

STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION  
PLANS FOR PROPOSED

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(182)23	1	38

Plotting Date: 07/14/2015

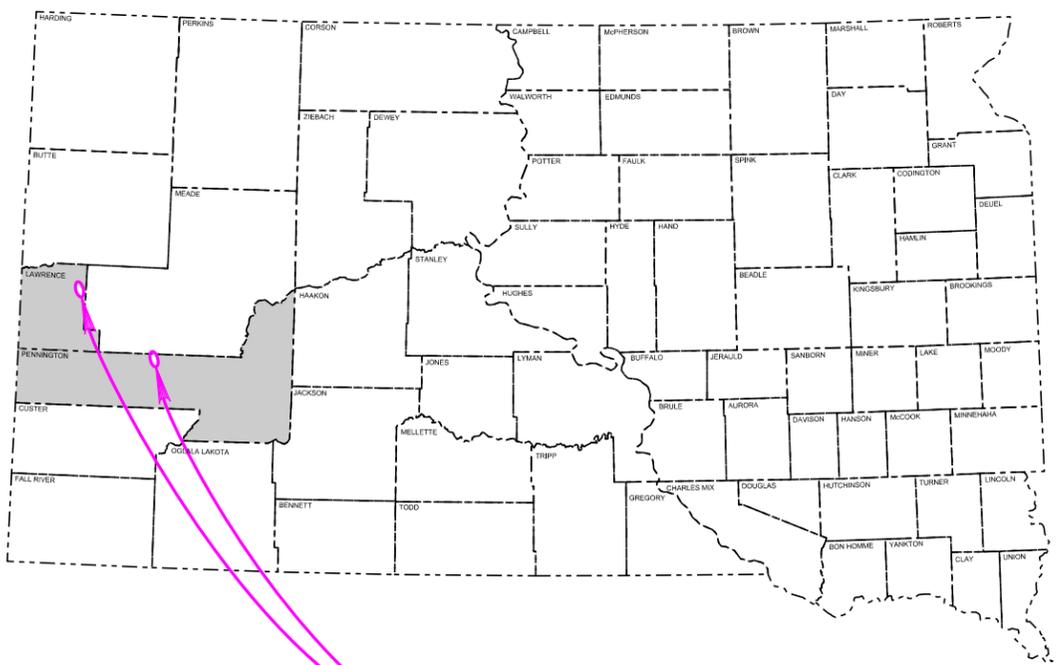
INDEX OF SHEETS

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PROJECTS IM 0901(182)23 &  
IM 0902(160)67  
INTERSTATE 90/EXITS 23 & 67  
LAWRENCE & PENNINGTON COUNTIES

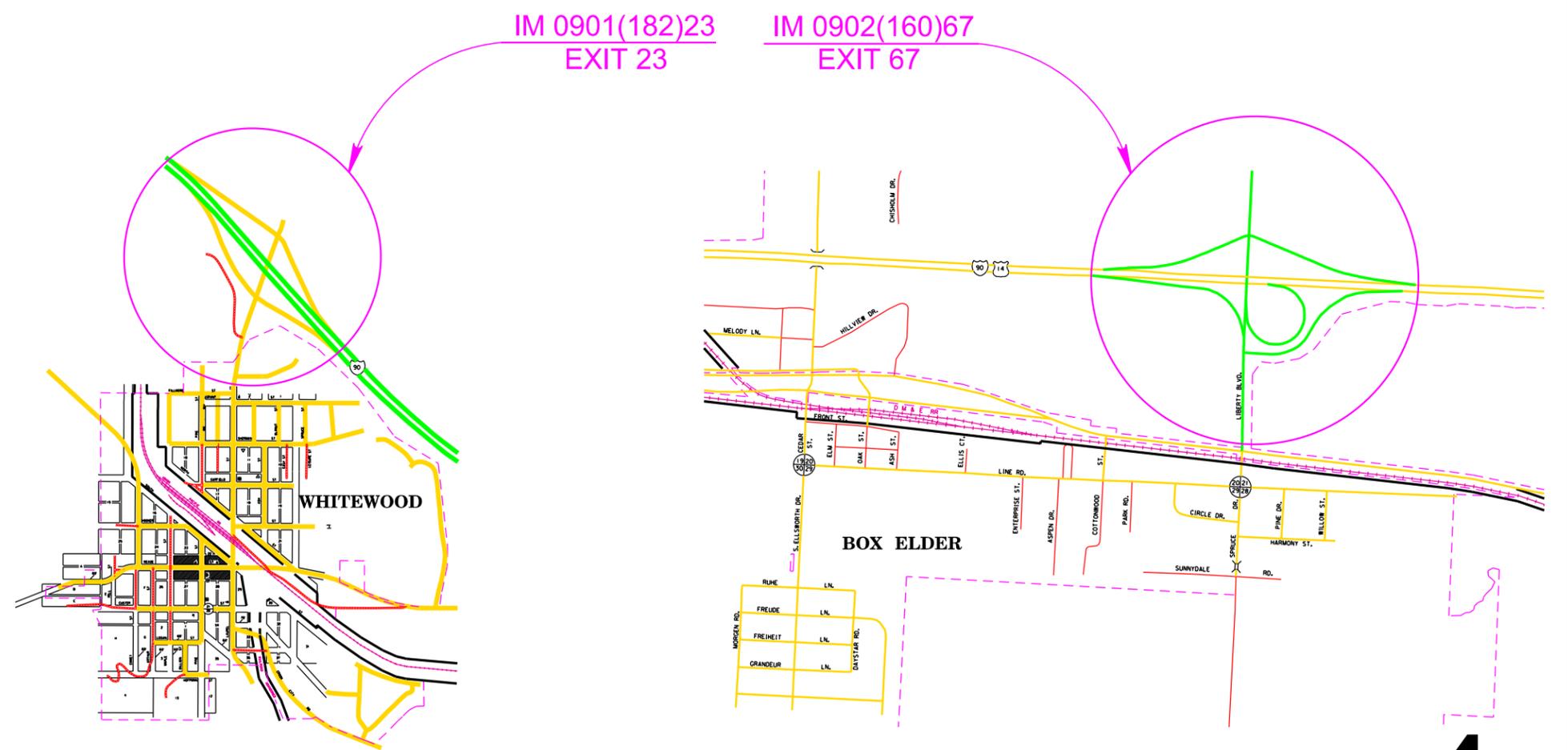
PARTIAL INTERCHANGE LIGHTING  
PCN 02Q0 & 034L



PROJECTS

DESIGN DESIGNATION (Exit 23)	190	Ramp A	Ramp B	Ramp C	Ramp D
ADT (2014)	10304	2066	3556	998	852
ADT (2035)	22571	4525	7788	2185	1865
DHV	1279	207	356	100	86
D	50%	100%	100%	100%	100%
T DHV	9.7%	4.6%	4.6%	4.6%	4.6%
T ADT	21.3	10%	10%	10%	10%
V(mph)	80	50	50	50	50

DESIGN DESIGNATION (Exit 67)	190	Ramp A	Ramp B	Ramp C	Ramp D	Ramp F
ADT (2014)	22293	190	185	280	3270	1800
ADT (2035)	33996	290	282	472	4987	2745
DHV	4258	19	19	28	327	180
D	50%	100%	100%	100%	100%	100%
T DHV	6.3%	4.6%	4.6%	4.6%	4.6%	4.6%
T ADT	14.4%	10%	10%	10%	10%	10%
V	80	50	50	50	50	50



STORM WATER PERMIT  
None Required

Plot Scale - 1:200

Plotted From - tpr14286

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## ESTIMATE OF QUANTITIES (Exit 23- PCN02Q0)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
634E0010	Flagging	100.0	Hour
634E0110	Traffic Control Signs	268	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
635E0050	Breakaway Base Luminaire Pole with Arm, 50' Mounting Height	14	Each
635E0150	Breakaway Base Luminaire Pole with Twin Arms, 50' Mounting Height	4	Each
635E3340	Roadway Luminaire, 400 Watt with Photoelectric Cell	22	Each
635E5020	2' Diameter Footing	148.0	Ft
635E5302	Type 2 Electrical Junction Box	21	Each
635E5400	Electrical Service Cabinet	1	Each
635E8120	2" Rigid Conduit, Schedule 40	6,245	Ft
635E8130	3" Rigid Conduit, Schedule 40	325	Ft
635E8220	2" Rigid Conduit, Schedule 80	885	Ft
635E9011	1/C #1 AWG Copper Wire	13,720	Ft
635E9014	1/C #4 AWG Copper Wire	7,880	Ft
635E9016	1/C #6 AWG Copper Wire	3,525	Ft
635E9710	2/C #10 AWG Copper Pole and Bracket Cable	1,430	Ft

## ESTIMATE OF QUANTITIES (Exit 67- PCN034L)

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
634E0010	Flagging	100.0	Hour
634E0110	Traffic Control Signs	268	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
635E0050	Breakaway Base Luminaire Pole with Arm, 50' Mounting Height	12	Each
635E0150	Breakaway Base Luminaire Pole with Twin Arms, 50' Mounting Height	5	Each
635E3340	Roadway Luminaire, 400 Watt with Photoelectric Cell	22	Each
635E5020	2' Diameter Footing	141.0	Ft
635E5302	Type 2 Electrical Junction Box	10	Each
635E8120	2" Rigid Conduit, Schedule 40	3,470	Ft
635E8220	2" Rigid Conduit, Schedule 80	670	Ft
635E9011	1/C #1 AWG Copper Wire	5,525	Ft
635E9012	1/C #2 AWG Copper Wire	5,665	Ft
635E9013	1/C #3 AWG Copper Wire	1,665	Ft
635E9710	2/C #10 AWG Copper Pole and Bracket Cable	1,430	Ft

## SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

## ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

## COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

## COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

### Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10.06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

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## COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all designated option borrow sites provided within the plans.

### Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

**COMMITMENT K: RAPID CITY AREA AIR QUALITY CONTROL ZONE**

Administrative Rule of South Dakota (ARSD) 74:36:18:03 states that "no state facility or state contractor may engage in any construction activity or continuous operation activity within the Rapid City air quality control zone which may cause fugitive emissions of particulate to be released into the ambient air without first obtaining a permit issued by the board or the secretary."

Construction activity is defined as any temporary activity at a state facility, which involves the removal or alteration of the natural or pre-existing cover of one acre or more of land. One acre of surface area is based on a cumulative area of disturbance to be completed for the entire project. Construction activity shall include, but not be limited to, stripping of topsoil, drilling, blasting, excavation, dredging, ditching, grading, street maintenance and repair, or earth moving. Construction activity is generally completed within one year. It also includes stockpiles, access roads, and disposal areas. An off-site disposal area of excess material will require an additional permit.

**Action Taken/Required:**

In order to be considered eligible for authorization to conduct a construction activity under the terms and conditions of this permit, the owner operator must submit a Notice of Intent (NOI) form. The form must be submitted to the address below at least seven business days prior to the anticipated date of beginning the construction activity.

South Dakota Department of Environment and Natural Resources Air Quality Program  
523 East Capitol, Joe Foss Building  
Pierre, SD 57501-3181  
Phone: 605-773-3151

The permit requires the Contractor to use reasonably available technology to control fugitive dust emissions. The Contractor is required to use control measures for track out, paved areas, unpaved roads, unpaved parking lots, disturbed areas, and for material handling and storage. The control measures that the Contractor is required to use are listed in the permit.

**SHOP DRAWING AND CATALOG CUTS SUBMITTALS**

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

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

[Norris.Leone@state.sd.us](mailto:Norris.Leone@state.sd.us)  
[Pete.Longman@state.sd.us](mailto:Pete.Longman@state.sd.us)

**SUPPLYING AS BUILT PLANS**

If the traffic signal systems or roadway lighting systems are constructed differently than what is stated in the plans, the Contractor shall supply as built plans to the Engineer and a copy shall be sent to the Traffic Design Engineer. The as built plans may include conduit layouts, wiring diagrams, or other drawings depicting the changes from the original plans.

**INCIDENTAL WORK**

Incidental work includes, but is not limited to, the restoration of all disturbed areas to the satisfaction of the Engineer.

**POLES**

Luminaire poles (s) shall have a 50 Ft. mounting height with 8 Ft. arms.

**LUMINAIRES**

The accepted design for the roadway luminaires shall provide 0.9 and greater average maintained foot-candles and a uniformity ratio (average maintained to minimum maintained foot-candles) of 3:1 and less using the following parameters:

- Setback: 8 Ft.
- Lamp Loss Factor (LLF): 0.7
- Width of Lighted Area: 32 Ft.
- Spacing: 260 Ft.
- Configuration: One-Sided
- Mounting Height: 50 Ft.
- Lamp: 400W HPS

The following luminaires meet the requirements for this design:

- b.) Hubbell: Test No. HP03065.IES High Pressure Sodium, Medium, Cutoff, Type III
- c.) Cooper Lighting: Test No. OVY40S3D 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.

**SUBSURFACE CONDITIONS (EXIT 23- PCN02Q0)**

The subsurface soils at Exit 23 consist of 0' to 30' of brown to reddish brown silt-clay fill over in-place red clay-silt Spearfish Formation containing gypsum deposits. Groundwater was not encountered and no caving was noted within any of the borings.

Some of the footings for the luminaire poles will be placed in the Spearfish Formation. The Spearfish Formation may contain thin seams to massive beds of gypsum. It is likely that some gypsum will be encountered during the drilling of the footings. If gypsum is encountered it may have to be prebored with a smaller bit and then drilled to the final footing diameter.

Concrete placement operations should closely follow excavation procedures. The longer the excavations are left open the more likely caving may occur. If caving soils are encountered casing may be required to construct the footings.

The boring logs and laboratory tests are available for review at the Central Office in Pierre. If questions arise or additional information is needed concerning the cylindrical footings contact the Geotechnical Engineering Activity in Pierre at (605) 773 3401.

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**TABLE OF FOOTING DATA (EXIT 23- PCN02Q0)**

Site Designation	Footing Diameter	* Footing Depth	**Spiral Diameter	**Spiral Length	Vertical Reinforcement
L1-L3, L5-L6, L8-L11, L13-L14, L16-L18	2' - 0"	8' - 0"	1' - 8"	54' - 9"	8-#7 x 7' - 6"
L4, L7, L12, L15	2' - 0"	9' - 0"	1' - 8"	60' - 0"	8-#7 x 8' - 6"

- \* Footing depth shall be below ground level.
- \*\* The size of all spirals shall be #3.

**SUBSURFACE CONDITIONS (EXIT 67- PCN034L)**

The subsurface conditions within the limits of the project consist of 0'-5' of brown silt-clay followed by 3'-10' clay-gravel (up to cobble size) overlying gray silt-clay (Pierre Shale). Groundwater was encountered at depths below the proposed footings. Caving was not noted on the bore logs.

Due to the subsurface conditions, concrete placement operations should closely follow excavation procedures during construction. The longer the excavations are left open the more likely caving may occur. If caving soils are encountered during excavation, casing may be required to construct the cylindrical footings.

Concrete shall not be dropped through standing water. If water is present in the excavation it shall be removed prior to concrete placement or the concrete shall be tremied. If caving occurs during dewatering the concrete shall be placed through a tremie or by means of a casing.

The boring logs and laboratory tests are available for review at the Central Office in Pierre. If questions arise or additional information is needed concerning the cylindrical footings contact the Geotechnical Engineering Activity in Pierre at (605) 773.3401.

**TABLE OF FOOTING DATA (EXIT 67- PCN034L)**

Site Designation	Footing Diameter	* Footing Depth	**Spiral Diameter	**Spiral Length	Vertical Reinforcement
L1-L6, L9, L13-L17	2' - 0"	8' - 0"	1' - 8"	54' - 9"	8-#7 x 7' - 6"
L7-L8, L10-L12	2' - 0"	9' - 0"	1' - 8"	60' - 0"	8-#7 x 8' - 6"

- \* Footing depth shall be below ground level.
- \*\* The size of all spirals shall be #3.

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**TRAFFIC CONTROL – GENERAL NOTES**

1. Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of one week prior to potential implementation.
2. Unless otherwise stated in these plans, no work will be allowed during hours of darkness.
3. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage of the vegetation, surfacing, embankment, delineators, and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.
4. Existing guide, route, informational logo, regulatory, and warning signs shall be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including but not limited to, traffic signal heads, delineation, and signing shall be the responsibility of the Contractor.
5. Periods of inactivity shall be defined as no work taking place for a period of more than 48 hours.
6. Construction signing mounted on portable supports shall not be used for a duration of more than 3 days, unless approved by the Engineer. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location, ground mounted, breakaway supports.
7. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.
8. All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.
9. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.
10. All haul trucks shall be equipped with a second flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights shall be incidental to the various related contract bid items.
11. All construction operations shall be conducted in the general direction of traffic movement.
12. If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD – whichever is more stringent shall be used, as determined by the Engineer.
13. Traffic shall not be stopped on the on and off ramps.
14. There are enough traffic control units in the plans to provide for two (2) shoulder work setups, and two (2) partial ramp closures per project.

15. All traffic control devices shall be removed (shouldered) from the roadway prior to darkness each day, except the fixed location signing.

**SEQUENCE OF OPERATIONS**

- 1) Install traffic control in accordance with Standard Plates. When working in the gore areas of the on and off ramps, the Interstate shoulders shall be closed off in the area of the work using Standard Plate 634.03.
- 2) Complete Roadway Lighting work.

**PRESS RELEASE ANNOUNCEMENTS**

The SDDOT will prepare a Press Release to be released 5 days prior to any phase change or any other major change that affects traffic flow. The SDDOT will be responsible to keep law enforcement, emergency services, and the traveling public notified of changes in project access. The Contractor shall provide the Engineer with pertinent information 7 days prior to any phase change or any other major changes that affect traffic flow.

**INVENTORY OF TRAFFIC CONTROL DEVICES (PCN 02Q0)**

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W5-4	RAMF NARROWS	2	48" x 48"	16	32
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6	12
W20-1	ROAD WORK AHEAD	8	48" x 48"	16	128
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-5	SHOULDER WORK	2	48" x 48"	16	32
G20-2	END ROAD WORK	4	48" x 24"	8	32
<b>EXPRESSWAY / INTERSTATE</b>					<b>268</b>
<b>TRAFFIC CONTROL SIGNS SQFT</b>					<b>268</b>

**INVENTORY OF TRAFFIC CONTROL DEVICES (PCN 034L)**

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W5-4	RAMF NARROWS	2	48" x 48"	16	32
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6	12
W20-1	ROAD WORK AHEAD	8	48" x 48"	16	128
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-5	SHOULDER WORK	2	48" x 48"	16	32
G20-2	END ROAD WORK	4	48" x 24"	8	32
<b>EXPRESSWAY / INTERSTATE</b>					<b>268</b>
<b>TRAFFIC CONTROL SIGNS SQFT</b>					<b>268</b>

**UTILITIES**

The Contractor shall contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It shall be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25; the Contractor shall contact the Project Engineer to determine if project changes are necessary to avoid utility impacts.

STATE OF SOUTH DAKOTA	PROJECT IM 0901(182)23	SHEET 4	TOTAL SHEETS 38
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Plotting Date: 07/14/2015

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# TABLE OF CONDUIT AND CABLE QUANTITIES

Plotting Date: 07/14/2015

Location to Location	Rigid Conduit				Copper Wire					Pole and Bracket Cable														
	Schedule 40		Schedule 80		1/C #1 AWG	1/C #2 AWG	1/C #3 AWG	1/C #4 AWG	1/C #6 AWG	2/C #10 AWG														
	2"	3"	2"								Ft	Ft	Ft	Ft	Ft	Ft								
<b>LIGHTING</b>																								
<b>INTERSTATE 90 / EXIT 23</b>																								
L1	L2	270							835															
L2	L3	270							835															
L3	JL1	275							850															
JL1	SERVICE CABINET		325			1,005		1,005	1,005															
JL1	JL2			55				170																
JL2	L4	15						50																
JL2	JL3			170				530																
JL3	L5	190						590																
JL3	L6	90						280																
L6	JL4	270						835																
JL4	JL5			55				170																
JL5	L7	15						50																
JL4	JL6	310						960																
JL6	JL7	310						960																
JL7	JL8	310						960																
JL8	JL9	245						760																
JL9	L8	70						220																
JL9	L9			110				340																
JL1	JL10	310				960																		
JL10	JL11	310				960																		
JL11	JL12	310				960																		
JL12	JL13	240				745																		
JL13	L10			75		235																		
L10	JL14	115				360																		
JL14	L11			140		435																		
JL14	JL15	310				960																		
JL15	JL16	310				960																		
JL16	JL17	310				960																		
JL17	JL18			55		170																		
JL18	L12	15				50																		
JL17	L13	270				835																		
L13	JL19	30				95																		
JL19	L14	250				775																		
JL19	JL20			170		530																		
JL20	L15	15				50																		
JL20	JL21			55		170																		
JL21	L16	270				835																		
L16	L17	270				835																		
L17	L18	270				835																		
<b>LUMINAIRE POLES</b>																								
LUMINAIRE POLES	L1								65															
LUMINAIRE POLES	L2								65															
LUMINAIRE POLES	L3								65															
LUMINAIRE POLES	L4								130															
LUMINAIRE POLES	L5								65															
LUMINAIRE POLES	L6								65															
LUMINAIRE POLES	L7								130															
LUMINAIRE POLES	L8								65															
LUMINAIRE POLES	L9								65															
LUMINAIRE POLES	L10								65															
LUMINAIRE POLES	L11								65															
LUMINAIRE POLES	L12								130															
LUMINAIRE POLES	L13								65															
LUMINAIRE POLES	L14								65															
LUMINAIRE POLES	L15								130															
LUMINAIRE POLES	L16								65															
LUMINAIRE POLES	L17								65															
LUMINAIRE POLES	L18								65															
<b>Subtotal:</b>		6,245	325	885		13,720		7,880	3,525	1,430														
<b>PCN 02Q0 Total:</b>		6,245	325	885		13,720		7,880	3,525	1,430														

Plot Scale - 1:200

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# TABLE OF CONDUIT AND CABLE QUANTITIES

Plotting Date: 07/14/2015

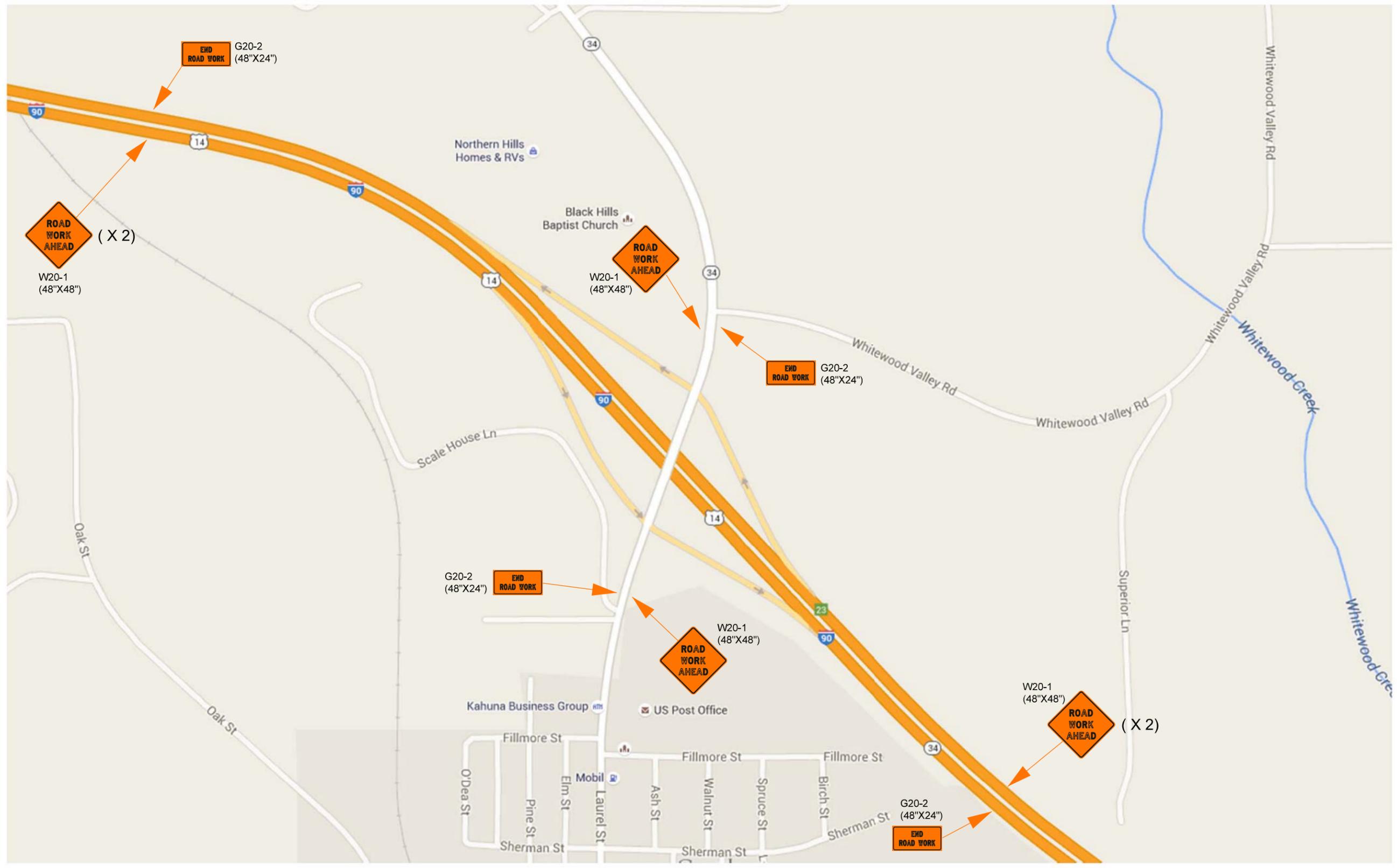
Location to Location	Rigid Conduit					Copper Wire					Pole and Bracket Cable	
	Schedule 40		Schedule 80			1/C #1 AWG Ft	1/C #2 AWG Ft	1/C #3 AWG Ft	1/C #4 AWG Ft	1/C #6 AWG Ft	2/C #10 AWG Ft	
	2" Ft	3" Ft	2" Ft									
<b>LIGHTING</b>												
<b>INTERSTATE 90 / EXIT 67</b>												
L1	L3	270				835						
L3	L5	270				835						
L5	JL24	270				835						
JL24	JL25			60		190						
JL25	L7	15				50						
JL25	EJB18			205		635						
EJB18	L6	80				250						
EJB19	L4	65				205						
L4	L2	270				835						
EJB18	JL26	205				635						
JL26	JL27			55		170						
JL27	L8	15				50						
EJB12	J330	170					530					
JL30	L13	270				835						
L13	L15	270				835						
JL30	JL31			60		190						
JL31	L11	15				50						
JL31	JL32			165		510						
JL32	L12	15				50						
EJB14	L9	200					620					
L9	JL28	255					790					
JL28	JL29			65			205					
JL29	L10	15					50					
JL32	JL33			60		190						
JL33	L14	260				805						
L14	L16	270				835						
L16	L17	270				835						
<b>LUMINAIRE POLES</b>												
LUMINAIRE POLES	L1										65	
LUMINAIRE POLES	L2										65	
LUMINAIRE POLES	L3										65	
LUMINAIRE POLES	L4										65	
LUMINAIRE POLES	L5										65	
LUMINAIRE POLES	L6										65	
LUMINAIRE POLES	L7										130	
LUMINAIRE POLES	L8										130	
LUMINAIRE POLES	L9										65	
LUMINAIRE POLES	L10										130	
LUMINAIRE POLES	L11										130	
LUMINAIRE POLES	L12										130	
LUMINAIRE POLES	L13										65	
LUMINAIRE POLES	L14										65	
LUMINAIRE POLES	L15										65	
LUMINAIRE POLES	L16										65	
LUMINAIRE POLES	L17										65	
<b>Subtotal:</b>		3470		670		5525	5665	1665			1430	
<b>PCN 034L Total:</b>		3470		670		5525	5665	1665			1430	

Plot Scale - 1:200

Plotted From - trp14286

File - ...apj\law0200\TableConduit.dgn

### FIXED LOCATION SIGNING LAYOUT EXIT 23



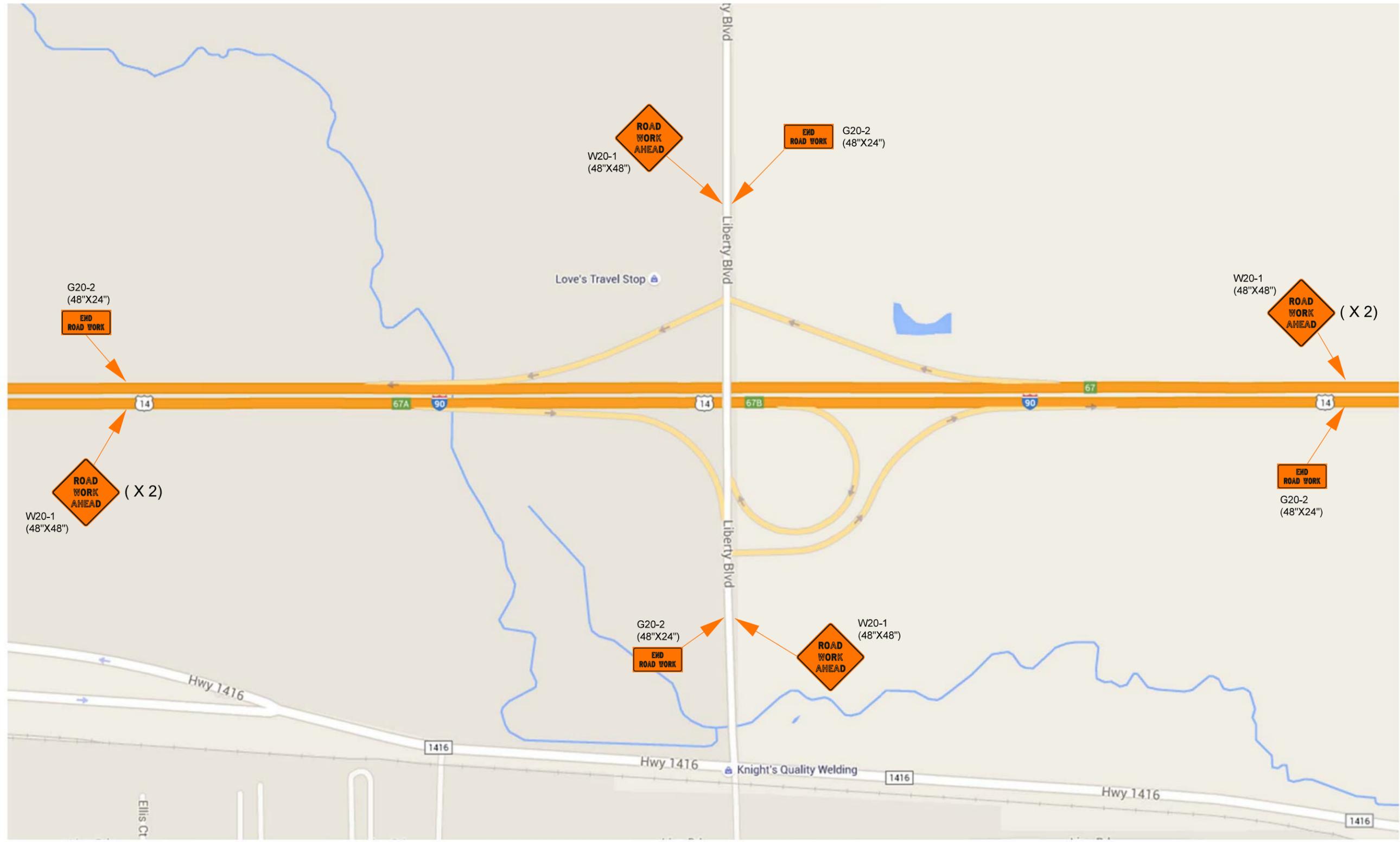
Plot Scale - 1:40

Plotted From - tpr14286

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0902(160)67	8	38

Plotting Date: 07/14/2015

### FIXED LOCATION SIGNING LAYOUT EXIT 67



Plot Scale - 1:40

Plotted From - tpr14286

File - ...Fixed Location Signing0341.dgn

# EXISTING TOPOGRAPHY SYMBOLOGY AND LEGEND

Plot Scale - 1:200

Plotted From - tpr14286

Anchor		Hedge		Shrub Tree	
Antenna		Highway R.O.W. Marker		Sidewalk	
Approach		Interstate Close Gate		Sign Face	
Assumed Corner		Iron Pin		Sign Post	
Azimuth Marker		Irrigation Ditch		Slough Or Marsh	
BBQ Grill/ Fireplace		Lake Edge		Spring	
Bearing Tree		Lawn Sprinkler		Stream Gauge	
Bench Mark		Mailbox		Street Marker	
Box Culvert		Manhole Electric		Subsurface Utility Exploration Test Hole	
Bridge		Manhole Gas		Telephone Fiber Optics	
Brush		Manhole Misc		Telephone Junction Box	
Buildings		Manhole Sanitary Sewer		Telephone Pole	
Bulk Tank		Manhole Storm Sewer		Television Cable Jct Box	
Cattle Guard		Manhole Telephone		Television Tower	
Cemetery		Manhole Water		Test Wells/Bore Holes	
Centerline		Merry-Go-Round		Traffic Signal	
Cistern		Microwave Radio Tower		Trash Barrel	
Clothes Line		Misc. Line		Tree Belt	
Commercial Sign Double Face		Misc. Property Corner		Tree Coniferous	
Commercial Sign One Post		Misc. Post		Tree Deciduous	
Commercial Sign Overhead		Overhang Or Encroachment		Tree Stumps	
Commercial Sign Two Post		Overhead Utility Line		Triangulation Station	
Concrete Symbol		Parking Meter		Underground Electric Line	
Creek Edge		Pipe With End Section		Underground Gas Line	
Curb/Gutter		Pipe With Headwall		Underground High Pressure Gas Line	
Curb		Pipe Without End Section		Underground Sanitary Sewer	
Dam Grade/Dike/Levee		Playground Slide		Underground Storm Sewer	
Deck Edge		Playground Swing		Underground Tank	
Ditch Block		Power And Light Pole		Underground Telephone Line	
Doorway Threshold		Power And Telephone Pole		Underground Television Cable	
Drainage Profile		Power Meter		Underground Water Line	
Drop Inlet		Power Pole		Warning Sign One Post	
Edge Of Asphalt		Power Pole And Transformer		Warning Sign Two Post	
Edge Of Concrete		Power Tower Structure		Water Fountain	
Edge Of Gravel		Propane Tank		Water Hydrant	
Edge Of Other		Property Pipe		Water Hydrant	
Edge Of Shoulder		Property Pipe With Cap		Water Meter	
Elec. Trans./Power Jct. Box		Property Stone		Water Tower	
Fence Barbwire		Public Telephone		Water Valve	
Fence Chainlink		Railroad Crossing Signal		Water Well	
Fence Electric		Railroad Milepost Marker		Weir Rock	
Fence Misc.		Railroad Profile		Windmill	
Fence Rock		Railroad R.O.W. Marker		Wingwall	
Fence Snow		Railroad Signs		Witness Corner	
Fence Wood		Railroad Switch			
Fence Woven		Railroad Track		State and National Line	
Fire Hydrant		Railroad Trestle		County Line	
Flag Pole		Rebar		Section Line	
Flower Bed		Rebar With Cap		Quarter Line	
Gas Valve Or Meter		Reference Mark		Sixteenth Line	
Gas Pump Island		Regulatory Sign One Post		Property Line	
Grain Bin		Regulatory Sign Two Post		Construction Line	
Guardrail		Retaining Wall		R. O. W. Line	
Guide Sign One Post		Riprap		New R. O. W. Line	
Guide Sign Two Post		River Edge		Cut and Fill Limits	
Gutter		Rock And Wire Baskets		Control of Access	
Guy Pole		Rockpiles		New Control of Access	
Haystack		Satellite Dish		Proposed ROW (After Property Disposal)	
		Septic Tank			

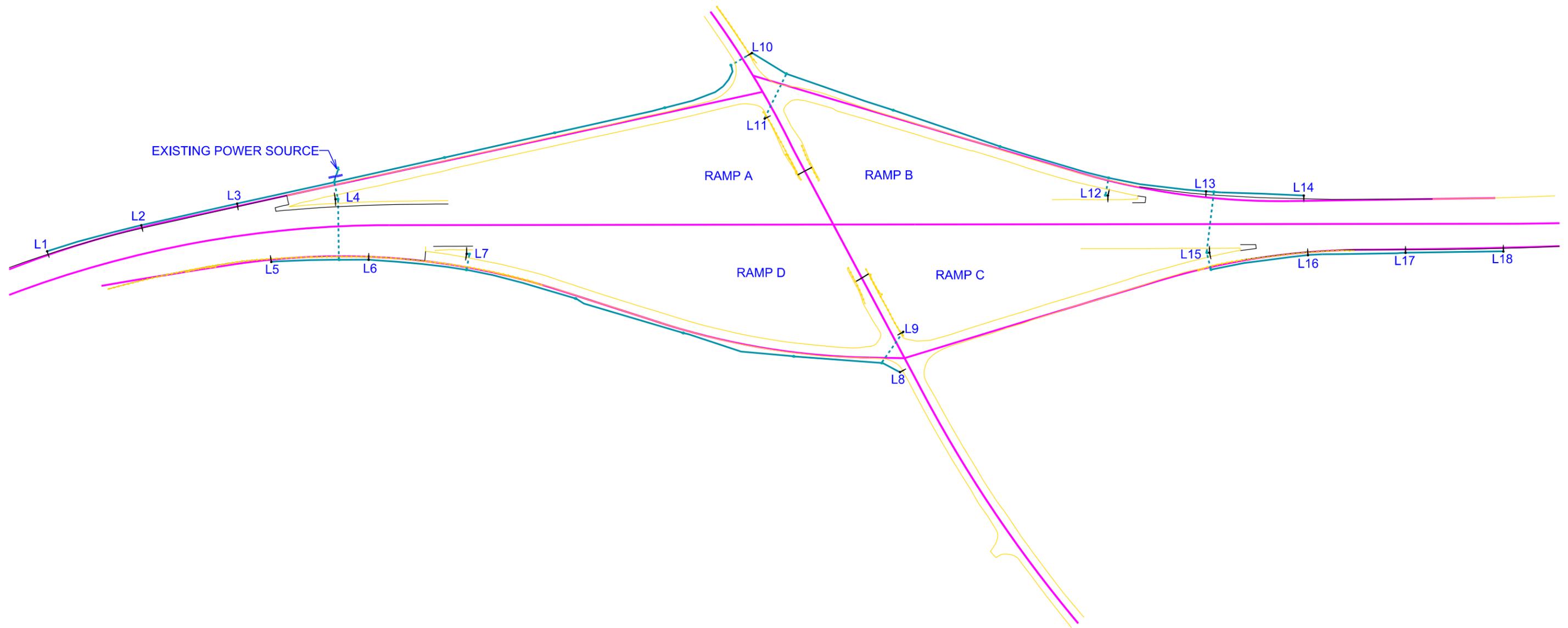
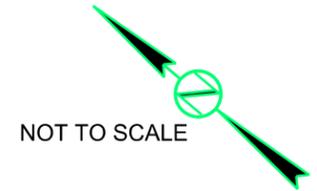
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# LIGHTING LAYOUT

Layout showing all luminaire poles at Exit 23  
NOT TO SCALE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(182)23	10	38

Plotting Date: 07/14/2015



Plot Scale - 1:40

Plotted From - trpr14286

File - ...\\prj\\lawr0200\\SECL\_LAYOUT.dgn

# CONDUIT LAYOUT

## INTERSTATE 90 / EXIT 23

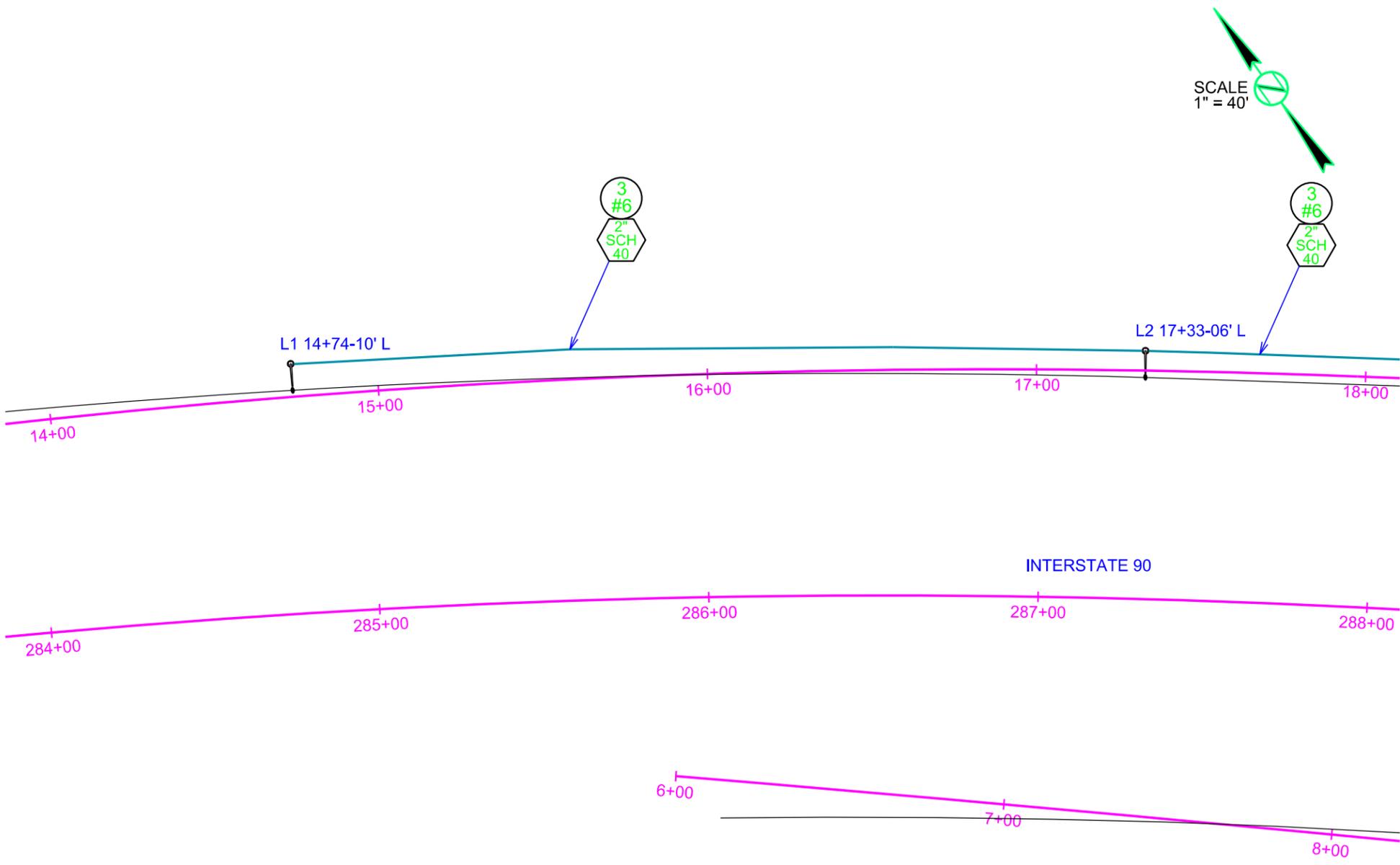
STATE OF SOUTH DAKOTA	PROJECT IM 0901(182)23	SHEET 11	TOTAL SHEETS 38
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Plotting Date: 07/14/2015

Plot Scale - 1"=40'

### ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	BREAKAWAY BASE LUMINAIRE POLE W/ 8' TWIN ARM 50' MT HT (L4,L7,L12,L15)	4	EACH
	BREAKAWAY BASE LUMINAIRE POLE W/ 8' ARM 50' MT HT (L1-L3,L5-L6,L8-L11,L13-L14,L16-L18)	14	EACH
	ROADWAY LUMINAIRE, 400W WITH P.E. (L1-L18)	22	EACH
	2' DIAMETER FOOTING (L1-L18)	148	FT
	TYPE 2 ELECTRICAL JUNCTION BOX (JL1-JL21)	21	EACH
	ELECTRICAL SERVICE CABINET	1	EACH
	GALVANIZED STEEL UTILITY POLE NOT A BID ITEM	1	EACH
	METER SOCKET NOT A BID ITEM	1	EACH
	2" RIGID CONDUIT, SCHEDULE 40	6,245	FT
	3" RIGID CONDUIT, SCHEDULE 40	325	FT
	2" RIGID CONDUIT, SCHEDULE 80	885	FT
	1/C #1 AWG COPPER WIRE	13,720	FT
	1/C #4 AWG COPPER WIRE	7,880	FT
	1/C #6 AWG COPPER WIRE	3,525	FT
	2/C #10 AWG COPPER POLE & BRACKET CABLE	1,430	FT



Plotted From - tpr14286

File - U:\trc\proj\awr02001014\ac.dgn

# CONDUIT LAYOUT

## INTERSTATE 90 / EXIT 23 / RAMP A

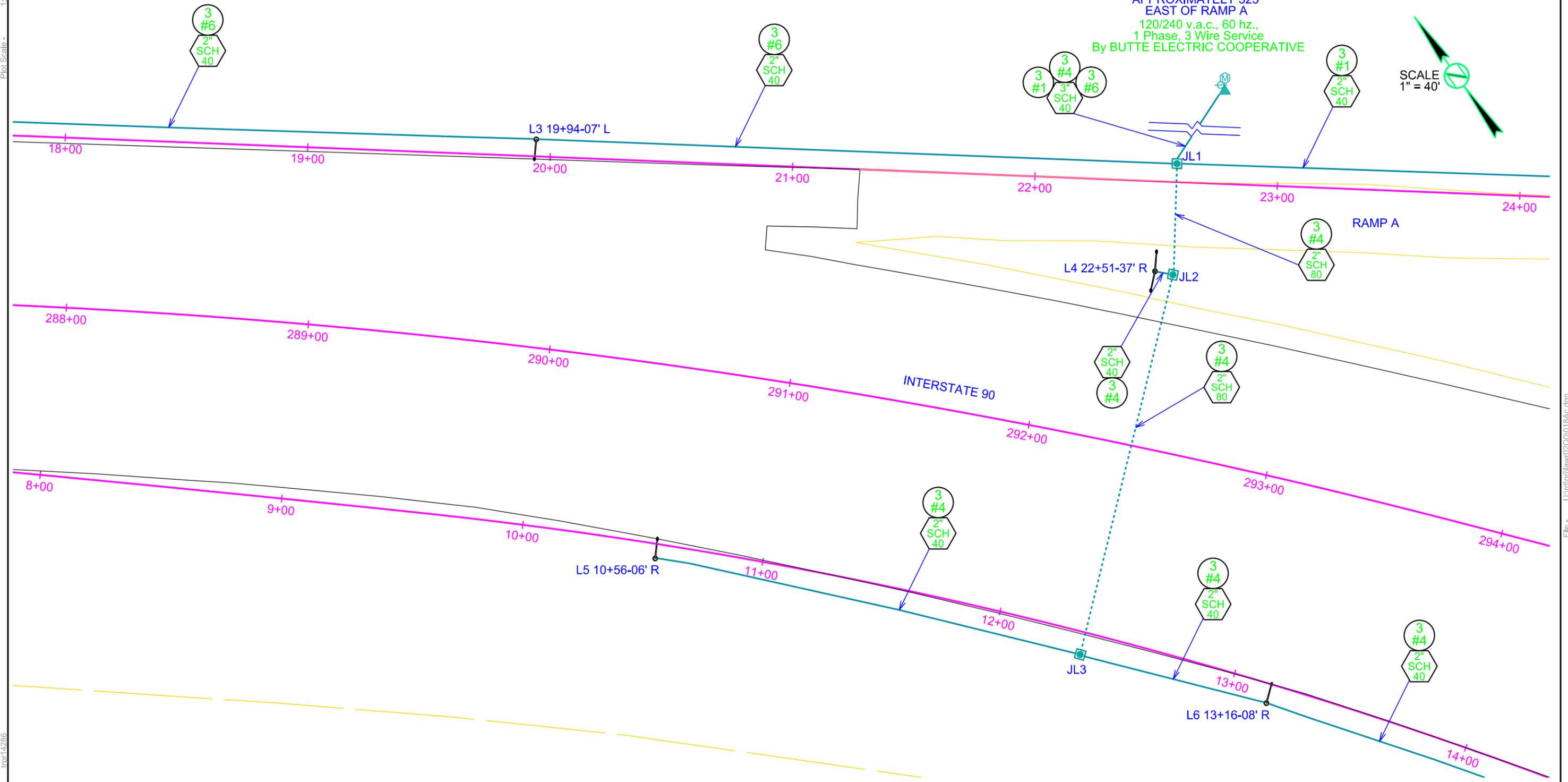
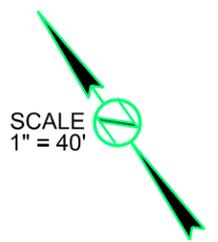
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(182)23	12	38

Plotting Date: 07/14/2015

Plot Scale - 1"=40'

Plotted From - trp14286

POWER SOURCE  
APPROXIMATELY 325'  
EAST OF RAMP A  
120/240 v.a.c., 60 hz.,  
1 Phase, 3 Wire Service  
By BUTTE ELECTRIC COOPERATIVE



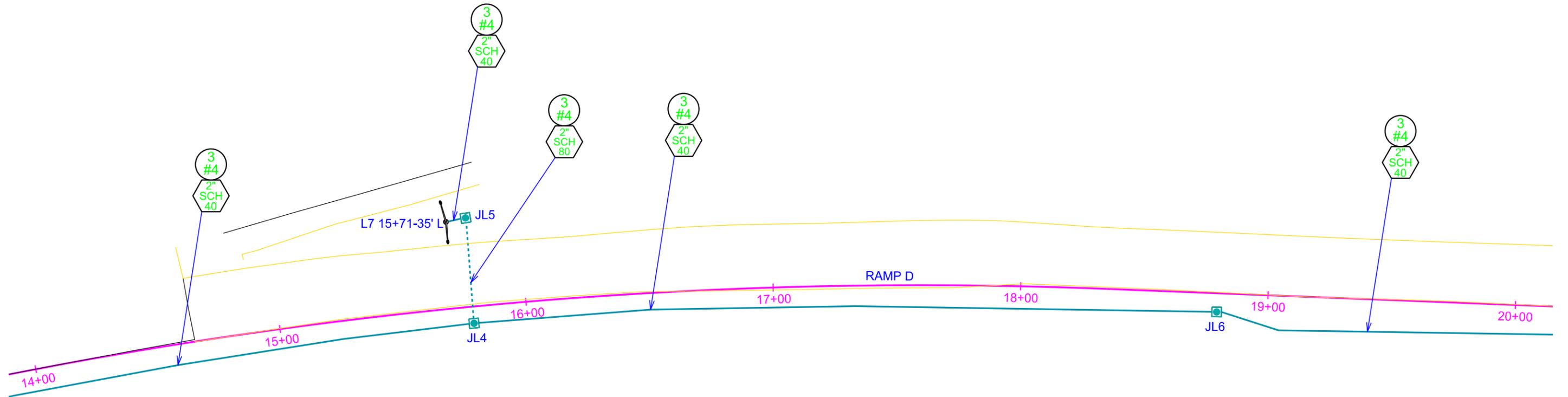
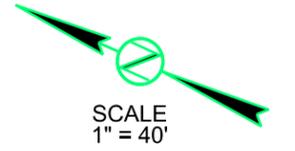
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# CONDUIT LAYOUT

## INTERSTATE 90 / EXIT 23 / RAMP D

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(182)23	13	38

Plotting Date: 07/14/2015



Plot Scale - 1:40,0161

Plotted From -

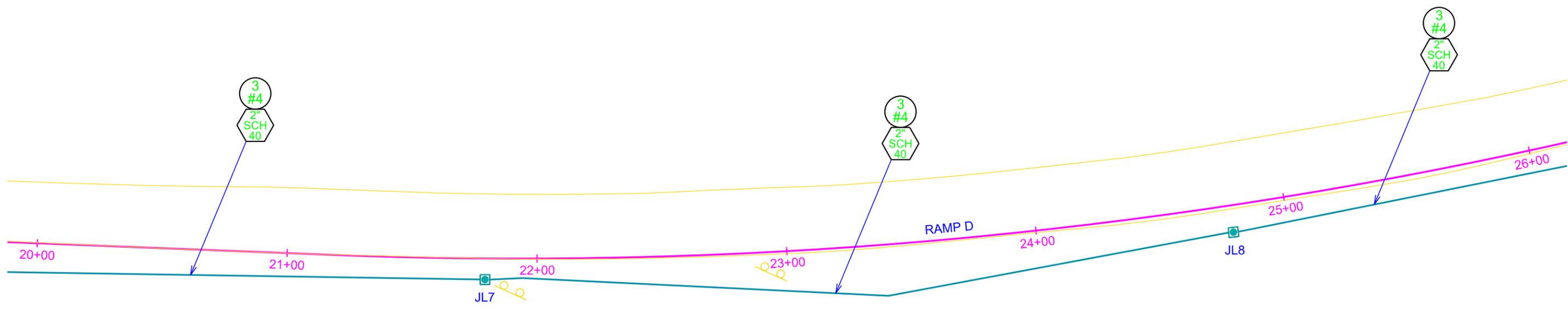
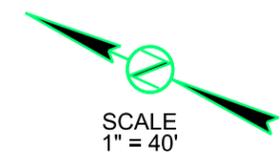
trpr14286

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# CONDUIT LAYOUT

## INTERSTATE 90 / EXIT 23 / RAMP D

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(182)23	14	38
Plotting Date: 07/14/2015			



Plot Scale - 1:40,0161

Plotted From -

lpr14286

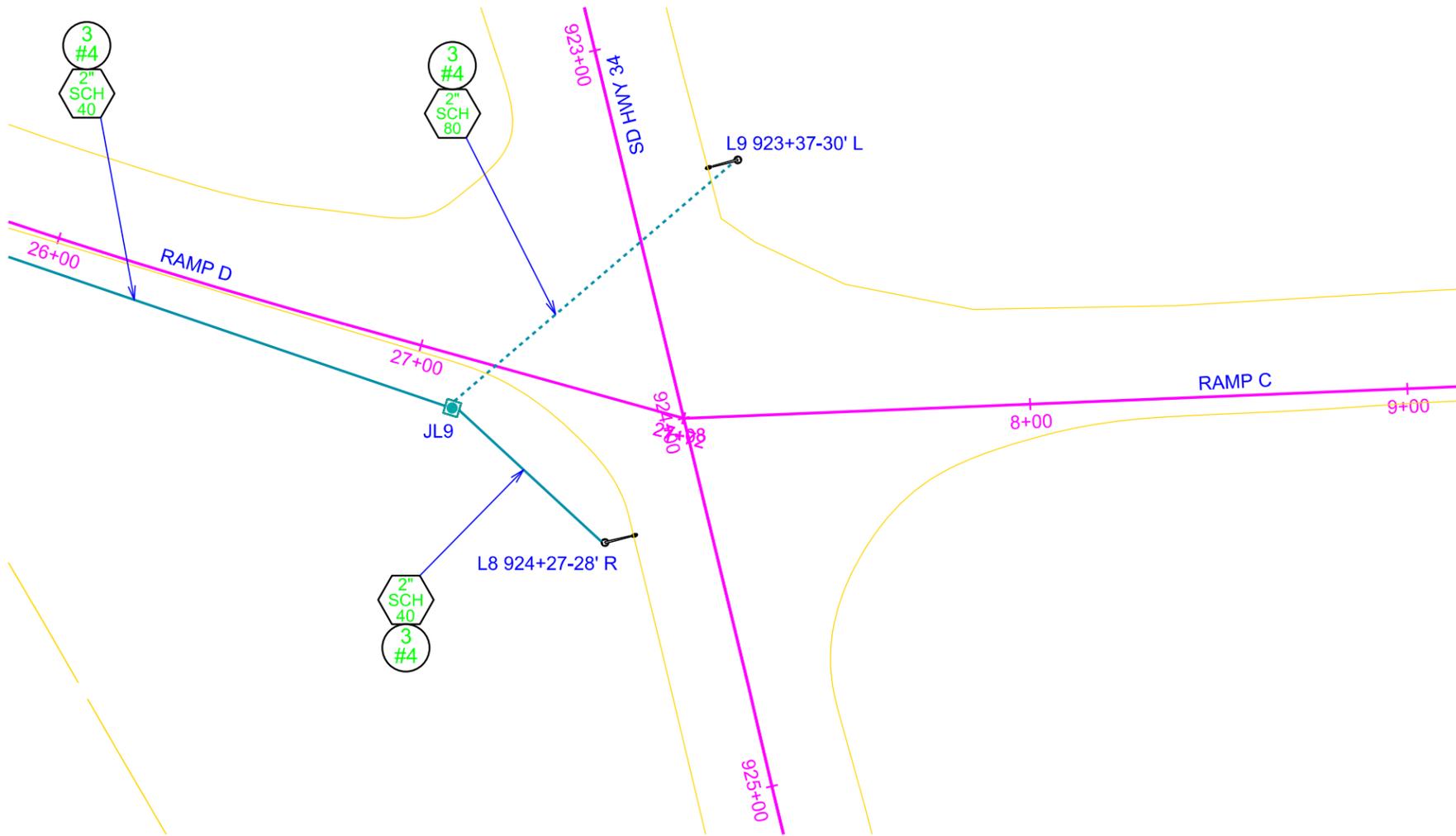
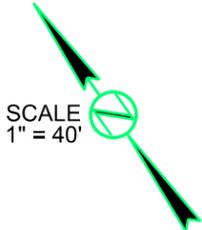
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# CONDUIT LAYOUT

## INTERSTATE 90 / EXIT 23 / RAMP C / RAMP D / SD HWY 34

STATE OF SOUTH DAKOTA	PROJECT IM 0901(182)23	SHEET 15	TOTAL SHEETS 38
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Plotting Date: 07/14/2015



Plot Scale - 1:40

Plotted From - trpr14286

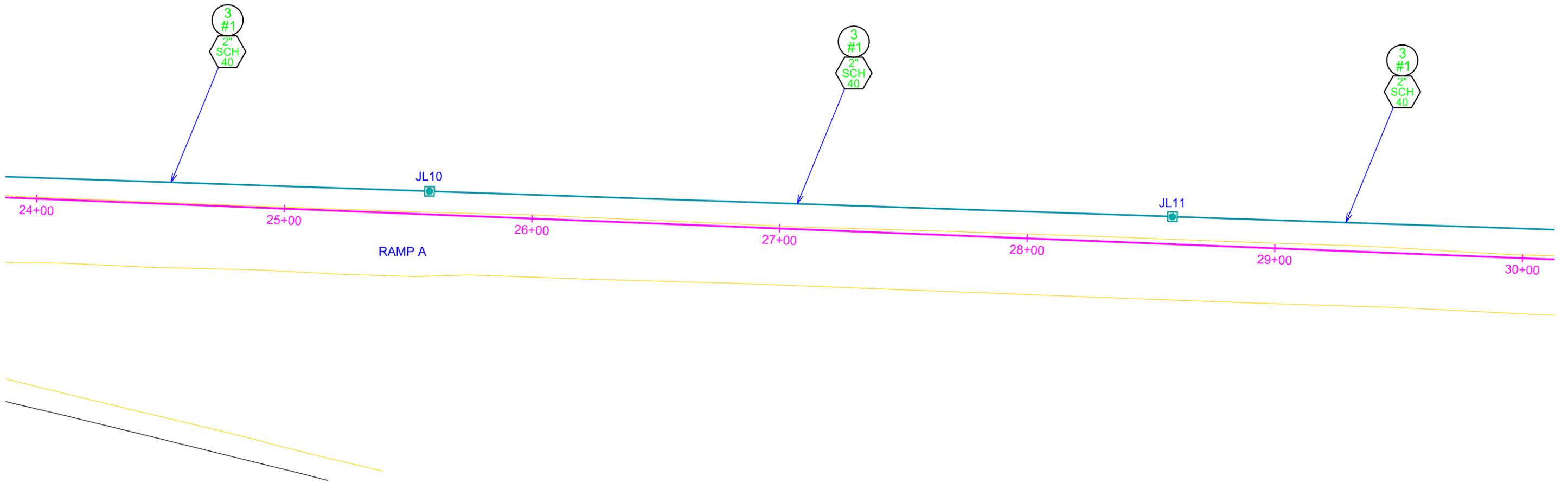
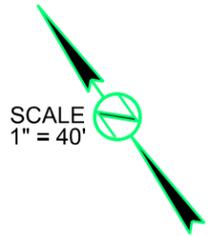
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# CONDUIT LAYOUT

## INTERSTATE 90 / EXIT 23 / RAMP A

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(182)23	16	38

Plotting Date: 07/14/2015



Plot Scale - 1"=40'

Plotted From - trpr14286

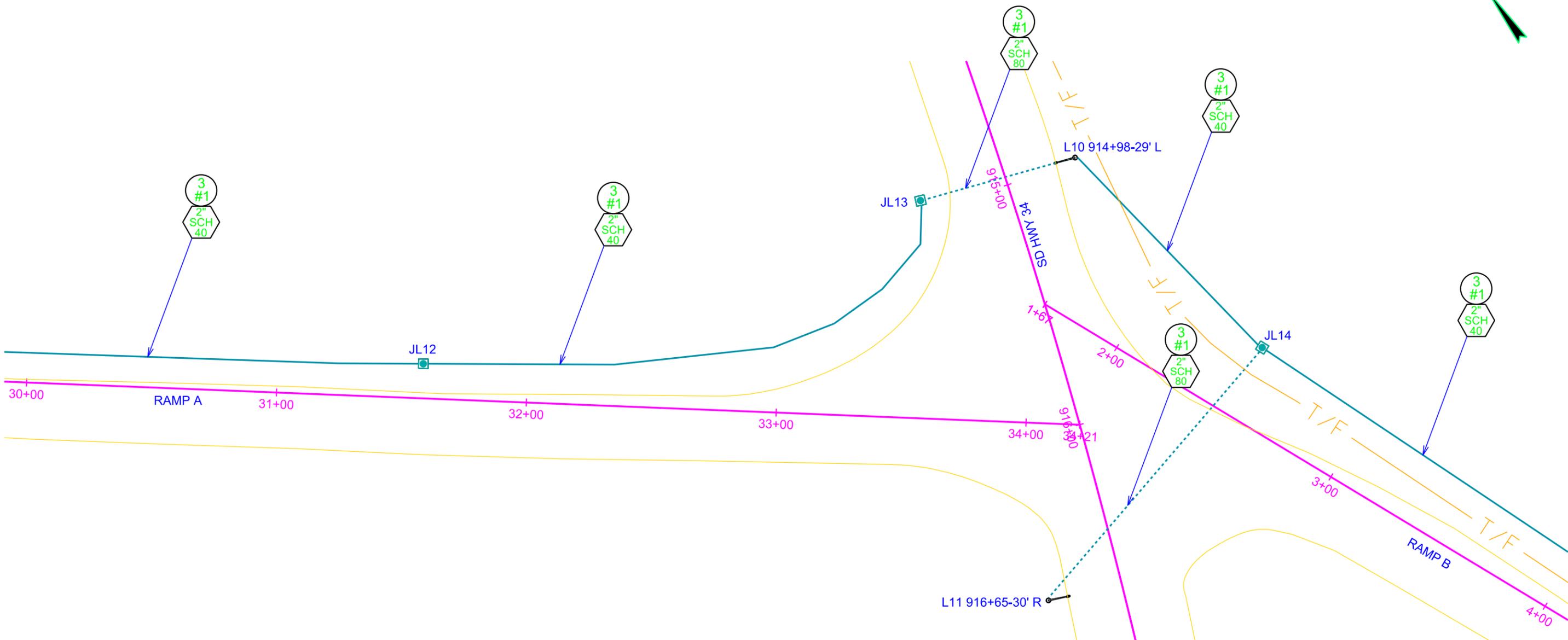
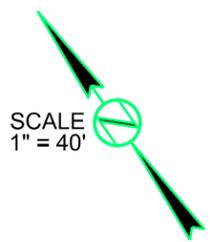
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# CONDUIT LAYOUT

## INTERSTATE 90 / EXIT 23 / RAMP A / RAMP B

STATE OF SOUTH DAKOTA	PROJECT IM 0901(182)23	SHEET 17	TOTAL SHEETS 38
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Plotting Date: 07/14/2015



Plot Scale - 1"=40'

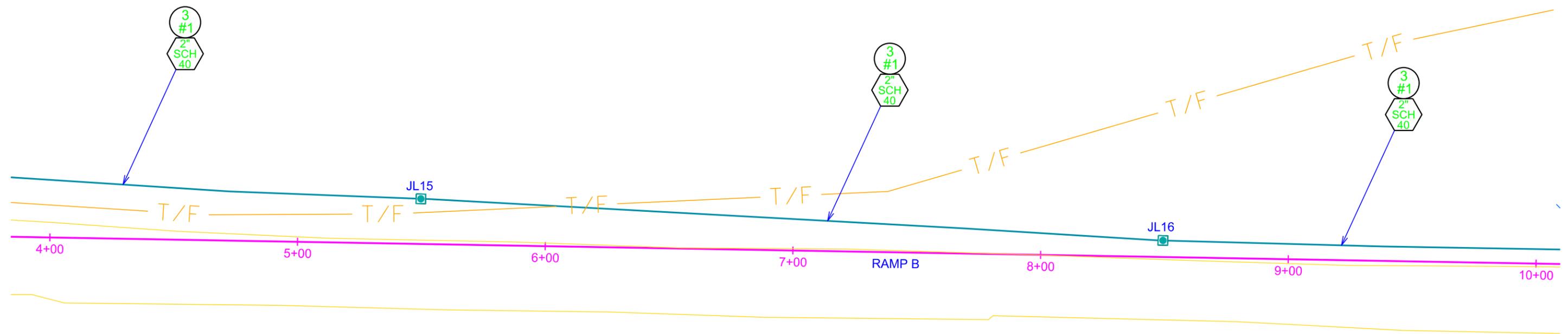
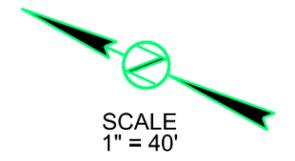
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# CONDUIT LAYOUT

## INTERSTATE 90 / EXIT 23 / RAMP B

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(182)23	18	38
Plotting Date: 07/14/2015			



Plot Scale - 1:40,0161

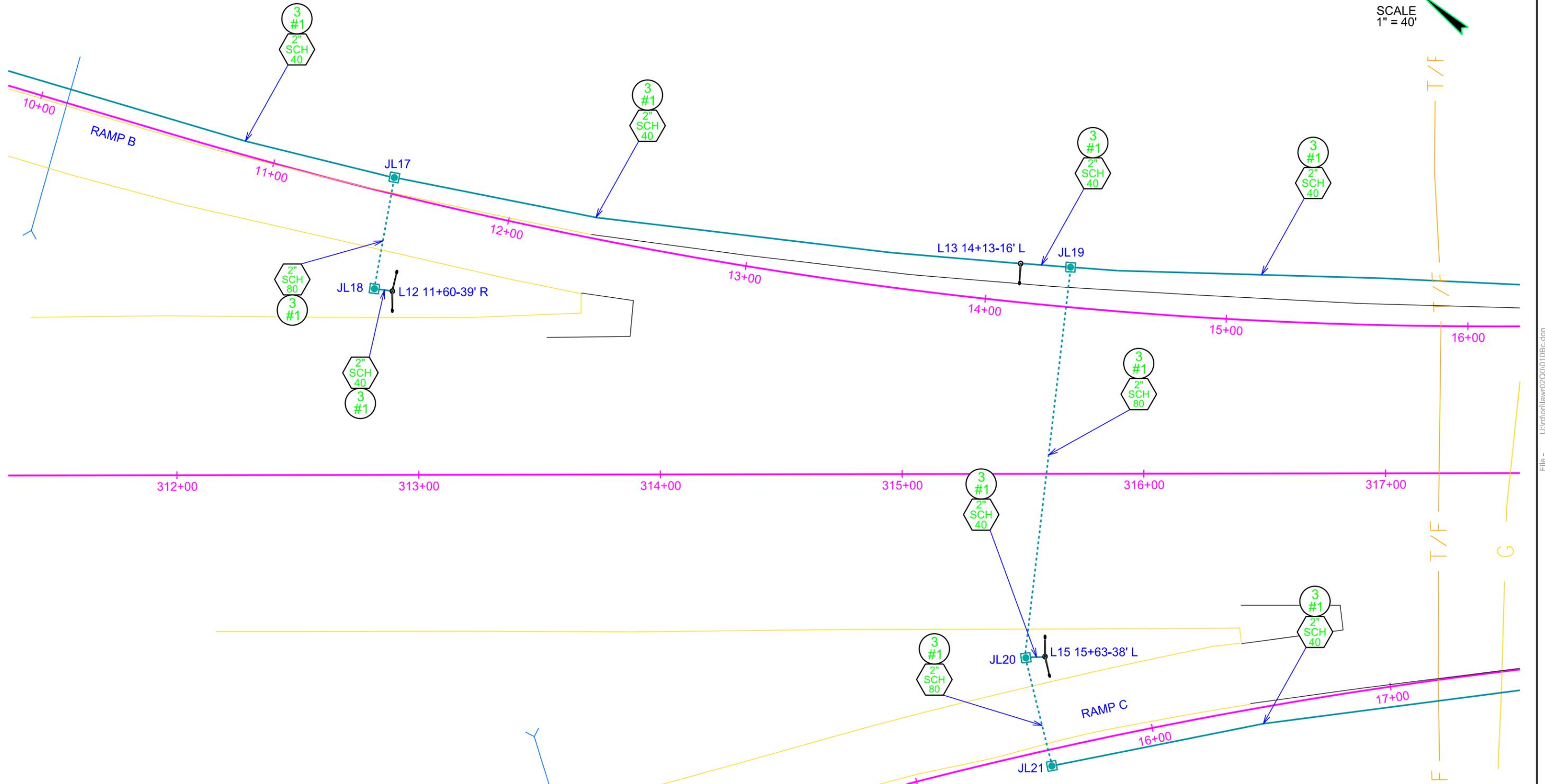
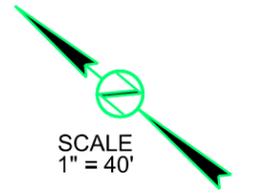
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# CONDUIT LAYOUT

## INTERSTATE 90 / EXIT 23 / RAMP B / RAMP C

STATE OF SOUTH DAKOTA	PROJECT IM 0901(182)23	SHEET 19	TOTAL SHEETS 38
Plotting Date: 07/14/2015			



Plot Scale - 1:40.0183

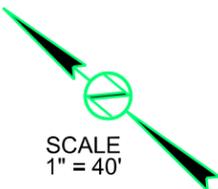
Plotted From - Ipr14286

File - U:\proj\Ipr14286\0108.dgn

# CONDUIT LAYOUT

## INTERSTATE 90 / EXIT 23

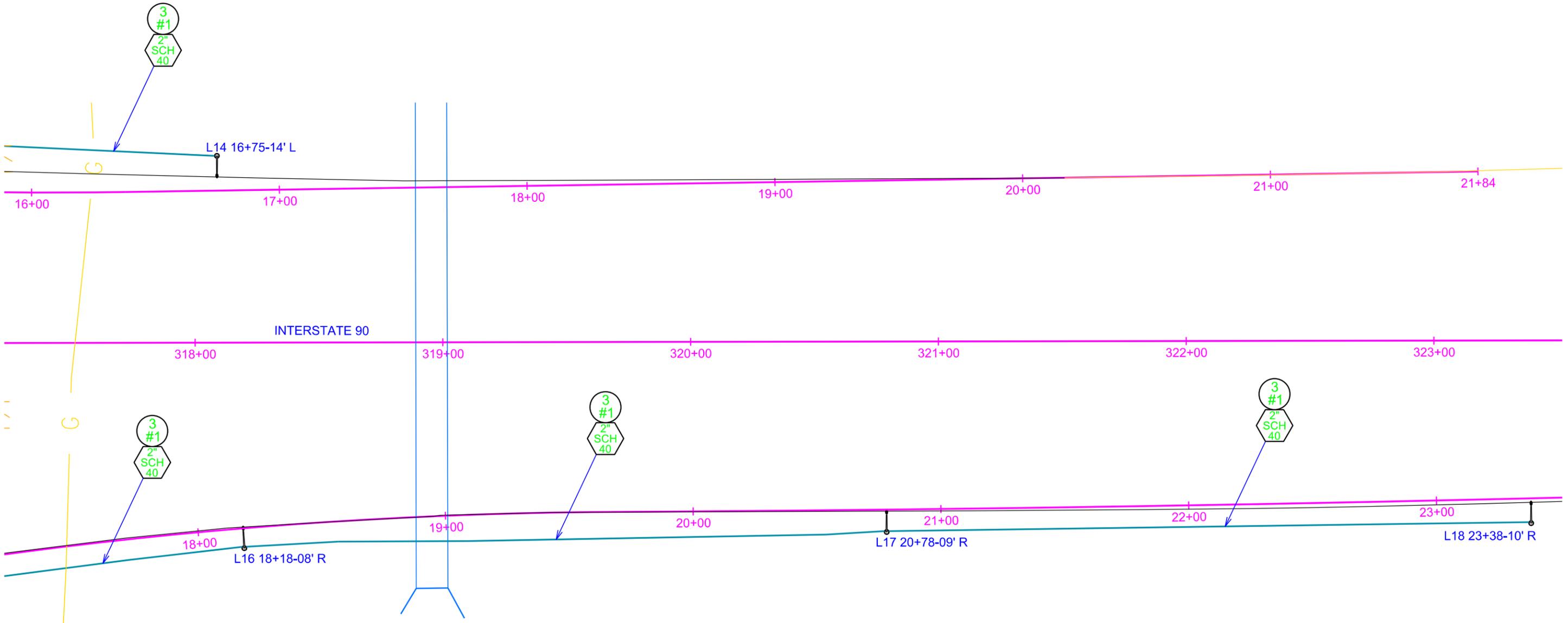
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(182)23	20	38
Plotting Date: 07/14/2015			



Plot Scale - 1:40.0183

Plotted From - I:\pr14286

File - U:\traj\lavr\2001016Bc.dgn



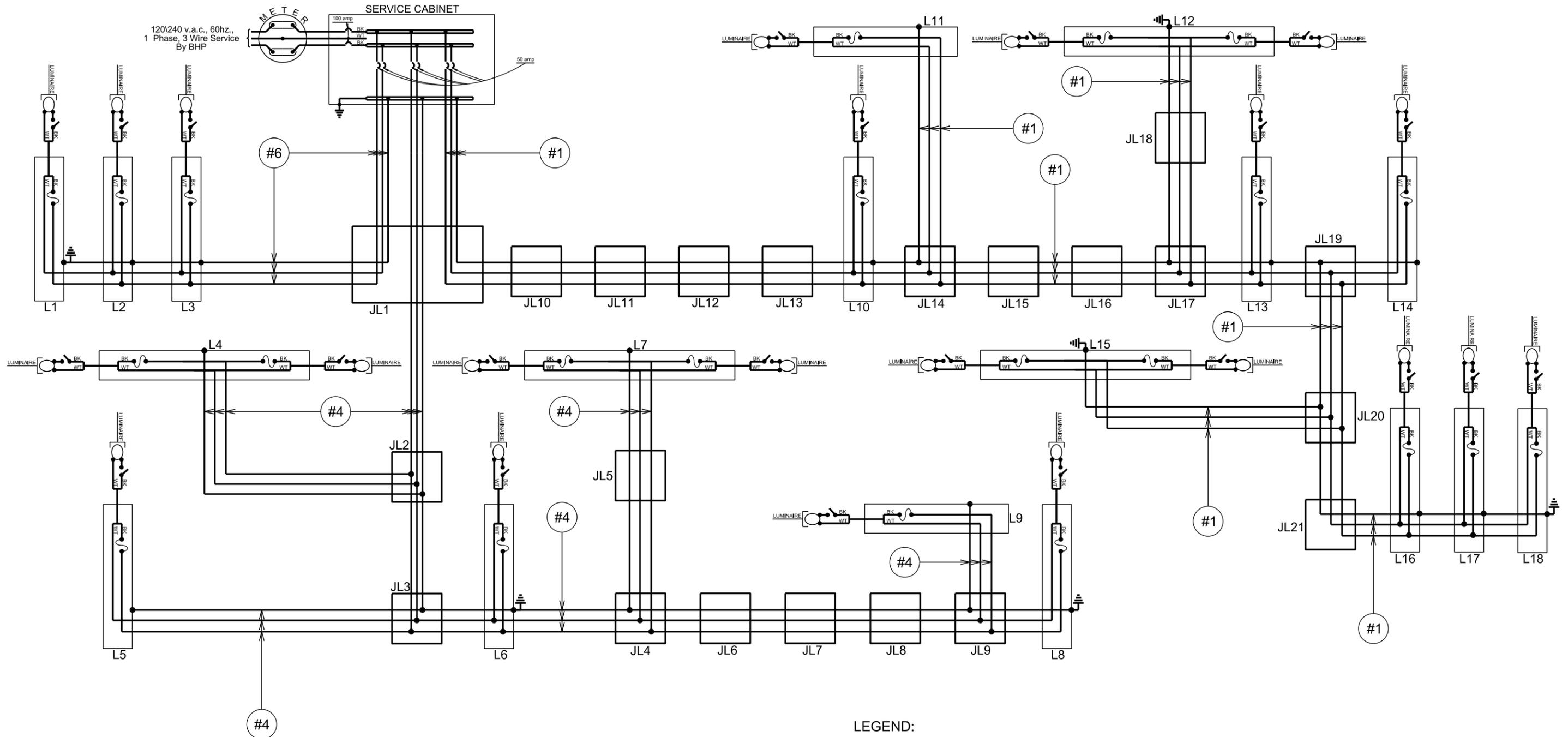
# WIRING DIAGRAM

## INTERSTATE 90 / EXIT 23

STATE OF SOUTH DAKOTA	PROJECT IM 0901(182)23	SHEET 21	TOTAL SHEETS 38
Plotting Date: 07/14/2015			

Plot Scale - 1:40

Plotted From - trp14286



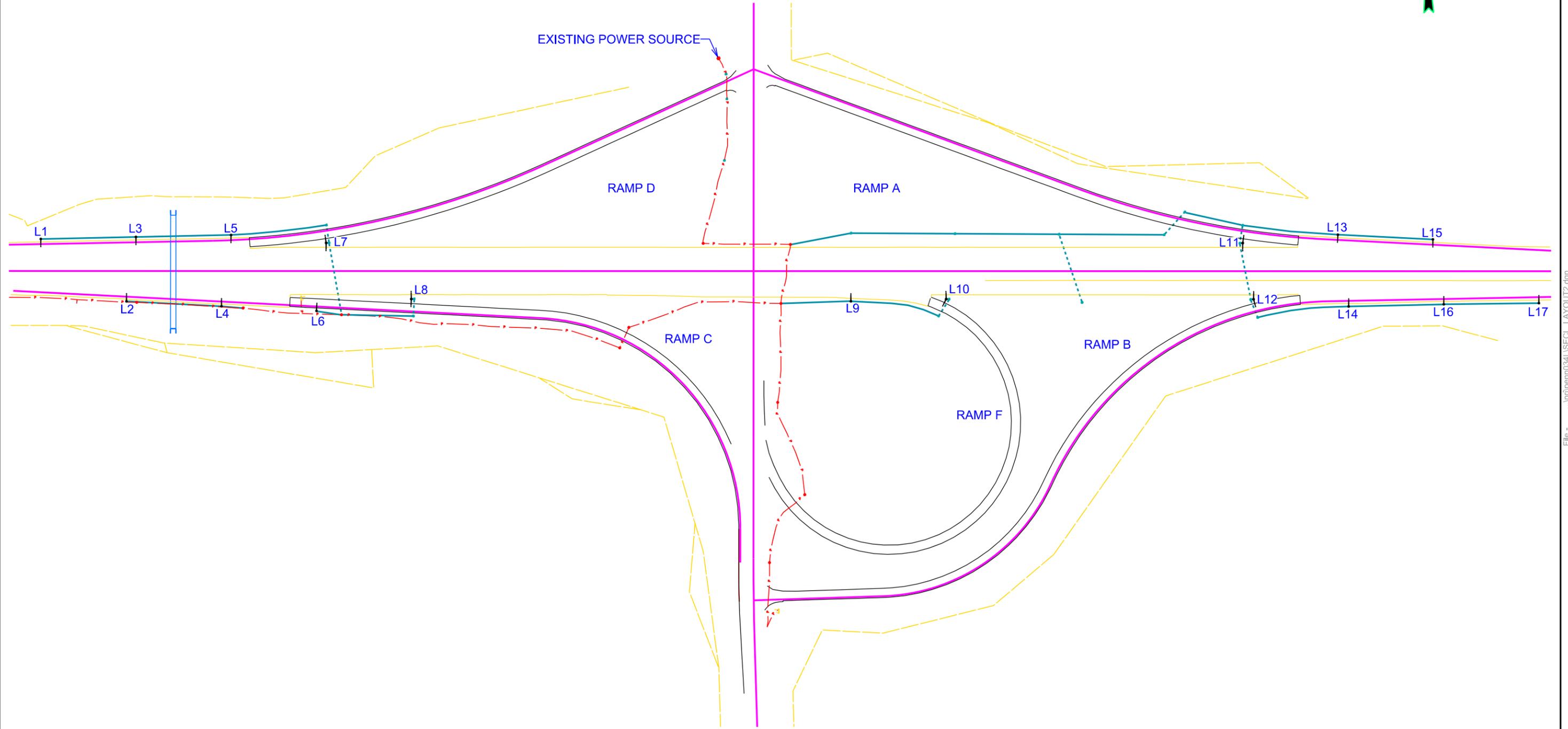
**NOTE:**  
All circuits shall be bonded in accordance with the NATIONAL ELECTRICAL CODE. Quantities for bonding conductors are not included in these plans.

- LEGEND:**
- FUSE: 6 amp. Non-Time Delay  
or  
2 8/10 amp. Dual Element
  - LUMINAIRE: 400 watt High Pressure Sodium Lamp

# LIGHTING LAYOUT

Layout showing all luminaire poles at Exit 67  
NOT TO SCALE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0902(160)67	22	38
Plotting Date: 07/14/2015			



Plot Scale - 1:40

Plotted From - trpr14286

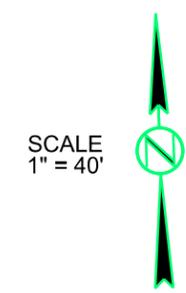
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# CONDUIT LAYOUT

## INTERSTATE 90/ EXIT 67/ RAMP D/ RAMP C

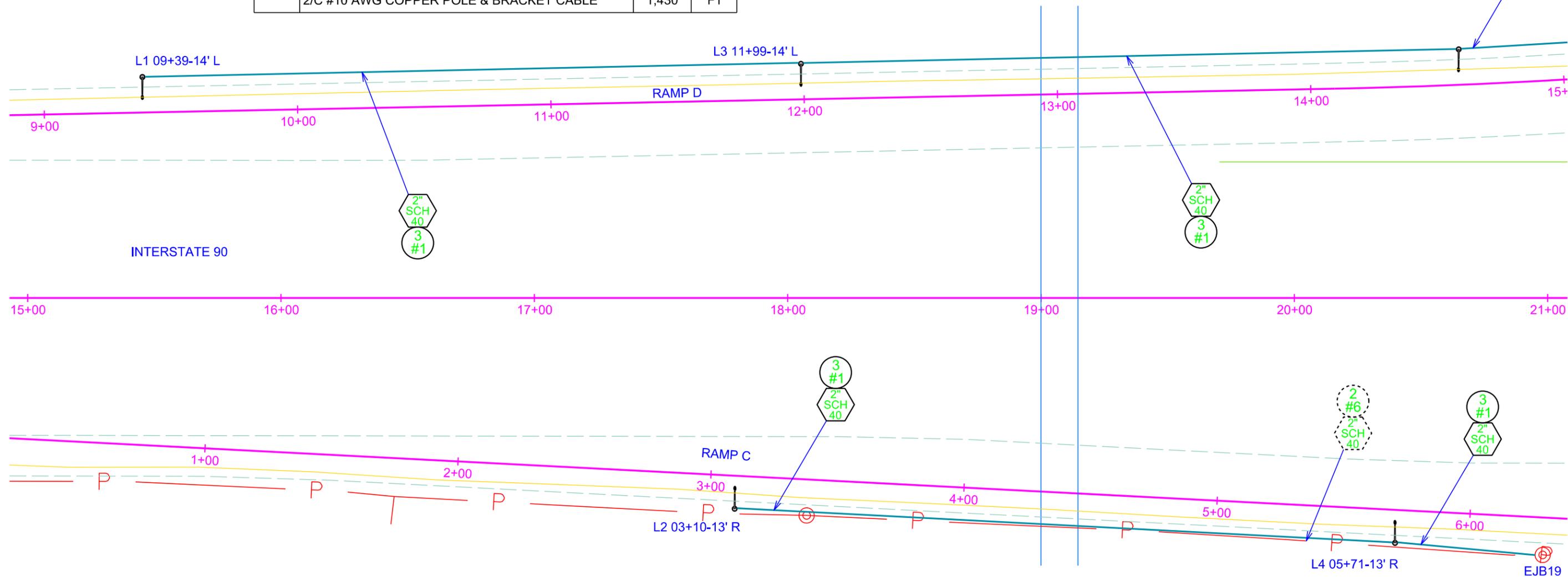
STATE OF SOUTH DAKOTA	PROJECT IM 0902(160)67	SHEET 23	TOTAL SHEETS 38
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Plotting Date: 07/14/2015



ESTIMATE OF QUANTITIES			
KEY	ITEM	EST QUANT	UNIT
	BREAKAWAY BASE LUMINAIRE POLE W/ TWIN 8' ARM 50' MT HT (L7,L8,L10-L12)	5	EACH
	BREAKAWAY BASE LUMINAIRE POLE W/ 8' ARM 50' MT HT (L1-L6,L9,L13-L17)	12	EACH
	ROADWAY LUMINAIRE, 400W WITH P.E. (L1-L17)	22	EACH
	2' DIAMETER FOOTING (L1-L17)	141	FT
	TYPE 2 ELECTRICAL JUNCTION BOX (JL24-JL33)	10	EACH
	2" RIGID CONDUIT, SCHEDULE 40	3,470	FT
	2" RIGID CONDUIT, SCHEDULE 80	670	FT
	1/C #1 AWG COPPER WIRE	5,525	FT
	1/C #2 AWG COPPER WIRE	5,665	FT
	1/C #3 AWG COPPER WIRE	1,665	FT
	2/C #10 AWG COPPER POLE & BRACKET CABLE	1,430	FT

EXISTING ITEMS	
KEY	ITEM
	ELECTRICAL SERVICE CABINET
	GALVANIZED STEEL UTILITY POLE NOT A BID ITEM
	METER SOCKET NOT A BID ITEM



Plot Scale - 1"=40'

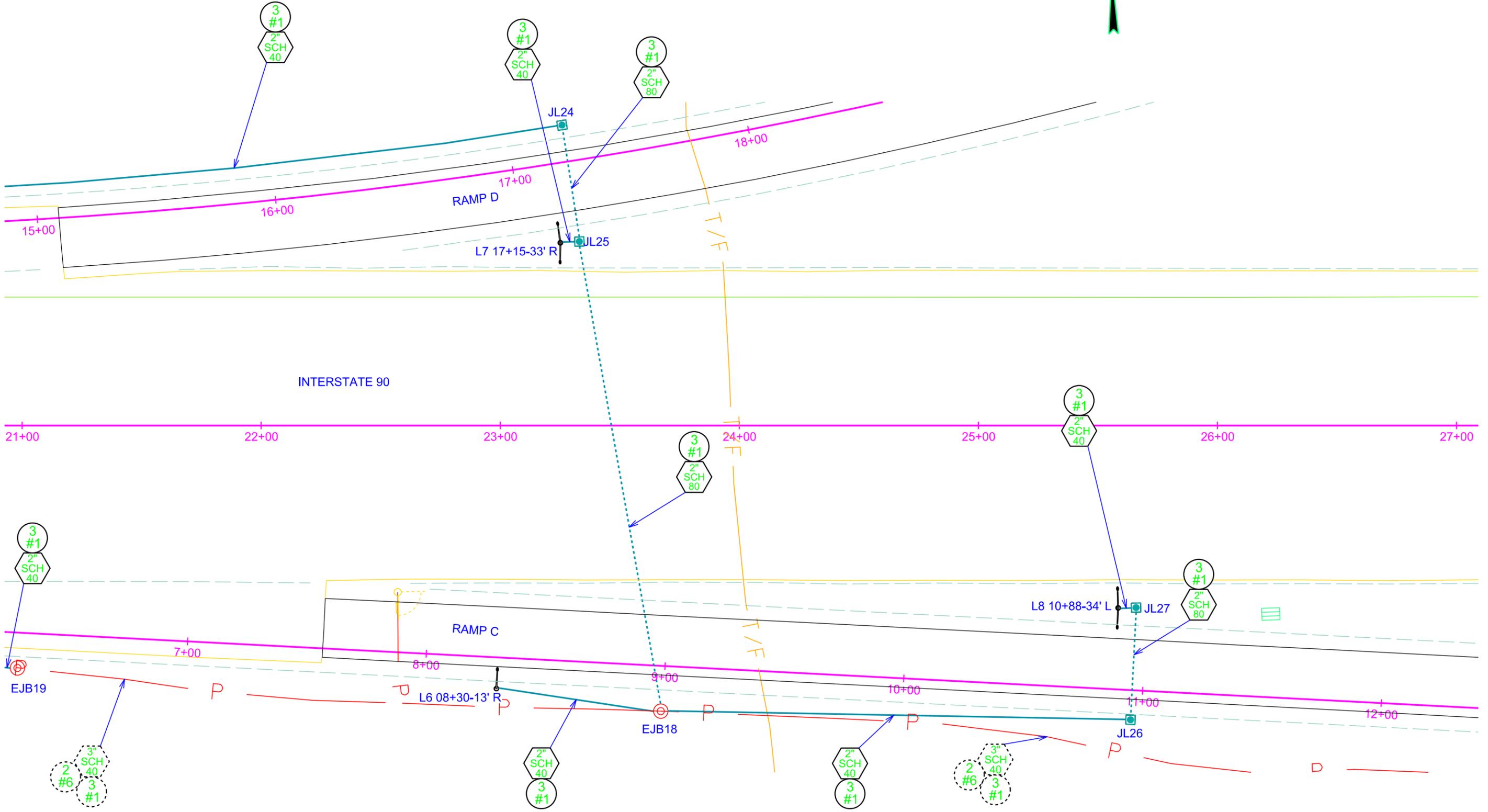
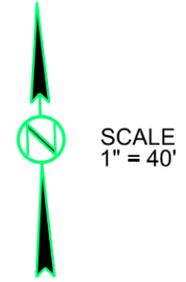
Plotted From - tpr14286

File - U:\traj\penn034\1015c.dgn

# CONDUIT LAYOUT

## INTERSTATE 90/ EXIT 67/ RAMP D/ RAMP C

STATE OF SOUTH DAKOTA	PROJECT IM 0902(160)67	SHEET 24	TOTAL SHEETS 38
Plotting Date: 07/14/2015			



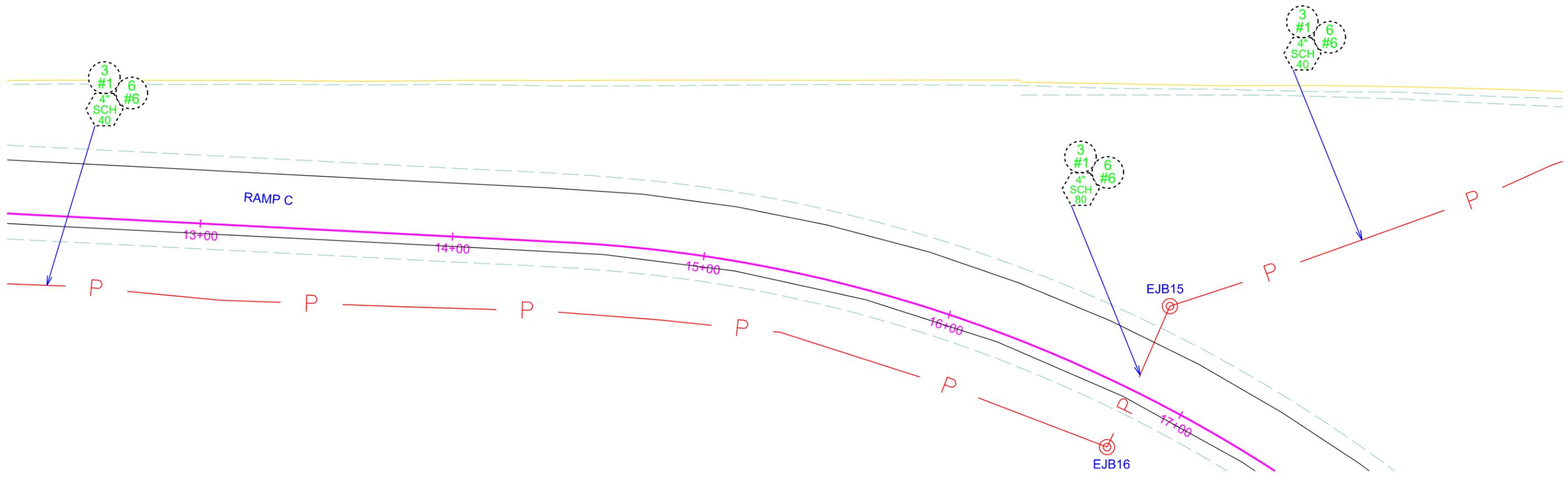
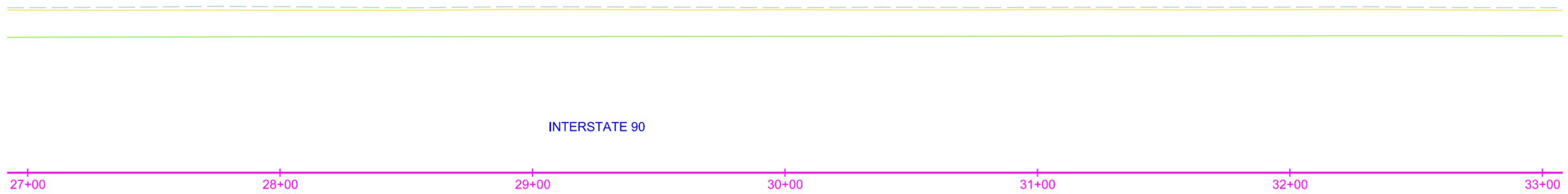
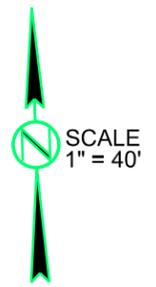
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# CONDUIT LAYOUT

## INTERSTATE 90/ EXIT 67/ RAMP C

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0902(160)67	25	38
Plotting Date: 07/14/2015			



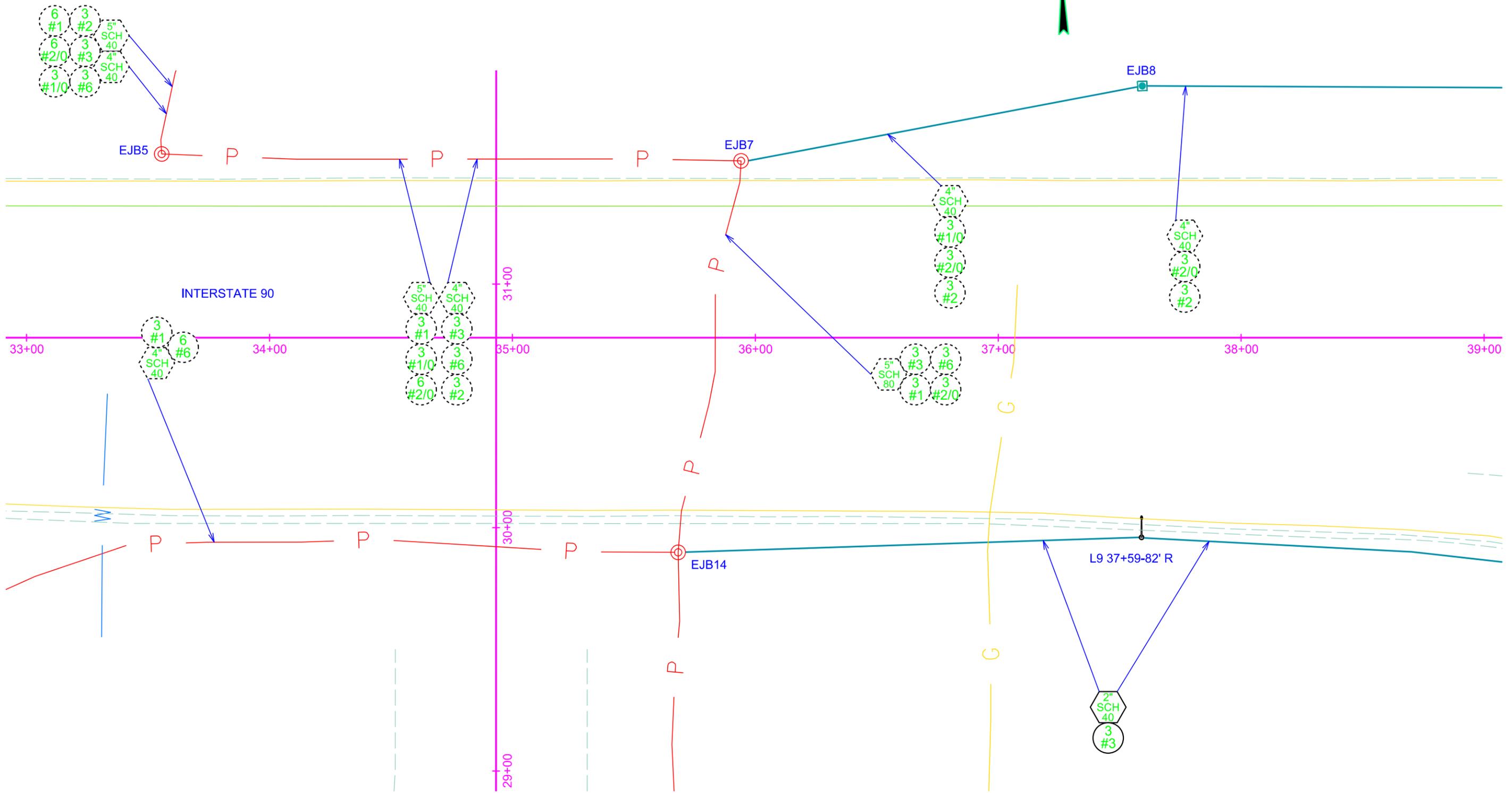
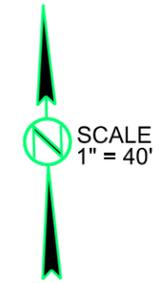
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Plotted From - trpr14286

File - U:\trproj\penm034\1027c.dgn

# CONDUIT LAYOUT

## INTERSTATE 90/ EXIT 67

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0902(160)67	26	38
Plotting Date: 07/14/2015			



Plot Scale - 1"=40'

Plotted From - trpr14286

File - U:\trpr\jpenm034\1033c.dgn

Plot Scale - 1:40

Plotted From - Inp14286

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0902(160)67	27	38

Plotting Date: 07/14/2015

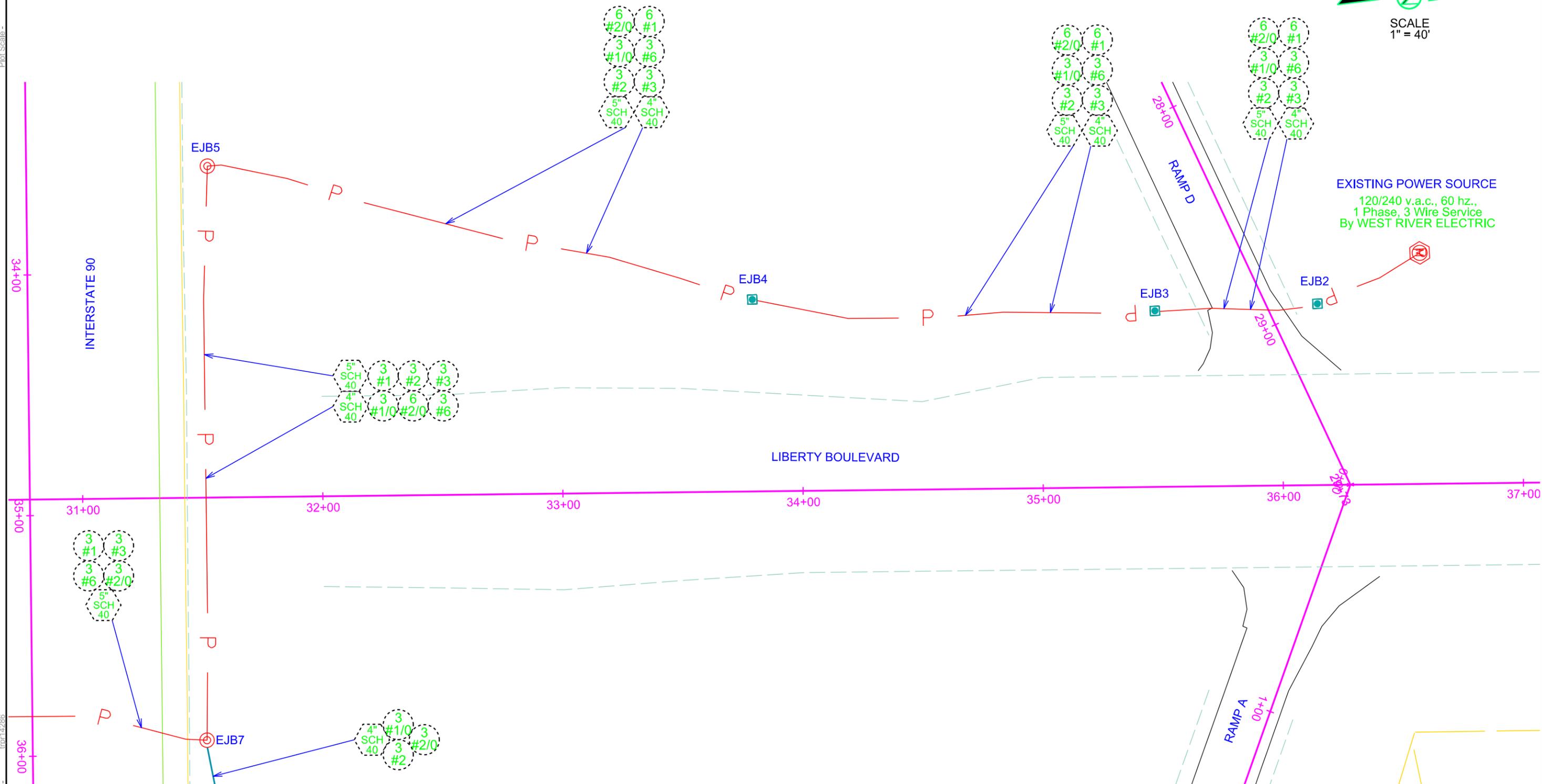
# CONDUIT LAYOUT

## INTERSTATE 90/ EXIT 67/ RAMP D/ RAMP A/ LIBERTY BLVD



SCALE  
1" = 40'

EXISTING POWER SOURCE  
120/240 v.a.c., 60 hz.,  
1 Phase, 3 Wire Service  
By WEST RIVER ELECTRIC

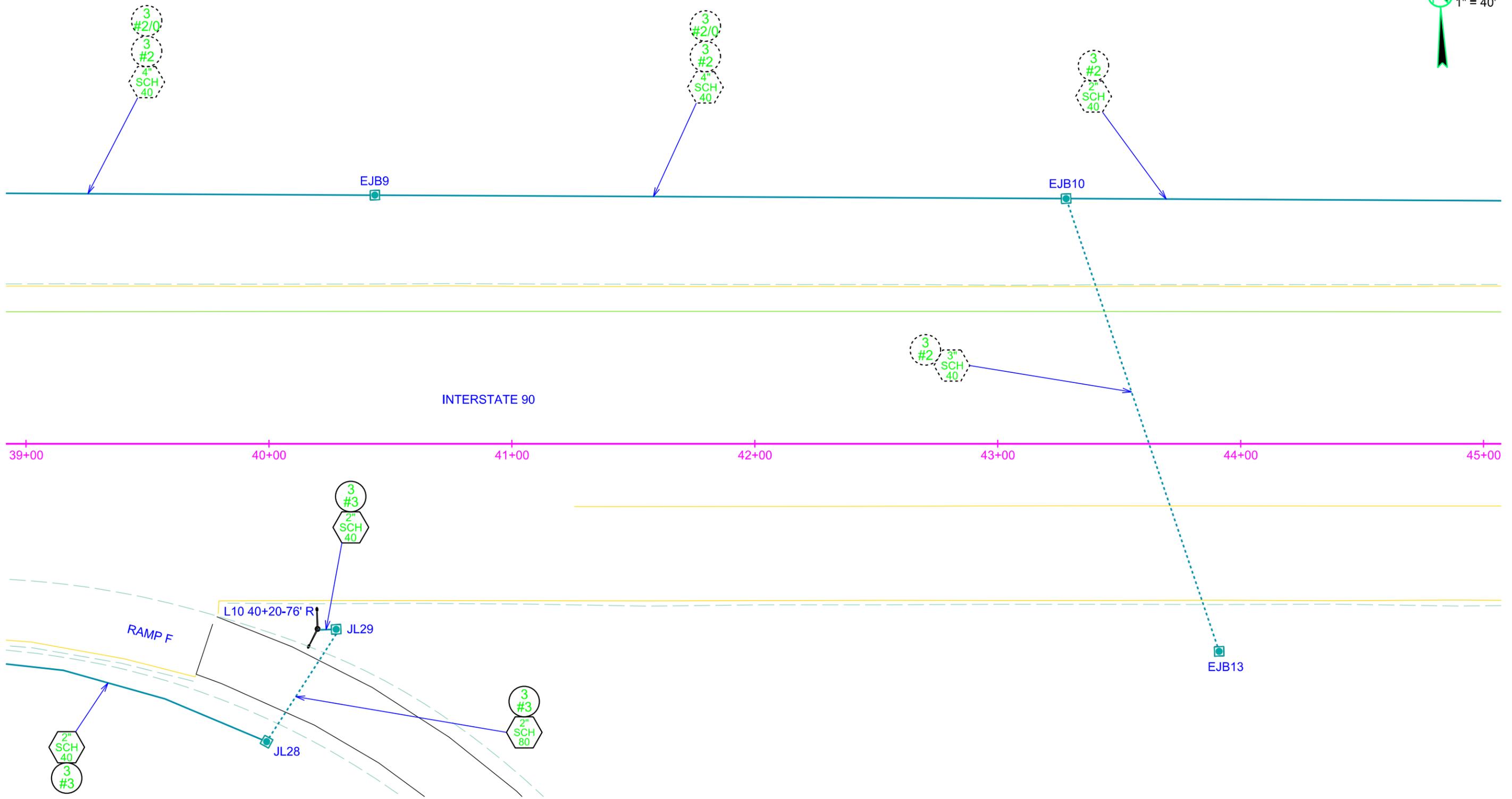
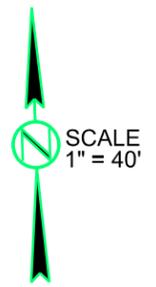


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# CONDUIT LAYOUT

## INTERSTATE 90/ EXIT 67/ RAMP F

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0902(160)67	28	38
Plotting Date: 07/14/2015			



Plot Scale - 1:40

Plotted From - trpr14286

File - U:\trpr\jpenm034\1039c.dgn

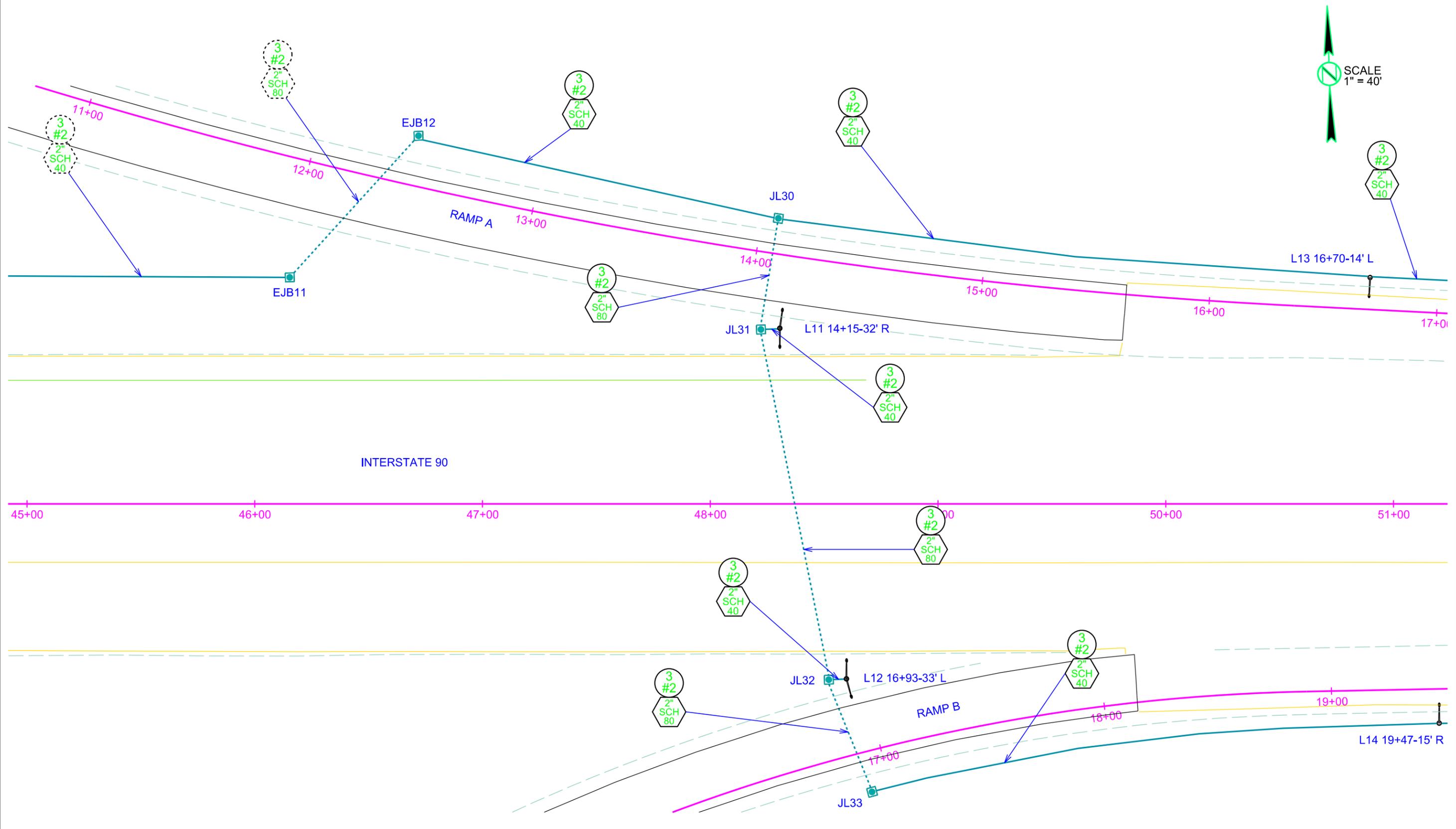
# CONDUIT LAYOUT

## INTERSTATE 90/ EXIT 67/ RAMP A/ RAMP B

STATE OF SOUTH DAKOTA	PROJECT IM 0902(160)67	SHEET 29	TOTAL SHEETS 38
Plotting Date: 07/14/2015			

Plot Scale - 1"=40'

Plotted From - trpr14296

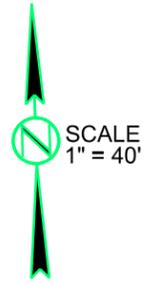


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# CONDUIT LAYOUT

## INTERSTATE 90/ EXIT 67/ RAMP A/ RAMP B

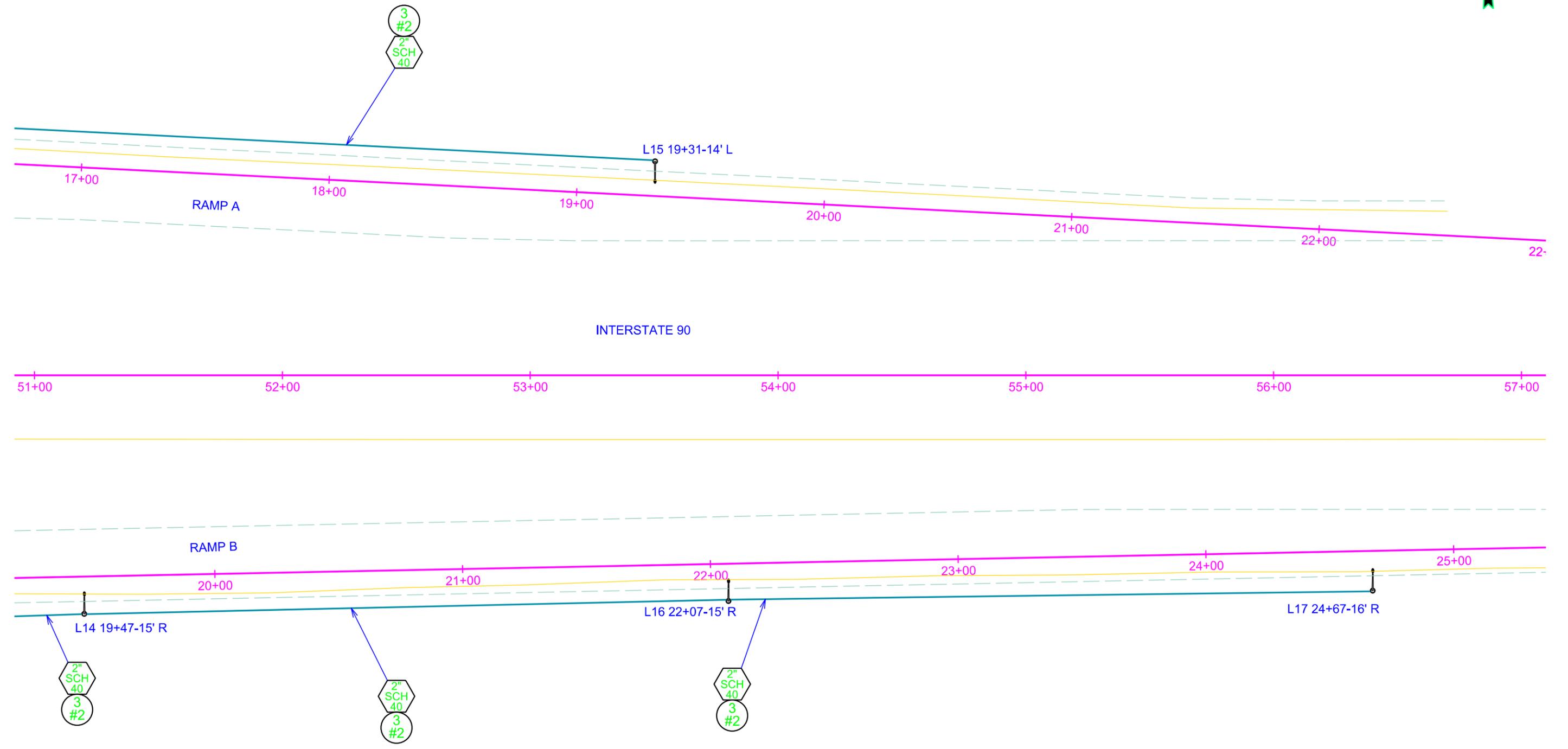
STATE OF SOUTH DAKOTA	PROJECT IM 0902(160)67	SHEET 30	TOTAL SHEETS 38
Plotting Date: 07/14/2015			



Plot Scale - 1:40

Plotted From - trpr14286

File - U:\trproj\penm034\1051c.dgn



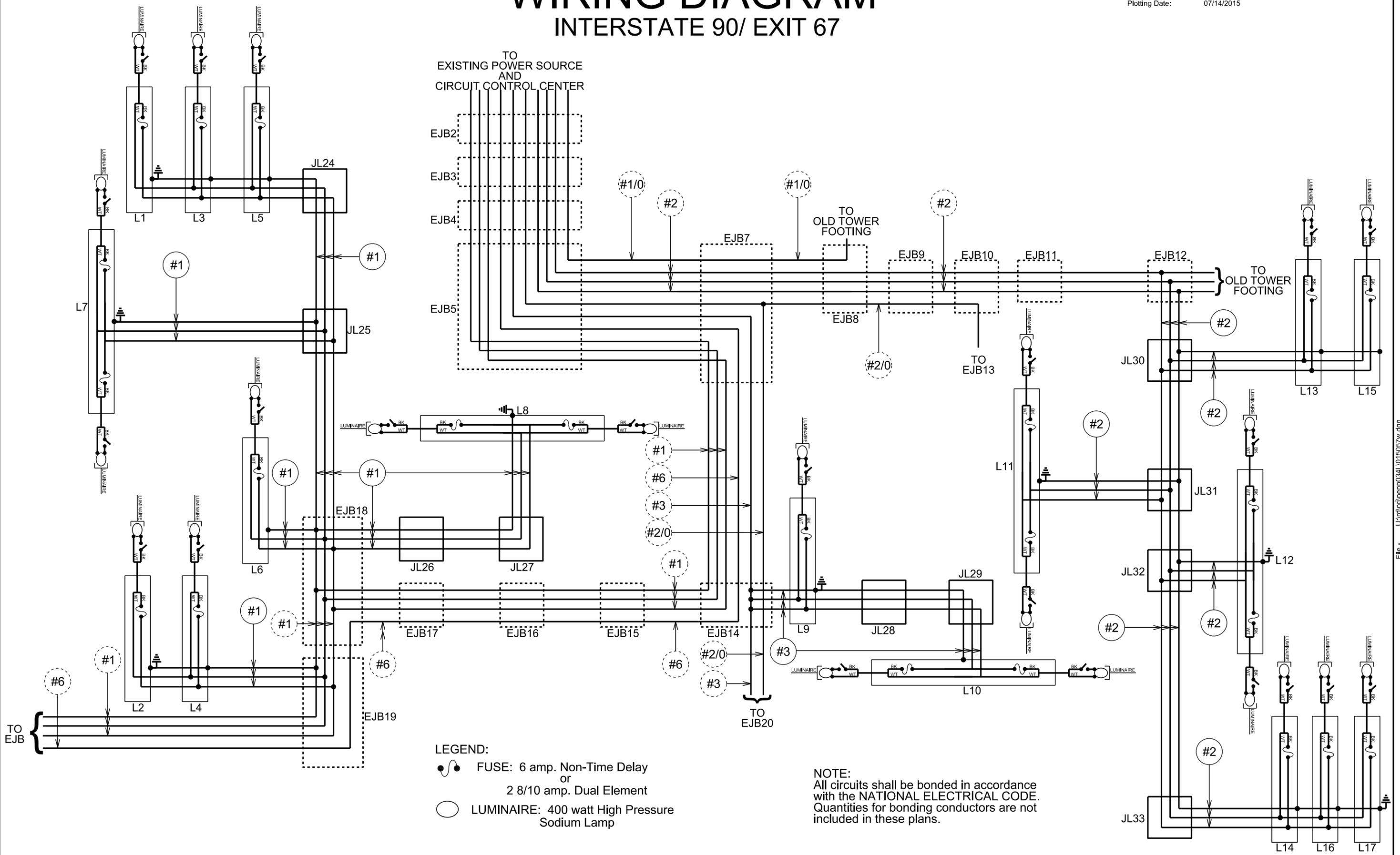
# WIRING DIAGRAM

## INTERSTATE 90/ EXIT 67

STATE OF SOUTH DAKOTA	PROJECT IM 0902(160)67	SHEET 31	TOTAL SHEETS 38
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Plotting Date: 07/14/2015

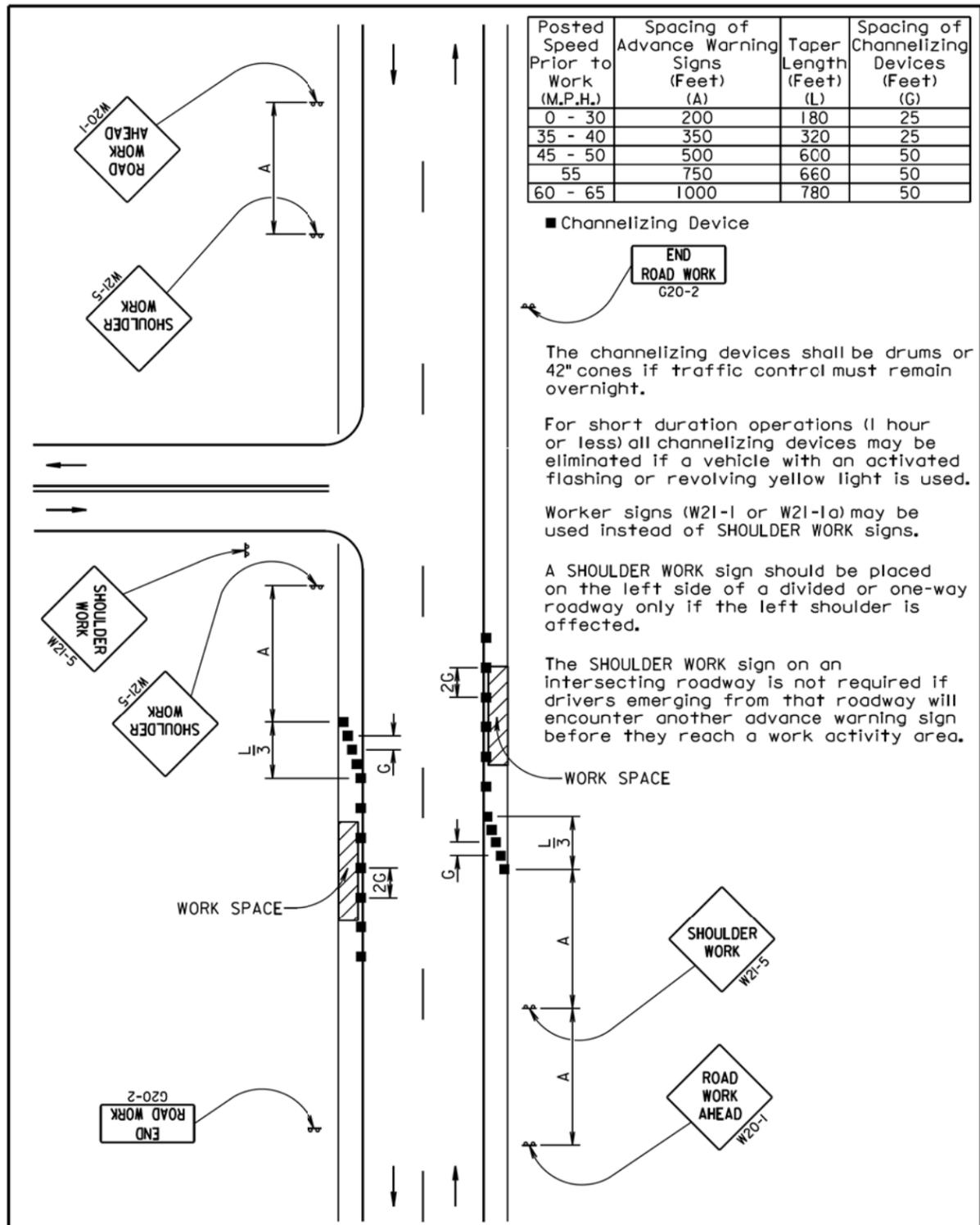
Plot Scale - 1:40  
Plotted From - trp14286



- LEGEND:**
- FUSE: 6 amp. Non-Time Delay or 2 8/10 amp. Dual Element
  - LUMINAIRE: 400 watt High Pressure Sodium Lamp

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

Plot Scale - 1:200



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45 - 50	500	600	50
55	750	660	50
60 - 65	1000	780	50

■ Channelizing Device

**END ROAD WORK**  
G20-2

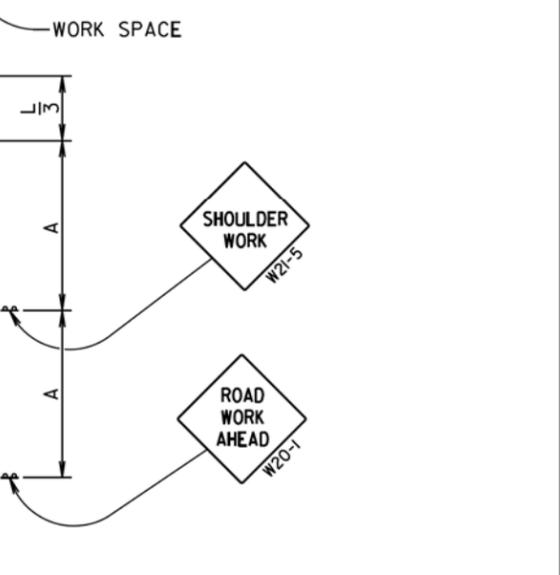
The channelizing devices shall be drums or 42" cones if traffic control must remain overnight.

For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

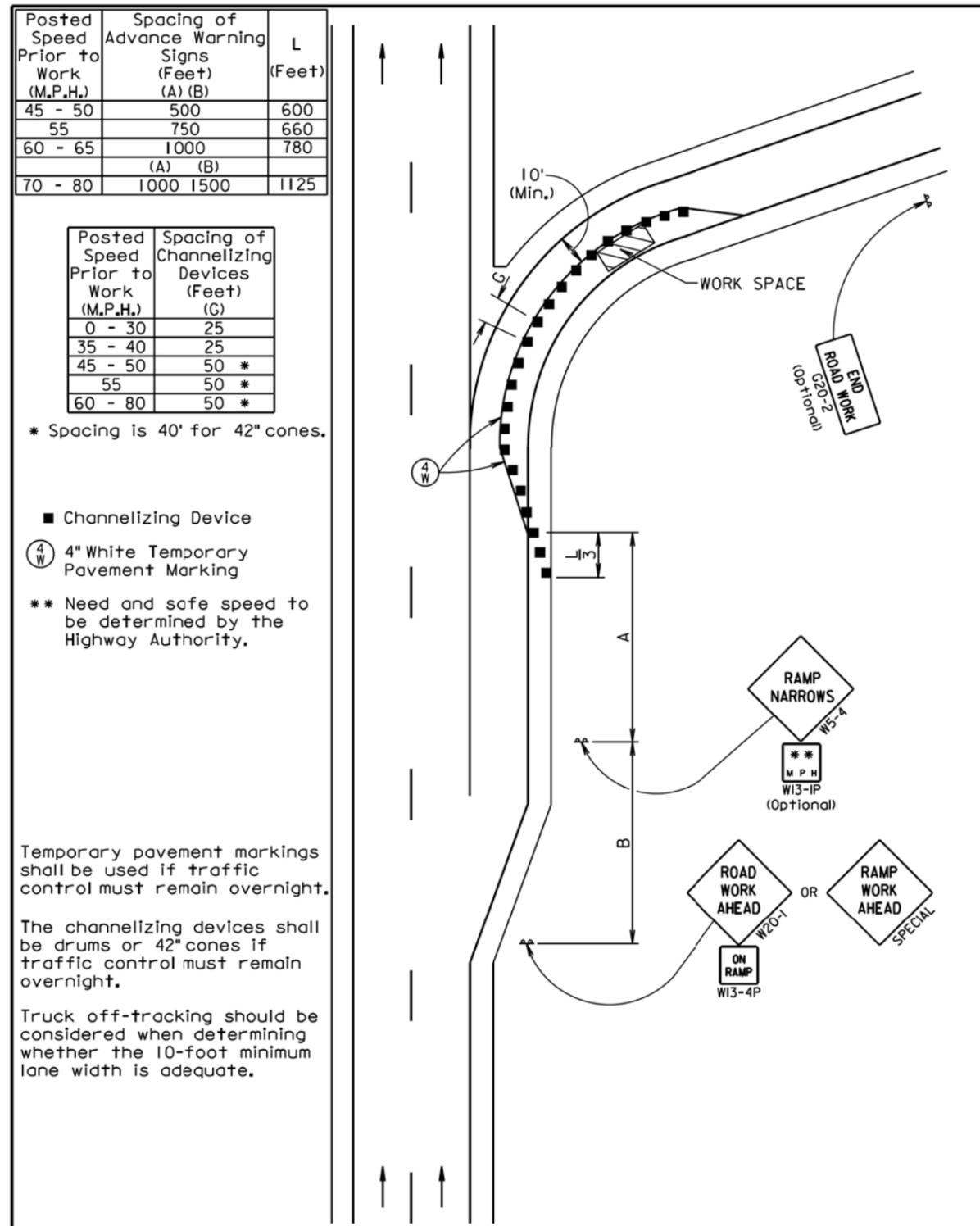
A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.



September 22, 2014

<b>S D D O T</b>	<b>GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS</b>	PLATE NUMBER <b>634.03</b>
	Published Date: 2nd Qtr. 2015	Sheet 1 of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 40	25
45 - 50	50 *
55	50 *
60 - 80	50 *

\* Spacing is 40' for 42" cones.

■ Channelizing Device

④ 4" White Temporary Pavement Marking

\*\* Need and safe speed to be determined by the Highway Authority.

Temporary pavement markings shall be used if traffic control must remain overnight.

The channelizing devices shall be drums or 42" cones if traffic control must remain overnight.

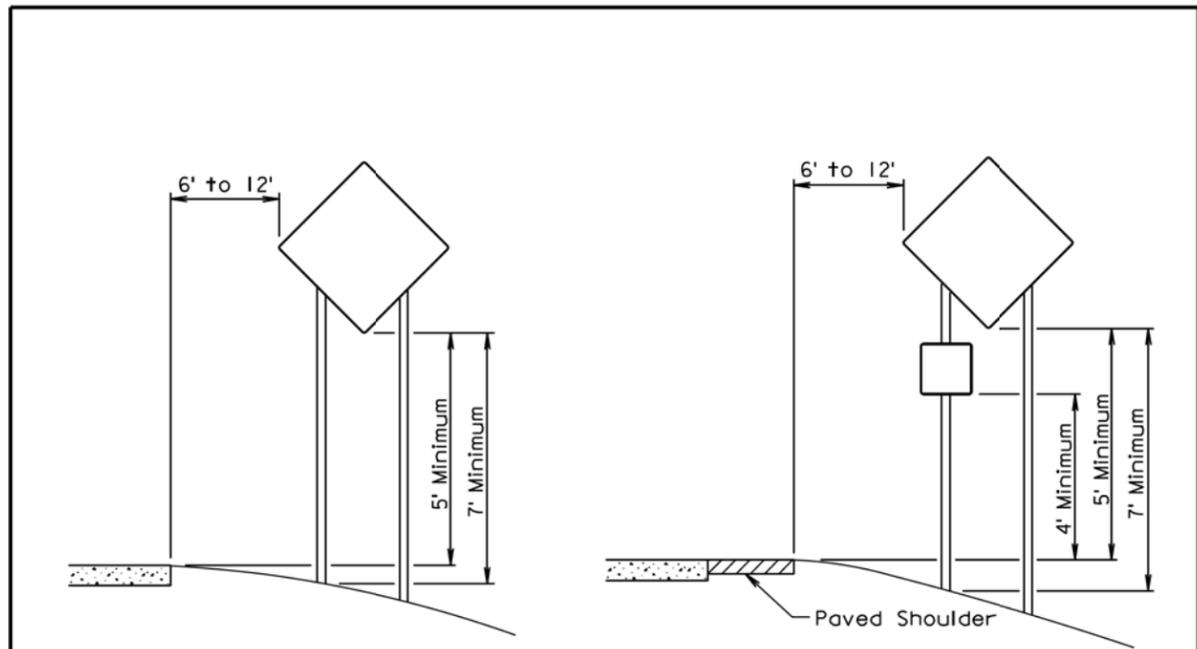
Truck off-tracking should be considered when determining whether the 10-foot minimum lane width is adequate.

<b>S D D O T</b>	<b>GUIDES FOR TRAFFIC CONTROL DEVICES PARTIAL EXIT RAMP CLOSURE</b>	PLATE NUMBER <b>634.69</b>
	Published Date: 2nd Qtr. 2015	Sheet 1 of 1

- Plotted From - tpr14286

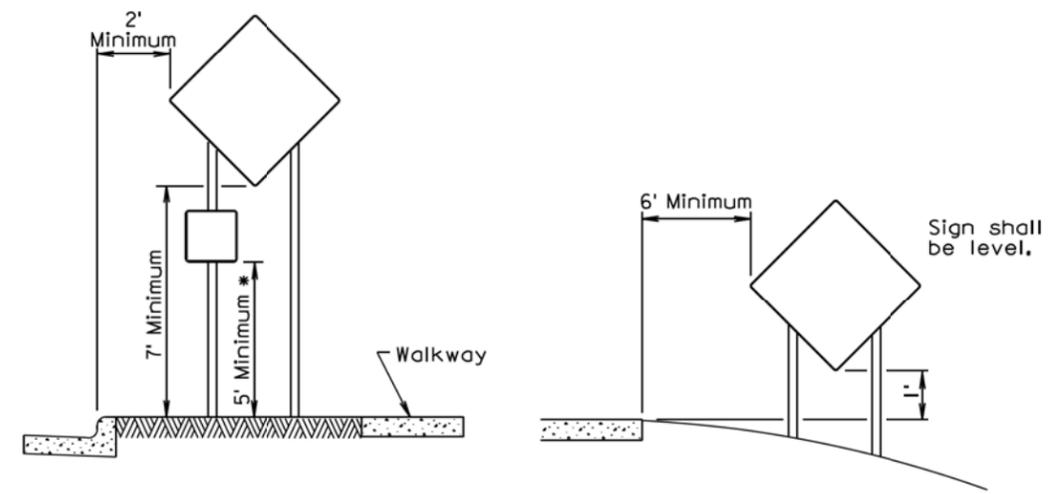
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Plot Scale - 1:200



RURAL DISTRICT

RURAL DISTRICT WITH  
SUPPLEMENTAL PLATE



URBAN DISTRICT

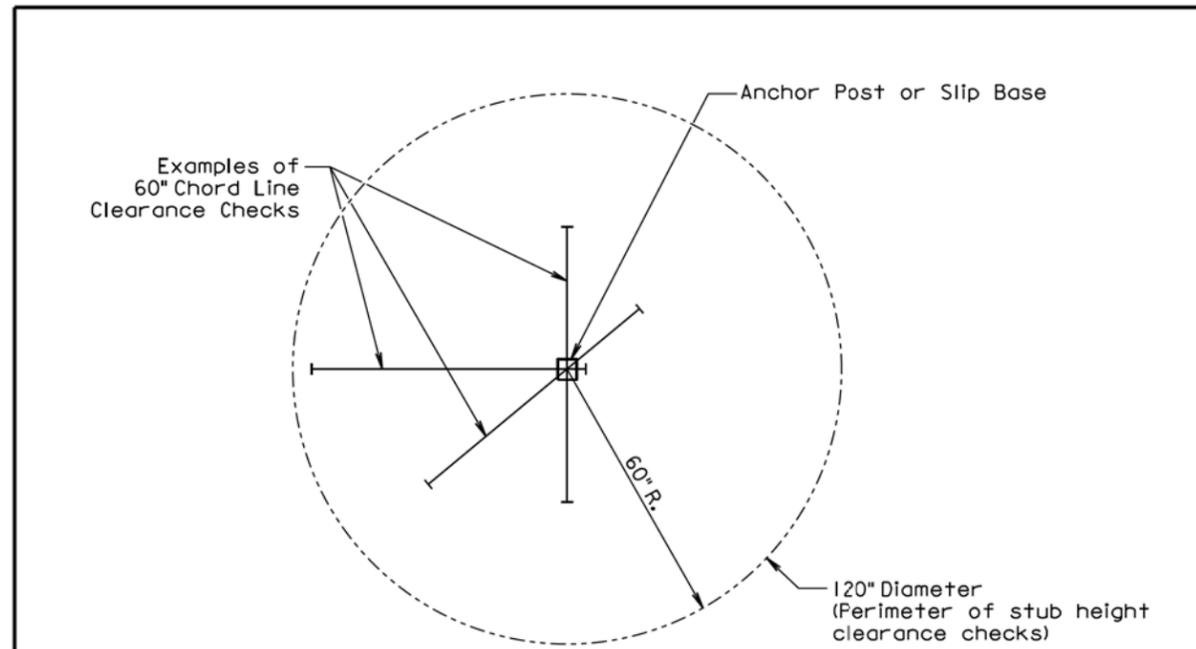
RURAL DISTRICT  
3 DAY MAXIMUM

\* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

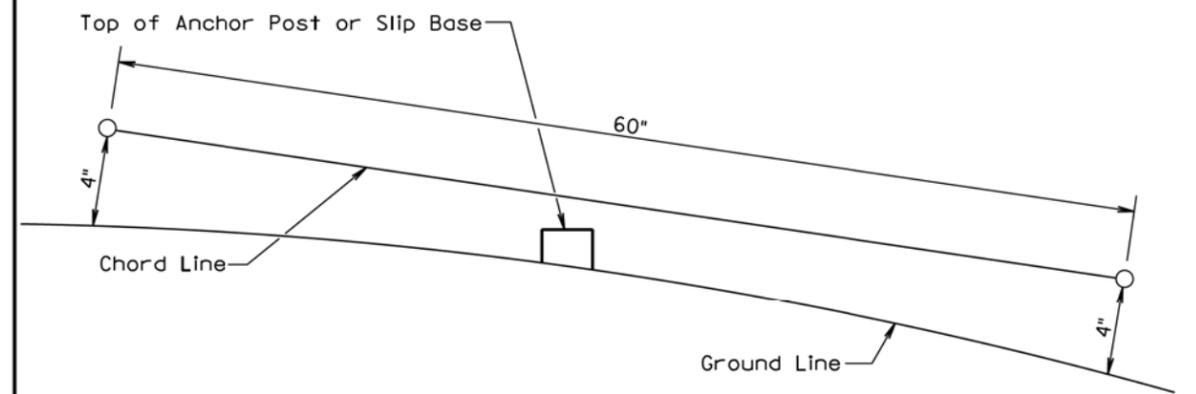
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 2nd Qtr. 2015	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW  
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

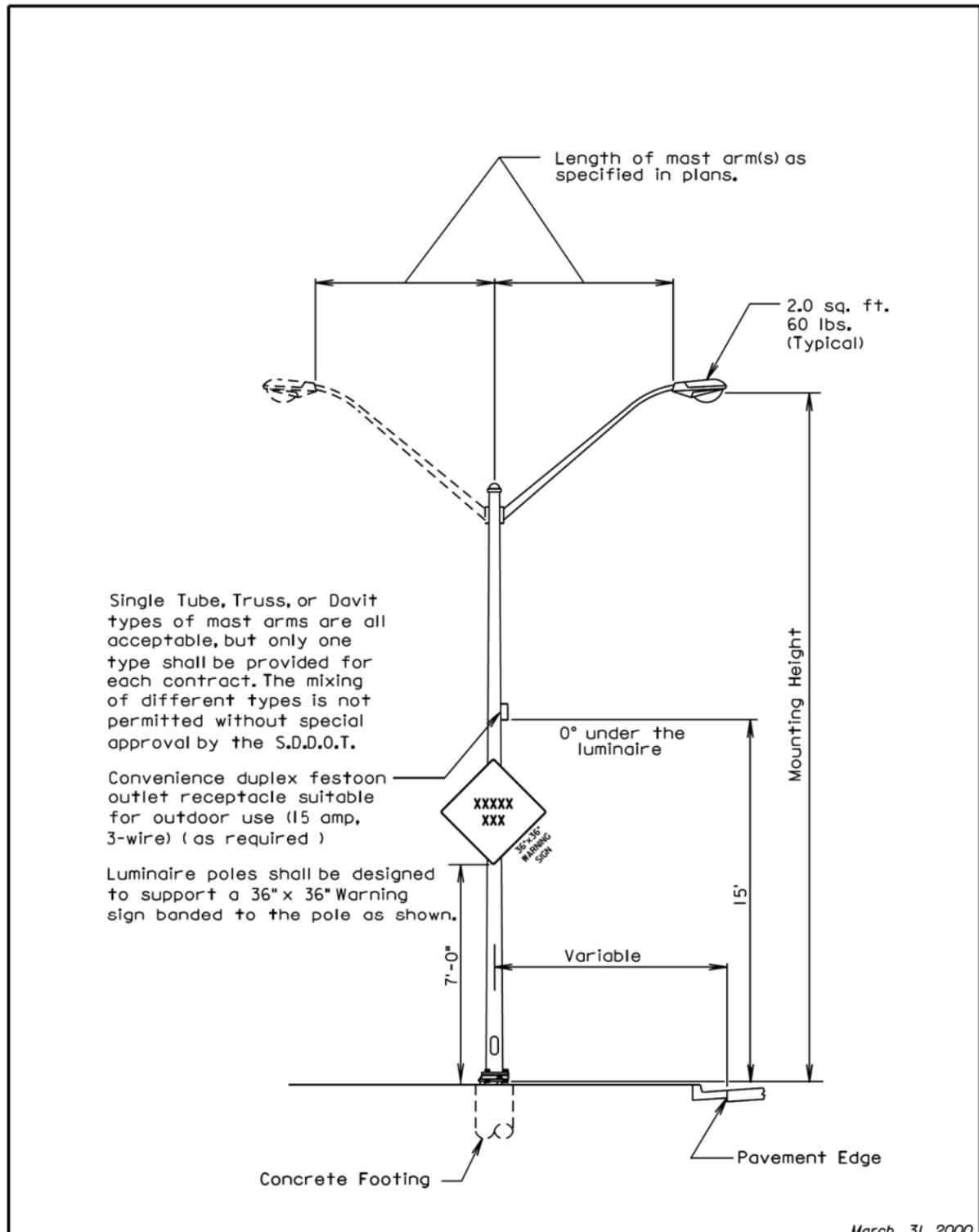
July 1, 2005

Published Date: 2nd Qtr. 2015	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

- Plotted From - tpr14286

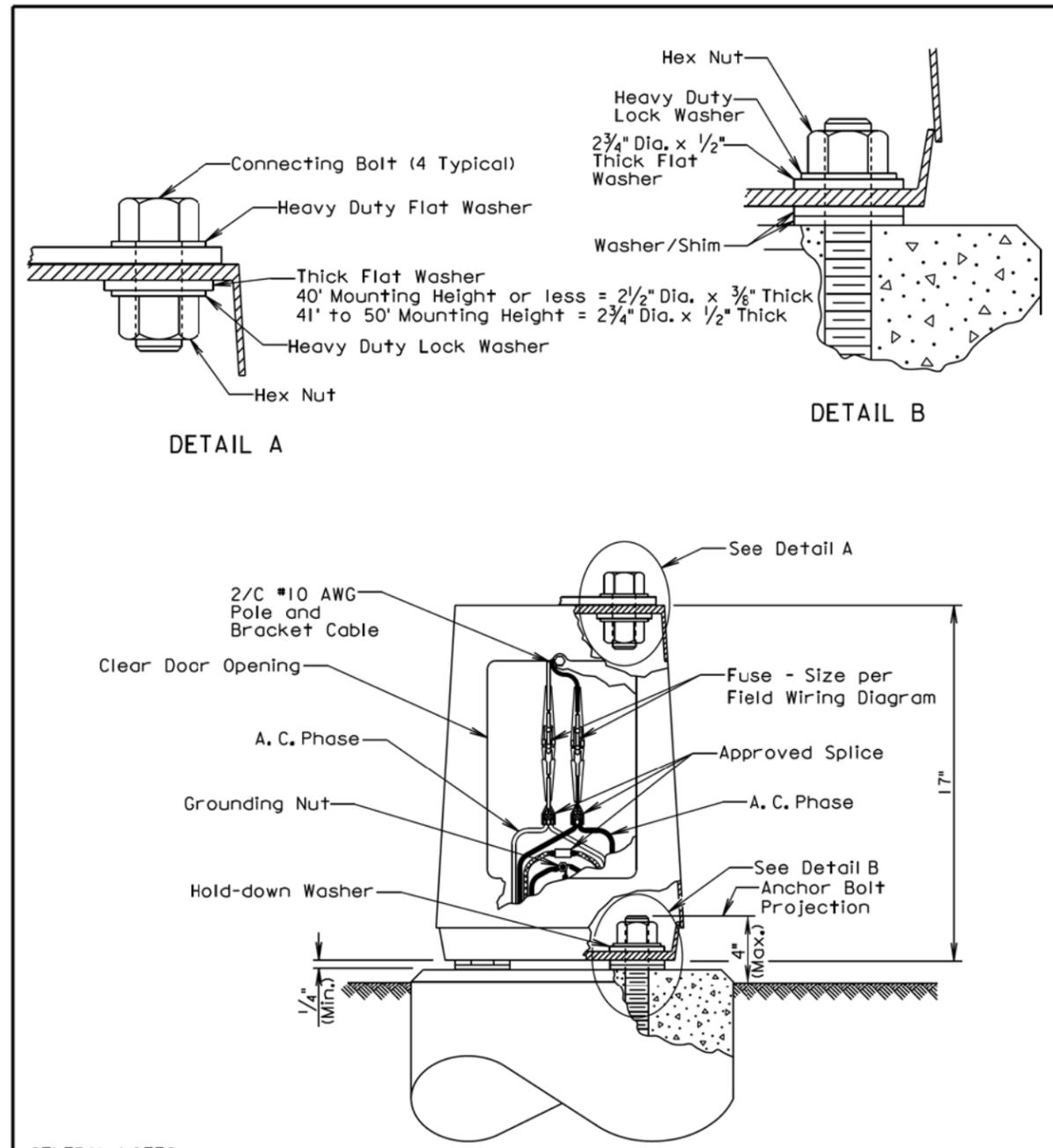
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Plot Scale - 1:200



March 31, 2000

<b>S D D O T</b>	<b>STEEL ROADWAY LUMINAIRE POLE WITH MAST ARM(S)</b>	PLATE NUMBER <b>635.01</b>
	Published Date: 2nd Qtr. 2015	Sheet 1 of 1



**GENERAL NOTES:**

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

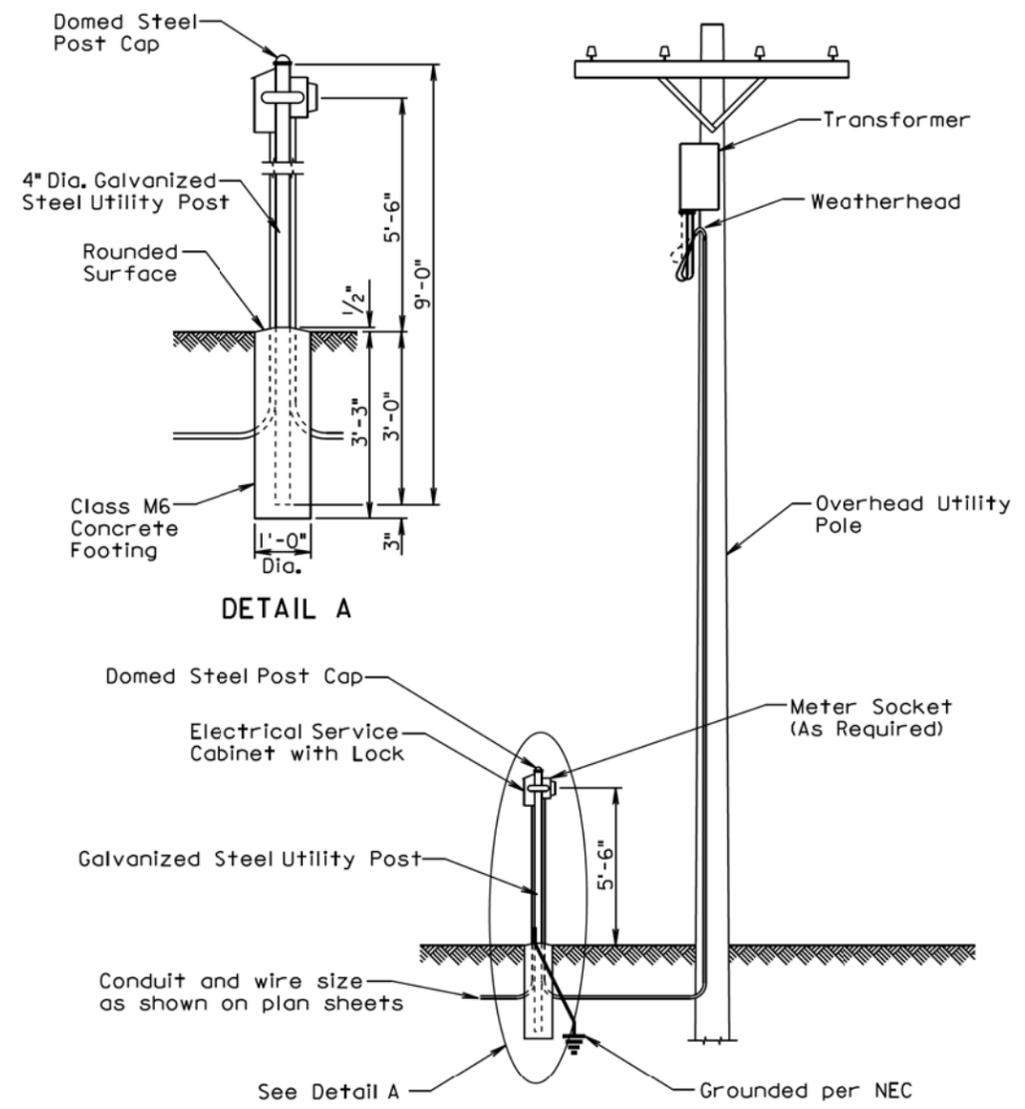
The Contractor shall install "U" shaped shims or round flat washers if shimming is necessary to install the light poles plumb and level. The washers and shims shall be installed around the anchor bolts.

June 26, 2013

<b>S D D O T</b>	<b>ROADWAY LUMINAIRE POLE BREAKAWAY TRANSFORMER BASE</b>	PLATE NUMBER <b>635.21</b>
	Published Date: 2nd Qtr. 2015	Sheet 1 of 1

- Plotted From - tpr14286

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**GENERAL NOTES:**

The concrete for the post footing shall be class M6 concrete.

The 4" diameter galvanized steel utility post shall be 9' long and shall be in conformance with AASHTO Standard Specifications M181. The post shall be Type 1 and either Grade 1 or Grade 2. The domed steel post cap shall be in conformance with AASHTO Standard Specifications M181 and shall be Type 1.

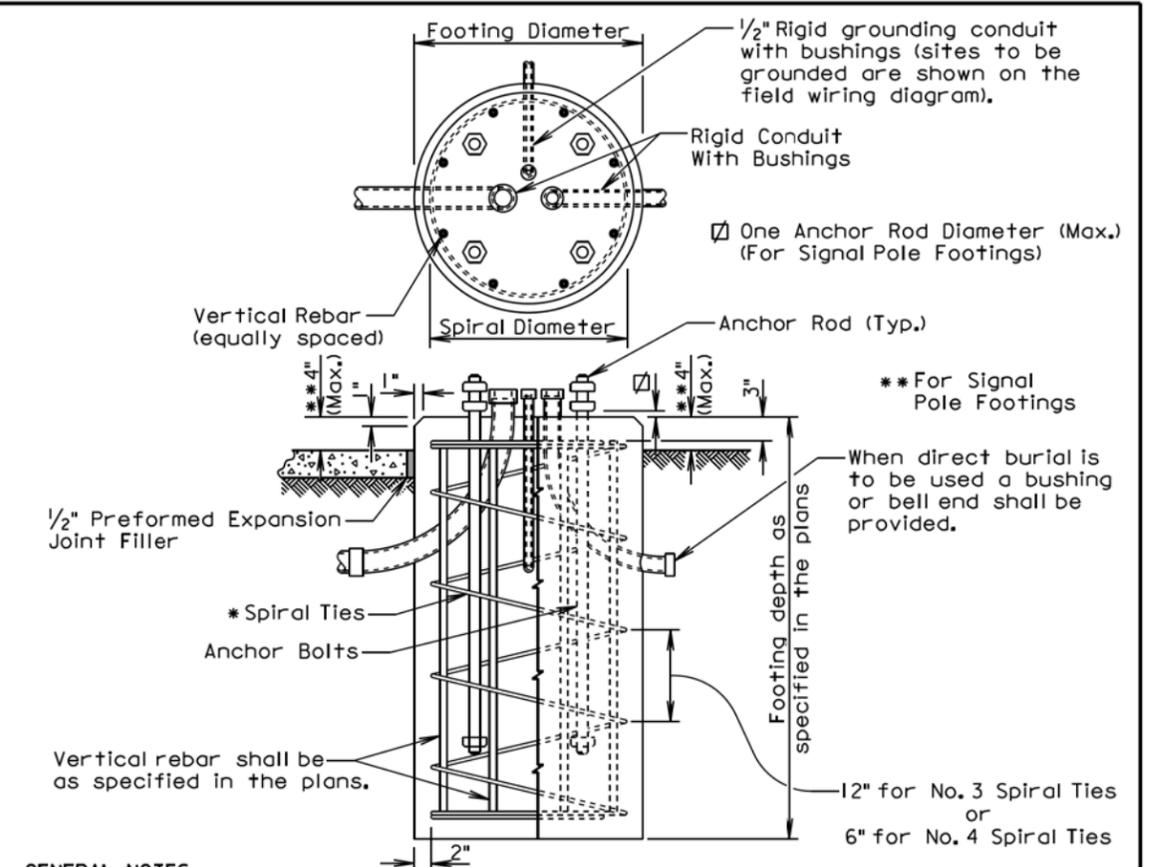
The Contractor shall contact and coordinate his/her work with the Utility Companies regarding hookup requirements, fees, materials, and equipment necessary.

All costs for furnishing and installing all materials from the electrical service cabinet to the transformer including labor, equipment, hookup fees, all items within the cabinet, post, concrete footing, post cap, meter socket if required, conduit, and incidentals shall be incidental to the contract unit price per each for "Electrical Service Cabinet".

June 26, 2006

<b>S D D O T</b>	<b>GALVANIZED STEEL UTILITY POST WITH OVERHEAD UTILITY POLE</b>	PLATE NUMBER <b>635.35</b>
		Sheet 1 of 1

Published Date: 2nd Qtr. 2015



**GENERAL NOTES:**

\* The tie sizes are specified in the plans. Circular ties may be used in lieu of the spiral ties. The No. 3 ties shall be spaced 12 inches apart except for the top two which shall be spaced 6 inches apart. The No. 4 ties shall be spaced 6 inches apart except for the top two which shall be spaced 3 inches apart. The ties shall be lapped 18 inches and the laps shall be staggered around the cage.

Spiral ties shall have 1-1/2 extra turns at each end.

See section 985 of the Standard Specifications for footing materials.

Conduits and bushings may project 2 1/2 inches to 6 inches above footing for fixed base poles but shall not project above the slip plane or fracture plane for breakaway poles.

Conduits shall be sealed water-tight during all phases of construction until poles are in place.

The anchor rods shall fit inside the reinforcing steel cage. If the anchor rods designed by the Pole Manufacturer do not fit, contact the Office of Bridge Design for footing redesign. No additional payment will be made for the redesigned footing.

Costs of conduit and conduit bushings shown on footing detail shall be incidental to the footing bid item(s).

The pole shall not be installed until the concrete has attained design strength (4000 psi).

The contour of the area surrounding the breakaway pole shall be flat, though not necessarily level for a distance of 5 feet in all directions. The Contractor may be required to provide finish grading at some breakaway pole locations.

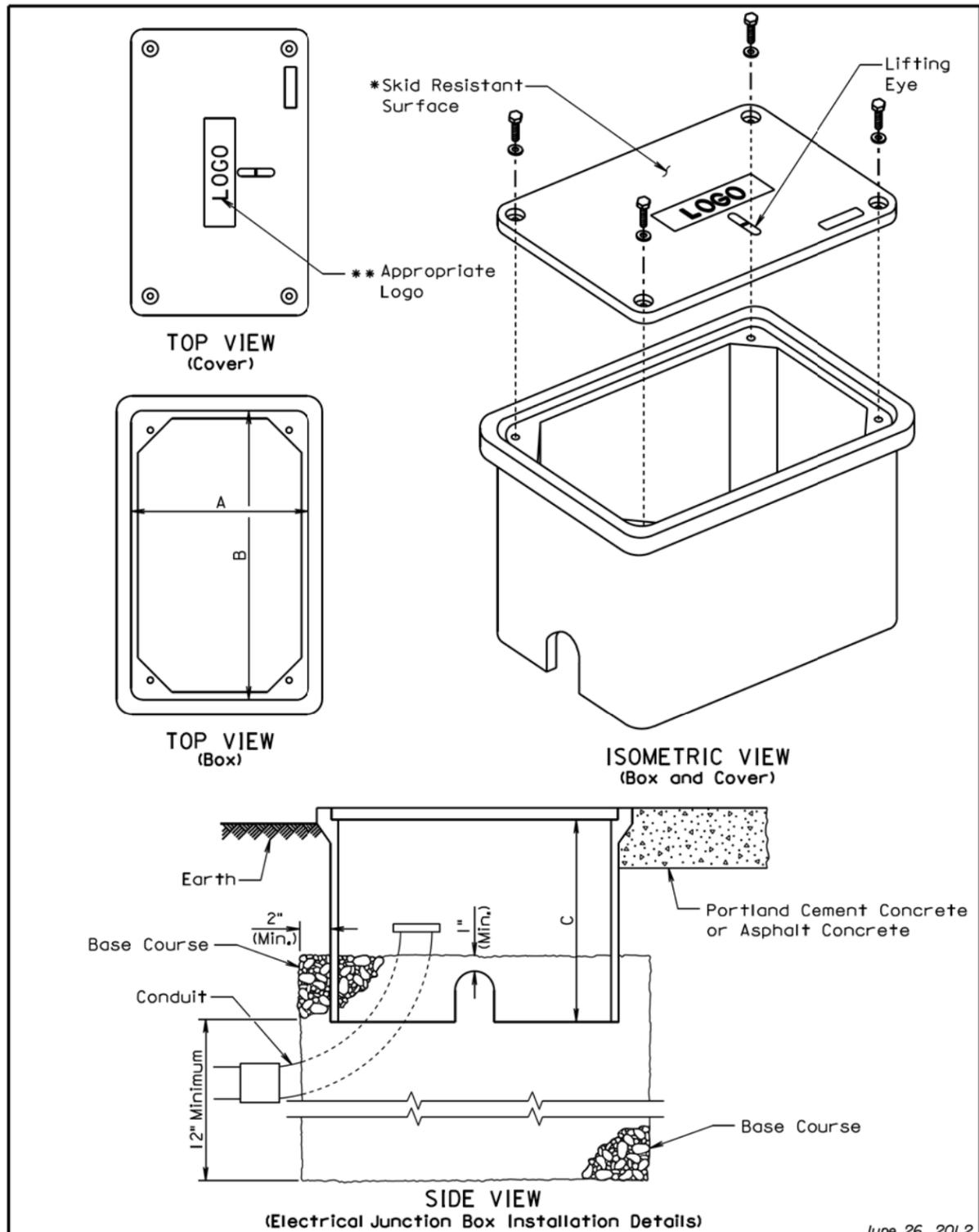
September 6, 2013

<b>S D D O T</b>	<b>POLE FOOTING</b>	PLATE NUMBER <b>635.55</b>
		Sheet 1 of 1

Published Date: 2nd Qtr. 2015

1:200  
Plot Scale -  
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Plot Scale - 1:200



June 26, 2012

<b>S D D O T</b>	<b>ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4</b>	PLATE NUMBER 635.65
		Sheet 1 of 2

Published Date: 2nd Qtr. 2015

**ELECTRICAL JUNCTION BOX**

TYPE	DESCRIPTION	DIMENSIONS		
		A	B	C
1	Open Bottom with Gasket	11"-15"	18"-21"	18" (Min.)
2	Open Bottom with Gasket	13"-18"	23"-28"	18" (Min.)
3	Open Bottom with Gasket	17"-22"	24"-30"	18" (Min.)
4	Open Bottom with Gasket	28"-33"	36"-48"	24" (Min.)

**GENERAL NOTES:**

The cover shall be gasketed with a minimum of two stainless steel bolts and washers.

The cover shall have a lifting eye.

\*The surface of the cover shall have a minimum wet and dry coefficient of friction value of 0.5 as determined by ASTM F 609.

\*\*The cover of the junction box shall have the appropriate logo in one inch size letters and shall be recessed. When the junction box contains cables or wires for a traffic signal then the logo shall be "Signal". When the junction box contains lighting conductors then the logo shall be "Lighting".

The electrical junction boxes shall comply with the American National Standards Institute (ANSI)/Society of Cable Telecommunications Engineers (SCTE) 77 2007 Specification for Underground Enclosure Integrity. The loading requirement for all the electrical junction boxes shall be Tier 8 of ANSI/SCTE 77 2007.

The electrical junction boxes shall be UL listed.

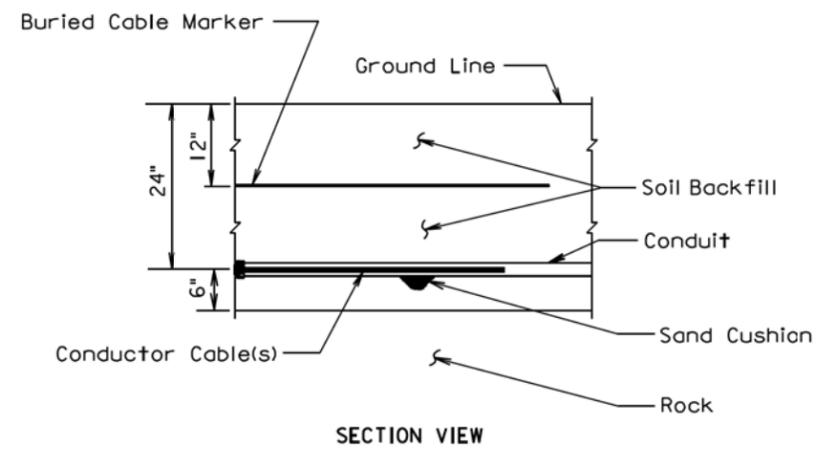
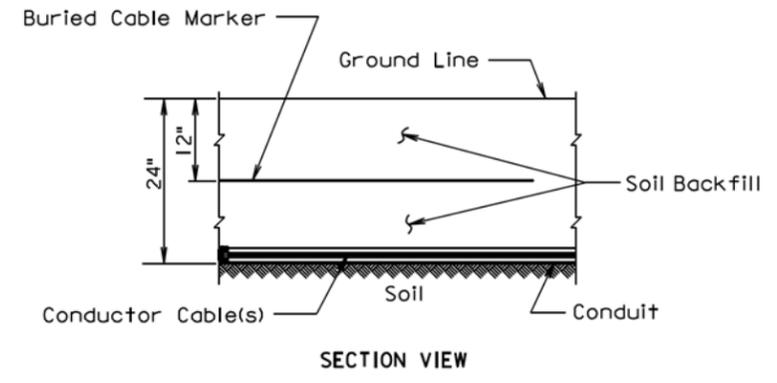
June 26, 2012

<b>S D D O T</b>	<b>ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4</b>	PLATE NUMBER 635.65
		Sheet 2 of 2

Published Date: 2nd Qtr. 2015

- Plotted From - tpr14286

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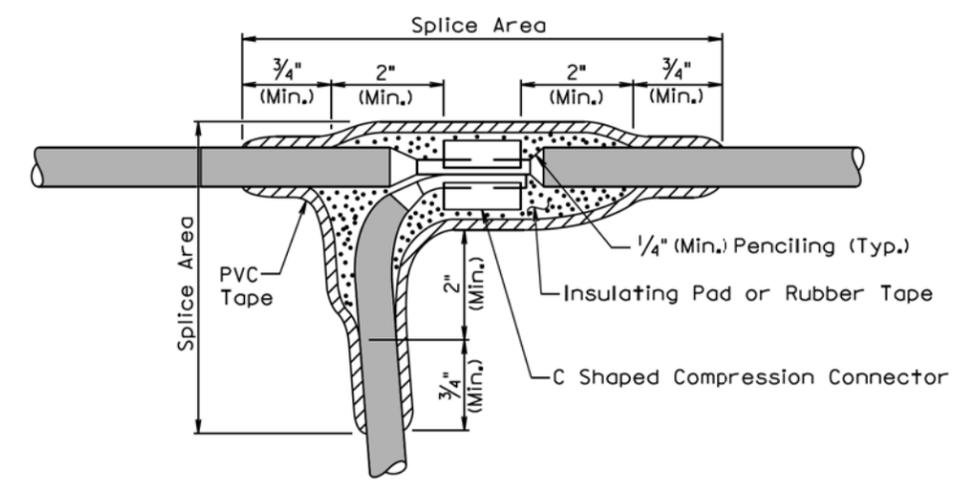
**GENERAL NOTE:**

The Buried Cable Marker shall be plastic, approximately 6" wide, and shall be capable of sustaining a minimum of a 350% tolerance of elongation without tearing. The Buried Cable Marker shall have a life expectancy approximately equal to that of the conductor(s) beneath it. A phrase indicating the presence of a buried electric circuit below shall be printed in a contrasting color on the cable marker. The Buried Cable Marker shall be subject to approval by the Engineer. All costs associated with furnishing and installing the Buried Cable Marker shall be incidental to the contract unit price per Foot for the bid item used for the electrical conductor.

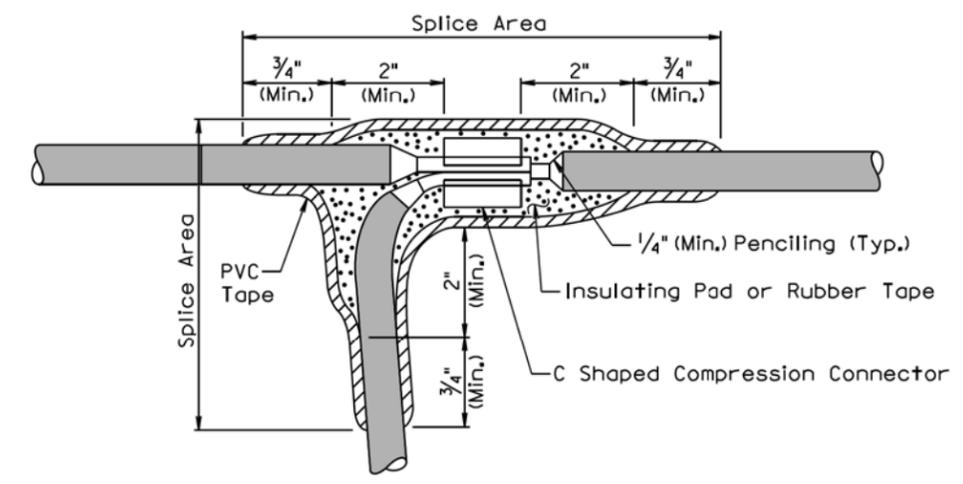
March 31, 2000

<b>S D D O T</b>	<b>CONDUIT INSTALLATION</b>	PLATE NUMBER <b>635.76</b>
		Sheet 1 of 1

Published Date: 2nd Qtr. 2015



**TYPE C SPLICE**  
(Between 1 free end and 1 through conductor)

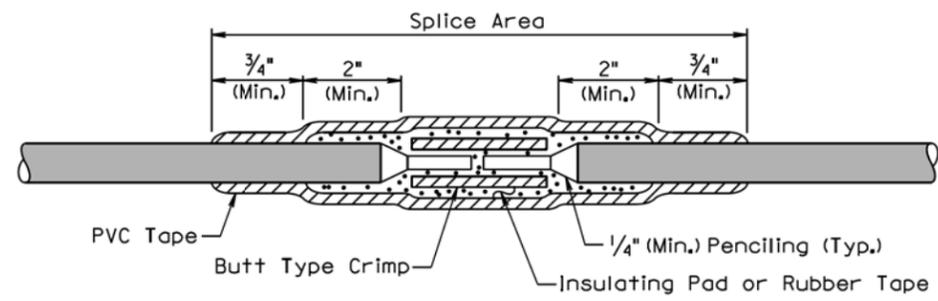


**TYPE T SPLICE**  
(For 3 free ends)

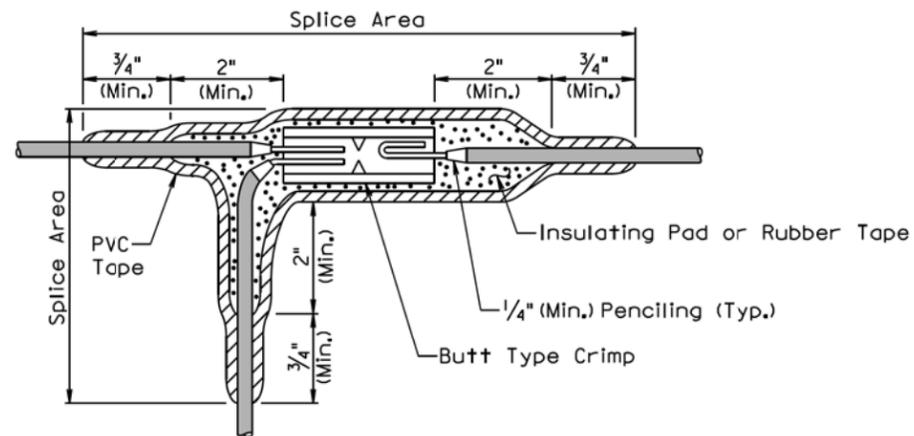
February 14, 2010

<b>S D D O T</b>	<b>WIRE SPlicing FOR LIGHTING (LOW VOLTAGE CIRCUITS (0 to 600 V))</b>	PLATE NUMBER <b>635.80</b>
		Sheet 1 of 2

Published Date: 2nd Qtr. 2015



**TYPE S SPLICE**  
(Between 2 free ends)



**TYPE ST SPLICE**  
(For 3 free ends)

**GENERAL NOTES:**

The splice shall be environmentally sealed for protection from weather, moisture, and abrasion in accordance with the method stated below.

The rubber tapes shall be rolled after application.

**Method for insulating splice area:**

1. The splice area shall be completely covered with electrical insulating coating and dried.
2. Apply two layers of 1/8" minimum thickness electrical insulating pad or two layers of half lapped synthetic oil resistant self fusing rubber tape.
3. Three layers of half lapped polyvinyl chloride tape shall be applied.
4. The entire splice area shall be covered with electrical insulating coating and dried.

February 14, 2010

<b>S D D O T</b>	<b>WIRE SPlicing FOR LIGHTING</b> (LOW VOLTAGE CIRCUITS (0 to 600 V))	PLATE NUMBER 635.80
	Published Date: 2nd Qtr. 2015	Sheet 2 of 2

Plot Scale - 1:200

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