

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECTS P 0063(47)83 & 014-352
SD HIGHWAY 63 & US HIGHWAY 14
HAAKON & JACKSON COUNTIES

COLD MILLING ASPHALT CONCRETE,
ASPHALT CONCRETE RESURFACING,
CATTLE PASS REMOVAL, ROADWAY RECONSTRUCTION, &
RUMBLE STRIPS

PCNs 04EJ & i4DL

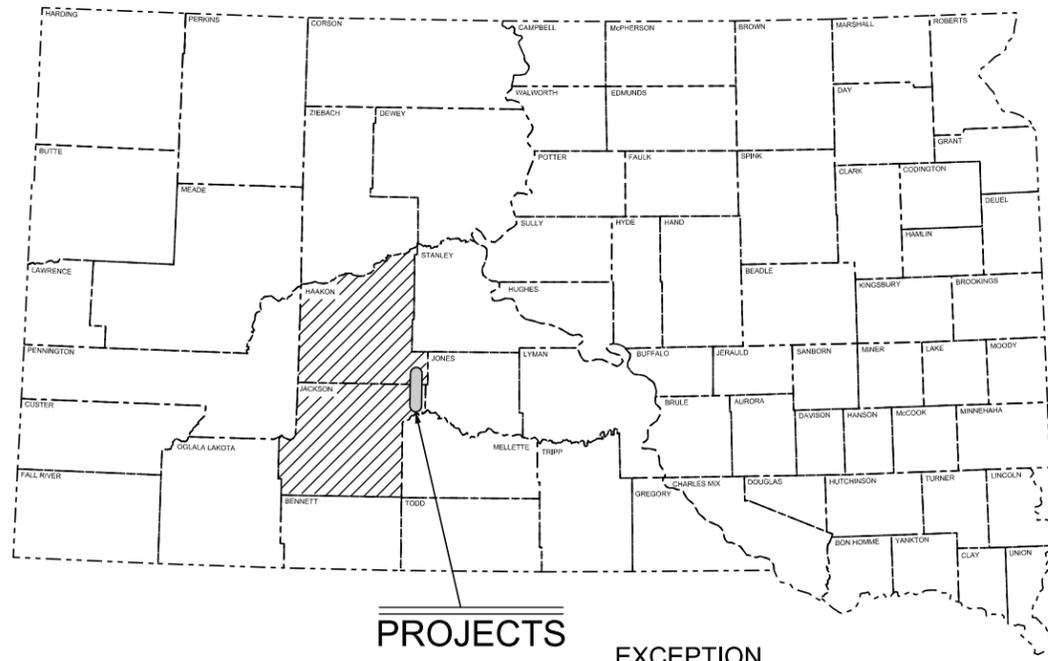
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0063(47)83 & 014-352	1	42

Plotting Date: 08/18/2016

INDEX OF SHEETS

- Sheets 1-2: Title Sheets
- Sheets 3-4: Estimate of Quantities
- Sheet 5: Environmental Commitments
- Sheets 6-12: Plan Notes
- Sheets 13-16: Typical Sections
- Sheets 17-18: Rates of Materials
- Sheet 19: Table of Project Stationing
- Sheet 20: Table of Material Quantities
- Sheet 21: Table of Additional Quantities & Table of Cattle Pass Quantities
- Sheet 22: Summary of Asphalt Concrete
- Sheets 23-24: Table of Superelevated Curves
- Sheet 25: Fixed Location Sign Layout
- Sheets 26-27: Project Sign & Paint Tabulation
- Sheet 28: Table of Approaches
- Sheet 29: Layout of US 14/SD 63 Intersection
- Sheet 30: Layout for Plugging Existing RC Cattle Pass
- Sheet 31: Cattle Pass Removal
- Sheet 32: Roadway Reconstruction
- Sheet 33: Special Detail for Mobile Operation for Asphalt Coring
- Sheet 34: Detail for In-Lane Rumble Strips
- Sheets 35-42: Standard Plates

Plot Scale - 1:200



PROJECTS

EXCEPTION

Station 12+86.50 (2nd) =
Station 20+63.95 (2nd)

EQUATION

Station 41+64.90 (2nd) BK. =
Station 41+60.90 (3rd) AH.

BEGIN P 0063(47)83

BEGIN SURFACING

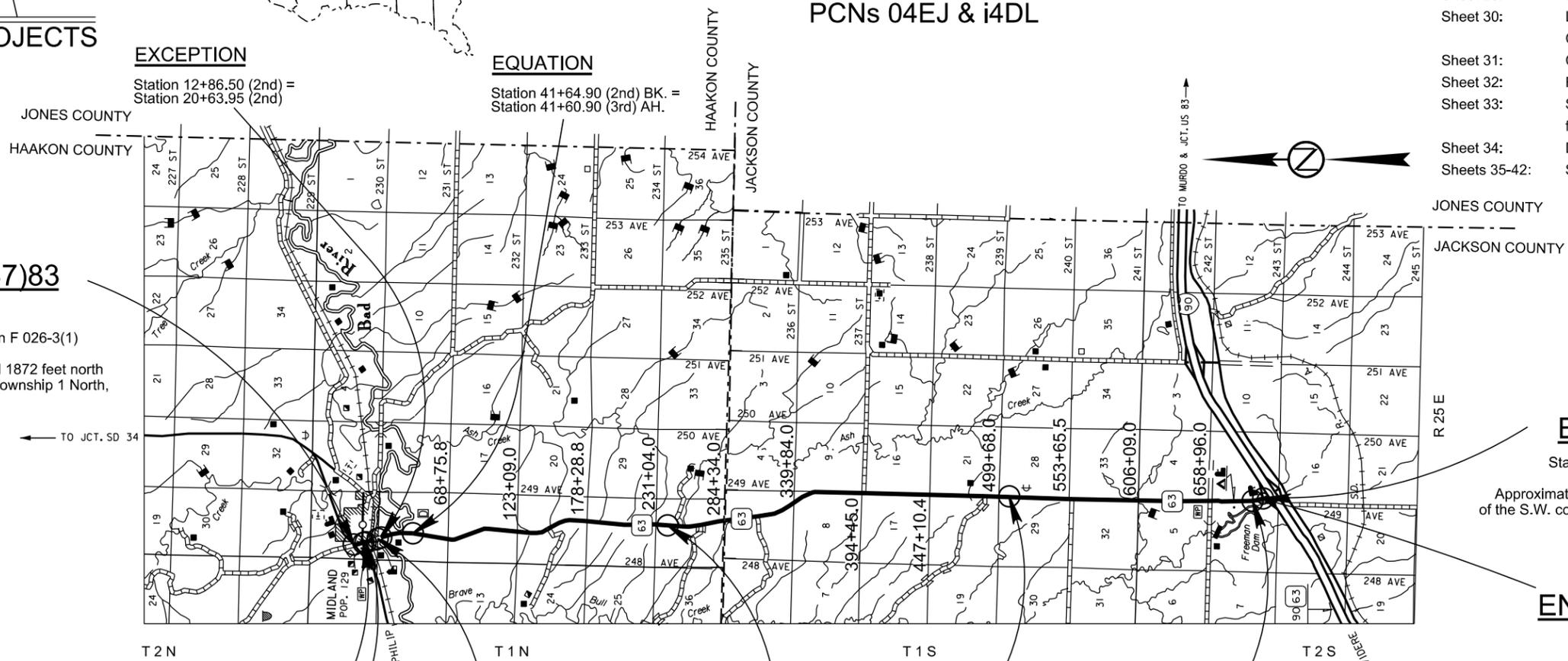
Station 0+00 (1st) = 375+20.90 on F 026-3(1)
MRM 96.93
Approximately 1074 feet east and 1872 feet north
of the S.W. corner of Section 6, Township 1 North,
Range 25 East of the B.H.M.

END P 0063(47)83

Station 13+30.00 (6th) on P 0063(26)83
MRM 83.53
Approximately 478 feet east and 1126 feet north
of the S.W. corner of Section 9, Township 2 South,
Range 25 East of the B.H.M.

END RESURFACING

Station 13+30.00 (6th)



EXCEPTION

Station 12+60.00 (1st) to
Station 13+00.00 (1st)

EQUATION

Station 14+14.80 (1st) BK. =
Station 10+00.00 (2nd) AH.

STRUCTURE # 28-423-469

Continuous Steel Bridge
Station 14+80.25 (2nd) to
Station 17+63.95 (2nd)
283.7 Feet = 0.054 Mile
MRM 96.57

EQUATION

Station 238+11.00 (3rd) BK. =
Station 238+00.00 (4th) AH.

EQUATION

Station 515+00.00 (4th) BK. =
Station 516+00.00 (5th) AH.

EQUATION

Station 688+00.00 (5th) BK. =
Station 0+00.00 (6th) AH.

SD Highway 63

Gross Length	70,459.80 Feet	13.328 Miles
Length of Exceptions	817.45 Feet	0.155 Miles
Net Length	69,552.35 Feet	13.173 Miles

DESIGN DESIGNATION - SD 63

ADT (2015)	283
ADT (2035)	320
DHV	50.0
D	50%
T DHV	9.8%
T ADT	21.5%
V	55 & 65 mph

STORM WATER PERMIT
(None)

Plotted From - tpr25584

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014-352 US HIGHWAY 14 HAAKON COUNTY

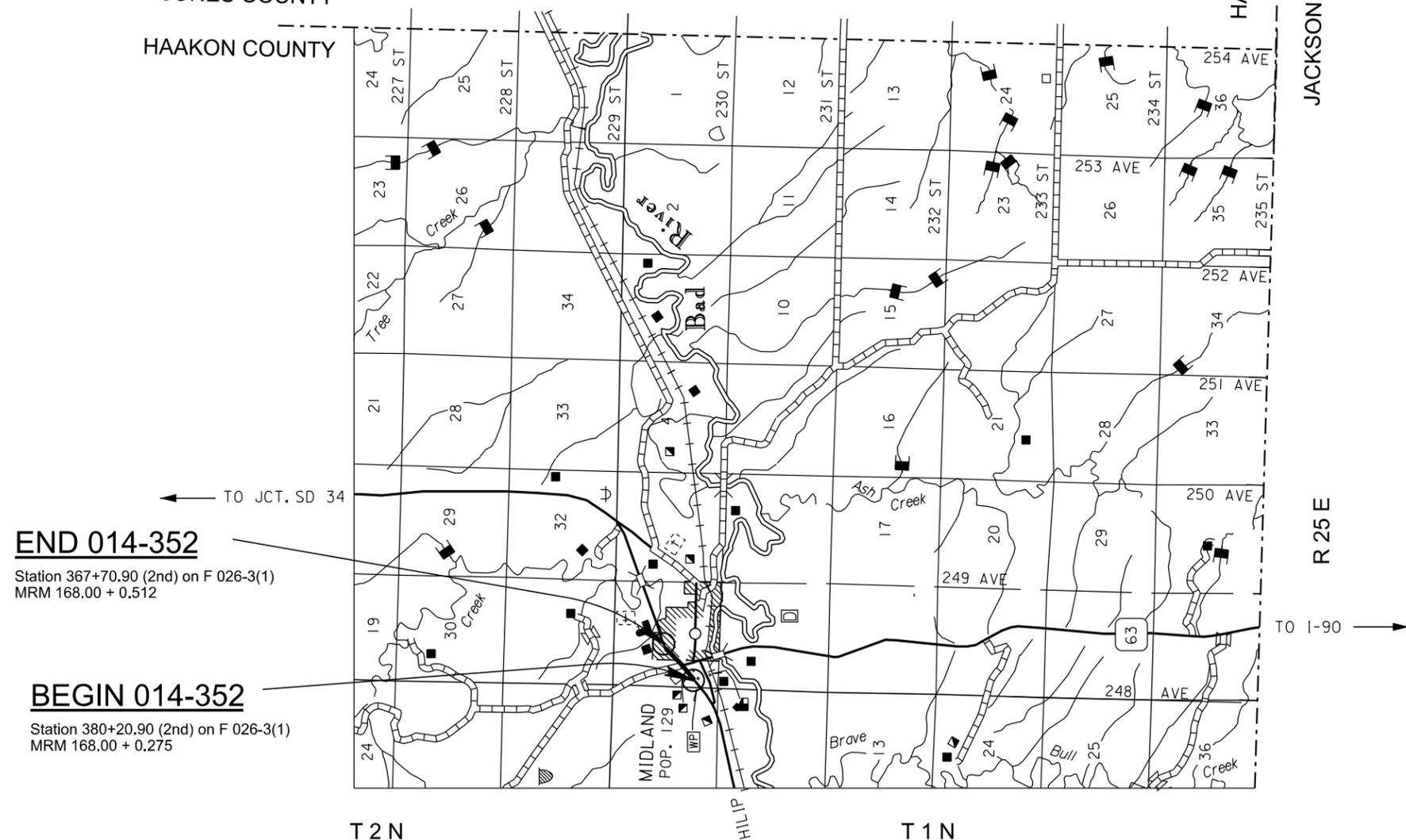
COLD MILLING ASPHALT CONCRETE,
ASPHALT CONCRETE RESURFACING, &
RUMBLE STRIPS

PCN i4DL



JONES COUNTY
HAAKON COUNTY

HAAKON COUNTY
JACKSON COUNTY



END 014-352
Station 367+70.90 (2nd) on F 026-3(1)
MRM 168.00 + 0.512

BEGIN 014-352
Station 380+20.90 (2nd) on F 026-3(1)
MRM 168.00 + 0.275

DESIGN DESIGNATION - US 14

ADT (2015)	727
ADT (2035)	829
DHV	129.0
D	50%
T DHV	7.5%
T ADT	16.4%
V	55 mph

US Highway 14

Gross Length	1,250.00 Feet	0.237 Miles
Length of Exceptions	0.00 Feet	0.000 Miles
Net Length	1,250.00 Feet	0.237 Miles

STORM WATER PERMIT
(None)

Plot Scale - 1:200

Plotted From - tpr25584

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ESTIMATE OF QUANTITIES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	3	42

P 0063(47)83 PCN: 04EJ

General:

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3210	Construction Staking	13.328	Mile
009E3300	Three Man Survey Crew	20.0	Hour
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0590	Remove Cattle Pass	40	Ft
110E0595	Remove Cattle Pass End Section	6	Each
110E0600	Remove Fence	264	Ft
110E1690	Remove Sediment	1.2	CuYd
110E1693	Remove Erosion Control Wattle	138	Ft
110E1700	Remove Silt Fence	138	Ft
120E0010	Unclassified Excavation	1,045	CuYd
120E0100	Unclassified Excavation, Digouts	659	CuYd
120E0600	Contractor Furnished Borrow Excavation	134	CuYd
120E4100	Reprofiling Ditch	2.0	Sta
230E0010	Placing Topsoil	138	CuYd
260E1010	Base Course	1,530.6	Ton
260E1080	Base Course, Salvaged, State Furnished	898.7	Ton
320E1200	Asphalt Concrete Composite	71.3	Ton
320E1800	Asphalt Concrete Blade Laid	1,977.1	Ton
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	26.6	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	156.0	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	52.8	Ton
330E2000	Sand for Flush Seal	686.1	Ton
332E0010	Cold Milling Asphalt Concrete	265,156	SqYd
450E4699	Tie Bolts for RCP	94	Each
450E8300	Culvert Joint Cleaning	890.1	Ft
450E8305	Repair Culvert Joint	890.1	Ft
450E8310	Chemical Grout Void Fill	217.1	Gal
464E0100	Controlled Density Fill	22.5	CuYd
600E0300	Type III Field Laboratory	1	Each
620E0020	Type 2 Right-of-Way Fence	102	Ft
633E0055	Cold Applied Plastic Pavement Marking, Railroad Crossing	2	Each
633E1300	Pavement Marking Paint, White	445	Gal
633E1305	Pavement Marking Paint, Yellow	153	Gal
633E5040	Grooving for Cold Applied Plastic Pavement Marking, Railroad Crossing	2	Each
634E0010	Flagging	456.0	Hour
634E0020	Pilot Car	228.0	Hour
634E0110	Traffic Control Signs	811.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	1	Each
634E0600	4" Temporary Pavement Marking Tape Type I	2,544	Ft
634E0630	Temporary Pavement Marking	52.0	Mile
634E0810	Groove 6" Wide Rumble Strip	425	Ft

General (Continued):

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
730E0100	Cover Crop Seeding	2.0	Bu
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	550	Ft
734E0165	Remove and Reset Erosion Control Wattle	138	Ft
734E0604	High Flow Silt Fence	550	Ft
734E0610	Mucking Silt Fence	38	CuYd
734E0620	Repair Silt Fence	138	Ft
900E0010	Refurbish Single Mailbox	3	Each
900E0012	Refurbish Double Mailbox	6	Each
900E1980	Storage Unit	1	Each
998E0100	Railroad Protective Insurance	Lump Sum	LS

Alternative A:

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 270E0210	Haul and Stockpile Granular Material	7,626.1	Ton
320E0005	PG 58-34 Asphalt Binder	1,635.5	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	31,958.5	Ton
320E4000	Hydrated Lime	341.4	Ton

* - Denotes Non-Participating

Alternative B:

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 270E0210	Haul and Stockpile Granular Material	7,438.2	Ton
320E0005	PG 58-34 Asphalt Binder	1,509.1	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	32,780.2	Ton
320E4000	Hydrated Lime	343.3	Ton

* - Denotes Non-Participating

ESTIMATE OF QUANTITIES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	4	42

***014-352 PCN: i4DL**

General:

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	0.4	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	1.4	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	1.1	Ton
330E2000	Sand for Flush Seal	12.3	Ton
332E0010	Cold Milling Asphalt Concrete	5,103	SqYd
633E1300	Pavement Marking Paint, White	8	Gal
633E1305	Pavement Marking Paint, Yellow	5	Gal
634E0010	Flagging	8.0	Hour
634E0020	Pilot Car	4.0	Hour
634E0110	Traffic Control Signs	272.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0640	Temporary Pavement Marking	3,750	Ft

Alternative A:

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
270E0210	Haul and Stockpile Granular Material	146.1	Ton
320E0005	PG 58-34 Asphalt Binder	25.9	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	556.1	Ton
320E4000	Hydrated Lime	5.5	Ton

Alternative B:

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
270E0210	Haul and Stockpile Granular Material	142.7	Ton
320E0005	PG 58-34 Asphalt Binder	23.7	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	571.1	Ton
320E4000	Hydrated Lime	5.7	Ton

* - Denotes Non-Participating

SPECIFICATIONS

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

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	5	42

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 B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

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.

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 Public ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for 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 Public 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 Public 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.

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 department designated sources and designated option material sources, stockpile sites, storage areas, and waste 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: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

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 Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas 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.

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	6	42

SCOPE OF WORK

The work required for this project includes, but is not limited to, the following items, not listed in order of execution.

SD Highway 63

1. Install Fixed Location Signing Prior to Construction Activities Commencing
2. Cold Mill Asphalt Concrete
3. Unclassified Excavation for Digsouts & Backfill Operations
4. Remove Cattle Pass
5. Plug Cattle Passes
6. Foam/Grout/Tie Pipe Joints
7. Asphalt Concrete Strengthening & Leveling
8. Asphalt Blade Laid
9. Asphalt Concrete Paving Operations
10. Gravel Placement Operations on Approaches/Intersecting Roads
11. Grind Rumble Strips/In-Lane Rumble Strips
12. If Required, Place Flush Seal
13. Permanent Pavement Markings
14. Refurbish Mailboxes
15. Remove Project Temporary Signing
16. Mow Project In-slopes and Complete Any Remaining Project Cleanup

US Highway 14

1. Install Fixed Location Signing Prior to Construction Activities Commencing
2. Cold Mill Asphalt Concrete
3. Asphalt Concrete Paving Operations
4. Grind Rumble Strips
5. If Required, Place Flush Seal
6. Permanent Pavement Markings
7. Remove Project Temporary Signing

The Contractor is encouraged to inspect the project site prior to bidding to evaluate the extent of work that will be required for construction.

SEQUENCE OF OPERATIONS

The Contractor shall submit a proposed sequence of operations for the Engineer's review and approval at least two weeks prior to the preconstruction meeting.

Traffic shall be maintained through the project at ALL times. The Contractor shall maintain access on and off the highway for local residences and county roads. The Contractor may perform work on the roadway during daylight hours only, unless additional hours are approved by the Engineer. Traffic shall be returned to normal driving lanes during non-working hours.

Once work starts to inconvenience traffic, work shall be pursued in a near continuous, expeditious manner to its completion. Any work that restricts the motorist from driving the posted speed limit, reduces existing roadway width, or causes a potentially unsafe condition due to Contractor operations such as frequent movement of equipment or materials on or through the project, is considered to be an inconvenience to traffic.

Rumble strips shall be completed prior to permanent pavement marking and the flush seal.

Work zones shall not exceed 3 miles in length in rural sections or a maximum delay of 15 minutes of waiting at the flagger station.

Contractor shall accommodate all over width traffic for the duration of the project.

Class Q2R Hot Mixed Asphalt Concrete paving shall commence within 10 calendar days of the start of Cold Milling Asphalt Concrete.

GENERAL NOTES

The Contractor shall be required to mow the in-slopes with a rotary mower to a height of 6 inches for a distance of 14 feet from the edge of the roadway (or shoulder) for the length of the project. This work will be completed to the satisfaction of the Engineer after all construction activities are completed. All costs associated with this work shall be incidental to the various contract items.

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators, signs, and markers that are damaged or lost shall be replaced by the Contractor at no cost to the State.

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 Engineer to determine modifications that will be necessary to avoid utility impacts.

SHOULDER PREPARATION

Prior to removing the cattle pass and mainline paving, the shoulders shall be bladed and broomed of all vegetation and loose/accumulated material to the satisfaction of the Engineer. Shoulder preparation shall not be measured for payment, and all costs associated with shoulder preparation shall be incidental to the various contract items.

Vegetation and accumulated material adjacent to the existing surface edge shall be removed to the satisfaction of the Engineer prior to placement of mainline surfacing. Any remaining windrow of accumulated material shall be re-spread evenly on the in-slope adjacent to the asphalt shoulder to the satisfaction of the Engineer prior to the application of the flush seal.

The Contractor shall notify the Pierre Area (605) 773-5294 at least two weeks prior to beginning work on this project so SDDOT personnel can mow or spray along the shoulder in-slopes. The Department will not be responsible for the effectiveness of the mowing or spraying.

GENERAL MAINTENANCE OF TRAFFIC

All traffic control sign locations shall be set in the field by the Contractor and verified by the Engineer prior to installation.

Channelizing devices in a series shall be of the same type. The cost of additional channelizing devices shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

BUMP signs shall be used in conjunction with the cold milling transitions at the end of the day.

A shadow vehicle, equipped with flashing amber light and a ROAD MACHINERY AHEAD sign prominently displayed, shall be used in advance of landscaping, clean up, and other mobile work activities. The cost of ROAD MACHINERY AHEAD sign shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous"

TRAFFIC CONTROL

The Contractor shall designate an employee to be responsible for the maintenance of traffic. The Engineer must approve the employee selected. The name and phone number of person(s) shall be provided to the SD Department of Transportation (605-773-5294), SD Highway Patrol (Pierre State Radio (605-773-3536)), Jackson County Sheriff Department (605-837-2285) and Haakon County Sheriff Department (605-859-2741).

All traffic control devices shall be in "like new" condition.

TRAFFIC CONTROL FOR ASPHALT CORING

Coring operations shall be completed during daylight hours only. Traffic control for coring operations shall be executed by following the "Special Detail for Mobile Operations for Asphalt Coring" sheet.

SURFACING THICKNESS DIMENSIONS

Material will be placed evenly, at the rates shown in the plans, even though the thickness may vary from that shown on the typical section. At those locations where material must be placed to achieve a required elevation, quantities may be varied to achieve the required elevations, as approved by the Engineer.

INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances shall be satisfactorily cleared of vegetation, shaped, and compacted prior to placement of mainline surfacing. Separate measurement and payment will not be made for this work. All costs associated with intersecting roads and entrances preparation shall be incidental to the various contract items.

WATER FOR GRANULAR MATERIAL

The moisture content for compaction of the Base Course and Base Course, Salvaged, State Furnished material shall be approximately optimum moisture for the material or as directed by the Engineer. The quantity for Water for Granular Material is based on 4% of the quantity of the aforementioned material. All costs for furnishing and placing the water shall be incidental to the contract unit price per ton for the corresponding Base Course material.

EXCAVATION OF UNSTABLE MATERIAL

The locations and extent of digout areas will be determined in the field by the Engineer. The backfilling material for the digouts shall be Base Course paid for at the contract unit price per ton.

Included in the Estimate of Quantities are 659 cubic yards of Unclassified Excavation – Digouts for the removal of unstable material throughout the project.

The digout shall be extended to the shoulder and the granular material backfill shall daylight to the inslope to allow water to escape the subgrade.

A copy of the surfacing/subgrade investigation report for this project is available from the Pierre Area and the Pierre Region offices.

UNCLASSIFIED EXCAVATION

Unclassified Excavation will occur throughout the Remove Cattle Pass and Plug Cattle Pass areas as detailed in the plans.

Measurement of topsoil quantities will not be made as plans quantity will be the basis for payment; however for informational purposes only, the table below shows the estimated topsoil removal throughout the project.

Unclassified Excavation material shall be used on the Cattle Pass Limits. If any material is remaining it shall become the property of the Contractor for their disposal.

Table of Unclassified Excavation	
Item	Quantity (CuYd)
Asphalt Concrete & Granular Base Material	105
Excavation	802
Topsoil	138
Total Unclassified Excavation	1,045

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor shall provide a suitable site for Contractor Furnished Borrow Excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. Borrow material shall be utilized to construct the new inslopes and plug cattle passes areas if needed. The plans quantity for “Contractor Furnished Borrow Excavation” as shown in the Estimate of Quantities will be the basis of payment for this item.

Water for Embankment is estimated at the rate of 10.0 gallons of water per cubic yard of Embankment. For informational purposes only, an estimated 9.8 MGal is required to complete the work. Payment for Water for Embankment shall be incidental to the contract unit price per cubic yard for “Contractor Furnished Borrow Excavation”.

Restoration of the borrow site shall be the responsibility of the Contractor

PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way.

The placing of topsoil shall be spread evenly throughout all disturbed areas upon completion of the work. Any clumps larger than 3 inches shall be broken up prior to seeding the areas.

Measurement of topsoil quantities will not be made as plans quantity will be the basis for payment; however for informational purposes only, the Table of Unclassified Excavation shows the estimated topsoil replacement throughout the project.

CATTLE PASS REMOVAL AND EMBANKMENT CONSTRUCTION

This work shall be completed prior to cold milling starting on the project.

The minimum density testing requirements shall be one test per zone. Zone 1 shall be 1 foot in depth; each zone thereafter shall be 2 feet in depth. Moisture testing shall remain as per M.S.T.R.

The excavation shall be backfilled with soils taken from the cattle pass removal or other suitable material as approved by the Engineer. The backfill will be benched into 2:1 excavation slope. Compaction of earth embankment shall be governed by the Specified Density Method.

After the embankment has been backfilled to the top of the subgrade, a 12” depth of base course and 5” (2-2.5” lifts) depth of asphalt concrete composite shall be placed as a patch matching the existing asphalt concrete.

All costs to saw cut asphalt, remove and dispose of asphalt, excavate and backfill the material to the bottom of the cattle pass and slope the excavating limits at a 2:1 backslope shall be paid for at the contract unit price per cubic yard for “Unclassified Excavation”.

The cost for asphalt concrete composite installed over the new embankment shall be paid for at the contract unit price per ton for “Asphalt Concrete Composite”.

CONTROLLED DENSITY FILL FOR CATTLE PASSES

Controlled density fill shall be in conformance with Section 464 of the Specifications.

The controlled density fill shall be placed inside the cattle pass as detailed on “Layout for Plugging Existing RC Cattle Pass”.

TABLE OF CONTROLLED DENSITY FILL FOR CATTLE PASSES

Station	Quantity (CuYd)
279+00 (4 TH)	11.5
317+52 (4 TH)	11.0
Total:	22.5

REINFORCED CONCRETE PIPE JOINT REPAIR AND VOID GROUTING

The Contractor shall provide a notarized statement, from the Manufacturer, that the products used for culvert joint repair meet the specified requirements, along with the Manufacturer's current product specification and installation instructions.

The Contractor shall be an Approved Contractor of the Manufacturer of the specified product and shall provide written certification from the Manufacturer attesting to their Approved Contractor status.

All product documentation and Contractor submittals must be submitted to the Engineer prior to or at the preconstruction conference. The Contractor must have the Engineer's approval prior to commencing any of this work.

The Contractor shall follow the Manufacturer's installation instructions and specifications throughout the repair process

Temperature of the specified products is critical from the point of pumping to the point of injection. All polyurethanes react faster at higher temperatures. Drum heaters and heated hoses are required when ambient or ground temperatures are below 70 degrees Fahrenheit. The optimum hose temperature will vary with the weather conditions and the particular job site conditions with the minimum hose temperature being 75 degrees Fahrenheit and the maximum hose temperature being 95 degrees Fahrenheit and the drum temperature not to exceed 90 degrees Fahrenheit.

The Contractor shall provide worker and inspector safety and worker protective gear in accordance with the manufacturer, including but not limited to chemical goggles, face shields, eye wash system and NBR gloves.

The Contractor shall provide safe storage and handling of materials prior to delivery and at the project site. All material installation, handling and storage shall be in accordance with the Manufacturer's recommendations.

The Contractor shall visit the project to determine the extent of culvert joints to be cleaned and filled, prior to bidding.

CULVERT JOINT CLEANING

This work shall consist of cleaning of the culvert joints, washing the entire culvert and joints with a high pressure washer, and if needed, wire brush cleaning of each joint to be repaired as directed by the Engineer. The entire culvert shall be clean and dry and most notably the specified joints shall be thoroughly cleaned to the satisfaction of the Engineer using a power washer with water pressure of at least 2500 psi. The culvert must be in a clean condition so that no deleterious material is trapped in the joints that are being repaired. The Contractor shall dispose of all debris removed from the culverts during the cleaning operation as approved by the Engineer.

All costs for equipment, material and labor for the culvert joint cleaning work shall be incidental to the contract unit price per foot for Culvert Joint Cleaning. Culvert Pipe Cleaning will be measured to the nearest 0.1 foot of joint which is cleaned for joint repair.

REPAIR CULVERT JOINT

The culvert joints shall be repaired in accordance with the Chemical Grout Manufacturer's directions to prevent future infiltration/exfiltration of soils and water and to keep the chemical grout from expanding back into the structure during injection.

The culvert joint will be repaired with a sealant comprised of water reactive hydrophilic polyurethane resin and dry oil free oakum. All grout will be injected under such pressure so as not to damage the existing drainage structure or roadway structure.

REINFORCED CONCRETE PIPE JOINT REPAIR AND VOID GROUTING (Continued)

The Contractor shall submit to the Engineer for approval a detailed procedure for the installation of the polyurethane grout.

The work shall include, but is not limited to sealing each pipe joint with a hydrophilic polyurethane grout meeting the following specifications:

GEL FOAM II (Saturated Oakum Rope Joint Packing) as manufactured by Green Mountain International, LLC or equal.

ULTRA (Single Component Grout for Joint Injection) as manufactured by Green Mountain International, LLC or equal.

Excess grout and oakum shall be trimmed from the interior face of the joint prior to applying the UV Protection (Gel Coat). The epoxy gel coat compound shall be as recommended by the Manufacturer for both surface sealing and protecting the hydrophilic grout from UV exposure. The epoxy gel compound shall be mixed and handled in accordance with the Manufacturer's recommendations and shall meet the following requirements:

Epoxy gel sealant compounds manufactured by Green Mountain Grouts, LLC or equal.

All costs for all equipment, material and labor required to complete the work shall be incidental to the contract unit price per foot for Repair Culvert Joint. Completion of the work includes initial saturated oakum rope packing of each joint, follow up injection of grout into the back side of each joint, trimming the excess grout and oakum from the interior face of the joint, application of the epoxy gel coat and site clean-up. Payment will be made per 0.1 foot of culvert joint repaired.

DUAL COMPONENT CHEMICAL GROUT FOR VOID FILLING

The external voids surrounding the culvert will be filled with an injected high expansion chemical grout compound. Holes shall be strategically drilled as required and grout injected throughout the structure to effectively fill all voids that have developed outside of the structure due to the infiltration of external soils and materials into the culvert and "piping" (water running outside and under the structure due to separated joints). It is the Contractor's responsibility to locate reinforcing bars and conduit prior to drilling any grout holes All grout shall be injected under such pressure so as not to damage the existing drainage structure or roadway structure. All joints shall be appropriately cleaned and sealed, with appropriate recommended cure time, prior to the injection of the void grouting. After completion of the void filling, all holes shall be properly sealed.

The Contractor must supply the Engineer with three (3) prior job references of projects where they have successfully injected urethane resin for subgrade void filling applications, or soil stabilization.

The chemical grout shall be a dual component hydrophobic polyurethane grout compound which is non-flammable and non-toxic when cured.

The chemical grout mixture shall have expansion properties listed in the data sheets of greater than twenty (20) times its original volume and cure to rigid closed cell polyurethane foam. The grout shall expand to fill any voids and must bond to the exterior surface of the structure. The chemical grout shall be

VF dual component polyurethane grouts as manufactured by Green Mountain International LLC or equal.

The typical method consists of placing a layer of chemical grout behind or around the structure. The Contractor shall submit for approval by the Engineer a detailed grouting plan showing the spacing, orientation and depth of the grout holes, as well as type of polyurethane grout to be used, range of gel times, equipment, mixing procedures, recommended injection pressure, technique for monitoring grout travel and any other pertinent information. The grouting plan should address the prevention of overfilling and prevention of damage to structures or roadway. The Contractor shall submit this detailed procedure for the installation of the expansion grout to the Engineer for approval. The holes are drilled with a rotary percussion hammer drill using a sharp masonry bit with a minimum diameter of 3/8 inch to a maximum diameter of 5/8 inch. Care must be taken to prevent holes from causing damage to reinforcing bars or utility conduits. Drilled holes should be vacuumed and flushed. Use injection grout and methods as recommended by Manufacturer.

Injection can be monitored by either applicator's visual inspection or by pumping a specific amount of injection grout into each hole. The work will start at the inlet end of the pipe and proceed downstream to the outlet. Inject bottom row every other hole. When material appears at the adjacent port, discontinue injection at entry port and begin injection at the adjacent port. Continue injection process section by section from bottom of pipe to top of pipe in a continuous manner to next pipe section. Injection pressure will vary from 200 psi to 3000 psi depending on the width of the joint, thickness of the structure, and condition of the concrete. After the grout cures, excess material shall be trimmed to be flush with the pipe interior wall and the pipe left clean.

All costs for equipment, material, and labor required to fill external voids surrounding the culvert shall be incidental to the contract unit price per gallon for Chemical Grout Void Fill. Any overfilling of voids that results in damage to overlying pavement, highway user ride quality, or drainage structure integrity shall be corrected and paid for by the Contractor. All corrections shall be approved by the Engineer. Payment shall be to the 0.1 gallon of chemical grout used, prior to expansion of the material.

Table of Reinforced Concrete Pipe Joint Repair and Void Grouting

Location	Remarks	Tie Bolts	Culvert Joint Cleaning (Ft)	Repair Culvert Joint (Ft)	Chemical Grout Void Fill (Gal)
Sta. 26+00 (2 nd)	4' x 6' Precast Cattle Pass	20	205.0	205.0	50.0
Sta. 184+74 (3 rd)	4' x 6' Precast Cattle Pass	20	205.0	205.0	50.0
Sta. 547+70 (5 th)	4' x 6' Precast Cattle Pass	22	195.6	195.6	47.7
Sta. 678+00 (5 th)	4' x 6' Precast Cattle Pass	32	284.5	284.5	69.4
	Totals:	94	890.1	890.1	217.1

TIE BOLTS FOR RCP

All joints for RCP installed both new and reset, shall be tied together. This includes connection from existing culvert sections to new or reset sections. Existing tie bolts may be salvaged and reused if condition is acceptable to the Engineer. The cost for furnishing and installing the tie bolts for new and reset sections shall be incidental to corresponding pipe items.

All joints for the cattle passes as listed in the "Table of Reinforced Concrete Pipe Joint Repair and Void Grouting" in the plan notes shall have tie bolts installed. The Contractor shall drill holes at an angle as to cause the legs of the tie bolt to bind against the outside face of the hole upon tie bolt tightening. Bending of the tie bolt legs may need to be done in order to achieve this. Prior to inserting the tie bolt the Contractor shall fill the hole with epoxy resin. The epoxy resin mixture shall be of a type for bonding steel to hardened concrete and shall conform to AASHTO M235 Type IV, (Equivalent to ASTM C881, Type IV). The Contractor shall allow the resin to properly set-up prior to the final tightening of the tie bolts. All cost for drilling tie bolt holes, epoxy resin, and furnishing and installing the tie bolts shall be incidental to the contract unit price per each for "Tie Bolts for RCP".

For informational purposes: Field drilling will be required to install the tie bolts on reset culvert, on reset culvert ends, existing culvert when installing a new/reset end section, and on existing cattle pass culvert sections. All cost for removing/resetting existing tie bolts, drilling tie bolt holes, and furnishing and installing the tie bolts shall be incidental to the respective remove/reset or furnish/install bid items for that location.

BASE COURSE

Base Course shall be utilized for constructing the new typical section at the Removal of Cattle Pass Limits as detailed in the plans.

After removal of material throughout the Cattle Pass Limits, an inspection of the remaining subgrade shall be made. Areas of excess moisture shall be dried, loose material shall be removed, and disturbed areas shall be leveled and compacted by using the Specified Density Method prior to placing Base Course. Digout areas of excess moisture shall be dried, loose material shall be removed, and disturbed areas shall be leveled and compacted to the satisfaction of the Engineer prior to placing Base Course.

Compaction shall be according to Section 260.3 A of the Specifications for constructing the aforementioned areas.

1,334.5 tons of base course material has been included for backfilling Digouts and Reconstruction of the Cattle Pass Limits. All costs associated with the aforementioned work shall be incidental to the contract unit price per ton for "Base Course".

BASE COURSE, SALVAGED, STATE FURNISHED

Blended cold milling material obtained from the stockpile located in the SW 1/4 of Section 20 T5N R25E in Stanley County (0.5 miles north of the SD 63 SD 34/US14 Junction) and shall be used as Base Course, Salvaged, State Furnished on approaches and farm and field entrances.

All costs associated with this work shall be incidental to the contract unit price per ton for "Base Course, Salvaged, State Furnished".

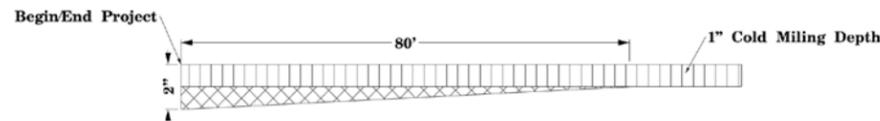
COLD MILLING ASPHALT CONCRETE TRANSITIONS

In order to construct the new surfacing flush with the existing Asphalt Concrete Pavement at begin/end project, railroad, and exception structure approach pavement limits it will be necessary to transition the depth of cold milling to the limits as shown in the layout below.

The surface shall be cold milled full roadway width.

It is estimated that 44.7 tons of cold milled material will be produced from the transitions on PCN 04EJ and 14.9 tons of cold milled material will be produced from the transitions on PCN i4DL.

All costs associated with this work shall be incidental to the contract unit price per square yard for "Cold Milling Asphalt Concrete".



COLD MILLING ASPHALT CONCRETE

Cold milling asphalt concrete shall be done according to the typical sections. The depth or width of milling may need to be adjusted due to rutting, maintenance patches, or roadway irregularities. Additional asphalt concrete shall be milled in these areas to provide a uniform typical section from centerline to the edge of the finished shoulder. These areas may also include farm & field entrances and intersecting roads. Any additional costs associated with this additional cold milling shall be incidental to the contract unit price per square yard for "Cold Milling Asphalt Concrete". No adjustments in quantity or price will be made.

The Contractor shall utilize some of the generated cold milled material to construct a 20:1 temporary on/off transition at the begin/end of the project or at locations deemed necessary by the Engineer where the milled surface meets existing surface to allow a safe traveled way for the traveling public. This material shall be removed once paving commences. The material shall become the property of the Contractor once it is determined by the Engineer that it is no longer needed on the project. All costs associated constructing and removing the transitions shall be incidental to the contract unit price per square yard for "Cold Milling Asphalt Concrete".

After completion of the milling operation, the Contractor shall clean up and dispose of any remaining debris to the satisfaction of the Engineer.

The Los Angeles Abrasion Loss value on the aggregate used for the in place asphalt concrete was 26 percent. This value was obtained from testing during construction of the in place asphalt concrete.

PCN 04EJ:

Cold milling asphalt is estimated to produce 13,671.2 tons of RAP. An estimated 6,045.1 tons of RAP for Alternative A and 6,233.0 tons of RAP for Alternative B will be used on this project in the Class Q2R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure enough RAP is available for the Class Q2R Hot Mixed Asphalt Concrete. Excess salvaged asphalt concrete material shall be hauled and stockpiled at the site listed in the "Haul and Stockpile Granular Material" plan note.

PCN i4DL:

Cold milling asphalt is estimated to produce 251.0 tons of RAP. An estimated 104.9 tons of RAP for Alternative A and 108.3 tons of RAP for Alternative B will be used on this project in the Class Q2R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure enough RAP is available for the Class Q2R Hot Mixed Asphalt Concrete. Excess salvaged asphalt concrete material shall be hauled and stockpiled at the site listed in the "Haul and Stockpile Granular Material" plan note.

ASPHALT CONCRETE BLADE LAID

Included in the Estimate of Surfacing Quantities are 150 tons of Asphalt Concrete Blade Laid, 1.5 tons of Hydrated Lime, and 11.3 tons of PG 58-34 Asphalt Binder per mile and shall be tight bladed on the existing surface 24 feet wide prior to the overlay. A sufficient amount of material shall be kept in front of the blade to fill and level all joints, cracks and other surface irregularities.

Mineral Aggregate for tight bladed material shall use only the fine aggregate components combined in the same proportions as the Class Q2R Hot Mixed Asphalt Concrete mix. No quality testing will be done on any of the coarse aggregate (+No. 4 sieve) in this mix.

The Asphalt Concrete Blade Laid Lift shall be designed using an N_{design} Gyratory Compactive Effort of 65. The asphalt binder content shall be determined so that the air voids of Asphalt Concrete Blade Laid Lift are between 3.0% and 5.0%.

CLASS Q2R HOT MIXED ASPHALT CONCRETE

Mineral Aggregate:
Asphalt concrete aggregates shall consist of reclaimed asphalt pavement (RAP) and virgin aggregate.

Virgin mineral aggregate for Class Q2R Hot Mixed Asphalt Concrete shall conform to the requirements of Class Q2.

The Class Q2R Hot Mixed Asphalt Concrete shall include 20 percent RAP in the mixture.

Mix Design Criteria:
Gyratory Controlled QC/QA Mix Design requirements for the Class Q2R Hot Mixed Asphalt Concrete shall conform to the requirements of Class Q2 except as modified by the following:

Gyratory Compactive Effort:

	$N_{initial}$	N_{design}	$N_{maximum}$
Class Q2R	6	50	75

All remaining requirements for Class Q2 shall apply.

HAUL AND STOCKPILE GRANULAR MATERIAL

General:

Excess cold millings shall be hauled and stockpiled at the site located at the SD 34/SD 63 junction west of Hayes within the SW 1/4 of Section 20 T5N R25E in Stanley County, South Dakota. The Contractor shall have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

The Contractor shall use a portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale to control the weighing of the salvage material.

The RAP shall be crushed to meet the requirements of Section 884.2 C.1 prior to incorporation into the stockpile.

Screening or scalping of the RAP stockpile(s) will not be allowed.

All other costs for hauling and stockpiling the remaining cold milled material shall be incidental to the contract unit price per ton for "Haul and Stockpile Granular Material".

04EJ:

Excess cold milled material estimated (for informational purposes only) for Alternative A at 7,626.1 tons and Alternative B at 7,438.2 tons.

i4DL:

Excess cold milled material estimated (for informational purposes only) for Alternative A at 146.1 tons and Alternative B at 142.7 tons.

ADDITIONAL QUANTITIES

Included in the Table of Additional Quantities for Alternative A are 100 tons of Class Q2R Hot Mixed Asphalt Concrete, 4.7 tons of PG 58-34 Asphalt Binder, and 1.0 ton of Hydrated Lime per mile and for Alternative B are 100 tons of Class Q2R Hot Mixed Asphalt Concrete, 4.2 tons of PG 58-34 Asphalt Binder, and 1.0 ton of Hydrated Lime per mile for spot leveling, strengthening and repair of the existing surface. Also included in the Table of Additional Quantities are 7.0 tons of SS-1h or CSS-1h Emulsified Asphalt for Tack for repair and leveling areas throughout the project. The aforementioned materials shall be placed as directed by the Engineer.

FLUSH SEAL

Application of Flush Seal shall be completed within 10 working days following completion of the asphalt concrete surfacing.

SAND FOR FLUSH SEAL

Sand for Flush Seal shall be furnished by the Contractor.

The spreading device placing the sand shall leave a gap of 6 inches each side of centerline, applicable lane lines and the edge-line to ensure a better bond between the pavement and the permanent pavement marking.

RUMBLE STRIP ROADWAY CLEANING

The Contractor shall be required to remove loose material from the driving surface and/or asphalt shoulders of the roadway. Loose material may be swept to the edge of shoulders and it shall be the Contractor's responsibility to ensure the loose material does not enter any vegetated areas and/or waterways.

All costs associated with the work shall be incidental to the contract unit price per mile for "Grind 12" Rumble Strip or Stripe in Asphalt Concrete".

IN-LANE RUMBLE STRIPS

The Contractor shall install in-lane rumble strips as per detail shown in the plans.

The in-lane rumble strips must be grooved into the asphalt concrete surfacing. Following installation, the in-lane rumble strips shall be flush sealed with SS-1h or CSS-1h Asphalt for Flush Seal. The in-lane rumble strips shall be completed prior to the flush seal and permanent pavement markings.

In the event the Flush Seal is eliminated from the contract, the Contractor will still be required to apply a Flush Seal to the newly installed in-lane rumble strips at the same rate as specified in this plan set.

Cost for installing the in-lane rumble strips shall be paid for at the contract unit price per foot for "Groove 6" Wide Rumble Strip".

RUMBLE STRIPS

Rumble strips shall be installed in rural areas with posted speeds greater than 50 M.P.H. Rumble strips will not be required in urban areas or where there is development in close proximity to the highway. The Engineer shall provide the exact start and stop locations for the rumble strip installation.

The gaps for the rumble strip installation as detailed on the standard plates shall be included with the measurement and payment.

Rumble strips shall not be placed on any bridge deck or within 25 feet of the approach slab or within 50 feet of any railroad crossing.

The placement of rumble strips from the driving lane may vary depending on the existing typical section of the roadway as directed by the Engineer.

The Contractor shall install rumble strips as per standard plate shown in the plans. The rumble strips must be grooved into the asphalt concrete surfacing. Following installation, the rumble strips shall be flush sealed with SS-1h or CSS-1h Asphalt for Flush Seal.

Rumble Strip installation shall be completed prior to application of the Flush Seal and Permanent Pavement Markings.

In the event the Flush Seal is eliminated from the contract, the Contractor will still be required to apply a Flush Seal to the newly installed 12" Rumble Strip at a width of 1.5' and at the same rate as specified in this plan set. No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be paid at the contract unit price per ton.

All costs for installing the rumble strips shall be paid for at the contract unit price per mile for "Grind 12" Rumble Strip or Stripe in Asphalt Concrete".

REFURBISH MAILBOXES

The Contractor shall reset the existing mailboxes on new posts with the necessary support hardware for single assemblies (See Standard Plate No's. 900.02 and 900.03). The Contractor may submit documentation of an alternate NCHRP 350 crashworthy compliant mailbox support system to the Department for review and approval. The local Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor shall coordinate with the Engineer on the proper postal representative to contact.

The mailboxes shall be removed and reset on the nearest approach and/or as determined by the Engineer at a minimum of 20 feet from the roadway centerline.

The mailboxes located at MRM 83.00+0.656 shall be relocated to the southwest corner of the approach as directed by the Engineer.

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware shall be incidental to the contract unit price per each for "Refurbish Single Mailbox" and "Refurbish Double Mailbox".

TABLE OF REFURBISH MAILBOX

<u>MRM</u>	<u>L/R</u>	<u>Single (Each)</u>	<u>Double (Each)</u>
87.00 + 0.930	L	1	-
87.00 + 0.633	L	1	-
85.00 + 0.514	L	-	1
83.00 + 0.656	L	1	5
Totals:		3	6

STORAGE UNIT

The Contractor shall provide a storage unit such as a portable storage container or a semi-trailer meeting the minimum size requirements from the table below:

Project Total Asphalt Concrete Tonnage	Minimum Internal Size (Cu Ft)	Minimum External Size (L x W x H)
Less than 50,000 ton	1,166	20' x 8' x 8.6' std
More than 50,000 ton	2,360	40' x 8' x 8.6' std
All Gyratory Controlled QC/QA Projects	2,360	40' x 8' x 8.6' std

The storage unit is intended for use only by the Engineer for the duration of the project. The QC lab personnel or the Contractor will not be allowed to use the storage container while it is on the project, without permission of the Engineer.

The storage unit shall be on site and operational prior to asphalt concrete production. Upon completion of asphalt concrete production, the Engineer will notify the Contractor when the storage unit can be removed from the project. The storage unit use will not exceed 30 calendar days from the completion of asphalt concrete production. The storage unit will remain the property of the Contractor.

The storage unit shall be weather proof and shall be set in a level position. The storage unit shall be able to be locked with a padlock.

The storage unit shall be placed adjacent to the QA lab, as approved by the Engineer.

The following shall apply when the storage unit provided on the project is a portable storage container:

The portable storage container shall be constructed of steel.

The portable storage container shall be set such that it is raised above the surrounding ground level to keep water from ponding under or around the storage container.

The following shall apply when the storage unit provided on the project is a semi-trailer:

A set of steps and hand railings shall be provided at the exterior door. If the floor of the semi-trailer is 18 inches or more above the ground, a landing shall be constructed at the exterior door. The minimum dimensions for the landing shall be 4 feet by 5 feet. The top of the landing shall be level with the threshold or opening of the doorway.

The semi-trailer may be connected to the QA lab by a stable elevated walkway. The walkway shall be a minimum of 48 inches wide and contain handrails installed at 32 inches above the deck of the walkway. The walkway shall be constructed such that it is stable and the deck does not deform during use and allows for proper door operation. Walkway construction shall be approved by the Engineer.

All cost for furnishing, maintaining, and removing the storage unit including labor, equipment, and materials including any necessary walkways, landings, stairways, and handrails shall be included in the contract unit price per each for "Storage Unit".

TYPE III FIELD LABORATORY

The lab shall be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection shall be provided with a multi-port wireless router. The internet connection shall be a minimum speed of 512 Kb unless limited by job location and approved by the DOT. Prior to installing the wireless router the Contractor shall submit the wireless router's technical data to the Area Office to check for compatibility with the state's computer equipment. The internet connection is intended for state personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer.

These items shall be incidental to the contract unit price per each for "Type III Field Laboratory".

HIGH FLOW SILT FENCE

The high flow silt fence fabric provided shall be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

High flow silt fence shall be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

TABLE OF HIGH FLOW SILT FENCE

Station	To	Station	Lt or Rt	Quantity (Ft)
52+00 (3 rd)		54+00 (3 rd)	Lt	200
52+00 (3 rd)		54+00 (3 rd)	Rt	200
278+90 (4 th)		279+15 (4 th)	Lt	25
278+90 (4 th)		279+15 (4 th)	Rt	25
317+42 (4 th)		317+67 (4 th)	Lt	25
317+42 (4 th)		317+67 (4 th)	Rt	25
Additional Quantity:				50
Total:				550

EROSION CONTROL

The areas disturbed as a result of work on this project shall be restored and/or reshaped to the satisfaction of the Engineer. All disturbed areas shall be seeded and mulched. Disturbed areas anticipated on the project include cattle passes and all other areas disturbed as a result of the Contractor's operations.

The varieties listed for the seed mixture are preferred varieties. Native harvest seed will be allowed.

Type F Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	7
Green Needlegrass	Lodorm	4
Sideoats Grama	Butte, Killdeer, Pierre, Trailway	3
Little Bluestem or Buffalograss or Blue Grama	Badlands, Itasca, Bowie, Cody, Tatanka, Bad River, Willis	2
Regreen or QuickGuard: all year; Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
Total:		26

It is estimated that 1.00 acre of disturbed area will require seeding and mulching. Limits of the work shall be determined by the Engineer at the time of construction.

Application of grass hay or straw mulch will be required throughout the disturbed areas as directed by the Engineer on this Contract.

Application of fertilizer will not be required on this project.

All costs associated with furnishing/placing the seed, mulch, and inoculum, along with all labor, equipment shall be incidental to the contract lump sum price for "Erosion Control".

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum shall consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

<i>Glomus intradices</i>	25%
<i>Glomus aggregatu</i>	25%
<i>Glomus mosseae</i>	25%
<i>Glomus etunicatum</i>	25%

All seed shall be inoculated with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed shall be incidental to the contact lump sum price for "Erosion Control".

The mycorrhizal inoculum shall be as shown below or an approved equal:

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 http://www.mycorrhizae.com/

COVER CROP SEEDING

Cover crop seeding may be used on this project as a temporary erosion control measure. The actual limits and use of cover crop seeding shall be determined by the Engineer during construction.

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations noted in the table and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor shall provide certification that the erosion control wattles do not contain noxious weed seeds.

An estimated quantity of erosion control wattles shall remain on the project until vegetation has been established. It is estimated that some of the erosion control wattles will remain on the project to decompose.

An additional quantity of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels and as an alternative to low flow or high flow silt fence at wetland areas adjacent to the highway.

The erosion control wattle provided shall be from the approved product list. The approved product list for erosion control wattle may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

TABLE OF EROSION CONTROL WATTLE

Station	L/R	Diameter (Inch)	Quantity (Ft)
52+00 (3 rd) to 54+00 (3 rd)	L	12	200
52+00 (3 rd) to 54+00 (3 rd)	R	12	200
278+90 (4 th) to 279+15 (4 th)	L	12	25
278+90 (4 th) to 279+15 (4 th)	R	12	25
317+42 (4 th) to 317+69 (4 th)	L	12	25
317+42 (4 th) to 317+69 (4 th)	R	12	25
Additional Quantity:			50
Total:			550

TEMPORARY PAVEMENT MARKINGS

General:

Temporary pavement markings shall be as per the Specifications.

If the Contractor elects to use DO NOT PASS and PASS WITH CARE signs to mark no passing zones, then these signs shall be erected on fixed location supports prior to the removal of the existing No Passing Zone signs.

These signs shall be removed upon completion of the permanent pavement markings.

If the Contractor elects not to use the DO NOT PASS and PASS WITH CARE signs, the temporary pavement markings placed shall be fully compliant as normally used to identify no passing zones.

At the end of each day the temporary pavement markings shall be in place and visible. No separate payment will be made for remarking a segment of roadway that was not evened up with surface treatment at the end of the previous day.

Flagger symbol signs (W20-7) and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights shall be positioned on the roadway shoulder in advance of workers for both directions of traffic during the installation of temporary flexible vertical markers (tabs). The traffic control device used shall be moved to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1), a Workers symbol sign (W21-1) or a BE PREPARED TO STOP (W3-4) warning sign shall be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work shall be approved by the Engineer.

Quantities of Temporary Pavement Markings consist of:

- 1) One pass on top of the Milled Surface
- 2) One pass on top of the Asphalt Concrete Blade Laid
- 3) One pass on the Asphalt Concrete Lift
- 4) ** One pass on top of the Flush Seal

** If the flush seal is eliminated from the contract, the length of temporary pavement marking used for the flush seal shall also be eliminated from the contract.

** Multiple applications may be needed if plastic covers are lost and the tabs are not functioning. No extra payment will be made.

TEMPORARY PAVEMENT MARKINGS (Continued)

PCN 04EJ:

The total length of no passing zone is estimated to be **5.743** miles.

No Passing Zones may be identified using DO NOT PASS and PASS WITH CARE signs in addition to dashed centerline pavement markings. It is estimated that 27 DO NOT PASS and 27 PASS WITH CARE signs will be required to mark the no passing zones.

Approximately 144 feet of 4 inch white temporary pavement marking tape, Type I, (24" stop bar reduced to 4" equivalent) and 2,400 feet of 4 inch yellow temporary pavement marking tape, Type I, will be required for the project (see table for breakdown of quantities). The Contractor will be paid only once for tape placement. The Contractor is responsible for maintaining and cleaning the tape throughout the duration of the project and for removing all temporary pavement marking tape when it is no longer required.

PCN i4DL:

The total length of no passing zone is estimated to be **0.237** miles.

No Passing Zones may be identified using DO NOT PASS and PASS WITH CARE signs in addition to dashed centerline pavement markings. It is estimated that 2 DO NOT PASS and 2 PASS WITH CARE signs will be required to mark the no passing zones.

TABLE OF ESTIMATED TEMPORARY PAVEMENT TAPE

Location	4" Temporary Pavement Marking Tape Type I		
	4W	4Y	Stop Bar (4W)
Cattle Pass Removal MRM 95.00 + 0.833	--	2,400	144
Total:	--	2,400	144

PERMANENT PAVEMENT MARKING

The Contractor shall advise the Engineer a minimum of 2 weeks prior to the application of the permanent pavement marking to allow the State to check and mark the location of no passing zones.

The application of permanent pavement marking paint may not begin until 2 calendar days following completion of flush seal and shall be completed within 14 calendar days following completion of the flush seal. If the Flush Seal is eliminated, the Contractor shall complete the application of permanent pavement marking paint no sooner than 2 calendar days, but within 14 calendar days following completion of final surfacing.

The Contractor will be required to repaint all existing pavement marking including centerline, edge line, lane lines, turn arrows, etc. This list is approximate. The

Contractor will be required to inventory and mark, and/or offset the extent and location of the existing turn arrows, etc. before the markings are obliterated. Additional quantities are included in the Estimate of Quantities to paint the additional pavement markings.

All materials shall be applied as per manufacturer's recommendations.

RIGHT-OF-WAY (ROW) FENCE

Where fence is being removed, the Contractor shall install the new Type 2 R.O.W. fence as detailed in the plans. Refer to the "Cattle Pass Reconstruction" sheet for fence locations and details. The existing fence that is removed shall become property of the Contractor. Existing brace panels shall remain in place and shall be used to attach new Type 2 Right-Of-Way Fence to as detailed in the plans.

CHECKING SPREAD RATES

The Contractor shall be responsible for checking the Asphalt Concrete spread rates and taking the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor shall compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts. The station to station spread shall be written on each ticket as the surfacing material is delivered to the roadway.

At the end of each day's shift, the Contractor shall verify the following:

- All tickets are present and accounted for,
- The quantity summary for each item is calculated,
- The amount of material wasted if any,
- Each day's ticket summary is marked with the corresponding 'computed by',
- The ticket summary is initialed and certified that the delivered and placed quantity is correct.

All daily tickets and the summary by item shall be given to the Engineer no later than the following morning.

If the checker is not properly and accurately performing the required duties, the Contractor shall correct the problem or replace the checker with an individual capable of performing the duties to the satisfaction of the Engineer. Failure to do so will result in suspension of the work.

The Department will perform depth checks. The Contractor shall be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of ±1/2 inch of the plan shown depth, the Contractor shall correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer.

All costs for providing the Contractor furnished checker and performing all related duties shall be incidental to the contract lump sum price for "Checker". No allowances will be made to the contract lump sum price for "Checker" due to authorized quantity variations unless the quantities for the material being checked

vary above or below the estimated quantities by more than 25 percent. Payment for the Checker shall then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

REPROFILING DITCH

The Contractor shall reprofile the ditch at the removed cattle pass to restore drainage profile. This work will require removing sedimentation along with placing the removed material where areas need borrow material. The quantities and locations of reprofiling may change depending on the degree of erosion/sedimentation that has taken place from time of the survey to the time of construction. All work shall be within the Right-of-Way limits.

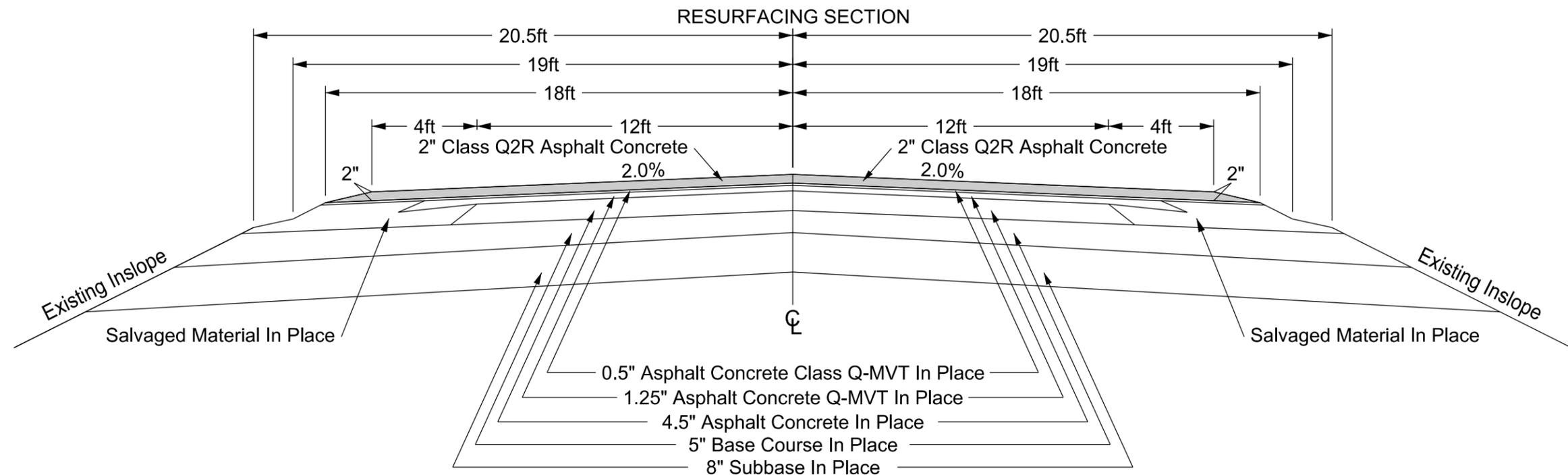
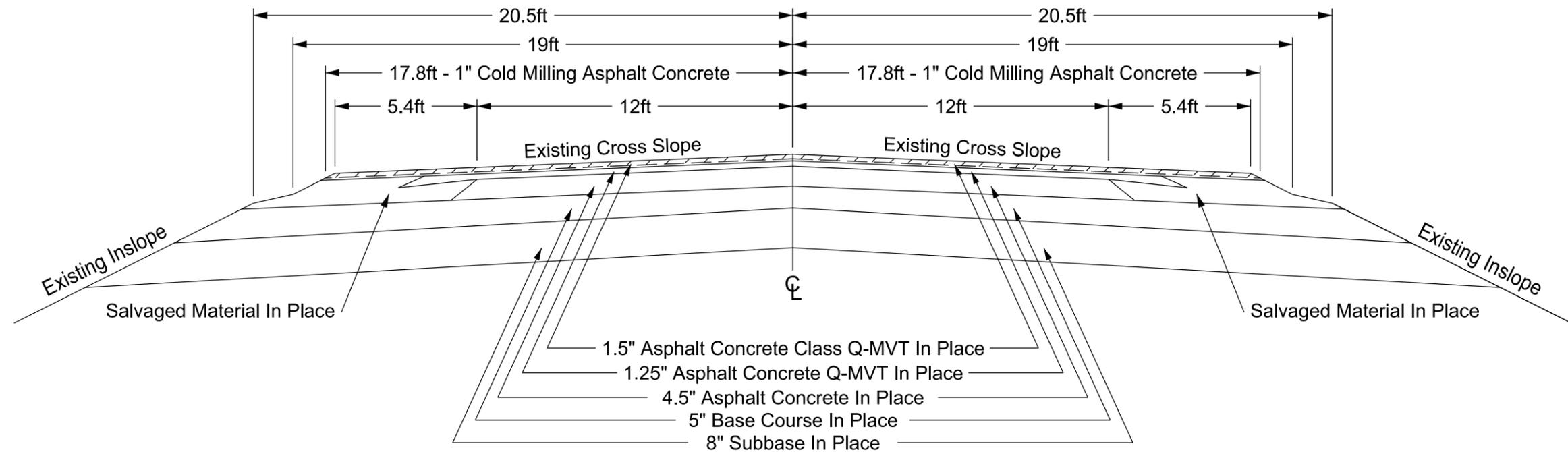
All costs associated with clearing and reshaping of the existing ditch, labor, excavation, placing material, equipment, and incidentals shall be paid for at the contract unit price per station for "Reprofiling Ditch".

TYPICAL SECTION

SECTION 1

Sta 0+90.00 to Sta 12+86.50 (2nd) (Thru Equation)

IN PLACE & COLD MILLING ASPHALT CONCRETE SECTION

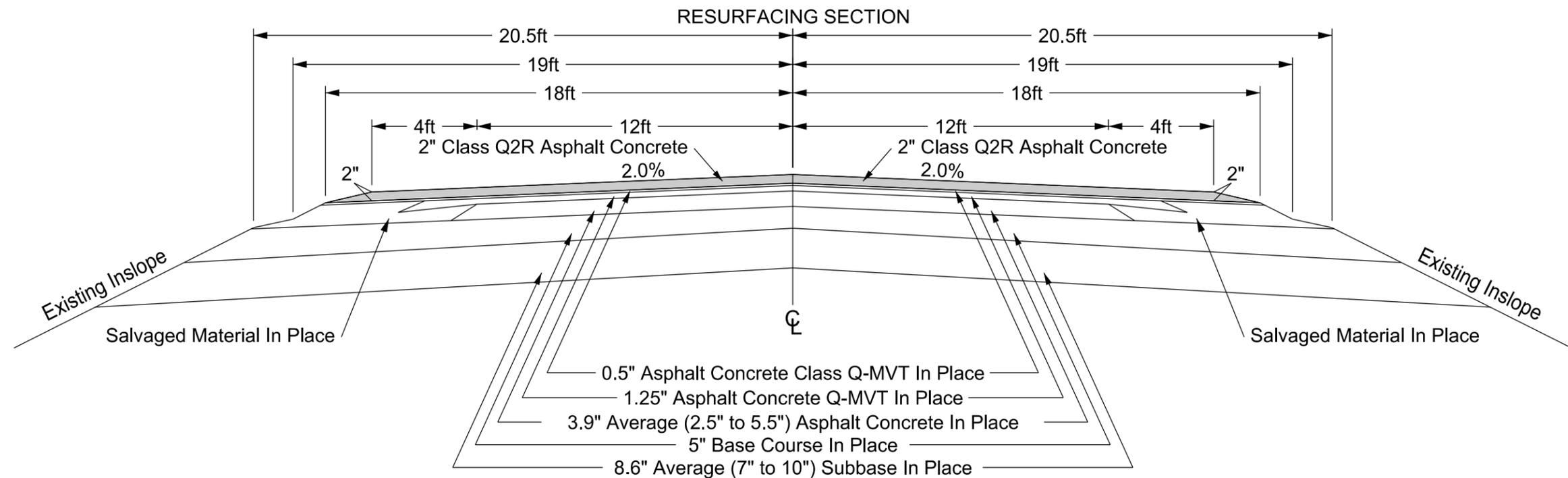
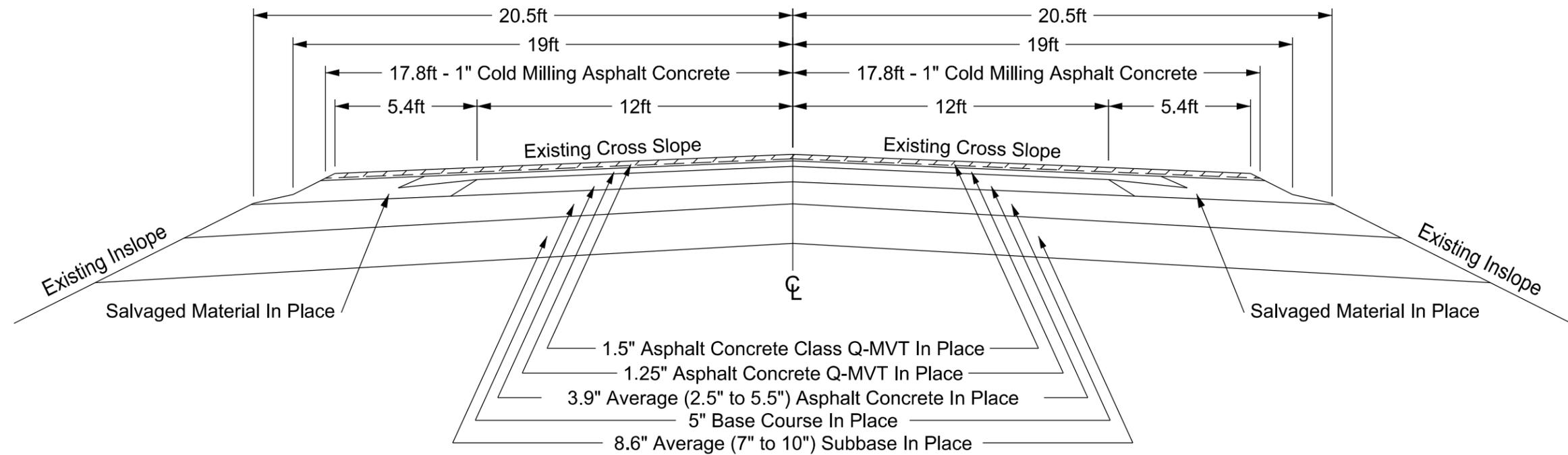


TYPICAL SECTION

SECTION 2

Sta 20+63.95 (2nd) to Sta 92+00.00 (3rd) (Thru Equation)

IN PLACE & COLD MILLING ASPHALT CONCRETE SECTION



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0063(47)83 & 014-352	15	42

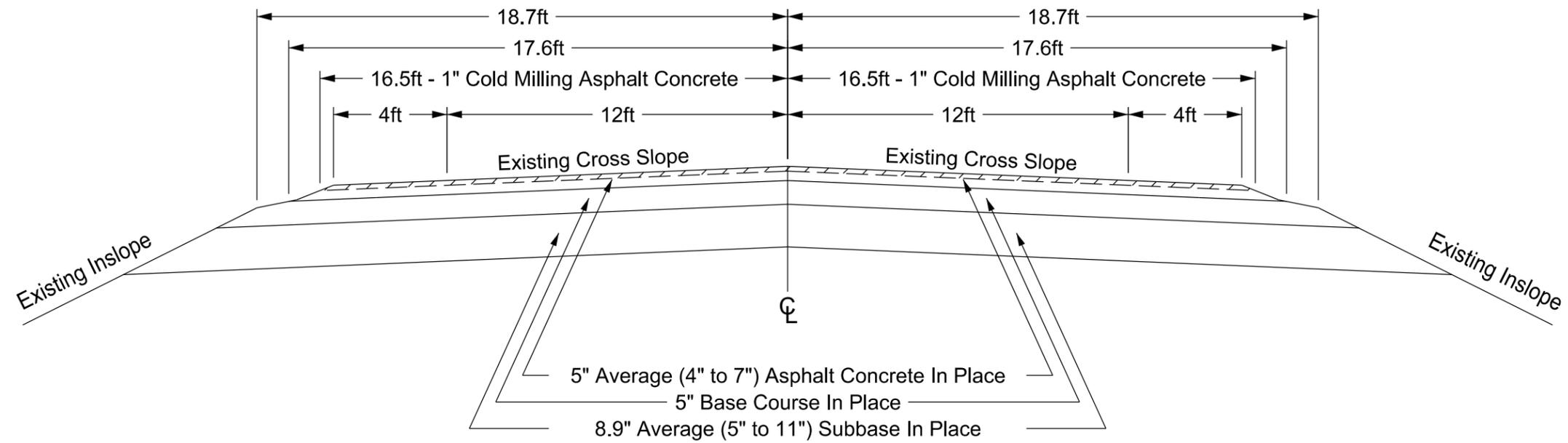
Plotting Date: 08/17/2016

TYPICAL SECTION

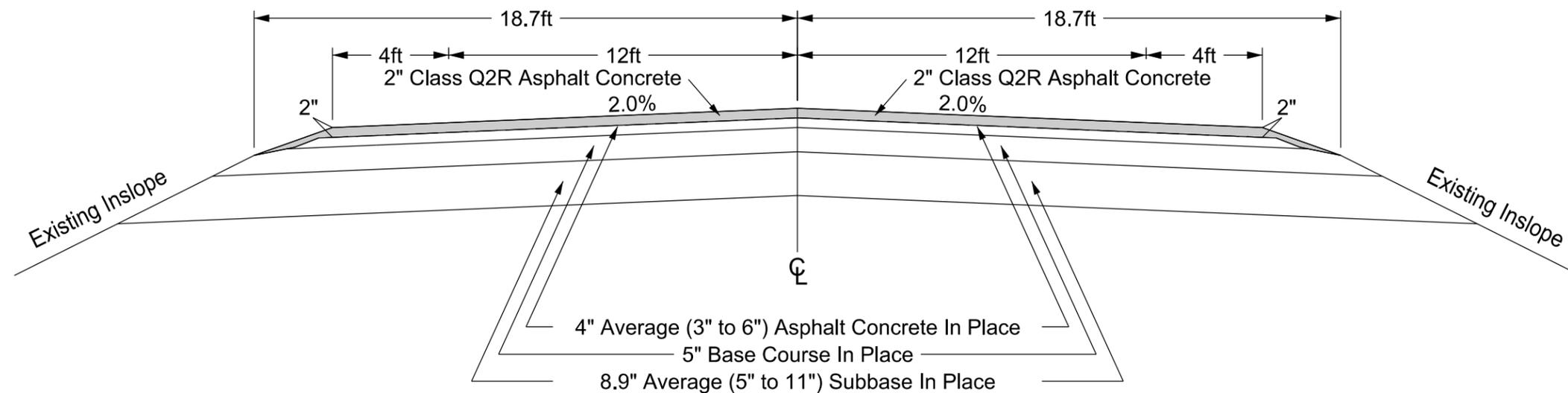
SECTION 3

Sta 92+00.00 (3rd) to Sta 13+30.00 (6th) (Thru Equations)

IN PLACE & COLD MILLING ASPHALT CONCRETE SECTION



RESURFACING SECTION



Plot Scale - 1:4.6875

Plotted From - trp25584

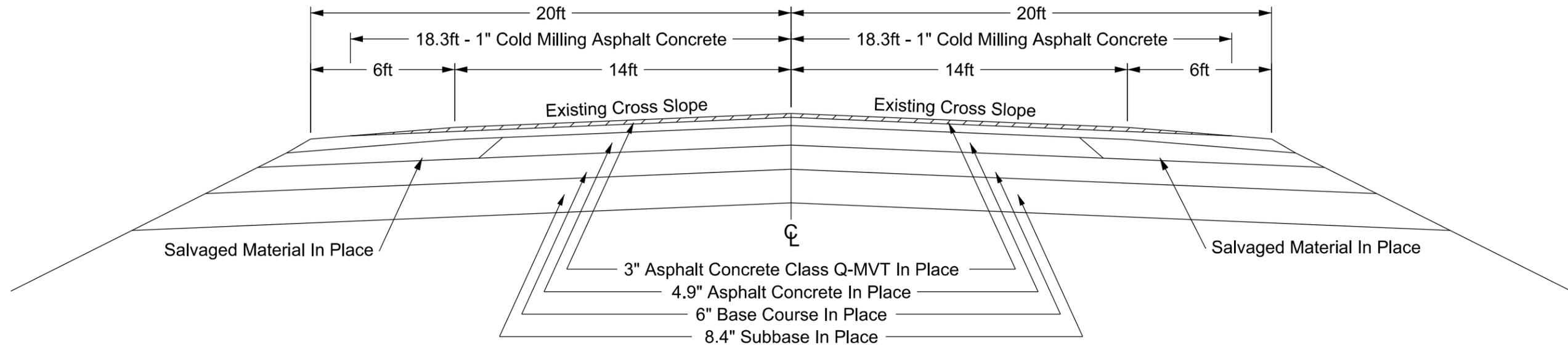
File - ...Typical Sections.dgn

TYPICAL SECTION

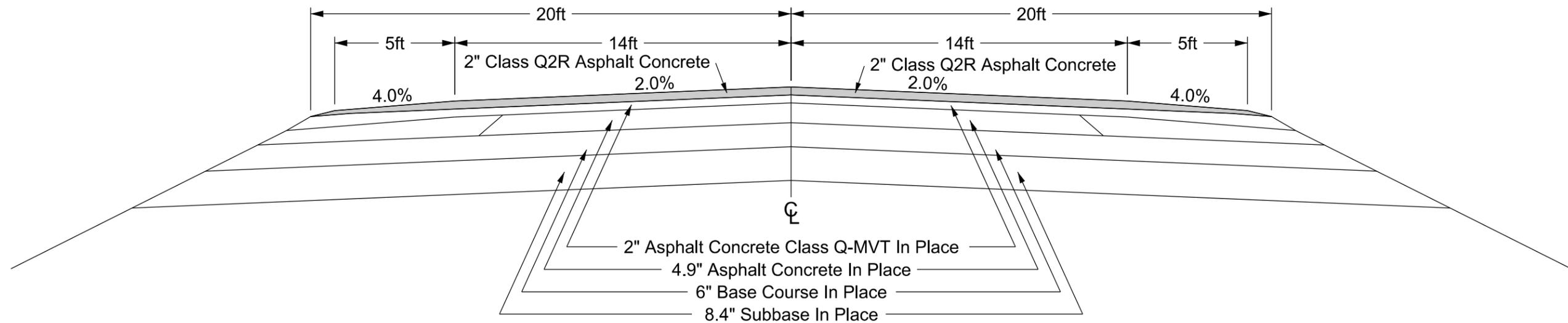
SECTION 4 (US 14)

Sta 367+70.90 (2nd) to Sta 380+20.90 (2nd)

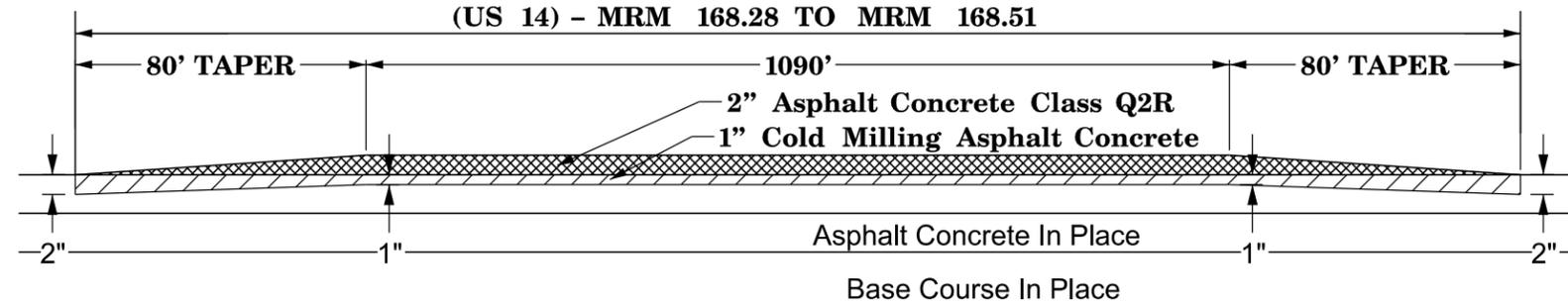
IN PLACE & COLD MILLING ASPHALT CONCRETE SECTION



RESURFACING SECTION



(US 14) - MRM 168.28 TO MRM 168.51



SIDE VIEW

RATES OF MATERIALS – SD 63

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	17	42

SECTION 1 & 2 (per mile)

Station 0+90.00 (1st) to Station 92+00.00 (3rd) (Thru Equations)

General:

Cold Milling Asphalt Concrete is computed at 20,885 Square Yards, applied 35.6 feet wide.

Class Q2R Hot Mixed Asphalt Concrete (2.0" Lift)

The exact proportions of these materials will be determined on construction.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 5.6 ton applied 25 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 5.5 ton applied 37 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q2R Hot Mixed Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 4.0 ton applied 32 feet wide (Rate = 0.05 gallon per square yard).

Provide Sand for Flush Seal at the rate of 52 ton applied 22 feet wide (Rate = 8 pounds per square yard).

Alternative A

Class Q2R Hot Mixed Asphalt Concrete (2.0" Lift)

Aggregate (80% Contractor Furnished)	1,677 Tons
Salvaged Asphalt Concrete (20%)	419 Tons
PG 58-34 Asphalt Binder	103 Tons
TOTAL MIX	2,199 Tons
Hydrated Lime	22 Tons
TOTAL MIX WITH HYDRATED LIME	2,221 Tons

Alternative B

Class Q2R Hot Mixed Asphalt Concrete (2.0" Lift)

Aggregate (80% Contractor Furnished)	1,730 Tons
Salvaged Asphalt Concrete (20%)	433 Tons
PG 58-34 Asphalt Binder	95 Tons
TOTAL MIX	2,258 Tons
Hydrated Lime	23 Tons
TOTAL MIX WITH HYDRATED LIME	2,281 Tons

SECTION 3 (per mile)

Station 92+00.00 (3rd) to Station 13+30 (6th) (Thru Equations)

General:

Cold Milling Asphalt Concrete is computed at 19,360 Square Yards, applied 33.0 feet wide.

Class Q2R Hot Mixed Asphalt Concrete (2.0" Lift)

The exact proportions of these materials will be determined on construction.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 5.6 ton applied 25 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 5.8 ton applied 39 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q2R Hot Mixed Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 4.0 ton applied 32 feet wide (Rate = 0.05 gallon per square yard).

Provide Sand for Flush Seal at the rate of 52 ton applied 22 feet wide (Rate = 8 pounds per square yard).

Alternative A

Class Q2R Hot Mixed Asphalt Concrete (2.0" Lift)

Aggregate (80% Contractor Furnished)	1,720 Tons
Salvaged Asphalt Concrete (20%)	430 Tons
PG 58-34 Asphalt Binder	106 Tons
TOTAL MIX	2,256 Tons
Hydrated Lime	23 Tons
TOTAL MIX WITH HYDRATED LIME	2,279 Tons

Alternative B

Class Q2R Hot Mixed Asphalt Concrete (2.0" Lift)

Aggregate (80% Contractor Furnished)	1,776 Tons
Salvaged Asphalt Concrete (20%)	444 Tons
PG 58-34 Asphalt Binder	97 Tons
TOTAL MIX	2,317 Tons
Hydrated Lime	23 Tons
TOTAL MIX WITH HYDRATED LIME	2,340 Tons

RATES OF MATERIALS – US 14

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	18	42

SECTION 4 (per station)

Station 366+80 (2nd) to Station 379+30 (2nd)

General:

Cold Milling Asphalt Concrete is computed at 407 Square Yards, applied 36.6 feet wide.

Class Q2R Hot Mixed Asphalt Concrete (2.0" Lift)

The exact proportions of these materials will be determined on construction.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.12 ton applied 41 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q2R Hot Mixed Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.09 ton applied 38 feet wide (Rate = 0.05 gallon per square yard).

Provide Sand for Flush Seal at the rate of 1.0 ton applied 22 feet wide for (Rate = 8 pounds per square yard).

Alternative A

Class Q2R Hot Mixed Asphalt Concrete (2.0" Lift)

Aggregate (80% Contractor Furnished)	33.54 Tons
Salvaged Asphalt Concrete (20%)	8.39 Tons
PG 58-34 Asphalt Binder	2.07 Tons
TOTAL MIX	44.00 Tons
Hydrated Lime	0.44 Tons
TOTAL MIX WITH HYDRATED LIME	44.44 Tons

Alternative B

Class Q2R Hot Mixed Asphalt Concrete (2.0" Lift)

Aggregate (80% Contractor Furnished)	34.63 Tons
Salvaged Asphalt Concrete (20%)	8.66 Tons
PG 58-34 Asphalt Binder	1.90 Tons
TOTAL MIX	45.19 Tons
Hydrated Lime	0.45 Tons
TOTAL MIX WITH HYDRATED LIME	45.64 Tons

TABLE OF PROJECT STATIONING

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	19	42

PROJECT STATIONING – SD 63

SECTION	STATION	TO	STATION	DESCRIPTION	RESURFACING LENGTHS	EXCEPTION LENGTH	GROSS PROJECT LENGTHS
	Begin Project		0+00.00 (1st) to 0+90.00 (1st)	SD 63 ~ Rural 2 Lane	-	-	90.00'
1			0+90.00 (1st) to 12+60.00 (1st)	SD 63 ~ Rural 2 Lane	1170.00'	-	1170.00'
Exception			12+60.00 (1st) to 13+00.00 (1st)	Railroad	-	40.00'	40.00'
1			13+00.00 (1st) to 14+14.80 (1st)	SD 63 ~ Rural 2 Lane	114.80'	-	114.80'
Equation			14+14.80 (1st) Bk = 10+00.00 (2nd) Ah	-	-	-	-
1			10+00.00 (2nd) to 12+86.50 (2nd)	SD 63 ~ Rural 2 Lane	286.50'	-	286.50'
Exception			12+86.50 (2nd) to 14+80.25 (2nd)	Approach Pavement Limits	-	193.75'	193.75'
Structure			14+80.25 (2nd) to 17+63.95 (2nd)	Structure No. 28-423-469	-	283.70'	283.70'
Exception			17+63.95 (2nd) to 20+63.95 (2nd)	Approach Pavement Limits	-	300.00'	300.00'
2			20+63.95 (2nd) to 41+64.90 (2nd)	SD 63 ~ Rural 2 Lane	2100.95'	-	2100.95'
Equation			41+64.90 (2nd) Bk = 41+60.90 (3rd) Ah	-	-	-	-
2			41+60.90 (3rd) to 92+00.00 (3rd)	SD 63 ~ Rural 2 Lane	5039.10'	-	5039.10'
3			92+00.00 (3rd) to 238+11.00 (3rd)	SD 63 ~ Rural 2 Lane	14611.00'	-	14611.00'
Equation			238+11.00 (3rd) Bk = 238+00.00 (4th) Ah	-	-	-	-
3			238+00.00 (4th) to 515+00.00 (4th)	SD 63 ~ Rural 2 Lane	27700.00'	-	27700.00'
Equation			515+00.00 (4th) Bk = 516+00.00 (5th) Ah	-	-	-	-
3			516+00.00 (5th) to 688+00.00 (5th)	SD 63 ~ Rural 2 Lane	17200.00'	-	17200.00'
Equation			688+00.00 (5th) Bk = 0+00.00 (6th) Ah	-	-	-	-
3			0+00.00 (6th) to 13+30.00 (6th) End Project	SD 63 ~ Rural 2 Lane	1330.00'	-	1330.00'
TOTALS =					69552.35' 13.173 Miles	817.45' 0.155 Miles	70459.80' 13.328 Miles

PROJECT STATIONING – US 14

SECTION	STATION	TO	STATION	DESCRIPTION	RESURFACING LENGTHS	EXCEPTION LENGTH	GROSS PROJECT LENGTHS
4	Begin Project		367+70.90 (2nd) to 380+20.90 (2nd) End Project	US 14 ~ Rural 2 Lane	1250.00'	-	1250.00'
TOTALS =					1250.00' 0.237 Miles	0.00' 0.000 Miles	1250.00' 0.237 Miles

TABLE OF MATERIAL QUANTITIES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	20	42

MATERIAL QUANTITIES – SD 63

Description	(For Info Only) Water For Granular Material (MGal)	(For Info Only) Water For Embankment (MGal)	Cold Milling Asphalt Concrete (SqYd)	Unclassified Excavation (CuYd)	Contractor Furnished Borrow Excavation (CuYd)	Base Course, Salvaged, State Furnished (Ton)	Base Course (Ton)	Asphalt Concrete Blaid Laid (Ton)	Asphalt Composite Concrete (Ton)	Controlled Density Fill (CuYd)	ALT A	ALT B	ALT A	ALT B	ALT A	ALT B	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
											Class Q2R Hot Mixed Asphalt Concrete (Ton)	Class Q2R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)	Hydrated Lime (Ton)			
Section 1	-	-	6,370	-	-	-	-	-	-	-	677.4	696.0	31.4	29.0	6.7	7.0	1.7	1.2	15.9
Section 2	-	-	28,237	-	-	-	-	-	-	-	3,002.8	3,085.3	139.3	128.4	29.7	31.1	7.4	5.4	70.3
Section 3	-	-	223,085	-	-	-	-	-	-	-	26,260.9	26,963.8	1,221.4	1,117.7	265.0	265.0	66.8	46.1	599.2
Asphalt Concrete Blade Laid	-	-	-	-	-	-	-	1,977.1	-	-	-	-	148.9	148.9	19.8	19.8	73.8	-	-
Table of Additional Quantities Totals	21.4	-	7,464	-	-	898.7	1,334.5	-	-	-	2,017.4	2,035.1	94.5	85.1	20.2	20.4	6.3	0.1	0.7
Table of Cattle Pass Quantities	-	9.8	-	1,045	134	-	196.1	-	71.3	22.5	-	-	-	-	-	-	-	-	-
TOTALS	21.4	9.8	265,156	1,045	134	898.7	1,530.6	1,977.1	71.3	22.5	31,958.5	32,780.2	1,635.5	1,509.1	341.4	343.3	156.0	52.8	686.1

MATERIAL QUANTITIES – US 14

Description	Cold Milling Asphalt Concrete (SqYd)	ALT A	ALT B	ALT A	ALT B	ALT A	ALT B	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
		Class Q2R Hot Mixed Asphalt Concrete (Ton)	Class Q2R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)	Hydrated Lime (Ton)			
Section 4	5,103	556.1	571.1	25.9	23.7	5.5	5.7	1.4	1.1	12.3
Table of Additional Quantities Totals	568	-	-	-	-	-	-	-	-	-
TOTALS	5,103	556.1	571.1	25.9	23.7	5.5	5.7	1.4	1.1	12.3

TABLE OF ADDITIONAL QUANTITIES & TABLE OF CATTLE PASS QUANTITIES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	21	42

TABLE OF ADDITIONAL QUANTITIES - PCN 04EJ

Description	(For Info Only) Water For Granular Material (MGal)	Cold Milling Asphalt Concrete (SqYd)	Unclassified Excavation, Digouts (CuYd)	Base Course, Salvaged, State Furnished (Ton)	Base Course (Ton)	ALT A Haul & Stockpile Granular Material (Ton)	ALT B Haul & Stockpile Granular Material (Ton)	ALT A Class Q2R Hot Mixed Asphalt Concrete (Ton)	ALT B Class Q2R Hot Mixed Asphalt Concrete (Ton)	ALT A PG 58-34 Asphalt Binder (Ton)	ALT B PG 58-34 Asphalt Binder (Ton)	ALT A Hydrated Lime (Ton)	ALT B Hydrated Lime (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
Asphalt to End of ROW																
18 Intersecting Road, Private, Farm, & Commercial Entrances (Refer to "Table of Approaches" sheet for locations)	-	5,760	-	-	-	-	-	645.4	661.8	30.0	27.5	6.4	6.6	1.2	-	-
Asphalt to End of Radius/Salvaged Asphalt Mix to ROW																
1 Commercial Entrance (Refer to "Table of Approaches" sheet for locations)	0.1	-	-	13.7	-	-	-	17.0	17.3	0.8	0.7	0.2	0.2	0.0	-	-
Farm & Field Entrances																
59 Farm & Field, Private, & Commercial Entrances (Refer to "Table of Approaches" sheet for locations)	8.5	-	-	885.0	-	-	-	-	-	-	-	-	-	-	-	-
Haul & Stockpile Cold Milled Asphalt	-	-	-	-	-	7,581.4	7,393.5	-	-	-	-	-	-	-	-	-
US14/SD63 Intersection	-	-	-	-	-	-	-	37.7	38.7	1.8	1.6	0.4	0.4	0.1	0.1	0.7
Spot Leveling, Strengthening, & Repair	-	-	-	-	-	-	-	1,317.3	1,317.3	61.9	55.3	13.2	13.2	5.0	-	-
Cold Milling Transitions at Begin/End Project, Railroad, & Structure Approach Pavement Limits	-	1,704	-	-	-	44.7	44.7	-	-	-	-	-	-	-	-	-
Backfill for Digouts	12.8	-	659	-	1,334.5	-	-	-	-	-	-	-	-	-	-	-
TOTALS =	21.4	7,464	659	898.7	1,334.5	7,626.1	7,438.2	2,017.4	2,035.1	94.5	85.1	20.2	20.4	6.3	0.1	0.7

Quantities for Base Course, Salvage, State Furnished to be placed on approaches and farm & field entrances that are to only have asphalt pads were calculated using 15 tons per entrance.
Tonnage shown in the tables above for Class Q2R Hot Mixed Asphalt Concrete is based on a compacted depth as detailed in the plans.
The quantities above are included in the Material Quantities table in the "Table of Project Stationing and Material Quantities" sheet.

TABLE OF ADDITIONAL QUANTITIES - PCN i4DL

Description	Cold Milling Asphalt Concrete (SqYd)	ALT A Haul & Stockpile Granular Material (Ton)	ALT B Haul & Stockpile Granular Material (Ton)
Haul & Stockpile Cold Milled Asphalt	-	131.2	127.8
Cold Milling Transitions at Begin/End Project	568	14.9	14.9
TOTALS =	568	146.1	142.7

TABLE OF CATTLE PASS QUANTITIES

Description	(For Info Only) Water For Embankment (MGal)	(For Info Only) Water For Granular Material (MGal)	Remove Cattle Pass End Section (Each)	Remove Cattle Pass (Ft)	Unclassified Excavation (CuYd)	(For Info Only) Unclassified Excavation (Asphalt & Base Course) (CuYd)	(For Info Only) Unclassified Excavation (Place Back +30%) (CuYd)	Contractor Furnished Borrow Excavation (CuYd)	Base Course (Ton)	Controlled Density Fill (CuYd)	Composite Asphalt Concrete (Ton)
Removal of Cattle Pass											
Station 53+00 (3rd) MRM 95.00+0.833	9.8	1.9	2	40	1,011	105	975	69	196.1	-	71.3
Plug Cattle Pass											
Station 279+00 (4th) MRM 91.00+0.546	0.5	-	2	-	17	-	50	33	-	11.5	-
Station 317+52 (4th) MRM 90.00+0.800	0.5	-	2	-	17	-	49	32	-	11.0	-
TOTALS =	9.8	1.9	6	40	1,045	105	1,074	134	196.1	22.5	71.3

The quantities above are included in the Material Quantities table in the "Table of Material Quantities" sheet.

SUMMARY OF ASPHALT CONCRETE

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	22	42

Revised by JJR on 08/18/16

SUMMARY OF ASPHALT CONCRETE - SD 63

Location	<u>ALT A</u> Class Q2R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	<u>ALT A</u> Class Q2R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)	<u>ALT B</u> Class Q2R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	<u>ALT B</u> Class Q2R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)
Section 1 (2" Lift) 24' Finished Roadway Width 4' Finished Shoulder w/ 1.8' Bevel	481.7	-	494.7	-
Section 1 Totals =	-	195.7	-	201.3
	481.7	195.7	494.7	201.3
Section 2 (2" Lift) 24' Finished Roadway Width 4' Finished Shoulder w/ 1.8' Bevel	2,134.6	-	2,192.3	-
Section 2 Totals =	-	868.2	-	893.0
	2,134.6	868.2	2,192.3	893.0
Section 3 (2" Lift) 24' Finished Roadway Width 4' Finished Shoulder w/ 2.7' Bevel	18,189.0	-	18,680.6	-
Section 3 Totals =	-	8,071.9	-	8,283.2
	18,189.0	8,071.9	18,680.6	8,283.2
Table of Additional Quantities Totals =	20.0	1,997.4	20.4	2,014.7
TOTALS =	20,825.3	11,133.2	21,388.0	11,392.2

SUMMARY OF ASPHALT CONCRETE - US 14

Location	<u>ALT A</u> Class Q2R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	<u>ALT A</u> Class Q2R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)	<u>ALT B</u> Class Q2R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	<u>ALT B</u> Class Q2R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)
Section 4 (2" Lift) 24' Finished Roadway Width 7' Finished Shoulder w/ 1' Bevel	373.7	-	383.8	-
Section 4 Totals =	-	182.4	-	187.3
	373.7	182.4	383.8	187.3
TOTALS =	373.7	182.4	383.8	187.3

TABLE OF SUPERELEVATED CURVES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	23	42

<u>Station</u>	<u>To</u>	<u>Station</u>	<u>Remarks</u>	98+70.30 (3rd)	103+89.70 (3rd)	3°00'00" Curve Rt. 0.060 Superelevation Rate Point of Roatation - 12' Rt. of Centerline
		Begin Project				
0+90.00 (1st)		1+16.00 (1st)	Normal Crown Section	103+89.70 (3rd)	107+89.70 (3rd)	Superelevation Transition
1+16.00 (1st)		2+28.00 (1st)	Superelevation Transition	107+89.70 (3rd)	132+55.70 (3rd)	Normal Crown Section
2+28.00 (1st)		7+39.90 (1st)	1°00'00" Curve Lt. 0.024 Superelevation Rate Point of Roatation - 12' Lt. of Centerline	132+55.70 (3rd)	136+35.70 (3rd)	Superelevation Transition
7+39.90 (1st)		8+51.90 (1st)	Superelevation Transition	136+35.70 (3rd)	143+78.70 (3rd)	3°00'00" Curve Lt. 0.060 Superelevation Rate Point of Roatation - 12' Lt. of Centerline
8+51.90 (1st)		14+14.80 (1st)	Normal Crown Section	143+78.70 (3rd)	147+78.70 (3rd)	Superelevation Transition
		Equation Station 14+14.80 (1st) BK = Station 10+00.00 (2nd) AH		147+78.70 (3rd)	157+32.90 (3rd)	Normal Crown Section
10+00.00 (2nd)		26+80.50 (2nd)	Normal Crown Section	157+32.90 (3rd)	161+32.90 (3rd)	Superelevation Transition
26+80.50 (2nd)		29+80.50 (2nd)	Superelevation Transition	161+32.90 (3rd)	168+15.80 (3rd)	3°00'00" Curve Rt. 0.060 Superelevation Rate Point of Roatation - 12' Rt. of Centerline
29+80.50 (2nd)		38+13.00 (2nd)	2°00'00" Curve Rt. 0.050 Superelevation Rate Point of Roatation - 12' Rt. of Centerline	168+15.80 (3rd)	172+16.80 (3rd)	Superelevation Transition
38+13.00 (2nd)		41+13.00 (2nd)	Superelevation Transition	172+16.80 (3rd)	206+91.50 (3rd)	Normal Crown Section
41+13.00 (2nd)		41+64.90 (2nd)	Normal Crown	206+91.50 (3rd)	208+03.50 (3rd)	Superelevation Transition
		Equation Station 41+64.90 (2nd) BK = Station 41+60.90 (3rd) AH		208+03.50 (3rd)	212+45.40 (3rd)	0°30'00" Curve Lt. 0.020 Superelevation Rate Point of Roatation - 12' Lt. of Centerline
41+60.90 (3rd)		69+42.80 (3rd)	Normal Crown Section	212+45.40 (3rd)	213+57.40 (3rd)	Superelevation Transition
69+42.80 (3rd)		73+42.80 (3rd)	Superelevation Transition	213+57.40 (3rd)	238+11.00 (3rd)	Normal Crown Section
73+42.80 (3rd)		78+78.40 (3rd)	3°00'00" Curve Lt. 0.060 Superelevation Rate Point of Roatation - 12' Lt. of Centerline			
				Equation Station 238+11.00 (3rd) BK = Station 238+00.00 (4th) AH		
78+78.40 (3rd)		82+78.40 (3rd)	Superelevation Transition	238+00.00 (4th)	254+15.20 (4th)	Normal Crown Section
82+78.40 (3rd)		94+70.30 (3rd)	Normal Crown Section	254+15.20 (4th)	257+15.20 (4th)	Superelevation Transition
94+70.30 (3rd)		98+70.30 (3rd)	Superelevation Transition			

TABLE OF SUPERELEVATED CURVES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	24	42

257+15.20 (4th)	263+56.00 (4th)	2°00'00" Curve Lt. 0.050 Superelevation Rate Point of Roatation - 12' Lt. of Centerline	516+00.00 (5th)	645+15.30 (5th)	Normal Crown Section
			645+15.30 (5th)	646+27.30 (5th)	Superelevation Transition
263+56.00 (4th)	266+56.00 (4th)	Superelevation Transition	646+27.30 (5th)	650+75.80 (5th)	0°30'00" Curve Lt. 0.020 Superelevation Rate Point of Roatation - 12' Lt. of Centerline
266+56.00 (4th)	269+97.80 (4th)	Normal Crown Section			
269+97.80 (4th)	271+20.80 (4th)	Superelevation Transition	650+75.80 (5th)	651+87.80 (5th)	Superelevation Transition
271+20.80 (4th)	284+09.40 (4th)	0°45'00" Curve Rt. 0.024 Superelevation Rate Point of Roatation - 12' Rt. of Centerline	651+87.80 (5th)	688+00.00 (5th)	Normal Crown Section
			Equation Station 688+00.00 (5th) BK = Station 0+00.00 (6th) AH		
284+09.40 (4th)	285+32.40 (4th)	Superelevation Transition	0+00.00 (6th)	1+00.80 (6th)	Normal Crown Section
285+32.40 (4th)	310+54.00 (4th)	Normal Crown Section	1+00.80 (6th)	4+50.80 (6th)	Superelevation Transition
310+54.00 (4th)	312+10.00 (4th)	Superelevation Transition	4+50.80 (6th)	13+00.80 (6th)	2°30'00" Curve Lt. 0.056 Superelevation Rate Point of Roatation - 12' Lt. of Centerline
312+10.00 (4th)	333+46.30 (4th)	1°15'00" Curve Lt. 0.036 Superelevation Rate Point of Roatation - 12' Lt. of Centerline	13+00.80 (6th)	16+50.80 (6th)	Superelevation Transition
333+46.30 (4th)	335+02.30 (4th)	Superelevation Transition			End Project at Station 13+30.00
335+02.30 (4th)	346+52.80 (4th)	Normal Crown Section			
346+52.80 (4th)	351+52.80 (4th)	Superelevation Transition			
351+52.80 (4th)	355+29.50 (4th)	4°00'00" Curve Rt. 0.060 Superelevation Rate Point of Roatation - 12' Rt. of Centerline			
355+29.50 (4th)	360+29.50 (4th)	Superelevation Transition			
360+29.50 (4th)	515+00.00 (4th)	Normal Crown Section			

Equation Station 515+00.00 (4th) BK = Station 516+00.00 (5th) AH

FIXED LOCATION SIGN LAYOUT

JONES COUNTY
HAAKON COUNTY



JONES COUNTY
JACKSON COUNTY

BEGIN P 0063(47)83

Station 0+00 (1st) = 375+20.90 on F 026-3(1)
MRM 96.93
Approximately 1074 feet east and 1872 feet north
of the S.W. corner of Section 6, Township 1 North,
Range 25 East of the B.H.M.

BEGIN RESURFACING

Station 0+90 (1st)

END P 0063(47)83

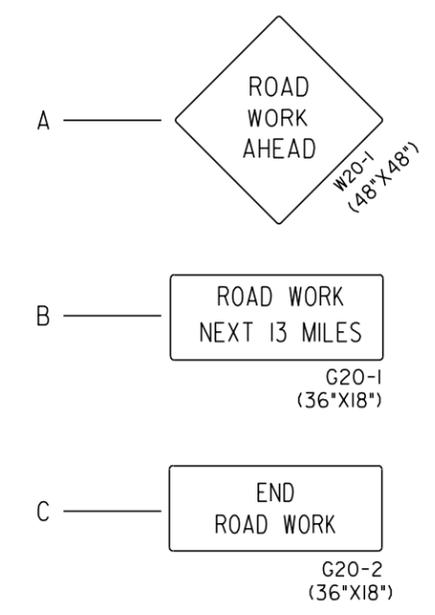
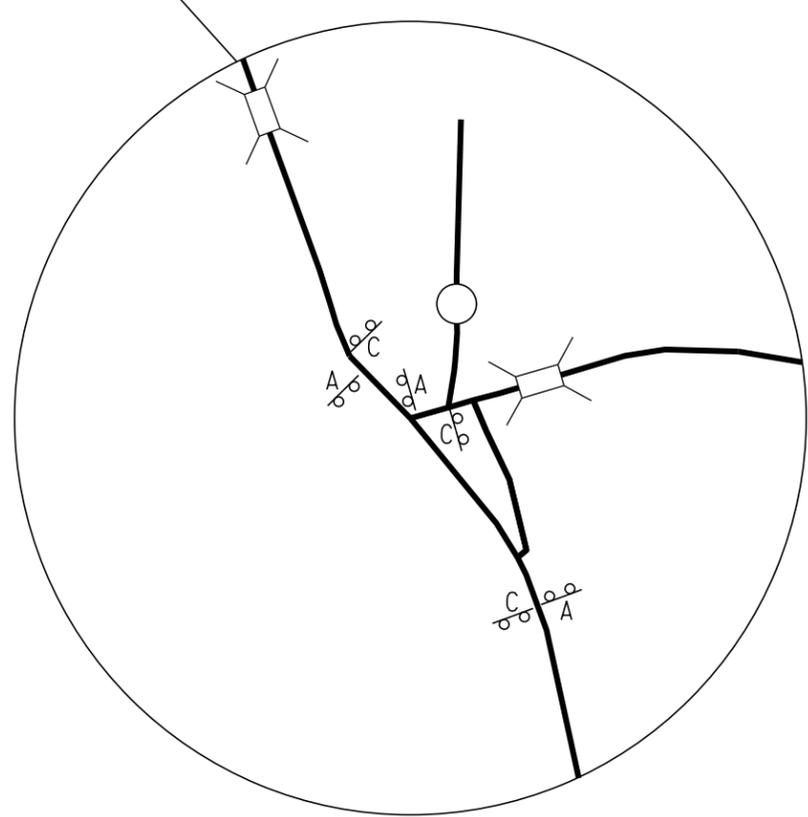
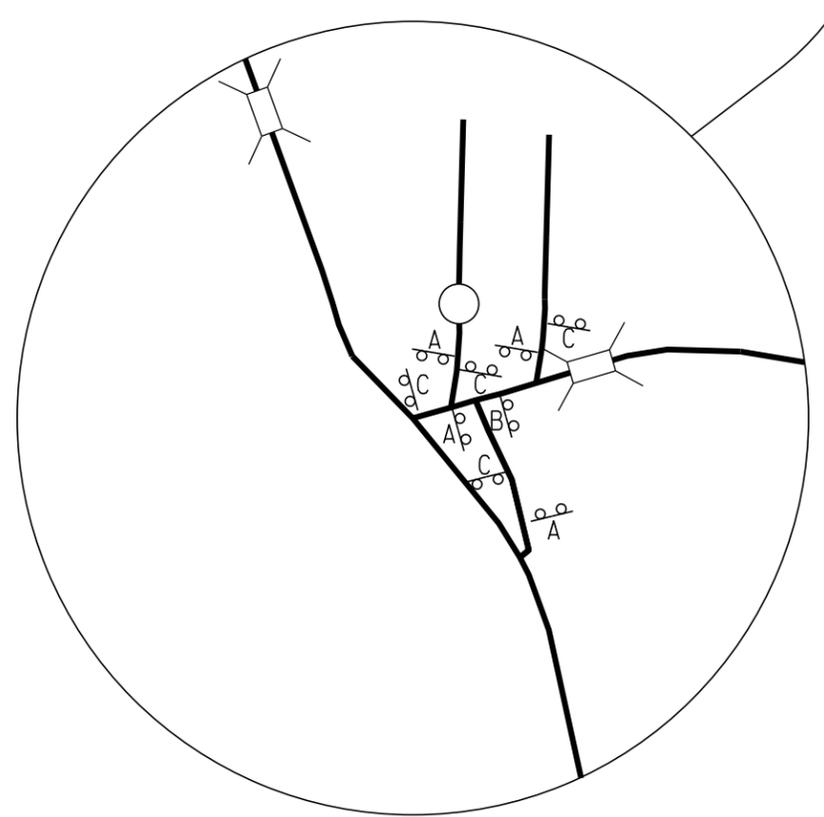
Station 13+30.00 (6th) on P 0063(26)83
MRM 83.53
Approximately 478 feet east and 1126 feet north
of the S.W. corner of Section 9, Township 2 South,
Range 25 East of the B.H.M.

END RESURFACING

Station 13+30.00 (6th)

Traffic Control Signs For SD 63

Traffic Control Signs For US 14



Notes:
Sign locations will be verified in the field by the
Engineer prior to installation.

Fixed location signs to remain in place until the
completion of permanent pavement markings.

PROJECT SIGN & PAINT TABULATION

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	26	42

Itemized List for Traffic Control Signs

P 0063(47)83 PCN 04EJ:

P 0063(47)83 PCN 04EJ:

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	2	30"	5.2	10.4
W1-4	REVERSE CURVE (L or R)	1	48" x 48"	16.0	16.0
W3-1	STOP AHEAD (symbol)	2	48" x 48"	16.0	32.0
W8-1	BUMP	8	48" x 48"	16.0	128.0
W8-7	LOOSE GRAVEL	2	48" x 48"	16.0	32.0
W8-11	UNEVEN LANES	2	48" x 48"	16.0	32.0
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6
W16-2P	___ FEET (supplemental distance plaque)	2	30" x 24"	5.0	10.0
W20-1	ROAD WORK AHEAD	12	48" x 48"	16.0	192.0
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-2	FRESH OIL	8	48" x 48"	16.0	128.0
W21-5	SHOULDER WORK	4	48" x 48"	16.0	64.0
G20-1	ROAD WORK NEXT ___ MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	11	36" x 18"	4.5	49.5
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT		811.5			

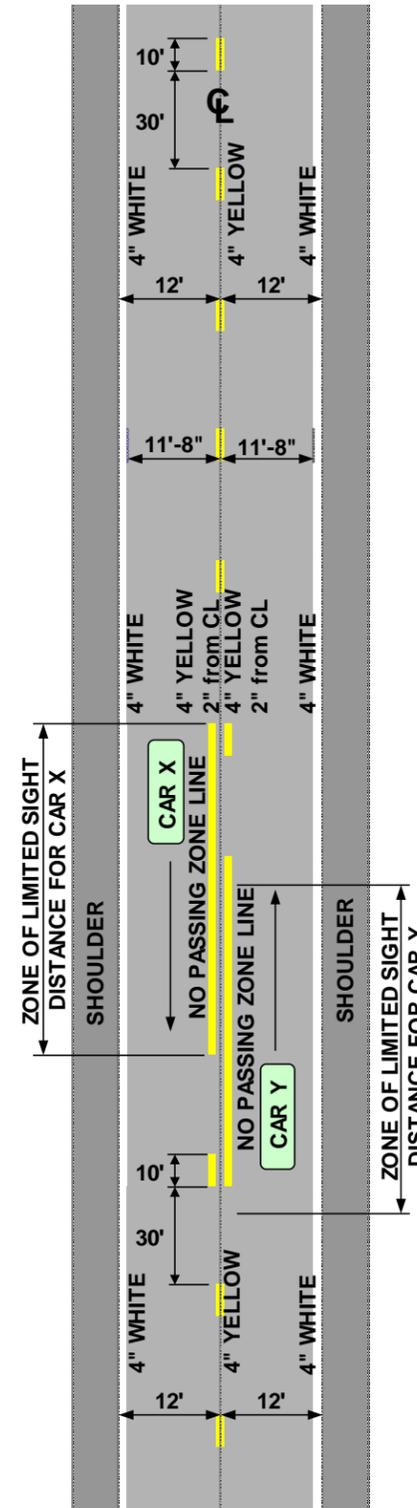
TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	1 Each

014-352 PCN i4DL:

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-1	BUMP	2	48" x 48"	16.0	32.0
W8-11	UNEVEN LANES	2	48" x 48"	16.0	32.0
W16-2P	___ FEET (supplemental distance plaque)	2	30" x 24"	5.0	10.0
W20-1	ROAD WORK AHEAD	5	48" x 48"	16.0	80.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	5	36" x 18"	4.5	22.5
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT		272.5			

TWO LANE ROADWAY



PAVEMENT MARKING

Typical pavement marking as shown on this sheet shall be applied throughout the entire length of undivided roadway.

Traffic Control shall be incidental to the cost of application. The striping and advance or trailing warning vehicle shall be equipped with flashing amber lights and advance warning arrow board.

Exact location of NO PASSING ZONE lines will be determined in the field by the Engineer. A dash of white paint will mark the beginning and end of all no passing zones. NO PASSING ZONE signs and the ending post in fence lines, if present, shall not be used as the beginning and ending of NO PASSING ZONE lines.

Application rates shall be as follows:

Four Lane Roadway (Rates for one line)	Two Lane Roadway
Solid Yellow Centerline Rate = 16.90 Gals./Pass-Mile	Yellow Centerline (Includes No Passing Zones) Rate = 12± Gals./Pass-Mile
Dashed White Laneline Rate = 4.60 Gals./Pass-Mile	Solid White Edgeline (Rate for one line) Rate = 16.90 Gals./Pass-Mile
Solid White Edgeline (Not applicable in curb & gutter section) Rate = 16.90 Gals./Pass-Mile	

Paint	QUANTITY
WHITE	445 GALLONS
YELLOW	153 GALLONS

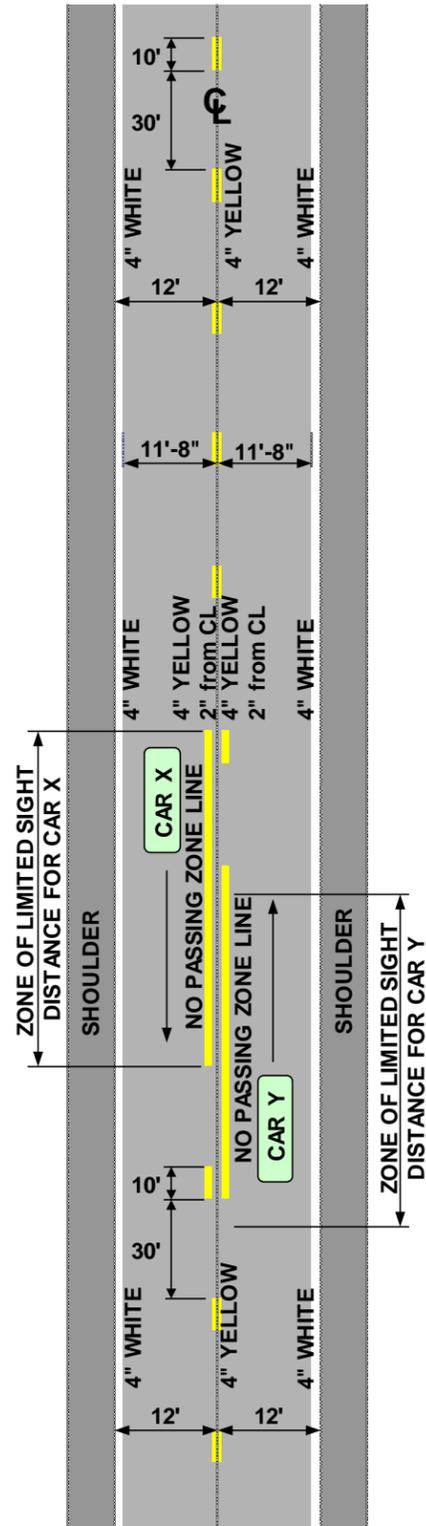
NOTE: All pavement marking dimensions are based on 12' driving lanes.

PROJECT SIGN & PAINT TABULATION

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	27	42

014-352 PCN i4DL:

TWO LANE ROADWAY



PAVEMENT MARKING

Typical pavement marking as shown on this sheet shall be applied throughout the entire length of undivided roadway.

Traffic Control shall be incidental to the cost of application. The striper and advance or trailing warning vehicle shall be equipped with flashing amber lights and advance warning arrow board.

Exact location of NO PASSING ZONE lines will be determined in the field by the Engineer. A dash of white paint will mark the beginning and end of all no passing zones. NO PASSING ZONE signs and the ending post in fence lines, if present, shall not be used as the beginning and ending of NO PASSING ZONE lines.

Application rates shall be as follows:

Four Lane Roadway (Rates for one line)	Two Lane Roadway
<u>Solid Yellow Centerline</u> Rate = 16.90 Gals./Pass-Mile	<u>Yellow Centerline</u> (Includes No Passing Zones) Rate = 12± Gals./Pass-Mile
<u>Dashed White Laneline</u> Rate = 4.60 Gals./Pass-Mile	<u>Solid White Edgeline</u> (Rate for one line) Rate = 16.90 Gals./Pass-Mile
<u>Solid White Edgeline</u> (Not applicable in curb & gutter section) Rate = 16.90 Gals./Pass-Mile	

Paint	QUANTITY
WHITE	8 GALLONS
YELLOW	5 GALLONS

NOTE: All pavement marking dimensions are based on 12' driving lanes.

TABLE OF APPROACHES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0063(47)83 & 014-352	28	42

APPROACH NUMBER	MRM	LEFT OR RIGHT	COMMENTS
1	83.589	Rt	Commercial Entrance (1880 Town), Apshalt to R.O.W.
2	83.589	Lt	Parking Lot Entrance, Gravel
3	83.646	Rt	Commercial Entrance (1880 Town), Apshalt to R.O.W.
4	83.646	Lt	Parking Lot Entrance, Gravel
5	83.955	Rt	Field Entrance, Gravel
6	83.955	Lt	Private Entrance, Asphalt to R.O.W.
7	84.141	Lt	Commercial Entrance (KOA Campground), Apshalt to R.O.W.
8	84.180	Lt	Field Entrance, Gravel
9	84.385	Lt & Rt	Intersecting Road, Asphalt to R.O.W.
10	84.520	Lt	Field Entrance, Gravel
11	84.889	Rt	Field Entrance, Gravel
12	85.160	Lt	Field Entrance, Gravel
13	85.378	Rt	Field Entrance, Gravel
14	85.504	Rt	Farm Entrance, Asphalt to R.O.W.
15	85.875	Lt & Rt	Field Entrance, Gravel
16	86.237	Rt	Field Entrance, Gravel
17	86.265	Lt	Field Entrance, Gravel
18	86.372	Rt	Field Entrance, Gravel
19	86.372	Lt	Intersecting Road, Asphalt to R.O.W.
20	86.577	Rt	Field Entrance, Gravel
21	86.965	Rt	Field Entrance, Gravel
22	87.256	Lt & Rt	Field Entrance, Gravel
23	87.624	Lt & Rt	Field Entrance, Gravel
24	87.707	Lt	Field Entrance, Gravel
25	87.928	Rt	Farm Entrance, Asphalt to R.O.W.

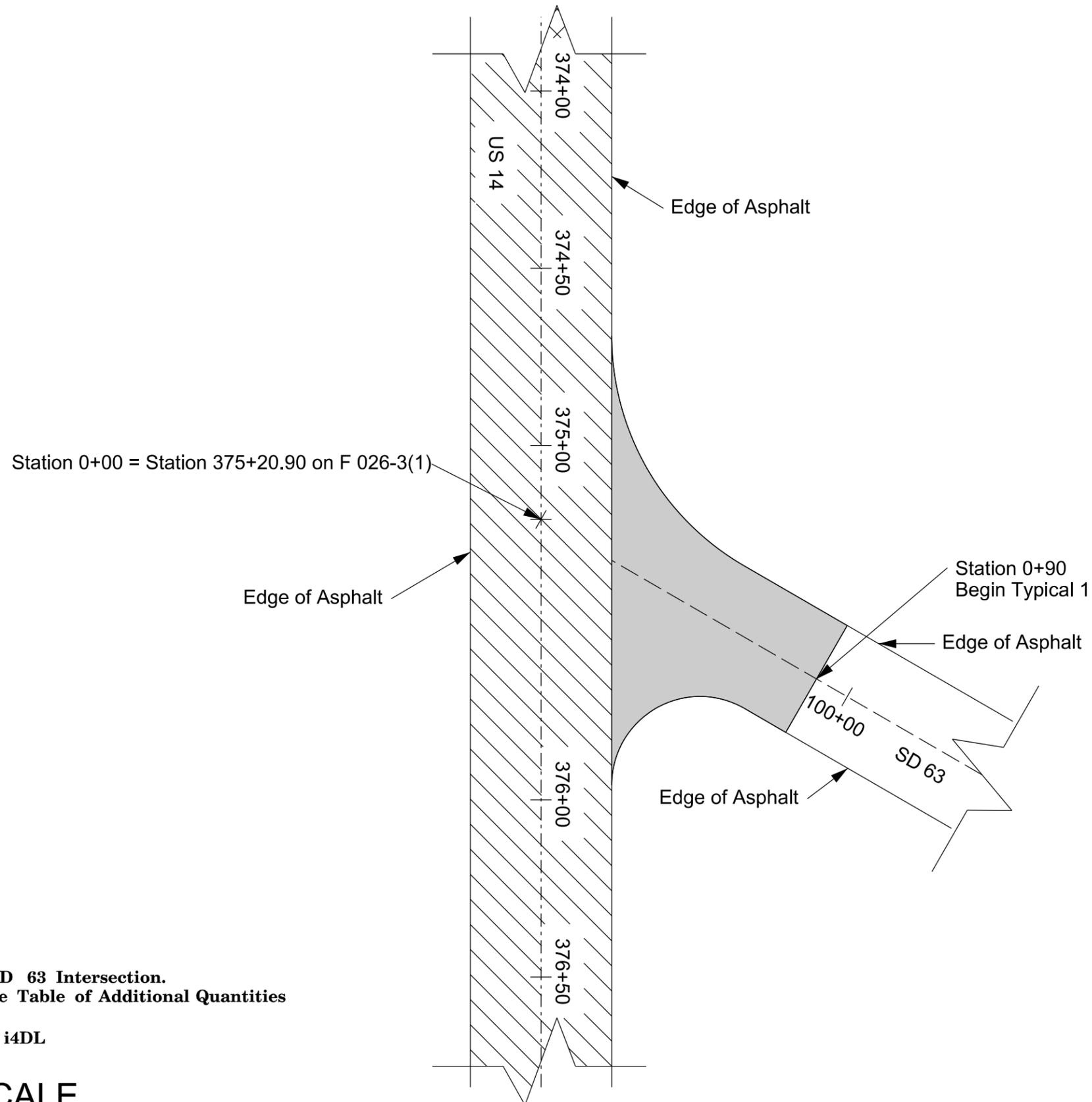
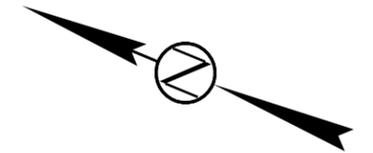
APPROACH NUMBER	STATION	LEFT OR RIGHT	COMMENTS
26	88.162	Lt	Field Entrance, Gravel
27	88.367	Lt & Rt	Field Entrance, Gravel
28	88.633	Lt	Field Entrance, Gravel
29	88.880	Lt	Field Entrance, Gravel
30	89.029	Rt	Field Entrance, Gravel
31	89.362	Rt	Intersecting Road (Church Rd.), Asphalt to R.O.W.
32	89.362	Rt	Field Entrance, Gravel
33	89.731	Lt & Rt	Field Entrance, Gravel
34	89.862	Lt	Farm Entrance, Gravel
35	90.064	Rt	Field Entrance, Gravel
36	90.751	Lt & Rt	Field Entrance, Gravel
37	90.976	Rt	Field Entrance, Gravel
38	90.976	Lt	Intersecting Road, Asphalt to R.O.W.
39	91.616	Lt	Field Entrance, Gravel
40	91.720	Rt	Field Entrance, Gravel
41	91.749	Lt	Intersecting Road, Asphalt to R.O.W.
42	92.127	Rt	Intersecting Road, Asphalt to R.O.W.
43	92.127	Lt	Field Entrance, Gravel
44	92.814	Lt & Rt	Field Entrance, Gravel
45	92.995	Lt & Rt	Field Entrance, Gravel
46	93.199	Lt	Field Entrance, Gravel
47	93.502	Rt	Field Entrance, Gravel
48	93.707	Lt	Field Entrance, Gravel
49	94.034	Lt	Intersecting Road, Asphalt to R.O.W.
50	94.051	Rt	Field Entrance, Gravel

APPROACH NUMBER	STATION	LEFT OR RIGHT	COMMENTS
51	94.320	Lt	Field Entrance, Gravel
52	94.531	Lt	Field Entrance, Gravel
53	94.928	Rt	Field Entrance, Gravel
54	95.079	Lt	Field Entrance, Gravel
55	95.341	Lt & Rt	Field Entrance, Gravel
56	95.592	Rt	Field Entrance, Gravel
57	95.904	Lt & Rt	Field Entrance, Gravel
58	96.050	Rt	Commercial Entrance (Dump), Asphalt to Radius
59	96.050	Lt	Field Entrance, Gravel
60	96.313	Rt	Field Entrance, Gravel
61	96.314	Lt	Field Entrance, Gravel
62	96.661	Rt	Residential Entrance, Asphalt to R.O.W.
63	96.661	Lt	Field Entrance, Gravel
64	96.698	Rt	Intersecting Road (Northwestern Ave.), Asphalt to R.O.W.
65	96.709	Lt	Commercial Entrance (Grain Elevator), Gravel
66	96.755	Lt	Intersecting Road, Asphalt to R.O.W.
67	96.796	Rt	Intersecting Road (Main St.), Asphalt to R.O.W.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0063(47)83 & 014-352	29	42

Plotting Date: 08/17/2016

Layout of US 14/SD 63 Intersection



LEGEND

- Limits of Work for the SD 63 Intersection.
Quantities Located in the Table of Additional Quantities
- Limits of Work for PCN i4DL

DRAWING NOT TO SCALE

Plot Scale - 1:34,0313

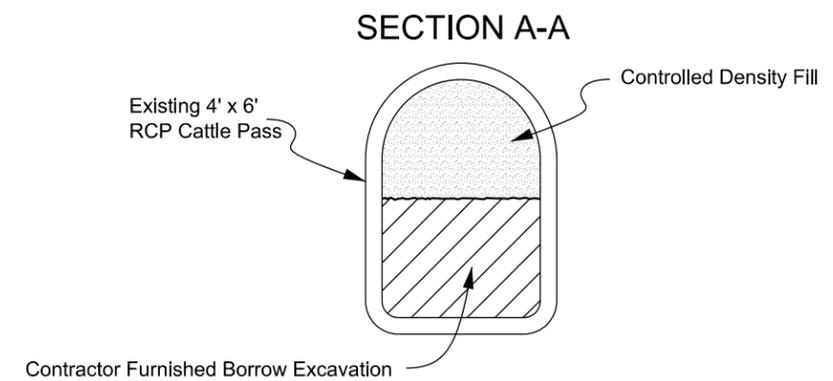
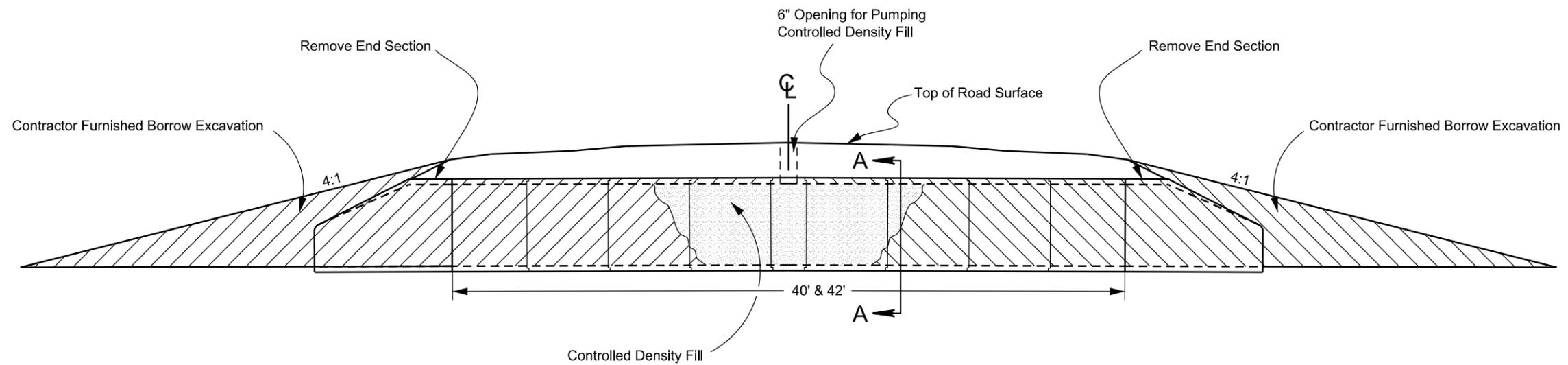
Plotted From - tpr25584

File - ...US 14-SD 63 Intersection.dgn

LAYOUT FOR PLUGGING EXISTING RC CATTLE PASS

MRM 90.00+0.800 (Station 317+52) & MRM 91.00+0.546 (station 279+00)

-  CONTRACTOR FURNISHED BORROW EXCAVATION
(Informational Quantities Based On Filling 2/3 Of The Void Within The Cattle Pass)
-  CONTROLLED DENSITY FILL
(Informational Quantities Based On Filling 1/3 Of The Void Within The Cattle Pass)

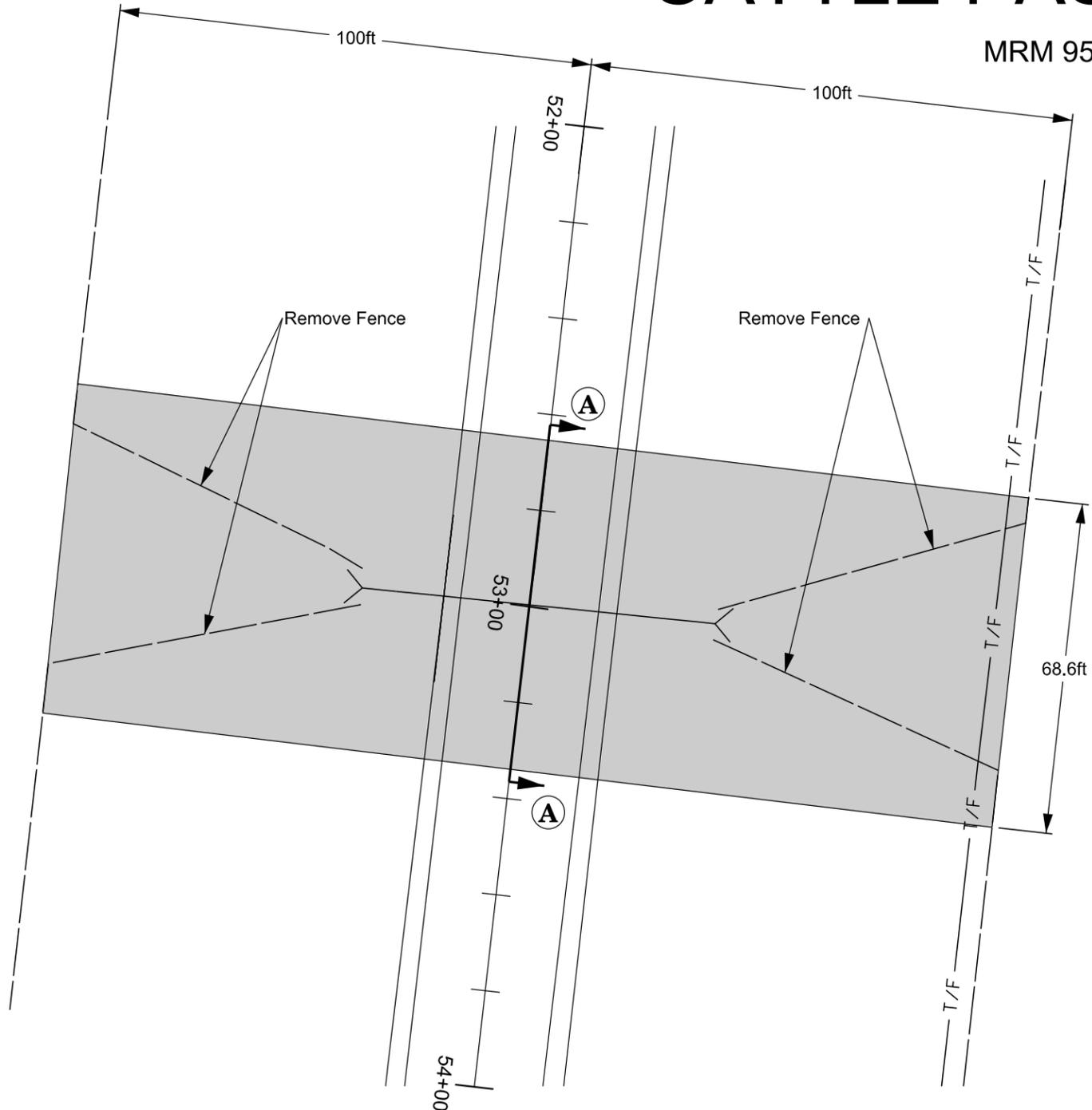


NOTE:

- Contractor shall match the existing roadway inslope to the satisfaction of the Engineer.
- Refer to plan notes for plugging the remaining void throughout the cattle pass.
- Refer to the plans for quantities.

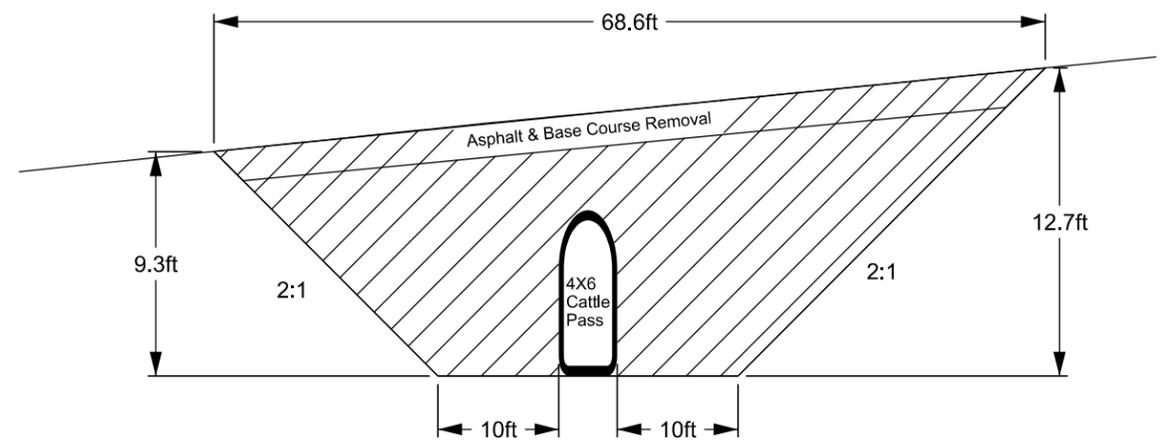
CATTLE PASS REMOVAL

MRM 95.00+0.833

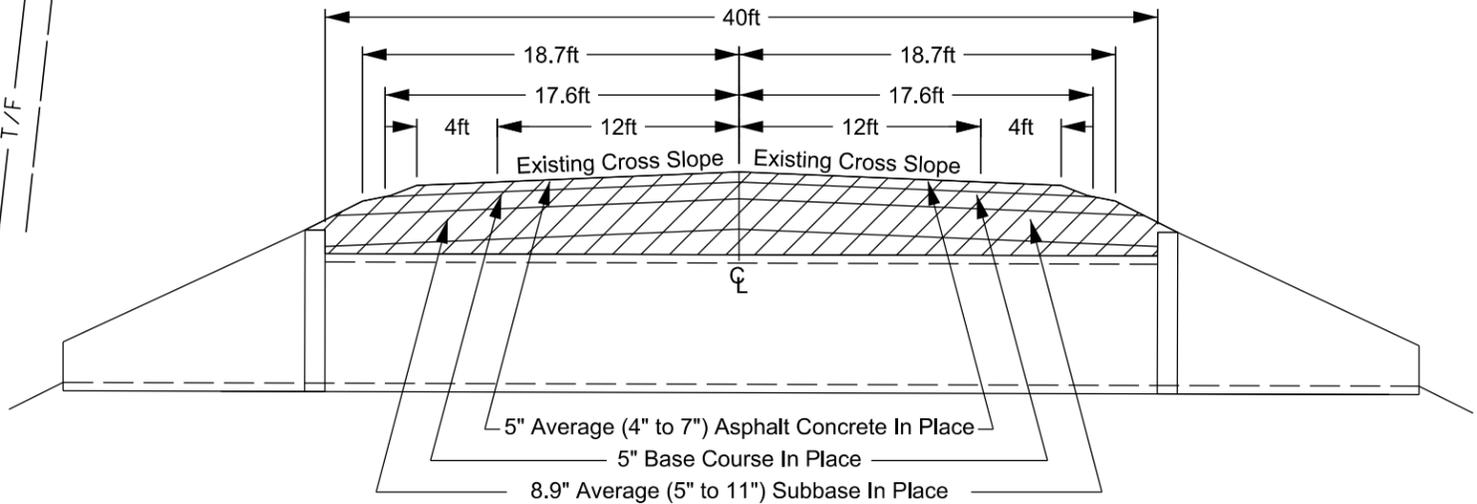


Plan View

- LEGEND**
- Limits of Work
 - Unclassified Excavation
 - R.O.W. Fence
 - T/F Telephone Fiber Cable



Section A-A



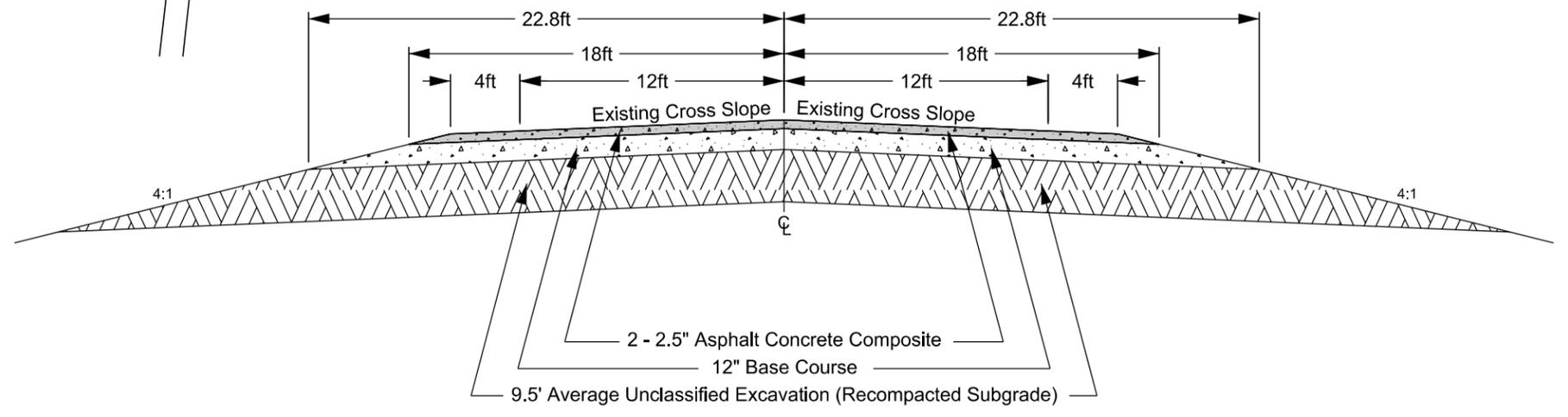
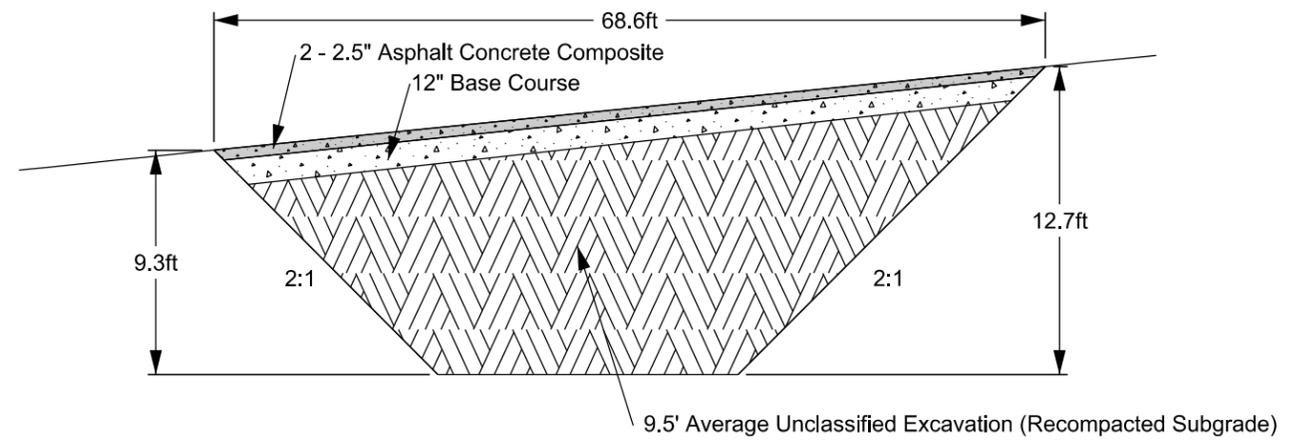
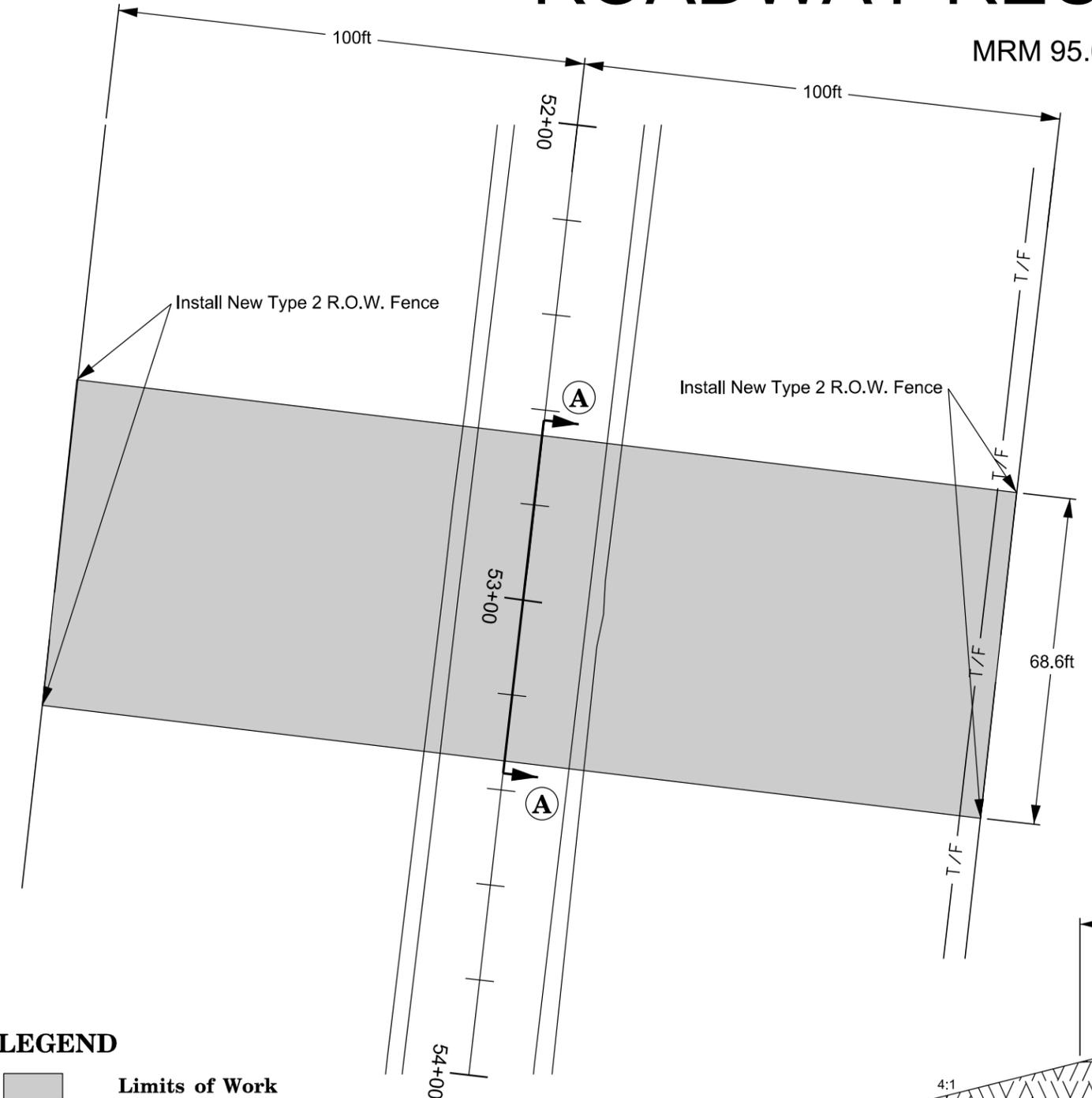
Existing Typical Section

Plot Scale - 1:24,687.5
Plotted From - trp25584

File - ...Cattle Pass Removal_2D.dgn

ROADWAY RECONSTRUCTION

MRM 95.00+0.833



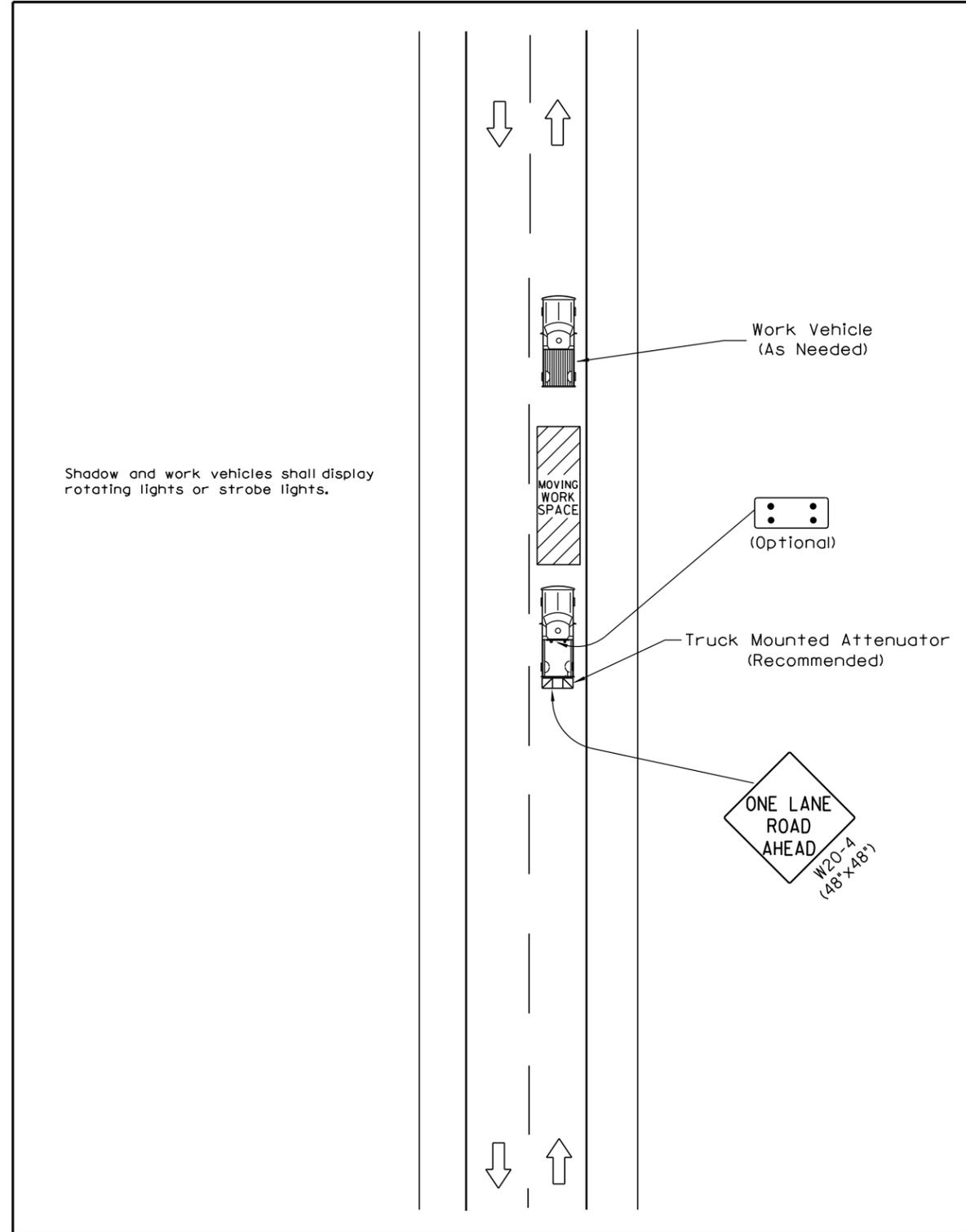
- LEGEND**
- Limits of Work
 - Asphalt Concrete Composite
 - Base Course
 - Unclassified Excavation (Recompacted Subgrade)
 - R.O.W. Fence
 - Telephone Fiber Cable

Plot Scale - 1:24,687.5
trp25584
Plotted From -

File - ...Cattle Pass Removal_2D.dgn

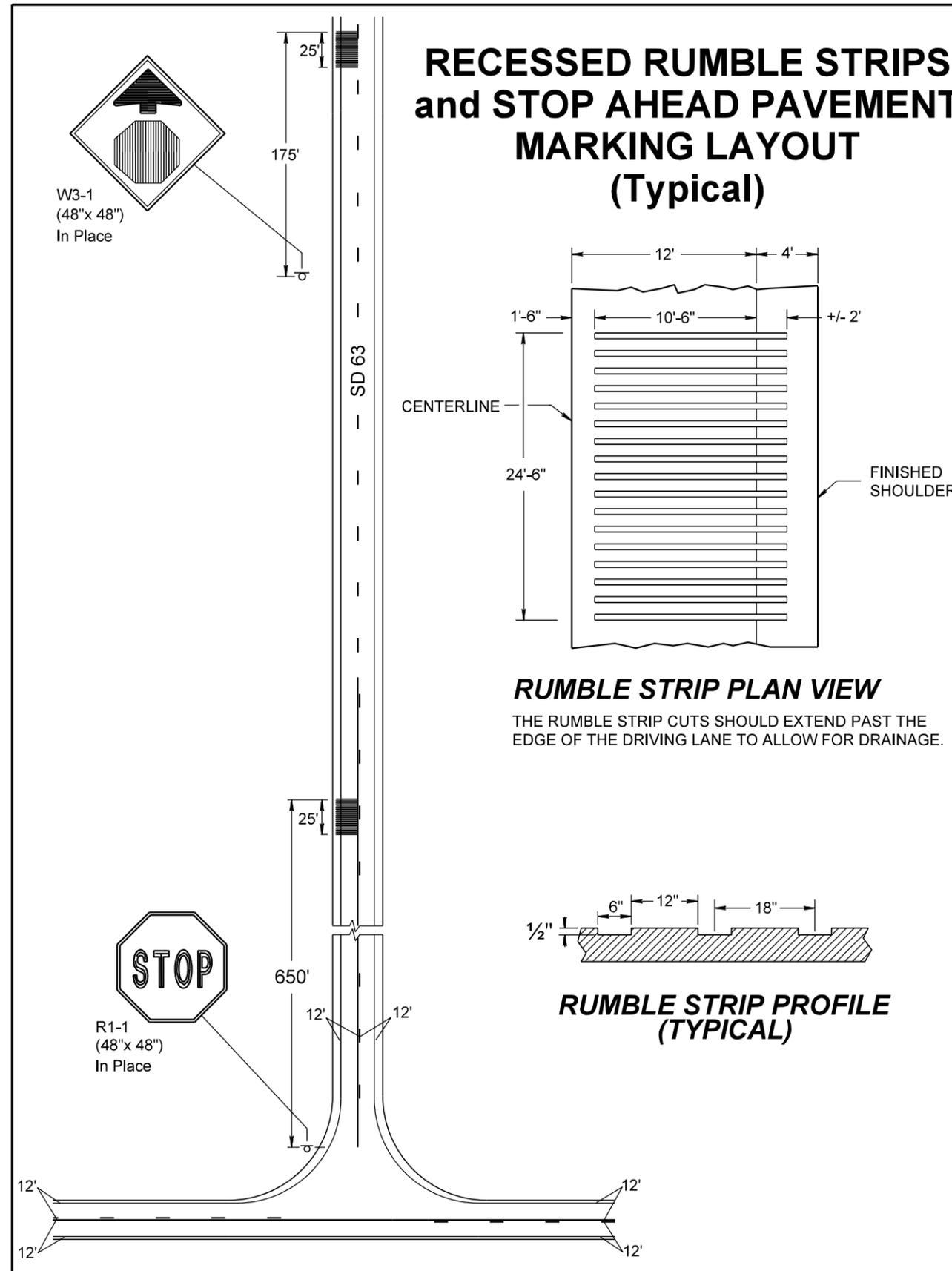
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0063(47)83 & 014-352	33	42

SPECIAL DETAIL FOR MOBILE OPERATION FOR ASPHALT CORING

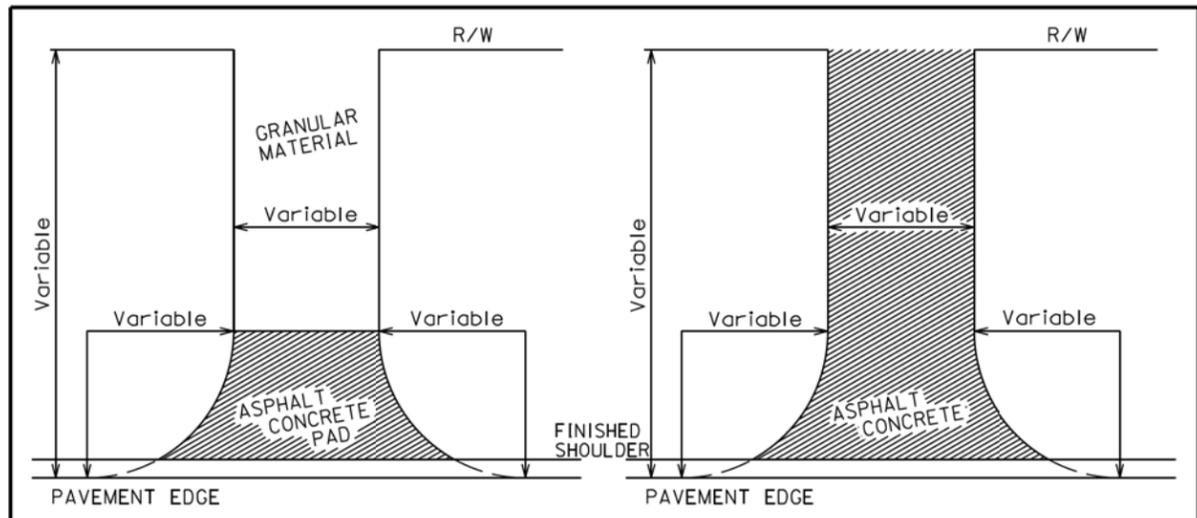


STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0063(47)83 & 014-352	34	42

DETAIL FOR IN-LANE RUMBLE STRIPS US14 & SD63 INTERSECTION

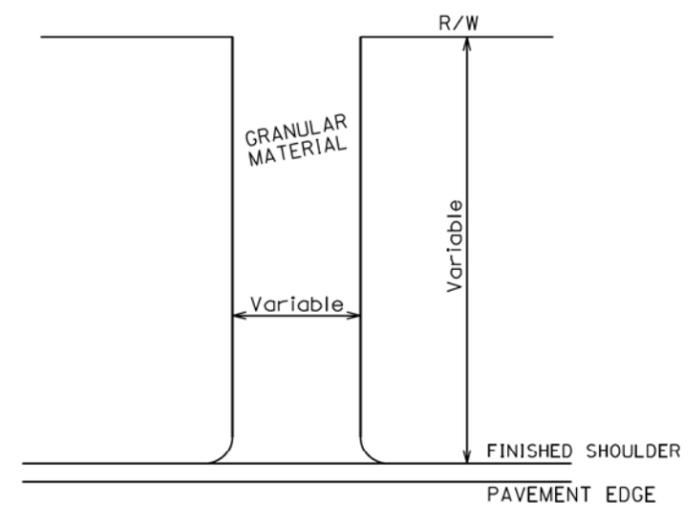


Plotting Date: 08/18/2016



INTERSECTING ROAD
NO ASPHALT CONCRETE SURFACING
BEYOND R/W

INTERSECTING ROAD
ASPHALT CONCRETE SURFACING
BEYOND R/W



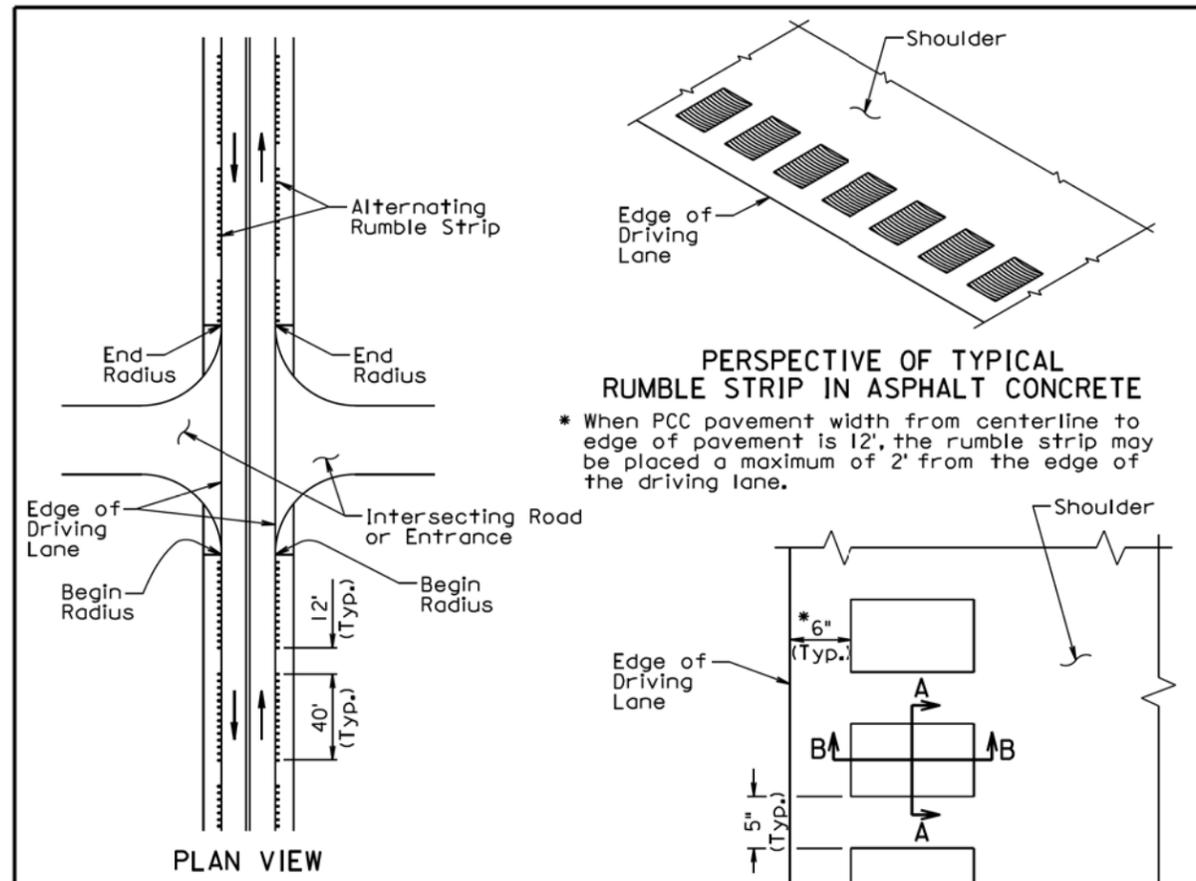
ENTRANCE

The surfacing details shown on this sheet are provided as a guide for surfacing these facilities. The precise construction limits for situations other than the standards shown will be determined by the Engineer, at the time of construction.

ROADWAY WITH SHOULDER

March 31, 2000

Published Date: 3rd Qtr. 2016	S D D O T	RESURFACING OF INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 320.11
			Sheet 1 of 1



PERSPECTIVE OF TYPICAL RUMBLE STRIP IN ASPHALT CONCRETE

* When PCC pavement width from centerline to edge of pavement is 12', the rumble strip may be placed a maximum of 2' from the edge of the driving lane.

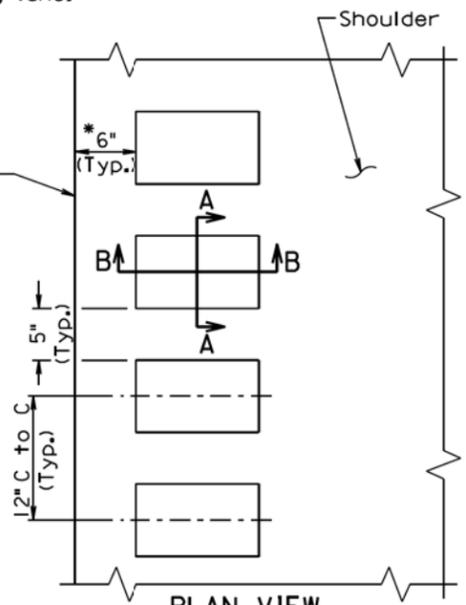
GENERAL NOTES:

A rumble strip shall be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble strip shall receive a flush seal with the shoulder flush sealing or asphalt surface treatment.

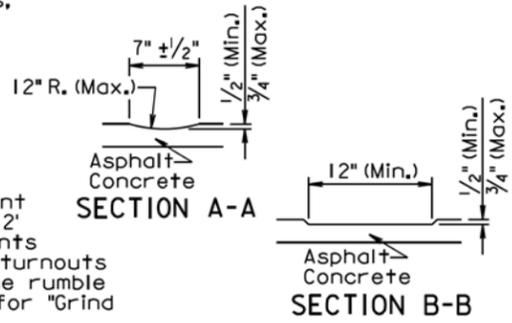
A rumble strip shall not be constructed through intersecting roads, entrances, and turnouts. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble strip adjacent to the intersecting roads, entrances, and turnouts shall be adjusted as approved by the Engineer.

Prior to constructing the rumble strip the Contractor shall submit to the Engineer, for approval, the proposed method of constructing the rumble strip.

Measurement of the rumble strip shall be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble strip shall include the 12' long segments without rumble strips and the segments adjacent to the intersecting roads, entrances, and turnouts without rumble strips. Payment for constructing the rumble strip shall be at the contract unit price per mile for "Grind 12" Rumble Strip or Stripe in Asphalt Concrete".



PLAN VIEW TYPICAL RUMBLE STRIP IN ASPHALT CONCRETE



SECTION A-A

SECTION B-B

June 26, 2011

Published Date: 3rd Qtr. 2016	S D D O T	12" RUMBLE STRIP IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.24
			Sheet 1 of 1

PLOT SCALE - 1:200

PLOTTED FROM - TRPR25584

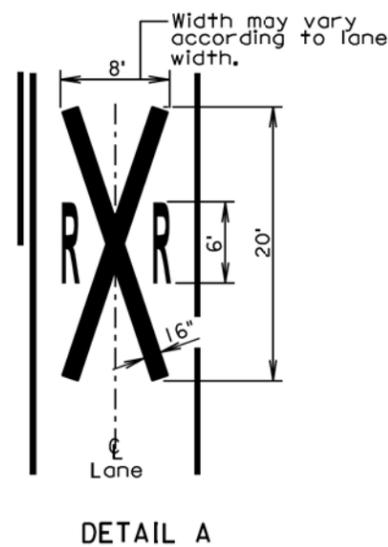
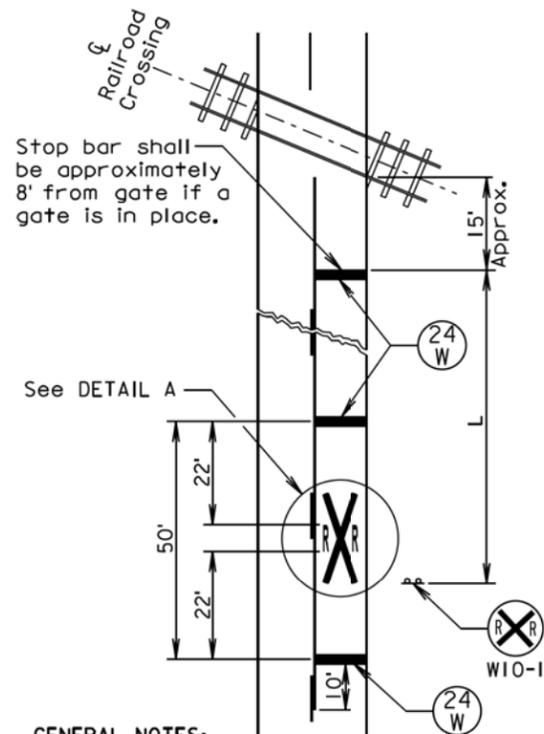
PLOT NAME - 1

FILE - ... \STANDARD PLATES.DGN

Plotting Date: 08/18/2016

KEY	ITEM
	24" White
	White

Posted Speed Limit (M.P.H.)	L (Ft.)
≤ 30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550



GENERAL NOTES:

The railroad crossing pavement markings shall be placed symmetrically about the centerline of the railroad crossing.

When pavement markings are used, a portion of the RXR symbol shall be placed directly opposite of the advance warning sign W10-1.

On multi-lane roads the transverse bands shall extend across all approach lanes and individual RXR symbols shall be placed in each approach lane.

The railroad crossing pavement markings shall consist of all the transverse bands, stop bars, and RXR symbols.

When pavement marking paint is used for marking the railroad crossing, all costs for furnishing and painting the markings, materials, labor, and necessary equipment shall be incidental to the contract unit price per gallon for "Pavement Marking Paint, White".

When pavement marking tape is used for marking the railroad crossing, all costs for furnishing and placing the markings, materials, labor, and necessary equipment shall be incidental to the contract unit price per each for "Cold Applied Plastic Pavement Marking, Railroad Crossing".

June 26, 2013

Published Date: 3rd Qtr. 2016	S D D O T	PAVEMENT MARKINGS AT RAILROAD CROSSING	PLATE NUMBER 633.10
			Sheet 1 of 1

The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

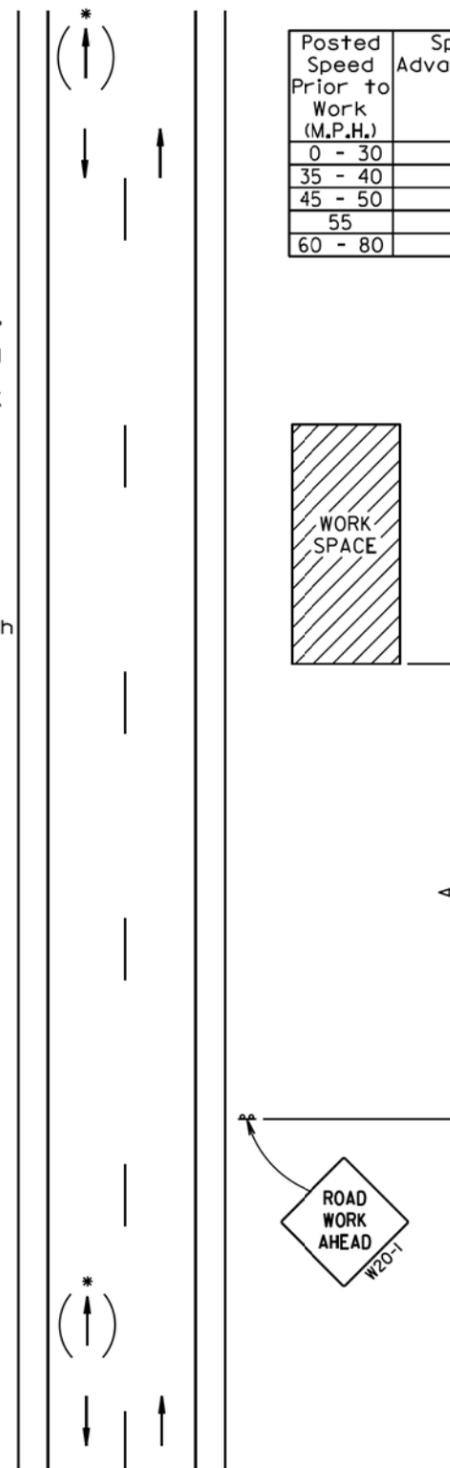
The signs illustrated shall be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000

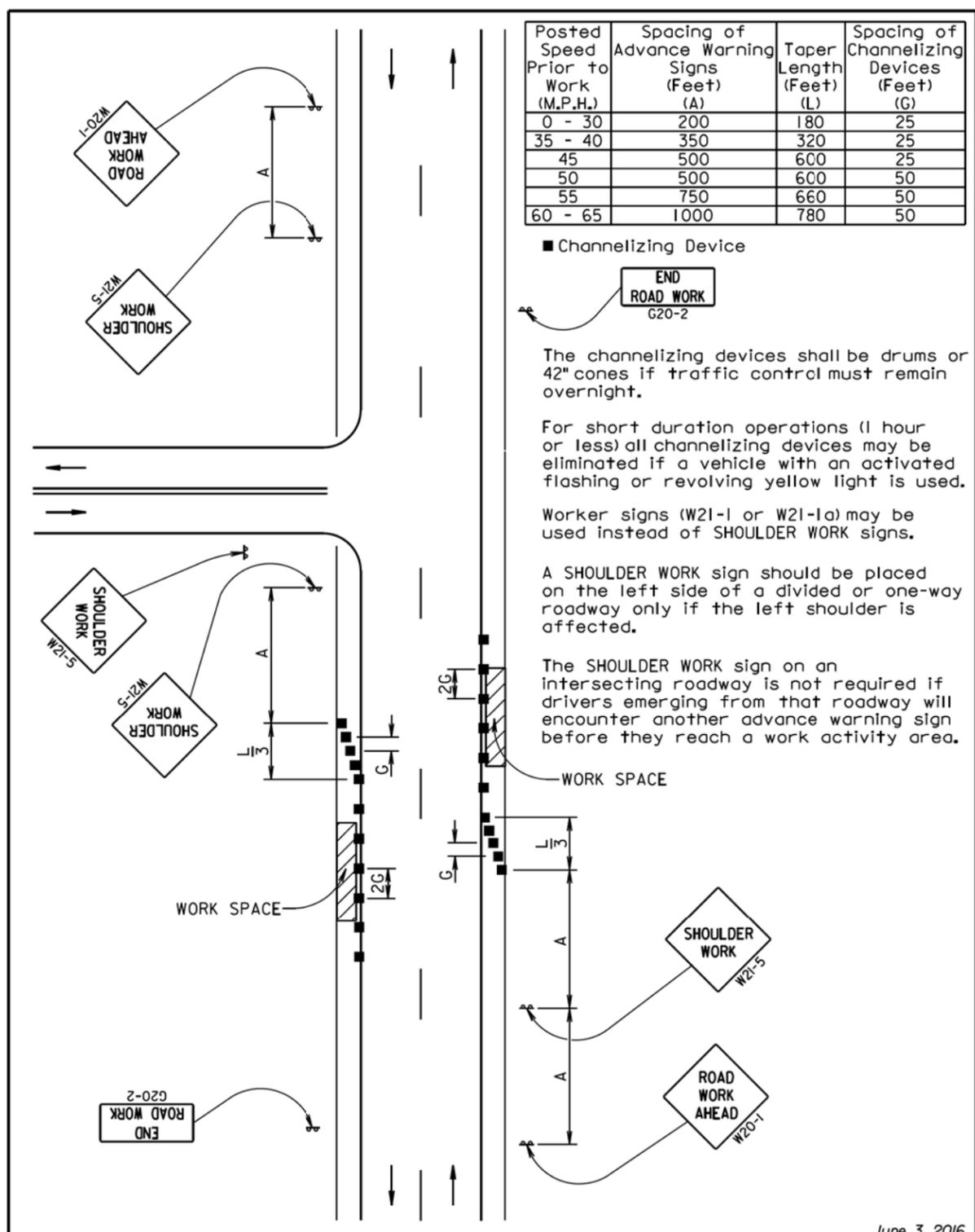


April 15, 2015

Published Date: 3rd Qtr. 2016	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
			Sheet 1 of 1

Plotting Date: 08/18/2016

PLOT SCALE - 1:200



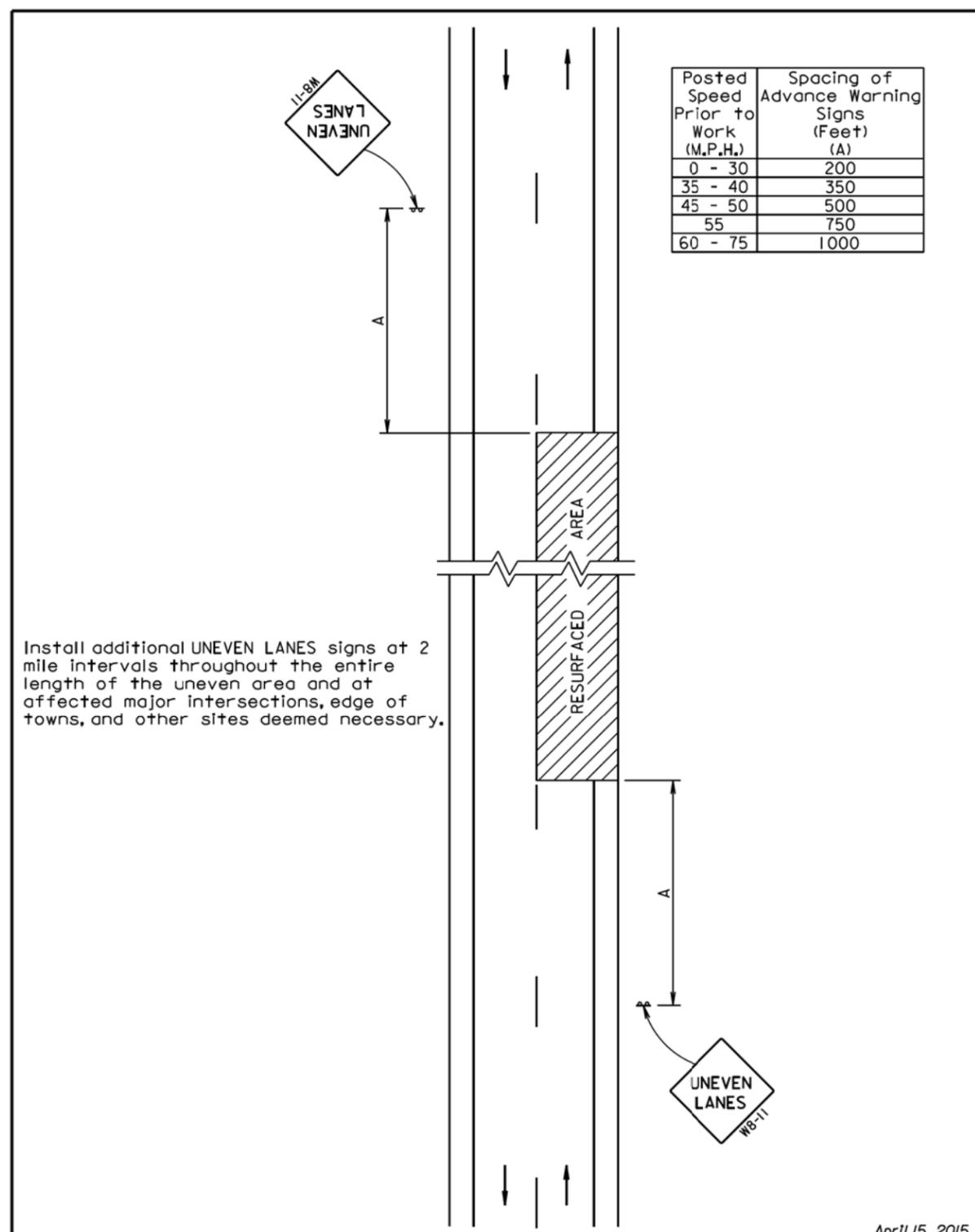
June 3, 2016

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
	Published Date: 3rd Qtr. 2016	Sheet 1 of 1

PLOT NAME - 3

FILE - ... \STANDARD PLATES.DGN

-PLOTTED FROM - TRPR25584



April 15, 2015

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES UNEVEN ROAD SURFACE	PLATE NUMBER 634.22
	Published Date: 3rd Qtr. 2016	Sheet 1 of 1

Plotting Date: 08/18/2016

PLOT SCALE - 1:200

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

- Flagger
- Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices shall be drums or 42" cones.

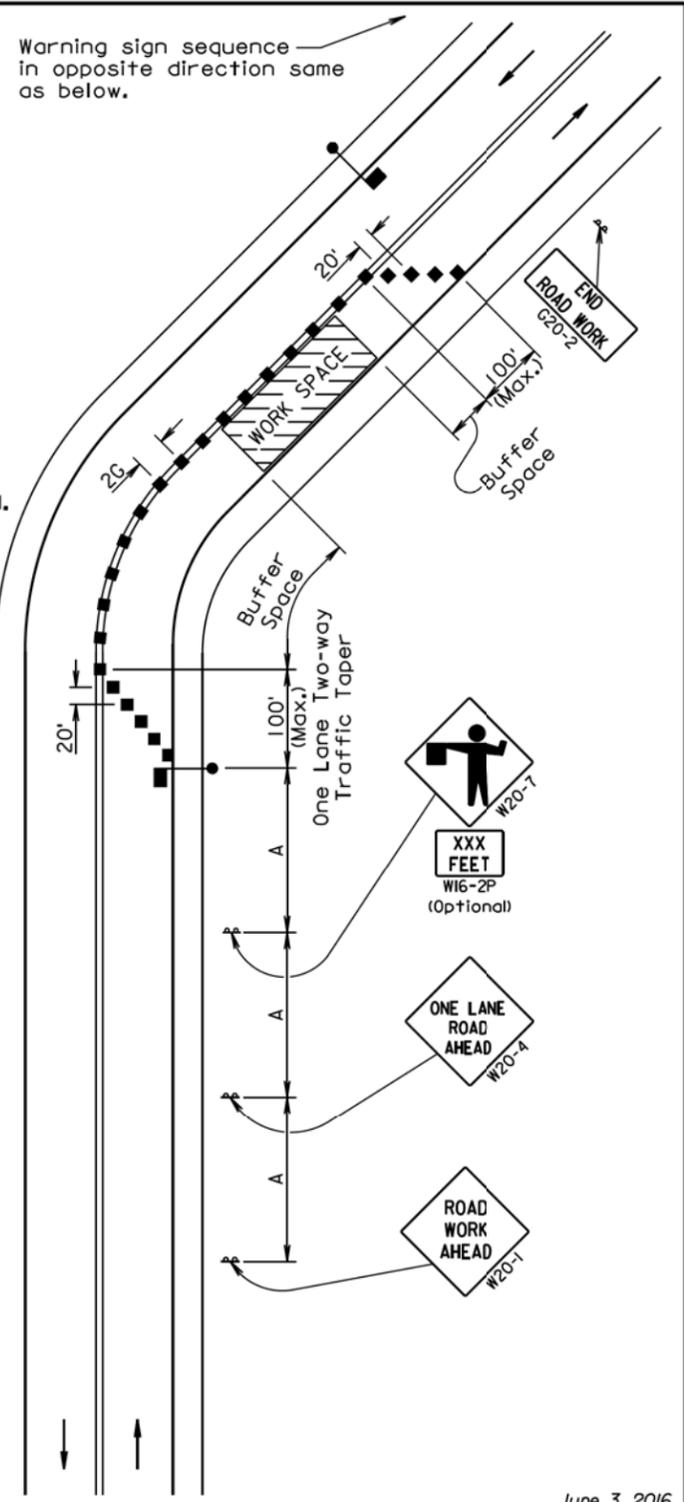
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

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



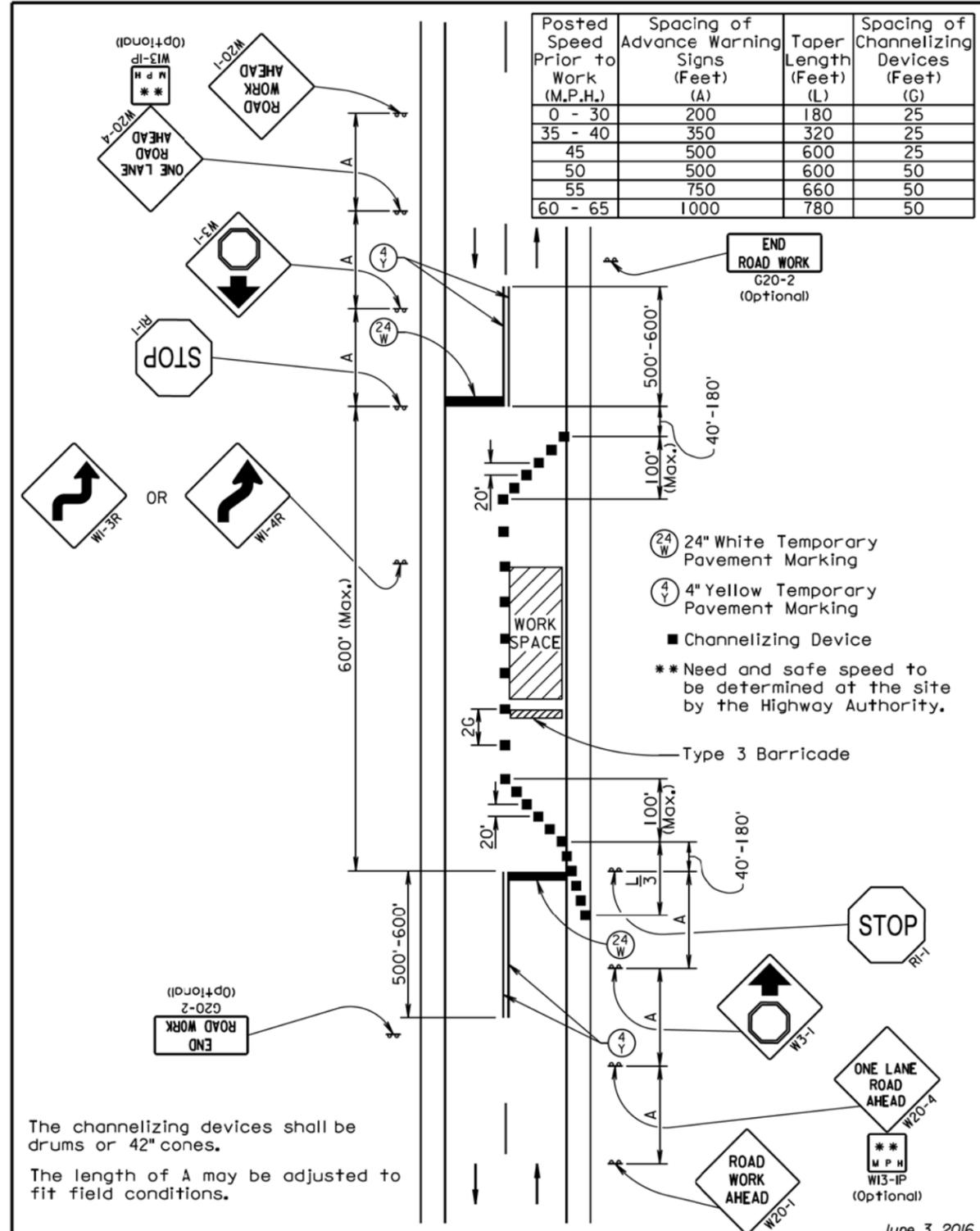
June 3, 2016

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
	Published Date: 3rd Qtr. 2016	Sheet 1 of 1

PLOT NAME - 4

FILE - ... \STANDARD PLATES.DGN

-PLOTTED FROM - TRPR25584



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	500	600	25
50	500	600	50
55	750	660	50
60 - 65	1000	780	50

- Flagger
- Channelizing Device

- ②④ 24" White Temporary Pavement Marking
- ④ 4" Yellow Temporary Pavement Marking

- Channelizing Device
- ** Need and safe speed to be determined at the site by the Highway Authority.

The channelizing devices shall be drums or 42" cones.
The length of A may be adjusted to fit field conditions.

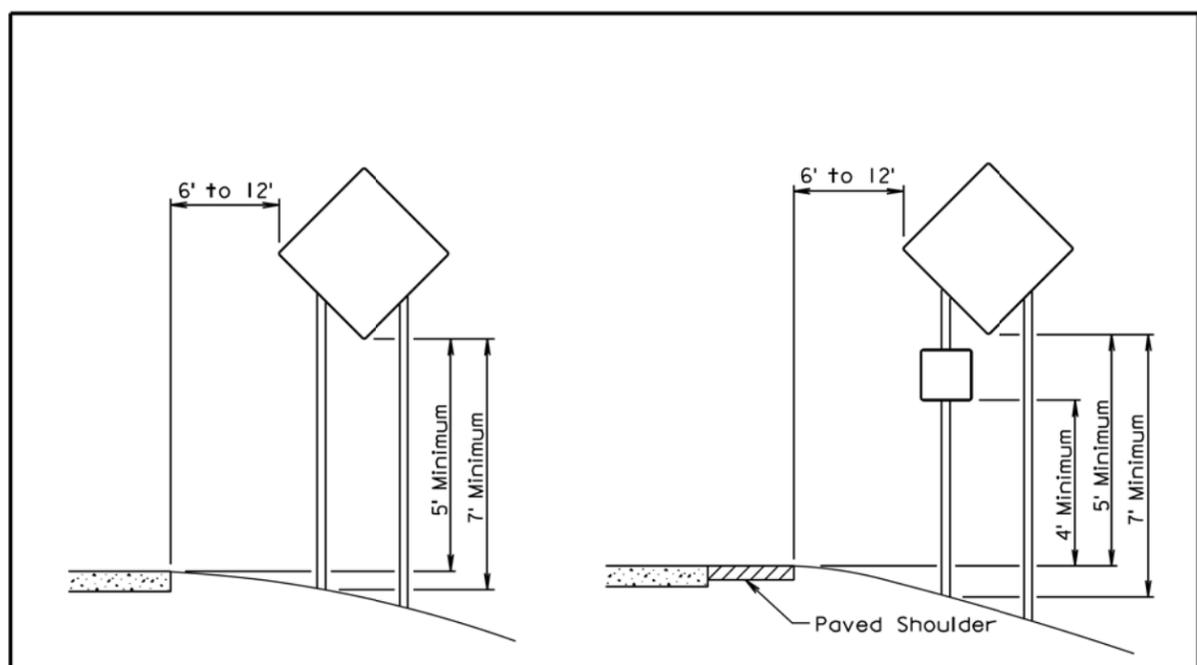
June 3, 2016

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE USING STOP SIGNS	PLATE NUMBER 634.25
	Published Date: 3rd Qtr. 2016	Sheet 1 of 1

PLOT SCALE - 1:200

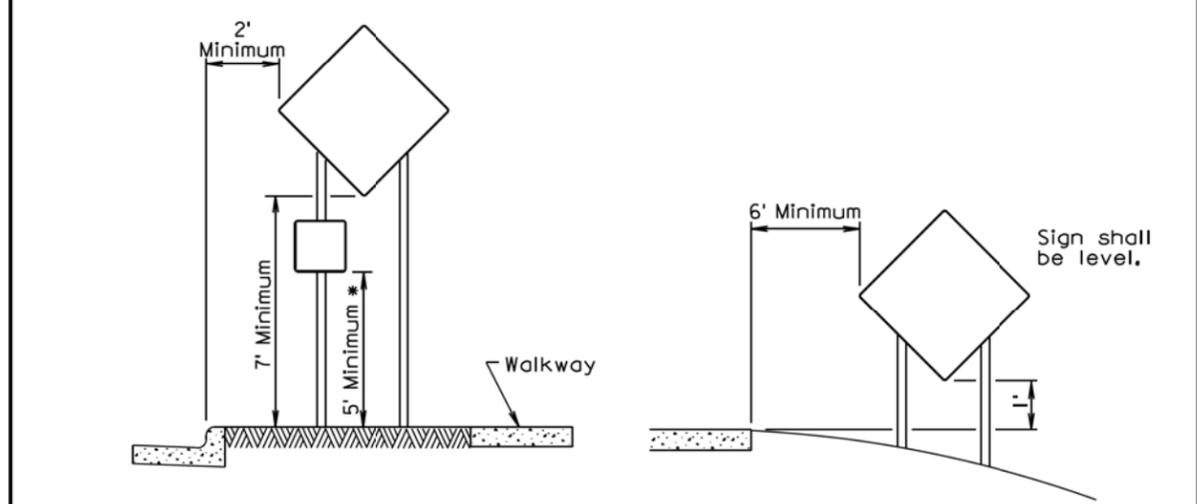
PLOT NAME - 5

FILE - ... \STANDARD PLATES.DGN



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

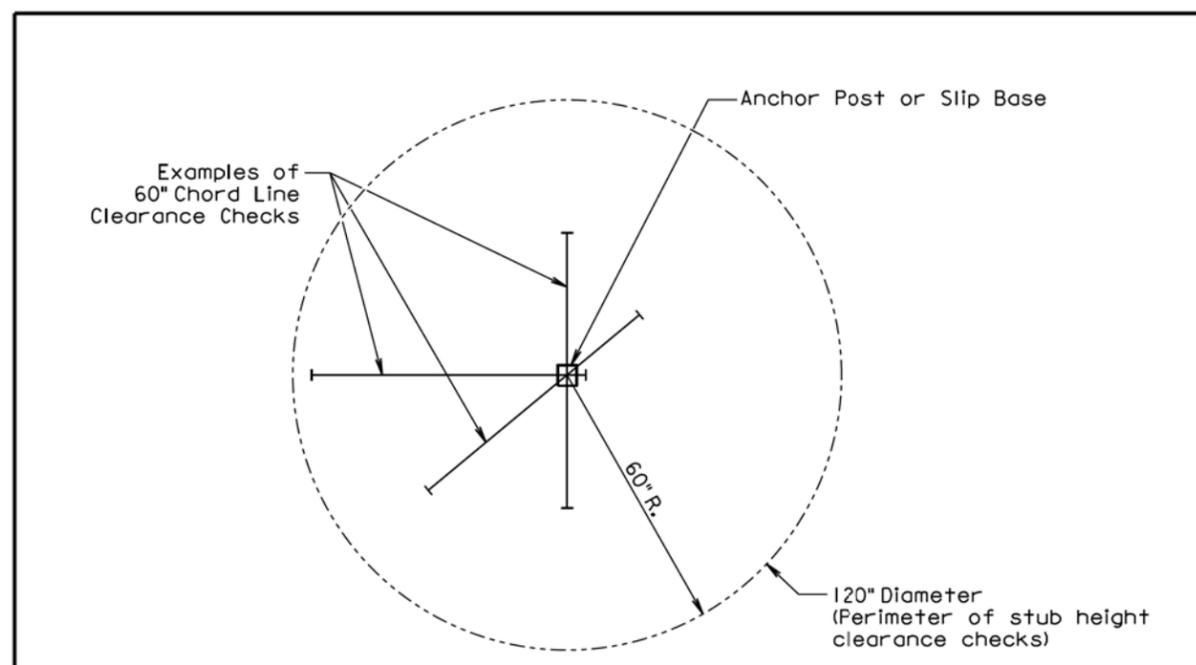
RURAL DISTRICT 3 DAY MAXIMUM

* 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.

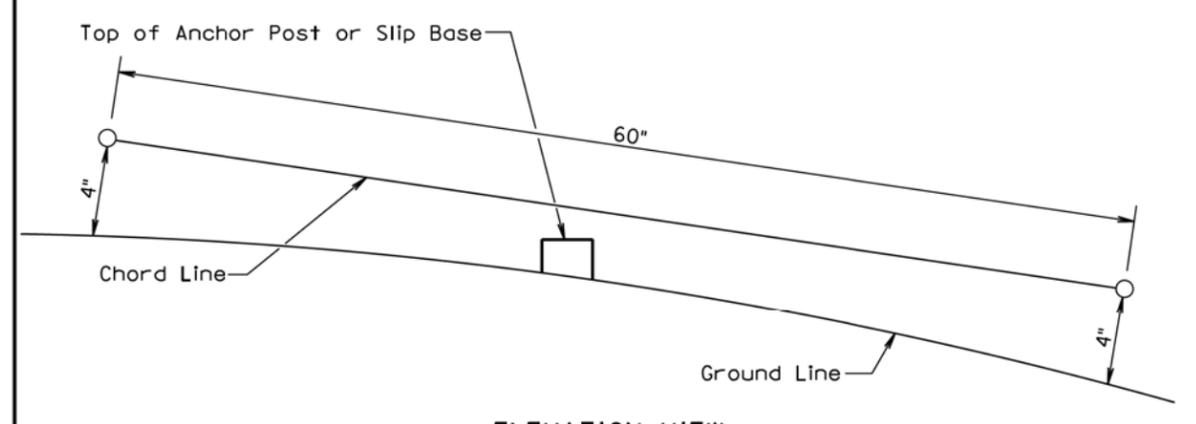
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 3rd Qtr. 2016	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:

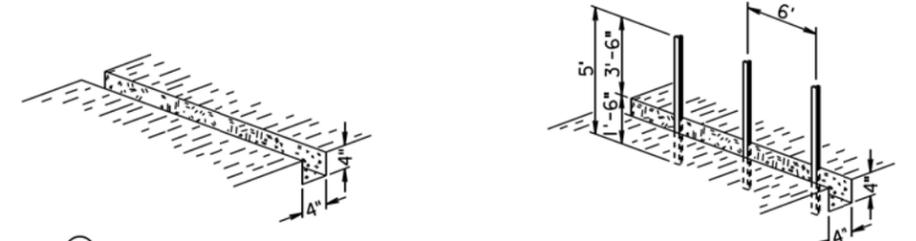
The top of anchor posts and slip bases SHALL NOT extend above a 60° chord line within a 120" diameter circle around the post with ends 4" above the ground.
 At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line 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

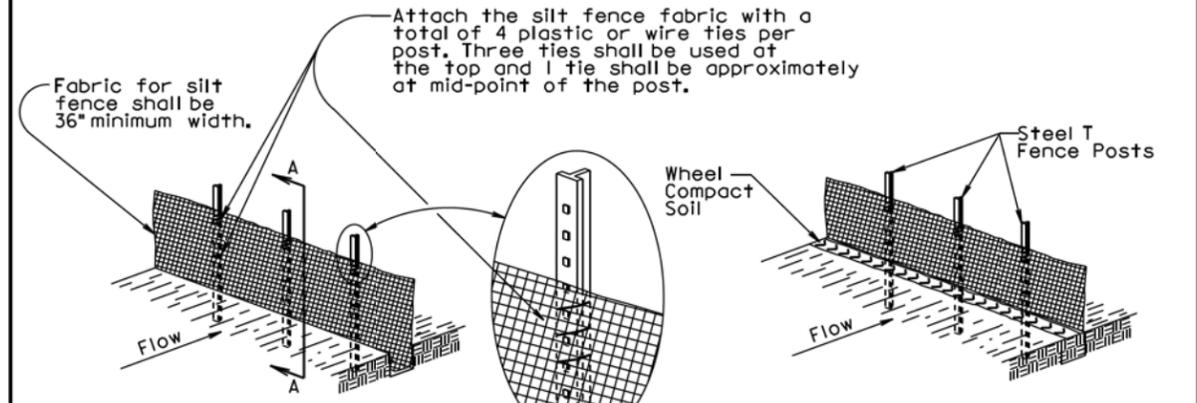
Published Date: 3rd Qtr. 2016	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

-PLOTTED FROM - TRPR25584

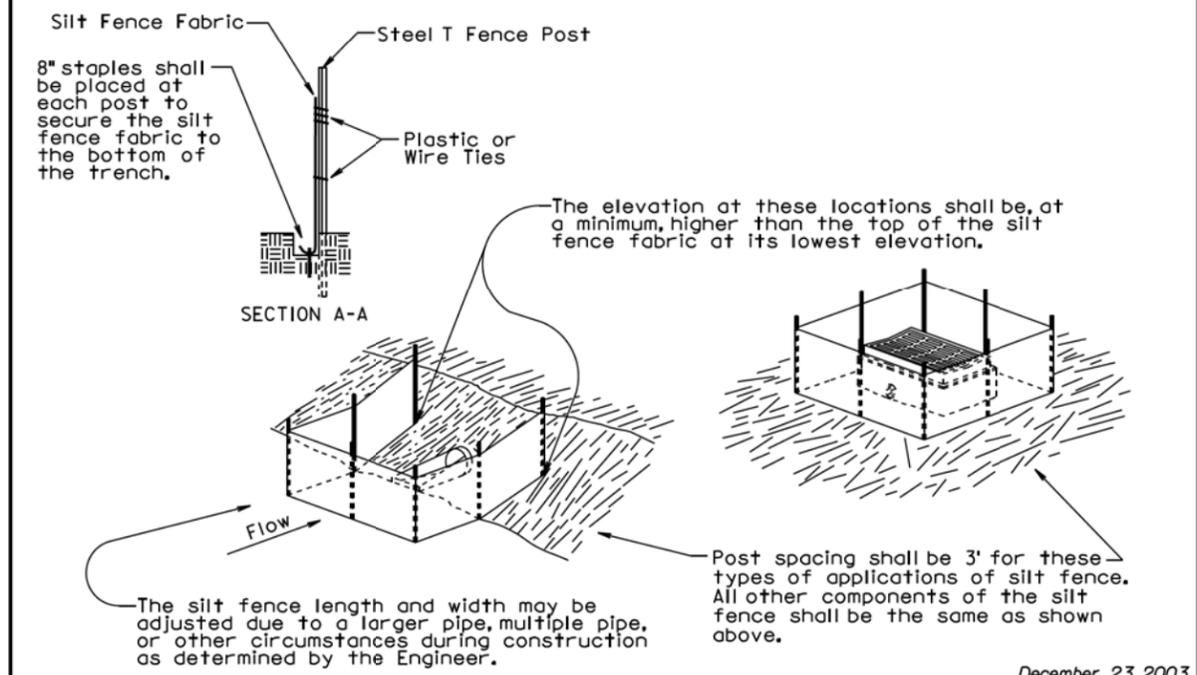
MANUAL HIGH FLOW SILT FENCE INSTALLATION



- EXCAVATE TRENCH
- DRIVE STEEL T FENCE POSTS



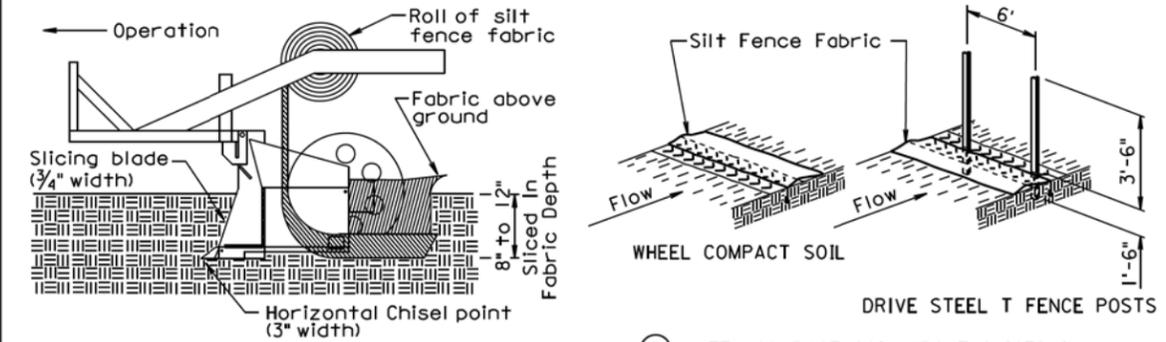
- ATTACH SILT FENCE FABRIC
- BACKFILL TRENCH AND WHEEL COMPACT SOIL



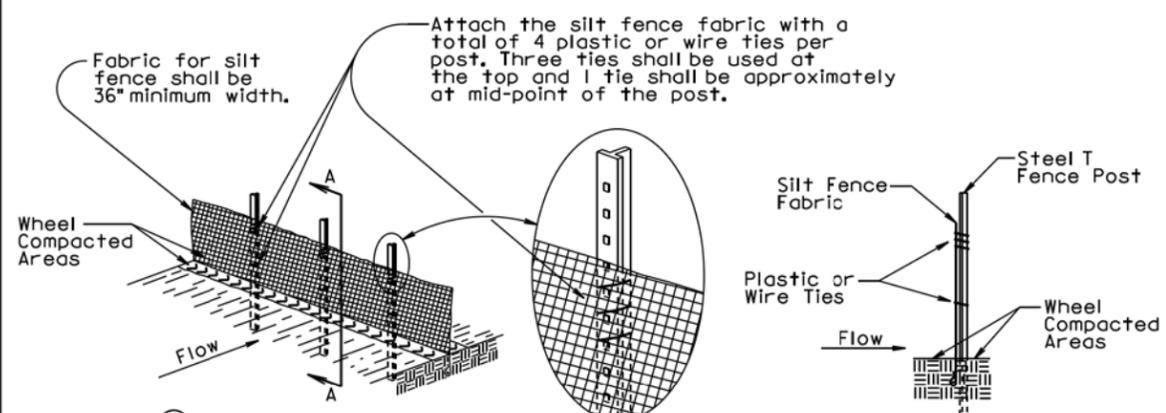
December 23, 2003

S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
	Published Date: 3rd Qtr. 2016	Sheet 1 of 2

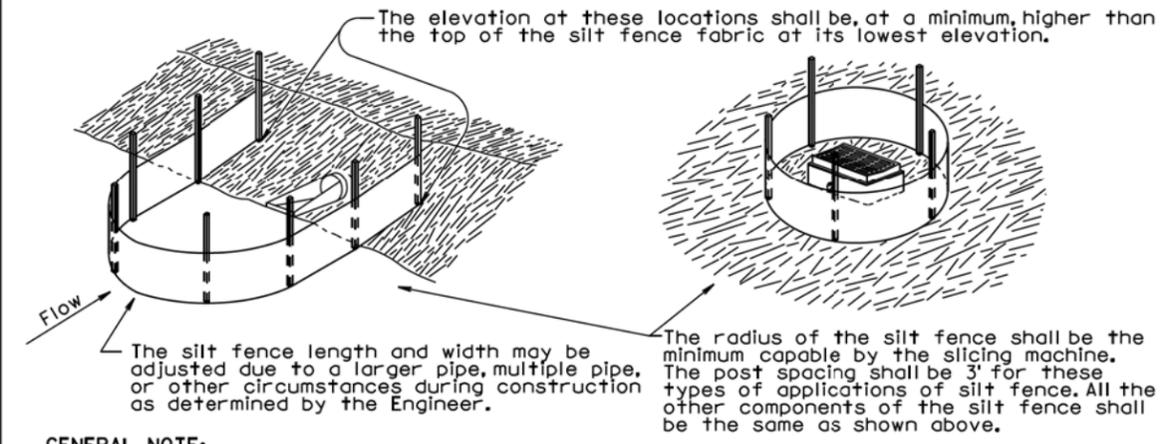
MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



- INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.
- WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.



- ATTACH SILT FENCE FABRIC

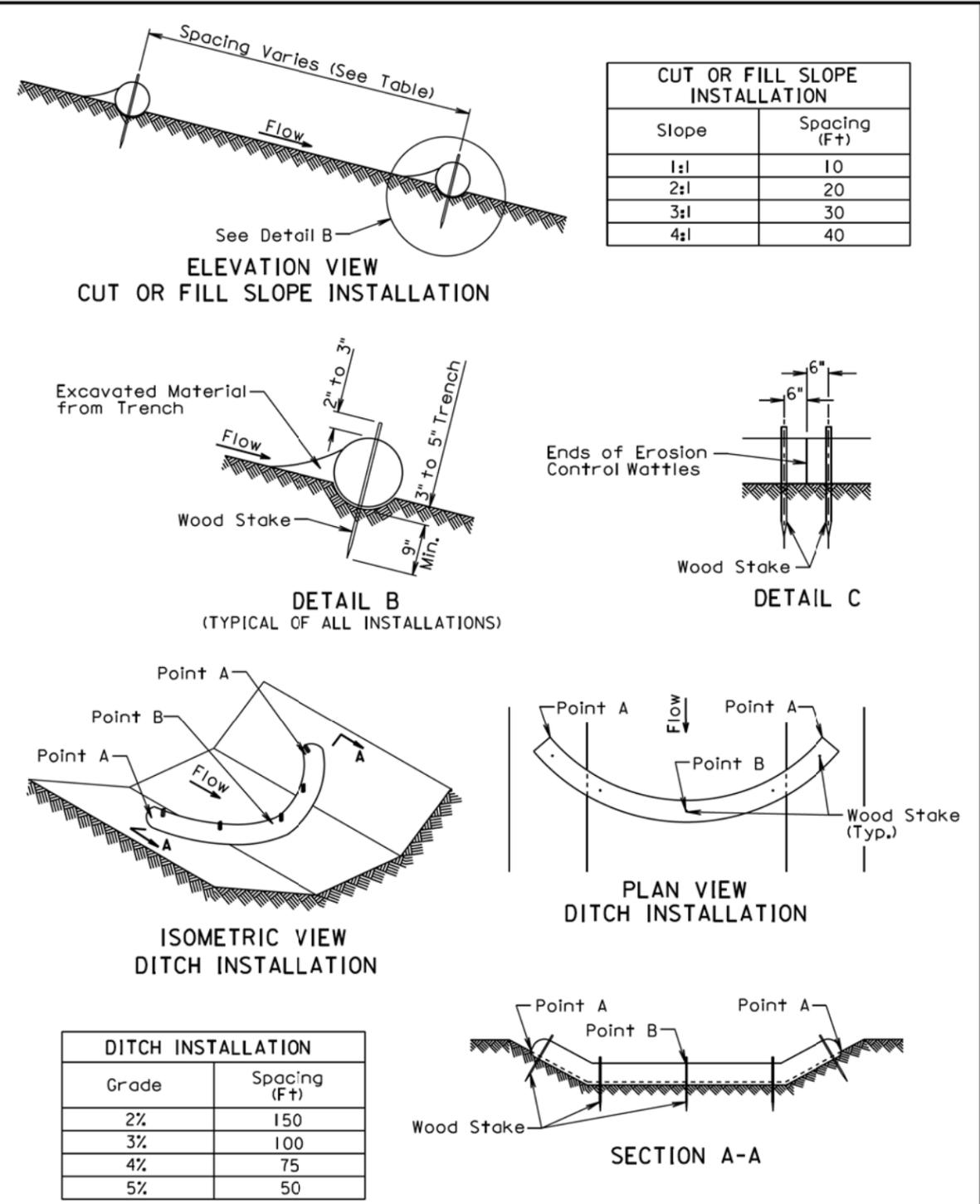


GENERAL NOTE:

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

December 23, 2003

S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
	Published Date: 3rd Qtr. 2016	Sheet 2 of 2



December 23, 2004

S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
		Sheet 1 of 2

Published Date: 3rd Qtr. 2016

GENERAL NOTES:

At cut or fill slope installations, wattles shall be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor shall dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes shall be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

Where installing running lengths of wattles, the Contractor shall butt the second wattle tightly against the first and shall not overlap the ends. See Detail C.

The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than 1/2". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

December 23, 2004

S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
		Sheet 2 of 2

Published Date: 3rd Qtr. 2016

PLOT SCALE - 1:200

-PLOTTED FROM - TRPR25584

PLOT NAME - 7

FILE - ... \STANDARD PLATES.DGN

