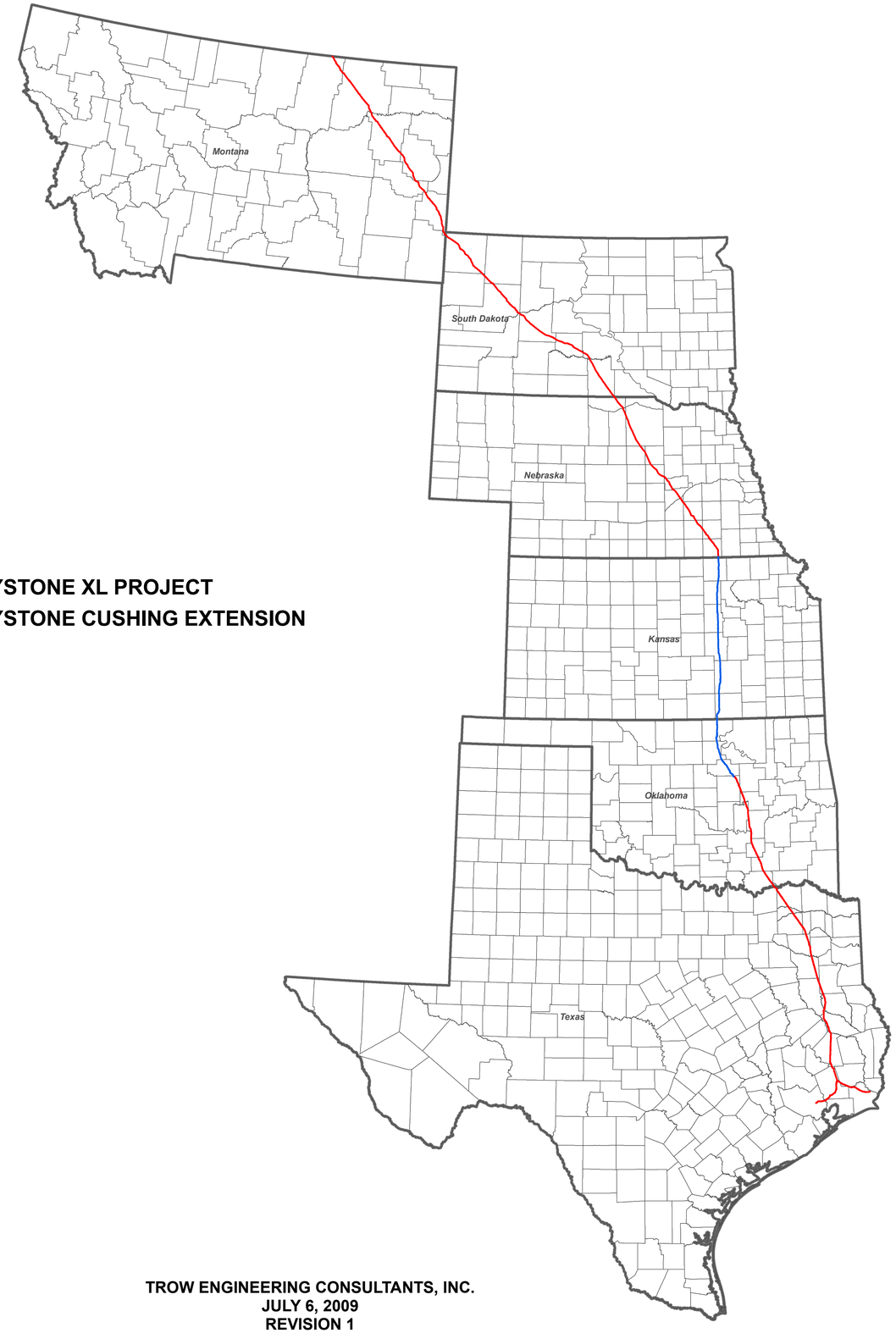
TransCanada Keystone Pipeline, L.P.
United States Department of State
Keystone XL Project
Appendix D

Site Specific Waterbody Crossing Plans



Morgan, MT to Steele City, NE

Crossing	Milepost	Drawing #
Milk River	82.7	4360-03-ML-03-001
Missouri River	89.0	4360-03-ML-03-002
Yellowstone River	196.0	4361-03-ML-03-001
Little Missouri	292.1	4365-03-ML-03-001
Cheyenne River	425.9	4367-03-ML-03-001
White River	537.0	4369-03-ML-03-001
Keya Paha River	599.8	4371-03-ML-03-001
Niobrara River	615.3	4371-03-ML-03-002
Cedar River	696.5	4373-03-ML-03-001
Loup River	739.7	4373-03-ML-03-002
Platte River	755.4	4374-03-ML-03-001

Cushing, OK to Nederland, TX

Crossing	Milepost	Drawing #
Deep Fork	22.3	1866-03-ML-03-001
North Canadian River	38.7	1866-03-ML-03-002
Little River	70.5	4378-03-ML-03-001
Canadian River	74.6	4378-03-ML-03-002
Clear Boggy Creek	126.6	4379-03-ML-03-001
Red River	155.1	4380-03-ML-03-001
Bois D'Arc Creek	161.6	4380-03-ML-03-002
North Sulphur	190.2	4380-03-ML-03-004
South Sulphur	201.2	4382-03-ML-03-001
White Oak Creek	212.3	4382-03-ML-03-002
Big Cyprus Creek	227.5	4382-03-ML-03-003
MP254	254.0	4383-03-ML-03-001
Big Sandy Creek	256.1	4383-03-ML-03-002
Sabine River	262.7	4383-03-ML-03-003
East Fork Angelina River	312.2	4384-03-ML-03-001
Angelina River	333.3	4384-03-ML-03-003
Highway 59 / UPRR	365.6	4385-03-ML-03-202
Neches River	367.4	4385-03-ML-03-001
Menard Creek	413.8	4386-03-ML-03-001
Aggie Road Lower NechesValley Canal Authority	459.1	4387-03-ML-03-103
Lower Neches Valley Canal Authority	459.9	4387-03-ML-03-004
Hwy. 90 & Railroad	462.1	4387-03-ML-03-202
Walden Road & Smith Road	464.6	4387-03-ML-03-104
Golf Green & Brooks Rd.	466.4	4387-03-ML-03-105
Willow Marsh Bayou	467.0	4387-03-ML-03-005
Railroad, I-10 and Canal	467.8	4387-03-ML-03-106
Hillebrandt Bayou	471.0	4387-03-ML-03-006
Entergy Pipeline Corridor	476.8	4387-03-ML-03-601
Prison & Highway 69	477.2	4387-03-ML-03-109

Centerline Dates:

Morgan, Montana to Steele City, Nebraska - 2.15.09
Cushing, Oklahoma to Nederland, Texas - 2.19.09
Houston Lateral - 3.18.09

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TROW ENGINEERING CONSULTANTS, INC.
JULY 6, 2009
REVISION 1

PREPARED BY:
TROW ENGINEERING CONSULTANTS INC.
1300 Metropolitan Boulevard, Suite 200
Tallahassee, Florida , USA 32308
Phone: 1-850-385-5441
Fax: 1-850-385-5523

Trow

ConocoPhillips

TransCanada
In business to deliver

NO.	REVISION	DATE
1	ISSUED FOR SUPPLEMENTAL U.S DEPT. OF STATE FILING	7.6.09
0	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)	11.19.08

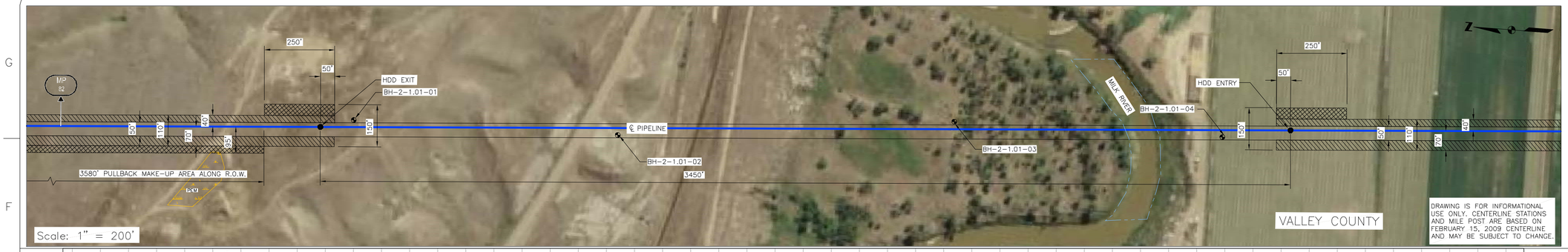
KEYSTONE XL PROJECT
SITE SPECIFIC DRAWINGS

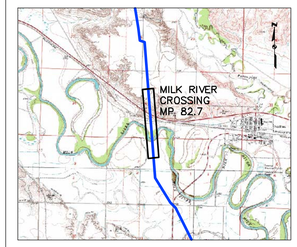
MAP PARAMETERS
PROJECTION: NAD83, UTM: 13/14/15N
NTS

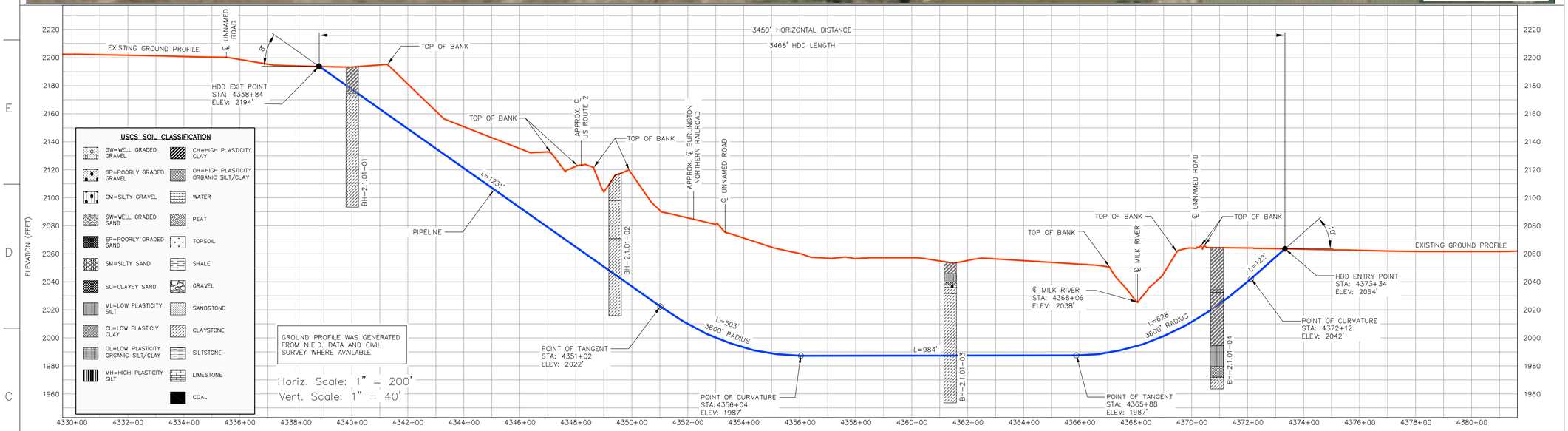
PROJECT: 50388X

SHEET: **COVER SHEET**

DRAWING NUMBER	DRAWN BY	CHECKED BY	APPROVED BY
XL-FIPS-ML-2002-P-000	GS	SS	RG

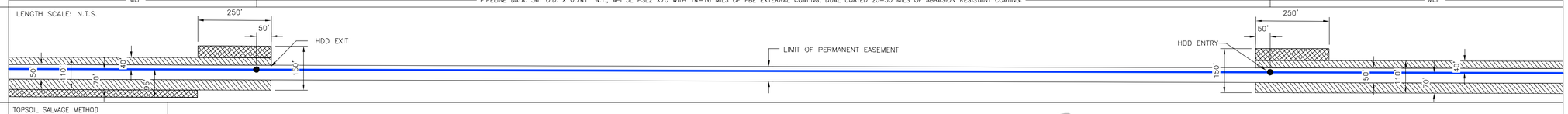






CROSSING INFORMATION (CENTERLINE STATIONING)	
	4335+52 ℄ UNNAMED ROAD
	4338+84 HDD EXIT POINT
	4340+00 BH-2.1.01-01
	4341+28 TOP OF BANK
	4347+12 TOP OF BANK
	4348+05 TOP OF BANK
	4348+20 APPROX. ℄ US ROUTE 2
	4348+64 TOP OF BANK
	4349+41 BH-2.1.01-02
	4349+90 TOP OF BANK
	4351+02 PT OF TANGENT
	4352+20 APPROX. ℄ BURLINGTON NORTHERN RAILROAD
	4353+33 ℄ UNNAMED ROAD
	4356+04 PT OF CURVATURE
	4361+38 BH-2.1.01-03
	4365+88 PT OF TANGENT
	4367+07 TOP OF BANK
	4368+06 ℄ MILK RIVER
	4369+47 TOP OF BANK
	4370+15 ℄ UNNAMED ROAD
	4370+33 TOP OF BANK
	4370+45 TOP OF BANK
	4373+41 BH-2.1.01-04
	4372+12 PT OF CURVATURE
	4373+34 HDD ENTRY POINT
PIPELINE DATA	MLP — PIPELINE DATA: 36" O.D. X 0.741" W.T., API 5L PSL2 X70 WITH 14-16 MILS OF FBE EXTERNAL COATING, DUAL COATED 20-30 MILS OF ABRASION RESISTANT COATING. — MLP

CONSTRUCTION WORKSPACE



ENVIRONMENTAL MITIGATION/RECLAMATION

TOPSOIL SALVAGE METHOD	
STREAMS	
WETLANDS	
TIMING CONSRAINTS	
MILEPOST	
MONITORING	
RECLAMATION	
SPECIAL CONSIDERATIONS	

TO BE DETERMINED

INSTALLATION NOTES

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LEGEND

- POINT OF INTERSECTION (P.I.)
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- MLP — MAINLINE PIPE
- PIPELINE
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- COUNTY BOUNDARY
- WATER LEVEL
- USACOE CONSTRUCTION REFERENCE POINT
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- TEMPORARY EASEMENT
- EXTRA WORKSPACE

REFERENCE DRAWINGS

DRAWING No	TITLE

REVISION / APPROVAL

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
3	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (02.15.09 CL)	THES0050388X$	JB	AH	FP	FP	RG	TROW
2	04.21.09	ISSUED FOR REVIEW (02.15.09 CL)	THES0050388X$	AH	AH	FP	FP	RG	TROW
1	12.08.08	ISSUED FOR REVIEW (12.1.08 CL)	THES0050388X	JB	AH	HF	RB	RG	TROW
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (07.31.08 CL)	THES0050388X	JB	JP	FP	RB	RG	TROW

PROFESSIONAL ENGINEER/RPT | PERMIT/ ENG. APPROVAL | DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

Trow — TROW ENGINEERING CONSULTANTS INC.

ConocoPhillips

TransCanada — In business to deliver

VALLEY SECTION

FIA # 4360	CHAINAGE: MP 82.7	DISCIPLINE # 03

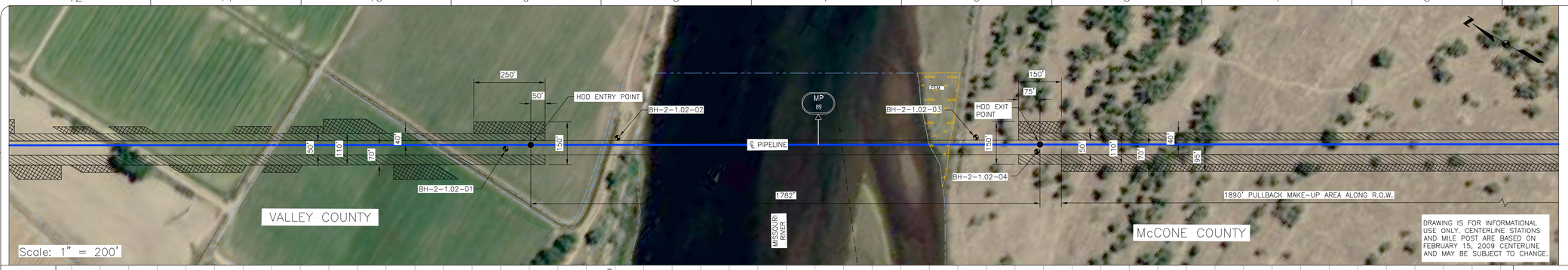
MILK RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
VALLEY COUNTY, MONTANA

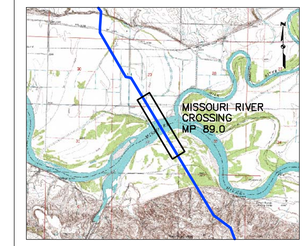
SCALE AS SHOWN	DRAWING No 4360-03-ML-03-001	REV 3

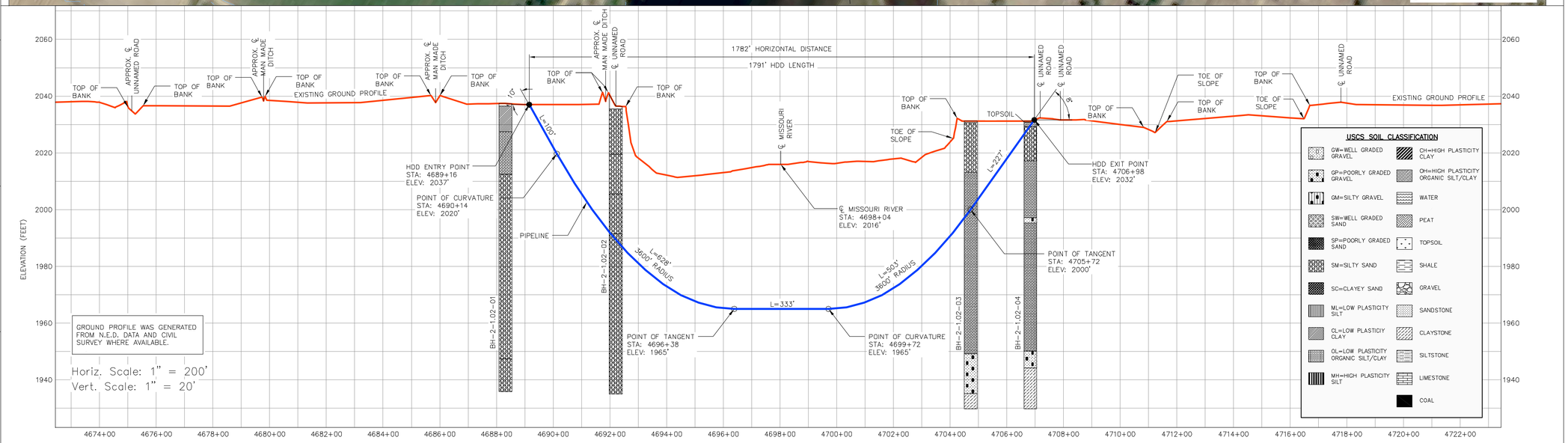
TC_UD_BR.DWG 22X34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)







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- COUNTY BOUNDARY
- WATER LEVEL
- USACOE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

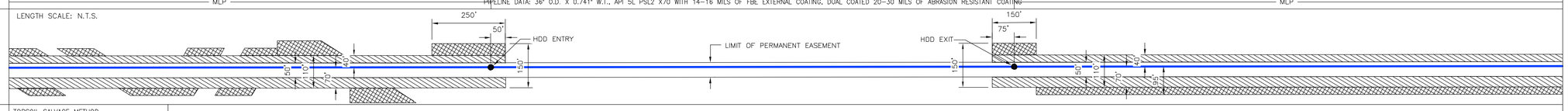
CROSSING INFORMATION (APPROXIMATE STATIONING)

Station	Description
4675+01	TOP OF BANK
4675+27	APPROX. ℄ UNNAMED ROAD
4675+54	TOP OF BANK
4679+73	TOP OF BANK
4679+78	APPROX. ℄ MAN MADE DITCH
4679+84	TOP OF BANK
4685+69	TOP OF BANK
4685+85	APPROX. ℄ MAN MADE DITCH
4686+01	TOP OF BANK
4688+32	BH-2-1.02-01
4689+16	HDD ENTRY POINT
4690+14	PT OF CURVATURE
4691+74	TOP OF BANK
4691+85	APPROX. ℄ MAN MADE DITCH
4691+95	TOP OF BANK
4692+21	℄ UNNAMED ROAD
4692+56	BH-2-1.02-02 TOP OF BANK
4696+38	PT OF TANGENT
4698+04	℄ MISSOURI RIVER
4699+72	PT OF CURVATURE
4704+12	TOE OF SLOPE
4704+25	TOP OF BANK
4704+72	PT OF TANGENT
4704+73	BH-2-1.02-03
4706+83	BH-2-1.02-04
4706+98	HDD EXIT POINT
4707+18	℄ UNNAMED ROAD
4707+89	℄ UNNAMED ROAD
4710+83	TOP OF BANK
4711+23	TOE OF SLOPE
4711+65	TOP OF BANK
4716+48	TOE OF SLOPE
4716+69	TOP OF BANK
4717+78	APPROX. ℄ UNNAMED ROAD

PIPELINE DATA: MLP — PIPELINE DATA: 36" O.D. X 0.741" W.T., API 5L PSL2 X70 WITH 14-16 MILS OF FBE EXTERNAL COATING, DUAL COATED 20-30 MILS OF ABRASION RESISTANT COATING — MLP

CONSTRUCTION WORKSPACE

LENGTH SCALE: N.T.S.



ENVIRONMENTAL MITIGATION/RECLAMATION

TOPSOIL SALVAGE METHOD	
STREAMS	
WETLANDS	
TIMING CONSRAINTS	
MILEPOST	
MONITORING	
RECLAMATION	
SPECIAL CONSIDERATIONS	

TO BE DETERMINED

REFERENCE DRAWINGS

DRAWING No	TITLE

REVISION / APPROVAL

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
3	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (02.15.09 CL)	THES0050388X$	JB	AH	HF	FP	RG	TROW
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PROFESSIONAL ENGINEER/RPT | PERMIT/ ENG. APPROVAL | DATE

PRELIMINARY

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Trow — TROW ENGINEERING CONSULTANTS INC.

ConocoPhillips

TransCanada — In business to deliver

VALLEY SECTION

FIA # 4360 | CHAINAGE: MP 89.0 | DISCIPLINE # 03

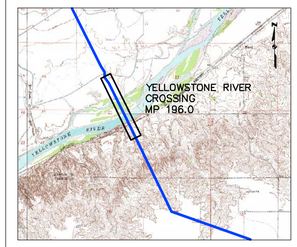
MISSOURI RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
VALLEY & McCONE COUNTY, MONTANA

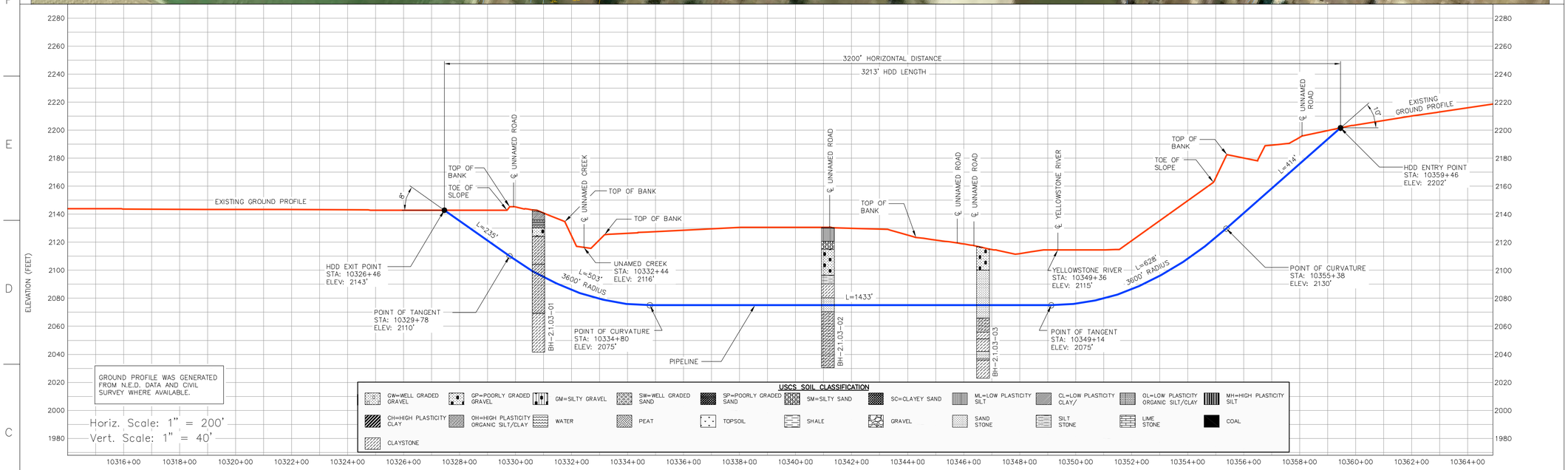
SCALE AS SHOWN | DRAWING No 4360-03-ML-03-002 | REV 3

TC_UD_BR.DWG 22X34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)





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4) WATER SOURCE: DRILL WATER AND PRE-INSTALLATION HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE. THE CONTRACTOR SHALL SCREEN THE INTAKE HOSE TO PREVENT THE ENTRAINMENT OF FISH OR DEBRIS AND IN ACCORDANCE WITH THE CONSTRUCTION MITIGATION AND RECLAMATION PLAN (CMRP) AND PROJECT REQUIREMENTS. THE HOSE SHALL BE KEPT OFF THE BOTTOM OF THE WATER BODY.

5) HYDROSTATIC TEST: PRE-INSTALLATION HYDROSTATIC TEST SHALL BE CONDUCTED IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE CONTRACTOR SHALL DISCHARGE HYDROSTATIC TEST WATER IN ACCORDANCE WITH PROJECT PERMITS. DISCHARGES WILL BE BACK TO THE WATER SOURCE UNLESS OTHERWISE DIRECTED BY THE ENVIRONMENTAL INSPECTOR. DISCHARGES SHALL NOT CAUSE EROSION OR SEDIMENTATION. TO REDUCE THE VELOCITY OF THE DISCHARGE, THE CONTRACTOR SHALL UTILIZE AN ENERGY-DISSIPATING DEVICE AS DESCRIBED IN THE CMRP.

6) SPILL-PREVENTION: ALL PUMPS SHALL BE SET IN SECONDARY CONTAINMENT AND IN ACCORDANCE WITH THE SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC). EQUIPMENT AND PUMPS OPERATING WITHIN 100 FEET OF ANY WATER BODY OR WETLAND SHALL BE OPERATED AND REFUELED IN ACCORDANCE WITH THE SPCC PLAN. EQUIPMENT REFUELING AND STORAGE OF HAZARDOUS MATERIALS, FUELS, ETC. SHALL BE CONDUCTED AT LEAST 100 FEET FROM WATER BODIES AND WETLANDS. EACH CONSTRUCTION CREW SHALL HAVE ON HAND SUFFICIENT TOOLS AND MATERIALS TO STOP LEAKS AND SUPPLIES OF ABSORBENT AND BARRIER MATERIALS TO ALLOW RAPID CONTAINMENT AND RECOVERY OF SPILLED MATERIALS.

7) EROSION AND SEDIMENT CONTROL: CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH CONTRACT DOCUMENTS. CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL STRUCTURES AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.

8) TOPSOIL SHALL BE STRIPPED AS REQUIRED BY PROJECT SPECIFICATIONS.

9) PRIOR TO PIPE PULLBACK, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO KEYSTONE FOR APPROVAL.

10) INSTALLATION: THE PIPE SECTION FOR THE DRILLED CROSSING SHALL BE MADE UP WITHIN THE RIGHT-OF-WAY AT THE DRILL EXIT POINT AS SHOWN. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.

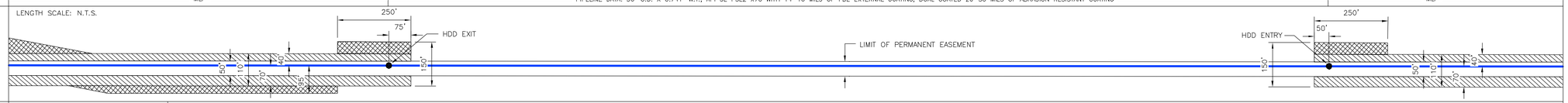
11) MUD DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING MUD AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING MUD WHICH INADVERTENTLY EXITS AT POINTS OTHER THAN THE ENTRY AND EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICAL AND DISPOSED OF AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.

12) CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE RETURNED TO THE ORIGINAL CONTOURS. DISTURBED AREAS SHALL BE SEEDED AS SPECIFIED IN PROJECT DOCUMENTS.

13) NOMINAL WORKING SPACE DIMENSIONS ARE SHOWN. LARGER AREAS MAY BE REQUIRED IN IRREGULAR TERRAIN. UPDATED DIMENSIONS MAY BE PROVIDED AFTER LOCAL TOPOGRAPHICAL SURVEYS ARE PERFORMED.

CROSSING INFORMATION (DISTANCE ALONG STATIONING)	10318+90 P.I. 08°34'58" RT.	10326+46 HDD EXIT POINT	10329+69 TOE OF SLOPE	10329+78 PT OF TANGENT AND TOP OF BANK	10329+82 ℄ UNNAMED ROAD	10330+82 BH-2.1.03-01	10331+76 TOP OF BANK	10332+44 ℄ UNNAMED CREEK	10333+18 TOP OF BANK	10334+80 PT OF CURVATURE	10341+16 BH-2.1.03-02	10341+22 ℄ UNNAMED ROAD	10334+29 TOP OF BANK	10345+78 ℄ UNNAMED ROAD	10346+36 ℄ UNNAMED ROAD	10346+69 BH-2.1.03-03	10349+14 PT OF TANGENT	10349+36 ℄ YELLOWSTONE RIVER	10354+92 TOE OF SLOPE	10355+38 PT OF CURVATURE	10355+40 TOP OF BANK	10358+08 ℄ UNNAMED ROAD	10359+46 HDD ENTRY POINT	10362+03 P.I. 00°00'02" RT.
PIPELINE DATA	MLP — PIPELINE DATA: 36" O.D. X 0.741" W.T., API 5L PSL2 X70 WITH 14-16 MILS OF FBE EXTERNAL COATING, DUAL COATED 20-30 MILS OF ABRASION RESISTANT COATING — MLP																							

CONSTRUCTION WORKSPACE — LENGTH SCALE: N.T.S.



ENVIRONMENTAL MITIGATION/RECLAMATION	
TOPSOIL SALVAGE METHOD	
STREAMS	
WETLANDS	
TIMING CONSRAINTS	
MILEPOST	
MONITORING	
RECLAMATION	
SPECIAL CONSIDERATIONS	

TO BE DETERMINED

LEGEND

- POINT OF INTERSECTION (P.I.)
- ENTRY OR EXIT POINT
- GEOTECHNICAL BOREHOLE
- POWERPOLE
- MLP — MAINLINE PIPE
- PIPELINE
- FOREIGN PIPELINE
- EDGE OF WATER
- PRIVATE ACCESS SHOO FLY ROAD
- COUNTY BOUNDARY
- WATER LEVEL
- USACOE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

REFERENCE DRAWINGS

DRAWING No	TITLE

REVISION / APPROVAL

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
3	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (02.15.09 CL)	THES0050388X$	JB	AH	FP	YC	RG	TROW
2	04.21.09	ISSUED FOR REVIEW (02.15.09 CL)	THES0050388X$	AH	AH	FP	YC	RG	TROW
1	12.08.08	ISSUED FOR REVIEW (12.1.08 CL)	THES0050388X	JB	AH	HF	RB	RG	TROW
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (07.31.08 CL)	THES0050388X	JB	JP	HF	RB	RG	TROW

PROFESSIONAL ENGINEER/RPT | PERMIT/ ENG. APPROVAL | DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

Trow — TROW ENGINEERING CONSULTANTS INC.

ConocoPhillips — TransCanada: In business to deliver

FORT PECK SECTION

FIA # 4361 | CHAINAGE: MP 196.0 | DISCIPLINE # 03

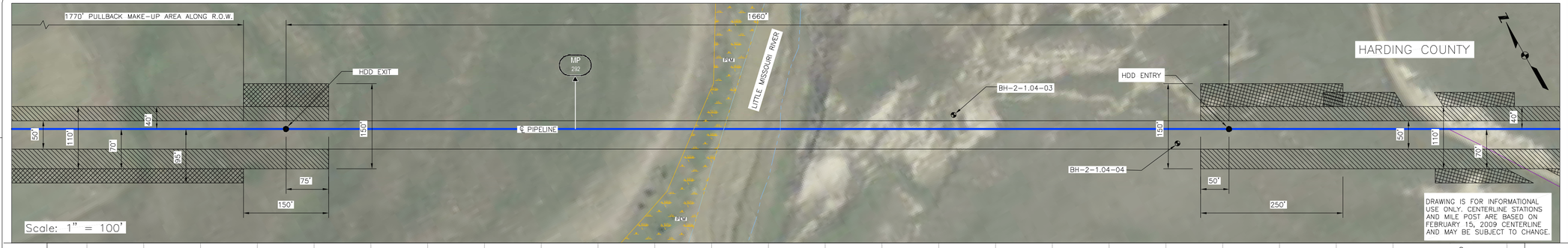
YELLOWSTONE RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
DAWSON & PRAIRIE COUNTY, MONTANA

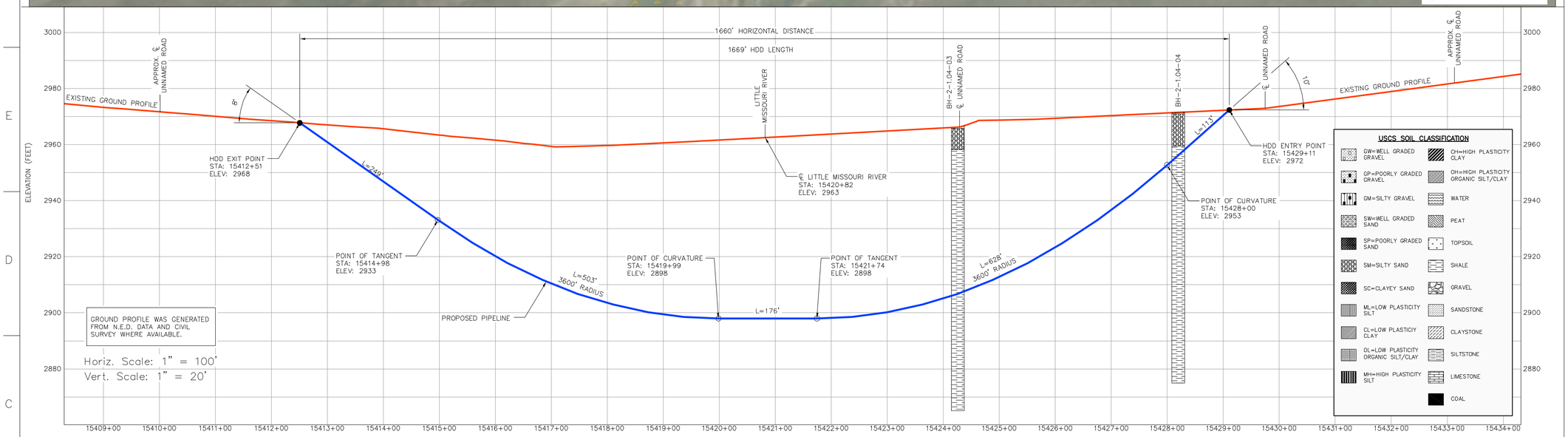
SCALE AS SHOWN | DRAWING No 4361-03-ML-03-001 | REV 3

TC_UD_BR.DWG 22x34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)





INSTALLATION NOTES

1) ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.

2) VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.

3) WORK SPACE: WORK SPACE LIMITS ARE DEPICTED. CLEARING WILL BE RESTRICTED TO THE WORK SPACES INDICATED AT THE ENTRY AND EXIT POINTS AND PULLBACK MAKE-UP AREA ALONG THE RIGHT-OF-WAY. CLEARING BETWEEN THE ENTRY AND EXIT POINTS IS LIMITED TO THE MINIMUM AMOUNT NECESSARY TO STRING LOCATION WIRES AND INSTALL PUMPS AND PIPING TO OBTAIN WATER (WHERE APPROVED).

4) WATER SOURCE: DRILL WATER AND PRE-INSTALLATION HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE. THE CONTRACTOR SHALL SCREEN THE INTAKE HOSE TO PREVENT THE ENTRAINMENT OF FISH OR DEBRIS AND IN ACCORDANCE WITH THE CONSTRUCTION MITIGATION AND RECLAMATION PLAN (CMRP) AND PROJECT REQUIREMENTS. THE HOSE SHALL BE KEPT OFF THE BOTTOM OF THE WATER BODY.

5) HYDROSTATIC TEST: PRE-INSTALLATION HYDROSTATIC TEST SHALL BE CONDUCTED IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE CONTRACTOR SHALL DISCHARGE HYDROSTATIC TEST WATER IN ACCORDANCE WITH PROJECT PERMITS. DISCHARGES WILL BE BACK TO THE WATER SOURCE UNLESS OTHERWISE DIRECTED BY THE ENVIRONMENTAL INSPECTOR. DISCHARGES SHALL NOT CAUSE EROSION OR SEDIMENTATION. TO REDUCE THE VELOCITY OF THE DISCHARGE, THE CONTRACTOR SHALL UTILIZE AN ENERGY-DISSIPATING DEVICE AS DESCRIBED IN THE CMRP.

6) SPILL-PREVENTION: ALL PUMPS SHALL BE SET IN SECONDARY CONTAINMENT AND IN ACCORDANCE WITH THE SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC). EQUIPMENT AND PUMPS OPERATING WITHIN 100 FEET OF ANY WATER BODY OR WETLAND SHALL BE OPERATED AND REFUELED IN ACCORDANCE WITH THE SPCC PLAN. EQUIPMENT REFUELING AND STORAGE OF HAZARDOUS MATERIALS, FUELS, ETC. SHALL BE CONDUCTED AT LEAST 100 FEET FROM WATER BODIES AND WETLANDS. EACH CONSTRUCTION CREW SHALL HAVE ON HAND SUFFICIENT TOOLS AND MATERIALS TO STOP LEAKS AND SUPPLIES OF ABSORBENT AND BARRIER MATERIALS TO ALLOW RAPID CONTAINMENT AND RECOVERY OF SPILLED MATERIALS.

7) EROSION AND SEDIMENT CONTROL: CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH CONTRACT DOCUMENTS. CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL STRUCTURES AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.

8) TOPSOIL SHALL BE STRIPPED AS REQUIRED BY PROJECT SPECIFICATIONS.

9) PRIOR TO PIPE PULLBACK, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO KEYSTONE FOR APPROVAL.

10) INSTALLATION: THE PIPE SECTION FOR THE DRILLED CROSSING SHALL BE MADE UP WITHIN THE RIGHT-OF-WAY AT THE DRILL EXIT POINT AS SHOWN. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.

11) MUD DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING MUD AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING MUD WHICH INADVERTENTLY EXITS AT POINTS OTHER THAN THE ENTRY AND EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICAL AND DISPOSED OF AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.

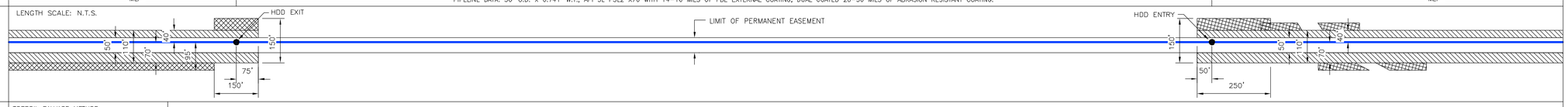
12) CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE RETURNED TO THE ORIGINAL CONTOURS. DISTURBED AREAS SHALL BE SEEDED AS SPECIFIED IN PROJECT DOCUMENTS.

13) NOMINAL WORKING SPACE DIMENSIONS ARE SHOWN. LARGER AREAS MAY BE REQUIRED IN IRREGULAR TERRAIN. UPDATED DIMENSIONS MAY BE PROVIDED AFTER LOCAL TOPOGRAPHICAL SURVEYS ARE PERFORMED.

CROSSING INFORMATION (DESCRIBED STATIONING)	15410+02 APPROX. ℄ UNNAMED ROAD	15412+51 HDD EXIT POINT	15414+98 PT OF TANGENT	15419+99 PT OF CURVATURE	15420+82 LITTLE MISSOURI RIVER	15421+74 PT OF TANGENT	15424+26 BH-2-1.04-03	15424+29 ℄ UNNAMED ROAD	15428+00 PT OF CURVATURE	15428+20 BH-2-1.04-04	15429+11 HDD ENTRY POINT	15429+75 ℄ UNNAMED ROAD	15433+13 APPROX. ℄ UNNAMED ROAD

PIPELINE DATA: MLP — PIPELINE DATA: 36" O.D. X 0.741" W.T., API 5L PSL2 X70 WITH 14-16 MILS OF FBE EXTERNAL COATING, DUAL COATED 20-30 MILS OF ABRASION RESISTANT COATING. — MLP

CONSTRUCTION WORKSPACE



ENVIRONMENTAL MITIGATION/RECLAMATION

TOPSOIL SALVAGE METHOD	
STREAMS	
WETLANDS	
TIMING CONSRAINTS	
MILEPOST	
MONITORING	
RECLAMATION	
SPECIAL CONSIDERATIONS	

TO BE DETERMINED

LEGEND

- POINT OF INTERSECTION (P.I.)
- ENTRY OR EXIT POINT
- GEOTECHNICAL BOREHOLE
- POWERPOLE
- MLP — MAINLINE PIPE
- PIPELINE
- FOREIGN PIPELINE
- EDGE OF WATER
- PRIVATE ACCESS SHOO FLY ROAD
- COUNTY BOUNDARY
- WATER LEVEL
- USACOE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

REFERENCE DRAWINGS

DRAWING No	TITLE

REVISION

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2	07.06.09	ISUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (02.15.09 CL)	THES0050388X	JB	AH	HF	RB	RG	TROW
1	12.08.08	ISSUED FOR REVIEW (12.1.08 CL)	THES0050388X	JB	AH	HF	RB	RG	TROW
0	07.07.08	PRELIMINARY DESIGN	THES0050388X	BM	JP	HF	RB	RG	TROW

PROFESSIONAL ENGINEER/RPT | PERMIT/ ENG. APPROVAL | DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

Trow — TROW ENGINEERING CONSULTANTS INC.

ConocoPhillips

TransCanada — In business to deliver

HARDING SECTION

FIA # 4365 | CHAINAGE: MP 292.1 | DISCIPLINE # 03

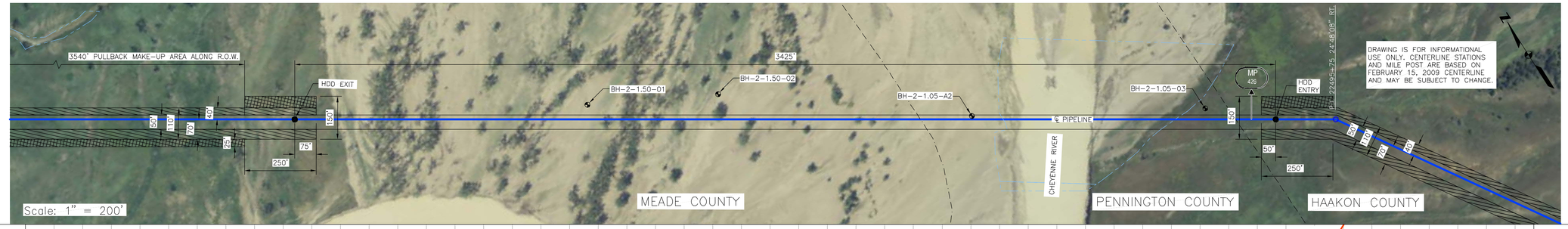
LITTLE MISSOURI RIVER HDD INSTALLATION
PROPOSED KEYSTONE XL PROJECT
HARDING COUNTY, SOUTH DAKOTA

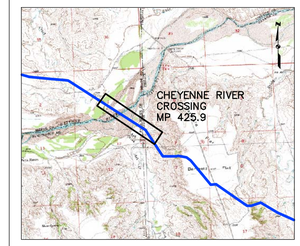
SCALE AS SHOWN | DRAWING No 4365-03-ML-03-001 | REV 2

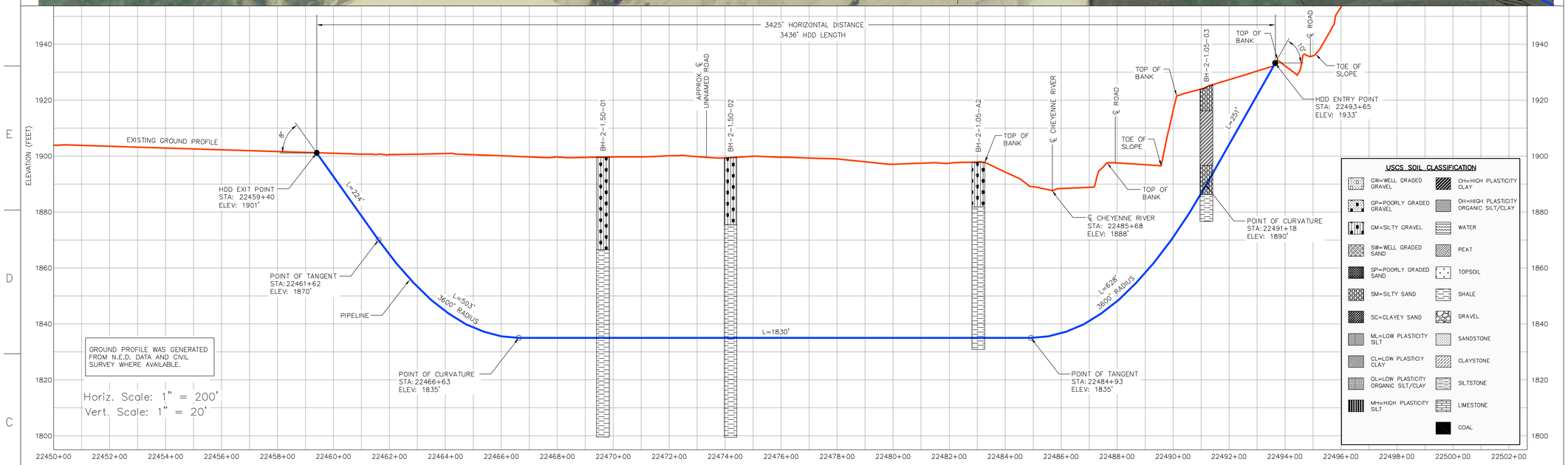
TC_UD_BR.DWG 22X34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)







INSTALLATION NOTES

1) ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.

2) VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.

3) WORK SPACE: WORK SPACE LIMITS ARE DEPICTED. CLEARING WILL BE RESTRICTED TO THE WORK SPACES INDICATED AT THE ENTRY AND EXIT POINTS AND PULLBACK MAKE-UP AREA ALONG THE RIGHT-OF-WAY. CLEARING BETWEEN THE ENTRY AND EXIT POINTS IS LIMITED TO THE MINIMUM AMOUNT NECESSARY TO STRING LOCATION WIRES AND INSTALL PUMPS AND PIPING TO OBTAIN WATER (WHERE APPROVED).

4) WATER SOURCE: DRILL WATER AND PRE-INSTALLATION HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE. THE CONTRACTOR SHALL SCREEN THE INTAKE HOSE TO PREVENT THE ENTRAINMENT OF FISH OR DEBRIS AND IN ACCORDANCE WITH THE CONSTRUCTION MITIGATION AND RECLAMATION PLAN (CMRP) AND PROJECT REQUIREMENTS. THE HOSE SHALL BE KEPT OFF THE BOTTOM OF THE WATER BODY.

5) HYDROSTATIC TEST: PRE-INSTALLATION HYDROSTATIC TEST SHALL BE CONDUCTED IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE CONTRACTOR SHALL DISCHARGE HYDROSTATIC TEST WATER IN ACCORDANCE WITH PROJECT PERMITS. DISCHARGES WILL BE BACK TO THE WATER SOURCE UNLESS OTHERWISE DIRECTED BY THE ENVIRONMENTAL INSPECTOR. DISCHARGES SHALL NOT CAUSE EROSION OR SEDIMENTATION. TO REDUCE THE VELOCITY OF THE DISCHARGE, THE CONTRACTOR SHALL UTILIZE AN ENERGY-DISSIPATING DEVICE AS DESCRIBED IN THE CMRP.

6) SPILL-PREVENTION: ALL PUMPS SHALL BE SET IN SECONDARY CONTAINMENT AND IN ACCORDANCE WITH THE SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC). EQUIPMENT AND PUMPS OPERATING WITHIN 100 FEET OF ANY WATER BODY OR WETLAND SHALL BE OPERATED AND REFUELED IN ACCORDANCE WITH THE SPCC PLAN. EQUIPMENT REFUELING AND STORAGE OF HAZARDOUS MATERIALS, FUELS, ETC. SHALL BE CONDUCTED AT LEAST 100 FEET FROM WATER BODIES AND WETLANDS. EACH CONSTRUCTION CREW SHALL HAVE ON HAND SUFFICIENT TOOLS AND MATERIALS TO STOP LEAKS AND SUPPLIES OF ABSORBENT AND BARRIER MATERIALS TO ALLOW RAPID CONTAINMENT AND RECOVERY OF SPILLED MATERIALS.

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8) TOPSOIL SHALL BE STRIPPED AS REQUIRED BY PROJECT SPECIFICATIONS.

9) PRIOR TO PIPE PULLBACK, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO KEYSTONE FOR APPROVAL.

10) INSTALLATION: THE PIPE SECTION FOR THE DRILLED CROSSING SHALL BE MADE UP WITHIN THE RIGHT-OF-WAY AT THE DRILL EXIT POINT AS SHOWN. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.

11) MUD DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING MUD AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING MUD WHICH INADVERTENTLY EXITS AT POINTS OTHER THAN THE ENTRY AND EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICAL AND DISPOSED OF AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.

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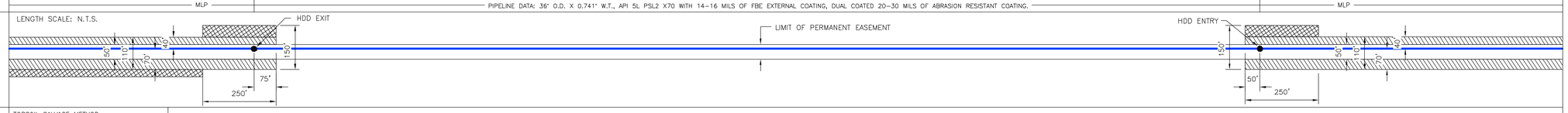
CROSSING INFORMATION (DESIGNED STATIONING)	
	22459+40 HDD EXIT POINT
	22461+62 PT OF TANGENT
	22466+63 PT OF CURVATURE
	22469+62 BH-2-1.05-01
	22473+33 APPROX. ℄ UNNAMED ROAD
	22474+18 BH-2-1.05-02
	22483+04 BH-2-1.05-03
	22483+27 TOP OF BANK
	22484+93 PT OF TANGENT
	22485+68 ℄ CHEYENNE RIVER
	22487+64 TOP OF BANK
	22487+86 BH-2-1.05-04
	22487+93 ℄ UNNAMED ROAD
	22489+58 TOE OF SLOPE
	22490+13 TOP OF BANK
	22491+18 PT OF CURVATURE
	22491+19 BH-2-1.05-05
	22492+15 BH-2-1.05-06
	22493+65 HDD ENTRY POINT
	22494+77 TOP OF BANK
	22494+91 ℄ UNNAMED ROAD
	22495+09 TOE OF SLOPE
	22495+75 P.I. 24°48'08" RT.
PIPELINE DATA	MLP — PIPELINE DATA: 36" O.D. X 0.741" W.T., API 5L PSL2 X70 WITH 14-16 MILS OF FBE EXTERNAL COATING, DUAL COATED 20-30 MILS OF ABRASION RESISTANT COATING. — MLP



ENVIRONMENTAL MITIGATION/RECLAMATION	
TOPSOIL SALVAGE METHOD	
STREAMS	
WETLANDS	
TIMING CONSRAINTS	
MILEPOST	
MONITORING	
RECLAMATION	
SPECIAL CONSIDERATIONS	

TO BE DETERMINED

LEGEND

- POINT OF INTERSECTION (P.I.)
- ENTRY OR EXIT POINT
- GEOTECHNICAL BOREHOLE
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- MLP — MAINLINE PIPE
- PIPELINE
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- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

REFERENCE DRAWINGS

DRAWING No	TITLE

REVISION / APPROVAL

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (02.15.09 CL)	THES0050388X	JB	AH	HF	RB	RG	TROW
1	12.08.08	ISSUED FOR REVIEW (12.1.08 CL)	THES0050388X	BM	AH	HF	RB	RG	TROW
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)	THES0050388X	BM	JP	HF	RB	RG	TROW

PROFESSIONAL ENGINEER/RPT | PERMIT/ ENG. APPROVAL | DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

Trow — TROW ENGINEERING CONSULTANTS INC.

ConocoPhillips

TransCanada — In business to deliver

FAITH SECTION

FIA # 4367 | CHAINAGE: MP 425.9 | DISCIPLINE # 03

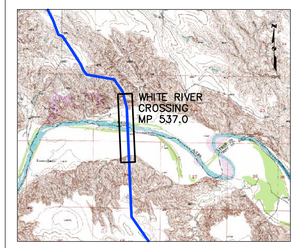
CHEYENNE RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
MEADE & HAAKON COUNTY, SOUTH DAKOTA

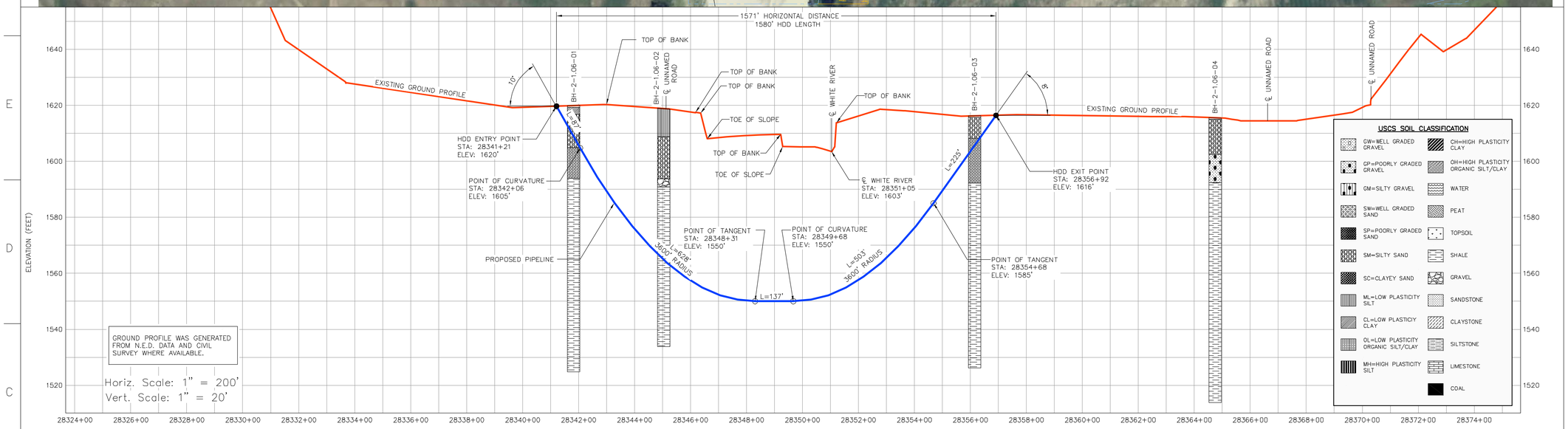
SCALE AS SHOWN | DRAWING No 4367-03-ML-03-001 | REV 2

TC_UD_BR.DWG 22X34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)





INSTALLATION NOTES

1) ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.

2) VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.

3) WORK SPACE: WORK SPACE LIMITS ARE DEPICTED. CLEARING WILL BE RESTRICTED TO THE WORK SPACES INDICATED AT THE ENTRY AND EXIT POINTS AND PULLBACK MAKE-UP AREA ALONG THE RIGHT-OF-WAY. CLEARING BETWEEN THE ENTRY AND EXIT POINTS IS LIMITED TO THE MINIMUM AMOUNT NECESSARY TO STRING LOCATION WIRES AND INSTALL PUMPS AND PIPING TO OBTAIN WATER (WHERE APPROVED).

4) WATER SOURCE: DRILL WATER AND PRE-INSTALLATION HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE. THE CONTRACTOR SHALL SCREEN THE INTAKE HOSE TO PREVENT THE ENTRAINMENT OF FISH OR DEBRIS AND IN ACCORDANCE WITH THE CONSTRUCTION MITIGATION AND RECLAMATION PLAN (CMRP) AND PROJECT REQUIREMENTS. THE HOSE SHALL BE KEPT OFF THE BOTTOM OF THE WATER BODY.

5) HYDROSTATIC TEST: PRE-INSTALLATION HYDROSTATIC TEST SHALL BE CONDUCTED IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE CONTRACTOR SHALL DISCHARGE HYDROSTATIC TEST WATER IN ACCORDANCE WITH PROJECT PERMITS. DISCHARGES WILL BE BACK TO THE WATER SOURCE UNLESS OTHERWISE DIRECTED BY THE ENVIRONMENTAL INSPECTOR. DISCHARGES SHALL NOT CAUSE EROSION OR SEDIMENTATION. TO REDUCE THE VELOCITY OF THE DISCHARGE, THE CONTRACTOR SHALL UTILIZE AN ENERGY-DISSIPATING DEVICE AS DESCRIBED IN THE CMRP.

6) SPILL-PREVENTION: ALL PUMPS SHALL BE SET IN SECONDARY CONTAINMENT AND IN ACCORDANCE WITH THE SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC). EQUIPMENT AND PUMPS OPERATING WITHIN 100 FEET OF ANY WATER BODY OR WETLAND SHALL BE OPERATED AND REFUELED IN ACCORDANCE WITH THE SPCC PLAN. EQUIPMENT REFUELING AND STORAGE OF HAZARDOUS MATERIALS, FUELS, ETC. SHALL BE CONDUCTED AT LEAST 100 FEET FROM WATER BODIES AND WETLANDS. EACH CONSTRUCTION CREW SHALL HAVE ON HAND SUFFICIENT TOOLS AND MATERIALS TO STOP LEAKS AND SUPPLIES OF ABSORBENT AND BARRIER MATERIALS TO ALLOW RAPID CONTAINMENT AND RECOVERY OF SPILLED MATERIALS.

7) EROSION AND SEDIMENT CONTROL: CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH CONTRACT DOCUMENTS. CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL STRUCTURES AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.

8) TOPSOIL SHALL BE STRIPPED AS REQUIRED BY PROJECT SPECIFICATIONS.

9) PRIOR TO PIPE PULLBACK, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO KEYSTONE FOR APPROVAL.

10) INSTALLATION: THE PIPE SECTION FOR THE DRILLED CROSSING SHALL BE MADE UP WITHIN THE RIGHT-OF-WAY AT THE DRILL EXIT POINT AS SHOWN. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.

11) MUD DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING MUD AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING MUD WHICH INADVERTENTLY EXITS AT POINTS OTHER THAN THE ENTRY AND EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICAL AND DISPOSED OF AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.

12) CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE RETURNED TO THE ORIGINAL CONTOURS. DISTURBED AREAS SHALL BE SEEDED AS SPECIFIED IN PROJECT DOCUMENTS.

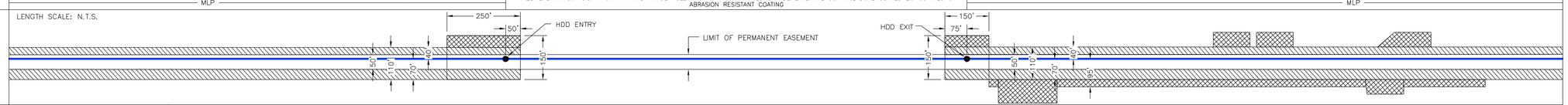
13) NOMINAL WORKING SPACE DIMENSIONS ARE SHOWN. LARGER AREAS MAY BE REQUIRED IN IRREGULAR TERRAIN. UPDATED DIMENSIONS MAY BE PROVIDED AFTER LOCAL TOPOGRAPHICAL SURVEYS ARE PERFORMED.

LEGEND

- POINT OF INTERSECTION (P.I.)
- ENTRY OR EXIT POINT
- GEOTECHNICAL BOREHOLE
- POWERPOLE
- MLP — MAINLINE PIPE
- PIPELINE
- FOREIGN PIPELINE
- EDGE OF WATER
- PRIVATE ACCESS SHOO FLY ROAD
- COUNTY BOUNDARY
- WATER LEVEL
- USACOE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

CROSSING INFORMATION (DISTANCE STATIONING)	
	28333+66 P.I. 12°30'48" RT.
	28341+21 HDD ENTRY POINT
	28341+82 BH-2-1.06-01
	28342+06 PT OF CURVATURE
	28343+00 TOP OF BANK
	28345+05 BH-2-1.06-02
	28345+12 ℄ UNNAMED ROAD
	28346+19 TOP OF BANK
	28346+37 TOP OF BANK
	28347+50 TOE OF SLOPE
	28348+31 PT OF TANGENT
	28349+22 TOP OF BANK
	28349+29 TOE OF SLOPE
	28349+68 PT OF CURVATURE
	28351+05 ℄ WHITE RIVER
	28351+22 TOP OF BANK
	28354+68 PT OF TANGENT
	28356+15 BH-2-1.06-03
	28356+92 HDD EXIT POINT
	28364+75 BH-2-1.06-04
	28366+63 ℄ UNNAMED ROAD
	28370+31 ℄ UNNAMED ROAD
PIPELINE DATA	MLP — PIPELINE DATA: 36" O.D. X 0.741" W.T., API 5L PSL2 X70 WITH 14-16 MILS OF FBE EXTERNAL COATING, DUAL COATED 20-30 MILS OF ABRASION RESISTANT COATING — MLP

CONSTRUCTION WORKSPACE



ENVIRONMENTAL MITIGATION/RECLAMATION	
TOPSOIL SALVAGE METHOD	
STREAMS	
WETLANDS	
TIMING CONSRAINTS	
MILEPOST	
MONITORING	
RECLAMATION	
SPECIAL CONSIDERATIONS	

TO BE DETERMINED

REFERENCE DRAWINGS

DRAWING No	TITLE

REVISION / APPROVAL

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (02.15.09)	THES0050388X	JB	AH	HF	RB	RG	TROW
1	12.08.08	ISSUED FOR REVIEW (12.1.08 CL)	THES0050388X	BM	AH	HF	RB	RG	TROW
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)	THES0050388X	JB	JP	HF	RB	RG	TROW

PROFESSIONAL ENGINEER/RPT | PERMIT/ ENG. APPROVAL | DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

TROW ENGINEERING CONSULTANTS INC.

ConocoPhillips

TransCanada — In business to deliver

MURDO SECTION

FIA # 4369 | CHAINAGE: MP 537.0 | DISCIPLINE # 03

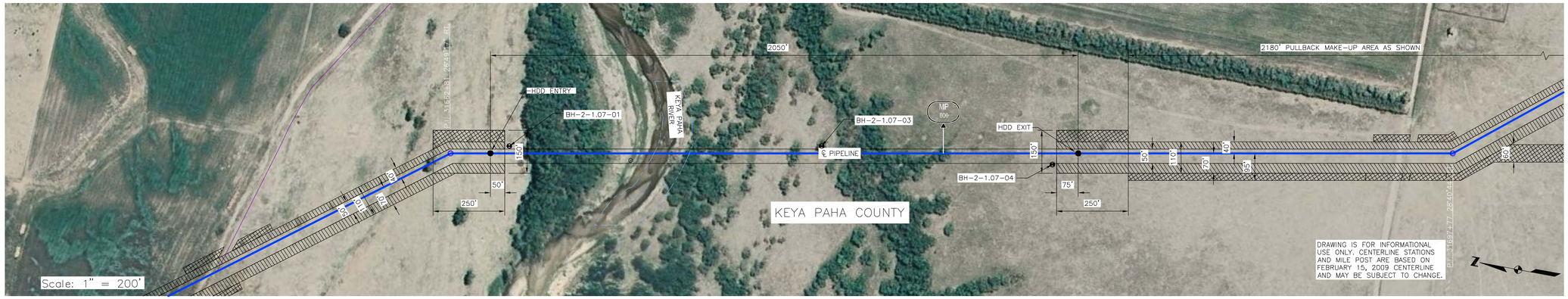
WHITE RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
LYMAN COUNTY, SOUTH DAKOTA

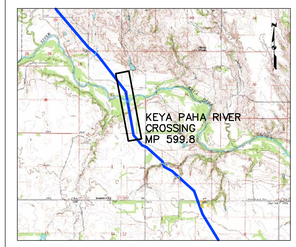
SCALE AS SHOWN | DRAWING No 4369-03-ML-03-001 | REV 2

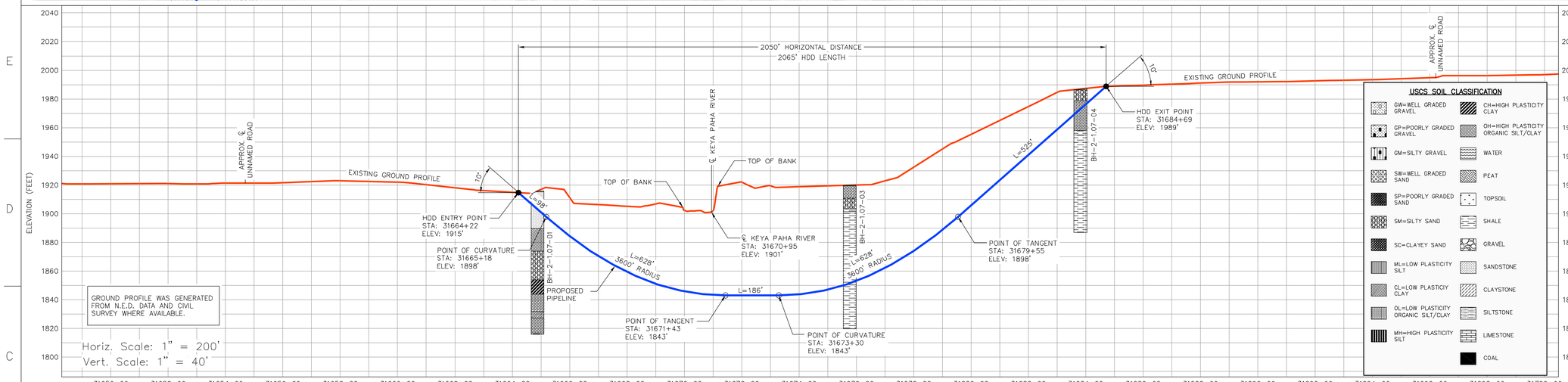
TC_UD_BR.DWG 22X34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)







INSTALLATION NOTES

1) ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.

2) VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.

3) WORK SPACE: WORK SPACE LIMITS ARE DEPICTED. CLEARING WILL BE RESTRICTED TO THE WORK SPACES INDICATED AT THE ENTRY AND EXIT POINTS AND PULLBACK MAKE-UP AREA ALONG THE RIGHT-OF-WAY. CLEARING BETWEEN THE ENTRY AND EXIT POINTS IS LIMITED TO THE MINIMUM AMOUNT NECESSARY TO STRING LOCATION WIRES AND INSTALL PUMPS AND PIPING TO OBTAIN WATER (WHERE APPROVED).

4) WATER SOURCE: DRILL WATER AND PRE-INSTALLATION HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE. THE CONTRACTOR SHALL SCREEN THE INTAKE HOSE TO PREVENT THE ENTRAINMENT OF FISH OR DEBRIS AND IN ACCORDANCE WITH THE CONSTRUCTION MITIGATION AND RECLAMATION PLAN (CMRP) AND PROJECT REQUIREMENTS. THE HOSE SHALL BE KEPT OFF THE BOTTOM OF THE WATER BODY.

5) HYDROSTATIC TEST: PRE-INSTALLATION HYDROSTATIC TEST SHALL BE CONDUCTED IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE CONTRACTOR SHALL DISCHARGE HYDROSTATIC TEST WATER IN ACCORDANCE WITH PROJECT PERMITS. DISCHARGES WILL BE BACK TO THE WATER SOURCE UNLESS OTHERWISE DIRECTED BY THE ENVIRONMENTAL INSPECTOR. DISCHARGES SHALL NOT CAUSE EROSION OR SEDIMENTATION. TO REDUCE THE VELOCITY OF THE DISCHARGE, THE CONTRACTOR SHALL UTILIZE AN ENERGY-DISSIPATING DEVICE AS DESCRIBED IN THE CMRP.

6) SPILL-PREVENTION: ALL PUMPS SHALL BE SET IN SECONDARY CONTAINMENT AND IN ACCORDANCE WITH THE SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC). EQUIPMENT AND PUMPS OPERATING WITHIN 100 FEET OF ANY WATER BODY OR WETLAND SHALL BE OPERATED AND REFUELED IN ACCORDANCE WITH THE SPCC PLAN. EQUIPMENT REFUELING AND STORAGE OF HAZARDOUS MATERIALS, FUELS, ETC. SHALL BE CONDUCTED AT LEAST 100 FEET FROM WATER BODIES AND WETLANDS. EACH CONSTRUCTION CREW SHALL HAVE ON HAND SUFFICIENT TOOLS AND MATERIALS TO STOP LEAKS AND SUPPLIES OF ABSORBENT AND BARRIER MATERIALS TO ALLOW RAPID CONTAINMENT AND RECOVERY OF SPILLED MATERIALS.

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9) PRIOR TO PIPE PULLBACK, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO KEYSTONE FOR APPROVAL.

10) INSTALLATION: THE PIPE SECTION FOR THE DRILLED CROSSING SHALL BE MADE UP WITHIN THE RIGHT-OF-WAY AT THE DRILL EXIT POINT AS SHOWN. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.

11) MUD DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING MUD AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING MUD WHICH INADVERTENTLY EXITS AT POINTS OTHER THAN THE ENTRY AND EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICAL AND DISPOSED OF AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.

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13) NOMINAL WORKING SPACE DIMENSIONS ARE SHOWN. LARGER AREAS MAY BE REQUIRED IN IRREGULAR TERRAIN. UPDATED DIMENSIONS MAY BE PROVIDED AFTER LOCAL TOPOGRAPHICAL SURVEYS ARE PERFORMED.

CROSSING INFORMATION (ESTIMATED STATIONING)

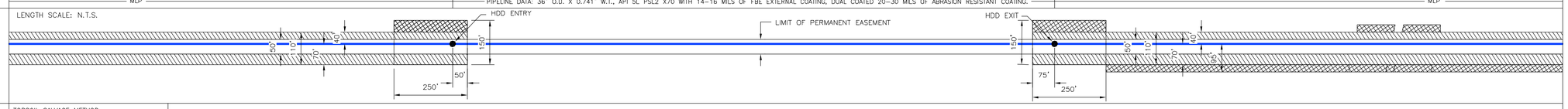
31654+68 APPROX. ℄ UNNAMED ROAD; 31662+81 P.I. 26°49'17" RT.; 31664+22 HDD ENTRY POINT; 31664+88 BH-2-1.07-01; 31665+18 PT OF CURVATURE; 31669+95 TOP OF BANK; 31670+95 ℄ KEYA PAHA RIVER; 31671+16 TOP OF BANK; 31671+43 PT OF TANGENT; 31673+30 PT OF CURVATURE; 31675+77 BH-2-1.07-03; 31679+55 PT OF TANGENT; 31683+82 BH-2-1.07-04; 31684+69 HDD EXIT POINT; 31695+21 ℄ UNNAMED ROAD; 31697+77 P.I. 28°40'44" LT.

PIPELINE DATA

MLP — PIPELINE DATA: 36" O.D. X 0.741" W.T., API 5L PSL2 X70 WITH 14-16 MILS OF FBE EXTERNAL COATING, DUAL COATED 20-30 MILS OF ABRASION RESISTANT COATING. — MLP

CONSTRUCTION WORKSPACE

LENGTH SCALE: N.T.S.



ENVIRONMENTAL MITIGATION/RECLAMATION

TOPSOIL SALVAGE METHOD	
STREAMS	
WETLANDS	
TIMING CONSRAINTS	
MILEPOST	
MONITORING	
RECLAMATION	
SPECIAL CONSIDERATIONS	

TO BE DETERMINED

LEGEND

- POINT OF INTERSECTION (P.I.)
- ENTRY OR EXIT POINT
- GEOTECHNICAL BOREHOLE
- POWERPOLE
- MLP — MAINLINE PIPE
- PIPELINE
- FOREIGN PIPELINE
- EDGE OF WATER
- PRIVATE ACCESS SHOO FLY ROAD
- COUNTY BOUNDARY
- WATER LEVEL
- USACOE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

REFERENCE DRAWINGS

DRAWING No	TITLE

REVISION / APPROVAL

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
3	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (2.15.09 CL)	THES0050388X$	BM	AH	FP	YC	RG	TROW
2	04.21.09	ISSUED FOR REVIEW (02.15.09 CL)	THES0050388X$	AH	AH	FP	YC	RG	TROW
1	12.08.08	ISSUED FOR REVIEW (12.1.08 CL)	THES0050388X	BM	AH	HF	RB	RG	TROW
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)	THES0050388X	JB	JP	HF	RB	RG	TROW

PROFESSIONAL ENGINEER/RPT | PERMIT/ ENG. APPROVAL | DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

Trow — TROW ENGINEERING CONSULTANTS INC.

ConocoPhillips | TransCanada — In business to deliver

COLOME SECTION

FIA # 4371 | CHAINAGE: MP 599.8 | DISCIPLINE # 03

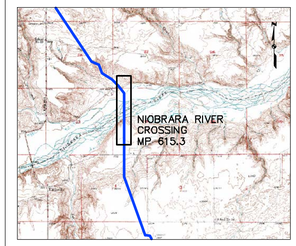
KEYA PAHA RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
KEYA PAHA COUNTY, NEBRASKA

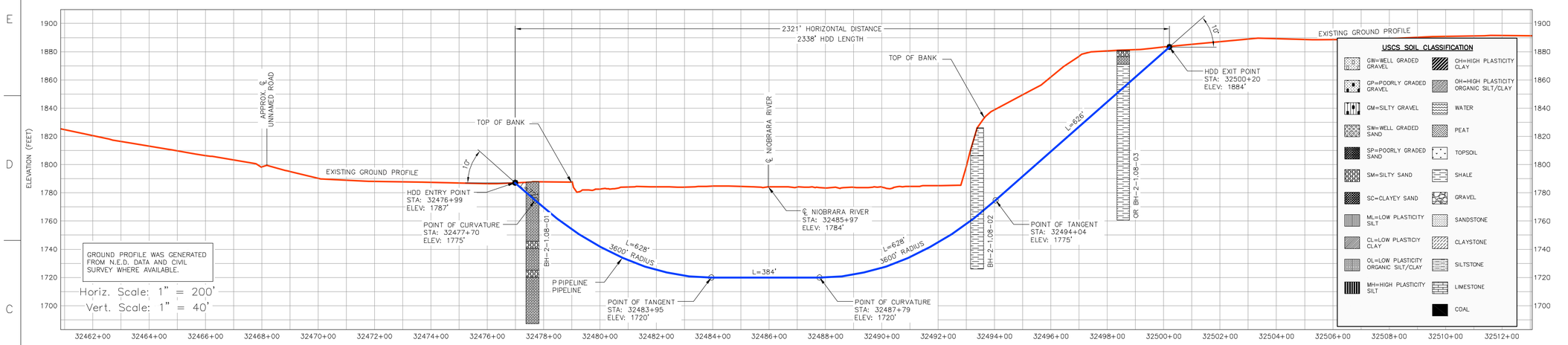
SCALE AS SHOWN | DRAWING No 4371-03-ML-03-001 | REV 3

TC_UD_BR.DWG 22X34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)





INSTALLATION NOTES

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2) VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.

3) WORK SPACE: WORK SPACE LIMITS ARE DEPICTED. CLEARING WILL BE RESTRICTED TO THE WORK SPACES INDICATED AT THE ENTRY AND EXIT POINTS AND PULLBACK MAKE-UP AREA ALONG THE RIGHT-OF-WAY. CLEARING BETWEEN THE ENTRY AND EXIT POINTS IS LIMITED TO THE MINIMUM AMOUNT NECESSARY TO STRING LOCATION WIRES AND INSTALL PUMPS AND PIPING TO OBTAIN WATER (WHERE APPROVED).

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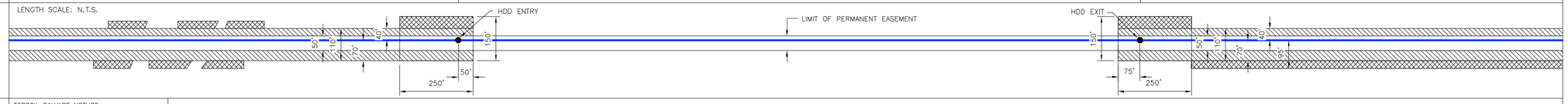
CROSSING INFORMATION (CONTINUED) STATIONING	
	32466+18 P.I. 10°12'06" RT.
	32468+18 APPROX. ℄ UNNAMED ROAD
	32473+67 P.I. 36°12'21" RT.
	32476+99 HDD ENTRY POINT STA: 32476+99
	32477+40 BH-2-1.08-01
	32477+70 PT OF CURVATURE
	32479+01 TOP OF BANK
	32483+95 PT OF TANGENT
	32485+97 ℄ NIOBRARA RIVER
	32487+79 PT OF CURVATURE
	32493+36 BH-2-1.08-02
	32493+64 TOP OF BANK
	32494+04 PT OF TANGENT
	32498+56 BH-2-1.08-03
	32500+20 HDD EXIT POINT
PIPELINE DATA	MLP — PIPELINE DATA: 36" O.D. X 0.741" W.T., API 5L PSL2 X70 WITH 14-16 MILS OF FBE EXTERNAL COATING, DUAL COATED 20-30 MILS OF ABRASION RESISTANT COATING. — MLP

CONSTRUCTION WORKSPACE



ENVIRONMENTAL MITIGATION/RECLAMATION	
TOPSOIL SALVAGE METHOD	
STREAMS	
WETLANDS	
TIMING CONSRAINTS	
MILEPOST	
MONITORING	
RECLAMATION	
SPECIAL CONSIDERATIONS	

TO BE DETERMINED

LEGEND

- POINT OF INTERSECTION (P.I.)
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- PIPELINE
- FOREIGN PIPELINE
- EDGE OF WATER
- PRIVATE ACCESS SHOD FLY ROAD
- COUNTY BOUNDARY
- WATER LEVEL
- USACOE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

REFERENCE DRAWINGS

DRAWING No	TITLE

REVISION / APPROVAL

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (2.15.09 CL)	THES0050388X	BM	AH	HF	RB	RG	TROW
1	12.08.08	ISSUED FOR REVIEW (12.1.08 CL)	THES0050388X	BM	AH	HF	RB	RG	TROW
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PROFESSIONAL ENGINEER/RPT | PERMIT/ ENG. APPROVAL | DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

TROW ENGINEERING CONSULTANTS INC.

ConocoPhillips

TransCanada — In business to deliver

COLOME SECTION

FIA # 4371 | CHAINAGE: MP 615.3 | DISCIPLINE # 03

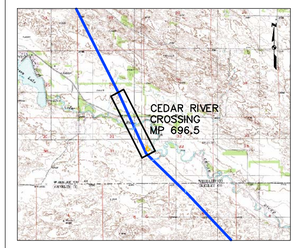
NIOBRARA RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
KEYA PAHA & ROCK COUNTY, NEBRASKA

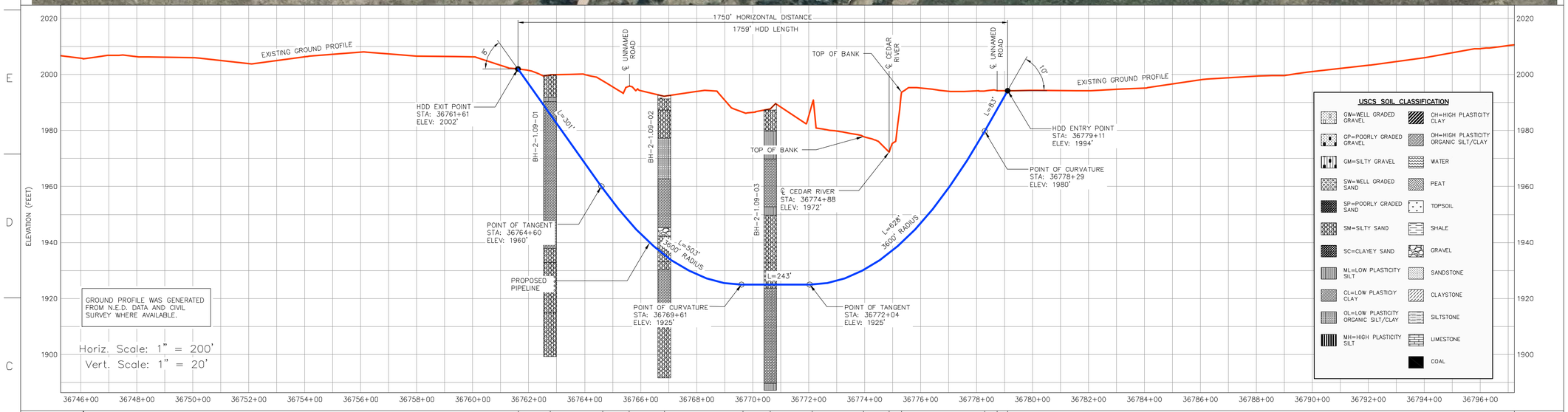
SCALE AS SHOWN | DRAWING No 4371-03-ML-03-002 | REV 2

TC_UD_BR.DWG 22x34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)





USCS SOIL CLASSIFICATION

- GW=WELL GRADED GRAVEL
- GP=POORLY GRADED GRAVEL
- GM=SILTY GRAVEL
- SW=WELL GRADED SAND
- SP=POORLY GRADED SAND
- SM=SILTY SAND
- SC=CLAYEY SAND
- ML=LOW PLASTICITY SILT
- CL=LOW PLASTICY CLAY
- OL=LOW PLASTICITY ORGANIC SILT/CLAY
- MH=HIGH PLASTICITY SILT
- CH=HIGH PLASTICITY CLAY
- OH=HIGH PLASTICITY ORGANIC SILT/CLAY
- WATER
- PEAT
- TOPSOIL
- SHALE
- GRAVEL
- SANDSTONE
- CLAYSTONE
- SILTSTONE
- LIMESTONE
- COAL

INSTALLATION NOTES

1) ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.

2) VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.

3) WORK SPACE: WORK SPACE LIMITS ARE DEPICTED. CLEARING WILL BE RESTRICTED TO THE WORK SPACES INDICATED AT THE ENTRY AND EXIT POINTS AND PULLBACK MAKE-UP AREA ALONG THE RIGHT-OF-WAY. CLEARING BETWEEN THE ENTRY AND EXIT POINTS IS LIMITED TO THE MINIMUM AMOUNT NECESSARY TO STRING LOCATION WIRES AND INSTALL PUMPS AND PIPING TO OBTAIN WATER (WHERE APPROVED).

4) WATER SOURCE: DRILL WATER AND PRE-INSTALLATION HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE. THE CONTRACTOR SHALL SCREEN THE INTAKE HOSE TO PREVENT THE ENTRAINMENT OF FISH OR DEBRIS AND IN ACCORDANCE WITH THE CONSTRUCTION MITIGATION AND RECLAMATION PLAN (CMRP) AND PROJECT REQUIREMENTS. THE HOSE SHALL BE KEPT OFF THE BOTTOM OF THE WATER BODY.

5) HYDROSTATIC TEST: PRE-INSTALLATION HYDROSTATIC TEST SHALL BE CONDUCTED IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE CONTRACTOR SHALL DISCHARGE HYDROSTATIC TEST WATER IN ACCORDANCE WITH PROJECT PERMITS. DISCHARGES WILL BE BACK TO THE WATER SOURCE UNLESS OTHERWISE DIRECTED BY THE ENVIRONMENTAL INSPECTOR. DISCHARGES SHALL NOT CAUSE EROSION OR SEDIMENTATION. TO REDUCE THE VELOCITY OF THE DISCHARGE, THE CONTRACTOR SHALL UTILIZE AN ENERGY-DISSIPATING DEVICE AS DESCRIBED IN THE CMRP.

6) SPILL-PREVENTION: ALL PUMPS SHALL BE SET IN SECONDARY CONTAINMENT AND IN ACCORDANCE WITH THE SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC). EQUIPMENT AND PUMPS OPERATING WITHIN 100 FEET OF ANY WATER BODY OR WETLAND SHALL BE OPERATED AND REFUELED IN ACCORDANCE WITH THE SPCC PLAN. EQUIPMENT REFUELING AND STORAGE OF HAZARDOUS MATERIALS, FUELS, ETC. SHALL BE CONDUCTED AT LEAST 100 FEET FROM WATER BODIES AND WETLANDS. EACH CONSTRUCTION CREW SHALL HAVE ON HAND SUFFICIENT TOOLS AND MATERIALS TO STOP LEAKS AND SUPPLIES OF ABSORBENT AND BARRIER MATERIALS TO ALLOW RAPID CONTAINMENT AND RECOVERY OF SPILLED MATERIALS.

7) EROSION AND SEDIMENT CONTROL: CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH CONTRACT DOCUMENTS. CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL STRUCTURES AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.

8) TOPSOIL SHALL BE STRIPPED AS REQUIRED BY PROJECT SPECIFICATIONS.

9) PRIOR TO PIPE PULLBACK, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO KEYSTONE FOR APPROVAL.

10) INSTALLATION: THE PIPE SECTION FOR THE DRILLED CROSSING SHALL BE MADE UP WITHIN THE RIGHT-OF-WAY AT THE DRILL EXIT POINT AS SHOWN. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.

11) MUD DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING MUD AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING MUD WHICH INADVERTENTLY EXITS AT POINTS OTHER THAN THE ENTRY AND EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICAL AND DISPOSED OF AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.

12) CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE RETURNED TO THE ORIGINAL CONTOURS. DISTURBED AREAS SHALL BE SEEDED AS SPECIFIED IN PROJECT DOCUMENTS.

13) NOMINAL WORKING SPACE DIMENSIONS ARE SHOWN, LARGER AREAS MAY BE REQUIRED IN IRREGULAR TERRAIN. UPDATED DIMENSIONS MAY BE PROVIDED AFTER LOCAL TOPOGRAPHICAL SURVEYS ARE PERFORMED.

CROSSING INFORMATION (DRAWING STATIONING)

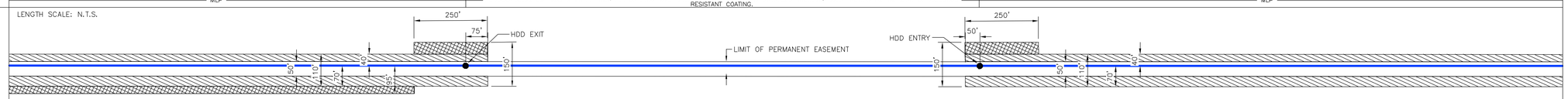
36746+09	P.I. 02°02'49" RT.
36761+61	HDD EXIT POINT
36762+77	BH-2-1.11-02
36764+60	PT OF TANGENT
36765+60	℄ UNNAMED ROAD
36766+85	BH-2-1.11-02
36769+61	PT OF CURVATURE
36770+63	BH-2-1.11-02
36772+04	PT OF TANGENT
36773+86	TOP OF BANK
36774+88	℄ CEDAR RIVER
36775+32	TOP OF BANK
36778+30	PT OF CURVATURE
36778+74	℄ UNNAMED ROAD
36779+11	HDD ENTRY POINT
36797+23	P.I. 20°59'37" LT.

PIPELINE DATA

MLP — PIPELINE DATA: 36" O.D. X 0.741" W.T., API 5L PSL2 X70 WITH 14-16 MILS OF FBE EXTERNAL COATING, DUAL COATED 20-30 MILS OF ABRASION RESISTANT COATING. — MLP

CONSTRUCTION WORKSPACE

LENGTH SCALE: N.T.S.



ENVIRONMENTAL MITIGATION/RECLAMATION

TOPSOIL SALVAGE METHOD	
STREAMS	
WETLANDS	
TIMING CONSRAINTS	
MILEPOST	
MONITORING	
RECLAMATION	
SPECIAL CONSIDERATIONS	

TO BE DETERMINED

LEGEND

- POINT OF INTERSECTION (P.I.)
- ENTRY OR EXIT POINT
- GEOTECHNICAL BOREHOLE
- POWERPOLE
- MLP — MAINLINE PIPE
- PIPELINE
- FOREIGN PIPELINE
- EDGE OF WATER
- PRIVATE ACCESS SHOO FLY ROAD
- COUNTY BOUNDARY
- WATER LEVEL
- USACOE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

REFERENCE DRAWINGS

DRAWING No	TITLE

REVISION / APPROVAL

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (2.15.09 CL)	THES0050388X	BM	AH	HF	RB	RG	TROW
1	12.08.08	ISSUED FOR REVIEW (12.1.08 CL)	THES0050388X	AH	AH	FP	RB	RG	TROW
0	08.06.08	PRELIMINARY DESIGN	THES0050388X	JB	JP	FP	RB	RG	TROW

PROFESSIONAL ENGINEER/RPT | PERMIT/ ENG. APPROVAL | DATE

PRELIMINARY

REV. NO.	DATE	PERMIT NUMBER:

Trow — TROW ENGINEERING CONSULTANTS INC.

ConocoPhillips

TransCanada — In business to deliver

ERICSON SECTION

FIA # 4373 | CHAINAGE: MP 696.5 | DISCIPLINE # 03

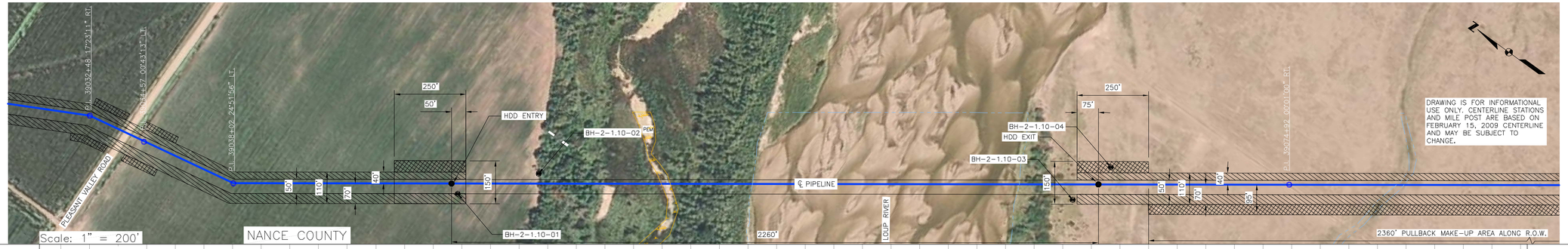
CEDAR RIVER HDD INSTALLATION
PROPOSED KEYSTONE XL PROJECT
WHEELER COUNTY, NEBRASKA

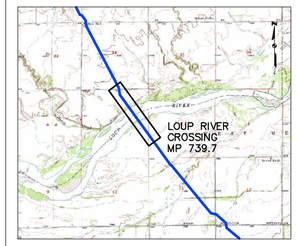
SCALE AS SHOWN | DRAWING No 4373-03-ML-03-001 | REV 2

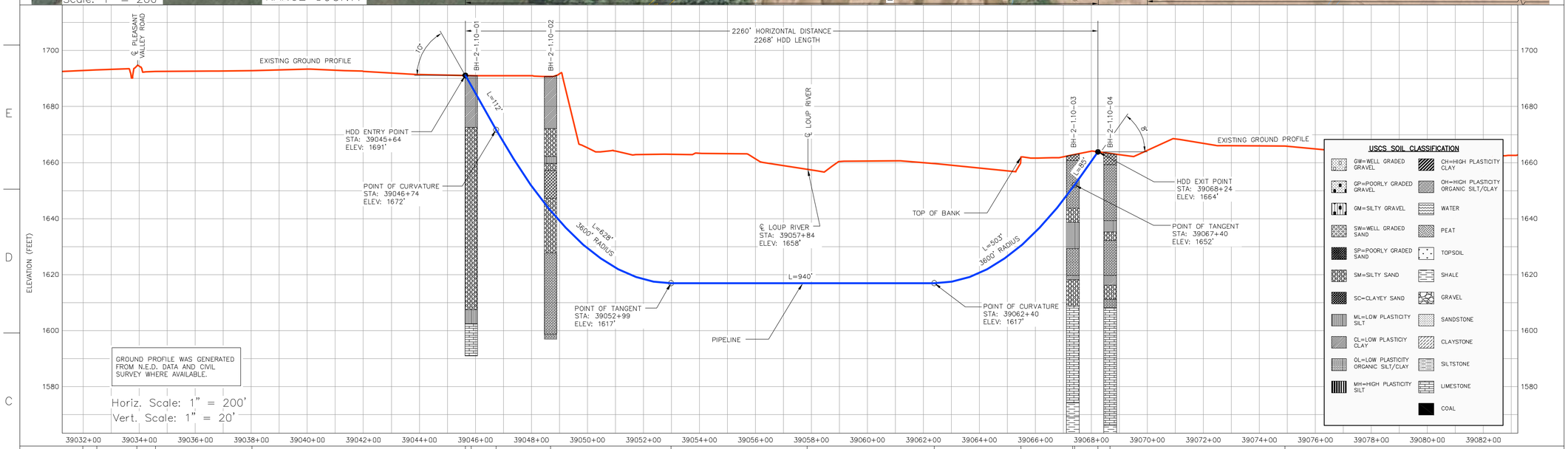
TC_UD_BR.DWG 22X34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)







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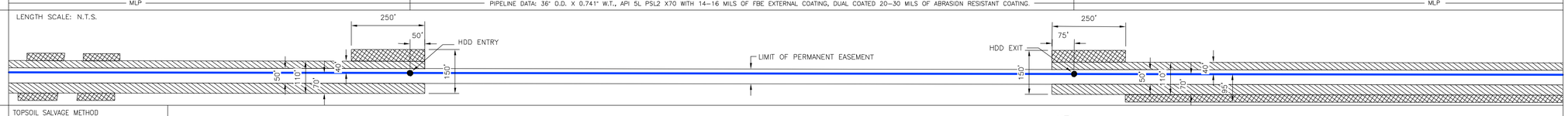
CROSSING INFORMATION (DRAWN TO STATIONING)	39032+48 P.I. 1°23'11" RT.	39033+90 ℄ PLEASANT VALLEY ROAD	39034+57 P.I. 00°43'13" LT.	39038+02 P.I. 24°51'56" LT.	39045+64 HDD ENTRY POINT	39045+85 BH-2-1.10-01	39046+74 PT OF CURVATURE	39048+88 BH-2-1.10-02	39052+99 PT OF TANGENT	39057+84 ℄ LOUP RIVER	39062+40 PT OF CURVATURE	39065+49 TOP OF BANK	39067+34 BH-2-1.10-03	39067+40 PT OF TANGENT	39068+24 HDD EXIT POINT	39068+67 BH-2-1.10-04	39074+92 P.I. 00°01'00" RT.

PIPELINE DATA: MLP — PIPELINE DATA: 36" O.D. X 0.741" W.T., API 5L PSL2 X70 WITH 14-16 MILS OF FBE EXTERNAL COATING, DUAL COATED 20-30 MILS OF ABRASION RESISTANT COATING. — MLP

CONSTRUCTION WORKSPACE

LENGTH SCALE: N.T.S.



ENVIRONMENTAL MITIGATION/RECLAMATION

TOPSOIL SALVAGE METHOD	
STREAMS	
WETLANDS	
TIMING CONSRAINTS	
MILEPOST	
MONITORING	
RECLAMATION	
SPECIAL CONSIDERATIONS	

TO BE DETERMINED

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REFERENCE DRAWINGS

DRAWING No	TITLE

REVISION / APPROVAL

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (2.15.09 CL)	THES0050388X	BM	AH	HF	RB	RG	TROW
1	12.08.08	ISSUED FOR REVIEW (12.1.08 CL)	THES0050388X	AH	AH	HF	RB	RG	TROW
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)	THES0050388X	JB	JP	HF	RB	RG	TROW

PROFESSIONAL ENGINEER/RPT | PERMIT/ ENG. APPROVAL | DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

Trow — TROW ENGINEERING CONSULTANTS INC.

ConocoPhillips

TransCanada — In business to deliver

ERICSON SECTION

FIA # 4373 | CHAINAGE: MP 739.7 | DISCIPLINE # 03

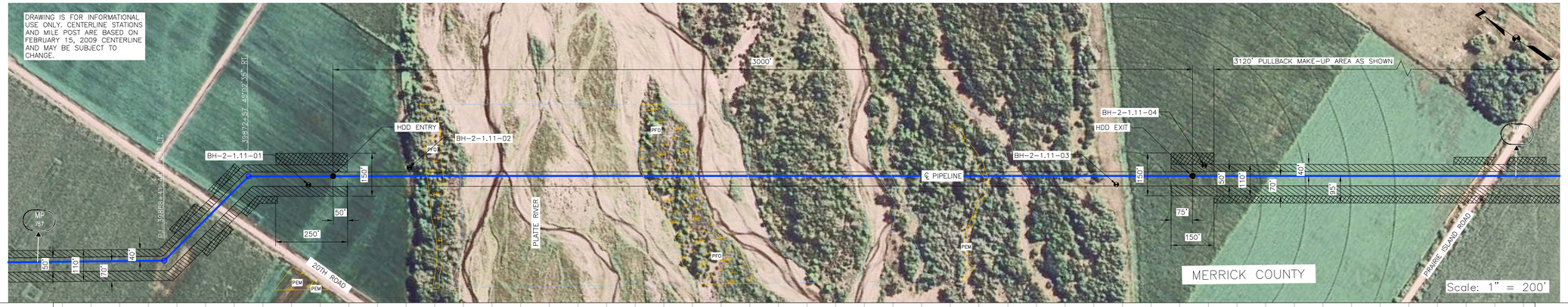
LOUP RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
NANCE COUNTY, NEBRASKA

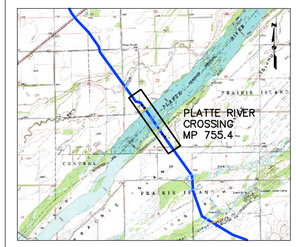
SCALE AS SHOWN | DRAWING No 4373-03-ML-03-002 | REV 2

TC_UD_BR.DWG 22X34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)





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LEGEND

- POINT OF INTERSECTION (P.I.)
- ENTRY OR EXIT POINT
- GEOTECHNICAL BOREHOLE
- POWERPOLE
- MLP — MAINLINE PIPE
- PIPELINE
- FOREIGN PIPELINE
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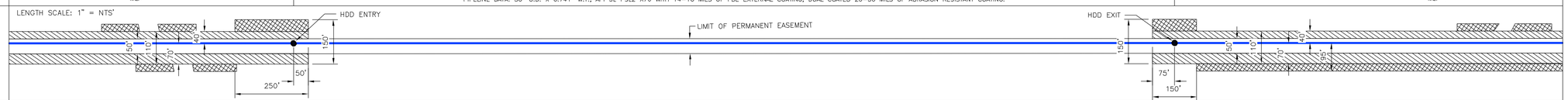
- COUNTY BOUNDARY
- WATER LEVEL
- USACOE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

CROSSING INFORMATION (STATIONING)	39868+41 P.I. 44°27'08" LT.	39871+04 APPROX. ℄ 20TH ROAD	39872+57 P.I. 45°02'35" RT.	39874+60 BH-2-1.11-01	39875+45 HDD ENTRY POINT	39876+97 PT OF CURVATURE	39878+13 BH-2-1.11-02	39882+17 PT OF TANGENT	39883+05 ℄ PLATTE RIVER	39890+12 TOP OF BANK	39893+85 TOP OF BANK	39894+61 TOP OF BANK	39897+59 PT OF CURVATURE	39902+21 PT OF TANGENT	39902+80 BH-2-1.11-03	39905+45 HDD EXIT POINT	39905+86 BH-2-1.11-04	39915+01 APPROX. ℄ PRAIRIE ISLAND ROAD
PIPELINE DATA	MLP				PIPELINE DATA: 36" O.D. X 0.741" W.T., API 5L PSL2 X70 WITH 14-16 MILS OF FBE EXTERNAL COATING, DUAL COATED 20-30 MILS OF ABRASION RESISTANT COATING.												MLP	

CONSTRUCTION WORKSPACE



ENVIRONMENTAL MITIGATION/RECLAMATION	
TOPSOIL SALVAGE METHOD	
STREAMS	
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TO BE DETERMINED

REFERENCE DRAWINGS

DRAWING No	TITLE

REVISION / APPROVAL

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
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PROFESSIONAL ENGINEER/RPT | PERMIT/ ENG. APPROVAL | DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

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ConocoPhillips | TransCanada — In business to deliver

CENTRAL CITY SECTION

FIA # 4374 | CHAINAGE: MP 755.4 | DISCIPLINE # 03

PLATTE RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
MERRICK COUNTY, NEBRASKA

SCALE AS SHOWN | DRAWING No 4374-03-ML-03-001 | REV 2

TC_UD_BR.DWG 22X34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)