

PLOT SCALE - 222.60000001.0000000

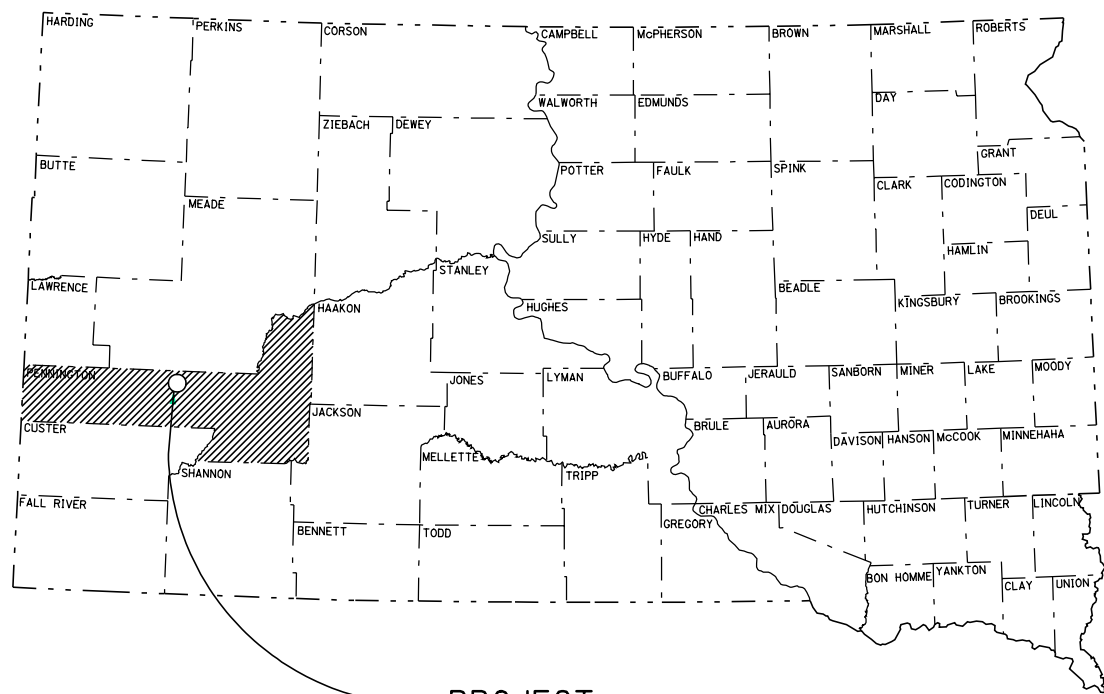
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
090E - 452
INTERSTATE 90
PENNINGTON COUNTY
 TEMPORARY TRAFFIC SIGNAL REPAIR
 PCEMS NO. I1KR

| FED. HWY. ADMIN. NO. | STATE OF | PROJECT | SHEET NO. | TOTAL SHEETS |
|----------------------|----------|------------|-----------|--------------|
| 8 | S.D. | 090E - 452 | 1 | 7 |

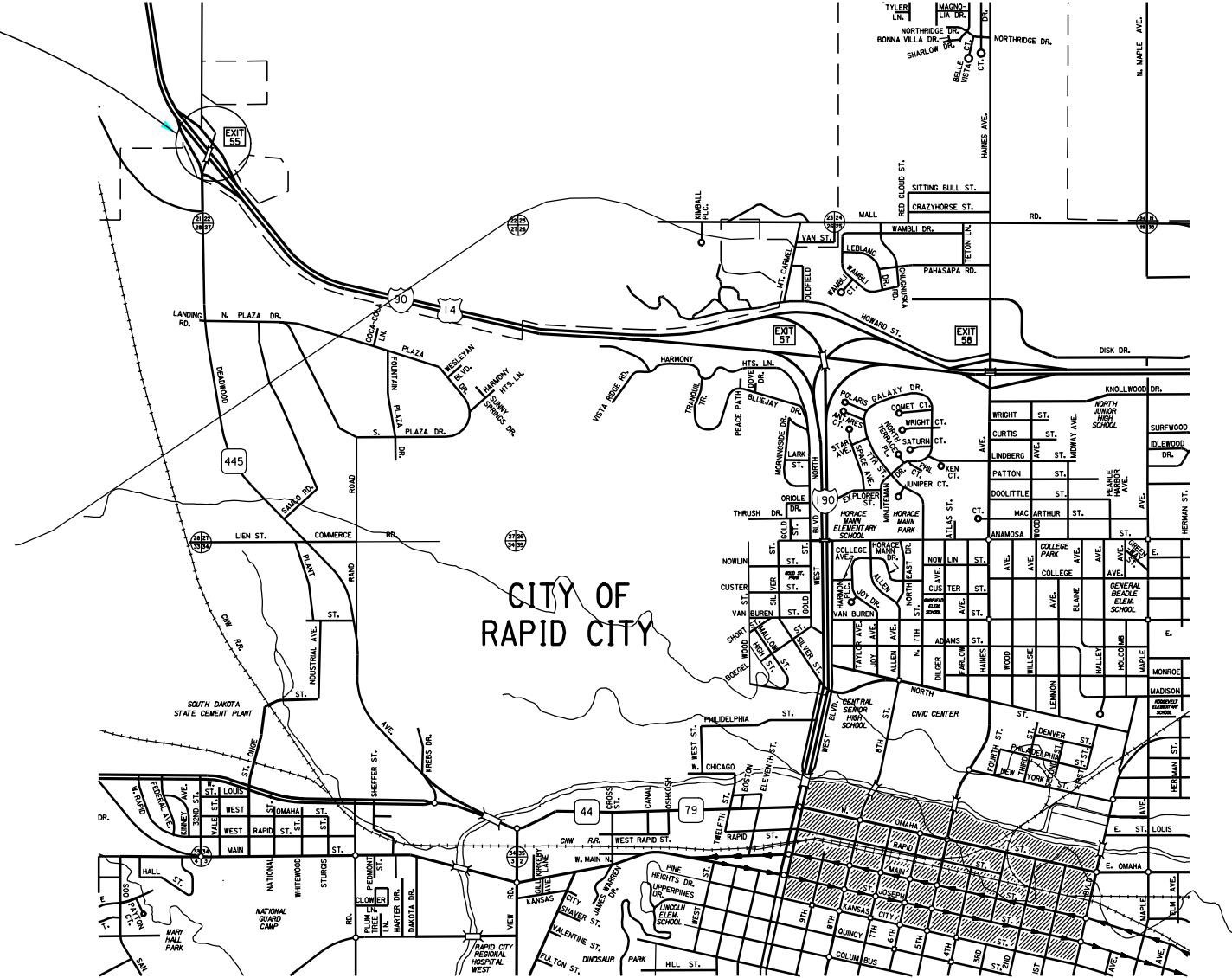
Plotting Date: 07-JUL-2009

INDEX OF SHEETS

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| SHEET 4 | ----- | CONDUIT LAYOUT |
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| SHEET 6 to 7 | ----- | WIRING DIAGRAMS |



PROJECT



DESIGN DESIGNATION

| | |
|------------|-------|
| ADT (2001) | 15630 |
| ADT (2021) | 21900 |
| DHV | 2320 |
| D | 50% |
| T DHV | 2.7% |
| T ADT | 6.0% |



SCALES

| | | | |
|----------------|-------------------|----------|-------|
| | RURAL | SUBURBAN | URBAN |
| PLAN | 1:200 | 1:100 | 1:40 |
| PROFILE | HORIZONTAL: 1:200 | 1:100 | 1:40 |
| | VERTICAL: 1:10 | 1:10 | 1:5 |
| CROSS SECTIONS | HORIZONTAL: 1:20 | 1:20 | 1:10 |
| | VERTICAL: 1:10 | 1:10 | 1:5 |

LEGEND

| | |
|-------------------------|-------|
| STATE AND NATIONAL LINE | ===== |
| COUNTY LINE | ----- |
| SECTION LINE | ----- |
| QUARTER LINE | ----- |
| SIXTEENTH LINE | ----- |
| PROPERTY LINE | ----- |
| SURVEY LINE | ----- |
| R. O. W. LINE | ----- |
| FILL LINE | ----- |
| CUT LINE | ----- |

PLOTTED FROM - TRRC11633

PLOT NAME - TITLESHEET

FILE - U:\REGION\PC\PRJ\PENNINGTON\90REPAIR\TITLESHEET.DGN

SHEET OF SHEETS

ESTIMATE OF QUANTITIES

| BID ITEM NUMBER | DESCRIPTION | QUANTITY | UNIT |
|-----------------|--------------------------------------|----------|------|
| 009E0010 | Mobilization | Lump Sum | LS |
| 250E0010 | Incidental Work | Lump Sum | LS |
| 635E2500 | Span Wire Pole | 1 | Each |
| 635E5360 | Surface Mounted Junction Box | 1 | Each |
| 635E5400 | Electrical Service Cabinet | 1 | Each |
| 635E8140 | 4" Rigid Conduit, Schedule 40 | 20 | Ft |
| 635E9424 | 24/C #12 AWG Copper Tray Cable, K2 | 30 | Ft |
| 635E9600 | #16 AWG Copper Twisted Shielded Pair | 30 | Ft |
| 635E9806 | 6/C Communication Cable | 30 | Ft |

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2004 Edition, and Required Provisions, Supplemental Specifications, and/or Special Provisions as included in the Proposal, the current edition of the FHWA Manual on Uniform Traffic Control Devices, and all national and local electrical codes.

GENERAL

The Contractor shall repair temporary traffic signal system at the intersection of Deadwood Ave. (SD445) and Interstate 90 Eastbound Ramps (Exit 55) in Rapid City, SD.

SPAN WIRE

The existing span wires and tether line have been cut at the SW corner pole location during the clean-up of a traffic accident. The Contractor shall adjust location of the new SW corner pole and repair the span wires and tether lines so that the existing can be reused.

The overhead traffic signal span wire shall be installed so that the signal heads are at a height of 17'-9" to 18'-9" above the roadway surface. Expansion or contraction of the span wire due to temperature should be considered when determining the height of the traffic signal heads. A tether line shall secure the bottom of the traffic signal heads to prevent excessive movement due to strong winds.

One guy wire shall be installed on the new SW corner support pole. The Contractor shall determine if additional guy wires are required.

INCIDENTAL WORK

Incidental work shall include the following:

1. Restoration of all disturbed areas to the satisfaction of the Engineer.
2. Repair of span wire cable and tether line.
3. Field splicing of all electrical to repair to working order.
4. Holes shall be backfilled to the satisfaction of the Engineer.
5. Install 1 – Class 5 treated wood support poles.
6. Furnish and Install Miscellaneous Signal Parts.

MISCELLANEOUS SIGNAL PARTS

Miscellaneous signal parts include the following items to be furnished and installed:

1. Guy Wire (including required pole attachments and misc. hardware)
2. Ground Rod (5/8"x10') and Clamps
3. Signal support wire required pole attachments

All other miscellaneous items such as reducers, copper ground wire, grips, connectors, fasteners, fuses, couplings, and any other materials required to adequately repair the Temporary Traffic Signal System.

SURFACE MOUNT JUNCTION BOXES

The Contractor shall furnish and install 1 Side Hinged 12"x12"x6" J-Box (Hoffman A-12R126HCR or approved equal). Contractor shall mount these boxes at same elevation as the top of signal heads +/- 1 foot.

CONDUIT INSTALLATION

The Contractor shall expose enough conduit between JB#8 and Pole H to removed damaged conduit and splice on with new. New conduit will be installed up Pole H with new weather-head to be terminated near the top of the surface mount junction box.

PULL WIRE

The Contractor shall re-install a 1/c #10 pull wire in the conduit as shown on the conduit layout between JB#8 and the surface mount junction box on Pole H.

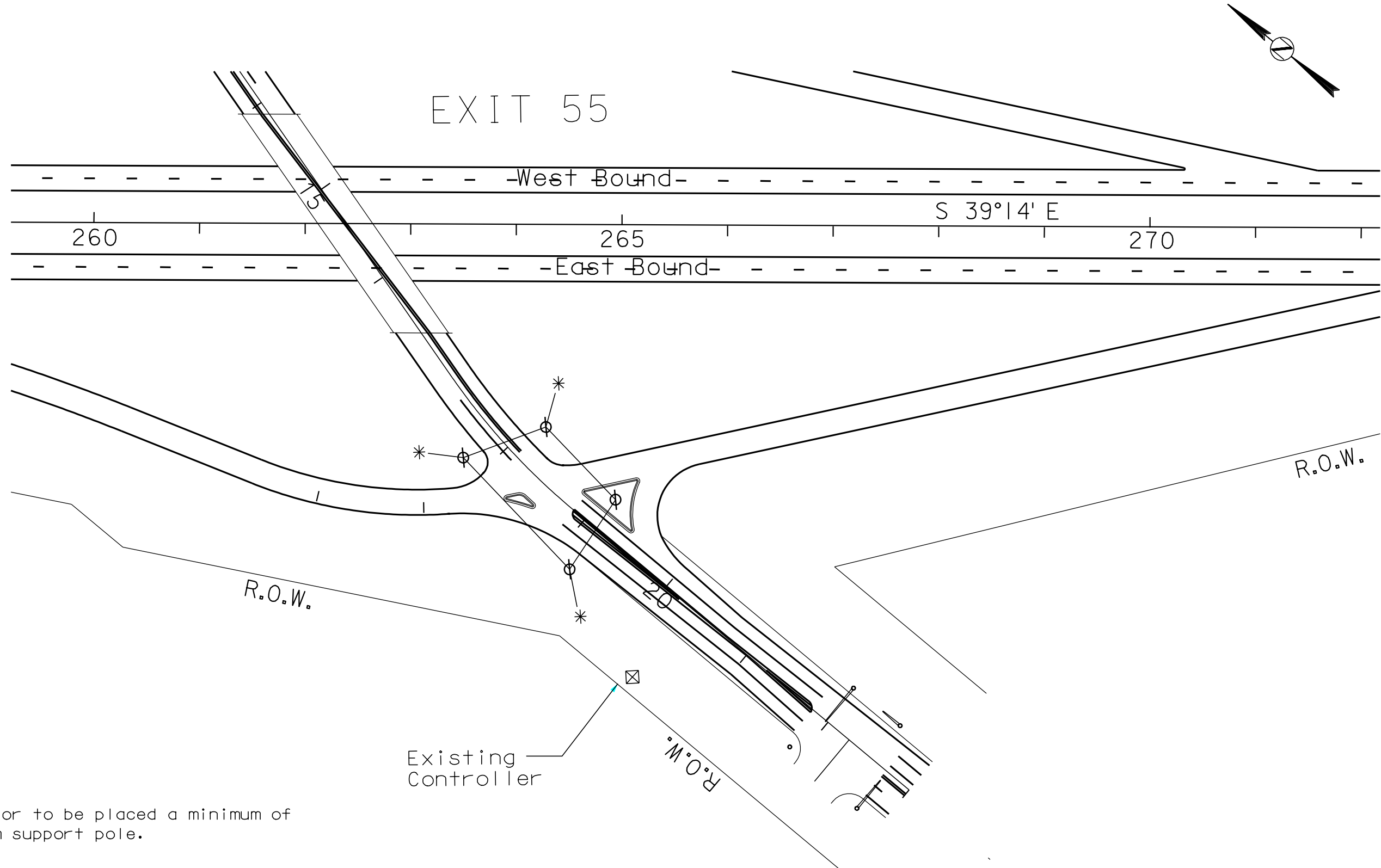
TRAFFIC CONTROL & SEQUENCE OF OPERATIONS

Traffic Control will be provided by the State and shall be coordinated by the Engineer.

1. No work activities will be permitted after dark.
2. The Contractor shall protect pedestrian traffic from open excavations and other hazards with orange safety fence as approved by the Engineer.
3. All equipment and materials shall be stored a minimum of 30' from edge of traveled lanes or protected by means of placement of a minimum of 3' behind existing guardrail.

SITE PLAN

| | | | |
|----------------------------|------------|-----------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | 090E - 452 | 3 | 7 |
| Plotting Date: 07-JUL-2009 | | | |
| Revise Date: - - | | | |
| Initials: | | | |



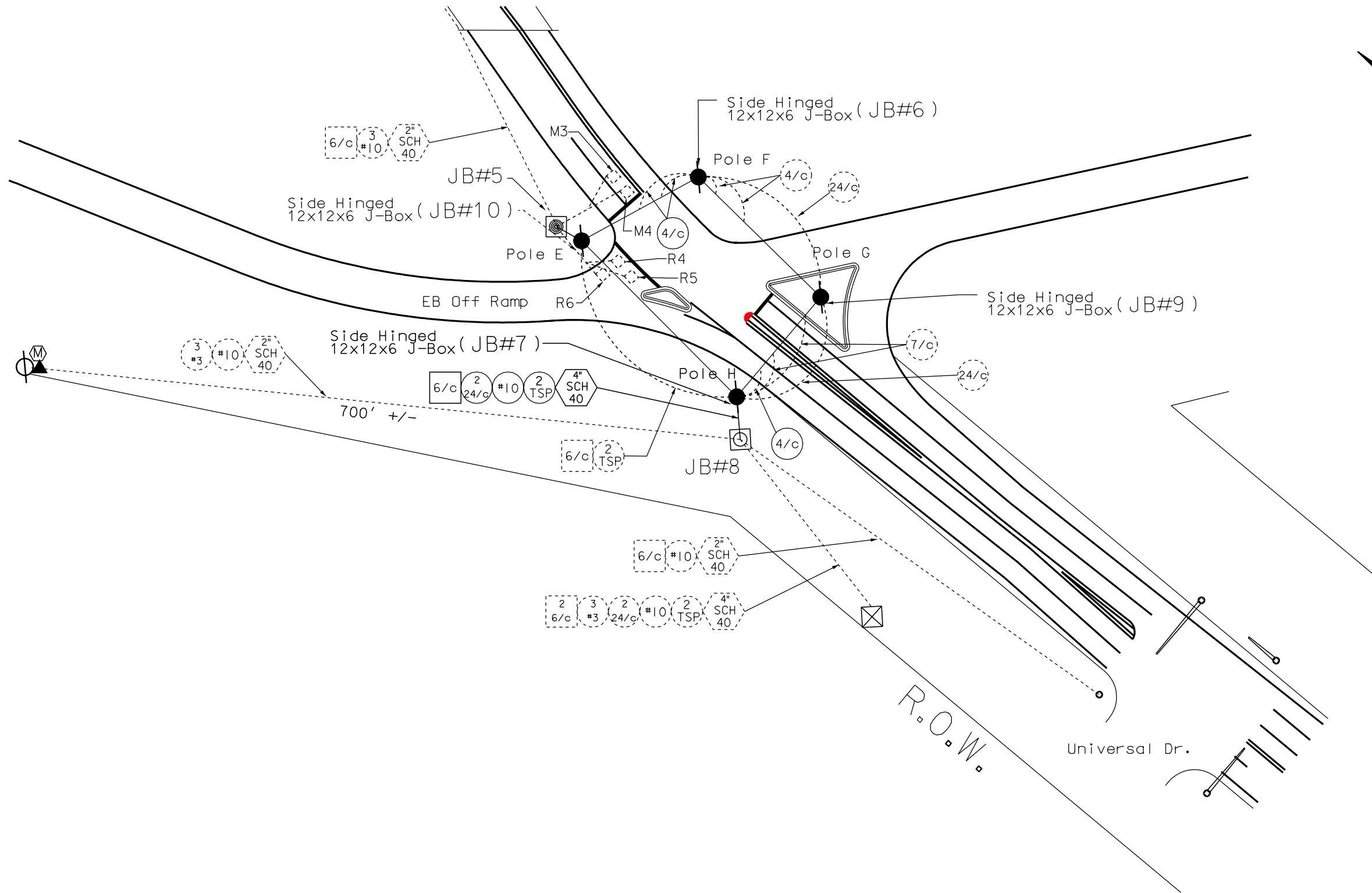
* Guy anchor to be placed a minimum of 25' from support pole.

PLOT SCALE - 222.6000001.000000

PLOTTED FROM - IRRCL1633

CONDUIT LAYOUT

| | | | |
|-----------------------------|------------|--------------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | 090E - 452 | 4 | 7 |
| Plotting Date: 07-JUL-2009 | | | |
| Revise Date: - - | | | |
| Initials: | | | |



PLOT NAME - CONDUITLAYOUT

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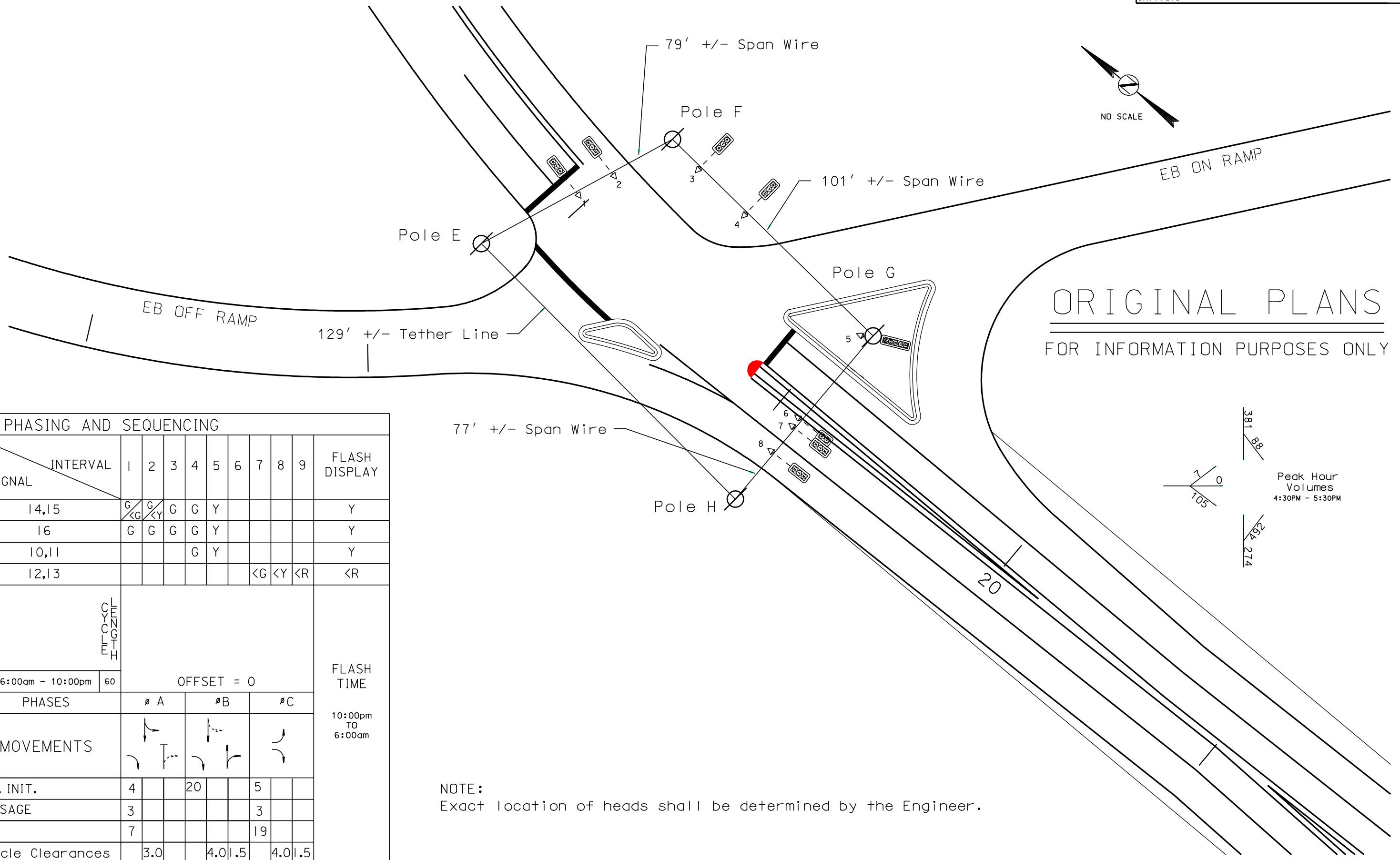
SHEET OF SHEETS

PLOT SCALE - 222.6000001.000000

PLOTTED FROM - IRRC11633

SOUTH SIGNAL LAYOUT

| | | | |
|----------------------------|------------|-----------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | 090E - 452 | 5 | 7 |
| Plotting Date: 07-JUL-2009 | | | |
| Revise Date: - - | | | |
| Initials: | | | |

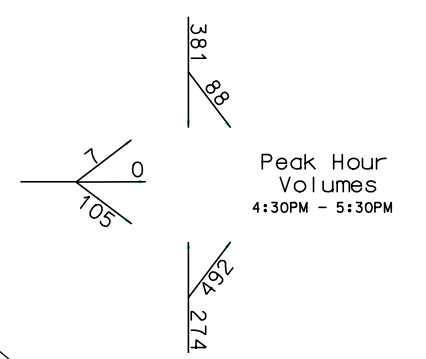


ORIGINAL PLANS
FOR INFORMATION PURPOSES ONLY

| PHASING AND SEQUENCING | | | | | | | | | | | |
|------------------------|----------|---------|---------|---|---|---|---|----|----|----|---------------|
| SIGNAL | INTERVAL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | FLASH DISPLAY |
| 14,15 | | G CG | G CY | G | G | Y | | | | | Y |
| 16 | | G | G | G | G | Y | | | | | Y |
| 10,11 | | | | | G | Y | | | | | Y |
| 12,13 | | | | | | | | <G | <Y | <R | <R |

| | | | | | |
|--------------------|----|------------|-----------|-----------|---------------------------------------|
| 6:00am - 10:00pm | 60 | OFFSET = 0 | | | FLASH TIME 10:00pm TO 6:00am |
| | | PHASES | ø A | ø B | |
| MOVEMENTS | | | | | |
| MIN. INIT. | | 4 | 20 | 5 | |
| PASSAGE | | 3 | | 3 | |
| MAX | | 7 | | 19 | |
| Vehicle Clearances | | 3.0 | 4.0 1.5 | 4.0 1.5 | |

NOTE:
Exact location of heads shall be determined by the Engineer.



PLOT NAME - SIGNAL LAYOUTS.DGN FILE - U:\REGION\RC\PRJ\PEN\6545\09REP\TRA\SIGNAL LAYOUTS.DGN SHEET OF SHEETS

SOUTH AS-BUILTS WIRING NOTES

| | | | |
|----------------------------|-----------------------|----------------|-------------------|
| STATE OF SOUTH DAKOTA | PROJECT 090E - 452 | SHEET NO. 7 | TOTAL SHEETS 7 |
| Plotting Date: 07-JUL-2009 | | | |
| Revise Date: - - | | | |
| Initials: | | | |

Pole "E" (NW Corner)

Loops for:
Phase 4 & Phase 1
Communication line spliced here also.
No signal head splices here.

Pole "F" (NE Corner)

12/c

Heads #1 & #2 (Phase 2)

| | | |
|----|---|-----|
| R | - | R |
| Y | - | Or |
| G | - | Blu |
| Ac | - | Y |

Heads #3 & #4 (Phase 4)

| | | |
|----|---|---------|
| R | - | R/Blu |
| Y | - | Or/Blu |
| G | - | Blu/Blu |
| Ac | - | Y/Blu |

Pole "H" (SW Corner)

Here is where the 25/c from Controller and the two (2) 12/c cables, loops, & communication line will be spliced

12/c - 25/c

Phase 2

| | | |
|-----|---|-----|
| R | - | R |
| Or | - | Or |
| Blu | - | Blu |
| Y | - | Y |

12/c - 25/c

Phase 6

| | | |
|-----|---|--------|
| R | - | R/Blu |
| Or | - | Or/Blu |
| Blu | - | Blu/Or |
| Y | - | Y/Or |

Loops

| | | |
|-----|---|-----|
| Blu | - | Blu |
| Blu | - | Blu |

Phase 4

| | | |
|---------|---|---------|
| R/Blu | - | R/Blu |
| Or/Blu | - | Or/Blu |
| Blu/Blu | - | Blu/Blu |
| Y/Blu | - | Y/Blu |

Phase 6

| | | |
|---------|---|-------|
| R/Blu | - | R/Or |
| Or/Blu | - | Or/R |
| Blu/Blu | - | Blu/R |
| Y/Blu | - | Y/R |

Phase 1

| | | |
|---------|---|---------|
| Brn | - | Brn |
| Brn/Blu | - | Brn/Blu |
| Blu | - | Y/Blu |

ORIGINAL PLANS

FOR INFORMATION PURPOSES ONLY

PLOT SCALE - 222.6000001.000000

PLOTTED FROM - ITRC11633

PLOT NAME - WIRINGDIAGRAMS

FILE - U:\REGIONRC\PRJ\PENNG645\09REP\TR\WIRINGDIAGRAMS.DGN

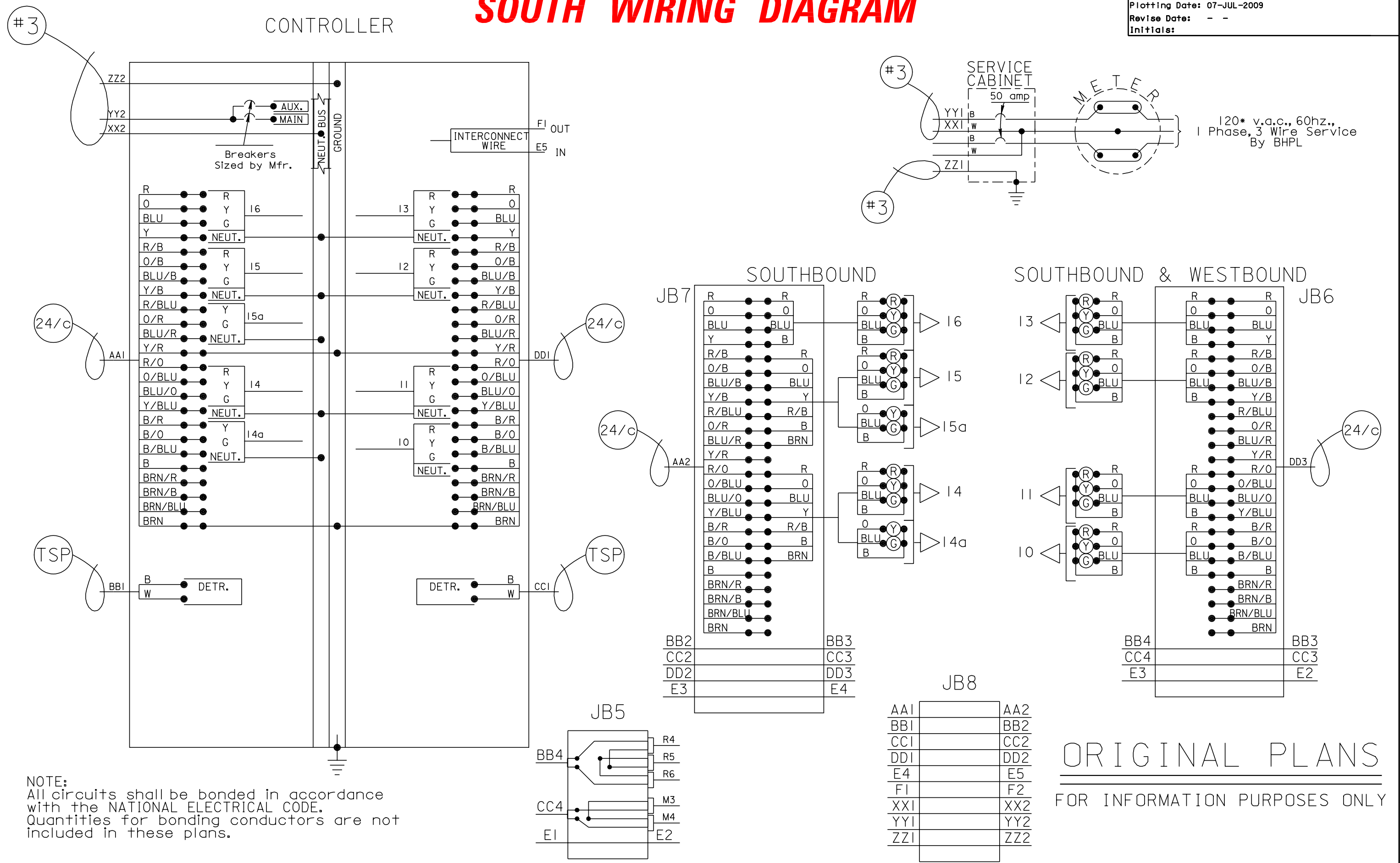
SHEET OF SHEETS

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PLOTTED FROM - TRRC11633

SOUTH WIRING DIAGRAM

| | | | |
|----------------------------|-----------------------|----------------|-------------------|
| STATE OF SOUTH DAKOTA | PROJECT 090E - 452 | SHEET NO. 6 | TOTAL SHEETS 7 |
| Plotting Date: 07-JUL-2009 | | | |
| Revise Date: - - | | | |
| Initials: | | | |



NOTE:
All circuits shall be bonded in accordance with the NATIONAL ELECTRICAL CODE.
Quantities for bonding conductors are not included in these plans.

ORIGINAL PLANS
FOR INFORMATION PURPOSES ONLY

PLOT NAME - WIRINGDIAGRAMS1 FILE - U:\REGION\RC\PRJ\PEN\6545\09REP\TR\WIRINGDIAGRAMS.DGN SHEET OF SHEETS