

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0081(88)15	1	56

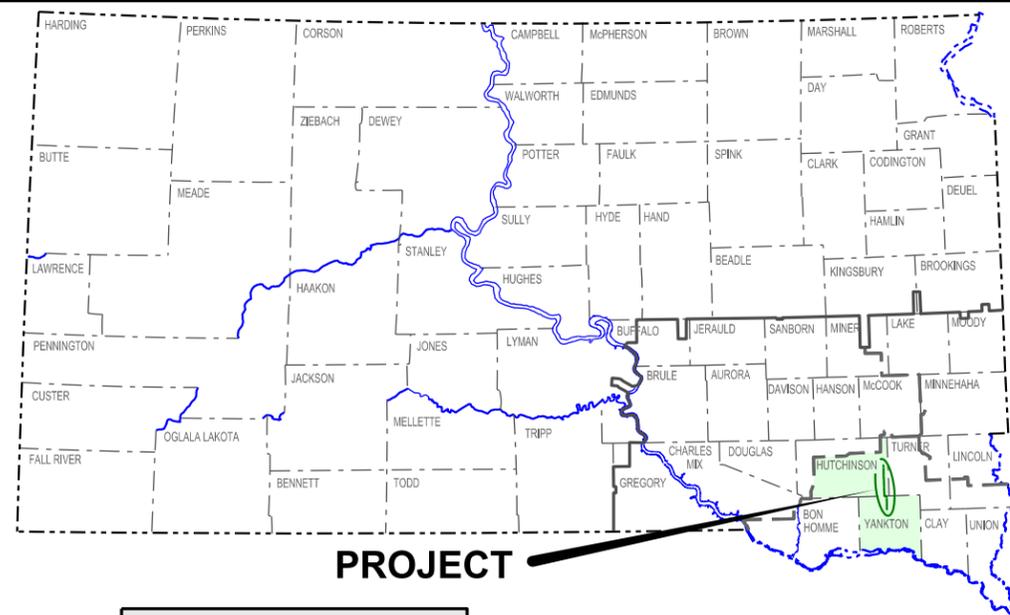
Plotting Date: 02/05/2016

PLANS FOR PROPOSED
PROJECT NH 0081(88)15
US HIGHWAY 81
HUTCHINSON & YANKTON
COUNTIES

MINOR PCC PAVEMENT REPAIR (WITH ASPHALT CONCRETE)
GROWTH JOINTS, EDGE DRAINS, ASPHALT CONCRETE RESURFACING,
CULVERT WORK & PAVEMENT MARKING
PCN 023Z

INDEX OF SHEETS

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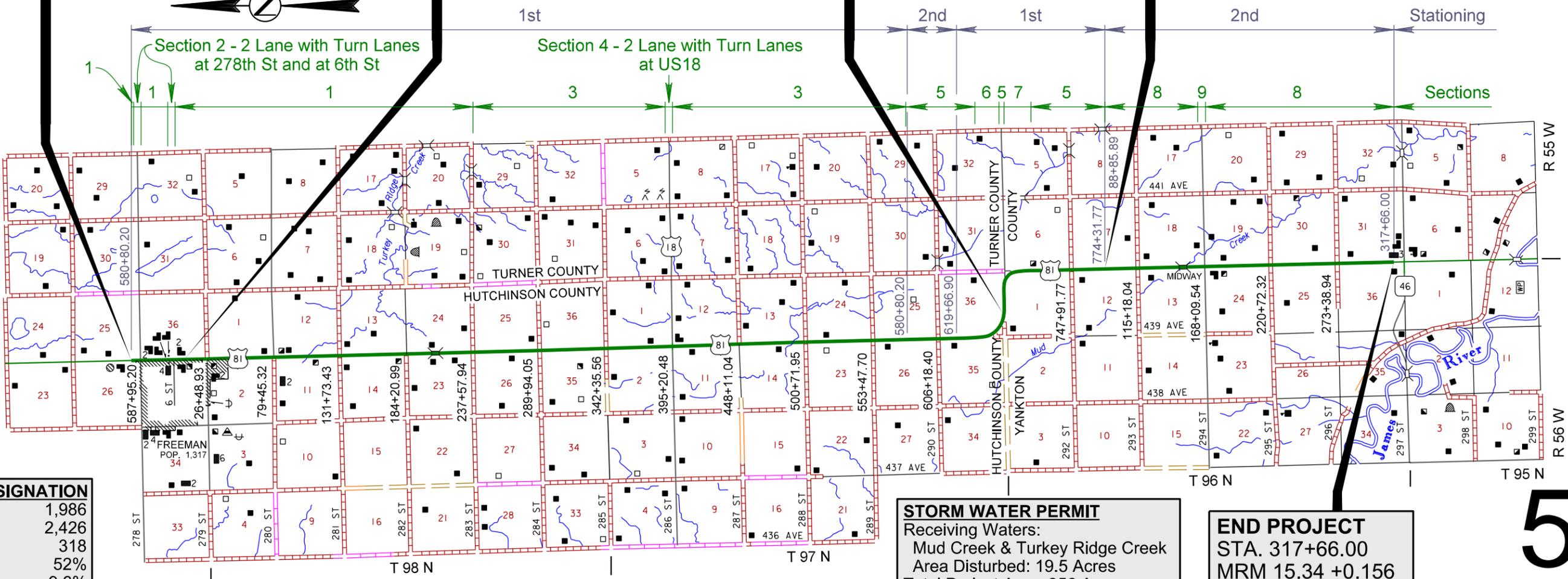
PROJECT

BEGIN PROJECT
STA. 580+80.20
MRM 35.00 +0.138
(715' N of Centerline
of Jct 278th Street)

EQUATION
Sta. 619+66.90 Back=
Sta. 5+33.22 Ahead

EQUATION
Sta. 671+93.14 Back=
Sta. 673+57.77 Ahead

EQUATION
Sta. 774+31.77 Back=
Sta. 88+85.89 Ahead



DESIGN DESIGNATION

ADT(2014)	1,986
ADT(2034)	2,426
DHV	318
D	52%
T DHV	9.6%
T ADT	21.1%
V	65 MPH

PROJECT LENGTH
Length: 103,500.73' 19.602 Miles

STORM WATER PERMIT
Receiving Waters:
Mud Creek & Turkey Ridge Creek
Area Disturbed: 19.5 Acres
Total Project Area: 356 Acres
Latitude: 43.3593 (Google Maps)
Longitude: -97.4205 (Google Maps)

END PROJECT
STA. 317+66.00
MRM 15.34 +0.156
(825' N of centerline
of Jct SD46)

5

PLOT SCALE - 1:8750

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PLOT NAME - 1

ESTIMATE OF QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT NH 0081(88)15	SHEET 2	TOTAL SHEETS 56
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BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1100	Remove Concrete Pavement	1,364.0	SqYd
110E7500	Remove Pipe for Reset	58	Ft
110E7510	Remove Pipe End Section for Reset	10	Each
120E0010	Unclassified Excavation	3,149	CuYd
120E0100	Unclassified Excavation, Dugouts	394	CuYd
120E0600	Contractor Furnished Borrow Excavation	486	CuYd
120E6100	Water for Embankment	5.0	MGal
120E6200	Water for Granular Material	299.0	MGal
210E1000	Shoulder Preparation	39.100	Mile
230E0100	Remove and Replace Topsoil	Lump Sum	LS
260E1030	Base Course, Salvaged	3,431.0	Ton
270E0110	Salvage and Stockpile Granular Material	5,959.0	Ton
320E0007	PG 64-28 Asphalt Binder	6,224.5	Ton
320E1003	Class Q3 Hot Mixed Asphalt Concrete	99,227.0	Ton
320E1200	Asphalt Concrete Composite	570.0	Ton
320E1810	Asphalt Concrete Leveling Lift	9,077.0	Ton
320E4000	Hydrated Lime	982.5	Ton
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	39.4	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	400.2	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	109.8	Ton
330E2000	Sand for Flush Seal	1,140.0	Ton
380E5200	PCC Pavement Partial Depth Patch	175	SqFt
380E6500	Planing PCC Pavement	3,197.0	SqYd
430E0700	Precast Concrete Headwall for Drain	15	Each
450E9000	Reset Pipe	58	Ft
450E9001	Reset Pipe End Section	10	Each
600E0300	Type III Field Laboratory	1	Each

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
632E2510	Type 2 Object Marker Back to Back	62	Each
632E2520	Type 2 Object Marker	100	Each
633E1300	Pavement Marking Paint, White	669	Gal
633E1305	Pavement Marking Paint, Yellow	285	Gal
634E0010	Flagging	1,320.0	Hour
634E0020	Pilot Car	680.0	Hour
634E0110	Traffic Control Signs	480	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	82.3	Mile
680E0010	2' Deep Edge Drain	7,251	Ft
680E0015	Edge Drain Outlet	15	Each
730E0212	Type G Permanent Seed Mixture	507	Lb
732E0100	Mulching	39.0	Ton
900E0010	Refurbish Single Mailbox	19	Each
900E0012	Refurbish Double Mailbox	3	Each
900E1980	Storage Unit	1	Each
900E5840	Permanent Vehicle Classification System	1	Each

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0081(88)15	3	56

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.

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

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 1 acre or more of earth disturbance.

Action Taken/Required:

The DENR and the US Environmental Protection Agency (EPA) have issued separate general permits for the discharge of storm water runoff. The DENR permit applies to discharges on state land and the EPA permit applies to discharges on federal or reservation land. The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

The Contractor shall adhere to the Special Provision Regarding Storm Water Discharges to Waters of the State.

A major component of the storm water construction permits is development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which is a joint effort and responsibility of the SDDOT and the Contractor. Erosion control measures and best management practices will be implemented in accordance with the SWPPP. The SWPPP is a dynamic document and is to be available on-site at all times.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT:

<http://www.sddot.com/business/environmental/stormwater/Default.aspx>

DENR: <http://www.denr.sd.gov/des/sw/stormwater.aspx>

EPA: http://cfpub.epa.gov/npdes/home.cfm?program_id=6

Contractor Certification Form:

The Department of Environment and Natural Resources – Contractor Certification Form (SD EForm – 2110LDV1-ContractorCertification.pdf) shall be completed by the Contractor or their certified Erosion Control Supervisor after the award of the contract. Work may not begin on the project until this form is signed.

The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the Surface Water Discharge General Permit for Storm Water Discharges Associated with Construction Activities for the Project.

The online form can be found at:

<http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf>

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

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

Cost 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.

ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

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

COMMITMENT N: SECTION 404 PERMIT

The SDDOT has obtained a Section 404 Permit from the US Army Corps of Engineers for the permanent actions associated with this project.

Action Taken/Required:

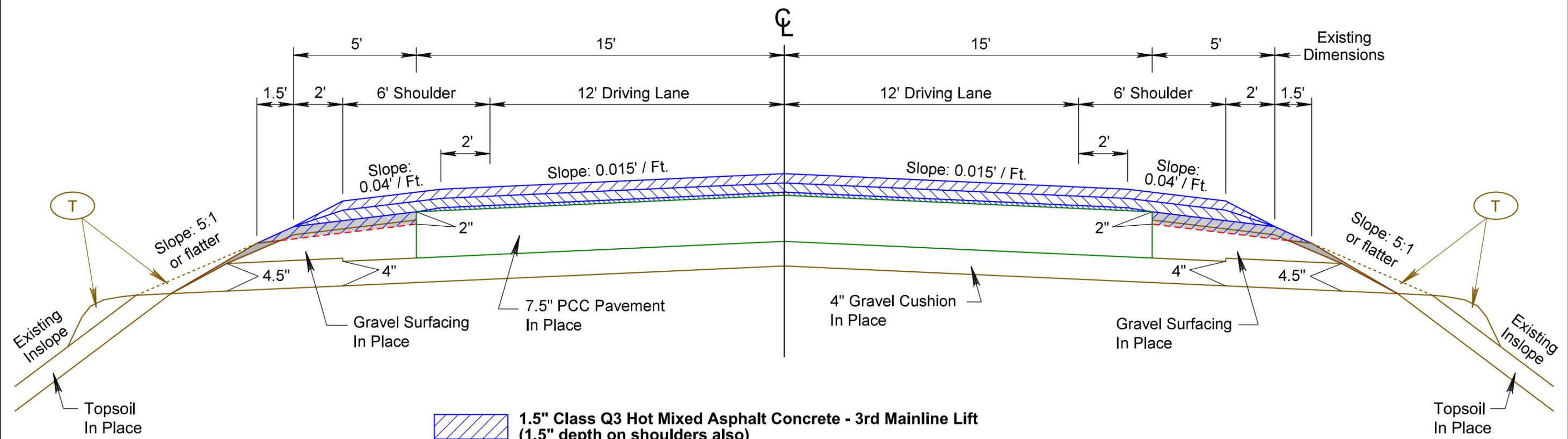
The Contractor shall comply with all requirements contained in the Section 404 permit.

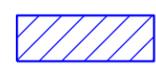
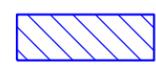
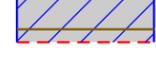
The Contractor shall also be responsible for obtaining a Section 404 permit for any dredge, excavation, or fill activities associated with staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands or waters of the United States.

TYPICAL RESURFACING SECTION

SECTION 1

Two-Lane
 580+80.2 to 583+85
 592+05 to 610+59
 618+79 to 619+66.9
 (Equation 619+66.9 Back = 5+33.22 Ahead)
 5+33.22 to 237+57.94



-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 3rd Mainline Lift (1.5" depth on shoulders also)
-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 2nd Mainline Lift (1.7" depth on shoulders)
-  0.5" Asphalt Concrete Leveling Lift - 1st Mainline Lift
-  Unclassified Excavation and Salvage and Stockpile Granular Material at Slope: 0.04' / Ft (0" to 2" Depth - 0.67"+ Average) and replace with 2" Class Q3 Hot Mixed Asphalt Concrete - Shoulder Lift
-  Place and compact some of the salvaged material on the inslope as shown, where necessary, to provide the width necessary for resurfacing. Cost shall be incidental to the contract unit price per ton for Salvage and Stockpile Granular Material.

T Blade topsoil down inslope before excavating shoulder material. Blade topsoil up inslope after asphalt concrete is placed.

PLOT SCALE - 1:4

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PLOT NAME - 2

TYPICAL RESURFACING SECTION

SECTION 1 (MAINLINE TRANSITIONS)

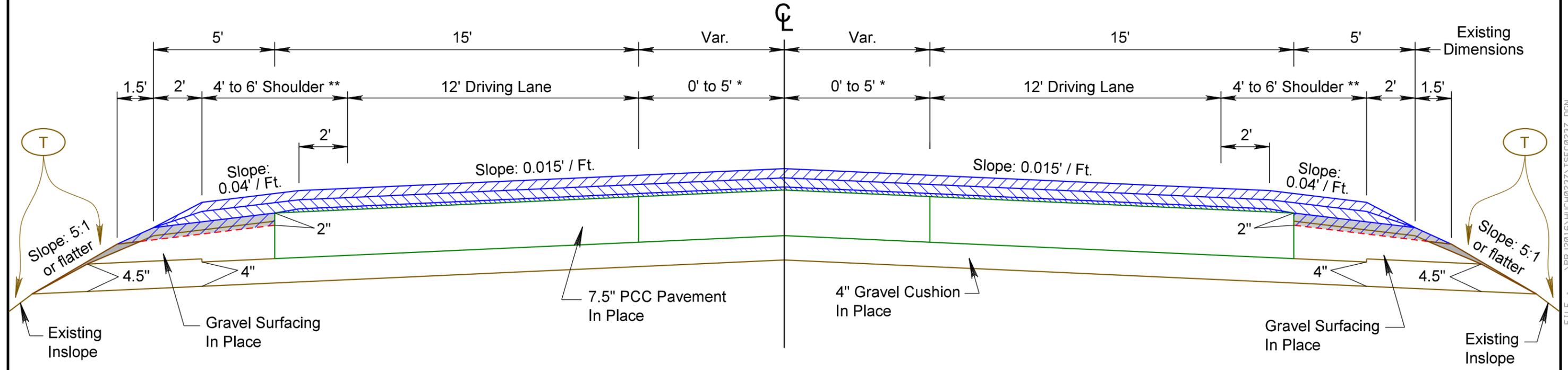
Transitions for Left Turn Lanes on US81 at 278th Street - North Edge of Freeman
 583+85 to 586+60
 589+30 to 592+05

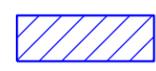
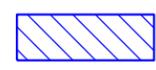
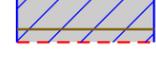
Transitions for Left Turn Lanes on US81 at 6th Street - In Freeman
 610+59 to 613+34
 616+04 to 618+79

Transitions	*	**
583+85 to 586+60	0' to 5'	6' to 4'
589+30 to 592+05	5' to 0'	4' to 6'
610+59 to 613+34	0' to 5'	6' to 4'
616+04 to 618+79	5' to 0'	4' to 6'

PLOT SCALE - 1:4

PLOT NAME - 3



-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 3rd Mainline Lift (1.5" depth on shoulders also)
-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 2nd Mainline Lift (1.7" depth on shoulders)
-  0.5" Asphalt Concrete Leveling Lift - 1st Mainline Lift
-  Unclassified Excavation and Salvage and Stockpile Granular Material at Slope: 0.04' / Ft (0" to 2" Depth - 0.67"+ Average) and replace with 2" Class Q3 Hot Mixed Asphalt Concrete - Shoulder Lift
-  Place and compact some of the salvaged material on the inslope as shown, where necessary, to provide the width necessary for resurfacing. Cost shall be incidental to the contract unit price per ton for Salvage and Stockpile Granular Material.

T Blade topsoil down inslope before excavating shoulder material. Blade topsoil up inslope after asphalt concrete is placed. (Refer to Section 1 for detail).

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TYPICAL RESURFACING SECTION

SECTION 2

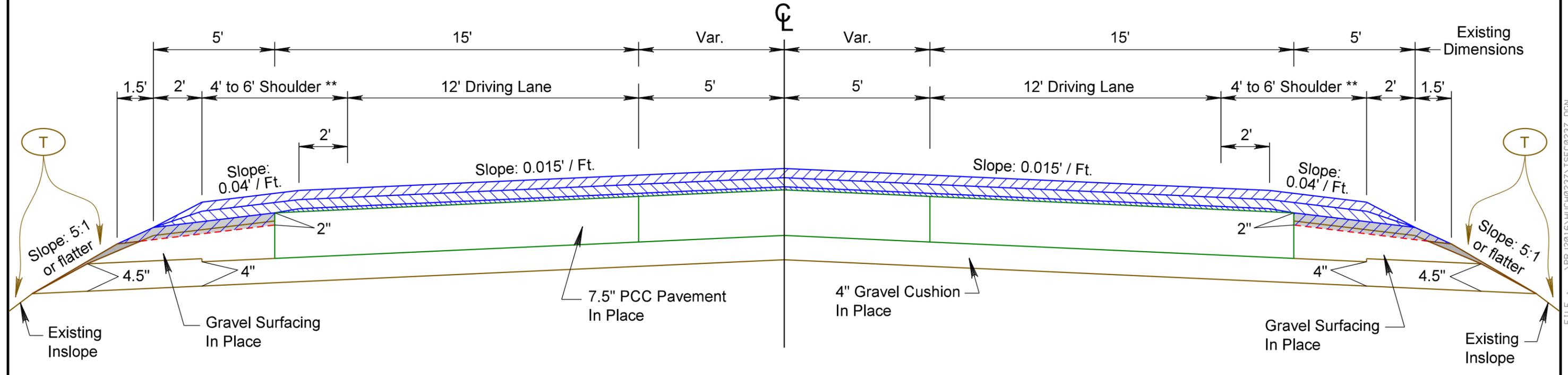
Two-Lane with Left Turn Lanes on US81 at 278th Street - North Edge of Freeman
586+60 to 589+30

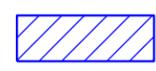
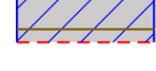
Two-Lane with Left Turn Lanes on US81 at 6th Street - In Freeman
613+34 to 616+04

Transitions	**
586+60 to 587+95	4' to 6'
587+95 to 589+30	6' to 4'
613+34 to 614+69	4' to 6'
614+69 to 616+04	6' to 4'

PLOT SCALE - 1:4

PLOT NAME - 4



-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 3rd Mainline Lift (1.5" depth on shoulders also)
-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 2nd Mainline Lift (1.7" depth on shoulders)
-  0.5" Asphalt Concrete Leveling Lift - 1st Mainline Lift
-  Unclassified Excavation and Salvage and Stockpile Granular Material at Slope: 0.04' / Ft (0" to 2" Depth - 0.67"+ Average) and replace with 2" Class Q3 Hot Mixed Asphalt Concrete - Shoulder Lift
-  Place and compact some of the salvaged material on the inslope as shown, where necessary, to provide the width necessary for resurfacing. Cost shall be incidental to the contract unit price per ton for Salvage and Stockpile Granular Material.

T Blade topsoil down inslope before excavating shoulder material. Blade topsoil up inslope after asphalt concrete is placed. (Refer to Section 1 for detail).

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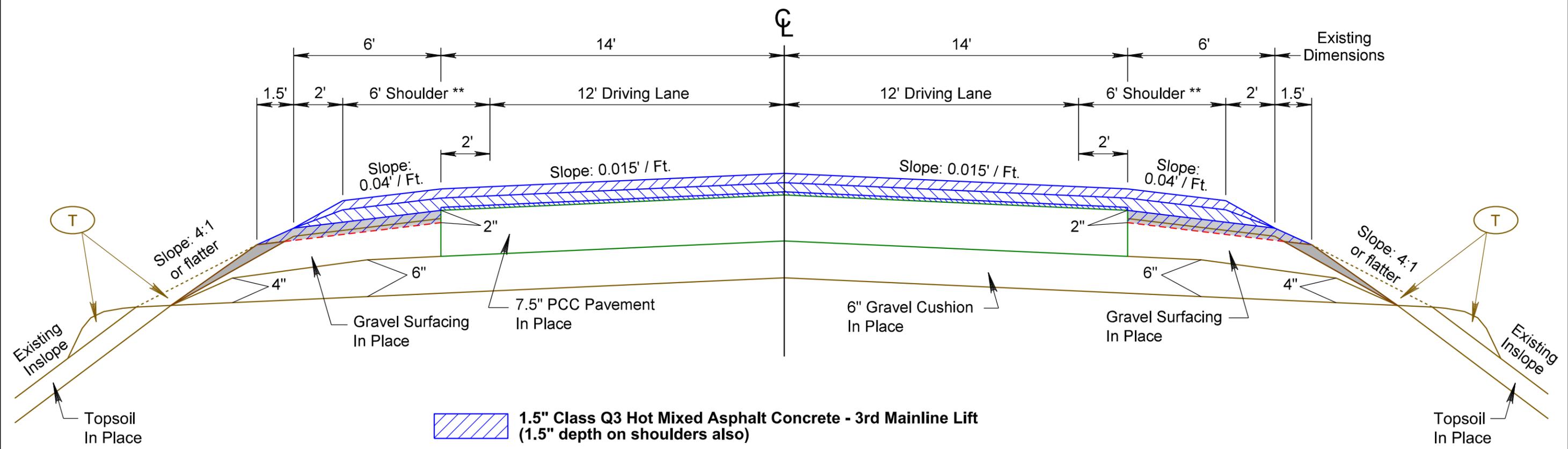
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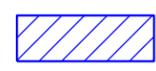
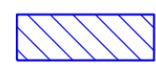
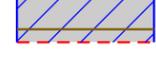
TYPICAL RESURFACING SECTION

SECTION 3

Two-Lane
237+57.94 to 389+95
400+45 to 579+53.1

Transitions **
577+53.1 to 579+53.1 6' to 8'



-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 3rd Mainline Lift (1.5" depth on shoulders also)
-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 2nd Mainline Lift (2" depth on shoulders)
-  0.5" Asphalt Concrete Leveling Lift - 1st Mainline Lift
-  Unclassified Excavation and Salvage and Stockpile Granular Material at Slope: 0.04' / Ft (0" to 2" Depth - 0.67"+ Average) and replace with 2" Class Q3 Hot Mixed Asphalt Concrete - Shoulder Lift
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T Blade topsoil down inslope before excavating shoulder material. Blade topsoil up inslope after asphalt concrete is placed.

PLOT SCALE - 1:4

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PLOT NAME - 5

TYPICAL RESURFACING SECTION

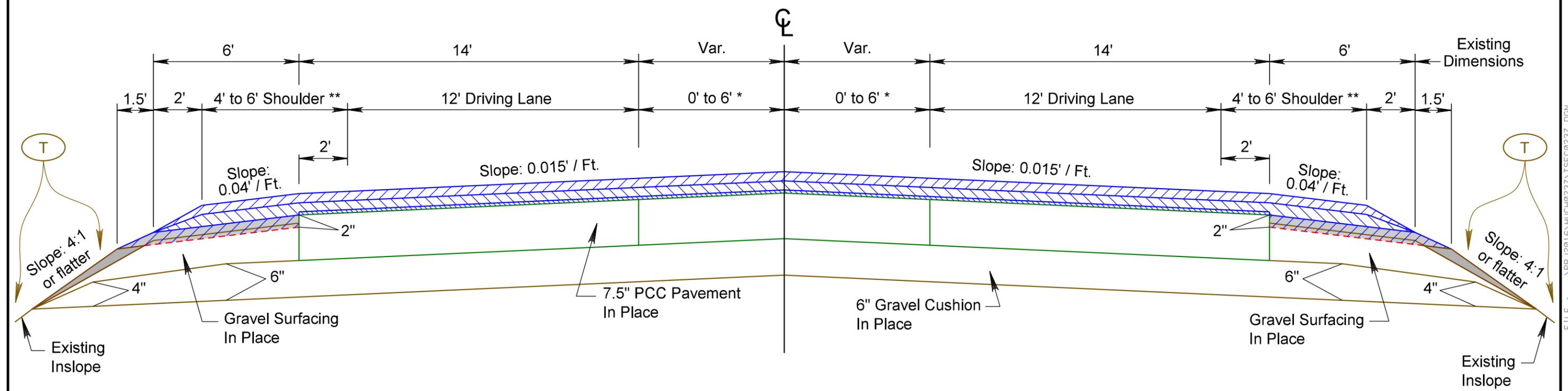
SECTION 3 (MAINLINE TRANSITIONS)

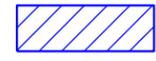
Transitions for Left Turn Lanes on US81 at US18
 389+95 to 393+85
 396+55 to 400+45

Transitions	*	**
389+95 to 393+85	0' to 6'	6' to 4'
396+55 to 400+45	6' to 0'	4' to 6'

PLOT SCALE - 1:4

PLOT NAME - 6



-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 3rd Mainline Lift (1.5" depth on shoulders also)
-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 2nd Mainline Lift (2" depth on shoulders)
-  0.5" Asphalt Concrete Leveling Lift - 1st Mainline Lift
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-  Place and compact some of the salvaged material on the inslope as shown, where necessary, to provide the width necessary for resurfacing. Cost shall be incidental to the contract unit price per ton for Salvage and Stockpile Granular Material.

T Blade topsoil down inslope before excavating shoulder material. Blade topsoil up inslope after asphalt concrete is placed. (Refer to Section 3 for detail).

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TYPICAL RESURFACING SECTION

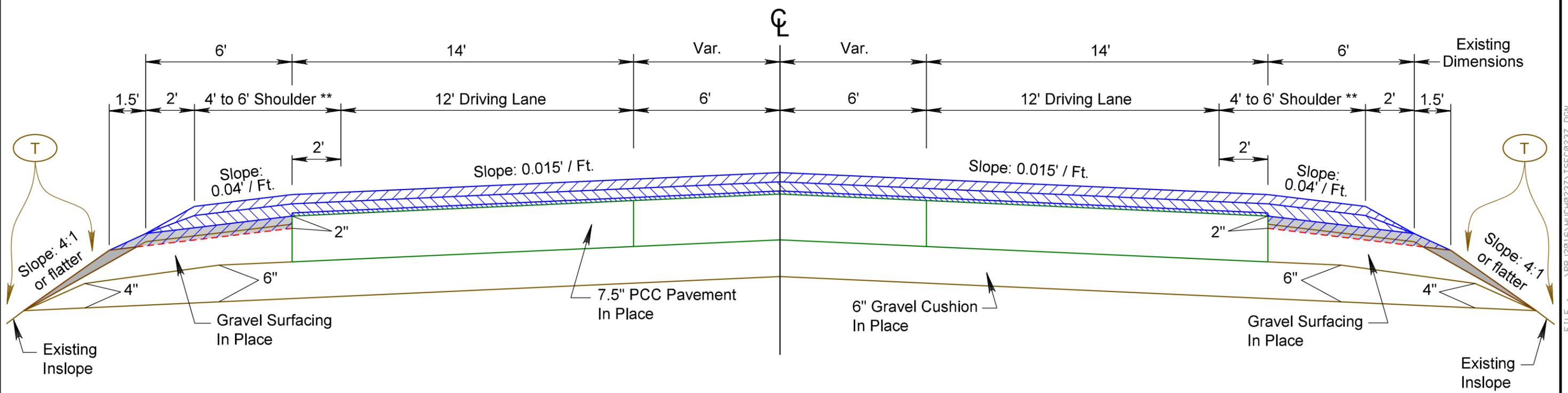
SECTION 4

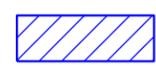
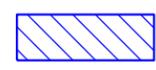
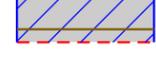
Two-Lane with Left Turn Lanes on US81 at US18
393+85 to 396+55

Transitions	**
393+85 to 395+20	4' to 6'
395+20 to 396+55	6' to 4'

PLOT SCALE - 1:4

PLOT NAME - 7



-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 3rd Mainline Lift (1.5" depth on shoulders also)
-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 2nd Mainline Lift (2" depth on shoulders)
-  0.5" Asphalt Concrete Leveling Lift - 1st Mainline Lift
-  Unclassified Excavation and Salvage and Stockpile Granular Material at Slope: 0.04' / Ft (0" to 2" Depth - 0.67"+ Average) and replace with 2" Class Q3 Hot Mixed Asphalt Concrete - Shoulder Lift
-  Place and compact some of the salvaged material on the inslope as shown, where necessary, to provide the width necessary for resurfacing. Cost shall be incidental to the contract unit price per ton for Salvage and Stockpile Granular Material.

T Blade topsoil down inslope before excavating shoulder material. Blade topsoil up inslope after asphalt concrete is placed. (Refer to Section 3 for detail).

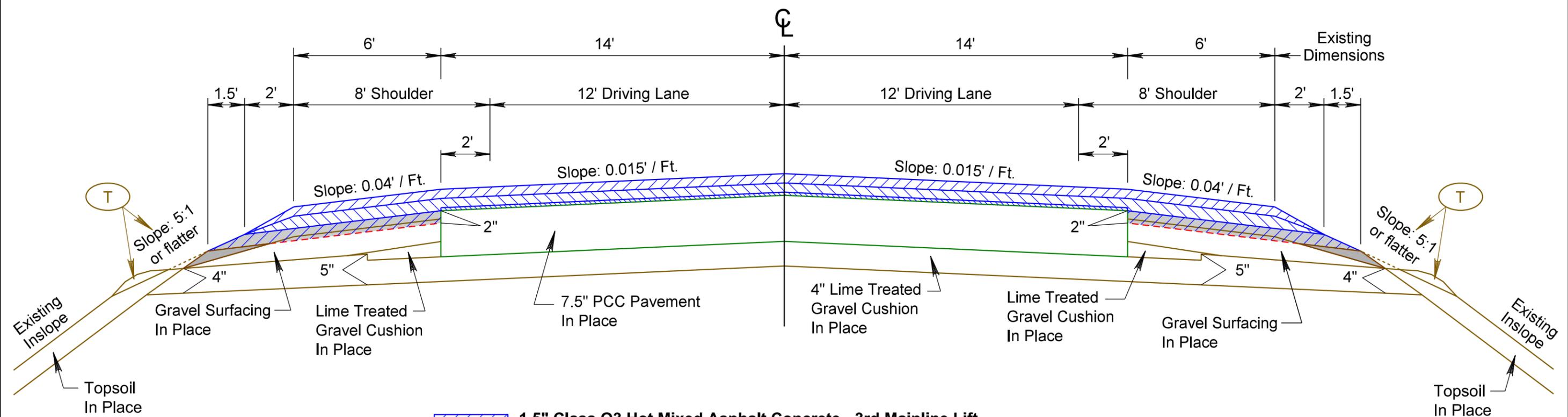
PLOTTED FROM - TRMLINT15

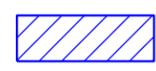
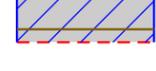
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TYPICAL RESURFACING SECTION

SECTION 5

Two-Lane
 579+53.1 to 634+29
 675+17.63 to 682+61
 715+88 to 774+31.77
 (Equation 774+31.77 Back = 88+85.89 (2nd) Ahead)



-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 3rd Mainline Lift (1.5" depth on shoulders also)
-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 2nd Mainline Lift (2" depth on shoulders)
-  0.5" Asphalt Concrete Leveling Lift - 1st Mainline Lift
-  Unclassified Excavation and Salvage and Stockpile Granular Material at Slope: 0.04' / Ft (0" to 2" Depth - 0.67"+ Average) and replace with 2" Class Q3 Hot Mixed Asphalt Concrete - Shoulder Lift
-  Place and compact some of the salvaged material on the inslope as shown, where necessary, to provide the width necessary for resurfacing. Cost shall be incidental to the contract unit price per ton for Salvage and Stockpile Granular Material.

T Blade topsoil down inslope before excavating shoulder material. Blade topsoil up inslope after asphalt concrete is placed.

PLOT SCALE - 1:4

PLOTTED FROM - TRMLINT15

FILE - ... \PRJ2016\HUCH0232\TSEC023Z.DGN PLOT NAME - 8

TYPICAL RESURFACING SECTION

SECTION 6

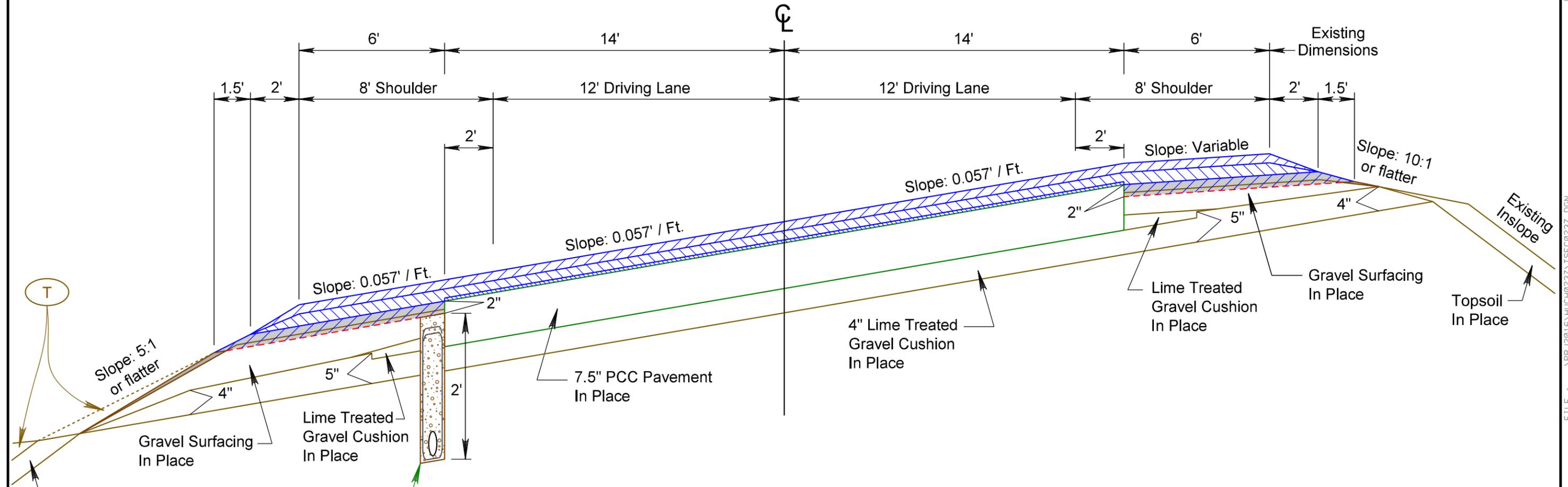
Hutchinson County Superelevated Curve (Two-Lane)

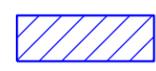
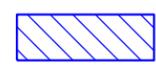
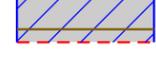
634+29 to 636+69 Runoff
 636+69 to 671+13 Rate 0.057' / Ft.
 671+13 to 675+17.63 Runoff ▲

▲ (Thru Equation 671+93.14 Back = 673+57.77 Ahead)

PLOT SCALE - 1:4

PLOT NAME - 9



-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 3rd Mainline Lift (1.5" depth on shoulders also)
-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 2nd Mainline Lift (2" depth on shoulders)
-  0.5" Asphalt Concrete Leveling Lift - 1st Mainline Lift
-  Unclassified Excavation and Salvage and Stockpile Granular Material at Slope: 0.04' / Ft (0" to 2" Depth - 0.67"+ Average) and replace with 2" Class Q3 Hot Mixed Asphalt Concrete - Shoulder Lift
-  Place and compact some of the salvaged material on the inslope as shown, where necessary, to provide the width necessary for resurfacing. Cost shall be incidental to the contract unit price per ton for Salvage and Stockpile Granular Material.

See SECTION 6
EDGE DRAIN AND
OUTLET DETAILS

T Blade topsoil down inslope before excavating shoulder material. Blade topsoil up inslope after asphalt concrete is placed.

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TYPICAL RESURFACING SECTION

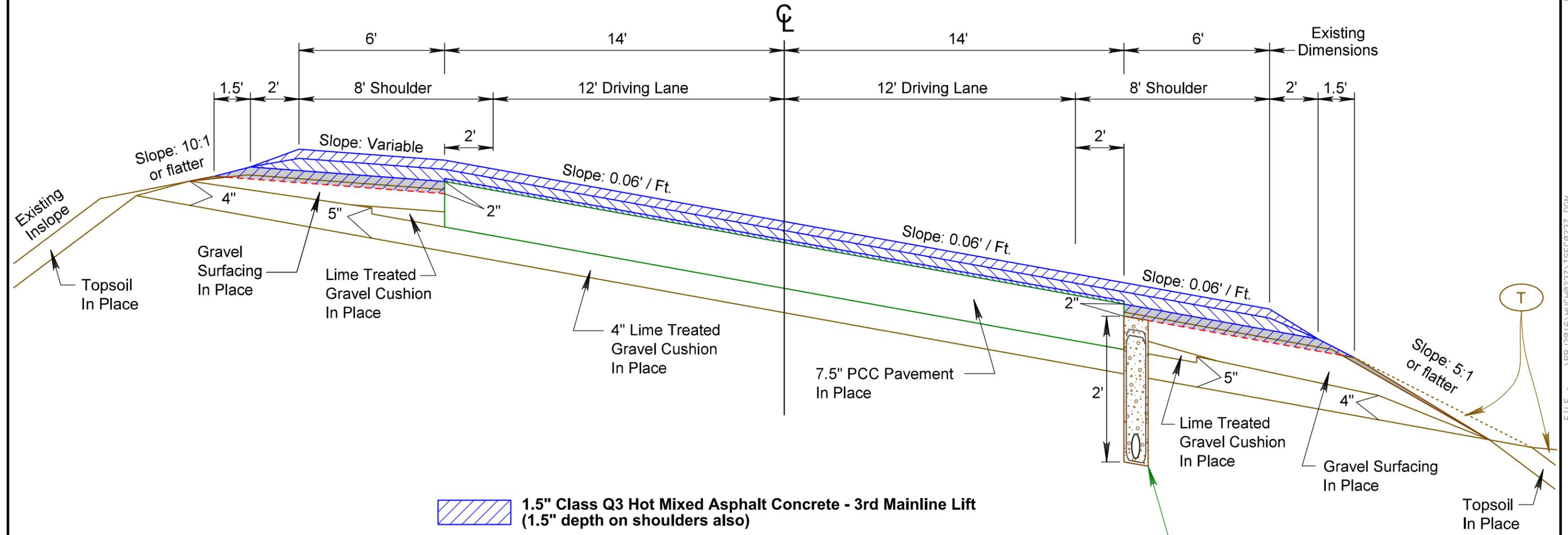
SECTION 7

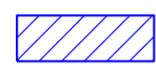
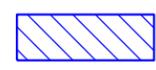
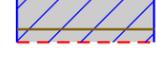
Yankton County Superelevated Curve (Two-Lane)

682+61 to 685+01 Runoff
 685+01 to 713+48 Rate 0.06' / Ft.
 713+48 to 715+88 Runoff

PLOT SCALE - 1:4

PLOT NAME - 10



-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 3rd Mainline Lift (1.5" depth on shoulders also)
-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 2nd Mainline Lift (2" depth on shoulders)
-  0.5" Asphalt Concrete Leveling Lift - 1st Mainline Lift
-  Unclassified Excavation and Salvage and Stockpile Granular Material at Slope: 0.04' / Ft (0" to 2" Depth - 0.67"+ Average) and replace with 2" Class Q3 Hot Mixed Asphalt Concrete - Shoulder Lift
-  Place and compact some of the salvaged material on the inslope as shown, where necessary, to provide the width necessary for resurfacing. Cost shall be incidental to the contract unit price per ton for Salvage and Stockpile Granular Material.

See SECTION 7
EDGE DRAIN AND
OUTLET DETAILS

T Blade topsoil down inslope before excavating shoulder material. Blade topsoil up inslope after asphalt concrete is placed.

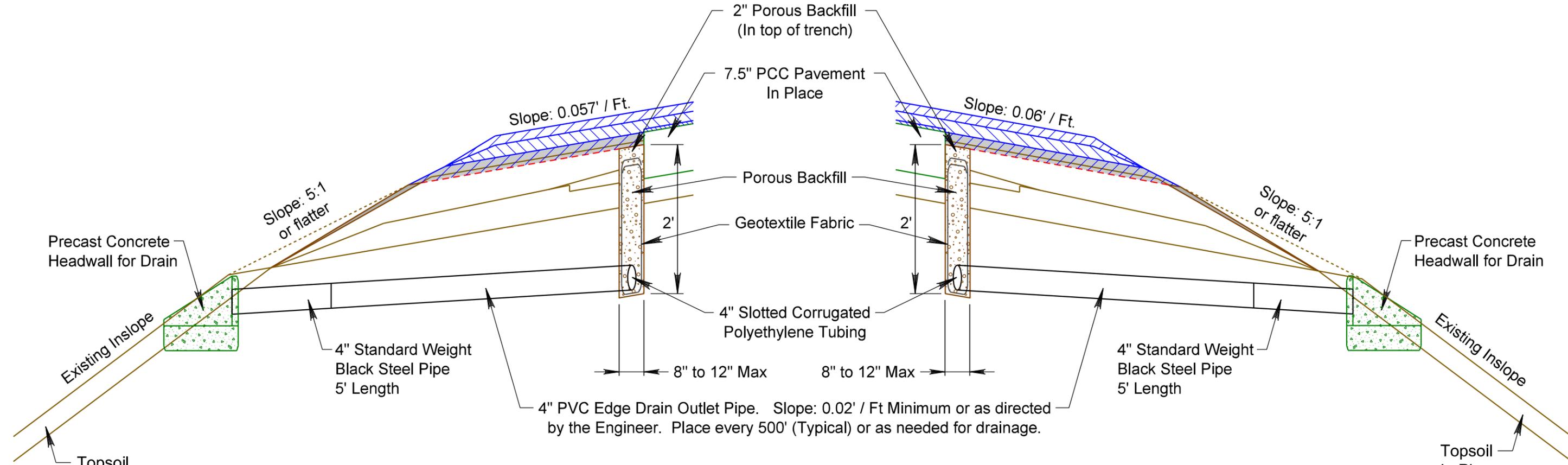
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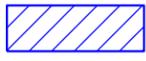
TYPICAL EDGE DRAIN & OUTLET SECTION

SECTION 6 EDGE DRAIN AND OUTLET DETAILS

SECTION 7 EDGE DRAIN AND OUTLET DETAILS



Care must be taken to ensure that the edge drain and outlet piping is not damaged during construction. Sufficient cover material is to be placed over the edge drain and outlets before heavy equipment is allowed to work over them. Damaged pipe will be replaced at the Contractor's expense.

-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 3rd Mainline Lift (1.5" depth on shoulders also)
-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 2nd Mainline Lift (2" depth on shoulders)
-  0.5" Asphalt Concrete Leveling Lift - 1st Mainline Lift
-  Unclassified Excavation and Salvage and Stockpile Granular Material at Slope: 0.04' / Ft (0" to 2" Depth - 0.67"+ Average) and replace with 2" Class Q3 Hot Mixed Asphalt Concrete - Shoulder Lift
-  Place and compact some of the salvaged material on the inslope as shown, where necessary, to provide the width necessary for resurfacing. Cost shall be incidental to the contract unit price per ton for Salvage and Stockpile Granular Material.

PLOT SCALE - 1:4

PLOTTED FROM - IRMLINT15

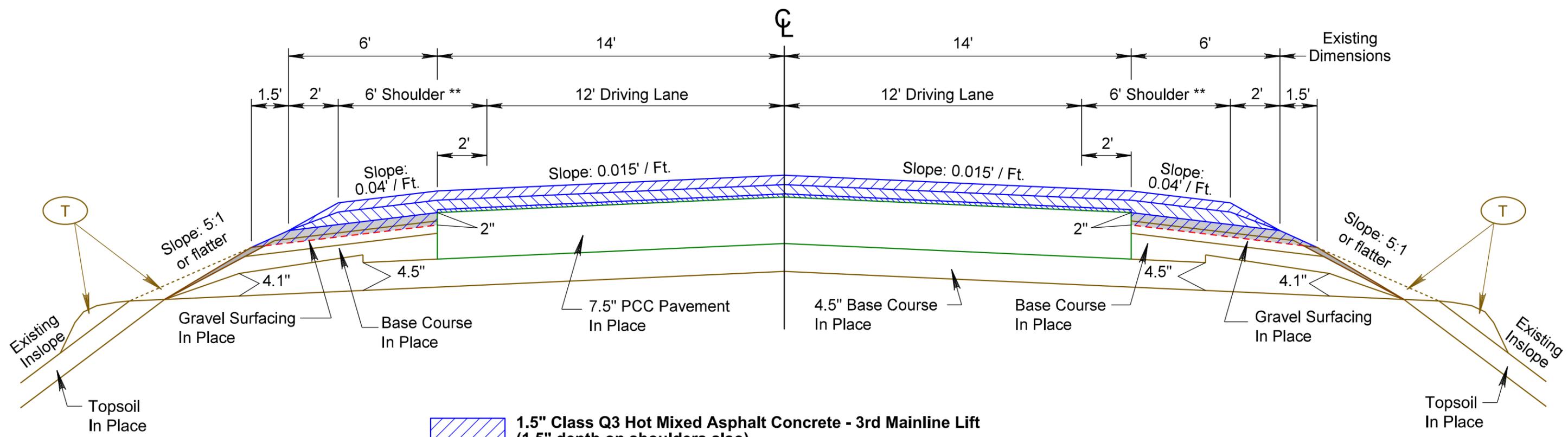
PLOT NAME - 11
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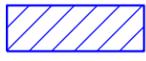
TYPICAL RESURFACING SECTION

SECTION 8

Two-Lane
 (Equation 774+31.77 Back = 88+85.89 (2nd) Ahead)
 88+85.89 (2nd) to 163+59 (2nd)
 171+09 (2nd) to 317+66 (2nd)

Transitions	**
88+85.89 (2nd) to 90+85.89 (2nd)	8' to 6'
161+59 R (2nd) to 163+59 R (2nd)	6' to 8'
171+09 R (2nd) to 173+09 R (2nd)	8' to 6'



-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 3rd Mainline Lift (1.5" depth on shoulders also)
-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 2nd Mainline Lift (2" depth on shoulders)
-  0.5" Asphalt Concrete Leveling Lift - 1st Mainline Lift
-  Unclassified Excavation and Salvage and Stockpile Granular Material at Slope: 0.04' / Ft (0" to 2" Depth - 0.67"+ Average) and replace with 2" Class Q3 Hot Mixed Asphalt Concrete - Shoulder Lift
-  Place and compact some of the salvaged material on the inslope as shown, where necessary, to provide the width necessary for resurfacing. Cost shall be incidental to the contract unit price per ton for Salvage and Stockpile Granular Material.

T Blade topsoil down inslope before excavating shoulder material. Blade topsoil up inslope after asphalt concrete is placed.

PLOT SCALE - 1:4

PLOTTED FROM - TRMLINT15

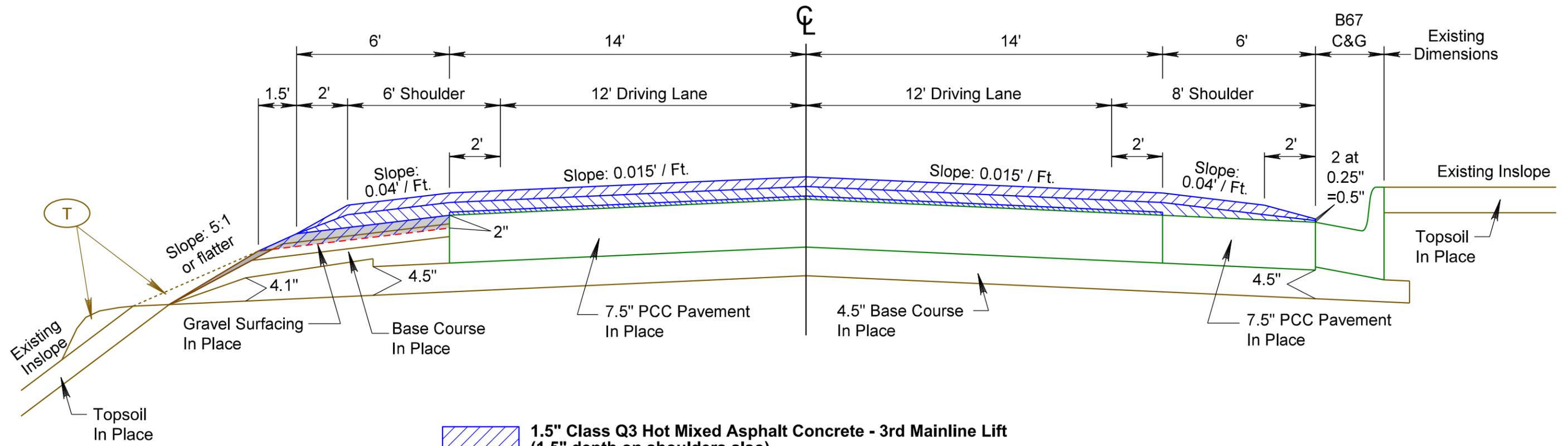
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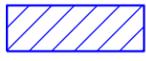
PLOT NAME - 12

TYPICAL RESURFACING SECTION

SECTION 9

Two-Lane with Curb & Gutter on US81 at 294th Street (Midway)
163+59 (2nd) to 171+09 (2nd)



-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 3rd Mainline Lift (1.5" depth on shoulders also)
-  1.5" Class Q3 Hot Mixed Asphalt Concrete - 2nd Mainline Lift (2" depth on left shoulder, 2" to 0" depth on right shoulder)
-  0.5" Asphalt Concrete Leveling Lift - 1st Mainline Lift
-  Unclassified Excavation and Salvage and Stockpile Granular Material at Slope: 0.04' / Ft (0" to 2" Depth - 0.67"+ Average) and replace with 2" Class Q3 Hot Mixed Asphalt Concrete - Shoulder Lift
-  Place and compact some of the salvaged material on the inslope as shown, where necessary, to provide the width necessary for resurfacing. Cost shall be incidental to the contract unit price per ton for Salvage and Stockpile Granular Material.

T Blade topsoil down inslope before excavating shoulder material. Blade topsoil up inslope after asphalt concrete is placed.

PLOT SCALE - 1:4

PLOTTED FROM - TRMLINT15

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PLOT NAME - 13

RATES OF MATERIALS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0081(88)15	17	56

**Section 1
Two-Lane**
580+80.20 to 586+60.00
589+30.00 to 613+34.00
616+04.00 to 619+66.90
5+33.22 to 237+57.94

Eq 619+66.90 Back = 5+3.22 Ahead

The Estimate of quantities is based on the following quantities of materials per mile.

PLACING SALVAGED MATERIAL

Water for Granular Material 0.7 MGal

2" CLASS Q3 HOT MIXED ASPHALT CONCRETE SHOULDER LIFT

	NB SHOULDER	SB SHOULDER
Crushed Aggregate	352 Tons	352 Tons
PG 64-28 Asphalt Binder	22 Tons	22 Tons
	TOTAL: 374 Tons	374 Tons
Hydrated Lime	4 Tons	4 Tons
	TOTAL: 378 Tons	378 Tons

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

0.5" ASPHALT CONCRETE LEVELING LIFT 1ST ML LIFT

Crushed Aggregate	445 Tons
PG 64-28 Asphalt Binder	27 Tons
	TOTAL: 472 Tons

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 7 tons applied 31 feet wide (Rate = 0.09 gallon per square yard).

1.5" CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND ML LIFT

Crushed Aggregate	1804 Tons
PG 64-28 Asphalt Binder	111 Tons
	TOTAL: 1915 Tons
Hydrated Lime	19 Tons
	TOTAL: 1934 Tons

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 6.1 tons applied 41 feet wide (Rate = 0.06 gallon per square yard).

1.5" CLASS Q3 HOT MIXED ASPHALT CONCRETE 3RD ML LIFT

Crushed Aggregate	1748 Tons
PG 64-28 Asphalt Binder	108 Tons
	TOTAL: 1856 Tons
Hydrated Lime	19 Tons
	TOTAL: 1875 Tons

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 6.1 tons applied 41 feet wide (Rate = 0.06 gallon per square yard).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 5.4 tons applied 43 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 56 tons applied 24 feet wide (Rate = 8 pounds per square yard).

**Section 2
Two-Lane with Left Turn Lanes**

586+60.00 to 589+30.00
613+34.00 to 616+04.00

No rates are provided for Section 2 as the width of the section is variable.
Quantities for Section 2 are included in Table of Materials Quantities.

**Section 3
Two-Lane**
237+57.94 to 393+85.00
396+55.00 to 579+53.10

**Section 8
Two-Lane**
88+85.89 (2nd) to 163+59.00 (2nd)
171+09.00 (2nd) to 317+66.00 (2nd)

The Estimate of quantities is based on the following quantities of materials per mile.

PLACING SALVAGED MATERIAL

Water for Granular Material 1.6 MGals

2" CLASS Q3 HOT MIXED ASPHALT CONCRETE SHOULDER LIFT

	NB SHOULDER	SB SHOULDER
Crushed Aggregate	415 Tons	415 Tons
PG 64-28 Asphalt Binder	25 Tons	25 Tons
	TOTAL: 440 Tons	440 Tons
Hydrated Lime	4 Tons	4 Tons
	TOTAL: 444 Tons	444 Tons

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

0.5" ASPHALT CONCRETE LEVELING LIFT 1ST ML LIFT

Crushed Aggregate	430 Tons
PG 64-28 Asphalt Binder	26 Tons
	TOTAL: 456 Tons

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 6.5 tons applied 29 feet wide (Rate = 0.09 gallon per square yard).

1.5" CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND ML LIFT

Crushed Aggregate	1902 Tons
PG 64-28 Asphalt Binder	117 Tons
	TOTAL: 2019 Tons
Hydrated Lime	20 Tons
	TOTAL: 2039 Tons

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 6.1 tons applied 41 feet wide (Rate = 0.06 gallon per square yard).

1.5" CLASS Q3 HOT MIXED ASPHALT CONCRETE 3RD ML LIFT

Crushed Aggregate	1748 Tons
PG 64-28 Asphalt Binder	108 Tons
	TOTAL: 1856 Tons
Hydrated Lime	19 Tons
	TOTAL: 1875 Tons

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 6.1 tons applied 41 feet wide (Rate = 0.06 gallon per square yard).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 5.4 tons applied 43 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 56 tons applied 24 feet wide (Rate = 8 pounds per square yard).

**Section 4
Two-Lane with Left Turn Lanes**

393+85.00 to 396+55.00

No rates are provided for Section 4 as the width of the section is variable.
Quantities for Section 4 are included in Table of Materials Quantities.

RATES OF MATERIALS (CONTINUED)

STATE OF SOUTH DAKOTA	PROJECT NH 0081(88)15	SHEET 18	TOTAL SHEETS 56
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**Section 5
Two-Lane**

579+53.10 to 634+29.00
675+17.63 to 682+61.00
715+88.00 to 774+31.77

**Section 6
Hutchinson County Superelevated Curve (Two-Lane)**

634+29.00 to 636+69.00
636+69.00 to 671+13.00
671+13.00 to 671+93.14 Eq 671+93.14 Back = 673+57.77 Ahead
673+57.77 to 675+17.63

**Section 7
Yankton County Superelevated Curve (Two-Lane)**

682+61.00 to 685+01.00
685+01.00 to 713+48.00
713+48.00 to 715+88.00

The Estimate of quantities is based on the following quantities of materials per mile.

PLACING SALVAGED MATERIAL

Water for Granular Material 1 MGal

2" CLASS Q3 HOT MIXED ASPHALT CONCRETE SHOULDER LIFT

	NB SHOULDER	SB SHOULDER
Crushed Aggregate	537 Tons	537 Tons
PG 64-28 Asphalt Binder	33 Tons	33 Tons
	TOTAL: 570 Tons	570 Tons
Hydrated Lime	6 Tons	6 Tons
	TOTAL: 576 Tons	576 Tons

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

0.5" ASPHALT CONCRETE LEVELING LIFT 1ST ML LIFT

Crushed Aggregate	430 Tons
PG 64-28 Asphalt Binder	26 Tons
	TOTAL: 456 Tons

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 6.5 tons applied 29 feet wide (Rate = 0.09 gallon per square yard).

1.5" CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND ML LIFT

Crushed Aggregate	2147 Tons
PG 64-28 Asphalt Binder	132 Tons
	TOTAL: 2279 Tons
Hydrated Lime	23 Tons
	TOTAL: 2302 Tons

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 6.7 tons applied 45 feet wide (Rate = 0.06 gallon per square yard).

1.5" CLASS Q3 HOT MIXED ASPHALT CONCRETE 3RD ML LIFT

Crushed Aggregate	1932 Tons
PG 64-28 Asphalt Binder	119 Tons
	TOTAL: 2051 Tons
Hydrated Lime	21 Tons
	TOTAL: 2072 Tons

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 6.7 tons applied 45 feet wide (Rate = 0.06 gallon per square yard).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 5.9 tons applied 47 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 56 tons applied 24 feet wide (Rate = 8 pounds per square yard).

Section 9

Two-Lane with Curb & Gutter
163+59.00 (2nd) to 171+09.00 (2nd)

The Estimate of quantities is based on the following quantities of materials per station.

PLACING SALVAGED MATERIAL

Water for Granular Material 0.01 MGal

2" CLASS Q3 HOT MIXED ASPHALT CONCRETE SHOULDER LIFT

	NB SHOULDER
Crushed Aggregate	7.85 Tons
PG 64-28 Asphalt Binder	0.48 Ton
	TOTAL: 8.33 Tons
Hydrated Lime	0.08 Ton
	TOTAL: 8.41 Tons

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

0.5" ASPHALT CONCRETE LEVELING LIFT 1ST ML LIFT

Crushed Aggregate	8.13 Tons
PG 64-28 Asphalt Binder	0.50 Ton
	TOTAL: 8.63 Tons

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.12 ton applied 29 feet wide (Rate = 0.09 gallon per square yard).

1.5" CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND ML LIFT

Crushed Aggregate	34.13 Tons
PG 64-28 Asphalt Binder	2.10 Tons
	TOTAL: 36.23 Tons
Hydrated Lime	0.36 Ton
	TOTAL: 36.59 Tons

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

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).

1.5" CLASS Q3 HOT MIXED ASPHALT CONCRETE 3RD ML LIFT

Crushed Aggregate	33.25 Tons
PG 64-28 Asphalt Binder	2.05 Tons
	TOTAL: 35.3 Tons
Hydrated Lime	0.35 Ton
	TOTAL: 35.65 Tons

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

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).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.1 ton applied 41.5 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.07 tons applied 24 feet wide (Rate = 8 pounds per square yard).

SUMMARY OF ASPHALT CONCRETE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0081(88)15	19	56

	CLASS Q3 HOT MIXED ASPHALT CONCRETE SHOULDER LIFT WITHOUT SPECIFIED DENSITY COMPACTION TONS	ASPHALT CONCRETE LEVELING LIFT 1ST ML LIFT WITHOUT SPECIFIED DENSITY COMPACTION TONS	CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND ML LIFT WITH SPECIFIED DENSITY COMPACTION TONS	CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND ML LIFT WITHOUT SPECIFIED DENSITY COMPACTION TONS	CLASS Q3 HOT MIXED ASPHALT CONCRETE 3RD ML LIFT WITH SPECIFIED DENSITY COMPACTION TONS	CLASS Q3 HOT MIXED ASPHALT CONCRETE 3RD ML LIFT WITHOUT SPECIFIED DENSITY COMPACTION TONS	ASPHALT CONCRETE COMPOSITE WITHOUT SPECIFIED DENSITY COMPACTION TONS		CLASS Q3 HOT MIXED ASPHALT CONCRETE SHOULDER LIFT WITHOUT SPECIFIED DENSITY COMPACTION TONS	ASPHALT CONCRETE LEVELING LIFT 1ST ML LIFT WITHOUT SPECIFIED DENSITY COMPACTION TONS	CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND ML LIFT WITH SPECIFIED DENSITY COMPACTION TONS	CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND ML LIFT WITHOUT SPECIFIED DENSITY COMPACTION TONS	CLASS Q3 HOT MIXED ASPHALT CONCRETE 3RD ML LIFT WITH SPECIFIED DENSITY COMPACTION TONS	CLASS Q3 HOT MIXED ASPHALT CONCRETE 3RD ML LIFT WITHOUT SPECIFIED DENSITY COMPACTION TONS	ASPHALT CONCRETE COMPOSITE WITHOUT SPECIFIED DENSITY COMPACTION TONS
Section 1															
24' Roadway Surface	-	1965	5958	-	5959	-	-	24' Roadway Surface	-	291	879	-	879	-	-
6' Shoulders	3804	410	-	3774	-	3476	-	8' Shoulders	856	48	-	831	-	660	-
Section 1 Totals:	3804	2375	5958	3774	5959	3476	-	Section 6 Totals:	856	339	879	831	879	660	-
Section 1 Addit Quans for spot leveling	-	-	-	503	-	-	-	Section 6 Addit Quans for spot leveling	-	-	-	74	-	-	-
Section 2															
34' Roadway Surface	-	57	172	-	172	-	-	24' Roadway Surface	-	246	746	-	746	-	-
4' to 6' Shoulders	64	8	-	65	-	60	-	8' Shoulders	726	41	-	704	-	559	-
Section 2 Totals:	64	65	172	65	172	60	-	Section 7 Totals:	726	287	746	704	746	559	-
Section 2 Addit Quans for spot leveling	-	-	-	10	-	-	-	Section 7 Addit Quans for spot leveling	-	-	-	63	-	-	-
Section 3															
24' Roadway Surface	-	2511	7608	-	7608	-	-	24' Roadway Surface	-	1638	4962	-	4962	-	-
6' Shoulders	5705	419	-	5493	-	4439	-	6' Shoulders	3722	273	-	3583	-	2896	-
Section 3 Totals:	5705	2930	7608	5493	7608	4439	-	Section 8 Totals:	3722	1911	4962	3583	4962	2896	-
Section 3 Addit Quans for spot leveling	-	-	-	643	-	-	-	Section 8 Addit Quans for spot leveling	-	-	-	419	-	-	-
Section 4															
36' Roadway Surface	-	30	91	-	91	-	-	24' Roadway Surface	-	56	168	-	168	-	-
4' to 6' Shoulders	39	3	-	37	-	30	-	6' L Shldr & 8' R Shldr	63	9	-	106	-	99	-
Section 4 Totals:	39	33	91	37	91	30	-	Section 9 Totals:	63	65	168	106	168	99	-
Section 4 Addit Quans for spot leveling	-	-	-	5	-	-	-	Section 9 Addit Quans for spot leveling	-	-	-	14	-	-	-
Section 5															
24' Roadway Surface	-	893	2705	-	2705	-	-	Addit Quans for for spot leveling	-	-	-	1960	-	-	-
8' Shoulders	2632	149	-	2555	-	2030	-	Table of Additional Quantities							
Section 5 Totals:	2632	1042	2705	2555	2705	2030	-	Mainline Transitions	-	30	96	-	96	-	-
Section 5 Addit Quans for spot leveling	-	-	-	229	-	-	-	Table of Addit Quans except items listed above	104	-	-	546	-	838	570
								Additional Totals:	104	30	96	546	96	838	570
								Project Totals:	17715	9077	23385	19654	23386	15087	570
	46771	TONS ASPHALT CONCRETE WITH SPECIFIED DENSITY COMPACTION													
	62103	TONS ASPHALT CONCRETE WITHOUT SPECIFIED DENSITY COMPACTION													
	108874	TONS TOTAL													

TABLE OF PROJECT STATIONING

SECTION	STATION TO	STATION	DESCRIPTION	LENGTH	SECTION LENGTHS	
1	580+80.20 to	586+60.00	Two-Lane	579.80'	26571.42'	5.033 mi.
	589+30.00 to	613+34.00		2404.00'		
	616+04.00 to	619+66.90		362.90'		
	5+33.22 to	237+57.94		23224.72'		
2	586+60.00 to	589+30.00	Two-Lane with Left Turn Lanes	270.00'	540.00'	0.102 mi.
	613+34.00 to	616+04.00		270.00'		
3	237+57.94 to	393+85.00	Two-Lane	15627.06'	33925.16'	6.425 mi.
	396+55.00 to	579+53.10		18298.10'		
4	393+85.00 to	396+55.00	Two-Lane with Left Turn Lanes	270.00'	270.00'	0.051 mi.
5	579+53.10 to	634+29.00	Two-Lane	5475.90'	12063.04'	2.285 mi.
	675+17.63 to	682+61.00		743.37'		
	715+88.00 to	774+31.77		5843.77'		
6	634+29.00 to	636+69.00	Hutchinson County Superelevated Curve (Two-Lane)	240.00'	3924.00'	0.743 mi.
	636+69.00 to	671+13.00		3444.00'		
	671+13.00 to	671+93.14		80.14'		
	673+57.77 to	675+17.63		159.86'		
7	682+61.00 to	685+01.00	Yankton County Superelevated Curve (Two-Lane)	240.00'	3327.00'	0.630 mi.
	685+01.00 to	713+48.00		2847.00'		
	713+48.00 to	715+88.00		240.00'		
8	88+85.89 (2nd) to	163+59.00 (2nd)	Two-Lane	7473.11'	22130.11'	4.191 mi.
	171+09.00 (2nd) to	317+66.00 (2nd)		14657.00'		
9	163+59.00 (2nd) to	171+09.00 (2nd)	Two-Lane with Curb & Gutter	750.00'	750.00'	0.142 mi.
Grand Totals					103500.73'	19.602 mi.

TABLE OF MATERIALS QUANTITIES

SECTION	UNCL. EXC.	UNCL. EXC. DIG-OUTS	CONTRACTOR FURNISHED BORROW EXCAVATION	WATER FOR EMB.	BASE COURSE SALV.	WATER FOR GRAN. MATER.	PLANING PCCP	SALVAGE & STOCKPILE GRANULAR MATERIAL	CLASS Q3 HOT MIXED ASPHALT CONCRETE SHOULDER LIFT	PG 64-28 ASPHALT BINDER	HYDR. LIME	ASPHALT CONCRETE LEVELING LIFT 1ST ML LIFT	PG 64-28 ASPHALT BINDER LEVELING LIFT	CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND ML LIFT	PG 64-28 ASPHALT BINDER	HYDR. LIME	CLASS Q3 HOT MIXED ASPHALT CONCRETE 3RD ML LIFT	PG 64-28 ASPHALT BINDER	HYDR. LIME	ASPH. CONC. COMP.	SS-1h/ CSS-1h ASPH. FOR TACK	SS-1h/ CSS-1h ASPH. FOR FLUSH SEAL	SAND FOR FLUSH SEAL
	CuYd	CuYd	CuYd	MGal	Ton	MGal	SqYd	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton
1	654	101	20	-	201	61	-	1236	3804	218.4	37.7	2375	137.8	9732	558.9	96.4	9435	541.8	93.4	-	96.6	27.2	282
2	13	2	-	-	4	1	-	25	64	3.7	0.6	65	3.8	237	13.6	2.3	232	13.3	2.3	-	2.5	0.6	8
3	977	129	70	1	257	93	-	1847	5705	327.6	56.5	2930	169.9	13101	752.3	129.7	12047	691.8	119.3	-	120.2	34.7	360
4	8	1	-	-	2	1	-	15	39	2.2	0.4	33	1.9	128	7.4	1.3	121	6.9	1.2	-	1.3	0.4	4
5	398	46	5	-	91	39	-	752	2632	151.1	26.1	1042	60.4	5260	302.1	52.1	4735	271.9	46.9	-	45.5	13.5	128
6	161	15	5	-	30	13	-	304	856	49.2	8.5	339	19.7	1710	98.2	16.9	1539	88.4	15.2	-	14.8	4.4	42
7	137	13	-	-	25	11	-	259	726	41.7	7.2	287	16.6	1450	83.3	14.4	1305	74.9	12.9	-	12.5	3.7	35
8	729	84	-	-	168	57	-	1378	3722	213.7	36.9	1911	110.8	8545	490.7	84.6	7858	451.3	77.8	-	78.4	22.6	235
9	12	3	-	-	6	1	-	23	63	3.6	0.6	65	3.8	274	15.7	2.7	267	15.3	2.6	-	2.7	0.8	8
Subtotals:	3089	394	100	1	784	277	-	5839	17611	1011.2	174.5	9047	524.7	40437	2322.2	400.4	37539	2155.6	371.6	-	374.5	107.9	1102
Additional Quantities:	60	-	386	4	2647	22	3197	120	104	6.0	1.0	30	1.7	2602	149.4	25.6	934	53.7	9.4	570	25.7	1.9	38
Totals:	3149	394	486	5	3431	299	3197	5959	17715	1017.2	175.5	9077	526.4	43039	2471.6	426.0	38473	2209.3	381.0	570	400.2	109.8	1140

TABLE OF ADDITIONAL QUANTITIES

LOCATION	UNCL. EXC.	CONTRACTOR FURNISHED BORROW EXCAVATION	WATER FOR EMB.	BASE COURSE SALV.	WATER FOR GRAN. MATER.	PLANING PCCP	SALVAGE & STOCKPILE GRANULAR MATERIAL	CLASS Q3 HOT MIXED ASPHALT CONCRETE SHOULDER LIFT	PG 64-28 ASPHALT BINDER	HYDR. LIME	ASPHALT CONCRETE LEVELING LIFT	PG 64-28 ASPHALT BINDER LEVELING LIFT	CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND ML LIFT	PG 64-28 ASPHALT BINDER	HYDR. LIME	CLASS Q3 HOT MIXED ASPHALT CONCRETE 3RD ML LIFT	PG 64-28 ASPHALT BINDER	HYDR. LIME	ASPH. CONC. COMP.	SS-1h/ CSS-1h ASPH. FOR FLUSH SEAL	SAND FOR FLUSH SEAL
	CuYd	CuYd	MGal	Ton	MGal	SqYd	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton
<u>Mainline Transitions</u>																					
Sec. 1	583+85 to 586+60	0' to 10'	-	-	-	-	-	-	-	-	4	0.22	13	0.75	0.15	13	0.75	0.15	-	0.03	1.0
Sec. 1	589+30 to 592+05	10' to 0'	-	-	-	-	-	-	-	-	4	0.22	13	0.75	0.15	13	0.75	0.15	-	0.03	1.0
Sec. 1	610+59 to 613+34	0' to 10'	-	-	-	-	-	-	-	-	4	0.22	13	0.75	0.15	13	0.75	0.15	-	0.03	1.0
Sec. 1	616+04 to 618+79	10' to 0'	-	-	-	-	-	-	-	-	4	0.22	13	0.75	0.15	13	0.75	0.15	-	0.03	1.0
Sec. 3	389+95 to 393+85	0' to 12'	-	-	-	-	-	-	-	-	7	0.41	22	1.3	0.2	22	1.3	0.2	-	0.06	1.0
Sec. 3	396+55 to 400+45	12' to 0'	-	-	-	-	-	-	-	-	7	0.41	22	1.3	0.2	22	1.3	0.2	-	0.06	1.0
<u>Shoulder Transitions **</u>																					
Sec. 3	577+53.1 to 579+53.1	6' to 8'	-	-	-	-	-	35	2.0	0.3	-	-	35	2.0	0.3	26	1.5	0.3	-	0.07	1.0
Sec. 8	88+85.89 (2nd) to 90+85.89 (2nd)	8' to 6'	-	-	-	-	-	35	2.0	0.3	-	-	35	2.0	0.3	26	1.5	0.3	-	0.07	1.0
Sec. 8	161+59 R (2nd) to 163+59 R (2nd)	6' to 8'	-	-	-	-	-	17	1.0	0.2	-	-	17	1.0	0.2	13	0.7	0.1	-	0.03	1.0
Sec. 8	171+09 R (2nd) to 173+09 R (2nd)	8' to 6'	-	-	-	-	-	17	1.0	0.2	-	-	17	1.0	0.2	13	0.7	0.1	-	0.03	1.0
Begin Project			-	-	-	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
End Project			-	-	-	373	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<u>Other (Nondensity) Locations</u>																					
Growth Joints			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	472	-	-
PCCP Repair Areas			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	98	-	-
22 Mailbox Turnouts			-	386	4	57	-	-	-	-	-	-	19	1.1	0.1	19	1.1	0.1	-	-	-
<u>Resurface to ROW (or dim. shown)</u>																					
9 Intersecting Roads			49	-	-	-	-	98	-	-	-	-	104	5.9	1.1	168	9.6	1.8	-	0.30	6.0
3 Intersecting Roads	W Leg 278th St (to 130') & US18 (to 153')		-	-	-	1577	-	-	-	-	-	-	118	6.8	1.1	162	9.3	1.6	-	0.40	7.0
1 Intersecting Street	W Leg 6th St (to 110')		-	-	-	508	-	-	-	-	-	-	33	1.9	0.3	43	2.5	0.4	-	0.10	2.0
1 House Entrance	585+76 L (to 62±)		1	-	-	-	2	-	-	-	-	-	3	0.2	-	11	0.6	0.1	-	0.02	0.3
6 Commercial Ents	Casey's & Ampride (to 50'), Country Inn (2), Hefty Seed and Meridian Corner (to 75')		10	-	-	30	20	-	-	-	-	-	32	1.9	0.3	90	5.2	0.9	-	0.16	2.9
<u>Resurface to End of Radius</u>																					
28 Intersecting Roads			-	-	420	4	-	-	-	-	-	-	133	7.6	1.4	267	15.4	2.7	-	0.50	10.0
<u>Pads *</u>																					
15 Double Approaches			-	-	300	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12 Commercial Entrances			-	-	360	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31 Farm Entrances			-	-	310	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77 Field Entrances			-	-	770	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10 Dbl Commercial Entrances			-	-	400	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS:			60	386	4	2647	22	3197	120	104	6.0	1.0	30	1.7	6.3	934	53.7	9.4	570	1.9	38

NOTES: 7.2 tons of SS-1h or CSS-1h Asphalt for Tack are included in the Estimate of Quantities and shall be applied at the rate shown on the plans as directed by the Engineer.

* Quantities for removing, salvaging and stockpiling the existing asphalt concrete shoulder pads at entrances are included in the Table of Materials Quantities.

** Quantities for the other Shoulder Transitions (4' to 6' and 6' to 4') in Sections 1, 2, 3 & 4 are included in Table of Materials Quantities for each respective section.

The tonnage shown above for Base Course, Salvaged is based on a compacted depth of 4 inches for Mailbox Turnouts and 2 inches for other locations.

The tonnage shown above for Class Q3 Hot Mixed Asphalt Concrete - Shoulder Lift is based on a compacted depth of 2 inches.

The tonnage shown above for Asphalt Concrete Leveling Lift - 1st ML Lift is based on a compacted depth of 0.5 inch.

The tonnage shown above for Class Q3 Hot Mixed Asphalt Concrete - 2nd ML Lift is based on a compacted depth of: 1.5 inches when on driving surfaces, 1.7 inches when on shoulders in Sections 1 & 2, and 2 inches when on shoulders in Sections 3 - 9.

The tonnage shown above for Class Q3 Hot Mixed Asphalt Concrete - 3rd ML Lift is based on a compacted depth of 1.5 inches.

The above quantities are included in the Estimate of Quantities.

TABLE FOR MAINLINE CULVERT WORK

Section - Station	NH 0081(88)15 Hutchinson & Yankton Counties PCN 023Z CULVERT	CONTRACTOR FURNISHED BORROW EXCAVATION		REMOVE & RESET PIPE CULVERT		REMOVE & RESET PIPE END SECTION		TYPE 2 OBJECT MARKERS BACK TO BACK EACH	TYPE 2 OBJECT MARKERS (SINGLE) EACH	
		CUYD		FT		EACH				
		L	R	L	R	L	R			
1 589+00	Twin 36" x 60' RC Arch 4 FE								4	
Equation 619+66.90 Back = 5+33.22 Ahead										
1 62+40	30" X 60' RC Arch 2 FE								4	
1 87+06	24" X 82' RCP 2 FE							2		
1 106+14	36" X 112' RCP 2 FE								4	
1 143+60	36" X 80' RCP 2 FE								4	
1 168+60	24" X 80' RCP 2 FE		20		16		1	2		
1 184+76	24" X 80' RCP 2 FE							2		
1 207+55	Twin 72" X 77' RCP 4 FE								4	
1 217+40	30" X 82' RCP 2 FE								4	
3 237+93	24" X 80' RCP 2 FE							2		
3 249+50	36" X 78' RCP 2 FE								4	
3 258+72	30" X 82' RCP 2 FE		5				1		4	
3 271+75	36" X 108' RCP 2 FE								4	
3 299+00	24" X 80' RCP 2 FE		15		12		1	2		
3 327+67	Twin 48" X 78' RC Arch 4 FE	30		2 @ 12 = 24		2			4	
3 351+67	36" X 78' RCP 2 FE								4	
3 376+71	30" X 82' RCP 2 FE	10		6		1			4	
3 393+73	24" X 88' RCP 2 FE							2		
3 406+00	24" X 86' RCP 2 FE	5				1		2		
3 428+75	24" X 84' RCP 2 FE							2		
3 447+00	Twin 30" X 82' RCP 4 FE								4	
3 449+79	24" X 80' RCP 2 FE							2		
3 476+00	24" X 82' RCP 2 FE							2		
3 490+00	Triple 42" X 78' RC Arch 8 FE								4	
3 494+75	42" ± X 80' RC Arch 2 FE								4	
3 504+04	24" X 80' RCP 2 FE							2		
3 517+80	24" X 92' RCP 2 FE							2		
3 533+53	24" X 80' RCP 2 FE							2		
3 539+83	24" X 82' RCP 2 FE							2		
3 549+91	36" X 82' RCP 2 FE								4	
3 571+27	24" X 82' RCP 2 FE							2		
3 579+00	24" X 80' RCP 2 FE		5				1	2		
5 589+33	24" X 80' RCP 2 FE							2		
5 596+00	24" X 98' RCP 2 FE							2		
5 604+33	48" X 98' RCP 2 FE								4	
5 618+89	24" X 110' RCP 2 FE							2		
5 622+04	60" X 84' RCP 2 FE								4	
5 626+50	24" X 88' RCP 2 FE							2		
6 648+00	36" X 106' RCP 2 FE								4	
6 660+00	24" X 102' RCP 2 FE							2		
6 665+00	30" X 104' RCP 2 FE		5				1		4	
Equation 671+93.14 Back = 673+57.77 Ahead										
7 710+00	24" X 142' RCP 2 FE							2		
5 732+01	24" X 80' RCP 2 FE							2		
5 736+20	24" X 80' RCP 2 FE		5				1	2		
5 767+66	30" X 112' RCP 2 FE								4	
Equation 774+31.77 Back = 88+85.89 Ahead										
8 118+38	24" X 80' RCP 2 FE							2		
8 125+30	42" X 82' RCP 2 FE (15° Skew LHF)								4	
8 157+00	120" X 160' RC Arch 2 FE (15° Skew LHF)								4	
8 185+80	24" X 80' RCP 2 FE							2		
8 213+82	24" X 84' CMP 2 FE EQUALIZER							2		
8 217+20	Twin 24" X 80' RCP 4 FE								4	
8 221+00	24" X 80' RCP 2 FE							2		
8 238+65	24" X 80' RCP 2 FE							2		
8 248+82	24" X 80' RCP 2 FE							2		
8 273+10	24" X 80' RCP 2 FE							2		
8 291+65	36" X 78' RCP 2 FE								4	
TOTALS:		100		58		10		62	100	

TABLE FOR PCC PAVEMENT REPAIR WITH ASPHALT CONCRETE ON US81

STA.	LANE	SB DRIVING LANE		NB DRIVING LANE		REMOVE CONCRETE PAVEMENT SqYds	ASPHALT CONCRETE COMPOSITE Tons	PCC PAVEMENT PARTIAL DEPTH PATCH		
		L Ft	W Ft	L Ft	W Ft			L	W	SqFt
619+27	SBL	4	4			1.8	0.74			
619+34	SBL	4	14			6.2	2.59			
619+54	SBL	4	14			6.2	2.59			
12+44	SBL							24"	36"	6.00
18+63	NBL							24"	60"	10.00
29+03	SBL							24"	48"	8.00
30+89	SBL							48"	48"	16.00
71+04	NBL							24"	48"	8.00
71+04	SBL							24"	60"	10.00
78+43	SBL							24"	48"	8.00
143+96	SBL							36"	60"	15.00
207+57	SBL	4	5			2.2	0.93			
208+43	NBL							24"	24"	4.00
212+64	SBL							48"	24"	8.00
215+10	SBL	4	14			6.2	2.59			
242+90	SBL							48"	24"	8.00
391+75	NBL			4	7	3.1	1.30			
395+40	NBL			4	4	1.8	0.74			
421+82	NBL							24"	72"	12.00
481+76	NBL			6	4	2.7	1.11			
481+96	SBL	4	4			1.8	0.74			
504+63	SBL	5	4			2.2	0.93			
520+86	SBL	4	4			1.8	0.74			
550+15	NBL/SBL	40	14	40	14	124.4	51.80			
590+71 (2nd)	NBL			4	4	1.8	0.74			
597+22 (2nd)	NBL							24"	12"	2.00
664+40	NBL							24"	24"	4.00
746+55	SBL							24"	36"	6.00
766+32	SBL							24"	24"	4.00
139+49 (2nd)	NBL							24"	24"	4.00
145+65 (2nd)	NBL			4	14	6.2	2.59			
148+77 (2nd)	SBL							60"	24"	10.00
148+82 (2nd)	NBL							36"	12"	3.00
213+74 (2nd)	SBL	8	6			5.3	2.22			
220+95 (2nd)	NBL/SBL	6	6	6	6	8.0	3.33			
234+32 (2nd)	NBL			4	4	1.8	0.74			
234+62 (2nd)	NBL			4	6	2.7	1.11			
TOTALS:						186.2	78	146		
ADDITIONAL QUANTITIES:						40.8	20	29		
GRAND TOTALS:						227	98	175		

Cost for Sawing shall be incidental to the contract unit price per square yard for Remove Concrete Pavement.

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, the Contractor shall contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

SURFACING THICKNESS DIMENSIONS

Plans tonnage will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

FLEXIBLE PAVEMENT SMOOTHNESS SPECIAL PROVISION

All sections including the existing curb and gutter section will be profiled.

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.

The Contractor shall submit a copy of each monthly bill for calls charged to this phone at the end of each month. The Project Engineer will then audit the bills to ensure all calls are legitimate and then initiate a Construction Change Order (CCO) to reimburse the Contractor for the actual phone calls made, including local and long distance calls. Reimbursement will not be made for fees associated with the purchase, installation, disconnection, monthly line charges, and incidentals involved in the installation, maintenance, and disconnection of the phone (including attachments). These items shall be incidental to the contract unit price per each for Type III Field Laboratory.

SHOULDER WORK

Prior to construction, Department of Transportation Maintenance Forces will spray the shoulders to kill existing vegetation. It is the Contractor's responsibility to notify the State a minimum of thirty days prior to starting work on the surface of the highway. The State assumes no responsibility for the effectiveness of the herbicide applied.

Vegetation and accumulated material on or adjacent to the existing roadway edge shall be removed to the satisfaction of the Engineer prior to shoulder excavation operations. Any remaining windrow of accumulated material shall be spread evenly on the inslope adjacent to the asphalt shoulder, to the satisfaction of the Engineer, following application of the flush seal.

Shoulder work shall be incidental to other contract items. Separate measurement and payment will not be made.

INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances shall be satisfactorily cleared of vegetation, shaped and compacted prior to placement of mainline surfacing. This work will be considered incidental to other contract items. Separate measurement and payment will not be made.

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 Gyrotory 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:

1. The portable storage container shall be constructed of steel.
2. 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:

1. A set of steps and hand railings shall be provided at the exterior door.
2. 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.
3. 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.

Cost for furnishing, maintaining and removing the storage unit including labor, equipment and material including any necessary walkways, landings, stairways, and handrail shall be included in the contract unit price per each for Storage Unit.

PCC PAVEMENT REPAIR WITH ASPHALT CONCRETE

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

Existing concrete pavement shall be sawed full depth at the beginning and end of the PCCP repair areas. When either the beginning or end of a PCCP repair area falls close to an existing joint or crack, the PCCP repair area shall be extended to eliminate the existing joint or crack.

Existing concrete pavement in the replacement areas shall be removed by the lift out method or by means that minimize damage to the base and sides of remaining in place concrete. All removed material shall be removed from within the right-of-way by the end of the workday. Damage to adjacent concrete caused by the Contractor's operations shall be removed and replaced at the Contractor's expense.

New pavement thickness shall equal existing pavement thickness. Asphalt Concrete Composite shall be placed in the pavement area in equal lifts not to exceed 3 inches.

REMOVE AND REPLACE TOPSOIL

Prior to beginning surfacing operations, a 0" to 4" depth of topsoil shall be bladed down the inslopes and left in a windrow 3'± to 8'± from the subgrade shoulder, depending on the section. Following completion of surfacing operations, topsoil shall be bladed back up the inslope to the point indicated on the typical section.

Cost for removing and replacing the topsoil along areas to be resurfaced shall be included in the contract lump sum price for Remove and Replace Topsoil.

UNCLASSIFIED EXCAVATION

Cost for removing the granular material from the shoulders shall be included in the contract unit price per cubic yard for Unclassified Excavation.

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. The borrow material shall be approved by the Engineer. The plans quantity for Contractor Furnished Borrow Excavation as shown in the Estimate of Quantities will be the basis of payment for this item.

Prior to placement or removal of fill material, the Contractor will be required to remove four inches of topsoil and replace it following the placement of the new fill material. Removing and replacing topsoil will not be measured for payment but shall be incidental to the contract unit price per cubic yard for Contractor Furnished Borrow Excavation.

The Contractor will be allowed to place topsoil in lieu of fill material if the fill depth is one foot or less. By doing this the Contractor will not be required to remove and replace the four inches of in place topsoil.

Compaction of the fill material shall be to the satisfaction of the Engineer.

It is not anticipated that water for compaction will be required; however, if in the opinion of the Engineer the fill material is extremely dry, water may be ordered and placed to the satisfaction of the Engineer.

Cost for water shall be included in the contract unit price per MGal for Water for Embankment.

Restoration of the Contractor furnished borrow excavation site shall be the responsibility of the Contractor.

SHOULDER PREPARATION

Shoulder Preparation shall be performed on both shoulders for the length of the project excepting hard surfaced intersections and entrances.

After shoulder excavation and prior to placement of asphalt concrete on the shoulders, the existing shoulder material shall be watered and compacted until a uniform stable surface is obtained. Cost for this work shall be incidental to the contract unit price per mile for Shoulder Preparation. Compaction shall be to the satisfaction of the Engineer.

Cost for water for shoulder preparation is included in the contract unit price per MGal for Water for Granular Material.

EXCAVATION OF UNSTABLE MATERIAL

Included in the Estimate of Quantities are 10 cubic yards per shoulder per mile of Unclassified Excavation, Digouts for the necessary removal of unstable material.

Backfill shall be paid for at the contract unit price per ton for Base Course, Salvaged.

SALVAGE AND STOCKPILE GRANULAR MATERIAL

An estimated 5959 Tons (3153 Cubic Yards) of granular material shall be salvaged from the shoulders as specified on the typical sections.

Proper drainage shall be maintained so water will not pond on the mainline shoulders or inslopes. Proper drainage will be to the satisfaction of the Engineer.

Some of the salvaged granular (estimated at 3431 tons) shall be used as Base Course, Salvaged.

Some of the salvaged granular material from the shoulders (estimated at 2083 tons) shall be replaced on the edge of shoulder/upper inslope area as detailed on the typical sections. This material shall be compacted according to Section 260.3 D. except that a pneumatic tired roller will be required. Remaining salvaged granular material (estimated at 445 tons) may also be replaced on the upper inslope area provided the slopes specified on the typical sections are maintained.

Salvaged granular material achieved for project use is based on the dimensions given in the typical sections. Field conditions will vary from that given in the typical sections. Therefore, the Contractor will be required to salvage a sufficient quantity of granular material to: 1) provide for the width necessary for resurfacing as indicated on the typical sections, and 2) provide the required Base Course, Salvaged quantity.

BASE COURSE, SALVAGED

Base Course, Salvaged shall be obtained from the excess salvaged granular material produced on the project and may be used without further testing.

All other requirements for Base Course, Salvaged shall apply.

If necessary, water shall be added to the Base Course, Salvaged to bring the material to ±2% of optimum moisture at the time of compaction.

Included in the Estimate of Quantities are 20 tons per shoulder per mile of Base Course, Salvaged and 0.4 MGal per mile of Water for Granular Material for backfill of the Unclassified Excavation, Digouts.

WATER FOR COMPACTION

The moisture content for compaction of the salvaged granular material and the Base Course, Salvaged shall be approximately optimum moisture of the material. The quantity for Water for Granular Material is based on 5% of the quantities of salvaged granular material and Base Course, Salvaged.

PLANING PCC PAVEMENT TAPERS

In order to construct the new surfacing flush with the asphalt concrete, it will be necessary to plane the existing concrete pavement according to the details for Planing PCC Pavement Tapers.

The surface shall be planed full concrete roadway width.

Cost for this work shall be included in the contract unit price per square yard for Planing PCC Pavement.

Taper depth of planing at locations shown below:

<u>LOCATION</u>	<u>SIZE</u>	<u>PLANING PCC PAVEMENT (SQYDS)</u>
Begin Project	2@60'L x 30'W	400
W Leg 278 th St	2@55'±L x 24'W +Radii	562
Casey's Entrance	2@17.5'±L x 32'W +Radii	154
W Leg 6 th St	2@45'±L x 24'W +Radii	508
Ampride Entrance	2@17.5'±L x 40'W +Radii	185
E & W Legs US18	4@60'L x 28'W +Radii	1015
End Project	2@60'L x 28'W	373
TOTAL:		3197

SALVAGE AND STOCKPILE TAPERS

In order to construct the new surfacing flush with the asphalt concrete, it will be necessary to taper the depth of salvaging according to the details for Salvaging & Stockpiling Tapers.

The surface shall be salvaged full roadway width.

Cost for this work shall be included in the contract unit price per ton for Salvage and Stockpile Granular Material.

Taper depth of salvaging at locations shown below:

<u>LOCATION</u>	<u>SIZE</u>	<u>UNCLASSIFIED EXCAVATION (CUYDS)</u>	<u>SALVAGE & STOCKPILE GRANULAR MATERIAL (TONS)</u>
9 Asphalt Concrete Intersecting Roads	2@30.5'±L x 26'W +Radii	49	98
1 Concrete Home Entrance	25'L x 18'W +Radii	1	2
4 Hard Surfaced Entrances	38'L x Var.W +Radii	10	20
TOTAL:		60	120

ASPHALT CONCRETE LEVELING LIFT

Asphalt Concrete Leveling Lift shall conform to the requirements for Class Q3 except the gradation shall be as follows:

Passing 1/2" sieve	100%
Passing 3/8" sieve	97-100%
Passing No. 4 sieve	75-95%
Passing No. 8 sieve	45-65%
Passing No. 16 sieve	28-48%
Passing No. 40 sieve	14-30%
Passing No. 200 sieve	4.0-10.0%

Asphalt Concrete Leveling Lift shall be compacted by the Specified Roller Coverage Method.

All remaining requirements for Class Q3 Hot Mixed Asphalt Concrete shall apply

GROWTH JOINTS

The Contractor shall complete the Growth Joints a minimum of two weeks before placement of the Asphalt Concrete Leveling Lift to allow for settlement and compaction due to traffic.

LEFT TURN LANES AT INTERSECTIONS

Existing Left Turn Lanes (NB and SB) at the three intersections shall be retained and reconstructed to the dimensions given in these plans. Refer to the Typical Sections for location and dimension details.

CLASS Q3 HOT MIXED ASPHALT CONCRETE

Mineral aggregate for Class Q3 Hot Mixed Asphalt Concrete shall conform to the requirements of Class Q3.

FLUSH SEAL

Application of the flush seal shall be completed within 10 working days following completion of the asphalt concrete resurfacing.

ADDITIONAL QUANTITIES

Included in the Estimate of Quantities are 100 tons of Class Q3 Hot Mixed Asphalt Concrete and 5.8 tons of PG 64-28 Asphalt Binder per mile for spot leveling, strengthening and repair of the existing surface and shoulders.

Included in the Estimate of Quantities are 4 tons of SS-1h or CSS-1h Asphalt for Tack for spot leveling, strengthening and repair of the existing surface and shoulders throughout the project. (Rate = 0.09 gallon per square yard).

RUMBLE STRIPS

INSTALLATION:

Rumble strips shall be constructed according to the details of Standard Plate 320.24.

Rumble strips shall be installed in rural areas with posted speeds greater than 50 mph and are not required in urban areas. The rumble strips shall begin at the location of the Speed Limit 65 sign as traffic is departing the built up area of a community, unless otherwise specified in the plans. The Engineer shall provide the exact start and stop locations.

Rumble strips shall not be installed on bridge decks, through curb & gutter sections, through mailbox turnouts, through intersecting roads or through approaches. They also shall not be placed within 50 feet of any railroad crossing.

Gaps for rumble strips installation as detailed on the standard plates are included with the measurement and payment.

Cost for asphalt concrete rumble strips shall be included in the contract unit price per mile for Grind 12" Rumble Strip or Stripe in Asphalt Concrete.

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 broomed to the edge of shoulders. It shall be the Contractor's responsibility to ensure the loose material does not enter any vegetated areas or waterways.

Cost for this work shall be incidental to the contract unit price per mile for Grind 12" Rumble Strip or Stripe in Asphalt Concrete.

RESETTING AND REFURBISH SINGLE AND DOUBLE MAILBOXES

Existing mailboxes shall be removed, turnouts constructed and mailboxes reset using existing posts and hardware or on new posts with the necessary support hardware for single or double mailbox assemblies. The table below shows which locations shall be reset or refurbished. The local Postmaster will determine the recommended mounting height of the mailboxes. The Contractor shall coordinate with the Engineer on the proper postal representative to contact.

If large mailboxes are located at double mailbox installations, a single post may need to be used for each mailbox.

STATION	CONTRACTOR FURNISHED BORROW EXCAVATION CU.YDS.	BASE COURSE SALV. TONS	CLASS Q3 HOT MIXED ASPHALT CONCRETE TONS	REFURBISH SINGLE MAILBOX EACH	REFURBISH DOUBLE MAILBOX EACH	REMOVE & RESET MAILBOX EACH
10+33 R	18	3	2	1	-	-
17+27 R	18	3	2	-	-	1
67+77 L	18	3	2	1	-	-
90+47 L	18	3	2	-	1	-
121+00 L	22	3	2	1	-	-
122+35 L	22	3	2	-	1	-
157+55 R	18	3	2	1	-	-
179+87 R	18	3	2	1	-	-
204+04 L	18	3	2	-	1	-
222+85 R	18	3	2	-	-	1
268+80 L	26	3	2	-	-	1
318+69 L	26	3	2	1	-	-
375+65 L	-	-	-	1	-	-
477+75 R	20	3	2	1	-	-
521+20 R	26	3	2	1	-	-
569+50 R	20	3	2	1	-	-
620+79 R	-	-	-	1	-	-
632+47 R	-	-	-	1	-	-
763+66 L	-	-	-	1	-	-
122+80 L (2 nd)	18	3	2	1	-	-
170+33 R (2 nd)	-	-	-	1	-	-
183+69 L (2 nd)	-	-	-	1	-	-
256+27 R (2 nd)	22	3	2	1	-	-
273+25 R (2 nd)	18	3	2	1	-	-
286+07 R (2 nd)	22	3	2	1	-	-
TOTALS:	386	57	38	19	3	3

The Contractor will be responsible for maintaining a temporary mailbox assembly until the reset/refurbished mailbox assembly is complete in place.

Cost for removing existing mailboxes, providing temporary mailbox assemblies, 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.

Cost for removing existing mailboxes, providing temporary mailbox assemblies, and resetting mailboxes with existing posts and hardware shall be incidental to the contract unit prices for the various items.

TIE BOLTS FOR RCP/RCP ARCH CULVERTS

Tie Bolts shall be installed at the inlet and outlet on the first three sections of new/reset culvert and on new/reset culvert ends (requires connection from existing culvert to new end section).

For informational purposes:

Field drilling will be required to install the tie bolts on reset culvert, on reset culvert ends and on existing culvert when installing a new/reset end section.

Cost for removing tie bolts, drilling tie bolt holes and furnishing and installing tie bolts shall be incidental to the contract unit prices for installing or resetting RCP Culverts and End Sections. Existing tie bolts may be salvaged and reused if condition is acceptable to the Engineer.

EMBANKMENT ADJACENT TO CULVERTS

Earth embankment adjacent to the existing culverts/end sections shown in the Table of Mainline Culvert Work shall be removed prior to removing the culverts/end sections. Upon installation/reset of the culvert/end sections, the earth embankment shall be replaced and compacted adjacent to the culvert/end sections.

Cost for removing, replacing and compacting the earth embankment is included in the contract unit price per cubic yard for Contractor Furnished Borrow Excavation.

PERMANENT SEEDING AND MULCHING

The areas to be seeded and mulched include all disturbed areas within the right-of-way resulting from the work required by this contract.

Table of Disturbed Areas:	Acres
Top 3' to 8' of Inslopes adjacent to shoulders	19.13
Mailbox Turnouts	0.33
Mainline Culvert Work	0.04
Total:	19.50

Type G Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana	7
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	3
Indiangrass	Holt, Tomahawk	3
Big Bluestem	Bison, Bonilla, Champ, Pawnee, Sunnyview	3
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
Total:		26

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

All seed shall be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. Cost for inoculating the seed shall be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

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

Product
MycoApply

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

2' DEEP EDGE DRAINS AND OUTLETS

At least two weeks prior to installation of the edge drain, a manufacturer's certification of material specification compliance shall be submitted to the Engineer.

The Geotextile shall be a Type A Drainage Fabric conforming to the requirements of Section 831 of the Specifications and located as shown on the plans and in accordance with the manufacturer's recommendations. Fabric will be placed no higher than 2" from the top of the trench. The top 2 inches of the trench shall be filled with porous backfill.

Two weeks prior to beginning installation, the Contractor shall furnish the Engineer with copies of the manufacturer's literature with details, specifications, and installation requirements for edge drain and outlet pipe. In addition, the Contractor shall provide information on the type of trenching equipment to be used and the proposed procedure for installation of the edge drain and outlets. Installation of edge drain and edge drain outlets, and excavation and backfill of trenches shall be in accordance with the details shown on the plans, as specified herein, and in accordance with the manufacturer's recommendations.

Each segment of edge drain shall be spliced to the adjacent segment in accordance with manufacturer's recommendations prior to installation, kept in proper alignment, and not allowed to separate during installation. The porous backfill shall be placed to the depth indicated in the edge drain details and shall be compacted by a vibratory compactor or other means, satisfactory to the Engineer, which does not result in damage to the edge drain pipe.

The acceptance testing frequency for the porous backfill shall be a minimum of 1 per 250 tons. The Engineer may reduce the testing frequency to 1 per 2000 tons after the first three passing tests provided the source remains the same and provided there is no apparent change in the properties of the material. If observations by the Engineer cause concern that specifications compliance is questionable, he may return to the 1 per 250 ton frequency.

Trenches for outlets shall be excavated to the lines and grades shown on the plans or as directed by the Engineer and shall be backfilled with fill material. The fill material shall be placed to the depth indicated in the edge drain details and shall be compacted by a vibratory compactor or other means, satisfactory to the Engineer, which does not result in damage to the outlet pipe. Edge Drain Outlets will be installed as directed by the Engineer.

Trenches shall not be left open during non-working hours.

The material removed from the edge drain trench and edge drain outlet trench, shall be disposed of by the Contractor at a site approved by the Engineer. Cost of disposal shall be incidental to the contract unit prices per foot for 2' Deep Edge Drain and Edge Drain Outlet. Material removed from the edge drain trenches may be used as Contractor Furnished Borrow Excavation or respread on the inslope to the satisfaction of the Engineer.

Cost for constructing the edge drain including trench excavation, 4" slotted corrugated polyethylene drainage tubing, porous backfill material, geotextile fabric, fittings, labor, equipment, tools and incidentals necessary to satisfactorily complete the work shall be included in the contract unit price per foot for 2' Deep Edge Drain.

Cost for constructing the edge drain outlets including the outlet trench excavation, 4" PVC edge drain outlet pipe, 4" standard weight black steel pipe (length = 5'), fill material, bends, couplers, caps, fittings, labor, equipment, tools and incidentals necessary to satisfactorily complete the work shall be included in the contract unit price per each for Edge Drain Outlet.

Cost for supplying and installing the precast concrete headwall shall be included in the contract unit price per each for Precast Concrete Headwall for Drain.

TABLE FOR EDGE DRAINS AND OUTLETS

Location	2' Deep Edge Drain	Edge Drain Outlet	Precast Concrete Headwall for Drain
	Feet	Each	Each
Section 6			
634+29 L to 675+17.63 L (Through Equation)	3,924	8	8
Section 7			
682+61 R to 715+88 R	3,327	7	7
Totals:	7,251	15	15

PERMANENT VEHICLE CLASSIFICATION SYSTEM ONLY USING INDUCTIVE TRAFFIC LOOPS

The Contractor shall install at US81 MRM 31.00 +0.412 (Station 171+24) (approximately 3 miles South of Freeman) one permanent vehicle axle classification system only using inductive traffic loops (Peek Traffic Inc Model ADR 6000 or equal). The system must classify vehicles to the FHWA Schedule F format with an accuracy of greater than 95%.

The system shall include:

- A. Four (2 per lane) standard inductive traffic loops which must meet NEMA TS-2 Environmental Specifications. The 4 inductive traffic loops will be installed by sawing or routing them into the top of the roadway surface after asphalt concrete surfacing is completed. A representative of the SDDOT Office of Inventory Management - Traffic Section will be on site and direct the installation of the inductive loops. The SDDOT Engineer will determine if the weather is acceptable to install inductive loops (40°F and rising and no rain). All saw cuts must be cleaned to the satisfaction of the SDDOT Engineer before sealing the cuts. The Contractor shall provide all supplies necessary for complete installation of the loops including loops, sealant, numbering loops by location, etc.
- B. 4 (2 per lane) advanced IDRIS inductive axle detection loops. The 4 IDRIS inductive axle detection loops will be installed by sawing or routing them into the top of the roadway surface after asphalt concrete surfacing is completed. A representative of the supplier of the IDRIS inductive axle detection loops (ACT Traffic Solutions 1-952-288-4830 or equal) shall be on site and direct the installation of the IDRIS inductive axle detection loops and the Contractor shall complete this installation in a continuous manner (no time delays). The SDDOT Engineer will determine if the weather is acceptable to install inductive loops (40°F and rising and no rain). All saw cuts must be cleaned to the satisfaction of the SDDOT Engineer before sealing the cuts. The Contractor shall provide the supplier and SDDOT at least a two week notice of the dates of this installation. Layout A shows the general layout for each lane sets of inductive and IDRIS loops. Layout B shows some general details of the installation of the IDRIS inductive axle detection loops.
- C. Cabinet Requirements: The Contractor shall provide 110 V AC (100 Amp) electric and telephone service to a new electronics cabinet. The new cabinet shall be installed by the west side right of way line just north of the field approach. The Contractor shall pay for all charges (installation and connect fees, lighting surge suppression, supplies, etc.) for the electric and telephone services and pay for the first month of electric and telephone service. The monthly electric and telephone service accounts will be setup in the name of the SDDOT Office of Inventory Management-Traffic Section who will assume the monthly service payments after the first month. The new cabinet and base will have a water drain hole in the lowest corner of the cabinet and thru the base so that water will freely drain from the cabinet. The new cabinet door will be located on the east side of the cabinet.

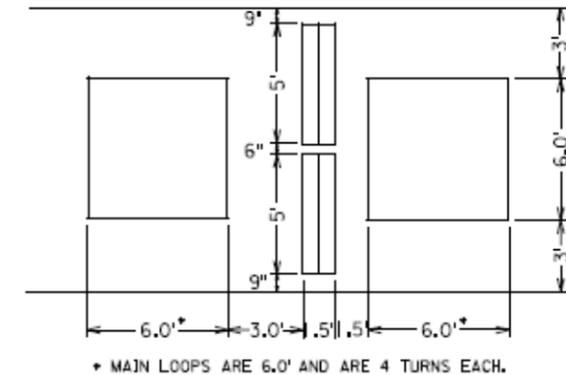
PERMANENT VEHICLE CLASSIFICATION SYSTEM ONLY USING INDUCTIVE TRAFFIC LOOPS (CONTINUED)

The new cabinet shall be aluminum and shall be supplied with the following installed items:

- 1. TYPE 4B base mount (SMF) aluminum two shelf cabinet with fan and thermostat and a cabinet light controlled by a door switch. Each cabinet shall be fitted with a #2 Corbin style lock and two keys.
 - 2. Lightning surge suppression and terminal blocks for eight inductive loops shall be fitted.
 - 3. AC Power panel with two switch type circuit breakers. The AC power panel shall have a plastic cover.
 - 4. GFI duplex outlet, ACP340 line protector.
- D. The Contractor shall provide and install underground 3/4 inch conduit to a depth at least 24 inches below ground from the edge of the roadway to electrical junction boxes (Type 2) (one on east side and one on west side) located two feet off the edges of the shoulder and then through two inch conduit into the new electronics cabinet. The Contractor shall provide the SDDOT Office of Inventory Management at least a two week notice of the dates of the conduit installation. The supplier of the IDRIS loops and/or the SDDOT Office of Inventory Management - Traffic Section will do the wiring of the electronics. Layout C shows a general layout and specifications of how to connect the loops to the conduit. Standard Plate 635.65 shows details and specifications of an electrical junction box.
- E. The Contractor shall purchase from the supplier of the IDRIS inductive axle detection loops all necessary hardware (must have enough storage to store 30 days of data files) and software to make the system operational including all equipment to retrieve data by remote telemetry. The supplier shall install electronics, software and hardware and initialize the system. After the supplier determines the system to be operational then the SDDOT Office of Inventory Management - Traffic Section will conduct a manual classification using a road tube classifier for 48 hours and/or a four to six hour visual classification to quality check the 95% accuracy of the system.
- F. Two inch Conduit used for the vehicle classification system shall be 2" Rigid Conduit, Schedule 40. A buried cable marker shall be placed in the trench for the conduit as indicated on Standard Plate 635.76. Cost for the marker shall be incidental to the contract unit price per each for Permanent Vehicle Classification System.
- G. Cost associated with furnishing and installing a working vehicle classification system shall be included in the contract unit price per each for Permanent Vehicle Classification System.

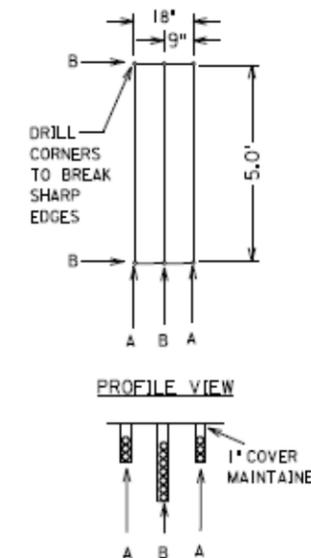
PERMANENT VEHICLE CLASSIFICATION SYSTEMS DETAILS (NOT TO SCALE)

**Layout A
GENERAL LAYOUT**

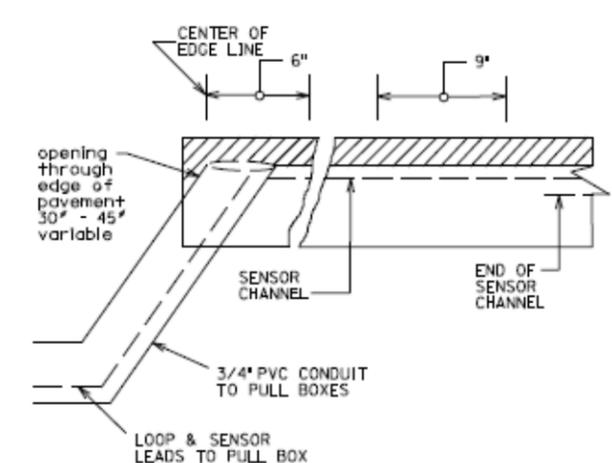


- NOTES:
- 1. SAW CUT DEPTH A-1.25", B-1.75" DEEP. DEPTH FOR LOOPS ARE 1.75".
 - 2. SAW CUTS ARE TYPICALLY 0.25" WIDE.
 - 3. WIRE LENGTH NEEDED FOR A 5' AXLE LOOP IS 96', AND FOR A 6.0' MAIN LOOP IS 69'. ALL LOOPS ALSO NEED THE TWISTED LEAD-IN (2 WIRES-IN A LEAD IN).

**Layout B
CROSS SECTION VIEW**



**Layout C
CURB LEAD-IN ROUTING DETAIL**



STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

(The numbers right of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES)

SITE DESCRIPTION (4.2 1)

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
 - Clearing and grubbing
 - Excavation/borrow
 - Grading and shaping
 - Filling
 - Cutting and filling
 - Other (describe): Top of Inslope Blading
- **Total Project Area** 356 Acres (4.2 1.b.)
- **Total Area To Be Disturbed** 19.5 Acres (4.2 1.b.)
- **Existing Vegetative Cover (65%)**
- **Soil Properties:** AASHTO Soil or USDA-NRCS Soil Series Classification (4.2 1. d.)
- **Name of Receiving Water Body/Bodies** Mud Creek & Turkey Ridge Creek (4.2 1.e.)

ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)

- **Blade topsoil onto inslope.**
- **Stabilize disturbed areas.**
- **Replace topsoil.**
- **Reseed areas disturbed by removal activities.**

EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
 - Temporary Seeding (Cover Crop Seeding)
 - Permanent Seeding
 - Sodding
 - Planting (Woody Vegetation for Soil Stabilization)
 - Mulching (Grass Hay or Straw)
 - Hydraulic Mulch (Wood Fiber Mulch)
 - Soil Stabilizer
 - Bonded Fiber Matrix
 - Erosion Control Blankets or Mats
 - Vegetation Buffer Strips
 - Roughened Surface (e.g. tracking)
 - Dust Control
 - Other:

➤ Structural Temporary Erosion and Sediment Controls

- Silt Fence
- Floating Silt Curtain
- Straw Bale Check
- Temporary Berm
- Temporary Slope Drain
- Straw Wattles or Rolls
- Turf Reinforcement Mat
- Rip Rap
- Gabions
- Rock Check Dams
- Sediment Traps/Basins
- Inlet Protection
- Outlet Protection
- Surface Inlet Protection (Area Drain)
- Curb Inlet Protection
- Stabilized Construction Entrances
- Entrance/Exit Equipment Tire Wash
- Interceptor Ditch
- Concrete Washout Area
- Temporary Diversion Channel
- Work Platform
- Temporary Water Barrier
- Temporary Water Crossing
- Other:

➤ Wetland Avoidance

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes No If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

➤ Storm Water Management (4.2 2.b., (1) and (2))

Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.

➤ Other Storm Water Controls (4.2 2.c., (1) and (2))

▪ **Waste Disposal**

All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.

▪ **Hazardous Waste**

All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the contractor's on-site representative will be responsible for seeing that these practices are followed.

▪ **Sanitary Waste**

Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management contractor or as required by any local regulations.

MAINTENANCE AND INSPECTION (4.2 3. and 4.2 4.)

➤ Maintenance and Inspection Practices

- Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches $\frac{1}{3}$ of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches $\frac{1}{2}$ the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and contractor's site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

NON-STORM WATER DISCHARGES (3.0)

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- Discharges from water line flushing.
- Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- Uncontaminated ground water associated with dewatering activities.

MATERIALS INVENTORY (4.2. 2.c.(2))

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).

- Concrete and Portland Cement
- Detergents
- Paints
- Metals
- Bituminous Materials
- Petroleum Based Products
- Cleaning Solvents
- Wood
- Cure
- Texture
- Chemical Fertilizers
- Other:

SPILL PREVENTION (4.2 2.c.(2))

➤ **Material Management**

▪ Housekeeping

- Only needed products will be stored on-site by the contractor.
- Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
- Products must be stored in original containers and labeled.
- Material mixing will be conducted in accordance with the manufacturer's recommendations.
- When possible, all products will be completely used before properly disposing of the container off site.
- The manufacturer's directions for disposal of materials and containers will be followed.
- The contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
- Dust generated will be controlled in an environmentally safe manner.
- Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.

▪ Hazardous Materials

- Products will be kept in original containers unless the container is not resealable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.
- If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

➤ **Product Specific Practices (6.8)**

▪ Petroleum Products

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

▪ Fertilizers

Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

▪ Paints

All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.

▪ Concrete Trucks

Contractors will provide designated truck washout areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

➤ **Spill Control Practices (4.2 2 c.(2))**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill clean up will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for clean up purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

➤ **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen

will also be identified and removed or repaired as necessary to prevent further releases.

- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

SPILL NOTIFICATION

In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately **if any one of the following** conditions exists:
 - The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
 - The discharge causes an immediate danger to human health or safety.
 - The discharge exceeds 25 gallons.
 - The discharge causes a sheen on surface water.
 - The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
 - The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
 - The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
 - The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

CONSTRUCTION CHANGES (4.4)

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.

CERTIFICATIONS

➤ **Certification of Compliance with Federal, State, and Local Regulations**

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➤ **South Dakota Department of Transportation**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Authorized Signature (See the General Permit, Section 6.7.1.C.)

➤ **Prime Contractor**

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

CONTACT INFORMATION

➤ **Contractor Information:**

- Prime Contractor Name: _____
- Contractor Contact Name: _____
- Address: _____
- _____
- City: _____ State: _____ Zip: _____
- Office Phone: _____ Field: _____
- Cell Phone: _____ Fax: _____

➤ **Erosion Control Supervisor**

- Name: _____
- Address: _____
- _____
- City: _____ State: _____ Zip: _____
- Office Phone: _____ Field: _____
- Cell Phone: _____ Fax: _____

➤ **SDDOT Project Engineer**

- Name: _____
- Business Address: _____
- Job Office Location: _____
- City: _____ State: _____ Zip: _____
- Office Phone: _____ Field: _____
- Cell Phone: _____ Fax: _____

➤ **SD DENR Contact Spill Reporting**

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➤ **SD DENR Contact for Hazardous Materials.**

- (605) 773-3153

➤ **National Response Center Hotline**

- (800) 424-8802.

MAINTENANCE OF TRAFFIC

Unless otherwise stated in these plans, no work will be allowed during hours of darkness. One lane of traffic shall be maintained at all times. Traffic shall be returned to normal travel lanes at the end of each work day.

Sufficient traffic control devices have been included in these plans to sign one workspace. If the Contractor elects to work on additional sites simultaneously, the cost for additional traffic control devices shall be incidental to the contract unit price per square foot for Traffic Control Signs.

Flaggers and a pilot car shall be required when traffic must be routed out of the normal travel lane for a distance greater than the two flaggers are able to communicate with each other.

A mobile work operation will be allowed provided the rumble strip or rumble stripe grooving, flush sealing, and pavement marking can be completed satisfactorily by a continuously moving work operation. A mobile work operation will require approval by the Engineer.

Cost for a mobile workspace shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

Work area lane closure length shall closely correspond to the anticipated pavement length to be completed for the day. Work area lane closure lengths shall not exceed 3 miles.

Routing traffic onto the shoulders during any phase of the construction will not be allowed.

REFLECTORIZED SHEETING REQUIREMENTS FOR TEMPORARY TRAFFIC CONTROL DEVICES

Delete the first paragraph of Section 984.1 and replace with the following:

Temporary traffic control devices, including signs, drums, cones, tubular markers, barricades, vertical panels and direction indicator barricades shall be reflectORIZED with sheeting applied to a satisfactory backing. For all temporary traffic control warning signs, the reflective sheeting shall meet or exceed the standards of Type VII, Type VIII, Type IX or Type XI as defined by AASHTO M 268 (ASTM D4956). For all other temporary traffic control signs, the reflective sheeting shall meet or exceed the standards of Type IV, Type V, Type VII, Type VIII, Type IX or Type XI as defined by AASHTO M 268 (ASTM D4956). For barricades, vertical panels and direction indicator barricades; the reflective sheeting shall meet or exceed the standards of Type III as defined by AASHTO M 268 (ASTM D4956). Round surfaced temporary traffic control devices including, but not limited to; drums, cones and tubular markers shall be reflectORIZED with reflectORIZED sheeting meeting or exceeding the standards of Type IV as defined by AASHTO M 268 (ASTM D4956). All orange colored material shall be fluorescent.

TEMPORARY PAVEMENT MARKING

The total length of no passing zone on this project is estimated to be 7.0 miles.

It is estimated that 35 DO NOT PASS and 35 PASS WITH CARE signs will be required to mark the no passing zones, should the Contractor elect to use these signs.

Temporary flexible vertical markers (tabs) shall be required on the top lift of asphalt surfacing.

Four applications of temporary pavement marking are included in the estimate of quantities for completion of the asphalt lifts and uncovering the temporary flexible vertical markers (tabs) after application of the seal. An additional quantity is also included for the pavement planing areas.

The Contractor shall remove and dispose of temporary flexible vertical markers (tabs) after Permanent Pavement Marking is applied. Removal shall be accomplished within one week of completion of the Permanent Pavement Marking.

In the absence of a signed lane closure or pilot car operation, Flagger symbol signs (W20-7) and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights shall be positioned on the shoulder in advance of workers for both directions of traffic during the installation and removal of temporary flexible vertical markers (tabs). The traffic control device used shall be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1), Workers symbols 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.

Cost for the traffic control to install and remove the temporary flexible vertical markers (tabs) shall be incidental to the contract unit price per mile for Temporary Pavement Marking.

PERMANENT PAVEMENT MARKING

The Contractor shall apply permanent pavement marking, as detailed in these plans. The Contractor shall confirm turn lane locations prior to work.

The Contractor shall advise the Engineer a minimum of 3 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 may not begin until 2 calendar days following completion of the 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 two calendar days, but within 14 calendar days following completion of final surfacing.

COLD WEATHER WATERBORNE PAINT

Waterborne paint applied after October 15 shall be formulated as cold-weather waterborne paint and shall be applied in accordance with the manufacturer's recommendations, including minimum temperature requirements.

Cold weather waterborne paint shall conform to Section 980 of the Specifications except for the following:

980.1: Resin Binder shall be FASTRACK™ XSRTM manufactured by Dow, or an approved equal.

980.1 A. Quantitative Requirements:

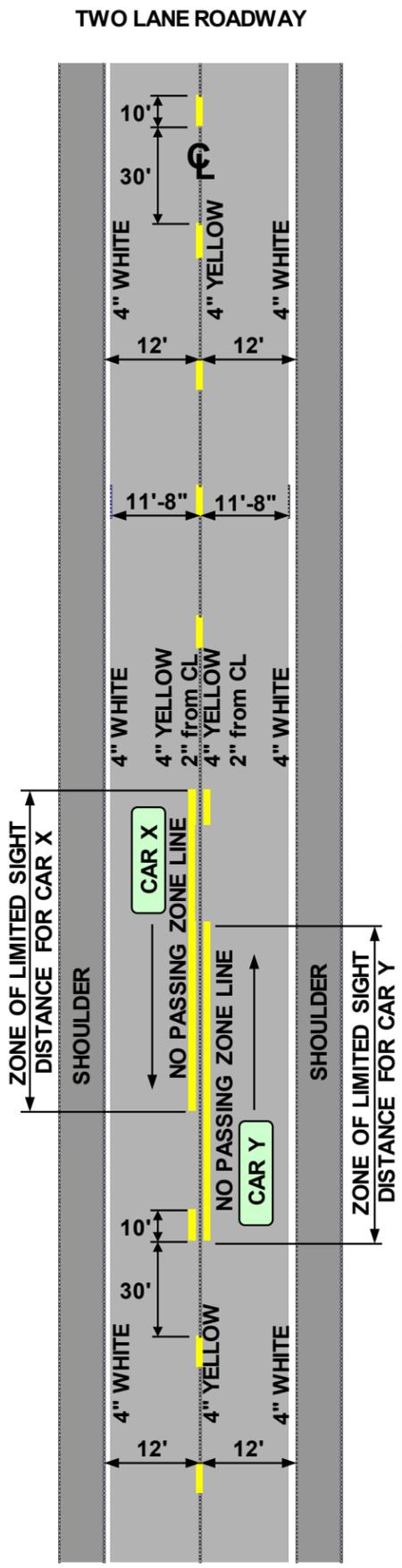
Pigment, percent by weight: 60.0 to 63.0 for white and 58.5 to 61.5 for yellow.

Pigment, percent by weight; tested in accordance with ASTM D3723: 60.0 to 63.0 for white and 56.1 to 59.2 for yellow.

Non-volatile Vehicle, percent by weight; tested in accordance with NIST 141C (Method 4051.1): 41.5 minimum for white and 41.5 minimum for yellow.

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP		30" x 30"	6	
R1-2	YIELD		36" x 36"	9	
R2-1	SPEED LIMIT		24" x 30"	5	
R2-6aP	FINES DOUBLE (plaque)		24" x 18"	3	
R4-7	KEEP RIGHT (symbol)		24" x 30"	5	
R5-1	DO NOT ENTER		30" x 30"	6	
R5-1a	WRONG WAY		36" x 24"	6	
R10-6	STOP HERE ON RED		24" x 36"	6	
R11-2	ROAD CLOSED		48" x 30"	10	
R11-3a	ROAD CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY		60" x 30"	13	
R11-4	ROAD CLOSED TO THRU TRAFFIC		60" x 30"	13	
W1-1	LEFT or RIGHT TURN ARROW		48" x 48"	16	
W1-2	LEFT or RIGHT CURVE ARROW		48" x 48"	16	
W1-3	REVERSE TURN (L or R)		48" x 48"	16	
W1-4	REVERSE CURVE (L or R)		48" x 48"	16	
W3-1	STOP AHEAD (symbol)		48" x 48"	16	
W3-2	YIELD AHEAD (symbol)		48" x 48"	16	
W3-3	SIGNAL AHEAD (symbol)		48" x 48"	16	
W3-4	BE PREPARED TO STOP	2	48" x 48"	16	32
W3-5	SPEED REDUCTION AHEAD (___ MPH)		48" x 48"	16	
W4-1	MERGE (symbol)		48" x 48"	16	
W4-2	LEFT or RIGHT LANE ENDS (symbol)		48" x 48"	16	
W4-3	ADDED LANE (symbol)		48" x 48"	16	
W5-3	ONE LANE BRIDGE		48" x 48"	16	
W7-3aP	NEXT ___ MILES (plaque)		36" x 30"	8	
W8-1	BUMP	4	48" x 48"	16	64
W8-6	TRUCK CROSSING	4	48" x 48"	16	64
W8-7	LOOSE GRAVEL		48" x 48"	16	
W8-11	UNEVEN LANES	2	48" x 48"	16	32
W8-17	SHOULDER DROP-OFF (symbol)		48" x 48"	16	
W13-1P	ADVISORY SPEED (plaque)	4	30" x 30"	6	24
W20-1	ROAD WORK AHEAD	4	48" x 48"	16	64
W20-2	DETOUR AHEAD		48" x 48"	16	
W20-3	ROAD CLOSED AHEAD		48" x 48"	16	
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-5	LEFT or RIGHT LANE CLOSED AHEAD		48" x 48"	16	
W20-7	FLAGGER (symbol)	4	48" x 48"	16	64
W21-1	WORKERS (symbol)		48" x 48"	16	
W21-2	FRESH OIL	2	48" x 48"	16	32
W21-3	ROAD MACHINERY AHEAD		48" x 48"	16	
W21-5	SHOULDER WORK	2	48" x 48"	16	32
W21-5a	LEFT or RIGHT SHOULDER CLOSED		48" x 48"	16	
W21-5b	LEFT or RIGHT SHOULDER CLOSED AHEAD		48" x 48"	16	
G20-1	ROAD WORK NEXT 20 MILES	2	36" x 18"	5	10
G20-1	ROAD WORK NEXT 14 MILES	1	36" x 18"	5	5
G20-1	ROAD WORK NEXT 12 MILES	1	36" x 18"	5	5
G20-1	ROAD WORK NEXT 8 MILES	1	36" x 18"	5	5
G20-1	ROAD WORK NEXT 6 MILES	1	36" x 18"	5	5
G20-2	END ROAD WORK	2	36" x 18"	5	10
G20-5aP	WORK ZONE (plaque)		24" x 18"	3	
-	TYPE 3 OBJECT MARKER		12" x 36"	3	
		CONVENTIONAL ROAD			480
		TRAFFIC CONTROL SIGNS SQFT			



PAVEMENT MARKING

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

Application rates shall be as follows:

Two Lane Roadway (Rates for one line)	
Dashed Yellow Centerline	Rate = 4.6 Gals./Pass-Mile
Solid Yellow Centerline	Rate = 16.9 Gals./Pass-Mile
Solid White Edgeline	Rate = 16.9 Gals./Pass-Mile

ESTIMATED QUANTITIES	
PAINT	QUANTITY
WHITE	669 GALLONS
YELLOW	285 GALLONS

Included in the above quantities are:			
Additional White		Additional Yellow	
Description	Gallons	Description	Gallons
4" Lines	0'	Transitions 6 Ea	20
8" Lines	0'	4" Skip Lines 0'	0
12" Gore Lines	0'	8" Lines 0'	0
Crosswalks 0 Ea	0	12" Lines 0'	0
24" Stop Lines 0'	0	24" Hatches 1520'	61
24" Hatches 0'	0	Solid Areas 0sf	0
Solid Areas 0sf	0	Additional Yellow:	81
Arrows			
Left Arrows 12 Ea	6	Additional Quantities	
Right Arrows 0 Ea	0	Rates of Coverage: SqFt/Gal	
Straight Arrows 0 Ea	0	4", 8" and 12" Lines - 80	
Combo Arrows 0 Ea	0	24" Lines and Bars - 50	
Lane Drop Arrows 0 Ea	0	Arrows, Messages and Solid Areas - 30	
Messages			
STOP 0 Ea	0	NOTE: All pavement marking dimensions are based on 12' driving lanes.	
STOP AHEAD 0 Ea	0		
R X R with Bars 0 Ea	0		
SCHOOL X-ING 0 Ea	0		
Additional White: 6			

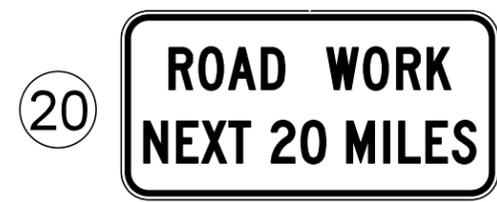
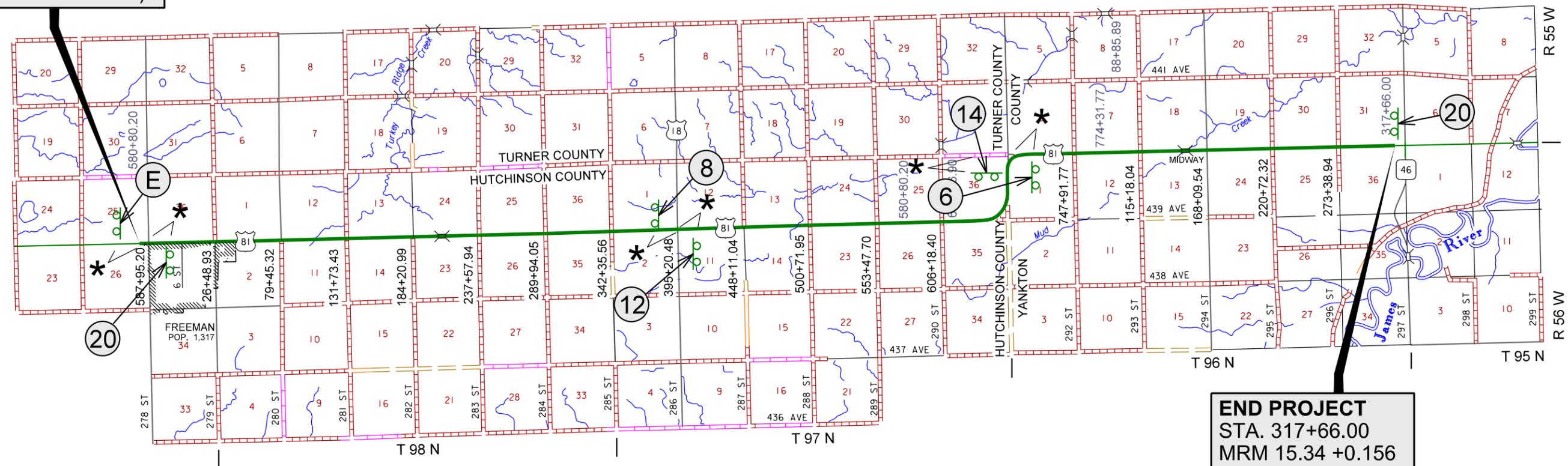
TRAFFIC CONTROL

FIXED LOCATION SIGNING



BEGIN PROJECT
 STA. 580+80.20
 MRM 35.00 +0.138
 (715' N of Centerline
 of Jct 278th Street)

END PROJECT
 STA. 317+66.00
 MRM 15.34 +0.156
 (825' N of centerline
 of Jct SD46)



G20-1



G20-1



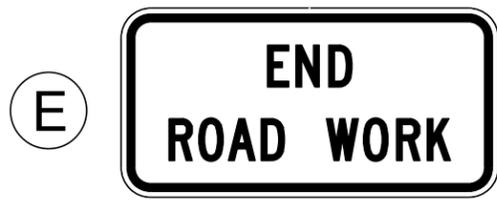
G20-1



G20-1



G20-1



G20-2

NOTES :

All Ground Mounted Support signs shall remain in place until permanent pavement marking is complete.

Construction signs shall not block the view of existing signs.

Fixed Location signs shall be installed a minimum of 100' from any existing sign.

* - 25' to 200'

PLOT SCALE - \$\$SCALE\$\$

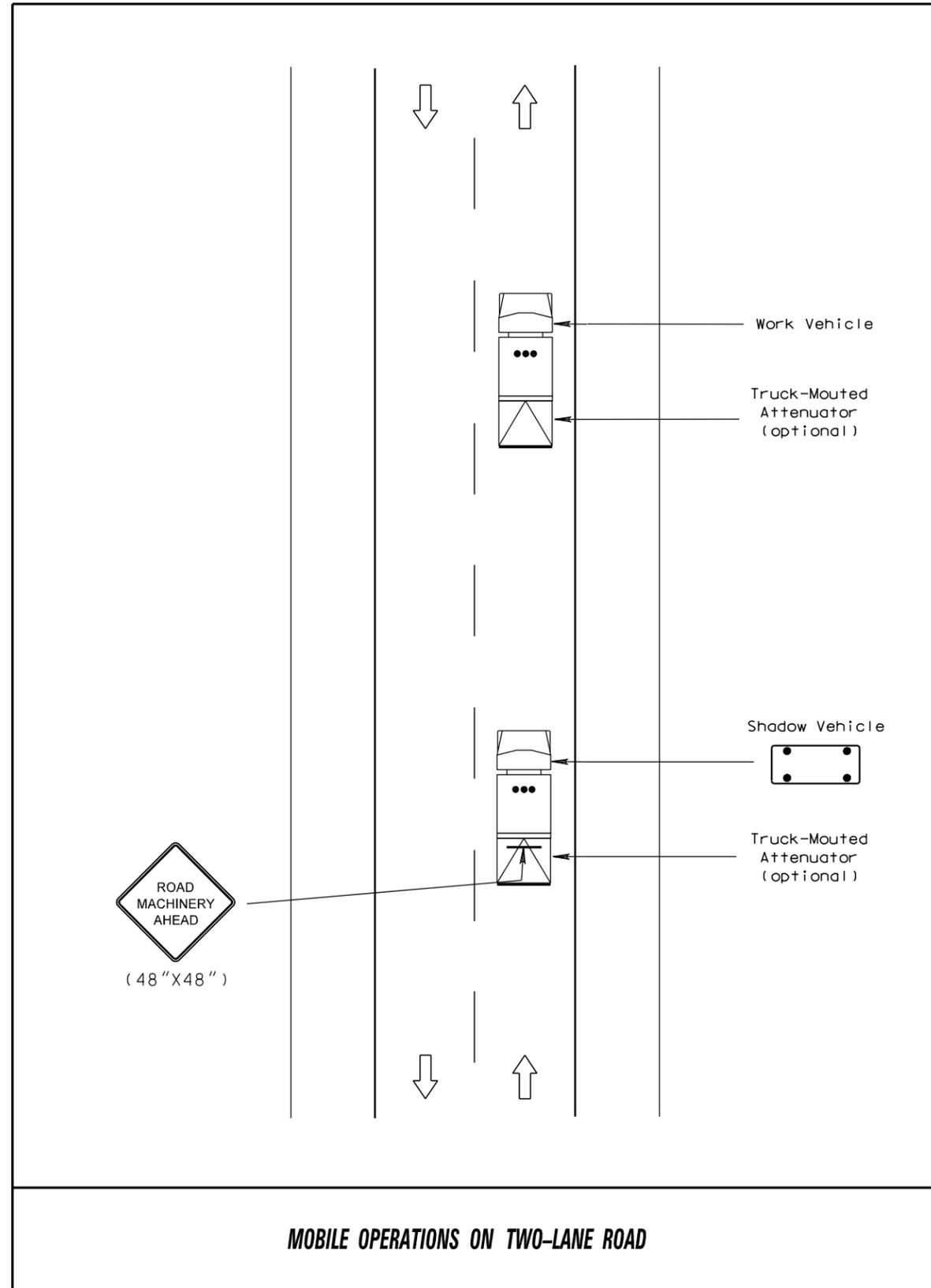
PLOTTED FROM - \$\$USERNAME\$\$

PLOT NAME - \$\$PLOTNAME\$\$

FILE - \$\$FILENAME\$\$

MOBILE OPERATIONS ON TWO-LANE ROAD (TYPICAL)

Notes for Mobile Operations on Two-lane Road (Typical)



Standard:

1. Vehicle-mounted signs shall be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs shall be covered or turned from view when work is not in progress.
2. Shadow and work vehicles shall display high-intensity rotating, flashing, oscillating, or strobe lights.
3. If an arrow board is used, it shall be used in the caution mode.

Guidance:

4. Where practical and when needed, the work and shadow vehicles should pull over periodically to allow vehicular traffic to pass.
5. Whenever adequate stopping sight distance exists to the rear, the shadow vehicle should maintain the minimum distance from the work vehicle and proceed at the same speed. The shadow vehicle should slow down in advance of vertical or horizontal curves that restrict sight distance.
6. The shadow vehicles should also be equipped with two high-intensity flashing lights mounted on the rear, adjacent to the sign.

Option:

7. The distance between the work and shadow vehicles may vary according to terrain, paint drying time, and other factors.
8. Additional shadow vehicles to warn and reduce the speed of oncoming or opposing vehicular traffic may be used. Law enforcement vehicles may be used for this purpose.
9. A truck-mounted attenuator may be used on the shadow vehicle or on the work vehicle.
10. If the work and shadow vehicles cannot pull over to allow vehicular traffic to pass frequently, a DO NOT PASS sign may be placed on the rear of the vehicle blocking the lane.

Support:

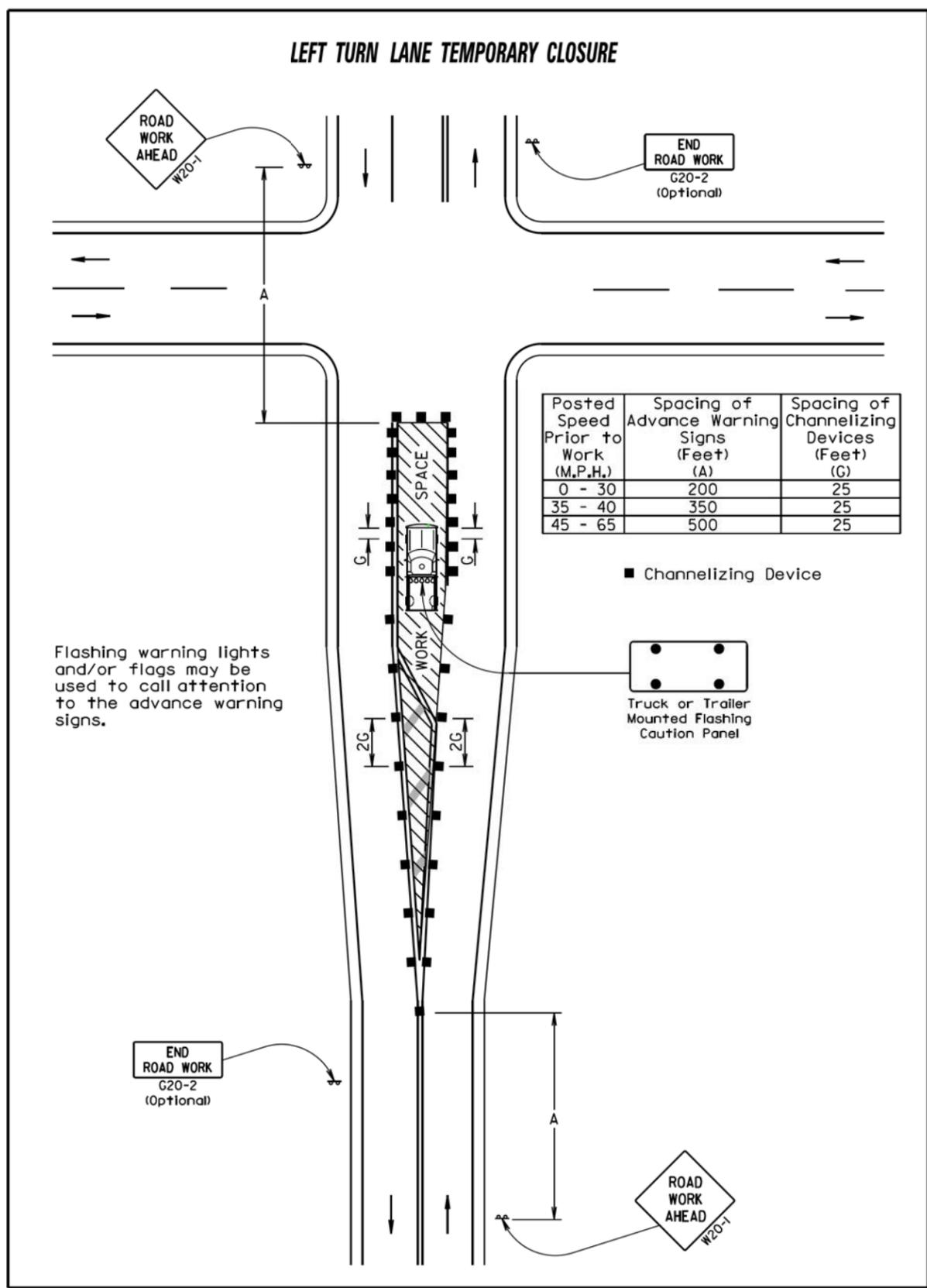
11. Shadow vehicles are used to warn motor vehicle traffic of the operation ahead.

Standard:

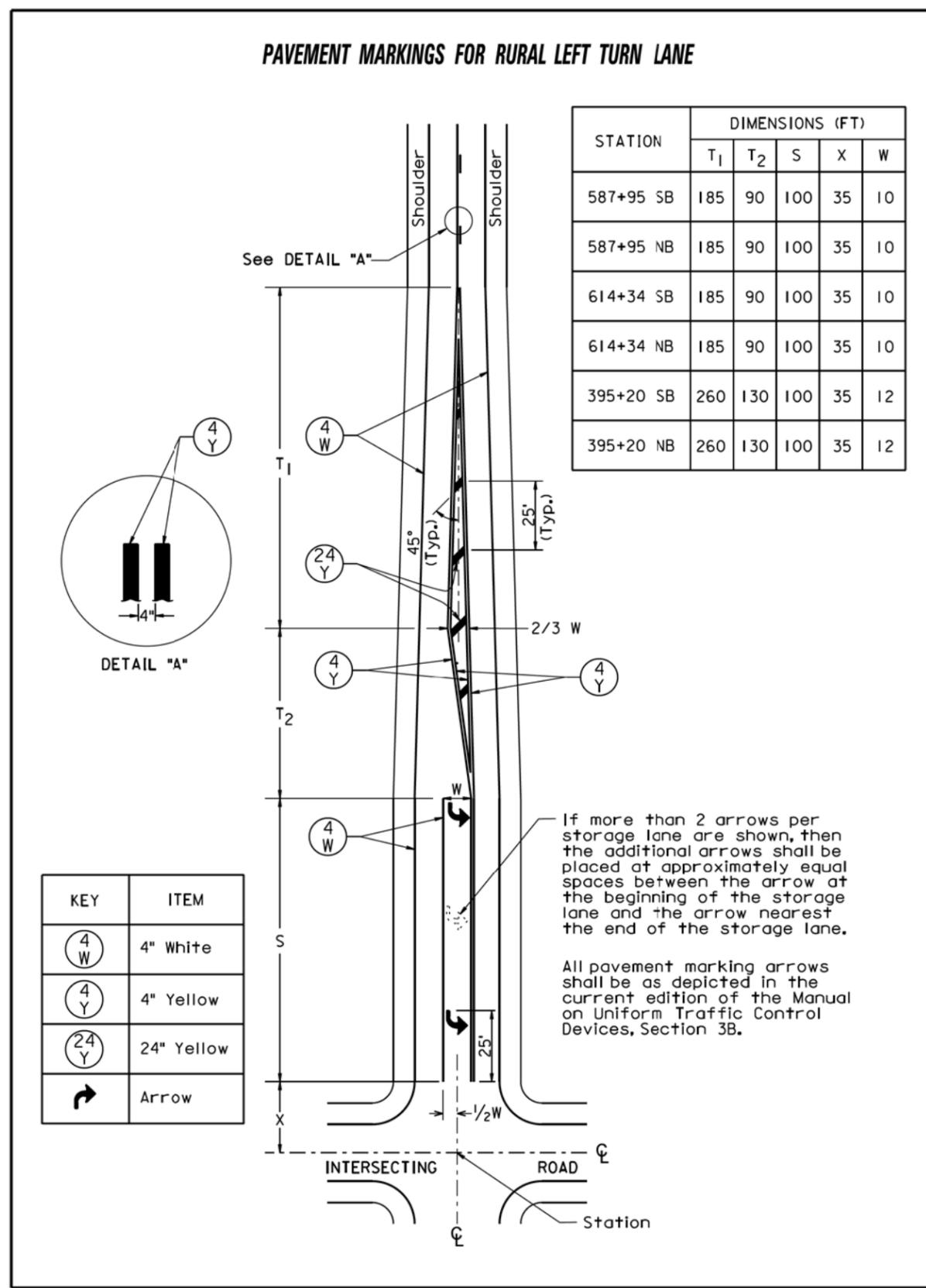
12. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

MOBILE OPERATIONS ON TWO-LANE ROAD

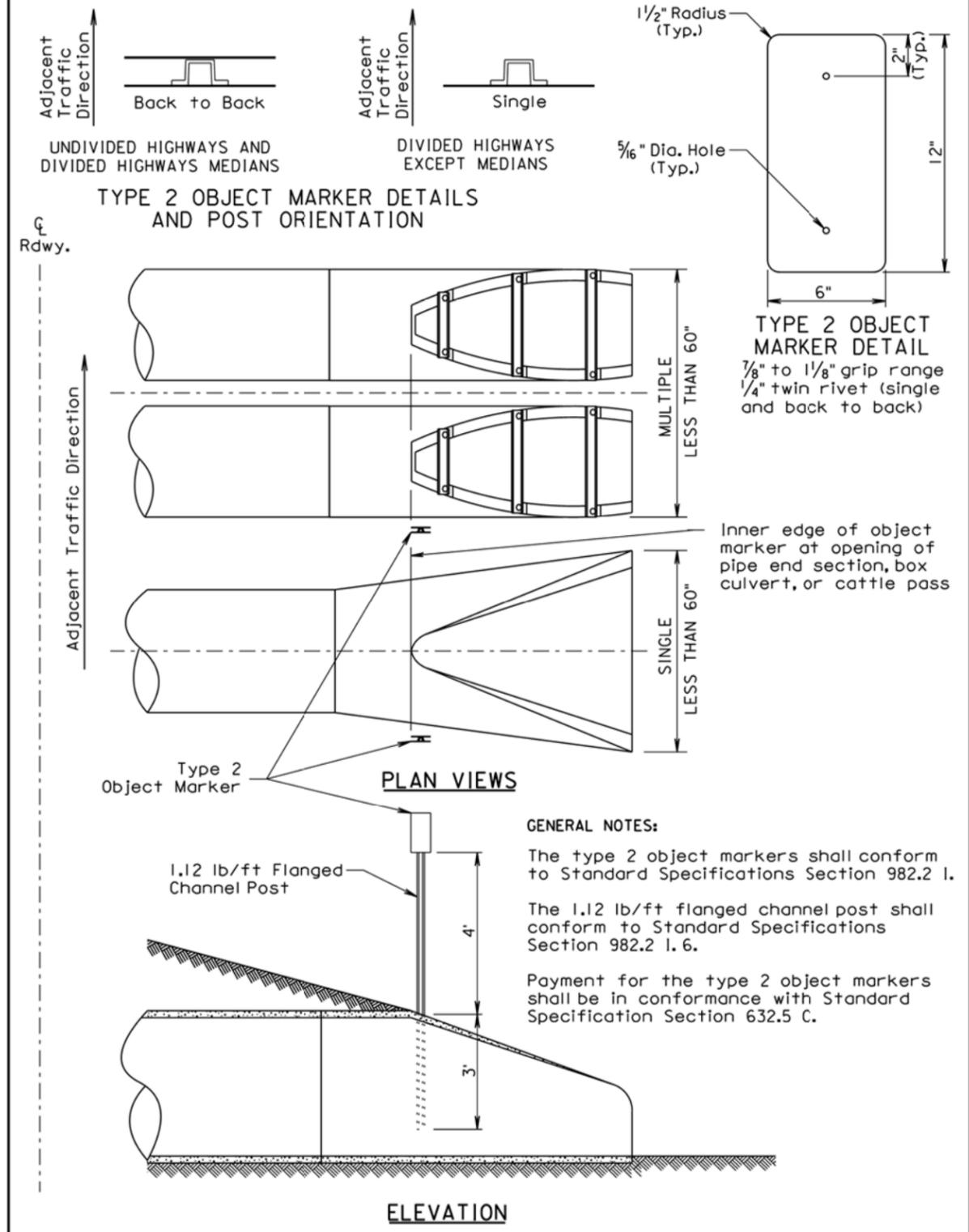
LEFT TURN LANE TEMPORARY CLOSURE



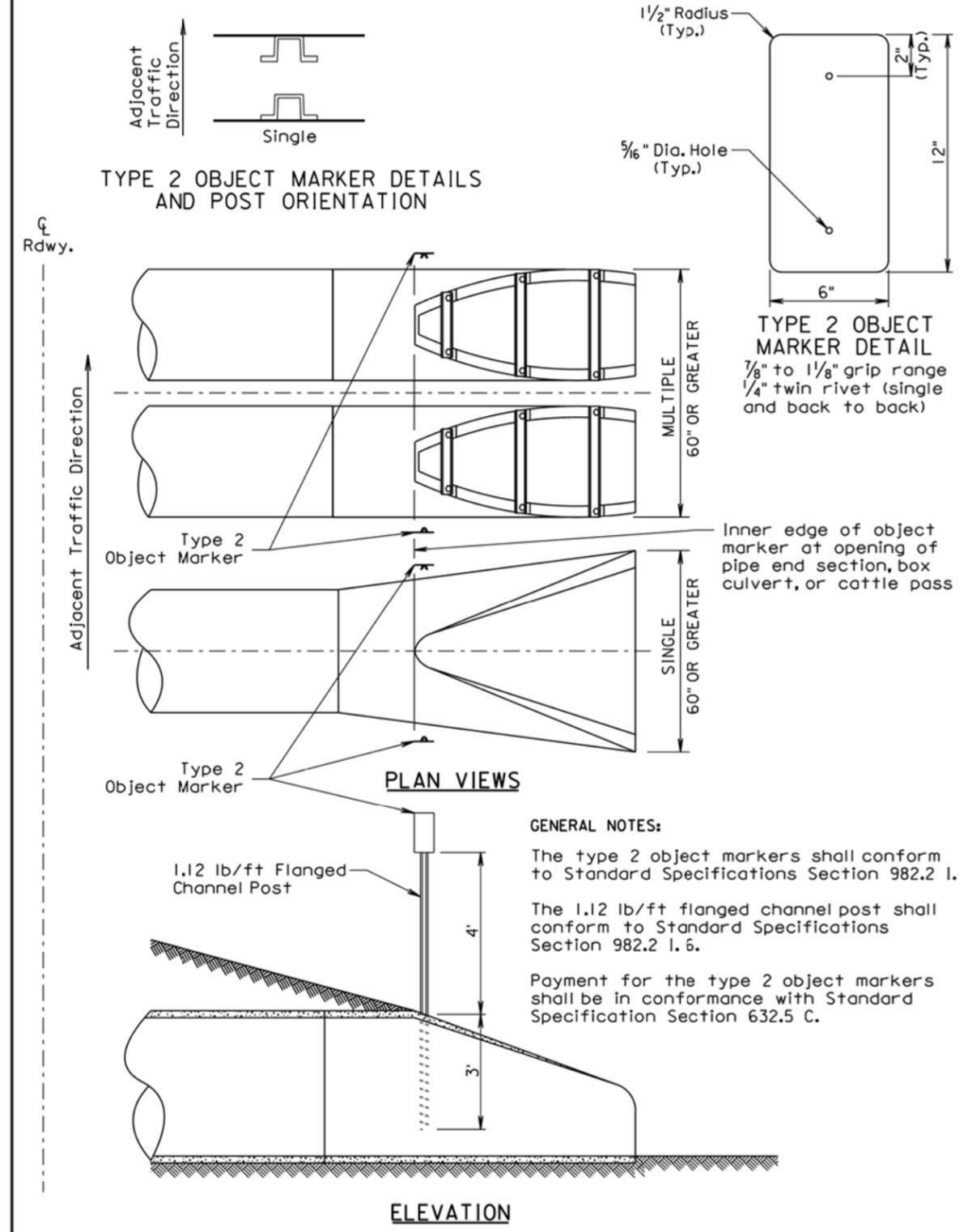
PAVEMENT MARKINGS FOR RURAL LEFT TURN LANE



TYPE 2 OBJECT MARKER INSTALLATION AT PIPE CULVERTS, BOX CULVERTS, & CATTLE PASSES – LESS THAN 60" WIDTH



TYPE 2 OBJECT MARKER INSTALLATION AT PIPE CULVERTS, BOX CULVERTS, & CATTLE PASSES – 60" OR GREATER WIDTH

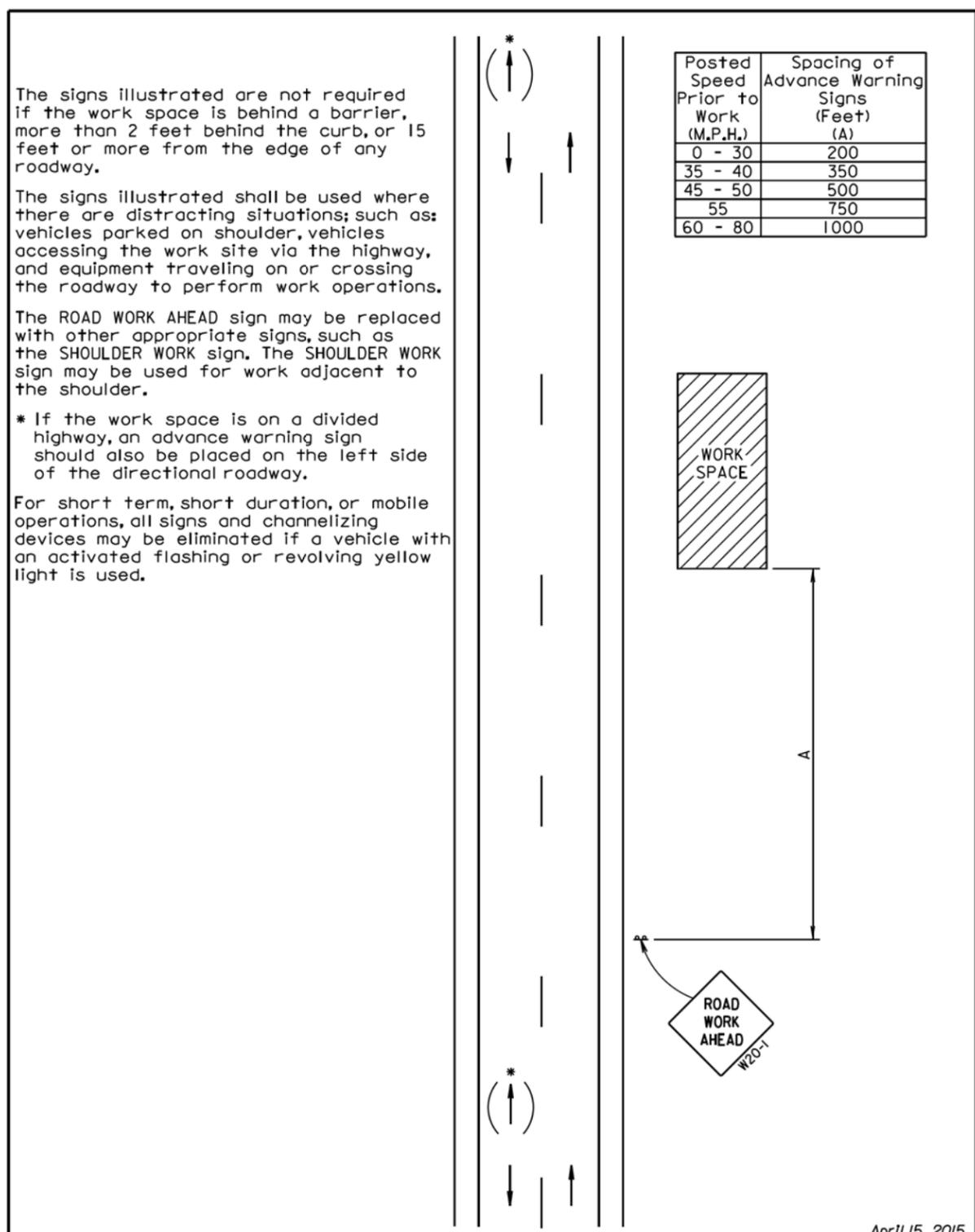


Plot Scale - \$\$\$scale\$\$\$

Plotted From - \$\$\$user\$\$\$

File - \$\$\$filename\$\$\$

Plotting Date: mmm-ddd-yyy



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.

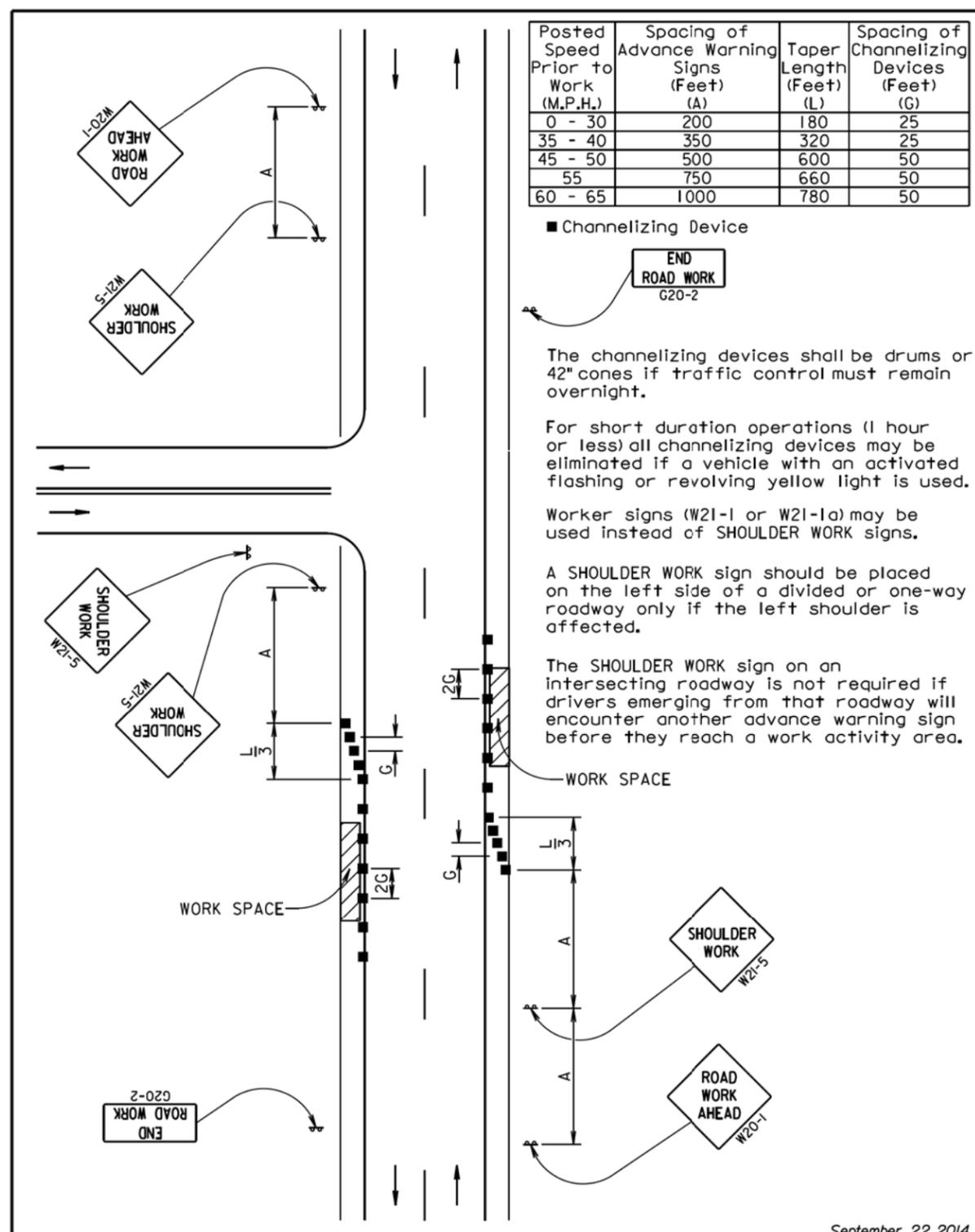
The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* 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.

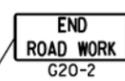
April 15, 2015

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
	Published Date: 4th Qtr. 2015	Sheet 1 of 1



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

Channelizing Device



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

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

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

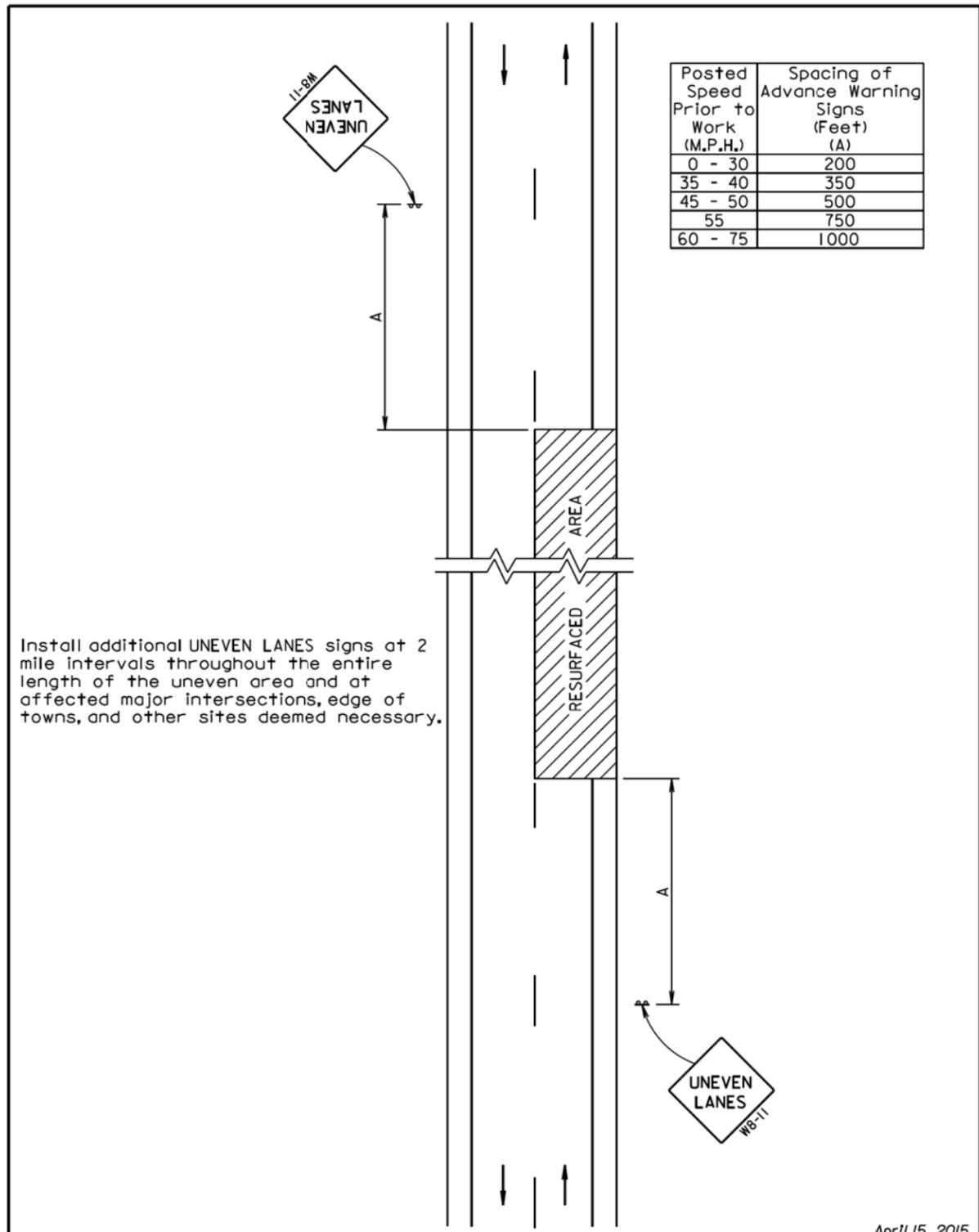
A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

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

September 22, 2014

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
	Published Date: 4th Qtr. 2015	Sheet 1 of 1

Plotting Date: mmm-ddd-yyy

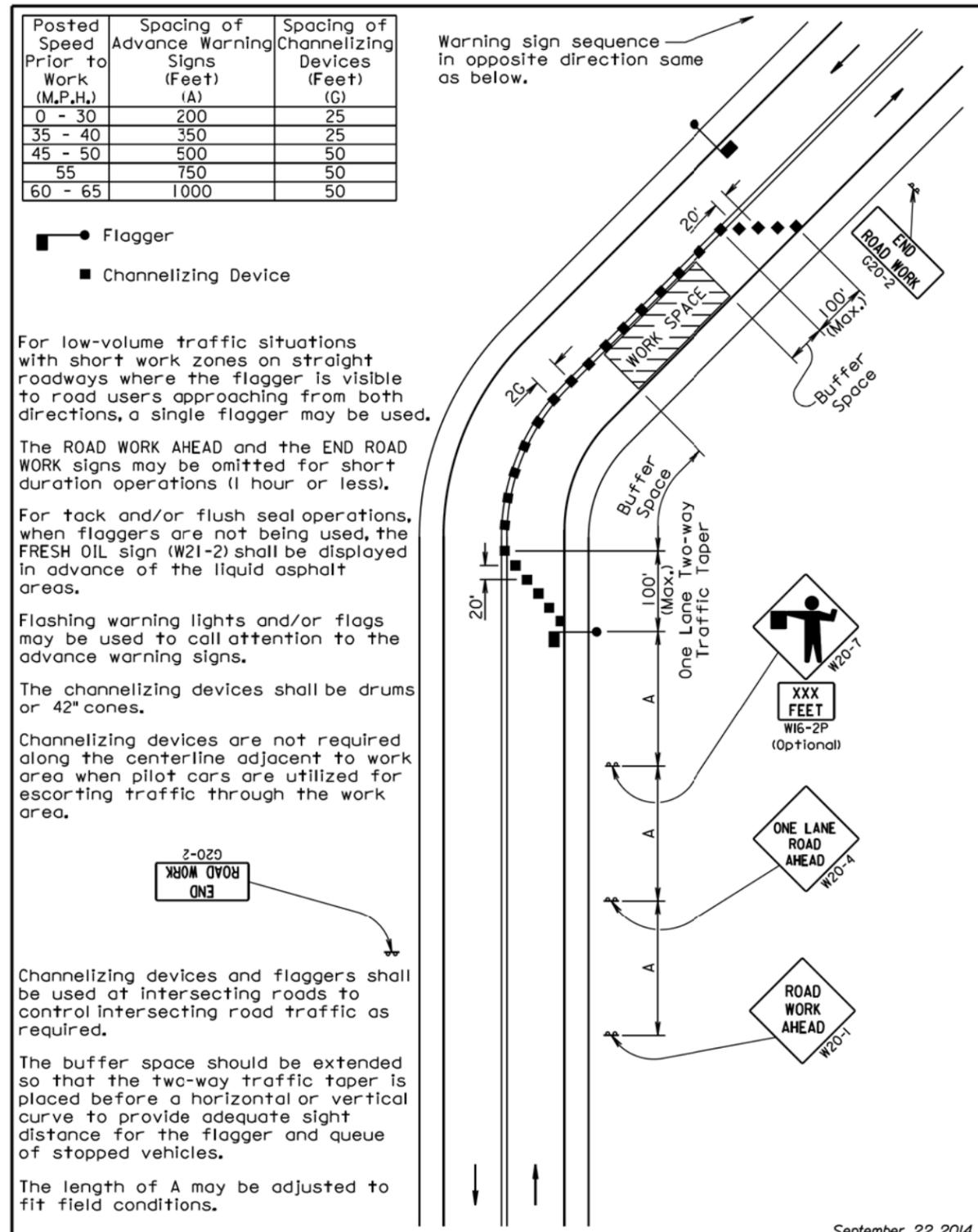


Install additional UNEVEN LANES signs at 2 mile intervals throughout the entire length of the uneven area and at affected major intersections, edge of towns, and other sites deemed necessary.

April 15, 2015

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES UNEVEN ROAD SURFACE	PLATE NUMBER 634.22
		Sheet 1 of 1

Published Date: 4th Qtr. 2015



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.

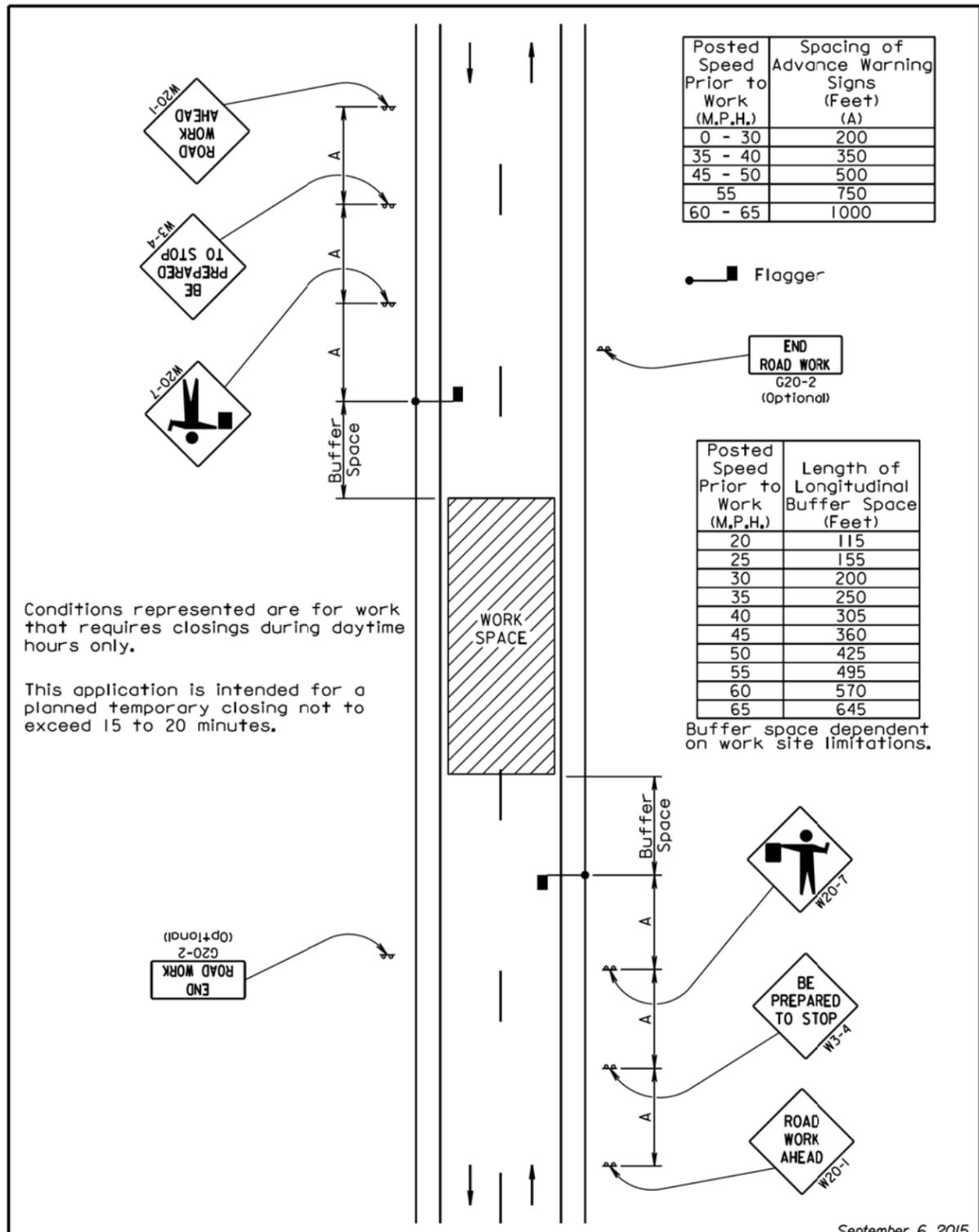
Warning sign sequence in opposite direction same as below.

September 22, 2014

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
		Sheet 1 of 1

Published Date: 4th Qtr. 2015

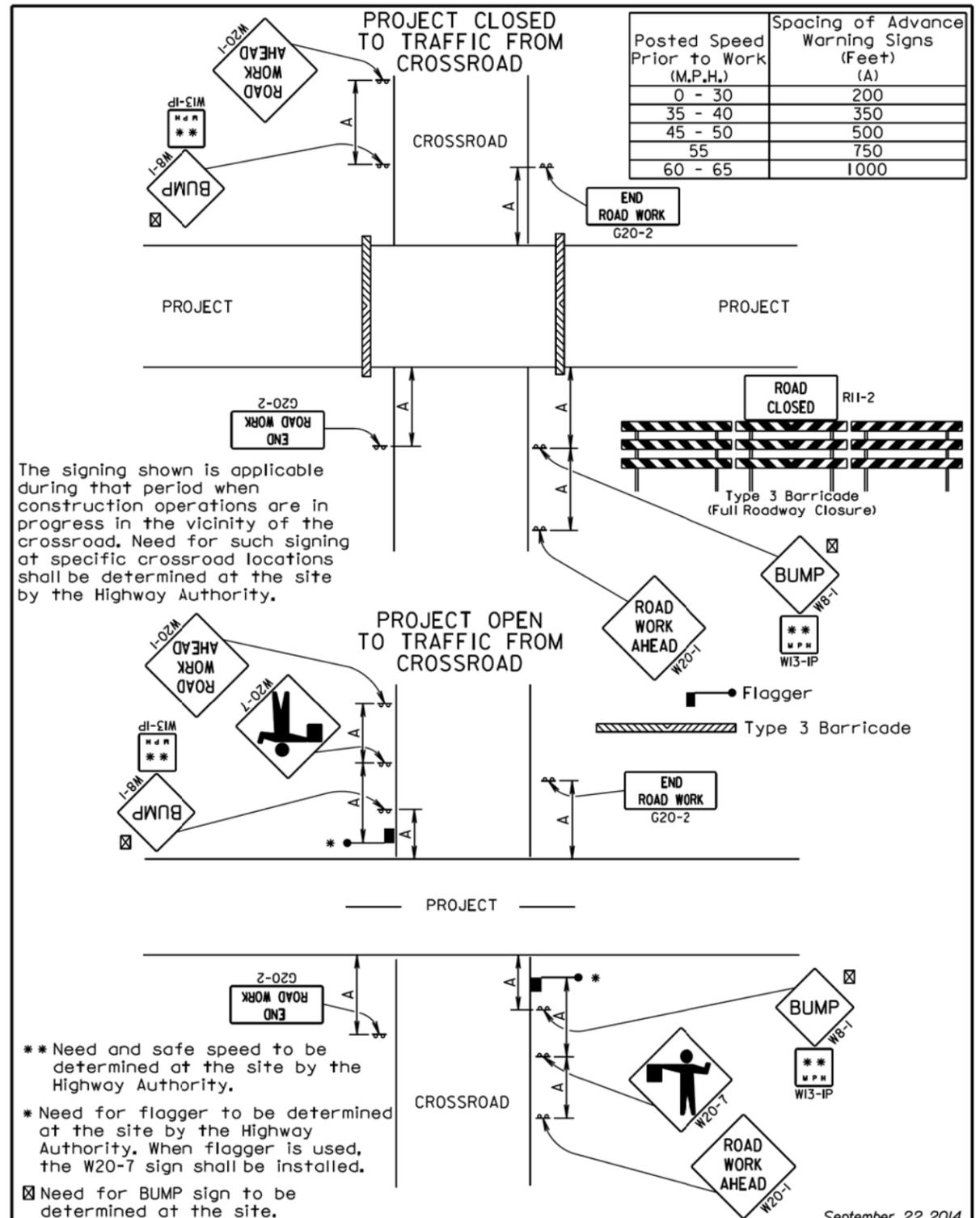
Plotting Date: mmm-ddd-yyy



Conditions represented are for work that requires closings during daytime hours only.

This application is intended for a planned temporary closing not to exceed 15 to 20 minutes.

September 6, 2015



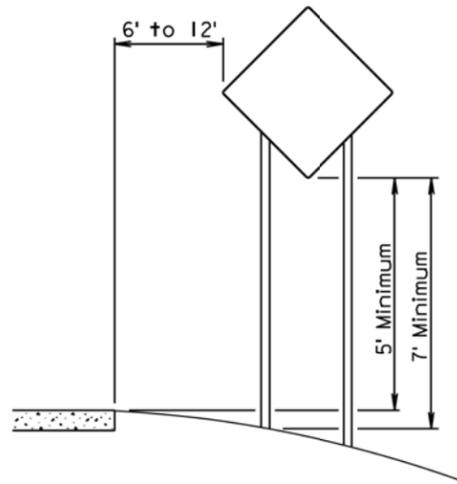
** Need and safe speed to be determined at the site by the Highway Authority.

* Need for flagger to be determined at the site by the Highway Authority. When flagger is used, the W20-7 sign shall be installed.

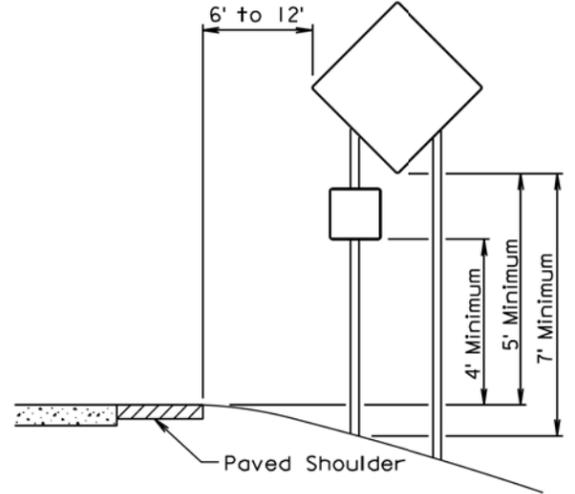
☒ Need for BUMP sign to be determined at the site.

September 22, 2014

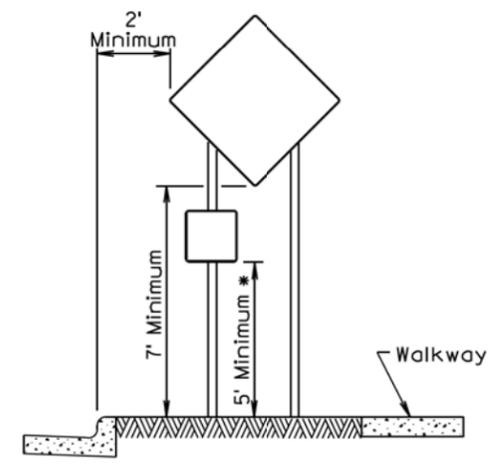
Plotting Date: mmm-ddd-yyy



RURAL DISTRICT

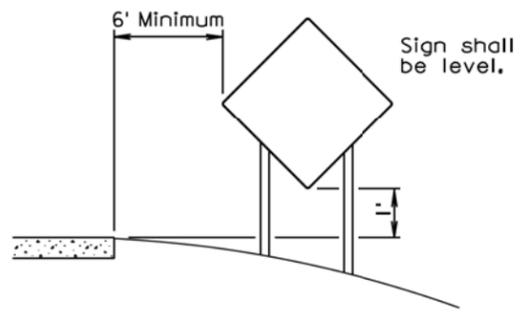


RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

* 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.



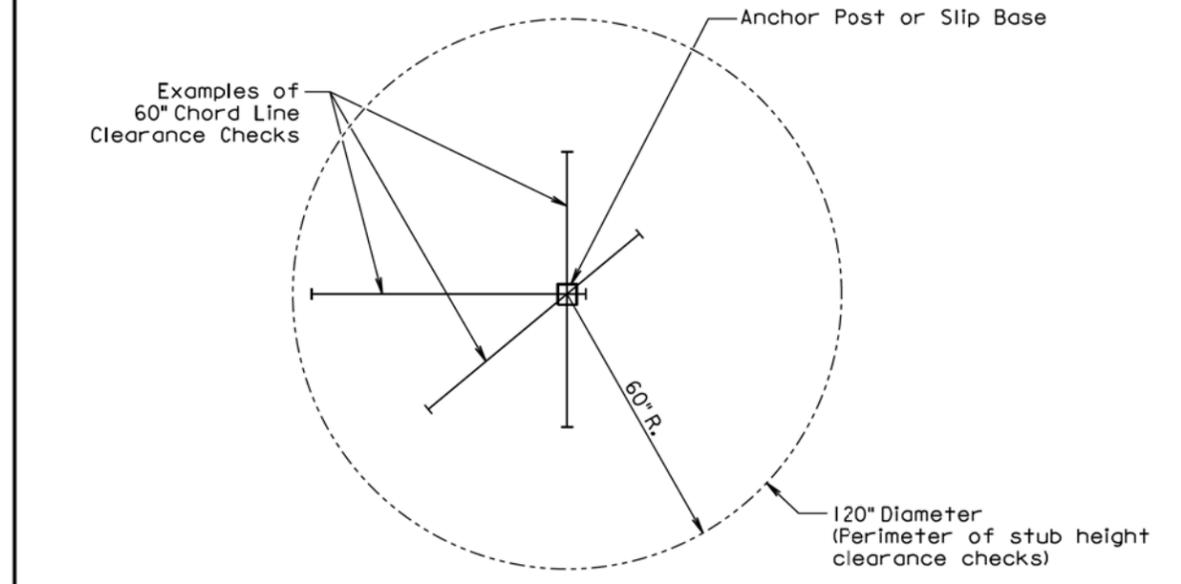
RURAL DISTRICT 3 DAY MAXIMUM

(Not applicable to regulatory signs)

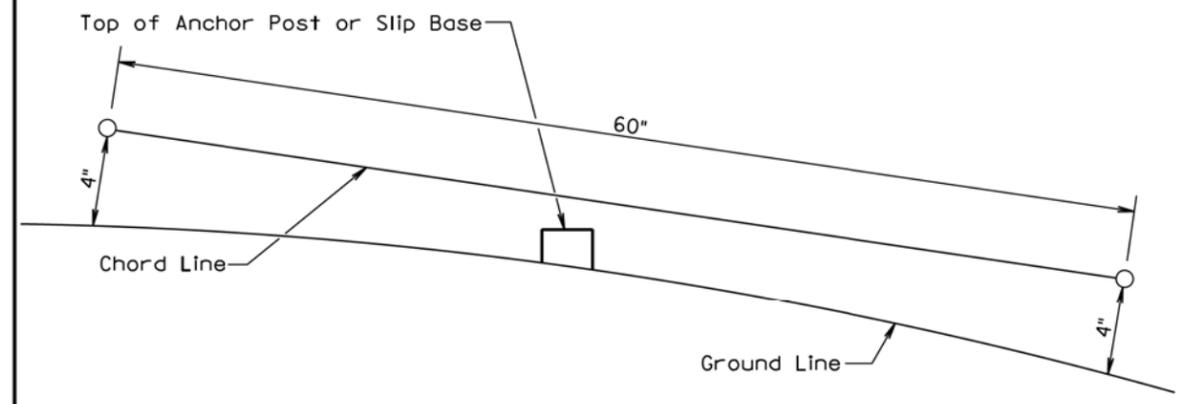
September 22, 2014

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

Published Date: 4th Qtr. 2015



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

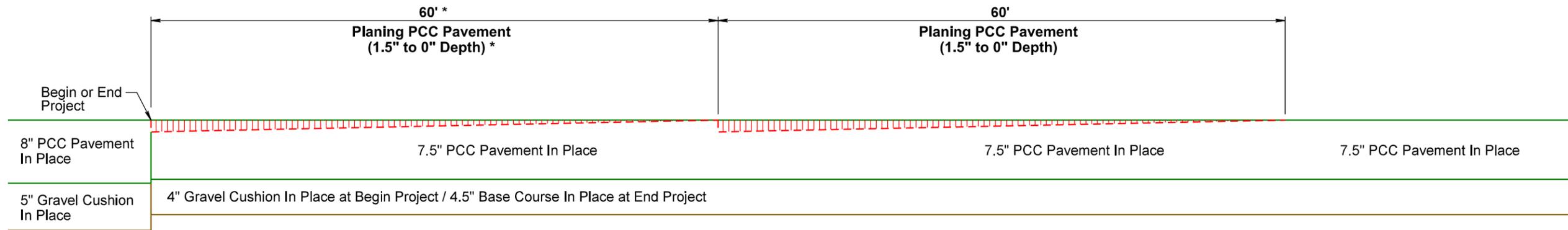
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.
 At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.
 The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
		Sheet 1 of 1

Published Date: 4th Qtr. 2015

PLANING PCC PAVEMENT TAPERS AT BEGIN AND END PROJECT

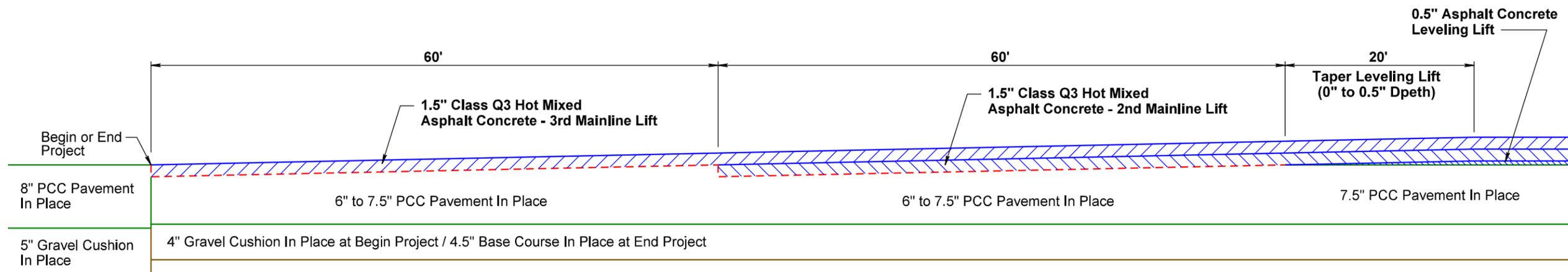


* Planing PCC Pavement Depth L and R of centerline shall be adjusted in order to transition from the off-project cross slope of 0.02' / Ft to the project cross slope of 0.015' / Ft .

Key:

 1.5" to 0" Depth Planing PCC Pavement

RESURFACING TAPERS AT BEGIN AND END PROJECT



Key:

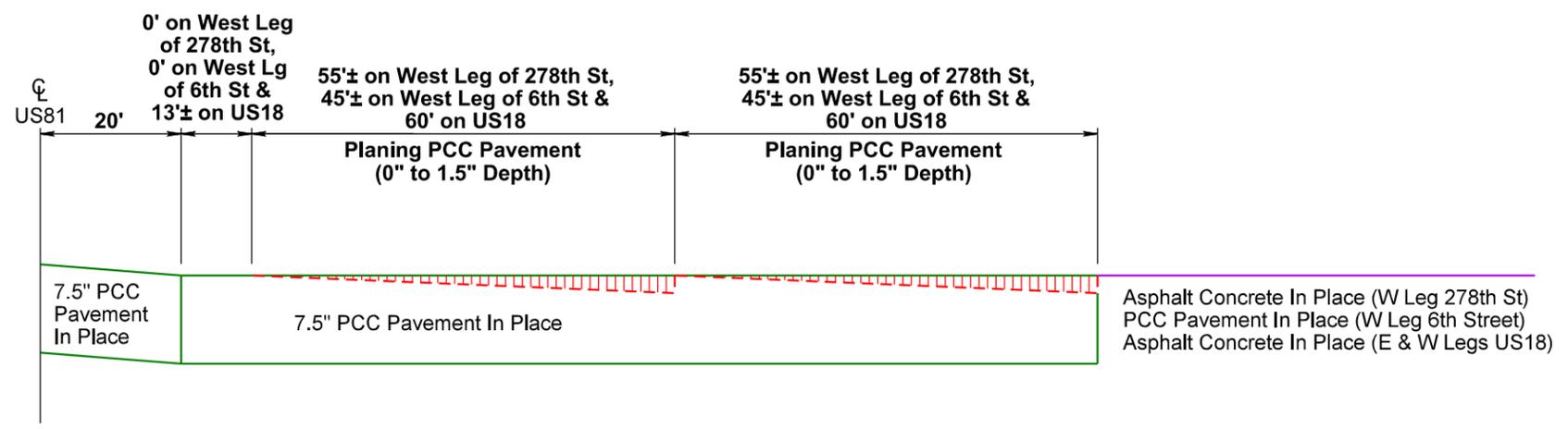
 1.5" Class Q3 Hot Mixed Asphalt Concrete 3rd Mainline Lift

 1.5" Class Q3 Hot Mixed Asphalt Concrete 2nd Mainline Lift

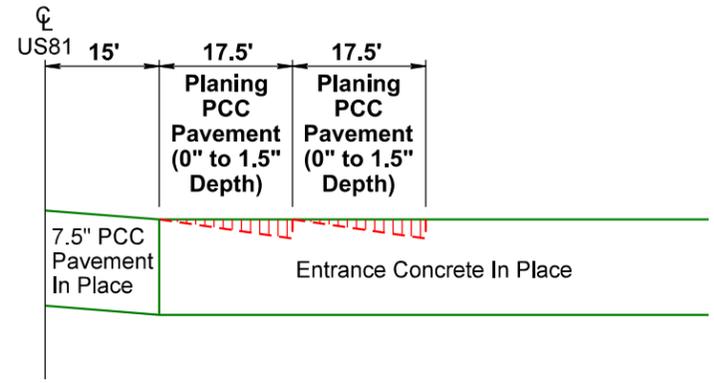
 0.5" Asphalt Concrete Leveling Lift 1st Mainline Lift

PLANING PCC PAVEMENT TAPERS

**ON WEST LEG OF 278TH ST IN FREEMAN,
ON WEST LEG OF 6TH STREET IN FREEMAN &
ON EAST & WEST LEGS OF US 18**



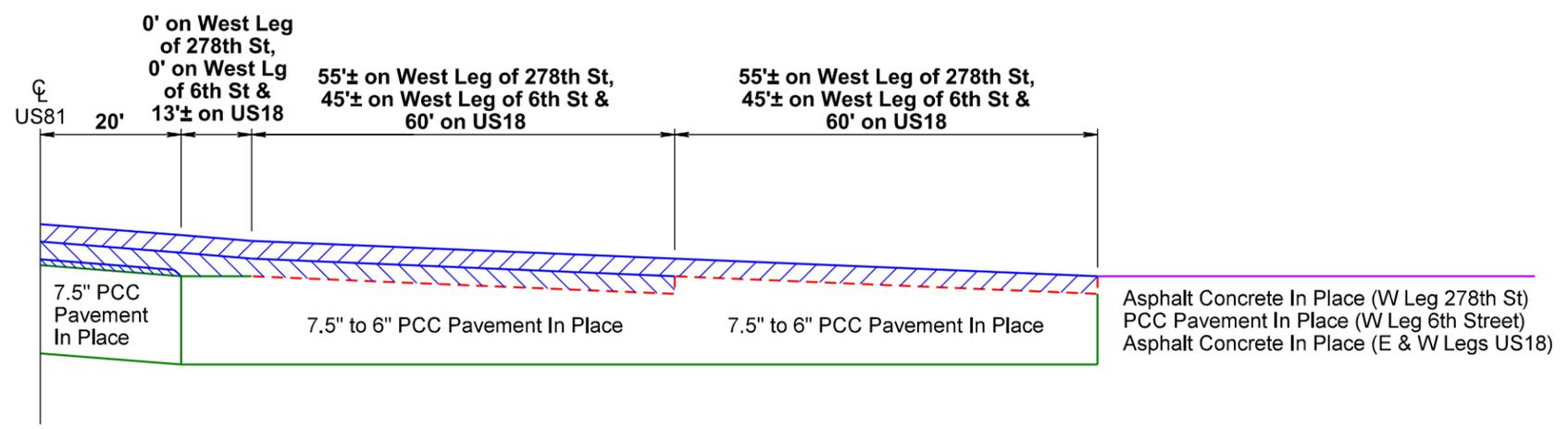
**ON CASEY'S ENTRANCE
AND ON AMPRIDE ENTRANCE
IN FREEMAN**



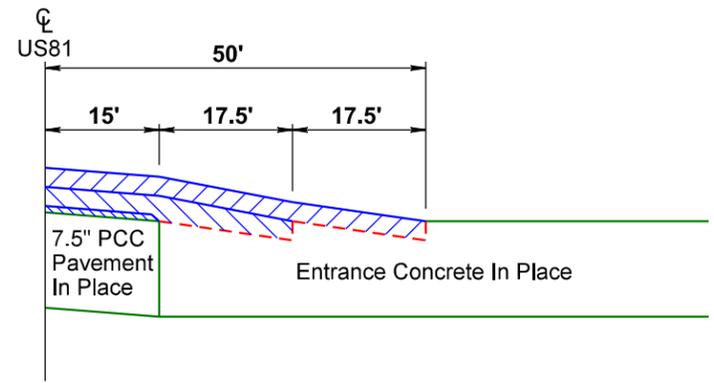
Key:
 0" to 1.5" Depth Planing PCC Pavement

RESURFACING TAPERS

**ON WEST LEG OF 278TH ST IN FREEMAN,
ON WEST LEG OF 6TH STREET IN FREEMAN &
ON EAST & WEST LEGS OF US 18**



**ON CASEY'S ENTRANCE
AND ON AMPRIDE ENTRANCE
IN FREEMAN**



Key:
 1.5" Class Q3 Hot Mixed Asphalt Concrete 3rd Mainline Lift
 1.5" Class Q3 Hot Mixed Asphalt Concrete 2nd Mainline Lift
 0.5" Asphalt Concrete Leveling Lift 1st Mainline Lift

PLOT SCALE - 1:1.2

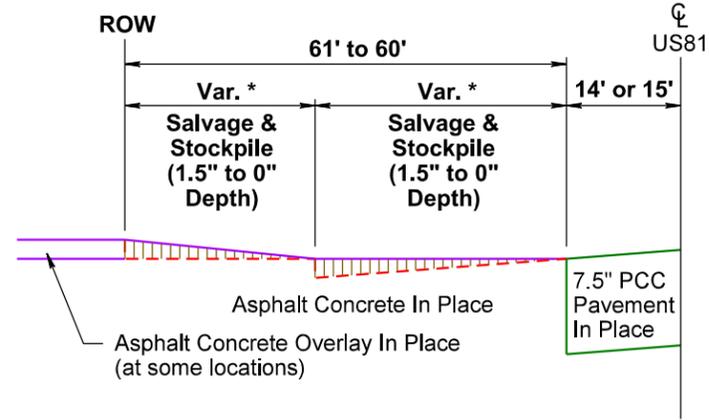
PLOT NAME - 15

FILE - ... \PRJ2016\HUCH0232\PLANE023Z.DGN

PLOTTED FROM - IRMLINT15

SALVAGE & STOCKPILE TAPERS

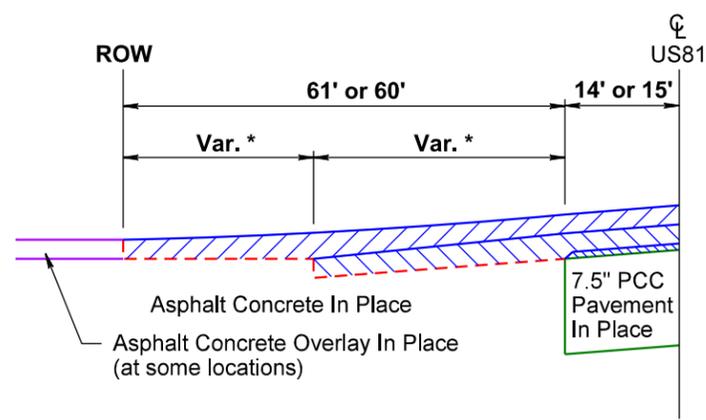
ON ASPHALT CONCRETE INTERSECTING ROADS & STREETS



* Length to be determined by the Engineer on construction based on existing conditions.

RESURFACING TAPERS

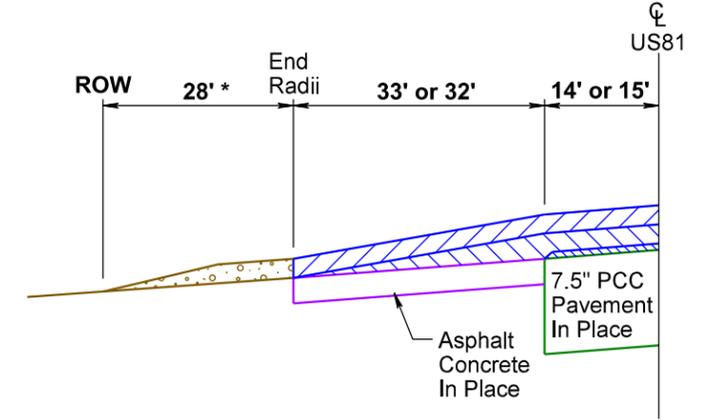
ON ASPHALT CONCRETE INTERSECTING ROADS & STREETS



* Length to be determined by the Engineer on construction based on existing conditions.

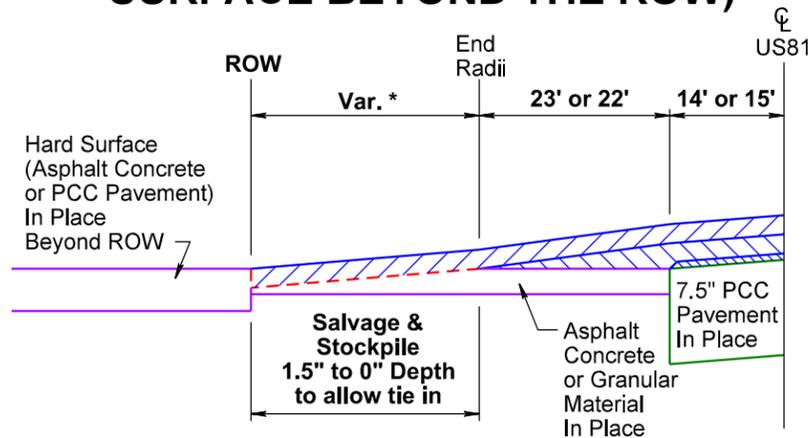
** Depth of Asphalt Concrete Lifts on intersecting roads to be 1.5" minimum. Depth may exceed 1.5" in order to achieve a smooth transition.

ON GRAVEL INTERSECTING ROADS



* Length to be determined by the Engineer on construction based on existing conditions.

ON ENTRANCES (WITH AN EXISTING HARD SURFACE BEYOND THE ROW)



Location	Station	* Radius	Width	Comments
Home Entrance	585+76 L	25'	18'	Match Asphalt Concrete to surface at 62'± from CL
Country Inn Entrance	20+58 R	38'	24'	Match Asphalt Concrete to surface at 75'± from CL
Country Inn Entrance	23+15 R	38'	24'	Match Asphalt Concrete to surface at 75'± from CL
Hefty Seed Entrance	90+72 R	38'	15'	Match Asphalt Concrete to PCCP at ROW (75'±)**
Meridian Corner	396+77 L	38'	40'	Match Asphalt Concrete to PCCP at ROW (75'±)***

** Place Base Course, Salvaged adjacent to the asphalt concrete on North side of Entrance to match existing width
 *** Place Base Course, Salvaged adjacent to the asphalt concrete on South side of Entrance to match existing width

Key:

-  **Salvage & Stockpile Granular Material 1.5" to 0" Depth**
-  **Base Course, Salvaged Variable Depth**
-  **1.5" Class Q3 Hot Mixed Asphalt Concrete 3rd Mainline Lift**
-  **1.5" Class Q3 Hot Mixed Asphalt Concrete 2nd Mainline Lift**
-  **0.5" Asphalt Concrete Leveling Lift 1st Mainline Lift**

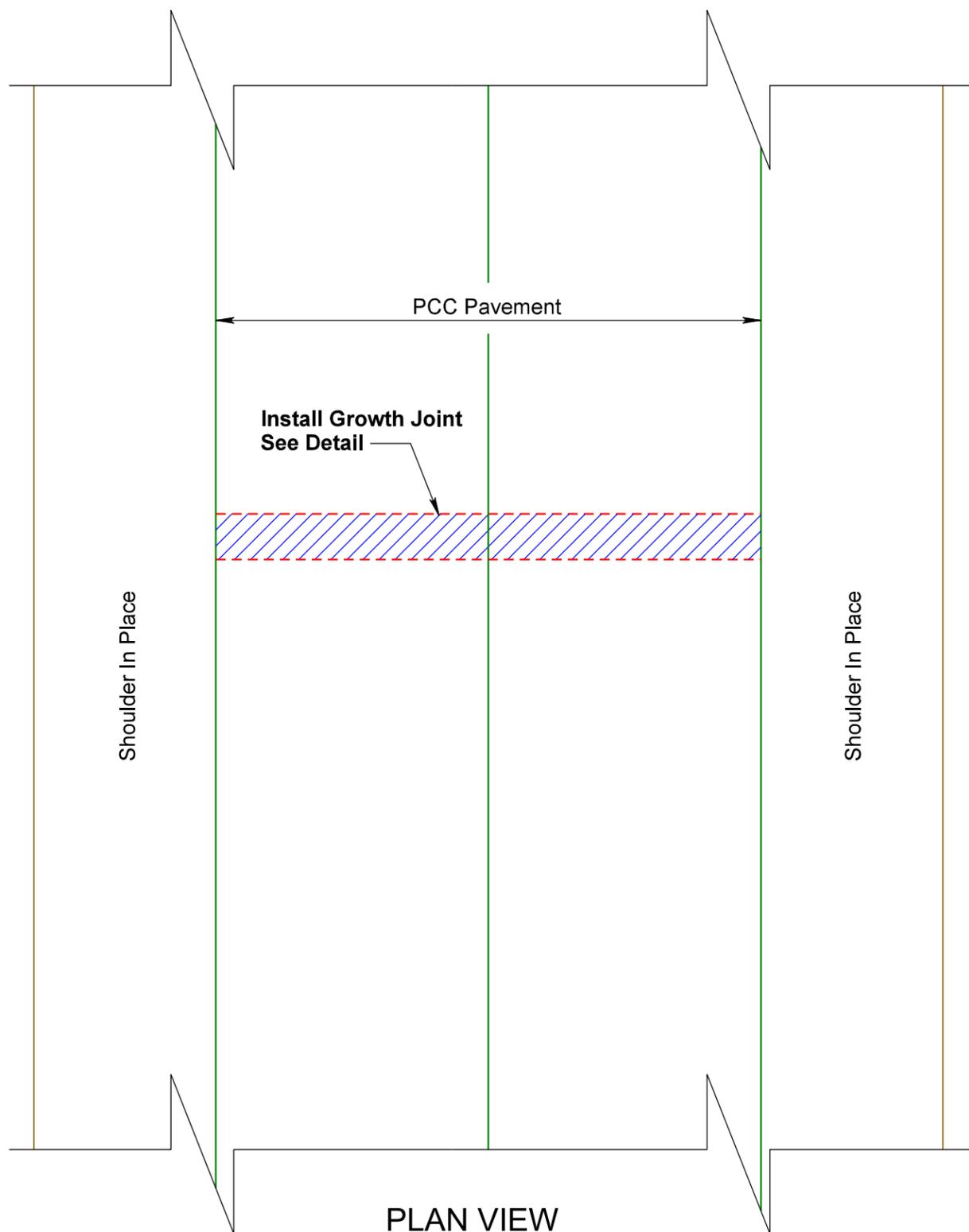
LAYOUT FOR GROWTH JOINTS

Plotting Date: 02/05/2016

PLOT SCALE - 1:6.4

PLOT NAME - 18

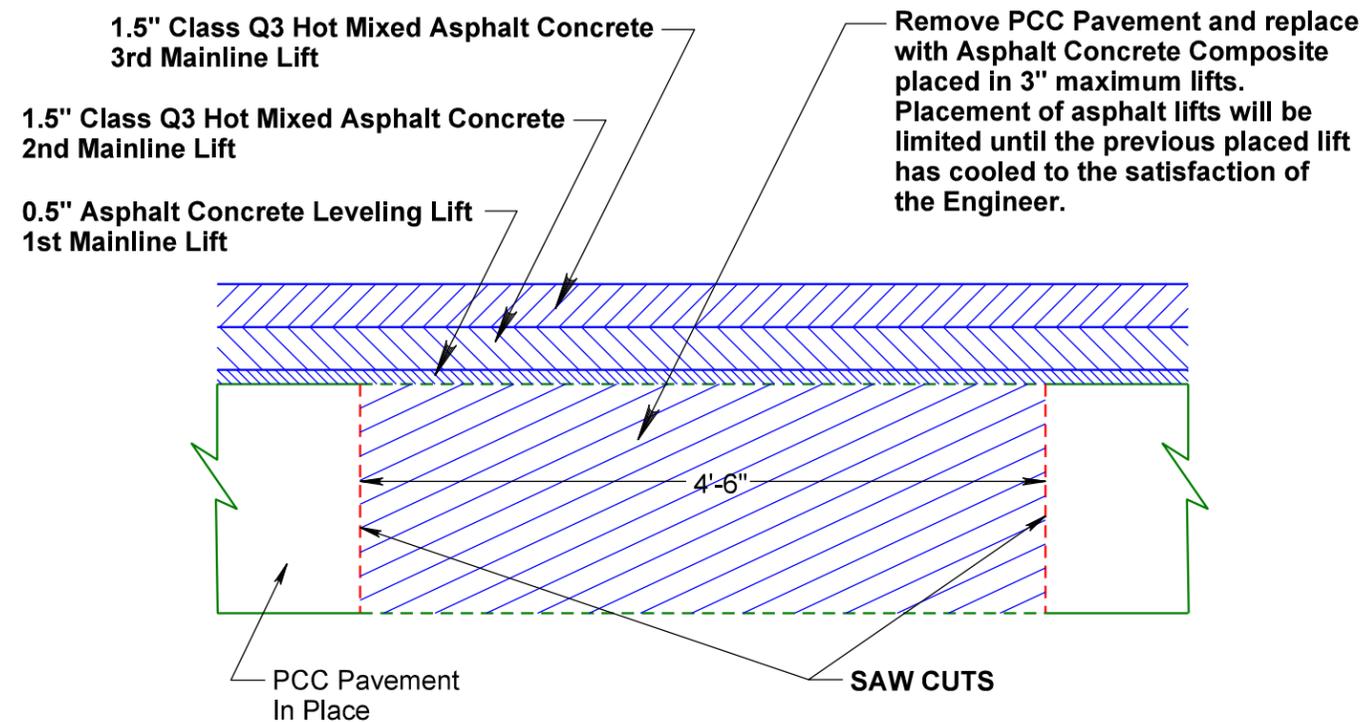
FILE - ... \HUCH0232\GROWTH JOINT 023Z.DGN



PLAN VIEW

The Contractor shall install four Growth Joints per mile. The Engineer shall determine the locations of the Growth Joints on construction.

Asphalt Concrete placed in the Growth Joint shall be compacted to the satisfaction of the Engineer.



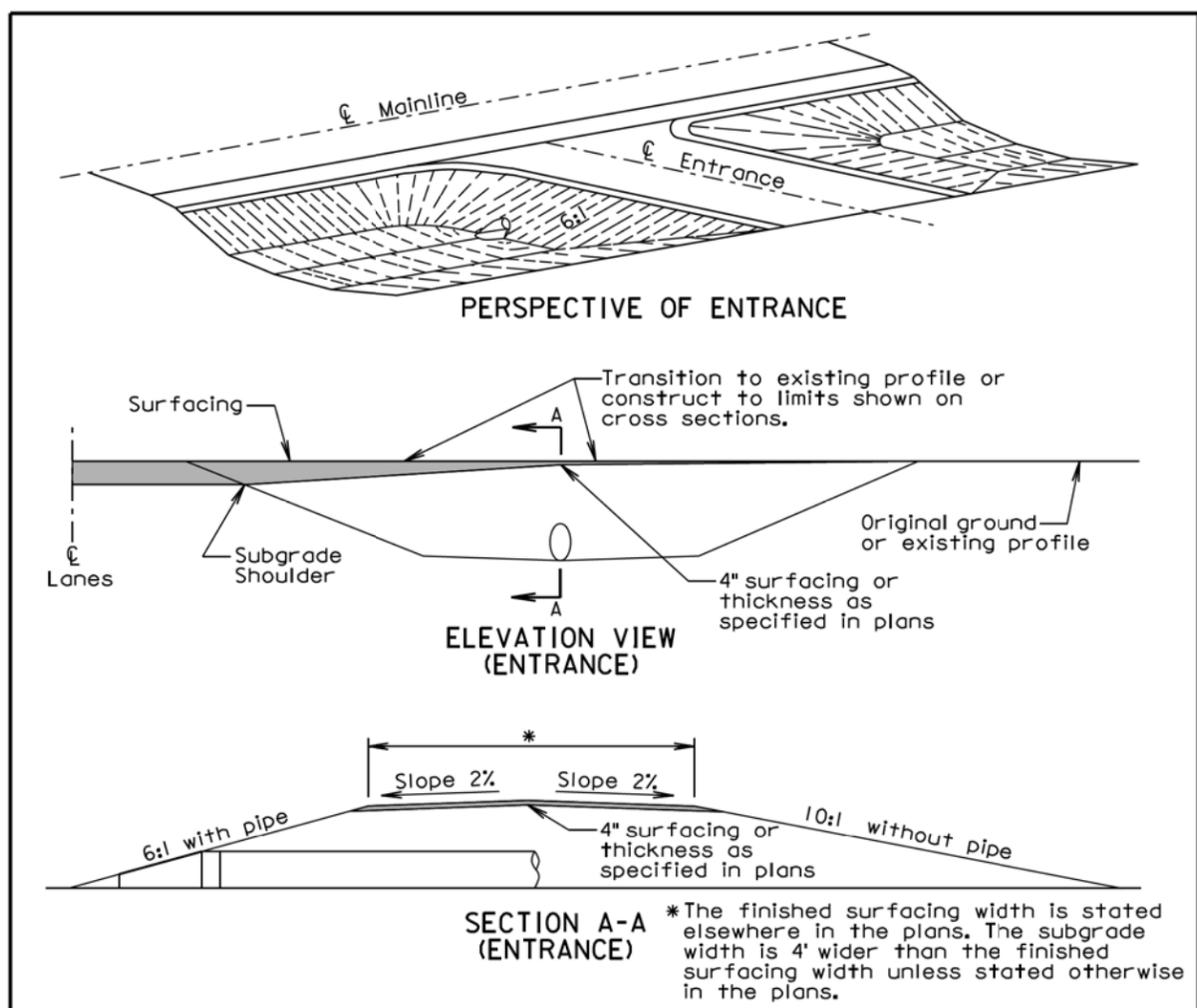
DETAIL

TABLE OF GROWTH JOINTS					
Section	Pavement Width	Number of Growth Joints	Sawing PCC Pavement Ft	Remove Concrete Pavement SqYds	Asphalt Concrete Composite Tons
1	30'	18	1,080	270	112
2	40'	2	160	40	17
3	28'	24	1,344	336	140
4	40'	2	160	40	17
5	28'	9	504	126	52
6	28'	3	168	42	17
7	28'	3	168	42	17
8	28'	16	896	224	93
9	34'	1	68	17	7
Totals:			4,548 *	1,137	472

* Cost for sawing PCC Pavement shall be incidental to the contract unit price for Remove Concrete Pavement.

Plotting Date: 02/05/2016

PLOT SCALE - 1:200



GENERAL NOTES:

The ditch section shown above in the perspective and elevation view is only for illustrative purposes.

A 6:1 inslope shall be constructed for an entrance when a pipe is required. A 10:1 inslope shall be constructed when a pipe is not required.

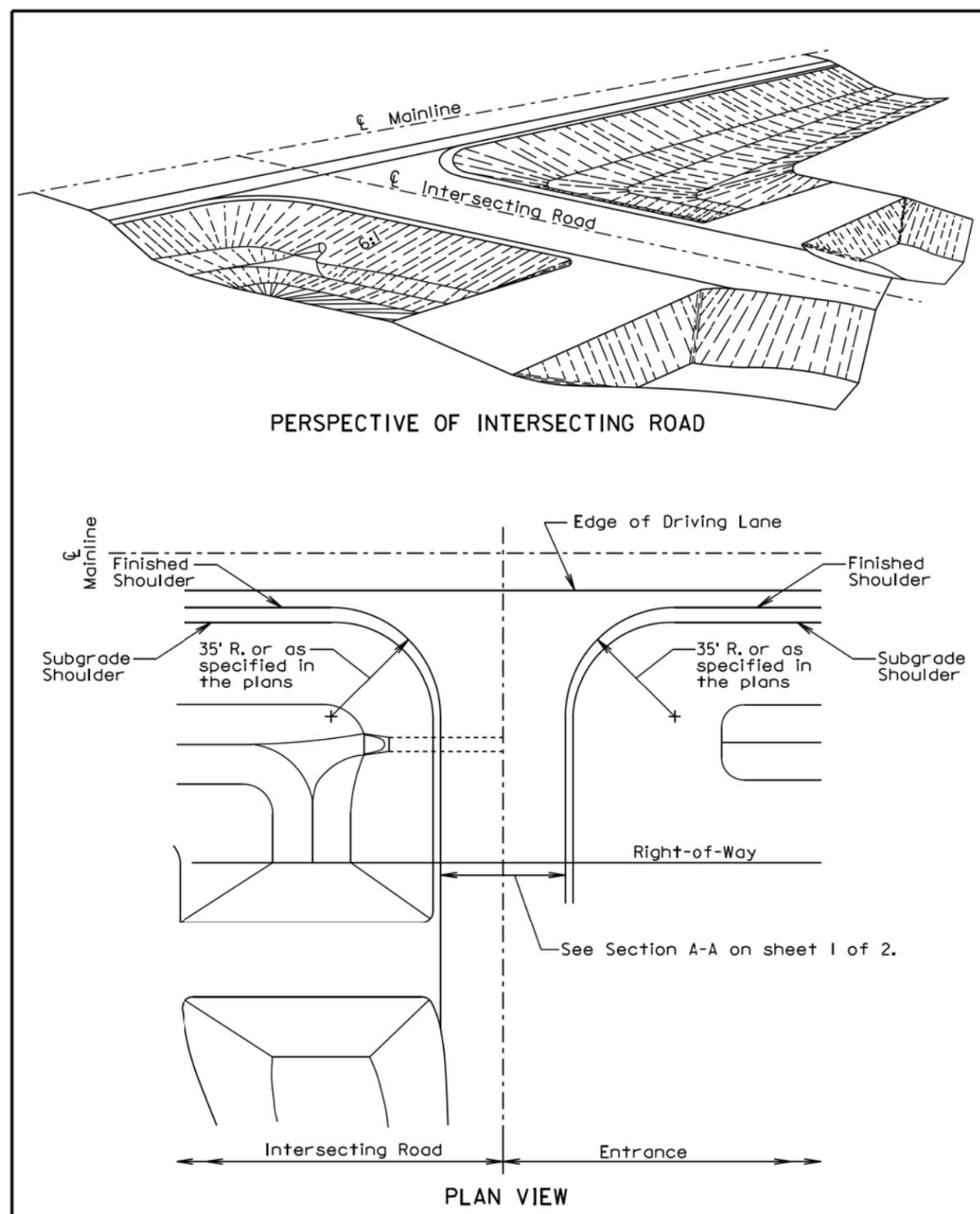
Pipe lengths shall be adjusted if necessary during construction to obtain the 6:1 slopes. For grading projects, the pipe lengths are estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

The transition area between the mainline inslope and the approach inslope for entrances shall be rounded to eliminate an abrupt transition.

The turning radii shall be 35' for intersecting roads and entrances unless stated otherwise in the plans.

Published Date: 1st Qtr. 2016	S D D O T	September 6, 2013	
		PLATE NUMBER 120.01	
		Sheet 1 of 2	

FILE - ... \HUCH0232\STD PLATES 023Z.DGN

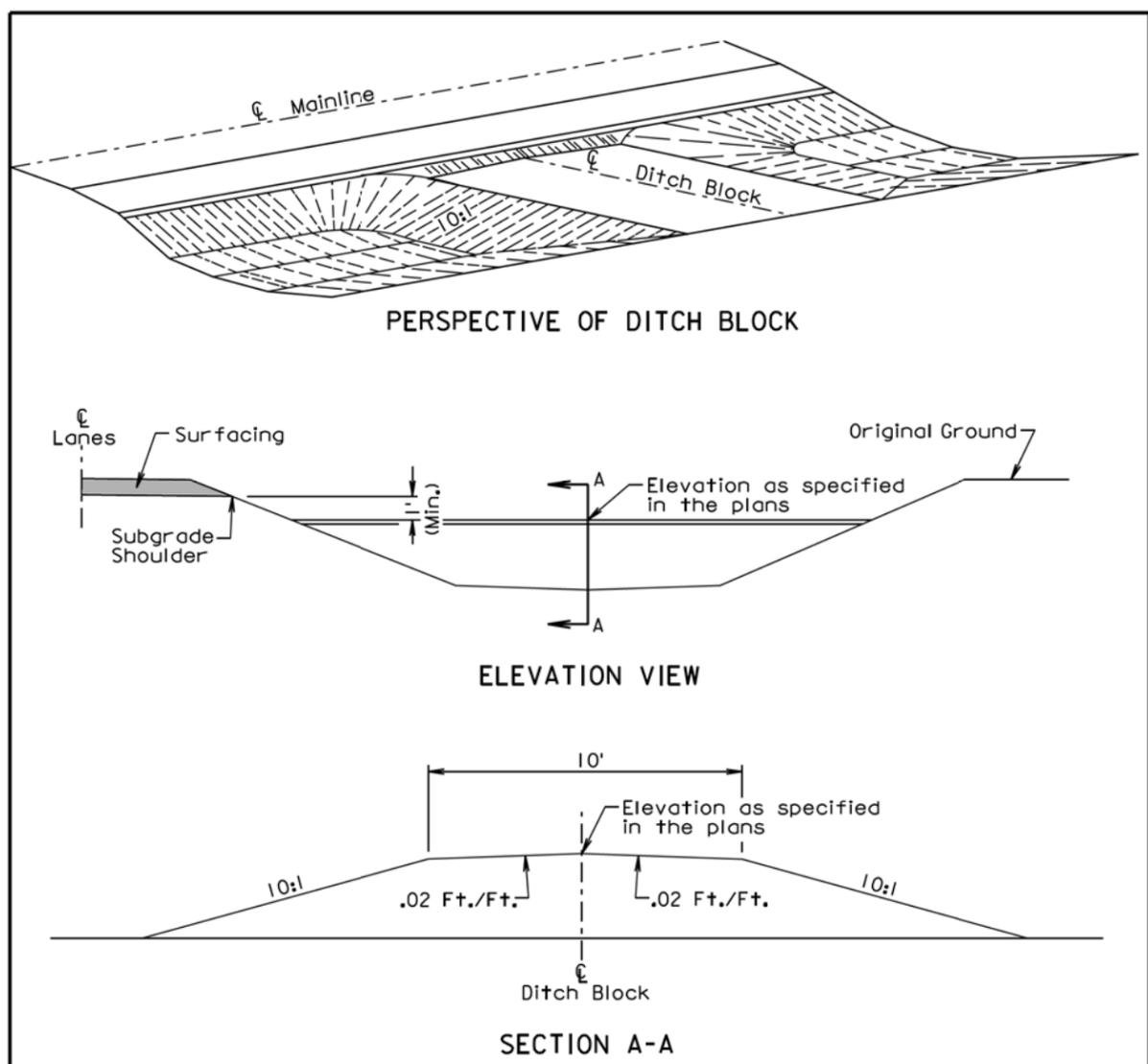


Published Date: 1st Qtr. 2016	S D D O T	September 6, 2013	
		PLATE NUMBER 120.01	
		Sheet 2 of 2	

PLOTTED FROM - TRMLINT15

Plotting Date: 02/05/2016

PLOT SCALE - 1:200



GENERAL NOTES:

The ditch section shown above in the perspective and elevation view is only for illustrative purposes.

The inslopes of the ditch block shall be 10:1 or as specified in the plans.

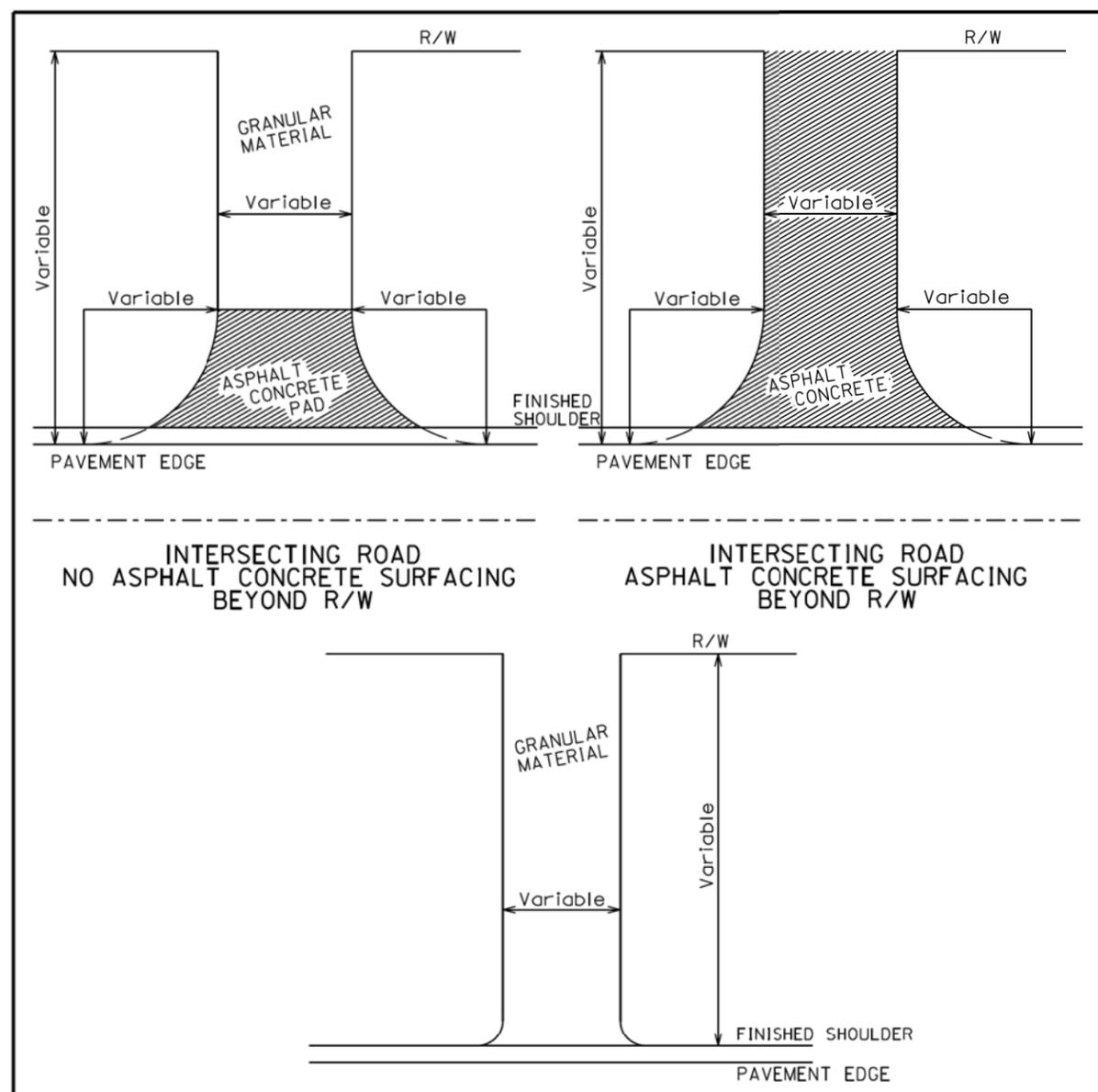
The transition area between the mainline inslope and the ditch block inslope shall be rounded to eliminate an abrupt transition.

February 14, 2011

Published Date: 1st Qtr. 2016	S D D O T	DITCH BLOCK	PLATE NUMBER 120.02
			Sheet 1 of 1

PLOT NAME - 2

FILE - ... \HUCH0232\STD PLATES 023Z.DGN



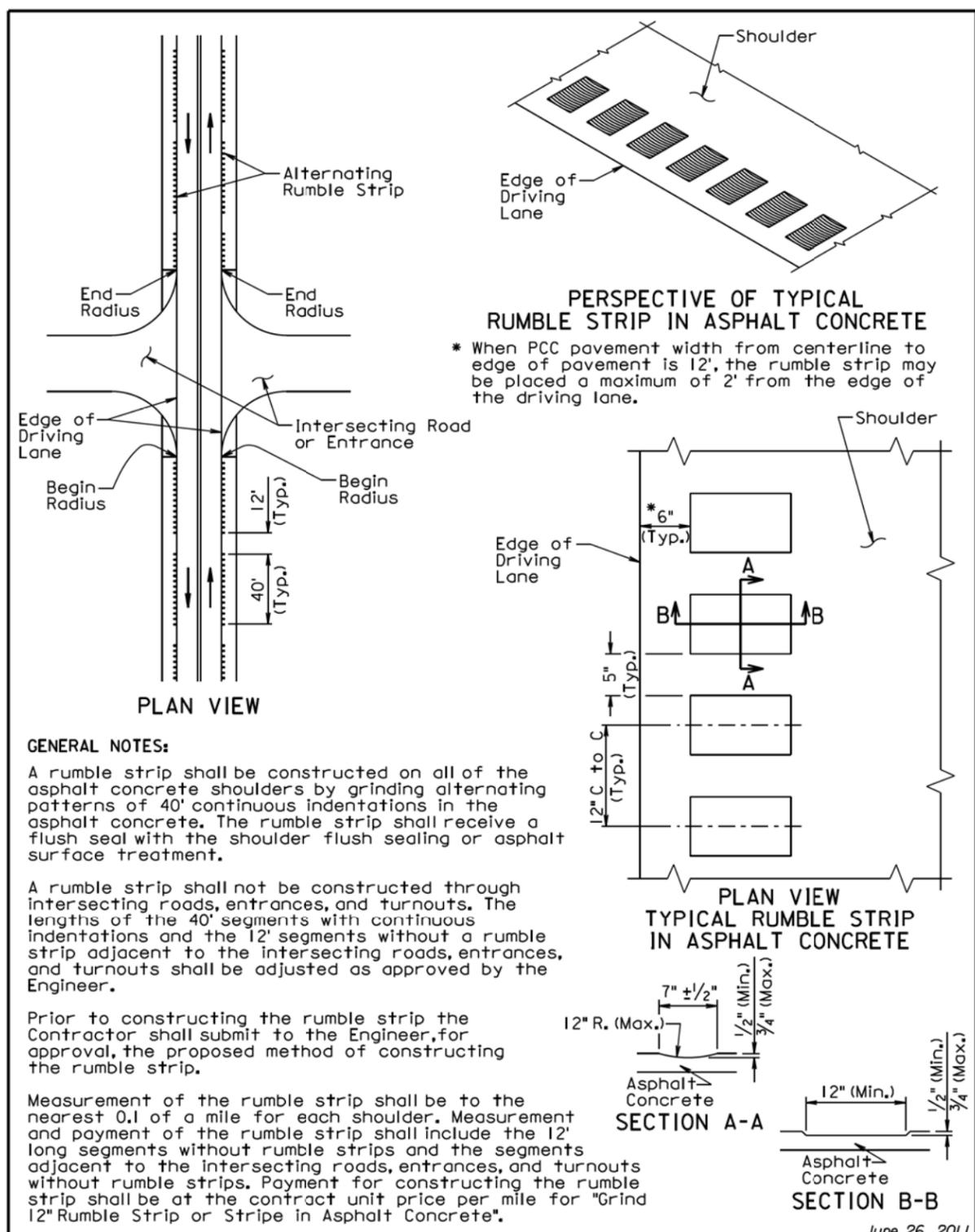
The surfacing details shown on this sheet are provided as a guide for surfacing these facilities. The precise construction limits for situations other than the standards shown will be determined by the Engineer, at the time of construction.

March 31, 2000

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

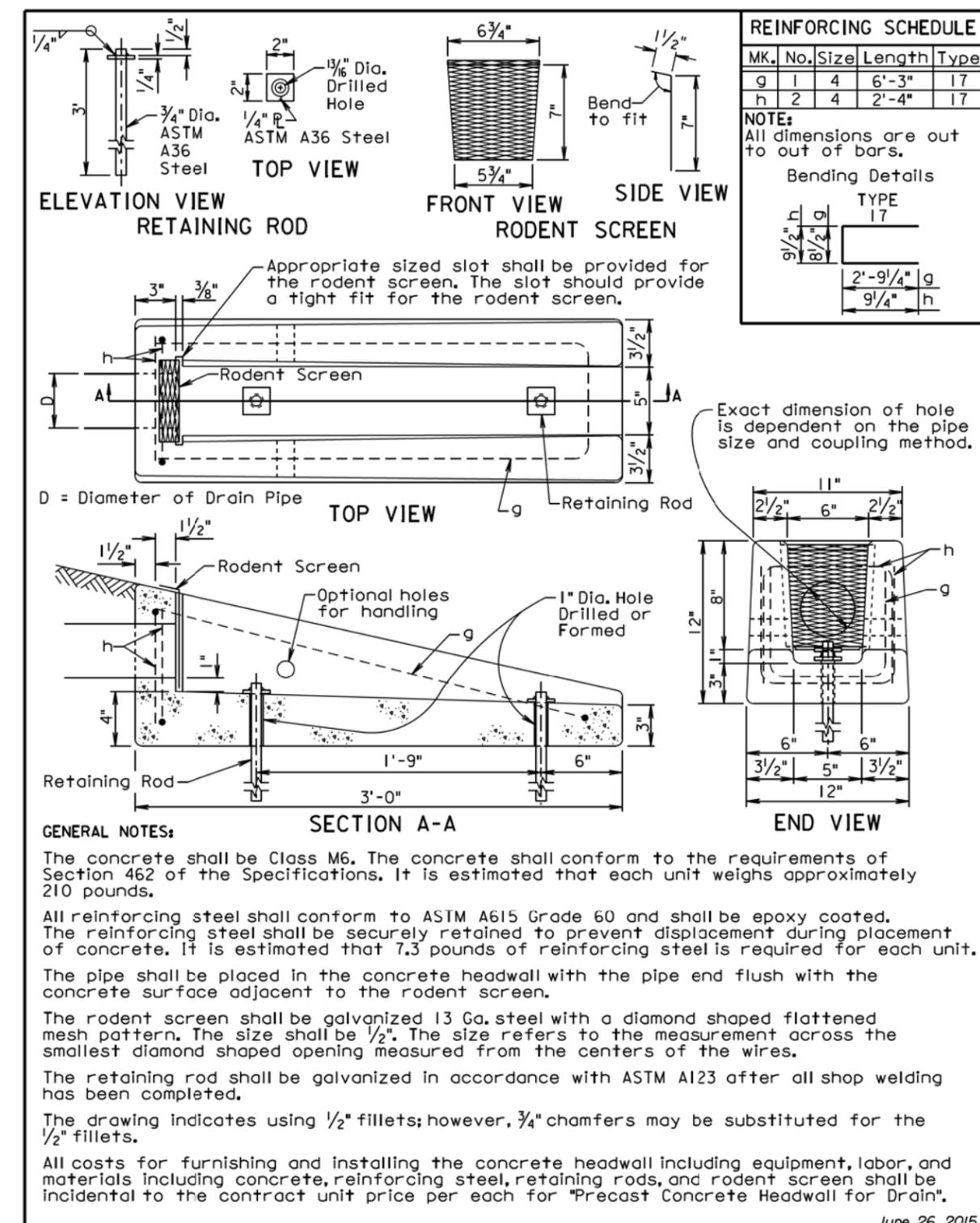
Plotting Date: 02/05/2016

PLOT SCALE - 1:200



S D D O T	12" RUMBLE STRIP IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.24
		Sheet 1 of 1

Published Date: 1st Qtr. 2016



S D D O T	PRECAST CONCRETE HEADWALL FOR DRAIN	PLATE NUMBER 430.50
		Sheet 1 of 1

Published Date: 1st Qtr. 2016

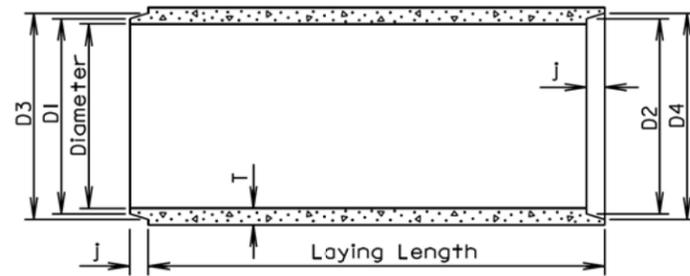
PLOT NAME - 3

FILE - ... \HUCH0232\STD PLATES 023Z.DGN

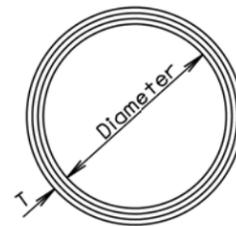
Plotting Date: 02/05/2016

TOLERANCES IN DIMENSIONS

Diameter: $\pm 1.5\%$ for 24" Dia. or less and $\pm 1\%$ or $\frac{3}{8}$ " whichever is more for 27" Dia. or greater.
 Diameters at joints: $\pm \frac{3}{16}$ " for 30" Dia. or less and $\pm \frac{1}{4}$ " for 36" or greater.
 Length of joint (J): $\pm \frac{1}{4}$ ".
 Wall thickness (T): not less than design T by more than 5% or $\frac{3}{16}$ ", whichever is greater.
 Laying length: shall not underrun by more than $\frac{1}{2}$ ".



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

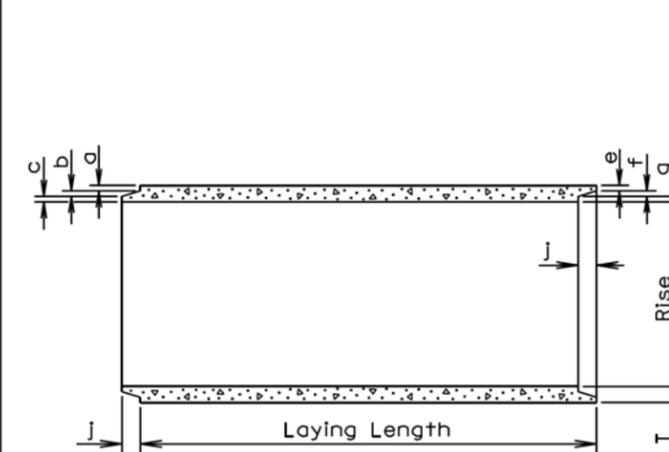
Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

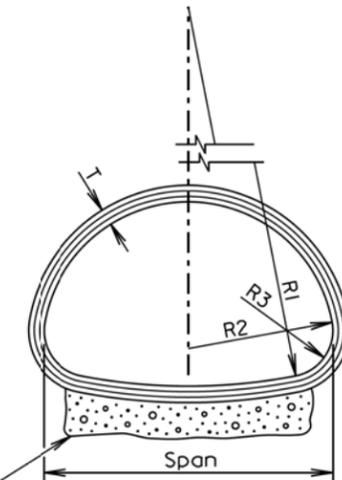
Diam. (in.)	Approx. Wt./Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 3/8	14 1/4
15	127	2 1/4	2	16 1/2	16 3/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 1/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	3 1/4	3	29 1/4	29 5/8	30 1/4	30 5/8
30	384	3 1/2	3 1/4	32 3/8	32 3/4	33 1/2	33 3/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 1/8	45 5/8	46 1/2	47
48	867	5	4 1/2	51 1/2	52	53	53 1/2
54	1070	5 1/2	4 1/2	57 1/8	58 3/8	59 3/8	59 7/8
60	1296	6	5	64 1/4	64 3/4	66	66 1/2
66	1542	6 1/2	5 1/2	70 5/8	71 1/8	72 1/2	73
72	1810	7	6	77	77 1/2	79	79 1/2
78	2098	7 1/2	6 1/2	83 3/8	83 3/8	85 5/8	86 1/8
84	2410	8	7	89 3/4	90 1/4	92 1/8	92 5/8
90	2740	8 1/2	7	95 3/4	96 1/4	98 1/8	98 5/8
96	2950	9	7	102 1/8	102 5/8	104 1/2	105
102	3075	9 1/2	7 1/2	109	109 1/2	111 1/2	112
108	3870	10	7 1/2	115 1/2	116	118	118 1/2

June 26, 2015

S D D O T	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
	Published Date: 1st Qtr. 2016	Sheet 1 of 1



LONGITUDINAL SECTION



END VIEW

TOLERANCES IN DIMENSIONS

Radial dimensions at joints: $\pm \frac{1}{8}$ " for 65" span or less and $\pm \frac{1}{4}$ " for longer spans.
 Rise and Span: $\pm 2\%$ of tabular values.
 Length of Joint (J): $\pm \frac{1}{4}$ ".
 Wall thickness (T): not less than design T by more than 5% or $\frac{3}{16}$ ", whichever is greater.
 Laying length: shall not underrun by more than $\frac{1}{2}$ ".

Gravel Bedding Material shall be supplied for 102" to 169" spans. It shall be placed to a thickness of 6" (Min.) x 85% of the Span x Length of culvert and shall conform to the gradation requirements for gravel surfacing except material may be screened or may be plan provided material.

* Size (in.)	Approx. Wt./Ft. (lb.)	Rise (in.)	Span (in.)	T (in.)	a (in.)	b (in.)	c (in.)	J (in.)	e (in.)	f (in.)	g (in.)	R1 (in.)	R2 (in.)	R3 (in.)
18	170	13 1/2	22	2 1/2	1 3/8	3/8	3/4	2	1 1/8	3/8	1	27 1/2	13 3/4	5 1/4
24	320	18	28 1/2	3 1/2	1 5/8	1/2	1 3/8	3	1 3/8	1/2	1 5/8	40 1/16	14 3/4	4 5/8
30	450	22 1/2	36 1/4	4	1 13/16	5/8	1 9/16	3 1/2	1 9/16	5/8	1 13/16	51	18 3/4	6 1/8
36	600	26 5/8	43 3/4	4 1/2	2	3/4	1 3/4	4	1 3/4	3/4	2	62	22 1/2	6 1/2
42	740	31 5/16	51 1/8	4 1/2	2	3/4	1 3/4	4	1 3/4	3/4	2	73	26 1/4	7 3/4
48	890	36	58 1/2	5	2 1/4	3/4	2	5	2	3/4	2 1/4	84	30	8 7/8
54	1100	40	65	5 1/2	2 1/2	3/4	2 1/4	5	2 1/4	3/4	2 1/2	92 1/2	33 3/8	10
60	1400	45	73 1/2	6	3 5/16	3/4	1 5/16	5	2 3/4	3/4	2 1/2	105	37 1/2	11
72	1900	54	88	7	3 13/16	1	2 3/16	6	3 1/4	1	2 3/4	126	45	13 5/16
84	2500	62	102	8	4 1/8	1	2 7/8	6	3 1/2	1	3 1/2	162 1/2	52	14 1/2
96	3300	78	122 3/8	9	4 1/2	1	3 1/2	7	4	1	4	218	62	20
108	4200	88	138 1/2	10	5	1	4	7	4 1/2	1	4 1/2	269	70	22
120	5100	96 7/8	154	11	5 1/2	1	4 1/2	7	5	1	5	301 3/8	78	24
132	5100	106 1/2	168 3/4	10		1	4	7	4 1/2	1	4 1/2	329	85 5/8	26 7/8

* Equivalent Diameter of Circular R. C. P.

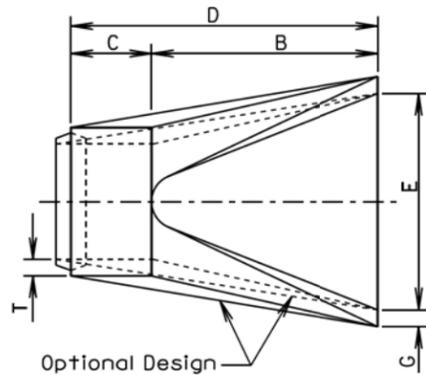
GENERAL NOTES:

Construction of R.C.P. Arch shall conform to the requirements of Section 990 of the Specifications. Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

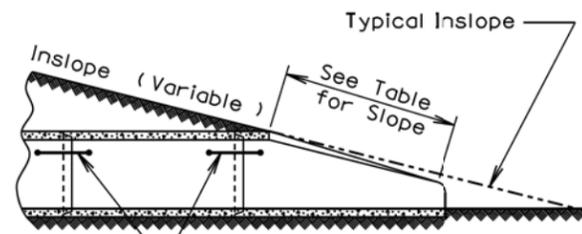
June 26, 2015

S D D O T	REINFORCED CONCRETE PIPE ARCH	PLATE NUMBER 450.02
	Published Date: 1st Qtr. 2016	Sheet 1 of 1

Plotting Date: 02/05/2016



TOP VIEW

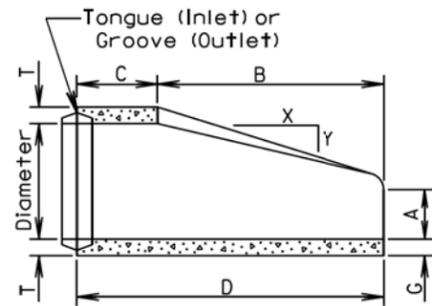


SLOPE DETAIL

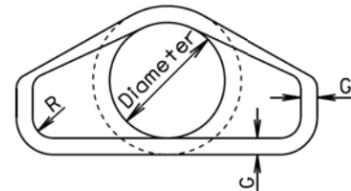
GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Specifications.



LONGITUDINAL SECTION



END VIEW

Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4:1	2	4	24	48 1/8	72 7/8	24	2	1 1/2
15	740	2.4:1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3:1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4:1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5:1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5:1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5:1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5:1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5:1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5:1	5	24	72	26	98	84	5	1 1/2
54	8240	2:1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9:1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7:1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8:1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8:1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6:1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5:1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

June 26, 2015

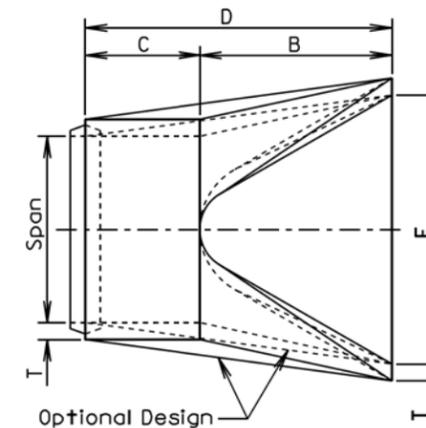
S
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T

R. C. P. FLARED ENDS

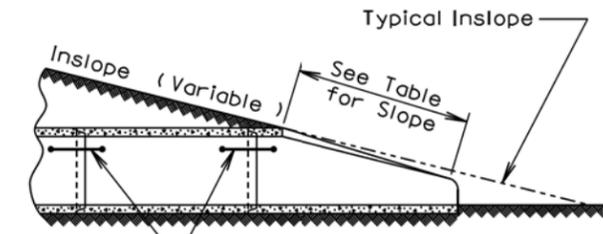
PLATE NUMBER
450.10

Sheet 1 of 1

Published Date: 1st Qtr. 2016

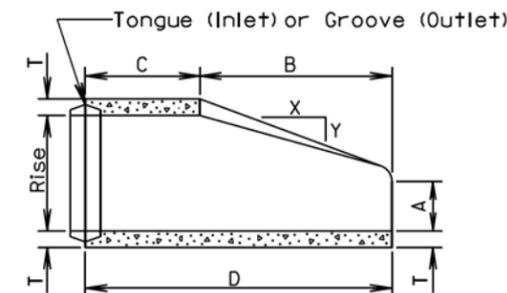


TOP VIEW



SLOPE DETAIL

See Standard Plate 450.18
(TIE BOLTS FOR R.C.P. AND R.C.P. ARCH)



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

Construction of R.C.P. Arch Flared End shall conform to the requirements of Section 990 of the Specifications.

* Size (in.)	Approximate Weight of Section (lbs.)	Rise (in.)	Span (in.)	Slope (X:Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	R (in.)
18	1100	13 1/2	22	3:1	2 1/2	7	27	45	72	36	2
24	1750	18	28 1/2	3:1	3 1/2	8 1/2	39	33	72	48	3
30	3300	22 1/2	36 1/4	3:1	4	9 1/2	50	46	96	60	3
36	4350	26 5/8	43 3/4	3:1	4 1/2	11 1/8	60	36	96	72	6
42	5250	31 5/16	51 1/8	3:1	4 1/2	15 1/16	60	36	96	78	6
48	6400	36	58 1/2	3:1	5	21	60	36	96	84	6
54	7850	40	65	3:1	5 1/2	25 1/2	60	36	96	90	6
60	9500	45	73 1/2	3:1	6	31	60	36	96	96	6
72	13550	54	88	2:1	7	31	60	39	99	120	6
84	17950	62	102	2:1	8	28 1/2	83	19	102	144	6

*Equivalent Diameter of Circular R. C. P.

June 26, 2015

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R. C. P. ARCH FLARED ENDS

PLATE NUMBER
450.11

Sheet 1 of 1

Published Date: 1st Qtr. 2016

PLOT SCALE - 1:200

PLOTTED FROM - TRMLINT15

PLOT NAME - 5

FILE - ... \HUCH023Z\STD PLATES 023Z.DGN

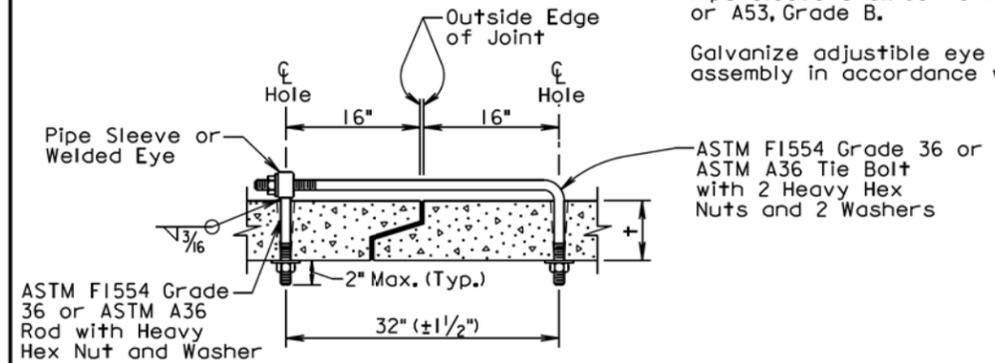
Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
$\leq 3/4$	$5/8$	$3/4$
$3/2 - 6/2$	$3/4$	1
≥ 7	1	$1 1/4$

GENERAL NOTES:

Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustable eye bolt tie assembly in accordance with ASTM A153.



ADJUSTABLE EYE BOLT TIE

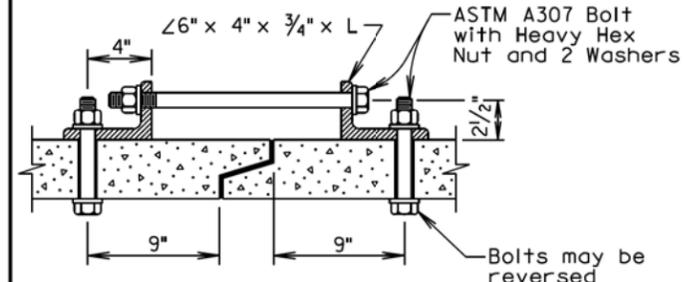
Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	$3/4$
> 48	6	1

GENERAL NOTES:

Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



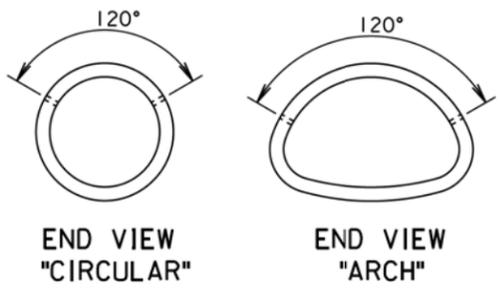
ANGLE AND BOLT TIE

GENERAL NOTES:

In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch shall be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manhole, and junction boxes shall be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.



February 28, 2013

Published Date: 1st Qtr. 2016	S D D O T	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			Sheet 1 of 1

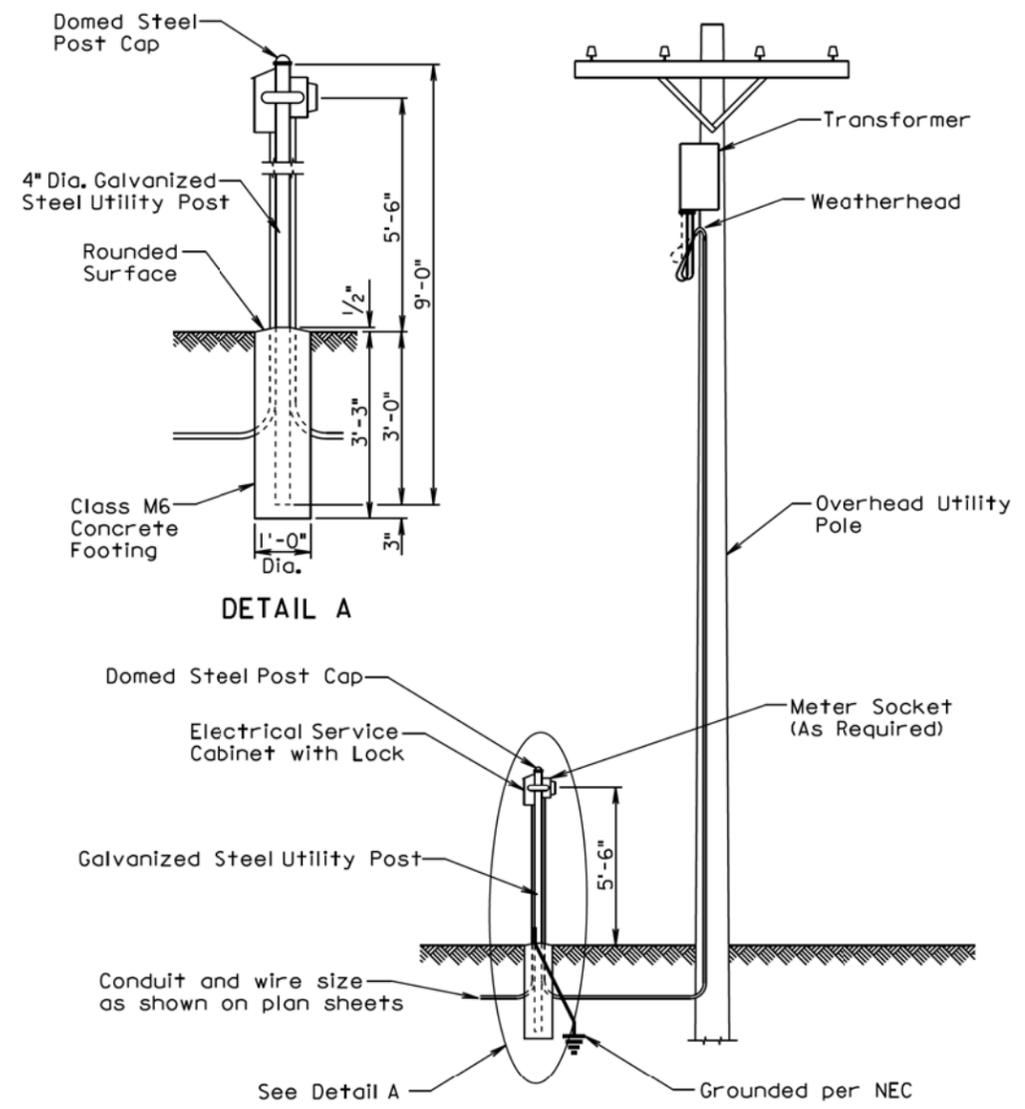
PLOT SCALE - 1:200

PLOTTED FROM - TRMLINT15

PLOT NAME - 6

FILE - ... \HUCH0232\STD PLATES 0232.DGN

Plotting Date: 02/05/2016



GENERAL NOTES:

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

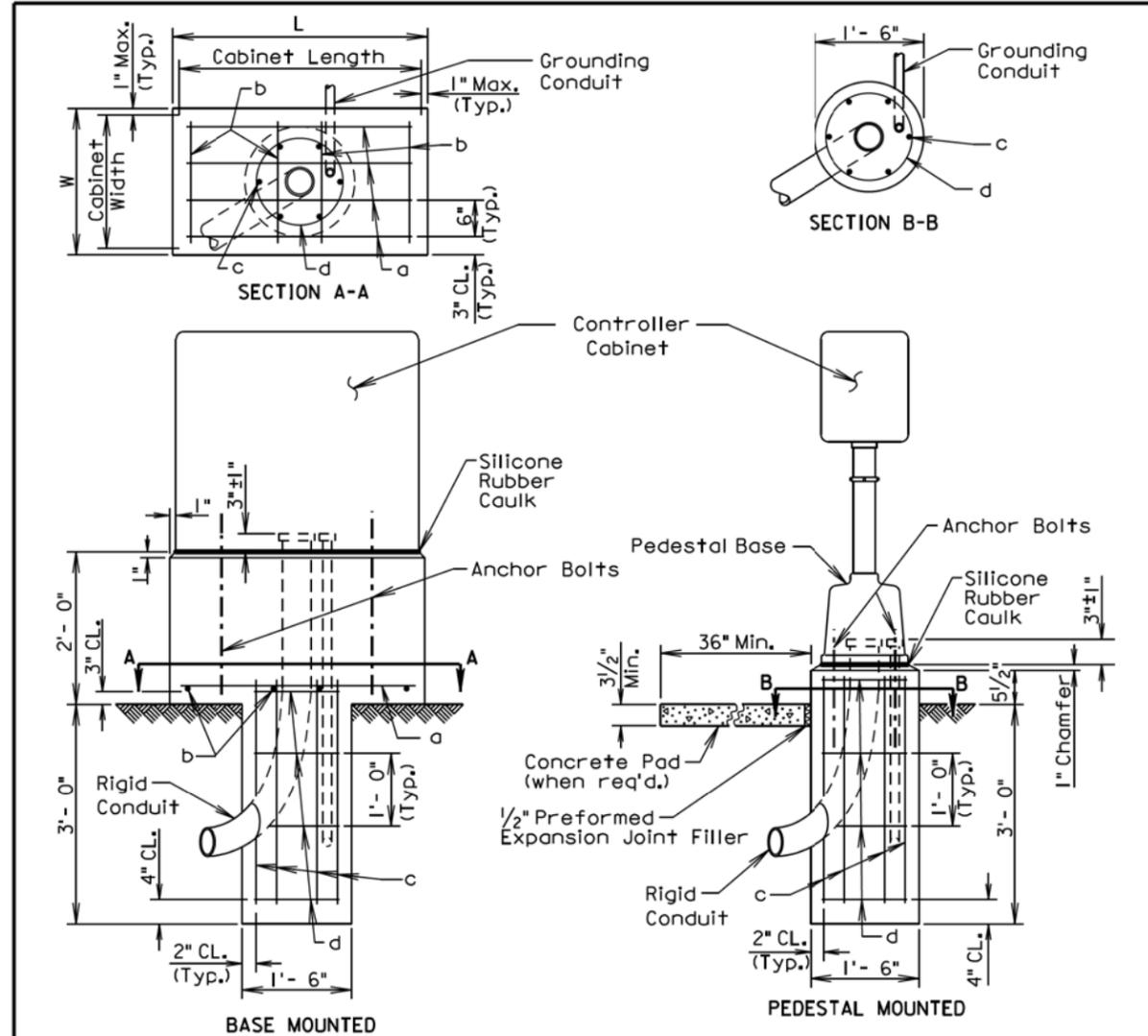
The 4" diameter galvanized steel utility post shall be 9' long and shall be in conformance with AASHTO Standard Specifications M181. The post shall be Type 1 and either Grade 1 or Grade 2. The domed steel post cap shall be in conformance with AASHTO Standard Specifications M181 and shall be Type 1.

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

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

June 26, 2006

S D D O T	GALVANIZED STEEL UTILITY POST WITH OVERHEAD UTILITY POLE	PLATE NUMBER 635.35
	Published Date: 1st Qtr. 2016	Sheet 1 of 1



GENERAL NOTES:

The above ground portion of the footing shall conform to the base of the controller to the satisfaction of the Engineer.

Conduits shall be sealed and water-tight until the conductor cables are installed.

If the controller is not located within or adjacent to an existing sidewalk, the Contractor shall provide a concrete pad as directed by the Engineer.

Anchor bolts and related hardware shall conform to the controller manufacturer's requirements and recommendations.

A continuous bead of silicone rubber caulk shall provide a weather-tight seal between the base and the concrete.

Reinforcing Schedule (for one footing)					
Mk.	No.	Size	Length	Type	Bending Detail
a	*	3	L - 4"	Str.	
b	*	3	W - 4"	Str.	
c	6	6	3' - 0"	Str.	
d	4	3	4' - 0"	T3	

Note: Dimensions are out to out of bar

* Vary number of bars as required by footing size.

March 31, 2000

S D D O T	CONTROLLER CABINET AND FOOTING	PLATE NUMBER 635.60
	Published Date: 1st Qtr. 2016	Sheet 1 of 1

PLOT SCALE - 1:200

PLOTTED FROM - TRMLINT15

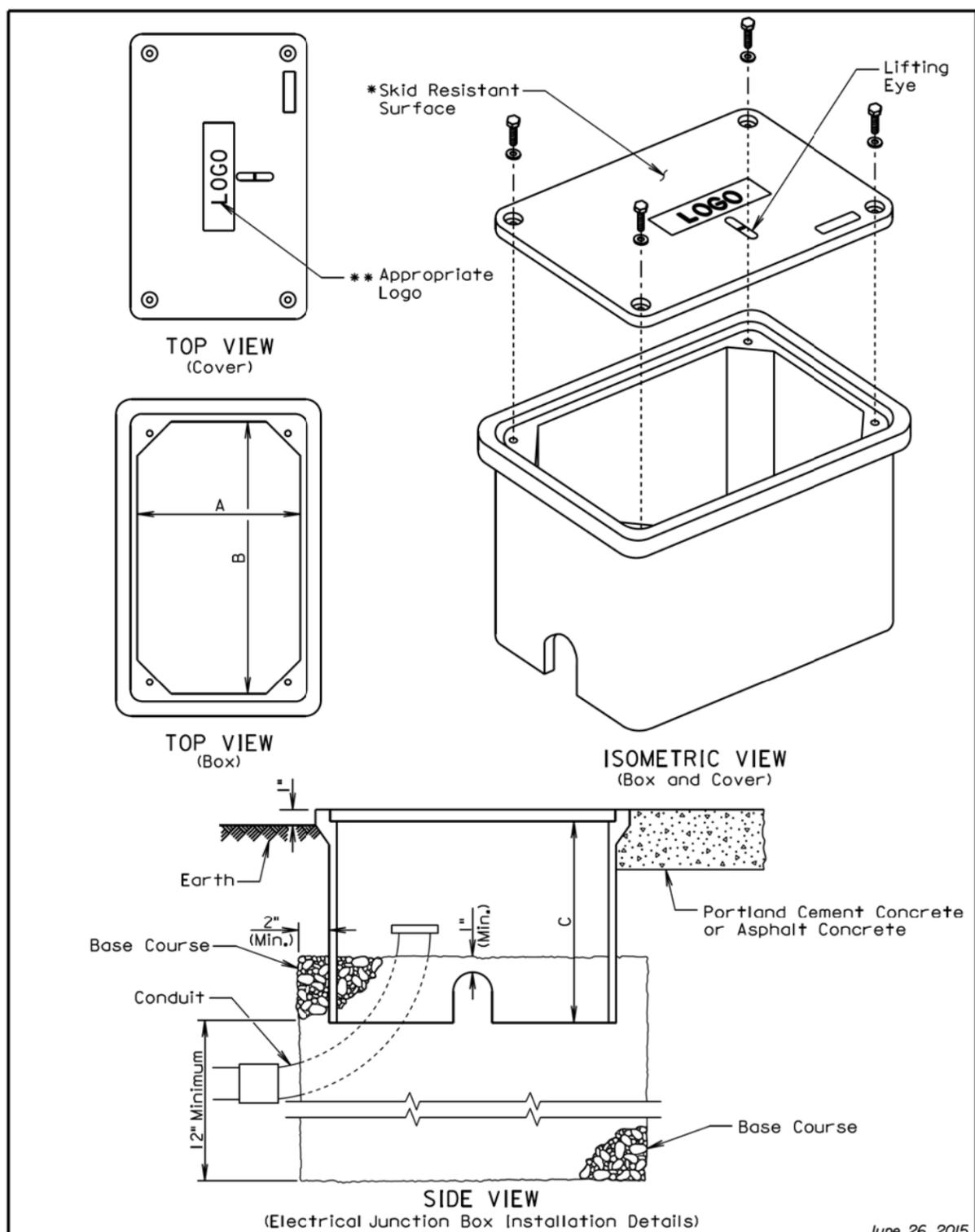
PLOT NAME - 7

FILE - ... \HUCH0232\STD PLATES 0232.DGN

Plotting Date: 02/05/2016

PLOT SCALE - 1:200

PLOT NAME - 8



June 26, 2015

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

Published Date: 1st Qtr. 2016

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

GENERAL NOTES:

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

The cover shall have a lifting eye.

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

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

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

The electrical junction boxes shall be UL listed.

June 26, 2015

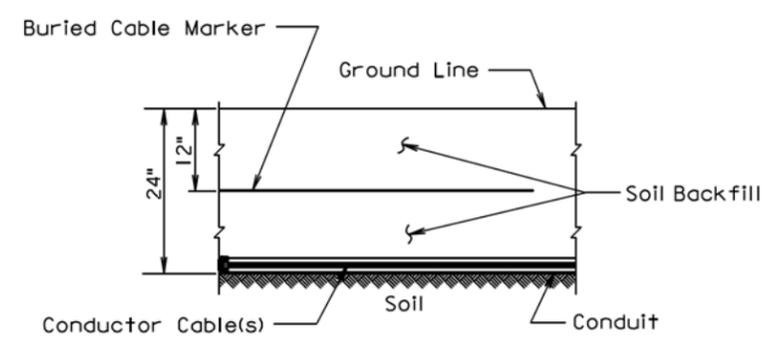
S D D O T	ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4	PLATE NUMBER 635.65
		Sheet 2 of 2

Published Date: 1st Qtr. 2016

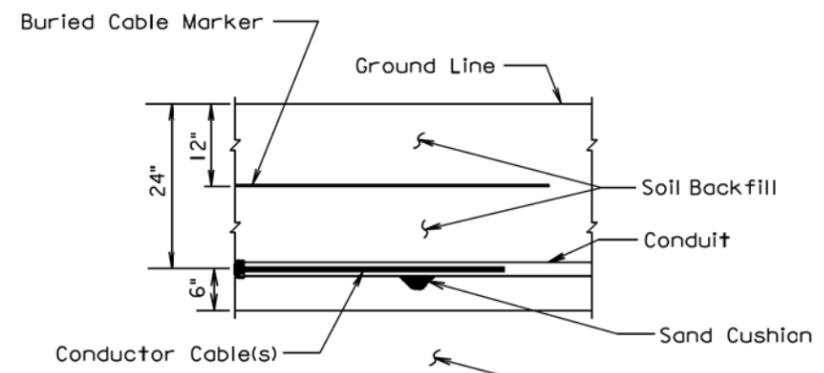
PLOTTED FROM - TRMLINT15

FILE - ... \HUCH0232\STD PLATES 023Z.DGN

Plotting Date: 02/05/2016



SECTION VIEW



SECTION VIEW

GENERAL NOTE:

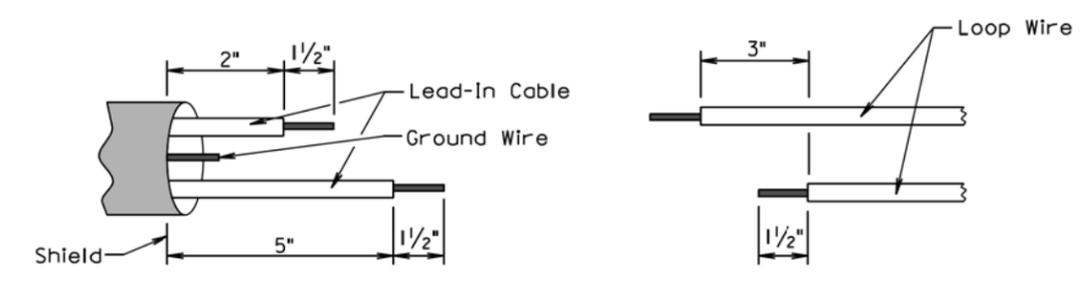
The Buried Cable Marker shall be plastic, approximately 6" wide, and shall be capable of sustaining a minimum of a 350% tolerance of elongation without tearing. The Buried Cable Marker shall have a life expectancy approximately equal to that of the conductor(s) beneath it. A phrase indicating the presence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

March 31, 2000

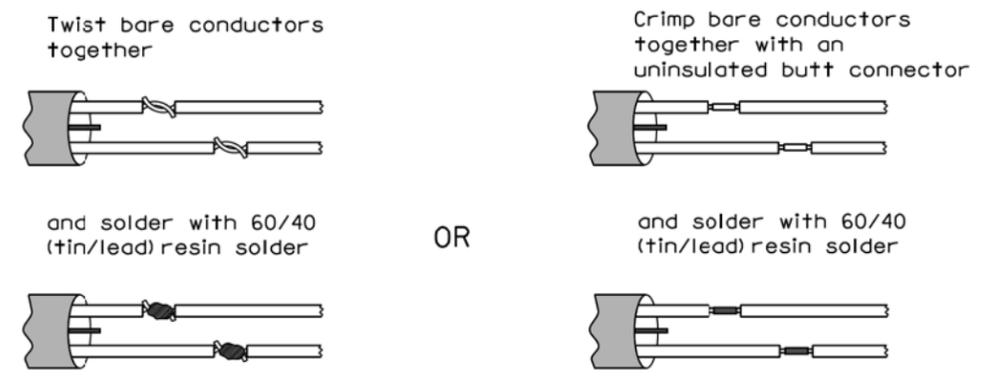
S D D O T	CONDUIT INSTALLATION	PLATE NUMBER 635.76
		Sheet 1 of 1

Published Date: 1st Qtr. 2016

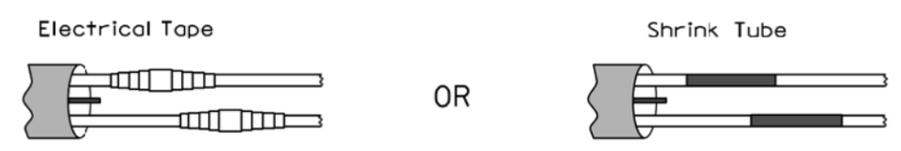
Step 1. Strip loop wires and lead-in cable.



Step 2. Connect and solder.



Step 3. Insulate each solder joint separately.



Step 4. Environmentally seal total splice against weather, moisture and abrasion. Methods for environmentally sealing the splice include heat-shrinkable tubing, special sealing kits, special forms to be filled by sealant, and tape and coating.



June 20, 2000

S D D O T	DETECTOR LOOP WIRE SPLICING	PLATE NUMBER 635.77
		Sheet 1 of 1

Published Date: 1st Qtr. 2016

PLOT SCALE - 1:200

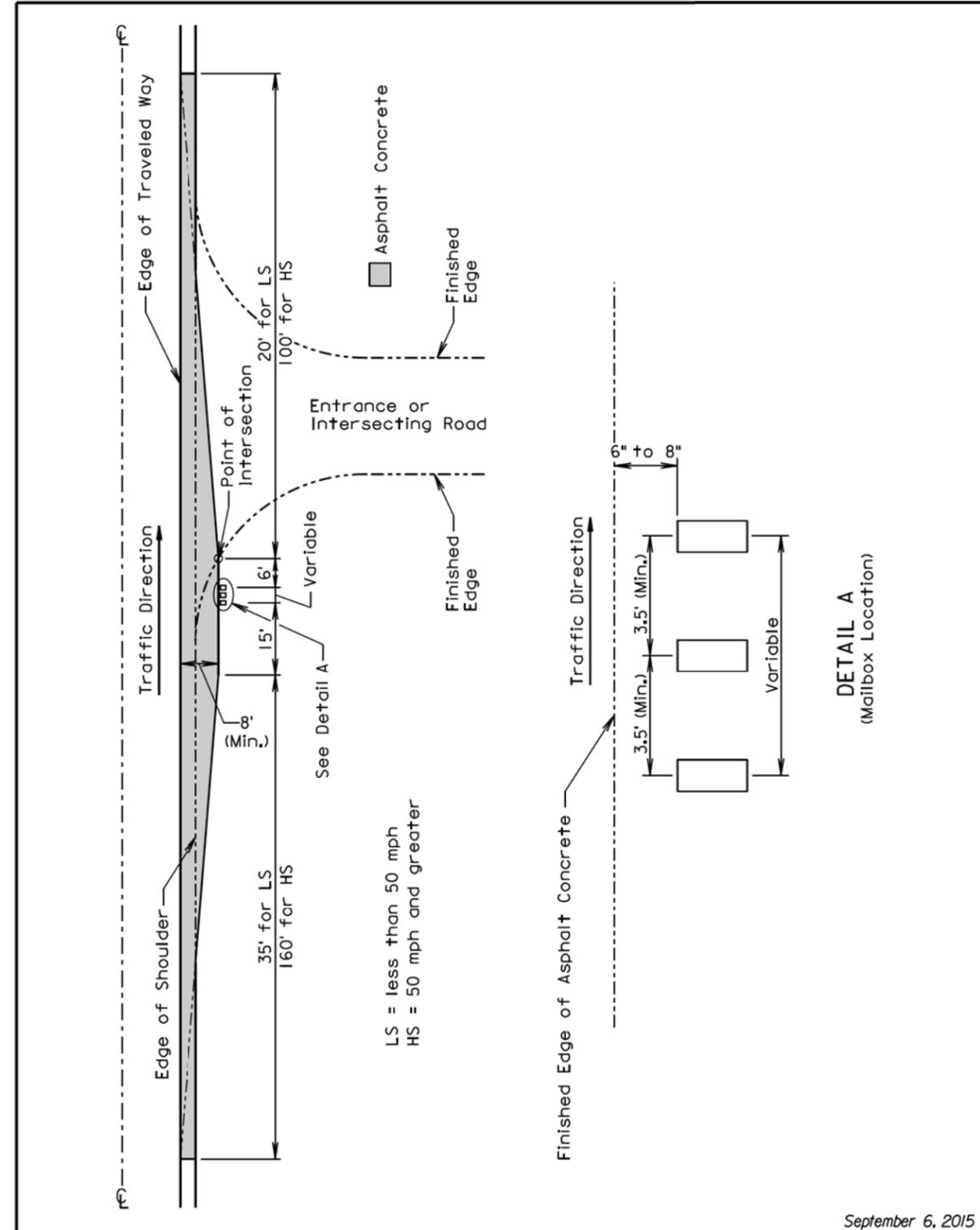
PLOTTED FROM - TRMLINT15

PLOT NAME - 9

FILE - ... \HUCH023Z\STD PLATES 023Z.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0081(88)15	55	56

Plotting Date: 02/05/2016



Published Date: 1st Qtr. 2016

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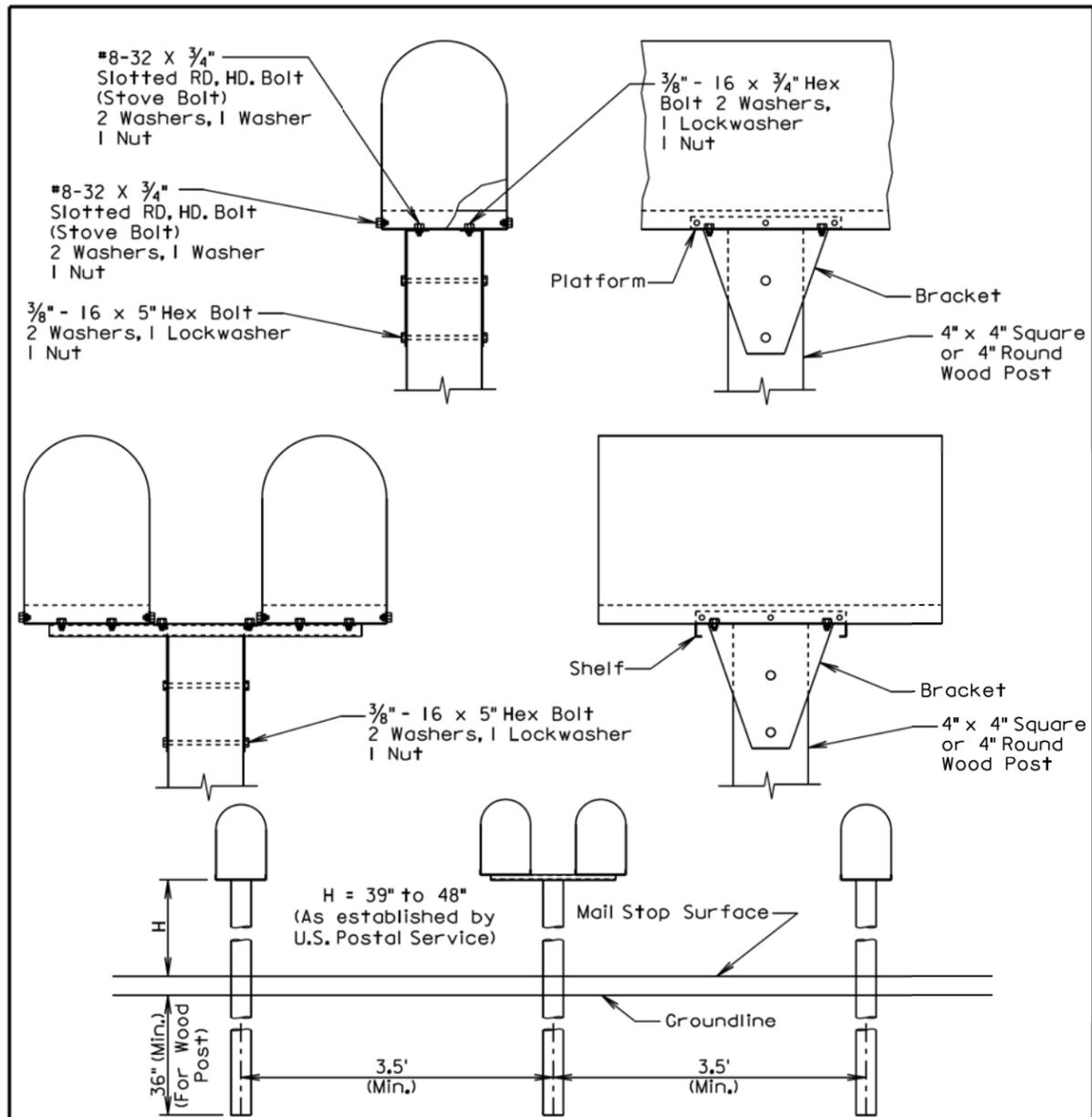
MAILBOX TURNOUT

September 6, 2015

PLATE NUMBER
900.01

Sheet 1 of 1

Plotting Date: 02/05/2016



GENERAL NOTES: SPACING FOR MULTIPLE POST INSTALLATION

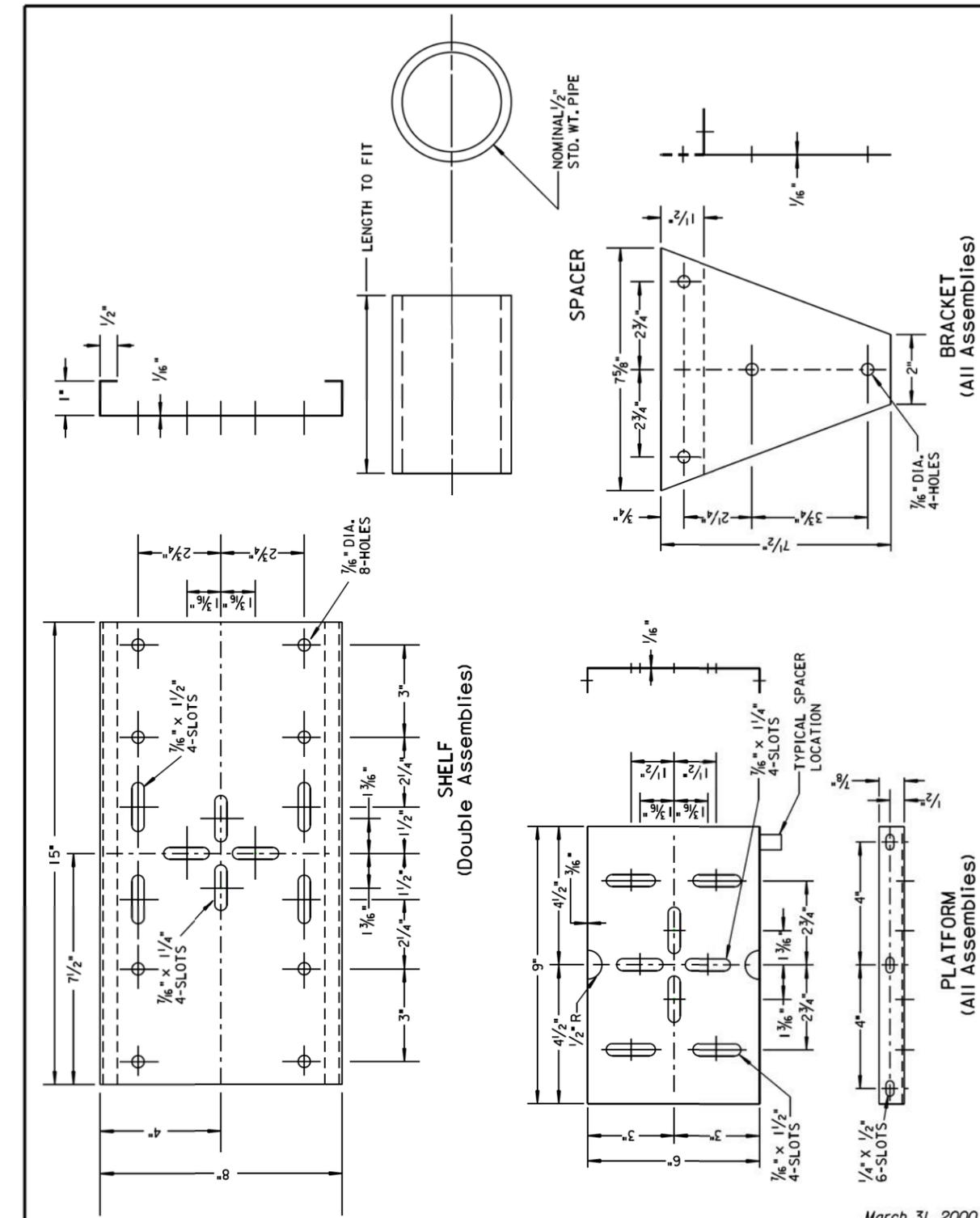
The post support assemblies provided should be consistent throughout the project. Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

September 6, 2013

S D D O T	SINGLE AND DOUBLE MAILBOX ASSEMBLIES	PLATE NUMBER 900.02
	<i>Published Date: 1st Qtr. 2016</i>	Sheet 1 of 1



S D D O T	MAILBOX SUPPORT HARDWARE	PLATE NUMBER 900.03
	<i>Published Date: 1st Qtr. 2016</i>	Sheet 1 of 1

PLOT SCALE - 1:200

PLOTTED FROM - TRMLINT15

PLOT NAME - 11

FILE - ... \HUCH0232\STD PLATES 023Z.DGN