	DESIGN DA	ГА			STATE	
Traffic	Average [Daily			ND	
				CITY OF WILLISTON		
Concrete and asphalt sl	nared use paths and incidentals.				Gov	vern
				TAU-7-993(058)	Sta	anda
					Supp'	lem
				Williams County Williston, North Dakota		Pr
				13th Ave E & 16th St W to Creekside Drive	TAI	U-7-
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		- - - - - - - - - -				
DES Jarek Wigness	SIGNERS	DIVIDE BURKE	BOTTINEAU RD CAVALIER R CAVALIER CAVALIER R		I hereby certify th prepared by me o and that I am a d	nat t or u duly
Jessica Conz			ER TON			

STATE COUNTY MAP

PROJECT NO.		PCN	SECTION NO.	SHEET NO.
TAU-7-993(058)		22954	1	1
ning Specifications dard Specifications 1/ nental Specifications	shed a North t of Tra /1/202 None	nd Adopted Dakota ansportation 2		
	N	-4 84:1		
7-993(058) 0 17	N			
Total 0.17		0.17		
the attached plans were under my direct supervision y registered professional laws of the state of ND. 3/4/22	101012	DATE NORTH	ESS10 WIGNES 28912 3/4/22 1 DAKOT	JAL ENGINEER A

TABLE OF CONTENT

PLAN SECTIONS

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2	1	Table of Contents
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6	1	Notes
8	1	Quantities
10	1	Basis of Estimate
20	1-4	General Details
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40	1-4	Removals
76	1-2	Temporary Erosion Control
77	1	Permanent Erosion Control
80	1	ADA Ramp Layouts
90	1-4	Paving Layouts
100	1-3	Work Zone Traffic Control

		STATE	PROJECT NO.	SECTION NO.	SHEET NO.
NTS		ND	TAU-7-993(058)	2	1
	LIST OF STANDARD DRAWINGS				
Number	Description				
D-101-1	NDDOT Abbreviations				
D-101-2	NDDOT Abbreviations				
D-101-3	NDDOT Abbreviations				
D-101-4	NDDOT Abbreviations				
D-101-20	Line Styles				
D-101-21	Line Styles				
D-101-30	Symbols				
D-101-31	Symbols				
D-101-32	Symbols				
D-101-33	Symbols				
D-260-1	Erosion and Siltation Controls – Silt Fence				
D-261-1	Erosion Control – Fiber Roll Placement Details				
D-704-6	Construction Sign Details – Project Funding Sign	rated Tuba			
D-704-7	Breakaway Systems for Construction Zone Signs - Perio	rated Tube			
D-704-0	Construction Sign Details Terminal and Guide Signs				
D-704-9	Construction Sign Details - Terminal and Guide Signs				
D-704-10	Shoulder Closure Tapers				
D-704-12	Barricade and Channelizing Device Details				
D-704-14	Construction Sign Punching and Mounting Details				
D-714-5	Corrugated Steel Pipe Arch Culverts and End Sections				
D-722-1B	Inlet - Special				
D-748-1	Curb & Gutter and Valley Gutter				
D-750-2	Sidewalk				
D-750-3	Curb Ramp Details				
				PROFESSION	\geq
			15	21 1	4/
			E	AREK WICHESS	E
			IS.	P.E.#28912	GIN
			U U	(wak Winners)	E
			la l	DATE 3/4/22	10/
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				HUANO	





PLAN NOTES

GENERAL NOTES

- 100-P01 WORK HOURS: City ordinances restrict the Contractor's work hours to between 7:00 a.m. and 10:00 p.m. No work shall be performed after sunset.
- 100-P02 ORDER OF OPERATIONS: Restore each section of sidewalk to pedestrian traffic within 10 Calendar Days of sidewalk removal. Liquidated damages will be assessed at a rate of \$500 per day per sidewalk section that is not restored.
- 100-P03 SALVAGED MATERIALS: All salvage materials shall become the property of the owner. Excess excavated material including pipe, stumps, roots, and any other items the owner does not wish to salvage shall become the contractor property and shall be removed from the site and disposed of properly, incidental to the contract with no additional compensation awarded for such.
- 100-P04 UTILITY LOCATIONS: Existing utility infrastructure shown is conceptual ONLY. It is the Contractors responsibility to locate all existing utilities infrastructure throughout the project. This includes all materials, equipment, means and methods. Location requests are obtained by calling North Dakota One Call at 800-795-0555.
- 100-P05 EXISTING CULVERTS: All existing culverts within right-of-way shall be cleaned of siltation and sediment. All costs associated with cleaning shall be incidental to other contract items.
- 100-P06 PAVEMENT PROTECTION: The Contractor shall protect the existing pavements near the project and any pavement on the project that is to remain in service from damage during construction. The Contractor and Engineer shall inspect and determine the preconstruction condition of these pavements prior to commencement of the work. Any damage to these existing pavements resulting from the Contractor's construction activities shall be repaired at the Contractor's expense.
- 100-P07 TREES, SHRUBS & GRASSES: The Contractor shall exercise care in his construction operations to ensure that tree, shrubs, and grasses within the right-ofway and outside the construction area that are not designated for removal are not disturbed.
- 202-P01 REMOVAL OF CURB & GUTTER: Include the cost of labor, equipment, and materials to remove the valley gutter aprons in the unit price bid for "Removal of Curb and Gutter". See section 40 for applicable sheets.
- 203-P02 TOPSOIL: All topsoil removed from the excavations shall be salvaged, stockpiled, and replaced to provide a bedding for all areas to be re-seeded.
- 708-P01 INLET PROTECTION: Place inlet protection at each inlet along the project. Include installation, maintenance, and removal costs in the contract unit price for "INLET **PROTECTION – FIBER ROLL 12IN"**
- 708-P02 EROSION CONTROL: The Contractor shall be required to construct the project in such a manner as to comply with the Water Pollution Control Regulations of the State of North Dakota and as approved by the Engineer. The Contractor shall take the

measures necessary to prevent silt laden or otherwise contaminated run-off water from leaving the project site. The installation of fiber fabric over all storm inlets will be required. Other erosion control and water pollution controls such as silt fences and straw bales shall be employed as necessary. See section 76 for applicable sheets.

- 722-P01 ADJUST INLET: Adjust Storm Inlets to 1/4"to 3/8" lower than the finished grade.
- 748-P01 CURB & GUTTER, TYPE I: Light poles and similar obstacles may interfere with the
- Concrete 4IN."
- storage, and resetting of signs in bid price for "Reset Sign Panel."
- 885-P01 DETECTABLE WARNING PANELS: Use Yellow, Polymer Composite detectable price bid for "Detectable Warning Panels".

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-7-993(058)	6	1

passing of a slip form curb machine and require hand forming of curb and gutter. The additional costs of all hand form work shall be incidental to the curb and gutter bid.

750-P01 SIDEWALK CONCRETE: Strip and salvage the existing topsoil adjacent to sidewalk replacement areas. Remove existing landscaping rock where it exists. Excavate material to accommodate the proposed aggregate base for sidewalk installation. Perform soil reshaping to match the proposed sidewalk or driveway elevation. Excess excavation material will become property of contractor. Include the cost of labor, equipment, and materials to perform this work in the contract unit price for "Sidewalk

754-P01 RESET SIGN: Existing signs to be removed are not shown on the plans for reasons of clarity. The existing signs to be removed are at or near the locations of the new signs being installed. If sign is damaged during removal, covering, storage, or resetting operations, sign will be replaced at Contractor's expense. Include removal, covering,

warning panels. All cost for labor, material, and equipment shall be included in the



QUANTITIES

SPEC	CODE	ITEM DESCRIPTION	PLAN QUANTITY	UNIT
103	100	CONTRACT BOND	1	LS
202	114	REMOVAL OF CONCRETE PAVEMENT	21	SY
202	130	REMOVAL OF CURB & GUTTER	40	LF
202	169	REMOVAL OF END SECTION-ALL TYPES & SIZES	1	EA
203	101	COMMON EXCAVATION – TYPE A	30	CY
203	118	TOPSOIL-PLACEMENT	122	CY
203	125	REMOVE & SALVAGE TOPSOIL	209	CY
203	140	BORROW-EXCAVATION	715	CY
251	100	SEEDING CLASS I	0.2	ACRE
302	120	AGGREGATE BASE COURSE CL 5	275	TON
430	43	SUPERPAVE FAA 43	125	TON
430	5803	PG 58S-28 ASPHALT CEMENT	7.5	TON
702	100	MOBILIZATION	1	LS
704	1000	TRAFFIC CONTROL SIGNS	186	UNIT
704	1054	SIDEWALK BARRICADE	4	EA
708	1531	INLET PROTECTION-FIBER ROLL 12IN	6	EA
714	5139	PIPE CORR STEEL .064IN ARCH 57IN X 38IN	30	LF
722	6200	ADJUST MANHOLE	2	EA
748	140	CURB & GUTTER - TYPE 1	40	LF
750	115	SIDEWALK CONCRETE 4IN	375	SY
750	2115	DETECTABLE WARNING PANELS	60	SF
754	593	RESET SIGN SUPPORT	3	EA



BASIS OF ESTIMATE

Aggregate Base Course CL 5

6" Base Course for Sidewalk @ 1.875 TON/CY

6" Base Course for Asphalt Pavement @ 1.875 TON/CY

Superpave FAA 43

2" Lifts @ 2 TON/CY

PG 58S-28 Asphalt Cement Approximately 6% of Hot Mix Asphalt





	STATE	PROJECT NO.	SECTION ND,	SHEET ND,
	ND	TAU-7-993(058)	20	1
:				
lk Barric 'rovide upports	cades self sta s extend	nding sidewalk barricade with no ling into the pedestrians path.		
Jse orar anels c	nge or o ontrast	brange and white diagonal striped barri ing with the walkway surface.	cade	
Provide .evel 3 (ADA co (TL3) a	ompliant and NCHRP 350 or Mash Tes pproved sidewalk barricades.	t	
nclude a	all costs es in th	s to furnish, maintain and remove sidev e price bid for "Sidewalk Barricade".	valk	



GENERAL DETAILS SIDEWALK BARRICADE



STATE	PROJECT NO.	SECTION ND,	SHEET ND,
ND	TAU-7-993(058)	20	2

Inlet Protection Device

Installation Notes:

1. Place device tightly against drain opening and cover entire grate. Extend the device at least 2 inches past the grate toward the street.

2. Overlap the segments at longer openings.

3. Anchor the device so that water cannot flow behind it.

General Notes:

1. Remove material that falls into the inlet during maintenance or removal of device



GENERAL DETAILS INLET PROTECTION

Notes - Pavement Patching1. Allow patching material to cool to 130°F before placing additional material.



STATE	PROJECT NO.	SECTION ND,	SHEET ND,
ND	TAU-7-993(058)	20	3



GENERAL DETAILS ASPHALT PATCHING



GENERAL DETAILS CITY OF WILLISTON SIDEWALKS

STATE	PREJECT ND.	SECTION ND,	SHEET ND,
ND	TAU-7-993(058)	20	4



	STATE	PROJECT NO.	SECTION ND.	SHEET ND.
	ND	TAU-7-993(058)	30	1
4:		aylight		
4:1		ylight JAREK JAREK JAREK JAREK JAREK JAREK	ESS/0 WIGNES 28912 3/4/22 HDAKO	APLENGINEEP A
		TYPICAL SEC 13TH AND CREE	TION EKSIDE	











Note: The erosion control devices shown are identified to protect existing infrastructure. Adequate BMPs shall be determined by the contractor based on site condi

	STATE	PROJE	ICT ND.	SECTION	SHEET ND,
	ND	TAU-7	7–993(058)	76	1
			Inlet Protection	-Fiber Roll	12IN
itions		TEMPOR	ARY EROSION	WIGNES 28912 3/4/22 Y DAKO	TROL
		TEMPO	RARY EROSION 16TH STREET	N CON ⁻ W	rol



	STATE	PROJECT NO.	SECTION	SHEET ND,
	ND	TAU-7-993(058)	76	2
		Inlet Protection	-Fiber Roll	2 12IN
litiono		N N N N N N N N N N N N N N N N N N N	WIGNES 28912 3/4/22 H DAKO	Feet ARLENGINEER
itions		TEMPORARY EROSION 13TH AVE E	N CON ⁻	TROL













NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	PER	SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)		6	
G20-1-60	60"x24"	ROAD WORK NEXT MILES		34	
G20-1D-60 G20-2-48	60"X24" 48"x24"	END ROAD WORK		20 19	
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	
G20-10-108	108"x48"	CONTRACTOR SIGN		64	
G20-50a-72	72"x36"	ROAD WORK NEXT MILES RT & LT ARROWS		37	
G20-52a-72	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE \$80 WHEN WORKERS PRESENT		59	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24 M3 1 24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-2-24	24 x12	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30 M4-10-48	30 x24 48"x18"	DETOUR ARROW RIGHT OF LEFT		23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT(Mounted on route marker post)		7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)		7	
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)		7	
M6-3-21	21 x15" 21"x15"	ARROW AHD (Mounted on route marker post)		7	
R1-1-48	48"x48"	STOP		32	
R1-1a-18	18"x18"	STOP and SLOW PADDLE Back to Back		5	
R1-2-60	60"x60"	YIELD		29	
R2-1-48 R2-1a-24	48"x60" 24"y18"	SPEED LIMIT MINIMUM FEE \$80 (Mounted on Speed Limit post)		39 10	
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT		35	
R4-1-48	48"x60"	DO NOT PASS		39	
R4-7-48	48"x60"	KEEP RIGHT SYMBOL		39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R0-1-30 R7-1-12	12"x18"	NO PARKING		13	
R10-6-24	24"x36"	STOP HERE ON RED		16	
R11-2-48	48"x30"	ROAD CLOSED		28	
R11-2a-48	48"x30"			28	
R11-3a-60 R11-3c-60	60"x30"			31	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC		31	
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW		35	
W1-4-48	48"x48"			35	
W1-4D-48	48"x48" 48"x24"	LARGE ARROW		35	
W3-1-48	48"x48"	STOP AHEAD SYMBOL		35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL		35	
W3-4-48	48"x48"	BE PREPARED TO STOP		35	
W4-2-48	48"x48" 48"x48"	SPEED REDUCTION AREAD RIGHT or LEFT LANE TRANSITION SYMBOL		35	
W5-1-48	48"x48"	ROAD NARROWS		35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE		35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW		35	
W6-3-48	48"x48" 48"y48"	TWO WAY TRAFFIC SYMBOL		35	
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF		35	
W8-11-48	48"x48" 48"y48"	UNEVEN LANES		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or FT.		35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or FT.		35	
W8-56-48	48"x48"	I RUCKS EXTING HIGHWAY		35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL	_	35	
W13-1-24	24"x24"	MPH ADVISORY SPEED PLATE (Mounted on warning sign post)		11	
W13-4-48	48"x60"	RAMP ARROW		39	
W20 1 49	48"x36"	NO PASSING ZONE ROAD WORK AHEAD on ET on MILE		23	
W20-1-40	40 x40 48"x48"	DETOUR AHEAD or FT		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or FT.		35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or FT.		35	
W20-5-48	48"x48"	RIGHT OF LEFT LANE CLOSED AHEAD OF FT.		35	
vv∠u-7a-48 W20-7k-94	40"X48" 24"y18"	FEFT (Mounted on warning sign post)		35 10	
W20-8-48	48"x48"	STREET CLOSED		35	
W20-51-48	48"x48"	EQUIPMENT WORKING		35	
W20-52-54	54"x12"	NEXTMILES (Mounted on warning sign post)		12	
W21-1a-48	48"x48"			35	
vv∠1-∠-40	+0 \$40			30	

				STATE			PRO	DJECT NO.	SECTION	SHEET
				ND			TAU-7	'-993(058)	100	1
SIGN NUMBER	SIGN SIZE	DESCRIPTION		AMO	UNT	UNITS PER AMOUNT	UNITS SUB TOTAL		-	
W21-5-48	48"x48"	SHOULDER WORK		2	2	35	70	_		
W21-5a-48 W21-5b-48	48"x48" 48"x48"	RIGHT or LEFT SHOULDER CLOSED RIGHT or LEFT SHOULDER CLOSED AHEAD or FT.				35		_		
W21-6a-48	48"x48"					35				
W21-50-48 W21-51-48	48"x48" 48"x48"	MATERIAL ON ROADWAY				35				
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK				35				
	24"x24"	IAKE TURNS (6" D letters) (Mounted on stop sign post)				11		-		
								_		
								-		
								-		
								-		
								-		
SPECIAL SI	GNS									
12-5-96	48"x96"	Project Funding Sign			2	58	116			
								-		
								NOTE: If additional sigr	is are	
	DE							 required, units v calculated using 	/ill be the formula	
704-1000		TRAFFIC CONTROL SIGNS	TOTAL UNITS				186	from Section III-	19.06 of the	
					_			Design Manual. http://www.dot.n	d.gov/	
SPEC & CODE	FLAGOIN	DESCRIPTION	UNIT	QUANTI	тү					
704-0100	ATTENU	ATION DEVICE-TYPE B-55	EACH	1						
704-1043	ATTENU	ATION DEVICE-TYPE B-65	EACH	1						
704-1044 704-1050	TYPEIB	ATION DEVICE-TYPE B-70 ARRICADES	EACH	1						
704-1051	TYPE II E	BARRICADES	EACH	1				280	FESSIO	
704-1052 704-1054	SIDEWA	BARRICADES	EACH	1	4			(DPM		4
704-1060	DELINEA	TOR DRUMS	EACH	1				121		in
704-1065	TRAFFIC	CONES R MARKERS	EACH	4				LU IARE	K WIGNESS	1Z
704-1007	DELINEA	TOR	EACH	1				SAD	1298012	S
704-1072	FLEXIBL	E DELINEATORS	EACH	1				O hute		
704-1081	SEQUEN	ICING ARROW PANEL - TYPE A	EACH	1				We have	010010010	151
704-1086	SEQUEN	ICING ARROW PANEL - TYPE B	EACH	1				UAIE	314/22	/ /
704-1087 704-1088	SEQUEN	ICING ARROW PANEL - TYPE C ICING ARROW PANEL - TYPE C - CROSSOVER	EACH	1				No	- TI	\sim
704-1095	TYPE B	FLASHERS	EACH	1				.OR	HDAKO	
704-1500	OBLITER	A HON OF PVMT MK LE PRECAST CONCRETE MED BARRIER	SF		_					1000 (100 (100 (100 (100 (100 (100 (100
704-3510	PRECAS	T CONCRETE MED BARRIER - STATE FURNISHED	EACH	1				Traffic Control Devic	es List	
762-0200	SHORT	FERM 4IN LINE - TYPE R		1						
762-0430 772-2110	SHORT FLASHIN	IERM 4IN LINE - TYPE NR IG BEACON - POST MOUNTED	LF EACH	1						

				STATE			PRO	JECT NO.	SECTION	SHEET
				ND		•	TAU-7	-993(058)	100	NO. 1
SIGN NUMBER	SIGN SIZE	DESCRIPTION		AMOU REQUI	UNT IRED	UNITS PER AMOUNT	UNITS SUB TOTAL			
W21-5-48	48"x48"			2		35	70			
W21-5a-46 W21-5b-48	48"x48" 48"x48"	RIGHT OF LEFT SHOULDER CLOSED RIGHT OF LEFT SHOULDER CLOSED AHEAD OF FT.				35				
W21-6a-48	48"x48"	SURVEY CREW AHEAD				35				
W21-50-48 W21-51-48	48"x48"	BRIDGE PAINTING AHEAD or FT.				35				
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK				35				
	24"x24"	TAKE TURNS (6" D letters) (Mounted on stop sign post)				11				
SPECIAL SIC 12-5-96	GNS 48"x96"	Project Funding Sign		2		58	116			
								NOTE: If additional sign	s are	
SPEC & COI	DE							required, units w calculated using	ill be the formula	
704-1000		TRAFFIC CONTROL SIGNS	TOTAL UNITS				186	from Section III- Design Manual.	19.06 of the	
SPEC &								http://www.dot.n	d.gov/	
CODE		DESCRIPTION		QUANTIT	ΓY					
704-0100	ATTENU	NG ATION DEVICE-TYPE B-55	EACH		_					
704-1043	ATTENU	ATION DEVICE-TYPE B-65	EACH							
704-1044	ATTENU	ATION DEVICE-TYPE B-70	EACH		_					
704-1050	TYPE II E	BARRICADES	EACH		_			20	FESSIO	
704-1052	TYPE III	BARRICADES	EACH					PRO	10001	
704-1054			EACH		4			12	/	*/ \
704-1000	TRAFFIC	CONES	EACH		_			15		151
704-1067	TUBULA	R MARKERS	EACH					I JARE	K WIGNESS	16
704-1070		ATOR E DELINEATORS	EACH		_			PE	#28912	Ī
704-1081	VERTICA	AL PANELS - BACK TO BACK	EACH		_			IN MICK	Numen	
704-1085	SEQUEN		EACH					OF DATE	3/4/22	1-0/
704-1086	SEQUEN		EACH		_				/	/ /
704-1087	SEQUEN	ICING ARROW PANEL - TYPE C - CROSSOVER	EACH					Non	T	4/
704-1095	TYPE B I	FLASHERS	EACH					- WI	HDAKU	
704-1500		KATION OF PVMT MK BLE PRECAST CONCRETE MED BARRIER	SF I F		_					
704-3510	PRECAS	T CONCRETE MED BARRIER - STATE FURNISHED	EACH		-	1	-	Froffia Control Doute	og Ligt	
762-0200	RAISED	PAVEMENT MARKERS	EACH			1	I	Tame Control Device	5 LISI	
762-0420	SHORT	I ERM 4IN LINE - TYPE R TERM 4IN LINE - TYPE NR	LF		_	1				
772-2110	FLASHIN	IG BEACON - POST MOUNTED	EACH			1				
					_	1				
						1				
						1				
						1				





Extru

extruded

?	This is a special text character used in the labeling	C Gdrl	cable guardrail	Culv	culvert	FOS
	an unknown characteristic potentially based on:	Calc	calculate	C&G	curb & gutter	Fed
	lack of description, location accuracy or purpose.	CIP	cast iron pipe	CI	curb inlet	FP
		СВ	catch basin	CR	curb ramp	Fn
Abn	abandoned	CRS	cationic rapid setting	С	cut	Fn P
Abut	abutment	C Gd	cattle guard			FO
Adj	adjusted	C To C	center to center	Dd Ld	dead load	FD
Aggr	aggregate	CL or 🕑	centerline	Defl	deflection	F
Ahd	ahead	Ch	chain	Defm	deformed	FAA
ARV	air release valve	Chnlk	chain-link	DInt	delineate	FH
Align	alignment	Ch Blk	channel block	DIntr	delineator	FI
AI	alley	Ch Ch	channel change	Depr	depression	Flrd
Alt	alternate	Chk	check	Desc	description	FES
Alum	aluminum	Chsld	chiseled	Det	detail	F Bcn
ADA	Americans with Disabilities Act	Cir	circle	DWP	detectable warning panel	FA
&	and	CI	class	Dtr	detour	FL
Appr	approach	CInt	clean-out	Dia or ø	diameter	Ftg
Approx	approximate	Clr	clear	Dir	direction	FM
ACP	asbestos cement pipe	Cl&gr	clearing & grubbing	Dist	distance	Fnd
Asph	asphalt	Comb.	combination	DM	disturbed material	Fdn
AĊ	asphalt cement	Coml	commercial	DB	ditch block	Frac
Assmd	assumed	Compr	compression	DG	ditch arade	Frwy
@	at	CADD	computer aided drafting & design	Dbl	double	Frt
Atten	attenuation	Conc	concrete	Dn	down	FF
ATR	automatic traffic recorder	CECB	concrete erosion control blanket	Dwa	drawing	F Disc
Ave	Avenue	Cond	conductor	Dr	drive	FFP
Ava	average	Const	construction	Drwy	driveway	FLS
ADT	average daily traffic	Cont	continuous	וח	dron inlet	Furn
NB1		CSB	continuous solit barrel sample		dry density	1 diff
		Contr	contraction	פחפח	dynamic speed display sign	
		Contr	contractor	DODO	aynamic speed display sign	
BŁ	back	CP	control point			
BE	back face	Coord	coordinate	Fa	each	
Bala	baleony	Cor	corner	La Ecmt	each	
Dalc D Miro	barbad wire	Corr	corrected	ESIII	Foot	
Dvvie	barrianda	CAES	corrected		East	
Dari	batter	CAES	confugated aluminum end section	ED		
Btry	ballery		corrugated aluminum pipe	Elast		
BI		CMES	corrugated metal end section	EL	electric locker	
Beg	begin		corrugated metal pipe	ENtr	electric meter	
BG	below grade	CPVCP	corrugated poly-vinyl chloride pipe	Elec	electric/al	
BM	bench mark	CSES	corrugated steel end section	EDM	electronic distance meter	
Bkwy	bikeway	CSFES	corrugated steel flared end section	Elev or El	elevation	
Bit	bituminous	CSP	corrugated steel pipe	Ellipt	elliptical	
Blk	block	CSTES	corrugated steel traversable end section	Emb	embankment	
BH	bore hole	Co	County	Emuls	emulsion/emulsified	
Bot	bottom	Crse	course	ES	end section	
Blvd	Boulevard	Ct	Court	Engr	engineer	
Bndry	boundary	Xarm	cross arm	ESS	environmental sensor station	
Brkwy	breakaway	Xbuck	cross buck	Eq	equal	
Br	bridge	Xsec	cross sections	Evgr	evergreen	
Bldg	building	Xing	crossing	Exc	excavation	
Bus.	business	Xrd	crossroad	Exst	existing	
BV	butterfly valve	Crn	crown	Exp	expansion	
Вур	bypass			Expy	Expressway	
				E	external of curve	

OS	factor of safety
ed	Federal
Р	feed point
n	fence
n P	fence post
0	fiber optic
D	field drive
	fill
AA	fine aggregate angularity
Н	fire hydrant
I	flange
Ird	flared
ES	flared end section
Bcn	flashing beacon
A	flight auger sample
L	flow line
tg	footing
М	force main
nd	found
dn	foundation
rac	fractional
rwy	freeway
rt	front
F	front face
Disp	fuel dispenser
FP	fuel filler pipes
LS	fuel leak sensor
urn	furnish/ed

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION			VI HO
		07-01-14	at sinor
		REVISIONS	CISTED A
	DATE	CHANGE	$\Lambda/\Lambda = 10 \Lambda$
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Galv Gar Gs L G Reg GMV G Mtr GSV GVP GV GV GV Ga Gov Grd Grnd GWM Gdrl Gtr	galvanized garage gas line gas line regulator gas main valve gas meter gas service valve gas vent pipe gate valve gauge government graded/grade ground ground water monitor guardrail gutter
H Plg Hdwl	H piling headwall
Ht	height
HDPE	high density polyethylene
НМ	high mast
HPS	high pressure sodium
Hwy	highway
Hor HBD	horizontal
HMA	hot mix asphalt
Hyd	hydrant
Ph	hydrogen ion content
ld	identification
Incl	inclinometer tube
IMH ID	inside diameter
Inst	instrument
Intchg	interchange
Intscn	intersection
Inv	invert
IP	iron pipe
Jt	joint
JCI	Juncuon

Lg Lat Lt Lens Lvl Lvlng Lht Lp Ltg Liq Ll Loc Long.	large latitude left lenses level leveling light light pole lighting liquid liquid limit location longitude
Lp	loop
LD	loop detector
Lum	iuminaire
Mb	mailbox main line
MH	main ine manhole
Mkd	marked
Mkr	marker
Mkg	marking
MA	mast arm
Matl	material
Max	maximum
MC	meander corner
Mdn	median
MD	median drain
MC	medium curing
MGS	Midwest Guardrail System
MM	mile marker
MP	mile post
Min	minimum
Misc	miscellaneous
Mnd	mound
Mtbl	mountable
Mtd	mounted
Mtg	mounting
Mk	muck
Neop	neoprene
Ntwk	network North
NE	North East

North West

Northbound

number

Ln

NW

NB

No. or #

lane

Obsc	obscure(d)	Qty	quantity
Ocpd	occupied	Qtr	quarter
Осру	occupy		
O/s	offset		
oc	on center	Rad or R	radius
C	one dimensional consolidation	RR	railroad
00	organic content	Rlwy	railway
Oria	original	Red	raised
			ranid curing
	out to out	Roo	rapid culling
		Rec	
ОН	overnead	RCY	
		RAP	recycled asphalt pavement
	· · · · ·	RPCC	recycled portland cement concrete
PMT	pad mounted transformer	Ref	reference
Pg	pages	R Mkr	reference marker
Pntd	painted	RM	reference monument
Pr	pair	RP	reference point
Pnl	panel	Refl	reflectorized
Pk	park	RCB	reinforced concrete box
PSD	passing sight distance	RCES	reinforced concrete end section
Pvmt	pavement	RCFES	reinforced concrete flared end section
Ped	pedestal	RCP	reinforced concrete pipe
Ped	pedestrian	RCPS	reinforced concrete pipe sewer
PPP	pedestrian pushbutton post	RCTES	reinforced concrete traversable end section
Pen	penetration	Reinf	reinforcement
Porf	perforated	Res	reservation
Por	perioded	Pee	residence
Per.	permanent	Res	retaining
		Rei	reverse
PL		Rev	reverse
		RI	ngnt
P&P	plan & profile	R/W	right of way
PL D		Riv	river
Plort	plate	Rd	road
Pt	point	Rdbd	road bed
PE	polyethylene	Rdwy	roadway
PVC	polyvinyl chloride	RWIS	roadway weather information system
PCC	Portland Cement concrete	Rk	rock
PP	power pole	Rt	route
Preempt	preemption		
Prefab	prefabricated		
Prfmd or P	ref preformed		
Prep	preperation		
Press.	pressure		
PRV	pressure relief valve		
Prestr	prestressed		
Pvt	private		
	private drive	Г	NORTH DAKOTA
Prod	production/produce		DEPARTMENT OF TRANSPORTATION
Prog	production/produce	F	07-01-14
Bron	programmeu	F	DATE CHANGE
Prop.	property	F	IKINE J 1
Prop Ln	property line		08-03-15 General Revisions 04-23-18 General Revisions PROFESSI
Ppsa	proposed		12-18-20 General Revisions PE-468
РВ	pull box		

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Salv	salvage(d)	Tel	telephone
San	sanitary sewer line	Tel B	Telephone Booth
Sec	section	Tel P	telephone pole
SL	section line	Τv	television
Sep	separation	Temp	temperature
Sea	sequence	Temp	temporary
Serv	service	твм	temporary bench mark
Sht	sheet	Т	thinwall tube sample
Shtna	sheeting	Ts	topsoil
Shldr	shoulder	Traf	traffic
Sw or	Sdwk sidewalk	TSCB	traffic signal control box
SD	sight distance	Tr	trail
SN	sign number	Transf	transformer
Sia	signal	Trans	transition
Sal	single	TT	transmission tower
SRCP	slotted reinforced concrete nine	TES	traversable end section
SC	slow curing	Trans	transverse
22	slow setting	Trtd	treated
Sm	show setting	Treat	treatment
SIII 9	South		triaxial compression
0 0 E	South East		tribal ampleument righte ordinance
	South Most		triple
01V 010	Southbound	Трі	tupie
3D Cr	Southbound	тур	typical
Sp	spaces		
Spci		0	
SA	special assembly	Qu	unconfined compressive strength
52	special provisions	Ugrna	unaergrouna
G	specific gravity	Uti	utility
Spк	spike		
SB	split barrel sample	1/2	- H
SH	sprinkler head	VG	valley gutter
SV	sprinkler valve	Vap	vapor
Sq	square	Vert	
Stk	stake	VCP	vitrified clay pipe
Std	standard	Vol	volume
N	standard penetration test		
Std Sp	ecs standard specifications		
Stm L	steam line	Wkwy	walkway
SEC	steel encased concrete	W	water content
SMA	stone matrix asphalt	WGV	water gate valve
SSD	stopping sight distance	WL	water line
SD	storm drain	WM	water main
St	street	WMV	water main valve
SPP	structural plate pipe	W Mtr	water meter
SPPA	structural plate pipe arch	WSV	water service valve
Str	structure	WW	water well
Subd	subdivision	Wrng	wearing
Sub	subgrade	WIM	weigh in motion
Sub Pr	rep subgrade preperation	W	west
Ss	subsoil	WB	westbound
SS	supplement specification	Wrng	wiring
Supp	supplemental	W/	with
Surf	surfacing	W/o	without
Surv	survey	WC	witness corner
Sym	symmetrical		

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MEASUREMENTS

ас	acres
А	ampere
Bd Ft	board feet
Cd	candela
cm	centimeter
С	coulomb
CF	cubic feet
m3	cubic meter
m3/s	cubic meters per second
CY	cubic vard
CY/mi	cubic vards per mile
D or Deg	degree
F	Fahrenheit
F	farad
ft	feet/foot
Gal	gallon
G	giga
Ha	hectare
н	henry
Hz	hertz
hr	hour(s)
in	inch
1	ioule
ĸ	kelvin
	kilo newton
kPa	kilo pascal
kra	kilogram
kg/m2	kilogram par cubic motor
kg/115	kilomotor
	Kinometer
	KIP(S)
	litro
L	lumon
LIII	lump.sum
	nux man hour
	mannour
	mega
m m/a	meter
m/s	meters per second
mi	millitar
mL	millimeter
mm mm/br	millimeter
mmyni D	ninimeters per nour
	nano
IN De	newton
Pa IL	pascal
u	pounds
sec	seconds
5	siemens
SF km2	square leet
KIIIZ	square kilometer
mz sv	square meter
5Y Ch- V I	square yara
Sta Yd	station yards
SI	Systems International

Т	tesla
T/mi	tons per mile
V	volt
W	watt
Wb	weber

SURVEY DESCRIPTIONS SOL			
SURVE Az Bs Brg BP Cap BS BC CS Eq E FS FB Fs Geod GIS GPS HI IM I Pn LS LSIT L LC LB Mer M NGS NS Obsn Off Loc OP Cap PK P Cap PC PC PC PC PT PC PC PT PC PC PT PT PC PC PT PC PT PC PC PT PT PC PC PT PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PT PC PC PC PT PC PC PC PT PC PC PT PC PC PC PT PC PC PT PC PC PT PC PC PC PC PC PC PC PT PC PC PC PC PC PC PC PC PC PC PC PC PC	Y DESCRIPTIONS azimuth backsight bearing blue plastic cap both sides brass cap curve to spiral equation external of curve far side field book foresight geodetic Geographical Information System height of instrument iron pin Land Surveyor (licensed) Land Surveyor (licensed) Land Surveyor In Training length of curve long chord level book meridian mid ordinate of curve National Geodetic Survey near side observation office location orange plastic cap pink plastic cap point of neverse curvature point of neverse curvature point of tangent random traverse point range red plastic cap spiral to curve spiral to tangent random traverse point tangent (semi) tangent (semi) tangent (semi) tangent (semi) tangent (semi) tangent curve World Geodetic Survey Wertical curve World Geodetic Survey Vertical curve World Geodetic Survey vertical curve World Geodetic Survey vertical curve World Geodetic Survey vertical curve World Geodetic System yellow plastic cap	SOL CI CI F CI HV CI Lm Co S C Gr CS FS Gr Lig CI Lig SI Lm Rk Sd Sdy C Sdy C Sdy C Sdy C Sdy C Sdy I Si CI Si CI Si Lm	
۲	201101		

D-101-4

SOIL TYPES

	clay
	clay fill
vy	clay heavy
n	clay loam
	coal slack
•	coarse gravel
	coarse sand
	fine sand
	gravel
Co	lignite coal
51	lignite slack
	loam
	rock
	sand
Cl	sandy clay
Cl Lm	sandy clay loam
FI	sandy fill
Lm	sandy loam
	scoria
	shale
	silt clay
Lm	silty clay loam
n	silty loam

DEPART	NORTH DAKOTA MENT OF TRANSPORTATION 07-01-14 REVISIONS	LIRK J. HOAN
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12-18-20	Sheet Added - Continued from D-101-3	PROFESSIONAL PE-4683 TOPTH DAY 12 18 2020

LINE STYLES

Existing Top	oography		Existing 3-Cable w Posts	Existing l	Jtilities
Void — Void — Void — V	Existing Ground Void	<u></u>	Site Boundary	——————————————————————————————————————	Existing Electrical
++	Existing Cemetary Boundary		Existing Berm, Dike, Pit, or Earth Dam	F0	Existing Fiber Optic Line
	Existing Box Culvert Bridge		Existing Ditch Block	F0	Existing TV Fiber Optic
	Existing Concrete Surface		Existing Tree Boundary	G	Existing Gas Pipe
	Existing Drainage Structure		Existing Brush or Shrub Boundary	ОН	Existing Overhead Utility Line
	Existing Gravel Surface		Existing Retaining Wall	P	Existing Power
	Existing Riprap		Existing Planter or Wall	PL	Existing Fuel Pipeline
	Existing Dirt Surface	۰ ـ ـ ۱ ـ ۱ ـ ۱ ـ ۱ ـ ۱ ـ ۱ ـ ۱ ـ ۱ ـ ۱	Existing W-Beam Guardrail with Posts	PL	Existing Undefined Above Ground Pipe Line
	Existing Asphalt Surface	•	Existing Railroad Switch	SAN:	Existing Sanitary Sewer
	Existing Tie Point Line	<u>, , , , , , , , , , , , , , , , , , , </u>	Gravel Pit - Borrow Area	SAN FM	Existing Sanitary Force Main
	Existing Railroad Centerline		Existing Wet Area-Vegetation Break	SD	Existing Storm Drain
	Existing Guardrail Cable		Existing High Tension Cable Guardrail	SD FM	Existing Storm Drain Force Main
·• ••	Existing Guardrail Metal	F-+FFFFFFFFFF	Existing High Tension Cable Guardrail with Posts		Existing Culvert
	Existing Edge of Water			T	Existing Telephone Line
xx	Existing Fence	Proposed T	opography	Tv	Existing TV Line
++++++	Existing Railroad	·	3-Cable w Posts	W	Existing Water or Steam Line
	Existing Field Line	~ • ~ • ·	Flow		Existing Under Drain
~ ~ ~ ~ -	Exst Flow	xxx	Fence		Existing Slotted Drain
	Existing Curb	—— REMOVE —— REMOVE —	Remove Line		Existing Conduit
	Existing Valley Gutter	<u> </u>	Wall		Existing Conductor
	Existing Driveway Gutter		Retaining Wall (Plan View)		Existing Down Guy Wire Down Guy
	Existing Curb and Gutter	<u> </u>	W-Beam w Posts		Existing Underground Vault or Lift Station
	Existing Mountable Curb and Gutter	····	High Tension Cable Guardrail with Posts		

D-101-20

Proposed Utilities



Traffic Utilities

C	onductor		
———— Fi	iber Optic		
E	xisting Loop Detector		
•• E	xisting Double Micro Loop Detector		
•• M	icro Loop Detector Double		
• E:	xisting Micro Loop Detector		
• M	icro Loop Detector		
si	ignal Head with Mast Arm		
▼ E	xisting Signal Head with Mast Arm		
Sign Structures			

Existing Overhead Sign Structure

•

•

— Existing Overhead Sign Structure Cantilever

Overhead Sign Structure Cantilever

DEPARTI	NORTH DAKOTA MENT OF TRANSPORTATION	OK J. HOR
07-01-14 REVISIONS		LAN SISTER A
DATE	CHANGE	TI AS TIS VA
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LINE STYLES

Right Of	f Way	Cross Sections	and Typicals	Strip	bing		Erosion Control	
	Easement		Existing Ground		Centerline Pavement Marking		Limits of Co	onst Transition Line
	Existing Easement		Existing Topsoil (Cross Section View)		Barrier with Centerline Pavement Marking		····· Bale Check	(
	Right of Way	void — void — void — v	Existing Ground Void (Not Surveyed)		Barrier Pavement Marking		····· Rock Check	k
	Existing Right of Way		Existing Concrete		Stripe 4 IN Dotted Extension White	s	— s — Floating Sil ^t	t Curtain
	Existing Right of Way Railroad		Existing Aggregate (Cross Section View)		Stripe 8 IN Dotted Extension White	SF	— SF — Silt Fence	
	Existing Right of Way Not State Owned		Existing Curb and Gutter (Cross Section View)		Stripe 8 IN Lane Drop	· · · _	— — Excavation	Limits
·	Existing Government Lot Line		Existing Asphalt (Cross Section View)			<u></u>	Fiber Rolls	
	Existing Adjacent Block Lines		Existing Reinforcement Rebar	Pavemei	nt Joints			
	Existing Adjacent Lot Lines	Geotec	hnical		Doweled Joint		Environmental	
	Existing Adjacent Property Line	D D	Geotextile Fabric Type D	+++++++++++++++++++++++++++++++++++++++	Tie Bar 30 Inch 4 Foot Center to Center	<u>*_*_</u> *_*	Wetland Mi	itigation
	Existing Adjacent Subdivision Lines	Geo Geo -	Geogrid	++++++++++++++++++++++++++++++++++++++	Tie Bar 18 Inch 3 Foot Center to Center		Existing We	etland Easement USFWS
	Sight Distance Triangle Line	R R	Geotextile Fabric Type R	+++++++++++++++++++++++++++++++++++++++	Tie Bar at Random Spacing	<u></u>	Existing We	etland Jurisdictional
	Dimension Leader	R R	Geotextile Fabric Type R1				Existing We	ətland
		RR RR	Geotextile Fabric Type RR	Bridge	Details		Tree Row	
Boundary	Control	s s	Geotextile Fabric Type S		Small Hidden Object			
	Existing City Corporate Limits or Reservation Boundary		Subgrade Reinforcement		Large Hidden Object			
	Existing State or International Line		Failure Line		Phantom Object			
	Existing Township	Count	tours		Existing Conditions Object			
	Existing County		Depression Contours		Centerline Main			
	Existing Section Line		Supplemental Contour		Centerline Secondary	DEPARTA	NORTH DAKOTA MENT OF TRANSPORTATION	JRK J. HO
	Existing Quarter Section Line	Prot	file	· · · · ·	Excavation Limits	DATE 09-23-16	REVISIONS CHANGE Added and Revised Items,	KINE J H
	Existing Sixteenth Section Line		Subgrade, Subcut or Ditch Grade		Proposed Ground	12-18-20	Organized by Functional Groups General Revisions	PROFESSION PE-4683
	Existing Centerline		Topsoil Profile		Sheet Piling			OPTH DA
	Tangent Line							12 18 202

	Limits of Const Transition Line
	Bale Check
	Rock Check
s s	Floating Silt Curtain
SF SF	Silt Fence
, ,	Excavation Limits
· · · · · · · · · · · ·	Fiber Rolls

DEPARTI	NORTH DAKOTA MENT OF TRANSPORTATION 07-01-14 REVISIONS	JURK J. HOAR
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			 North Arrow (Half Scale) 	۵	Existing Bush or Shrub	CSB	Continuous
		٨	Alignment Data Point	\rightarrow	Existing Large Evergreen Tree	FA	Flight Auge
			Alignment Monument	×	Existing Small Evergreen Tree	SB	Split Barrel
		×	Spot Elevation	R	Existing Large Tree	F	Thinwall Tu
		×	Existing Miscellaneous Spot	¢	Existing Small Tree	Z	Standard P
		♠	Existing Access Control Arrow	۵	Existing Tree Trunk	Incl	Inclinomete
		۲	Existing Benchmark				Excavation
		۲	Reset USGS Marker		Cairn or Stone Circle	•	Existing Gr
		0	Iron Monument Found	×	Existing Artifact		
		۲	Iron Pin R/W Monument	Э	Existing Satellite Dish		
		•	Property Corner	V*	Existing Weather Station		
		•	Iron Pin Reference Monument	\bowtie	Existing Windmill or Tower		
(0)	٦	٥	Right of Way Marker (Exst, Ppsd, Reset)		Reinforced Pavement		
		x	Existing Federal Reference Corner				
•	•	\oplus	Existing Section Corner (Full, Quarter, Sixteenth, Meander)				
		\oplus	Existing Witness Corner				
۵	۵	۵	Existing Control Point (CP, GPS-RTK, TRI)				
		۵	Existing Traverse PI Aerial Panel				
			Existing Reference Marker Point NGS				
		Δ	Existing EFB Misc				

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us Split Barrel Sample

ger Sample

el Sample

Tube Sample

Penetration Test

eter Tube

on Unit

Ground Water Well Bore Hole

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DATE	CHANGE	N/Ze - JOVA
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					•	Flexible Delineator		ļ::
						Flexible Delineator Type A (Exst, Ppsd)	þ	þ
						Flexible Delineator Type B (Exst, Ppsd)	þ	þ
						Flexible Delineator Type C (Exst, Ppsd)	þ	ŀ
				0	0	Flexible Delineator Type D (Exst, Ppsd)		K
				0	0	Flexible Delineator Type E (Exst, Ppsd)		k
		⊢	F	\vdash	F	Delineator Type A (Exst, Ppsd, Diamond Grade-Reset)		ľ
		⊩	⊩	⊩	⊬	Delineator Type B (Exst, Ppsd, Diamond Grade-Reset)		
		₩	#-	₩-		Delineator Type C (Exst, Ppsd, Diamond Grade)	Go	_
		0	0	0		Delineator Type D (Exst, Ppsd, Diamond Grade)	Θ•	_
		0	0	0		Delineator Type E (Exst, Ppsd, Diamond Grade)	0	-
			I	\square	$\mathbb{I}\!$	Barricade (Type I, Type II, Type III)		
(•)	\Leftrightarrow	← •	\rightarrow	000	Ţ	Arrow Panel (Caution Mode, Double Direction, Left Directional, Right Directional, Sequencing, Truck Mounted)		
					\bigtriangleup	Attenuation Device		
						Truck Mounted Attenuator		
					•	Delineator Drums		-
					<u>م</u>	Flagger		
					►	Tubular Marker		
					A	Traffic Cone		
					ΤΤ	Back to Back Vertical Panel Sign		

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	Þ	Highway Sign	(Exst, Ppsd)							
	þ	Mile Post Type	e A (Exst-Ppsd-Reset)							
		Mile Post Type	e B (Exst, Ppsd)							
		Mile Post Type	e C (Exst, Ppsd)							
	k	Object Marker	Type I (Exst, Ppsd)							
	k	Object Marker	Type II (Exst, Ppsd)							
	K	Object Marker	Type III (Exst, Ppsd)							
	o	Existing Refer	ence Marker							
	G	Road Closure	Gate 18 Ft (Exst, Ppsd)							
Э-		Road Closure	Gate 28 Ft (Exst, Ppsd)							
		——————————————————————————————————————	Gate 40 Ft (Exst, Ppsd)							
		Existing Railro	ad Battery Box							
	×	Existing RR P	ofile Spot							
	Ť	Existing Railro	ad Crossbuck							
	×	Existing Railro	ad Frog							
		Existing Mailb	ox (Private, Federal)							
ſ	DEPART	NORTH DAKOTA								
þ		07-01-14	RKJ. HOR							
┢	DATE	CHANGE	- KEGISTERA							
	12-18-20	General Revisions	PROFESSIONAL PE-4683							
			TH DAK							

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-Ò-	Existing Luminaire	(\Box)	\bigcirc
	Luminaire LED	\bigcirc	\bigcirc
$-\diamondsuit$	Existing Light Standard Luminaire	\mathcal{R}	\bigcirc
$-\dot{\bigcirc}$	Relocate Light Standard	$\langle \mathbf{x} \rangle$	\bigcirc
-	Light Standard Light LED Luminaire	R	\bigcirc
-0	Light Standard 35 Watt High Pressure Sodium Vapor Luminaire		\bigoplus
$- \bigcirc$	Light Standard 50 Watt High Pressure Sodium Vapor Luminaire	X	()
\rightarrow	Light Standard 70 Watt High Pressure Sodium Vapor Luminaire		
\rightarrow	Light Standard 100 Watt High Pressure Sodium Vapor Luminaire	\bigcirc	\bigcirc
$- \mathbf{O}$	Light Standard 150 Watt High Pressure Sodium Vapor Luminaire	\bigcirc	\Box
	Light Standard 200 Watt High Pressure Sodium Vapor Luminaire	\square	\square
	Light Standard 250 Watt High Pressure Sodium Vapor Luminaire	¢	\subset
-	Light Standard 310 Watt High Pressure Sodium Vapor Luminaire	0	٠
$-\diamondsuit$	Light Standard 400 Watt High Pressure Sodium Vapor Luminaire	00	0–0
-	Light Standard 700 Watt High Pressure Sodium Vapor Luminaire		
-	Light Standard 1000 Watt High Pressure Sodium Vapor Luminaire	00	0 0
+	Emergency Vehicle Detector	\bigcirc	\bigcirc
	Video Detection Camera		
		\bigcirc	

High Mast Light Standard 3 Luminaire (Exst, Ppsd)		0	
High Mast Light Standard 4 Luminaire (Exst, Ppsd)	\otimes	\otimes	\otimes
High Mast Light Standard 5 Luminaire (Exst, Ppsd)	\otimes	\otimes	
High Mast Light Standard 6 Luminaire (Exst, Ppsd)		Å.	A
High Mast Light Standard 7 Luminaire (Exst, Ppsd)	Ð	•	Ð
High Mast Light Standard 8 Luminaire (Exst, Ppsd)		O	
High Mast Light Standard 9 Luminaire (Exst, Ppsd)		0	•
High Mast Light Standard 10 Luminaire (Exst, Ppsd)			0
Overhead Sign Structure Load Center (Exst, Ppsd)			0
Traffic Signal Controller (Exst, Ppsd)			o
Pad Mounted Traffic Signal Controller (Exst, Ppsd)	•	•	•
Flashing Beacon (Exst, Ppsd)			
Concrete Foundation (Exst, Ppsd)			
Pipe Mounted Flasher (Exst, Ppsd)			
Pad Mounted Feed Point (Exst, Ppsd)			
Pipe Mounted Feed Point with Pad (Exst, Ppsd)			
Pole Mounted Feed Point (Exst, Ppsd)			
Junction Box (Exst, Ppsd)			
Existing Pedestrian Head with Number			
Existing Signal Head			
Pole Mounted Head			
Existing Lighting Standard Pole			

D-101-32

Existing Traffic Signal Standard

Pull Box (Exst-Ppsd-Undefined)

Intelligent Transportation Pull Box (Exst, Ppsd)

Transformer (Exst, Ppsd)

Power Pole (Exst-Ppsd-with Transformer)

Wood Pole (Exst, Ppsd)

Pedestrian Push Button Post (Exst, Ppsd)

Existing Pole

Existing Telephone Pole

Existing Post

Connection Conductor (Ground, Neutral, Phase 1, Phase 2)

DEPART	NORTH DAKOTA IENT OF TRANSPORTATION	X J HO
	07-01-14	RECENT
	REVISIONS	GISTER
DATE	CHANGE	NAT ISOVA
12-18-20	General Revisions	PROFESSIONAL PE-4683 TO SVGINEER TH DAK 12 18 2020

	(_)	(<u>)</u>)	()	Existing Manhole (Electrical, Gas, Telephone)	Cap or S E	Stub xst Gas, Exst S	Sanitary, Exst S	torm Drain, Pp	sd Storm Drain	, Exst Water		
		()	(ම)	Water Manhole (Exst, Exst with Valve)	c	D	þ	C	ī			
	(_)	0	(ම්)	Sanitary Sewer Manhole (Exst, Ppsd, Exst with Valve)	Existing E	Pedestal Electrical, Telep	hone, Fiber Op	otic Telephone,	TV, Fiber Optic	: TV, Undefined	1	
	(_)	0	۲	Sanitary Force Main Manhole (Exst, Ppsd, Exst with Valve)	۵	۵	D	Ω	D	â		
\bigcirc	0	()		Storm Drain Manhole (Exst, Ppsd, Exst with Inlet, Ppsd with Inlet)	Existing G	Pipe Vent as, Fuel, Sanit	ary, Storm Drai	n, Water, Unde	fined			
		()	(Ô)	Force Main Storm Drain Manhole (Exst, Exst with Valve)	ſ	ſ	ſ	ſ	ſ	٦		
	0	Ø	()	Manhole (Ppsd, Ppsd 48 Inch, Exst Undefined)	Valve E	Valve Exst Gas, Exst Water, Ppsd Water, Exst l						
			Ø	Existing Water Appurtenance	8	8	θ					
		Ø	in i	Sprinkler Head (Exst, Ppsd)	Pump S	anitary, Storm	Drain, Exst Wa	ter				
		q	۲	Fire Hydrant (Exst, Ppsd)	ø	ø	ø					
		<u>C</u>	۵	Cleanout (Exst Sanitary, Underdrain)	Corruga	ted Metal End	Section (18, 24	, 30, 36, 42, 48	, 54, 60 Inch)			
		([])	OID	Existing Catch Basin Inlet (Round, Square)	D	\triangleleft	\triangleleft	\Box				
		([])	DID	Existing Curb Inlet (Round, Square)	Reinford	ed Concrete E	nd Section (18,	, 24, 30, 36, 42,	48, 54, 60 Inc	h)		
			DID	Existing Slotted Reinforced Concrete Pipe	Д	А		\triangleleft	K			
	ο	0	0	Catch Basin (Riser 30 Inch, Beehive, Type A)								
		0		Inlet Mountable Curb (Type A, Type B)	+	Existing	Utility Marker					
		0		Inlet Saddle Base (Type 1, Type 2)		Existing	Meter					
	0	0	0	Inlet Special (Catch Basin, Type 1, Type A)	•	Existing	Fuel Dispense	rs				
0	ο			Inlet (Tee, Type 1, Type 2, Type 2 Double)	۲	Existing	Fuel Filler Pipe	95				
			٩	Median Drain	٥	Existing	Fuel Leak Sen	sors				[
0	l			Headwall (Exst, Ppsd, Ppsd Single with Vegitation Barrier, Ppsd Double with Vegitation Barrier)								DEPARTM

DE	PARTI	NORTH DAKOTA MENT OF TRANSPORTATION 07-01-14 REVISIONS	HRK J. HOAA
DA 12-1	TE8-20	CHANGE General Revisions Sheet added - Continued from D-101-32	PROFESSIONAL PE-4683 TOPTH DAY 12 18 2020





	NORTH DAKOTA DEPARTMENT OF TRANSPORTATION							
This docu	11-18-10							
issue	REVISIONS							
	CHANGE	DATE						
Regis	Added plan view for ditch and slope application. Added table with values for stake and trench dimensions.	06-10-13						
00/07	Revised fiber roll overlap detail.	10-04-13						
on 08/27	Changed standard drawing	06-26-14						
docume North D of ⊺	New Design Engineer PE Stamp	08-27-19						

akota Department Transportation

CONSTRUCTION SIGN DETAILS PROJECT FUNDING SIGN

	12-5-96					STA		<u>s</u>).										AREA: 32 0 Sa Et
	8'0" x	/ /' 0"				1017		5).										ANEA. 32.0 Sq.1 t.
	1 25" (+-0	5")															
	1.20 (liset 0.7	5)															
	3													8'-0"				
	Ground	1	0 0					-	Ŧ	т	-					-	1	–
	TYPE:		eflective	e				t	8"	7.3"		(.		8"	10 5"
	COLO	R: White	e					(6"C	10"			YOU	JR HI	GHW	AY	6"C	18.5
LEGEND/BORDER	TYPE:	Non-	reflecti	ve			۰ و		+.5 5"C			DOT	DOLL	ARS	AT W	ORK		_ 6"С
	COLO	R: Black	<				4		Ŧ	5.3"		-				• III	6"	Ť
SYMBOL	x	Y	WID	нт	ANGI F			23	3.5"	4"C			FUN	DED BY			+4"C = 3"	23.5"
) 6	22.8	18	18	0					6.4"				(A)			6.5"	
	44	2 4 2	7.5	86	0			-	1	1							J	<u></u>
		2	7.5	0.0	0						6"			84"		- 6'	7	
							onolon		n Inche	o tonth				l atta		lono or	nonala	daa ta lawan laft aanaan
						PANEL S	TYLE: ND	Reg 48 La	rge.ssj	es.tenti	15			Leile	riocal	lions are	e panel e	uge to lower left corrier
				L	ETTER	POSI	TION (X)								LENGTH	SIZE	SERIES
Y O U	R H	1	G	Н	W	А	Y									50.0	0	0.0000
33.5 38.1 42.8 4	17.5 55.	4 60.1	62.1	66.7	70.9	75.8	80									50.3	ю	C 2000
	ΙΑ	R	S	Δ	т	W	0	R	ĸ				1					
	10 4 43	9 48 5	52.6	60.5	64 7	72.2	77.5	82.3	86.6				-			62.6	6	C 2000
			02.0		54.1	1 2.2	11.0	02.0			I	1	1	1	I			
			В	Y												25	4	C 2000
35.5 38.1 41.2 4	14.3 47.	4 50.1	55.3	57.9														

Notes:

- Contact the Communications Division of the NDDOT to obtain a copy of the image for the NDDOT Logo.
- 2) Contact Project Engineer for funding source message.

D-704-6

(A)	
FUNDING SOURCE MESSAGE VARIATIONS	
FEDERAL	
STATE	
FEDERAL - STATE	
FEDERAL - LOCAL	
FEDERAL - STATE - LOCAL	
STATE - LOCAL	

Use a horizontal spacing of 3" between words and hyphens. Center message horizontally in sign panel.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION		
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BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS





- 2. Use anchor with 43.9 KSI yield strength and 59.3 KSI tensile strength.
- 4. In concrete sidewalk, use same anchor without wings.





Top Post Receiver Plate - ASTM A572 grade 50 Angle Receiver - 2½"x2½"x¾" ASTM A36 structural angle



Bottom Soil Stub Tube - 3"x3"x7 gauge ASTM A500 grade B tube Stabilizing Wing - 7 gauge H.R.P.O. ASTM A1011 Plate - ASTM A572 grade 50



Bolt Retainer for Base Connection Bolt Retainer- $\frac{1}{32}$ " Reprocessed Teflon

	Telescoping Perforated Tube					
Number of Posts	Post Size in.	Wall Thick- ness Gauge	Sleeve Size in.	Wall Thick- ness Gauge	Slip Base	Anchor Size without Slip Base in.
1	2	12			No	21⁄4
1	21⁄4	12			No	21⁄2
1	21⁄2	12			(A)	3
1	2½	10			Yes	
1	2¼	12	2	12	Yes	
1	2½	12	21⁄4	12	Yes	
2	2	12			No	21⁄4
2	21⁄4	12			No	2½
2	2½	12			Yes	
2	21⁄2	12			Yes	
2	21⁄4	10	2	12	Yes	
2	2½	12	21⁄4	12	Yes	
3 & 4	2½	12			Yes	
3 & 4	21⁄2	10			Yes	
3 & 4	21⁄2	12	21⁄4	12	Yes	
3 & 4	21⁄4	12	2	12	Yes	
3&4	21/2	10	2¾ ₁₆	10	Yes	

(A) Use breakaway base when support is placed in weak soils. Engineer determines if soils are weak. (B) For additional wind load, insert the $2\frac{3}{16}$ "x10 ga. into $2\frac{1}{2}$ "x10 ga.

D-704-7

1. Torque slip base bolts as specified by manufacturer.

- Provide 4" vertical clearance for anchor or breakaway base. Measure the 4"x60" measurement above and below post location and back and ahead of post.
- 5. Provide more than 7' between the first and fourth posts of a four post sign.

_							
	Properties of Telescoping Perforated Tube						
	Tube Size in,	Wall Thickness in,	U.S. Standard Gauge	Weight per Foot lbs	Moment of Inertia in.⁴	Cross Sec. Area in. ²	Section Modulus in. ³
	1½ x 1½	0.105	12	1.702	0.129	0.380	0.172
	2 x 2	0.105	12	2.416	0.372	0.590	0.372
	2¼ x 2¼	0.105	12	2.773	0.561	0.695	0.499
2	3⁄16 x 2¾16	0.135	10	3.432	0.605	0.841	0.590
	2½ x 2½	0.105	12	3.141	0.804	0.803	0.643
	2½ x 2½	0.135	10	4.006	0.979	1.010	0.785

Top Post Receiver Data Table						
Square Post Sizes (B)	A	В	С	D	Е	F
2¾ ₁₆ "x10 ga.	1%4"	2½"	3½2"	²⁵ ⁄32"	1 ³³ ⁄64"	1%"
2½"x10 ga.	1%32"	2½"	3 ⁵ ⁄ ₁₆ "	5⁄8"	1 ²¹ / ₃₂ "	1¾"

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		document is stored at the North Dakota Department of Transportation		

BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS







Breakaway U-Channel Detail Alternate A Install a maximum of 2 posts within 7'.



Retainer Strap Detail





Breakaway U-Channel Splice Detail Alternate B (2.5 and 3 lb/ft) Install a maximum of 3 posts within 7'.

Alternate A Steps of Installation:

- a) Drive anchor unit to within 12" of ground level.
 b) Establish proper assembly by lining up bottom hole of retainer strap with 6th hole from the top of the anchor unit.
 c) Assemble strap to back of anchor unit using 5/16"x2" bolt, lock washer and nut.
 d) Rotate strap 90° to left.
- a) Drive anchor unit to 4" above ground.
 b) Rotate strap to vertical position.
- a) Place 5/6"x2" bolt, lock washer and nut in bottom of sign post to facilitate alignment of sign post with proper hole in anchor unit.
 b) Alternately tighten two connector bolts.

4. Complete assembly by tightening $\frac{5}{16}$ "x2" bolt (this fastens sign post to retainer strap).

5. Properly nest base post, strap, and sign post. Proper nesting occurs when all flat surfaces of the base post, strap, and sign post at the bolts have full contact across the entire width.

D-704-8



Breakaway U-Channel Splice Detail Alternate C (2.5 and 3 lb/ft)

Install a maximum of 3 posts within 7'.

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CONSTRUCTION SIGN DETAILS REGULATORY SIGNS





R11-3c-60 Legend: black (non-refl) Background: white



Legend: black (non-refl) Background: white



R11-4a-60 Legend: black (non-refl) Background: white





D-704-10

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION		
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10-25-19	Added L dimension to detail Registration N	Registration Number
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		document is stored at the
		North Dakota Department
		of Transportation





NOTES:

1. Sign Supports: Galvanize or paint supports. Minimum post sizes are 2.5 lb/ft u-channel or 2" x 2" x 12 gauge steel perforated tube, except where noted. When installing signs on u-channel, minimum post size for assemblies containing a secondary sign is 3.0 lb/ft. Post sizes based on a wind speed of 55 MPF

D-704-14

Place signs over 50 square feet on $2\frac{1}{2}$ " x $2\frac{1}{2}$ " perforated tube supports as a minimum.

Do not attach guy wires to sign supports. Attach wind beams behind sign panels when used with u-posts.

- 2. Sign Panels: Provide sign panels made of 0.100" aluminum, $\frac{1}{2}$ " plywood, or other approved material, except where noted. Punch all holes round for $\frac{3}{4}$ " bolts.
- 3. Alternate Messages: Install and remove alternate message signs on reflectorized plate (without borders) as required. (i.e. "Left" and "Right" message on lane closure sign)
- Route Marker Auxiliary Signs: Provide route marker auxiliary signs, such as the cardinal direction and directional arrows, with a background and legend that match the route marker they are used with

Interstate - white legend on blue background Interstate Business Loop - white legend on green background US and State - black legend on white background County - yellow legend on blue background

 Vertical Clearance: Install signs with a vertical clearance of 5'-0" (see TYPICAL SECTION.) In areas where parking or pedestrian movements are likely or the view of the sign may be obstructed, install signs with a vertical clearance of 7'-0" from the top of the curb or from the near edge of the driving lane in absence of a curb

The vertical clearance to secondary signs is 1'-0" less than the vertical clearance stated above.

Provide a minimum clearance of 7'-0" from the ground at the post for signs with an area exceeding 50 square feet.

6. Portable Signs: Provide portable signs that meet the vertical clearance stated above when it is necessary to place signs within the pavement surface.

Use of low-mounting height (minimum 12" vertical clearance) portable signs for 5 days or less, is allowed as long as the view of the sign is not obstructed. Time delays caused by unforseen circumstances, such as equipment breakdown, rain, subgrade failures, etc., will not accrue towards the 5 day period. Use of R9-8 through R9-11a series, W1-6 through W1-8 series, M4-10, and E5-1 is allowed for longer than 5 days.

Restrict signs mounted on portable sign supports shown in the LOW-MOUNTING HEIGHT and HIGH-MOUNTING HEIGHT details to a maximum surface area of 16 square feet.

MINIMUM BALLAST (For each side of sign support base)

Sign Panel Mounting Height (ft)	Number of 25 lb sandbags for 4' x 4' sign panel
1'	6
5'	8
7'	10

Note: The number of sandbags are based on a wind speed of 55 MPH. Place sandbags at or near the ends of skids.

	NORTH DAKOTA DEPARTMENT OF TRANSPORTATION 10-4-13 REVISIONS				
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luge	DATE	CHANGE	Kirk J Hoff		
ube	11-14-13 9-27-17 11-01-19	Revised Note 6 Updated to active voice Revised 60"x24" sign detail	Registration Number PE- 4683,		
tube			on 11/1/19 and the original document is stored at the North Dakota Department of Transportation		





D-714-5

	ARCH GALV. END SECTION DIMENSIONS		ONS	APPROX. BODY	BODY				
DIVIEI	1010	THICK						SLOPE	BODT
SPAN	RISE	THOIN.	A	В	Н	L	W	OLOFE	
IN	IN	IN	IN	IN	IN	IN	IN	RATE	PIECE
17	13	0.064	7	9	6	19	30	2½:1	1
21	15	0.064	7	10	6	23	36	2½:1	1
24	18	0.064	8	12	6	28	42	2½:1	1
28	20	0.064	9	14	6	32	48	2½:1	1
35	24	0.079	10	16	6	39	60	2½:1	1 or 2
42	29	0.079	12	18	8	46	75	2½:1	1 or 2
49	33	0.109	13	21	9	53	85	2½:1	2
57	38	0.109	18	26	12	63	90	2½:1	2
64	43	0.109	18	30	12	70	102	21/4:1	2
* 71	47	0.109	18	33	12	77	114	21/4:1	3
* 77	52	0.109	18	36	12	77	126	2:1	3
* 83	57	0.109	18	39	12	77	138	2:1	3

* These sizes have 0.109" sides and 0.138" center panels.

Manufacturers tolerances of above dimensions will be allowed.

Splices to be the lap riveted type.

Multiple panel bodies shall have lap seams which are to be tightly joined with $\frac{3}{8}$ " dia. galv. bolts or rivets. Nuts to be torqued to 25 foot-lbs ±.

(1) Applicable to equivalent sizes of 3"x1" corrugations.

	COUPLING BAND DIMENSIONS							
	COUPLING TYPE	CORRUGATION PITCH × DEPTH	ARCH PIPE RISE	COUPLING BAND LENGTH	MIN. BANE THICKNES			
	Hat Band	2⅔" x ½"	13" - 38"	2¾"	.064"			
	Annular Band	2⅔" x ½"	13" - 57"	12"	.052"			
		3" x 1"	41" - 91"	14"	.052"			
	Hugger Band	2⅔" x ½"	13" - 57"	10½"	.052"			
		Rerolled End	63" - 67"	10½"	.079"			
		3" x 1" Rerolled End	41" - 91"	10½"	.052"			
		5" x 1" Rerolled End	41" - 91"	12"	.064"			

54

60

66

72

102

NOTES:

- 1. Pipe and connecting bands shall conform to applicable sections of NDDOT Standard Specifications and to AASHTO M-36.
- 2. Top edge of all end sections to have rolled edges for reinforcement (see Section A-A). The reinforced edges are to be supplemented with 2" x 2" $\frac{1}{4}$ " galv. angle for 77"x52" and 83"x57" sizes. Angles to be attached by galv. $\frac{3}{8}$ " dia. bolts and nuts. Angles are to extend from pipe to the corner wing bend.
- 3. Coupling bands shall be two-piece for all arch pipes.
- 4. $\frac{1}{2}$ " x 8" bolts may be used as a substitute for the $\frac{1}{2}$ " x 6" bolts shown in the details.
- 5. Coupling bands wider than 14" may be used if a minimum of four $\frac{1}{2}$ " bolts with maximum spacing of $5\frac{1}{2}$ " are used for the connection
- 6. Length of spot welds shall be minimum $\frac{1}{2}$ ".

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DATE	CHANGE	Jon Ketterling	
01-07-14 02-27-14 09-18-19	End Section Plan View 3" x 1" Corrugation Detail Added Perspective View Detail	Registration Number PE- 4684 , on 9/18/19 and the original document is stored at the North Dakota Department of Transportation	

INLET - SPECIAL TYPE 1 TYPE 2 MOUNTABLE - TYPE A MOUNTABLE - TYPE B (See Standard (See Standard (See Standard (See Standard Drawing D-722-1) Drawing D-722-2) Drawing D-722-3) Drawing D-722-3) 1/1/ 피머님 ÷ TÓP ΤĊΡ ΤÓΡ TÓP <u>a a a a a a a</u> ~~~~~ 74 A SIDE FRONT FRONT FRONT FRONT – 🤤 Storm Drain See Note 1. - Varies Cover Opening Reinforcement (See Standard Drawing D-722-5) PAY ITEMS Finiat Special - Type 1, 48 in -27" Hole



RISER DIAMETER	COVER DIAMETER	BASE DIAMETER
48"	58"	66"
60"	72"	78"
72"	86"	92"

See Note 4.

48 in.	Riser -	niet Special - Type 1 48 in	1
60 in.	Riser -	nlet Special - Type 1 60 in)
72 in.	Riser -	nlet Special - Type 1 72 in	1. 1. 1. 1.



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D-748-1

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	NOTES:	D-750-3			
	 Ramp width is flares. Match c (EPF) width (4' width to existin length is 15'. 	the useable portion of the ramp, excluding urb ramp width to Existing Pedestrian Facility minimum or 5' for island ramps.) Match ramp g shared use path width. Maximum ramp			
	 Provide turning minimum 4' x 4 direction. Provi bottom and top perpendicular overlap. 	space with desirable 5' x 5' size or larger and ' unconstrained size, for any change of de landing 5' long x width of path at the of parallel ramps and at the top of ramps. Turning spaces and Landings may			
	 Match detectal panels are allo the lower turning 	ble warning panel width to ramp width. Radial wed. Place detectable warning panel within ng space.			
_	 Provide a conti preferred cross 	nuous 4' minimum width EPF with 1.5% s slope and max 2% constructed cross slope.			
_	 Modify existing not possible, u D-750-2. The E for "Curb - Typ 	ground slope with landscaping, as needed. If se a vertical curb as detailed on Standard Engineer will measure curb at the unit price bid e I" per lineal foot.			
crosswalk is specified olans and installed	 Islands: If the provide a mining the profile of the profile of the provide a turning 	profile of the island curb ramp is 2% or less, num distance of 2' between warning panels. If ne island curb ramp is steeper than 2%, ng space between the ramps.			
	 Provide genera breaks, perper travel, at the to 2% max constr 	ally planar vertical alignments. Provide grade dicular to the direction of the pedestrian p and bottom of curb ramps (1.5% preferred, ucted cross slope).			
	 See Curb Ram for additional in compliance in the compliance 	p Retrofit Transition Details Standard D-750-4 formation. Also See PROWAG for full he curb ramp area.			
	9. Grade transitions shall be flush.				
	LEGEND:				
		Detectable Warning Panel.			
		Landscaping.			
		Transitional tie-in to nearest joint, if needed.			
rning Panel		Curb Ramp Retrofit Transitional Area (See Standard Drawing D750-4)			
Bar (18" spacing) 5% Max Counter Slope Min		: 4' long x width of EPF or 4' minimum Clear space outside traffic lanes of travel. 1.5% preferred cross slope 2% maximum cross slope 4.7% preferred running and counter slope 5% maximum running and counter slope			
Panel	TS : Tur Us 1.5	ning Space e at top of ramp or when changing directions. % preferred slope (2% maximum) all directions.			
ar (18" spacing) 5% Max Counter Slope	R : Pre Ma Pre Ma	ferred Ramp Grade = 5% to 7.5%. ximum Constructed Grade = 8.3%. aferred Cross Slope = 1.5%. ximum Constructed Cross Slope = 2%.			
Jin ───►	B : 1.5 2% rur 4.7 5.0	% preferred cross slope maximum constructed cross slope ning slope consistent with the EPF % preferred max counter slope % max constructed counter slope			
	4 : 4:1	maximum constructed slope.			
	0", 3", or 6":Cu	rb Height.			

)	DEPART	NORTH DAKOTA MENT OF TRANSPORTATION	
		11-26-13	OK J. HON
		REVISIONS	IN SIGTES A
	DATE	CHANGE	THE GISTERAL
	10-17-17	Updated to active voice.	VADE J HOMA
	09-05-18	Revised Notes, Revision for Turning Space, Added Passing Space Requirements, Turned Detectable Warning Panel	PROFESSIONAL PE-4683
)	03-15-21	Slope & other clarifications.	OGINEE
'	05-19-21	Separate Curb Ramp Transition Area from Curb Ramp area	THDAK
			05 19 2021