RIGHT-OF-WAY HORIZONTAL REPRESENTATION (2D)

TRACT NUMBER
OWNERSHIP/AGENCY

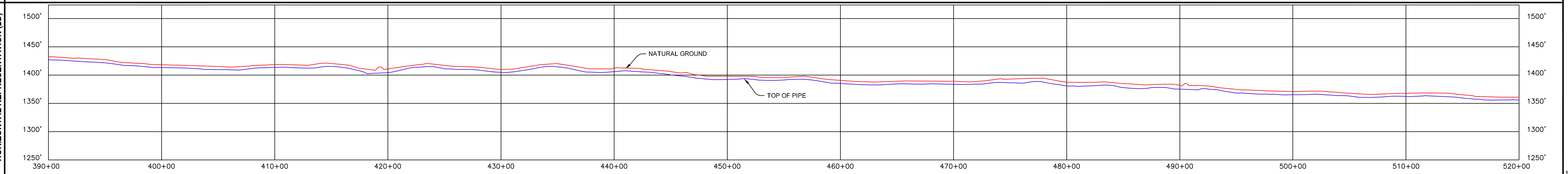
LENGTH
APPLICABLE DWG. NO.

Station	Tract / Ownership
390+00 – 392+64	ML-SD-HU-0949.0000
392+64 – 419+31	ML-SD-HU-0950.0000
419+31	RD-SD-HU-0950.0000 COUNTY ROAD 42 (290TH STREET)
419+31 – 446+41	ML-SD-HU-0951.0000
446+41 – 474+54	ML-SD-HU-0952.0000
474+54	RD-SD-HU-0952.0000 291ST STREET
474+54 – 490+50	ML-SD-YA-0953.0000
490+50	RD-SD-YA-0953.0000 438TH AVENUE
490+50 – 503+41	ML-SD-YA-0954.0000
503+41 – 520+00	ML-SD-YA-0955.0000

LAND USE

PIPELINE PROFILE

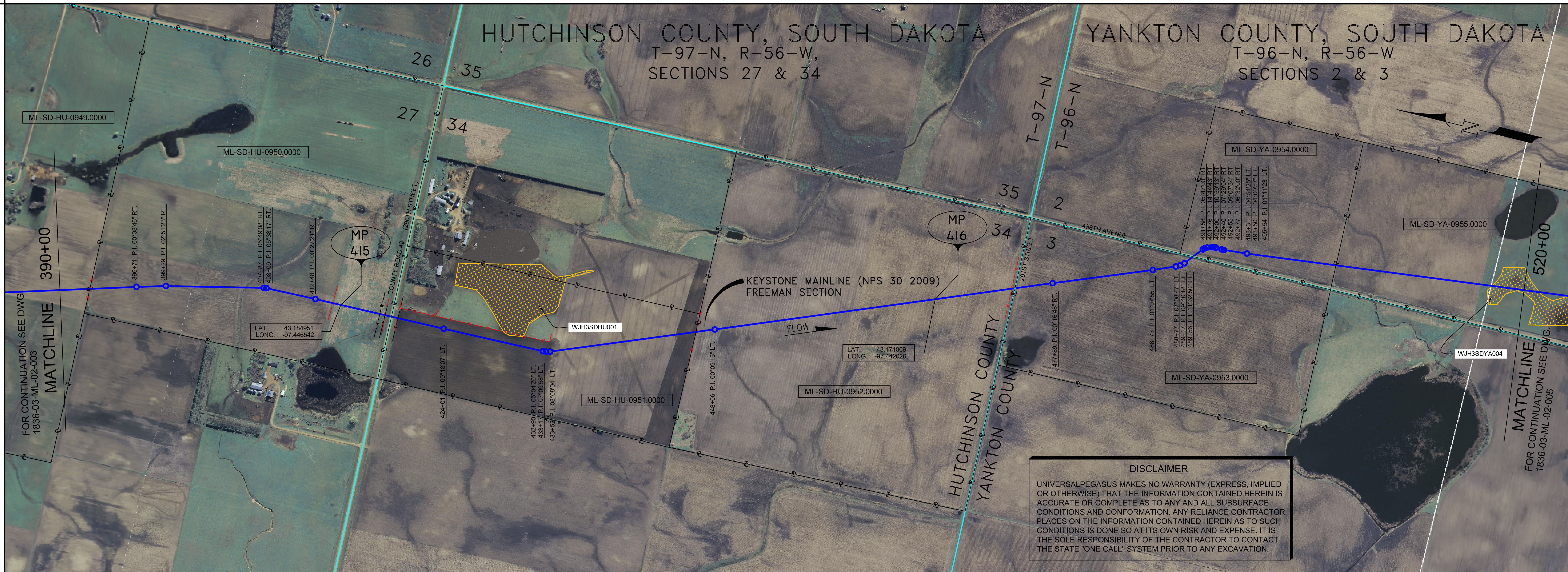
HORIZ: 1"=500' VER: 1"=100'
HORIZONTAL REPRESENTATION (2D)



LEGEND

- KEYSTONE PIPELINE
- STATE BOUNDARY
- COUNTY/TOWNSHIP
- SECTIONS
- NATIONAL OR STATE RESERVATION BOUNDARY
- PROPERTY LINE
- FENCE
- EXCLUSIONARY FENCE
- POWER LINE
- TELEPHONE LINE
- BURIED CABLE
- WATER LINE
- SANITARY SEWER LINE
- STORM SEWER / DRAIN
- FOREIGN PIPELINE
- RAILROAD
- HIGHWAY / ROAD
- STREAM / DITCH
- WETLAND
- INTERSTATE ROUTE
- U.S. ROUTE
- STATE ROUTE
- POINT OF INTERSECTION (PI)
- PIPELINE MILEPOST (MP 95)
- DIRECTION OF FLOW
- HOUSE
- BUILDING
- WATER WELL
- MAINLINE VALVE
- ML-XX-XX-0000.0000 TRACT NUMBER

PIPELINE PLAN (SCALE 1" = 500')HORIZONTAL REPRESENTATION (2D)



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PIPELINE SCHEMATIC

- HEAVYWALL PIPE
- WELD FITTING
- TRANSITION PIECE
- CASING PIPE
- CONCRETE COATING
- (3) SET-ON WEIGHTS
- PIPELINE WARNING SIGN
- PIPELINE MARKER
- MATERIAL ITEM
- GROUNDING MAT
- ZINC RIBBON
- AERIAL MARKER
- CATHODIC TEST STATION
- MAINLINE VALVE
- CHECK VALVE
- O.C. OPEN CUT
- BR. BORE
- D DRINKING WATER USA
- E ECOLOGICAL USA
- H HIGHLY POPULATED AREA
- K OPERATOR (KEYSTONE) DEFINED
- O OTHER POPULATED AREA
- S SOURCE WATER PROTECTION AREA
- W WELLHEAD PROTECTION AREA

STATION/DESCRIPTION — PIPELINE DATA

HORIZONTAL STATIONS (2D)

- 390+00 MATCHLINE
- 392+63 FENCE (BARBED WIRE)
- 396+71 P.I. 00°38'46" RT.
- 399+29 P.I. 02°51'23" RT.
- 407+87 P.I. 05°49'08" RT.
- 408+09 P.I. 05°38'17" RT.
- 412+48 P.I. 00°27'21" RT.
- 414+06 FENCE (BARBED WIRE)
- 418+26 WATER SUPPLY LINE
- 418+74 OVERHEAD POWERLINE
- 418+75 FENCE (BARBED WIRE)
- 418+95 ROAD BAR DITCH
- 419+19 EDGE OF ROAD
- 419+31 CL COUNTY ROAD 42 (290TH STREET)
- 419+45 EDGE OF ROAD
- 419+64 ROAD BAR DITCH
- 419+85 FENCE (BARBED WIRE)
- 419+89 TELEPHONE LINE
- 424+01 P.I. 00°18'07" LT.
- 432+90 P.I. 05°04'20" LT.
- 433+17 P.I. 07°09'58" LT.
- 433+52 P.I. 08°08'04" LT.
- 446+40 FENCE (BARBED WIRE)
- 448+06 P.I. 00°09'15" LT.
- 474+27 FENCE (BARBED WIRE)
- 474+44 EDGE OF ROAD
- 474+54 CL 291ST STREET
- 474+68 EDGE OF ROAD
- 477+89 P.I. 00°16'48" RT.
- 486+73 P.I. 01°07'55" LT.
- 488+77 P.I. 07°08'47" LT.
- 489+17 P.I. 09°40'18" LT.
- 489+56 P.I. 11°32'50" LT.
- 490+22 ROAD BAR DITCH
- 490+39 EDGE OF ROAD
- 490+50 CL 438TH AVENUE
- 490+63 EDGE OF ROAD
- 490+82 ROAD BAR DITCH
- 491+58 P.I. 05°47'00" RT.
- 491+76 P.I. 14°44'43" RT.
- 492+00 P.I. 10°59'13" RT.
- 492+40 P.I. 07°29'04" RT.
- 492+55 P.I. 09°07'34" RT.
- 492+77 P.I. 06°32'00" RT.
- 493+31 P.I. 04°54'25" LT.
- 493+50 P.I. 04°00'57" LT.
- 495+54 P.I. 01°11'23" LT.
- 520+00 MATCHLINE

SLOPE STATIONS (3D)

- 390+46 MATCHLINE
- 393+09 FENCE (BARBED WIRE)
- 394+35 4.9' CVR.
- 397+17 P.I. 00°38'46" RT.
- 399+75 P.I. 02°51'23" RT.
- 408+33 P.I. 05°49'08" RT.
- 408+56 P.I. 05°39'17" RT.
- 412+94 P.I. 00°27'21" RT.
- 414+52 FENCE (BARBED WIRE)
- 415+24 M.P. 415
- 418+74 WATER SUPPLY LINE 7.6' CVR. CLR. UNK.
- 419+21 OVERHEAD POWERLINE, HT. = 25'
- 419+22 FENCE (BARBED WIRE)
- 419+42 ROAD BAR DITCH, 5.7' CVR.
- 419+66 EDGE OF ROAD
- 419+78 CL COUNTY ROAD 42 (290TH STREET)
- 419+92 EDGE OF ROAD
- 420+11 ROAD BAR DITCH, 6.2' CVR.
- 420+33 FENCE (BARBED WIRE)
- 420+36 TELEPHONE LINE 4.3' CVR. 3.7' CLR. (ABOVE)
- 424+48 P.I. 00°18'07" LT.
- 433+38 P.I. 05°04'20" LT.
- 433+65 P.I. 07°09'58" LT.
- 434+01 P.I. 08°08'04" LT.
- 446+89 FENCE (BARBED WIRE)
- 448+55 P.I. 00°09'15" LT.
- 454+34 4.9' CVR.
- 468+04 M.P. 416
- 474+77 FENCE (BARBED WIRE)
- 474+94 EDGE OF ROAD
- 475+05 CL 291ST STREET
- 475+18 EDGE OF ROAD
- 478+39 P.I. 00°16'48" RT.
- 487+24 P.I. 01°07'55" LT.
- 489+28 P.I. 07°08'47" LT.
- 489+68 P.I. 09°40'18" LT.
- 490+07 P.I. 11°32'50" LT.
- 490+73 ROAD BAR DITCH, 6.3' CVR.
- 490+90 EDGE OF ROAD
- 491+01 CL 438TH AVENUE
- 491+14 EDGE OF ROAD
- 491+33 ROAD BAR DITCH, 8.5' CVR.
- 492+10 P.I. 05°47'00" RT.
- 492+28 P.I. 14°44'43" RT.
- 492+52 P.I. 10°59'13" RT.
- 492+92 P.I. 07°29'04" RT.
- 493+07 P.I. 09°07'34" RT.
- 493+29 P.I. 06°32'00" RT.
- 493+83 P.I. 04°54'25" LT.
- 494+02 P.I. 04°00'57" LT.
- 496+06 P.I. 01°11'23" LT.
- 509+27 5.3' CVR.
- 520+53 MATCHLINE

PIPE SLOPE REPRESENTATION (3D)

From	To	Item	Length	Coating
390+46	419+04	②	2,858'	FBE
419+04	420+56	③	152'	FBE & ARO BR.
420+56	474+69	②	5,413'	FBE
474+69	475+45	③	76'	FBE & ARO BR.
475+45	490+46	②	1,501'	FBE
490+46	491+25	③	79'	FBE & ARO BR.
491+25	520+53	②	2,928'	FBE

Aerial marker 415 at 474+69.

CPS (3D)

TEST SECTIONS (3D): TEST SECTION 4B-1 ILTO-027-2010 (to 502+31); TEST SECTION 4B-1 ILTO-028-2010

ENVIRONMENTAL MITIGATION/RECLAMATION STATIONS (2D)

- TOPSOIL SALVAGE METHOD
- STREAMS
- WETLANDS
- TIMING CONSTRAINTS
- **STATIONS**
- MONITORING
- RECLAMATION
- SPECIAL CONSIDERATIONS

GENERAL NOTES

1) ALL CHAINAGES ARE IN FEET UNLESS OTHERWISE SPECIFIED.
2) DATUM ELEVATION AND PROJECTION ARE BASED ON MEAN SEA LEVEL AND NAD 83.
3) FIELD PIPE LOCATING REQUIRED TO DETERMINE PLACEMENT OF PIPELINE WITHIN PERMANENT EASEMENT.
4) UNLESS OTHERWISE NOTED, 48 INCHES MINIMUM COVER EXCEPT 36 INCHES IN AREAS OF CONSOLIDATED ROCK.
5) NO ACTUAL AS-BUILT GROUND SHOTS WERE TAKEN AT THIS LOCATION. THE PROFILE REPRESENTS A PROJECTION FROM SHOTS TAKEN AT 150' TO 250' INTERVALS.
6) TWO TYPES OF COATING WERE APPLIED TO THE FIELD WELDS DURING THE ORIGINAL CONSTRUCTION. ONE TYPE WAS TWO COMPONENT LIQUID EPOXY, THE PRODUCTS USED WERE DENSO 7200 OR SPC SP-2888. THE OTHER TYPE THAT WAS APPLIED TO THE FIELD WELDS WAS FBE, THE PRODUCT NAME WAS 3M 6223 11G.
7) THE SUBSTANTIAL CONSTRUCTION COMPLETION DATE, BASED ON CALIPER PIG RUN, WAS AUGUST 17, 2009 FOR M.P. 403.90 TO 422.96 AND OCTOBER 28, 2009 FOR M.P. 422.96 TO 463.18.
8) ORIGINAL IN-SERVICE DATE OF THE KEYSTONE PIPELINE (PHASE 1): JUNE 30, 2010.
9) CPS CALCULATION DATE: MAY 2010.
10) ORION STATION SERIES NUMBER: 1182700.
11) TO DETERMINE THE MILE POST AT A GIVEN LOCATION, ADD THE 3D STATION NUMBER FROM THIS SEGMENT TO STATION NUMBER 21496+76 AND DIVIDE BY 5280.

OPERATING AND TEST PRESSURE

1. THE MAXIMUM OPERATING PRESSURE (MOP) IS 1440 PSIG.
2. THE MINIMUM TEST PRESSURE WAS 1801 PSIG.

BILL OF MATERIALS (3D)

ITEM NO.	DESCRIPTION	QUANTITY
2	30" O.D. X 0.386" W.T., API-5LX-70 W/FBE COATING	12,700'
3	30" O.D. X 0.516" W.T., API-5LX-70 W/FBE COATING & ABRASION RESISTANT OVERCOAT	307'
	PIPELINE MARKERS	0 EA
	PIPELINE WARNING SIGNS	6 EA
	CATHODIC TEST STATION	3 EA
	AERIAL MARKER	1 EA

REFERENCE DRAWINGS

REF. NO.	DRAWING NO.	REV. NO.	DRAWING TITLE

REVISIONS

NO.	DATE	REV. BY	CHCK. BY	APPRD. BY	ENV. APPRD	DESCRIPTION
1	5/12/08	UEI	RDG	LAG	SEC	ISSUED FOR CONSTRUCTION
2	10/12/16	UEI				ISSUED FOR AS-BUILT 1836-03-ML-02-004 REPLACES COVERAGE OF IFC DRAWINGS 1836-03-ML-02-005, 1836-03-ML-02-006, 1836-03-ML-02-007

ENGINEERING RECORDS

	INITIAL	DATE		INITIAL	DATE
DRAWN BY	UEI	10/03/01	ENV. APPRD.		
CHECKED BY			APPRD. BY		
			COMPANY APPROVED		

PROFESSIONAL ENGINEER

NAME	STATE	LIC#	REV#	DATE
LOYS ALVIN GRAY, III	SD	CE9004		

SCALE: 0 125 250 500 Feet

TransCanada *In business to deliver*
UNIVERSAL ENSCO, INC.

KEYSTONE MAINLINE (NPS 30 2009) FREEMAN SECTION

FIA# 1836 | SPREAD 4B | DISCIPLINE 03

AS-BUILT ALIGNMENT

M.P. 414.53 TO M.P. 416.99

SHEET 4 OF 13 SHEETS

STA. 390+46 TO STA. 520+53 (3D)

DRAWING NO. 1836-03-ML-02-004 REV. 2