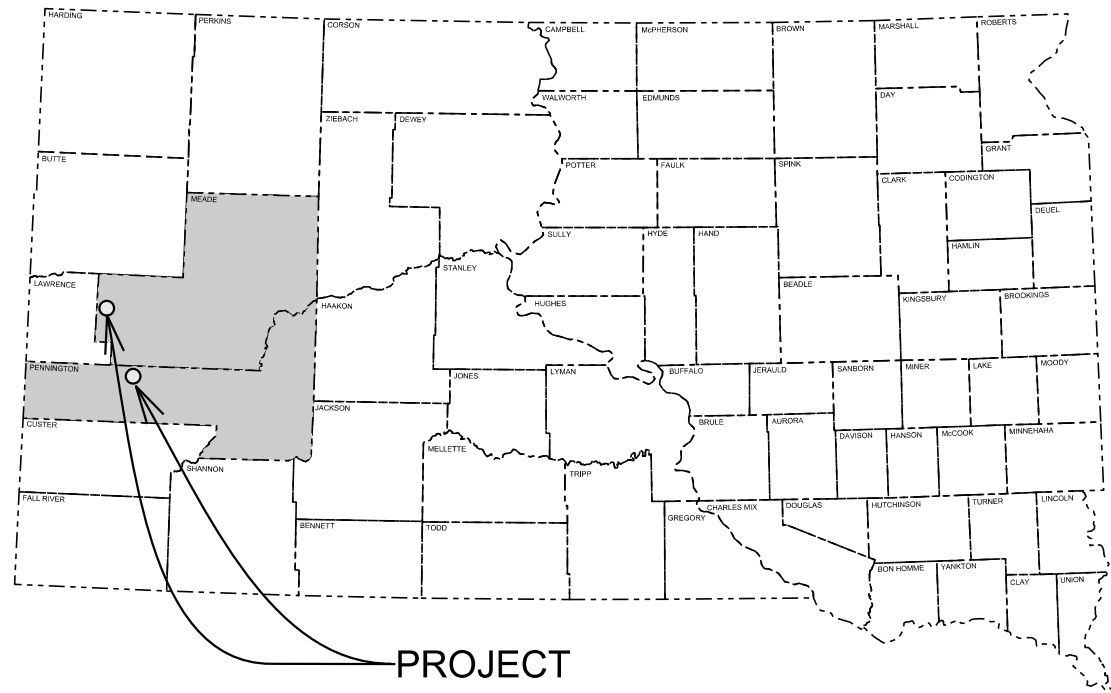


Plot Scale - 1:200

Plotted From - trc11610



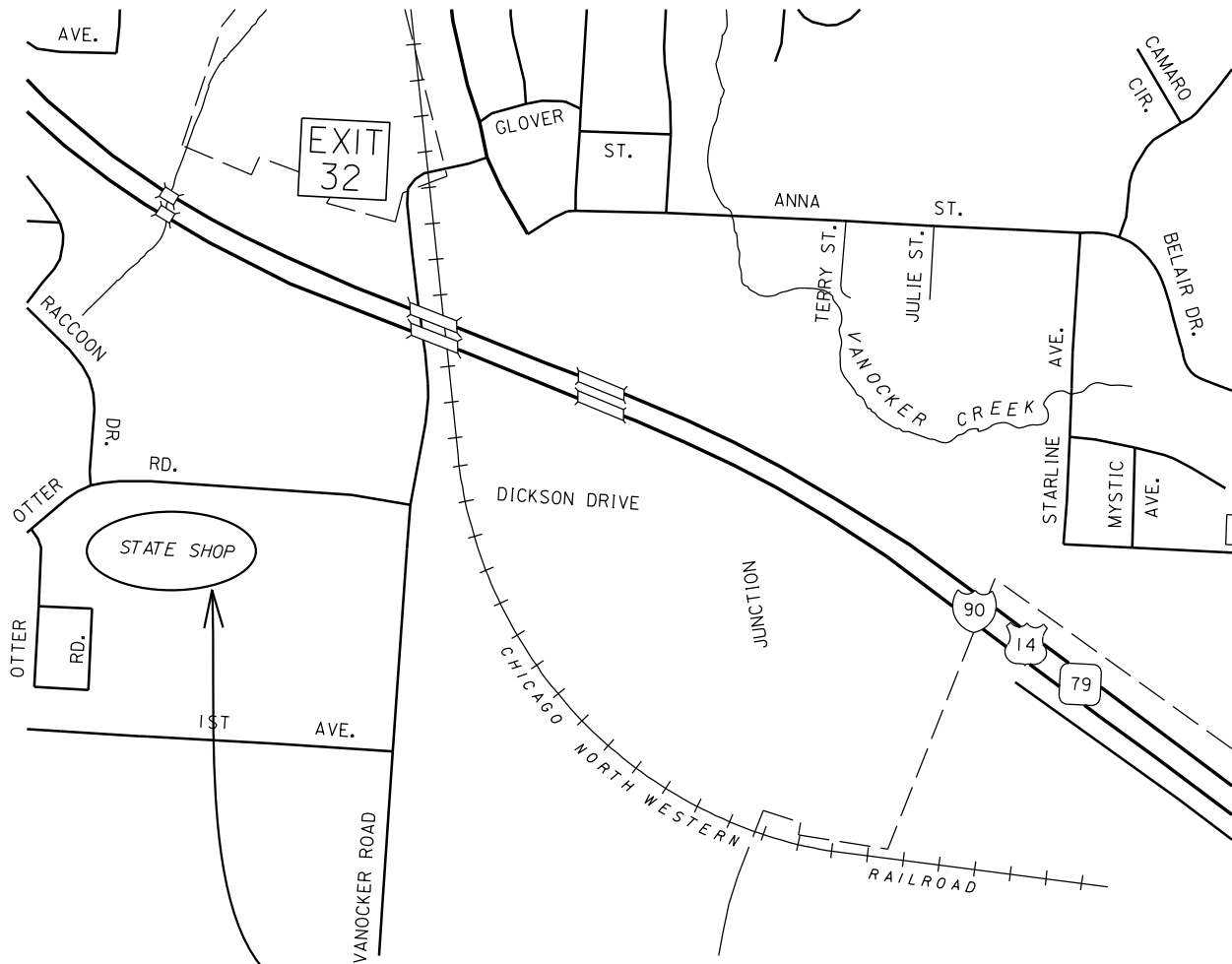
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
**PROJECT 000i-451
& 000i-452**
**MEADE &
PENNINGTON COUNTY**
FURNISH ROAD CLOSURE GATES

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|-----------------------------|------------------------|-------|-----------------|
| | 000i-451 & 000i-452 | 1 | 9 |

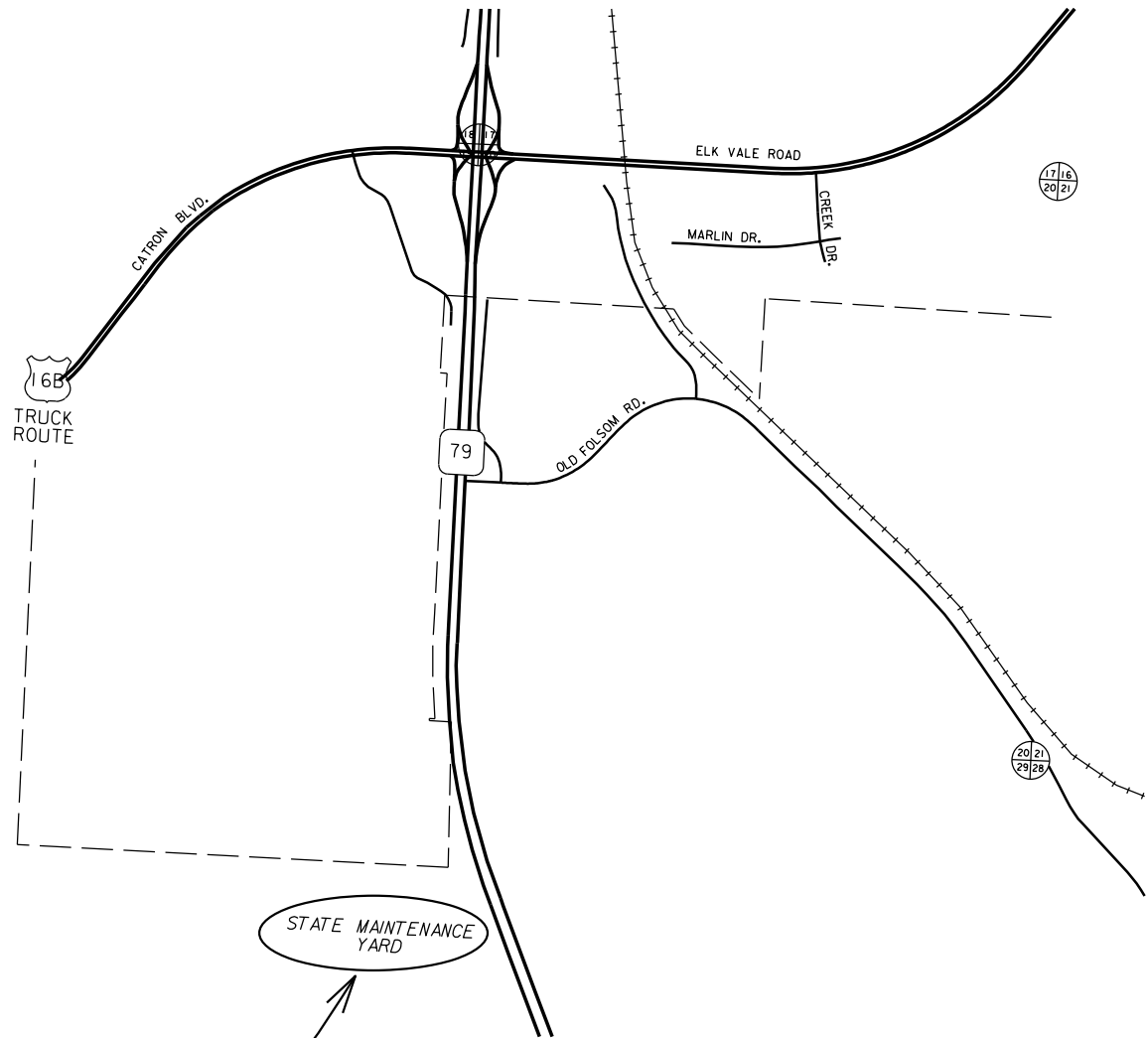
Plotting Date: 03/09/2015

INDEX OF SHEETS

- 1 General Layout W/Index
- 2-3 Estimate With General Notes & Tables
- 4-7 Drop Arm Road Closure Gate Details
- 8 Sign Detail
- 9 Standard Plates



PROJECT 000i-451
Sturgis



PROJECT 000i-452

Rapid City

ESTIMATE OF QUANTITIES PROJECT 090W-451

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|-----------------------------------------------------|----------|------|
| 632E3203 | Flat Aluminum Sign Nonremovable Copy High Intensity | 5.5 | SqFt |
| 635E3330 | Roadway Luminaire, 250 Watt with Photoelectric Cell | 1 | Each |
| 900E0048 | Furnish Drop Arm Road Closure Gate | 1 | Each |

ESTIMATE OF QUANTITIES PROJECT 090E-452

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|-----------------------------------------------------|----------|------|
| 632E3203 | Flat Aluminum Sign Nonremovable Copy High Intensity | 11.0 | SqFt |
| 635E3330 | Roadway Luminaire, 250 Watt with Photoelectric Cell | 2 | Each |
| 900E0048 | Furnish Drop Arm Road Closure Gate | 2 | Each |

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

SCOPE OF WORK

The following items to be furnished and delivered to State Maintenance Yards by the Contractor:

1. Drop arm closure gates, flashing arm lights, flasher unit, luminaire, and pole disconnect switch.
2. Flat sheet aluminum signs.

State Maintenance Yard locations:

Project 090W-451
SD Dept. of Transportation
1100 Otter Rd.
Sturgis, SD
605-347-3636

Project 090E-452
SD Dept. of Transportation
Rapid City South Yard
5801 S. Hwy. 79
Rapid City, SD
605-394-2244

The Contractor shall notify the Engineer two days prior to time of delivery so correct placement for storage and inventory of materials can be made upon receipt.

PERMANENT SIGNING

The Contractor shall provide all labor and equipment necessary to furnish permanent signing, and/or as required by the Engineer. The ROAD CLOSED signs shall be Type IV as per ASTM D4956-04. Payment for furnishing permanent signs will be paid for the contract unit price for each type of sign based on sheeting requirements per square foot of sign.

FURNISH & INSTALL FLAT ALUMINUM SIGNS, NON-REMOVABLE COPY HIGH INTENSITY

Measurement of sign areas will include payment for the entire sign blank before trimming for rounded corners. This payment for signs designated as Flat Aluminum Signs shall include all labor (including date decals), equipment, and materials to complete the work, and shall be paid for at the contract unit price per square foot for Flat Aluminum Sign, Non-Removable Copy High Intensity.

SHEETING REQUIREMENTS

All legend and border utilizing the color black shall be vinyl or screen printed black, non-reflectorized material. All other legend and border shall be of same type of sheeting as the background of the same sign. The ROAD CLOSED signs shall be Type IV as per ASTM D4956-04.

All flat aluminum signs shall be 0.100” sheet aluminum.

The side trim moldings shall be painted with a color that matches the color of the sign background sheeting. The color coat shall be preceded by a zinc chromatic primer. Paints shall be approved by the Engineer prior to use.

Adhesive copy applied directly to sheeted extruded aluminum sign panel background may be substituted for removable copy, if approved by the Engineer. Direct applied adhesive copy located on panel seams shall be neatly cut at the seams and securely adhered to the panels.

ACCEPTANCE OF SIGN INSTALLATIONS

Final acceptance of completed signs will be considered on a sign by sign basis in accordance with Section 5.16 of the Standard Specifications.

| | | | |
|-----------------------|---------------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | 000I-451 & 000I-452 | | |
| | | 2 | 9 |

DATE DECALS

The Contractor shall affix a state furnished date decal to each new sign installed. Date decals are self-adhesive weather resistant stickers with removable paper backing, approximately 2” X 2” in size. The date decal displays the last two digits of the year the sign was manufactured (as illustrated) with black numerals on a white background.



One decal shall be placed in the extreme lower left corner of the front of each extruded aluminum panel sign, or the extreme lower left corner of the back of each flat aluminum sign.

Sign supports or other obstructions shall not block the view of the date decal upon completion of the sign installation.

All costs for installing of date decals on new signs shall be incidental to the contract unit price per square foot for Flat Aluminum Sign, Nonremovable Copy High Intensity.

FURNISH DROP ARM ROAD CLOSURE GATES

GALVANIZING: The gate arm pivots, supports, and guides and all associated hardware shall be galvanized in accordance with ASTM A123. All rough edges and burrs shall be ground smooth prior to galvanizing.

Cost for drop arm road closure gate pole, gate, switches, transformers, LED signal modules, cube flasher units, cap flasher units, and miscellaneous material required to construct this snow gate shall all be incidental to the contract unit price per each for Furnish Drop Arm Road Closure Gate.

DROP ARM ROAD CLOSURE GATE DETAILS

When the gate is fully raised, the nut and washer shall be placed snugly against the outside of the rear channel and have the ability to be padlocked in place.

POLES

New poles shall be galvanized steel. Galvanizing shall be in accordance with AASHTO Specification M111 (ASTM A123). Steel pole material shall be in accordance with ASTM A36, A242, A570, A572, A607 or A595 Grade A or B. A595 material shall be limited to a 3/8 inch maximum thickness. Steel pole material with a thickness of 1/2 inch to 2 inches, shall satisfy Charpy V-Notch toughness test requirements of 15 ft. lb. at 40 degrees F. The SDDOT Office of Bridge Design shall be contacted for Charpy impact requirements for steel pole material thickness greater than 2 inches.

The steel pole-to-base-plate connection shall be a full-penetration groove-welded connection with a backing ring as described in Table 11.9.3.1-1, Section 4.5 of the current edition of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals.

All poles shall have transformer bases. The transformer base shall be TB3-17.

BREAKAWAY BASES

A statement is required, signed by a Professional Engineer registered in the State of South Dakota, certifying that the breakaway base devices meet the design requirements, including breakaway and structural adequacy, of the "AASHTO Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals". The physical testing procedures outlined in Section 8 of the Fifth Edition of the Aluminum Association's "Specifications for Aluminum Structures" may be used to establish service limits for structural adequacy certification of aluminum breakaway transformer bases and frangible couplings. If requested, test data of production samples to support the certification shall be provided.

DROP ARM ROAD CLOSURE GATE LUMINAIRES

Luminaires shall be 250 Watt High Pressure Sodium, medium, cutoff, type III.

Three copies of the isofootcandle charts and utilization curves shall be furnished to the Engineer for approval. The Contractor must get approval from the Engineer prior to installation of the luminaires.

The approved isofootcandle data for each case shall be used to determine the correct socket position at each site. Each luminaire shall be installed with its lamp socket in the proper position and in a level attitude.

Cost for drop arm gate luminaire arms and luminaries shall be incidental to the contract unit price per each for Roadway Luminaire, 250 Watt with Photoelectric Cell.

LIGHTNING PROTECTION

All luminaire poles shall be equipped with industrial lightning arrestors compliant with current NEMA and UL Standards for lightning arrestors. Cost for ground rods and lightning arrestors shall be incidental to the contract unit price for the corresponding luminaire pole bid item.

SHOP DRAWING AND CATALOG CUTS SUBMITTALS

The Contractor shall submit shop drawings and catalog cuts in accordance with Section 985 of the Standard Specifications or in Adobe PDF format.

Adobe PDF submittals shall be sent to the following email addresses:

Randy.Sauter@state.sd.us
John.Less@state.sd.us

LIGHT EMITTING DIODE SIGNAL MODULE ON GATE ARMS

Lamp assemblies are to be manufactured by Aurora, Part No. A30-944 (or equal) 12vAV LED gate lights. 3 lamp assemblies shall be mounted on each gate.

The LED signal modules shall be warranted against defects in materials and workmanship for a period of 36 months after the installation of the modules. The manufacturer shall provide this warranty in writing to the Engineer prior to installation of the LED signal modules.

All costs for Light Emitting Diode Signal Modules on Gate Arms shall be incidental to the contract unit price per each for Drop Arm Road Closure Gate.

BOLTED CONNECTIONS

All bolts shall conform to ASTM F 568, Class 4.6, unless designated as HS (High Strength), which shall conform to ASTM A 325M.

BOLT TESTING

The certified mill test reports for all bolts used on the project shall include the test results for all of the testing specified in section 972.2.D of the South Dakota Standard Specifications. Some of these tests are supplemental tests that must be requested at the time the bolts are ordered. It is the responsibility of the Contractor to notify the bolt supplier of these requirements.

| | | | |
|-----------------------------|------------------------|-------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | 0001-451 & 000i-452 | | |
| | | 3 | 9 |

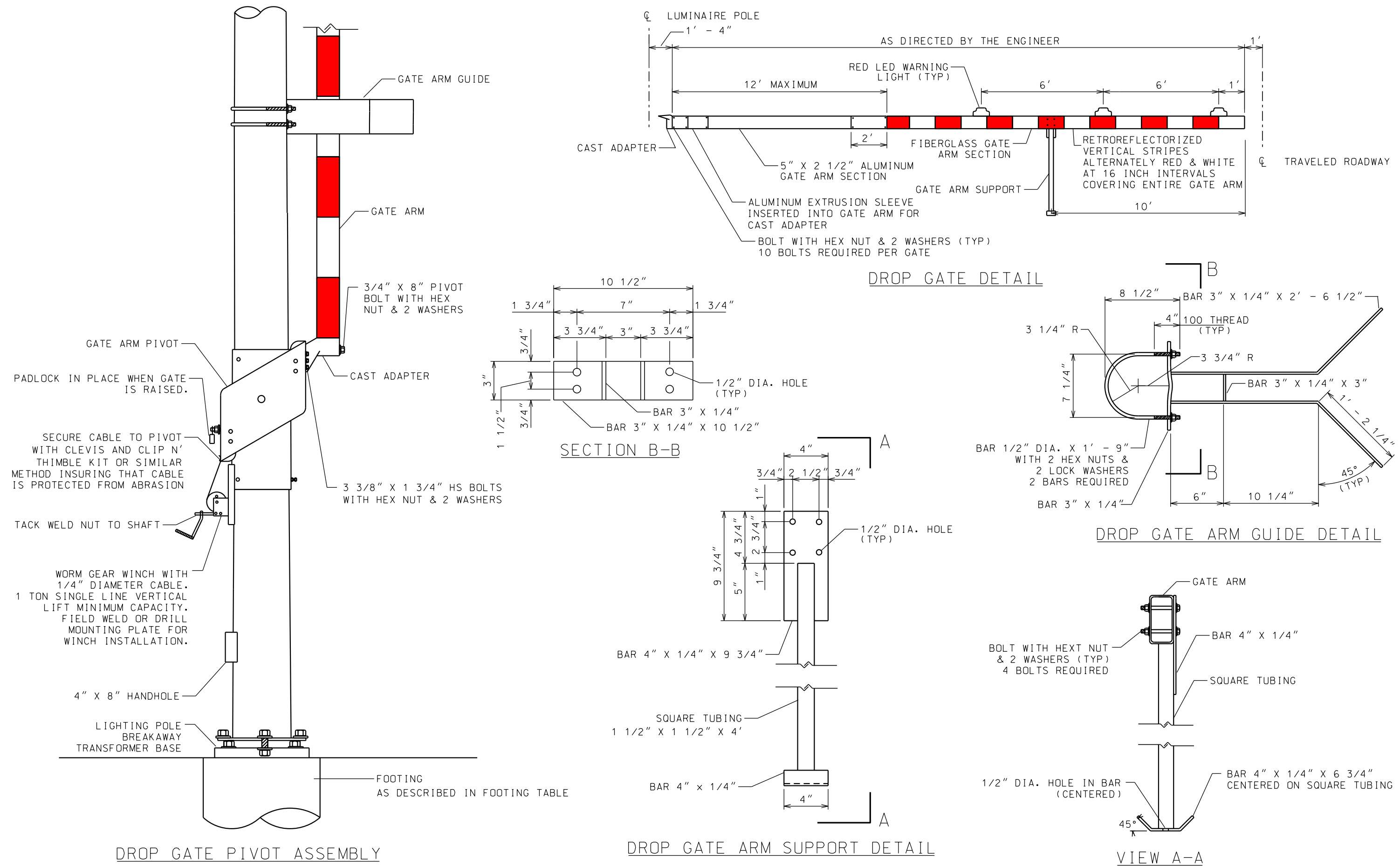
DROP ARM ROAD CLOSURE GATE

| | | | |
|-----------------------------|-----------------------------------|------------|----------------------|
| STATE OF SOUTH DAKOTA | PROJECT 000i-451 & 000i-452 | SHEET 4 | TOTAL SHEETS 9 |
|-----------------------------|-----------------------------------|------------|----------------------|

Plotting Date: 03/09/2015

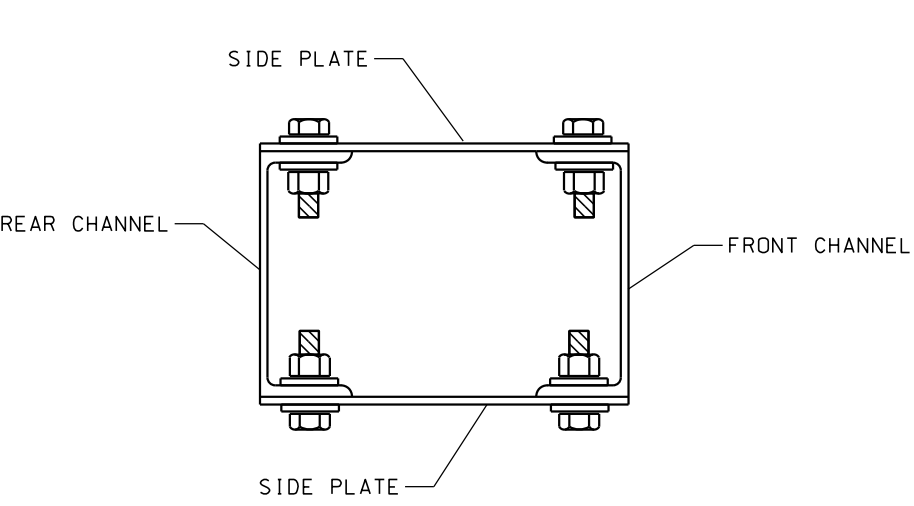
Plot Scale - 1:40

Plotted From - trc11610

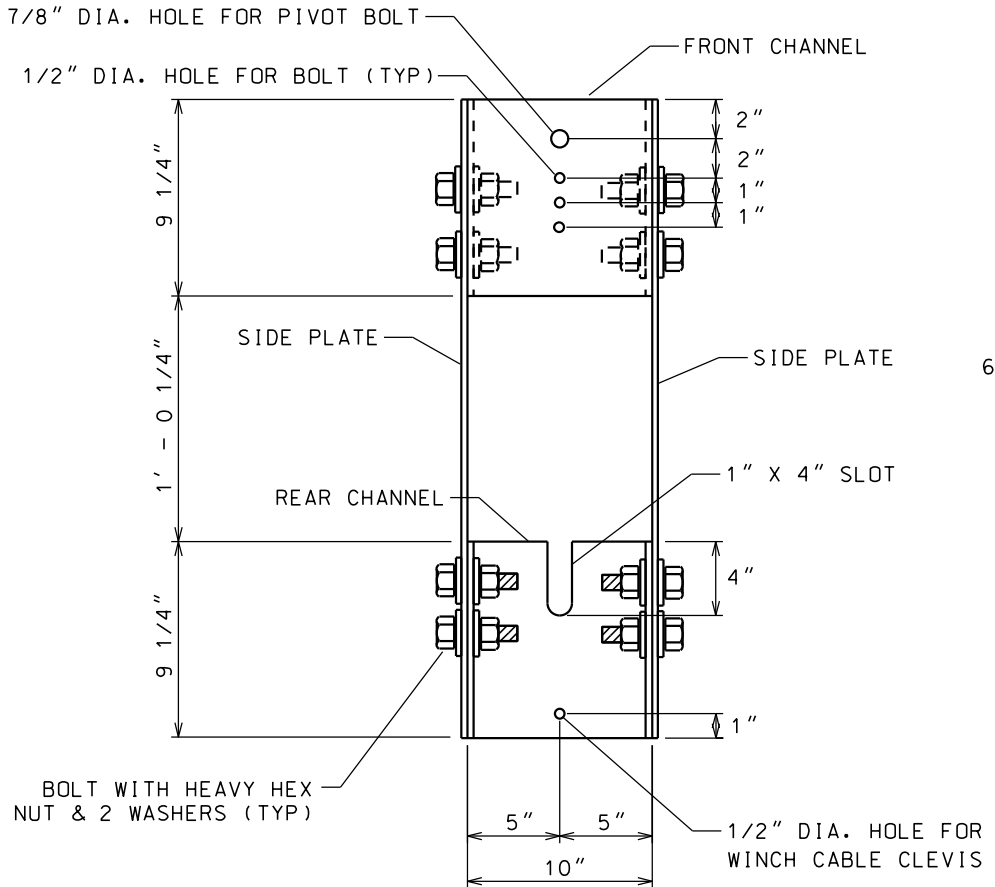


DROP ARM ROAD CLOSURE GATE

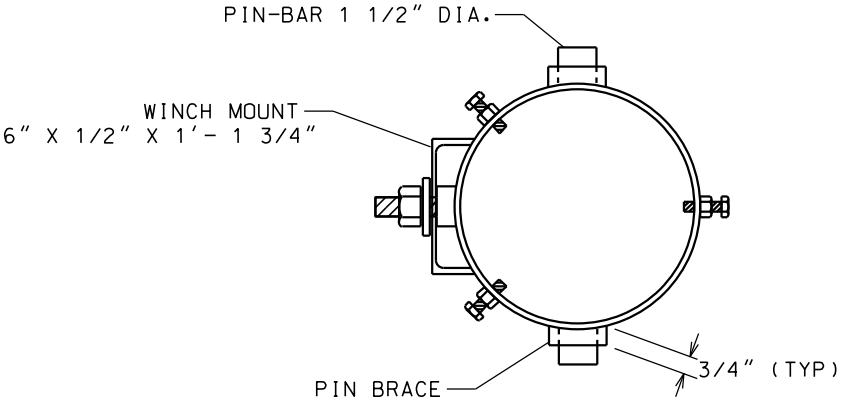
| | | | |
|-----------------------------|------------------------|-------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | 000i-451 & 000i-452 | | |
| Plotting Date: 03/09/2015 | | 5 | 9 |



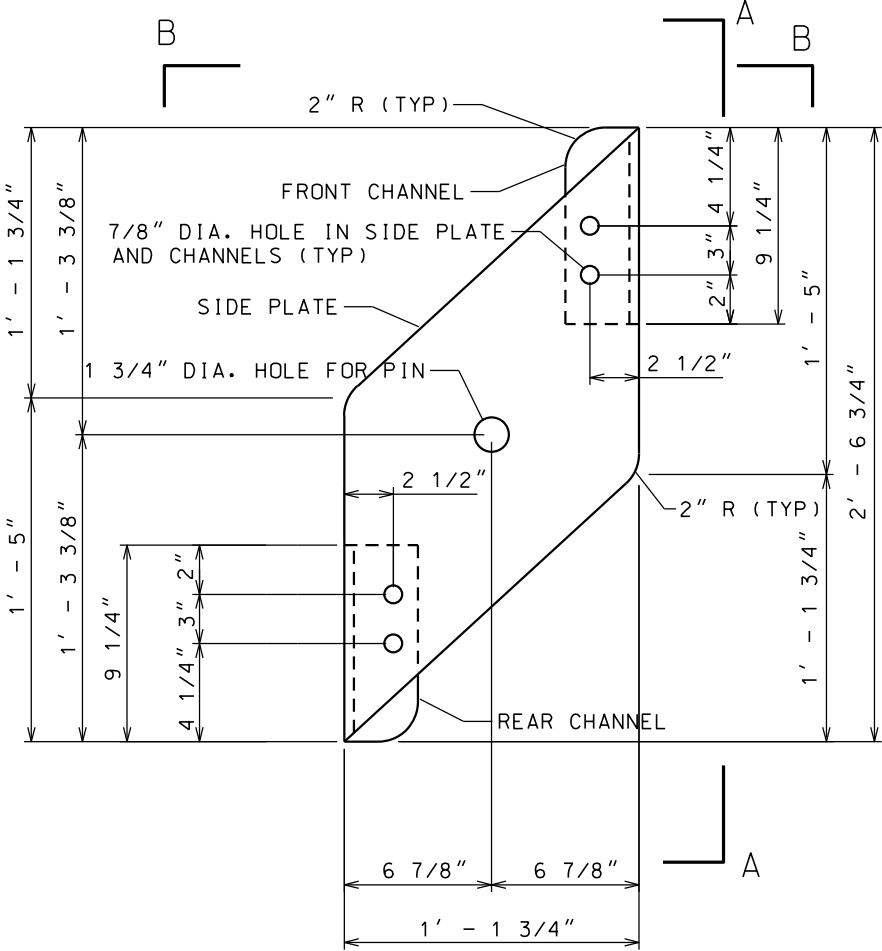
VIEW B-B



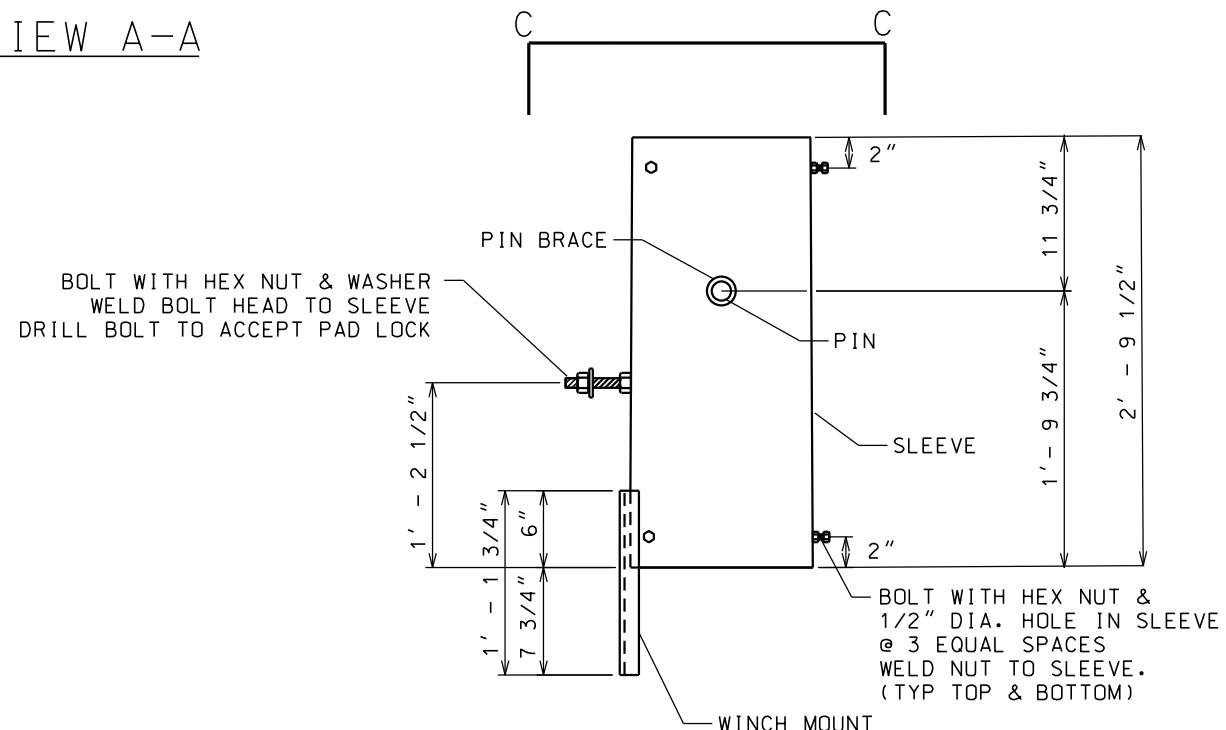
VIEW A-A



VIEW C-C



SIDE PLATE DETAIL



PIVOT SLEEVE DETAIL

Plot Scale - 1:40

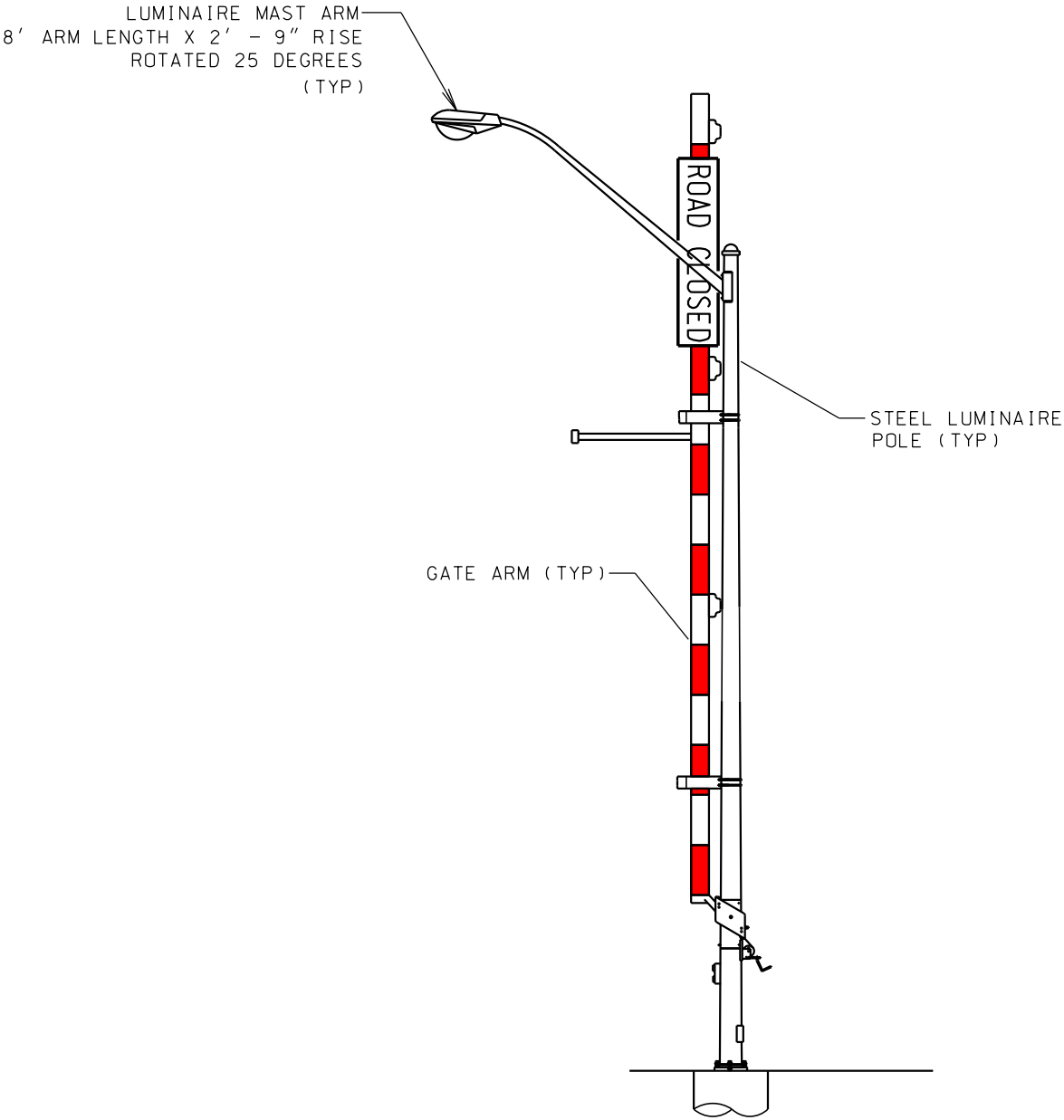
Plotted From - trc11610

Plot Date - 03/09/2015

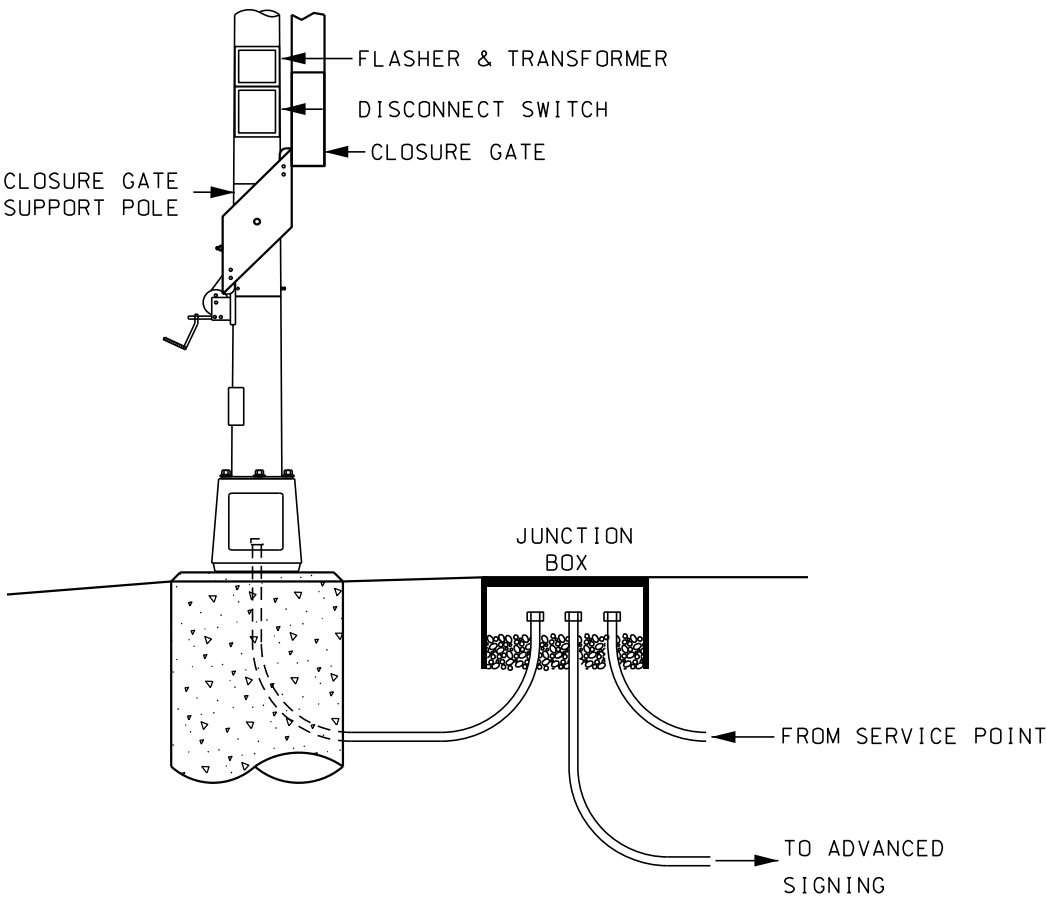
DROP ARM ROAD CLOSURE GATE

| | | | |
|-----------------------------|------------------------|-------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | 000i-451 & 000i-452 | | |
| | | 6 | 9 |

Plotting Date: 03/09/2015



TYPICAL RAISED POSITION



TYPICAL ELECTRICAL EQUIPMENT CONFIGURATION

Plot Scale - 1:40

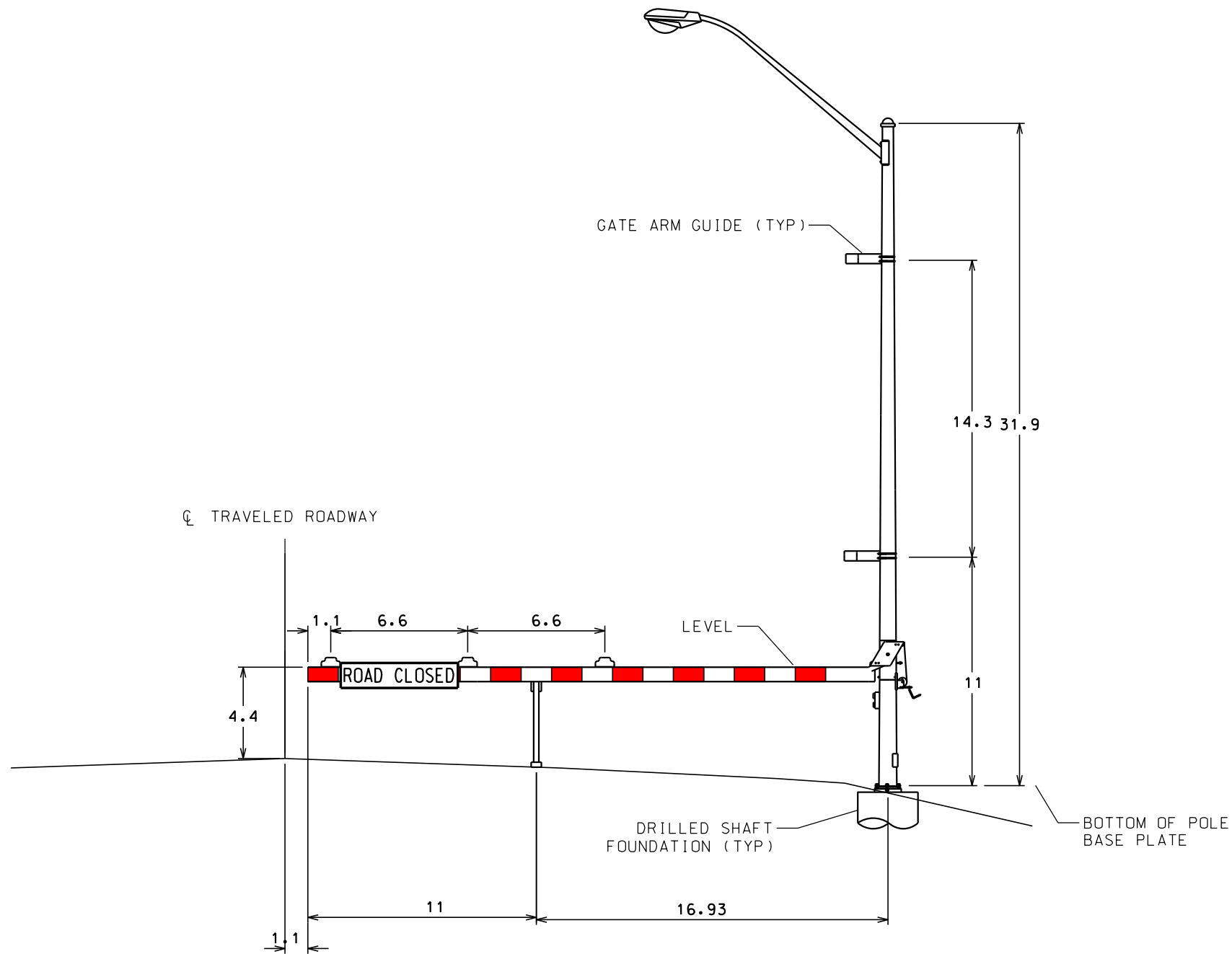
trc11610

Plotted From -

DROP ARM ROAD CLOSURE GATE

| | | | |
|-----------------------------|------------------------|-------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | 000i-451 & 000i-452 | | |
| | | 7 | 9 |

Plotting Date: 03/09/2015



TOTAL WEIGHT OF THE LUMINAIRE POLE, LUMINAIRE,
AND HARDWARE FOR THE ROAD CLOSURE GATE SHALL
NOT EXCEED 1,000 POUNDS

TYPICAL LOWERED POSITION

Plot Scale - 1:40

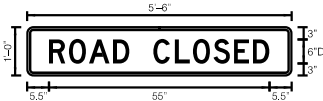
Plotted From - trc11610

SIGN DETAILS

| | | | |
|-----------------------------|------------------------|-------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | 000i-451 & 000i-452 | | |
| | | 8 | 9 |

Plotting Date: 03/09/2015

1:40



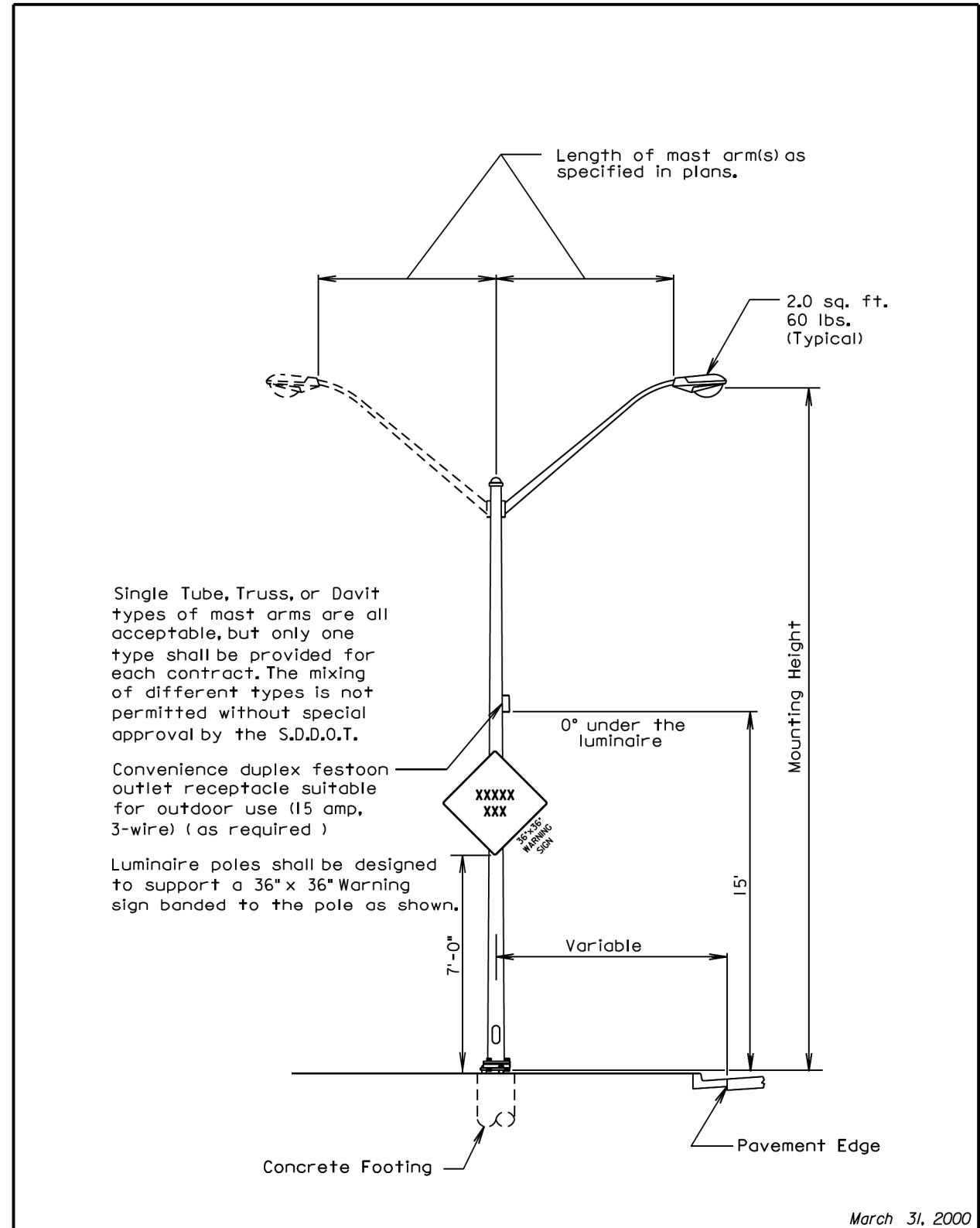
Panel Style: regulatory.ssi
Dimensions are in inches,tenths

Letter locations are panel edge to lower left corner

| | |
|---------------|----------------------|
| SIGN NUMBER | R11-2 Special |
| WIDTH x HGHT. | 5'-6" x 1'-0" |
| BORDER WIDTH | 0.63" |
| CORNER RADIUS | 1.13" |
| MOUNTING | Drop Arm Gate |
| BACKGROUND | TYPE: IV |
| | COLOR: White |
| LEGEND/BORDER | TYPE: Non-Reflective |
| | COLOR: BlackBlack |

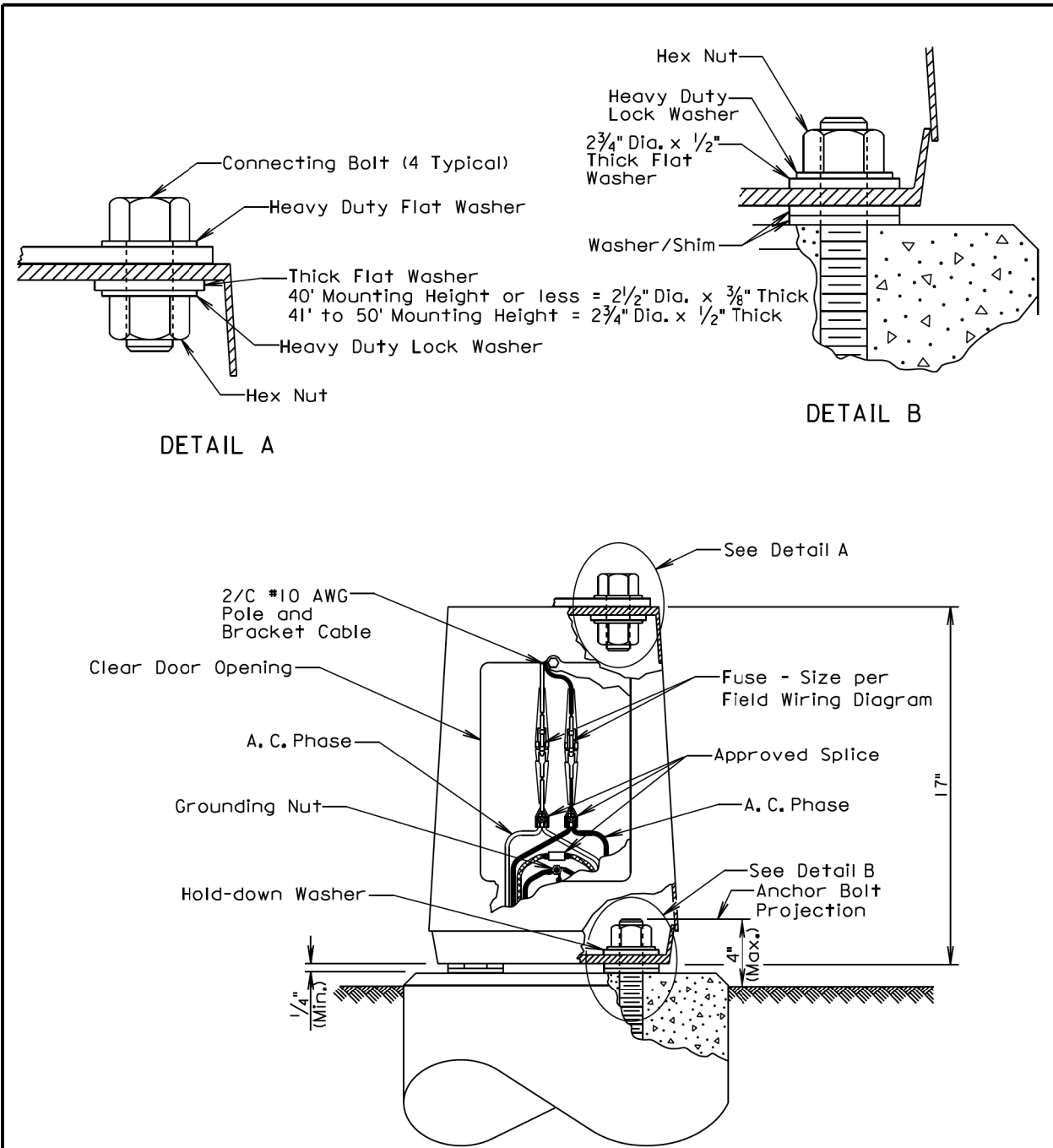
| SYMBOL | ROT | X | Y | WID | HT |
|--------|-----|---|---|-----|----|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| LETTER POSITIONS (X) | | | | | | | | | | | | LENGTH | | SERIES/SIZE | |
|----------------------|------|------|------|------|------|----|------|------|------|------|--|--------|--|-------------|--|
| R | O | A | D | | C | L | O | S | E | D | | | | D 2000 | |
| 5.5 | 10.4 | 15.5 | 21.5 | 25.6 | 31.6 | 37 | 41.5 | 46.6 | 51.7 | 56.5 | | | | 6 | |



| | | | |
|-------------------------------|-----------------------|--------------------------------------------------|------------------------|
| Published Date: 1st Qtr. 2015 | S D D O T | STEEL ROADWAY LUMINAIRE POLE WITH MAST ARM(S) | PLATE NUMBER 635.01 |
| | | | Sheet 1 of 1 |

| | | | |
|-----------------------------|-----------------------------------|------------|----------------------|
| STATE OF SOUTH DAKOTA | PROJECT 000i-451 & 000i-452 | SHEET 9 | TOTAL SHEETS 9 |
| | Plotting Date: 03/09/2015 | | |



GENERAL NOTES:

Base details are provided for example only and are not intended to be a complete design. Connectors shall be breakaway type.

The Contractor shall install "U" shaped shims or round flat washers if shimming is necessary to install the light poles plumb and level. The washers and shims shall be installed around the anchor bolts.

| | | | |
|-------------------------------|-----------------------|------------------------------------------------------|------------------------|
| Published Date: 1st Qtr. 2015 | S D D O T | ROADWAY LUMINAIRE POLE BREAKAWAY TRANSFORMER BASE | PLATE NUMBER 635.21 |
| | | | Sheet 1 of 1 |