

STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION  
PLANS FOR PROPOSED

PROJECT P 0231(00)79

SD HIGHWAY 231  
PENNINGTON COUNTY

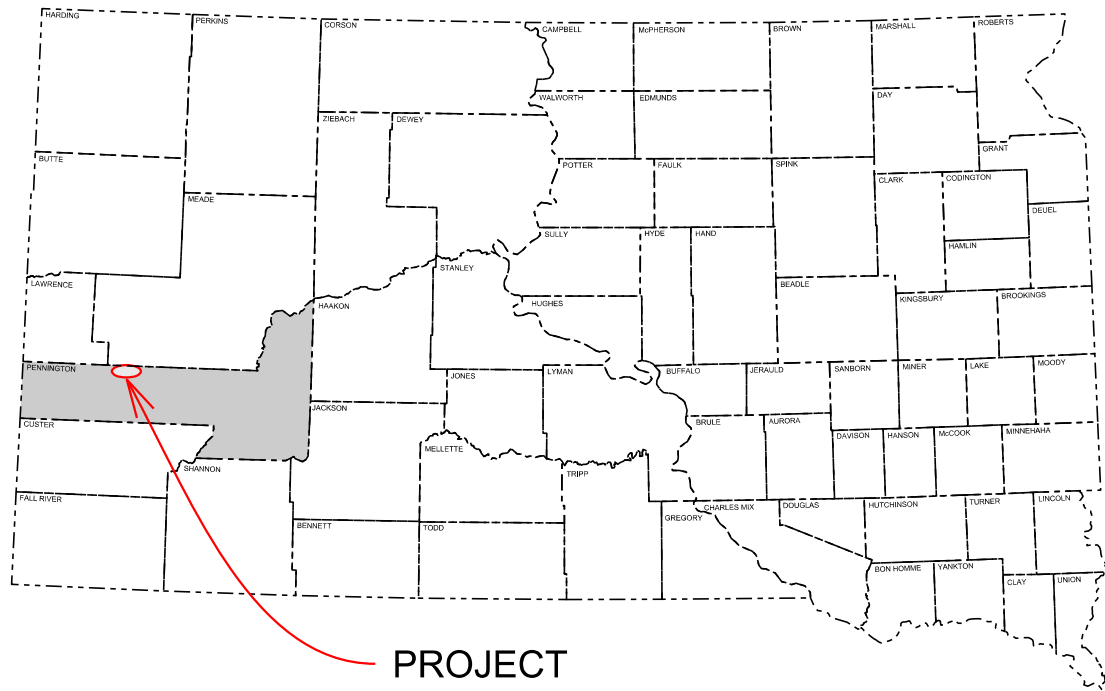
CONCRETE PAVEMENT REPAIR  
PCN 05A5

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0231(00)79	1	22

Plotting Date: 07/29/2015

INDEX OF SHEETS

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PROJECT

**BEGIN PROJECT**  
P 0231(00)79  
Sta. 3+06  
MRM 81.20

Begin Exception  
Sta. 8+05

End Exception  
Sta. 60+95

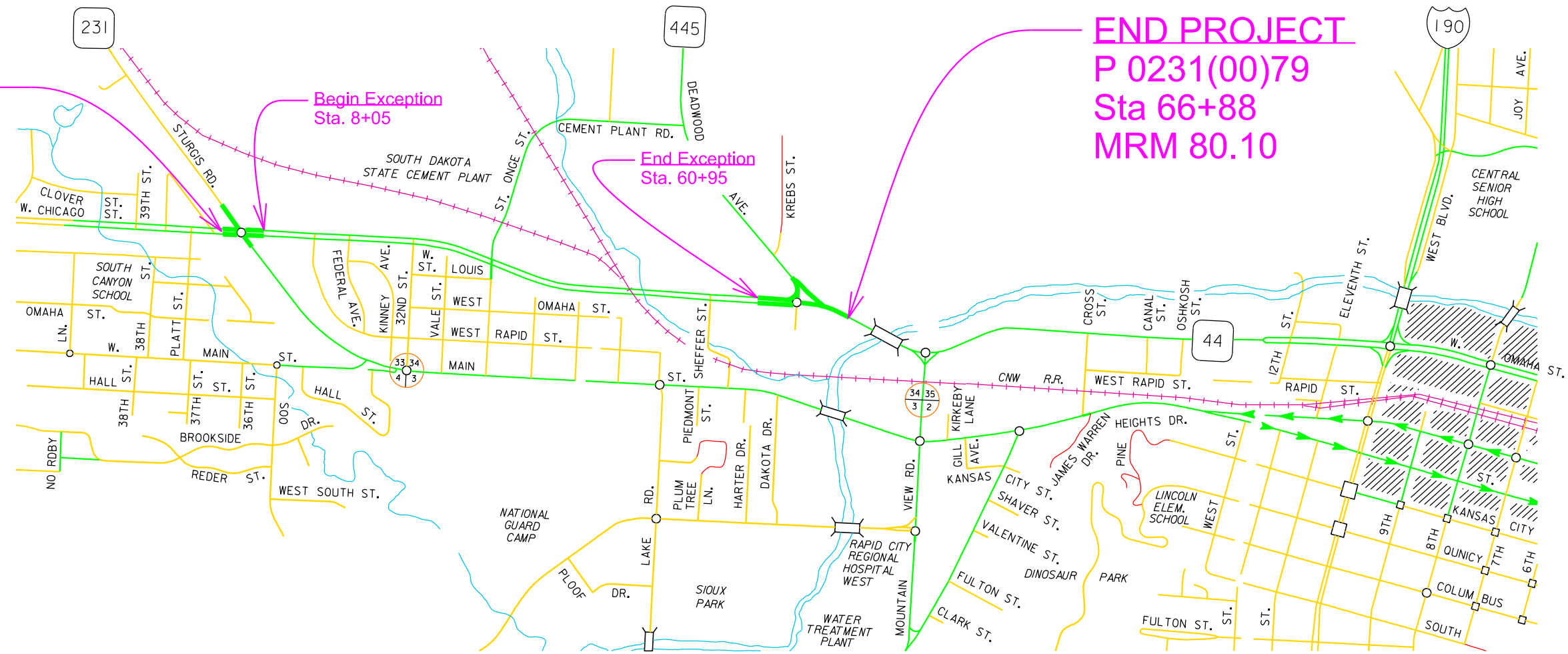
**END PROJECT**  
P 0231(00)79  
Sta 66+88  
MRM 80.10

**Deadwood Ave & SD 231 (MRM 80.15)**  
DESIGN DESIGNATION

ADT (2014)	21840
ADT (2034)	38044
DHV	5859
D	51 %
T DHV	2.0 %
T ADT	4.4 %
V	40 & 50 MPH

**Sturgis Road & West Chicago (SD 231 MRM 81.24)**  
DESIGN DESIGNATION

ADT (2014)	8665
ADT (2034)	15094
DHV	2325
D	51 %
T DHV	3.8 %
T ADT	8.3 %
V	35 MPH



**SD 231**

GROSS LENGTH	6,382 FEET	1.209 MILES
LENGTH OF EXCEPTIONS	5,290 FEET	1.001 MILES
NET LENGTH	1,092 FEET	0.208 MILES

STORM WATER PERMIT  
None Required

Plot Scale - 1:200

Plotted From - irrs11951

Plotted From -

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**ESTIMATE OF QUANTITIES**

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1100	Remove Concrete Pavement	15.1	SqYd
260E2010	Gravel Cushion	7.0	Ton
320E1200	Asphalt Concrete Composite	725.7	Ton
320E2000	Maintenance Patching	6.8	Ton
380E6302	Reseal PCC Pavement Joint - Hot Pour	180	Ft
* 390E0200	Repair Type A Spall	1,863.9	SqFt
633E0010	Cold Applied Plastic Pavement Marking, 4"	3,300	Ft
633E0020	Cold Applied Plastic Pavement Marking, 8"	560	Ft
633E0030	Cold Applied Plastic Pavement Marking, 24"	560	Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow	7	Each
633E0045	Cold Applied Plastic Pavement Marking, Combination Arrow	2	Each
633E1400	Pavement Marking Paint, 4" White	300	Ft
633E1405	Pavement Marking Paint, 4" Yellow	1,200	Ft
633E5000	Grooving for Cold Applied Plastic Pavement Marking, 4"	3,300	Ft
633E5005	Grooving for Cold Applied Plastic Pavement Marking, 8"	560	Ft
633E5015	Grooving for Cold Applied Plastic Pavement Marking, 24"	560	Ft
633E5025	Grooving for Cold Applied Plastic Pavement Marking, Arrow	7	Each
633E5030	Grooving for Cold Applied Plastic Pavement Marking, Combination Arrow	2	Each
634E0010	Flagging	300.0	Hour
634E0110	Traffic Control Signs	432	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	4	Each
634E0420	Type C Advance Warning Arrow Panel	4	Each
634E0640	Temporary Pavement Marking	1,200	Ft
634E1215	Contractor Furnished Portable Changeable Message Sign	2	Each
635E5540	Sawed-In Detector Loop	6	Each

\* - Denotes Repair Type A Spall (Asphalt Concrete Patching Material)

**SPECIFICATIONS**

Standard Specifications for Roads & 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 C: WATER SOURCE**

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

**Action Taken/Required:**

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

**COMMITMENT E: STORM WATER**

Construction activities constitute less than 1 acre of disturbance.

**Action Taken/Required:**

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

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	P 0231(00)79	2	22

**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.

#### **UTILITIES**

The Contractor shall be responsible for locating and protecting any utility that would conflict with any work. 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 modifications that will be necessary to avoid utility impacts.

Any damage done to a utility will be the Contractor's responsibility to repair.

Utilities within the limits of the proposed construction shall be adjusted by the owner unless otherwise indicated in these plans.

#### **EXISTING PCC PAVEMENT**

The existing pavement for SD 231 is 8" Nonreinforced PCC Pavement with limestone aggregate. Longitudinal joints are reinforced with No. 4x20" deformed tie bars spaced 30" center to center. The transverse joints are spaced at 20' apart.

#### **RESTORATION OF GRAVEL CUSHION**

An inspection of the gravel cushion subgrade shall be made after removing concrete from each pavement replacement area. Areas of excess moisture shall be removed to the satisfaction of the Engineer. Loose and excess material shall be removed. Each replacement area shall be leveled and compacted to the satisfaction of the Engineer.

If additional gravel cushion material is required, the Contractor shall furnish, place and compact gravel cushion to the satisfaction of the Engineer.

A quantity of 7 ton is provided on the project to be used at the discretion of the Engineer.

All costs associated with this removal and installation of new gravel shall be incidental to the contract unit price per ton for "Gravel Cushion".

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**REPAIR TYPE A SPALL**

Locations and size (length or width) of concrete spall repair areas are subject to change in the field, at the discretion of the Engineer, at no additional cost to the state. The minimum dimension of the repair area shall be 4". Payment will be based on actual area replaced.

Type A Spalls shall conform to Section 390 with the following exceptions:

Spalls which are repaired according to plans and specifications and exhibit partial re-spalling or cracking, shall be repaired to the satisfaction of the Engineer at no additional cost to the Department of Transportation.

The PCC Patch material used for spall repair shall be Asphalt Concrete Composite in accordance with the requirements of Section 324 of the Specifications.

**ROADWAY CLEANING**

The Contractor shall be responsible for removing the router tailings from the roadway surface, including shoulders, intersecting streets and as directed by the Engineer. Roadway cleaning shall be done daily when router tailings are produced.

**RESEAL PCC PAVEMENT JOINTS**

The existing transverse joints shall be cleaned of incompressibles and joint sealant to the satisfaction of the Engineer. It is not essential that all of the sealant be removed. Remaining sealant adhering to the sides may remain in place if the Engineer determines that it is not detrimental to the joint.

Just prior to sealing, the joints shall be sandblasted and cleaned with compressed air.

In certain areas the joint may be wider than the original construction. Any additional cost to perform this work shall be at no additional cost to the State. The Contractor shall be responsible to verify joint widths prior to establishing the contract unit price.

Transverse joints shall be sealed with Hot Poured Elastic Joint Sealer.

Cost for removing, cleaning, and resealing the transverse joints shall be incidental to the contract unit price per foot for Reseal PCC Pavement Joint-Hot Pour.

**MAINTENANCE PATCHING**

Maintenance Patching shall be in accordance with the requirements of Section 324 and the following requirements for the asphalt concrete composite used as Maintenance Patching.

Locations and quantities of asphalt repair are subject to change. The exact locations will be determined in the field by the Engineer. The Engineer reserves the right to adjust quantities and/or add locations at no additional cost to the state.

Maintenance Patching areas asphalt concrete composite shall be placed 8" thick, in two lifts of 3" and one lift of 2".

**ASPHALT CONCRETE COMPOSITE**

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Specifications for Class E, Type 1.

All other requirements in the Specifications for Asphalt Concrete Composite shall apply.

The asphalt binder used in the mixture shall be PG 64-22 or PG 64-28 Asphalt Binder.

Asphalt Concrete Composite thickness at the intersection of Deadwood Ave. and West Chicago shall be 2" and the skin patch on Sturgis Rd shall be 2"



**REPAIR QUANTITIES – P 0231(00)79 (CONT.)**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Approx. Station	Length Ft.	Width Ft.	Lane	Remove Concrete Pavement Sq. Yd.	Maintenance Patching Ton	Asphalt Concrete Composite Ton	Reseal PCC Pavement Joint, Hot Pour Ft.	Repair Type A Spall (Asphalt Concrete) Sq. Ft.
<b>SOUTH STURGIS ROAD - Northbound (cont.)</b>								
	1.0	4.0	Right					4.0
	6.0	6.0	Right					36.0
	21.0	1.0	Driving					21.0
	1.0	4.0	Right					4.0
	1.0	3.0	Right					3.0
	1.0	2.0	Right					2.0
<b>NORTH STURGIS ROAD</b>								
<b>Southbound</b>								
Skin Patch (2")	60.0	13.0	Driving			9.8		
Skin Patch (2")	60.0	13.0	Passing			9.8		
	1.0	3.0	Driving					3.0
	1.0	4.0	Driving					4.0
	1.0	1.0	Passing					1.0
	0.5	2.0	Driving					1.0
	20.0	0.3	DL/PL					6.6
	0.5	1.0	Passing					0.5
	0.5	2.0	Passing					1.0
	160.0	1.0	Turn Lane					160.0
	1.0	6.0	Right					6.0
	90.0	1.0	Turn Lane					90.0
	2.0	9.0	Right					18.0
	2.0	12.0	Turn Lane					24.0
	3.0	3.0	Right					9.0
	30.0	1.0	Driving					30.0
<b>Northbound</b>								
	2.0	2.0	Driving					4.0
	1.0	1.0	Driving					1.0
	1.0	2.0	Driving					2.0
	1.0	1.0	Driving					1.0
	1.0	3.0	Driving					3.0
	1.0	1.0	Driving					1.0
	1.0	3.0	Passing					3.0
	1.0	3.0	Passing					3.0
	8.0	12.0	Driving	10.7	4.8			
	20.0	0.3	DL/PL					6.6

Approx. Station	Length Ft.	Width Ft.	Lane	Remove Concrete Pavement Sq. Yd.	Maintenance Patching Ton	Asphalt Concrete Composite Ton	Reseal PCC Pavement Joint, Hot Pour Ft.	Repair Type A Spall (Asphalt Concrete) Sq. Ft.
60+95	Start Overlay					706.1		
61+14	0.5	0.5	EBDL					0.3
61+35	1.0	1.0	Turn Lane					1.0
61+55	200.0	0.3	EBPL					60.0
62+95	300.0	0.3	EBDL/PL					90.0
63+22	1.0	1.0	EBPL					1.0
63+87	0.5	4.0	EBDL					2.0
64+00	0.5	2.0	EBPL					1.0
64+05	1.0	15.0	EBDL					15.0
64+11	1.0	1.0	WBPL					1.0
64+11	1.0	3.0	WBPL					3.0
64+20	0.5	0.5	EBPL					0.3
64+36	1.0	50.0	EBDL					50.0
64+60	1.0	1.0	WBPL					1.0
64+65	1.0	1.0	WBPL					1.0
VARIABLE			VARIOUS				60	
65+70	1.0	3.0	WBDL					3.0
66+14	1.0	12.0	WBPL					12.0
66+34	1.0	12.0	WBDL					12.0
66+34	1.0	12.0	WBPL					12.0
66+50	1.0	3.0	WBDL					3.0
66+88	0.5	0.5	WBPL					0.3
66+88	End Overlay							

**REPAIR QUANTITIES – P 0231(00)79 (CONT.)**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Approx. Station	Length Ft.	Width Ft.	Lane	Remove	Maintenance	Asphalt	Reseal PCC	Repair Type
				Concrete Pavement Sq. Yd.	Patching Ton	Concrete Composite Ton	Pavement Joint, Hot Pour Ft.	A Spall (Asphalt Concrete) Sq. Ft.
<b>NORTH DEADWOOD AVENUE</b>								
<b>Southbound</b>								
	1.0	1.0	Turn Lane					1.0
	1.0	1.0	Thru					1.0
	1.0	3.0	Turn Lane					3.0
	2.0	4.0	Turn Lane					8.0
	1.0	1.0	Turn Lane					1.0
	1.0	3.0	Turn Lane					3.0
	1.0	1.0	Thru					1.0
	0.5	1.0	Thru					0.5
	0.5	1.0	Thru					0.5
	0.5	6.0	Thru					3.0
<b>Northbound</b>								
	40.0	0.3						13.2
	1.0	3.0	Right					3.0
	1.0	1.0	Right					1.0
	1.0	1.0	Right					1.0
	1.0	1.0	Right					1.0
	120.0	0.3	Left					39.6
	1.0	10.0	Left					10.0
	1.0	1.0	Left					1.0
	1.0	1.0	Left					1.0
	1.0	1.0	Left					1.0
	20.0	0.3	Left					6.6
<b>P 0231(15)79 TOTALS:</b>				<b>15.1</b>	<b>6.8</b>	<b>725.7</b>	<b>180</b>	<b>1,863.9</b>

**PERMANENT PAVEMENT MARKINGS**

Included in the estimate of quantities are pavement markings for intersections of West Chicago/Sturgis Road (Paint) and West Chicago/Deadwood Ave (Cold Applied Plastic Pavement Marking). The Engineer shall determine the markings to be placed at West Chicago/Sturgis Road that are disturbed due to the pavement repair.

Application of permanent pavement marking shall be completed within 14 calendar days following completion of the pavement repair.

**PAVEMENT MARKING PAINT**

Rates of Application:

- Solid 4" Line = 17 Gals/Mile
- Glass Beads = 8 Lbs/Gal

1200' of yellow and 300' of white is estimated to replace the pavement marking lane lines in the turn lanes on the Sturgis Road, south and north legs of the intersection. Other locations shall be as directed by the Engineer.

**COLD APPLIED PLASTIC PAVEMENT MARKING**

The Contractor shall apply the Cold Applied Plastic Pavement Marking material as per manufacturer's instructions.

Cold applied plastic pavement markings shall be placed into a recessed groove on the surface.

Final locations of markings will be determined by Engineer.

**GROOVE PAVEMENT FOR COLD APPLIED PLASTIC MARKINGS**

The grooving shall be completed within the following tolerance:

Depth of Groove: 110 mils, ± 10 mils.

The bottom of the groove shall be uniform and free of loose material. The groove shall be flat and of uniform depth for the entire width of the groove.

Existing grooves that do not meet the 110 mil depth requirement shall be re-grooved. In areas where the existing groove depth meets the 110 mil depth

requirements and portions of the existing markings are still in place, the existing markings shall be removed. All costs for materials, labor, and equipment necessary to remove the existing markings shall be incidental to the contract unit price for various Grooving for Cold Applied Plastic Marking.

Markings that fall outside of the groove shall be removed (at least 90%) using additional methods approved by the Engineer. All costs for materials, labor, and equipment necessary to remove the existing markings shall be incidental to the contract unit price for various Grooving for Cold Applied Plastic Marking.

The Contractor shall establish a positive means for the removal of the grinding and/or grooving residue. Solid residue shall be removed from the pavement surfaces before being blown by traffic action or wind. Residue shall not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, shall be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state.

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## SAWED-IN DETECTOR LOOPS

Included in the estimate of quantities are 6 Sawed-In Detector Loops to be used at the intersection of Sturgis Rd. and West Chicago. 3 loops in the North Sturgis Rd. left turn lane shall be replaced and 3 loops in the South Sturgis Rd left turn lane shall be replaced. The other loops on the project have either been abandoned or are preformed detector loops below the pavement surface.

The costs associated with connecting the loops to the existing signal system shall be incidental to the contract unit price per each for Sawed-In Detector Loop.

## 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. Hours of darkness are defined as ½ hour after sunset until ½ hour before sunrise.
3. Storage of vehicles and equipment shall be as near the right-of-way as possible. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work. 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, warning signs and delineation shall be temporarily reset and maintained during construction as directed by the Engineer. Removing, relocating, salvaging and resetting of the above items shall be the responsibility of the Contractor.
5. 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.
6. The quantity of traffic control units paid for will be for the greatest number of installations per sign in place at any one time regardless of the number of set-ups per project.
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 documentation that all breakaway sign supports comply with NCHRP 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

10. The Contractor shall be required to have a person available 24 hour/day, 7 days/week to maintain traffic control devices. The name and cellular telephone number of this individual shall be given to the Engineer at the preconstruction meeting.
11. The Contractor or designated traffic control subcontractor shall make night inspections at the initial set up of traffic control and every week thereafter to ensure the adequacy, legibility and reflectivity of each sign and device. A written summary of each inspection shall be given to the Engineer within 24 hours after completion of the inspection. The cost for the nighttime inspection work shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".
12. Vehicles working in traffic or alongside traffic shall be equipped with a flashing amber light visible from all directions. The amber light shall be mounted on the uppermost part of the Contractor's vehicle. Lights must have peak intensity within the range of 40 to 400 candelas and must flash at 75 ± 15 flashes per minute. Vehicle flasher/hazard lights are not acceptable. 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.
13. All construction operations shall be conducted in the general direction of traffic movement.
14. 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.
15. Temporary Road Markers (Tabs) shall be used for lane closure tapers or lane shift tapers and shall be installed at 5' spacing. Tabs used for tapers and shifts will not be measured for payment. All costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and remove all markers will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

## PROJECT OVERVIEW

NOTE: The quantities listed by stationing in these plans may vary from actual field quantities.

- West of Sturgis Road (Sta. 3+06) to east of Sturgis Road (Sta. 8+05)
  - Reseal PCC Pavement Joint, Hot Pour
  - Maintenance Patching (Full Depth Repair)
  - Repair Type A Spall (Asphalt Patching Material)
- South Sturgis Road
  - Repair Type A Spall (Asphalt Patching Material)
- North Sturgis Road
  - Asphalt Concrete Composite (Skin Patch)
  - Maintenance Patching (Full Depth Repair)
  - Repair Type A Spall (Asphalt Patching Material)
- West of Deadwood Avenue (Sta. 60+95) to east of Deadwood Avenue (Sta. 66+88)
  - Reseal PCC Pavement Joint, Hot Pour
  - Maintenance Patching (Full Depth Repair)
  - Repair Type A Spall (Asphalt Patching Material)
  - Asphalt Concrete Composite (2" Overlay)
- North Deadwood Avenue
  - Repair Type A Spall (Asphalt Patching Material)



**SEQUENCE OF OPERATIONS**

The Contractor shall provide a Sequence of Operations, at least one week in advance of the preconstruction meeting, to the Engineer for approval. The following restrictions shall apply:

- Four lane closure setups will be paid for regardless of where or when they are used.
- One lane of traffic on each leg of the intersections shall be maintained at all times during intersection night work.
- Standard Plates shown in these plans shall be used for traffic control.
- The season limitation for Asphalt Concrete Composite shall be extended to November 13 provided temperature requirements can be met.
- The asphalt concrete overlay at the intersection of Deadwood Ave. and Sturgis Rd. shall be done on Sunday when traffic volumes are less.

**TYPE C ADVANCE WARNING ARROW PANEL**

The quantity of Type C Advance Warning Arrow Panels paid will be the most installations in place at any one time regardless of the number of setups per project.

**TEMPORARY PAVEMENT MARKING (TABS)**

Temporary pavement marking tabs shall be used on the top of the asphalt concrete overlay and as directed by the Engineer. Tabs shall be used for edge lines, centerlines, lane lines, skips, and as directed by the Engineer. Tabs shall be spaced at 5'. Tabs shall be installed prior to opening the lanes to traffic. Tabs shall be removed the same day that permanent pavement marking is installed.

Any marking covered or damaged shall be replaced prior to the end of the day at no cost to the State.

The estimate of quantities provides 600' along Sturgis Rd. at the intersection of Sturgis Rd.\ West Chicago and 600' along West Chicago at the intersection of Sturgis Rd.\ West Chicago. A single measurement will be made longitudinally along the centerline of the roadway. The resulting single measured distance will be the quantity used for payment for all temporary pavement markings necessary to safely restore traffic.

All costs for furnishing, installing, and removing the tabs when no longer needed shall be included in the contract unit price per foot for Temporary Pavement Marking.

**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.

**CONTRACTOR FURNISHED PROGRESS SCHEDULES**

The Contractor shall furnish the Engineer two copies of a bar chart method progress schedule at the preconstruction meeting. The schedule shall consist of a construction schedule and brief written narrative. The schedule shall contain the following information:

1. A time scale to graphically show percentage of work scheduled for completion within the contract completion requirements.
2. Definition and relation of work activities to contract pay items.
3. Work activities (prime contractor and all subcontractor activities) in the order they will be performed including submittals, approvals, deliveries, temporary traffic control, and permanent signing/stripping.
4. All major work activities that are controlling factors in the completion of the work.
5. The time required for each activity and its relationship in time to other activities.
6. The total expected time to complete all work.
7. The expected work shifts in days per week and hours per day and the days when work is not expected to be performed.
8. Expected adverse weather delays.

The schedule shall be updated, revised and resubmitted on a bi-weekly interval until the project is substantially complete. There will be no direct payment for the contractor furnished schedule. All costs associated with the schedule shall be incidental to the related items. Failure to properly submit the required construction schedules will result in the withholding of progress payments until an approved schedule is received.

**CONTRACTOR FURNISHED PORTABLE CHANGEABLE MESSAGE SIGN**

The Contractor shall furnish portable changeable message signs to be used for the duration of the project. Message signs shall be installed to inform the traveling public of when construction will begin for each phase (2 week advance notice), advising the general public of the conditions ahead, and as directed by the Engineer. The changeable message signs shall be furnished, programmed, and maintained for the entire project duration. The Engineer will assist in determining the location and messages to be programmed into the message sign. The message signs shall be clearly visible from a minimum of 900 feet and shall be solar powered or wired directly to a power source. Diesel and gas powered message signs will not be allowed. The portable changeable message signs will be paid for at the contract unit price per each for "Contractor Furnished Portable Changeable Message Sign". Payment will be full compensation for furnishing, maintaining, and relocating as many times as required by the Engineer and the Contractor's operations.

**INVENTORY OF TRAFFIC CONTROL DEVICES**

**ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS**

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R10-6	STOP HERE ON RED	3	24" x 36"	6	18
W4-2	LEFT or RIGHT LANE ENDS (symbol)	6	48" x 48"	16	96
W20-1	ROAD WORK AHEAD	6	48" x 48"	16	96
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	6	48" x 48"	16	96
W20-7	FLAGGER (symbol)	4	48" x 48"	16	64
W21-5	SHOULDER WORK	2	48" x 48"	16	32
G20-2	END ROAD WORK	6	36" x 18"	5	30
<b>CONVENTIONAL ROAD</b>					<b>432</b>
<b>TRAFFIC CONTROL SIGNS SQFT</b>					

# SPALL REPAIR LOCATIONS

(W. CHICAGO ST. & STURGIS RD.)

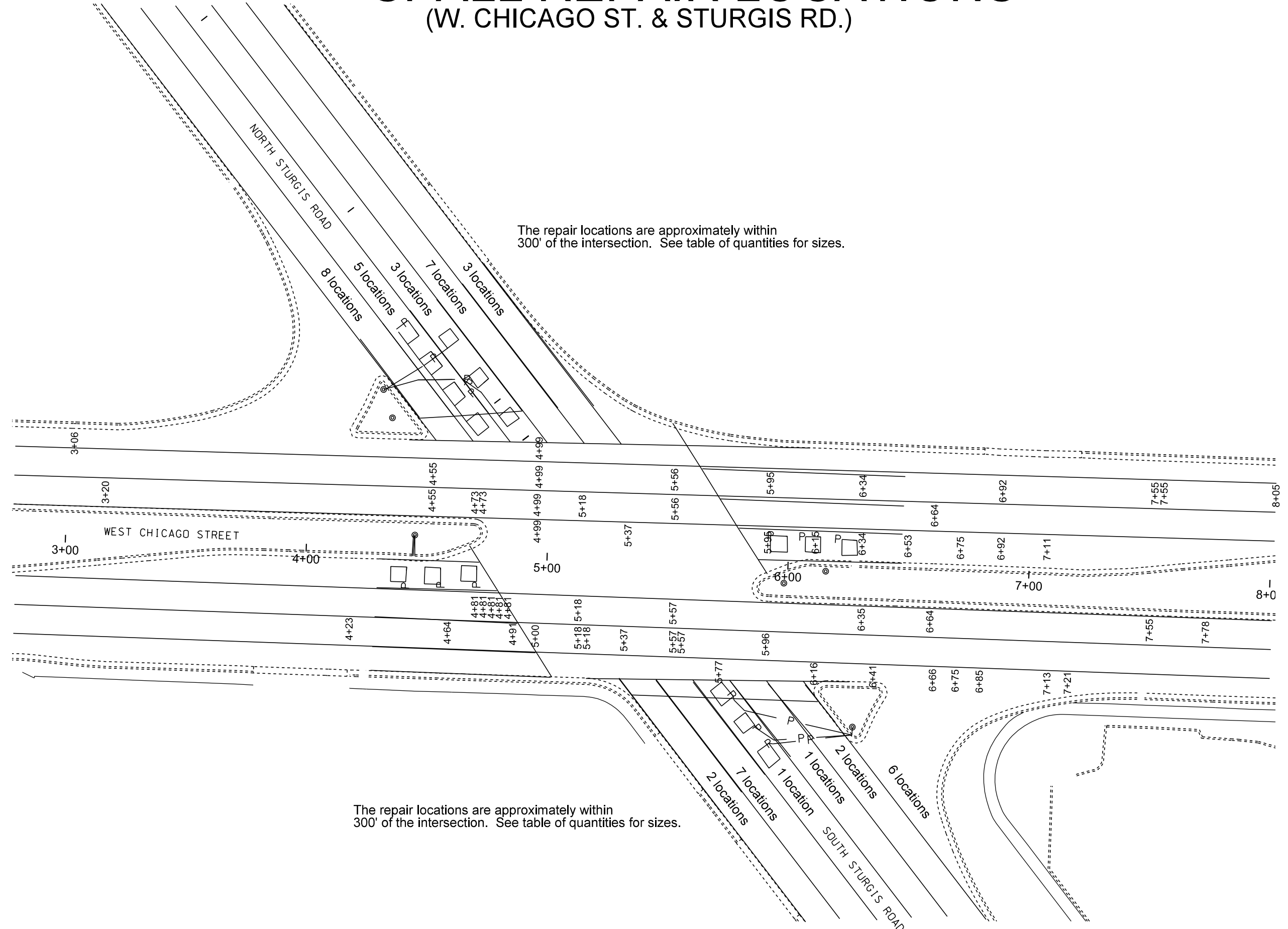
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0231(00)79	10	22

Plotting Date: 07/29/2015



The repair locations are approximately within 300' of the intersection. See table of quantities for sizes.

The repair locations are approximately within 300' of the intersection. See table of quantities for sizes.



Plot Scale - 1:40

Plotted From - trcs11951

File - ...SturgisRd\_Spalls.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0231(00)79	11	22

Plotting Date: 07/29/2015

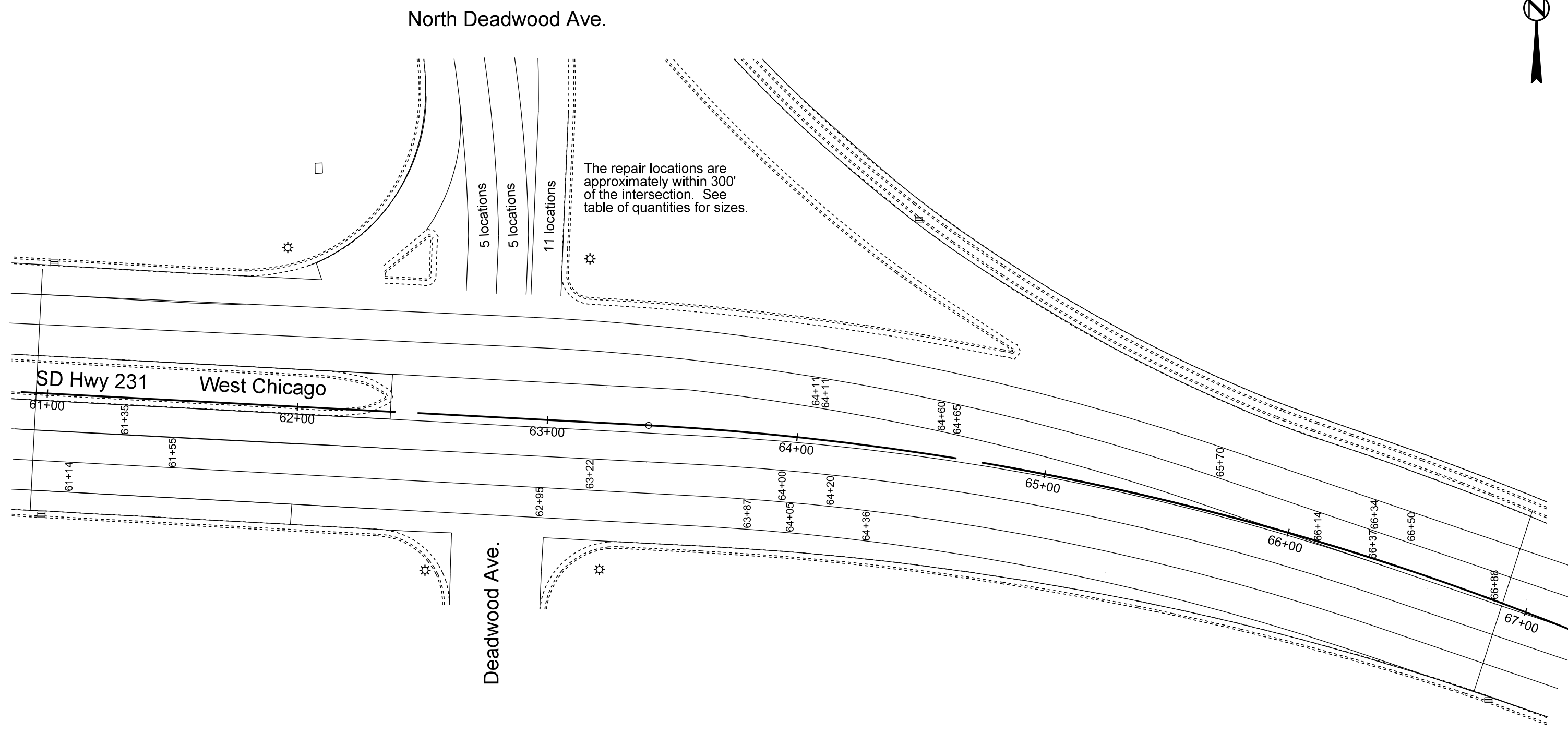
# SPALL REPAIR LOCATIONS

## SD 231 & DEADWOOD AVE.

PLOT SCALE - 1"=40'



PLOT NAME - 11



PLOTTED FROM - TRRC11951

FILE - ... \061\_SPALLREPAIR.DGN

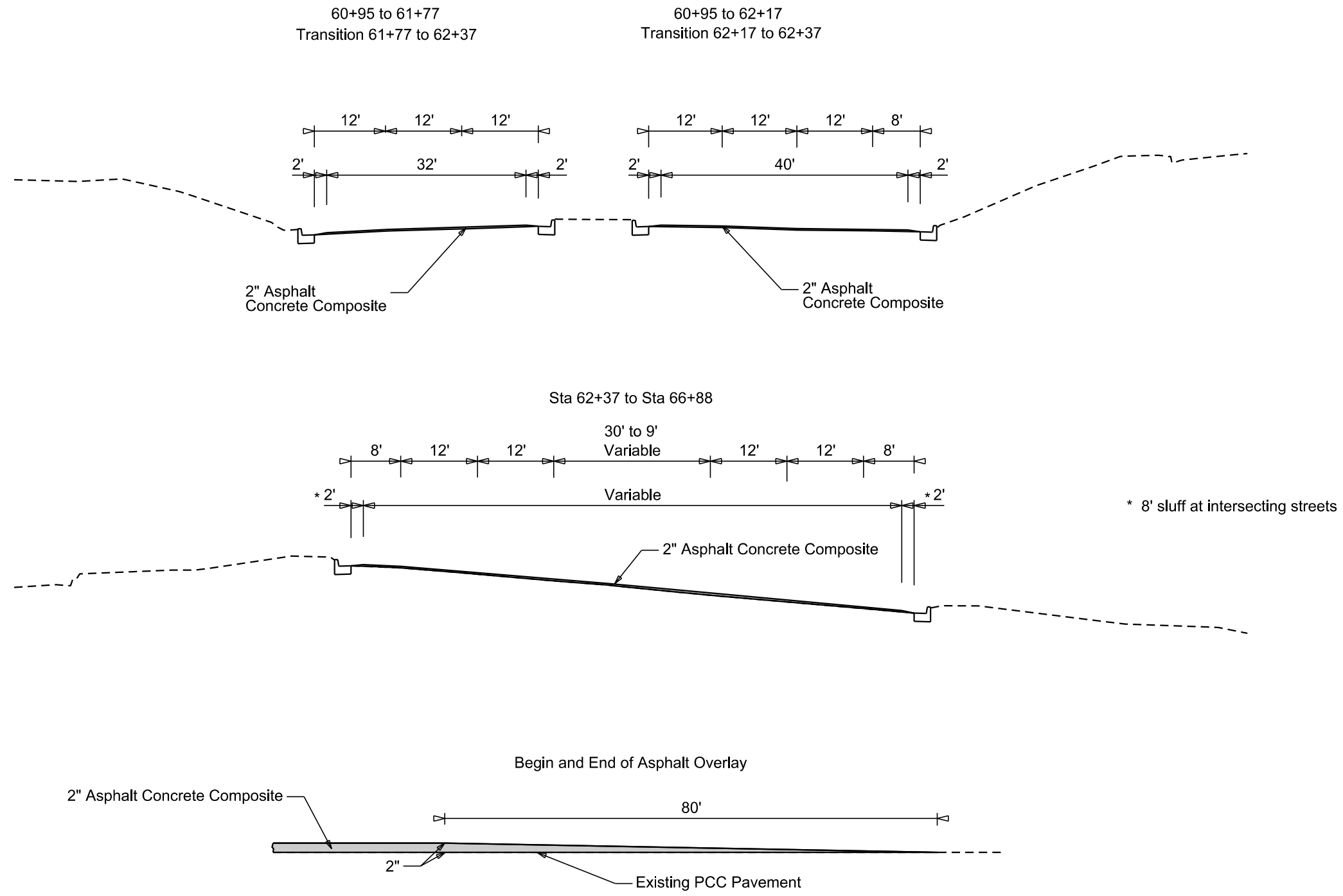
# SURFACING TYPICAL

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0231(00)79	12	22

Plotting Date: 07/21/2015

Plot Scale - 1:200

Plotted From - trcs11951



File - ...lpj\Penn05a5 & 05a6\typ.dgn

STATE OF SOUTH DAKOTA	PROJECT P 0231(00)79	SHEET 13	TOTAL SHEETS 22
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Plotting Date: 07/21/2015

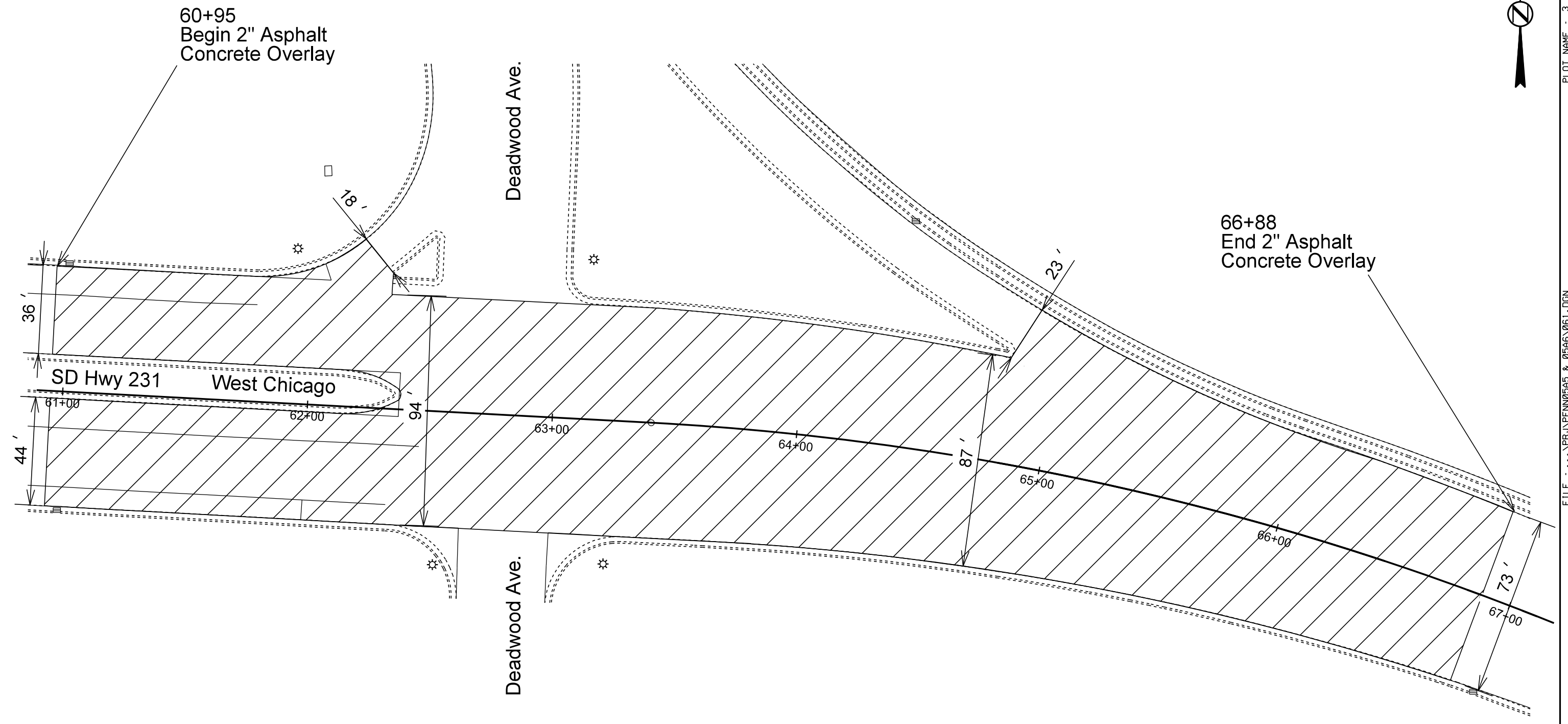
# SURFACING LAYOUT

## SD 231 & DEADWOOD AVE.

PLOT SCALE - 1:40



PLOT NAME - 3



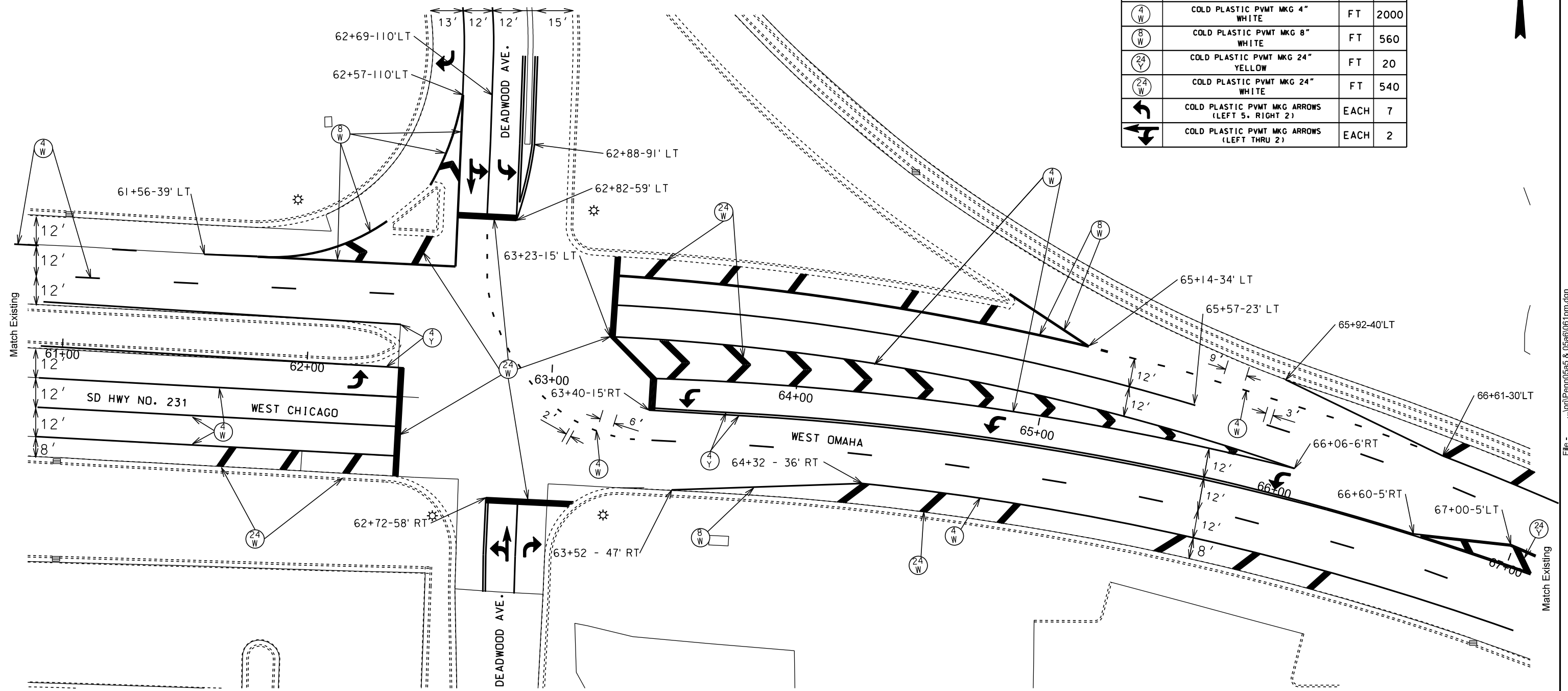
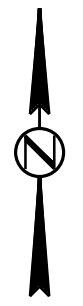
PLOTTED FROM - TRRC11951

FILE - ... \PRJ\PENND05A5 & 05A6\061.DGN

# PAVEMENT MARKING LAYOUT

## SD 231 & DEADWOOD AVE.

ESTIMATE OF QUANTITIES			
KEY	ITEM	UNIT	EST. QUAN.
(4) Y	COLD PLASTIC PVMT MKG 4" YELLOW	FT	1300
(4) W	COLD PLASTIC PVMT MKG 4" WHITE	FT	2000
(8) W	COLD PLASTIC PVMT MKG 8" WHITE	FT	560
(24) Y	COLD PLASTIC PVMT MKG 24" YELLOW	FT	20
(24) W	COLD PLASTIC PVMT MKG 24" WHITE	FT	540
(Left 5, Right 2) ↵ ↻	COLD PLASTIC PVMT MKG ARROWS (LEFT 5, RIGHT 2)	EACH	7
↵ ↻	COLD PLASTIC PVMT MKG ARROWS (LEFT THRU 2)	EACH	2



Plot Scale - 1:40

Plotted From - trc11951

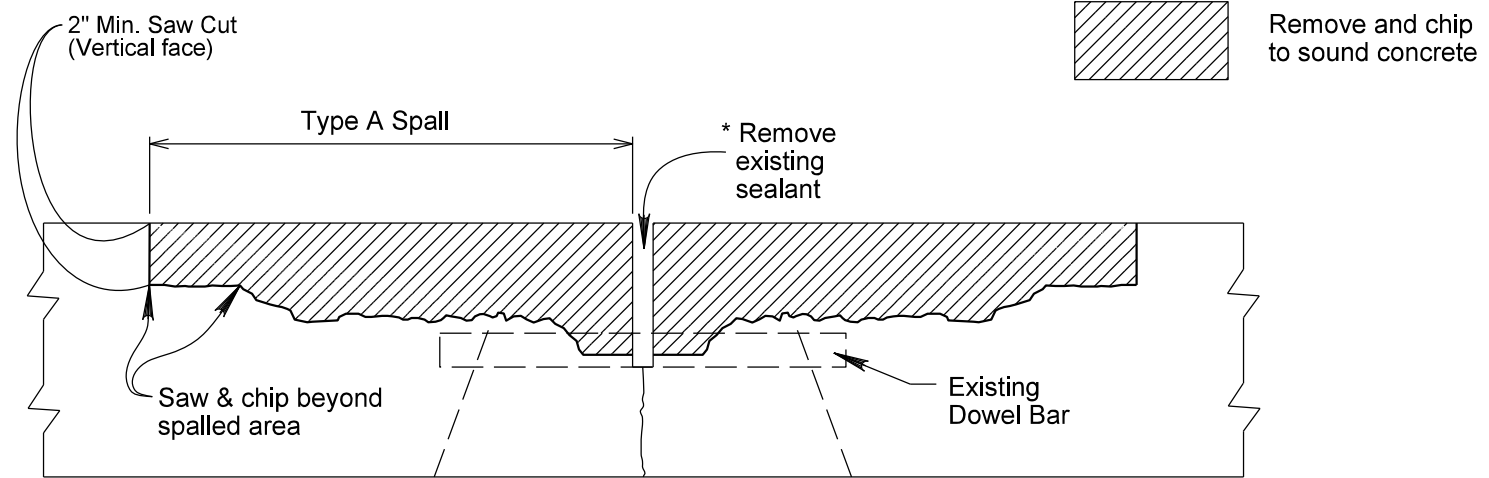
File - ...\\penn05a5 & 05a8\06 pm.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0231(00)79	15	22

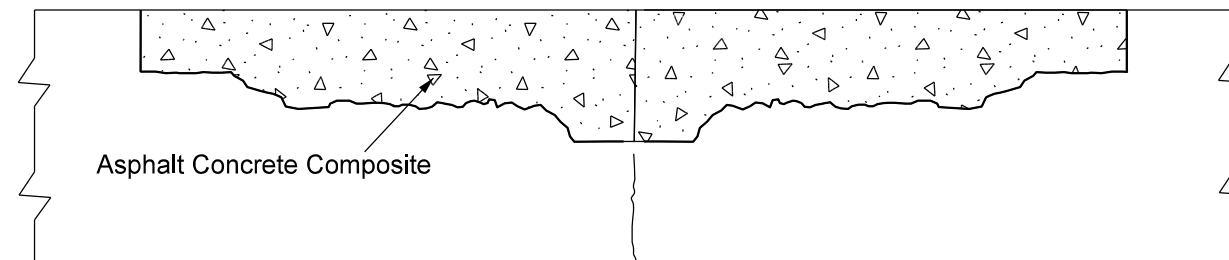
Plotting Date: 07/29/2015

# REPAIR OF TYPE A SPALLS

## SPALL REMOVAL



## SPALL PATCH



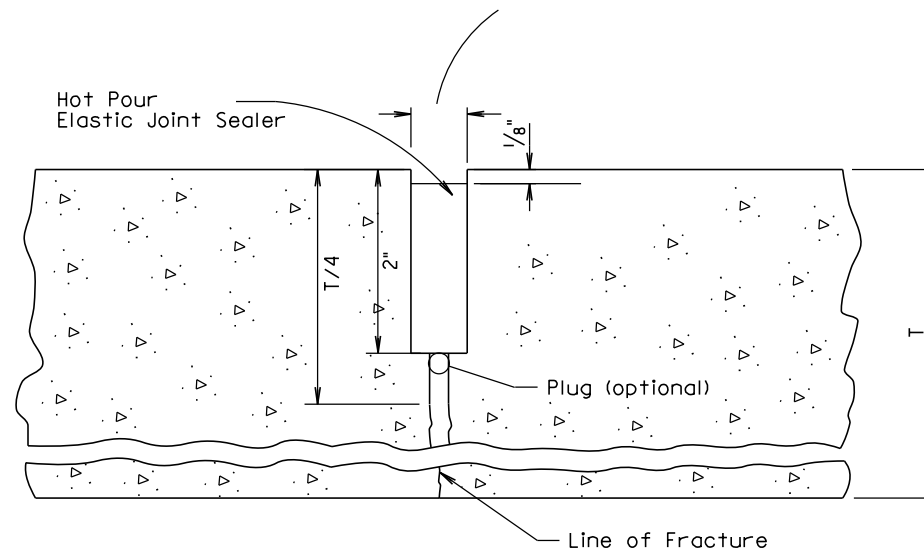
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0231(00)79	16	22

Plotting Date: 07/20/2015

# RESEAL PCC PAVEMENT TRANSVERSE JOINT

Plot Scale - 1:200

Joint shall widened to a maximum of 1/8" wider than existing joint



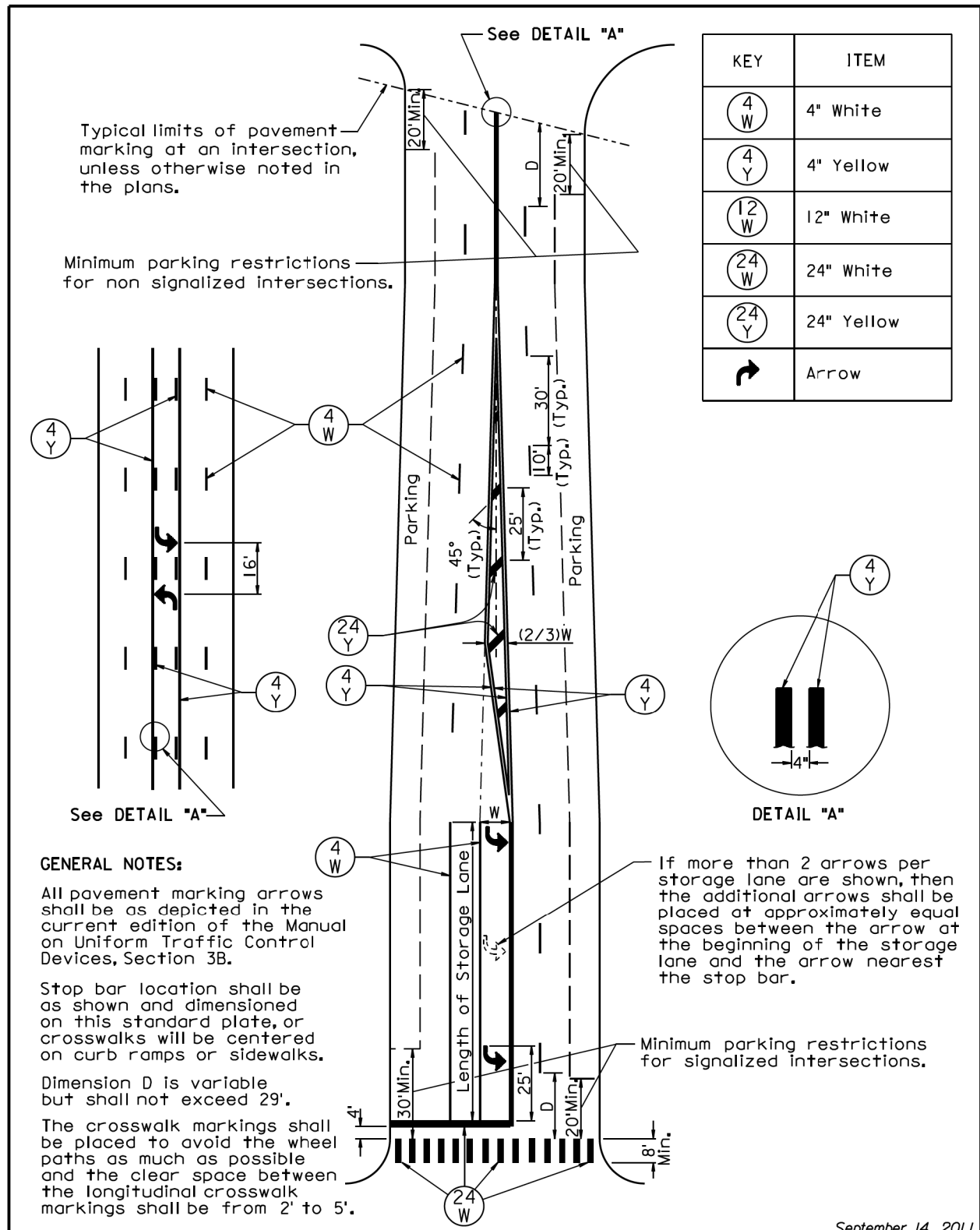
T/4 when saw cutting to control cracking.

Plotted From - trcs11951

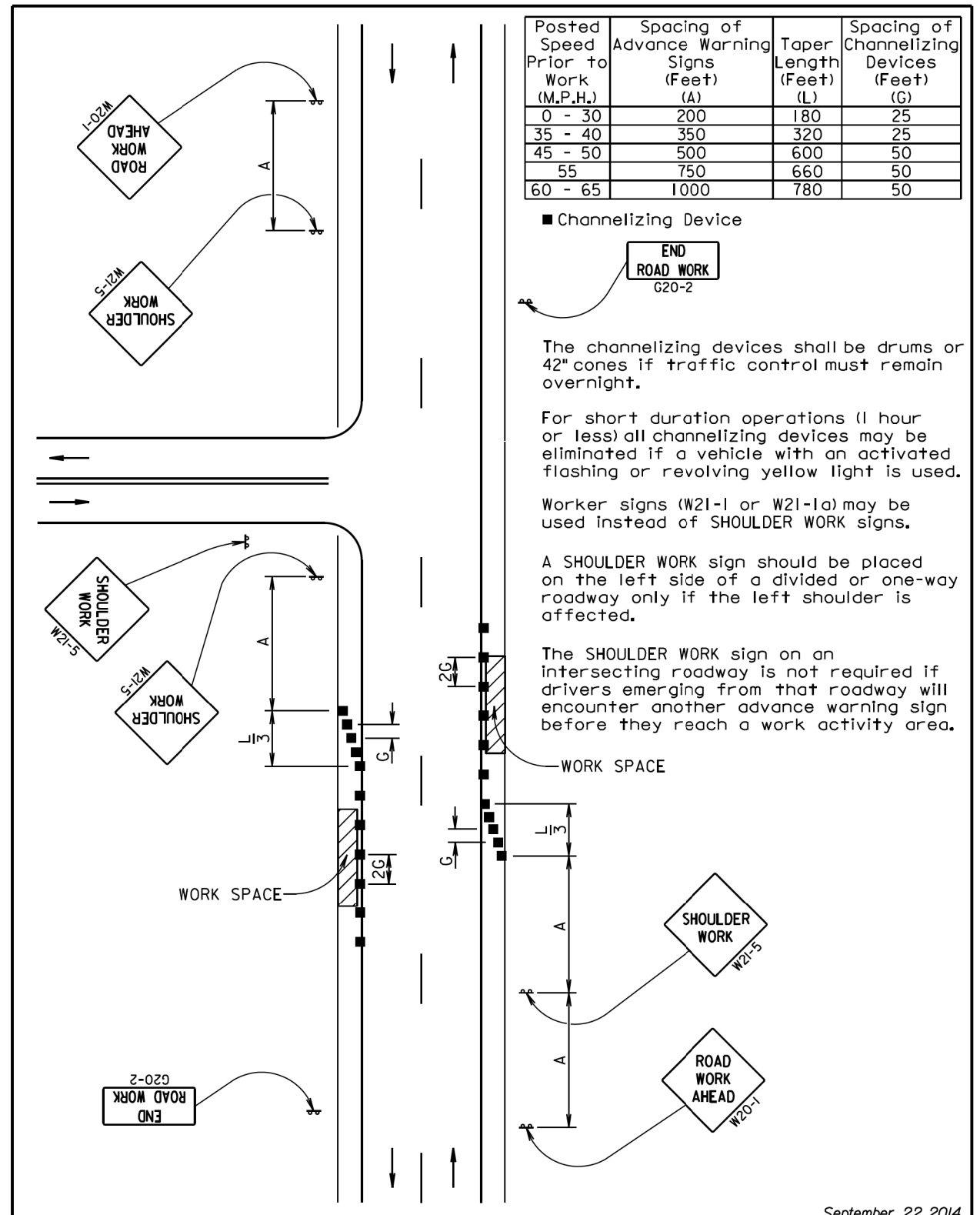
File - ...Reseal Transverse Joint Hot Pour.dgn



Plot Scale - 1:200



<b>S D D O T</b>	<b>PAVEMENT MARKINGS FOR ADJACENT INTERSECTIONS AND CENTER TURN LANE</b>	PLATE NUMBER <b>633.01</b>
	Published Date: 2nd Qtr. 2015	Sheet 1 of 1



<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

Plotted From - trc11951

File - ...astplateFig1.dgn

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 *

\* Spacing is 40' for 42" cones.

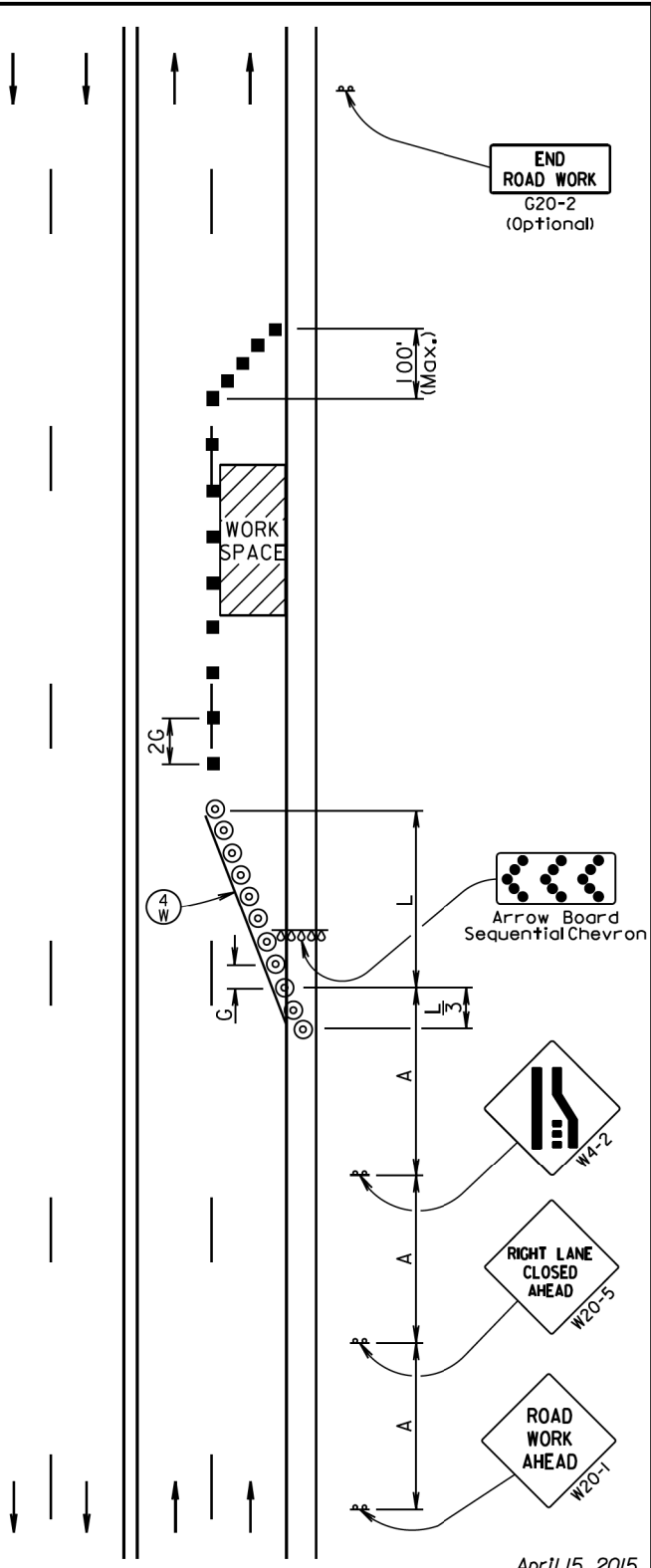
- ⊙ Reflectorized Drum
- Channelizing Device
- ④ 4" White Temporary Pavement Marking

The channelizing devices shall be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

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

The length of A and L may be adjusted to fit field conditions.



April 15, 2015

<b>S D D O T</b>	<b>GUIDES FOR TRAFFIC CONTROL DEVICES</b> 4-LANE UNDIVIDED, RIGHT LANE CLOSED	PLATE NUMBER <b>634.47</b>
	Published Date: 2nd Qtr. 2015	Sheet 1 of 1

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 *

\* Spacing is 40' for 42" cones.

- ⊙ Reflectorized Drum
- Channelizing Device
- ④ 4" Yellow Temporary Pavement Marking

Pavement markings no longer applicable shall be removed or obliterated as soon as practical.

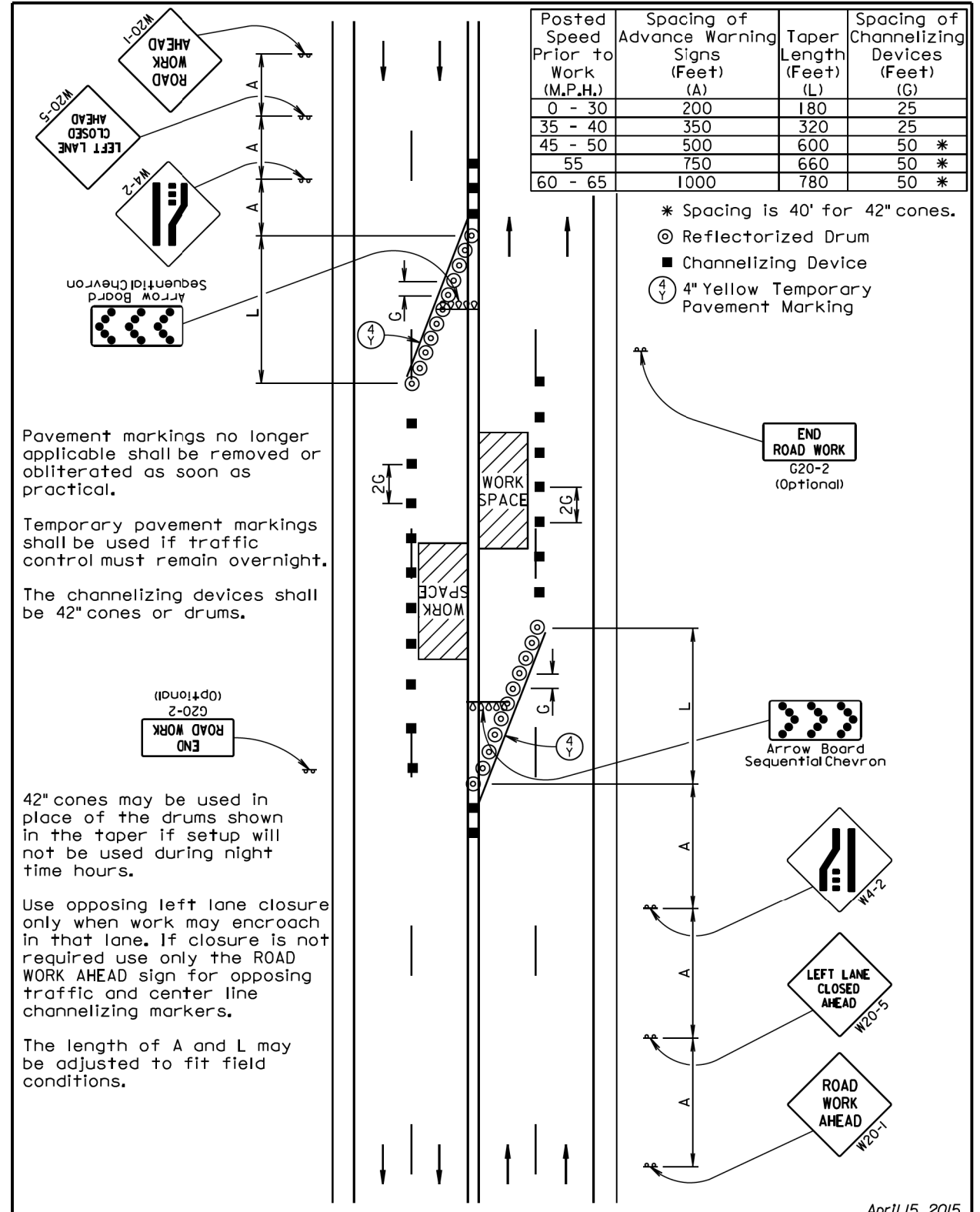
Temporary pavement markings shall be used if traffic control must remain overnight.

The channelizing devices shall be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

Use opposing left lane closure only when work may encroach in that lane. If closure is not required use only the ROAD WORK AHEAD sign for opposing traffic and center line channelizing markers.

The length of A and L may be adjusted to fit field conditions.

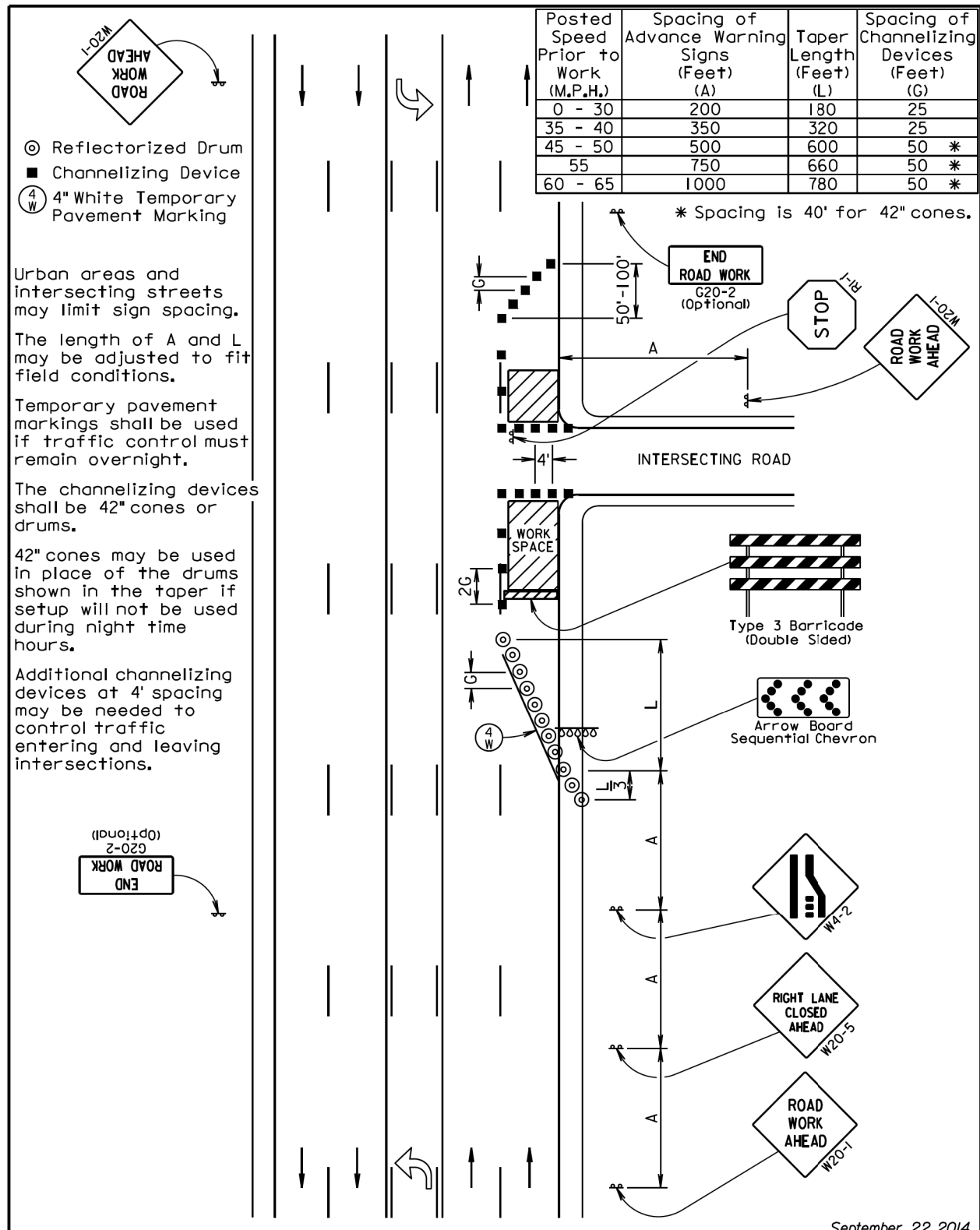


April 15, 2015

<b>S D D O T</b>	<b>GUIDES FOR TRAFFIC CONTROL DEVICES</b> 4-LANE UNDIVIDED, LEFT LANE CLOSED	PLATE NUMBER <b>634.48</b>
	Published Date: 2nd Qtr. 2015	Sheet 1 of 1

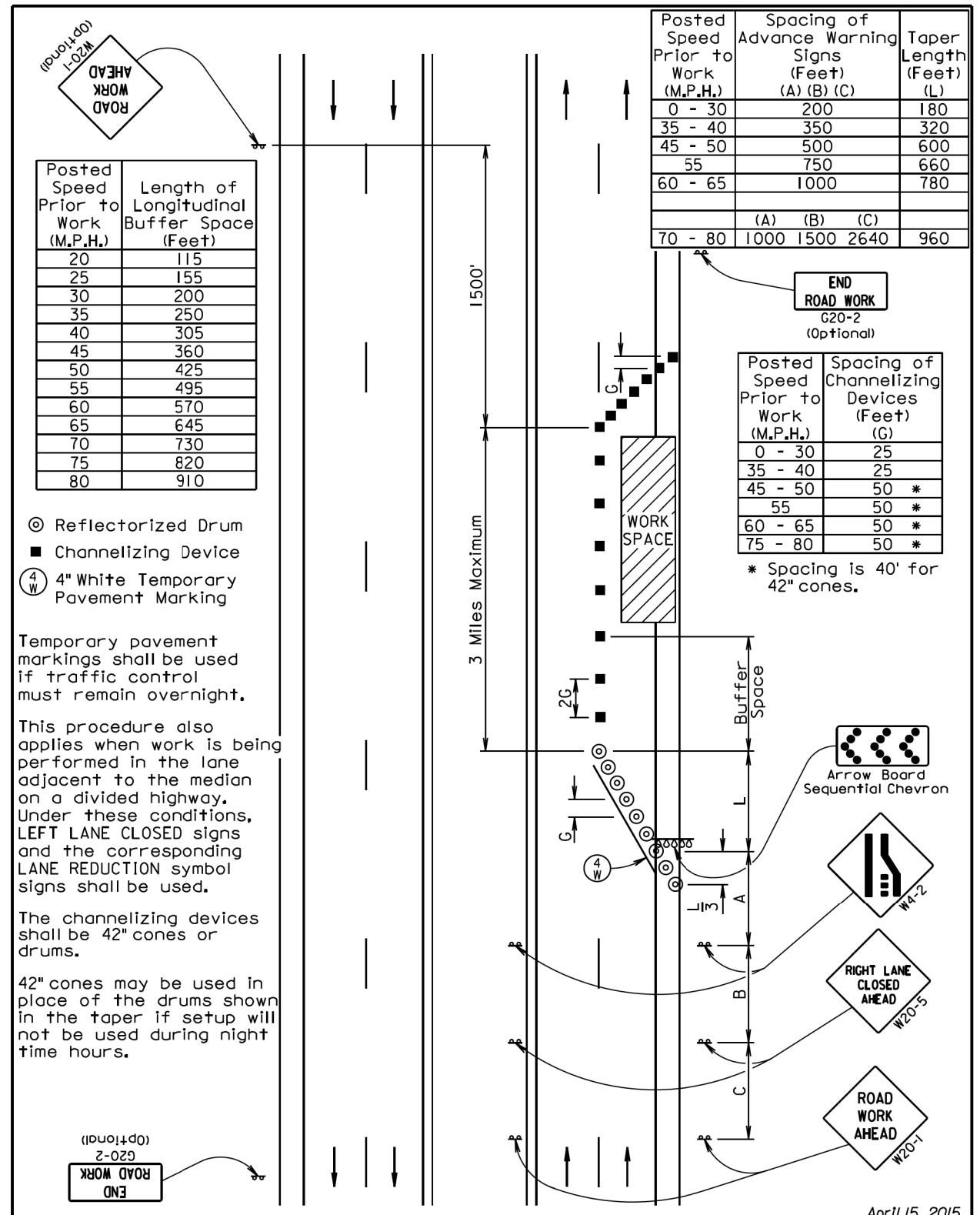
Plotting Date: 07/20/2015

Plot Scale - 1:200



September 22, 2014

<b>S D D O T</b>	<b>GUIDES FOR TRAFFIC CONTROL DEVICES 5-LANE, OUTSIDE LANE CLOSED</b>	PLATE NUMBER <b>634.60</b>
	Published Date: 2nd Qtr. 2015	Sheet 1 of 1



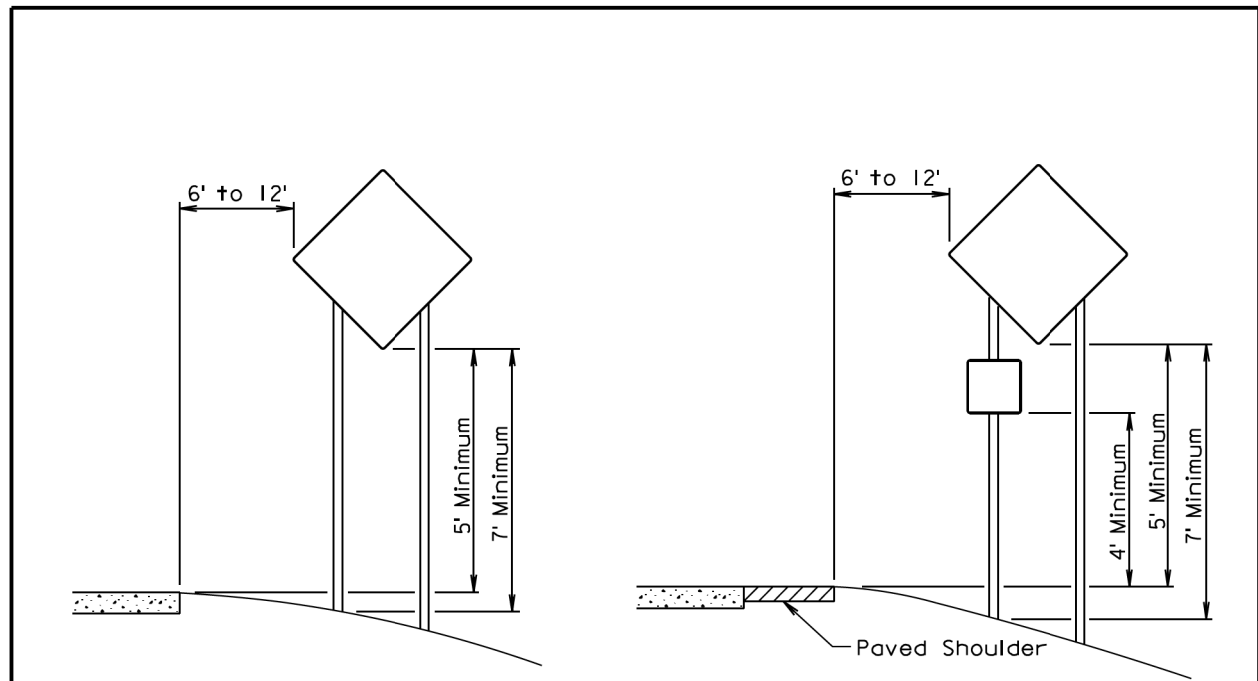
April 15, 2015

<b>S D D O T</b>	<b>GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITHOUT BARRIER</b>	PLATE NUMBER <b>634.64</b>
	Published Date: 2nd Qtr. 2015	Sheet 1 of 1

Plotted From - trc11951

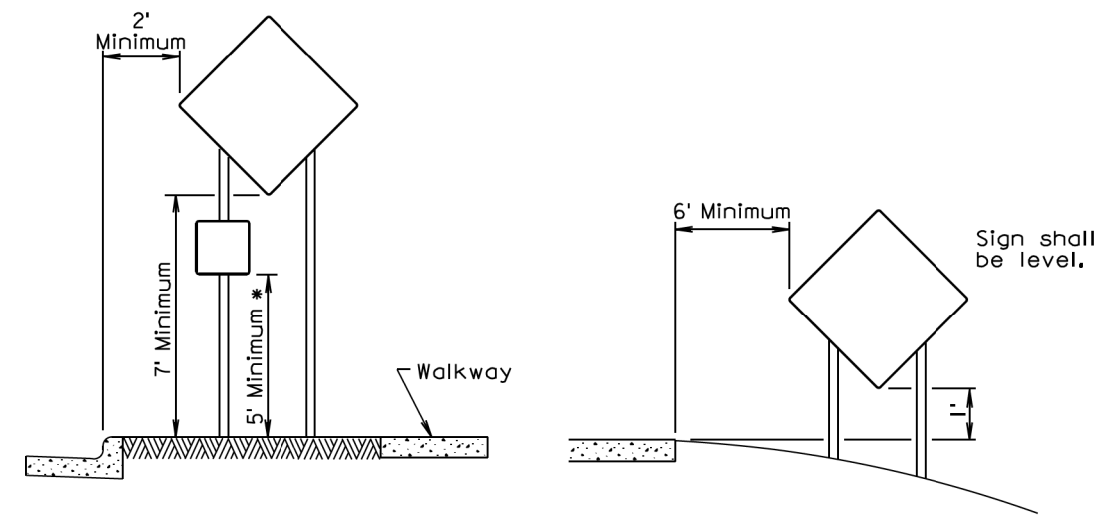
File - ...Standard Plates.dgn

Plot Scale - 1:200



RURAL DISTRICT

RURAL DISTRICT WITH  
SUPPLEMENTAL PLATE



URBAN DISTRICT

RURAL DISTRICT  
3 DAY MAXIMUM

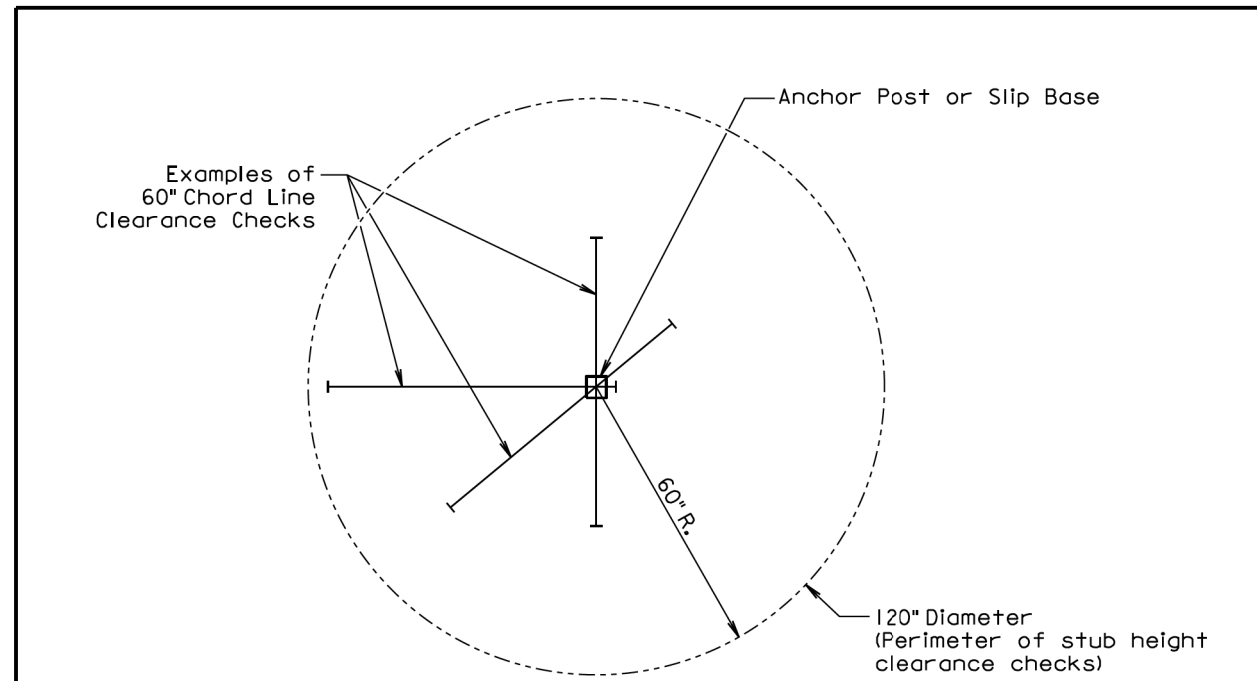
\* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

(Not applicable to regulatory signs)

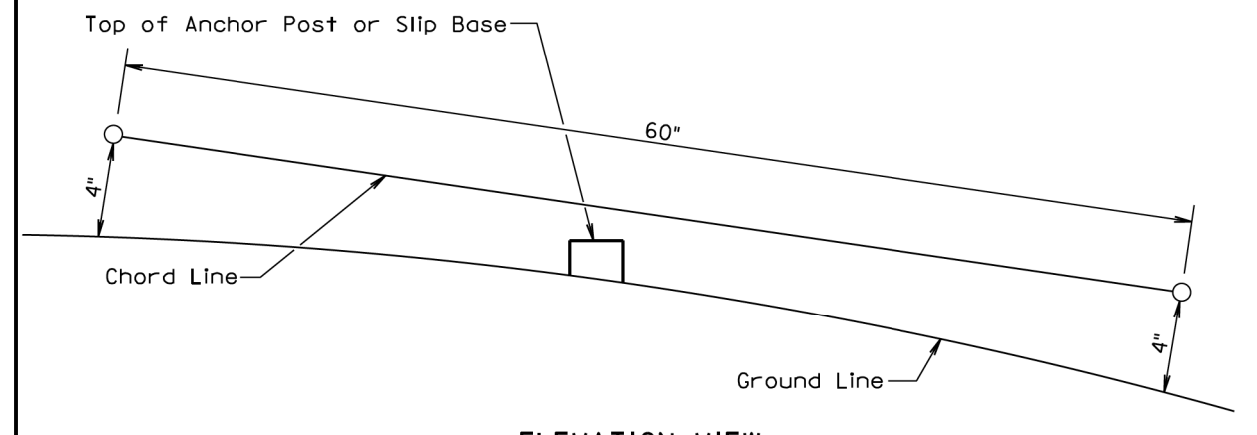
September 22, 2014

<b>S D D O T</b>	<b>CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)</b>	PLATE NUMBER 634.85
		Sheet 1 of 1

Published Date: 2nd Qtr. 2015



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.

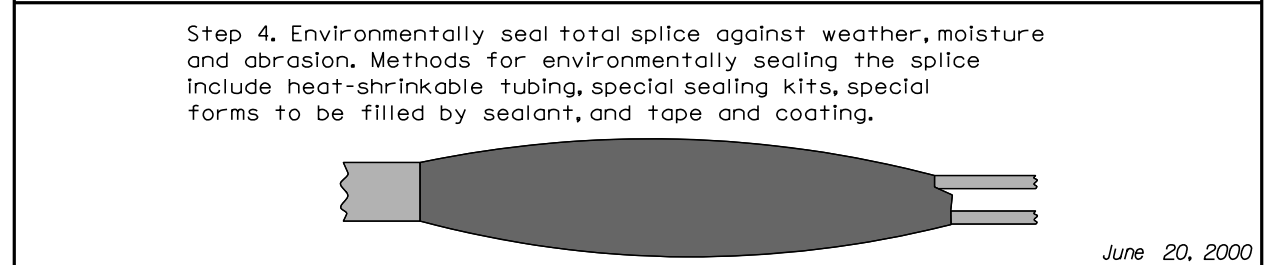
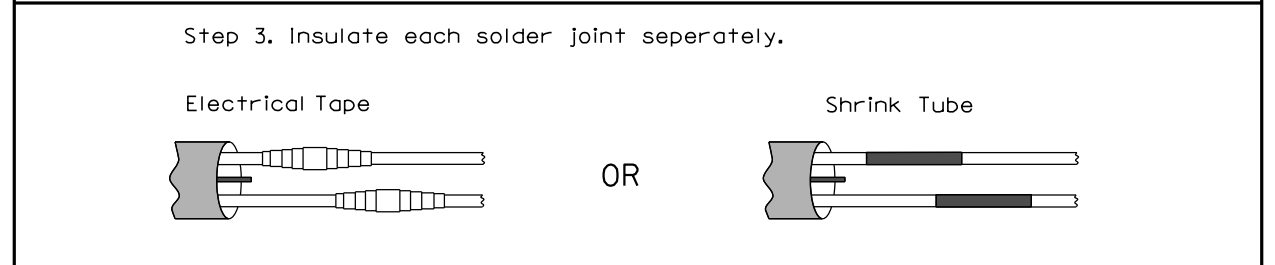
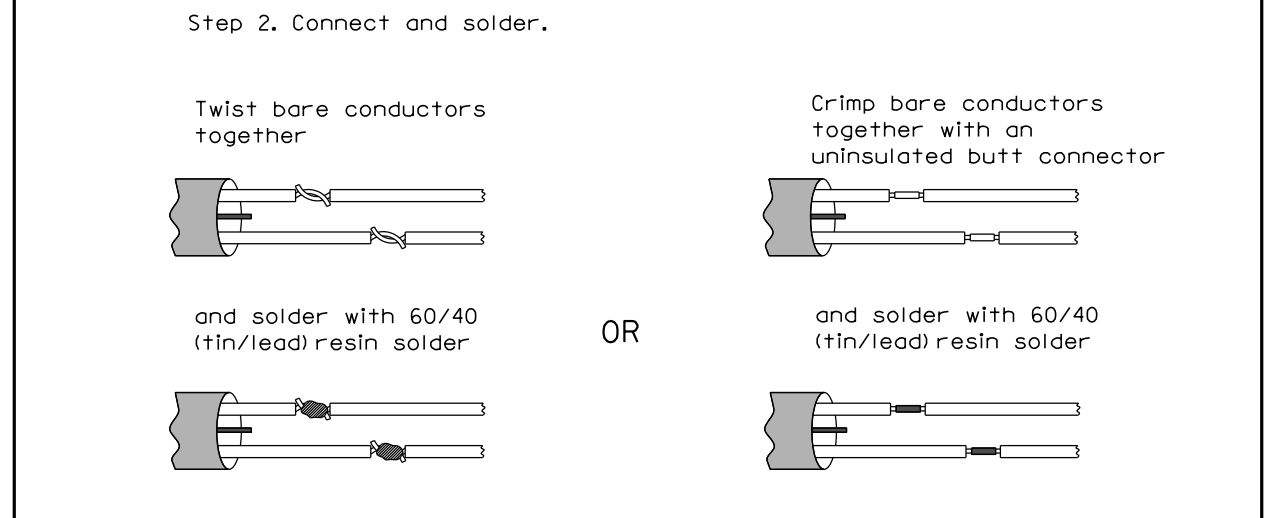
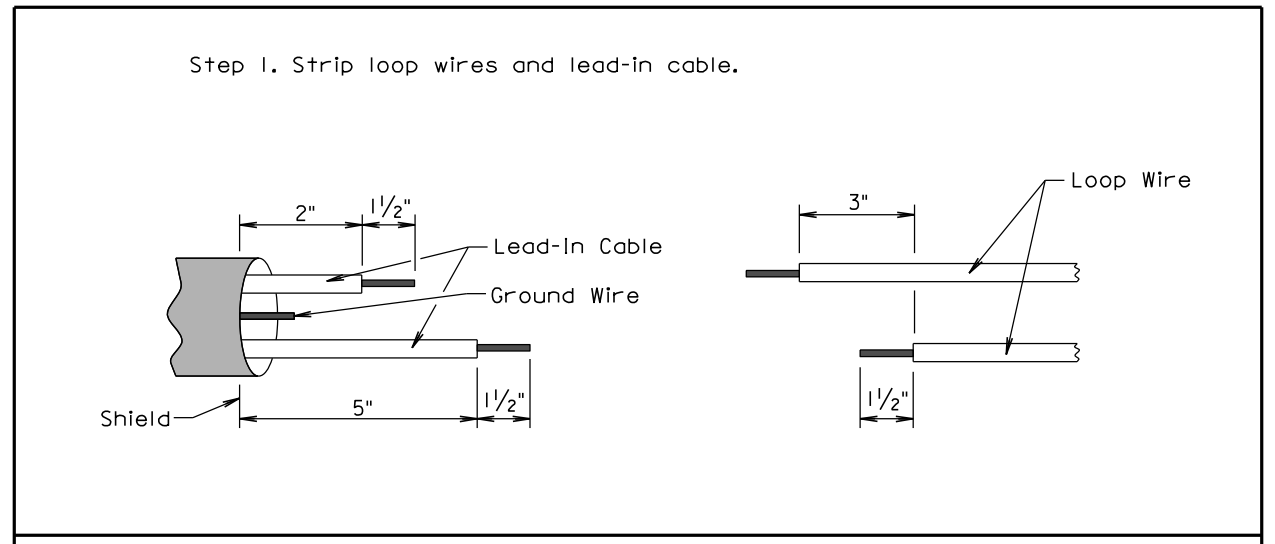
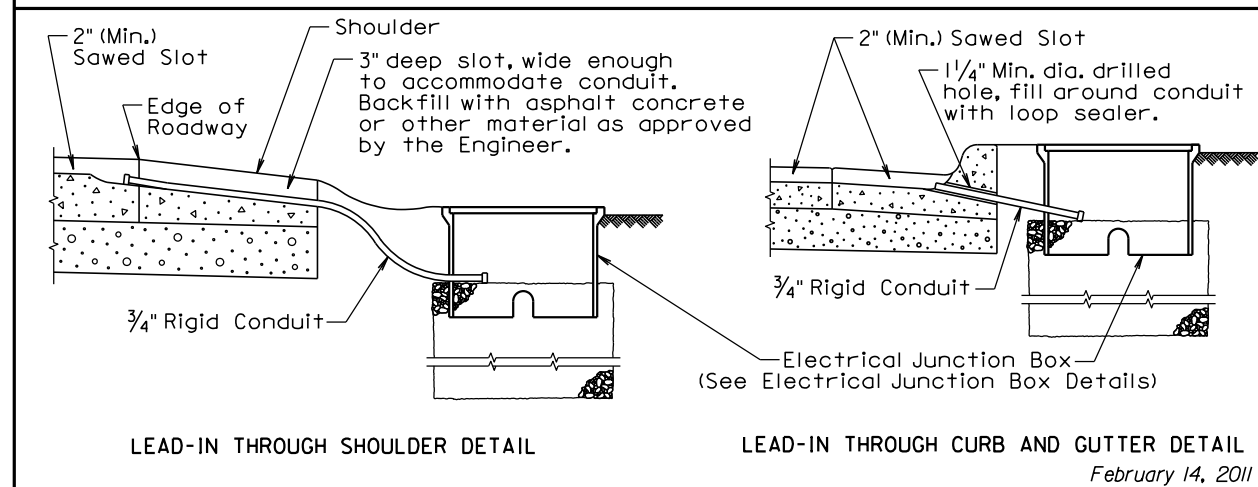
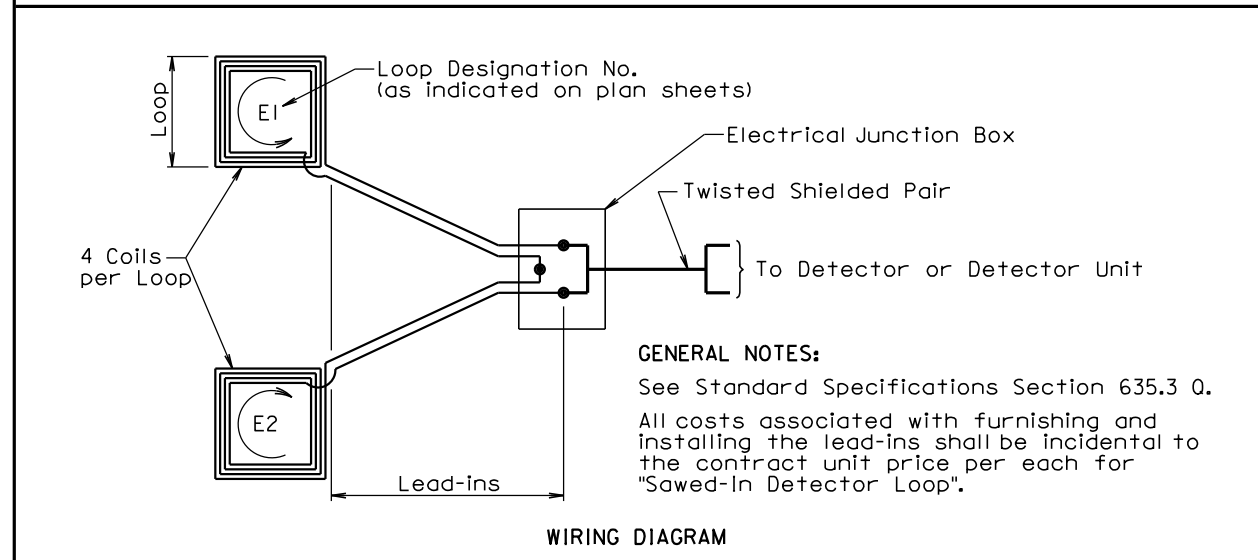
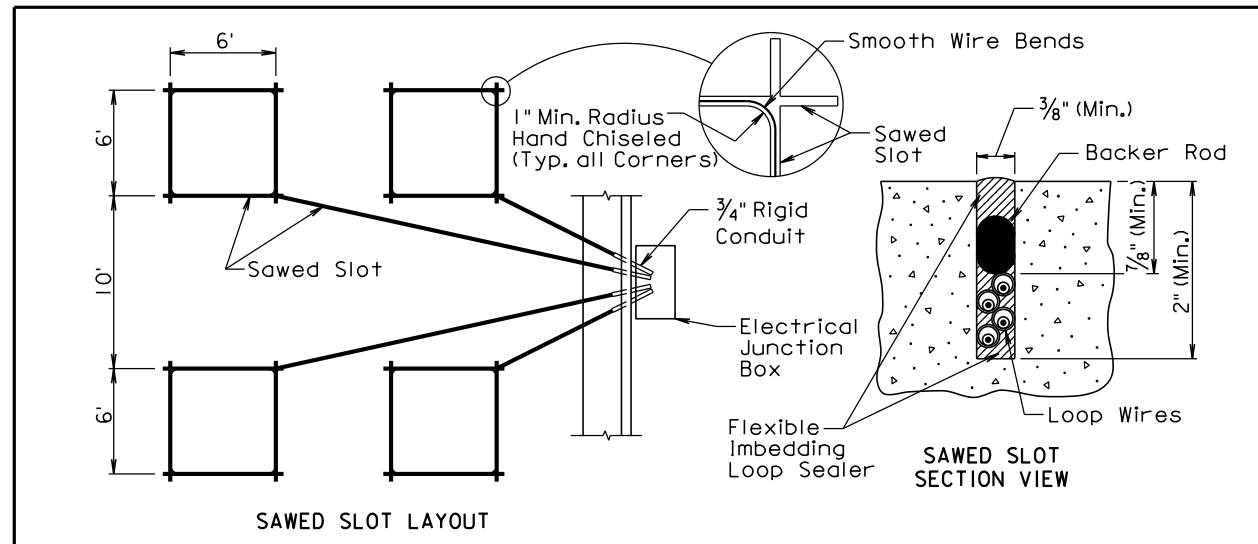
July 1, 2005

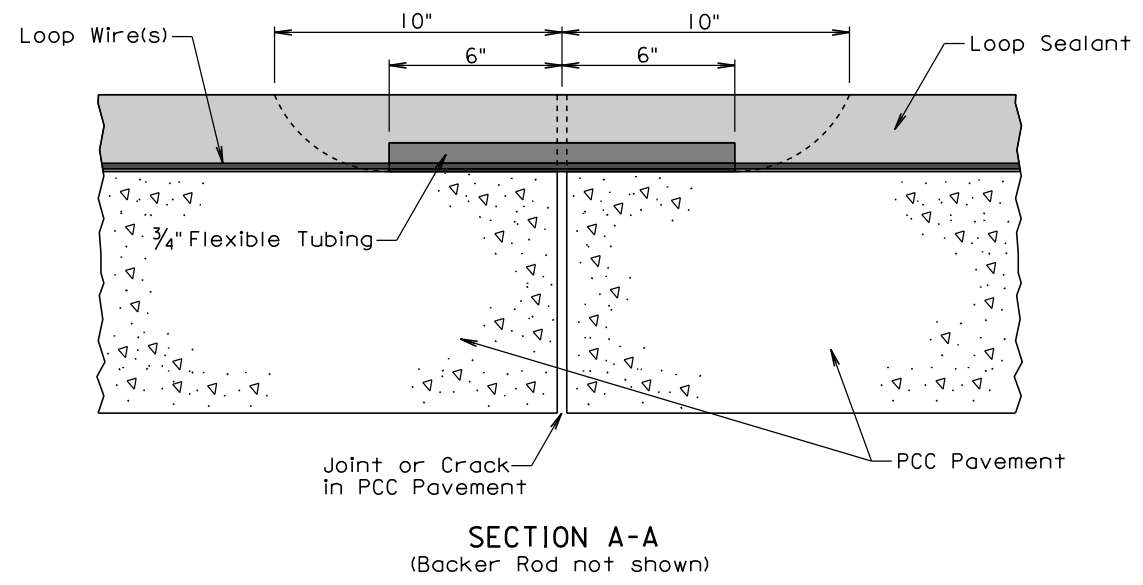
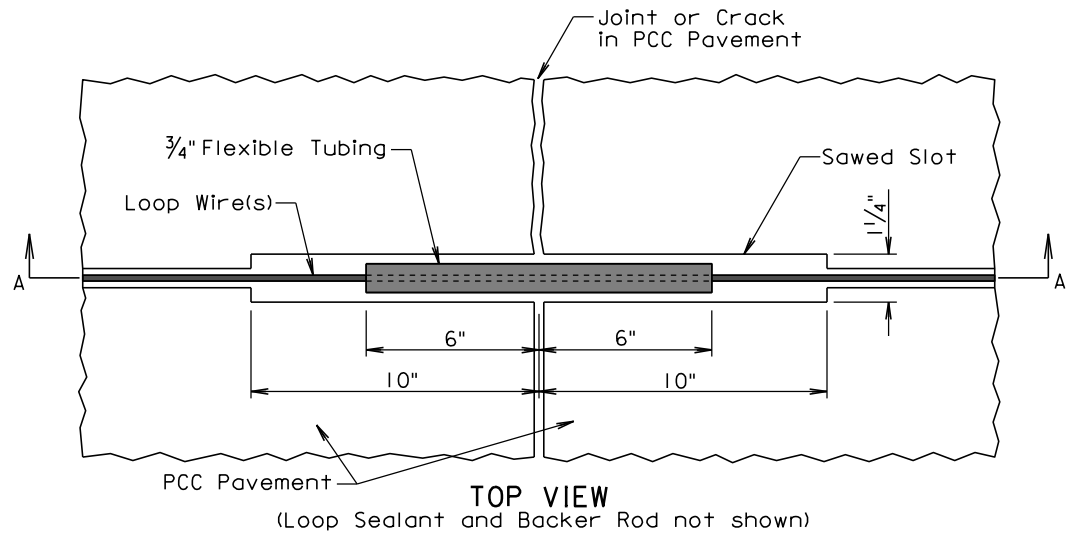
<b>S D D O T</b>	<b>BREAKAWAY SUPPORT STUB CLEARANCE</b>	PLATE NUMBER 634.99
		Sheet 1 of 1

Published Date: 2nd Qtr. 2015

- Plotted From - trc11951

File - ...Standard Plates.dgn





**GENERAL NOTE:**

All costs for constructing the sawed-in detector loop protection including labor, equipment, and materials shall be incidental to the contract unit price per each for "Sawed-In Detector Loop".

March 28, 2001

Published Date: 2nd Qtr. 2015	S D D O T	SAWED-IN DETECTOR LOOP PROTECTION AT JOINT OR CRACK IN PCC PAVEMENT	PLATE NUMBER 635.78
			Sheet 1 of 1