

Plot Scale - 1:200

Plotted From - TRRC11951

Plotted From -

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085-451 & 014A-451	1	16

Plotting Date: 11/14/2017

PROJECT 085-451 & 014A-451
US HIGHWAY 85 & 14A
LAWRENCE COUNTY

TREE CLEARING
PCN I4tx & I4ty

INDEX OF SHEETS

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- 6 Forest Service Disposal Locations
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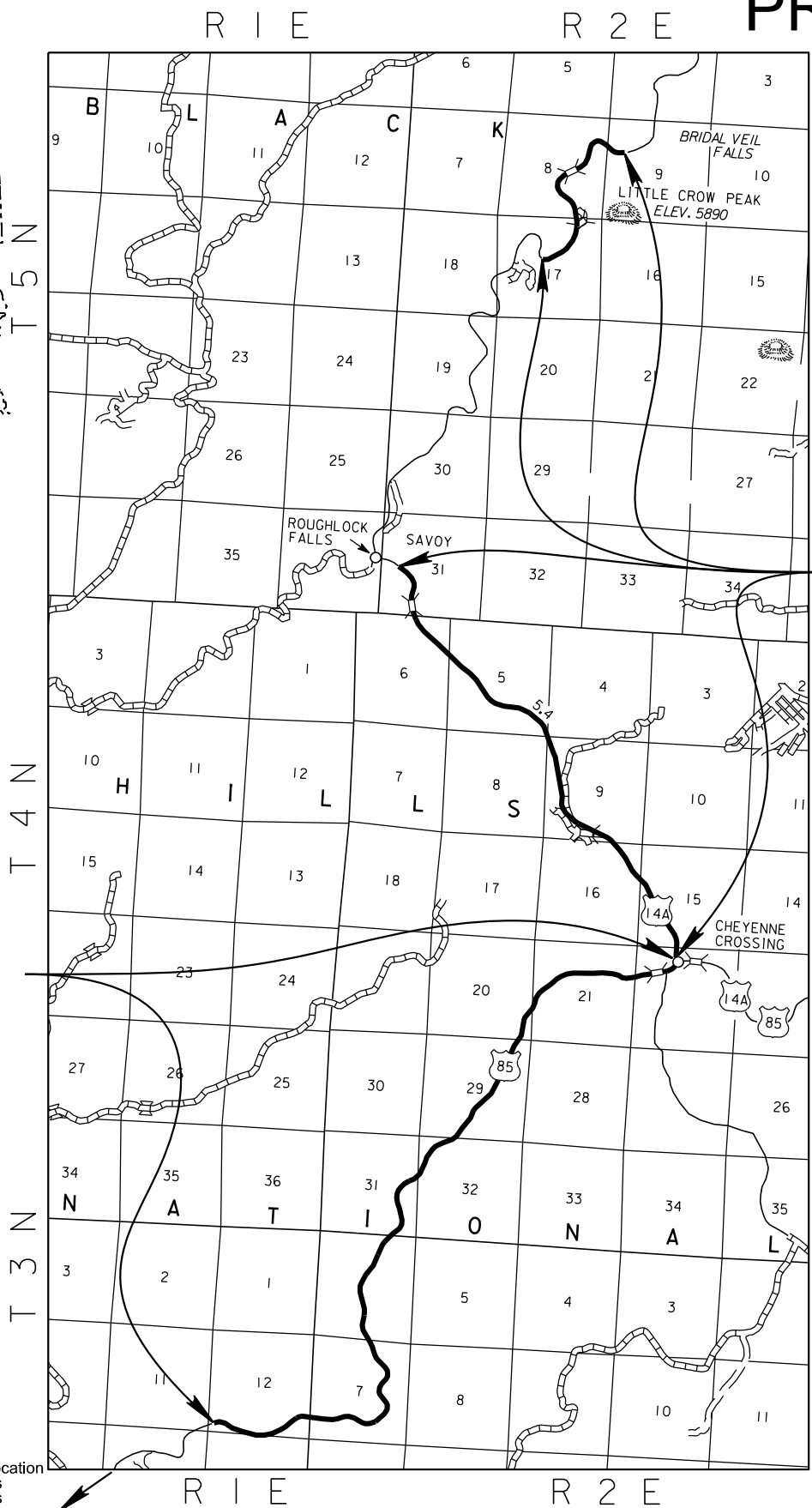
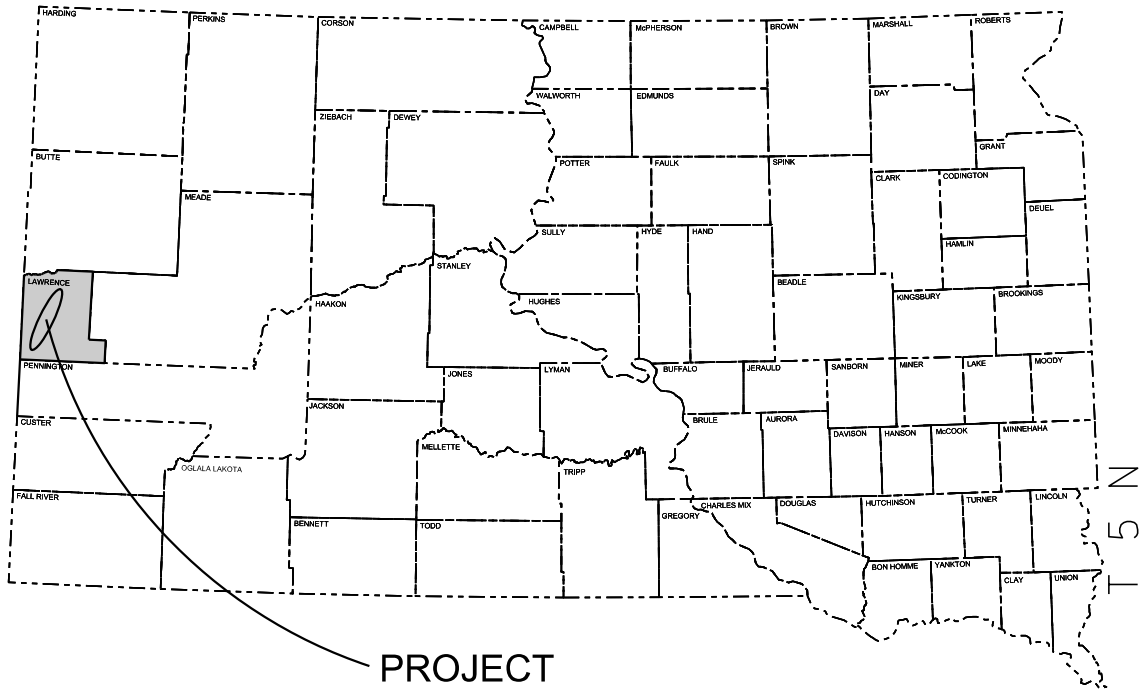
PROJECT 014A-451
MRM 17 to MRM 19
MRM 24 to MRM 29.15

PROJECT 085-451
MRM 8 to MRM 16.13

US 85 Disposal Location
MRM 4 + 0.6 miles
MRM 6 + 0.5 miles

US 14A / US85 Disposal Location
MRM 31 + 0.6 miles

STORM WATER PERMIT
None Required



ESTIMATE OF QUANTITIES

PCN i4tx, project 085-451, US 85

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
100E0020	Clear and Grub Tree	197	Each
634E0010	Flagging	200.0	Hour
634E0110	Traffic Control Signs	210.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS

PCN i4ty, project 014A-451, US 14A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
100E0020	Clear and Grub Tree	189	Each
634E0010	Flagging	200.0	Hour
634E0110	Traffic Control Signs	210.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

COMMITMENT 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 E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

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

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT B5: NORTHERN LONG-EARED BAT

This project is within the range of suitable habitat for the Northern Long-eared Bat (NLEB) and project work will avoid conflicts with NLEB roosting habitat.

Action Taken/Required:

Project activities that include tree removal, structure work, and/or work within ¼ mile of a known hibernacula or 150 ft. of a known maternity roost tree should not occur within the location(s) listed below during the NLEB seasonal work restriction timeframe without approval from the SDDOT Environmental Office.

NLEB Seasonal Work Restriction
April 1-October 31

Tree removal will occur between Nov 1st and March 31st.

Operators, employees, and contractors will implement the following Avoidance and Minimization Measures (AMMs):

General AMM 1: Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.

Tree Removal AMM 1: Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to the extent practicable to avoid tree removal in excess of what is required to implement the project safely.

Tree Removal AMM 2: Apply time of year (TOY) restrictions for tree removal when bats are not likely to be present.

Tree Removal AMM 3: Ensure tree removal is limited to that specified in project plans. Install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits. Ensure that contractors understand clearing limits and how they are marked in the field.

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 R: FIRE PREVENTION IN THE BLACK HILLS AREA

This project is located within the confines of the Black Hills Forest Fire Protection Boundary.

Action Taken/Required:

The Contractor shall adhere to the “Special Provision for Fire Plan”.

WORK DESCRIPTION

Work on this project will consist of the removal of dead trees, dying trees and trees leaning towards the highway located within the highway ROW of US Hwy 85 and US Hwy 14A.

TABLE OF TREE CLEARING

PCN i4tx, project 085-451, US 85

Tree Count Hwy 85			
Start	End	Right	Left
MRM	MRM	Side	Side
8	9	10	14
9	10	30	18
10	11	13	16
11	12	2	4
12	13	17	15
13	14	6	10
14	15	14	14
15	16.29	3	11
	Total:	95	102
Total Both Sides:			197

PCN i4ty, project 014A-451, US 14A

Tree Count Hwy 14A - Spearfish Canyon			
Start	End	Right	Left
MRM	MRM	Side	Side
17	18	27	33
18	19	17	6
24	25	5	8
25	26	11	26
26	27	6	23
27	28	12	11
28	29	1	3
	Total:	79	110
Total Both Sides:			189

CLEAR AND GRUB TREE

Note: The Contractor is highly encouraged to visit the project locations prior to bidding.

Before clearing activities begin, the Contractor shall contact the Engineer to identify what trees are to be removed on the project.

Trees 5 inches or greater in diameter and 6 feet or greater in length will be hauled to one of four disposal locations shown in these plans. Material less than 5 inches in diameter or shorter than 6 feet in length may be left in place and slashed to a depth of 18 inches, mechanical chipped and spread to a depth less than 3 inches, or hauled to a disposal location. Material hauled to disposal locations will be separated and stacked as described in the Hwy 14A/85 ROW Clearing Timber Disposal Locations Specifications.

Timber Disposal Locations are located near the following:

- US85, MRM 4 + 0.6 miles
- US85, MRM 6 + 0.5 miles
- US14A, MRM 31 + 0.6 miles

The US Forest Service contact is Ken Hehr, p: 605-642-4622.

Dead trees, dying trees and trees leaning towards the highway located within the ROW easement shall be removed. These trees will be marked by the Project Engineer. The ROW widths are shown on the plan sheets and are referenced from the centerline of the highway.

The Contractor shall avoid rutting and excessive soil disturbance during operations.

Dead trees lying on the ground that are identified for removal shall be paid for at the contract unit price per each for Clear and Grub Tree.

No portion of the tree to remain within 20’ of the edge of the highway.

Extra care shall be taken not to damage other nearby trees during the clearing process.

The Contractor shall avoid wetlands, streams, and riparian areas during operations.

The Contractor is responsible for keeping the roadway clear of debris. No separate payment will be made for this work.

The Contractor shall restore and grade areas disturbed by clearing activities including ruts. No separate payment will be made for this work.

Trees shall be cut to a maximum height of 3” above the ground.

All work described in this section shall be incidental to the contract unit price per each for Clear and Grub Tree.

EROSION CONTROL

All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, fertilizing, and mulching shall be incidental to the contract lump sum price for “Erosion Control”.

The limits of erosion control work will be determined by the Engineer during construction.

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 aggregatu</i>	25%
<i>Glomus mosseae</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. All costs of inoculating the seed shall be incidental to the contract unit price per lump sum for Erosion Control.

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

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

FERTILIZING

The Contractor shall apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer shall have a minimum guaranteed analysis of 4-6-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 3.2%, a minimum of 6% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer shall be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer shall have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer shall also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The fertilizer shall be applied at a rate of 1,500 pounds per acre in accordance with the manufacturer's recommended method of application.

The all-natural slow release fertilizer shall be as shown below or an approved equal:

<u>Product</u>	<u>Manufacturer</u>
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 www.sustane.com

PERMANENT SEEDING

The areas to be seeded consist of disturbed areas within the project limits.

Type F Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana	7
Green Needlegrass	Lodorm	4
Sideoats Grama	Butte, Killdeer, Pierre, Trailway	3
Blue Grama	Bad River, Willis	2
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
Total:		26

FIBER MULCHING

Fiber mulch shall be applied in a separate operation following permanent seeding.

The Contractor shall allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

The fiber mulch provided shall be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

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

TRAFFIC CONTROL

Unless otherwise stated in these plans, no work will be allowed during hours of darkness.

Non-applicable traffic control devices shall be completely covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 48 hours.

All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.

The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

All haul trucks shall be equipped with a second flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights shall be incidental to the various related contract bid items.

All construction operations shall be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD – whichever is more stringent shall be used, as determined by the Engineer.

Traffic approaching the project from intersecting roadways, streets, and approaches must be adequately accommodated. Major intersections or large commercial entrances may require additional signing, flaggers, and channelizing devices on a temporary basis until work activities pass these areas.

Traffic shall be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment shall be repaired at no additional cost to the State.

Traffic shall not be delayed for a period longer than 5 minutes.

ITEMIZED LIST FOR TRAFFIC CONTROL DEVICES

PCN i4tx, project 085-451, US 85

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	4	48" x 48"	16.0	64.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
G20-2	END ROAD WORK	4	36" x 18"	4.5	18.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			
		210.0			

PCN i4ty, project 014A-451, US 14A

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	4	48" x 48"	16.0	64.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
G20-2	END ROAD WORK	4	36" x 18"	4.5	18.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			
		210.0			

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085-451 & 014A-451	5	16

Plotting Date: 11/14/2017

Hwy 14A/85 ROW Clearing Timber Disposal Location Specifications

All material brought to disposal locations will fit into one of two categories defined as either (Timber) or (Slash).

Timber – Live or dead smooth boles of trees, free of limbs, that are **5** inches or greater in diameter and **6** feet in length or longer

Slash – All live or dead material that does not meet specifications of timber category above

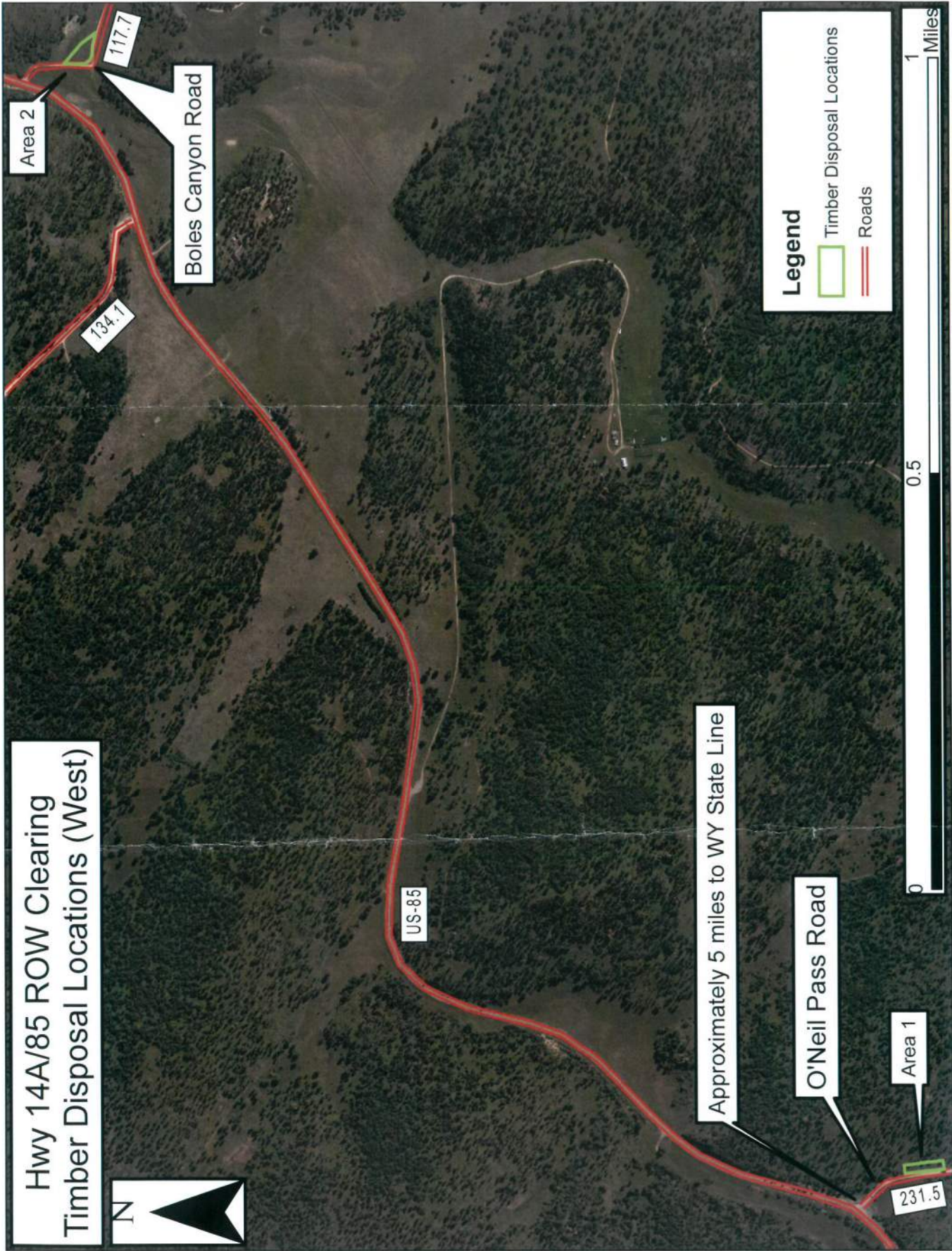
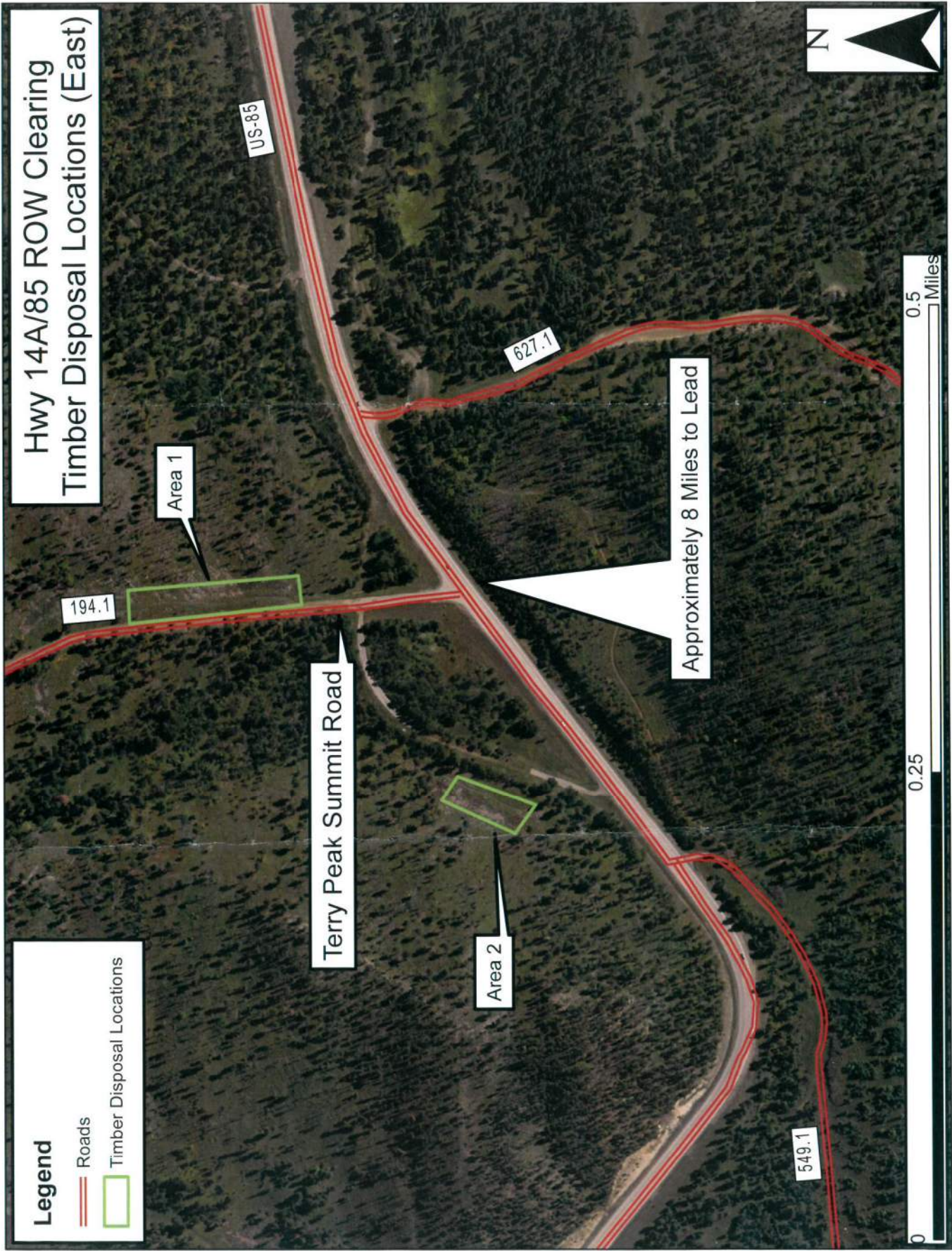
In all agreed upon disposal locations:

- Slash and timber will be kept separate and will have a minimum of **25** feet between individual piles.
- Slash and/or timber will be piled no closer than **25** feet from any standing live trees adjacent to the agreed upon disposal location openings.
- Slash piles shall be constructed dirt-free and compact to facilitate later burning by the Forest Service.
- Slash piles shall be kept a minimum of **15** feet from the shoulder of any gravel road.
- Timber will be stacked with the boles of all trees laying parallel to each other and no closer than **4** feet from the shoulder of any gravel road.
- Timber boles will be stacked neatly and compactly to avoid rolling material.
- Timber stacks will not exceed **8** feet in height from ground level. (See photo below for stacking orientation example. Photo does not represent overall stack height, separation from separate slash piles, or minimum distance from road shoulder.)



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085-451 & 014A-451	6	16

Plotting Date: 11/14/2017

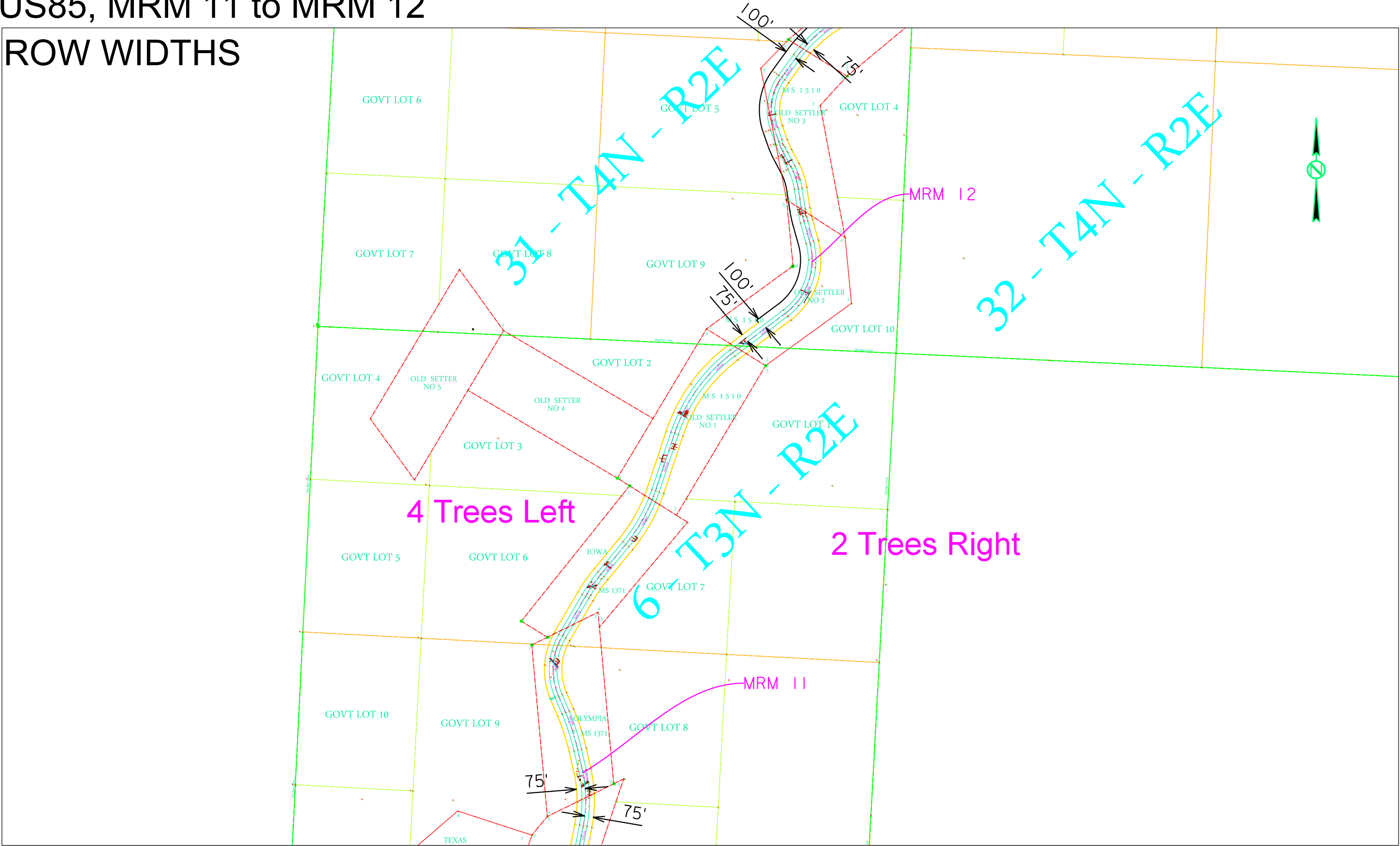


US85, MRM 11 to MRM 12

ROW WIDTHS

Plot Scale - 1:800

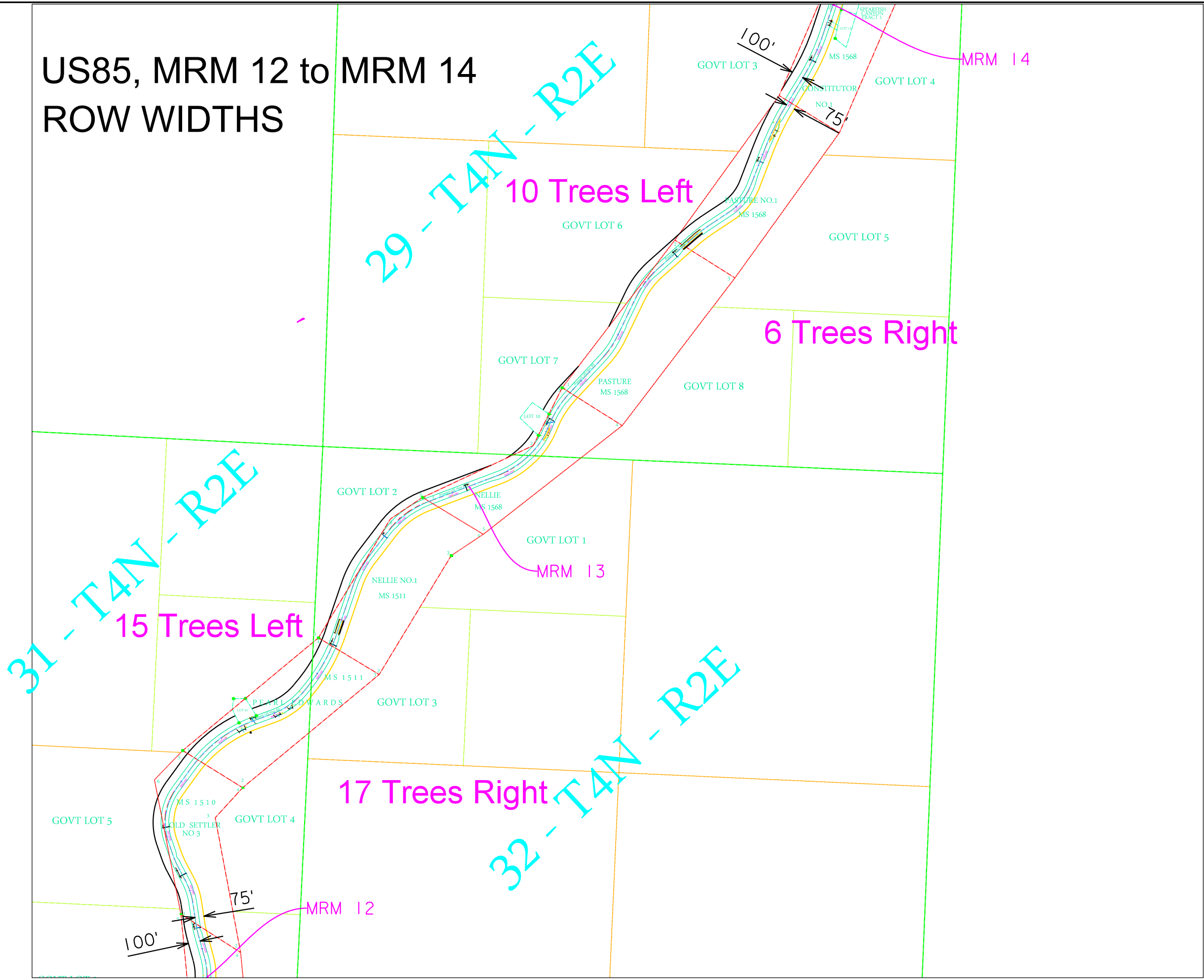
Plotted From - TRRC11951



Plot Scale - 1:800

Plotted From - TRR011951

US85, MRM 12 to MRM 14 ROW WIDTHS



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085-451 & 014A-451	9	16

Plotting Date: 09/14/2017



ROW WIDTHS

Plotting Date: 09/14/2017

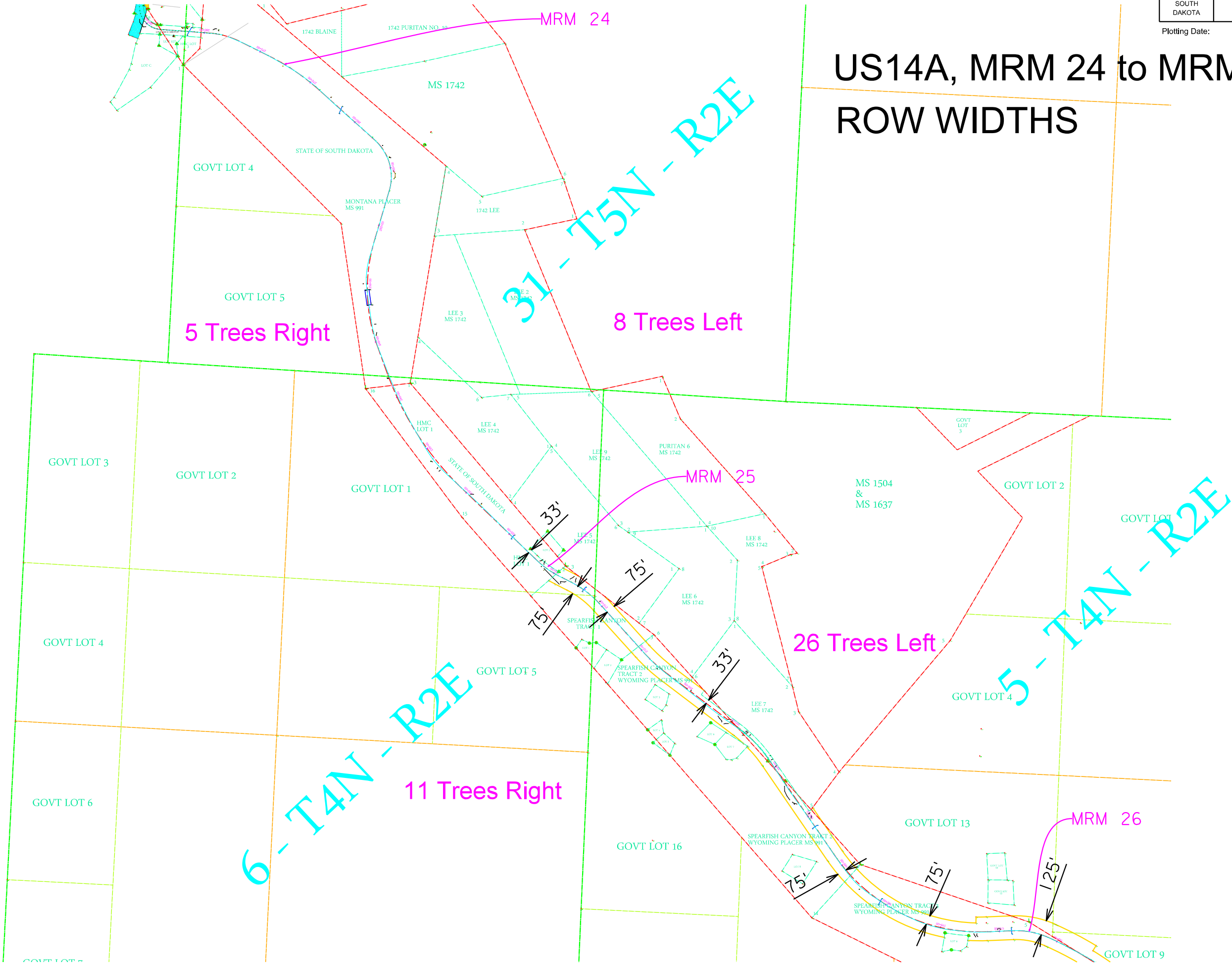
Plot Scale - 1:800

Plotted From - TRR011951

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085-451 & 014A-451	13	16

Plotting Date: 09/14/2017

US14A, MRM 24 to MRM 26 ROW WIDTHS

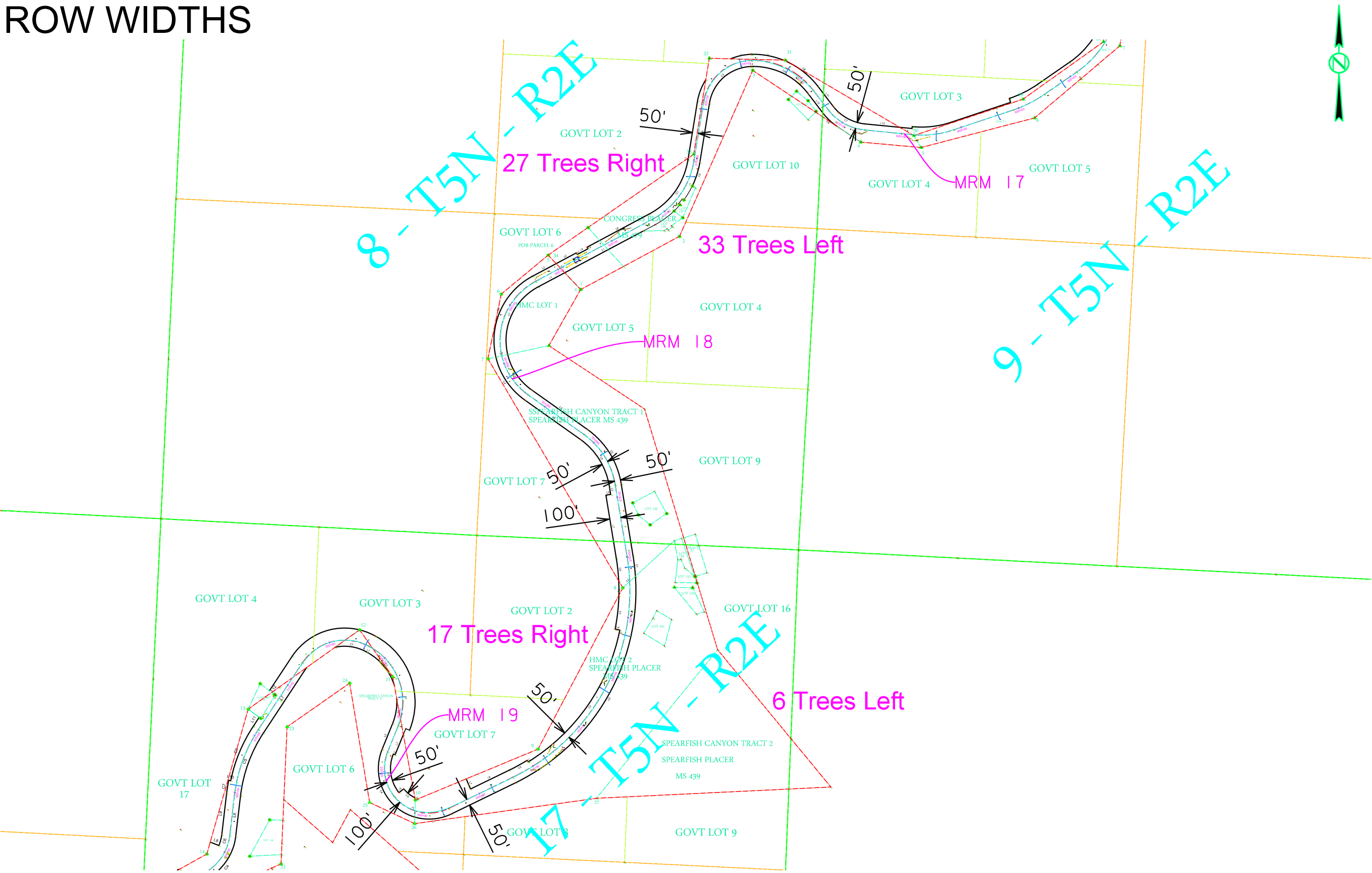


US14A, MRM 17 to MRM 19

ROW WIDTHS

Plot Scale - 1:800

Plotted From - TRRC11951



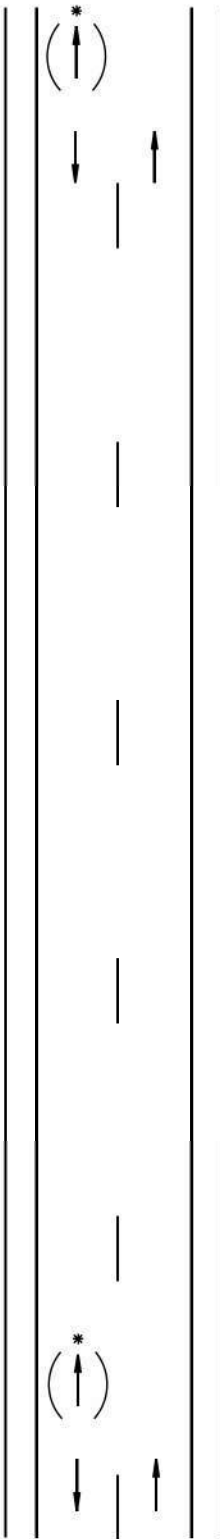
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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

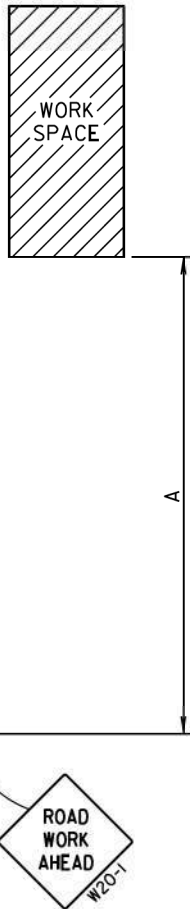
The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

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

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

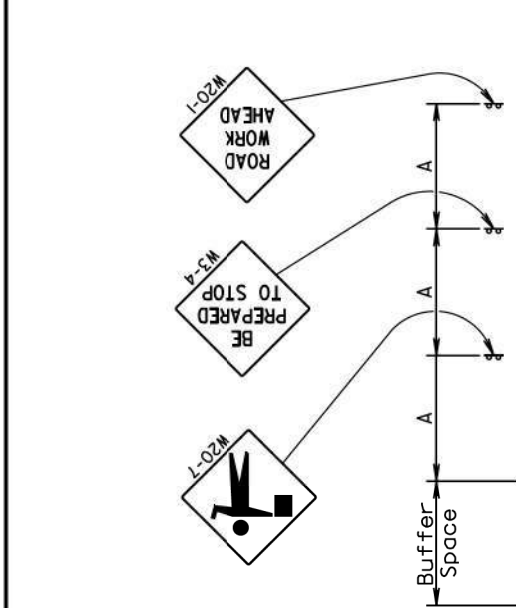


Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000



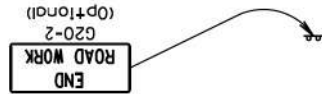
April 15, 2015

Published Date: 2nd Qtr. 2017	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
			Sheet 1 Of 1



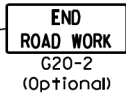
Conditions represented are for work that requires closings during daytime hours only.

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



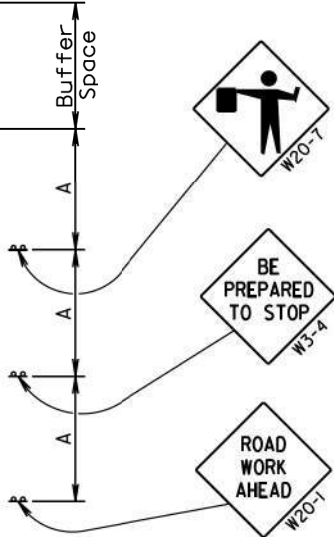
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000

Flagger



Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

Buffer space dependent on work site limitations.



September 6, 2015

Published Date: 2nd Qtr. 2017	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES TEMPORARY ROAD WORK	PLATE NUMBER 634.30
			Sheet 1 of 1

