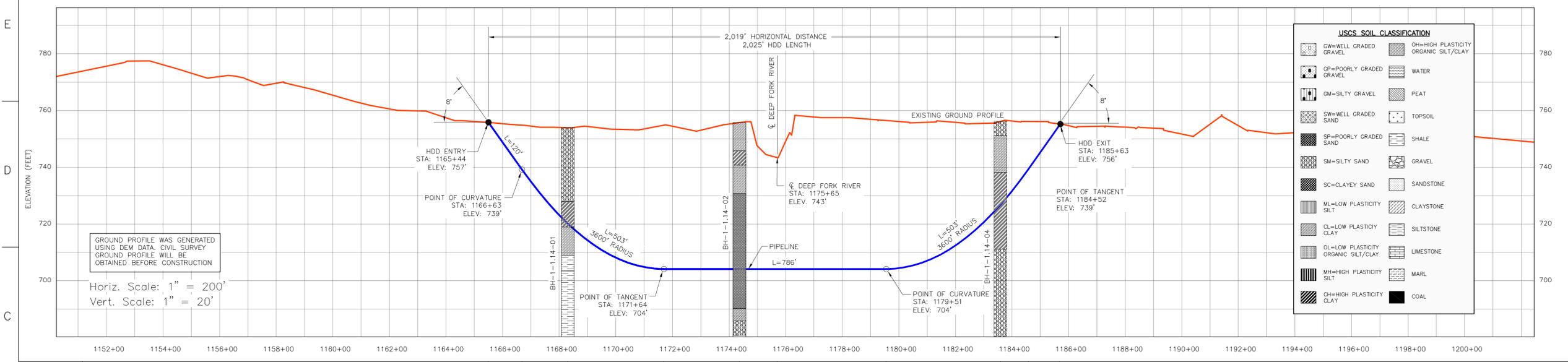
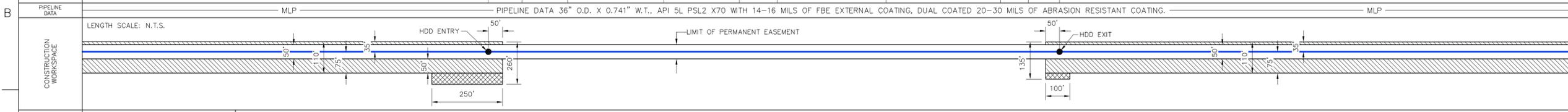


INSTALLATION NOTES

- 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 ENTRAPMENT 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.
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- 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.



CROSSING INFORMATION (ESTIMATED SHOWN)	PIPELINE DATA
1165+44 HDD ENTRY	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.
1166+63 PT OF CURVATURE	
1168+30 BH-1-1.14-01	
1171+64 PT OF TANGENT	
1174+37 BH-1-1.14-02	
1175+65 DEEP FORK RIVER	
1179+51 PT OF CURVATURE	
1183+60 BH-1-1.14-04	
1184+52 PT OF TANGENT	
1185+63 HDD EXIT	



ENVIRONMENTAL MITIGATION/RECLAMATION	TO BE DETERMINED
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
- PERMANENT EASEMENT
- 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	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

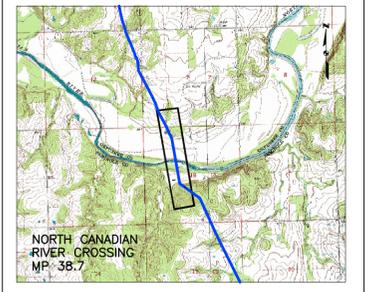
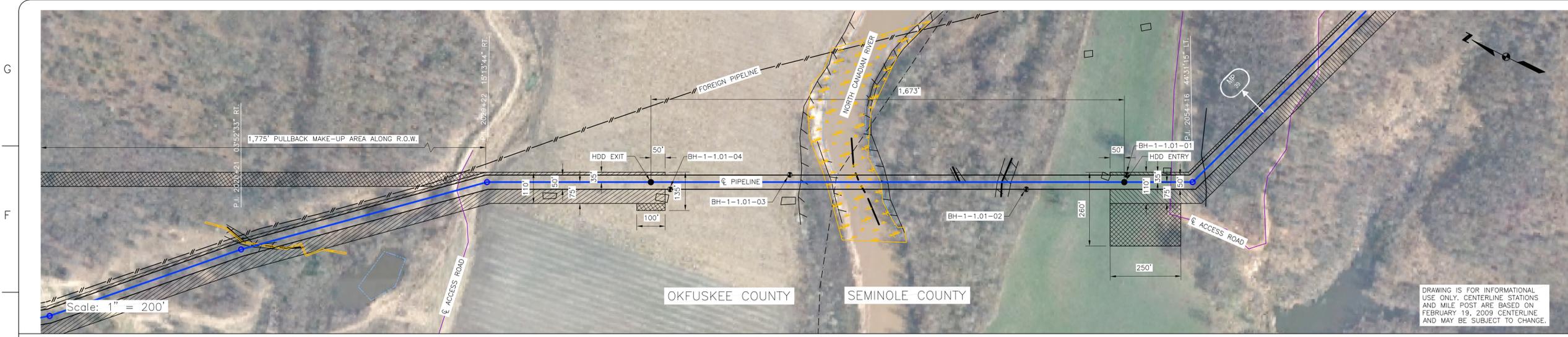
UNIVERSAL ENSCO, INC. **ConocoPhillips** **TransCanada**
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FIA # 1866 CHAINAGE: M.P. 22.3 DISCIPLINE # 03

DEEP FORK HDD INSTALLATION
KEYSTONE XL PROJECT
CREEK COUNTY, OKLAHOMA

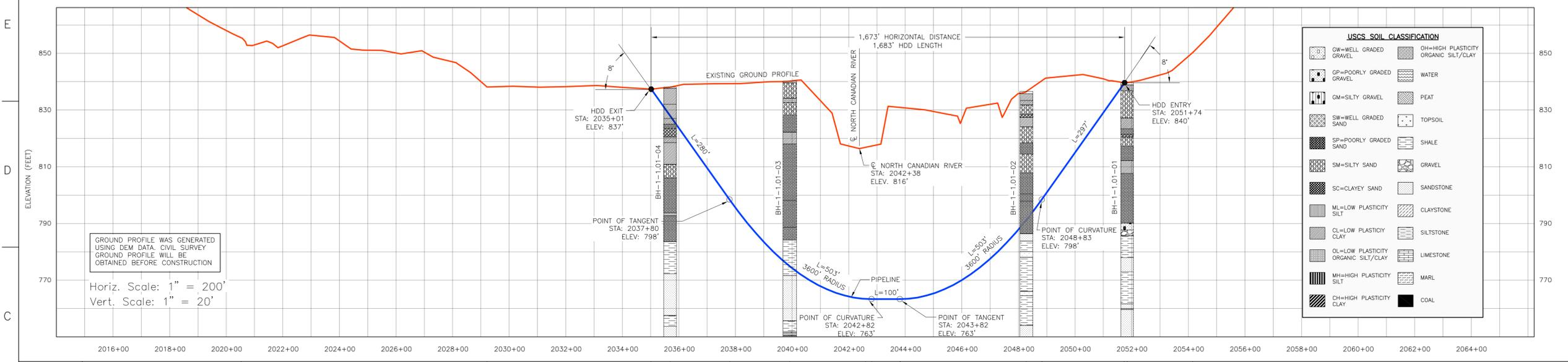
SCALE AS SHOWN DRAWING No 1866-03-ML-03-001 REV 2

PRELIMINARY



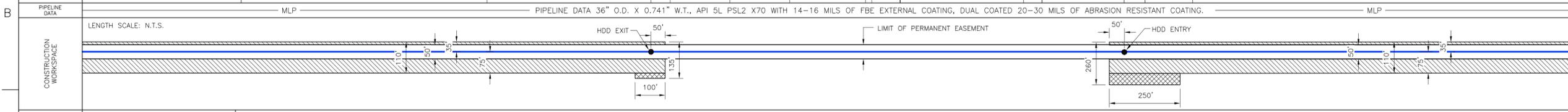
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GROUND PROFILE WAS GENERATED USING DEM DATA. CIVIL SURVEY GROUND PROFILE WILL BE OBTAINED BEFORE CONSTRUCTION.
 Horiz. Scale: 1" = 200'
 Vert. Scale: 1" = 20'

CROSSING INFORMATION (ESTIMATED SPANNING)	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

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- ⊙ POWERPOLE
- MLP
- MAINLINE PIPE
- PIPELINE
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- EDGE OF WATER
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- COUNTY BOUNDARY
- WATER LEVEL
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- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

REFERENCE DRAWINGS

DRAWING No	TITLE
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TC_UD_BR_UI	TC_UD_BR_UI.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

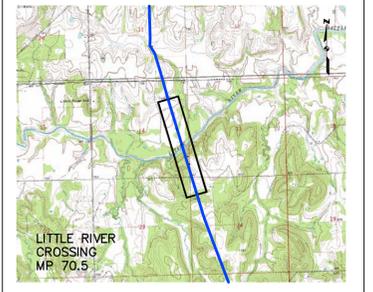
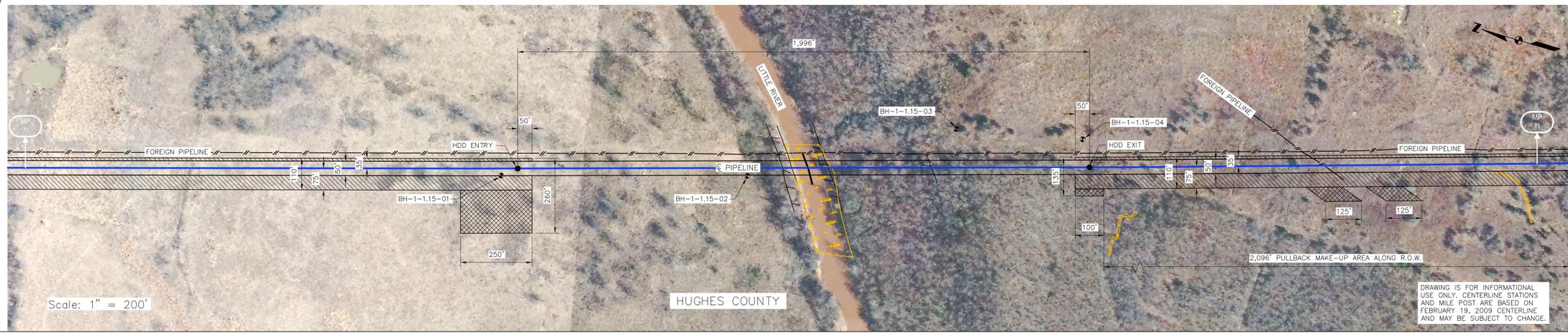
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FIA # 1866 CHAINAGE: M.P. 38.7 DISCIPLINE # 03

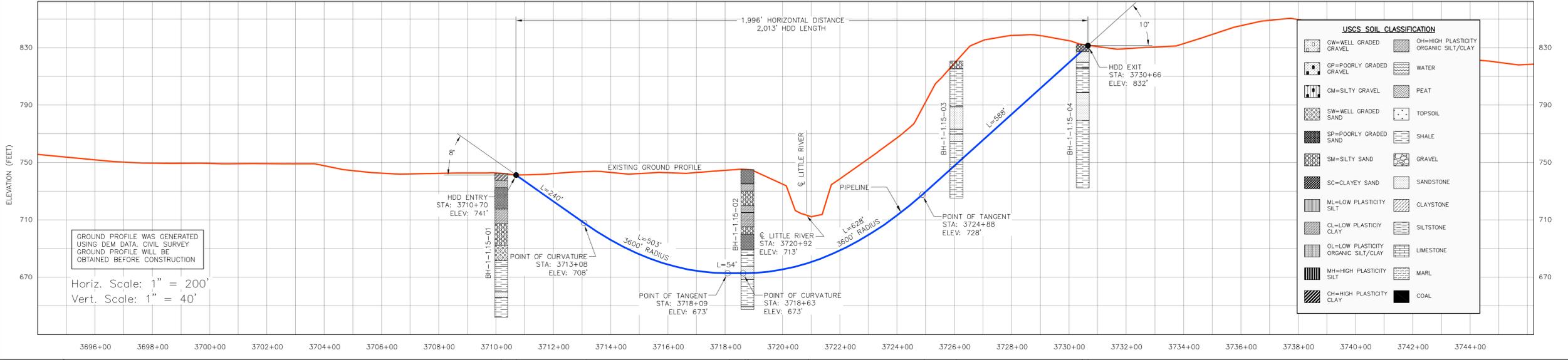
NORTH CANADIAN RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
OKFUSKEE & SEMINOLE COUNTY, OKLAHOMA

SCALE AS SHOWN DRAWING No 1866-03-ML-03-002 REV 2

PRELIMINARY



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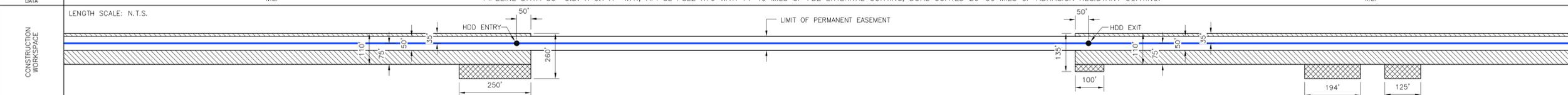


USCS SOIL CLASSIFICATION

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

CROSSING INFORMATION (ESTIMATED DIMENSIONS)

3704+44	BH-1-1.15-01	HDD ENTRY
3713+08	PT OF CURVATURE	
3718+09	PT OF TANGENT	
3718+63	PT OF CURVATURE	
3718+78	BH-1-1.15-02	
3720+92	Q LITTLE RIVER	
3724+88	PT OF TANGENT	
3726+07	BH-1-1.15-03	
3730+48	BH-1-1.15-04	
3730+66	HDD EXIT	



ENVIRONMENTAL MITIGATION/RECLAMATION

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

TO BE DETERMINED

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

REVISION

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APPROVAL

PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL

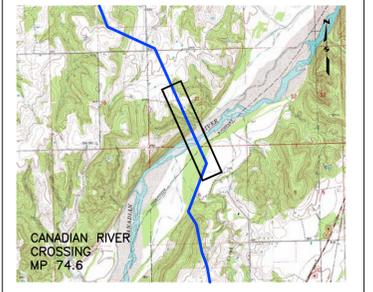
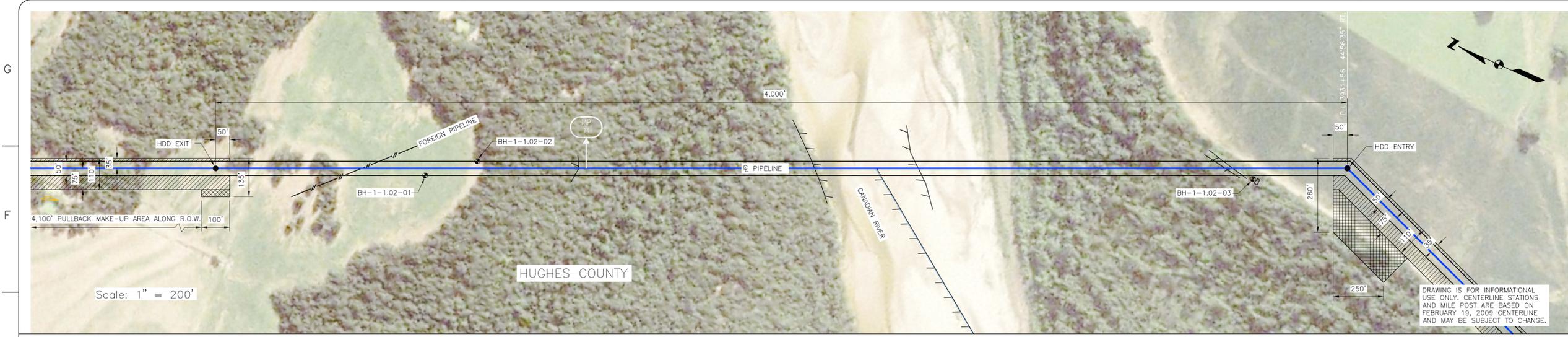
UNIVERSAL ENSCO, INC. **ConocoPhillips** **TransCanada**

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

LITTLE RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
HUGHES COUNTY, OKLAHOMA

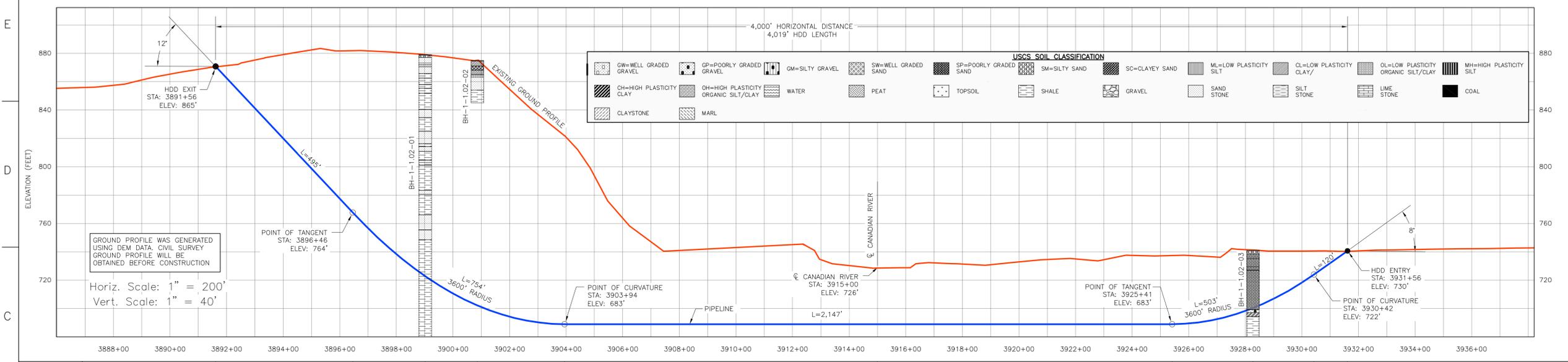
SCALE AS SHOWN DRAWING No 4378-03-ML-03-001 REV 2

PRELIMINARY

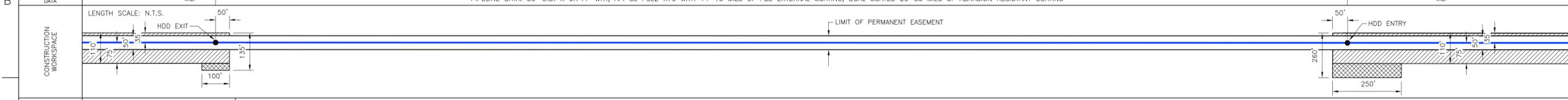


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- 4) WATER SOURCE: DRILL WATER AND PRE-INSTALLATION HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE. THE CONTRACTOR SHALL SCREEN THE INTAKE HOSE TO PREVENT THE ENTRAPMENT OF FISH OR DEBRIS AND IN ACCORDANCE WITH THE CONSTRUCTION MITIGATION 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 COMPENSATION 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 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 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 (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

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	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

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

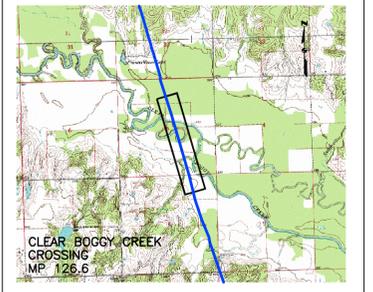
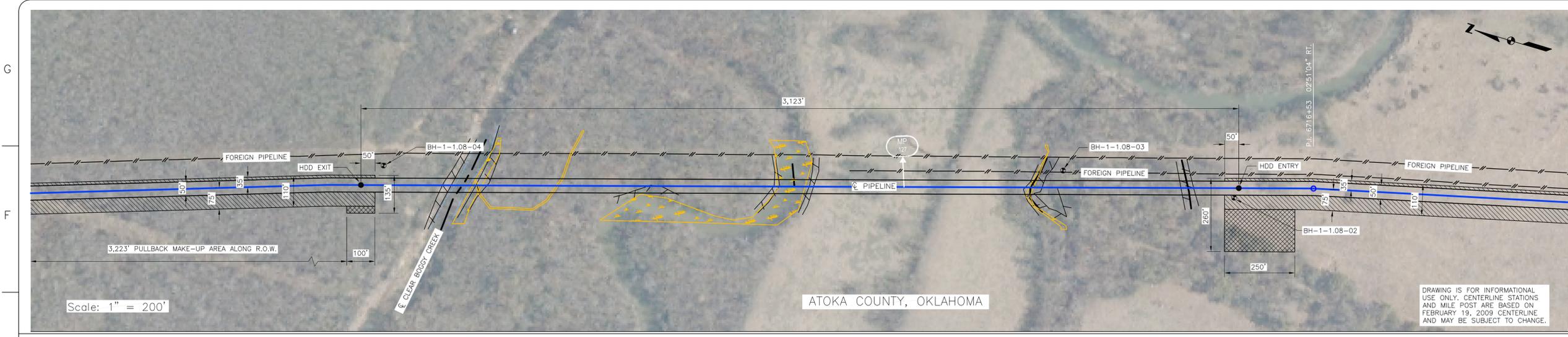
FIA # 4378 CHAINAGE: M.P. 74.6 DISCIPLINE # 03

CANADIAN RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
HUGHES COUNTY, OKLAHOMA

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

TO BE DETERMINED

PRELIMINARY



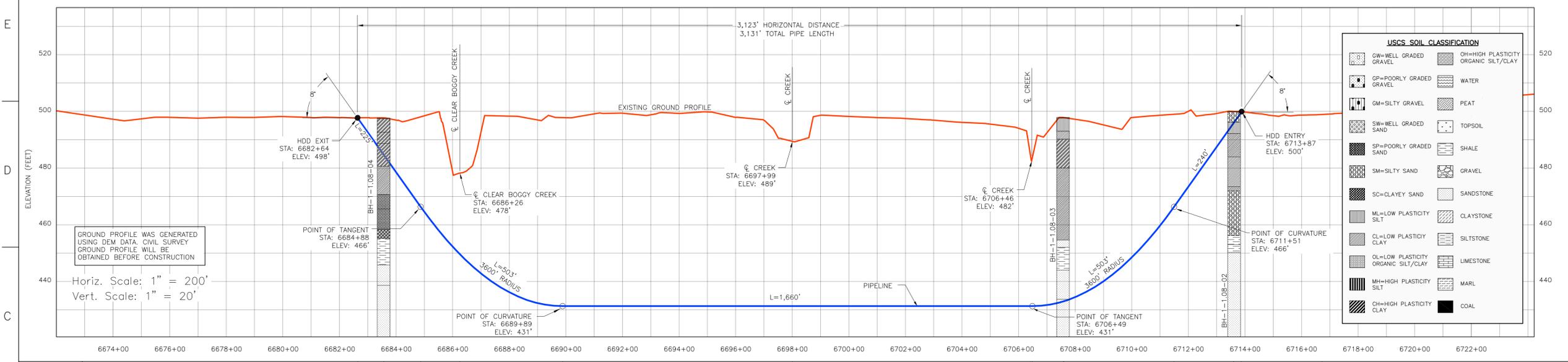
INSTALLATION NOTES

- 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.
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- 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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- 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.
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- 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.



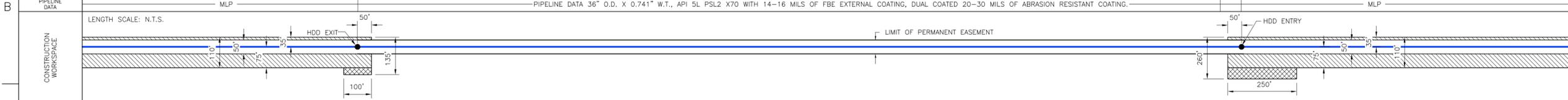
USCS SOIL CLASSIFICATION

GW=Well Graded Gravel	OH=High Plasticity Organic Silt/Clay
GP=Poorly Graded Gravel	W=Water
GM=Silty Gravel	PE=Peat
SW=Well Graded Sand	TS=Topsoil
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	MA=Marl
CH=High Plasticity Clay	CO=Coal

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 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	
	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
- 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

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
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

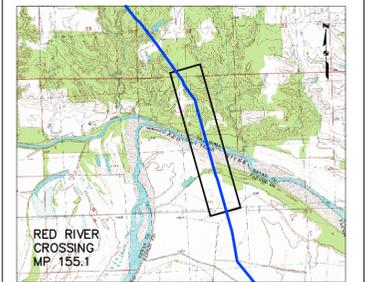
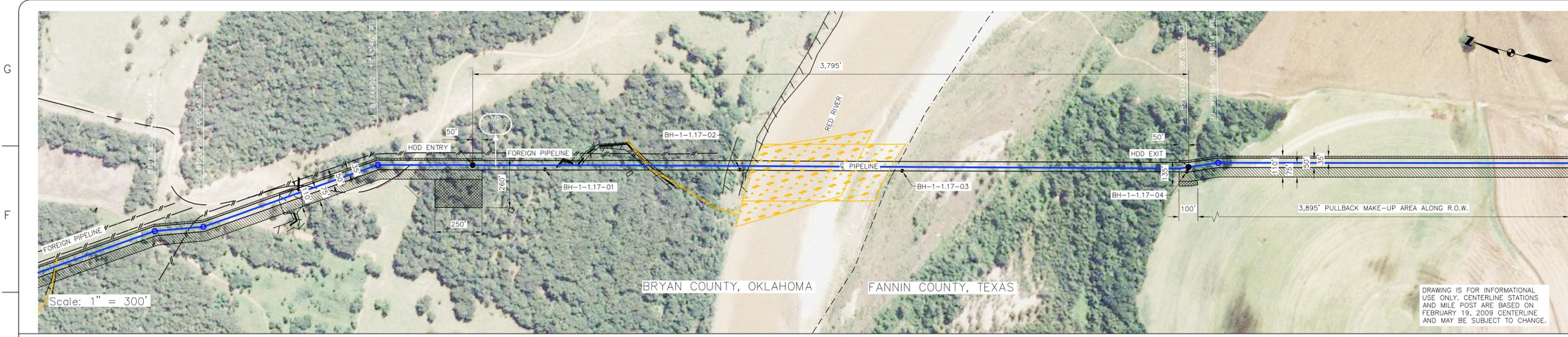
UNIVERSAL ENSCO, INC. **ConocoPhillips** **TransCanada**

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

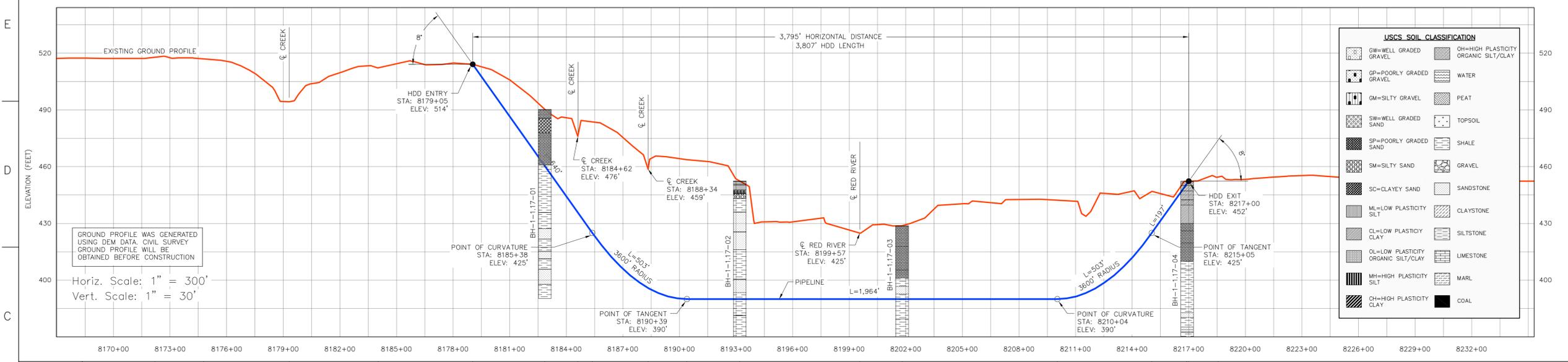
CLEAR BOGGY CREEK HDD INSTALLATION
KEYSTONE XL PROJECT
ATOKA COUNTY, OKLAHOMA

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

PRELIMINARY



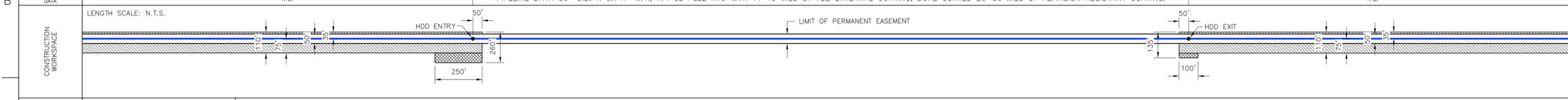
- INSTALLATION NOTES**
- ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.
 - VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.
 - WORK SPACE: WORK SPACE LIMITS ARE DEPICTED. CLEARING 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 ENTRAPMENT 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.
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 - 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 INADEQUATELY 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 SEED 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.



USCS SOIL CLASSIFICATION

GW= WELL GRADED GRAVEL	GH= HIGH PLASTICITY ORGANIC SILT/CLAY
GP= POORLY GRADED GRAVEL	WATER
GM= SILTY GRAVEL	PEAT
GW= 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

CROSSING INFORMATION (ESTIMATED SPACING)	8161+62 P.I. 1422754' RT.	8164+20 P.I. 1422745' LT.	8169+32 & CREEK	8174+02 P.I. 1943746' RT.	8179+05 HDD ENTRY	8182+37 BH-1-1.17-01	8184+62 & CREEK	8188+34 P.T. OF CURVATURE	8190+39 P.T. OF TANGENT	8193+20 BH-1-1.17-02	8199+57 & RED RIVER	8179+89 BH-1-1.17-03	8210+04 P.T. OF CURVATURE	8215+05 P.T. OF TANGENT	8179+97 BH-1-1.17-04	8217+00 HDD EXIT	8218+58 P.I. 063206' LT.	8216+14 P.I. 061614' 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
- MLP
- PIPELINE
- - - FOREIGN PIPELINE
- - - EDGE OF WATER
- - - PRIVATE ACCESS SHOULDER ROAD
- - - COUNTY BOUNDARY
- ▽ WATER LEVEL
- ▽ USACE 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_UI	TC_UD_BR_UI.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

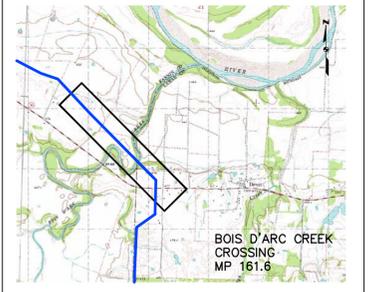
UNIVERSAL ENSCO, INC. **ConocoPhillips** **TransCanada**

FIA # 4380 CHAINAGE: M.P. 155.1 DISCIPLINE # 03

RED RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
BRYAN COUNTY, OK & FANNIN COUNTY, TEXAS

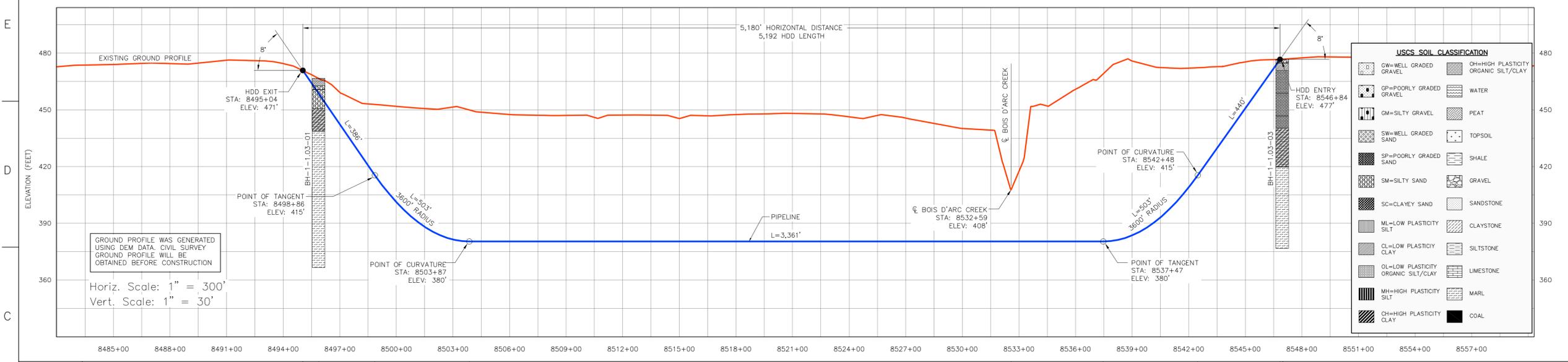
SCALE AS SHOWN DRAWING No 4380-03-ML-03-001 REV 2

PRELIMINARY

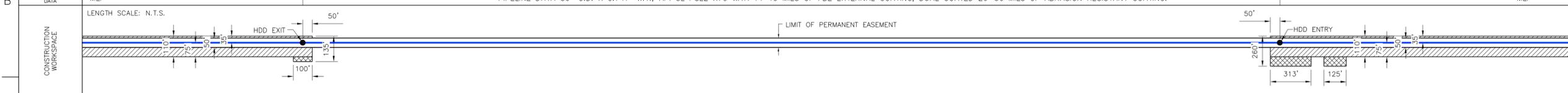


INSTALLATION NOTES

- 1) ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.
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- 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 SEEDDED 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 (ESTIMATED SHOWN)	8495+04 HDD EXIT	8498+86 PT OF TANGENT	8503+87 PT OF CURVATURE	8532+59 BOIS D'ARC CREEK	8537+47 PT OF TANGENT	8542+48 PT OF CURVATURE	8546+84 HDD ENTRY
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
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

TO BE DETERMINED

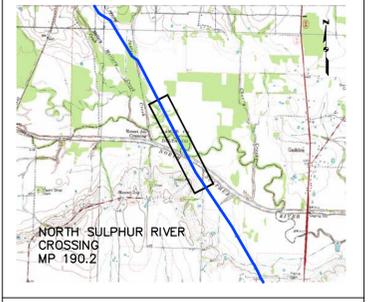
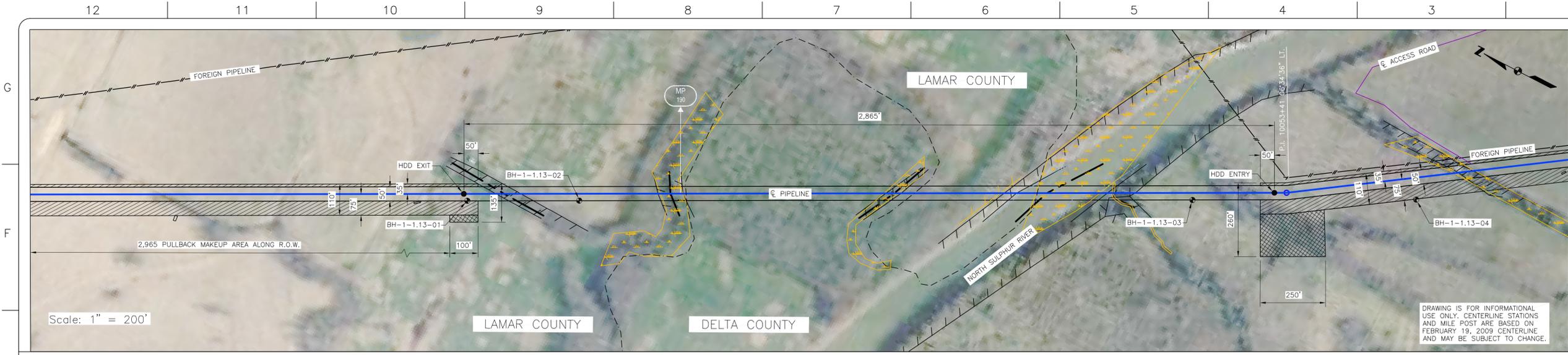
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NOTES-LEGEND	NOTES-LEGEND.dwg

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

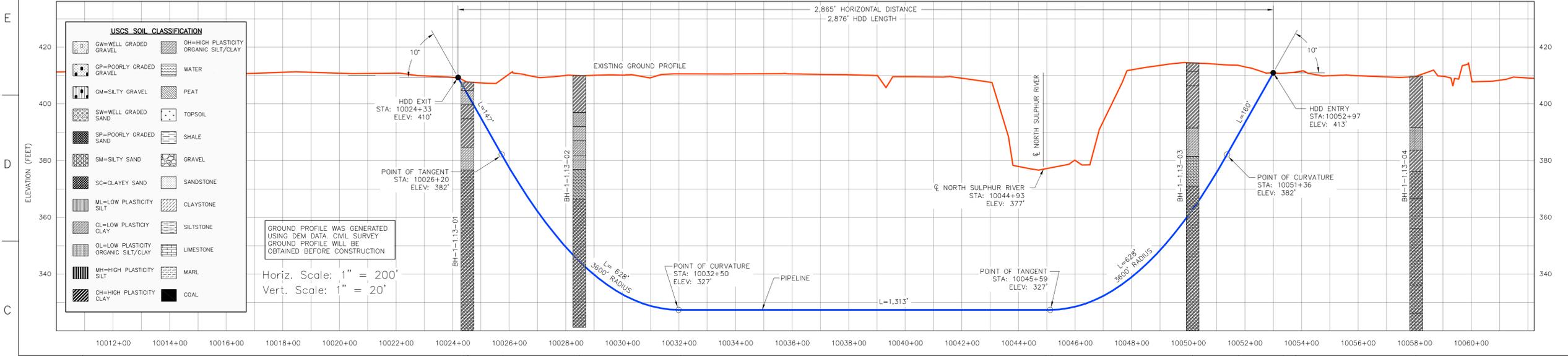
PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL

PRELIMINARY

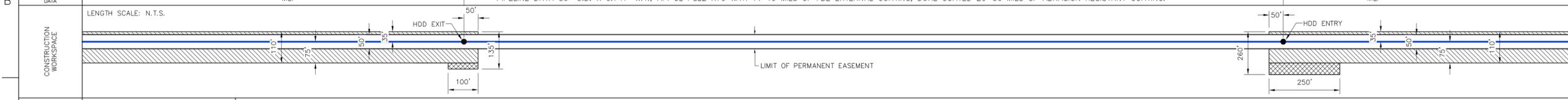
FIA # 4380	CHAINAGE: M.P. 161.6	DISCIPLINE # 03
BOIS D'ARC CREEK HDD INSTALLATION KEYSTONE XL PROJECT FANNIN & LAMAR COUNTY, TEXAS		
SCALE AS SHOWN	DRAWING No 4380-03-ML-03-002	REV 2



- 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).
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CROSSING INFORMATION (ESTIMATED SPACING)	PIPELINE DATA
10024+33 HDD EXIT	MLP
10024+33 HDD EXIT	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.
10024+72 PT OF TANGENT	MLP
10032+50 PT OF CURVATURE	
10044+93 SULPHUR RIVER	
10045+59 PT OF TANGENT	
10050+15 PT OF CURVATURE	
10051+36 PT OF CURVATURE	
10051+97 HDD ENTRY	
10053+41 P.I. 0634'36" LT	
10058+06 HDD ENTRY	MLP



ENVIRONMENTAL MITIGATION/RECLAMATION	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
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- WATER LEVEL
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- TEMPORARY EASEMENT
- EXTRA WORKSPACE

REFERENCE DRAWINGS

DRAWING No	TITLE
11042 HDD XREF_15	11042 HDD XREF_15.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

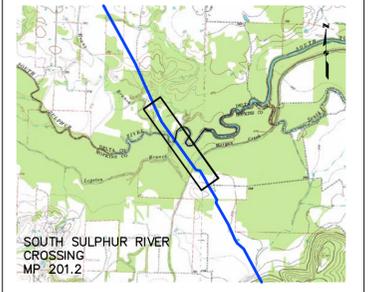
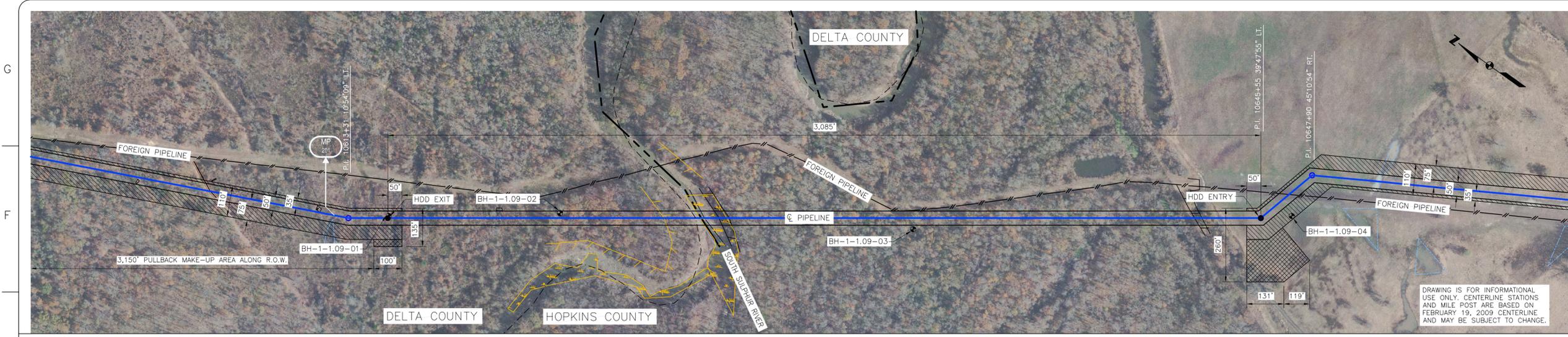
PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL

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

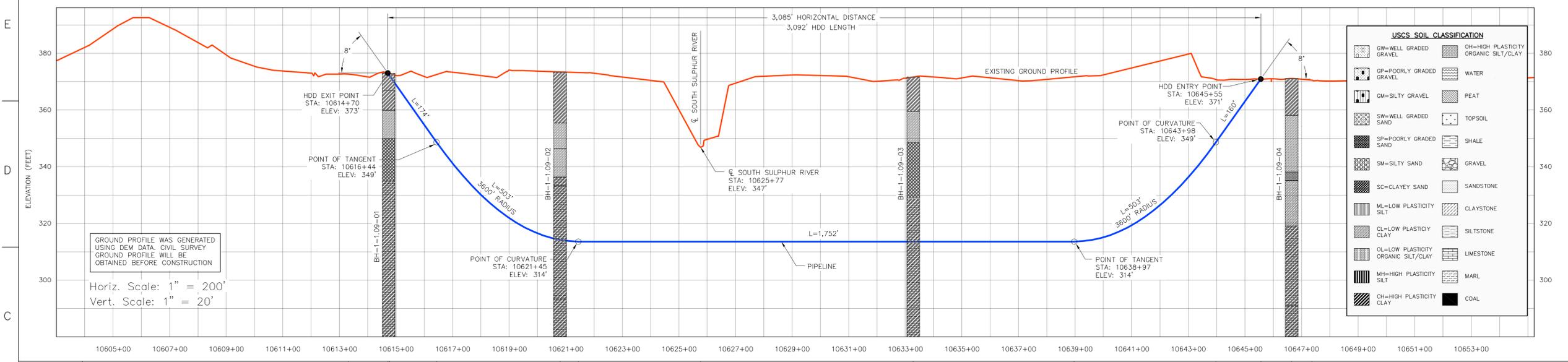
FIA # 4380 CHAINAGE: M.P. 190.2 DISCIPLINE # 03

NORTH SULPHUR RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
LAMAR & DELTA COUNTIES, TEXAS

SCALE AS SHOWN DRAWING No 4380-03-ML-03-004 REV 2



- INSTALLATION NOTES**
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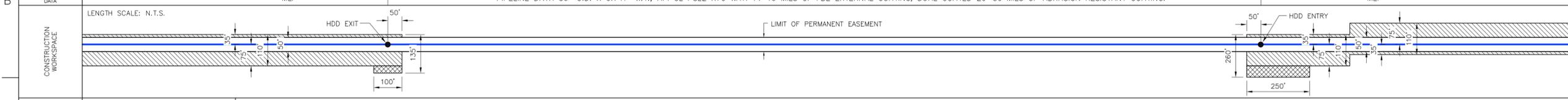
USCS SOIL CLASSIFICATION

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

CROSSING INFORMATION (ESTIMATED DIMENSIONS)

10613+31 P.L. 1054'09" LT.	10614+70 HDD EXIT	10614+74 BH-1-1.09-01	10616+44 PT OF TANGENT	10621+45 PT OF CURVATURE	10625+77 SOUTH SULPHUR RIVER	10633+28 BH-1-1.09-03	10638+97 PT OF TANGENT	10644+98 PT OF CURVATURE	10645+55 HDD ENTRY	10646+55 BH-1-1.09-04	10647+90 P.L. 45'10'54" RT.
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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	
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- LEGEND**
- POINT OF INTERSECTION (P.I.)
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TO BE DETERMINED

REFERENCE DRAWINGS

DRAWING No	TITLE
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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 (2.19.09 CL)	11042	UEI	UEI	BM	JW	JH	UEI
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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
DATE	DATE

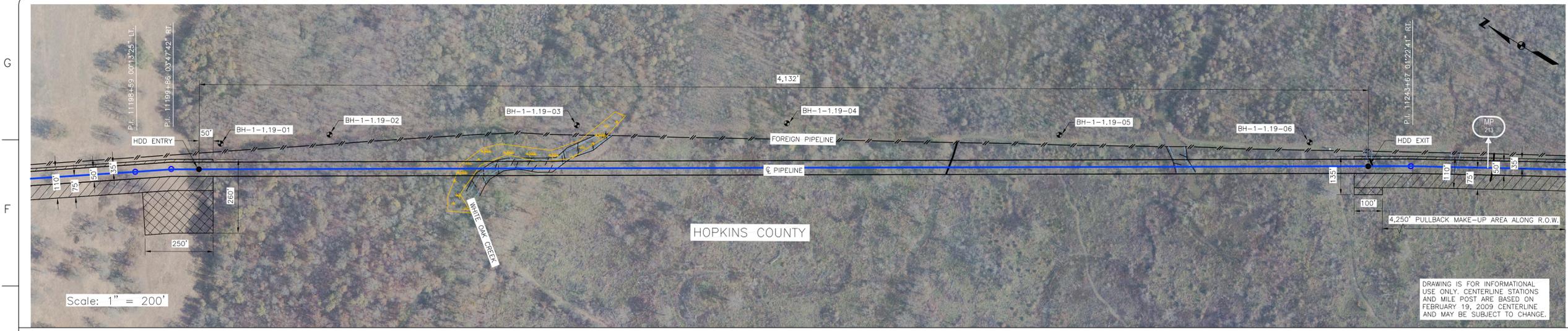
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in business to deliver

FIA # 4382 CHAINAGE: M.P. 201.2 DISCIPLINE # 03

SOUTH SULPHUR RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
DELTA & HOPKINS COUNTY, TEXAS

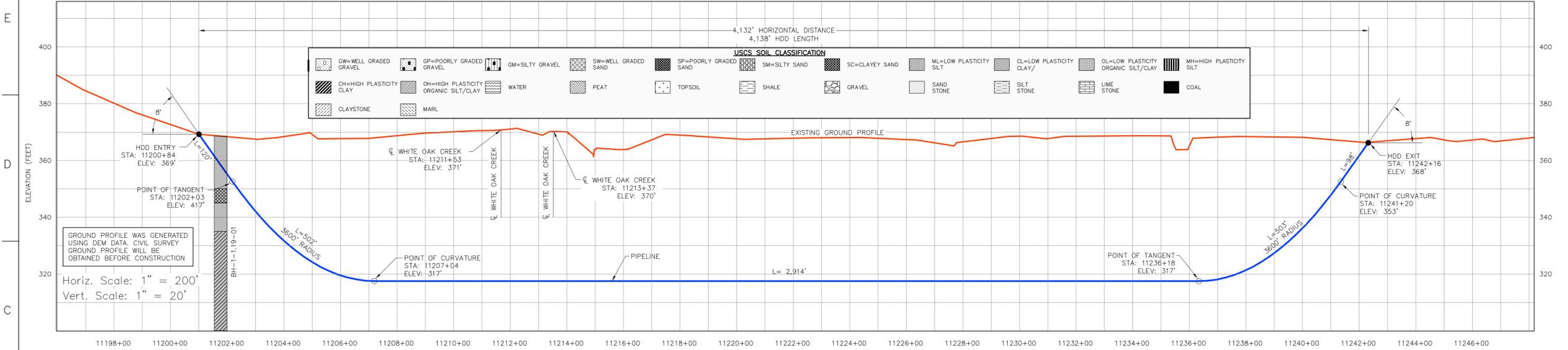
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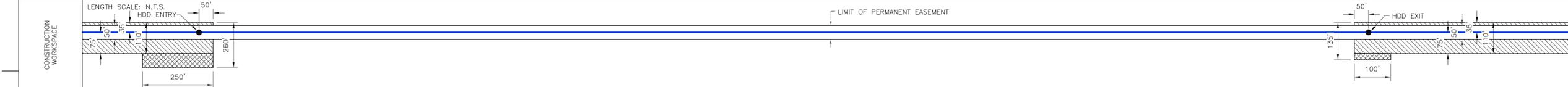


INSTALLATION NOTES

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- 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.
- 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.



CROSSING INFORMATION (ESTIMATED SHOWN)	PIPELINE DATA
11198+59 P.L. 0.071325' LT.	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.
11199+86 P.L. 0.347742' LT.	
11200+84 HDD ENTRY	
11201+77 BH-1-1.19-01	
11202+03 PT OF TANGENCY	
11205+82 BH-1-1.19-02	
11207+04 PT OF CURVATURE	
11211+53 WHITE OAK CREEK	
11213+37 WHITE OAK CREEK	
11214+36 BH-1-1.19-03	
11221+78 BH-1-1.19-04	
11231+40 BH-1-1.19-05	
11236+18 PT OF TANGENCY	
11240+25 BH-1-1.19-06	
11241+20 PT OF CURVATURE	
11242+16 HDD EXIT	



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

LEGEND

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

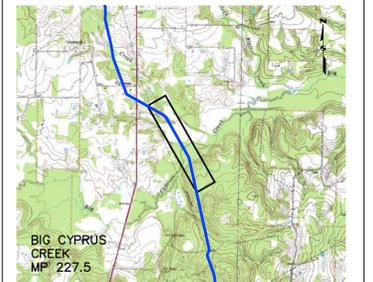
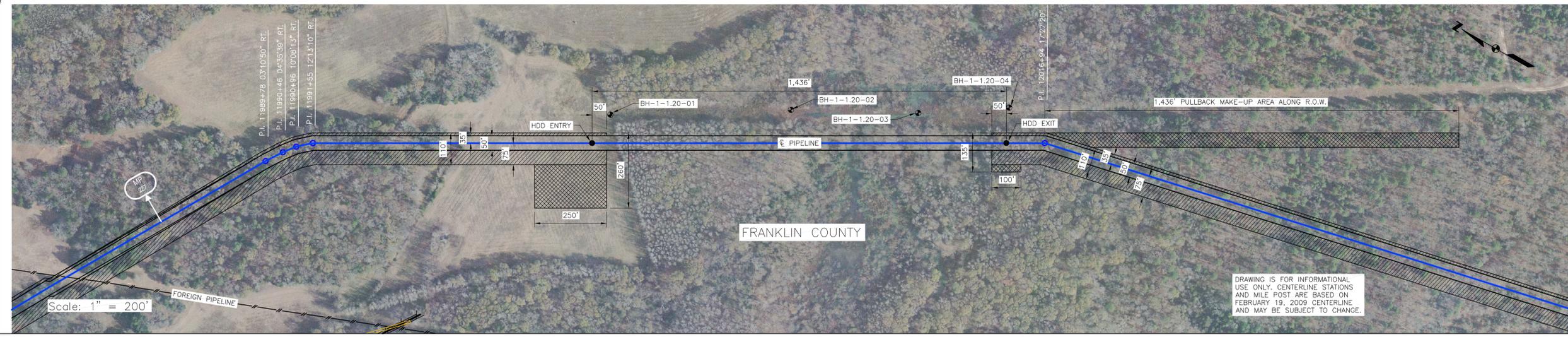
TO BE DETERMINED

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NOTES-LEGEND	NOTES-LEGEND.dwg

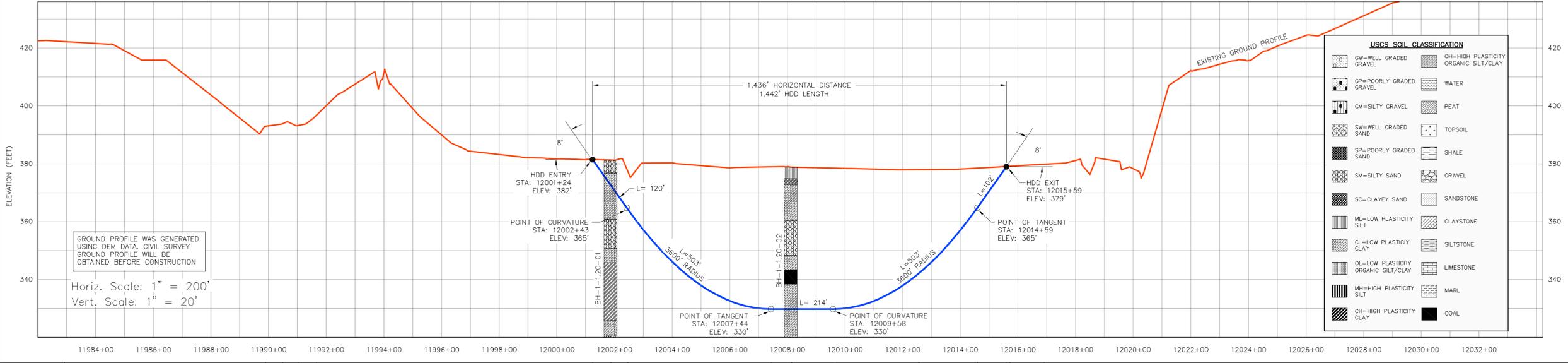
REVISION				APPROVAL						
REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY	
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1	03.19.09	ISSUED FOR TROW REVIEW	11042	UEI	UEI	DW	JW	JH	UEI	
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)	11042	UEI	UEI	RB	JW	JH	UEI	

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

FIA # 4382 CHAINAGE: 212.3 DISCIPLINE # 03
 WHITE OAK CREEK HDD INSTALLATION
 KEYSTONE XL PROJECT
 HOPKINS COUNTY, TEXAS
 SCALE AS SHOWN DRAWING No 4382-03-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 ENTRAPMENT 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.
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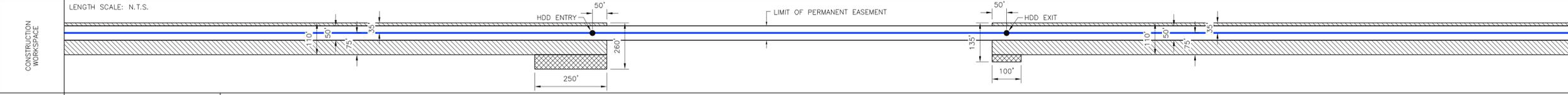


USCS SOIL CLASSIFICATION

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

CROSSING INFORMATION (ESTIMATED SHOWN)

11989+78 P.L. 03101050° RT.	12001+24 HDD ENTRY	12007+44 PT. OF TANGENT	12014+59 PT. OF TANGENT	12015+59 HDD EXIT	12019+94 P.L. 172720° RT.
11990+46 P.L. 043536° RT.	12001+86 BH-1-1.20-01	12009+58 PT. OF CURVATURE	12014+59 HDD EXIT	12015+70 BH-1-1.20-04	
11990+46 P.L. 043536° RT.	12002+43 PT. OF CURVATURE	12014+59 HDD EXIT	12015+70 BH-1-1.20-04		
11991+55 P.L. 100813° RT.					
11991+55 P.L. 121310° RT.					



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
- 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

DRAWING No	TITLE
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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

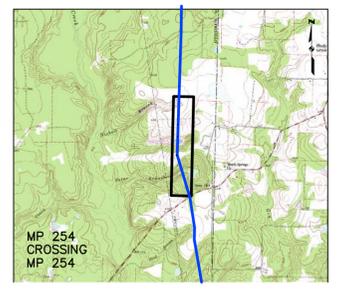
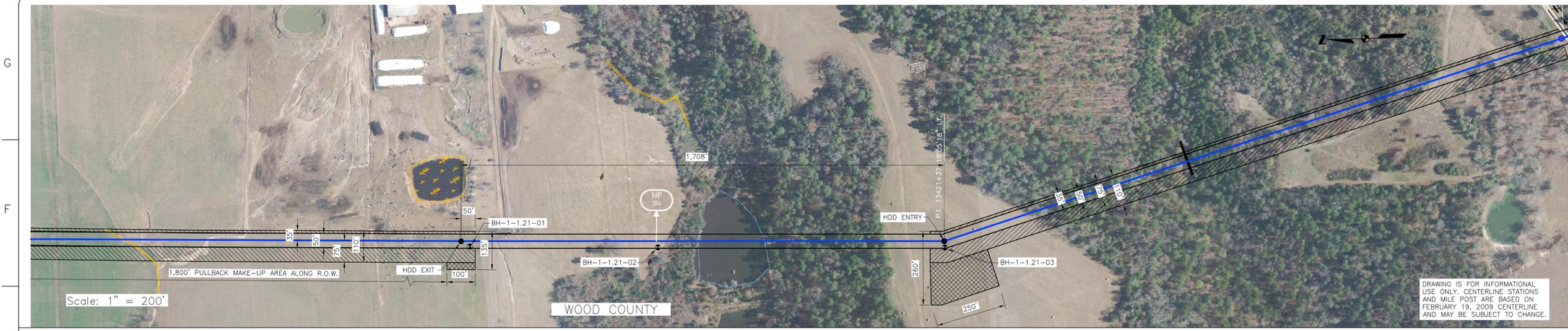
UNIVERSAL ENSCO, INC. **ConocoPhillips** **TransCanada**

FIA # 4382 CHAINAGE: 227.5 DISCIPLINE # 03

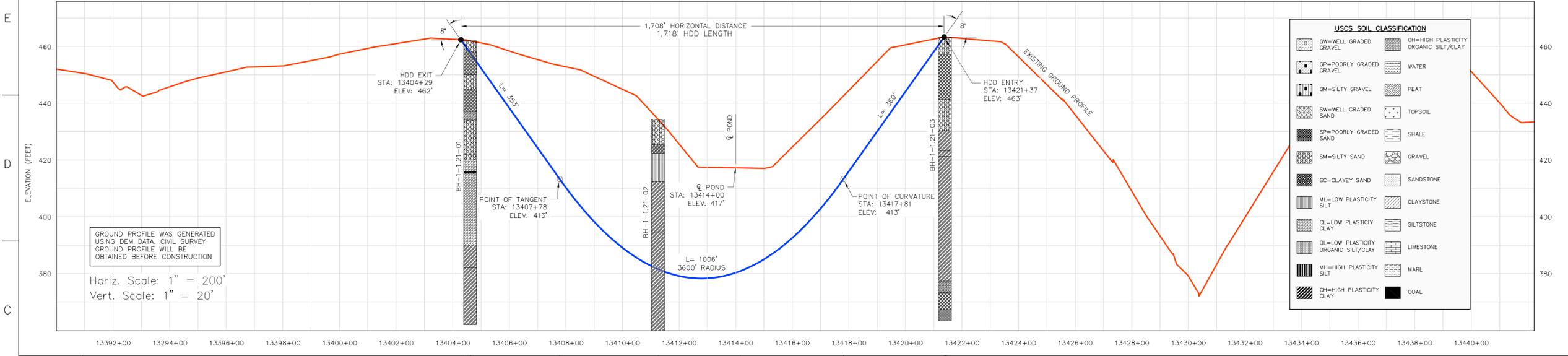
BIG CYPRESS CREEK HDD INSTALLATION
KEYSTONE XL PROJECT
FRANKLIN COUNTY, TEXAS

SCALE AS SHOWN DRAWING No 4382-03-ML-03-003 REV 2

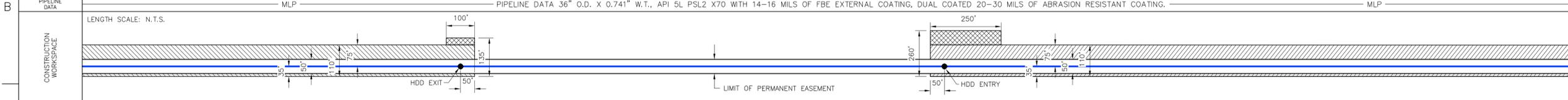
PRELIMINARY



- INSTALLATION NOTES**
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CROSSING INFORMATION (ESTIMATED SHOWN)	13404+29 HDD EXIT	13407+78 PT OF TANGENT	13417+81 PT OF CURVATURE	13421+37 HDD ENTRY
PIPELINE DATA	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.			



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
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- MLP
- MAINLINE PIPE
- PIPELINE
- FOREIGN PIPELINE
- EDGE OF WATER
- PRIVATE ACCESS SHOULDER ROAD
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- ▽ USACOE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
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NOTES-LEGEND	NOTES-LEGEND.dwg

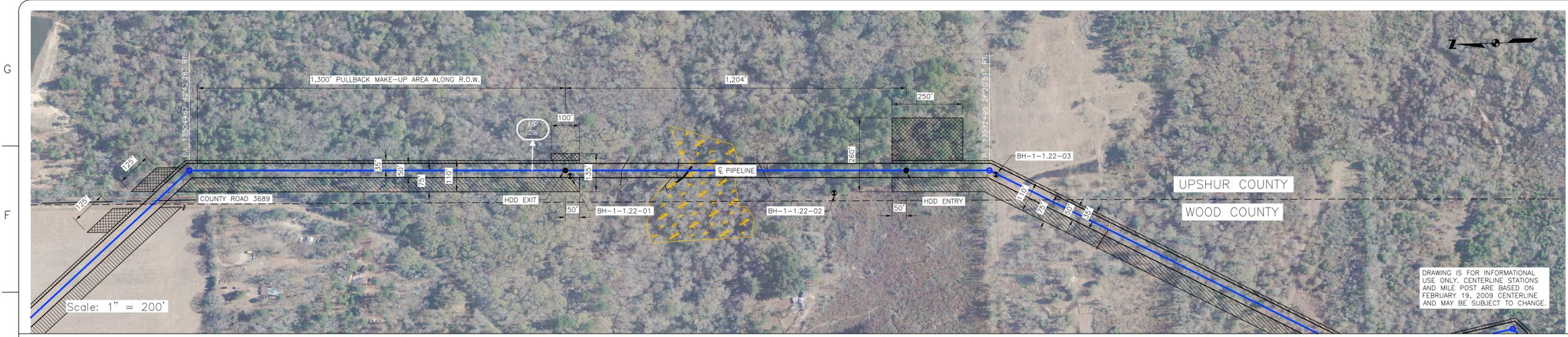
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REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY	
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PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL
	DATE
PRELIMINARY	
REV. NO.	DATE
	PERMIT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

FIA # 4383 CHAINAGE: M.P. 254 DISCIPLINE # 03

MP254 HDD INSTALLATION
KEYSTONE XL PROJECT
WOOD COUNTY, TEXAS

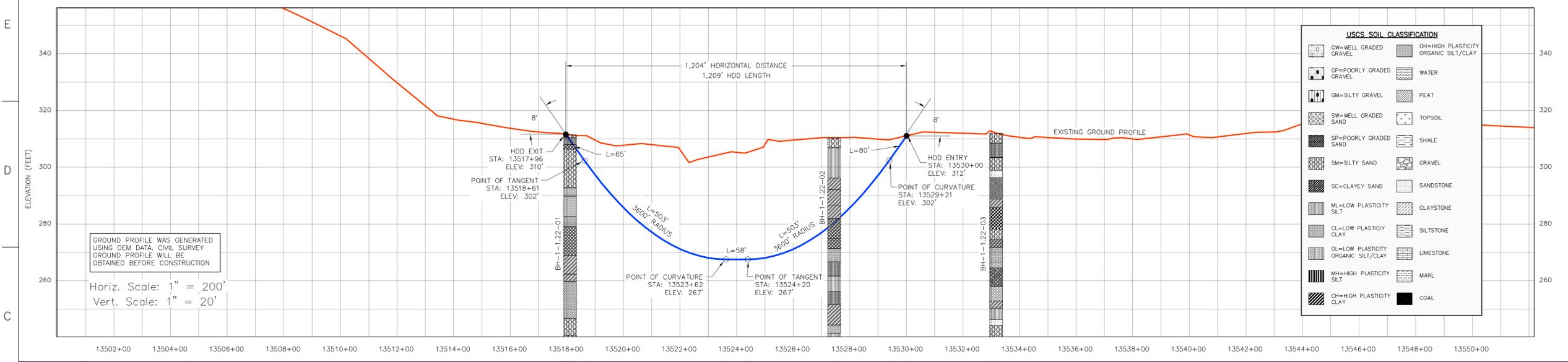
SCALE AS SHOWN DRAWING No 4383-03-ML-03-001 REV 2



INSTALLATION NOTES

- ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.
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DRAWING IS FOR INFORMATIONAL USE ONLY. CENTERLINE STATIONS AND MILE POST ARE BASED ON FEBRUARY 19, 2009 CENTERLINE AND MAY BE SUBJECT TO CHANGE.

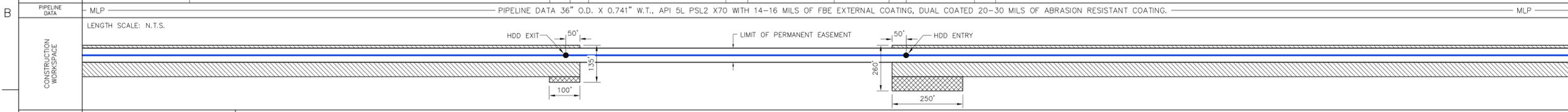


USCS SOIL CLASSIFICATION

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

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 SPANNING)	13504+67 P.L. 42'42"26" 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
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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
- ▽ USAOE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

TO BE DETERMINED

REFERENCE DRAWINGS

DRAWING No	TITLE
11042 HDD XREF_15	11042 HDD XREF_15.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
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	DATE

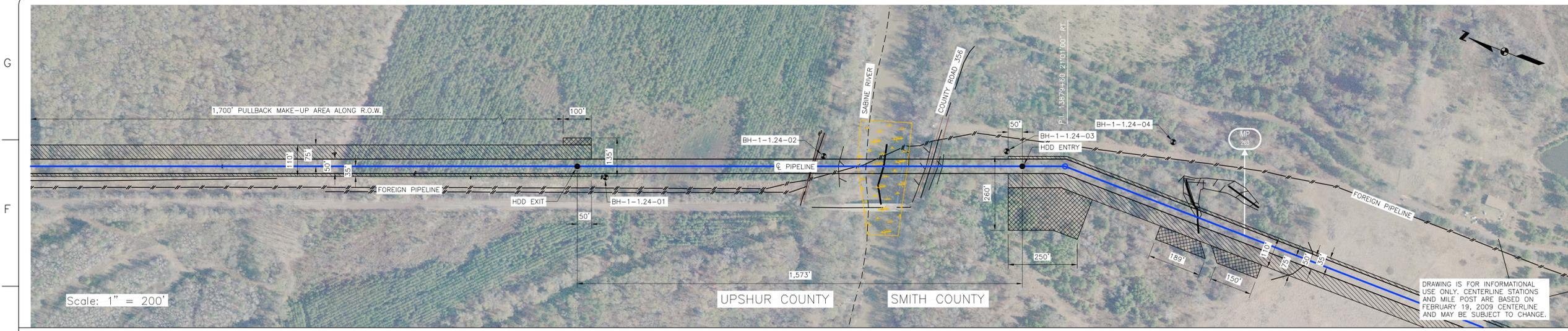
UNIVERSAL ENSCO, INC. **ConocoPhillips** **TransCanada**
in business to deliver

FIA # 4383 CHAINAGE: 256.1 DISCIPLINE # 03

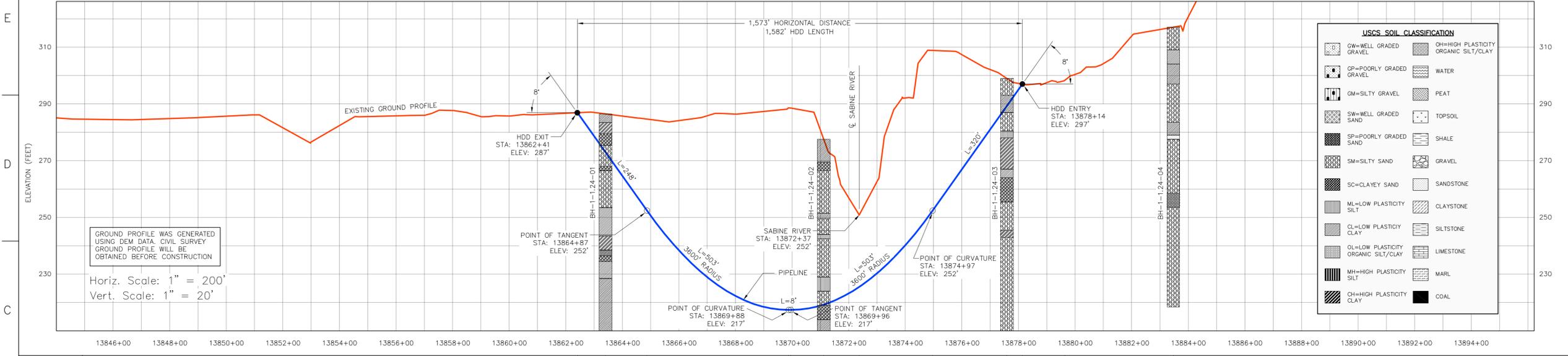
BIG SANDY CREEK HDD INSTALLATION
KEYSTONE XL PROJECT
UPSHUR COUNTY, TEXAS

SCALE AS SHOWN DRAWING No 4383-03-ML-03-002 REV 2

PRELIMINARY



- 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 ENTRAPMENT 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 INADEQUATELY 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 CONTIGUOUS, UNDISTURBED AREAS SHALL BE SEED 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.

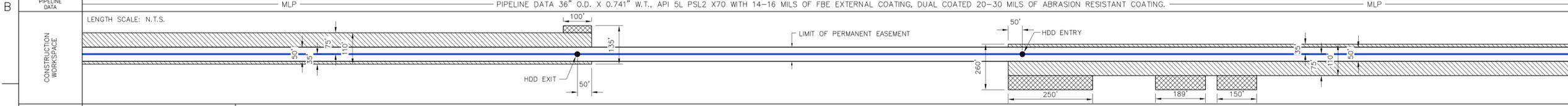


USCS SOIL CLASSIFICATION

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
OL= LOW PLASTICITY ORGANIC SILT/CLAY	SILTSTONE
OL= LOW PLASTICITY ORGANIC SILT/CLAY	LIMESTONE
MH= HIGH PLASTICITY SILT	MARL
OH= HIGH PLASTICITY CLAY	COAL

CROSSING INFORMATION (ESTIMATED DIMENSIONS)

13862+41	HDD EXIT
13863+41	BH-1-1.24-01
13864+87	PT OF TANGENT
13869+88	PT OF CURVATURE
13870+96	PT OF TANGENT
13871+12	BH-1-1.24-02
13872+37	§ SABINE RIVER
13874+97	PT OF CURVATURE
13879+59	BH-1-1.24-03
13879+14	HDD ENTRY
13879+60	P.I. 2101'00" RT.
13883+47	BH-1-1.24-04



ENVIRONMENTAL MITIGATION/RECLAMATION

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

TO BE DETERMINED

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APPROVAL

PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL

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

FIA # 4383 CHAINAGE: M.P. 262.7 DISCIPLINE # 03

SABINE RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
UPSHUR & SMITH COUNTIES, TEXAS

SCALE AS SHOWN DRAWING No 4383-03-ML-03-003 REV 2

PRELIMINARY