

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B1	B79

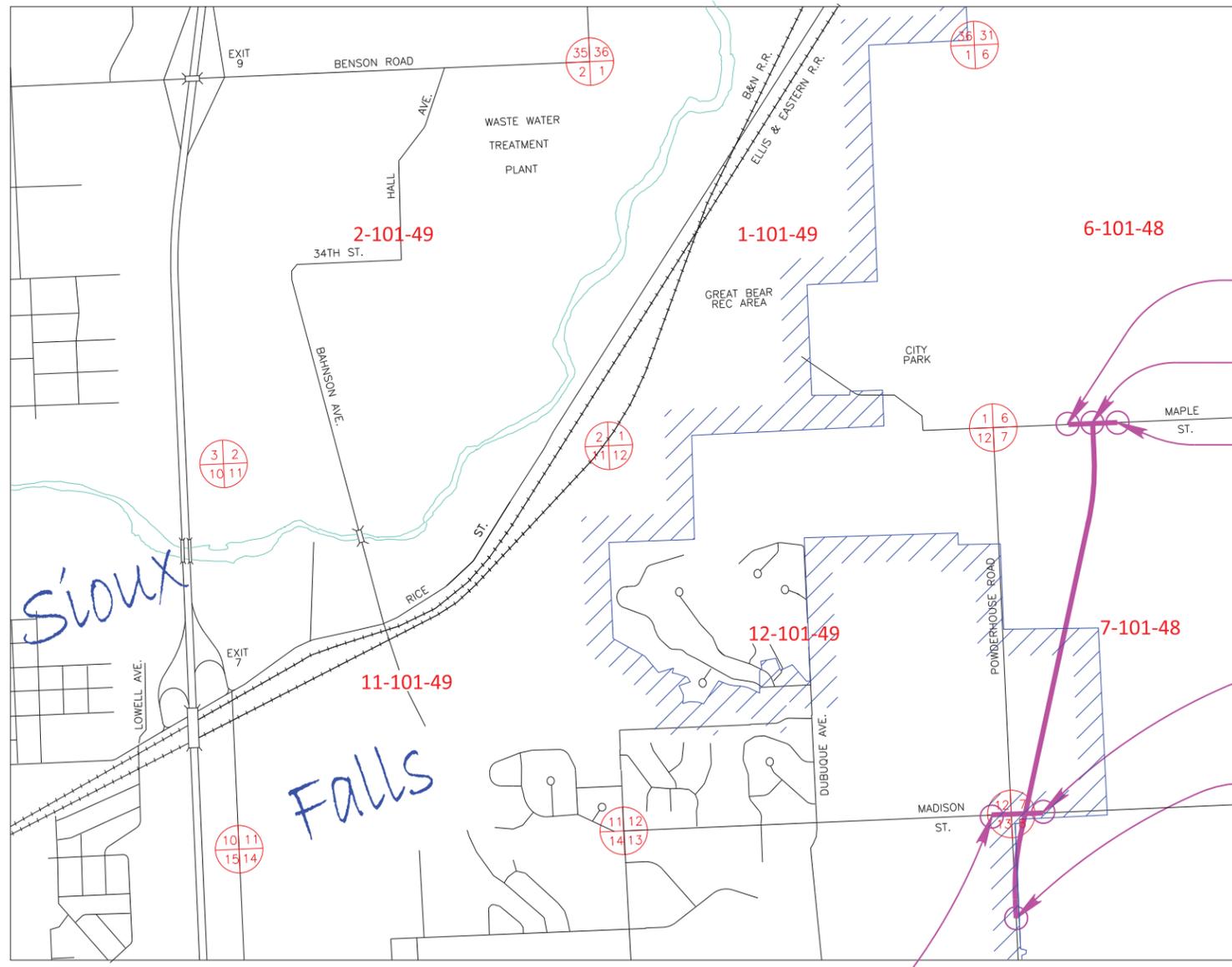
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PLOTTING DATE: 12-31-2014

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INITIAL:

Section B: Grading Plans

INDEX OF SHEETS

- B1 General Layout with Index
- B2 TO B12 General Notes and Tables
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BEGIN NH 0100(103)

Maple Street
Station 42+61.15

END NH 0100(103)

Hwy 100
Station 786+00.00

END NH 0100(103)

Maple Street
Station 49+34.39

END NH 0100(103)

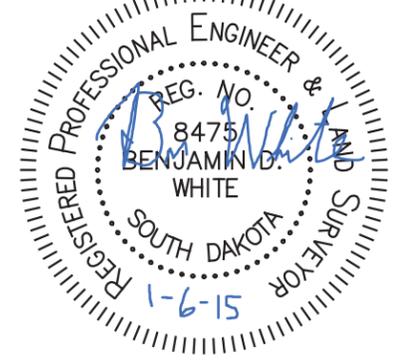
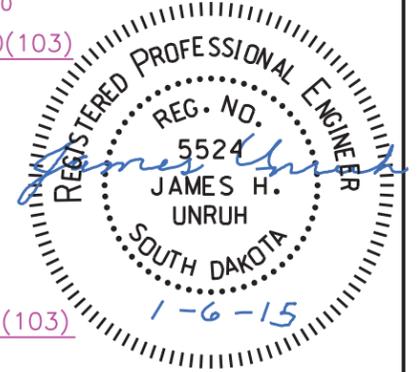
Madison Street
Station 24+45.63

BEGIN NH 0100(103)

Hwy 100
Station 717+07.63

BEGIN NH 0100(103)

Madison Street
Station 19+38.13



SECTION B ESTIMATE OF QUANTITIES

Std. Bid Item	Item Description	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	9.353	Mile
009E3245	Final Cross Section Survey	1.529	Mile
009E3250	Miscellaneous Staking	1.737	Mile
009E3280	Slope Staking	1.737	Mile
009E3290	Structure Staking	4	Each
009E3300	Three Man Survey Crew	40.0	Hour
110E0060	Remove Fence	749	Ft
110E0400	Remove Drop Inlet	4	Each
110E1010	Remove Asphalt Concrete Pavement	4,054	SqYd
110E1100	Remove Concrete Pavement	5,258	SqYd
110E7500	Remove Pipe for Reset	38	Ft
110E7802	Remove Fence for Reset	1,450	Ft
120E0010	Unclassified Excavation	319,210	CuYd
120E0200	Undercutting	29,857	CuYd
120E0420	Contractor Furnished Select Subgrade Topping	52,352	CuYd
120E6100	Water for Embankment	3,403.0	MGal
240E0010	Obliterate Old Road	9	Sta
250E0020	Incidental Work, Grading	Lump Sum	LS
421E0100	Pipe Culvert Undercut	1,115	CuYd
450E0123	18" RCP Class 3, Furnish	3,230	Ft
450E0130	18" RCP, Install	3,230	Ft
450E0143	24" RCP Class 3, Furnish	2,500	Ft
450E0150	24" RCP, Install	2,500	Ft
450E0163	30" RCP Class 3, Furnish	280	Ft
450E0170	30" RCP, Install	280	Ft
450E0183	36" RCP Class 3, Furnish	652	Ft
450E0190	36" RCP, Install	652	Ft
450E0193	42" RCP Class 3, Furnish	52	Ft
450E0200	42" RCP, Install	52	Ft
450E0223	60" RCP Class 3, Furnish	216	Ft
450E0230	60" RCP, Install	216	Ft
450E0263	84" RCP Class 3, Furnish	246	Ft
450E0270	84" RCP, Install	246	Ft
450E0428	36" RCP Bend, Furnish	2	Each
450E0429	36" RCP Bend, Install	2	Each
450E0460	84" RCP Bend, Furnish	6	Each
450E0461	84" RCP Bend, Install	6	Each
450E3073	60" RCP Arch Class 3, Furnish	200	Ft
450E3080	60" RCP Arch, Install	200	Ft
450E2024	30" RCP Flared End, Furnish	1	Each
450E2025	30" RCP Flared End, Install	1	Each
450E2032	42" RCP Flared End, Furnish	1	Each
450E2033	42" RCP Flared End, Install	1	Each
450E2044	60" RCP Flared End, Furnish	2	Each
450E2045	60" RCP Flared End, Install	2	Each
450E2060	84" RCP Flared End, Furnish	2	Each
450E2061	84" RCP Flared End, Install	2	Each
450E4528	60" RCP Arch Flared End, Furnish	2	Each
450E4529	60" RCP Arch Flared End, Install	2	Each

450E4757	18" CMP 12 Gauge, Furnish	34	Ft
450E4760	18" CMP, Install	34	Ft
450E5406	18" CMP Safety End, Furnish	2	Each
450E5407	18" CMP Safety End, Install	2	Each
450E5529	30" CMP Arch 16 Gauge, Furnish	68	Ft
450E5530	30" CMP Arch, Install	68	Ft
450E6015	30" CMP Arch Safety End with Bars, Furnish	4	Each
450E6017	30" CMP Arch Safety End, Install	4	Each
450E9000	Reset Pipe	38	Ft
462E0100	Class M6 Concrete	197.4	CuYd
462E0200	Controlled Density Fill	2.0	CuYd
480E0100	Reinforcing Steel	27,930	Lb
600E0300	Type III Field Laboratory	1	Each
620E0020	Type 2 Right-of-Way Fence	11,459	Ft
620E1020	2 Post Panel	60	Each
620E1030	3 Post Panel	17	Each
620E4100	Reset Fence	1,450	Ft
650E0090	Type B69 Concrete Curb and Gutter	360	Ft
650E1100	Type F610 Concrete Curb and Gutter	25,066	Ft
651E0060	6" Concrete Sidewalk	1,431	SqFt
651E7000	Type 1 Detectable Warnings	114	SqFt
670E1200	Type B Frame and Grate Assembly	84	Each
670E5340	4' x 11' Precast Concrete Type S Drop Inlet Lid	3	Each
670E5342	4' x 6' Precast Concrete Type S Drop Inlet Lid	11	Each
670E5400	Precast Drop Inlet Collar	87	Each
671E6007	Type A7 Manhole Frame and Lid	4	Each
671E6010	Type A10 Manhole Frame and Lid	4	Each
671E6020	Type C Manhole Frame and Lid	3	Each
680E0260	6" Corrugated Polyethylene Drainage Tubing	560	Ft
700E0210	Class B Riprap	672	Ton
831E0110	Type B Drainage Fabric	536	SqYd

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".

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CONDUIT INSTALLATION

Each end of each conduit shall be marked with a 1/2-inch dia. x 12-inch long reinforcing bar driven flush with the finished grade, except when the conduit end terminates inside a junction box. The ends of each conduit run shall be capped to prevent water and soil from entering. This work shall be done by the Lighting Contractor and shall not be disturbed by the Grading Contractor.

DRAINAGE DURING CONSTRUCTION

Drainage during construction is the Contractor's responsibility. Contractor shall be aware of existing drainage conditions and facilities, and shall provide for drainage during all phases of construction. Damage caused by improper temporary drainage facilities shall be repaired at the Contractor's expense and to the satisfaction of the Engineer.

REMOVAL OF EXISTING ENTRANCES

The Contractor shall remove/eliminate existing entrances as indicated in the plans. This work will be incidental to the unit price for "Unclassified Excavation".

TABLE OF OBLITERATING ENTRANCE (INCIDENTAL)

Station	
723+81 L/R	

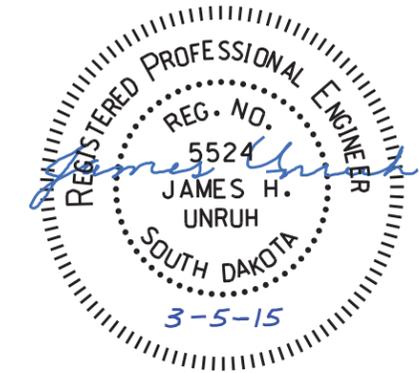
INCIDENTAL WORK, GRADING

"Incidental Work, Grading" shall consist of the removal and disposal of existing storm sewer pipes and culverts

Station to	Station	L/R	Remarks
723+58	724+07	R	Take out 18"-52' CM pipe w/ 2 flared ends
725+39	725+49	L	Take out 15"-74' RC pipe w/ 2 flared ends
785+55	786+12	R	Take out 30"-57' CM pipe w/ 2 flared ends

TABLE OF REMOVE AND RESET RC PIPE		
Station to	station	Quantity (ft)
717+82 - 23' R	717+82 - 43' R	20
722+20 - 15' R	722+22 - 34' R	18
Totals:		38

TABLE OF REMOVE DROP INLET		
Station	Location	Quantity (Ea)
717+82	58' L	1
720+00	58' L	1
722+15	67' L	1
724+97	90' L	1
Totals		4



UTILITIES

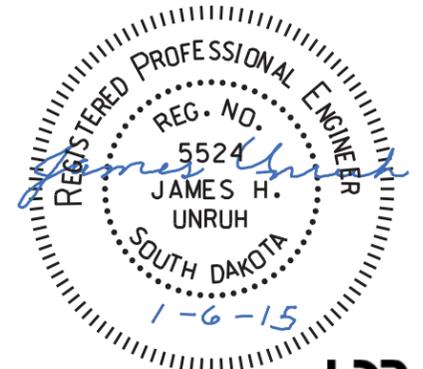
The Contractor shall be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor shall contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

The Contractor shall be responsible for notifying South Dakota One Call 1-800-781-7474 to have utilities field located. The following utility companies are known to have facilities on the project:

<p>POWER Xcel Energy 500 W. Russell Street Sioux Falls, SD 57104 Attn: Aaron Bickett Office # 605-339-8315 Email: aaron.m.bickett@xcelenergy.com</p>	<p>GAS MidAmerican Energy 1200 S. Blauvelt Sioux Falls, SD 57105 Attn: Tim Galbraith (605) 367-5680 Email: tjgalbraith@midamerican.com</p>
<p>Sioux Valley Energy 108 N Heritage Rd PO Box 857 Brandon, SD 57005 Attn: Jason Sage Cell: (605) 530-9472 Email: jason.sage@siouxvalleyenergy.com</p>	<p>Xcel Energy Transmission PO Box 2747 Fargo, ND 58108 John Ness (gas line contact) (701) 241-8695 Email: john.l.ness@xcelenergy.com Attn: Rick Barber (SF plant) (605) 331-1212 or (605) 331-1218</p>
COMMUNICATIONS	
<p>MidContinent Communications 3507 S. Duluth Ave. Sioux Falls, SD Attn: Al Mullinix (605) 274-8546 Cell: (605) 231-0388 Email: al_mullinix@mmi.net</p>	<p>Century Link 125 S. Dakota Ave. Sioux Falls, SD 57104 Attn: Doug Wudel Office: (605) 339-5307 Cell: (605) 254-3609 Email: Douglas.Wudel@CenturyLink.com</p>
<p>RURAL WATER Minnehaha Community Water Corporation Ryan Allen 47381 – 248th St. Dell Rapids, SD 57022 605-428-3374 Email: mcwcooperations@outlook.com</p>	<p>MUNICIPAL LIGHT AND POWER City Shop 2000 North Minnesota Box 7402 Sioux Falls, SD 57117-7402 Attn: Jerry Jongeling Office: (605) 373-6978 Cell: (605) 728-9571 Email: jjongeling@siouxfalls.org</p>
<p>MUNICIPAL WATER AND SEWER City of Sioux Falls 224 West Ninth Street Sioux Falls, SD 57117-7402 Attn: Shannon Ausen Office: (605) 367-8600 Email: sausen@siouxfalls.org</p>	

EXISTING UTILITIES WITHIN CONSTRUCTION LIMITS AND/OR RIGHT-OF-WAY (AT TIME OF DESIGN)

Roadway	Station	Offset	Remarks	Description	Owner
Hwy100	718+54	79' R	Leave in place; protect during construction	Power pole	Xcel distribution
	720+42	78' R	Leave in place; protect during construction	Power pole	
	722+29	69' R	Relocate by owner before construction	Power pole	
	724+18	49' R	Relocate by owner before construction	Power pole	
	725+80	146' L	Leave in place; protect during construction	Power pole	
	726+02	20' R	Relocate by owner before construction	Power pole	
	727+65	4' L	Relocate by owner before construction	Power pole	
	729+24	46' L	Relocate by owner before construction	Power pole	
	722+29	69' R	Relocate to west side of Powderhouse Road by owner before construction	Power line	Century Link
	730+80	88' L			
	717+07	71' R	Relocate by owner to west side of road after water main installation Existing line will be abandoned.	Fiber line	Century Link
	730+21	78' L			
	730+38	233' L	May need to raise during construction by owner.	Overhead power	Xcel distribution
	731+63	203' R			
	730+53	233' L	No action required; protect during construction	Gas Line	Midamerican Energy
	731+72	200' R			
	730+30	230' L	No action required; protect during construction	High pressure gas Line	Xcel transmission
	730+62	120' L			
	730+62	120' L	No action required; protect during construction	Phone line	Midcontinent
	732+00	155' L			
731+25	254' L	No action required; protect during construction	Phone line	Century Link	
732+39	167' R				
731+45	171' L	No action required; protect during construction	Phone line	Century Link	
731+92	188' L				
731+65	167' L	Removed with project	Light pole	Xcel	
731+65	129' L	Owner to encase line prior to or during construction.	Water line	Minnehaha Comm. Water	
732+41	160' R				
742+23	137' L to 141' R	No action required; protect during construction	Sanitary Sewer line	City of SF	
785+20	85' L to 205' R	No action required	Underground power	Sioux Valley Elec.	
785+46	28' R	Vault relocation may be required	Grounding vault		
785+53	330' L to 330' R	Adjust by owner during construction as necessary	Telephone/fiber	Century Link	
785+72	330' L to 330' R	Adjust by owner during construction as necessary	Telephone/fiber	Century Link	
786+29	330' L to 330' R	Owner may encase line prior to or during construction.	Water line	Minnehaha Comm. Water	
786+35	330' L to 330' R	No action required; protect during construction	Gas line	Xcel	



RC PIPE PLUGS

The Contractor shall plug the inlet end of cross pipes listed in the table below with a plug as approved by the Engineer. The plugs shall prevent infiltration of water and sediment into the pipes. The pipes will be extended when the roadway is extended in the future. Therefore, the plugs will be in-place on an interim basis and are intended to not be permanent installations.

All costs to furnish and install the plugs shall be incidental to the contract unit price per foot for 24" or 30" RCP, Install.

TABLE OF RC PIPE PLUGS (INCIDENTAL)

Station Offset
759+79.65-133'L (30")
759+79.65-121'R (24")

SAWING EXISTING PAVEMENT

Where new Portland cement concrete pavement (PCCP) or asphalt concrete composite is to be placed adjacent to existing pavement, the existing pavement shall be sawed full depth to a true line with a vertical face. Where possible, the existing PCCP shall be removed to the nearest joint. All costs for sawing existing pavement shall be incidental to the contract unit price for the corresponding pavement removal bid item.

TABLE OF SAW EXISTING PCC PAVEMENT (INCIDENTAL)

Station	to	Station	L/R	Quantity (Ft)
171+07		717+07	L	41
Total:				41

TABLE OF SAW EXISTING ASPHALT PAVEMENT (INCIDENTAL)

Station	to	Station	L/R	Quantity (Ft)
19+38		19+38	L/R	15
24+46		24+46	L/R	15
Total:				30

REMOVAL OF EXISTING CONCRETE PAVEMENT

Existing asphalt concrete and/or existing asphalt concrete patch work that was placed above the existing concrete pavement is included in the quantity for "Remove Concrete Pavement". The Contractor shall dispose of the concrete pavement and asphalt concrete at a site approved by the Engineer.

The existing Hwy 100 pavement is 10 inch P.C.C. Pavement. The thickness of the existing Madison Street P.C.C. pavement is unknown.

TABLE OF REMOVE CONCRETE PAVEMENT (includes adjacent curb & gutter)

Station	to	Station	L/R	Quantity (SqYd)
717+07.6		725+12.0	L	3,658
19+38		24+46	L/R	1600
Total:				5,258

TABLE OF REMOVE ASPHALT CONCRETE PAVEMENT

Station	to	Station	L/R	Quantity (SqYd)
722+92		731+10	L	3,374
19+38		24+46	L	400
20+96		24+46	R	280
Total:				4,054

OBLITERATING OLD ROAD

The Contractor shall obliterate the existing roadway at the locations listed in the Table of Obliterating Old Road.

The Contractor shall obliterate the existing roadway in accordance with Section 240 of the Specifications when the existing roadway is not being removed in accordance with the template section.

The earthwork necessary for obliterating the existing road shall be accomplished to such an extent that placing topsoil and seeding can be done in a satisfactory manner. Quantities of topsoil, fertilizing, mulching, and seeding for the obliterated sections of the old road are included in the Section D - Erosion and Sediment Control Plans Estimate of Quantities.

TABLE OF OBLITERATING OLD ROAD

Station to	Station	Description	Length (Ft)	Length (Sta)
20+00, 20'L	20+00, 200'L	Powderhouse Road	180	1.8
42+61	49+34	Maple Street	670	6.7
Total:			850	9

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DRAIN TILE

There is at least one location along the project where drain tile may be encountered during construction. Every attempt has been made to show the drain tile as close to the actual location as possible. However, due to the lack of good records, the Contractor may find that in some instances the actual location of the drain tile is different than what is shown on the plans or may encounter other drain tile that were not located.

The Contractor shall repair any damaged drain tile to the extent that the functionality of the drainage system is retained after the project. Where replacement is necessary, the existing drain tile shall be replaced with the appropriate diameter of corrugated polyethylene drainage tubing. The corrugated polyethylene drainage tubing shall be in conformance with Section 990 of the Specifications.

All costs associated with the repair and or replacement of the drainage tile shall be incidental to the contract unit price per foot for the corresponding corrugated polyethylene drainage tubing bid item.

The following is a table stating all known drain tile locations, existing drain tile material, tubing size, and an estimated quantity that may be affected by the project:

TABLE OF DRAIN TILE

Station	to	Station	Existing Drain Material	Dia. (Inch)	Quantity (Ft)
782+50, 120'L		781+30, 144R	PVC	6	560
Total 6" Corrugated Polyethylene Drainage Tubing					560

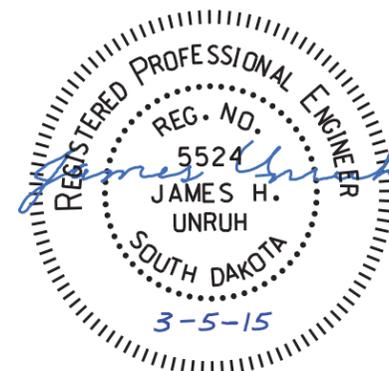
CORRUGATED METAL PIPE

Corrugated metal pipes shall have 2 3/8-inch X 1/2-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes shall have 3-inch X 1-inch or 5-inch X 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

PIPE FOR APPROACHES

Class II reinforced concrete pipe, high density polyethylene pipe, corrugated polypropylene pipe, or steel reinforced polyethylene pipe may be substituted for corrugated metal pipe at approaches at no additional cost to the State.

The end sections shall be metal, be compatible, and conform to the type of end section as shown in the plans if high density polyethylene pipe, corrugated polypropylene pipe, or steel reinforced polyethylene pipe is provided.



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TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station	to Station	Topsoil Excavation (CuYd)	Unstable Excavation (CuYd)	Excavation (CuYd)	* Undercut (CuYd)	Total Excavation (CuYd)	* (1) Contractor Furnished Select Subgrade Topping (CuYd)	(2) Topsoil Waste (CuYd)	(3) Out-of-Balance Waste (CuYd)	(4) Waste (CuYd)	(6) Haul (CuYdSta)
Hwy 100											
717+07	786+00	23,096	18,172	224,109	29,857	295,234	52,352	7,100	2,383	19,582	908,349
Madison Street											
19+38	21+38	(5)		120		120					2,739
22+46	24+45			40		40					
Maple Street											
42+61	45+46	(5)		700		700					25,260
46+50	49+34			20		20					
Totals:		23,096	18,172	224,989	29,857	296,114	52,352	7,100	2,383	19,582	936,348

TABLE OF UNCLASSIFIED EXCAVATION

Excavation (includes topsoil excavation quantity)	248,085
Undercut	29,857
Topsoil (from Section D)	23,096
Unstable Excavation	18,172
Exc. for RCBC Installation (from Section E)	1,863
Total	319,210

* The quantities for these items are in the Estimate of Quantities under their respective bid items.

(1) Volume is in-place with no shrinkage.

(1) Select subgrade topping borrow quantity is based on the assumption that Select Subgrade Topping is not available within the project limits. If suitable material is available on-site, the overall earthwork balance would change.

(2) Excess topsoil shall be utilized within the project limits and is included in the overall earthwork balance.

(3) This waste material shall be utilized for Madison Street and Maple Street grading

(4) Overall project earthwork balance shows an excess of material. Excess material shall be utilized to build the Madison Street driveways and the rest stockpiled within the project limits at a location determined by the Engineer.

(5) Topsoil for Madison Street and Maple Street was not measured separately but is included in the excavation quantity for these roadways.

(6) Quantity is not a bid item and is for information only.

SHRINKAGE FACTORS

Roadway Section	% Shrinkage
Hwy100	20
Madison St	35
Maple St	25
Rosemary St	40
Topsoil	40

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

The final Unclassified Excavation quantity shall be based on measured cross sections.

The Unstable Material Excavation quantity is included in the Excavation quantity listed in the Table of Unclassified Excavation. When finaling a project, the Unstable Material Excavation quantity shall be added to the Excavation quantity to compute the Unclassified Excavation quantity.

Out-of-Balance Excavation is material obtained from waste generated from excavation from other balances. The quantity of Out-of-Balance Excavation is included in the Excavation quantity in the balance where it is excavated and is paid for once as Unclassified Excavation.

The Topsoil quantity in the Table of Unclassified Excavation is an estimate. When finaling a project, the total quantity of field measured Topsoil shall be used in place of the estimated Topsoil quantity. The quantity of Topsoil from the cuts will be paid for twice as Unclassified Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

The volume of in place Concrete Surfacing removed will NOT be paid for as Unclassified Excavation. Removal of concrete pavement is paid for separately.

GRADING OPERATIONS

Most of the embankment will be constructed from high silt soils. Soils will be considered to have high silt content if they have more than 60% passing the #200 sieve and a PI less than 20. These soils will be adequate to build the lower portion of the embankment, but will not be allowed in the upper two feet of the subgrade. Past experience with soils of this nature indicates that the moisture content is key to controlling embankment stability. The soil in this part of the embankment shall be at optimum moisture to 4% below optimum moisture at the time of compaction (+0% to -4%). A moisture content approximately 2% below optimum moisture has worked well on past projects. Moisture testing will be conducted by the Engineer.

GRADING OPERATIONS CONT

A disk designed and constructed for construction purposes shall be in use as per Section 120.3 of the Standard Specifications.

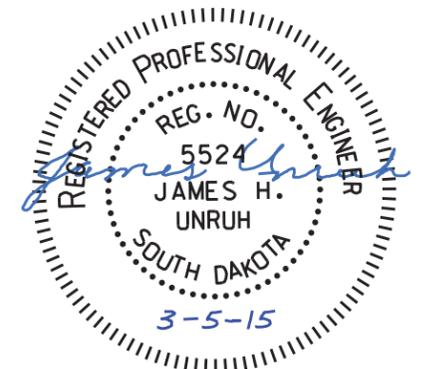
A copy of the Soils Profile is available for review at the Mitchell Region Office or the Sioux Falls Area Office.

There is approximately 6 inches of topsoil available and considered suitable for topping inslopes, ditches and backslopes. This thickness of topsoil is considered to hold true for the right-of-way area outside the backslopes and inslopes of the present grade.

Compaction of earth embankment shall be per the Specified Density Method.

Water for Embankment is estimated at the rate of 10 gal/cuyd.

Rock is not anticipated to be encountered within the project limits.



HAUL

Included in the Table of Excavation Quantities by Balances is Haul. This is not a pay item and is for informational purposes only.

Haul: Estimated quantity (CuYdSta) for moving unclassified excavation material to the locations where it is needed throughout the earthwork balance. The quantity also includes haul for moving Out-of-Balance Excavation material from an earthwork balance to another earthwork balance.

UNDERCUTTING

In all cut sections the earthen subgrade shall be undercut 2 feet below the earthen subgrade surface. The undercut material shall be replaced with Select Subgrade Topping.

Shallow embankment sections, fills less than 2 feet in height measured at the finished subgrade shoulders, shall be undercut to ensure a minimum 2 foot height of earth embankment for the entire width of roadbed. The upper 6 inches of undercut material that consists of topsoil with a high humus content shall be used as topsoil, placed in the fill slopes outside the shoulders of the earthen subgrade, or placed in the lower portion (below 4 foot depth) in fills which are greater than 4 feet in height.

The plan shown quantity will be the basis of payment. However, if there are additional areas of undercut other than what is shown in the plans, the Engineer shall direct removal of these areas and the additional areas will be measured according to the Engineer.

Undercutting is shown in the Typical Grading Sections and the cross sections.

TABLE OF UNDERCUTTING

Station to	Station	Quantity (CuYd)
717+07	730+00	6,439
733+00	740+00	5,574
747+00	753+00	4,404
759+00	772+00	9,633
775+00	780+00	3,505
784+00	786+00	302
Total:		29,857

CONTRACTOR FURNISHED SELECT SUBGRADE TOPPING

The upper two (2) feet of the subgrade will be constructed from select topping material. Select topping material width will be from 3 foot outside the edge of the outside curb & gutter to 3 foot outside the edge of the median curb & gutter (see typical sections). The moisture content of the select topping at the time of compaction will be as per Section 120.3.B.3.a.

Material for select topping will conform to the following:

- Any material with less than 60 % passing the #200 sieve.
- Any material that has more than 60 % passing the #200 sieve and having a PI less than 40 and greater than or equal to 20.

Soil samples taken from the project indicate it is unlikely that any suitable select topping material will be available from the cut sections. It may appear from the Soils Profile that material is available, but the majority of suitable material is from depths below the bottom of the cuts on the current alignment. Because of this, the Contractor shall provide Contractor Furnished select subgrade topping material. The Contractor is responsible for obtaining all required permits and clearances for the source.

Regardless of whether the Contractor furnished select subgrade topping material is entirely brought in from the Contractor furnished source or blended with waste material, all costs to furnish and place the material shall be included in the contract unit price per cubic yard for Contractor Furnished Select Subgrade Topping.

Field measurement of Contractor Furnished Select Subgrade Topping material shall not be made and payment for the Contractor Furnished Select Subgrade Topping will be based upon plans quantity unless changes are directed by the Engineer.

UNSTABLE MATERIAL EXCAVATION

The areas of unstable material excavation are drawn on the cross sections with a normal depth of 2 feet. The estimated quantity of 18,172 cubic yards of unstable material excavation shall be paid for at the contract unit price per cubic yard for "Unclassified Excavation".

All areas designated as Unstable shall be excavated. The unstable material excavated on this project shall be placed outside the subgrade shoulder in fill sections or stockpiled and used as topsoil.

Field measurement of unstable material excavation shall not be made. However, if there are additional areas of unstable material excavation other than what is shown in the plans, the Engineer shall direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNSTABLE MATERIAL EXCAVATION

Station to	Station	L/R	Depth (Ft)	Quantity (CuYd)
742+50	744+50	R	2	5,217
754+50	756+50	L/R	2	4,881
773+00	774+50	L/R	2	3,664
781+00	782+50	L/R	2	4,410
Total:				18,172

TABLE OF PIPE CULVERT UNDERCUT

The Table of Pipe Culvert Undercut is intended to be used to establish an estimated quantity of Pipe Culvert Undercut for bidding purposes only. The table includes undercut for 36 inch and larger pipe culverts. The depth of undercut is an estimate and the actual depth necessary shall be determined during construction. Pipes shown may or may not require undercutting and pipes not shown may require undercutting. The Engineer will determine which pipe shall be undercut in accordance with Section 421 of the Specifications.

The Table of Reinforced Concrete Pipe lists the quantities of pipe culvert undercut.

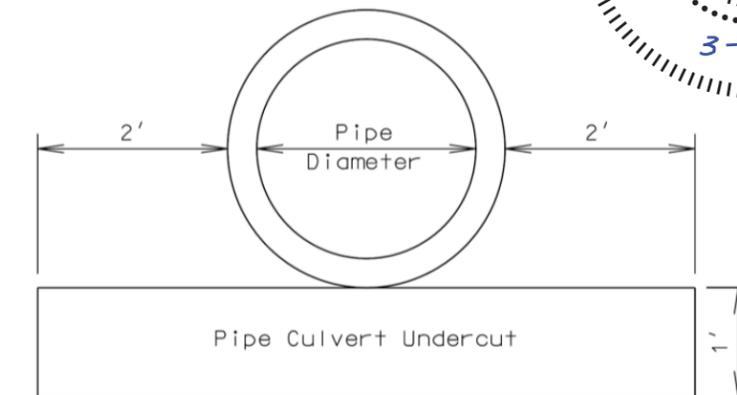
The table below contains the rate of pipe culvert undercut per foot of pipe length and should be used as an aid in determining the actual amount of undercut to be performed during construction. The table is derived from the drawing below and conforms to the Specifications. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

Storm sewer and approach pipes do not require undercutting unless specified otherwise in these plans.

FOR BIDDING PURPOSES ONLY

TABLE OF PIPE CULVERT UNDERCUT

Pipe Diameter (In)	Round Pipe Undercut Rate for 1' Depth (CuYd/Ft)	Arch Pipe Undercut Rate for 1' Depth (CuYd/Ft)
24	0.2407	0.2577
30	0.2623	0.2847
36	0.2840	0.3110
42	0.3056	0.3337
48	0.3272	0.3596
54	0.3488	0.3827
60	0.3704	0.4105
66	0.3920	---
72	0.4136	0.4630
78	0.4352	---
84	0.4568	0.5123
90	0.4784	---



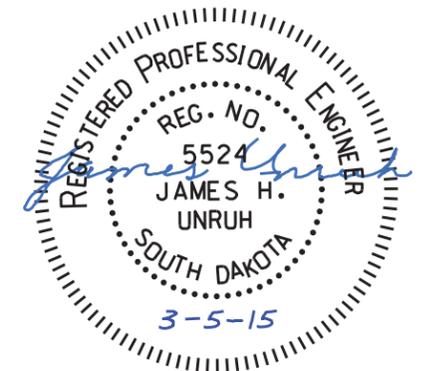
CONTROLLED DENSITY FILL FOR PIPE

Controlled density fill shall be a flowable mortar material. Materials shall be in accordance with the Specifications, except as modified below. The mix design shall be:

Material	Rate per Cubic Yard
Portland Cement Type I, II, III, or V	100 Lb
Fine Aggregate	2600 Lb
Coarse Aggregate	None
Water	60 Gal
Fly Ash, Type C	300 Lb

The fine aggregate shall be natural sand consisting of mineral aggregate particles conforming to the following gradation requirements:

Passing 3/8 Inch Sieve	100%
Passing No. 200 Sieve	0-10%



CONTROLLED DENSITY FILL FOR PIPE CONT

The mix design shown above is designed to produce a minimum compressive strength of 100 psi. The Engineer may allow adjustments to the proportion of water at the site to provide the necessary consistency of the mix.

Controlled density fill shall be contained within the required limits with sandbags or other methods approved by the Engineer.

The Contractor shall prevent the flotation or movement of the culvert due to the buoyant force from the controlled density fill until the controlled density fill hardens. Overlying surfacing materials shall not be placed sooner than four hours after placement of the controlled density fill.

All costs for furnishing and installing the controlled density fill, including sandbags, labor, materials, equipment and incidentals necessary to complete the work shall be included in the contract unit price per cubic yard for "Controlled Density Fill."

Plans quantity will be the basis for payment unless otherwise ordered by the Engineer.

Station	Pipe size	Pipe length (ft)	Fill Height (inches)	Quantity (CuYd)
Madison 28+60 L	30" CMP arch	34	9	2.0
Total:				2.0

STORM SEWER

Reinforced concrete pipe may be either bell and spigot or tongue and groove. The pipe sections shall be adjoined such that the ends are fully entered and the inner surfaces are reasonably flush and even.

Lift holes in the reinforced concrete pipe shall be plugged with grout.

Watertight joints are required for reinforced concrete pipe, drop inlets, manholes, and junction boxes where storm sewers run parallel to and within 10 feet horizontally from existing or proposed water mains.

Watertight joints are required where reinforced concrete pipes, drop inlets, manholes, or junction boxes cross water mains and are separated a distance of 18 inches or less, above or below, the water main.

If watertight joints are required then the watertight joints shall extend for a distance of 10 feet beyond the water main. This measurement shall be from the sealed concrete joint to the outer most surface of the water main.

Watertight joint seals shall conform to the following requirements:

- Reinforced Concrete Pipe (Circular):** Gasketed pipe shall conform to the requirements of ASTM C443. Non-gasketed concrete pipe shall be sealed with a mastic joint seal conforming to the requirements of ASTM C990 and encased with a minimum 2' wide by 6" thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.
- Reinforced Concrete Pipe (Arch):** Joints shall be sealed with a waterstop seal meeting the requirements of ASTM C990. Waterstop seals shall consist of hydrophilic compounds such as Waterstop-RX or ConSeal CS-231.
- Drop Inlets, Manholes, and Junction Boxes:** Joints shall be sealed with a waterstop seal or seal wrap meeting the requirements of ASTM C990 or encased with a minimum 2' wide by 6" thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh. Waterstop seal shall contain hydrophilic compounds such as Waterstop-RX or ConSeal CS-231. Seal wrap shall

be a self adhesive external joint wrap such as ConWrap CS-217 or Mac Seal Wrap.

Gaskets and seals (mastic, waterstop, and seal wraps) shall be installed in accordance with the manufacturer's recommendations.

The cost for furnishing and installing all gaskets, mastic joint seal, waterstop seal, seal wrap, concrete collars, and for plugging the lift holes shall be incidental to the contract unit price per foot for the corresponding pipe bid item.

DROP INLETS

Where drop inlets are constructed within areas of curb and gutter, the Contractor shall construct weep holes of at least 3 inches in diameter in the drop inlet walls. The weep holes shall be constructed at the same elevation as the adjacent top of the earthen subgrade and shall be maintained clean and open at all times until the permanent surfacing is placed. The drop inlets shall be covered throughout construction operations as necessary with an Engineer approved cover to provide safe travel for motorists and to prevent materials from entering the storm sewer system. After the permanent surfacing has been placed, the Contractor shall seal the weep holes with grout and remove all debris from the drop inlet. All costs involved with the coverings, weep holes, and removing debris from the drop inlets shall be incidental to the contract unit prices for the components of the drop inlets.

The plan shown quantities of the drop inlet components such as Class M6 Concrete, Reinforcing Steel, Type B Frame and Grate Assembly, Type C Frame and Lid, Precast Drop Inlet Collar, and Precast Concrete Type S Drop Inlet Lid will be the basis of payment for these items.

If additions or reductions to the number of drop inlets are ordered by the Engineer, payment for the components required to construct the drop inlets will be made at the contract unit prices for the components of the drop inlets.

ADJOINING DROP INLETS

The 18" opening between the drop inlets represents a diameter measurement. For ease of construction, the 18" opening can also be the specified dimension constructed square. If the adjoining walls are poured separately, the joint between the two inlets at the opening shall be grouted. No additional payment shall be made for the work to construct the openings.

TABLE OF RIPRAP AND DRAINAGE FABRIC

Station	L/R	Culvert Size	Riprap	Class B	Type B Drainage
			Size (ft)	Riprap (ton)	Fabric (SqYd)
18+60 (Madison)	40'L	2-30" arch	20x15	70	92
731+76	114'L	60" arch	30x18	126	92
732+32	125' R		30x18	126	92
743+15	170'R	12x5 box	see Section E		
755+05	163'R	8x5 box	see Section E		
773+14	114'L	60" round	30x16	113	84
773+75	141'R		30x16	113	84
781+57	164'R	12x10 box	see Section E		
783+00	162'R	84" round	30x18	126	92
Total:				672	536

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CONCRETE CURB AND GUTTER

A Class M6 mixture shall be used for all concrete Curb and Gutter. Refer to Section 462 of the Specifications.

For curb and gutter construction requirements refer to Section 650 of the Specifications.

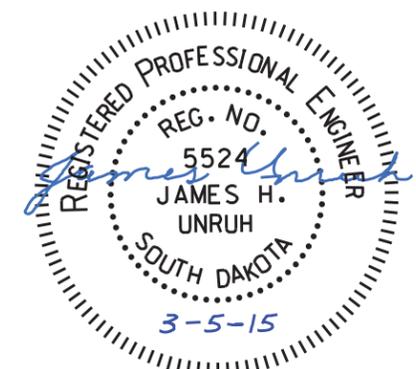
TYPE 1 DETECTABLE WARNINGS

Detectable warnings shall be in compliance with the Americans with Disability Act regulations. The detectable warnings shall be installed according to the manufacturer's installation instructions.

A concrete thickness equal to the adjacent concrete sidewalk thickness and 2 inches of granular cushion material shall be placed below the Type 1 Detectable Warnings. When concrete is placed below the detectable warnings then the concrete thickness shall be transitioned at the rate of 1" per foot to match the adjacent concrete sidewalk thickness.

The detectable warnings shall be a brick red color for application in concrete curb ramps. Cast iron plates may be a natural patina (weathered steel). When Type 1 Detectable Warnings are specified, the Contractor shall furnish and install only one of the products listed in the Type 1 Detectable Warnings table.

Type 1 Detectable Warnings	
Product	Manufacturer
Detectable Warning Plate Cast Iron Plate	Neenah Foundry Company Neenah, WI 800-558-5075 http://www.neenahfoundry.com/
Detectable Warning Plate Cast Iron Plate	Deeter Foundry Lincoln, NE 800-234-7466 http://www.deeter.com/
Detectable Warning Plate Cast Iron Plate	East Jordan Iron Works, Inc. 301 Spring Street East Jordan, MI 49727 800-626-4653 http://www.eiww.com
CAST-DWD Cast Iron Plate	Key 3 Casting (Northern Foundry) 555 West 25 th Street Hibbing, MN 55746 218-263-8871 http://www.armorcastprod.com/



CONCRETE SIDEWALK

Concrete for sidewalks shall be Class M6. Refer to Sections 462 and 651 of the Specifications. Provide a 1/2" Preformed Expansion Joint Filler when adjacent to existing concrete or new/existing curb and gutter. Payment for furnishing and installing the joint filler shall be incidental to the contract unit price per square foot for under the appropriate concrete sidewalk bid item.

TABLE OF SUPERELEVATION

Station to	Station	Lanes	
707+07.63	717+10	SB	Normal Crown Section
717+10	720+40		Superelevation Transition
720+40	727+70		3,400' Radius Curve Right
			4% Superelevation Rate
			Point of Rotation at inside edge of lane
727+70	730+45		Superelevation Transition
730+45	732+90		1% cross slope
732+90	733+45		Cross slope transition
733+45	772+10		Normal Crown Section
772+10	773+20		Superelevation Transition
773+20	780+50	3,400' Radius Curve Left	
		4% Superelevation Rate	
		Point of Rotation at inside edge of lane	
780+50	781+60	Superelevation Transition	
781+60	783+80	Normal Crown Section	
783+80	784+35	Cross slope transition	
784+35	786+00	1% cross slope	
707+07.63	719+30	NB	Normal Crown Section
719+30	720+40		Superelevation Transition
720+40	727+70		3,400' Radius Curve Right
			4% Superelevation Rate
			Point of Rotation at inside edge of lane
727+70	728+80		Superelevation Transition
728+80	769+90		Normal Crown Section
769+90	773+20		Superelevation Transition
773+20	780+50		3,400' Radius Curve Left
			4% Superelevation Rate
		Point of Rotation at inside edge of lane	
780+50	783+25	Superelevation Transition	
783+25	786+00	1% cross slope	

See Section F Plans for superelevation details.

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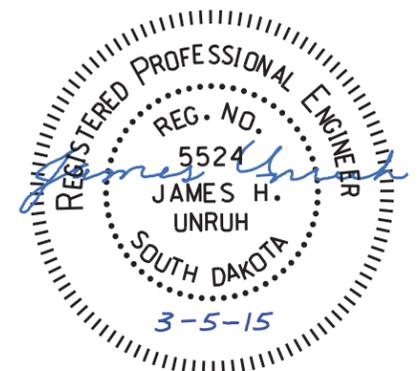
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TABLE OF PAVEMENT, CURB AND GUTTER, AND SIDEWALK QUANTITIES

Station to	Station	L/R	Concrete Curb and Gutter		Barrier Type Median PCC Pavement	Concrete Sidewalk	Detectable Warning Panel		
			Type B	Type F					
			69	610	4"	6"	Type 1		
			Ft	Ft	SqYd	SqFt	SqFt		
717+07	730+70	L		1,363					
717+07	717+84	L		77					
717+07	720+02	R		295					
717+07	731+08	R		1,400					
719+75	730+62	L		1,087					
722+18	730+62	R		845					
732+50	759+28	L		2,678					
732+91	759+13	L/R		2,625					
732+91	759+13	R		2,623					
733+08	759+28	R		2,620					
759+28	759+80	R	90						
759+28	759+80	R	90						
760+17	760+70	R	90						
760+17	760+70	R	90						
760+70	784+41	L		2,371					
760+85	784+34	L		2,346					
760+85	784+34	L/R		2,354					
760+70	784+52	R		2,382					
721+63	721+96	R							
730+85	730+98	L				129			
731+65	731+79	L				138			
759+38	759+72	R				610			
760+27	760+51	R				425			
785+22	785+37	R				129			
717+07	717+84	L			17				
717+07	719+96	R			64				
719+79	725+91	L			130				
722+18	725+91	R			82				
725+91	730+62	L			158				
732+90	738+15	R			174				
738+15	759+13	L			467				
738+15	759+13	R			466				
760+85	779+46	L			413				
760+85	779+46	R			412				
779+46	784+34	L			165				
721+57	722+02	R							
							22		
							24		
							24		
							24		
							20		
			Total:		360	25,066	2,548	1,431	114



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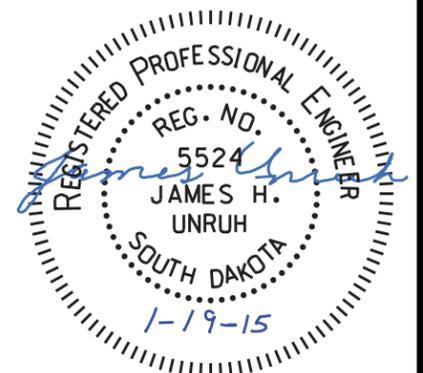
Plotting Date: 1/19/2015

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TABLE OF CONSTRUCTION STAKING
(See Special Provision for Contractor Staking specifications)

Roadway or Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking				Final Cross Sections (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Structure Staking Quantity (Each)
					Length (Mile)	Lane Factor	Sets of Stakes ¹	Staking ² Quantity (Mile)				
SB 3 lanes to Madison	717+08	730+70	3	1,362	0.258	1.5	2	0.774				
SB left turn lanes	730+70	737+72	5	702	0.133	2.5	2	0.665				
SB transition 5 to 3 Lanes	737+72	738+92	5	120	0.023	2.5	2	0.114				
SB 3 lanes to Rosemary	738+92	759+21	3	2,029	0.384	1.5	2	1.153				
SB left turn lane	759+21	764+97	4	576	0.109	2	2	0.436				
SB transition 4 to 3 lanes	764+97	766+17	4	120	0.023	2	2	0.091				
SB 3 lanes to Maple	766+17	784+42	3	1,825	0.346	1.5	2	1.037				
SB left turn lanes	784+42	786+00	5	158	0.030	2.5	2	0.150				
NB 3 lanes to Madison turn lanes	717+08	725+10	3	802	0.152	1.5	2	0.456				
NB transition 3 to 5 lanes	725+10	726+30	5	120	0.023	2.5	2	0.114				
NB 5 lanes to Madison	726+30	732+82	5	652	0.123	2.5	2	0.617				
NB 3 lanes to Rosemary turn lane	732+82	754+32	3	2,150	0.407	1.5	2	1.222				
NB transition 3 to 5 lanes	754+32	755+52	4	120	0.023	2	2	0.091				
NB 5 lanes to Rosemary	755+52	760+77	4	525	0.099	2	2	0.398				
NB 3 lanes to Maple turn lanes	760+77	778+71	3	1,794	0.340	1.5	2	1.019				
NB 3 transition 3 to 5 lanes	778+71	779+91	5	120	0.023	2.5	2	0.114				
NB 5 lanes to Maple	779+91	786+00	5	609	0.115	2.5	2	0.577				
Hwy100 - entire length	717+08	786+00		6,892	1.305				1.305	1.305	1.305	
Madison Street	19+38	24+45	2	507	0.096	1	1	0.096	0.096	0.096	0.096	
Maple Street	42+61	49+34	2	673	0.127	1	1	0.127	0.127	0.127	0.127	
Bike path at underpass	100+05	111+04	1	1,099	0.208	0.5	1	0.104		0.208	0.208	
12'x5' box culvert	742+91										1	
12'x10' box culvert	745+00										1	
8'x5' box culvert	755+24										1	
12'x10' box culvert	781+95										1	
Totals:					9.353	1.529	1.737	1.737		1.737	4	

1 = Blue Top Stakes Only (Asphalt Concrete Pavement)
2 = Blue Top and Paving Hub Stakes (PCC Pavement)



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	NH 0100(103)417	B10	B84

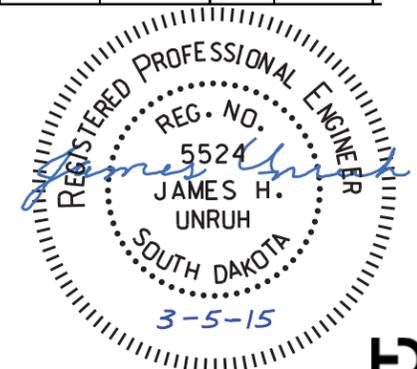
Plotting Date: 3/5/2015

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TABLE OF REINFORCED CONCRETE PIPE												
Station Offset (L/R)	Circular							FE	Long Rad. Bends		Arch	Pipe
	18"	24"	30"	36"	42"	60"	84"		36"	84"	60"	Undercut
	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(EA)	(EA)	(EA)	(Ft)	(CuYd)
717+82.32-42.95' R to 717+82.34-57.55' R	14											
720+00.20-9.20' R to 720+00.20-14.33' R	6											
720+00.20-14.33' R to 720+00.20-56.13' R	40											
722+20.27-14.33' R to 722+21.58-33.55' R	18											
722+21.58-33.55' R to 722+23.37-56.13' R	22											
724+35.88-23.05' L to 724+36.88-11.87' L	10											
724+36.88-11.87' L to 724+40.69-14.33' R	24											
724+40.69-14.33' R to 724+46.48-56.13' R	40											
727+35.84-53.67' L to 727+35.84-14.33' L	38											
727+35.84-14.33' L to 727+35.29-9.67' L	4											
727+35.29-9.67' L to 727+25.17-53.67' R	64											
727+25.17-53.67' R to 729+35.01-53.67' R	206											
729+35.01-14.33' L to 729+35.01-9.67' L	4											
729+35.01-9.67' L to 729+35.01-53.67' R	62											
729+35.01-53.67' R to 731+06.22-53.67' R	170											
730+37.24-53.67' L to 731+06.22-53.67' R	126											
730+75-102.2' L to 730+84.13-97.60' L				8								2
730+84.13-97.60' L to 731+02.6-73.6' L				28								8
731+05-70' L - Bends - 36"								2				2
731+06.2-66.5' L to 731+40.80-42.72' R				112								32
731+40.80-42.72' R to 731+06.22-53.67' R	34											
731+40.80-42.72' R to 731+61.64-108.52' R				64								18
731+61.64-108.52' R to 732+23.15-115.62' R					52			1				16
732+18.88-71.49' R to 732+34.65-112.63' R			94					1				25
731+80.75-97.79' L to 732+26.29-102.95' R								2		200		82
733+45.00-56.13' L to 733+26.86-9.67' R	66											
733+26.86-9.67' R to 733+26.13-14.33' R	4											
733+26.13-14.33' R to 733+15.43-53.67' R		40										10
733+20.43-53.67' R to 736+79.42-53.67' R		356										86
736+79.42-53.67' L to 736+79.42-9.67' R	62											
736+79.42-9.67' R to 736+79.42-14.33' R	4											
736+79.42-14.33' R to 736+79.42-53.67' R	38											
742+45.29-53.67' L to 742+45.29-14.33' L	38											
742+45.29-14.33' L to 742+45.29-14.33' R	28											
742+45.29-14.33' R to 742+45.29-53.67' R	38											
742+45.29-53.67' L to 743+79.46-56.13' L	130											
743+79.46-56.13' L to 743+79.46-56.13' R	110											
743+79.46-56.13' R to 743+79.46-128.74' R	70											
743+79.46-128.74' R to 744+90.76-147.26' R		108										26
744+90.76-147.26' R to 747+38.09-107.91' R		246										59
743+79.46-128.74' R to 743+17.61-132.95' R		60										14
747+29.46-53.67' L to 747+29.46-53.67' R	106											
747+29.46-53.67' R to 747+38.09-107.91' R		52										13
747+29.46-53.67' R to 747+19.46-53.67' R		186										45
749+19.46-53.67' L to 749+19.46-14.33' L	38											
749+19.46-14.33' L to 749+19.46-14.33' R	28											
749+19.46-14.33' R to 749+19.46-53.67' R	38											
754+62.53-53.67' L to 754+62.53-14.33' L	38											
754+62.53-14.33' L to 754+62.63-11.29' R	24											
754+62.53-11.29' R to 754+62.53-53.67' R	42											
754+62.53-53.67' L to 755+92.37-56.13' L	126											
Column totals	1,910	1,048	94	212	52	0	0	4	2	0	200	437

TABLE OF REINFORCED CONCRETE PIPE CONT.												
Station Offset (L/R)	Circular							FE	Long Rad. Bends		Arch	Pipe
	18"	24"	30"	36"	42"	60"	84"		36"	84"	60"	Undercut
	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(EA)	(EA)	(EA)	(Ft)	(CuYd)
755+92.37-56.13' L to 755+92.37-56.13' R	110											
755+92.37-56.13' R to 755+21.2-60.6' R				68								19
755+92.37-56.13' R to 757+48.65-53.67' R				150								43
757+48.65-53.67' L to 757+48.65-14.33' L	38											
757+48.65-14.33' L to 757+48.65-2.33' R	16											
757+48.65-2.33' R to 757+48.65-53.67' R	50											
757+53.65-53.67' R to 759+79.65-53.67' R				222								63
759+79.65-133' L to 759+79.65-53.67' R			186									
759+79.65-53.67' R to 759+79.65-121' R		66										16
759+79.65-53.67' R to 760+74.32-53.67' R		90										22
760+74.32-53.67' L to 760+74.32-53.67' R	106											
760+78.32-53.67' R to 763+68.22-53.67' R		288										69
763+68.22-53.67' L to 763+68.22-53.67' R	106											
768+70.00-53.67' L to 768+70.00-14.33' L	38											
768+70.00-14.33' L to 768+70.00-14.33' R	28											
768+70.00-14.33' R to 768+70.00-53.67' R	38											
768+70.00-53.67' R to 771+61.31-53.67' R		288										69
771+61.31-53.67' L to 771+61.31-14.33' L	38											0
771+61.31-14.33' L to 771+61.31-14.33' R	28											
771+61.31-14.33' R to 771+61.31-53.67' R	38											
771+61.31-53.67' R to 773+50.51-53.03' R		188										45
773+18.76-91.29' L to 773+66.50-118.38' R						216		2				80
775+11.42-53.67' L to 775+11.42-14.33' L	38											
775+11.42-14.33' L to 775+11.42-14.33' R	28											
775+11.42-14.33' R to 775+11.42-53.67' R	38											
775+11.42-53.67' L to 778+56.49-53.67' L	336											
778+61.57-53.67' L to 778+61.57-14.33' L	38											
778+61.57-14.33' L to 778+61.57-14.33' R	28											
778+61.57-14.33' R to 778+61.57-53.67' R	38											
778+61.57-53.67' L to 780+36.65-56.13' L		168										40
780+36.65-56.13' L to 780+36.65-14.33' L		40										10
780+36.65-14.33' L to 780+36.65-9.67' L		4										1
780+36.65-9.67' L to 780+36.65-53.67' R	62											
780+36.65-53.67' R to 781+61.76-116.39' R		142										34
781+80.48-53.67' L to 781+80.48-9.67' L	42											
781+84.48-53.67' L to 782+01.58-52.80' L	16											
784+88.85-67.00' L to 784+96.60-112.40' R		178										43
784+88.85-67.00' L to 785+12.39-61.87' L	22											
783+29.85-131.77' R - Bends - 84"											6	11
783+42.83-128.46' R to 783+66.87-126.50' R							24	1				11
783+66.87-126.50' R to 785+88.42-108.41' R							222	1				101
Column totals	1,320	1,452	186	440	0	216	246	4	0	6	0	678
Totals	3,230	2,500	280	652	52	216	246	8	2	6	200	1,115

TABLE OF CORRUGATED METAL PIPE				
Station Offset (L/R)	Circular	Safety	Arch	Safety
	(Ft)	(EA)	(Ft)	(EA)
Madison Street				
28+37.4 to 28+82.6 - 42' R	34	2		
28+37 to 28+87 - 42.4' L			34	2
28+37 to 28+87 - 38' L			34	2
Totals	34	2	68	4



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B11	B84

Plotting Date: 1/2/2015

TABLE OF STORM SEWER DROP INLETS AND JUNCTION BOXES											
Station	Offset	Inlet Type	Class M6 Concrete (CuYd)	Reinforcing Steel (Lb)	Frame and Lid/Grate						
					Type B Frame and Grate Assembly (Each)	Precast Drop Inlet Collar (Each)	Type C MH Frame and Lid (Each)	* Type A7 Manhole Frame and Lid (Each)	Type A10 Manhole Frame and Lid (Each)	Type S Inlet Lid 4'x11' (Each)	Type S Inlet Lid 4'x6' (Each)
717+82.27	57.55 L	DOT 4x6 Type S	2.8	480							1
717+82.27	15.76 L	DOT 2x3 Type B	1.2	140	1	1					
717+82.32	15.76 R	DOT 2x3 Type B	1.2	130	1	1					
717+82.34	57.55 R	DOT 4x6 Type S	2.3	410							1
719+99.80	58.32 L	DOT 3x4 Type C	2.4	250		1	1				
719+99.80	53.67 L	DOT 2x3 Type B	1.6	170	1	1					
720+00.35	11.87 L	DOT 4x11 Type S	4.3	720						1	
720+00.45	14.33 R	DOT 2x3 Type B	1.2	130	1	1					
720+00.86	56.13 R	DOT 4x11 Type S	3.4	610						1	
722+14.70	67.30 L	DOT 3x4 Type C	2.9	290		1	1				
722+15.30	53.62 L	DOT 2x3 Type B	1.7	180	1	1					
722+18.26	11.87 L	DOT 4x6 Type S	3.0	490							1
722+20.27	14.33 R	DOT 2x3 Type B	1.3	140	1	1					
722+23.37	56.13 R	DOT 4x6 Type S	2.2	400							1
724+26.62	89.90 L	DOT 3x4 Type C	2.4	250		1	1				
724+31.33	53.67 L	DOT 2x3 Type B	1.7	180	1	1					
724+36.88	11.87 L	DOT 4x6 Type S	2.9	490							1
724+40.69	14.33 R	DOT 2x3 Type B	1.3	140	1	1					
724+46.48	56.13 R	DOT 4x6 Type S	2.1	390							1
727+35.84	53.67 L	DOT 2x3 Type B	1.0	110	1	1					
727+35.84	14.33 L	DOT 2x3 Type B	1.0	110	1	1					
727+35.29	9.67 L	DOT 2x3 Type B	1.0	120	1	1					
727+25.17	53.67 R	DOT 2x3 Type B	1.0	110	1	1					
729+31.01	14.33 L	DOT 2x3 Type B	1.1	120	1	1					
729+35.01	14.33 L	DOT 2x3 Type B	1.2	130	1	1					
729+35.01	9.67 L	DOT 2x3 Type B	2.0	210	1	1					
729+35.01	53.67 R	DOT 2x3 Type B	0.9	110	1	1					
730+33.24	53.67 L	DOT 2x3 Type B	1.0	100	1	1					
730+37.24	53.67 L	DOT 2x3 Type B	0.9	100	1	1					
730+84.13	97.60 L	DOT 5x5 JB	4.3	820				1			
731+06.22	53.67 R	DOT 2x3 Type B	1.0	110	1	1					
731+40.80	42.72 R	DOT 5x5 JB	5.0	940				1			
731+61.64	108.52 R	DOT 5x5 JB	4.3	830				1			
733+15.43	53.67 R	DOT 4x4 Type B	2.3	420	1	1					
733+20.43	53.67 R	DOT 4x4 Type B	2.4	420	1	1					
733+26.86	9.67 R	DOT 2x3 Type B	1.4	150	1	1					
733+26.13	14.33 R	DOT 2x3 Type B	1.3	150	1	1					
733+45.00	56.13 L	DOT 4x6 Type S	2.5	430							1
736+79.42	53.67 L	DOT 2x3 Type B	1.0	110	1	1					
736+79.42	9.67 R	DOT 2x3 Type B	1.3	140	1	1					
736+79.42	14.33 R	DOT 2x3 Type B	1.3	140	1	1					
736+79.42	53.67 R	DOT 3x4 Type B	2.0	250	1	1					
736+83.29	53.67 L	DOT 2x3 Type B	1.0	110	1	1					
742+41.29	53.67 L	DOT 2x3 Type B	1.2	120	1	1					
742+45.29	53.67 L	DOT 2x3 Type B	1.0	120	1	1					
742+45.29	14.33 L	DOT 2x3 Type B	1.2	130	1	1					
742+45.29	14.33 R	DOT 2x3 Type B	1.1	130	1	1					
742+45.29	53.67 R	DOT 2x3 Type B	1.0	100	1	1					
742+41.29	53.67 R	DOT 2x3 Type B	1.0	100	1	1					
743+79.46	56.13 L	DOT 4x6 Type S	2.6	450							1
743+79.46	56.13 R	DOT 4x6 Type S	2.9	480							1
743+79.46	128.74 R	DOT 5x5 JB	4.8	860							1
744+90.76	147.26 R	DOT 5x5 JB	4.5	800							1
747+29.46	53.67 L	DOT 2x3 Type B	1.0	110	1	1					
747+29.46	53.67 R	DOT 3x4 Type B	2.0	260	1	1					

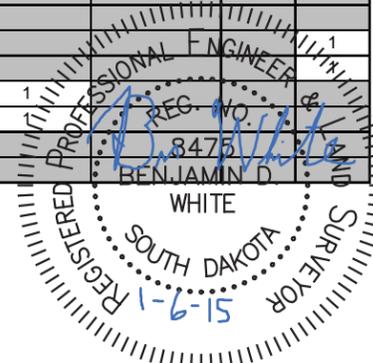


TABLE OF STORM SEWER DROP INLETS AND JUNCTION BOXES											
Station	Offset	Inlet Type	Class M6 Concrete (CuYd)	Reinforcing Steel (Lb)	Frame and Lid/Grate						
					Type B Frame and Grate Assembly (Each)	Precast Drop Inlet Collar (Each)	Type C MH Frame and Lid (Each)	* Type A7 Manhole Frame and Lid (Each)	Type A10 Manhole Frame and Lid (Each)	Type S Inlet Lid 4'x11' (Each)	Type S Inlet Lid 4'x6' (Each)
747+38.09	107.91 R	DOT 5x5 JB	4.3	780				1			
749+19.46	53.67 L	DOT 2x3 Type B	0.9	100	1	1					
749+19.46	14.33 L	DOT 2x3 Type B	1.1	120	1	1					
749+19.46	14.33 R	DOT 2x3 Type B	1.1	120	1	1					
749+19.46	53.67 R	DOT 3x4 Type B	1.8	230	1	1					
754+58.53	53.67 L	DOT 2x3 Type B	1.2	120	1	1					
754+62.53	53.67 L	DOT 2x3 Type B	1.1	120	1	1					
754+62.53	14.33 L	DOT 2x3 Type B	1.2	130	1	1					
754+62.63	11.29 R	DOT 2x3 Type B	1.2	130	1	1					
754+58.53	53.67 R	DOT 2x3 Type B	1.0	100	1	1					
754+62.53	53.67 R	DOT 2x3 Type B	0.9	100	1	1					
755+92.37	56.17 L	DOT 4x6 Type S	2.6	450							1
755+92.37	56.13 R	DOT 4x11 Type S	4.9	820						1	
757+48.65	53.67 L	DOT 2x3 Type B	1.0	110	1	1					
757+48.65	14.33 L	DOT 2x3 Type B	1.1	130	1	1					
757+48.65	2.33 R	DOT 2x3 Type B	1.2	130	1	1					
757+48.65	53.67 R	DOT 4x4 Type B	2.3	430	1	1					
757+53.65	53.67 R	DOT 4x4 Type B	2.1	400	1	1					
759+79.65	53.67 R	DOT 5x5 JB	5.2	980					1		
760+74.32	53.67 L	DOT 2x3 Type B	1.1	120	1	1					
760+78.32	53.67 L	DOT 2x3 Type B	1.1	120	1	1					
760+74.32	53.67 R	DOT 3x4 Type B	2.4	300	1	1					
760+78.32	53.67 R	DOT 2x3 Type B	1.5	160	1	1					
763+68.22	53.67 L	DOT 2x3 Type B	1.3	140	1	1					
763+68.22	53.67 R	DOT 2x3 Type B	1.4	150	1	1					
768+70.00	53.67 L	DOT 2x3 Type B	1.0	110	1	1					
768+70.00	14.33 L	DOT 2x3 Type B	1.2	130	1	1					
768+70.00	14.33 R	DOT 2x3 Type B	1.2	130	1	1					
768+70.00	53.67 R	DOT 3x4 Type B	2.0	250	1	1					
771+61.31	53.67 L	DOT 2x3 Type B	1.0	110	1	1					
771+61.31	14.33 L	DOT 2x3 Type B	1.1	130	1	1					
771+61.31	14.33 R	DOT 3x4 Type B	2.0	250	1	1					
771+61.31	53.67 R	DOT 3x4 Type B	2.2	280	1	1					
775+11.42	53.67 L	DOT 2x3 Type B	1.0	110	1	1					
775+11.42	14.33 L	DOT 2x3 Type B	1.1	120	1	1					
775+11.42	14.33 R	DOT 2x3 Type B	1.0	110	1	1					
775+11.42	53.67 R	DOT 2x3 Type B	1.0	110	1	1					
778+56.49	53.67 L	DOT 3x4 Type B	1.9	230	1	1					
778+61.57	53.67 L	DOT 3x4 Type B	1.8	230	1	1					
778+61.57	14.33 L	DOT 2x3 Type B	1.1	120	1	1					
778+61.57	14.33 R	DOT 2x3 Type B	0.9	110	1	1					
778+57.57	14.33 R	DOT 2x3 Type B	1.1	110	1	1					
778+61.57	53.67 R	DOT 2x3 Type B	1.0	110	1	1					
780+36.65	56.13 L	DOT 4x6 Type S	2.4	440							1
780+36.65	14.33 L	DOT 2x3 Type B	1.4	150	1	1					
780+31.65	9.67 L	DOT 2x3 Type B	1.5	150	1	1					
780+36.65	9.67 L	DOT 2x3 Type B	1.3	150	1	1					
780+36.65	53.67 R	DOT 3x4 Type B	3.1	370	1	1					
781+80.48	53.67 L	DOT 2x3 Type B	0.7	90	1	1					
781+84.48	53.67 L	DOT 2x3 Type B	2.2	220	1	1					
781+72.48	9.67 L	DOT 2x3 Type B	0.8	90	1	1					
781+76.48	9.67 L	DOT 2x3 Type B	0.8	100	1	1					
781+80.48	9.67 L	DOT 2x3 Type B	0.8	100	1	1					
784+88.85	67.00 L	DOT 5x5 JB	5.4	940					1		
Total :			197.4	27,930	84	87	3	4	4	3	11

* Type A7 Manhole Frame and Lid shall be Neenah 1772 or equal



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B12	B84

FENCING

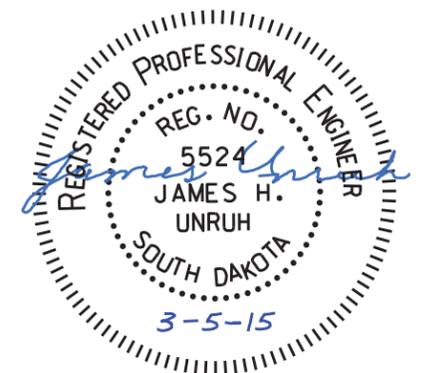
Post type and sequence: Right-of-way fence shall be constructed using alternate wood and steel posts.

Gates: Final gate locations will be determined by the Engineer in consultation with landowner and/or tenants. There is no bid item for wire gates; they are incidental to the right-of-way fence bid item.

Rev. 3-5-2015 JHU

Fence locations and post panels: Final locations will be determined by the Engineer in consultation with landowner and/or tenants.

TABLE OF FENCE QUANTITIES										
Station to Station		Right-of-Way Fence		Post Panels		Gates		Remove Fence for Reset (Ft)	Reset Fence (Ft)	Remove Fence within ROW (Ft)
		Side (L/R)	Type 2 (Ft)	2 Post Panel (Each)	3 Post Panel (Each)	24' Barbed Wire Gate (Each)	40' Barbed Wire Gate (Each)			
Madison St 18+57	Madison St 18+97	R	40	2		1				40
Madison St 20+34	Madison St 23+79	L								384
Madison St 21+54	Madison St 23+97	R								245
717+08	730+95	L/R						1,450		
717+08	721+80	R	69	1			1		472	
721+80	731+58 (Madison St)			3	2				978	
732+50 (Madison St)	760+00 (Rosemary St)	R	2,936	14	4		1			
760+00 (Rosemary St)	785+50 (Maple St)	R	2,676	12	2					
Madison St 20+34	Madison St 21+16	L	80	2						
Madison St 28+40	Madison St 28+80	R	40	2		1				40
Madison St 28+40	Madison St 28+80	L	40	2		1				40
732+16 (Madison St)	760+00 (Rosemary St)	L	2,896	14	7		1			
760+00 (Rosemary St)	785+50 (Maple St)	L	2,682	8	2					
Totals:			11,459	60	17	3	3	1,450	1,450	749



Typical Grading Sections

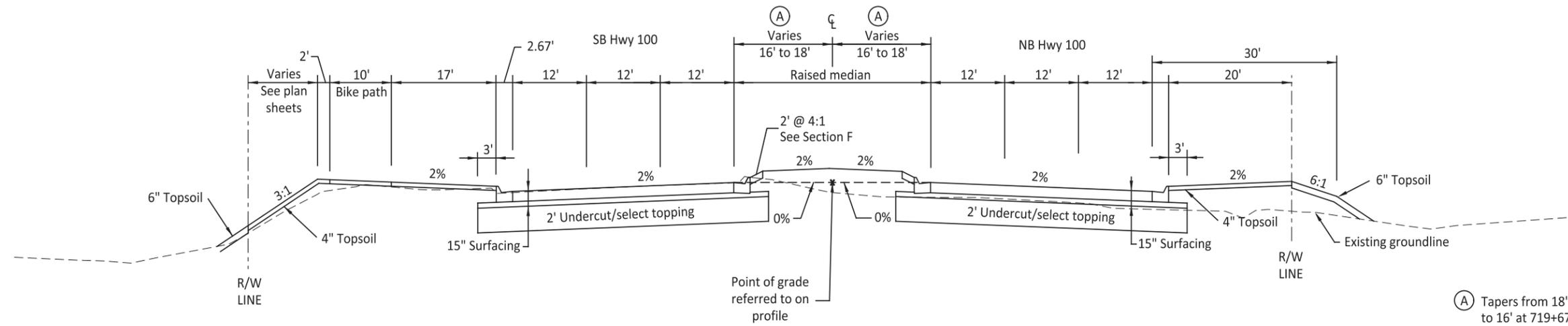
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B13	B79

FILE: B13-B19 Typicals.dgn
PLOT DATE: 12-31-2014

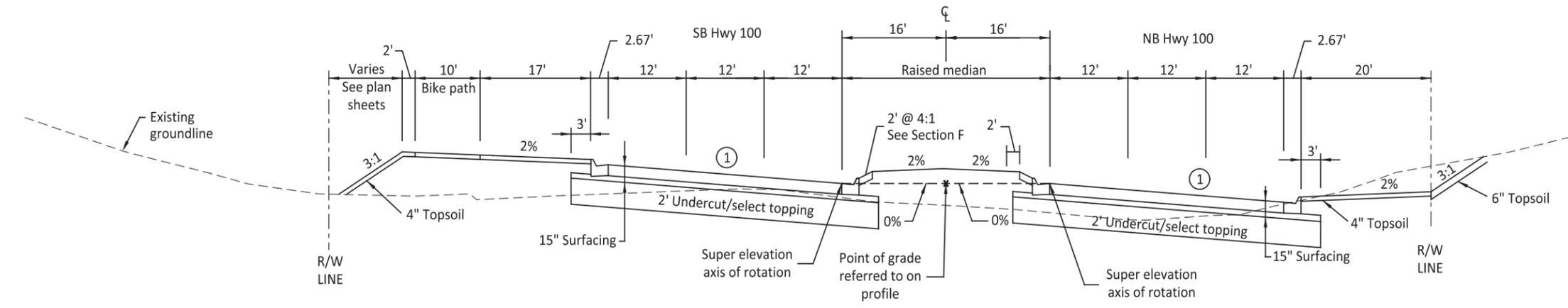
REV DATE:
INITIAL:

717+07.61 (Begin construction) to 719+67.63

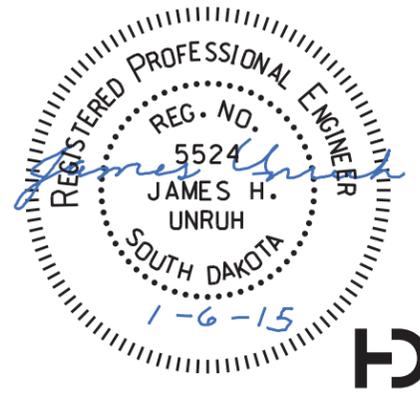


(A) Tapers from 18' at 717+07.6 to 16' at 719+67.6

719+67.63 to 724+93.74



(1) See Pavement Layout sheets and super elevation table for pavement slopes



Typical Grading Sections

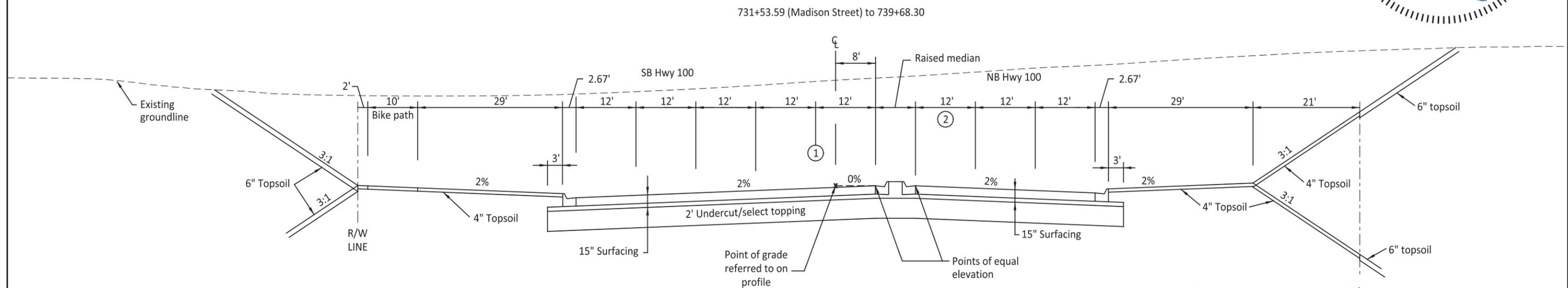
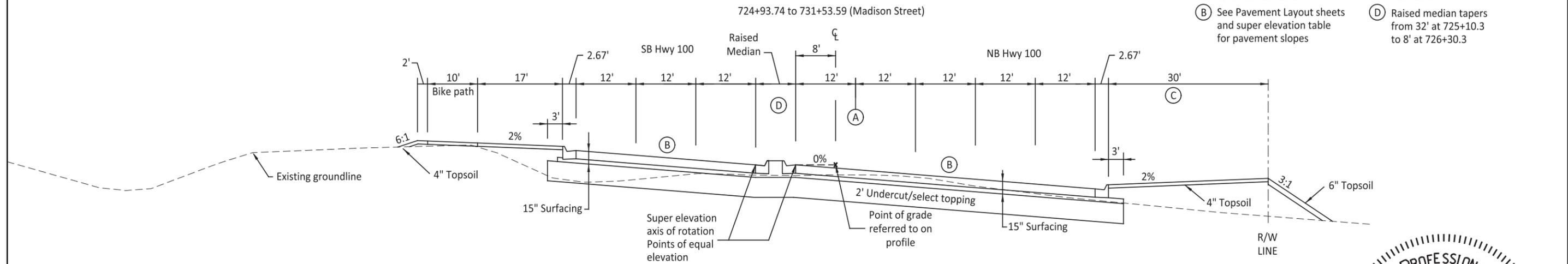
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0100(103)417	SHEET B14	TOTAL SHEETS B79
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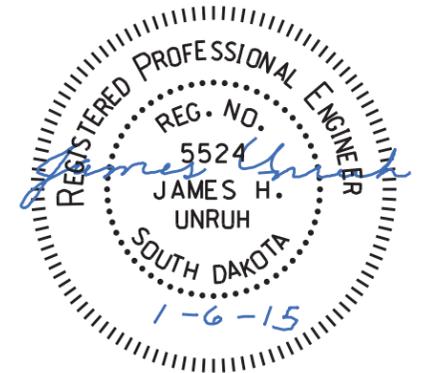
FILE: B13-B19 Typicals.dgn
PLOTTING DATE: 12-31-2014

REV DATE:
INITIAL:

- (A) Left turn lanes taper from 0' at 725+10.3 to 24' at 726+30.3
- (B) See Pavement Layout sheets and super elevation table for pavement slopes
- (C) Boulevard tapers from 20' at 724+93.7 to 32' at 726+16.8
- (D) Raised median tapers from 32' at 725+10.3 to 8' at 726+30.3



- (1) Left turn lanes taper from 24' at 737+72.5 to 0' at 738+92.5
- (2) Raised median tapers from 8' at 737+72.5 to 32' at 738+92.5



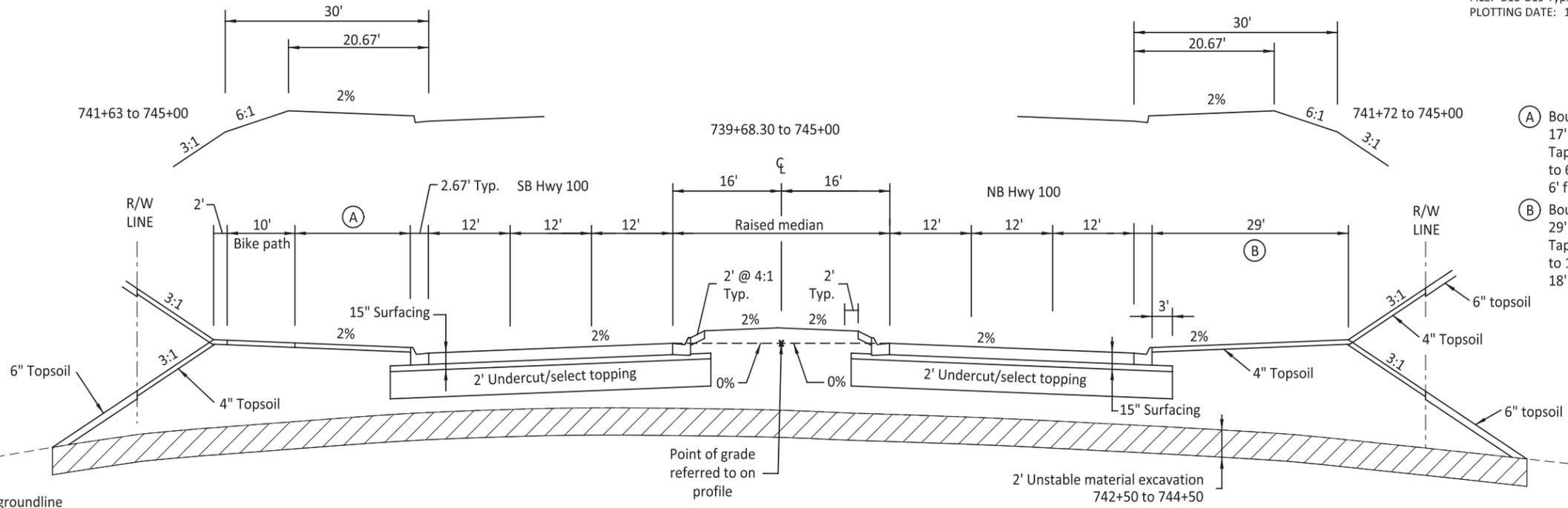
Typical Grading Sections

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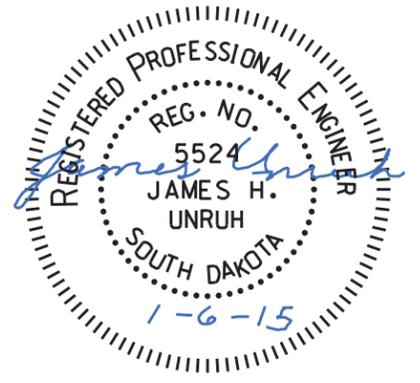
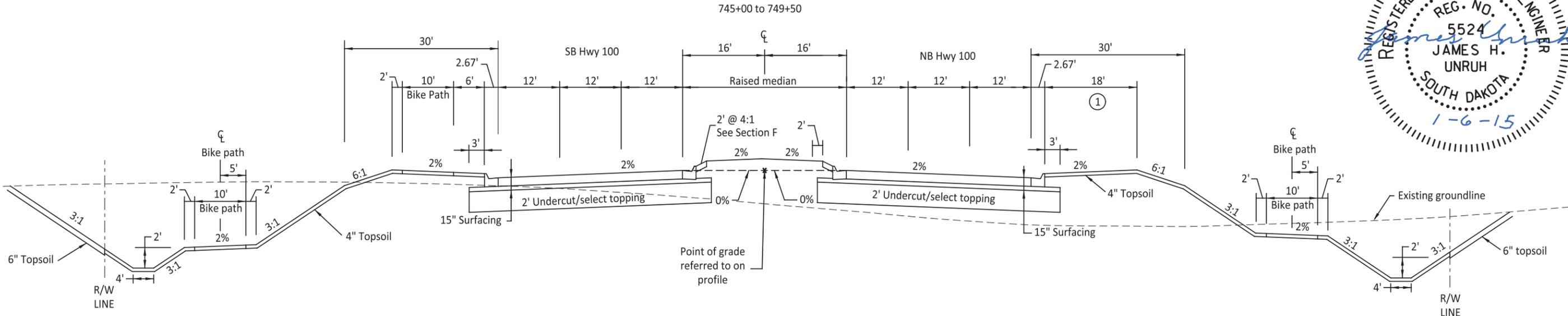
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B15	B79

FILE: B13-B19 Typicals.dgn
PLOTTING DATE: 12-31-2014

REV DATE:
INITIAL:



- (A) Boulevard width:
17' from to 739+68.3 to 741+44.1
Tapers from 17' at 741+44.1 to 6' at 742+64.1
6' from 742+64.1 to 745+00
- (B) Boulevard width:
29' from 739+68.3 to 741+53.5
Tapers from 29' at 741+53.5 to 18' at 742+73.2
18' from 742+73.2 to 745+00



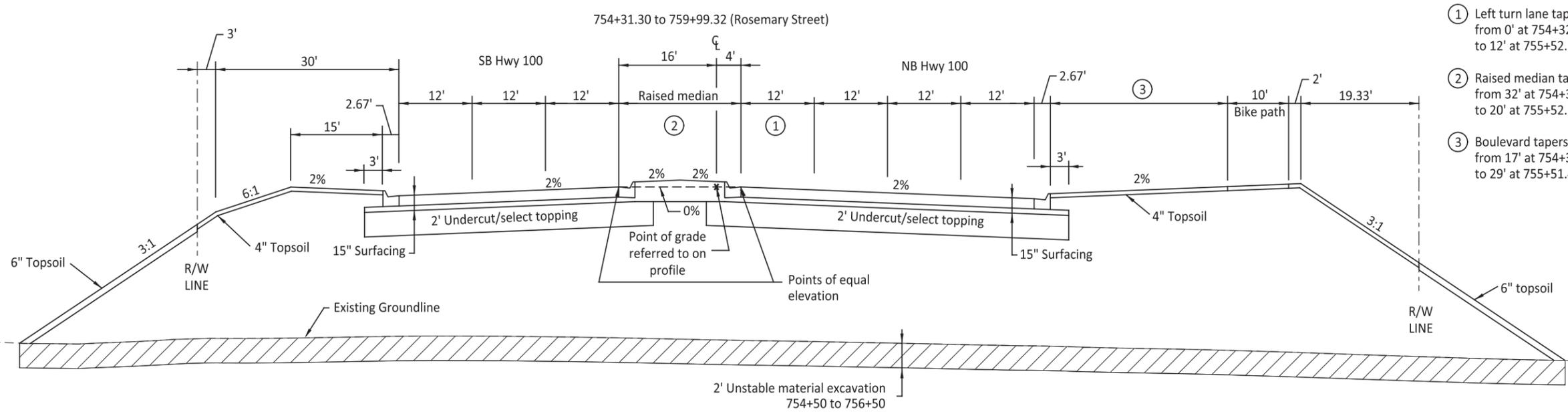
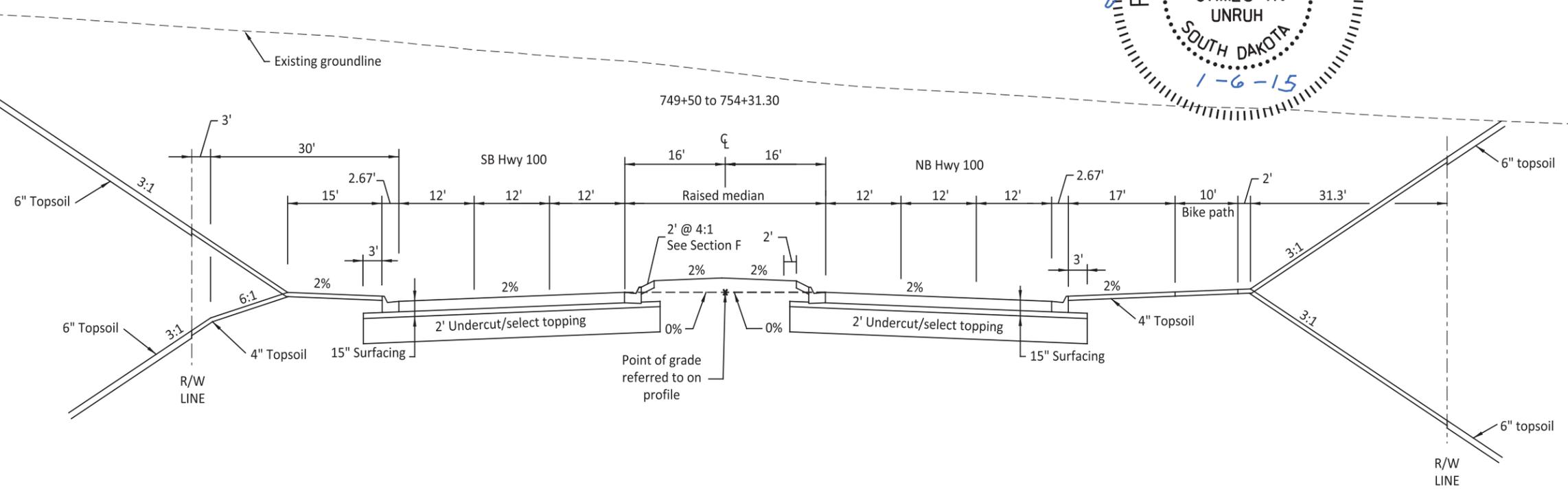
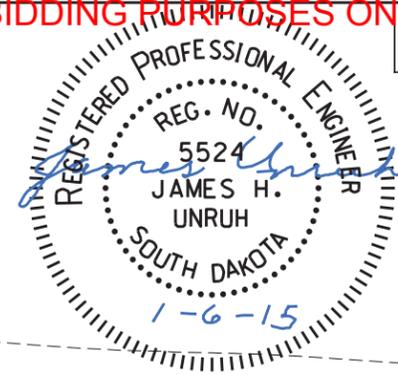
Typical Grading Sections

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STATE OF SOUTH DAKOTA	PROJECT NH 0100(103)417	SHEET B16	TOTAL SHEETS B79
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FILE: B13-B19 Typicals.dgn
PLOT DATE: 12-31-2014

REV DATE:
INITIAL:



- ① Left turn lane tapers from 0' at 754+32.3 to 12' at 755+52.3
- ② Raised median tapers from 32' at 754+32.3 to 20' at 755+52.3
- ③ Boulevard tapers from 17' at 754+31.4 to 29' at 755+51.4



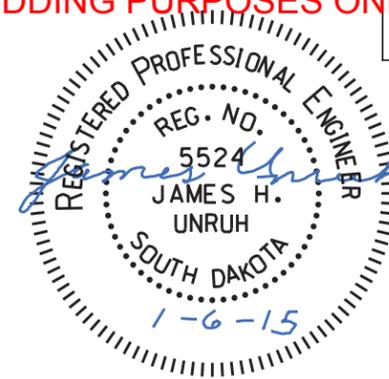
Typical Grading Sections

FOR BIDDING PURPOSES ONLY

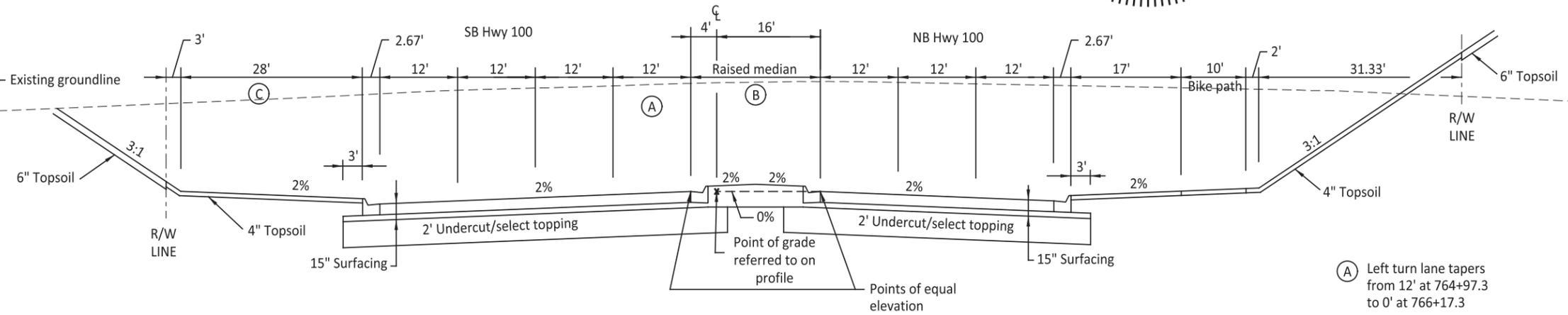
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B17	B79

FILE: B13-B19 Typicals.dgn
PLOT DATE: 12-31-2014

REV DATE:
INITIAL:

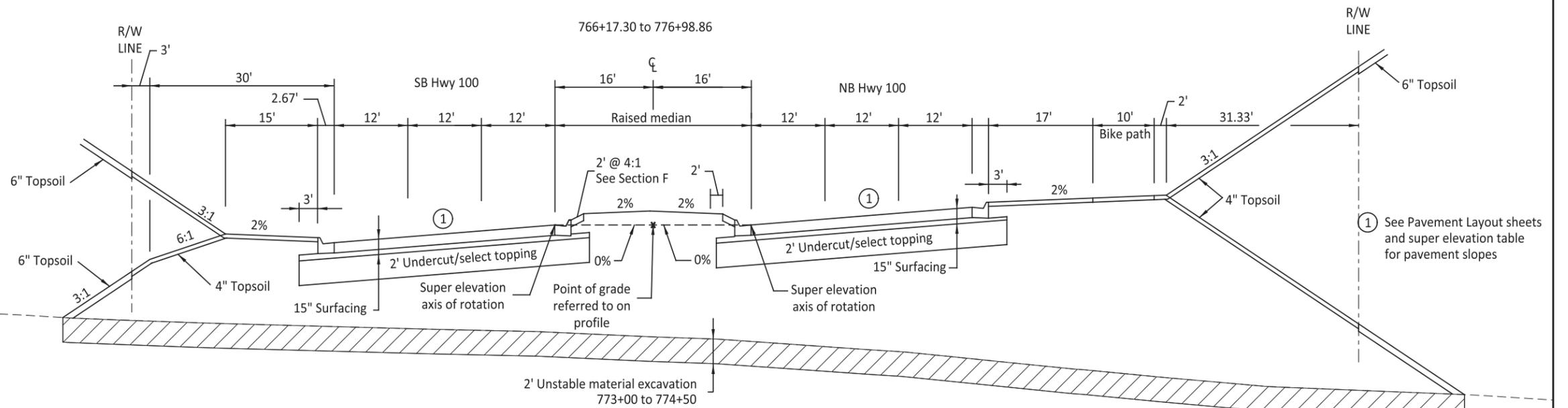


759+99.32 (Rosemary Street) to 766+17.30



- (A) Left turn lane tapers from 12' at 764+97.3 to 0' at 766+17.3
- (B) Raised median tapers from 32' at 764+97.3 to 20' at 766+17.3
- (C) Boulevard tapers from 28' at 764+06.3 to 15' at 765+26.3

766+17.30 to 776+98.86



- (1) See Pavement Layout sheets and super elevation table for pavement slopes



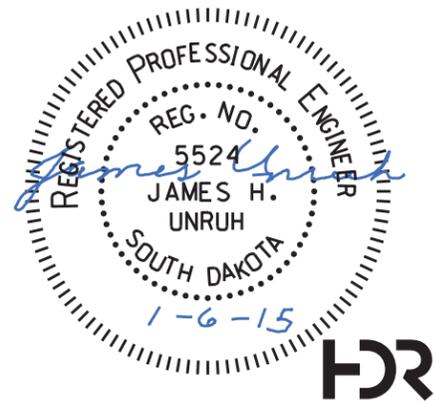
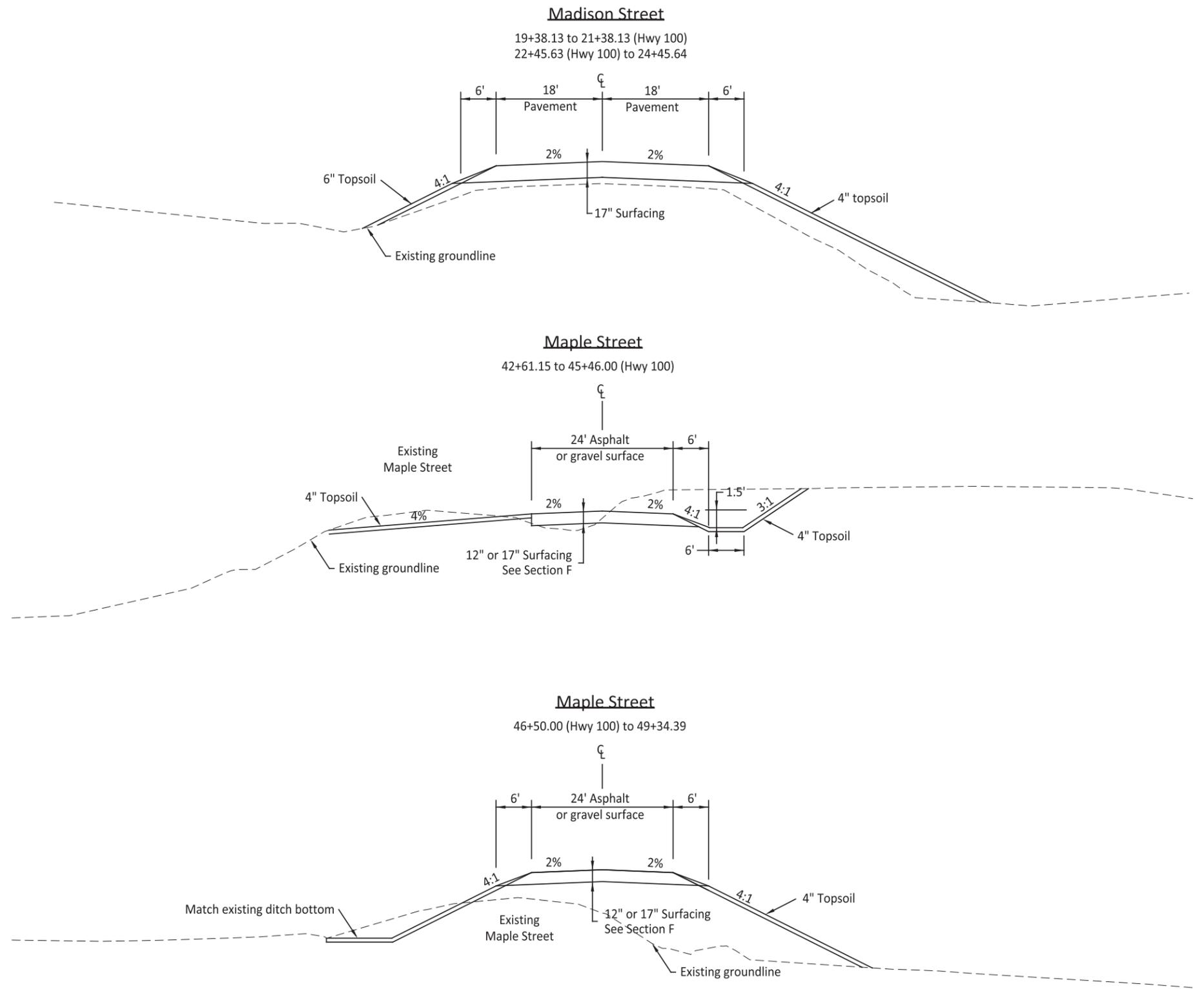
Typical Grading Sections

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B19	B79

FILE: B13-B19 Typicals.dgn
PLOTING DATE: 12-31-2014

REV DATE:
INITIAL:



HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0100(103)417	SHEET B20	TOTAL SHEETS B79
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Plotting Date: 12/30/2014

SD100 Mainline

Type	Station			Northing	Easting
POB	713+65.55			466383.86	2944160.06
		TL=602.08	N 2° 39' 22" W		
PC	719+67.63			466985.30	2944132.16
PI	724+11.99	R = 3,400.00	Delta = 14° 53' 31" R	467429.17	2944111.57
PT	728+51.33			467863.43	2944205.74
		TL=4402.74	N 12° 14' 09" E		
PC	772+54.07			472166.15	2945138.84
PI	776+91.10	R = 3,400.00	Delta = 14° 38' 57" L	472593.26	2945231.46
PT	781+23.37			473029.91	2945213.06
		TL=581.62	N 2° 24' 48" W		
POE	787+05.00			473611.02	2945188.57

PT	47+17.21			473468.01	2945313.72
		TL=147.92	N 79° 55' 44" E		
PC	48+65.13			473493.87	2945459.37
PI	48+99.81	R = 500.00	Delta = 7° 56' 09" R	473499.94	2945493.51
PT	49+34.39			473501.23	2945528.17
		TL=265.32	N 87° 51' 54" E		
POE	51+99.39			473511.12	2945793.31

Rosemary Street

Type	Station			Northing	Easting
POB	28+00.00			470982.30	2944677.56
		TL=400.00	S 77° 45' 51" E		
POE	32+00.00			470897.52	2945068.37

Madison Street

Type	Station			Northing	Easting
POB	10+00.00			468108.52	2943078.99
		TL=1000.00	N 87° 34' 48" E		
PI	20+00.00			468150.75	2944078.09
		TL=284.81	N 87° 35' 08" E		
PC	22+84.81			468162.74	2944362.65
PI	23+98.54	R = 12,600.00	Delta = 1° 02' 04" L	468167.54	2944476.28
PT	25+12.26			468174.38	2944589.80
		TL=483.98	N 86° 33' 05" E		
POE	29+96.24			468203.49	2945072.90

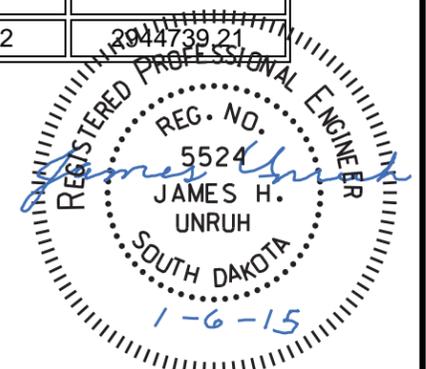
Bike Loop

Type	Station			Northing	Easting
POB	100+00.00			469744.92	2944546.57
		TL=5.00	N 12° 14' 09" E		
PC	100+05.00			469749.81	2944547.63
PI	105+78.41	R = 30.00	Delta = 174° 00' 37" L	470310.18	2944669.15
PT	100+96.11			469765.55	2944489.82
		TL=233.06	S 18° 13' 33" W		
PC	103+29.17			469544.18	2944416.92
PI	103+68.04	R = 35.00	Delta = 95° 59' 23" L	469507.26	2944404.77
PT	103+87.81			469499.03	2944442.75
		TL= 220.11	S 77° 45' 51" E		
PC	106+07.92			469452.38	2944657.86
PI	106+48.61	R = 35.00	Delta = 98° 35' 25" L	469443.75	2944697.62
PT	106+68.15			469484.36	2944700.21
		TL= 407.35	N 3° 38' 44" E		
PC	110+75.49			469890.88	2944726.11
PI	110+90.14	R = 195.00	Delta = 8° 35' 25" R	469905.49	2944727.04
PT	110+04.73			469919.81	2944730.14
		TL= 42.79	N 12° 14' 09" E		
POE	111+47.52			469961.62	2944739.21

Maple Street

Type	Station			Northing	Easting
POB	41+47.99			473472.07	2944746.04
		TL=113.16	N 87° 51' 67" E		
PC	42+61.15			473476.29	2944859.13
PI	42+95.98	R = 500.00	Delta = 7° 58' 08" R	473477.59	2944893.93
PT	43+30.69			473474.05	2944928.58
		TL=146.74	S 84° 09' 58" E		
PC	44+77.43			473459.13	2945074.56
PI	45+12.26	R = 500.00	Delta = 7° 58' 08" L	473455.59	2945109.20
PT	45+46.97			473456.89	2945144.01
		TL=100.98	N 87° 51' 54" E		
PC	46+47.95			473460.65	2945244.92
PI	46+82.64	R = 500.00	Delta = 7° 56' 09" L	473461.94	2945279.57

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (NAD 83/96) SF = 0.99986486 Vertical Datum: NAVD 88



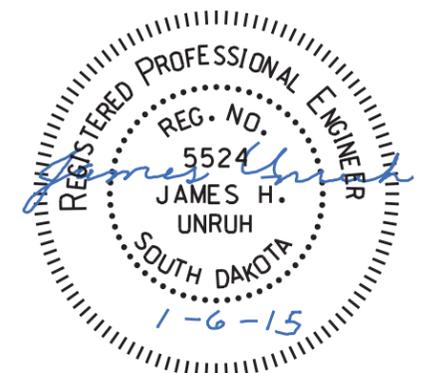
CONTROL DATA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B21	B79

Plotting Date: 12/30/2014

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP1	724+29.00	91.86'L	Chiseled "X" on NW corner of drop inlet. +/-650 Ft South of Madison St and Powder House Rd. West side.	467454.398	2944050.572	1481.01
CP2	735+22.33	347.74'L	Rebar w/Alum cap stamped CP2. In field entrance. +/-440Ft North of Madison St and Powder House Rd. At top of hill in West ROW fence.	468592.893	2944008.108	1495.71
CP3	751+54.93	693.36'L	Rebar w/Alum cap stamped CP3. In field entrance +/-2100Ft North of Madison St and Powder House Rd. At top hill in East ROW fence.	470261.646	2944016.351	1510.44
CP4	785+58.26	336.24'L	Rebar w/Alum cap stamped CP4. In field entrance +/- 1050Ft East of Powder House Rd and Maple St. in South ROW fence.	473450.255	2944858.810	1497.79



The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (NAD 83/96) SF = 0.99986486 Vertical Datum: NAVD 88

EXISTING TOPOGRAPHY SYMBOLOGY AND LEGEND

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

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B23	B79

FILE: B23.dgn
PLOTTING DATE: 03-05-2015

REV DATE: 3-5-2015
INITIAL: JHU



717+82.32-22.95' R to 717+82.32-42.95' R
Remove 18" - 20' RC Pipe for Reset

722+20.34-15.33' R to 722+21.58-33.55' R
Remove 18" - 18' RC Pipe for Reset

723+58 to 724+07.31' R
Take out 18" - 52' CM Pipe
w/ 2 Flared Ends
(Incidental Work, Grading)

725+39, 117' L to 725+49.44' L
Take out 15" - 74' RC Pipe
w/ 2 Flared Ends
(Incidental Work, Grading)

Take Out Concrete Pavement
at the Following Location
(includes Curb & Gutter):
717+07.6 to 725+12.0 L

Take Out Asphalt Concrete
Pavement at the Following
Location:
717+67.6 to 725+12.0 L

Take Out Drop Inlet at
the Following Locations:
717+82 - 58' L
720+00 - 58' L
722+15 - 67' L
724+27 - 90' L

717+82.32-22.95' R to 717+82.32-42.95' R
Reset 18" - 20' RC Pipe
(Between Existing Pipe and New Pipe)

717+82.32-42.95' R to 717+82.34-57.55' R
Install 18" - 14' RC Pipe
(Between Reset Pipe and Drop Inlet)

Hwy 100

720+00.20-9.20' R to 720+00.45-14.33' R
Install 18" - 6' RC Pipe
(Between Existing Pipe and Drop Inlet)

720+00.45-14.33' R to 720+00.86-56.13' R
Install 18" - 40' RC Pipe
(Between Drop Inlets)

722+20.27-14.33' R to 722+21.58-33.55' R
Reset 18" - 18' RC Pipe
(Between Drop Inlet and New Pipe)

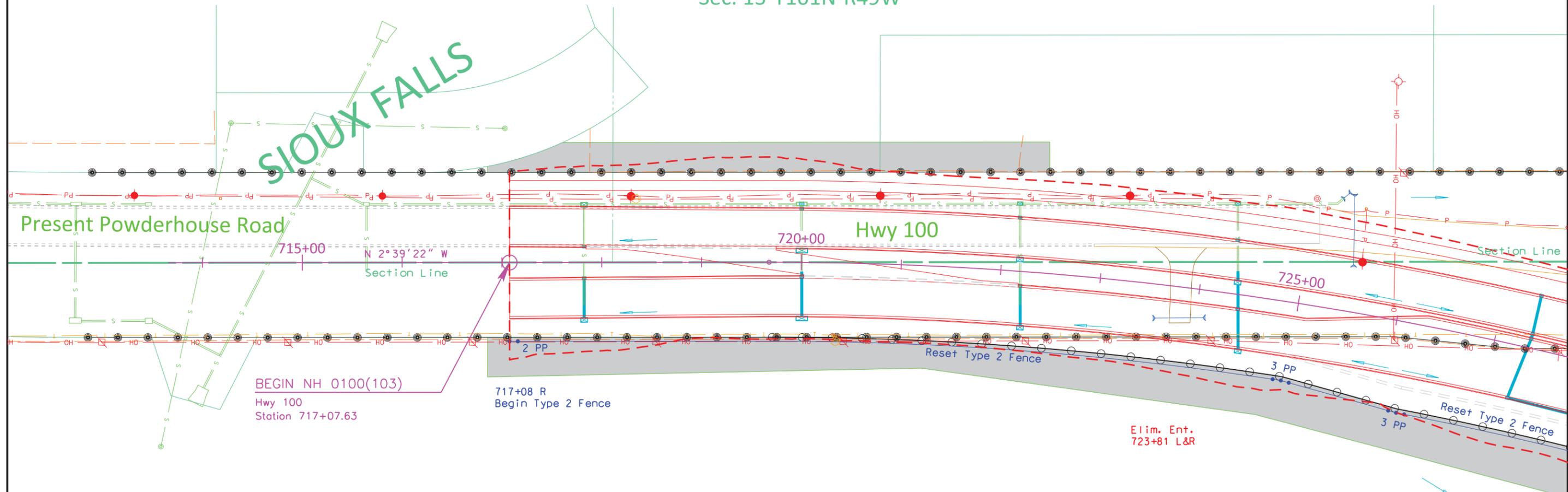
722+21.58-33.55' R to 722+23.37-56.13' R
Install 18" - 22' RC Pipe
(Between Reset Pipe and Drop Inlet)

724+35.88-23.05' L to 724+36.88-11.87' L
Install 18" - 10' RC Pipe
(Between Existing Pipe and Drop Inlet)

724+36.88-11.87' L to 724+40.69-14.33' R
Install 18" - 24' RC Pipe
(Between Drop Inlets)

724+40.69-14.33' R to 724+46.48-56.13' R
Install 18" - 40' RC Pipe
(Between Drop Inlets)

Sec. 13-T101N-R49W



BEGIN NH 0100(103)
Hwy 100
Station 717+07.63

717+08 R
Begin Type 2 Fence

Elim. Ent.
723+81 L&R

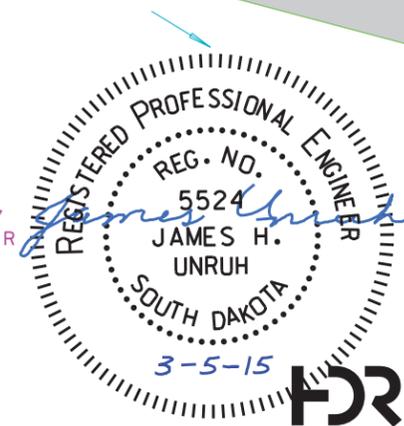
Sec. 18-T101N-R48W

Install 3' x 4' Type C Drop Inlet
and Type C Manhole Frame &
Lid and 6" Concrete Collars
and Connect to Existing Pipes
at the Following Locations:
719+99.80-58.32' L (3x4)
722+14.70-67.30' L (3x4)
724+26.62-89.90' L (3x4)

Install Type S Drop Inlet
with Precast Concrete Type
S Drop Inlet Lid and Type S
Manhole Frame & Lid at the
Following Locations:
717+82.27-57.55' L (4x6) (Connect to Existing Pipes)
717+82.34-57.55' R (4x6)
720+00.35-11.87' L (4x11) (Connect to Existing Pipes)
720+00.86-56.13' R (4x11)
722+18.26-11.87' L (4x6) (Connect to Existing Pipes)
722+23.37-56.13' R (4x6)
724+36.88-11.87' L (4x6)
724+46.48-56.13' R (4x6)

Install 2' x 3' Type B Drop
Inlets, Type B Frame &
Grate and 6" Concrete Collars
at the Following Locations:
717+82.27-15.76' L (Connect to existing pipe)
717+82.32-15.76' R (Connect to existing pipe)
719+99.80-53.67' L (Connect to existing pipe)
720+00.45-14.33' R
722+15.30-53.62' L (Connect to existing pipe)
722+20.27-14.33' R (Connect to existing pipe)
724+31.33-53.67' L (Connect to existing pipe)
724+40.69-14.33' R

PI 724+11.99
N 467429.17
E 2944111.57
Del 14° 53' 31" R
Dc 1° 41' 07"
T 444.35
L 883.70
R 3400.00



Hwy 100 ROW Layout

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B24	B79

FILE: B24 ROW.dgn
PLOTTING DATE: 03-05-2015

REV DATE: 3-5-2015
INITIAL: JHU



SIoux FALLS

Sec. 13-T101N-R49W

Tract 2 (Ex. N1056' E225' & Ex. H-2, H-5, H-6 & Tract A)

Tysdal Developments Inc.
Parcel A15

CPF, LLC
Parcel A16

CPF, LLC

N1056' of the E225' of NE 1/4 of NE 1/4

Present Powderhouse Road

715+00

Section Line

720+00

Hwy 100

725+00

BEGIN NH 0100(103)
Hwy 100
Station 717+07.63

716+85.49
75' & 114.59'

719+67.64
75'

721+24.66
102.57'

719+67.61 R
Begin Control of Access

CPF, LLC
Parcel 83A

724+73.70
116.53'

724+94.91
75'

726+16.78
87'

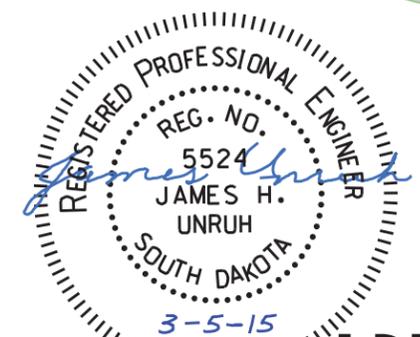
Gov't Lot 2 in NW 1/4

Sec. 18-T101N-R48W

Parcel A15
716+85.50 to 720+74.99 L
Temporary Easement for
Grading Containing
0.2 ac. (10,774 sq ft),
more or less

Parcel A16
720+74.99 to 722+41.06 L
Temporary Easement for
Grading Containing
0.1 ac. (5104 sq ft),
more or less

Parcel 83A
716+85.49 to 731+71.88 R
Temporary Easement for
Grading Containing
1.5 ac. (66,044 sq ft),
more or less



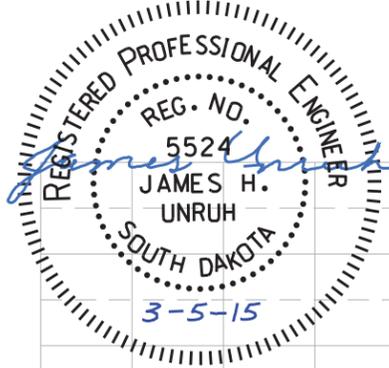
Hwy 100

FOR BIDDING PURPOSES ONLY

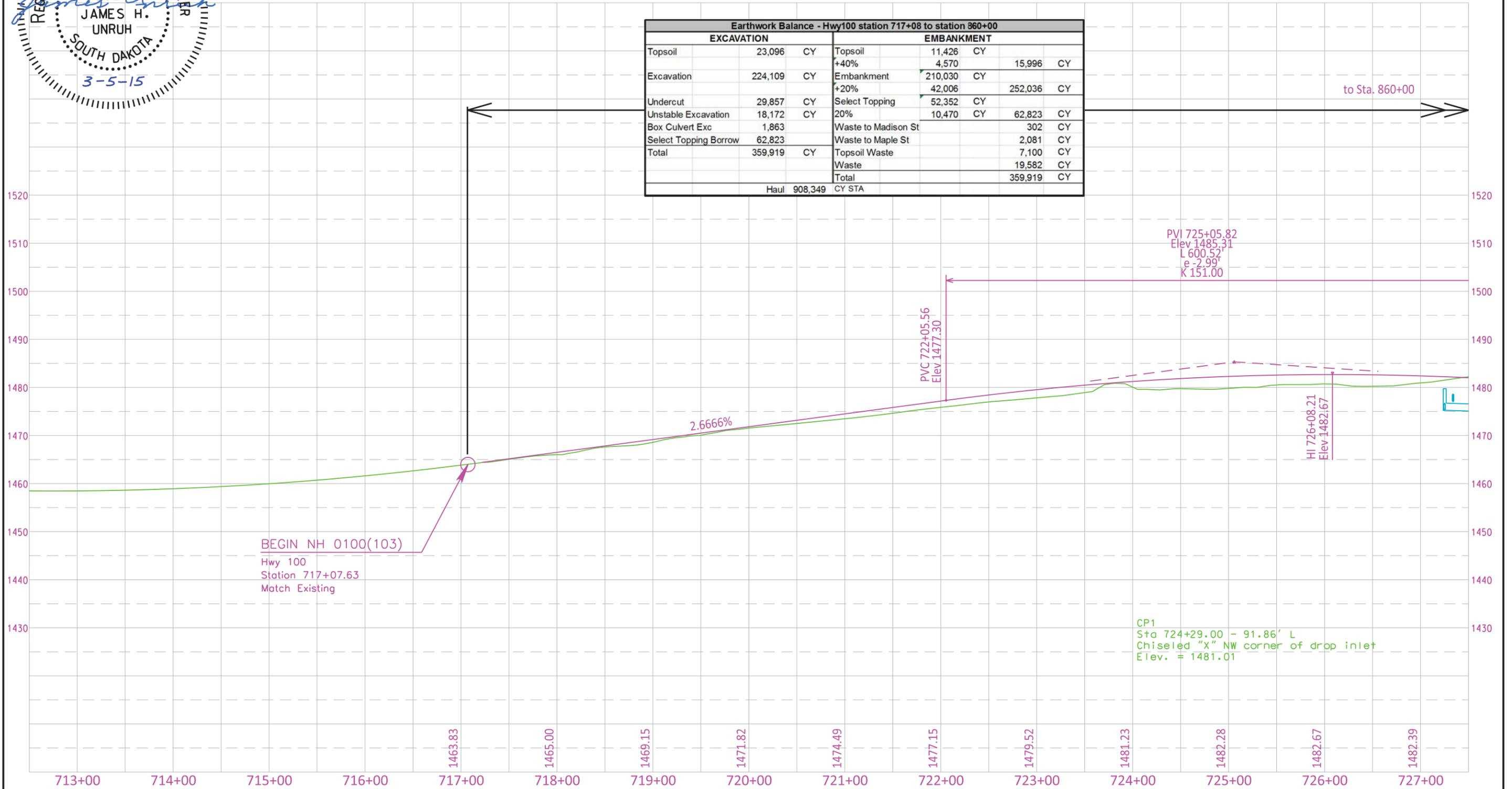
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B25	B79

FILE: B25.dgn
PLOTTING DATE: 03-05-2015

REV DATE: 3-5-2015
INITIAL: JHU



Earthwork Balance - Hwy100 station 717+08 to station 860+00			
EXCAVATION		EMBANKMENT	
Topsoil	23,096 CY	Topsoil	11,426 CY
Excavation	224,109 CY	+40%	4,570 CY
Undercut	29,857 CY	Embarkment	210,030 CY
Unstable Excavation	18,172 CY	+20%	42,006 CY
Box Culvert Exc	1,863	Select Topping	52,352 CY
Select Topping Borrow	62,823	20%	10,470 CY
Total	359,919 CY	Waste to Madison St	302 CY
		Waste to Maple St	2,081 CY
		Topsoil Waste	7,100 CY
		Waste	19,582 CY
		Total	359,919 CY
Haul	908,349 CY STA		



727+35.84-53.67' L to 727+35.84-14.33' L
Install 18"- 38' RC Pipe
(Between Drop Inlets)

727+35.84-14.33' L to 727+35.29-9.67' L
Install 18"- 4' RC Pipe
(Between Drop Inlets)

727+35.29-9.67' L to 727+25.17-53.67' R
Install 18"- 64' RC Pipe
(Between Drop Inlets)

727+25.17-53.67' R to 729+35.01-53.67' R
Install 18"- 206' RC Pipe
(Between Drop Inlets)

PI 724+11.99
N 467429.17
E 2944111.57
Del 14°53'31" R
Dc 1°41'07" R
T 444.35
L 883.70
R 3400.00

Hwy 100

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B26	B79

FILE: B26.dgn
PLOTTING DATE: 03-05-2015

REV DATE: 3-5-2015
INITIAL: JHU



731+40.80-42.72' R to 731+61.64-108.52' R
Install 36"- 64' RC Pipe
(Between Junction Boxes)

731+61.64-108.52' R to 732+23.15-115.62' R
Install 42"- 52' RC Pipe
and 1 Flared End
(Between Junction Box and End Outlet)

730+75-102.2' L to 730+84.13-97.60' L
Install 36"- 8' RC Pipe
(Between End Inlet to Junction Box)

730+84.13-97.60' L to 731+02.6-73.6' L
Install 36"- 28' RC Pipe
(Between JB and Bends)

731+05-70' L
Install 2-7.5° 36" RC Pipe
Long Radius Bends

731+06.2-66.5' L to 731+40.80-42.72' R
Install 36"- 112' RC Pipe
(Between Bends and JB)

731+40.80-42.72' R to 731+06.22-53.67' R
Install 18"- 34' RC Pipe
(Between Drop Inlet and Junction Box)

729+35.01-14.33' L to 729+35.01-9.67' L
Install 18"- 4' RC Pipe
(Between Drop Inlets)

729+35.01-9.67' L to 729+35.01-53.67' R
Install 18"- 62' RC Pipe
(Between Drop Inlets)

729+35.01-53.67' R to 731+06.22-53.67' R
Install 18"- 170' RC Pipe
(Between Drop Inlets)

730+37.24-53.67' L to 731+06.22-53.67' R
Install 18"- 126' RC Pipe
(Between Drop Inlets)

Present Powderhouse Road

Install 2' x 3' Type B Drop Inlets, Type B Frame & Grate and 6" Concrete Collars at the Following Locations:

727+35.84-53.67' L	730+33.24-53.67' L
727+35.84-14.33' L	730+37.24-53.67' L
727+35.29-9.67' L	731+06.22-53.67' R
727+25.17-53.67' R	733+26.86-9.67' R
729+31.01-14.33' L	733+26.13-14.33' R
729+35.01-14.33' L	736+79.42-53.67' L
729+35.01-9.67' L	736+83.29-53.67' L
729+35.01-53.67' R	736+79.42-9.67' R
	726+79.42-14.33' R
	736+79.42-53.67' R

731+80.75-91.79' L to 732+26.29-102.95' R
Install 60"- 200' RC Arch Pipe
with 2 Flared Ends (D.A. = 11 Acres)
(Between End Inlet and End Outlet)

732+18.88-71.49' R to 732+34.65-112.63' R
Install 30"- 94' RC Pipe
with 1 Flared End
(Between End Outlet and Drop Inlet)

733+45.00-56.13' L to 733+26.86-9.67' R
Install 18"- 66' RC Pipe
(Between Drop Inlets)

733+26.86-9.67' R to 733+26.13-14.33' R
Install 18"- 4' RC Pipe
(Between Drop Inlets)

733+26.13-14.33' R to 733+15.43-53.67' R
Install 24"- 40' RC Pipe
(Between Drop Inlets)

733+20.43-53.67' R to 736+79.42-53.67' R
Install 24"- 356' RC Pipe
(Between Drop Inlets)

736+79.42-53.67' L to 736+79.42-9.67' R
Install 18"- 62' RC Pipe
(Between Drop Inlets)

Install Class B Rip-Rap
and Type B Drainage Fabric
at the following locations:

731+76-114' L
(30' x 18' x 3')
(126 Ton Rip-Rap)
(92 SqYd Drainage Fabric)

732+32-125' R
(30' x 18' x 3')
(126 Ton Rip-Rap)
(92 SqYd Drainage Fabric)

736+79.42-9.67' R to 736+79.42-14.33' R
Install 18"- 4' RC Pipe
(Between Drop Inlets)

736+79.42-14.33' R to 736+79.42-53.67' R
Install 18"- 38' RC Pipe
(Between Drop Inlets)

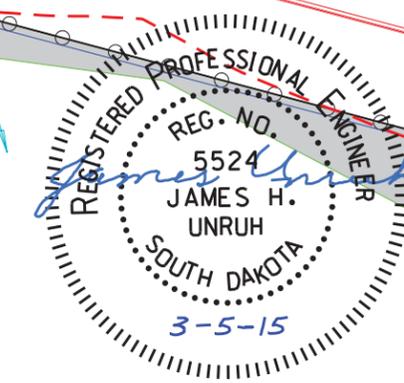
Install Type S Drop Inlet
with Precast Concrete Type
S Drop Inlet Lid and Type S
Manhole Frame & Lid at the
Following Location:

733+45.00-56.13' L (4x6)

Install 5' x 5' Junction Box and
Type A10 Manhole Frame and
Lid at the Following Locations:

730+84.13-97.60' L
731+40.80-42.72' R
731+61.64-108.52' R

Install 4' x 4' Type B Drop
Inlets, Type B Frame &
Grate and 6" Concrete Collars
at the Following Locations:
733+15.43-53.67' R
733+20.43-53.67' R



Hwy 100 ROW Layout

FOR BIDDING PURPOSES ONLY

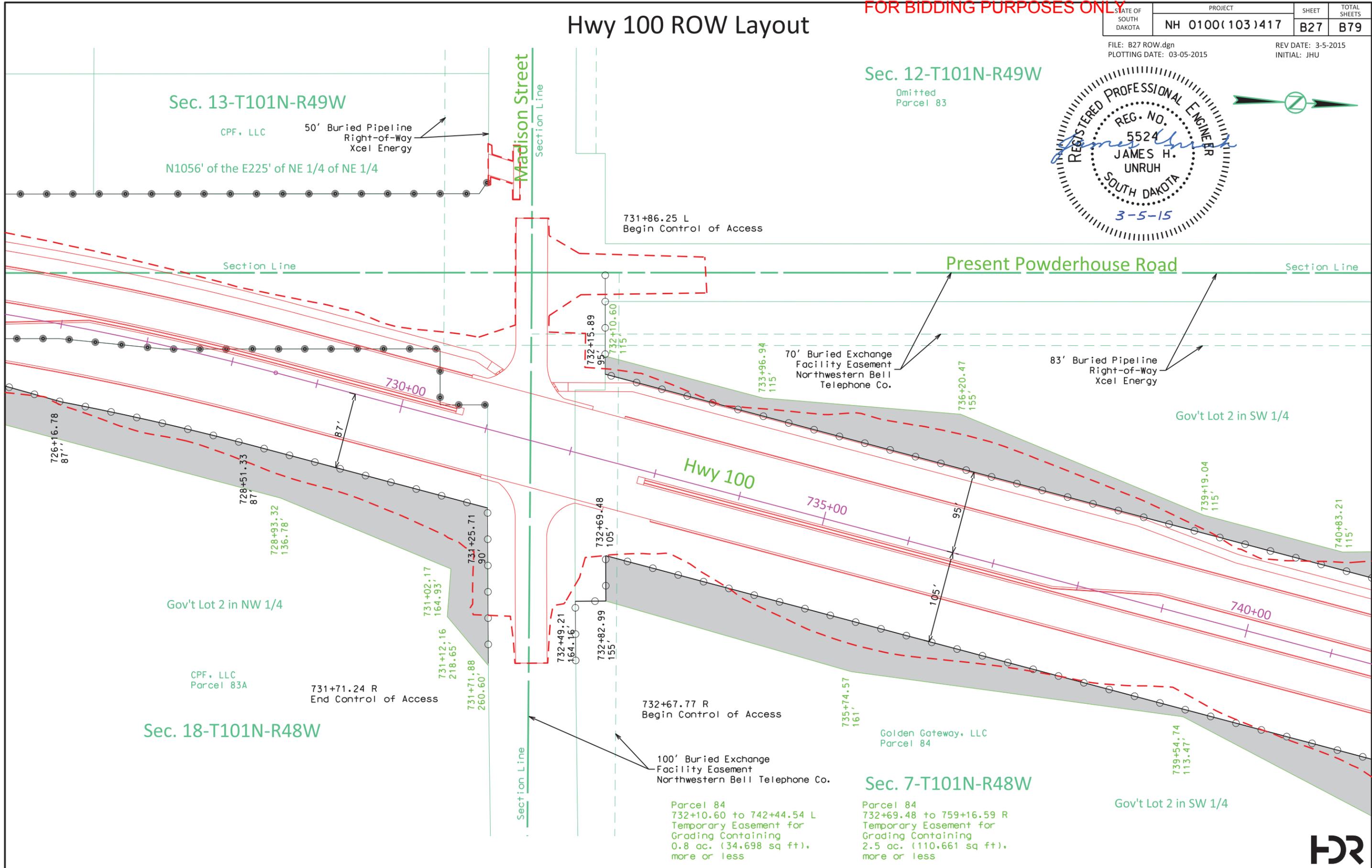
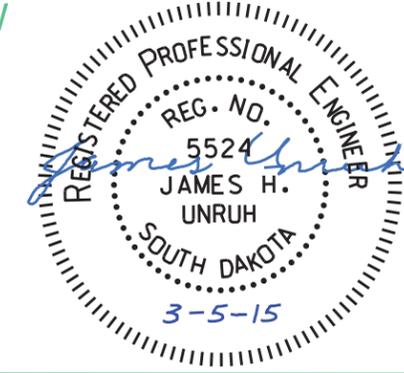
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B27	B79

FILE: B27 ROW.dgn
PLOT DATE: 03-05-2015

REV DATE: 3-5-2015
INITIAL: JHU

Sec. 12-T101N-R49W

Omitted Parcel 83



Sec. 13-T101N-R49W

CPF, LLC

50' Buried Pipeline Right-of-Way Xcel Energy

N1056' of the E225' of NE 1/4 of NE 1/4

Madison Street
Section Line

731+86.25 L
Begin Control of Access

Present Powderhouse Road
Section Line

70' Buried Exchange Facility Easement Northwestern Bell Telephone Co.

83' Buried Pipeline Right-of-Way Xcel Energy

Gov't Lot 2 in SW 1/4

Hwy 100

Gov't Lot 2 in NW 1/4

CPF, LLC
Parcel 83A

731+71.24 R
End Control of Access

Sec. 18-T101N-R48W

732+67.77 R
Begin Control of Access

100' Buried Exchange Facility Easement Northwestern Bell Telephone Co.

Golden Gateway, LLC
Parcel 84

Sec. 7-T101N-R48W

Gov't Lot 2 in SW 1/4

Parcel 84
732+10.60 to 742+44.54 L
Temporary Easement for Grading Containing 0.8 ac. (34,698 sq ft), more or less

Parcel 84
732+69.48 to 759+16.59 R
Temporary Easement for Grading Containing 2.5 ac. (110,661 sq ft), more or less



Hwy 100

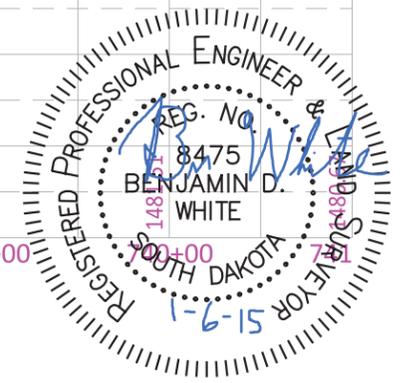
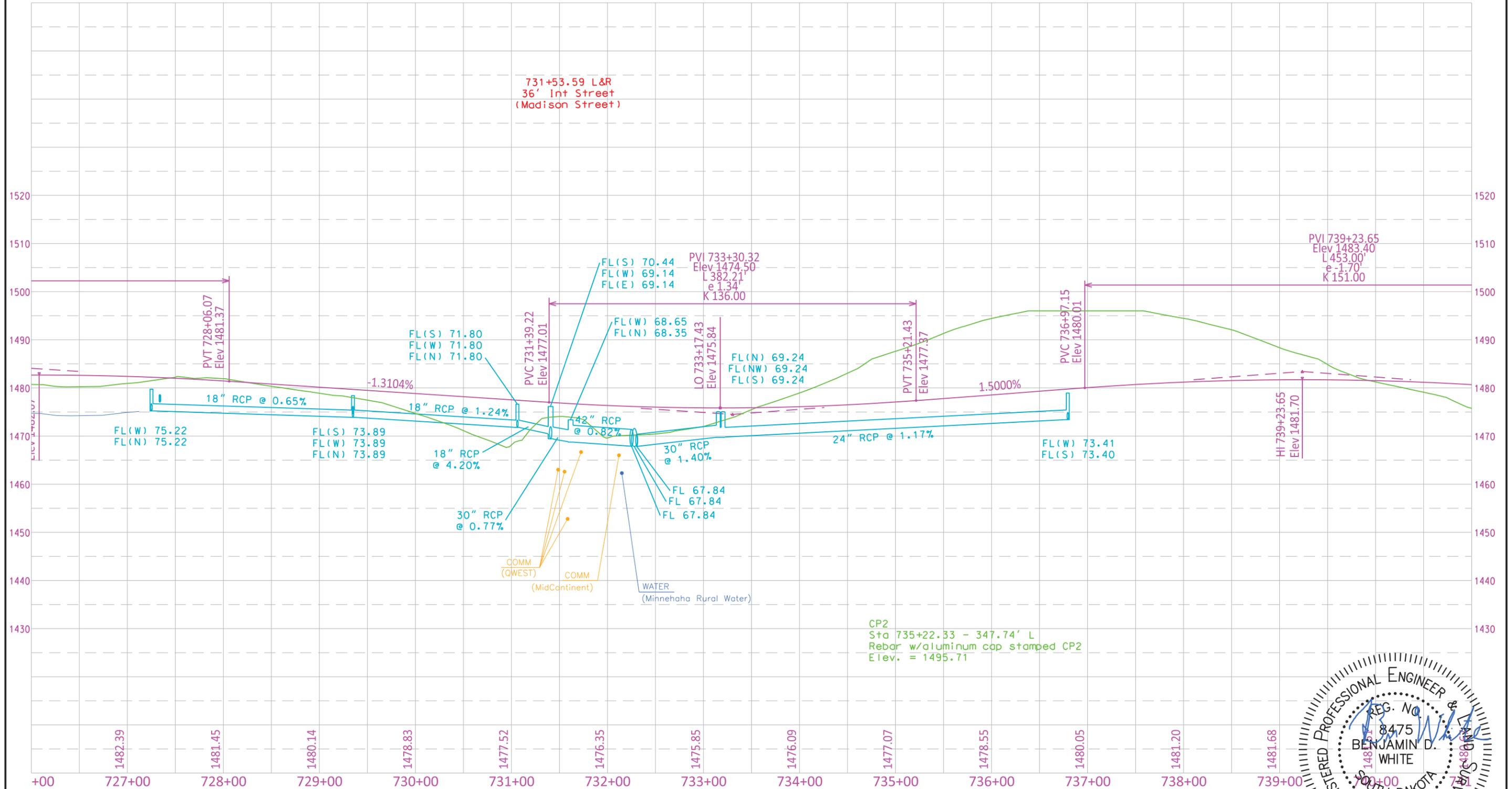
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B28	B79

FILE: B28.dgn
PLOTTING DATE: 12-31-2014

REV DATE:
INITIAL:

731+53.59 L&R
36' Int Street
(Madison Street)



FOR BIDDING PURPOSES ONLY

Hwy 100

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B29	B79

FILE: B29.dgn
PLOTTING DATE: 01-02-2015

REV DATE:
INITIAL:



742+45.29-53.67' L to 742+45.29-14.33' L
Install 18"- 38' RC Pipe
(Between Drop Inlets)

742+45.29-14.33' L to 742+45.29-14.33' R
Install 18"- 28' RC Pipe
(Between Drop Inlets)

742+45.29-14.33' R to 742+45.29-53.67' R
Install 18"- 38' RC Pipe
(Between Drop Inlets)

742+45.29-53.67' L to 743+79.46-56.13' L
Install 18"- 130' RC Pipe
(Between Drop Inlets)

742+91.01
Alternate A
Install 12'x5' Box Culvert (C.I.P.)
Alternate B
Install 12'x5' Box Culvert (Precast)
(D.A. = 108 Acres)
See Section E

743+79.46-56.13' L to 743+79.46-56.13' R
Install 18"- 110' RC Pipe
(Between Drop Inlets)

743+79.46-56.13' R to 743+79.46-128.74' R
Install 18"- 70' RC Pipe
(Between Drop Inlet and Junction Box)

743+79.46-128.74' R to 744+90.76-147.26' R
Install 24"- 108' RC Pipe
(Between Junction Boxes)

744+90.76-147.26' R to 747+38.09-107.91' R
Install 24"- 246' RC Pipe
(Between Junction Boxes)

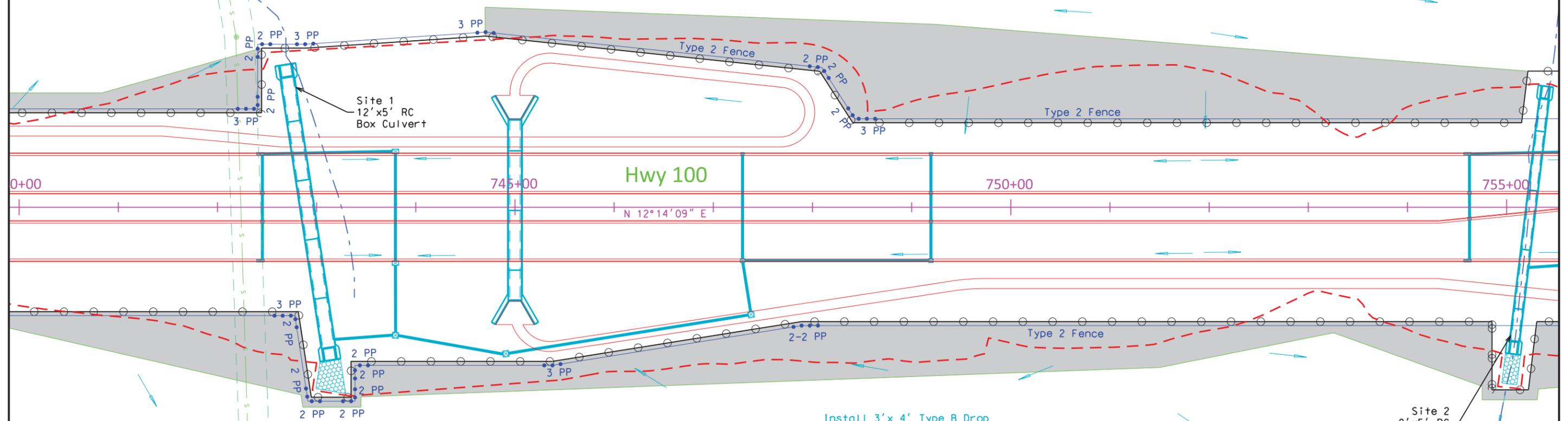
743+79.46-128.74' R to 743+17.61-132.95' R
Install 24"- 60' RC Pipe
(Between Junction Box and Box Culvert)

745+00.00
Install 12'x10' Box Culvert (C.I.P.)
See Section E

747+29.46-53.67' L to 747+29.46-53.67' R
Install 18"- 106' RC Pipe
(Between Drop Inlets)

747+29.46-53.67' R to 747+38.09-107.91' R
Install 24"- 52' RC Pipe
(Between Drop Inlet and Junction Box)

Sec. 7-T101N-R48W



Install 3'x 4' Type B Drop
Inlets, Type B Frame &
Grate and 6" Concrete Collars
at the Following Locations:
747+29.46-53.67' R
749+19.46-53.67' R

747+29.46-53.67' R to 749+19.46-53.67' R
Install 24"- 186' RC Pipe
(Between Drop Inlets)

749+19.46-53.67' L to 749+19.46-14.33' L
Install 18"- 38' RC Pipe
(Between Drop Inlets)

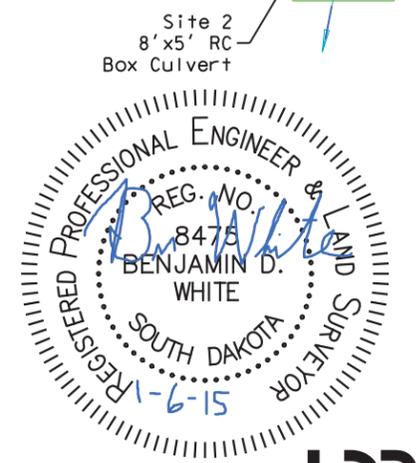
749+19.46-14.33' L to 749+19.46-14.33' R
Install 18"- 28' RC Pipe
(Between Drop Inlets)

749+19.46-14.33' R to 749+19.46-53.67' R
Install 18"- 38' RC Pipe
(Between Drop Inlets)

Install 2'x 3' Type B Drop
Inlets, Type B Frame &
Grate and 6" Concrete Collars
at the Following Locations:
742+41.29-53.67' L
742+45.29-53.67' L
742+45.29-14.33' L
742+45.29-14.33' R
742+41.29-53.67' R
742+45.29-53.67' R
747+29.46-53.67' L
749+19.46-53.67' L
749+19.46-14.33' L
749+19.46-14.33' R

Install Type S Drop Inlet
with Precast Concrete Type
S Drop Inlet Lid and Type S
Manhole Frame & Lid at the
Following Location:
743+79.46-56.13' L (4x6)
743+79.46-56.13' R (4x6)

Install 5'x 5' Junction Box and
Type A10 Manhole Frame and
Lid at the Following Locations:
743+79.46-128.74' R
744+90.76-147.26' R
747+38.09-107.91' R



Hwy 100 ROW Layout

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B30	B79

FILE: B30 ROW.dgn
PLOTTING DATE: 01-19-2015

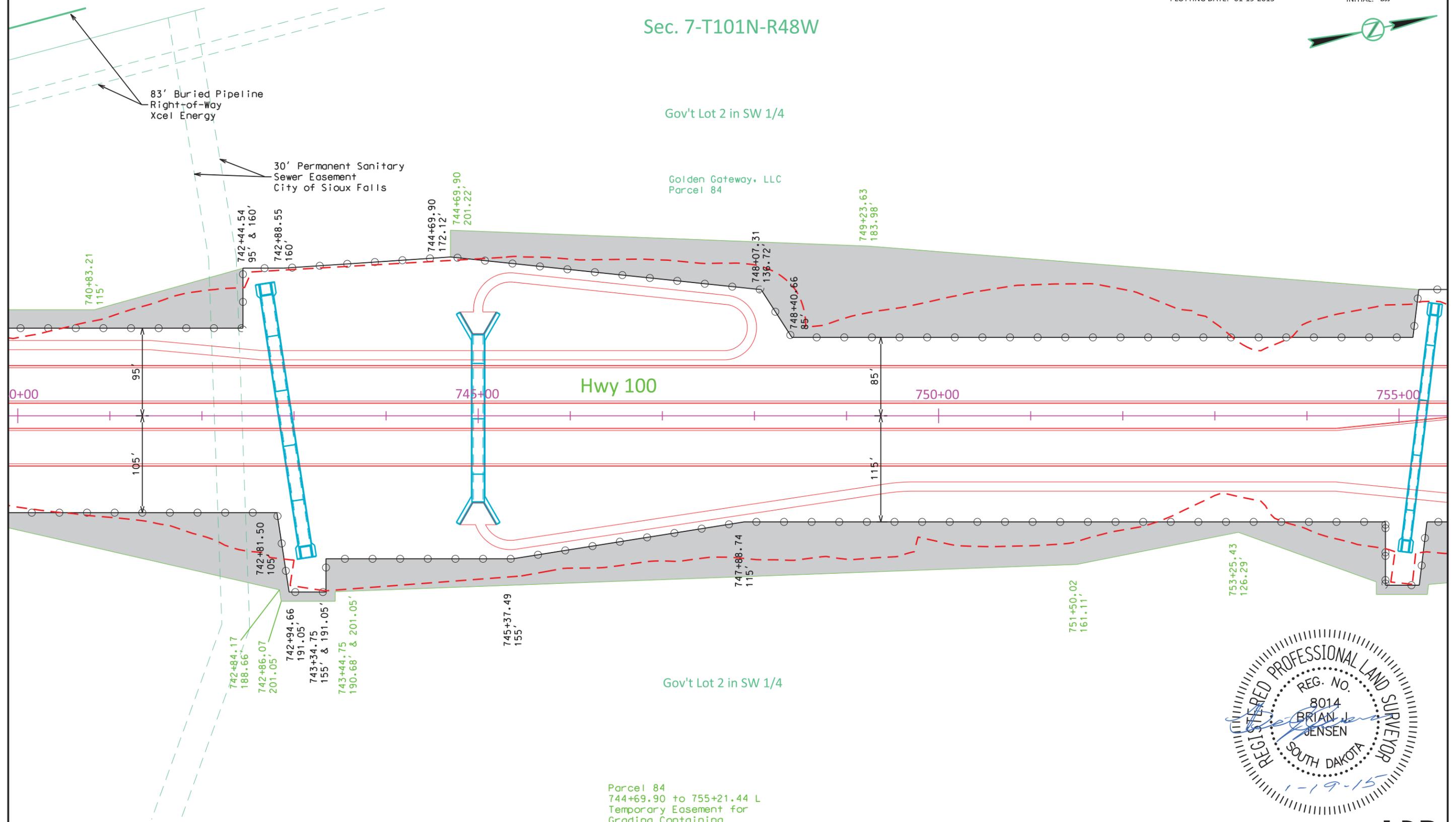
REV DATE: 1-19-2015
INITIAL: BJJ



Sec. 7-T101N-R48W

Gov't Lot 2 in SW 1/4

Golden Gateway, LLC
Parcel 84



Parcel 84
744+69.90 to 755+21.44 L
Temporary Easement for
Grading Containing
1.6 ac. (69,479 sq ft),
more or less



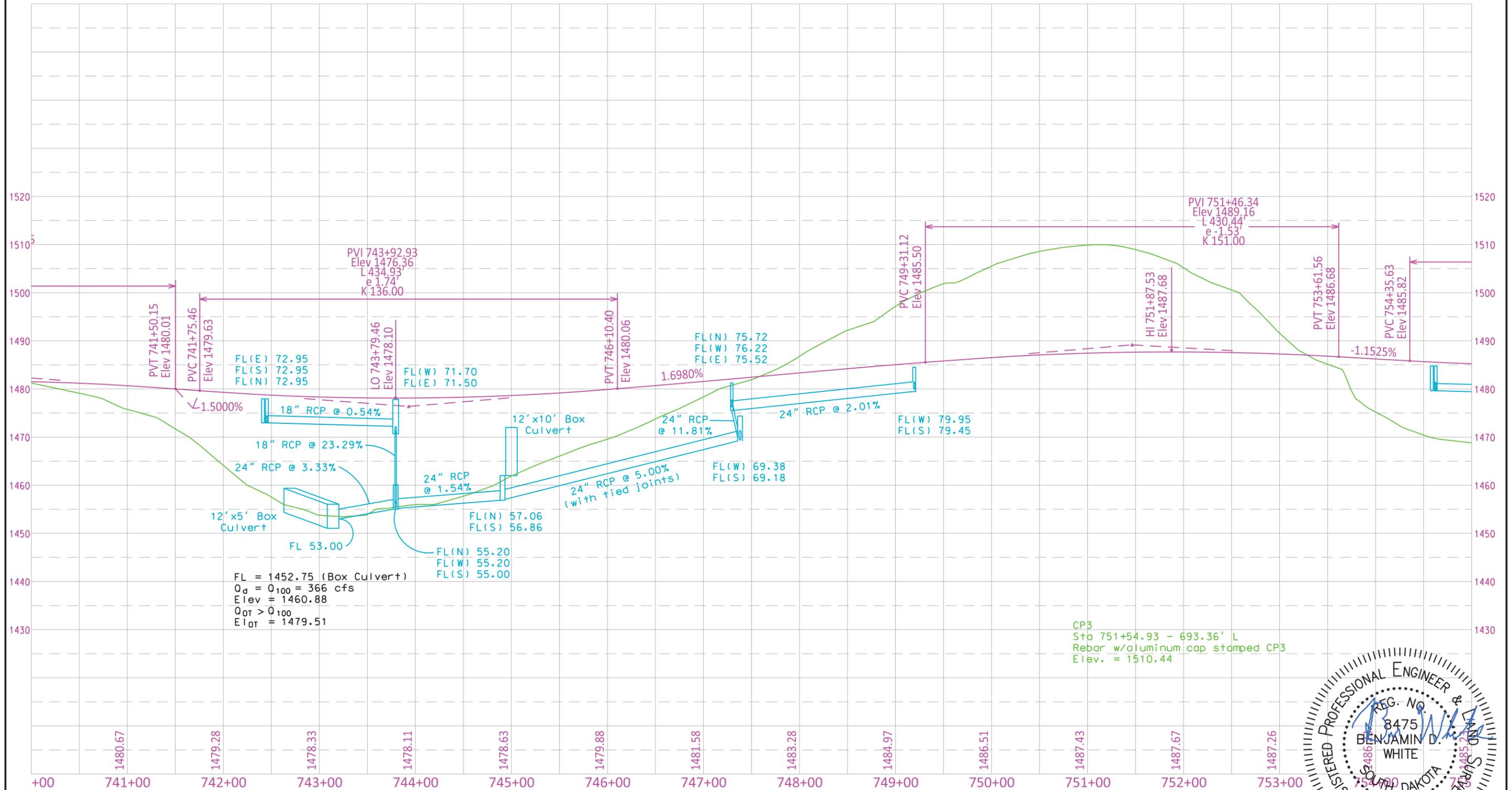
Hwy 100

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B31	B79

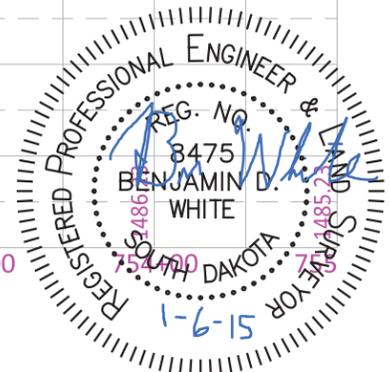
FILE: B31.dgn
PLOT DATE: 12-31-2014

REV DATE:
INITIAL:



FL = 1452.75 (Box Culvert)
 $Q_d = Q_{100} = 366$ cfs
 Elev = 1460.88
 $Q_{OT} > Q_{100}$
 Elev = 1479.51

CP3
 Sta 751+54.93 - 693.36' L
 Rebar w/aluminum cap stamped CP3
 Elev. = 1510.44



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0100(103)417	SHEET B32	TOTAL SHEETS B79
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FILE: B32.dgn
PLOTTING DATE: 12-31-2014

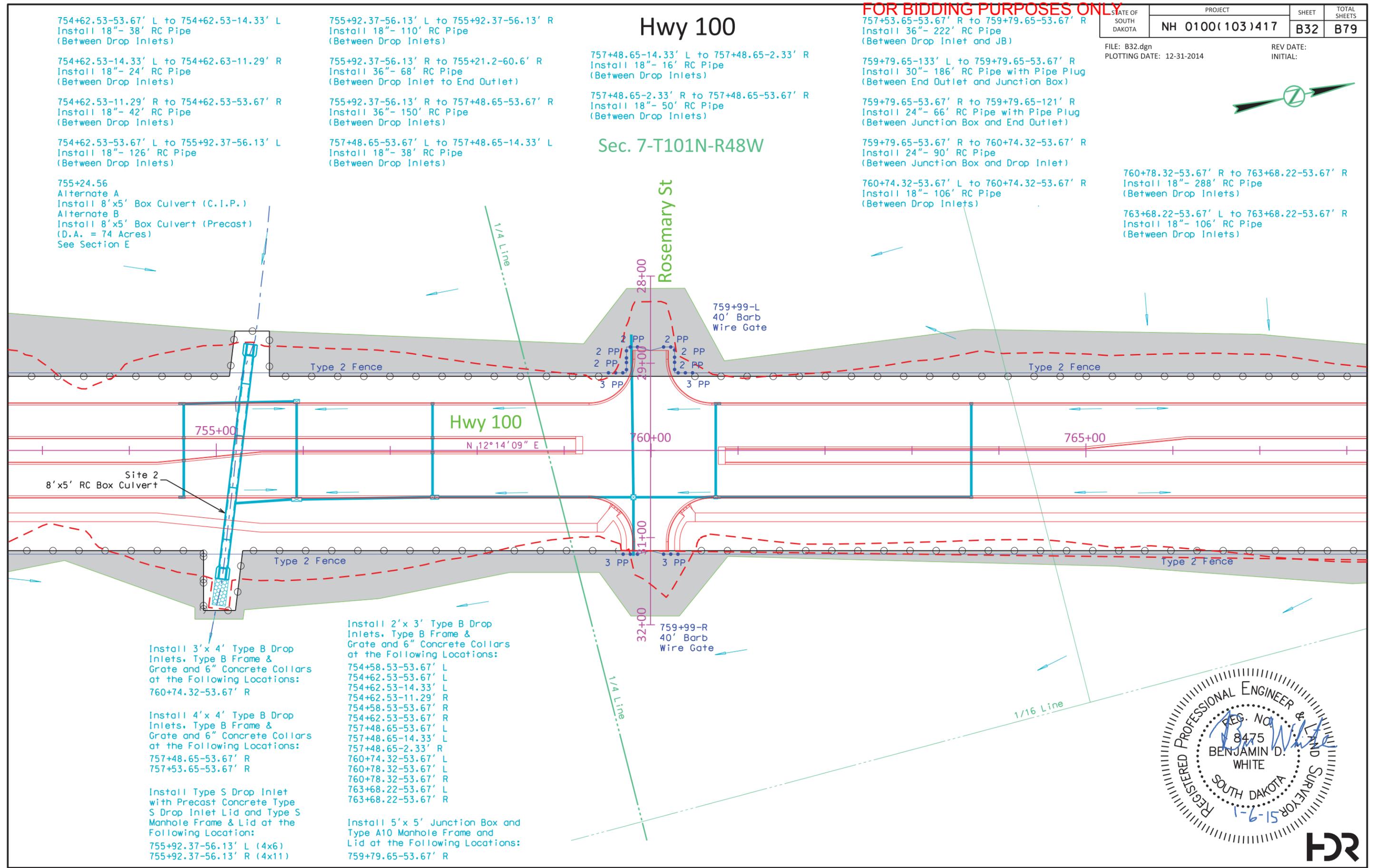
REV DATE:
INITIAL:



Hwy 100

Sec. 7-T101N-R48W

Rosemary St



754+62.53-53.67' L to 754+62.53-14.33' L
Install 18"- 38' RC Pipe
(Between Drop Inlets)

754+62.53-14.33' L to 754+62.63-11.29' R
Install 18"- 24' RC Pipe
(Between Drop Inlets)

754+62.53-11.29' R to 754+62.53-53.67' R
Install 18"- 42' RC Pipe
(Between Drop Inlets)

754+62.53-53.67' L to 755+92.37-56.13' L
Install 18"- 126' RC Pipe
(Between Drop Inlets)

755+92.37-56.13' L to 755+92.37-56.13' R
Install 18"- 110' RC Pipe
(Between Drop Inlets)

755+92.37-56.13' R to 755+21.2-60.6' R
Install 36"- 68' RC Pipe
(Between Drop Inlet to End Outlet)

755+92.37-56.13' R to 757+48.65-53.67' R
Install 36"- 150' RC Pipe
(Between Drop Inlets)

757+48.65-53.67' L to 757+48.65-14.33' L
Install 18"- 38' RC Pipe
(Between Drop Inlets)

757+48.65-14.33' L to 757+48.65-2.33' R
Install 18"- 16' RC Pipe
(Between Drop Inlets)

757+48.65-2.33' R to 757+48.65-53.67' R
Install 18"- 50' RC Pipe
(Between Drop Inlets)

757+53.65-53.67' R to 759+79.65-53.67' R
Install 36"- 222' RC Pipe
(Between Drop Inlet and JB)

759+79.65-133' L to 759+79.65-53.67' R
Install 30"- 186' RC Pipe with Pipe Plug
(Between End Outlet and Junction Box)

759+79.65-53.67' R to 759+79.65-121' R
Install 24"- 66' RC Pipe with Pipe Plug
(Between Junction Box and End Outlet)

759+79.65-53.67' R to 760+74.32-53.67' R
Install 24"- 90' RC Pipe
(Between Junction Box and Drop Inlet)

760+74.32-53.67' L to 760+74.32-53.67' R
Install 18"- 106' RC Pipe
(Between Drop Inlets)

760+78.32-53.67' R to 763+68.22-53.67' R
Install 18"- 288' RC Pipe
(Between Drop Inlets)

763+68.22-53.67' L to 763+68.22-53.67' R
Install 18"- 106' RC Pipe
(Between Drop Inlets)

755+24.56
Alternate A
Install 8'x5' Box Culvert (C.I.P.)
Alternate B
Install 8'x5' Box Culvert (Precast)
(D.A. = 74 Acres)
See Section E

Install 3'x 4' Type B Drop Inlets, Type B Frame & Grate and 6" Concrete Collars at the Following Locations:
760+74.32-53.67' R

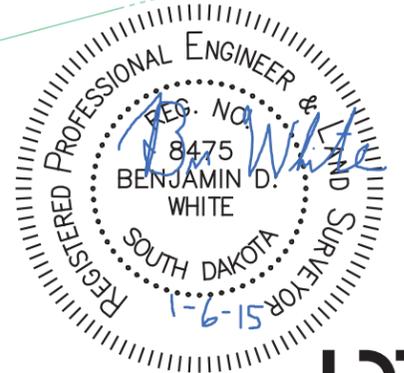
Install 4'x 4' Type B Drop Inlets, Type B Frame & Grate and 6" Concrete Collars at the Following Locations:
757+48.65-53.67' R
757+53.65-53.67' R

Install Type S Drop Inlet with Precast Concrete Type S Drop Inlet Lid and Type S Manhole Frame & Lid at the Following Location:
755+92.37-56.13' L (4x6)
755+92.37-56.13' R (4x11)

Install 2'x 3' Type B Drop Inlets, Type B Frame & Grate and 6" Concrete Collars at the Following Locations:

- 754+58.53-53.67' L
- 754+62.53-53.67' L
- 754+62.53-14.33' L
- 754+62.53-11.29' R
- 754+58.53-53.67' R
- 754+62.53-53.67' R
- 757+48.65-53.67' L
- 757+48.65-14.33' L
- 757+48.65-2.33' R
- 760+74.32-53.67' L
- 760+78.32-53.67' L
- 760+78.32-53.67' R
- 763+68.22-53.67' L
- 763+68.22-53.67' R

Install 5'x 5' Junction Box and Type A10 Manhole Frame and Lid at the Following Locations:
759+79.65-53.67' R

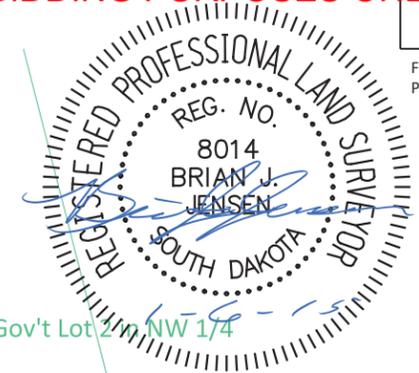


Hwy 100 ROW Layout

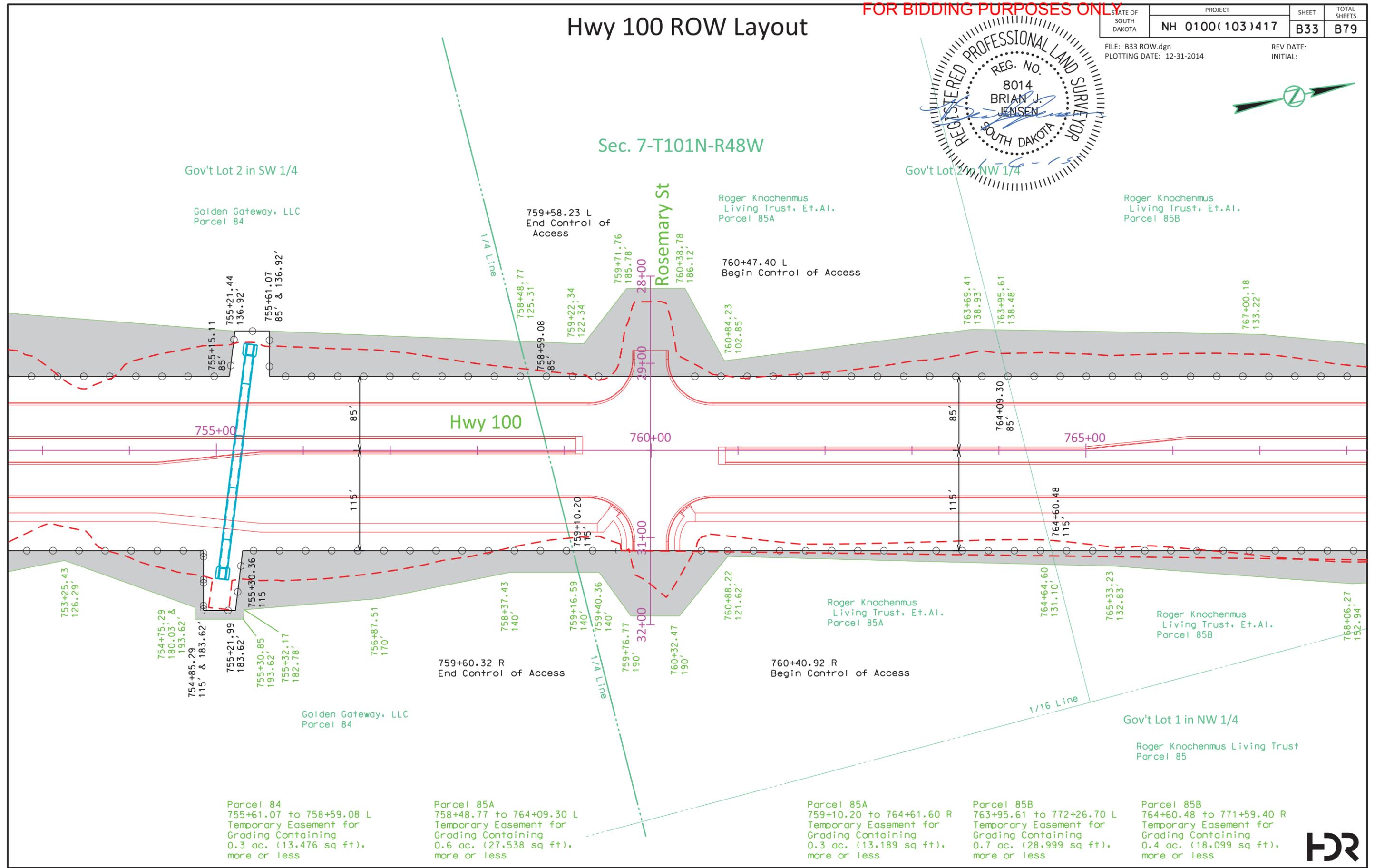
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0100(103)417	SHEET B33	TOTAL SHEETS B79
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FILE: B33 ROW.dgn PLOTTING DATE: 12-31-2014
REV DATE: INITIAL:



Sec. 7-T101N-R48W



Parcel 84
755+61.07 to 758+59.08 L
Temporary Easement for
Grading Containing
0.3 ac. (13,476 sq ft),
more or less

Parcel 85A
758+48.77 to 764+09.30 L
Temporary Easement for
Grading Containing
0.6 ac. (27,538 sq ft),
more or less

Parcel 85A
759+10.20 to 764+61.60 R
Temporary Easement for
Grading Containing
0.3 ac. (13,189 sq ft),
more or less

Parcel 85B
763+95.61 to 772+26.70 L
Temporary Easement for
Grading Containing
0.7 ac. (28,999 sq ft),
more or less

Parcel 85B
764+60.48 to 771+59.40 R
Temporary Easement for
Grading Containing
0.4 ac. (18,099 sq ft),
more or less



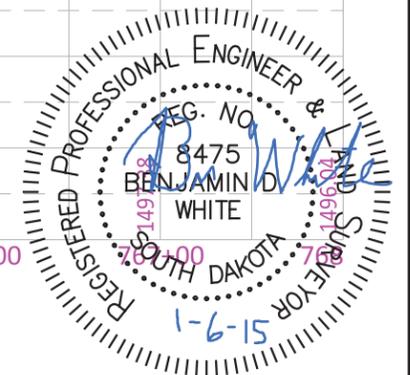
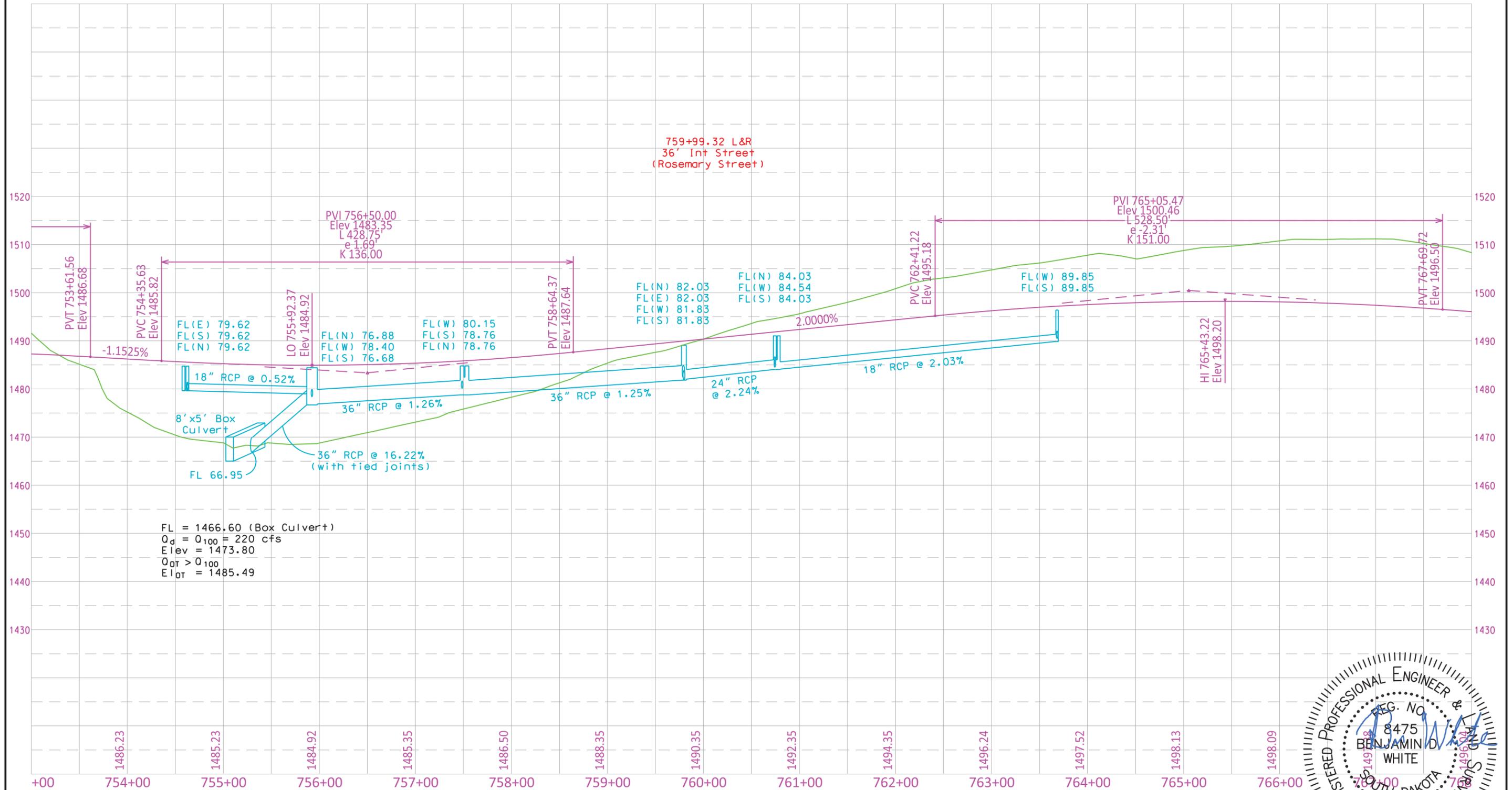
Hwy 100

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B34	B79

FILE: B34.dgn
PLOTTING DATE: 12-31-2014

REV DATE:
INITIAL:



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B35	B79

FILE: B35.dgn
PLOTTING DATE: 01-19-2015

REV DATE: 1-19-2015
INITIAL: BDW



Hwy 100

Sec. 7-T101N-R48W

768+70.00-53.67' L to 768+70.00-14.33' L
Install 18"- 38' RC Pipe
(Between Drop Inlets)

768+70.00-14.33' L to 768+70.00-14.33' R
Install 18"- 28' RC Pipe
(Between Drop Inlets)

768+70.00-14.33' R to 768+70.00-53.67' R
Install 18"- 38' RC Pipe
(Between Drop Inlets)

768+70.00-53.67' R to 771+61.31-53.67' R
Install 24"- 288' RC Pipe
(Between Drop Inlets)

771+61.31-53.67' L to 771+61.31-14.33' L
Install 18"- 38' RC Pipe
(Between Drop Inlets)

771+61.31-14.33' L to 771+61.31-14.33' R
Install 18"- 28' RC Pipe
(Between Drop Inlets)

771+61.31-14.33' R to 771+61.31-53.67' R
Install 18"- 38' RC Pipe
(Between Drop Inlets)

771+61.31-53.67' R to 773+50.51-53.03' R
Install 24"- 188' RC Pipe
(Between Drop Inlet and Box Culvert)

773+18.76-91.29' L to 773+66.50-118.38' R
Install 60"- 216' RC Pipe
with 2 Flared Ends (D.A. = 26 Acres)
(Between End Inlet and End Outlet)

775+11.42-53.67' L to 775+11.42-14.33' L
Install 18"- 38' RC Pipe
(Between Drop Inlets)

775+11.42-14.33' L to 775+11.42-14.33' R
Install 18"- 28' RC Pipe
(Between Drop Inlets)

775+11.42-14.33' R to 775+11.42-53.67' R
Install 18"- 38' RC Pipe
(Between Drop Inlets)

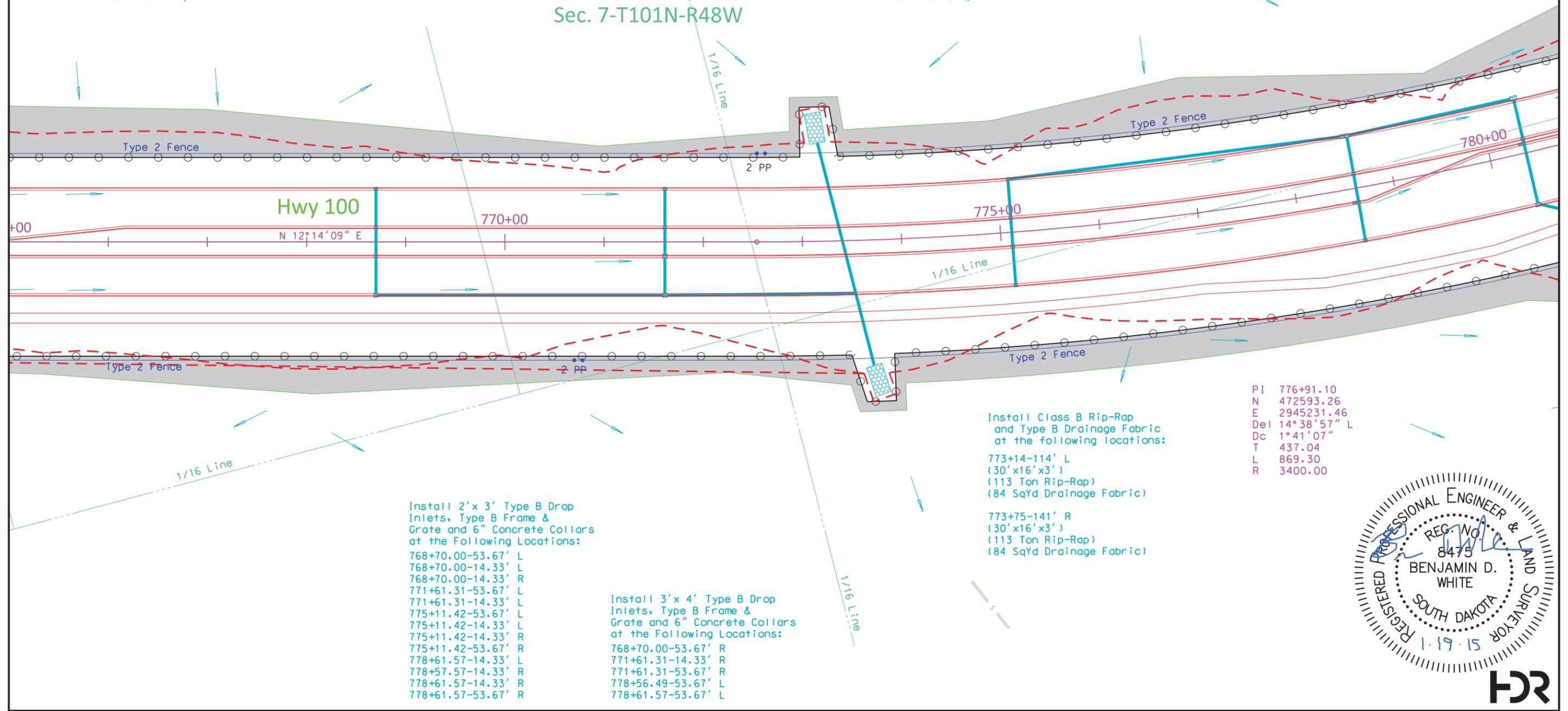
775+11.42-53.67' L to 778+56.49-53.67' L
Install 18"- 336' RC Pipe
(Between Drop Inlets)

778+61.57-53.67' L to 778+61.57-14.33' L
Install 18"- 38' RC Pipe
(Between Drop Inlets)

778+61.57-14.33' L to 778+61.57-14.33' R
Install 18"- 28' RC Pipe
(Between Drop Inlets)

778+61.57-14.33' R to 778+61.57-53.67' R
Install 18"- 38' RC Pipe
(Between Drop Inlets)

778+61.57-53.67' L to 780+36.65-56.13' L
Install 24"- 168' RC Pipe
(Between Drop Inlets)



Install 2'x 3' Type B Drop Inlets, Type B Frame & Grate and 6" Concrete Collars at the Following Locations:

768+70.00-53.67' L
768+70.00-14.33' L
768+70.00-14.33' R
771+61.31-53.67' L
771+61.31-14.33' L
775+11.42-53.67' L
775+11.42-14.33' L
775+11.42-14.33' R
775+11.42-53.67' R
778+61.57-14.33' L
778+61.57-14.33' R
778+61.57-14.33' R
778+61.57-53.67' R

Install 3'x 4' Type B Drop Inlets, Type B Frame & Grate and 6" Concrete Collars at the Following Locations:

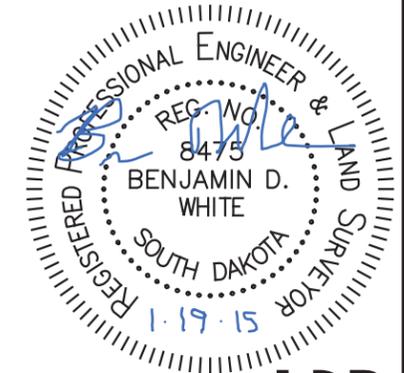
768+70.00-53.67' R
771+61.31-14.33' R
771+61.31-53.67' R
778+56.49-53.67' L
778+61.57-53.67' L

Install Class B Rip-Rap and Type B Drainage Fabric at the following locations:

773+14-114' L
(30'x16'x3')
(113 Ton Rip-Rap)
(84 SqYd Drainage Fabric)

773+75-141' R
(30'x16'x3')
(113 Ton Rip-Rap)
(84 SqYd Drainage Fabric)

PI 776+91.10
N 472593.26
E 2945231.46
Del 14° 38' 57" L
Dc 1° 41' 07" L
T 437.04
L 869.30
R 3400.00



Hwy 100 ROW Layout

FOR BIDDING PURPOSES ONLY

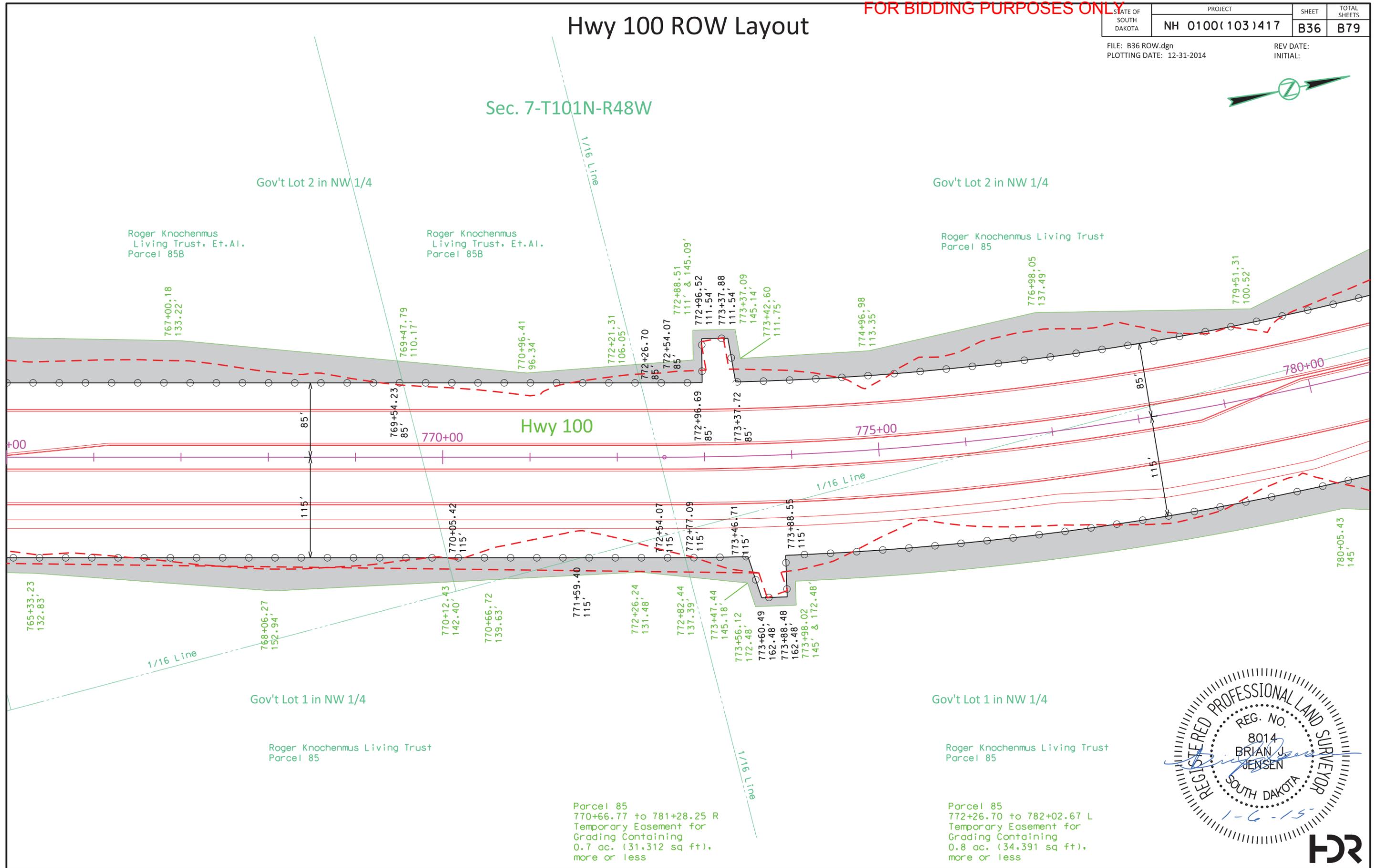
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B36	B79

FILE: B36 ROW.dgn
PLOTTING DATE: 12-31-2014

REV DATE:
INITIAL:



Sec. 7-T101N-R48W



Gov't Lot 2 in NW 1/4

Gov't Lot 2 in NW 1/4

Roger Knochenmus Living Trust, Et.Al. Parcel 85B

Roger Knochenmus Living Trust, Et.Al. Parcel 85B

Roger Knochenmus Living Trust Parcel 85

Gov't Lot 1 in NW 1/4

Gov't Lot 1 in NW 1/4

Roger Knochenmus Living Trust Parcel 85

Roger Knochenmus Living Trust Parcel 85

Parcel 85
770+66.77 to 781+28.25 R
Temporary Easement for
Grading Containing
0.7 ac. (31,312 sq ft),
more or less

Parcel 85
772+26.70 to 782+02.67 L
Temporary Easement for
Grading Containing
0.8 ac. (34,391 sq ft),
more or less



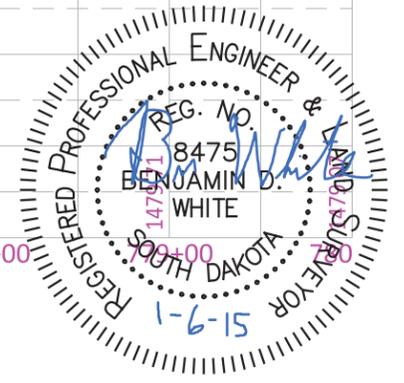
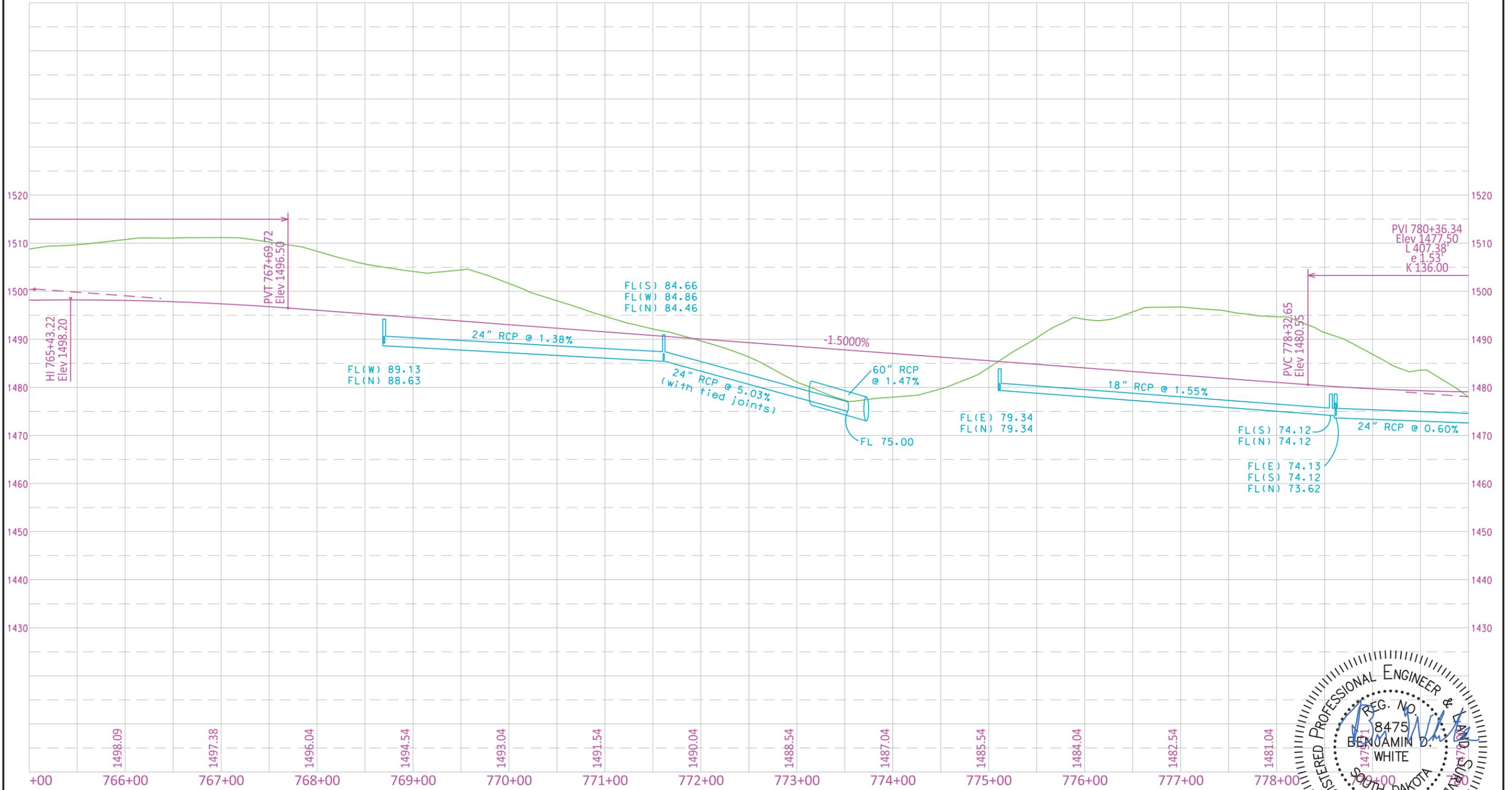
Hwy 100

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B37	B79

FILE: B37.dgn
PLOT DATE: 01-02-2015

REV DATE:
INITIAL:



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0100(103)417	SHEET B38	TOTAL SHEETS B79
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FILE: B38.dgn
PLOTTING DATE: 01-19-2015

REV DATE: 1-19-2015
INITIAL: BDW



785+55 to 786+12, 75' R
Take out 30"x57' CMP
(Incidental Work, Grading)

42+61 to 49+34 (Maple Street)
Obliterate Old Road
(Maple Street)

Sec. 7-T101N-R48W

Hwy 100

Maple Street

Sec. 6-T101N-R48W

PI 776+91.10
N 472593.26
E 2945231.46
Del 14°38'57" L
Dc 1°41'07"
T 437.04
L 869.30
R 3400.00

Site 3
12'x10' RC
Box Culvert

785+50 L
End Type 2

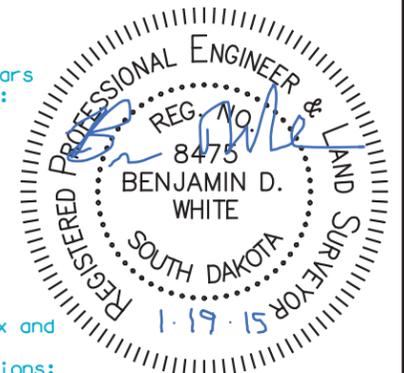
Install 3'x 4' Type B Drop
Inlets, Type B Frame &
Grate and 6" Concrete Collars
at the Following Locations:
780+36.65-53.67' R

Install Type S Drop Inlet
with Precast Concrete Type
S Drop Inlet Lid and Type S
Manhole Frame & Lid at the
Following Location:
780+36.65-56.13' L (4x6)

Install 2'x 3' Type B Drop
Inlets, Type B Frame &
Grate and 6" Concrete Collars
at the Following Locations:

780+36.65-14.33' L
780+31.65-9.67' L
780+36.65-9.67' L
781+80.48-53.67' L
781+84.48-53.67' L
781+72.48-9.67' L
781+76.48-9.67' L
781+80.48-9.67' L

Install 5'x 5' Junction Box and
Type A10 Manhole Frame and
Lid at the Following Locations:
784+88.85-67.00' L



1/16 Line 780+00

Hwy 100

N 2°24'48" W

785+00

1/16 Line

END NH 0100(103)

Hwy 100
Station 786+00.00

780+36.65-56.13' L to 780+36.65-14.33' L
Install 24"- 40' RC Pipe
(Between Drop Inlets)

780+36.65-14.33' L to 780+36.65-9.67' L
Install 24"- 4' RC Pipe
(Between Drop Inlets)

780+36.65-9.67' L to 780+36.65-53.67' R
Install 24"- 62' RC Pipe
(Between Drop Inlets)

780+36.65-53.67' R to 781+61.76-116.39' R
Install 24"- 142' RC Pipe
(Between Drop Inlet and Culvert)

781+80.48-53.67' L to 781+80.48-9.67' L
Install 18"- 42' RC Pipe
(Between Drop Inlets)

781+84.48-53.67' L to 782+01.58-52.80' L
Install 18"- 16' RC Pipe
(Between Drop Inlet and Culvert)

781+95
Install 12'x10' Box Culvert (Precast)
(D.A. = 84 Acres)
See Section E

784+88.85-67.00' L to 784+96.60-112.40' R
Install 24"- 178' RC Pipe
(Between Junction Box and Culvert)

784+88.85-67.00' L to 785+12.39-61.87' L
Install 18"- 22' RC Pipe
(Between Junction Box and End Inlet)

783+15.74-143.57' R to 783+42.83-128.46' R
Install 6-7.5° 84" RC Pipe
Long Radius Bends

783+42.83-128.46' R to 783+66.87-126.50' R
Install 84"- 24' RC Pipe

783+66.87-126.50' R to 785+88.42-108.41' R
Install 84"- 222' RC Pipe with tied joints
and 1 Flared End (D.A. = 34 Acres)

Install Class B Rip-Rap
and Type B Drainage Fabric
at the following locations:

783+00-162' R
(30'x18'x3')
(126 Ton Rip-Rap)
(92 SqYd Drainage Fabric)

782+50-120' L to 781+30-144' R
Remove and replace damaged
6" drain tile as necessary
(560' maximum)



Hwy 100 ROW Layout

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B39	B79

FILE: B39 ROW.dgn
PLOT DATE: 12-31-2014

REV DATE:
INITIAL:



Sec. 7-T101N-R48W

Gov't Lot 2 in NW 1/4

Roger Knochenmus Living Trust
Parcel 85

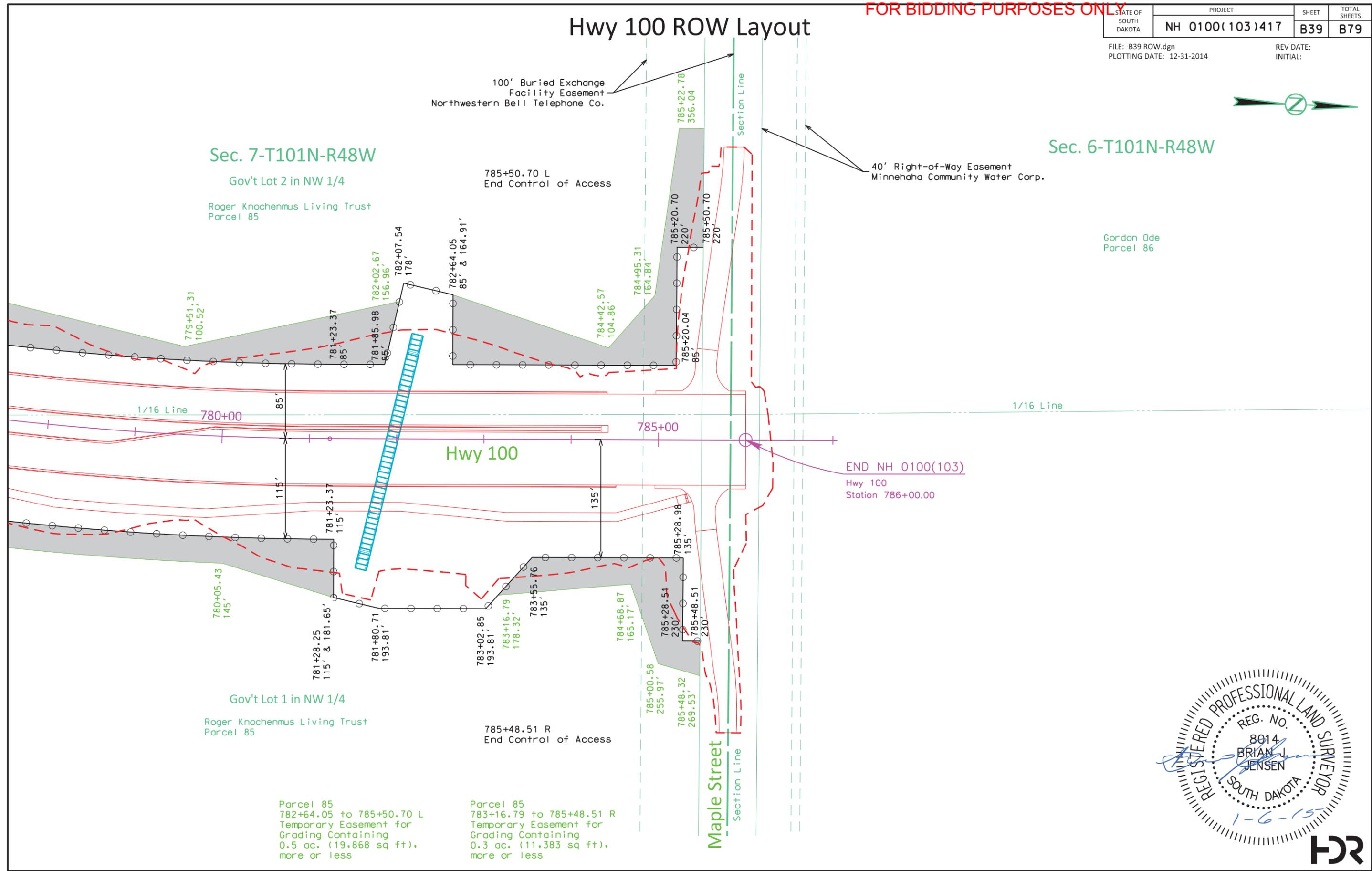
Sec. 6-T101N-R48W

Gordon Ode
Parcel 86

100' Buried Exchange
Facility Easement
Northwestern Bell Telephone Co.

785+50.70 L
End Control of Access

40' Right-of-Way Easement
Minnehaha Community Water Corp.



1/16 Line 780+00

Hwy 100

785+00

1/16 Line

END NH 0100(103)
Hwy 100
Station 786+00.00

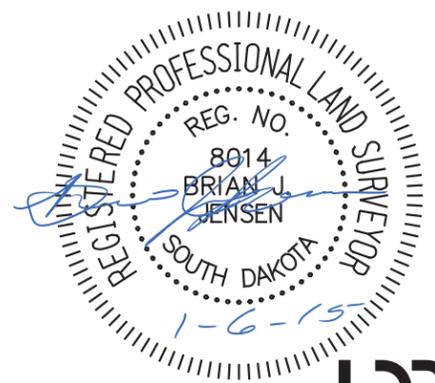
Gov't Lot 1 in NW 1/4

Roger Knochenmus Living Trust
Parcel 85

785+48.51 R
End Control of Access

Parcel 85
782+64.05 to 785+50.70 L
Temporary Easement for
Grading Containing
0.5 ac. (19,868 sq ft),
more or less

Parcel 85
783+16.79 to 785+48.51 R
Temporary Easement for
Grading Containing
0.3 ac. (11,383 sq ft),
more or less



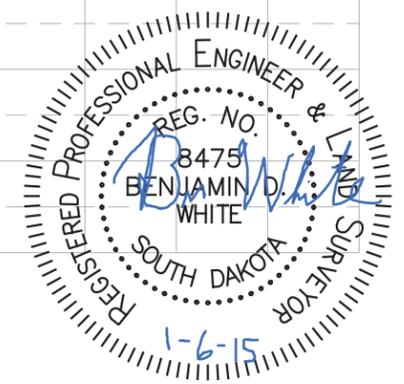
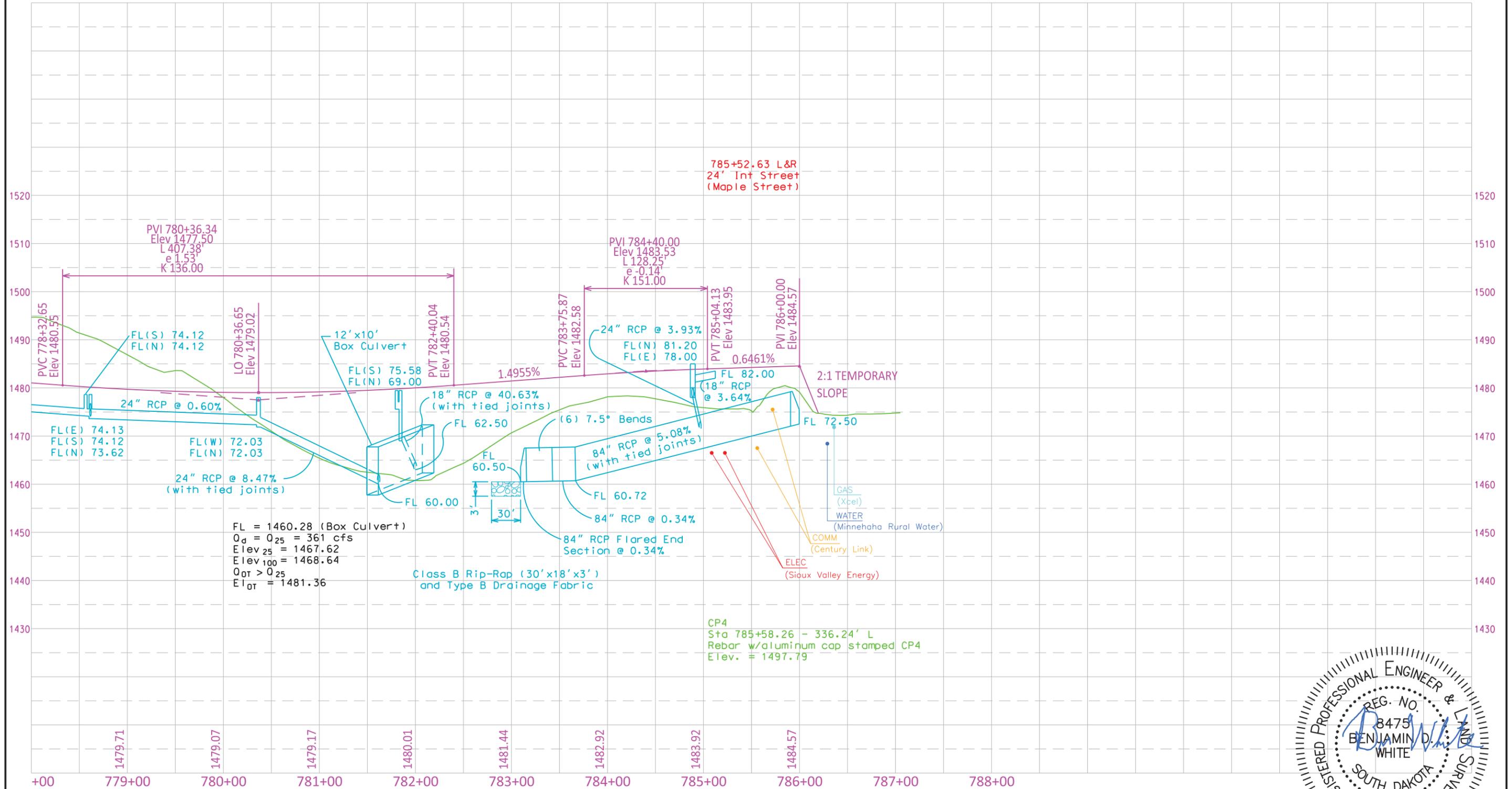
Hwy 100

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0100(103)417	SHEET B40	TOTAL SHEETS B79
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FILE: B40.dgn
PLOTTING DATE: 01-02-2015

REV DATE:
INITIAL:



Madison Street

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B41	B79

FILE: B41-B42 (Madison).dgn
PLOT DATE: 03-05-2015

REV DATE: 3-5-2015
INITIAL: JHU

20+00 - 20' L to 200' L
Obliterate Old Road
(Existing Powderhouse Road)

Take Out Concrete Pavement
at the Following Location:
19+38 to 24+46 L/R (Madison Street)

Take Out Asphalt Concrete
Pavement at the Following
Locations:
19+38 to 24+46 L (Madison Street)
20+96 to 24+46 R (Madison Street)

28+37 to 28+87-40.2' L
Install (2) 30"- 34' CM Arch Pipes
and 4 Safety Ends

28+37.4 to 28+82.6-42' R
Install 18"- 34' CM Pipe
and 2 Safety Ends

Sec. 12-T101N-R49W

Sec. 7-T101N-R48W



BEGIN NH 0100(103)
Madison Street
Station 19+38.13

END NH 0100(103)
Madison Street
Station 24+45.63

28+60-L
24' Barb
Wire Gate

15+00

Madison Street

N 87°34'48" E
Section Line

24' Drive
2 PP 2 PP

18+77-R
24' Barb
Wire Gate

730+00

25+00

N 86°33'05" E
Section Line

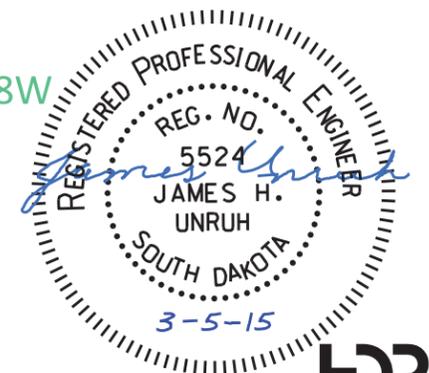
2 PP 2 PP
24' Drive
24' Drive
2 PP 2 PP

28+60-R
24' Barb
Wire Gate

Sec. 13-T101N-R49W

Sec. 18-T101N-R48W

PI 23+98.54
N 468167.54
E 2944476.28
Del 1°02'04" L
Dc 0°27'17"
T 113.73
L 227.46
R 12600.00



Madison Street

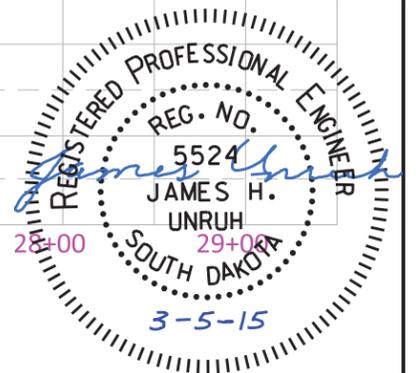
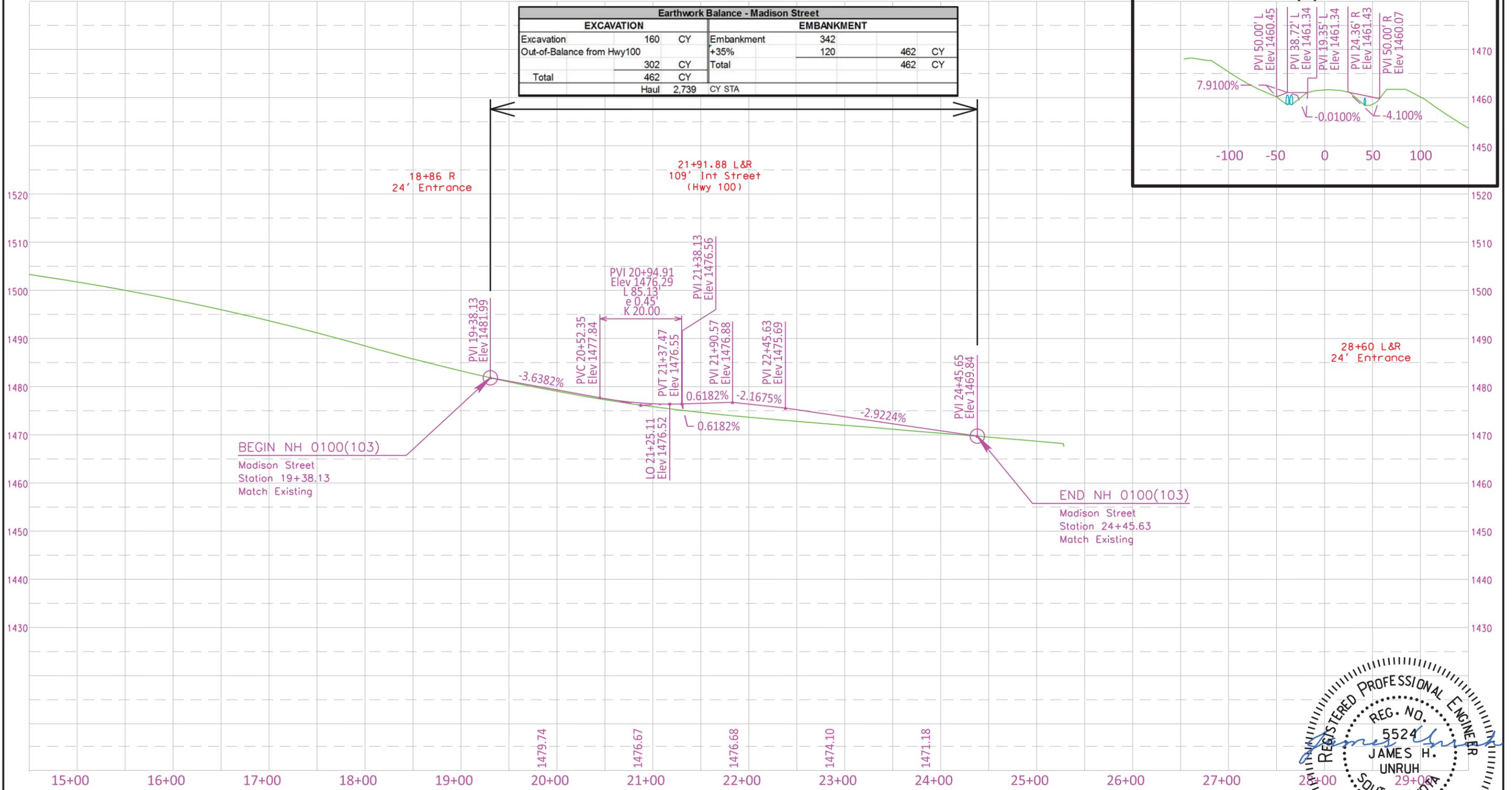
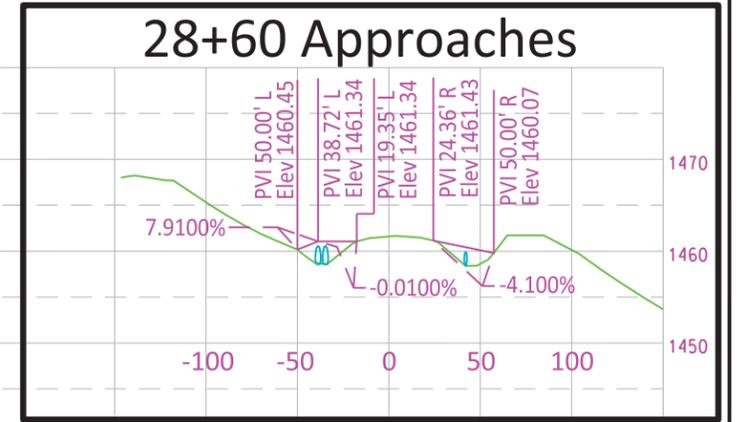
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B42	B79

FILE: B41-B42 (Madison).dgn
PLOT DATE: 03-05-2015

REV DATE: 3-5-2015
INITIAL: JHU

Earthwork Balance - Madison Street				
EXCAVATION		EMBANKMENT		
Excavation	160	CY	Embankment	342
Out-of-Balance from Hwy100			+35%	120
	302	CY	Total	462
Total	462	CY	Total	462
	Haul	2,739	CY STA	



Maple Street

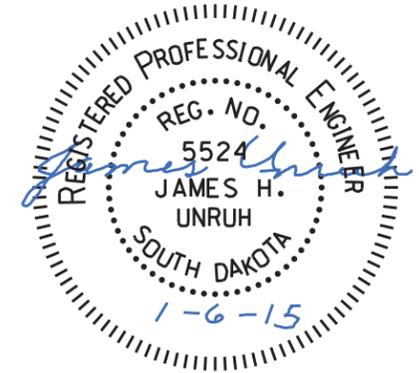
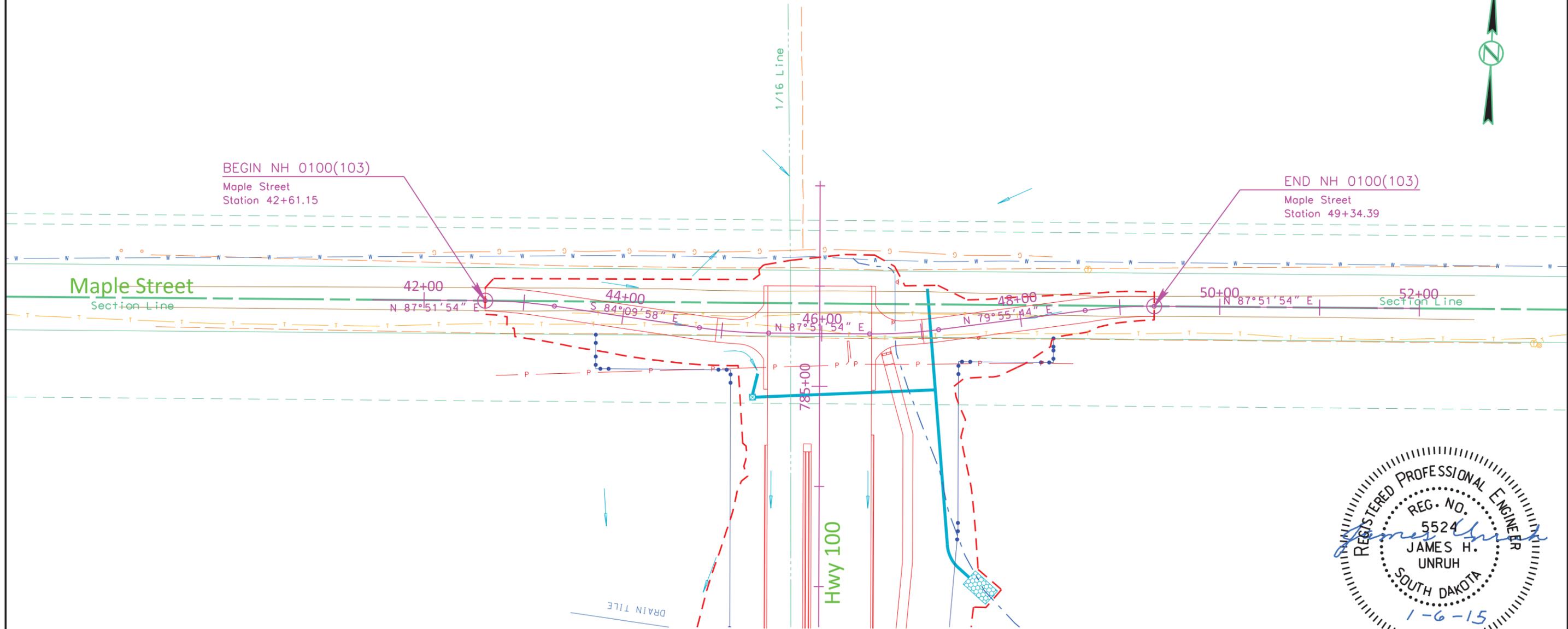
Sec. 6-T101N-R48W

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B43	B79

FILE: B43-B44 (Maple).dgn
PLOTTING DATE: 12-31-2014

REV DATE:
INITIAL:



PI 42+95.98
N 473477.59
E 2944893.93
Del 7°58'08" R
Dc 11°27'33"
T 34.83
L 69.54
R 500.00

PI 45+12.26
N 473455.59
E 2945109.20
Del 7°58'08" L
Dc 11°27'33"
T 34.83
L 69.54
R 500.00

PI 46+82.64
N 473461.94
E 2945279.57
Del 7°56'09" L
Dc 11°27'33"
T 34.68
L 69.25
R 500.00

PI 48+99.81
N 473499.94
E 2945493.51
Del 7°56'09" R
Dc 11°27'33"
T 34.68
L 69.25
R 500.00

Sec. 7-T101N-R48W



Maple Street

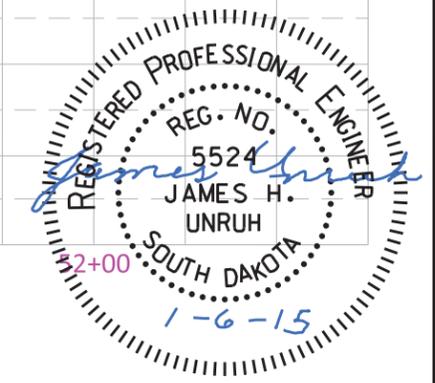
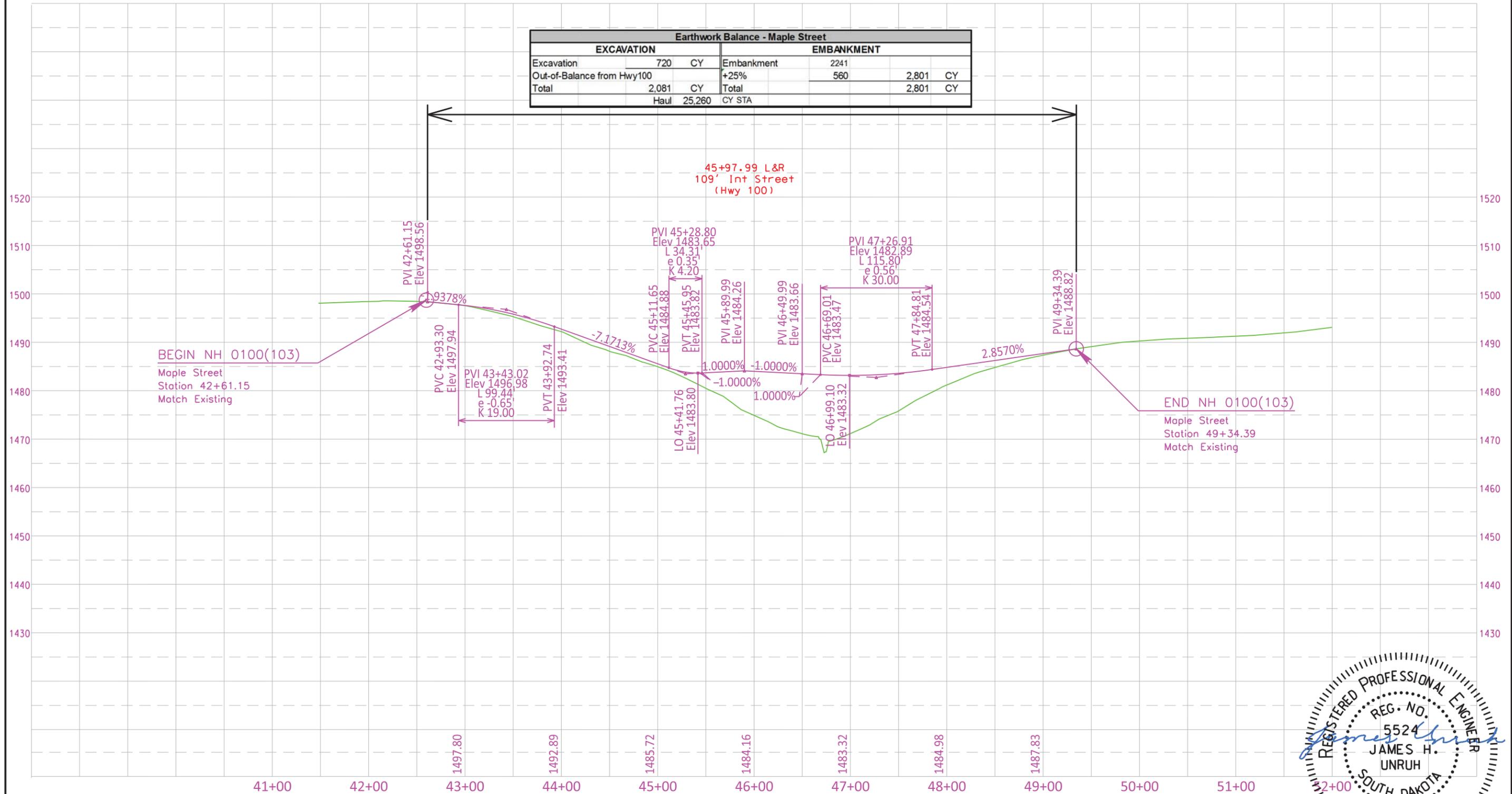
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B44	B79

FILE: B43-B44 (Maple).dgn
PLOTTING DATE: 12-31-2014

REV DATE:
INITIAL:

Earthwork Balance - Maple Street				
EXCAVATION		EMBANKMENT		
Excavation	720	CY	Embarkment	2241
Out-of-Balance from Hwy100			+25%	560
Total	2,081	CY	Total	2,801
	Haul	25,260	CY STA	



Curb & Gutter Layout

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B45	B79

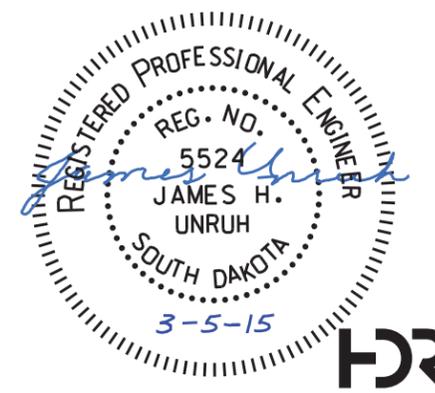
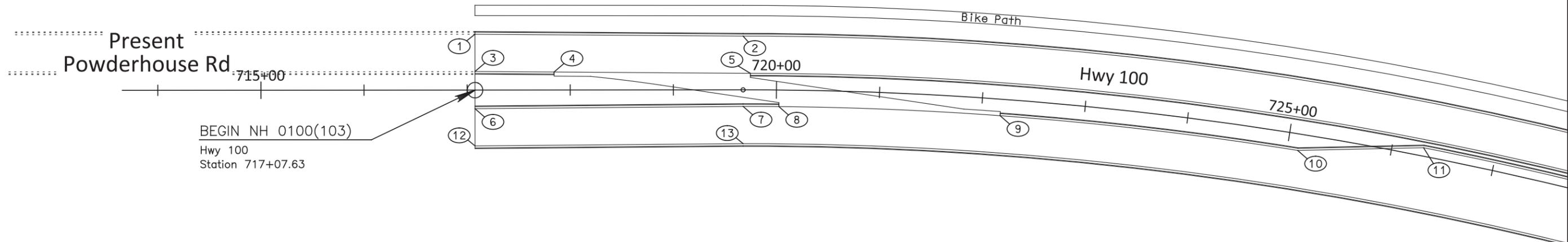
FILE: B45.dgn
PLOTTING DATE: 03-05-2015

REV DATE: 3-5-2015
INITIAL: JHU



- | | |
|--|--|
| ① 717+07.63 - 54' L
Begin Str C&G
TC EI 1463.71 (Match Existing) | ⑧ 720+02.4 - 16' R
End 3,384' Rad C&G
TC EI 1472.09 |
| ② 719+67.6 - 52' L
End Str C&G
Begin 3,452' Rad C&G
TC EI 1472.32 | ⑨ 722+18.2 - 16' R
Begin 3,384' Rad C&G
TC EI 1476.62 |
| ③ 717+07.63 - 18' L
Begin Str C&G
TC EI 1464.43 (Match Existing) | ⑩ 725+10.3 - 16' R
End 3,384' Rad C&G
Begin Str C&G
TC EI 1482.75 |
| ④ 717+84.3 - 17.4' L
End Str C&G
TC EI 1466.47 | ⑪ 726+30.2 - 8' L
End Str C&G
Begin 3,408' Rad C&G
TC EI 1483.05 |
| ⑤ 719+74.5 - 16' L
Begin 3,416' Rad C&G
TC EI 1471.44 | ⑫ 717+07.63 - 54' R
Begin Str C&G
TC EI 1463.71 |
| ⑥ 717+07.63 - 18' R
Begin Str C&G
TC EI 1464.43 | ⑬ 719+67.6 - 52' R
End Str C&G
Begin 3,348' Rad C&G
TC EI 1472.32 |
| ⑦ 719+67.6 - 16' R
End Str C&G
Begin 3,384' Rad C&G
TC EI 1471.36 | |

Note:
All Curb and Gutter shown on this sheet is Type F610, and all Bike Path is Asphalt Concrete and 10' wide, except as noted.



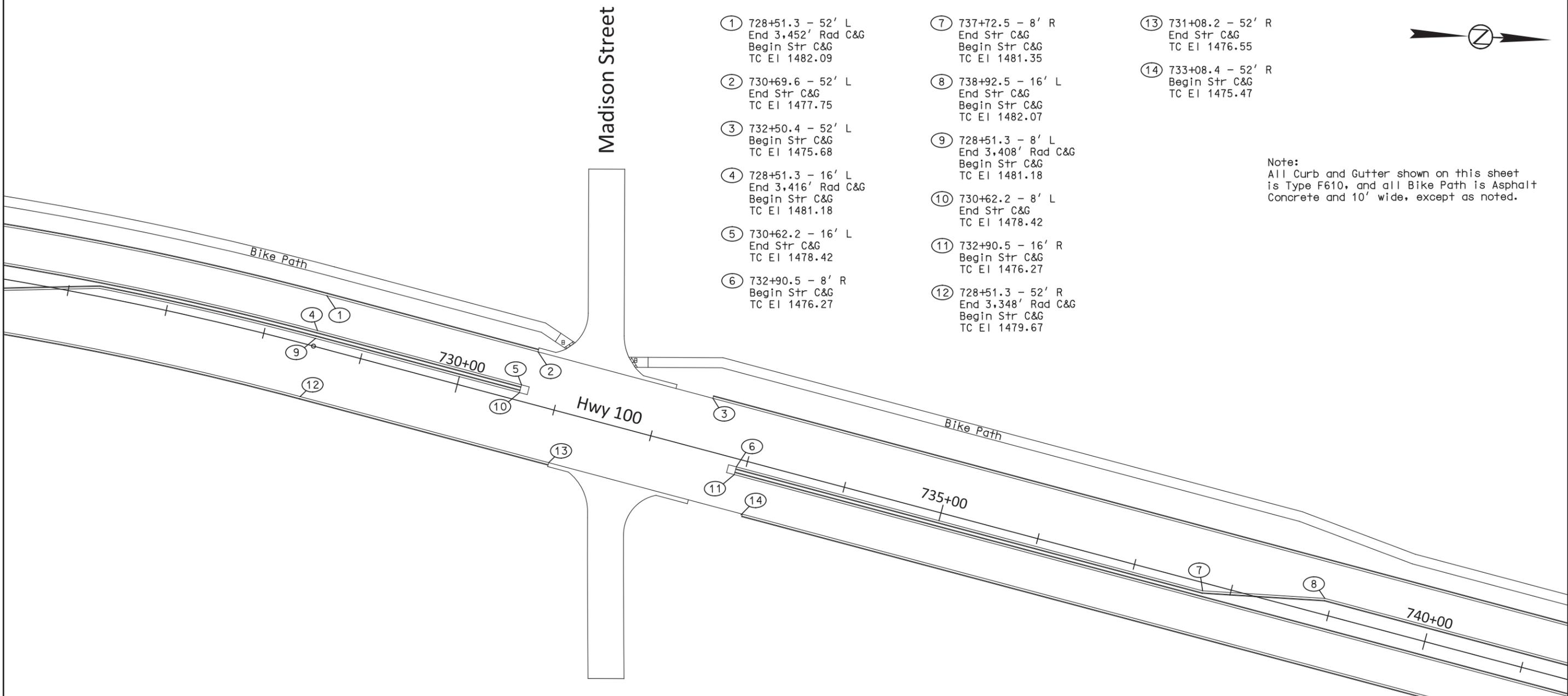
Curb & Gutter Layout

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B46	B79

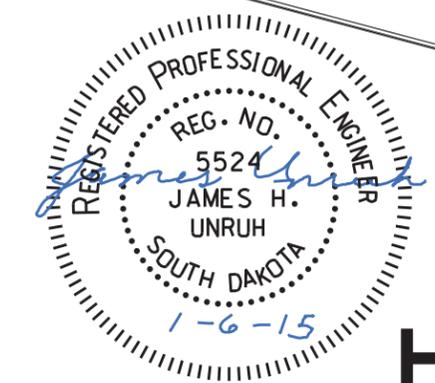
FILE: B46.dgn
PLOT DATE: 12-31-2014

REV DATE:
INITIAL:



- ① 728+51.3 - 52' L
End Str C&G
Begin Str C&G
TC EI 1482.09
- ② 730+69.6 - 52' L
End Str C&G
TC EI 1477.75
- ③ 732+50.4 - 52' L
Begin Str C&G
TC EI 1475.68
- ④ 728+51.3 - 16' L
End 3,416' Rad C&G
Begin Str C&G
TC EI 1481.18
- ⑤ 730+62.2 - 16' L
End Str C&G
TC EI 1478.42
- ⑥ 732+90.5 - 8' R
Begin Str C&G
TC EI 1476.27
- ⑦ 737+72.5 - 8' R
End Str C&G
Begin Str C&G
TC EI 1481.35
- ⑧ 738+92.5 - 16' L
End Str C&G
Begin Str C&G
TC EI 1482.07
- ⑨ 728+51.3 - 8' L
End 3,408' Rad C&G
Begin Str C&G
TC EI 1481.18
- ⑩ 730+62.2 - 8' L
End Str C&G
TC EI 1478.42
- ⑪ 732+90.5 - 16' R
Begin Str C&G
TC EI 1476.27
- ⑫ 728+51.3 - 52' R
End 3,348' Rad C&G
Begin Str C&G
TC EI 1479.67
- ⑬ 731+08.2 - 52' R
End Str C&G
TC EI 1476.55
- ⑭ 733+08.4 - 52' R
Begin Str C&G
TC EI 1475.47

Note:
All Curb and Gutter shown on this sheet
is Type F610, and all Bike Path is Asphalt
Concrete and 10' wide, except as noted.



Curb & Gutter Layout

FOR BIDDING PURPOSES ONLY

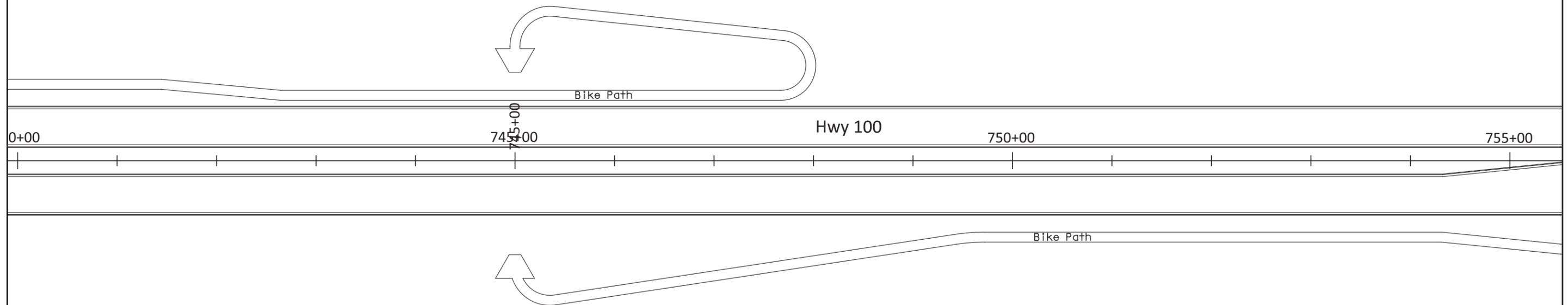
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B47	B79

FILE: B47.dgn
PLOTING DATE: 12-31-2014

REV DATE:
INITIAL:



Note:
All Curb and Gutter shown on this sheet
is Type F610, and all Bike Path is Asphalt
Concrete and 10' wide, except as noted.



Curb & Gutter Layout

FOR BIDDING PURPOSES ONLY

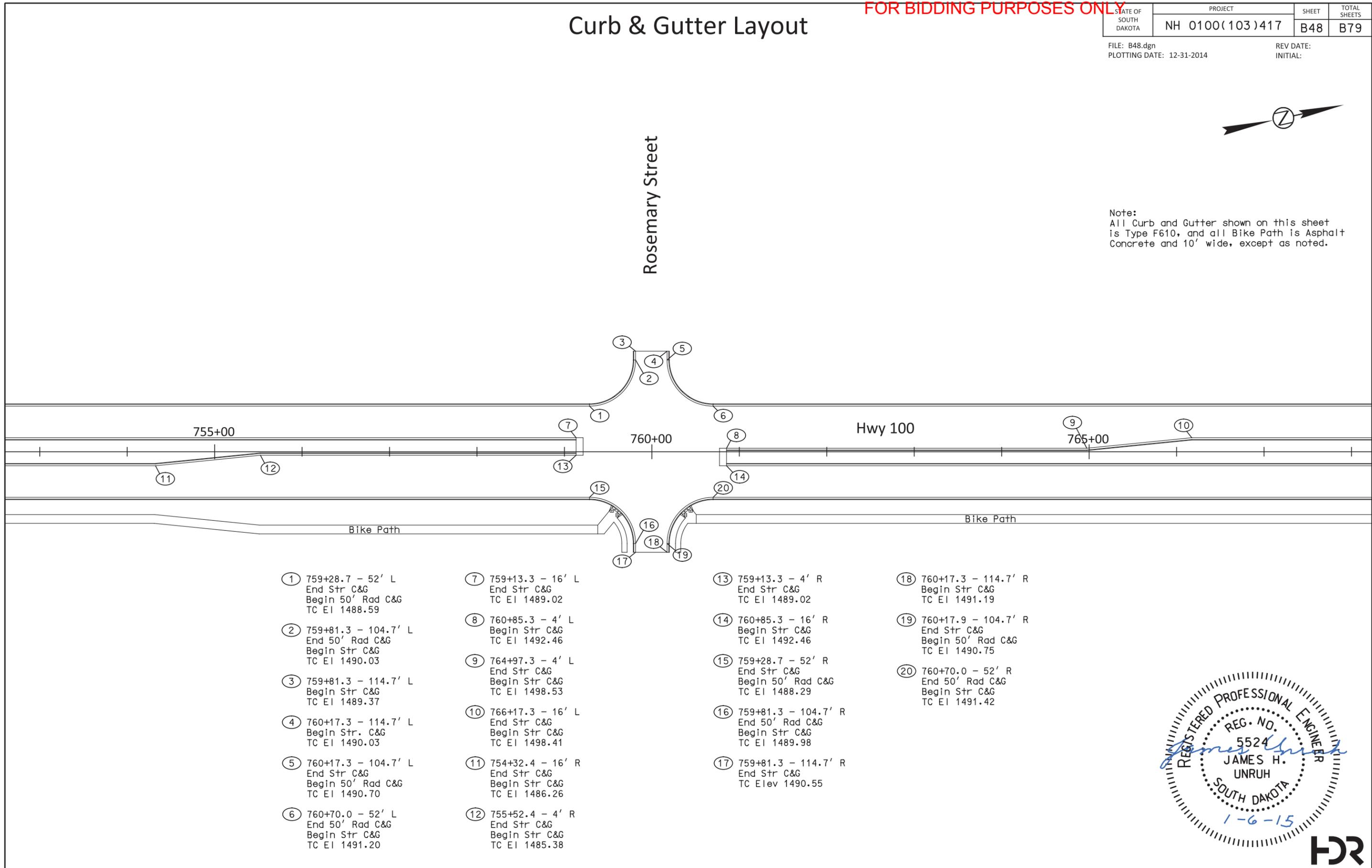
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B48	B79

FILE: B48.dgn
PLOT DATE: 12-31-2014

REV DATE:
INITIAL:



Note:
All Curb and Gutter shown on this sheet is Type F610, and all Bike Path is Asphalt Concrete and 10' wide, except as noted.

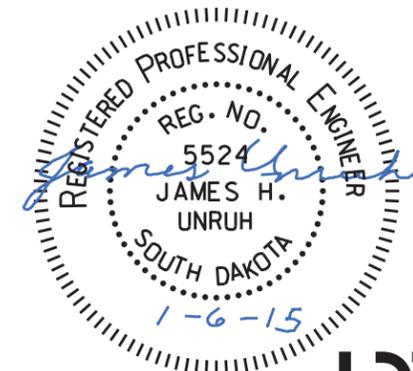


- ① 759+28.7 - 52' L
End Str C&G
Begin 50' Rad C&G
TC El 1488.59
- ② 759+81.3 - 104.7' L
End 50' Rad C&G
Begin Str C&G
TC El 1490.03
- ③ 759+81.3 - 114.7' L
Begin Str C&G
TC El 1489.37
- ④ 760+17.3 - 114.7' L
Begin Str. C&G
TC El 1490.03
- ⑤ 760+17.3 - 104.7' L
End Str C&G
Begin 50' Rad C&G
TC El 1490.70
- ⑥ 760+70.0 - 52' L
End 50' Rad C&G
Begin Str C&G
TC El 1491.20

- ⑦ 759+13.3 - 16' L
End Str C&G
TC El 1489.02
- ⑧ 760+85.3 - 4' L
Begin Str C&G
TC El 1492.46
- ⑨ 764+97.3 - 4' L
End Str C&G
Begin Str C&G
TC El 1498.53
- ⑩ 766+17.3 - 16' L
End Str C&G
Begin Str C&G
TC El 1498.41
- ⑪ 754+32.4 - 16' R
End Str C&G
Begin Str C&G
TC El 1486.26
- ⑫ 755+52.4 - 4' R
End Str C&G
Begin Str C&G
TC El 1485.38

- ⑬ 759+13.3 - 4' R
End Str C&G
TC El 1489.02
- ⑭ 760+85.3 - 16' R
Begin Str C&G
TC El 1492.46
- ⑮ 759+28.7 - 52' R
End Str C&G
Begin 50' Rad C&G
TC El 1488.29
- ⑯ 759+81.3 - 104.7' R
End 50' Rad C&G
Begin Str C&G
TC El 1489.98
- ⑰ 759+81.3 - 114.7' R
End Str C&G
TC Elev 1490.55

- ⑱ 760+17.3 - 114.7' R
Begin Str C&G
TC El 1491.19
- ⑲ 760+17.9 - 104.7' R
End Str C&G
Begin 50' Rad C&G
TC El 1490.75
- ⑳ 760+70.0 - 52' R
End 50' Rad C&G
Begin Str C&G
TC El 1491.42



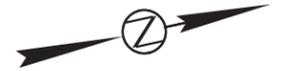
Curb & Gutter Layout

FOR BIDDING PURPOSES ONLY

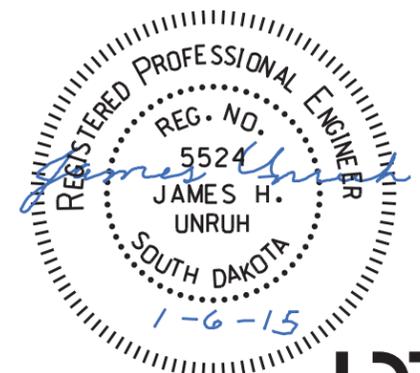
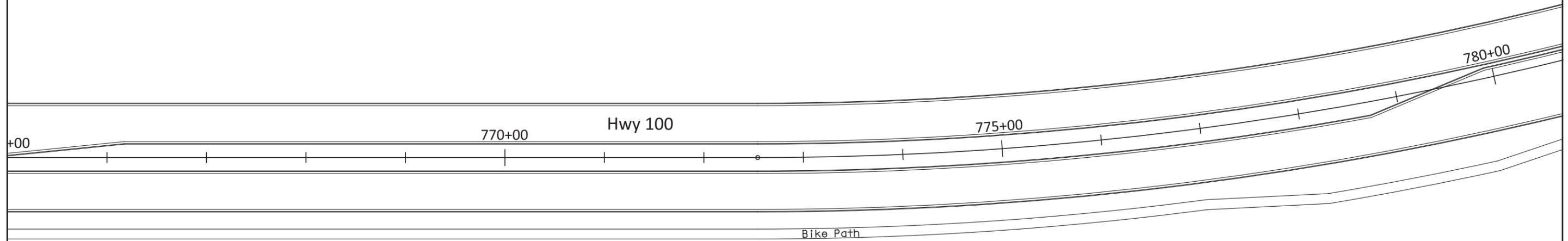
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B49	B79

FILE: B49.dgn
PLOTING DATE: 12-31-2014

REV DATE:
INITIAL:



Note:
All Curb and Gutter shown on this sheet
is Type F610, and all Bike Path is Asphalt
Concrete and 10' wide, except as noted.



Curb & Gutter Layout

FOR BIDDING PURPOSES ONLY

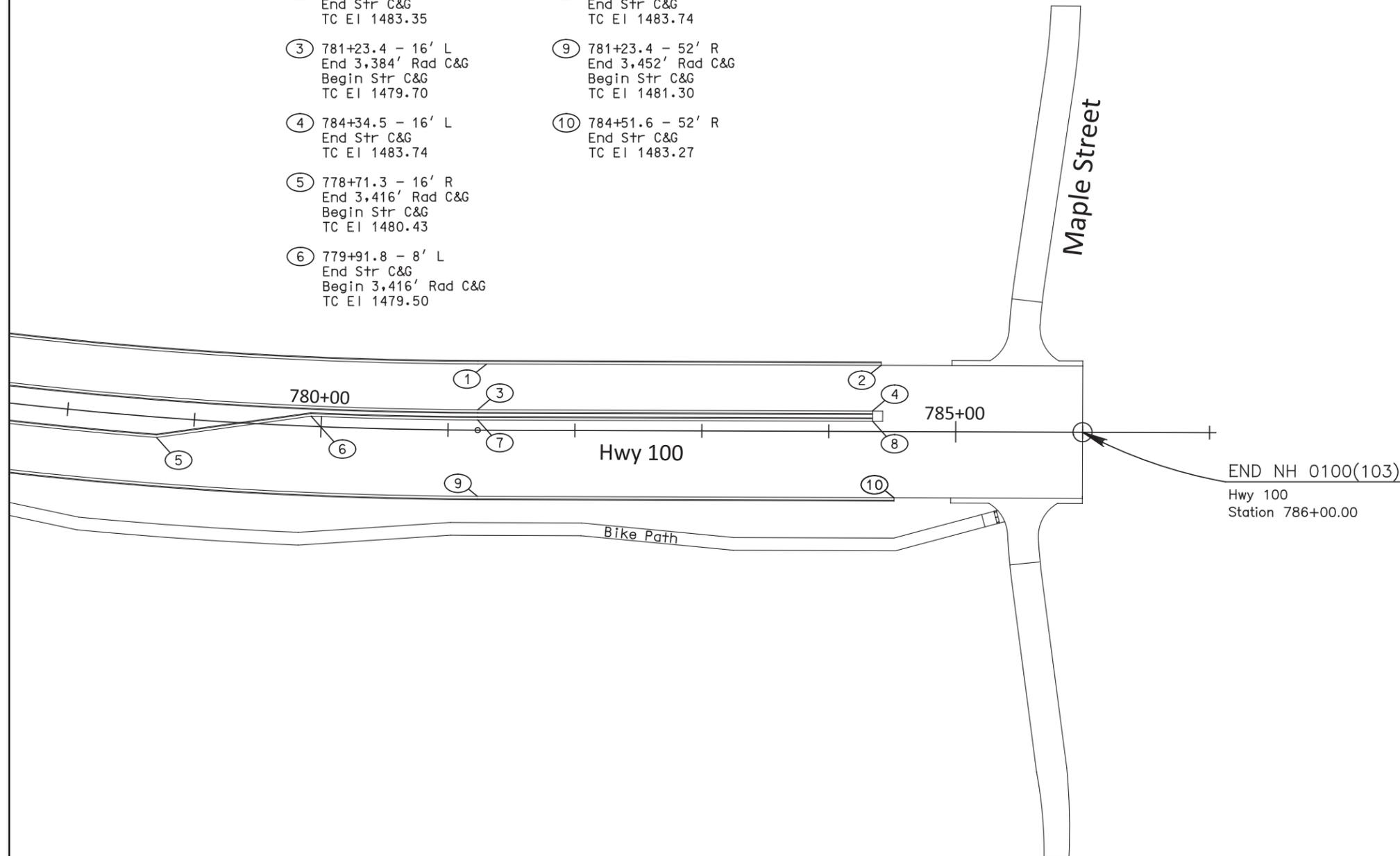
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B50	B79

FILE: B50.dgn
PLOTING DATE: 12-31-2014

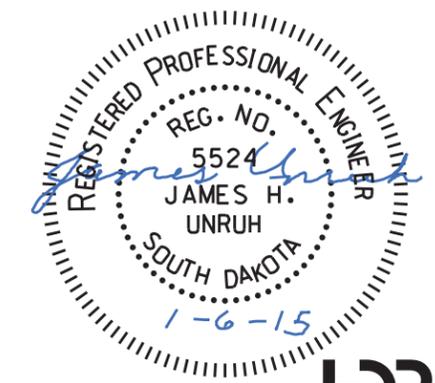
REV DATE:
INITIAL:



- | | |
|--|--|
| ① 781+23.4 - 52' L
End 3,348' Rad C&G
Begin Str C&G
TC EI 1478.74 | ⑦ 781+23.4 - 8' L
End 3,416' Rad C&G
Begin Str C&G
TC EI 1479.70 |
| ② 784+41.1 - 52' L
End Str C&G
TC EI 1483.35 | ⑧ 784+34.4 - 8' L
End Str C&G
TC EI 1483.74 |
| ③ 781+23.4 - 16' L
End 3,384' Rad C&G
Begin Str C&G
TC EI 1479.70 | ⑨ 781+23.4 - 52' R
End 3,452' Rad C&G
Begin Str C&G
TC EI 1481.30 |
| ④ 784+34.5 - 16' L
End Str C&G
TC EI 1483.74 | ⑩ 784+51.6 - 52' R
End Str C&G
TC EI 1483.27 |
| ⑤ 778+71.3 - 16' R
End 3,416' Rad C&G
Begin Str C&G
TC EI 1480.43 | |
| ⑥ 779+91.8 - 8' L
End Str C&G
Begin 3,416' Rad C&G
TC EI 1479.50 | |



Note:
All Curb and Gutter shown on this sheet
is Type F610, and all Bike Path is Asphalt
Concrete and 10' wide, except as noted.



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B51	B79

FILE: B51.dgn
PLOTTING DATE: 12-31-2014

REV DATE:
INITIAL:

Curb Ramp Detail

Hwy 100 / Madison Street

(R1) 730+99.3 - 65.8' L
Begin Detectable Warning
and Type I Curb Ramp
(8' Opening)

(1) 730+83.8 - 66.2' L
Sidewalk Corner

(2) 730+87.0 - 75.7' L
Sidewalk Corner

(3) 730+96.0 - 62.0' L
Sidewalk Corner

(4) 731+03.1 - 70.2' L
Sidewalk Corner

(R2) 731+63.5 - 65.5' L
Begin Detectable Warning
and Type I Curb Ramp
(8' Opening)

(5) 731+58.8 - 70.0' L
Sidewalk Corner

(6) 731+67.4 - 61.9' L
Sidewalk Corner

(7) 731+77.4 - 74.8' L
Sidewalk Corner

(8) 731+80.0 - 65.2' L
Sidewalk Corner

10' Asphalt Bike Path

(A) 730+92.1 - 65.0' L
Pedestrian Push Button

Asphalt
Surface

Concrete
Surface

730+00

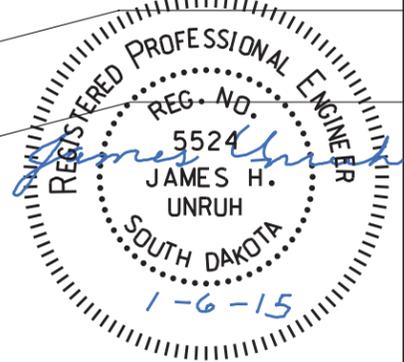
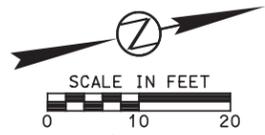
730+50

731+00

731+50

732+00

732+50



Hwy 100 / Maple Street

Hwy 100

784+00

784+50

785+00

785+50

786+00

786+50

Concrete
Surface

Asphalt
Surface

10' Asphalt Bike Path

(R3) 785+36.5 - 65.9' R
Begin Detectable Warning
and Type I Curb Ramp
(8' Opening)

(9) 785+20.7 - 65.0' R
Sidewalk Corner

(10) 785+23.3 - 74.7' R
Sidewalk Corner

(11) 785+33.2 - 61.6' R
Sidewalk Corner

(12) 785+38.8 - 70.5' R
Sidewalk Corner

Legend

Maximum 5% Longitudinal Slope and
2% Cross Slope on Sidewalk and
Bike Path

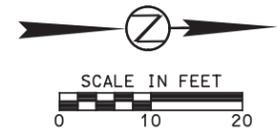
All Concrete Sidewalk is 4" Thick

█ Detectable Warning Surfaces (2' Wide)

* Landing with 2% Max. Slope

○ Pedestrian Push Button Pole

30"x48" Clear Space for Pedestrian
Push Button Poles
(2% Max. for Longitudinal and
Cross Slopes)



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(103)417	B52	B79

FILE: B52.dgn
PLOTTING DATE: 12-31-2014

REV DATE:
INITIAL:

Legend

Maximum 5% Longitudinal Slope and
2% Cross Slope on Sidewalk and
Bike Path

All Concrete Sidewalk is 4" Thick

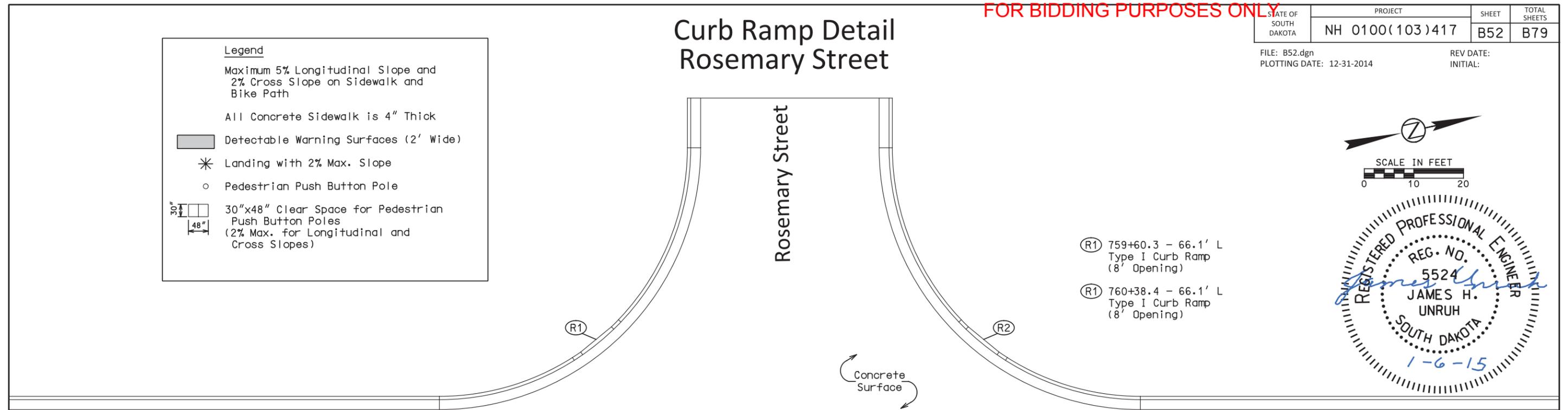
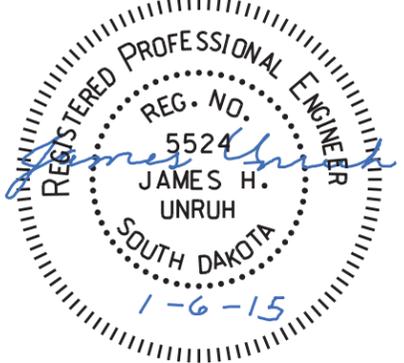
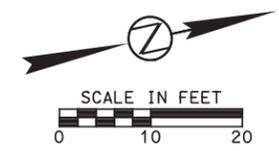
■ Detectable Warning Surfaces (2' Wide)

* Landing with 2% Max. Slope

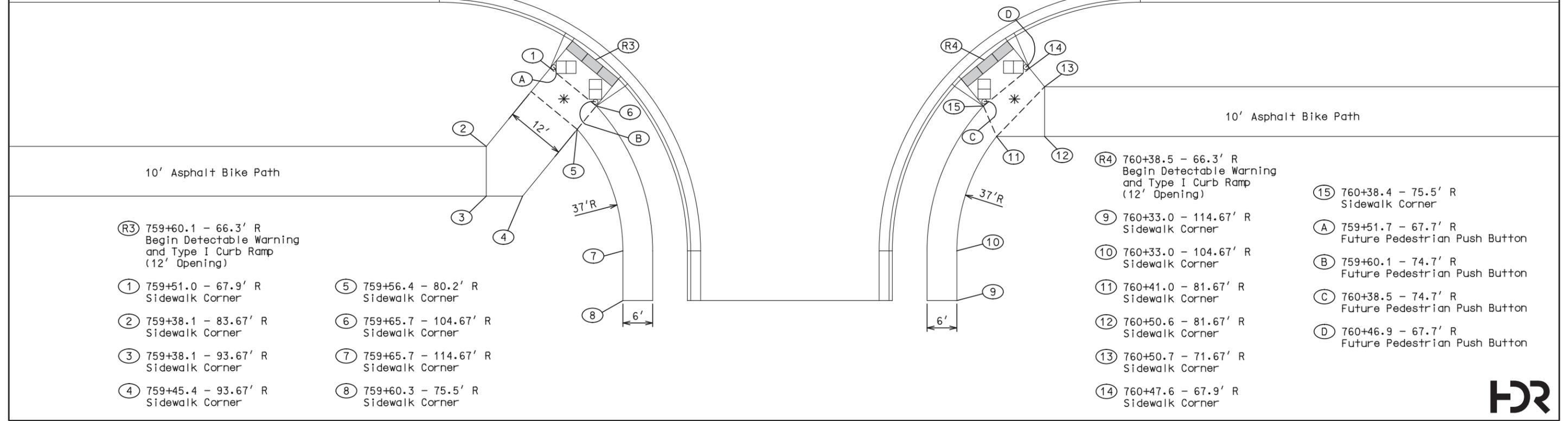
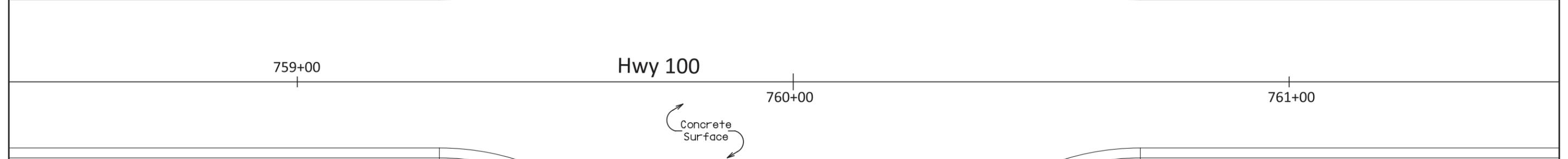
○ Pedestrian Push Button Pole

30"x48" Clear Space for Pedestrian
Push Button Poles
(2% Max. for Longitudinal and
Cross Slopes)

Curb Ramp Detail Rosemary Street



- (R1) 759+60.3 - 66.1' L
Type I Curb Ramp
(8' Opening)
- (R1) 760+38.4 - 66.1' L
Type I Curb Ramp
(8' Opening)



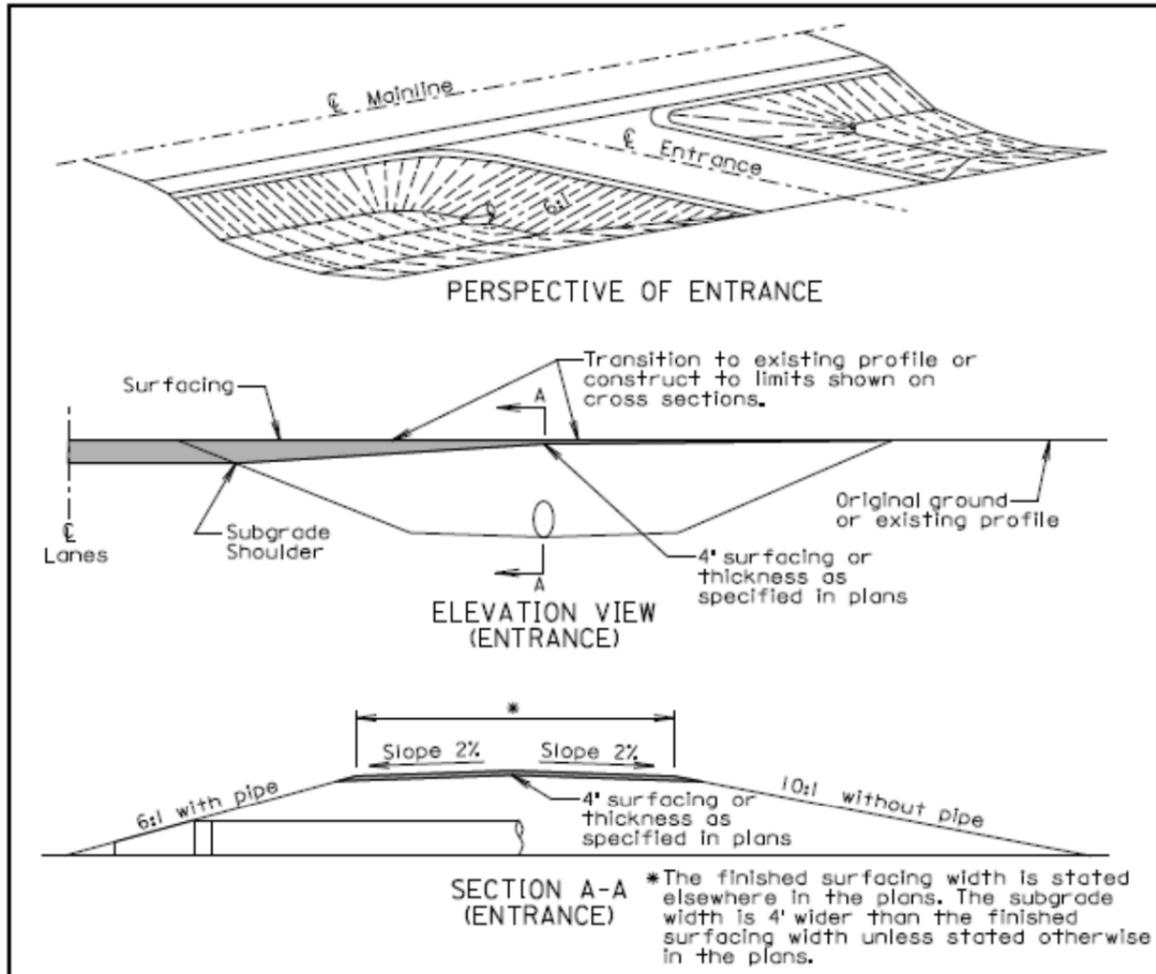
- (R3) 759+60.1 - 66.3' R
Begin Detectable Warning
and Type I Curb Ramp
(12' Opening)
- (1) 759+51.0 - 67.9' R
Sidewalk Corner
- (2) 759+38.1 - 83.67' R
Sidewalk Corner
- (3) 759+38.1 - 93.67' R
Sidewalk Corner
- (4) 759+45.4 - 93.67' R
Sidewalk Corner

- (5) 759+56.4 - 80.2' R
Sidewalk Corner
- (6) 759+65.7 - 104.67' R
Sidewalk Corner
- (7) 759+65.7 - 114.67' R
Sidewalk Corner
- (8) 759+60.3 - 75.5' R
Sidewalk Corner

- (R4) 760+38.5 - 66.3' R
Begin Detectable Warning
and Type I Curb Ramp
(12' Opening)
- (9) 760+33.0 - 114.67' R
Sidewalk Corner
- (10) 760+33.0 - 104.67' R
Sidewalk Corner
- (11) 760+41.0 - 81.67' R
Sidewalk Corner
- (12) 760+50.6 - 81.67' R
Sidewalk Corner
- (13) 760+50.7 - 71.67' R
Sidewalk Corner
- (14) 760+47.6 - 67.9' R
Sidewalk Corner

- (15) 760+38.4 - 75.5' R
Sidewalk Corner
- (A) 759+51.7 - 67.7' R
Future Pedestrian Push Button
- (B) 759+60.1 - 74.7' R
Future Pedestrian Push Button
- (C) 760+38.5 - 74.7' R
Future Pedestrian Push Button
- (D) 760+46.9 - 67.7' R
Future Pedestrian Push Button





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.

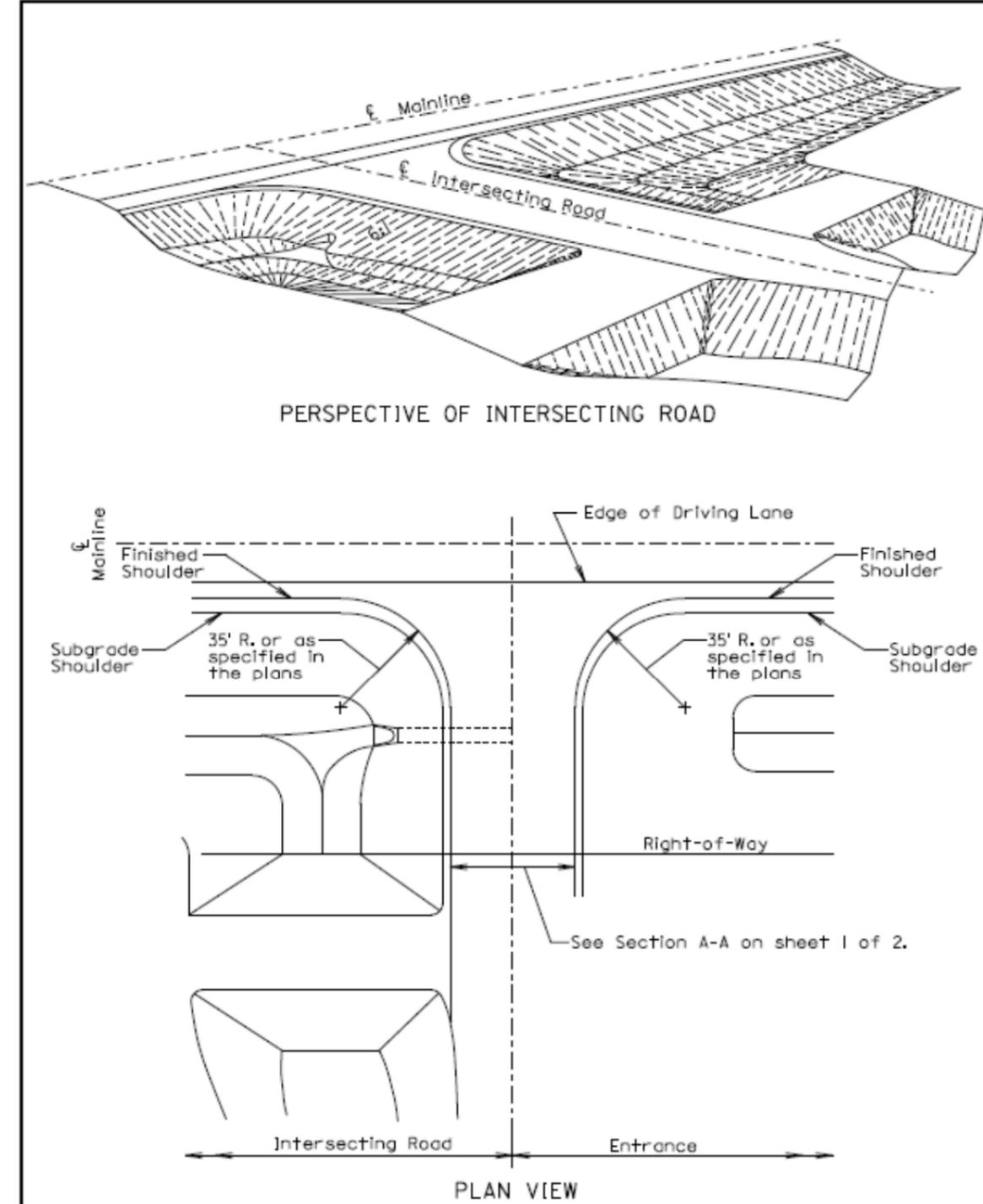
Pipe lengths shall be adjusted if necessary during construction to obtain the 6:1 slopes. For grading projects, the pipe lengths are estimated typically using a 4' thickness of surfacing directly over the subgrade above the pipe.

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.

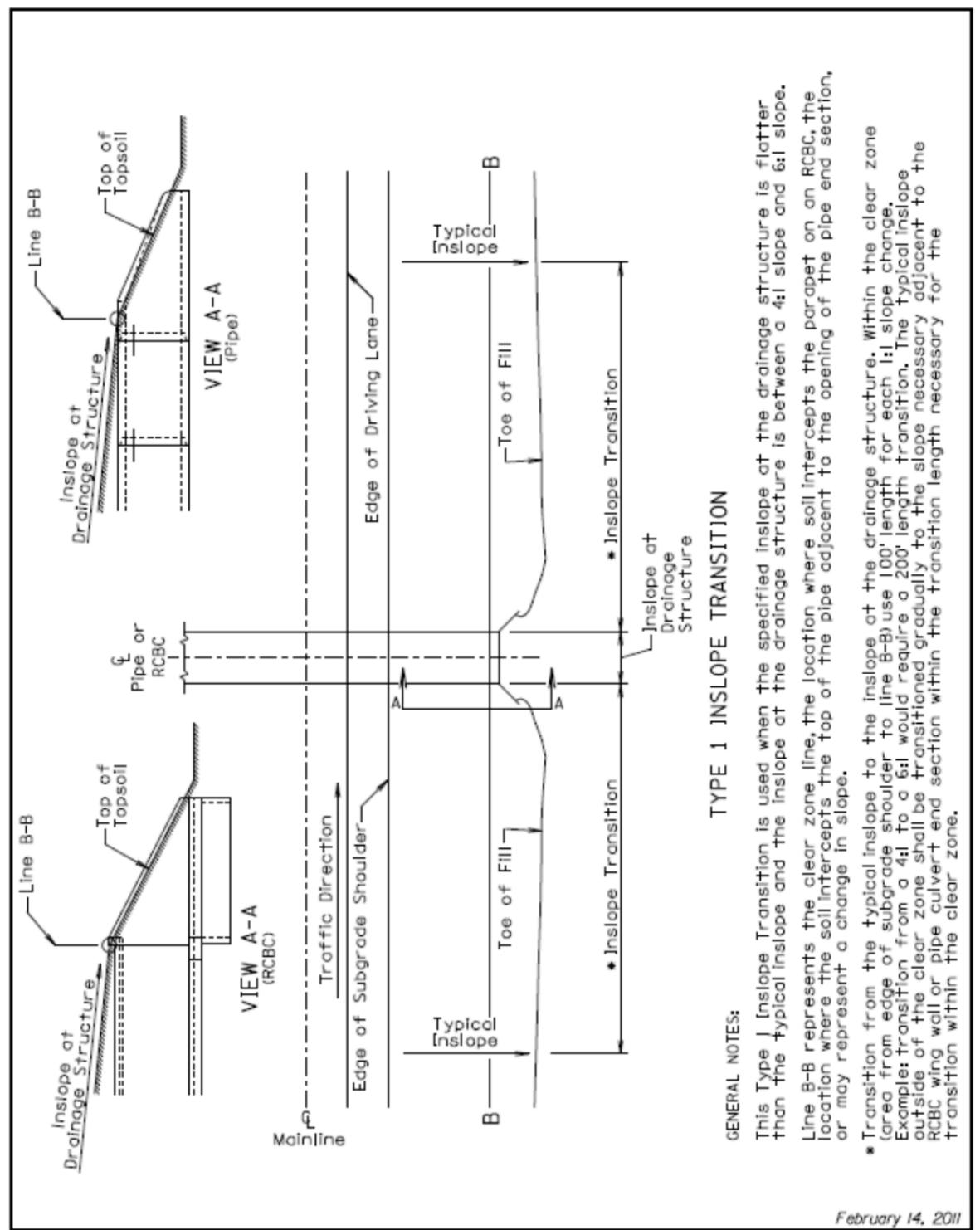
September 6, 2013

Published Date: 1st Qtr. 2015	S D D O T	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



September 6, 2013

Published Date: 1st Qtr. 2015	S D D O T	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2

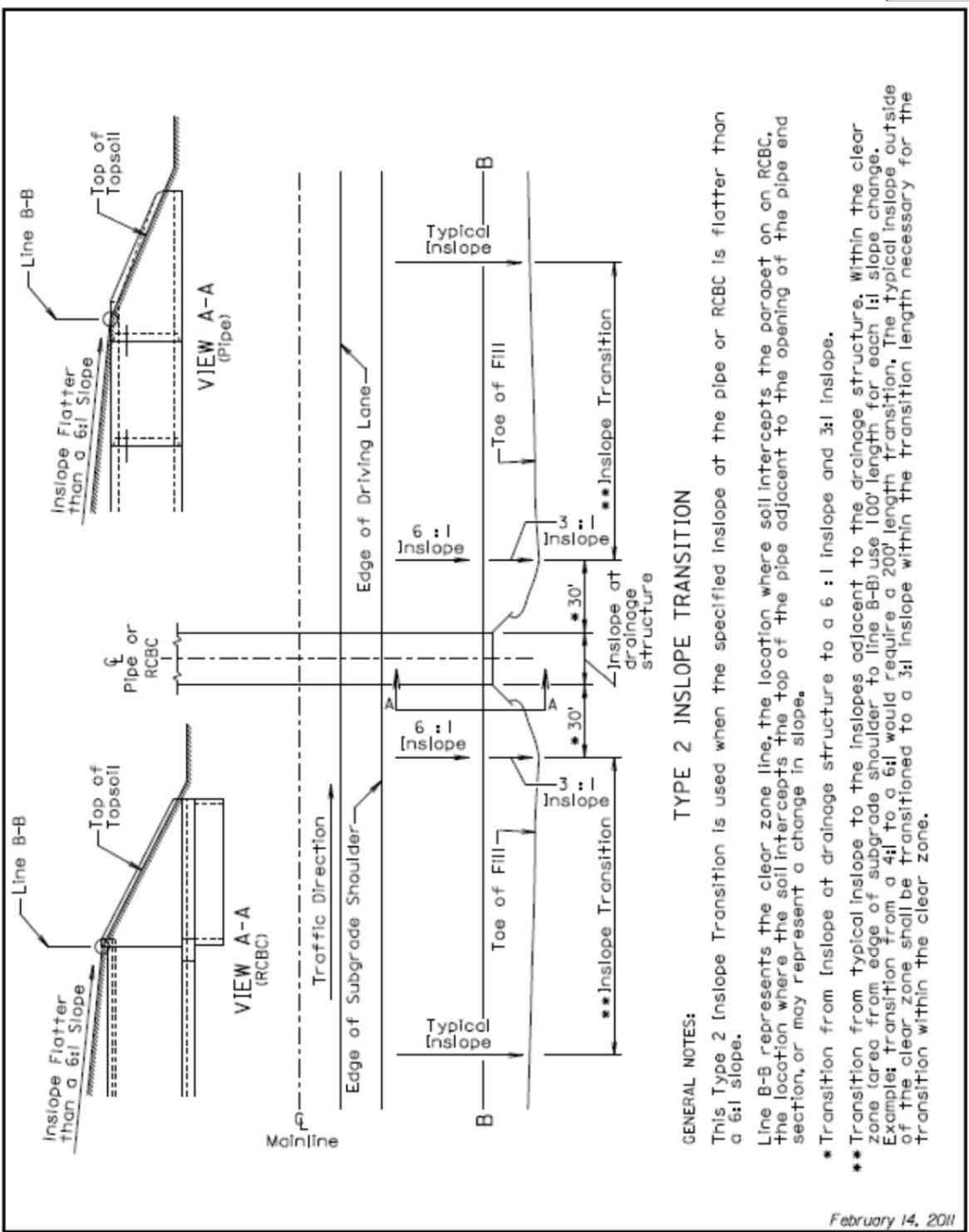


TYPE 1 INSLOPE TRANSITION

GENERAL NOTES:
 This Type 1 Inslope Transition is used when the specified inslope at the drainage structure is flatter than the typical inslope and the inslope at the drainage structure is between a 4:1 slope and 6:1 slope. Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.
 * Transition from the typical inslope to the inslope at the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned gradually to the slope necessary adjacent to the RCBC wing wall or pipe culvert end section within the transition length necessary for the transition within the clear zone.

February 14, 2011

Published Date: 3rd Qtr. 2014	S D D O T	INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS	PLATE NUMBER
			120.05
			Sheet 1 of 2



TYPE 2 INSLOPE TRANSITION

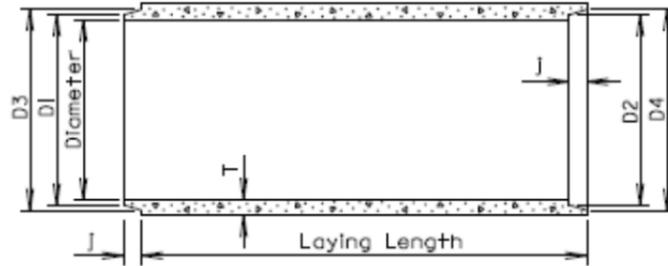
GENERAL NOTES:
 This Type 2 Inslope Transition is used when the specified inslope at the pipe or RCBC is flatter than a 6:1 slope. Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.
 * Transition from inslope at drainage structure to a 6 : 1 inslope and 3:1 inslope.
 ** Transition from typical inslope to the inslopes adjacent to the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned to a 3:1 inslope within the transition length necessary for the transition within the clear zone.

February 14, 2011

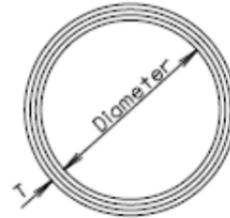
Published Date: 3rd Qtr. 2014	S D D O T	INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS	PLATE NUMBER
			120.05
			Sheet 2 of 2

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: $\pm 3/16"$ for 30" Dia. or less and $\pm 1/4"$ for 36" or greater.
 Length of joint (J): $\pm 1/4"$.
 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 Standard Specifications for Roads and Bridges.

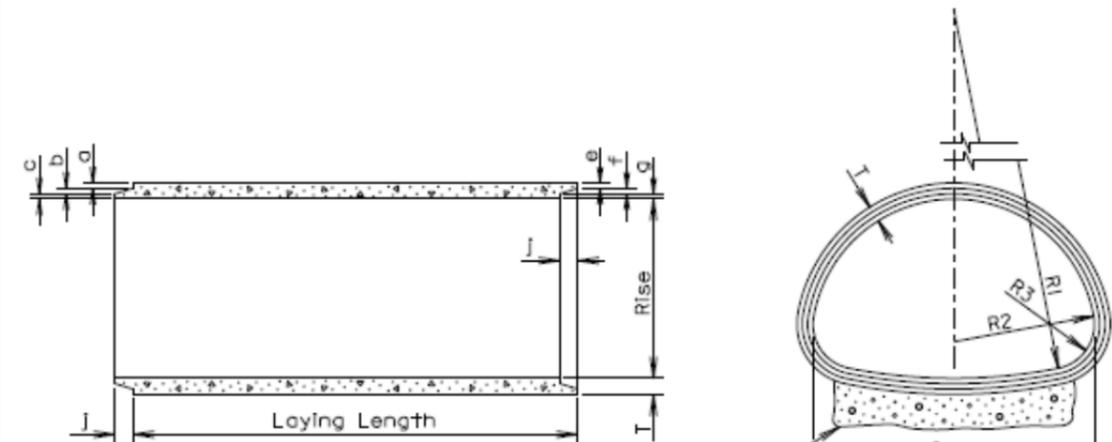
Not more than 2 four foot sections shall be permitted near the ends of any culvert. Four foot lengths shall be used only to secure the required length of culvert.

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 3/4	13 5/8	13 3/8	14 1/4
15	127	2 1/4	2	16 1/2	16 1/8	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 7/8	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 5/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 5/8	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 7/8	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 1/8	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 3/8
96	2950	9	7	102 1/8	102 3/8	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

March 31, 2000

S D D O T	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
		Sheet 1 of 1

Published Date: 3rd Qtr. 2014



LONGITUDINAL SECTION

END VIEW

TOLERANCES IN DIMENSIONS

Radial dimensions at joints: $\pm 1/8"$ for 65' span or less and $\pm 1/4"$ for longer spans.
 Rise and Span: $\pm 2\%$ of tabular values.
 Length of Joint (J): $\pm 1/4"$.
 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 1/8	3	1 3/8	1/2	1 5/8	40 1/8	14 3/4	4 5/8
30	450	22 1/2	36 1/4	4	1 11/16	5/8	1 1/16	3 1/2	1 3/16	5/8	1 11/16	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 1/8
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 11/16	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.

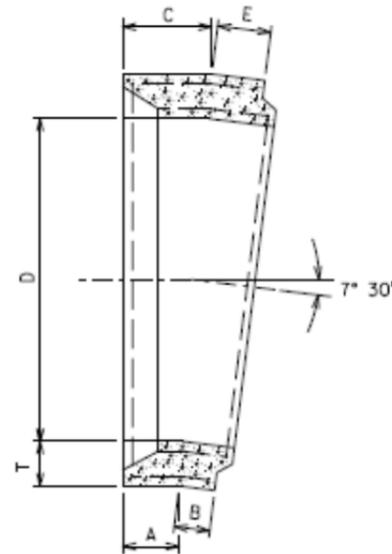
GENERAL NOTES:

Construction of R.C.P. Arch shall conform to the requirements of Section 990 of the Standard Specifications for Roads and Bridges. 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.

March 31, 2000

S D D O T	REINFORCED CONCRETE PIPE ARCH	PLATE NUMBER 450.02
		Sheet 1 of 1

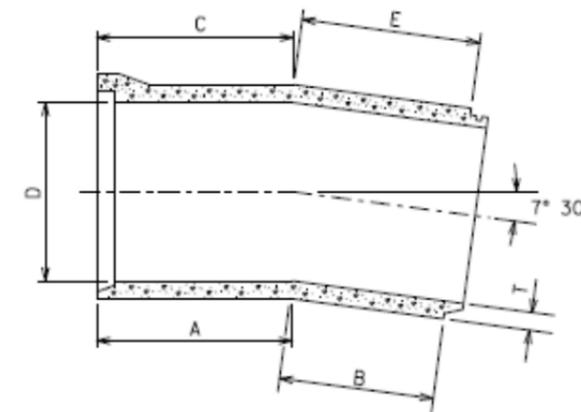
Published Date: 4th Qtr. 2014



D (in.)	Laying Length at Center of Pipe (in.)	Laying Length at Outside of Curve (in.)	T (in.)	A (in.)	B (in.)	C (in.)	E (in.)	Radius of Curve (ft.)	Weight of Section (lbs.)
12	7 ³ / ₄	8	2	4 ³ / ₄	2	5 ³ / ₄	3	4.9	70
15	11 ¹ / ₄	12 ¹ / ₂	2 ¹ / ₄	5 ¹ / ₄	4 ³ / ₄	6 ¹ / ₂	6	7.2	120
18	12 ¹ / ₈	13 ⁵ / ₈	2 ¹ / ₂	5 ¹ / ₂	5 ¹ / ₈	7	6 ⁵ / ₈	7.7	170
21	9 ¹ / ₂	11 ¹ / ₄	2 ³ / ₄	5 ¹ / ₂	2 ¹ / ₄	7 ¹ / ₄	4	6.1	170
24	9 ⁵ / ₁₆	11 ³ / ₄	3	5 ⁵ / ₁₆	2 ⁵ / ₁₆	7 ¹ / ₂	4 ¹ / ₄	6.2	215
27	9 ¹¹ / ₁₆	12 ¹ / ₈	3 ¹ / ₄	5 ¹¹ / ₁₆	2 ¹¹ / ₁₆	7 ³ / ₈	4 ¹ / ₂	6.2	260
30	10	12 ³ / ₈	3 ¹ / ₂	5 ⁵ / ₈	2 ³ / ₈	7 ¹¹ / ₁₆	4 ¹ / ₈	6.4	320
33	11 ³ / ₁₆	13 ³ / ₈	3 ³ / ₄	5 ⁹ / ₁₆	2 ⁹ / ₁₆	8 ³ / ₈	5 ¹ / ₄	7.1	420
36	12 ³ / ₁₆	15 ¹ / ₁₆	4	6 ¹ / ₂	2 ⁵ / ₁₆	9 ³ / ₈	5 ¹ / ₈	7.7	530
42	14 ¹ / ₁₆	17 ¹ / ₂	4 ¹ / ₂	6 ⁵ / ₁₆	3 ³ / ₁₆	10 ⁵ / ₁₆	7 ³ / ₁₆	8.9	800
48	16 ¹ / ₁₆	20 ¹ / ₄	5	7 ⁵ / ₁₆	4 ¹ / ₁₆	11 ³ / ₄	8 ¹ / ₂	10.5	1190
54	18 ¹ / ₁₆	22 ⁵ / ₁₆	5 ¹ / ₂	7 ⁵ / ₈	6 ³ / ₁₆	11 ⁷ / ₈	10 ⁷ / ₁₆	11.5	1600
60	20 ¹ / ₂	25 ¹ / ₄	6	8 ⁵ / ₈	7 ¹ / ₈	13 ³ / ₈	11 ³ / ₈	13.0	2210
66	21 ⁵ / ₈	26 ⁵ / ₁₆	6 ¹ / ₂	9	7 ³ / ₈	14 ⁵ / ₁₆	12 ⁵ / ₈	13.8	2790
72	22 ⁵ / ₈	28 ¹ / ₄	7	9 ³ / ₈	7 ⁵ / ₈	13 ³ / ₄	15	14.4	3420

March 31, 2000

Published Date: 3rd Qtr. 2014	S D D O T	REINFORCED CONCRETE PIPE SHORT RADIUS BEND	PLATE NUMBER 450.03
			Sheet 1 of 1



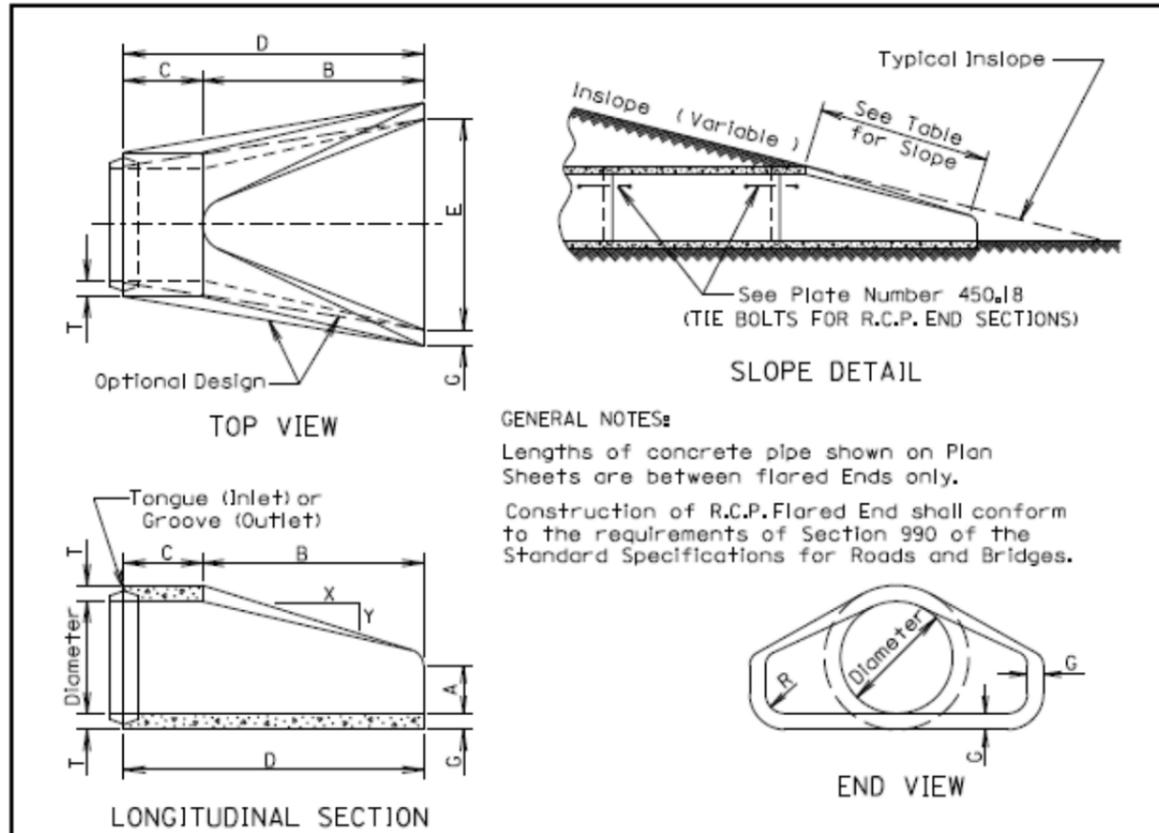
GENERAL NOTE:

Centerline laying length: 4'-0
Radius of Curve: 30.5'

D (in.)	T (in.)	A (in.)	B (in.)	C (in.)	E (in.)	Weight of Section (lbs.)
12	2	36 ⁵ / ₃₂	10 ⁵ / ₃₂	37 ¹⁷ / ₃₂	11 ¹⁷ / ₃₂	368
15	2 ¹ / ₄	36 ¹ / ₂	10 ¹ / ₄	37 ³ / ₄	11 ¹ / ₂	508
18	2 ¹ / ₂	24 ¹ / ₂	22	26	23 ¹ / ₂	672
21	2 ³ / ₄	24 ¹ / ₂	21 ³ / ₄	26 ¹ / ₄	23 ¹ / ₂	856
24	3	25 ¹ / ₃₂	21 ¹ / ₃₂	26 ³ / ₃₂	22 ³ / ₃₂	1060
27	3 ¹ / ₄	25 ¹ / ₃₂	20 ²⁵ / ₃₂	27 ¹ / ₃₂	22 ²⁵ / ₃₂	1288
30	3 ¹ / ₂	25 ¹ / ₃₂	20 ¹¹ / ₃₂	27 ¹⁵ / ₃₂	22 ²³ / ₃₂	1536
33	3 ³ / ₄	24 ⁵ / ₁₆	20 ⁵ / ₁₆	27 ⁹ / ₁₆	23 ⁵ / ₁₆	1808
36	4	24 ⁹ / ₁₆	20 ⁹ / ₁₆	27 ¹³ / ₁₆	23 ⁹ / ₁₆	2096
42	4 ¹ / ₂	24 ²⁷ / ₃₂	19 ²⁷ / ₃₂	28 ³ / ₃₂	23 ²⁷ / ₃₂	2740
48	5	24 ⁹ / ₃₂	19 ⁹ / ₃₂	28 ⁹ / ₃₂	23 ⁹ / ₃₂	3468
54	5 ¹ / ₂	24 ⁵ / ₈	19 ¹ / ₈	29 ¹¹ / ₃₂	23 ⁵ / ₈	4280
60	6	24 ²³ / ₃₂	18 ²³ / ₃₂	29 ¹¹ / ₃₂	23 ¹¹ / ₃₂	5184
66	6 ¹ / ₂	24 ¹¹ / ₁₆	18 ³ / ₁₆	29 ⁵ / ₁₆	23 ⁵ / ₁₆	6168
72	7	24 ¹ / ₈	18 ¹ / ₈	29 ³ / ₈	23 ³ / ₈	7240
84	8	24 ¹ / ₄	17 ¹ / ₄	30 ³ / ₄	23 ³ / ₄	9640
96	9	23 ⁵ / ₁₆	17 ⁵ / ₁₆	30 ¹¹ / ₁₆	24 ⁵ / ₁₆	12400

March 31, 2000

Published Date: 3rd Qtr. 2014	S D D O T	REINFORCED CONCRETE PIPE LONG RADIUS BEND	PLATE NUMBER 450.04
			Sheet 1 of 1

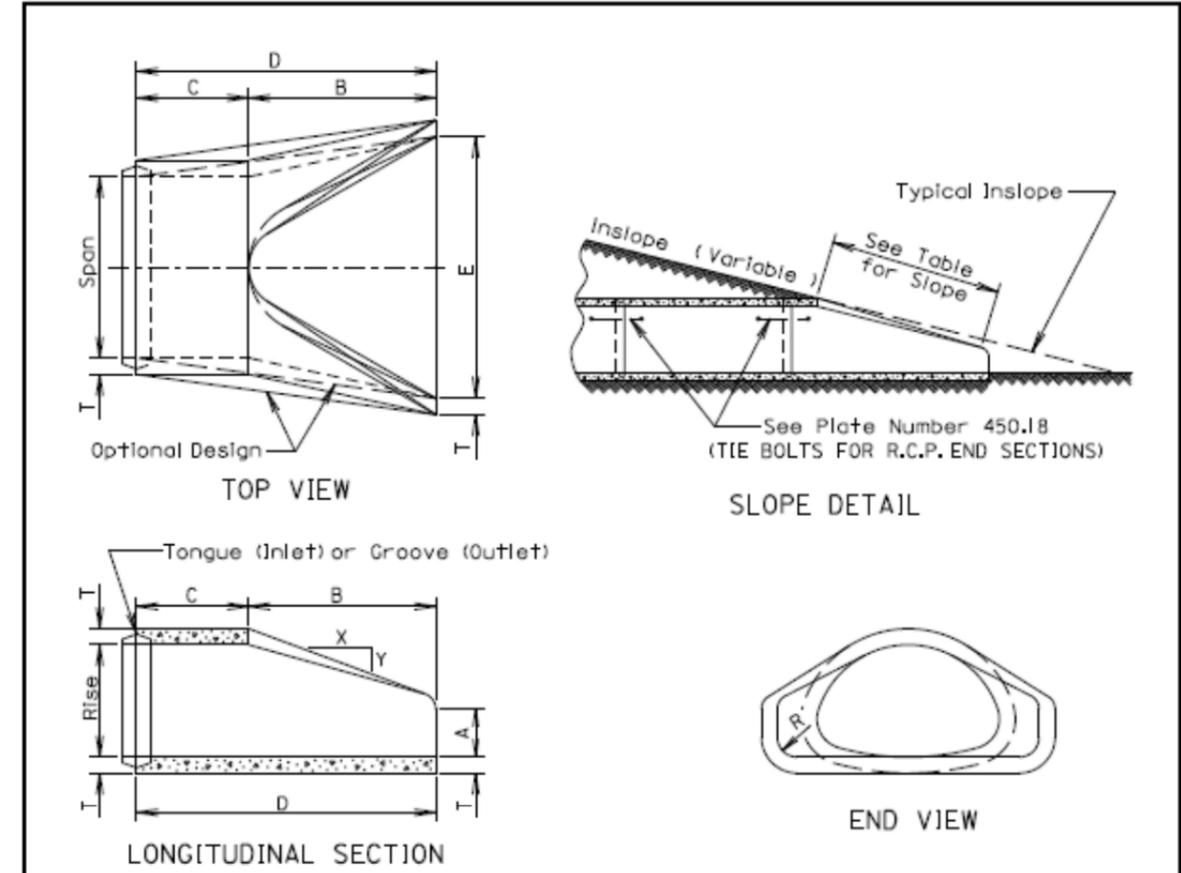


GENERAL NOTES:
 Lengths of concrete pipe shown on Plan Sheets are between flared Ends only.
 Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Standard Specifications for Roads and Bridges.

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 ⁷ / 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

March 31, 2000

SDDOT	R. C. P. FLARED ENDS	PLATE NUMBER 450.10
	Published Date: 3rd Qtr. 2014	Sheet 1 of 1



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 Standard Specifications for Roads and Bridges.

* 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 ³ / 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 ⁵ / 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

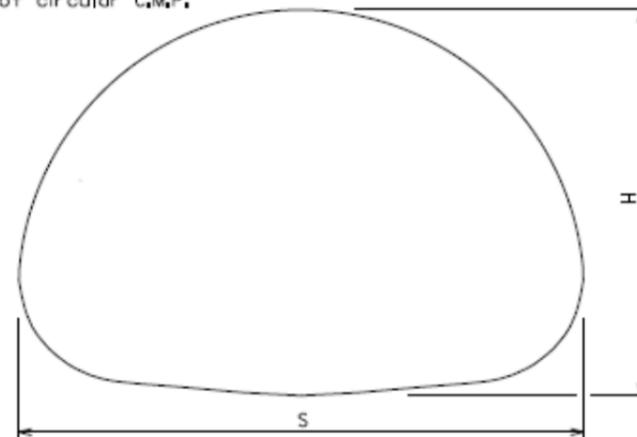
*Equivalent Diameter of Circular R. C. P.

March 31, 2000

SDDOT	R. C. P. ARCH FLARED ENDS	PLATE NUMBER 450.11
	Published Date: 4th Qtr. 2014	Sheet 1 of 1

* Dia. (in.)	2 ² / ₃ " x 1/2" CORRUGATIONS			3" X 1" CORRUGATIONS		
	S Span (in.)	H Rise (in.)	Area (Sq. Ft.)	S Span (in.)	H Rise (in.)	Area (Sq. Ft.)
15	17	13	1.1			
18	21	15	1.6			
21	24	18	2.2			
24	28	20	2.8			
30	35	24	4.4			
36	42	29	6.4	40	31	7.0
42	49	33	8.7	46	36	9.4
48	57	38	11.4	53	41	12.3
54	64	43	14.3	60	46	15.6
60	71	47	17.6	66	51	19.3
66	77	52	21.3	73	55	23.2
72	83	57	25.3	81	59	27.4
78				87	63	32.1
84				95	67	37.0
90				103	71	42.4
96				112	75	48.0
102				117	79	54.2
108				128	83	60.8
114				137	87	67.4
120				142	91	74.5

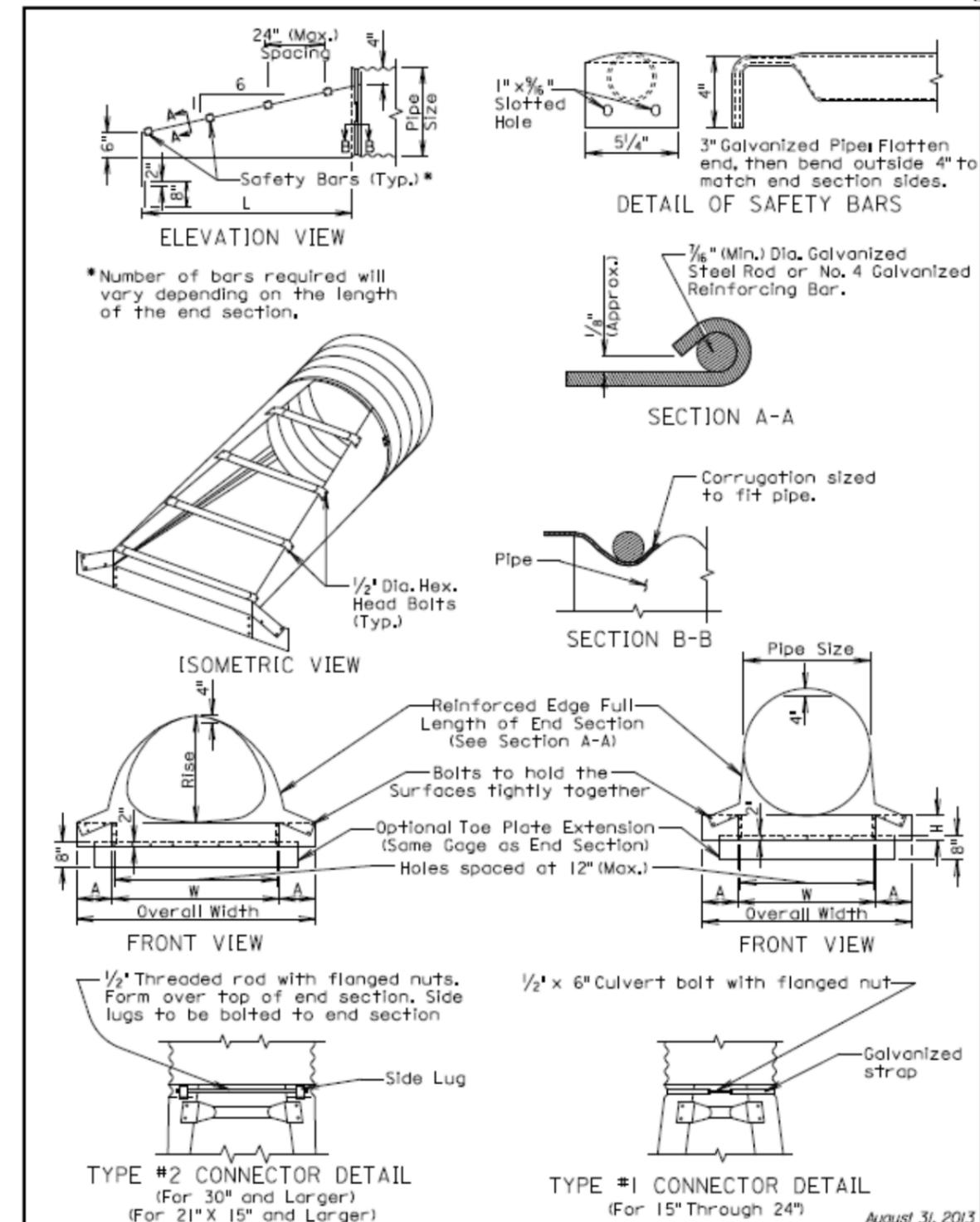
* Equivalent diameter of circular C.M.P.



GENERAL NOTE:
All dimensions measured from inside crest.

March 31, 2000

Published Date: 1st Qtr. 2015	S D D O T	CORRUGATED METAL PIPE ARCH CULVERT	PLATE NUMBER 450.30
			Sheet 1 of 1



Published Date: 1st Qtr. 2015

Published Date: 1st Qtr. 2015	S D D O T	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 1 of 2

August 31, 2013

ARCH C.M.P. SAFETY ENDS										
Equiv. Dia. (Inch)	(Inches)		Min. Thick. Inch	Dimensions (Inches)				L Dimensions		
	Span	Rise		Inch	Gage	A	H	W	Overall Width	Slope
18	21	15	.064	16	8	6	27	43	6:1	30
21	24	18	.064	16	8	6	30	46	6:1	48
24	28	20	.064	16	8	6	34	50	6:1	60
30	35	24	.079	14	12	9	41	65	6:1	84
36	42	29	.109	12	12	9	48	72	6:1	114
42	49	33	.109	12	16	12	55	87	6:1	138
48	57	38	.109	12	16	12	63	95	6:1	168
54	64	43	.109	12	16	12	70	102	6:1	198
60	71	47	.109	12	16	12	77	109	6:1	222
72	83	57	.109	12	16	12	89	121	6:1	282

CIRCULAR C.M.P. SAFETY ENDS								
Pipe Dia. (Inch)	Min. Thick. Inch	Dimensions (Inches)				L Dimensions		
		Inch	Gage	A	H	W	Overall Width	Slope
15	.064	16	8	6	21	37	6:1	30
18	.064	16	8	6	24	40	6:1	48
21	.064	16	8	6	27	43	6:1	66
24	.064	16	8	6	30	46	6:1	84
30	.109	12	12	9	36	60	6:1	120
36	.109	12	12	9	42	66	6:1	156
42	.109	12	16	12	48	80	6:1	192
48	.109	12	16	12	54	86	6:1	228
54	.109	12	16	12	60	92	6:1	264
60	.109	12	16	12	66	98	6:1	300

GENERAL NOTES:

Safety ends shall be fabricated from galvanized steel conforming to the requirements of the Standard Specifications.

Safety bars shall be fabricated from steel schedule 40 pipe in conformance with ASTM A53, grade B or HSS 3.5X.216 in conformance with ASTM A500, grade B.

Slotted holes for safety bar attachment shall be provided for all end sections.

Attachment to circular pipes 15' through 24' diameter shall be made with Type #1 straps. All other sizes shall be attached with Type #2 rods and lugs.

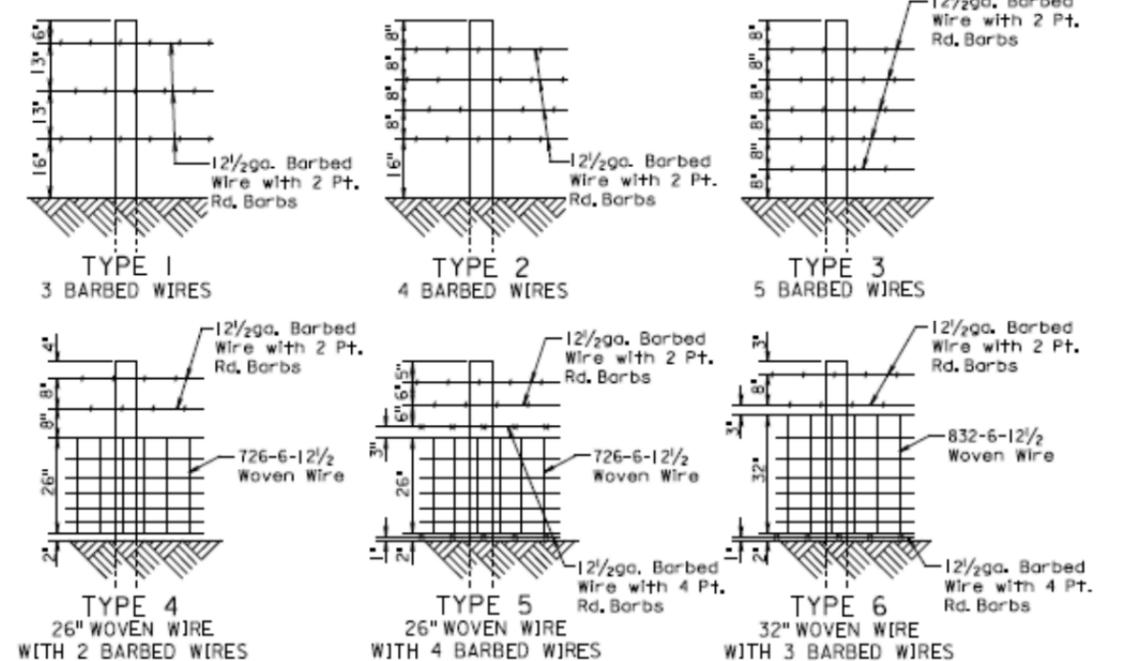
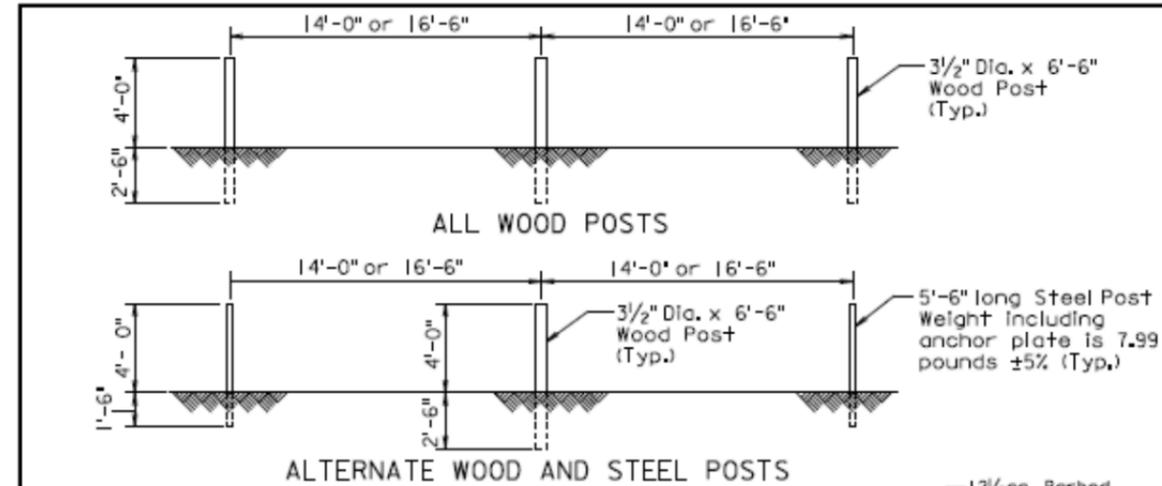
When stated in the plans, optional toe plate extension shall be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section. Dimensions shall be overall width less 6" by 8" high.

Installation shall be performed in accordance with the Standard Specifications.

Cost of all work and materials required for fabrication and installation of safety ends shall be incidental to the bid items for the various sizes of safety ends.

August 31, 2013

S D D O T	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
	Published Date: 1st Qtr. 2015	Sheet 2 of 2



TYPE	DESCRIPTION	LINE POST SPACING	WIRE GAGE	BARBED WIRE		WOVEN WIRE	
				NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.		
1	3 Barbed Wires	16'-6"	12 1/2	2 Point Round	---	---	
2	4 Barbed Wires	16'-6"	12 1/2	2 Point Round	---	---	
3	5 Barbed Wires	16'-6"	12 1/2	2 Point Round	---	---	
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12 1/2	2 Point Round	---	726-6-12 1/2	
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12 1/2	2 wires with 2 Pt. Rd., 2 wires with 4 Pt. Rd.	---	726-6-12 1/2	
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12 1/2	2 wires with 2 Pt. Rd., 1 wire with 4 Pt. Rd.	---	832-6-12 1/2	

GENERAL NOTES:

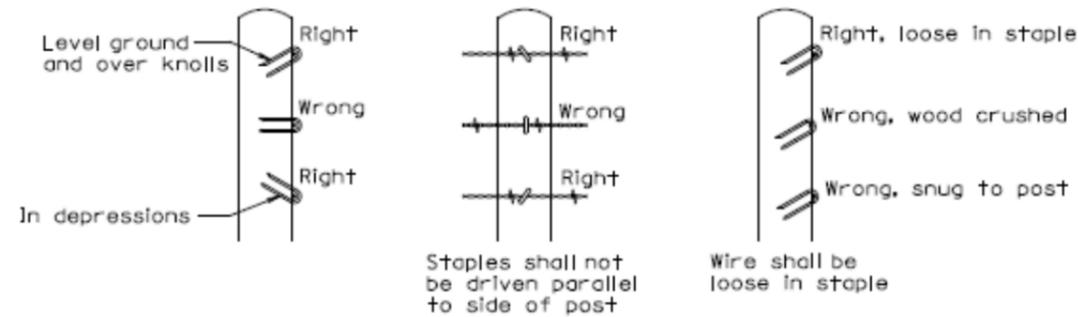
Fence types designated on the plans that are followed by the letter S shall have smooth (barbless) wires.

When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

All degrees of curvature stated for fence are at centerline of roadway.

September 14, 2009

S D D O T	RIGHT-OF-WAY FENCE	PLATE NUMBER 620.01
	Published Date: 3rd Qtr. 2014	Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence shall consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire shall be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts shall be used for brace panels. Gates shall be of the type designated in the plans or as otherwise directed by the Engineer. Fence shall be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects shall be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

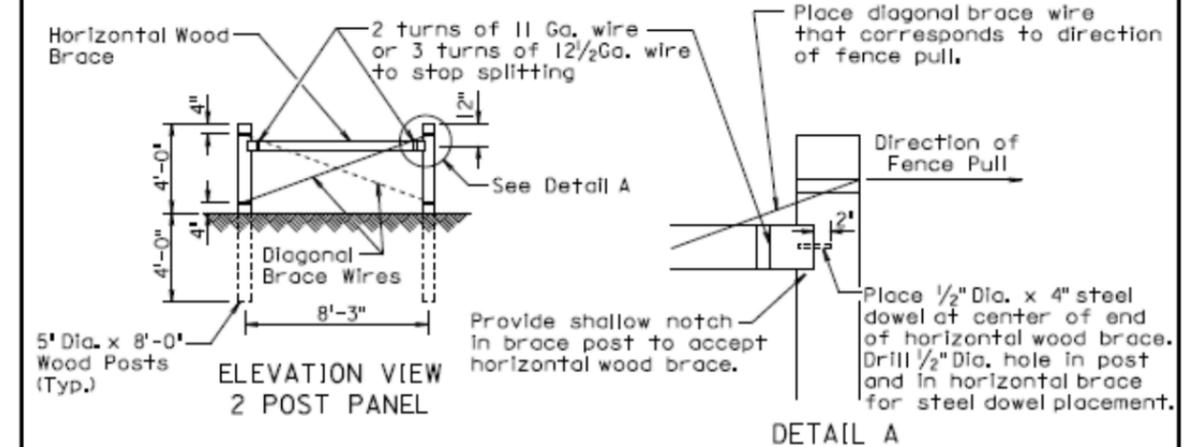
Right-of-Way fence other than on Interstate Projects shall be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs shall be fabricated from zinc coated 14 ga. wire. Two point barbs shall be wrapped twice around one main strand at 4' spacings and the four point barbs shall be interlocked and wrapped around both main strands at 5' spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts shall be as stated in AASHTO M281. Woven wire shall conform to design and specifications of ASTM A116 and barbed wire shall conform to ASTM A121.

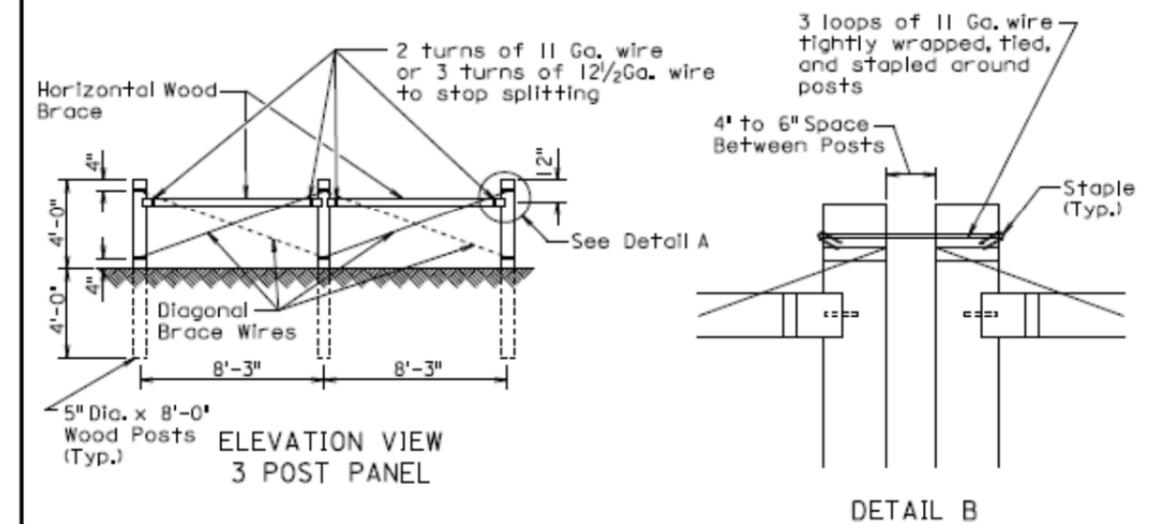
December 23, 2004

Published Date: 3rd Qtr. 2014	S D D O T	STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES	PLATE NUMBER 620.02
			Sheet 1 of 1



ELEVATION VIEW
2 POST PANEL

DETAIL A



ELEVATION VIEW
3 POST PANEL

DETAIL B

GENERAL NOTES:

Two Post Panels shall be installed at least every 1320' between corners.

Two Post Panels shall be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces shall consist of 4" dia. x 8' wood posts or rough 4' x 4' x 8' timbers.

Diagonal brace wires shall be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires shall be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

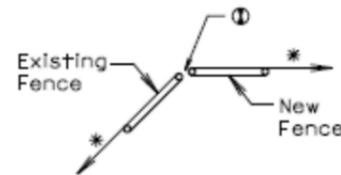
December 23, 2004

Published Date: 3rd Qtr. 2014	S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 1 of 3

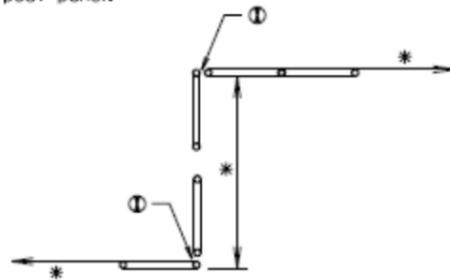
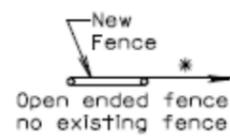
SPACING OF 2 POST PANELS WITHIN CURVES	
DEGREE OF CURVE	SPACING OF 2 POST PANEL
less than 3°15'	** 1320'
3°15' and greater	**At P.C., P.T., and at every 1320' between P.C. and P.T.

GENERAL NOTE:
All degrees of curvature stated for fence are at centerline of roadway.

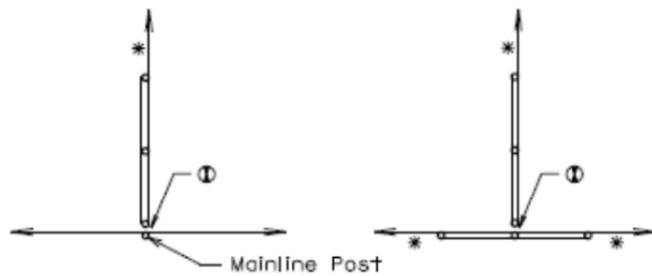
- * If fence length is less than 600' to next corner use a 2 post panel.
- * If fence length is greater than 600' to next corner use a 3 post panel.
- ** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.
- ① See Detail B on Sheet 1 of 3.



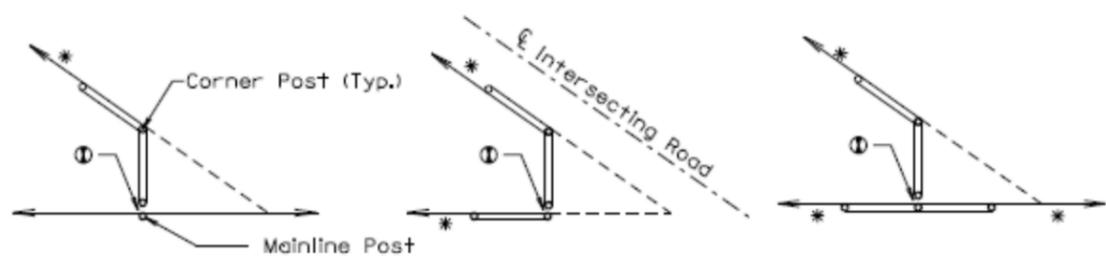
BEGIN OR END FENCE
(where new fence ties into existing fence)



SHORT JOGS IN FENCE



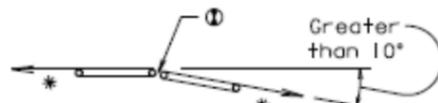
CROSS FENCE



SHARP ANGLES IN CROSS FENCE



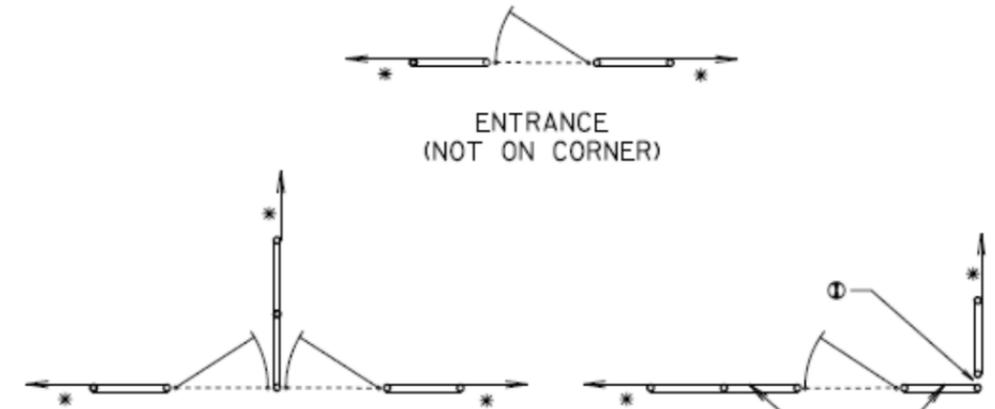
Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.



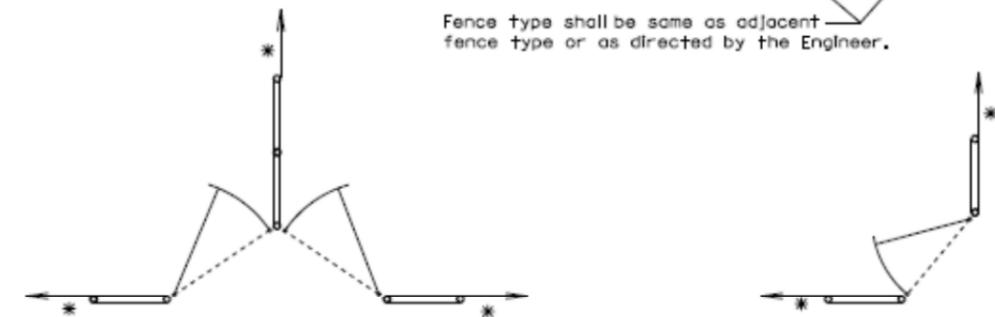
Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

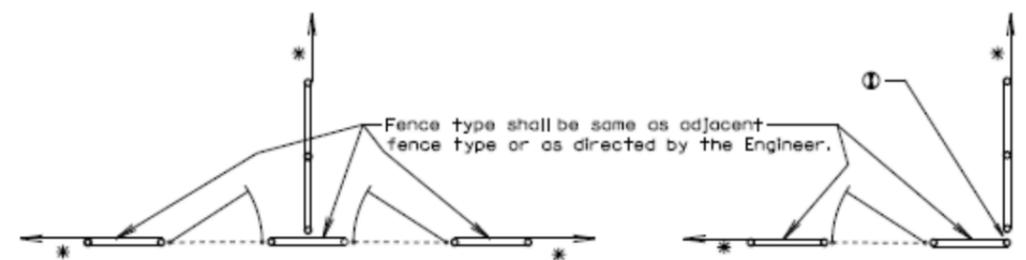
December 23, 2004



ENTRANCE
(NOT ON CORNER)



Fence type shall be same as adjacent fence type or as directed by the Engineer.



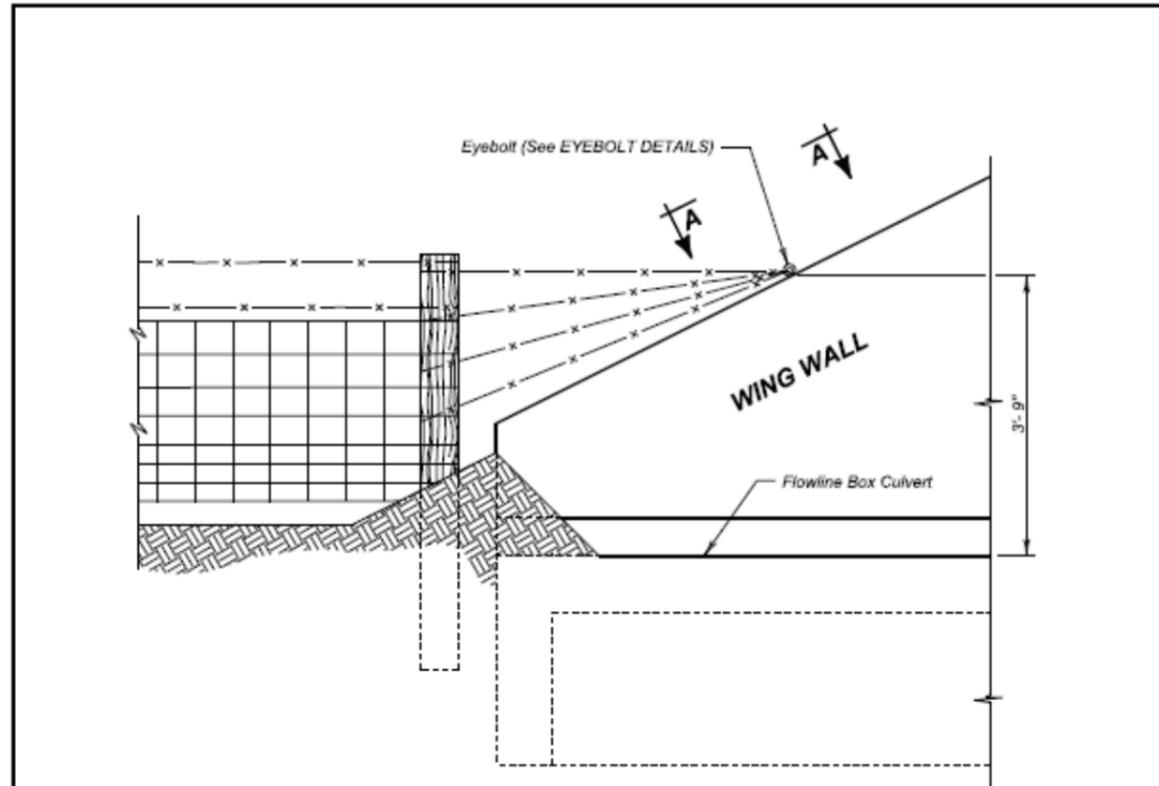
ENTRANCES AT CORNERS

DOUBLE ENTRANCES

GATES

- * If fence length is less than 600' to next corner use a 2 post panel.
- * If fence length is greater than 600' to next corner use a 3 post panel.
- ① See Detail B on Sheet 1 of 3.

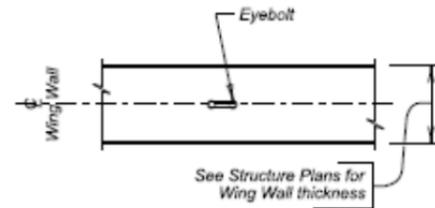
December 23, 2004



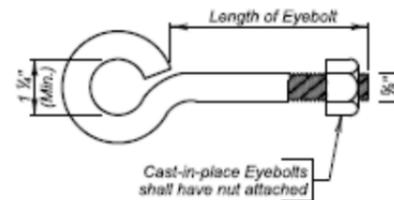
DETAIL FOR FENCE ANCHORS

GENERAL NOTES:

1. The fence and post details shown are for illustrative purpose only. The fence shall be as specified elsewhere in the plans.
2. Eyebolts shall be placed on all of the box culvert wing walls.
3. Eyebolts shall be 3/8 inch diameter and shall conform to ASTM A307.
4. Eyebolts, nuts, and concrete inserts shall be galvanized in accordance with AASHTO M232 (ASTM A153). Concrete inserts of corrosion resistant material need not be galvanized.
5. Cast-in-place eyebolts shall have a nut attached, be 4 1/2 inches (Min.) in length and shall be embedded such that the eye of the bolt is flush with the concrete surface. (See Eyebolt Details) As an alternate, cast-in-place concrete inserts, capable of developing the full strength of the 3/8 inch diameter threaded eyebolt, may be used and shall be set in the concrete in accordance with the manufacturer's recommendations. The eyebolt shall be of sufficient length to develop its full strength. The eye of the eyebolt shall be flush with the concrete surface.
6. The cost for furnishing and installing eyebolts and/or concrete inserts shall be incidental to various contract items.



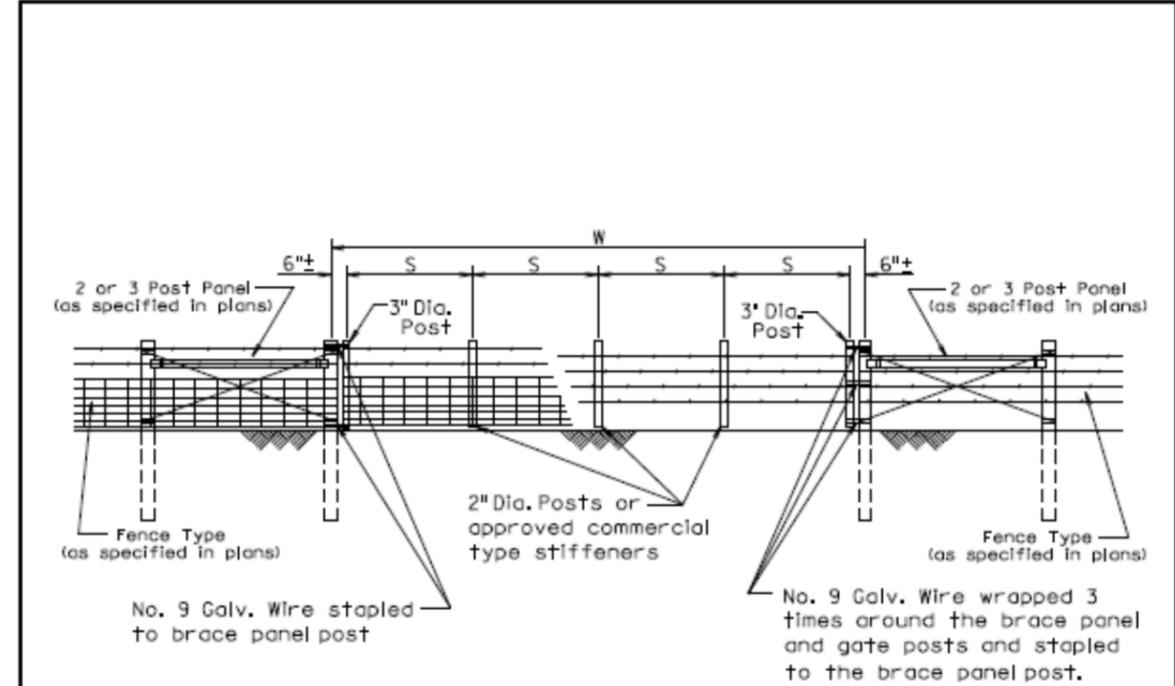
VIEW A - A



EYEBOLT DETAILS

December 23, 2012

Published Date: 4th Qtr. 2014	S D D O T	FENCE ANCHORS FOR BOX CULVERT WING WALLS	PLATE NUMBER 620.16
			Sheet 1 of 1



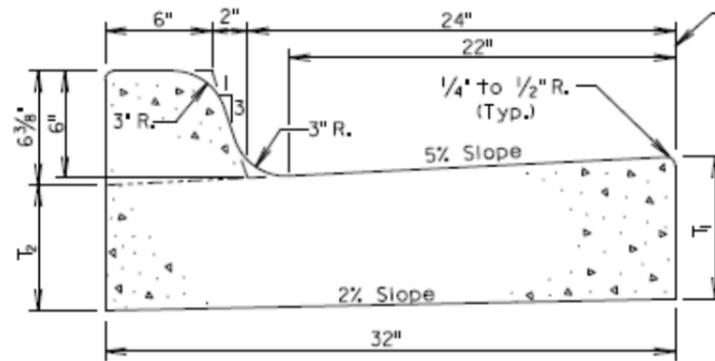
W Gate Width (ft.)	S Post Spacing
16	3 @ 5'-0" ±
20	4 @ 4'-9" ±
24	4 @ 5'-9" ±
30	5 @ 5'-10" ±
40	6 @ 6'-6" ±

GENERAL NOTES:

- Creosote treatment of the gate posts will not be accepted.
- The type of fencing in the gate shall be of the same type as specified for the adjacent Right-of-Way fence.
- All costs for furnishing and constructing the wire gate(s) shall be incidental to the contract unit price per Ft for the respective Right-of-Way fence bid item.

March 31, 2000

Published Date: 3rd Qtr. 2014	S D D O T	WIRE GATES	PLATE NUMBER 620.20
			Sheet 1 of 1



The stated radii on the plans and cross sections refer to this line and it shall also be the basis for horizontal linear foot measurement and payment.

Type	T ₁ (Inches)	T ₂ (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B66	6	5/16	0.057	17.7
B67	7	6/16	0.065	15.4
B68	8	7/16	0.073	13.7
B68.5	8.5	7 3/16	0.077	13.0
B69	9	8/16	0.081	12.3
B69.5	9.5	8 3/16	0.085	11.7
B610	10	9/16	0.090	11.2
B610.5	10.5	9 3/16	0.094	10.7
B611	11	10/16	0.098	10.2
B611.5	11.5	10 3/16	0.102	9.8
B612	12	11/16	0.106	9.4

GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

See Standard Plate 650.90 for expansion and contraction joints in the curb and gutter.

September 6, 2008

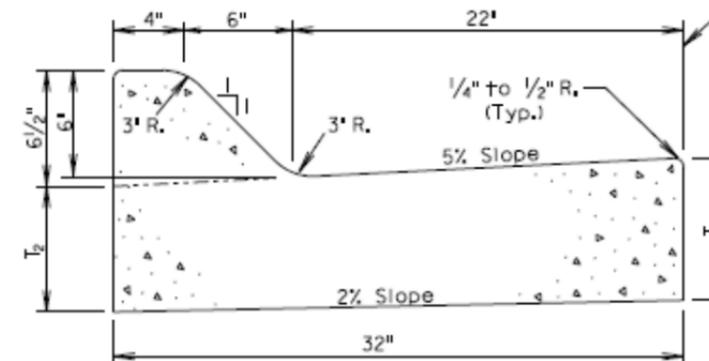
Published Date: 3rd Qtr. 2014

S
D
D
O
T

TYPE B CONCRETE CURB AND GUTTER

PLATE NUMBER
650.01

Sheet 1 of 1



The stated radii on the plans and cross sections refer to this line and it shall also be the basis for horizontal linear foot measurement and payment.

Type	T ₁ (Inches)	T ₂ (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
F66	6	5/16	0.057	17.6
F67	7	6/16	0.065	15.4
F68	8	7/16	0.073	13.6
F68.5	8.5	7 3/16	0.077	12.9
F69	9	8/16	0.082	12.3
F69.5	9.5	8 3/16	0.086	11.7
F610	10	9/16	0.090	11.1
F610.5	10.5	9 3/16	0.094	10.7
F611	11	10/16	0.098	10.2
F611.5	11.5	10 3/16	0.102	9.8
F612	12	11/16	0.106	9.4

GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

See Standard Plate 650.90 for expansion and contraction joints in the curb and gutter.

September 6, 2008

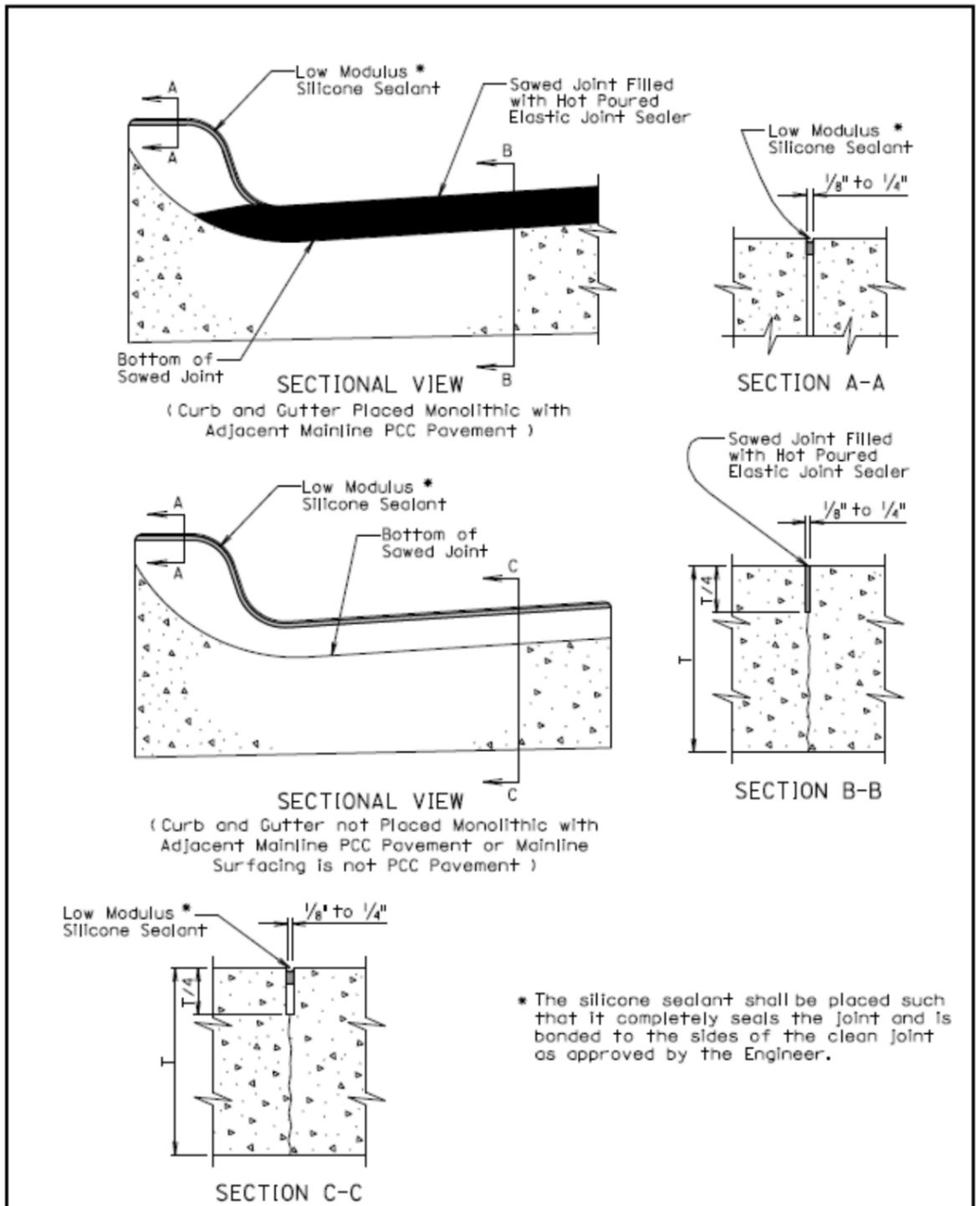
Published Date: 3rd Qtr. 2014

S
D
D
O
T

TYPE F CONCRETE CURB AND GUTTER

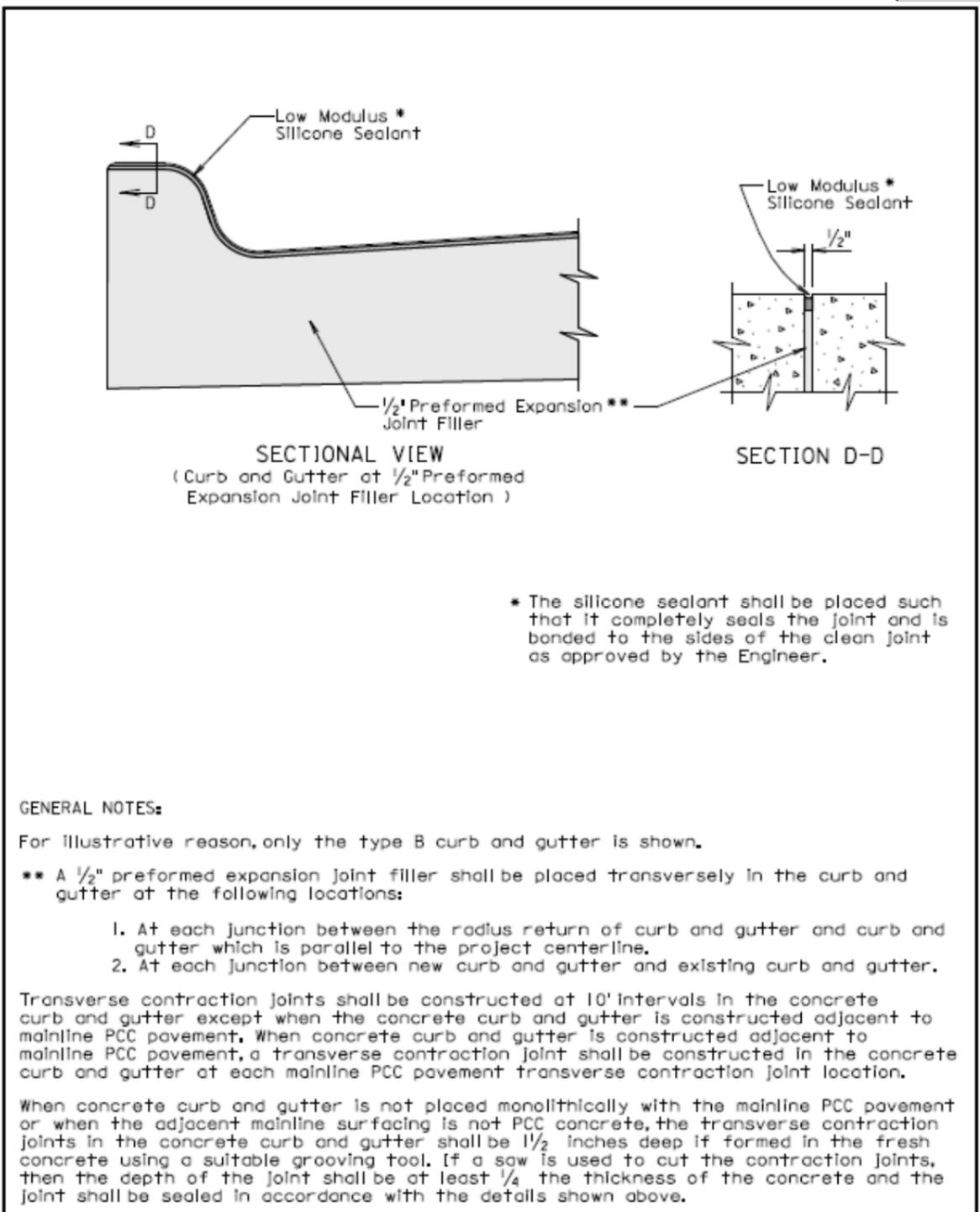
PLATE NUMBER
650.20

Sheet 1 of 1



September 6, 2013

Published Date: 3rd Qtr. 2014	S D D O T	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 1 of 2



GENERAL NOTES:

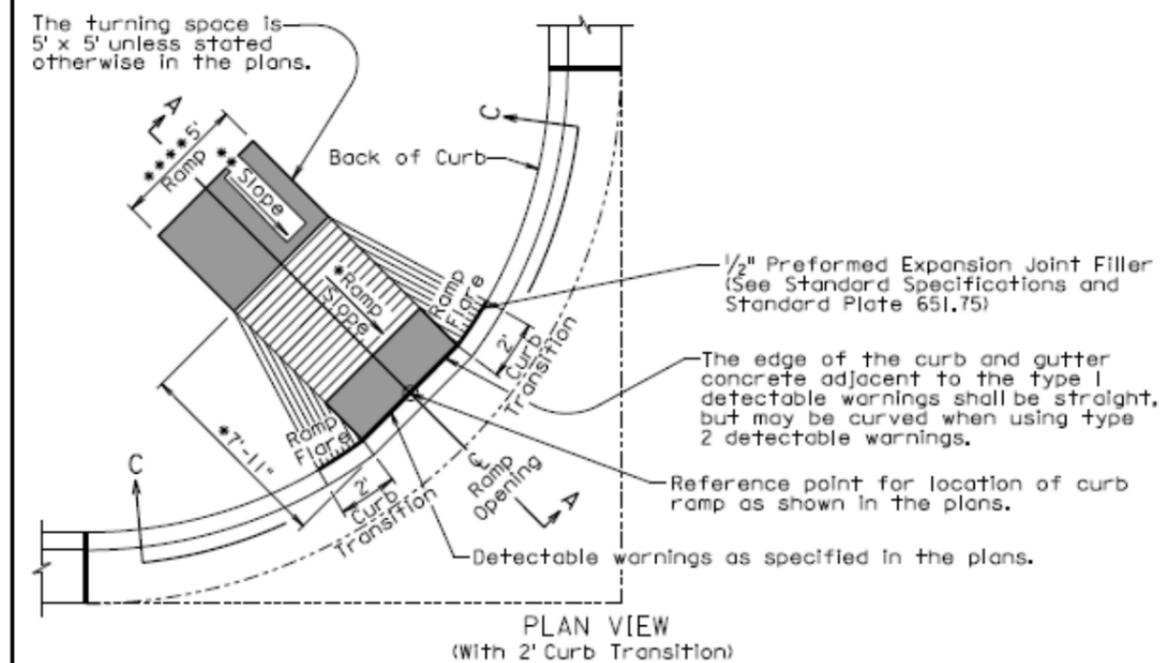
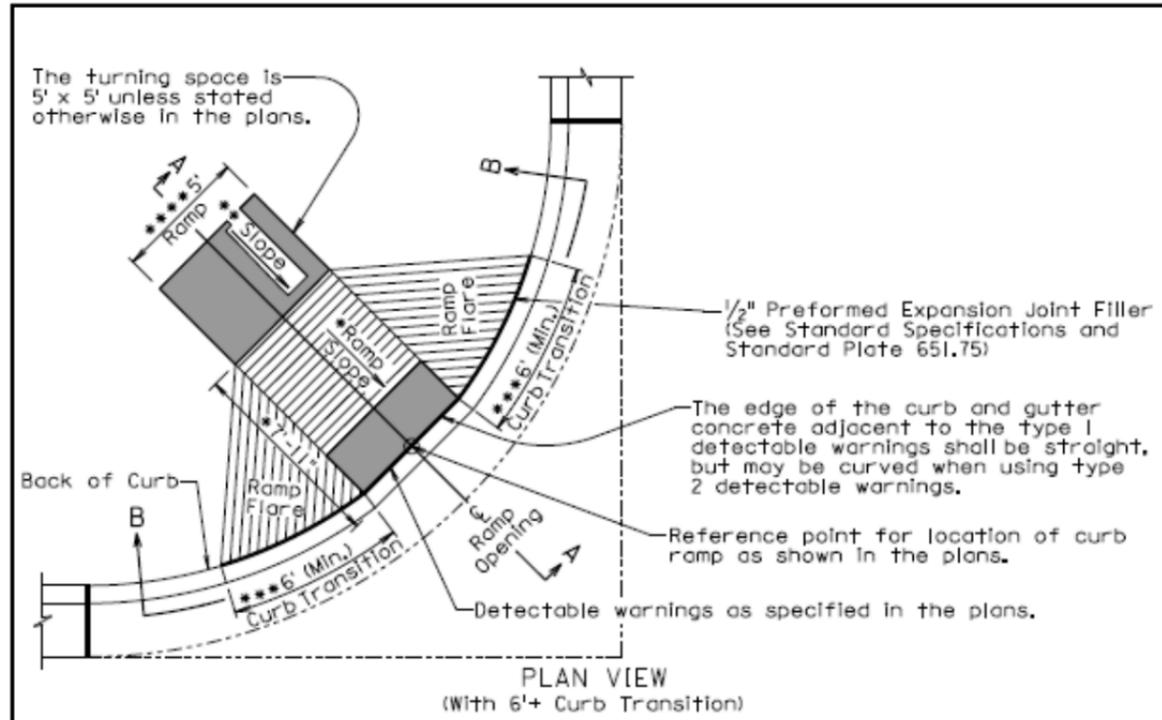
- For illustrative reason, only the type B curb and gutter is shown.
- ** A 1/2" preformed expansion joint filler shall be placed transversely in the curb and gutter at the following locations:
1. At each junction between the radius return of curb and gutter and curb and gutter which is parallel to the project centerline.
 2. At each junction between new curb and gutter and existing curb and gutter.

Transverse contraction joints shall be constructed at 10' intervals in the concrete curb and gutter except when the concrete curb and gutter is constructed adjacent to mainline PCC pavement. When concrete curb and gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint shall be constructed in the concrete curb and gutter at each mainline PCC pavement transverse contraction joint location.

When concrete curb and gutter is not placed monolithically with the mainline PCC pavement or when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete curb and gutter shall be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the concrete and the joint shall be sealed in accordance with the details shown above.

September 6, 2013

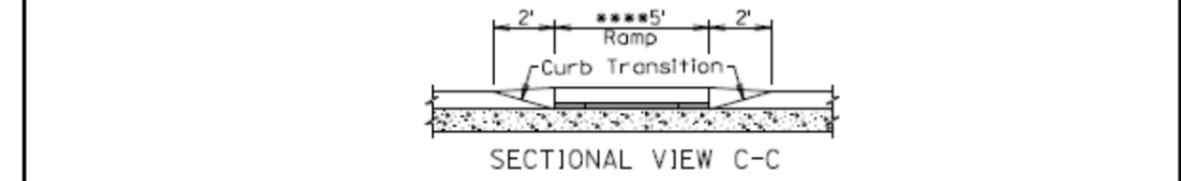
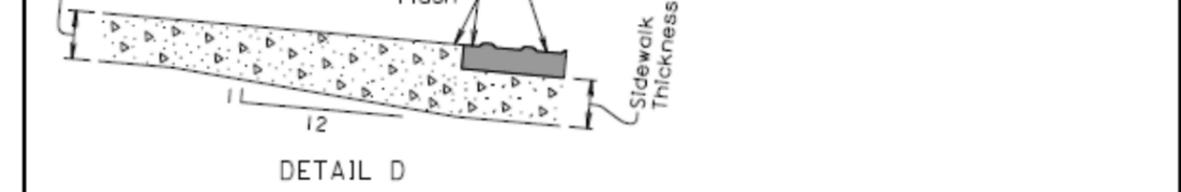
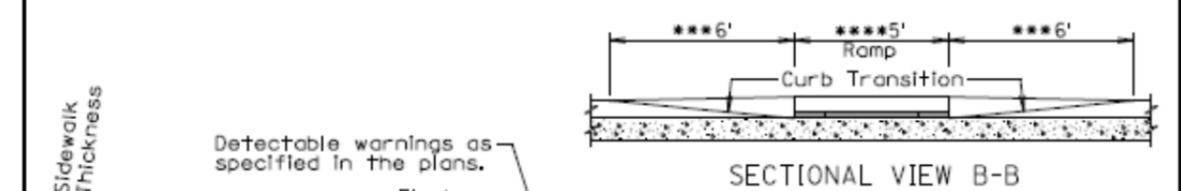
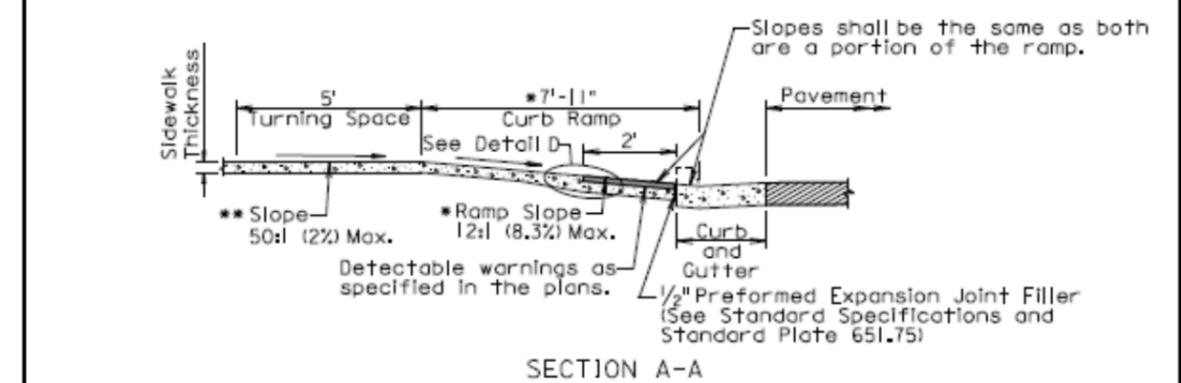
Published Date: 3rd Qtr. 2014	S D D O T	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 2 of 2



September 6, 2013

Published Date: 3rd Qtr. 2014	S D D O T	TYPE 1 CURB RAMP (PERPENDICULAR CURB RAMP)	PLATE NUMBER 651.01
			Sheet 1 of 3

- * The ramp slope shall be 12:1 (8.3%) maximum. The ramp length shall not exceed 15' unless stated otherwise in the plans. Ramp slopes are designed at 12:1 (8.3%) unless stated otherwise in the plans.
- ** The cross slope of the ramp shall not be steeper than 50:1 (2%).
- *** The 7'-11" dimension was computed based on a flat roadway profile, a continuous 2% theoretical slope from top of theoretical curb to the top of ramp, and a 6' high curb. The dimension shall be adjusted based on the curb type shown in the plans, the roadway geometrics, and the sidewalk geometrics.
- **** The slope in the turning space shall not be steeper than 50:1 (2%) in any direction of pedestrian travel.
- ***** The curb transition shall be a minimum of 6' long, a maximum of 10' long, and the curb transition slope shall not be steeper than 10:1 (10%) unless stated otherwise in the plans.
- ***** The ramp width is 5' unless stated otherwise in the plans.



September 6, 2013

Published Date: 3rd Qtr. 2014	S D D O T	TYPE 1 CURB RAMP (PERPENDICULAR CURB RAMP)	PLATE NUMBER 651.01
			Sheet 2 of 3

GENERAL NOTES:

For illustrative purpose only, type 1 detectable warnings are shown in the drawings.

For illustrative purpose only, PCC fillet sections are shown in the drawings. The curb ramp depicted on this standard plate may be used with a PCC fillet section, with curved curb and gutter, or with straight curb and gutter.

For illustrative purpose only, the curb ramp location is shown at the center of a PCC fillet section. The curb ramp shall be placed at the location stated in the plans.

Sidewalk shall not be placed adjacent to the ramp flares when a 2' curb transition is used unless shown otherwise in the plans.

* Care shall be taken to ensure a uniform grade on the ramp, free of sags and short grade changes.

Surface texture of the ramp shall be obtained by coarse brooming transverse to the slope of the ramp.

The normal gutter line profile shall be maintained through the area of the ramp.

Joints shall be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking.

Care shall be taken to ensure that the surface of the detectable warnings are clean and maintains a uniform color.

The detectable warnings shall be cut as necessary to fit the plan specified limits of the detectable warnings. Cost for cutting the detectable warnings shall be incidental to the corresponding detectable warning bid item.

There will be no separate payment for curb ramps. The curb ramp shall be measured and paid for at the contract unit price per square foot for the corresponding concrete sidewalk bid item. The square foot area of the detectable warnings shall be included in the measured and paid for quantity of sidewalk.

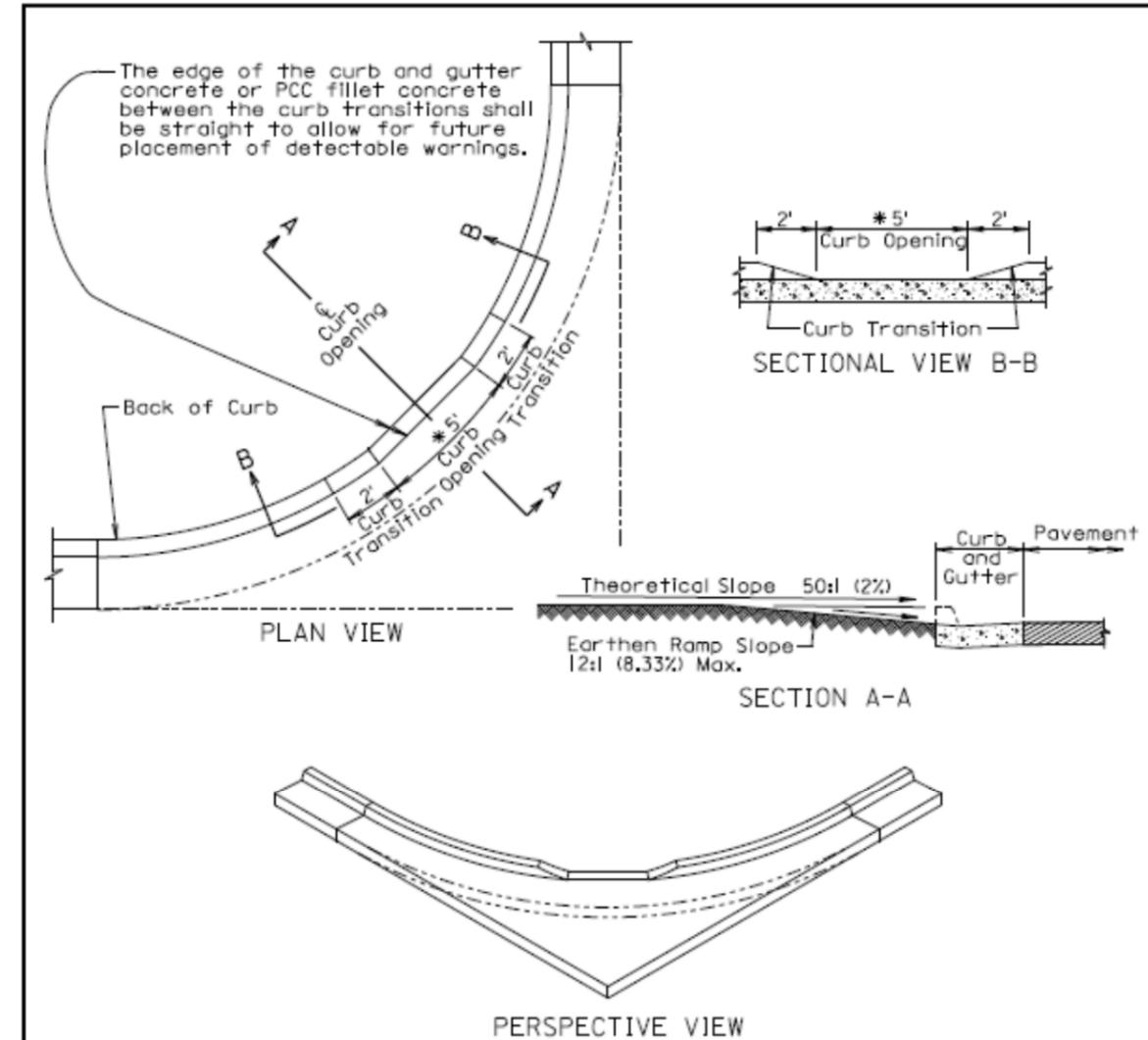
The curb transitions and ramp opening shall be measured and paid for at the contract unit price per foot for the corresponding curb and gutter bid item when curb and gutter is used. The curb transitions and ramp opening shall be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section bid item when a PCC fillet section is used.

The type 1 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 1 detectable warnings including labor, equipment, materials, and incidentals shall be paid for at the contract unit price per square foot for "Type 1 Detectable Warnings".

The type 2 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding shall be paid for at the contract unit price per square foot for "Type 2 Detectable Warnings".

September 6, 2013

S D D O T	TYPE 1 CURB RAMP (PERPENDICULAR CURB RAMP)	PLATE NUMBER 651.01
	Published Date: 3rd Qtr. 2014	Sheet 3 of 3



GENERAL NOTES:

For illustrative purpose only, the curb opening location is shown at the center of the fillet section. The curb opening shall be placed at the location(s) stated in the plans.

For illustrative purpose only, PCC fillet sections are shown in the above drawings. The curb opening depicted on this standard plate may be used with a PCC fillet section or with curb and gutter.

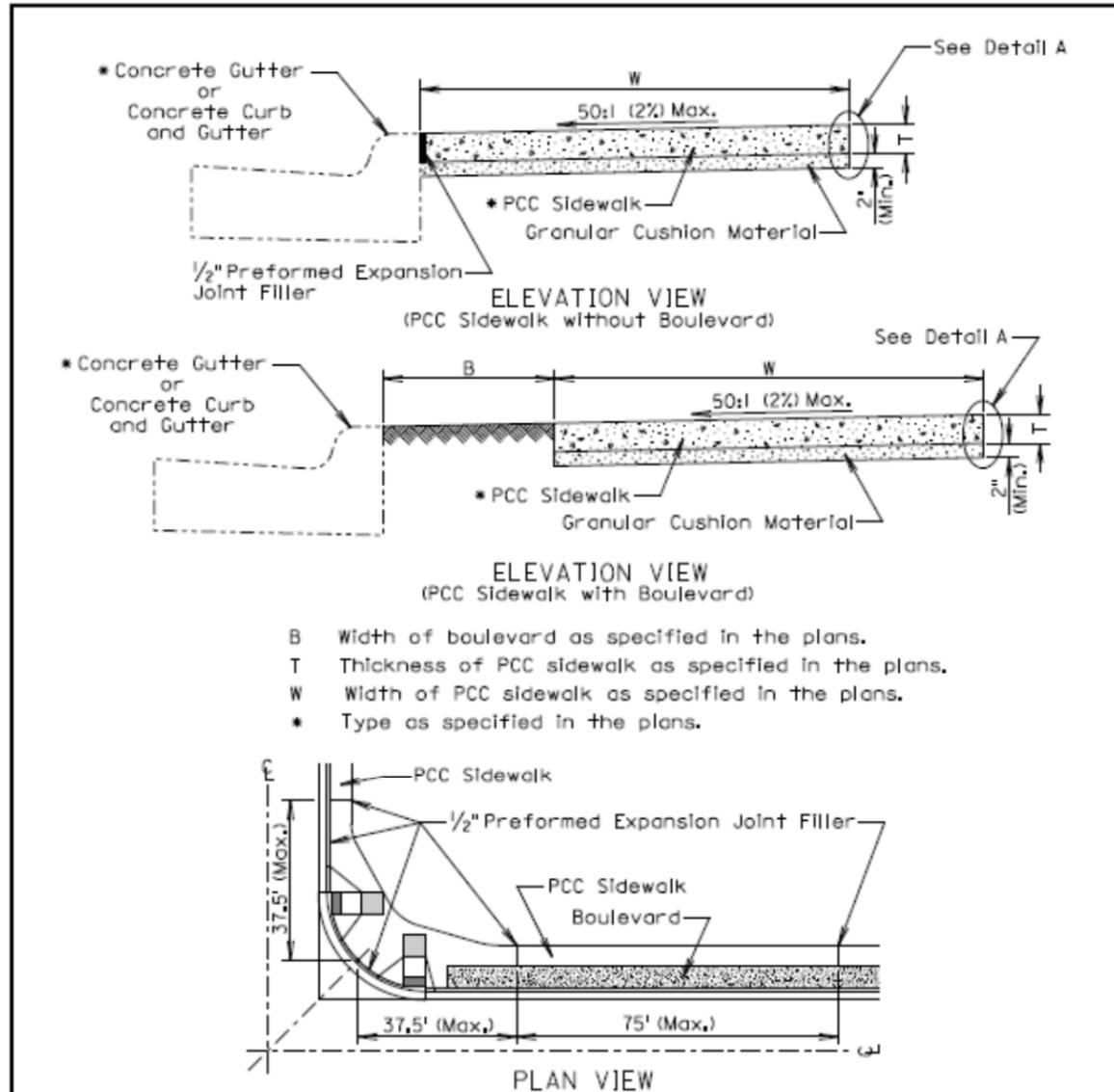
* The curb opening width is 5' unless stated otherwise in the plans.

The normal gutter line profile shall be maintained through the area of the opening.

The curb transitions and opening shall be measured and paid for at the contract unit price per foot for the corresponding curb and gutter bid item when curb and gutter is used. The curb transitions and opening shall be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section bid item when a PCC fillet section is used.

September 6, 2008

S D D O T	CURB OPENING AND CURB TRANSITIONS IN CURB AND GUTTER FOR FUTURE CURB RAMP AND BOULEVARD SIDEWALK	PLATE NUMBER 651.16
	Published Date: 3rd Qtr. 2014	Sheet 1 of 1



- B Width of boulevard as specified in the plans.
- T Thickness of PCC sidewalk as specified in the plans.
- W Width of PCC sidewalk as specified in the plans.
- * Type as specified in the plans.

GENERAL NOTES:

The PCC sidewalk shall be constructed in accordance with Section 651 of the Standard Specifications.

The maximum length between expansion joints in PCC sidewalk is 75 feet.

PCC sidewalk placed adjacent to intersection of roadways shall have an expansion joint placed transversely a maximum of 37.5 feet from the intersection. See PLAN VIEW.

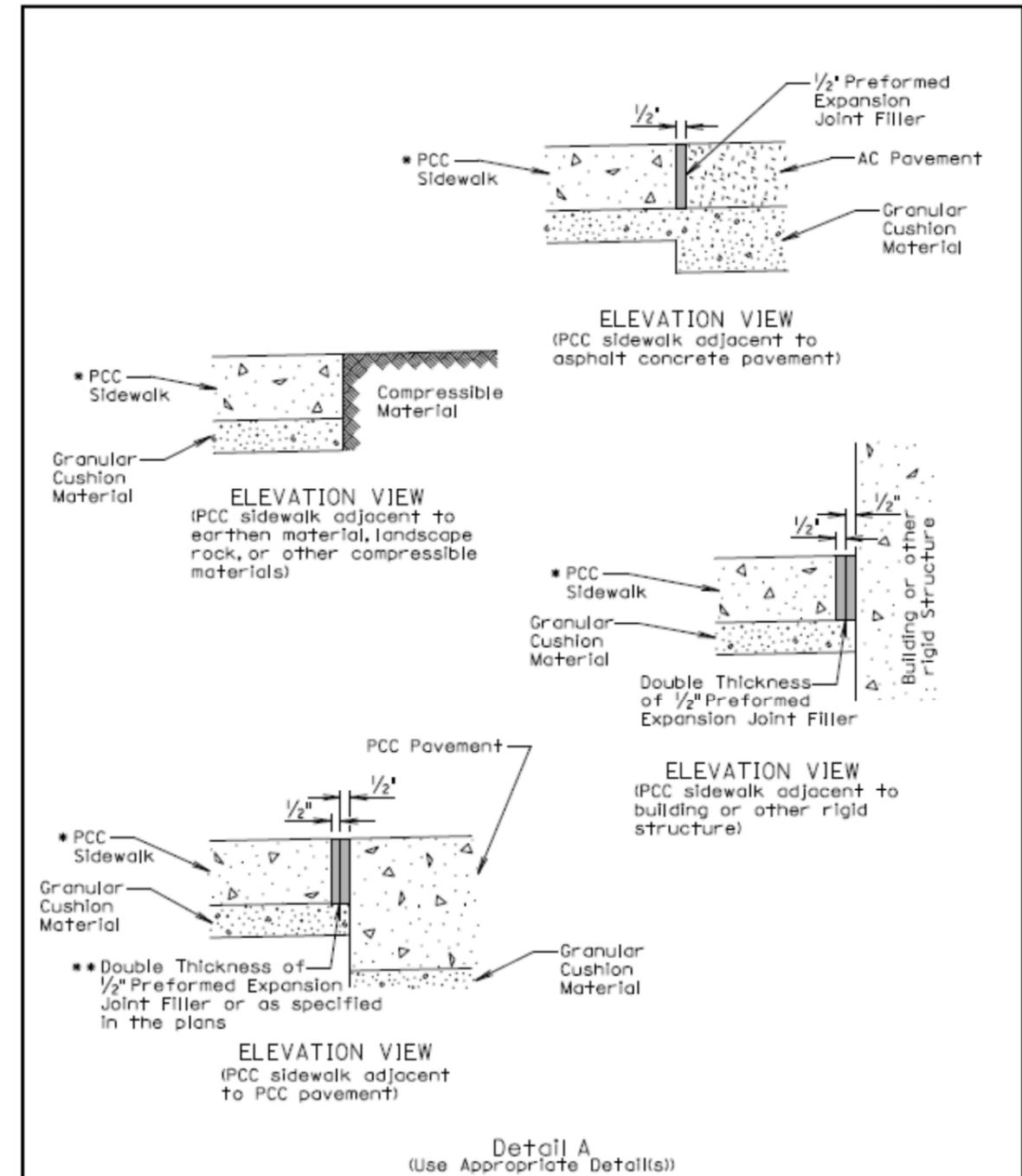
An expansion joint in PCC sidewalk shall consist of a 1/2 inch thick preformed expansion joint filler material placed full depth and width of the PCC sidewalk.

** Large areas of PCC pavement adjacent to PCC sidewalk may require a different joint treatment than shown in the detail. If a different joint detail is necessary, plans will contain the joint detail and the Contractor shall construct the joint treatment in accordance with the plans.

August 31, 2013

S D D O T	PCC SIDEWALK	PLATE NUMBER 651.75
		Sheet 1 of 2

Published Date: 3rd Qtr. 2014

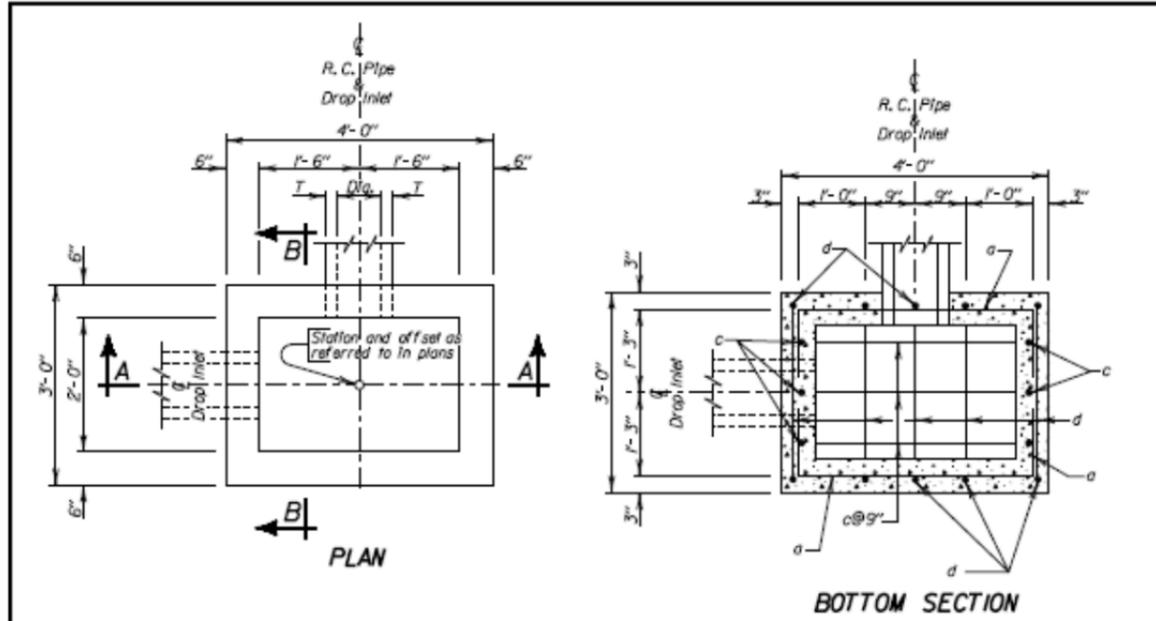


Detail A
(Use Appropriate Details)

August 31, 2013

S D D O T	PCC SIDEWALK	PLATE NUMBER 651.75
		Sheet 2 of 2

Published Date: 3rd Qtr. 2014



R.C. Pipe Diameter Inches	T Inches	Class M6 Concrete CuYd
12	2	0.03
15	2 1/4	0.04
18	2 1/2	0.05
24	3	0.09
27	3 1/4	0.11

ESTIMATED QUANTITIES			
ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
* Class M6 Concrete	CuYd	0.26	0.22H
Reinforcing Steel	Lb	37	20.04H
Frame and Grate Assembly	Each	1	

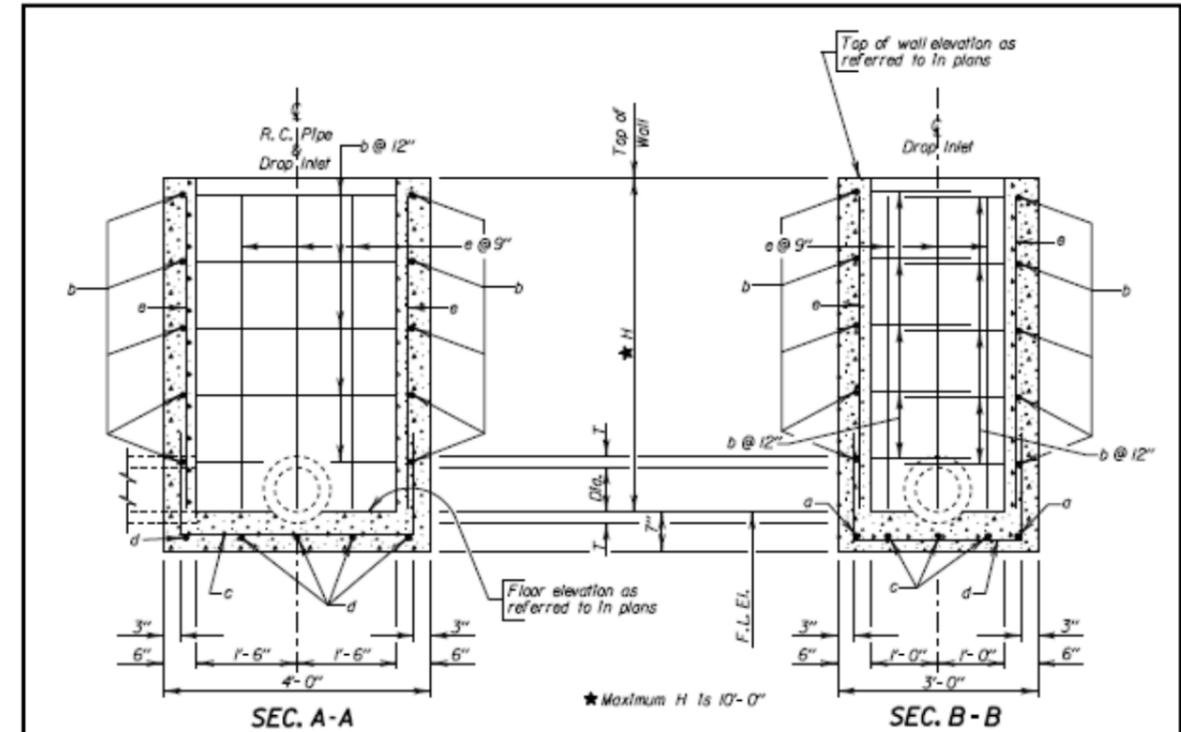
DROP INLETS FOR 12" TO 27" DIAMETER PIPE

GENERAL NOTES:

- * Reduce total quantities of concrete by the amount of concrete displaced by the pipe. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.
- Drop Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts.
- Reinforcing steel shall conform to ASTM A615 Grade 60. The b bars shall be lapped 12 inches. Cut and bend reinforcing steel as required to place pipes through the drop inlet wall.
- Pipe shall not enter through a corner of the drop inlet.
- Use 2" clear cover on all reinforcing steel unless otherwise noted.
- Precasting of reinforced drop inlets will be permissible. Prior to precasting, the Contractor shall submit details to the Engineer for approval.
- Maximum pipe diameter shall not exceed 18 inches on the 3 foot wide side and shall not exceed 27 inches on the 4 foot wide side of the drop inlet.
- The dimension of H is in feet.

December 23, 2009

S D D O T	2' X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01
	Published Date: 3rd Qtr. 2014	Sheet 1 of 2



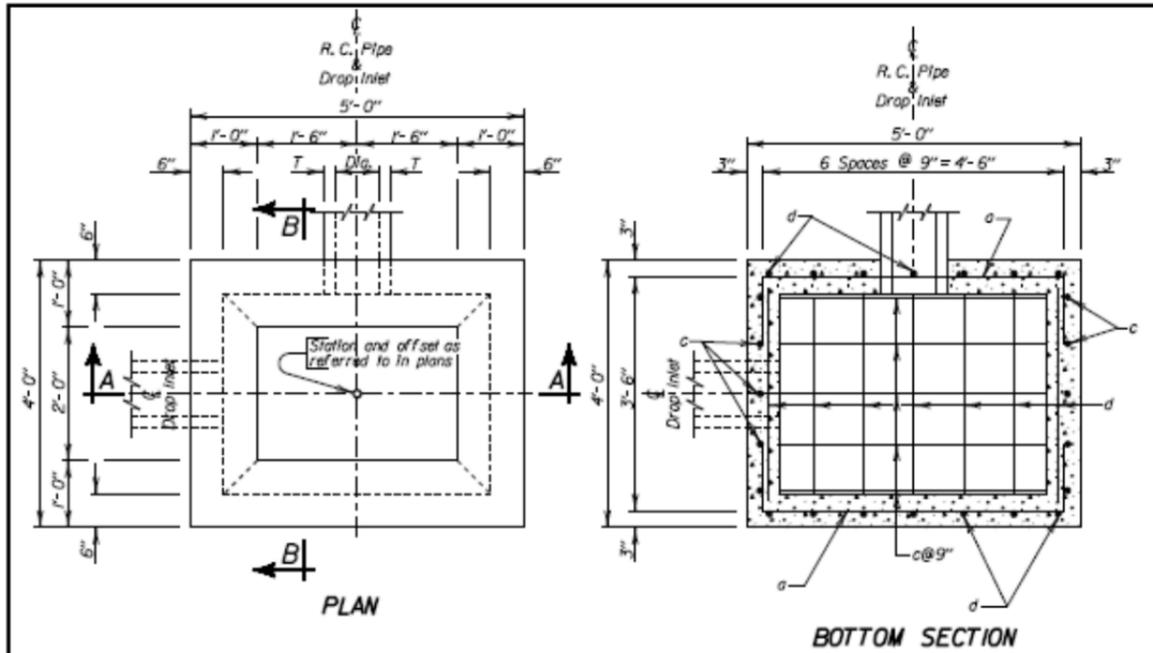
DROP INLETS FOR 12" TO 27" DIAMETER PIPE

REINFORCING SCHEDULE				
MK.	No.	Size	Length	Type
a	2	4	5'-6"	17
b	2H	4	7'-0"	17
c	3	4	6'-6"	17
d	5	4	5'-6"	17
e	16	4	H - 2"	Str.

NOTE:
All dimensions are out to out of bars.

December 23, 2009

S D D O T	2' X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01
	Published Date: 3rd Qtr. 2014	Sheet 2 of 2



ESTIMATED QUANTITIES			
ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
* Class M6 Concrete	Cu'd	0.72	0.30H
Reinforcing Steel	Lb	98	32.06H
Frame and Grate Assembly	Each	1	

PIPE DISPLACEMENT REDUCTIONS		
R.C. Pipe Diameter Inches	T Inches	Class M6 Concrete Cu'd
12	2	0.03
15	2 1/4	0.04
18	2 1/2	0.05
24	3	0.09
30	3 1/2	0.14
36	4	0.20

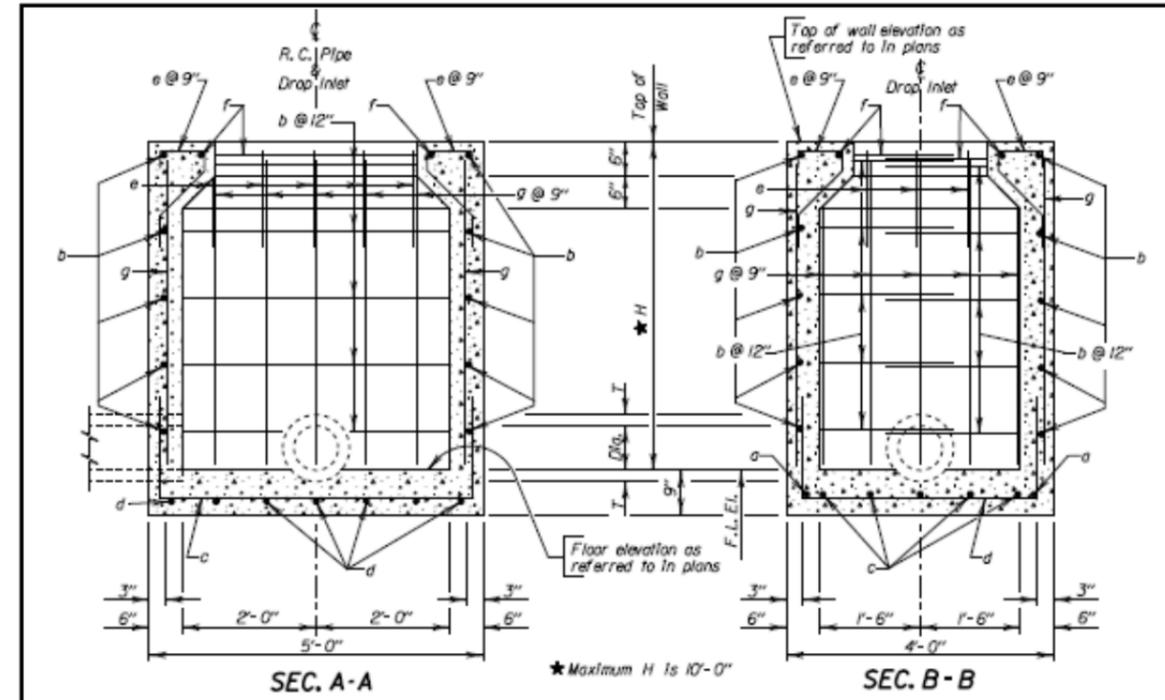
DROP INLETS FOR 12" TO 36" DIAMETER PIPE

GENERAL NOTES:

- * Reduce total quantities of concrete by the amount of concrete displaced by the pipe. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.
- Drop Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts.
- Reinforcing steel shall conform to ASTM A615 Grade 60. The b and f bars shall be lapped 12 Inches. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.
- Pipe shall not enter through a corner of the drop inlet.
- Use 2" clear cover on all reinforcing steel unless otherwise noted.
- Precasting of reinforced drop inlets will be permissible. Prior to precasting, the Contractor shall submit details to the Engineer for approval.
- Maximum pipe diameter shall not exceed 27 Inches on the 4 foot wide side and shall not exceed 36 Inches on the 5 foot wide side of the drop inlet.
- The dimension of H is in feet.

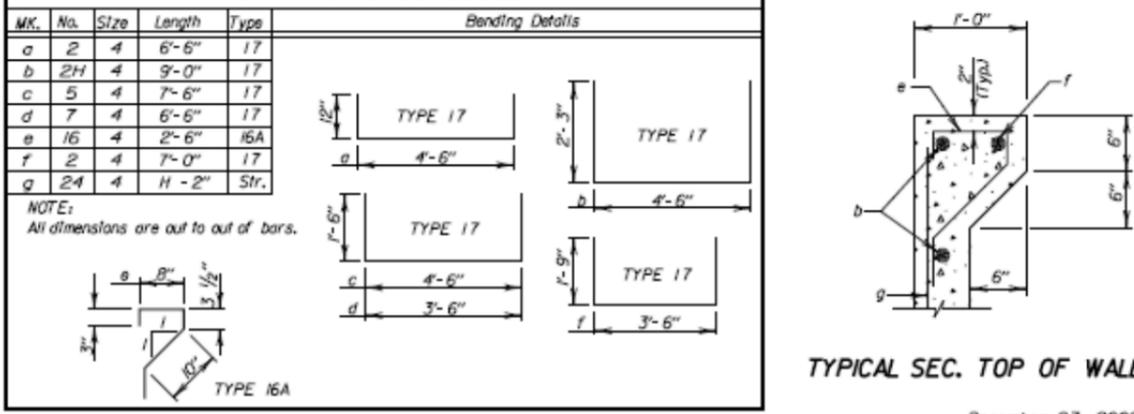
December 23, 2009

S D D O T	3' X 4' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.02
	Published Date: 3rd Qtr. 2014	Sheet 1 of 2



DROP INLETS FOR 12" TO 36" DIAMETER PIPE

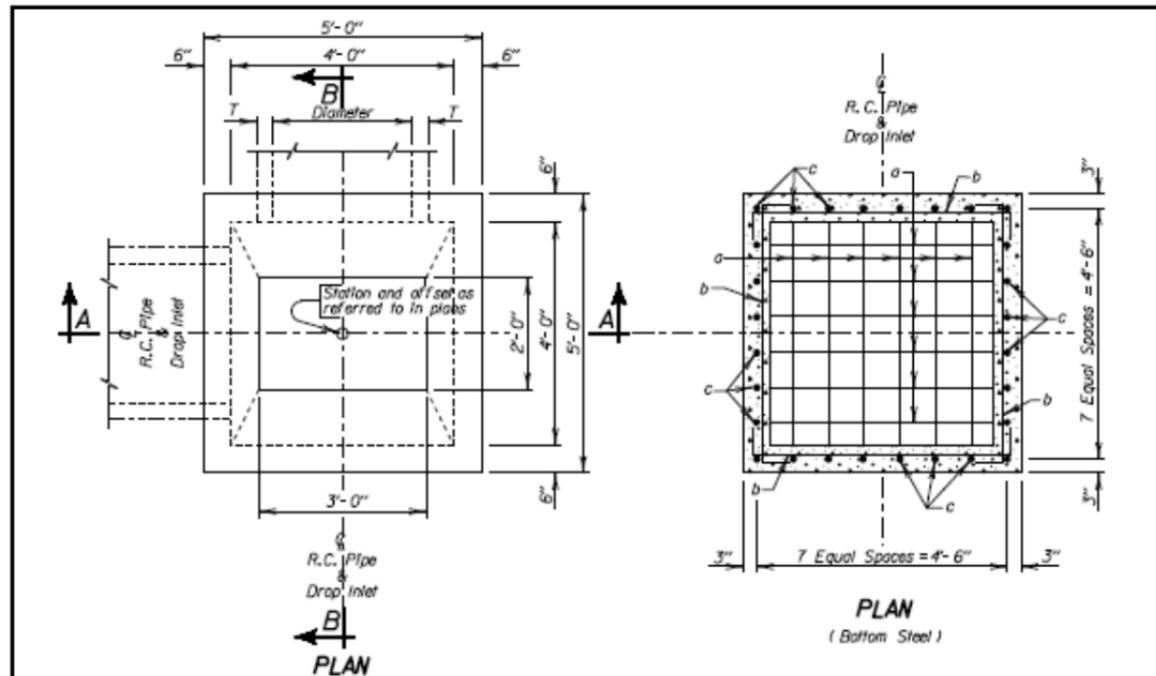
REINFORCING SCHEDULE				
MK.	No.	Size	Length	Type
a	2	4	6'-6"	17
b	2H	4	9'-0"	17
c	5	4	7'-6"	17
d	7	4	6'-6"	17
e	16	4	2'-6"	16A
f	2	4	7'-0"	17
g	2A	4	H - 2"	Str.



TYPICAL SEC. TOP OF WALL

December 23, 2009

S D D O T	3' X 4' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.02
	Published Date: 3rd Qtr. 2014	Sheet 2 of 2



R. C. Pipe Diameter Inches	T Inches	Class M6 Concrete Cu'd
12	2	0.03
15	2 1/4	0.04
18	2 1/2	0.05
24	3	0.09
30	3 1/2	0.14
36	4	0.20

ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
* Class M6 Concrete	Cu'd	0.97	0.33H
Reinforcing Steel	Lb	207	43.90H
Frame and Grate Assembly	Each	1	

DROP INLETS FOR 12" TO 36" DIAMETER PIPE

GENERAL NOTES:

* Reduce total quantities of concrete by the amount of concrete displaced by the pipe. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.

Drop Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts.

Reinforcing steel shall conform to ASTM A615 Grade 60. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.

Pipe shall not enter through a corner of the drop inlet.

Use 2" clear cover on all reinforcing steel unless otherwise noted.

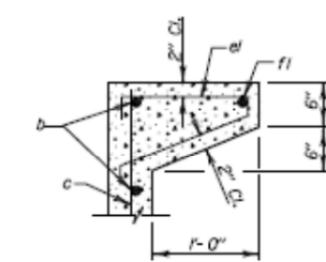
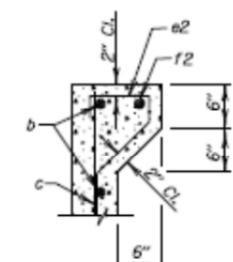
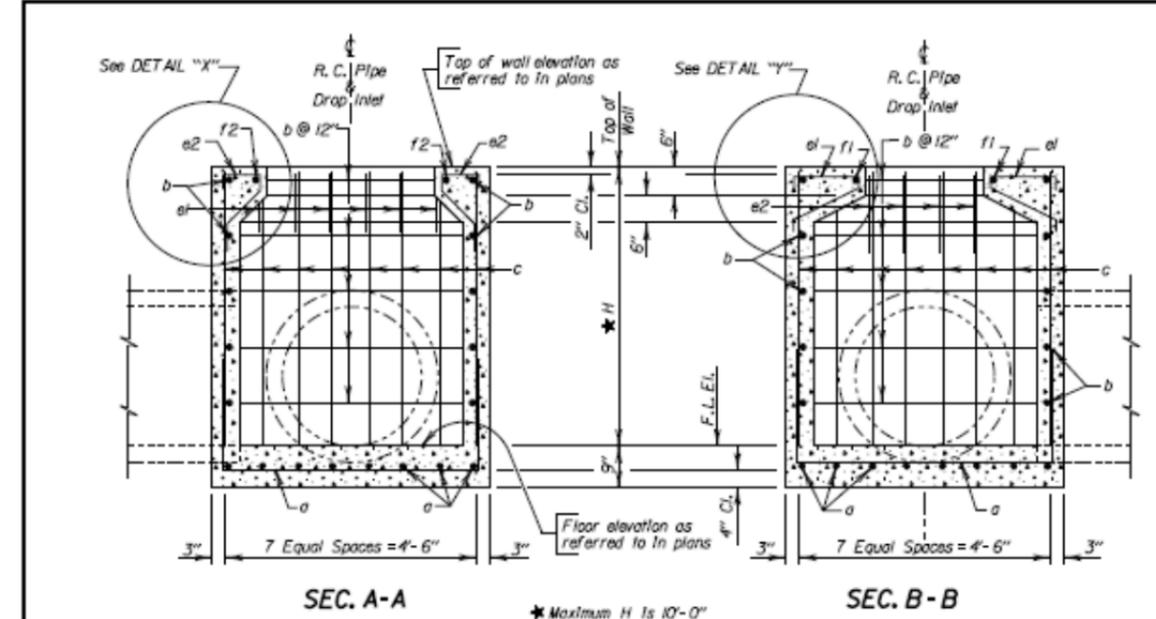
Precasting of reinforced drop inlets will be permissible. Prior to precasting, the Contractor shall submit details to the Engineer for approval.

Maximum pipe diameter shall not exceed 36 inches.

The dimension of H is in feet.

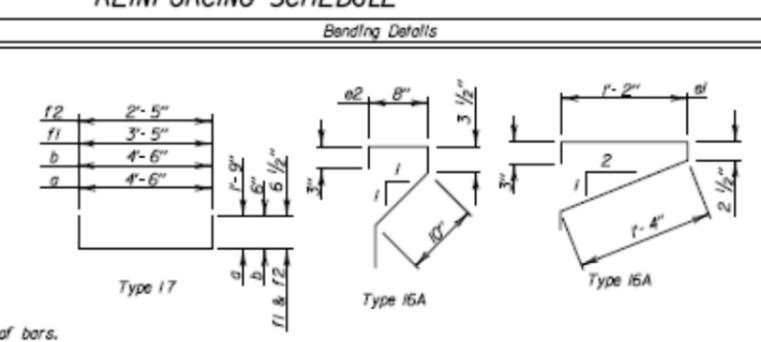
December 23, 2009

S D D O T	4' X 4' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.04
	Published Date: 3rd Qtr. 2014	Sheet 1 of 2



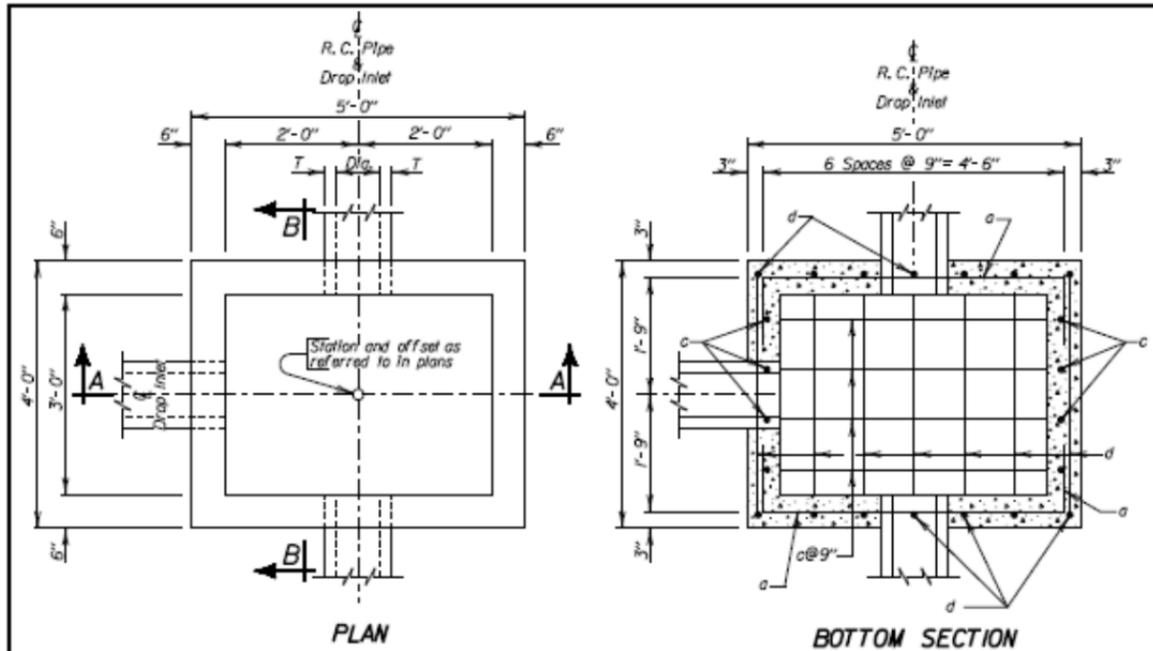
DETAIL "X" DETAIL "Y"
DROP INLETS FOR 12" TO 36" DIAMETER PIPE

Mk.	No.	Size	Length	Type
a	16	5	8'-0"	17
b	4H	4	5'-6"	17
c	2B	5	H-2"	Str.
e1	12	5	3'-3"	16A
e2	8	5	2'-6"	16A
f1	2	5	4'-6"	17
f2	2	5	3'-6"	17



December 23, 2009

S D D O T	4' X 4' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.04
	Published Date: 3rd Qtr. 2014	Sheet 2 of 2



PIPE DISPLACEMENT REDUCTIONS

R.C. Pipe Diameter Inches	T Inches	Class M6 Concrete Cu'd
12	2	0.03
15	2 1/4	0.04
18	2 1/2	0.05
24	3	0.09
30	3 1/2	0.14
36	4	0.20

ESTIMATED QUANTITIES

ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
* Class M6 Concrete	Cu'd	0.43	0.29H
Reinforcing Steel	Lb	57	26.72H
Frame and Grate	Each	1	

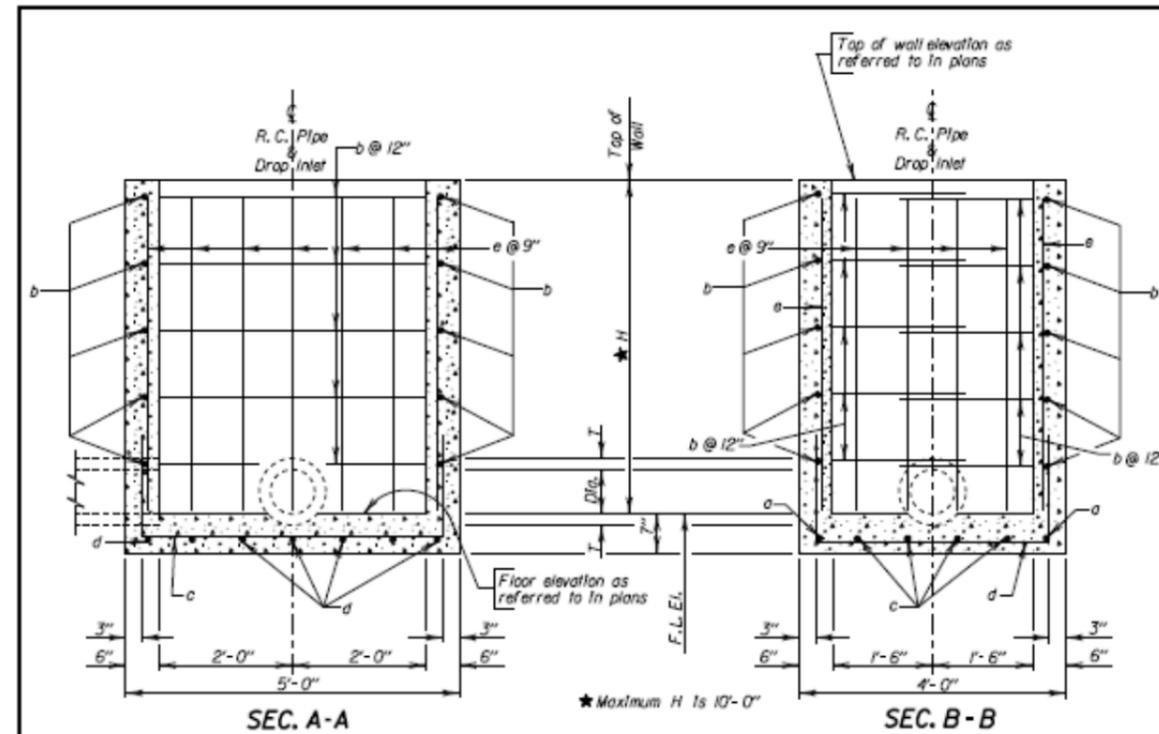
DROP INLETS FOR 12" TO 36" DIAMETER PIPE

GENERAL NOTES:

- * Reduce total quantities of concrete by the amount of concrete displaced by the pipe. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.
- Drop Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts.
- Reinforcing steel shall conform to ASTM A615 Grade 60. The b bars shall be lapped 12 inches. Cut and bend reinforcing steel as required to place pipes through the drop inlet wall.
- Pipe shall not enter through a corner of the drop inlet.
- Use 2" clear cover on all reinforcing steel unless otherwise noted.
- Precasting of reinforced drop inlets will be permissible. Prior to precasting, the Contractor shall submit details to the Engineer for approval.
- Maximum pipe diameter shall not exceed 27 inches on the 4 foot wide side and shall not exceed 36 inches on the 5 foot wide side of the drop inlet.
- The dimension of H is in feet.

December 23, 2009

S D D O T	3' X 4' TYPE C REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.10
	Published Date: 4th Qtr. 2014	Sheet 1 of 2



DROP INLETS FOR 12" TO 36" DIAMETER PIPE

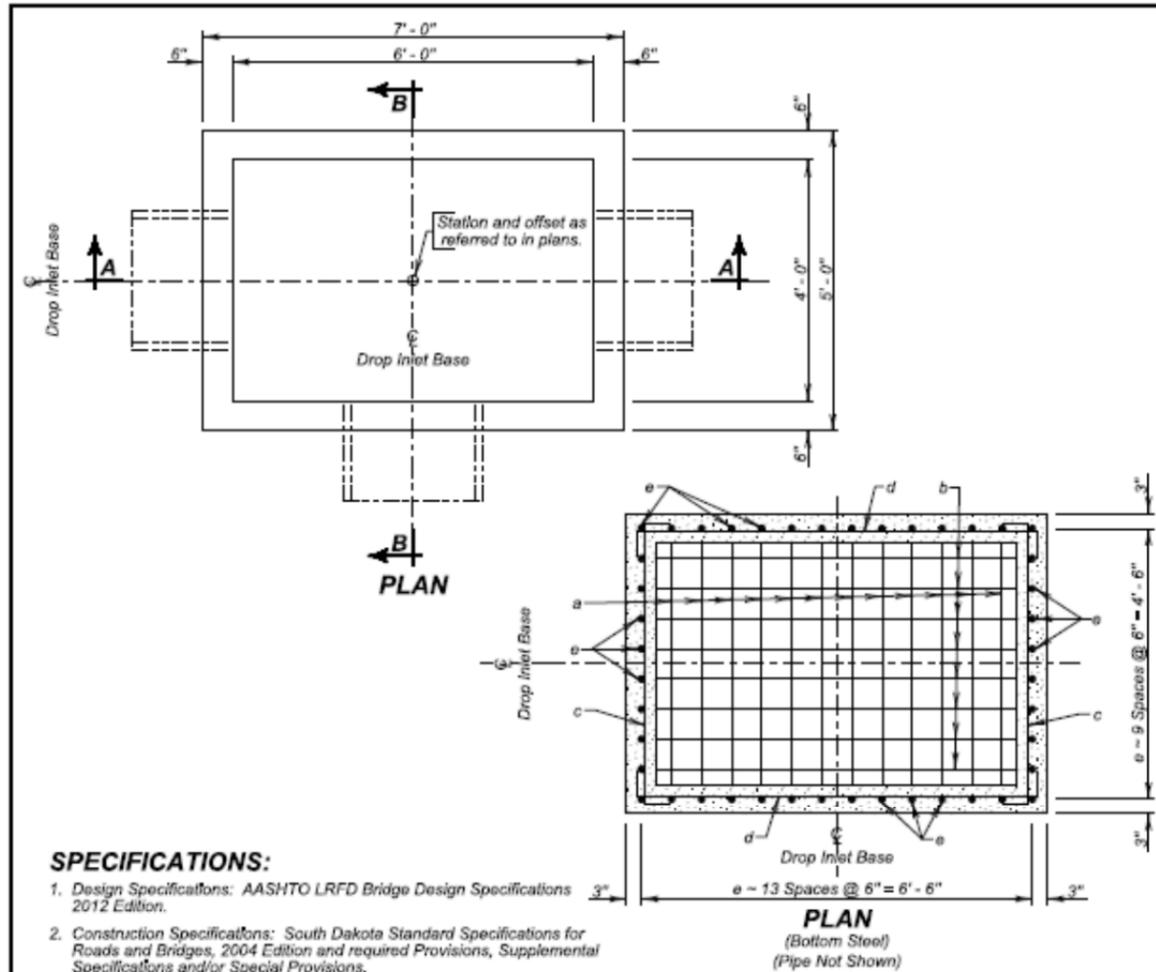
REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
a	2	4	6'-6"	17	
b	2H	4	9'-0"	17	
c	4	4	7'-6"	17	
d	7	4	6'-6"	17	
e	22	4	H - 2"	Str.	

NOTE: All dimensions are out to out of bars.

December 23, 2009

S D D O T	3' X 4' TYPE C REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.10
	Published Date: 4th Qtr. 2014	Sheet 2 of 2



SPECIFICATIONS:

- Design Specifications: AASHTO LRFD Bridge Design Specifications 2012 Edition.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and required Provisions, Supplemental Specifications and/or Special Provisions.

GENERAL NOTES:

- Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
- Base is intended for use with a Precast Concrete Type S Drop Inlet Lid, Standard Plate 670.38. Base may be precast. If precast base used, and details differ from that shown, the precast base must be on the current approved list. The current approved list is available through proper channels from the SDDOT Office of Bridge Design.
- To qualify for addition to the approved list, submit a checked design, by South Dakota Registered Professional Engineers and shop plans to the Office of Bridge Design for approval. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
- * Reduce total quantities of concrete by the amount of concrete displaced by the pipe. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.
- Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
- Maximum R.C.P. diameter shall not exceed 36 inches (30 inches for R.C. Arch) on the 4-foot wide side and shall not exceed 54 inches (48 inches for R.C. Arch) on the 6-foot wide side of the Drop Inlet.
- Reinforcing steel shall conform to ASTM A615 Grade 60. Cut and bend reinforcing steel as required to place pipe(s) through the inlet wall.
- Use 1 inch clear cover on all reinforcing steel unless otherwise noted.
- The dimension of H is in feet. Maximum H is 8 feet.

December 23, 2012

S D D O T	4' X 6' TYPE S DROP INLET BASE	PLATE NUMBER 670.30
		Sheet 1 of 2

Published Date: 4th Qtr. 2014

PIPE DISPLACEMENT REDUCTIONS

Diameter (Inches)	Wall T (Inches)	Class M6 Concrete (Cu. Yd.)
12	2	0.03
15	2 1/2	0.04
18	2 1/2	0.05
24	3	0.09
30	3 1/2	0.14
36	4	0.20
42	4 1/2	0.26
48	5	0.34
54	5 1/2	0.43
18	2 1/2	0.05
24	3 1/2	0.09
30	4	0.14
36	4 1/2	0.19
42	4 1/2	0.24
48	5	0.32

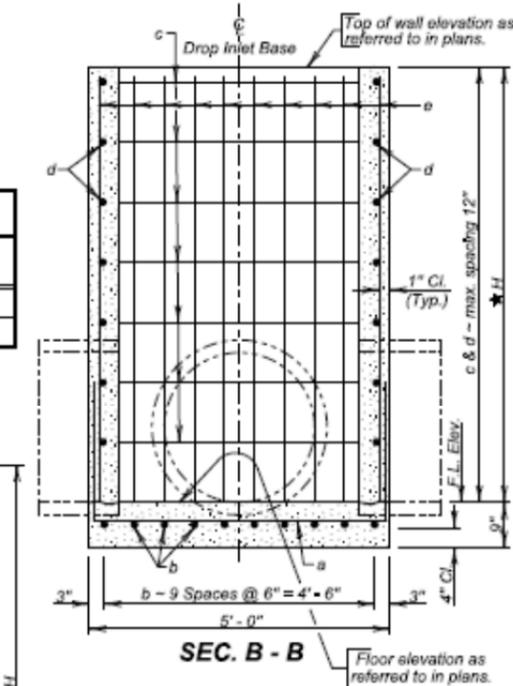
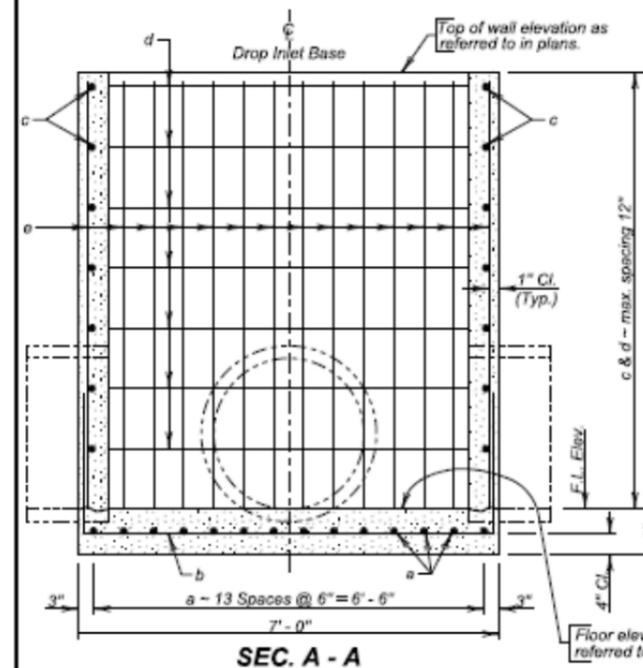
ESTIMATED QUANTITIES

ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
* Class M6 Concrete	Cu. Yd.	0.97	0.41H
Reinforcing Steel	Lb.	253.77	46.76H

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
a	14	5	9'-6"	17	
b	10	5	11'-6"	17	
c	2H	4	5'-6"	17	
d	2H	4	7'-6"	17	
e	44	4	H - 2"	Str.	

NOTE:
All dimensions are out to out of bars

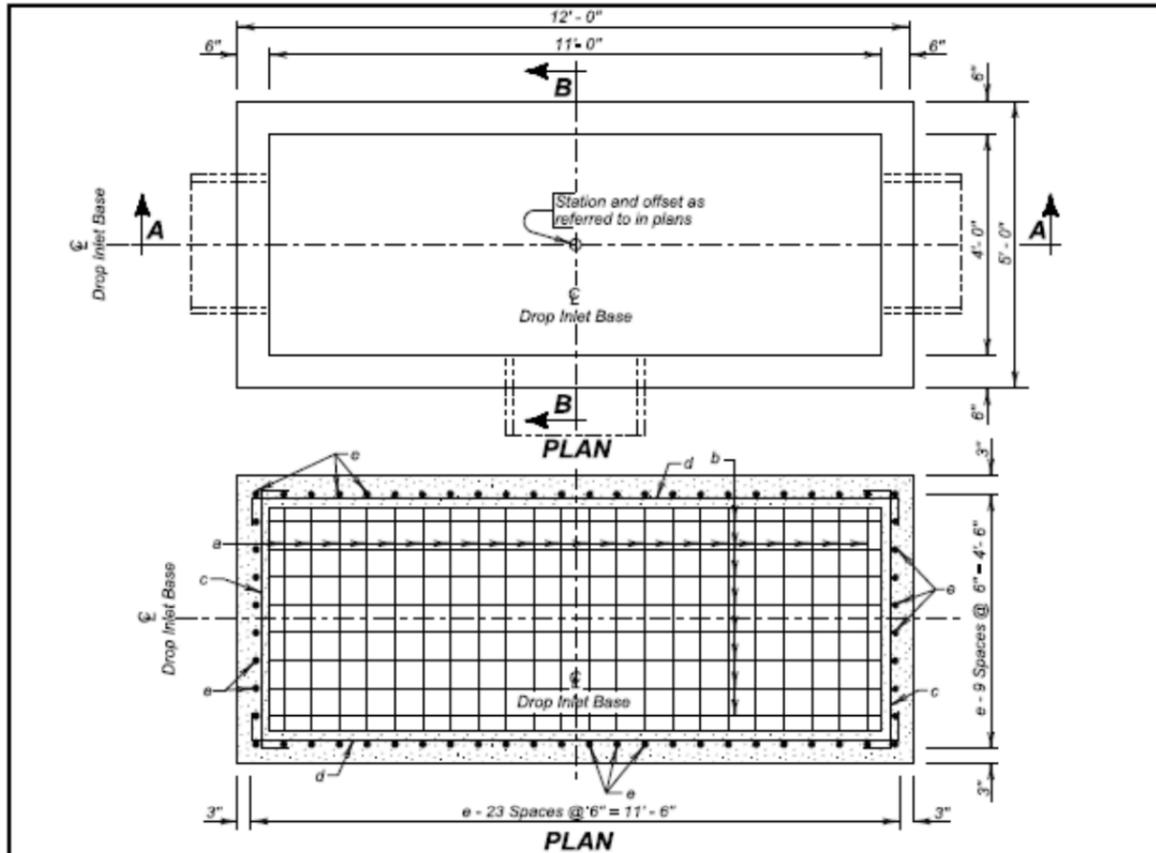


★ Maximum H is 8'-0"

December 23, 2012

S D D O T	4' X 6' TYPE S DROP INLET BASE	PLATE NUMBER 670.30
		Sheet 2 of 2

Published Date: 4th Qtr. 2014



SPECIFICATIONS:

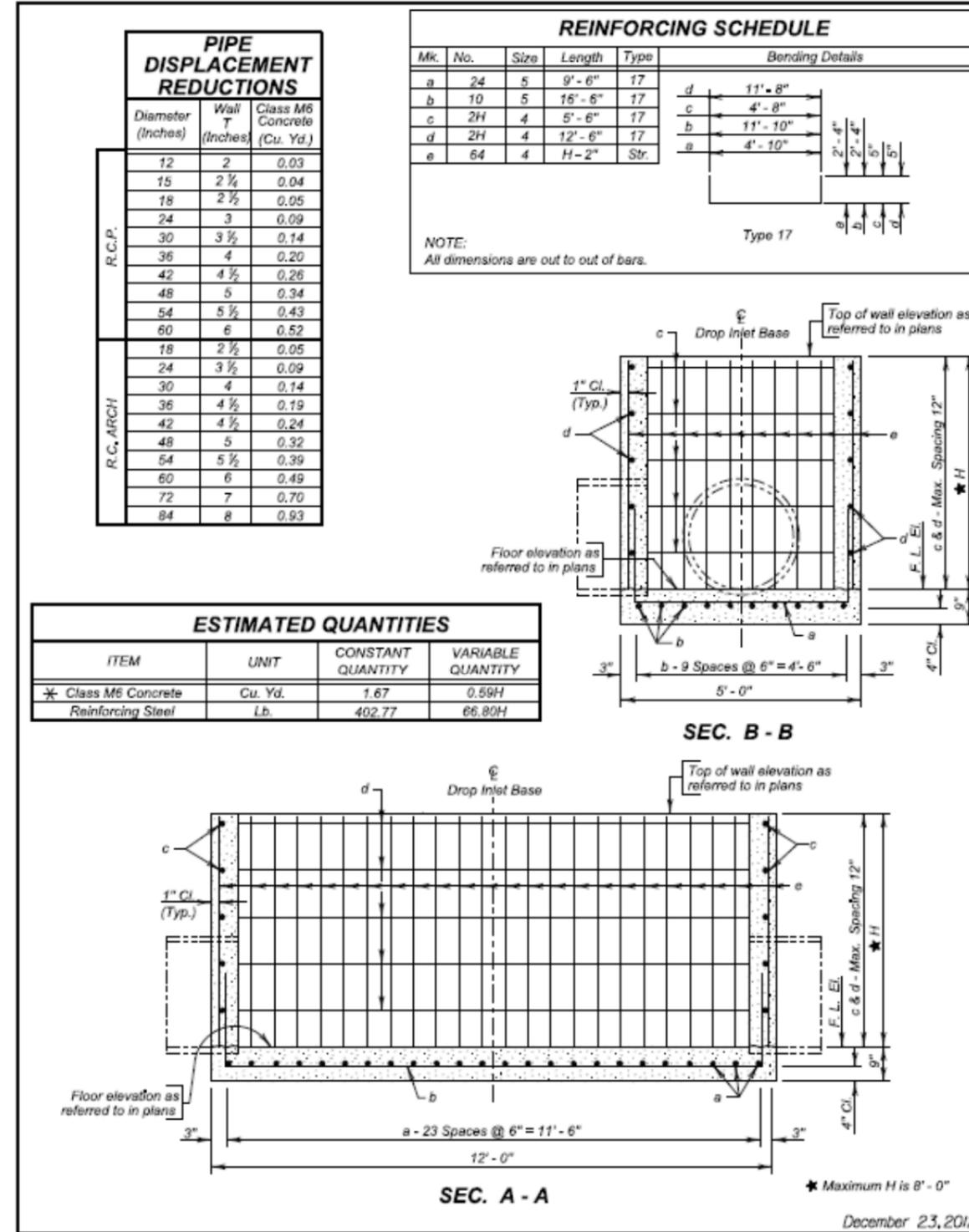
1. Design Specifications: AASHTO LRFD Bridge Design Specifications 2012 Edition.
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and required Provisions, Supplemental Specifications and/or Special Provisions.

GENERAL NOTES:

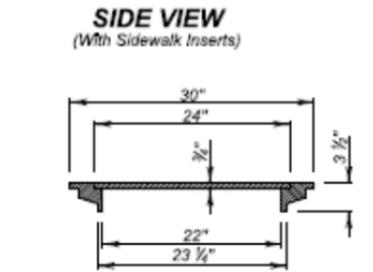
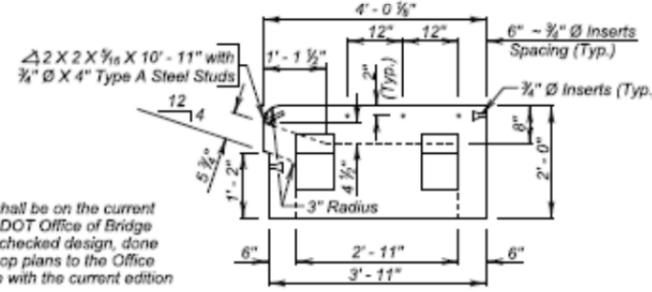
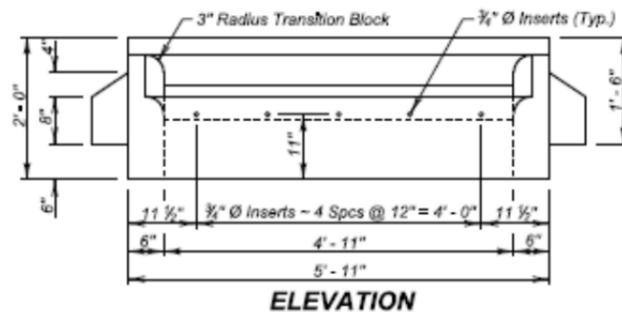
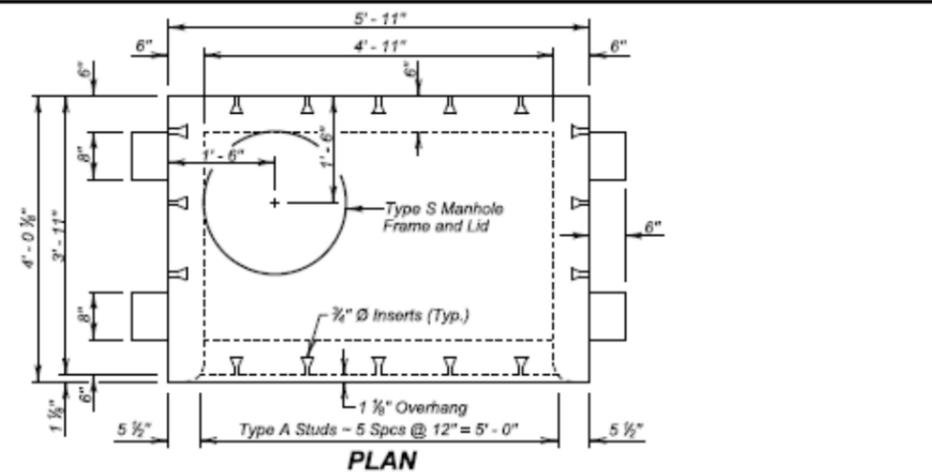
1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Base is intended for use with a Precast Concrete Type S Drop Inlet Lid, Standard Plate 670.40. Base may be precast. If precast base used, and details differ from that shown, the precast base must be on the current approved list. The current approved list is available through proper channels from the SDDOT Office of Bridge Design.
3. To qualify for addition to the approved list, submit a checked design, by South Dakota Registered Professional Engineers and shop plans to the Office of Bridge Design for approval. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
- * 4. Reduce total quantities of concrete by the amount of concrete displaced by the pipes. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.
5. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
6. Maximum R.C.P. diameter shall not exceed 36 inches (30 inches for R.C. Arch) on the 4-foot wide side of the Drop Inlet.
7. Reinforcing steel shall conform to ASTM A615 Grade 60. Cut and bend reinforcing steel as required to place pipe(s) through the inlet wall.
8. Use 1 inch clear cover on all reinforcing steel unless otherwise noted.
9. The dimension of H is in feet. Maximum H is 8 feet.

December 23, 2012

S D D O T	4' X 11' TYPE S DROP INLET BASE	PLATE NUMBER 670.32
	Published Date: 4th Qtr. 2014	Sheet 1 of 2



S D D O T	4' X 11' TYPE S DROP INLET BASE	PLATE NUMBER 670.32
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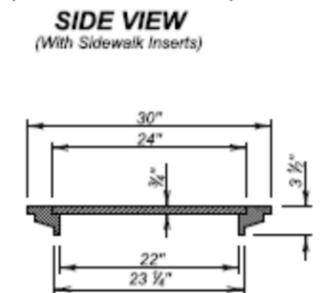
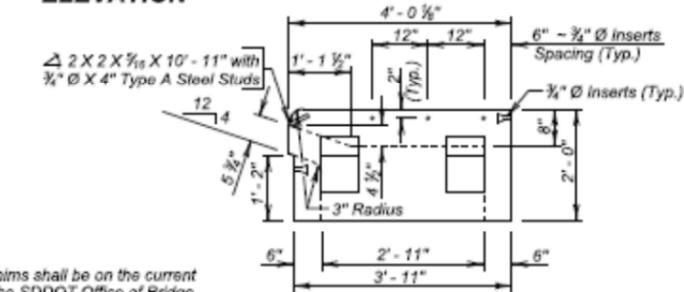
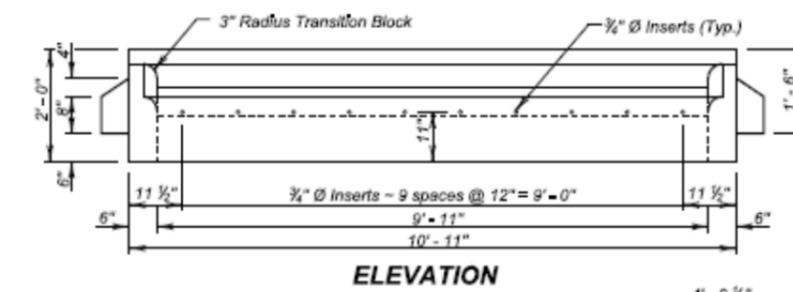
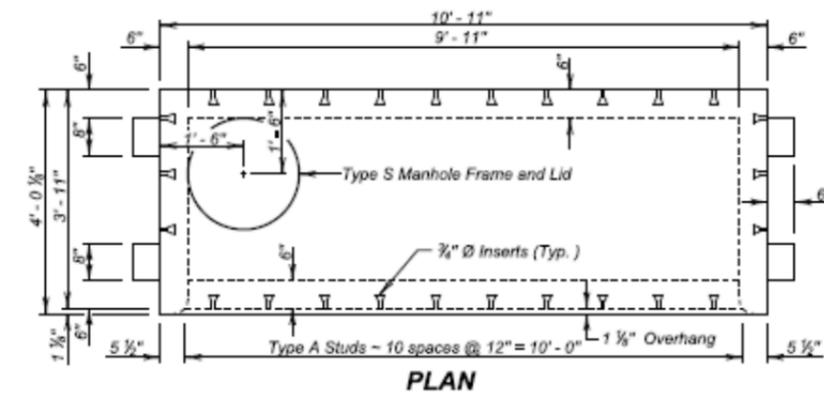
GENERAL NOTES:

- The Precast Concrete Type S Drop Inlet Lid and the shims shall be on the current approved list available through proper channels from the SDDOT Office of Bridge Design. To qualify for addition to the approved list, submit a checked design, done by South Dakota Registered Professional Engineers, and shop plans to the Office of Bridge Design for approval. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
- Design Live Load shall be HL - 93.
- Concrete mix shall be as per fabricators design, however, minimum compressive strength shall not be less than 4500 psi. Type II Cement is required.
- The Type S Manhole Frame and Lid shall conform to AASHTO M105, Class 30.
- Structural Steel shall conform to ASTM A36. The 3/4 inch diameter Headed Type A Steel Studs shall conform to Section 7 of the current edition of AWS D1.1 Structural Steel Welding Code.
- The 3/4 inch diameter Concrete Inserts shall be galvanized or made of a corrosion resistant material. Provide 3/4 inch diameter x 1' - 6\"/>
- All costs associated with furnishing and installing the Precast Concrete Type S Drop Inlet Lid including the type S manhole frame and lid, shims, inserts, and dowels shall be included in the contract unit price per each for "4' x 6' Precast Concrete Type S Drop Inlet Lid".

(Weight 140 Lbs.) December 23, 2012

S D D O T	4' X 6' PRECAST CONCRETE TYPE S DROP INLET LID	PLATE NUMBER 670.38
		Sheet 1 of 1

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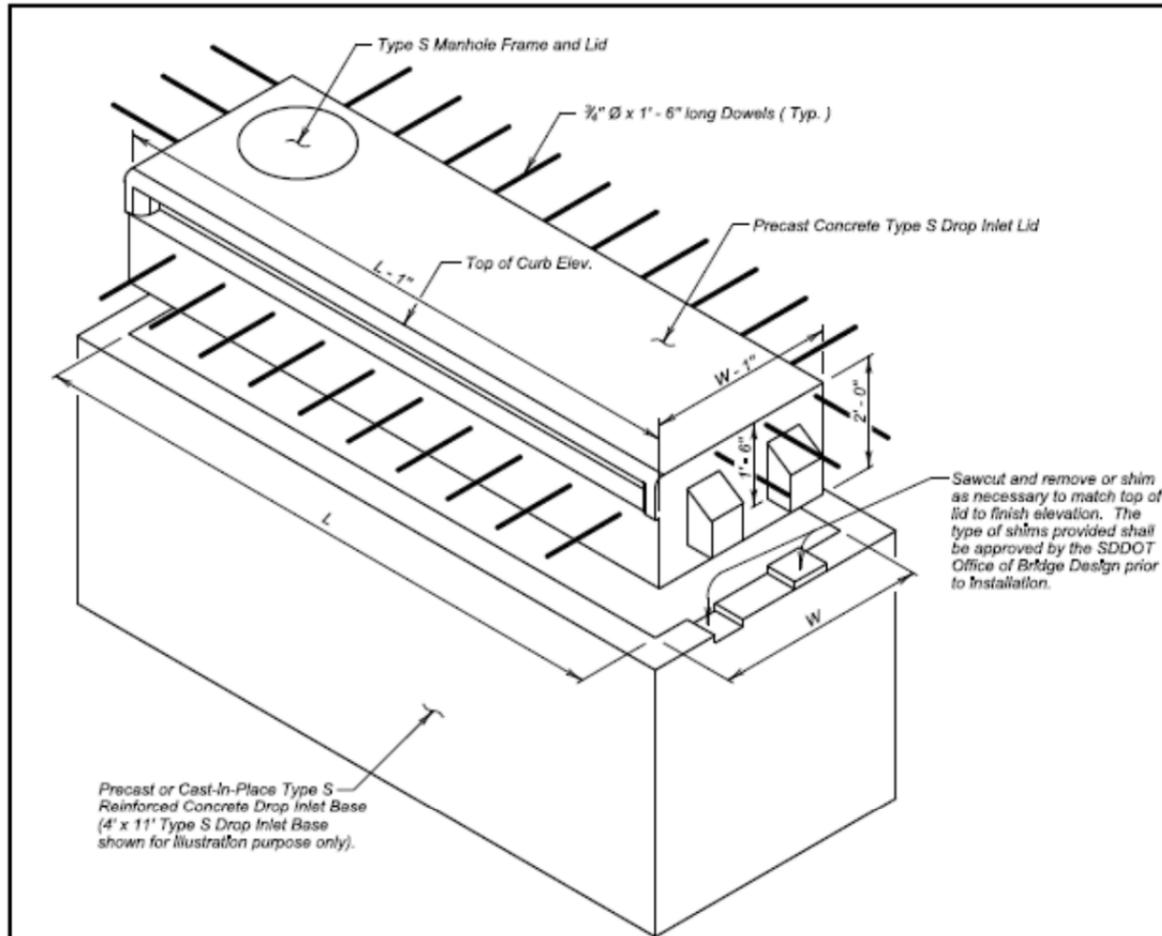
GENERAL NOTES:

- The Precast Concrete Type S Drop Inlet Lid and the shims shall be on the current approved list available through proper channels from the SDDOT Office of Bridge Design. To qualify for addition to the approved list, submit a checked design, done by South Dakota Registered Professional Engineers, and shop plans to the Office of Bridge Design for approval. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
- Design Live Load shall be HL - 93.
- Concrete mix shall be as per fabricators design, however, minimum compressive strength shall not be less than 4500 psi. Type II Cement is required.
- The Type S Manhole Frame and Lid shall conform to AASHTO M105, Class 30.
- Structural Steel shall conform to ASTM A36. The 3/4 inch diameter Headed Type A Steel Studs shall conform to Section 7 of the current edition of AWS D1.1 Structural Steel Welding Code.
- The 3/4 inch diameter Concrete Inserts shall be galvanized or made of a corrosion resistant material. Provide 3/4 inch diameter x 1' - 6\"/>
- All costs associated with furnishing and installing the Precast Concrete Type S Drop Inlet Lid including the type S manhole frame and lid, shims, inserts, and dowels shall be included in the contract unit price per each for "4' x 11' Precast Concrete Type S Drop Inlet Lid".

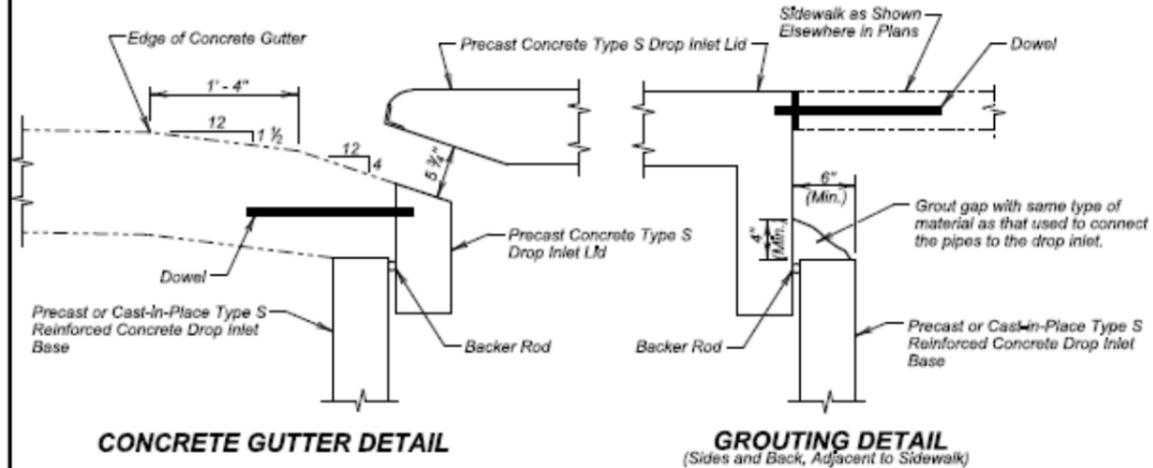
December 23, 2012

S D D O T	4' X 11' PRECAST CONCRETE TYPE S DROP INLET LID	PLATE NUMBER 670.40
		Sheet 1 of 1

Published Date: 4th Qtr. 2014



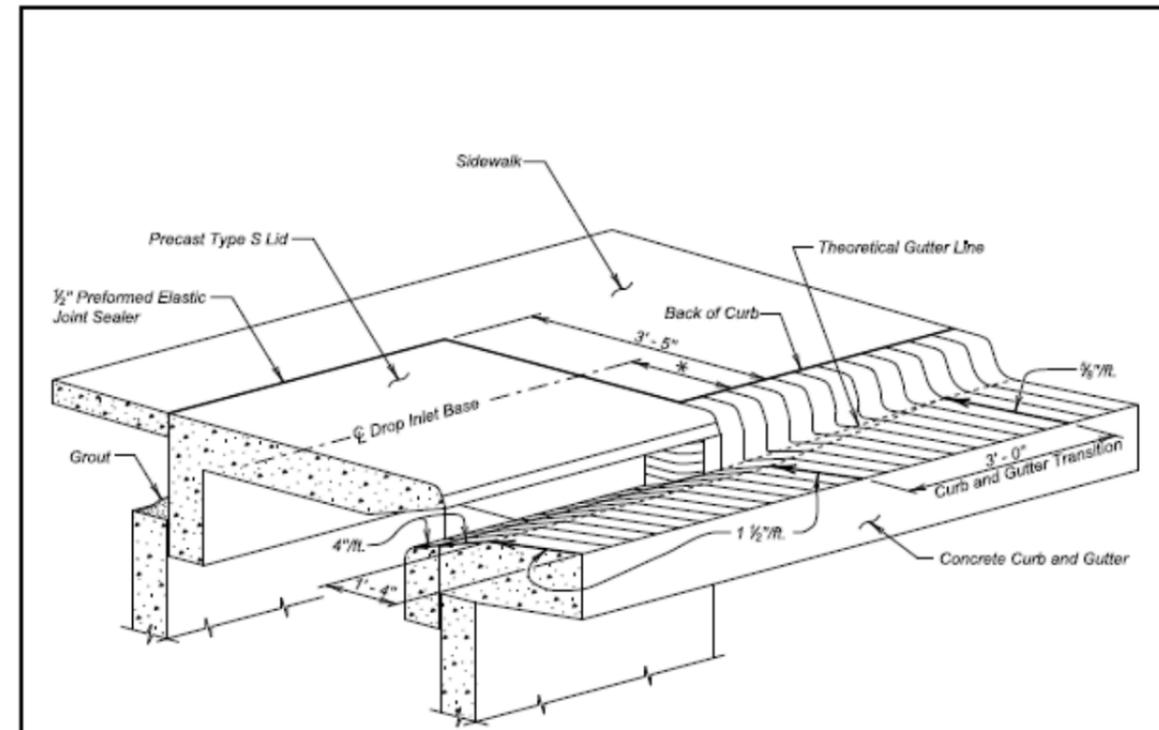
TYPE S DROP INLET



CONCRETE GUTTER DETAIL

GROUTING DETAIL
(Sides and Back, Adjacent to Sidewalk)

December 23, 2012



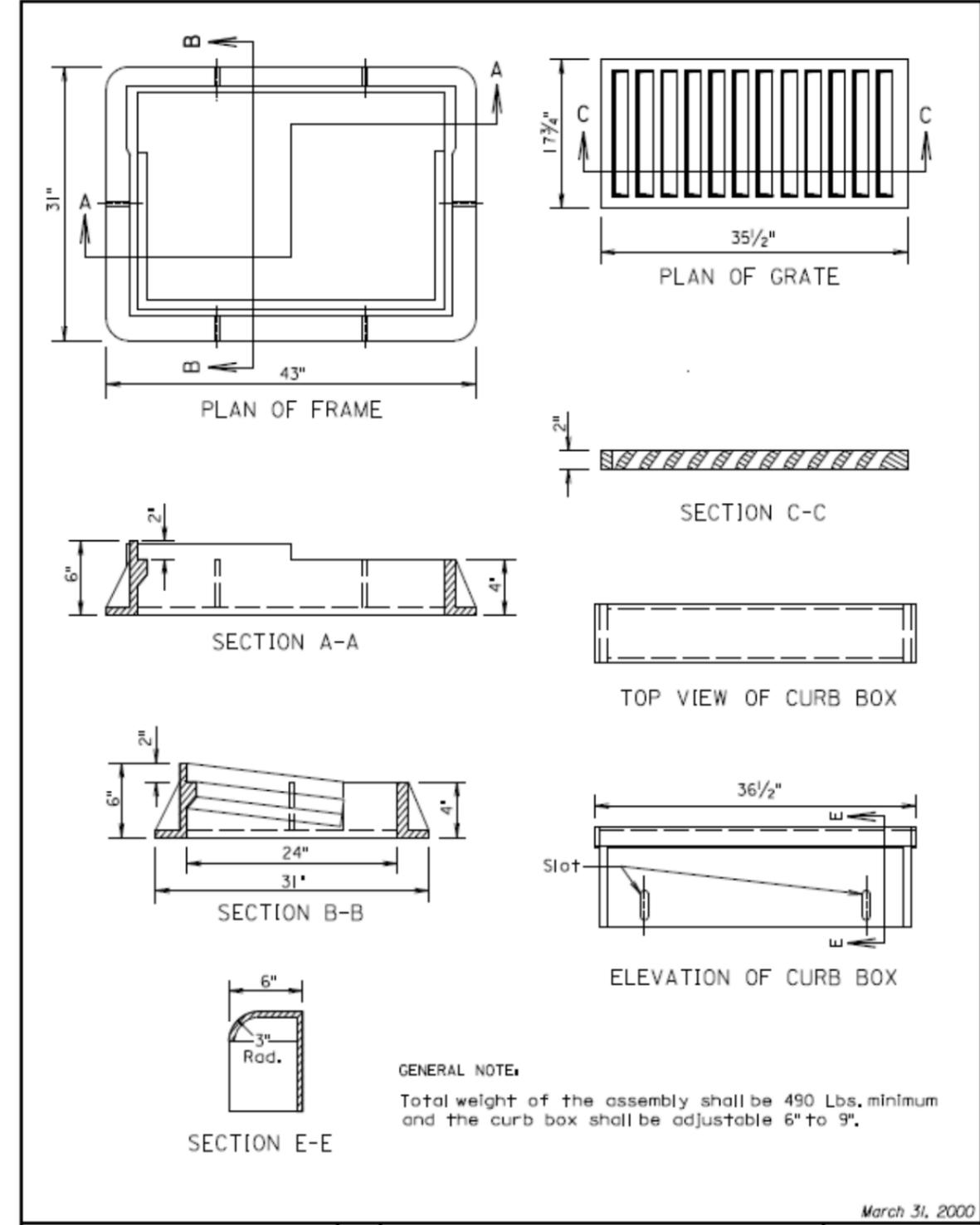
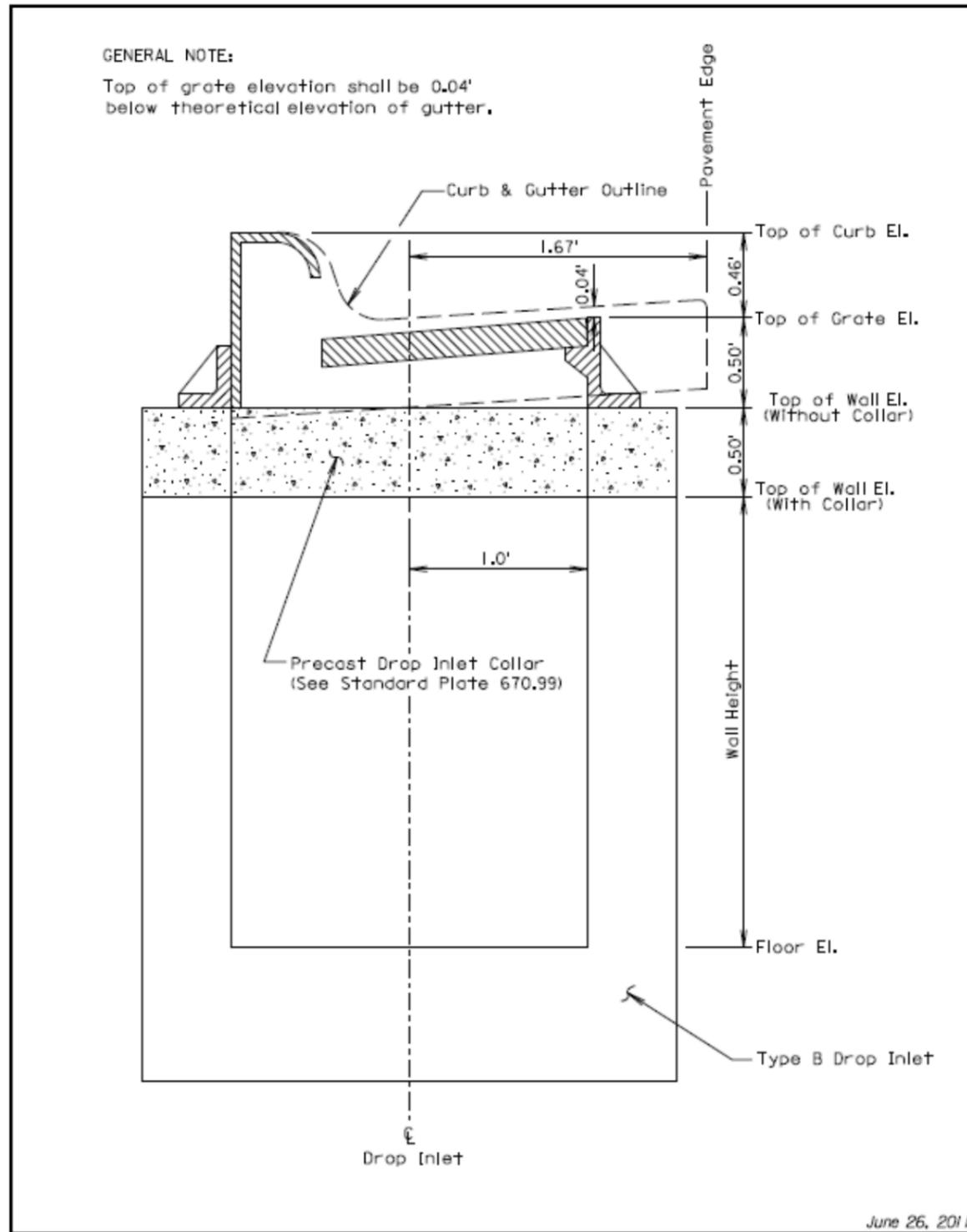
**CURB AND GUTTER
TRANSITION DETAILS**

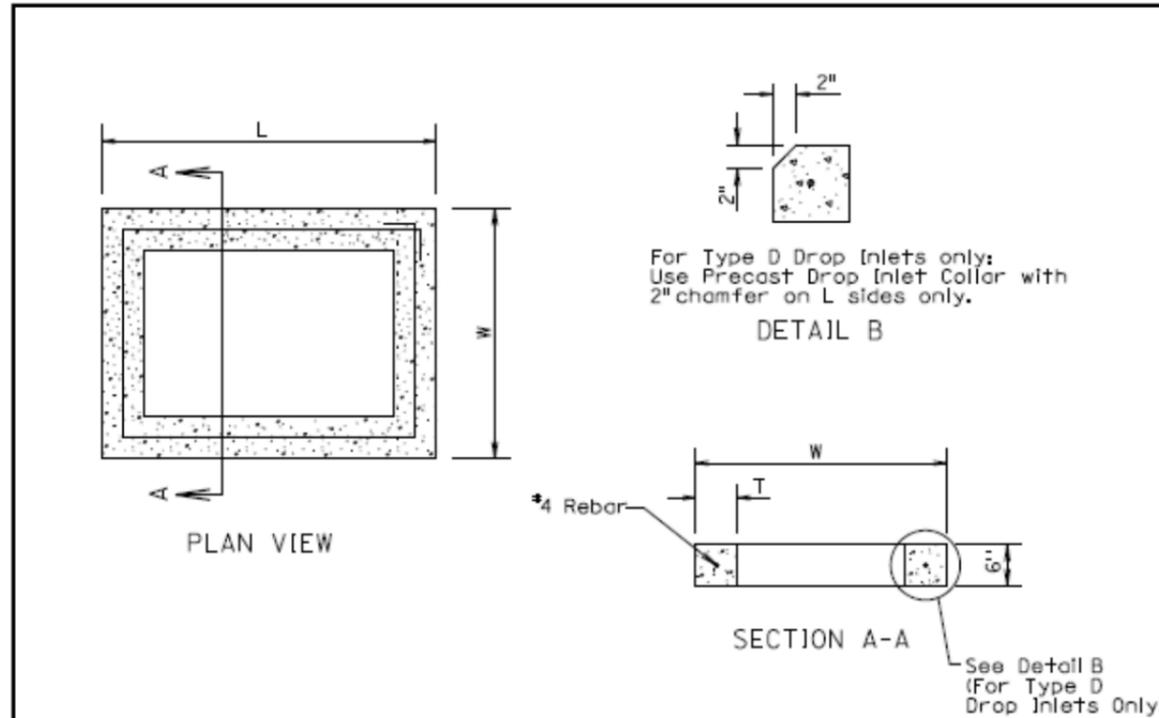
Drop Inlet Base Unit Size	* Distance
4' x 6'	1' - 5 1/2"
4' x 11'	1' - 5 1/2"
7' x 11'	2' - 11 1/2"

GENERAL NOTES:

1. Dowels shall be used to anchor the precast concrete Type S drop inlet lid to the concrete gutter. See Standard Plate 670.38 or 670.40 as applicable. If there is sidewalk adjacent dowels shall be used to anchor the precast concrete Type S drop inlet lid to the sidewalk. If there is sidewalk adjacent to the drop inlet, the precast lid shall match the finish elevations and cross slopes of the sidewalk.
2. The sidewalk shall be steel reinforced when the sidewalk adjoins the precast lid. Refer to Standard Plate 651.70 for reinforced concrete sidewalk details.

December 23, 2012





INFORMATIONAL QUANTITIES					
FRAME AND GRATE TYPE	L Ft-In	W Ft-In	T In	CLASS M6 CONCRETE CuYd	REINFORCING STEEL Lb
TYPE B	4'-0"	3'-0"	6	0.11	9
TYPE C	5'-0"	4'-0"	6	0.15	11
TYPE D	4'-0"	2'-6"	6	0.10	8

GENERAL NOTES:

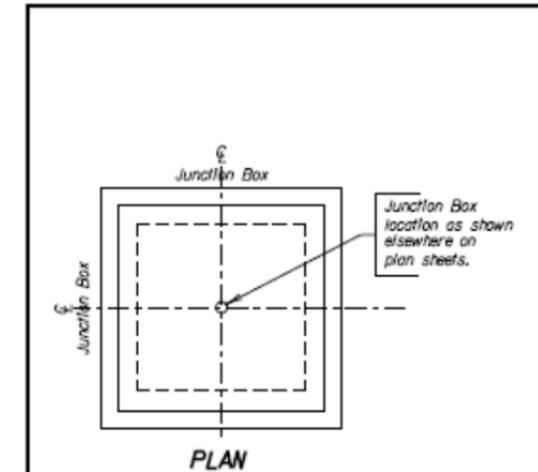
All reinforcing steel shall conform to ASTM A615, Grade 60.

The 1/2" diameter bar shall lap 6"± and shall be centered in the concrete.

The cost of furnishing and installing Precast Drop Inlet Collars, including labor, materials, and incidentals shall be incidental to the contract unit price per Each for "Precast Drop Inlet Collar".

March 31, 2000

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SPECIFICATIONS

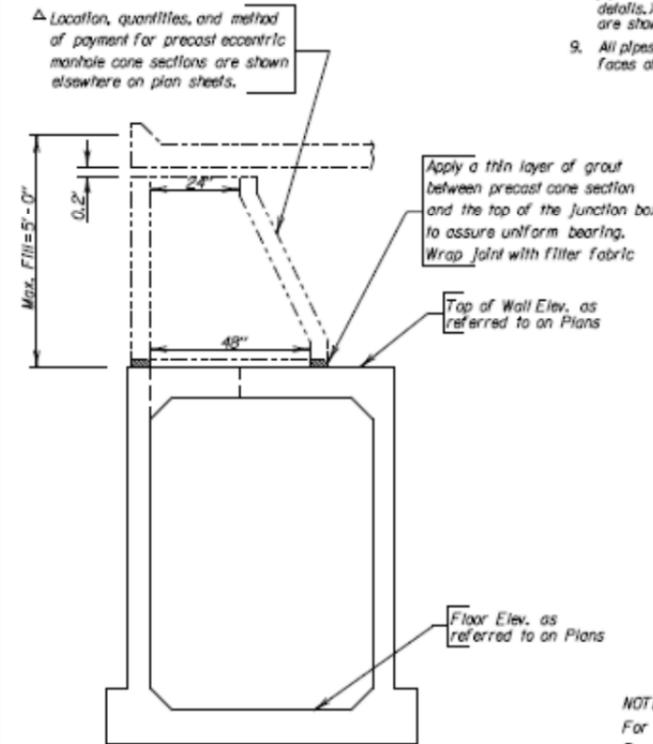
1. Design Specifications: AASHTO Specifications for Highway Bridges, 1996 Edition (Service Load).
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications and/or Special Provisions as Included in the Proposal.

DESIGN MIX OF CONCRETE

1. Mix shall be designed to produce a concrete having a minimum compressive strength of 4000 p.s.i. at 28 days.
2. Type II Cement is required.

GENERAL NOTES

1. Design Live Load: HS 20-44 and Alternate Loading. No construction loading in excess of legal load was considered.
2. The design of the junction box is based on a maximum fill over the junction box of 5 feet.
3. Unit Stresses: Concrete $f_c = 1600$ p.s.i.
Reinforcing Steel $f_s = 24000$ p.s.i.
4. All reinforcing steel shall conform to ASTM A615 Grade 60.
5. All exposed edges shall be chamfered 3/4".
6. Use 1" clear cover on all reinforcing steel except as shown.
7. The cost of furnishing and installing the manhole steps shall be incidental to the contract unit price per Lb. for "Reinforcing steel".
8. Reinforcing steel shall be cut and bent in field as necessary to fit pipe and manhole openings. (Pipe openings are not shown in these details.) Number, size and location of pipes entering junction box are shown elsewhere on plan sheets.
9. All pipes entering the junction box must fit between the inside faces of the walls.



ITEM	Class M6 Concrete	Reinforcing Steel
UNIT	Cu. Yd.	Lb.
H = 4'-0"	4.37	821
H = 4'-6"	4.61	846
H = 5'-0"	4.85	908
H = 5'-6"	5.10	933
H = 6'-0"	5.34	958
H = 6'-6"	5.58	1020
H = 7'-0"	5.82	1045
H = 7'-6"	6.06	1071
H = 8'-0"	6.30	1132

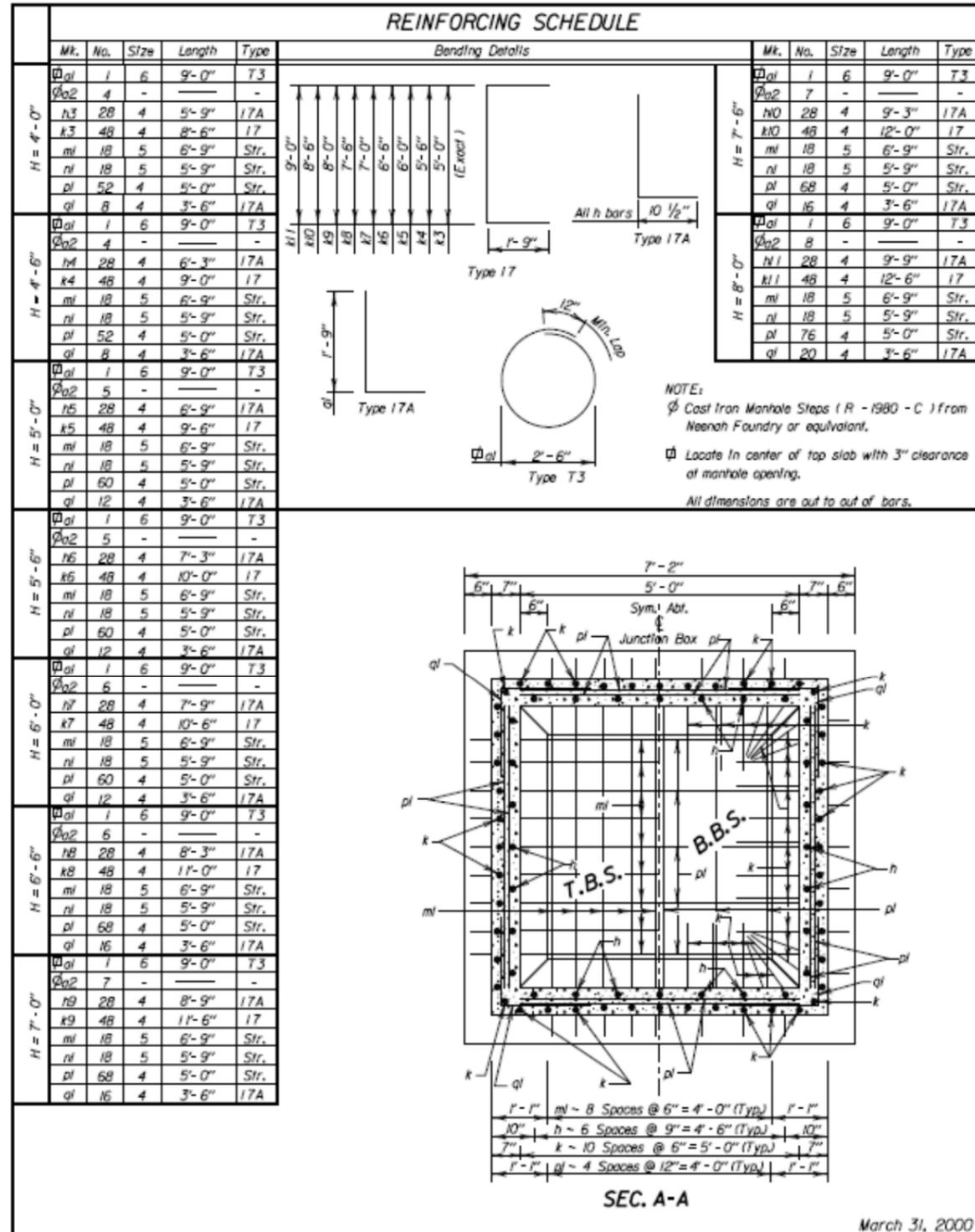
NOTE:

For informational purposes only, the estimated quantities for Junction Box height H are shown above. These quantities do not include quantity reduction for pipe openings, but do include the reduction for the 24" diameter manhole opening.

DETAIL OF CONNECTION BETWEEN PRECAST ECCENTRIC MANHOLE CONE SECTION AND JUNCTION BOX

March 31, 2000

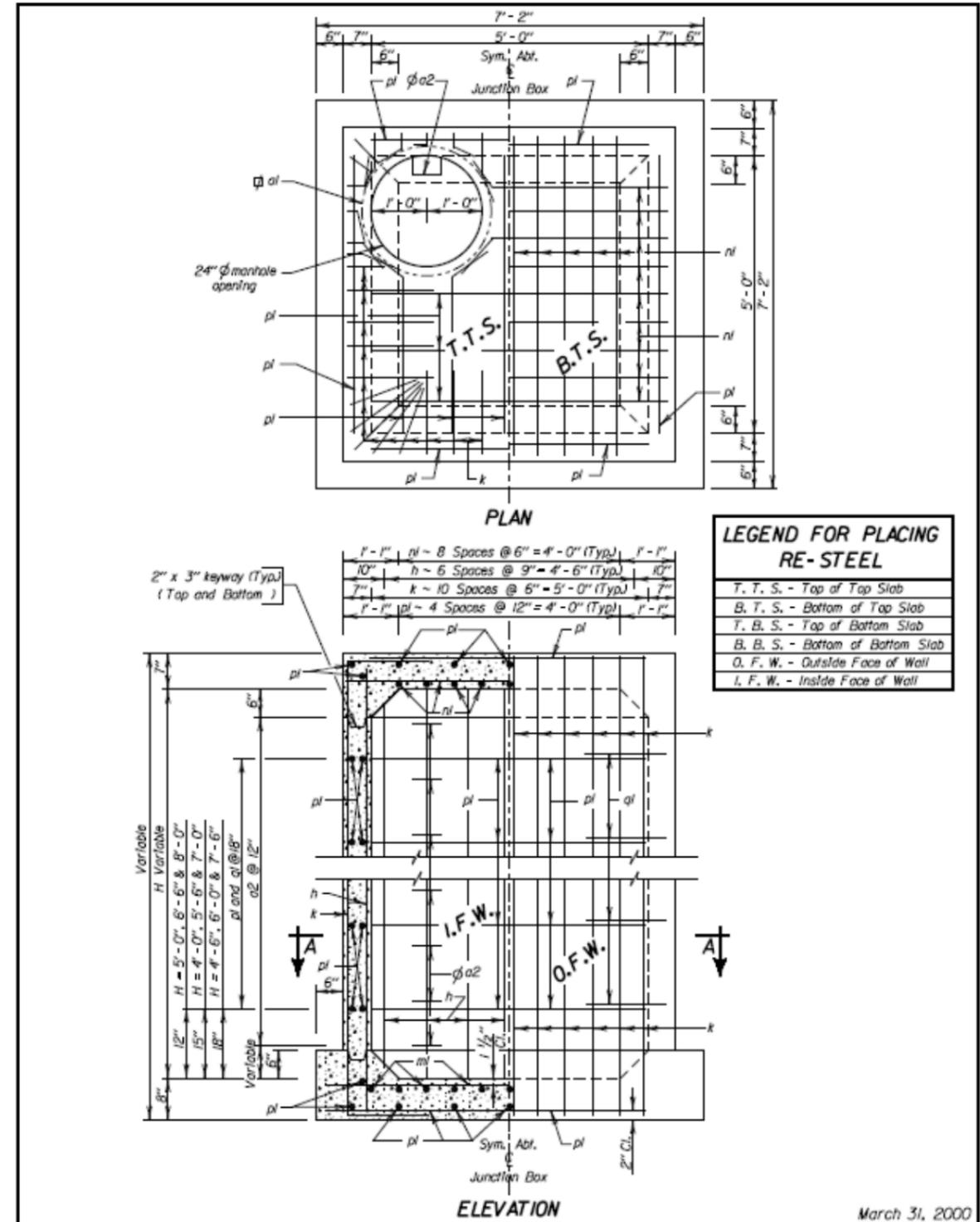
Published Date: 3rd Qtr. 2014	S D D O T	5'X 5' JUNCTION BOX	PLATE NUMBER 671.01
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NOTE:
 φ Cast Iron Manhole Steps (R - 1980 - C) from Neenah Foundry or equivalent.
 □ Locate in center of top slab with 3" clearance at manhole opening.
 All dimensions are out to out of bars.

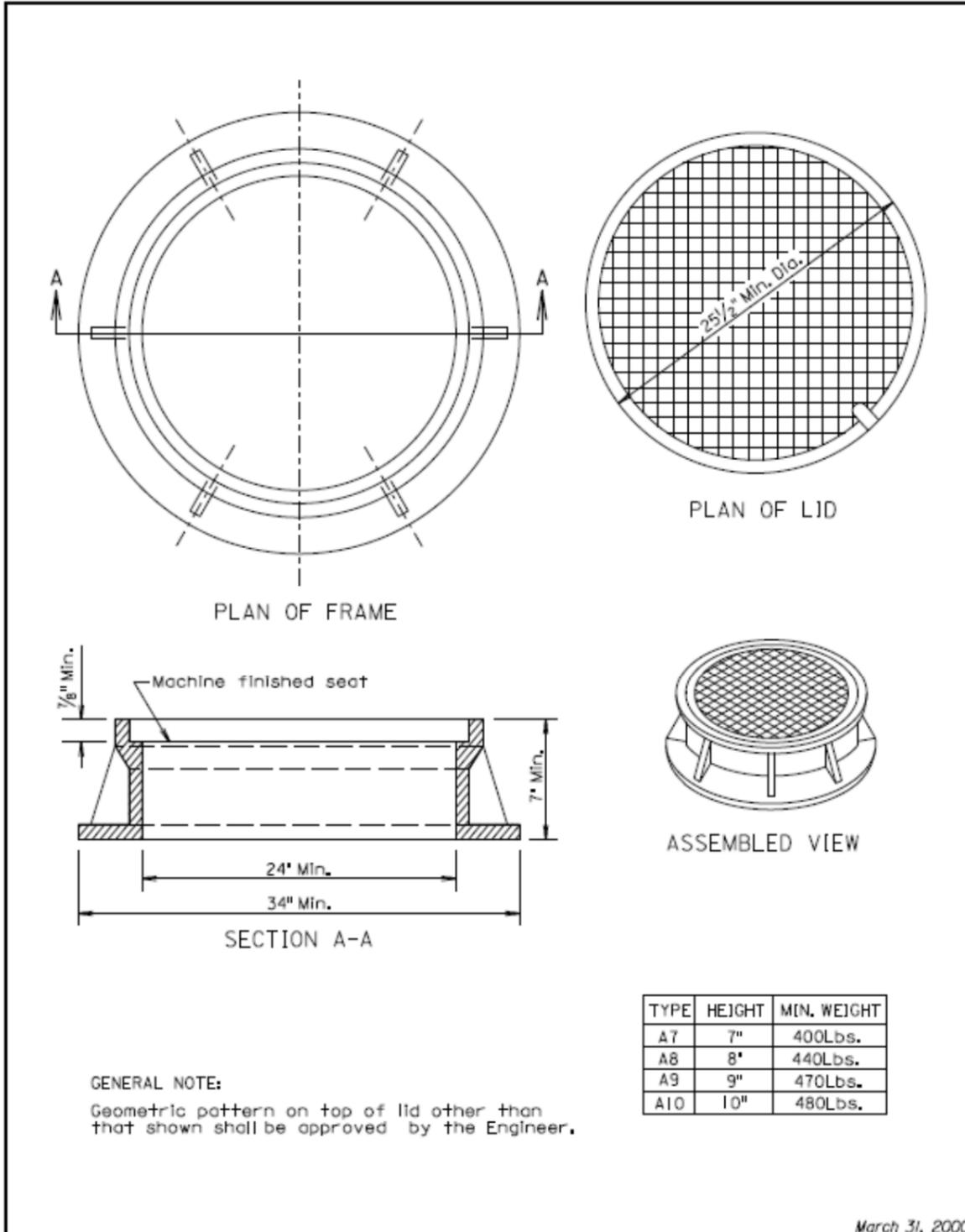
March 31, 2000

SDDOT	5' X 5' JUNCTION BOX	PLATE NUMBER 671.01
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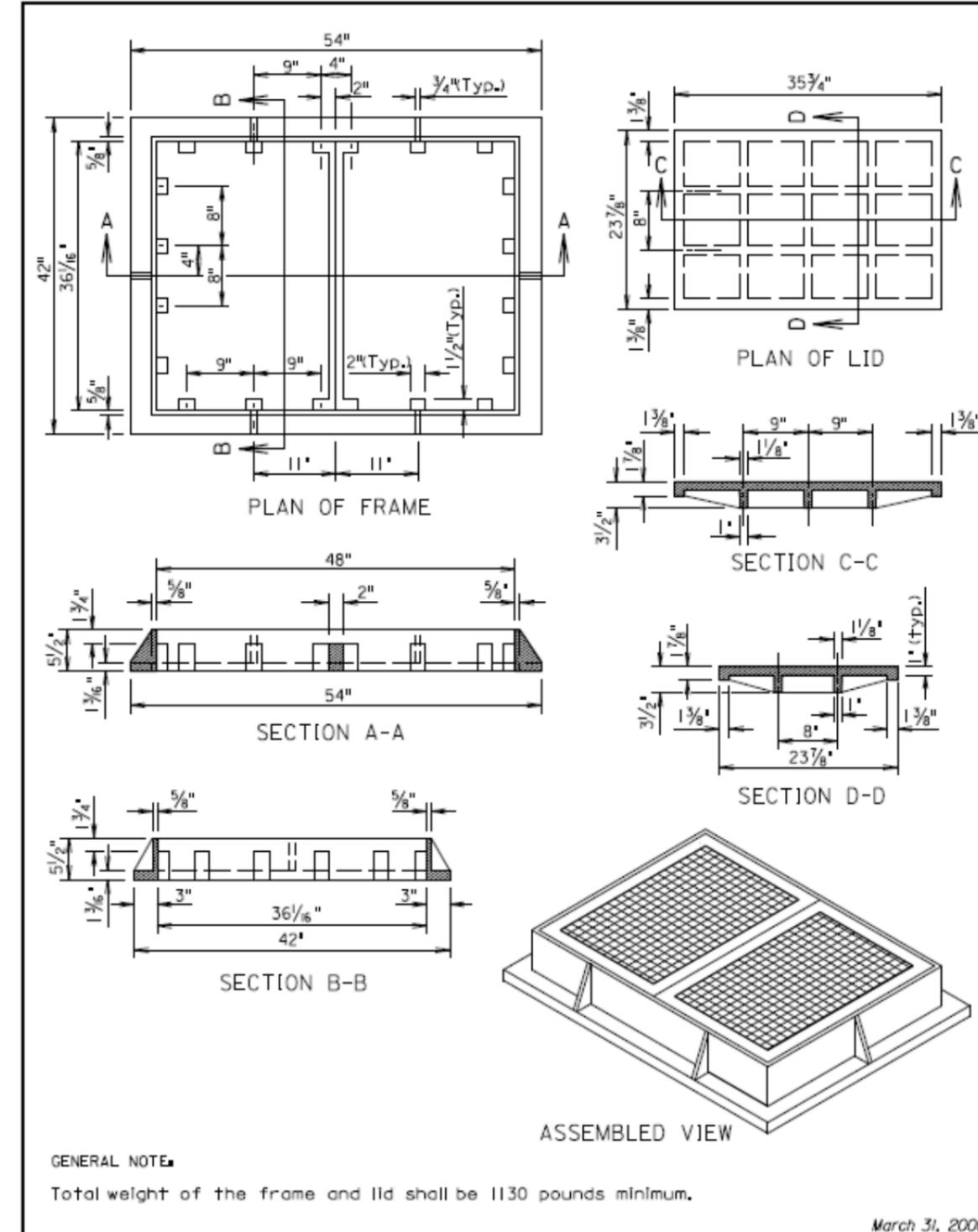
SDDOT	5' X 5' JUNCTION BOX	PLATE NUMBER 671.01
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GENERAL NOTE:
Geometric pattern on top of lid other than that shown shall be approved by the Engineer.

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Published Date: 3rd Qtr. 2014	S D D O T	TYPE A MANHOLE FRAME AND LID	PLATE NUMBER 671.10
			Sheet 1 of 1



GENERAL NOTE:
Total weight of the frame and lid shall be 1130 pounds minimum.

March 31, 2000

Published Date: 4th Qtr. 2014	S D D O T	TYPE C MANHOLE FRAME AND LID	PLATE NUMBER 671.20
			Sheet 1 of 1