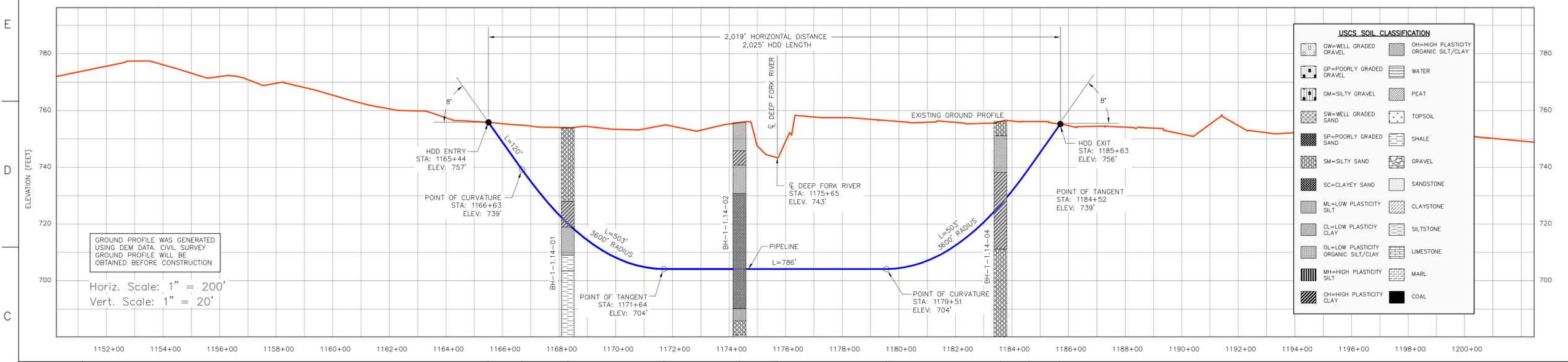
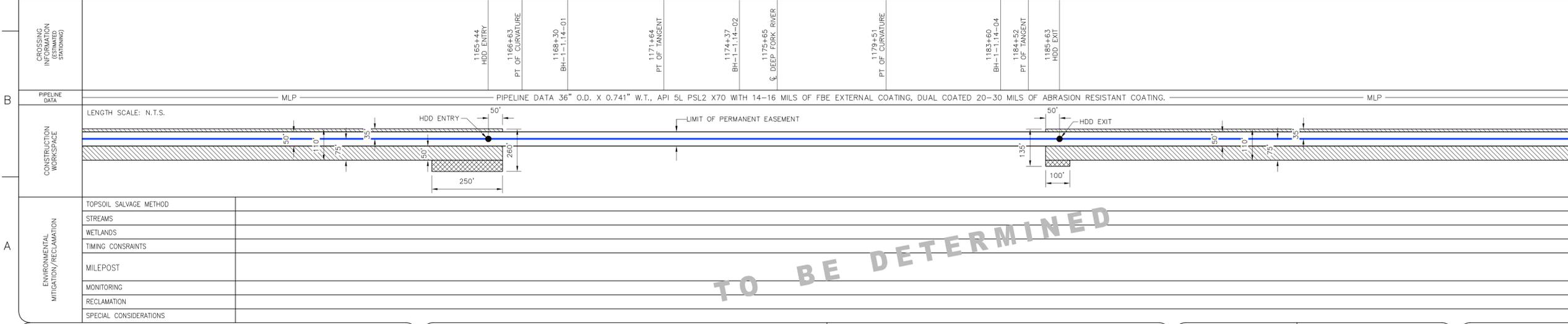


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 - NOMINAL WORKING SPACE DIMENSIONS ARE SHOWN. LARGER AREAS MAY BE REQUIRED IN IRREGULAR TERRAIN. UPDATED DIMENSIONS MAY BE PROVIDED AFTER LOCAL TOPOGRAPHICAL SURVEYS ARE PERFORMED.



USCS SOIL CLASSIFICATION

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



LEGEND

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

REFERENCE DRAWINGS

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NOTES-LEGEND	NOTES-LEGEND.dwg

REVISION

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 (02.19.09 CL)	11042	UEI	UEI	DW	JW	JH	UEI
1	03.19.09	ISSUED FOR TROW REVIEW	11042	UEI	UEI	DW	JW	JH	UEI
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)	11042	UEI	UEI	RB	JW	JH	UEI

APPROVAL

PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL
DATE	DATE

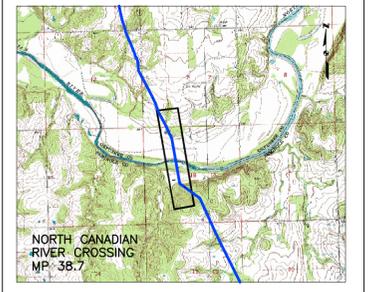
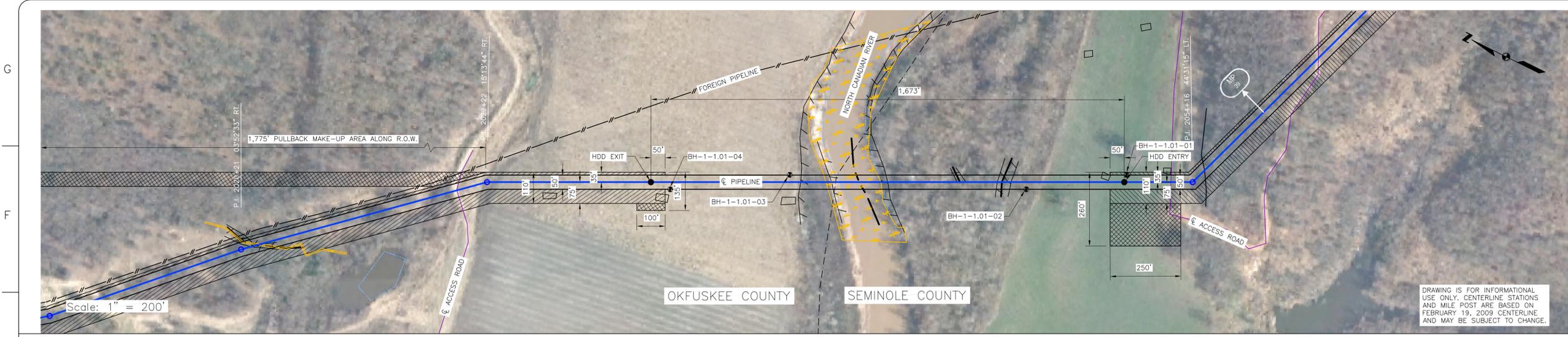
UNIVERSAL ENSCO, INC. **ConocoPhillips** **TransCanada**
in business to deliver

FIA # 1866 CHAINAGE: M.P. 22.3 DISCIPLINE # 03

DEEP FORK HDD INSTALLATION
KEYSTONE XL PROJECT
CREEK COUNTY, OKLAHOMA

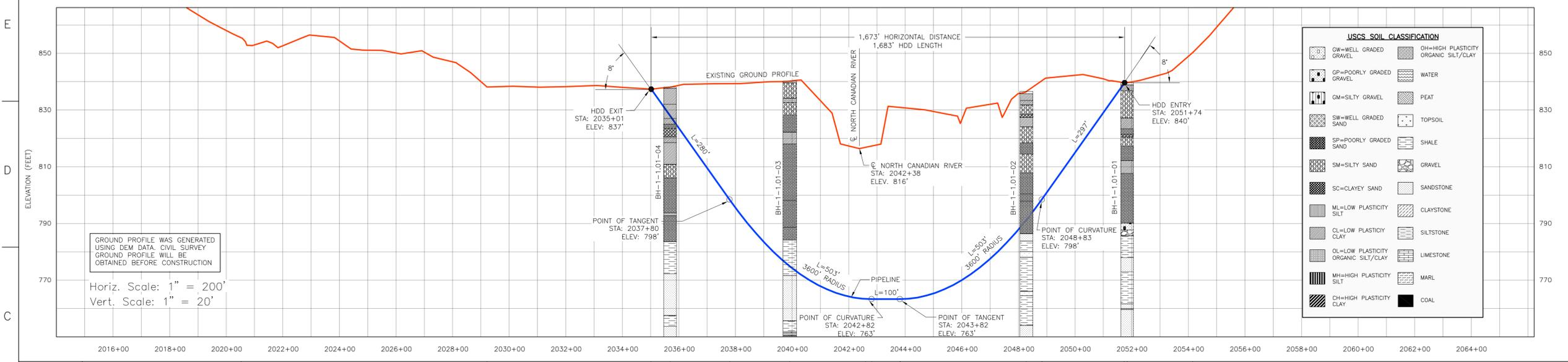
SCALE AS SHOWN DRAWING No 1866-03-ML-03-001 REV 2

PRELIMINARY



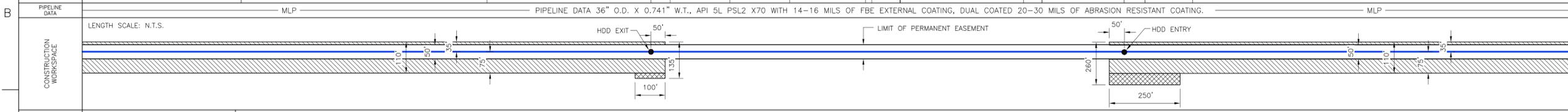
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GROUND PROFILE WAS GENERATED USING DEM DATA. CIVIL SURVEY GROUND PROFILE WILL BE OBTAINED BEFORE CONSTRUCTION.
 Horiz. Scale: 1" = 200'
 Vert. Scale: 1" = 20'

CROSSING INFORMATION (ESTIMATED SPACING)	PIPELINE DATA
2020+21 P.I. 03°52'33" RT.	MLP
2029+22 P.I. 15°13'44" RT.	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.
2035+01 HDD EXIT 2035+69 BH-1-1.01-04	MLP
2037+80 PT OF TANGENT	
2039+92 BH-1-1.01-03	
2042+38 NORTH CANADIAN RIVER 2042+82 PT OF CURVATURE	
2043+82 PT OF TANGENT	
2048+28 BH-1-1.01-02 2048+83 PT OF CURVATURE	
2051+74 HDD ENTRY 2051+82 BH-1-1.01-01	
2054+16 P.I. 44°31'15" LT.	



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

TO BE DETERMINED

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

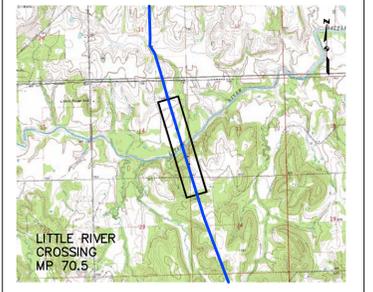
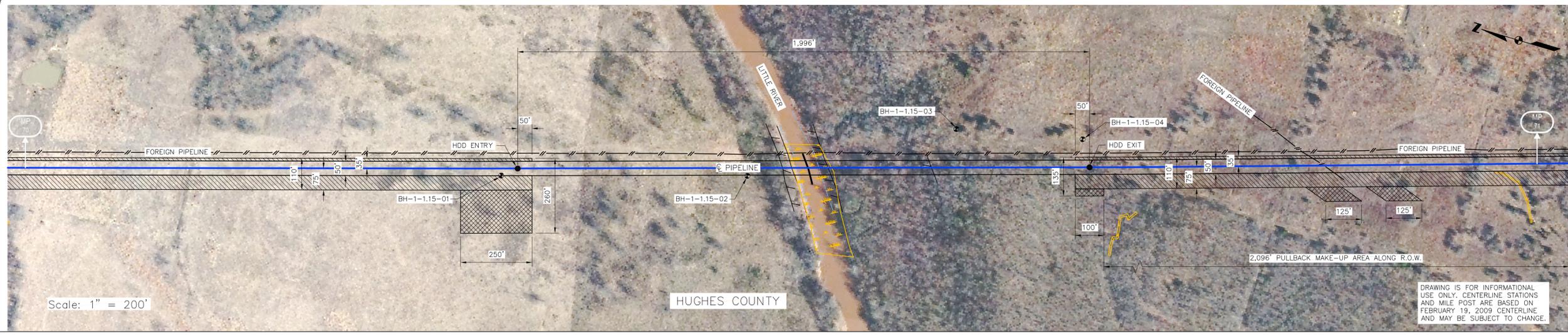
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REVISION			APPROVAL						
REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (2.19.09 CL)	11042	UEI	UEI	BM	JW	JH	UEI
1	03.19.09	ISSUED FOR TROW REVIEW	11042	UEI	UEI	DW	JW	JH	UEI
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)	11042	UEI	UEI	RB	JW	JH	UEI

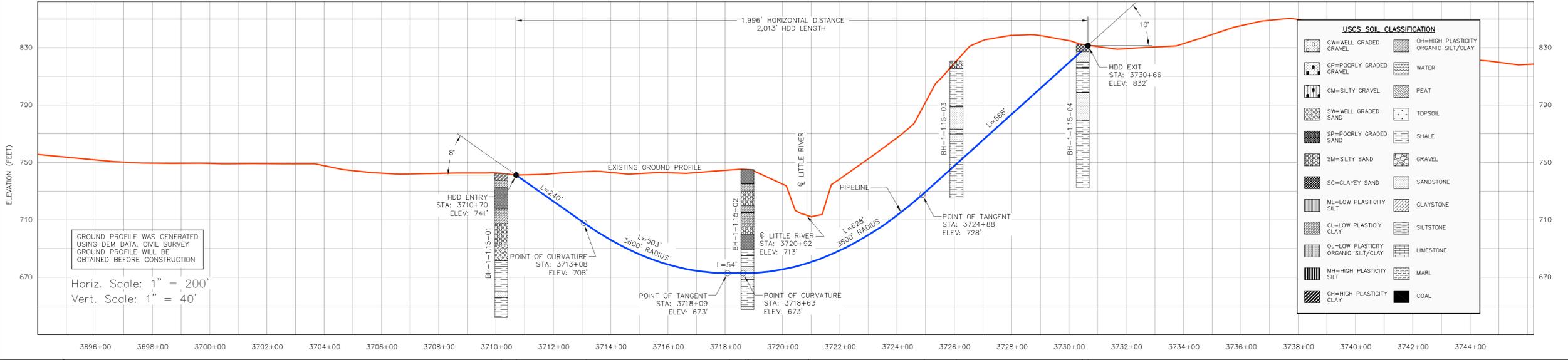
PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL

PRELIMINARY

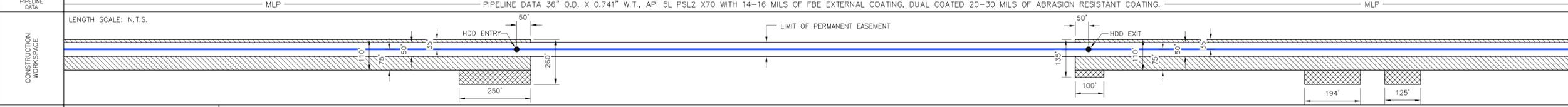
FIA # 1866	CHAINAGE: M.P. 38.7	DISCIPLINE # 03
NORTH CANADIAN RIVER HDD INSTALLATION KEYSTONE XL PROJECT OKFUSKEE & SEMINOLE COUNTY, OKLAHOMA		
SCALE AS SHOWN	DRAWING No 1866-03-ML-03-002	REV 2



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CROSSING INFORMATION (ESTIMATED SPANNING)	
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 CONSTRAINTS	
MILEPOST	
MONITORING	
RECLAMATION	
SPECIAL CONSIDERATIONS	

LEGEND

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

REFERENCE DRAWINGS

DRAWING No	TITLE
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TC_UD_BR_UEI	TC_UD_BR_UEI.dwg
NOTES-LEGEND	NOTES-LEGEND.dwg

REVISION

REV No	DATE	DESCRIPTION
2	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (2.19.09 CL)
1	03.19.09	ISSUED FOR TROW REVIEW
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)

APPROVAL

PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
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PROFESSIONAL ENGINEER/RPT

PERMIT/ ENG. APPROVAL

PRELIMINARY

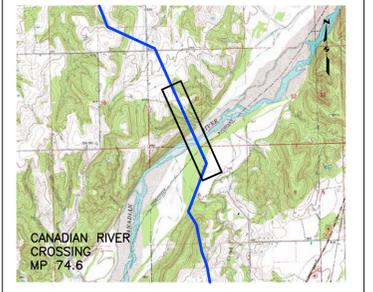
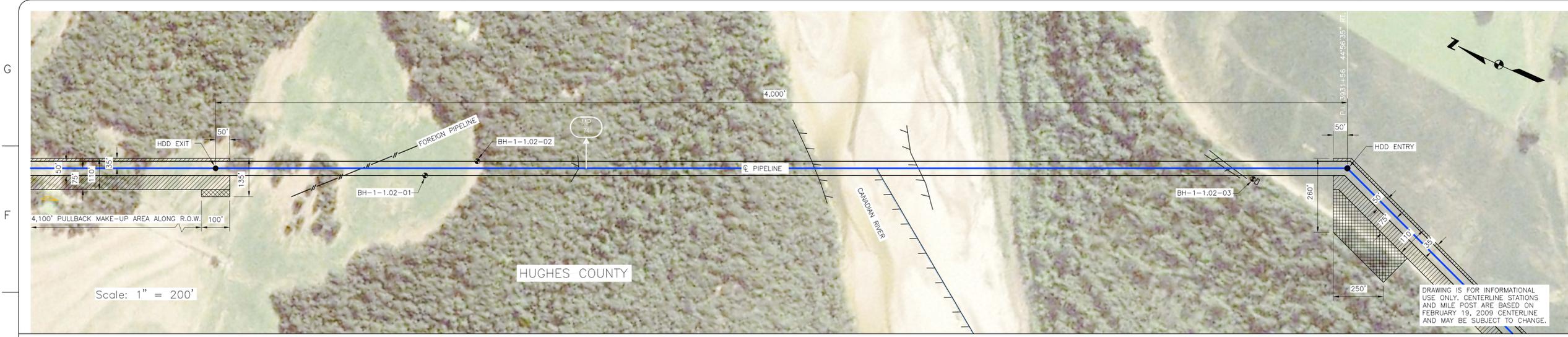
REV. NO.	DATE	PERMIT NUMBER:
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UNIVERSAL ENSCO, INC. **ConocoPhillips** **TransCanada**

FIA # 4378 CHAINAGE: M.P. 70.5 DISCIPLINE # 03

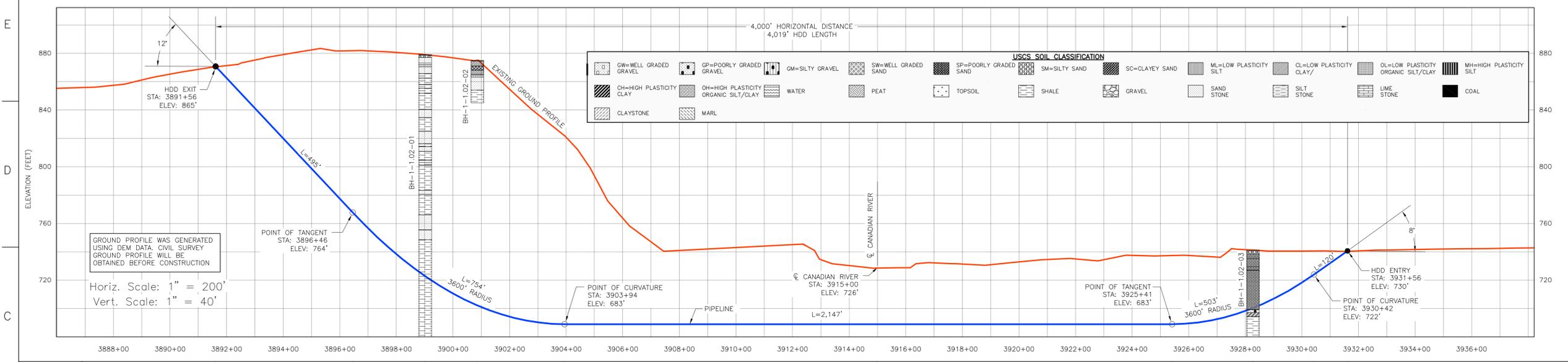
LITTLE RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
HUGHES COUNTY, OKLAHOMA

SCALE AS SHOWN DRAWING No 4378-03-ML-03-001 REV 2



INSTALLATION NOTES

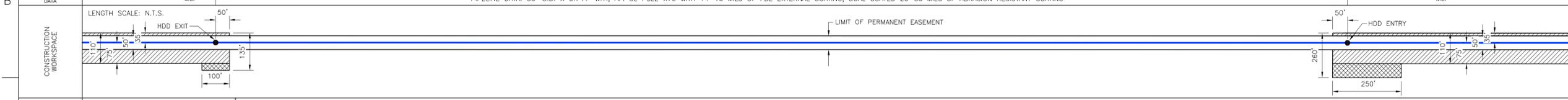
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- 11) MUD DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING MUD AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING MUD WHICH INCONVENIENTLY 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 CONDITIONS. DISTURBED AREAS SHALL BE SEEDING 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.



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 PLASTICITY 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	SAND STONE	SILT STONE	LIME STONE	COAL
CLAYSTONE	MARL									

CROSSING INFORMATION (ESTIMATED SHOWN)	3891+56 HDD EXIT	3896+46 PT OF TANGENT	3899+02 BH-1-1.02-01	3900+86 BH-1-1.02-02	3903+94 PT OF CURVATURE	3915+00 CANADIAN RIVER	3925+41 PT OF TANGENT	3928+27 BH-1-1.02-03	3930+42 PT OF CURVATURE	3931+56 HDD ENTRY P.I. 44+56.35' 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 CONSTRAINTS	
	MILEPOST	
	MONITORING	
RECLAMATION		
SPECIAL CONSIDERATIONS		

LEGEND

- POINT OF INTERSECTION (P.I.)
- ENTRY OR EXIT POINT
- GEOTECHNICAL BOREHOLE
- POWERPOLE
- 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

TO BE DETERMINED

REFERENCE DRAWINGS

DRAWING No	TITLE
11042 HDD_XREF_14	11042 HDD_XREF_14.dwg
TC_UD_BR_UFI	TC_UD_BR_UFI.dwg
NOTES-LEGEND	NOTES-LEGEND.dwg

REVISION

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 (2.19.09 CL)	11042	UEI	UEI	BM	JW	JH	UEI
1	03.19.09	ISSUED FOR TROW REVIEW	11042	UEI	UEI	DW	JW	JH	UEI
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)	11042	UEI	UEI	RB	JW	JH	UEI

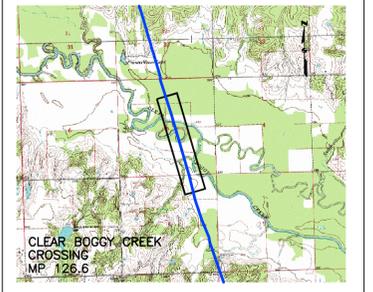
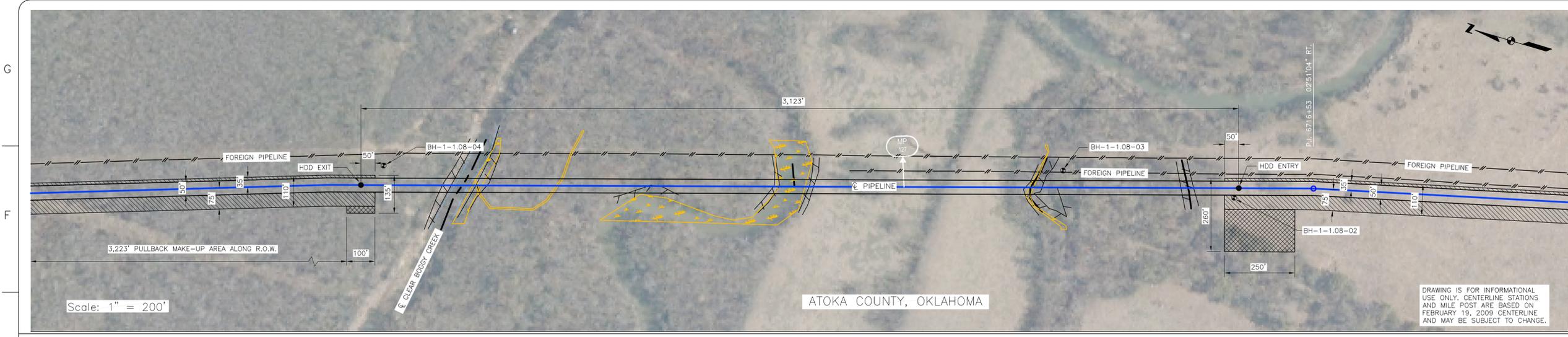
APPROVAL

PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL
	DATE
PRELIMINARY	
REV. NO.	DATE
	PERMIT NUMBER:

FIA # 4378 CHAINAGE: M.P. 74.6 DISCIPLINE # 03

CANADIAN RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
HUGHES COUNTY, OKLAHOMA

SCALE AS SHOWN DRAWING No 4378-03-ML-03-002 REV 2



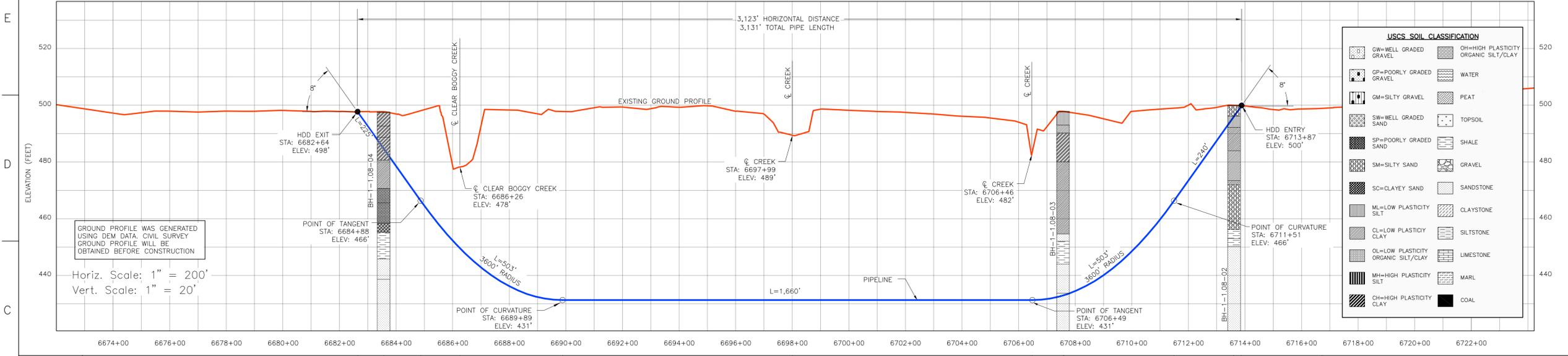
INSTALLATION NOTES

- ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.
- VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.
- 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).
- 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 ENTRANCE 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.
- 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.
- 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.
- 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.
- TOPSOIL SHALL BE STRIPPED AS REQUIRED BY PROJECT SPECIFICATIONS.
- PRIOR TO PIPE PULLBACK, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO KEYSTONE FOR APPROVAL.
- 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.
- 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.
- CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE RETURNED TO THE ORIGINAL CONTOURS. DISTURBED AREAS SHALL BE SEEDDED AS SPECIFIED IN PROJECT DOCUMENTS.
- 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.

Scale: 1" = 200'

ATOKA COUNTY, OKLAHOMA

DRAWING IS FOR INFORMATIONAL USE ONLY. CENTERLINE STATIONS AND MILE POST ARE BASED ON FEBRUARY 19, 2009 CENTERLINE AND MAY BE SUBJECT TO CHANGE.



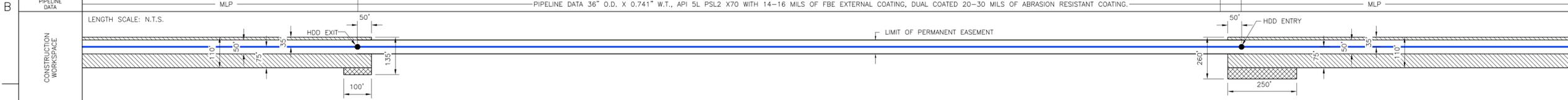
USCS SOIL CLASSIFICATION

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GM= SILTY GRAVEL	PE= PEAT
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SP= POORLY GRADED SAND	SH= SHALE
SM= SILTY SAND	GR= GRAVEL
SC= CLAYEY SAND	ST= SANDSTONE
ML= LOW PLASTICITY SILT	CS= CLAYSTONE
CL= LOW PLASTICITY CLAY	SL= SILTSTONE
OL= LOW PLASTICITY ORGANIC SILT/CLAY	LM= LIMESTONE
MH= HIGH PLASTICITY SILT	MR= MARL
CH= HIGH PLASTICITY CLAY	CO= COAL

Horiz. Scale: 1" = 200'
Vert. Scale: 1" = 20'

GROUND PROFILE WAS GENERATED USING DEM DATA. CIVIL SURVEY GROUND PROFILE WILL BE OBTAINED BEFORE CONSTRUCTION

CROSSING INFORMATION (ESTIMATED SHOWN)	6682+64 HDD EXIT	6683+56 BH-1-1.08-04	6684+88 PT OF TANGENT	6686+26 C. CLEAR BOGGY CREEK	6689+89 PT OF CURVATURE	6697+99 C. CREEK	6706+46 C. CREEK	6706+49 PT OF TANGENT	6707+57 BH-1-1.08-03	6711+51 PT OF CURVATURE	6713+87 HDD ENTRY	6716+53 P.I. 0.251'04" RT.
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ENVIRONMENTAL MITIGATION/RECLAMATION	TOPSOIL SALVAGE METHOD	
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	WETLANDS	
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	MONITORING	
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- ⊙ POWERPOLE
- MLP MAINLINE PIPE
- PIPELINE
- FOREIGN PIPELINE
- EDGE OF WATER
- PRIVATE ACCESS SHOULDER ROAD
- COUNTY BOUNDARY
- WATER LEVEL
- ▽ USACOE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

TO BE DETERMINED

REFERENCE DRAWINGS

DRAWING No	TITLE
11042 HDD_XREF_14	11042 HDD_XREF_14.dwg
TC_UD_BR_UIE	TC_UD_BR_UIE.dwg
NOTES-LEGEND	NOTES-LEGEND.dwg

REVISION

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
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0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)	11042	UEI	UEI	RB	JW	JH	UEI

APPROVAL

PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL

UNIVERSAL ENSCO, INC. **ConocoPhillips** **TransCanada**

FIA # 4379 CHAINAGE: M.P.126.6 DISCIPLINE # 03

CLEAR BOGGY CREEK HDD INSTALLATION
KEYSTONE XL PROJECT
ATOKA COUNTY, OKLAHOMA

SCALE AS SHOWN DRAWING No 4379-03-ML-03-001 REV 2

PRELIMINARY