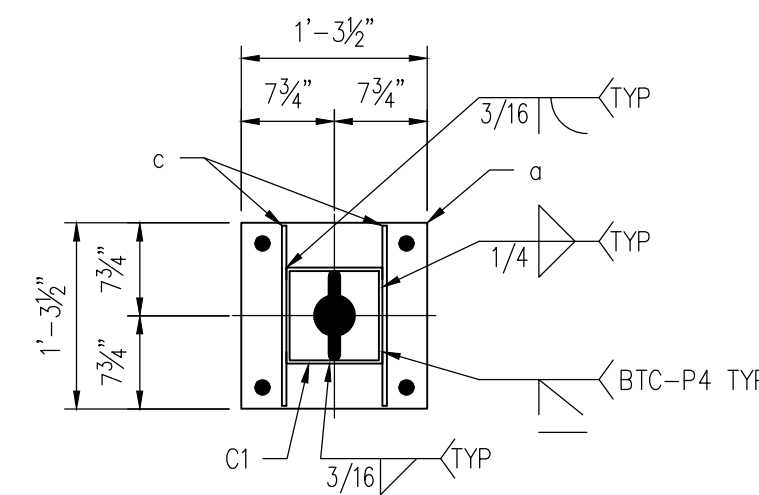
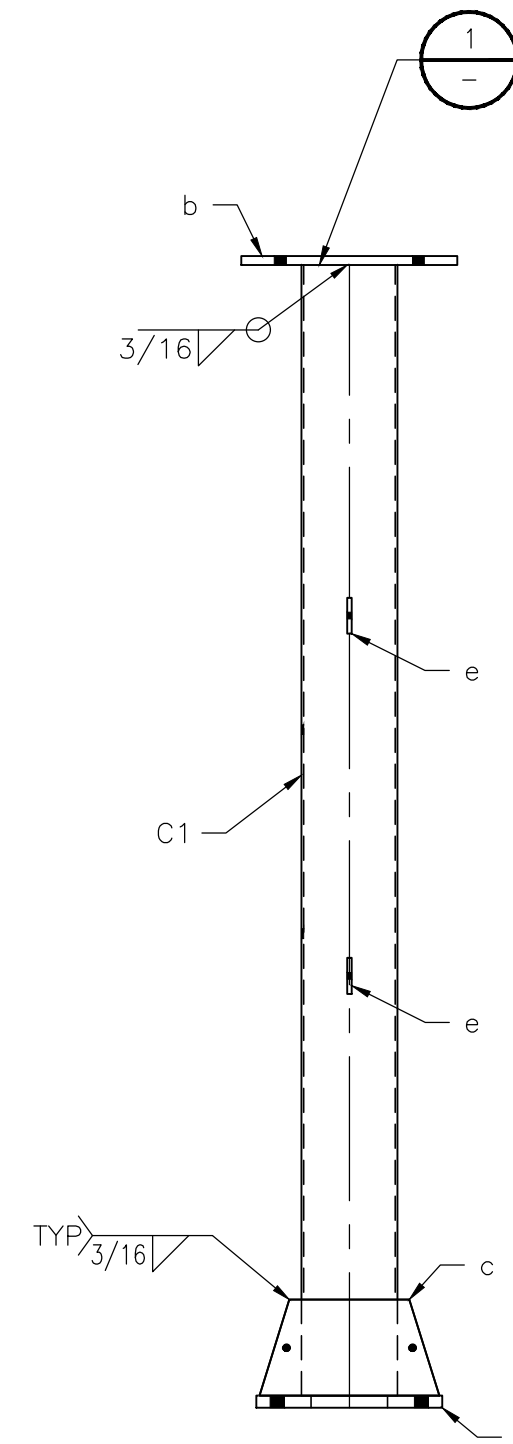
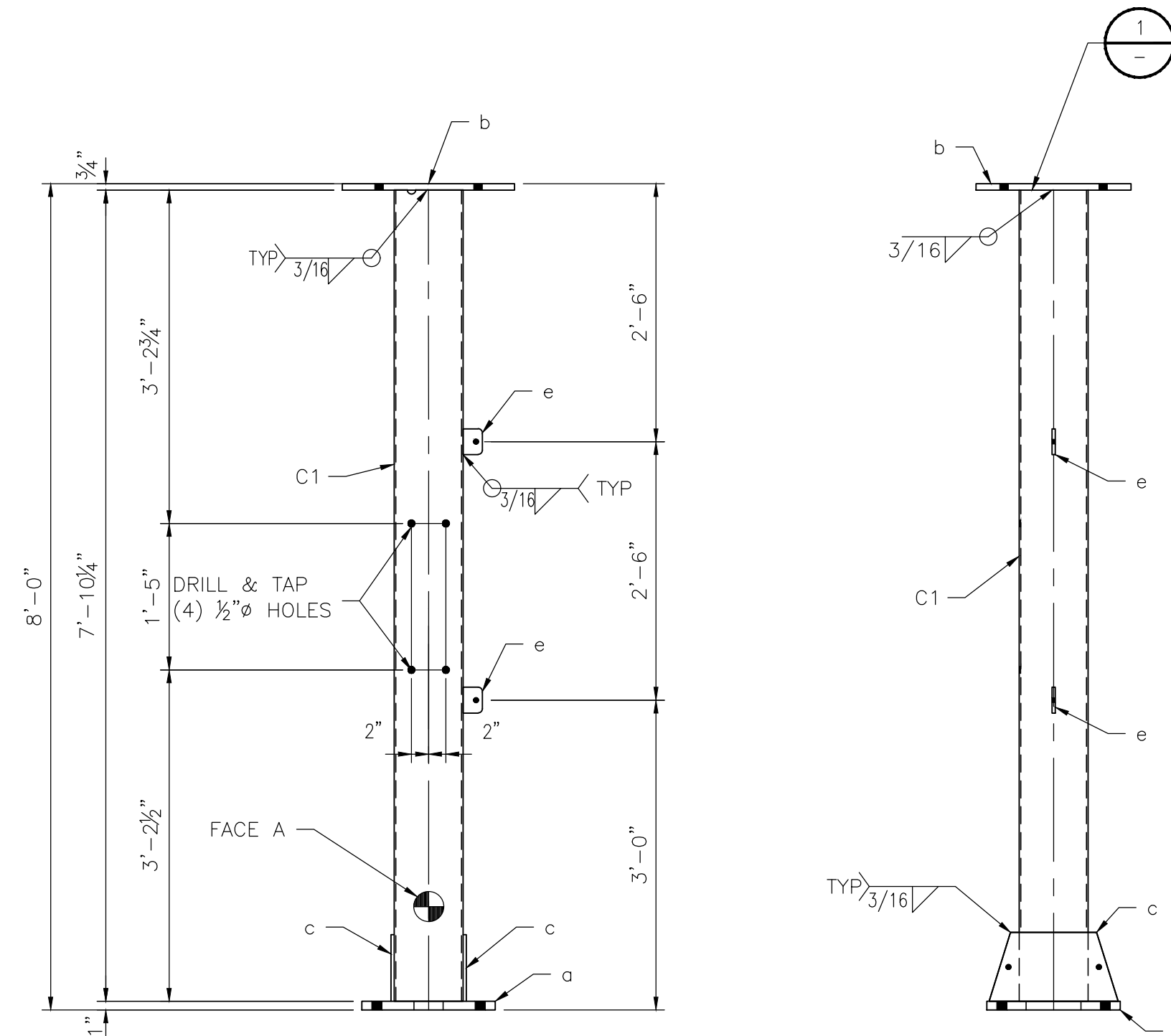
ISSUED FOR BID				
GRAND RIVER DAM AUTHORITY CLEVELAND 345 INTERCONNECT S116 OSAGE COUNTY, OKLAHOMA 345/138KV				
161kV LOW SWITCH STAND - SS1 (GS-416)				
ENGINEER:	NTS	SCALE: AS NOTED	DATE: 08NOV23	REV.
DRAWN BY:	RBM	DRAWING NO.		
CHECKED BY:		S116PS44		0A
APPROVED BY:		OLD DRAWING NO.: 1425		



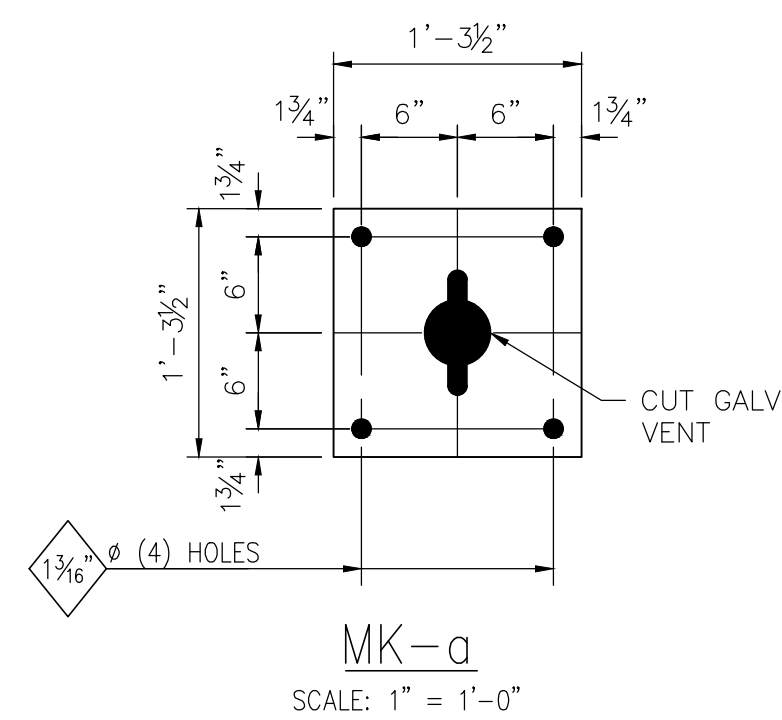
PLAN VIEW



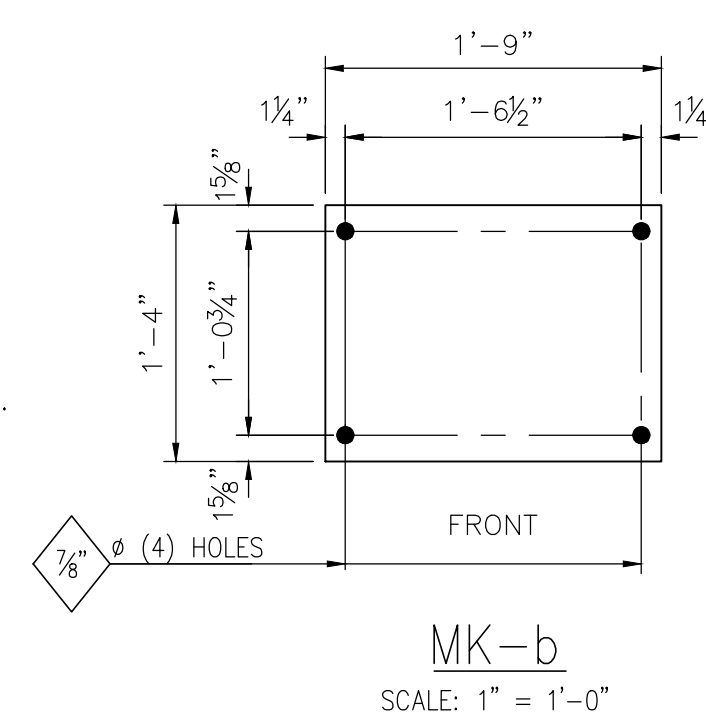
1 ϕ CVT SUPPORT - CVT1
STRUCTURE ITEM #GS-408
SCALE: 1/2" = 1'-0"



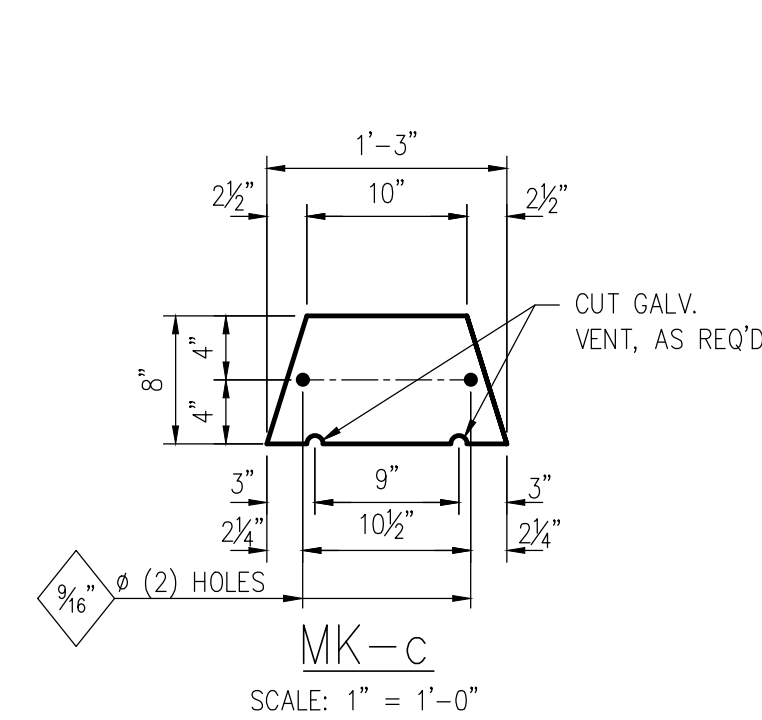
COLUMN CVT1-C1
SCALE: 3/4" = 1'-0"



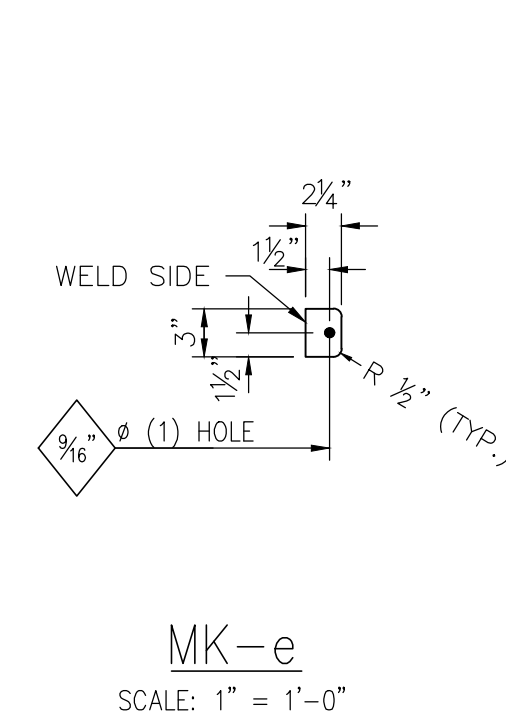
MK-a
SCALE: 1" = 1'-0"



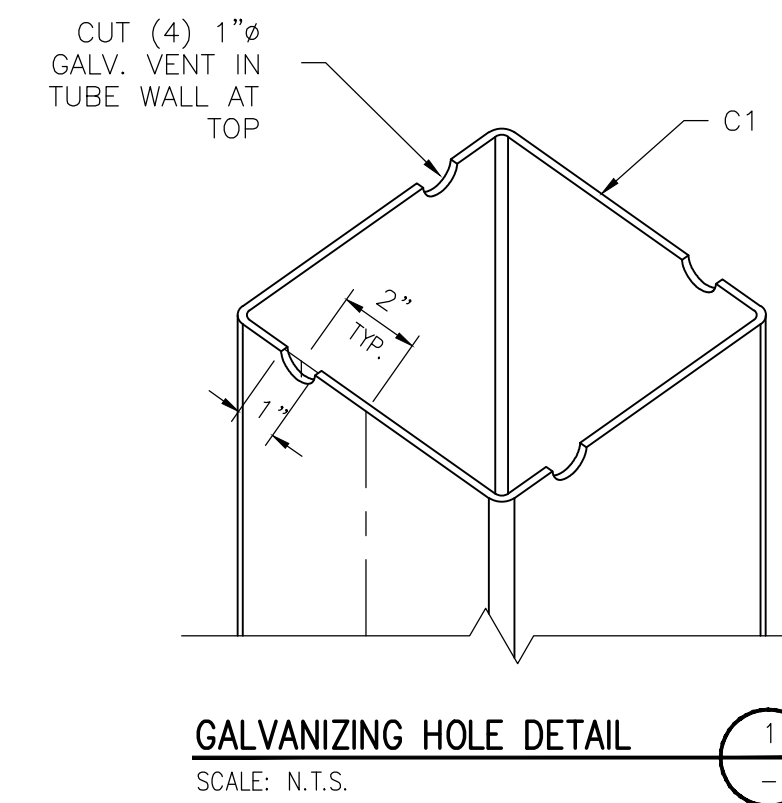
MK-b
SCALE: 1" = 1'-0"



MK-c
SCALE: 1" = 1'-0"



MK-e
SCALE: 1" = 1'-0"



GALVANIZING HOLE DETAIL
SCALE: N.T.S.

DESIGN NOTES

EQUIPMENT MANUFACTURER = TRENCH
TYPE = 161 kV CLASS, 750 kV BIL. VOLTAGE TRANSFORMER
WEIGHT = 505 LBS.
BOLT PATTERN = 18.5"x12.75" W/ 3/8" ϕ HOLES

LEGEND

- A-A INDICATES SECTION VIEW "A-A"
- SH1 INDICATES ELEVATION NUMBER
- INDICATES DRAWING ON WHICH ELEVATION APPEARS
- 1 INDICATES DETAIL NUMBER
- INDICATES DRAWING ON WHICH DETAIL APPEARS
- 1 3/16" ϕ (4) HOLES HOLE DIAMETER AND QUANTITY SYMBOL
- SB 3/8x3 1/2 INDICATES ITEM ON STRUCTURE BOLT LIST
- EG INDICATES ITEM ON ANCHOR BOLT LIST
- BS1-C1 INDICATES STRUCTURE AND MEMBER MARK NUMBER

ANCHOR BOLT REQUIREMENTS

ITEM	QUANTITY	DETAIL (SEE NOTE 9)
EG	4	

NOTES

1. SHAPES AND PLATES ASTM A36 U.N. WIDE FLANGES ASTM A992
2. TUBING AND PIPE ASTM A500 GRADE B (FY=46 KSI).
3. ALL STEEL HOT DIP GALV. AFTER FAB. ASTM-A123.
4. WELDING ELECTRODE GRADE-70X.
5. ALL HOLES 1 3/16" ϕ FOR 3/4" ϕ GALV. A325 BOLTS, UNLESS NOTED.
6. PIECE MARKS STAMPED INTO METAL WITH NOT LESS THAN 3/8" HIGH CHARACTERS BEFORE GALV.
7. BENT PLATES OF EQUAL THICKNESS AND DIMENSIONS MAY BE SUBSTITUTED FOR C AND MC SHAPES, WITH ENGINEERS APPROVAL.
8. FABRICATOR SHALL PROVIDE GALVANIZING VENTILATION OPENINGS AS REQUIRED.
9. ALL ANCHOR BOLTS & NUTS SHALL BE GALVANIZED F1554 GR55 AND ASTM A563 GRADE DH RESPECTIVELY.
10. ALL STRUCTURE BOLTS & NUTS SHALL BE GALVANIZED A325 AND HEAVY HEX, ASTM A563 GRADE DH RESPECTIVELY.
11. STRUCTURE BOLT QUANTITIES INCLUDE 5% OVERAGE, MINIMUM 1 EXTRA.
12. REFER TO WRITTEN SPECIFICATIONS FOR MATERIALS & FABRICATION REQUIREMENTS.
13. CONTRACTOR SHALL USE THREAD LUBRICATION PRODUCTS, FASTENAL "SLICK STICK", OR SIMILAR, ON ALL STRUCTURE BOLTS. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR TENSION INDICATING WASHER INSTALLATION.

BILL OF MATERIALS

MARK	QTY	DESCRIPTION	LENGTH		REMARKS
			FT.	IN.	
C1	ONE	FOR ONE COLUMN CVT1-C1	7	10 1/4	
a	ONE	PL 1x15 1/2	1	3 1/2	(WELD)
b	ONE	PL 3/2x21	1	4	(WELD)
c	2	PL 3/8x8	1	3	(WELD)
e	2	PL 3/8x2 1/4	0	3	(WELD)

TOTAL STEEL WEIGHT FOR THIS STRUCTURE
BLACK WEIGHT=321 GALV WEIGHT=332

STRUCTURE BOLT LIST

ITEM	QUANTITY (SEE NOTE 11)	DESCRIPTION (SEE NOTE 10)

ISSUED FOR BID

DESCRIPTION: ISSUED FOR BID					
OA	RF023-01222	08NOV23	NTS	RBM	
REV NO.	JOB NO.	DATE	DESIGN ENGR	DFTR	DESIGN CHECK

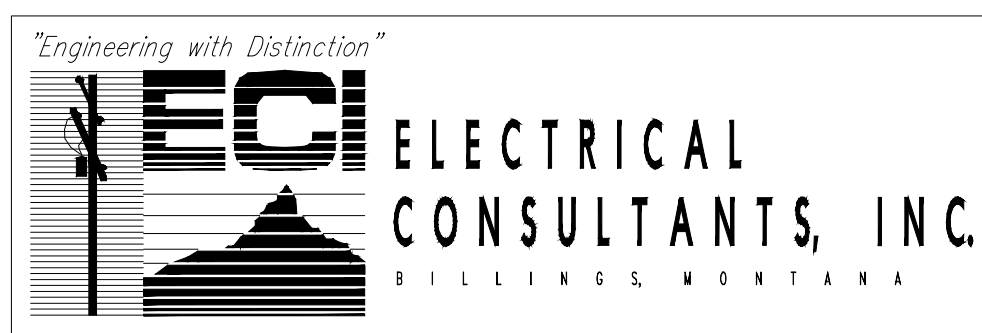
GRAND RIVER DAM AUTHORITY
CLEVELAND 345 INTERCONNECT S116
OSAGE COUNTY, OKLAHOMA 345/138KV

161KV 1 ϕ CVT STRUCTURE (GS-408)

ENGINEER: NTS SCALE: AS NOTED DATE: 08NOV23 REV.
DRAWN BY: RBM DRAWING NO.
CHECKED BY: S116PS43
APPROVED BY: OLD DRAWING NO.: 1425

GRDA
P.O. BOX 669
CHOUTEAU, OK 74337

OA



HOLD FOR DESIGN



****GRDA payment options are EPay (Preferred payment method) or ACH****
Only one form is required to be completed and returned.

GRDA Visa Payment (EPay Program)

NOTE: This is not a credit card payment at time of sale (POS transaction). It is an electronic VISA payment after an invoice has been submitted and processed for payment. Payment terms on VISA payments are in accordance with those agreed upon on the solicitation and the resulting PO/Contract.

When a vendor elects to accept payment by EPay, the vendor will be assigned a 16-digit ghost account number (no physical plastic) which remains at a zero credit limit until an invoice is received from the vendor and processed by GRDA Accounts Payable. Once an invoice from a vendor has been processed for payment the vendor will receive a secure remittance advice via email providing the invoice information and full card account information authorizing the vendor to run the card and post the transaction at which time the account credit limit will return to zero until the next payment.

To learn more about the benefits of the Visa payment program, and to obtain answers to FAQ, click or copy and paste the following URL into your browser:

www.bankofamerica.com/epayablesvendors.

Will accept payment by Visa: Yes No (check one)

Visa acceptance signature: _____

Designated Accounts Receivable Contact for Visa remittance advices:

Name: _____

Phone: _____

Email: _____

If a vendor elects to not accept EPay as the payment method, additional terms which provide discounts for earlier payment may be evaluated when making an award. Any such additional terms shall be for discounts for payment to be made no less than ten (10) days and may increase in five (5) day increments up to thirty (30) days. Discounts offered must be in half or whole percent increments. The date from which the discount time is calculated shall be the date of a valid invoice. An invoice is considered valid if it is sent to the proper recipient, the invoiced goods or services have been received, and the invoice includes sufficient detail as identified in the solicitation.

We deliver affordable, reliable ELECTRICITY, with a focus on EFFICIENCY and a commitment to ENVIRONMENTAL STEWARDSHIP.

We are dedicated to ECONOMIC DEVELOPMENT, providing resources and supporting economic growth.

Our EMPLOYEES are our greatest asset in meeting our mission to be an Oklahoma Agency of Excellence.





ADMINISTRATION
PO Box 669
Chouteau, OK 74337

GRDA Request for ACH Transaction and Authorization Form

This form does not need to be filled out if you accept EPay as the form of payment. If this form has already been provided to GRDA and you are currently being paid by ACH you do not have to fill the form out again. This form has previously been provided to GRDA. YES: _____

Thank you for providing the following information as GRDA moves toward a more efficient method of ACH as the payment method to our vendors. Please add the ACH routing and account number to future invoices if possible.

Vendor Information

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Email: _____

Phone: _____

Send EFT Email Remittance Advice Yes _____ No _____

If yes, please include email address: _____

ACH Delivery:

Bank Routing Number: _____

Account Number: _____

Bank Name: _____

Bank Address: _____

City: _____ State: _____ Zip Code: _____

Beneficiary Name: _____

Vendor verification signature: _____

Thank you for your business!

Sincerely,

Accounts Payable Department,
Accounts.payable@grda.com

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We are dedicated to ECONOMIC DEVELOPMENT, providing resources and supporting economic growth.

Our EMPLOYEES are our greatest asset in meeting our mission to be an Oklahoma Agency of Excellence.





REQUEST FOR QUOTE # PCRFQC-000881

RFQ # PCRFQC-000881
NstkSvc

Q&A Deadline: 12/8/2023 2:00 PM
Closing Date and Time: 12/12/2023 2:00 PM

VENDOR INFO:
VENDOR #:
NAME:
CONTACT:
ADDRESS:
EMAIL:
PHONE:
FAX:

REPLY TO:
Paul Proctor
paul.proctor@grda.com

PHONE: (918) 500-0198
FAX: () -
EMAIL: paul.proctor@grda.com

NOTES: The vendor information area above is fillable. Please complete

LINE ITEM NUMBER	DESCRIPTION	COMMODITY CODE	QUANTITY	UNIT	UNIT PRICE	LINE COST	LEAD TIME
------------------	-------------	----------------	----------	------	------------	-----------	-----------

39121700	Major Material: Cleveland 345. See specifications for details.	39121700					
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Site : NstkSvc Warehouse : NstkSvc

Please refer to the included bid sheet (excel file) for product details and to submit pricing.

NOTE: All prices must be quoted FOB: Destination. All freight charges to delivery point must be included in the unit price quoted for each line item. All packaging, handling, delivery and any other surcharges must also be included in the price quoted for each line item.

SHIP TO:
Transmission & Engineering
Headquarters
635 Hwy 69A
Pryor, OK 74362
USA

PAYMENT TERMS: _____

QUOTE EXPIRATION DATE: _____

QUOTATION NUMBER: _____

QUOTED BY (please print): _____

COMPANY NAME: _____

SIGNATURE: _____

DATE OF QUOTE: _____

THIS IS NOT AN ORDER. We would be pleased to receive your quotation for furnishing the above. This form must be completed in full (including signature) and returned by the due date indicated. You may attach additional pages if necessary. If attached, the Non-Collusion form must be completed and returned with your quotation. All articles purchased hereunder shall be in accordance with the Bidding Procedures and General Terms & Conditions contained on the attached sheets.



GRAND RIVER DAM AUTHORITY

NON-COLLUSION CERTIFICATE

RFQ / RFP # _____

A Non-Collusion Certificate shall be included with any competitive bid or contract submitted to the Authority for goods or services exceeding \$5,000.00 (but not exceeding \$50,000.00), with the exception of those for the purpose of repairs and improvements to GRDA facilities.

A. For purposes of competitive bid or contract, I certify:

1. I am the duly authorized agent of _____, (Company Name),
the bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and state officials or employees, as well as facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to said bid;
2. I am fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and have been personally and directly involved in the proceedings leading to the submission of such bid; and
3. Neither the bidder, nor contractor, nor anyone subject to the bidder's or contractor's direction or control, has been a party:
 - a. to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding,
 - b. to any collusion with any state official or employee as to quantity, quality or price in the prospective contract, or as to any other terms of such prospective contract, nor
 - c. in any discussions between bidders and any state official concerning exchange of money or other thing of value for special consideration in the letting of a contract, nor, whether competitively bid or not, has paid, given or donated or agreed to pay, give or donate to any officer or employee of the State of Oklahoma any money or other thing of value, either directly or indirectly, in procuring this contract herein.

B. The contractor further certifies that no person who has been involved in any manner in the development of said contract while employed by the State of Oklahoma shall be employed to fulfill any of the services provided for under said contract.

C. If any contract pursuant to this bid is for professional services as defined in 74 O.S. § 85.2.25, and if the final product is a written proposal, report or study, the contractor further certifies that (s)he has not previously provided the state agency or any other state agency with a final product that is a substantial duplication of the final product of the proposed contract.

Authorized Signature

Certified this Date

Printed Name

Title

Telephone Number

Fax Number

E-Mail

**Grand River Dam Authority is an agency of the State of Oklahoma.
Administrative Headquarters • 226 West Dwain Willis Avenue • Vinita, Oklahoma 74301 • 918-256-5545**

**GENERAL BIDDING INSTRUCTIONS
FOR STANDARD & EMERGENCY BIDS**

****PLEASE REVIEW THE
EXCEPTION STATEMENT AT THE
END OF THE RFQ PACKET****



GRAND RIVER DAM AUTHORITY

1. Bids shall be submitted to the designated purchasing agent at the Grand River Dam Authority (hereinafter referred to as "GRDA" or "the Authority") at the address on the attached RFQ or RFP form on or before the date (and time, if applicable) indicated. Bids shall be in conformity with these and any additional instructions to bidders and shall be submitted on GRDA's form. **The RFQ (Request for Quote) or RFP (Request for Proposal) form must be completed in full and signed by the bidder.** If your bid response necessitates additional space, you may attach additional pages; however, the RFQ or RFP form must be completed, signed and reference the additional pages. All bid responses shall be typewritten or handwritten in ink, and any corrections to bids shall be initialed in ink. Quotations or proposals submitted in pencil shall not be accepted.
2. Quotations or proposals may be submitted to GRDA via postal mail, delivery service, and e-mail, provided all required signatures can be transmitted successfully.
3. **Non-Collusion Certificate:** RFQs or RFPs anticipated to exceed a total amount of \$5,000 shall be accompanied by a Non-Collusion Certificate. This certificate shall be completed by the bidder and include a signature in ink of an authorized company representative (preferably the bidder) with full knowledge and acceptance of the bid proposal. Purchase orders in excess of \$5,000 will not be released to the successful bidder without receipt of a properly signed certificate for the bid.
4. In the event the unit price and line total extension do not agree, the unit price shall be considered the quoted price accepted for evaluation.
5. **Freight Terms:** All prices shall be quoted FOB: Destination/Freight Allowed. All packaging, handling, shipping and delivery charges shall be included in the unit price quoted for each line item. No exceptions shall be granted unless approved by the guidelines of the GRDA Chief Financial Officer or designee.
6. **Other Surcharges:** Any additional surcharges (such as HazMat charges, fuel surcharges, set-up fees, etc.) shall be included in the unit price quoted for each line item. All additional charges are considered a part of the cost of the goods, and bids shall be evaluated to include these additional charges.
7. **Tax-Exempt Status:** GRDA is an agency of the state of Oklahoma and is specifically exempt from the payment of sales tax by Oklahoma state statute, Title 68 O.S.A. § 1356 (10). An excerpt from the statute shall be furnished upon request.
8. **Questions arising during the bidding process should be submitted via email to the GRDA purchasing agent named on the RFQ or RFP.** The GRDA purchasing agent shall coordinate a reply from the end user to ensure that all potential bidders are provided the same information. Under no circumstances shall a bidder discuss pricing with any GRDA employee prior to the bid opening.
9. All bids submitted shall be subject to GRDA's Purchasing Policy and Procedures, General Terms and Conditions, the bidding instructions and specifications, the Oklahoma Open Records Act, other statutory regulations as applicable, and any other terms and conditions listed or attached herein – all of which are made part of this Request for Quote or Request for Proposal.
10. GRDA reserves the right to waive any informalities, reject any and all bids, and to award a contract, as applicable, in the best interests of the Authority. All bid responses become the property of GRDA and are subject to the Oklahoma Open Records Act. GRDA shall endeavor to protect technical information designated by the bidder as proprietary information; however, only technical information (i.e., "trade secrets") may be considered proprietary – pricing and other non-technical aspects of the quote shall be considered non-proprietary.
11. **"Sole Brand" or "No Sub" Items:** Items with a "Sole Brand" or "No Sub" designation in the description shall be furnished as the specified manufacturer and model/part number. No exception may be taken to the specification, and no alternate shall be accepted. In those cases where a manufacturer has discontinued the specified model/part number, the bidder shall indicate so on the RFQ. If a replacement item is available, the new model/part number shall be indicated on the RFQ form and the price quoted. It shall also be noted whether the replacement item is a direct replacement for the obsolete part number originally requested. If not, or if the specifications differ in any way, the bidder shall explain in detail, and corresponding drawings or descriptive literature shall be included with the quote.

12. **Approved Equivalents:** Unless an item is designated as a “Sole Brand” or “No Sub” item, any manufacturer’s name, brand name, information and/or catalog number listed in a specification is for informational or cross-reference purposes and is not intended to limit competition. Bidders may offer any brand/manufacturer for which they are an authorized representative, provided it meets or exceeds the specification of the listed item. However, if quoting an equivalent product, bidders shall indicate on the RFQ form the manufacturer’s name and part number. Bidder shall also submit any drawings, descriptive literature and specifications for evaluation purposes. Reference to literature submitted with a previous bid shall not satisfy this provision. The bidder shall also provide written confirmation that the proposed equivalent will meet the requested specifications and is not considered an exception. Bids which do not comply with these requirements may be rejected. GRDA warehouses are not permitted to accept any item with a part number differing from that quoted by the bidder. Bids lacking any written indication of intent to furnish an alternate brand, model or part number shall be considered to be in complete compliance with the specifications as listed on the RFQ.
13. **Insurance Certificates:** Any service to be performed that requires the vendor’s employees, vehicles or equipment to be on any GRDA property must be covered by minimum insurance requirements. The work scope to be performed for the Authority shall be evaluated and the minimum insurance requirements shall be provided to prospective bidders with the RFQ or RFP. Evidence of insurance coverage shall be furnished in the form of a Certificate of Insurance, and shall be submitted with the bid response. Bidders shall disclose any subcontractors to be used, and the Authority shall consider the supplier as the single point of contact. The supplier shall assume responsibility for the performance of the subcontractor. Policies shall remain current for the duration of the requested service period, and GRDA shall be notified of any cancellation or revision to policies. Purchase Orders shall not be released to the successful bidder without a current Certificate of Insurance naming GRDA as certificate holder on file. A Memorandum of Insurance shall not be acceptable for this requirement.
14. **MSDS:** Material Safety Data Sheets shall be furnished to GRDA’s Safety Department at the address noted on the PO prior to delivery of items.
15. **Purchase Orders** shall be awarded to the “lowest and best” or “best value” bidder. Line items may be split into multiple orders, taking low items from each respective bidder, or orders may be awarded on an “all or none” basis, whichever is in the best interests of the Authority. Award decisions are further subject to consideration of any additional terms and conditions contained in the bid proposal. Vendor protests must be submitted in writing to the Central Purchasing Unit of GRDA within thirty-six (36) hours of award of Contract or Purchase Order.
16. Successful vendor shall deliver the merchandise or perform the service as quoted. Substitutions or changes without prior approval of the GRDA purchasing agent shall be rejected and returned at the vendor’s expense.
17. **Bidder Responsibilities:** Bidders are to transact all phases of the purchasing function directly with the GRDA purchasing agent. Bidders are to conduct all written and verbal communication with the Authority through the GRDA purchasing agent. Bidders are to conduct negotiations ethically, without attempts to influence through offers of gifts or entertainment. Bidders are to make available as requested any technical information which might be of benefit in the bid evaluation.
18. **Supplier List:** The Finance Department maintains a current listing of suppliers with a cross-reference as to products and services offered. Suppliers may have their names added to the list by submitting a completed Vendor Registration/Payee Application, and shall notify the Authority of any updated information. Suppliers who do not meet quoted shipping dates or lead times, supply products or services of poor quality, substitute items of unequal quality, continually over-ship or under-ship items, or do not invoice properly may be placed under suspension or disqualified from the active supplier list. Suppliers may voluntarily request to be removed from the supplier database.
19. **Service Contracts:** By submitting a bid for services, the bidder certifies that they, and any proposed subcontractors, are in compliance with 25 O.S. §1313 and participate in the Status Verification System. The Status Verification System is defined in 25 O.S. §1312 and includes, but is not limited to, the free Employment Verification Program (E-Verify) available at www.dhs.gov/E-Verify. This shall remain in effect through the entire term, including all renewal periods, of the contract. The State may request verification of compliance for any contractor or subcontractor. Should the State suspect or find the contractor or any of its subcontractors are not in compliance, the State may pursue any and all remedies allowed by law, including, but not limited to: suspension of work, termination of the contract for default, and suspension or debarment of the contractor. All costs necessary to verify compliance are the responsibility of the contractor.

GENERAL TERMS AND CONDITIONS



Any contract or purchase order (PO) issued by the Grand River Dam Authority (GRDA) is expressly conditioned upon Seller's assent to these terms and conditions. Any order issued or filled by Seller shall be deemed to constitute Seller's assent to these terms and conditions. GRDA must give its express written consent to all additional terms submitted by Seller and all modified terms proposed by Seller.

1. Email, mail, or deliver all invoices or correspondence pertaining to the payment of this PO/ Contract to: Accounts Payable Department at accounts_payable@grda.com or Grand River Dam Authority, P.O. Box 669 Chouteau, Oklahoma 74337. Seller shall provide an invoice which is in accordance with the terms of the appropriate PO/Contract and applicable state or federal statutes, including but not limited to such documentation as may be required to demonstrate that the task has been achieved. Seller shall submit invoices accompanied by complete supporting documentation for shipping costs. If shipment is not made by routing instructions as specified on the face of this PO/Contract, GRDA has the right to deduct any excess transportation charges resulting therefrom. Copy of original freight bill must be supplied for payment if freight charge is in excess of \$500.00. Time, in connection with any discount offered, will be computed from date of delivery of items or services, or from date the correct invoice is received at GRDA Headquarters in Chouteau, Oklahoma, whichever period of time is the later date. No Oklahoma State Sales or Use Tax shall be paid by GRDA.
2. GRDA has the right to inspect articles, materials, and supplies before and during manufacture and upon arrival at destination and to return for full credit and/or refund, at Seller's sole risk and expense, including all transportation and storage charges, all items found defective or furnished contrary to instructions and/or specifications contained herein.
3. In case of default by Seller, GRDA may procure the items or services from other sources. Seller agrees to be responsible for any excess cost occasioned thereby; provided, that if necessity requires the use of items not conforming to specifications, they may be accepted, and payment made at a proper reduction in price. Notwithstanding anything herein to the contrary, GRDA reserves the right to terminate this PO/Contract for its convenience. In the event of such termination, GRDA shall pay and Seller shall accept the reasonable value of all work performed and items delivered by Seller up through the effective date of such termination.
4. Seller represents and warrants that all items and/or services furnished under this PO/Contract will (a) conform to the specifications, drawings, samples or other description furnished by GRDA, or any revisions thereof;(b) be merchantable of good material and free from defect in workmanship, material, and design; (c) be fit and sufficient for the purpose intended; (d) satisfy any performance guarantee requirements as specified herein by GRDA; (e) be free and clear of all liens, security interests or other encumbrances; (f) not infringe or misappropriate any third party's patent, copyright, trademark, or intellectual property rights.; (g) Seller shall implement all necessary physical and cyber security measures to fully insure that GRDA's data is only accessible by Seller's authorized personnel, and that only Seller's authorized personnel may send invoices and seek payment from GRDA for this purchase; and (h) all invoices arising from or related to this purchase that are sent from Seller's domain have been authorized by Seller. In the event the items and/or services purchased hereunder do not meet the warranty specified herein above, Seller shall promptly repair or replace any defective item at its expense, or re-perform any necessary services, and shall hold GRDA harmless from all costs and expenses incurred due to said defective item or performance of services, including the cost for removing any part or product to be repaired or replaced, as well as transportation and installation charges in connection with the repair, replacement or servicing of any parts or equipment. Seller further represents and warrants that the manufacturer's warranty and guarantee of the items purchased hereunder extended to Seller shall extend to GRDA. These warranties are cumulative and in addition to all other warranties provided by law.
5. Seller shall indemnify, defend, and hold harmless GRDA and its officers, directors, employees, and agents, from and against all liabilities, judgments, damages, claims, suits, injuries, losses, and expenses, including attorney fees, arising out of or resulting in any way from: (a) any act or omission of Seller or Seller's officers, directors, employees, subcontractors, and agents; (b) all liens or claims in any way related to the items or services furnished by Seller; (c) all patent, trademark or copyright infringement or alleged infringement, except where strict compliance with the specifications prescribed by GRDA is the sole basis of the infringement or alleged infringement; (d) defects in the items or services furnished by Seller; (e) any unauthorized access to Seller's electronic system(s) by either third parties or unauthorized Seller personnel; or (f) Seller's failure to comply with any of these General Terms and Conditions. This indemnity obligation shall be in addition to the warranty obligations of Seller
6. When doing work or providing services on GRDA property seller shall, before any items are shipped and/or any services are commenced, provide GRDA with certificates evidencing that the following minimum insurance will remain in force until Seller's obligations are completed: (a) Workers' Compensation Insurance, including Employer's Liability Insurance, in accordance with the laws of the state in which Seller may be required to pay compensation; (b) Commercial General Liability Insurance with limits no less than \$1,000, 000 for each occurrence and \$2,000,000 in the aggregate, unless otherwise specified within the solicitation documents; and (c) if Seller will use or provide for the use of motor vehicles in furnishing items and/or services under this PO/Contract, automobile insurance covering all liabilities for personal injury and property damage arising from the use of such vehicles, with a limit of no less than \$1,000,000.
7. Seller shall not assign or subcontract any of its rights or obligations under this PO/Contract without GRDA's prior written consent. No assignment shall relieve Seller of its obligations hereunder.
8. Service Contracts: By submitting a bid for services, the Bidder certifies that it, and any proposed Subcontractors, are in compliance with 25 O.S. § 1313 and participate in the Status Verification System. The Supplier/Contractor/Consultant/Construction Manager/et c. certifies that it and all proposed Subcontractors, whether known or unknown at the time a contract is executed or awarded, are in compliance with 25 O.S. § 1313 and participate in the Status Verification System. The Status Verification System is defined in 25 O.S. § 1312 and includes, but is not limited to, the free Employment Verification Program (E-Verify) available at www.dhs.gov/E-Verify. This shall remain in effect through the entire term, including all renewal periods, of the Contract. The State may request verification of compliance for any Seller or Subcontractor. Should the State suspect or find the Seller or any of its Subcontractors are not in compliance, the State may pursue any and all remedies allowed by law, including, but not limited to: suspension of work, termination of the Contract for default, and suspension or debarment of the Seller. All costs necessary to verify compliance are the responsibility of the Seller.
9. All Items shipped pursuant to this PO/Contract will conform to all municipal, state and federal laws, ordinances and regulations, and Seller will defend and save harmless GRDA from loss, costs or damage by reason of any actual or alleged violation thereof.

10. GRDA hereby notifies Seller that Seller must comply, and by acceptance of this PO/Contract, Seller represents that it has complied with, and will continue to comply with, all applicable federal, state and local laws, regulations or orders.
11. This PO/Contract shall be interpreted and construed in accordance with the laws of the State of Oklahoma. The state district courts in Tulsa County, Oklahoma, will have exclusive jurisdiction and venue to resolve any dispute arising from or related to this PO/Contract.
12. AUDIT RIGHTS. Seller/Contractor will, at all times during the term of this PO/Contract and for a period of five (5) years after the completion of this PO/Contract, maintain and make available for inspection and audit by GRDA and/or the Oklahoma State Auditor, all books, supporting documents, accounting procedures, practices, and all other items relevant to the PO/Contract.
13. By submitting a bid, bidder certifies that it is not currently engaged in a boycott of goods or services from Israel that constitutes an integral part of business conducted or sought to be conducted with the state.
14. By submitting a bid, the parties to this Agreement certify that no person who has been involved in any manner in the development of this Agreement while employed by the State of Oklahoma will be employed to fulfill any of the services provided for under this Agreement.
15. For any services performed pursuant to the PO/Contract, in addition to complying with the other provisions of these *General Terms and Conditions*, Seller must: (i) supply and remove all necessary tooling, equipment, and materials; (ii) remove and lawfully dispose of all debris, and provide evidence to GRDA of such lawful disposition upon GRDA's request; (iii) comply with all applicable codes, standards, laws, and standards of care applicable to the services provided; (iv) take all necessary precautions, at all times, for the health and safety of Seller personnel (including employees, contractors, and agents) at the site, and be exclusively responsible for any health or safety violations by Seller's employees, contractors, or agents; (v) maintain, at all times, title to and control of any hazardous materials that require special handling or disposal, and take whatever steps and precautions are necessary to safely eliminate any hazardous condition in accordance with applicable law; (vi) obtain, at Seller's sole expense, any necessary intellectual property rights necessary for Seller to complete the services; and (vii) strictly comply with each provision of the *Supplemental Terms of Service* attached hereto as Attachment A, if the provision below indicating that Attachment A is included in these terms has been selected by GRDA.
16. Paragraphs 3, 4, 5, 9, 10, 11, 12, 15, and 17 will survive termination or cancellation of the contract.
17. Supplemental Terms. If any of the following boxes are checked, the associated terms and conditions are incorporated by reference into these *General Terms and Conditions*:

- Supplemental Terms of Service* (Exhibit GTC-1)
- Schedule 2 - GRDA Supply Chain Cyber Security* (Exhibit GTC-2)

**TERMS & CONDITIONS EXCEPTION STATEMENT
RFQ 881**

This part of the proposal must be completed even if no exceptions are stated.

EXCEPTIONS (Attach additional pages if required. If no exceptions, state “NONE”.)

An “Exception” is (1) Bidder’s inability or unwillingness to meet a term, condition, or specification in the manner specified in the Request for Proposal and/or (2) an additional term, condition, or specification proposed by Bidder. A copy of (1) the proposed Contract or GRDA Terms and Conditions and/or (2) Specifications is included in the Request for Proposal. In a document titled “Exception Statement” Bidder must clearly identify all Exceptions to the terms, conditions, and specifications. Bidder must also state with specificity the reasons for taking Exceptions and all modified terms and additional terms it proposes to be included in the final Contract or GRDA Terms and Conditions and Specifications.

One of the GRDA’s evaluation criteria will be the number and extent of the Exceptions. Bids containing Exceptions to the Contract, Terms and Conditions, and/or Specifications may be rejected as non-responsive. Other than Exceptions that are stated in the Exception Statement, each Bidder will be deemed to have agreed to comply with all terms, conditions, and specifications of this request for proposal. If Exceptions are not identified in the Bid Proposal, any Exception raised following the notification of the award of the contract could result in the Bid Proposal being rejected from further consideration.

If Exceptions are not identified in the Bid Proposal, any Exception raised following the notification of the award of the contract may not be considered and may result in the Bid Proposal being rejected from further consideration.
