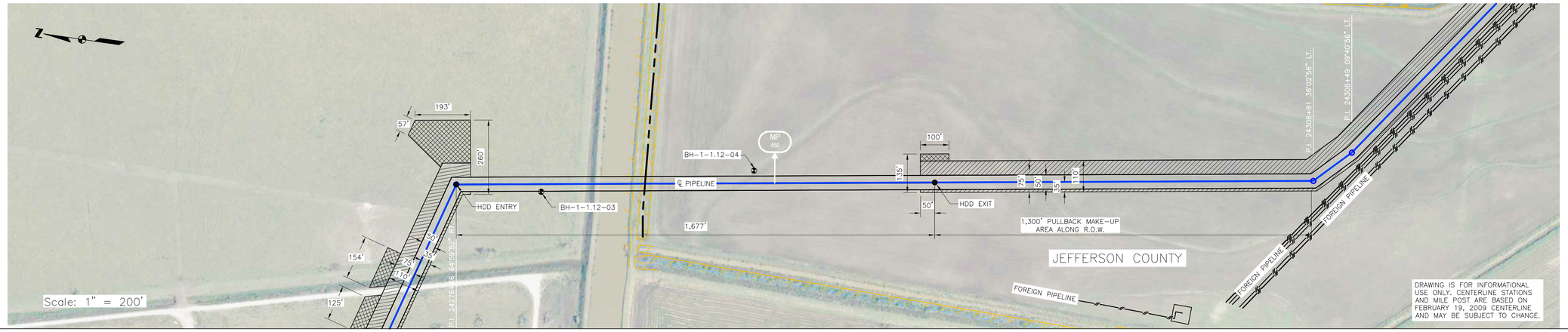

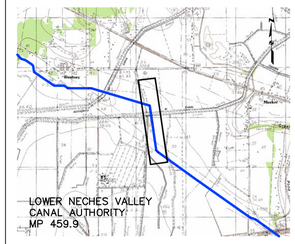

INSTALLATION NOTES

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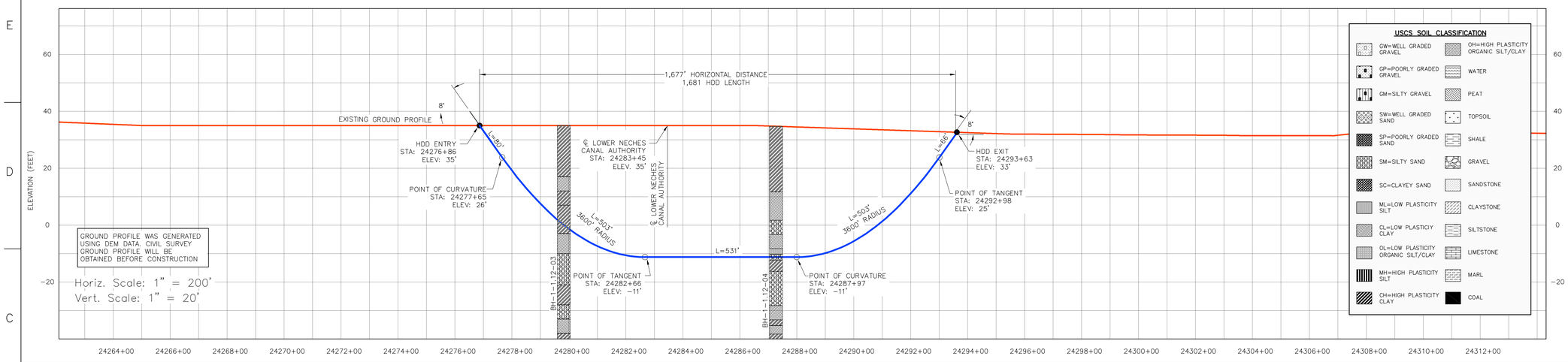
13) NOMINAL WORKING SPACE DIMENSIONS ARE SHOWN. LARGER AREAS MAY BE REQUIRED IN IRREGULAR TERRAIN. UPDATED DIMENSIONS MAY BE PROVIDED AFTER LOCAL TOPOGRAPHICAL SURVEYS ARE PERFORMED.



USCS SOIL CLASSIFICATION

- GW=WELL GRADED GRAVEL
- GP=POORLY GRADED GRAVEL
- GM=SILTY GRAVEL
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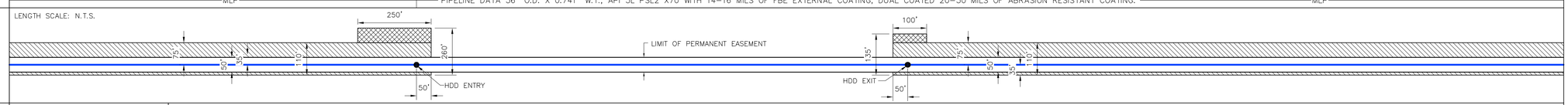
- MH=HIGH PLASTICITY SILT
- CH=HIGH PLASTICITY CLAY
- OH=HIGH PLASTICITY ORGANIC SILT/CLAY
- WATER
- PEAT
- TOPSOIL
- SHALE
- GRAVEL
- SANDSTONE
- CLAYSTONE
- SILTSTONE
- LIMESTONE
- MARL
- COAL

CROSSING INFORMATION (ESTIMATED STATIONING)	24276+86 HDD ENTRY P.I. 64°59'52" RT.	24277+65 PT OF CURVATURE	24279+82 BH-1-1.12-03	24282+66 PT OF TANGENT	24283+45 ℄ LOWER NECHES CANAL AUTHORITY	24287+26 BH-1-1.12-04	24287+97 PT OF CURVATURE	24292+98 PT OF TANGENT	24293+63 HDD EXIT	24306+81 P.I. 36°02'56" LT.	24308+49 P.I. 09°40'56" 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



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

TO BE DETERMINED

LEGEND

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

REFERENCE DRAWINGS

DRAWING No	TITLE
11042 HDD XREF_15	11042 HDD XREF_15.dwg
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
11042	UEI	UEI	BM	JW	JH	UEI
11042	UEI	UEI	DW	JW	JH	UEI
11042	UEI	UEI	RB	JW	JH	UEI

PROFESSIONAL ENGINEER/RPT

PERMIT/ ENG. APPROVAL

DATE

PRELIMINARY

REV. NO.	DATE	PERMIT NUMBER:

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

UNIVERSAL ENSCO, INC. | ConocoPhillips | TransCanada In business to deliver

FIA # 4387	CHAINAGE: 459.9	DISCIPLINE # 03

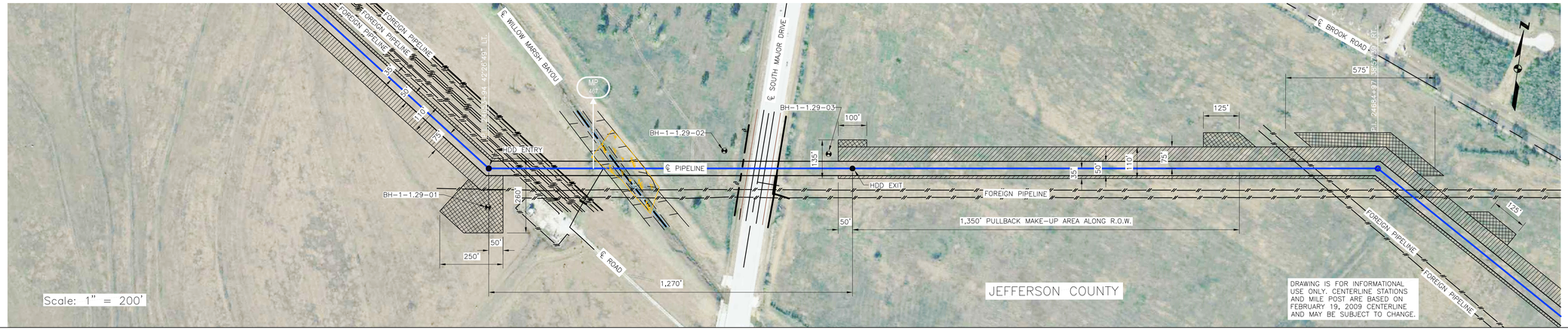
LOWER NECHES VALLEY CANAL ANTHORITY HDD INSTALLATION
KEYSTONE XL PROJECT
JEFFERSON COUNTY, TEXAS

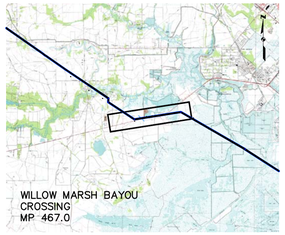
SCALE AS SHOWN	DRAWING No 4387-03-ML-03-004	REV 2

PLOTTED SIZE: ANSI D (22x34)

TC_UD_BR.DWG 22X34

ID — TIME — DESIGNFILE





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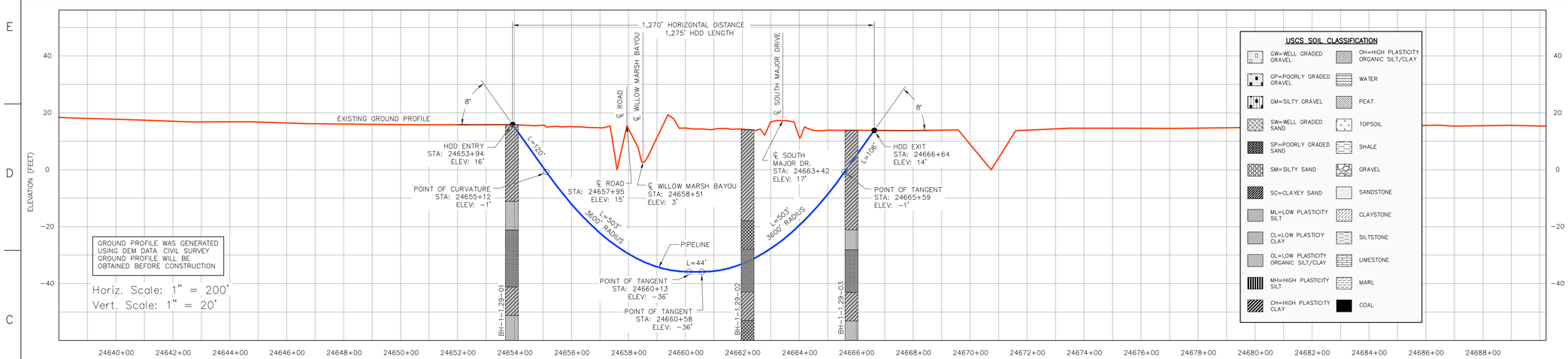

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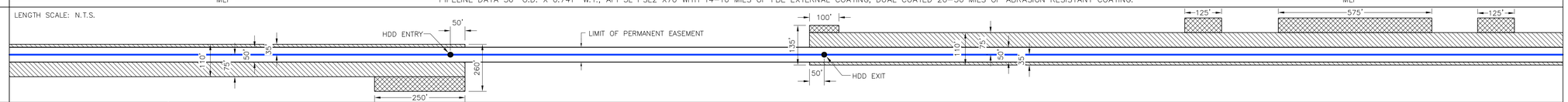
ML=LOW PLASTICITY SILT	CLAYSTONE
CL=LOW PLASTICITY CLAY	SILTSTONE
OL=LOW PLASTICITY ORGANIC SILT/CLAY	LIMESTONE
MH=HIGH PLASTICITY SILT	MARL
CH=HIGH PLASTICITY CLAY	COAL

CROSSING INFORMATION (ESTIMATED STATIONING)

24653+94 HDD ENTRY P.I. 42°26'49" LT. BH-1-1.29-01
24655+12 PT OF CURVATURE
24657+95 ℄ ROAD
24658+51 ℄ WILLOW MARSH BAYOU
24660+13 PT OF TANGENT
24660+58 PT OF CURVATURE
24662+18 BH-1-1.29-02
24663+42 ℄ SOUTH MAJOR DRIVE
24665+59 PT OF TANGENT
24665+88 BH-1-1.29-03
24666+64 HDD EXIT
24684+97 P.I. 38°57'39" 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



ENVIRONMENTAL MITIGATION/RECLAMATION

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

TO BE DETERMINED

LEGEND

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- ENTRY OR EXIT POINT
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- COUNTY BOUNDARY
- WATER LEVEL
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REFERENCE DRAWINGS

DRAWING No	TITLE
11042 HDD XREF_15	11042 HDD XREF-15.dwg
TC_UD_BR_UEI	TC_UD_BR_UEI.dwg
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 | DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

UNIVERSAL ENSCO, INC. | ConocoPhillips | TransCanada — In business to deliver

FIA #	CHAINAGE:	DISCIPLINE #
4387	M.P. 467.0	03

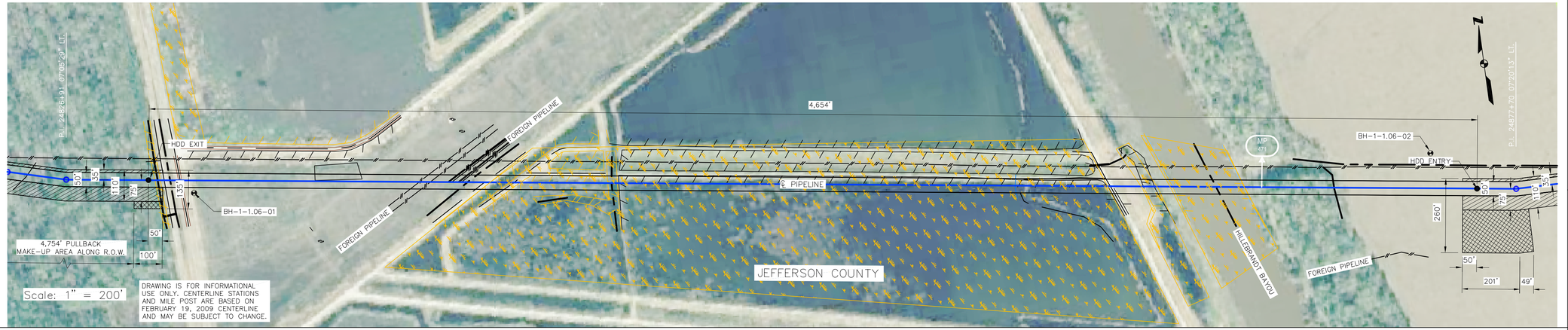
WILLOW MARSH BAYOU HDD INSTALLATION
KEYSTONE XL PROJECT
JEFFERSON COUNTY, TEXAS

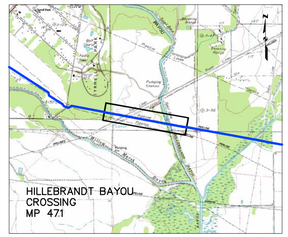
SCALE	DRAWING No	REV
AS SHOWN	4387-03-ML-03-005	2

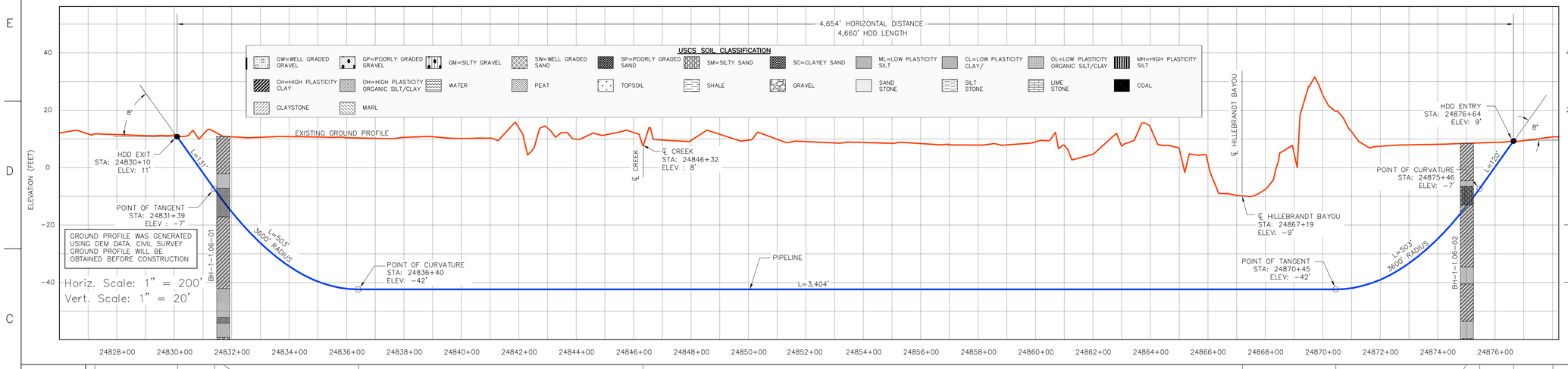
PLOTTED SIZE: ANSI D (22x34)

TC_UD_BR.DWG 22X34

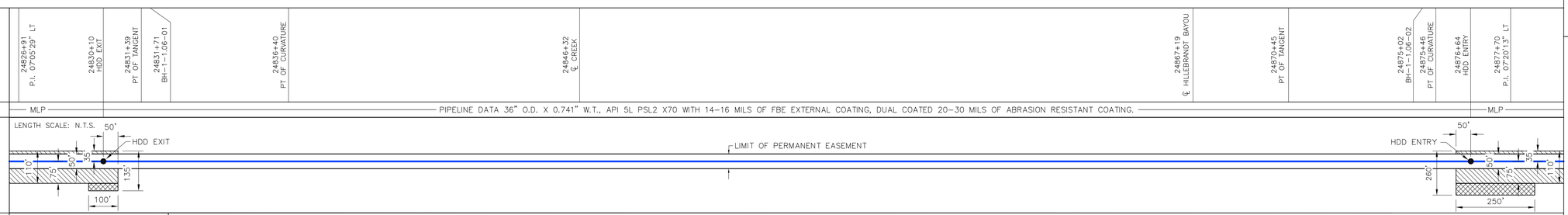
ID — TIME — DESIGNFILE







CROSSING INFORMATION (ESTIMATED STATIONING)	24826+91 P.I. 07°05'29" LT	24830+10 HDD EXIT	24831+39 PT OF TANGENT	24831+71 BH-1-1.06-01	24836+40 PT OF CURVATURE	24846+32 ℄ CREEK	24867+19 ℄ HILLEBRANDT BAYOU	24870+45 PT OF TANGENT	24875+02 BH-1-1.06-02	24875+46 PT OF CURVATURE	24876+64 HDD ENTRY	24877+70 P.I. 07°20'13" 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											



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

TO BE DETERMINED

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11042 HDD XREF_15	11042 HDD XREF_15.dwg
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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
11042	UEI	UEI	BM	JW	JH	UEI
11042	UEI	UEI	DW	JW	JH	UEI
11042	UEI	UEI	RB	JW	JH	UEI

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

PRELIMINARY

REV. NO.	DATE	PERMIT NUMBER:

UNIVERSAL ENSCO, INC. | ConocoPhillips | TransCanada In business to deliver

FIA #	CHAINAGE:	DISCIPLINE #
4387	M.P. 471	03

HILLEBRANDT BAYOU HDD INSTALLATION
KEYSTONE XL PROJECT
JEFFERSON COUNTY, TEXAS

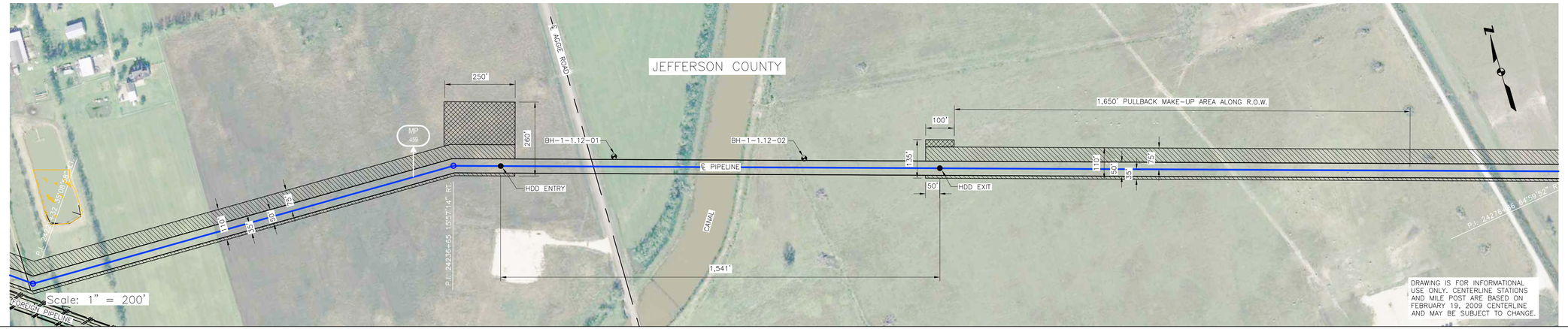
SCALE	DRAWING No	REV
AS SHOWN	4387-03-ML-03-006	2

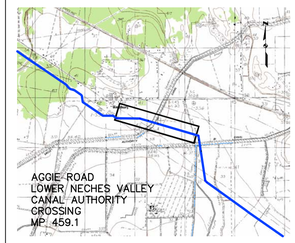
TC_UD_BR.DWG 22X34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)

TIME — DESIGNFILE





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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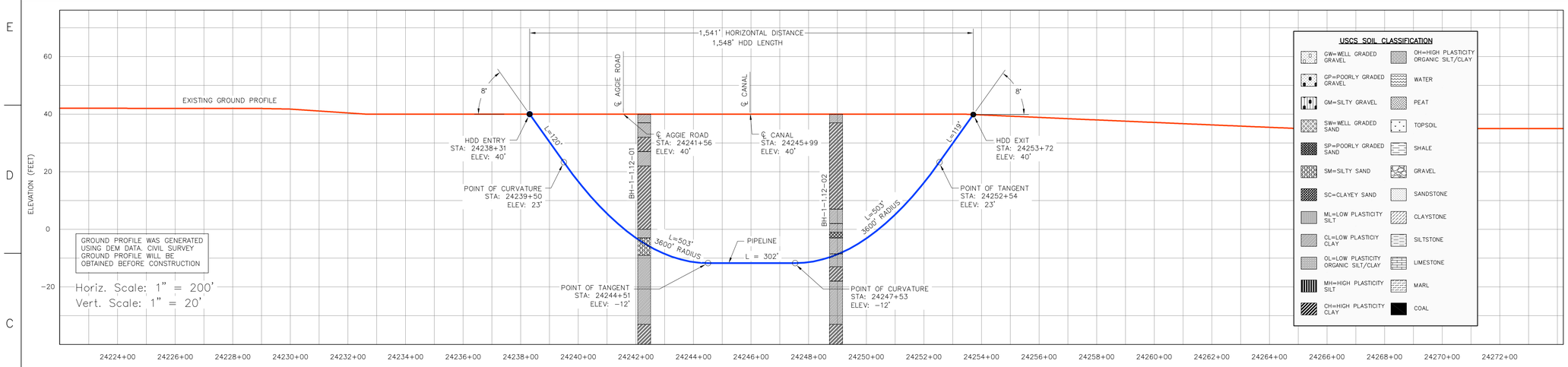

USCS SOIL CLASSIFICATION

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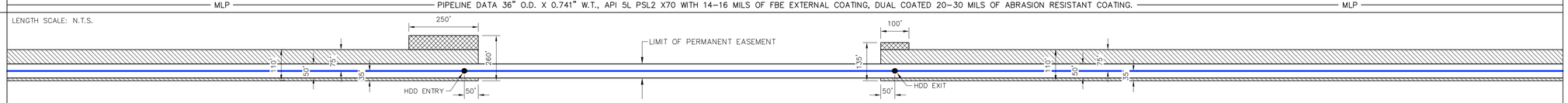
CROSSING INFORMATION (ESTIMATED STATIONING)	24236+65 P.I. 15°57'14" RT.	24238+31 HDD ENTRY	24239+50 PT OF CURVATURE	24241+56 ℄ AGGIE ROAD	24242+29 BH-1-1.12-01	24244+51 PT OF TANGENT	24245+99 ℄ CANAL	24247+53 PT OF CURVATURE	24248+96 BH-1-1.12-02	24252+54 PT OF TANGENT	24253+72 HDD EXIT

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

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

REFERENCE DRAWINGS

DRAWING No	TITLE
11042 HDD XREF_15	11042 HDD XREF_15.dwg
TC_UD_BR_UEI	TC_UD_BR_UEI.dwg
NOTES-LEGEND	NOTES-LEGEND.dwg

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11042	UEI	UEI	DW	JW	JH	UEI
11042	UEI	UEI	RB	JW	JH	UEI

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

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

UNIVERSAL ENSCO, INC. | ConocoPhillips | TransCanada In business to deliver

FIA # 4387 | CHAINAGE: M.P. 459.1 | DISCIPLINE # 03

AGGIE ROAD LOWER NECHES VALLEY CANAL AUTHORITY HDD INSTALLATION
KEYSTONE XL PROJECT
JEFFERSON COUNTY, TEXAS

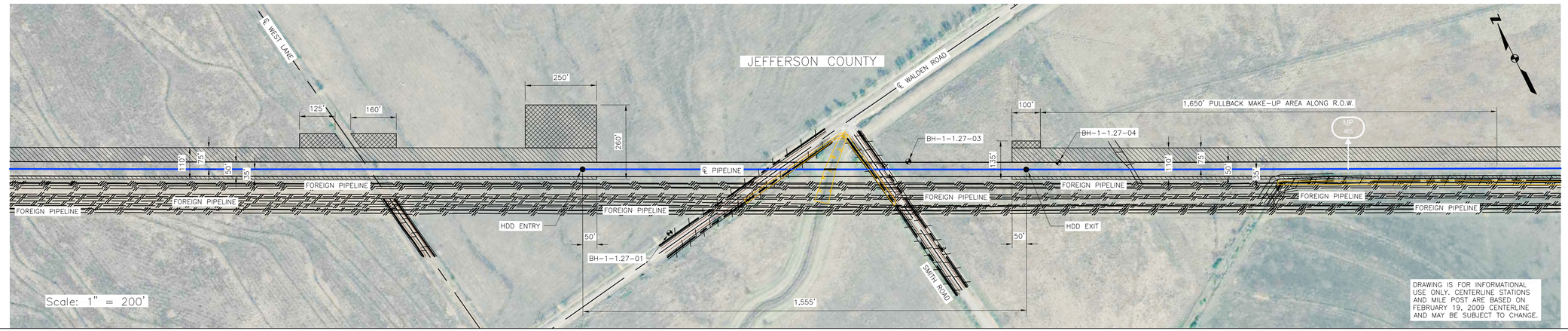
SCALE AS SHOWN | DRAWING No 4387-03-ML-03-103 | REV 2

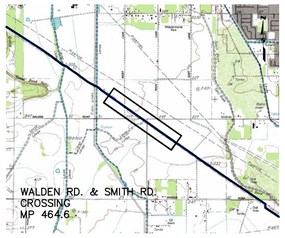
TC_UD_BR.DWG 22X34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)

TIME — DESIGNFILE





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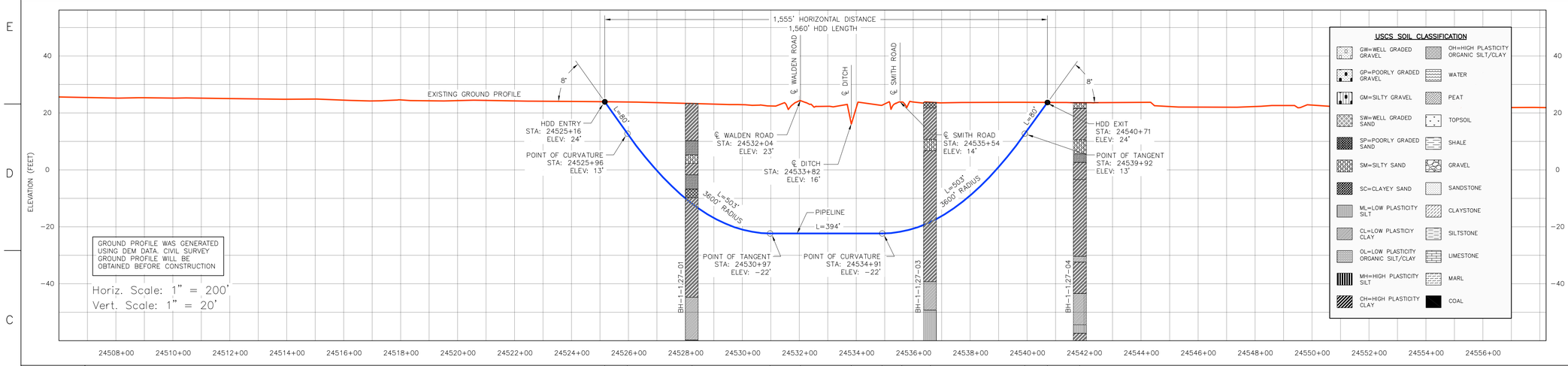

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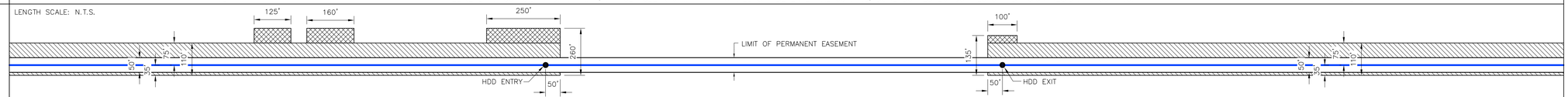
CROSSING INFORMATION (ESTIMATED STATIONING)

24525+16 HDD ENTRY
24525+96 PT OF CURVATURE
24528+22 BH-1-1.27-01
24530+97 PT OF TANGENT
24532+04 ℄ WALDEN ROAD
24533+82 ℄ DITCH
24534+91 PT OF CURVATURE
24535+54 ℄ SMITH ROAD
24536+59 BH-1-1.27-03
24539+92 PT OF TANGENT
24540+71 HDD EXIT
24541+85 BH-1-1.27-04

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	
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REFERENCE DRAWINGS

DRAWING No	TITLE
11042 HDD XREF_15	11042 HDD XREF-15.dwg
TC_UD_BR_UEI	TC_UD_BR_UEI.dwg
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11042	UEI	UEI	RB	JW	JH	UEI

PROFESSIONAL ENGINEER/RPT

PERMIT/ ENG. APPROVAL — DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

UNIVERSAL ENSCO, INC. | ConocoPhillips | TransCanada In business to deliver

FIA # 4387 | CHAINAGE: M.P. 464.6 | DISCIPLINE # 03

WALDEN ROAD & SMITH ROAD HDD INSTALLATION
KEYSTONE XL PROJECT
JEFFERSON COUNY, TEXAS

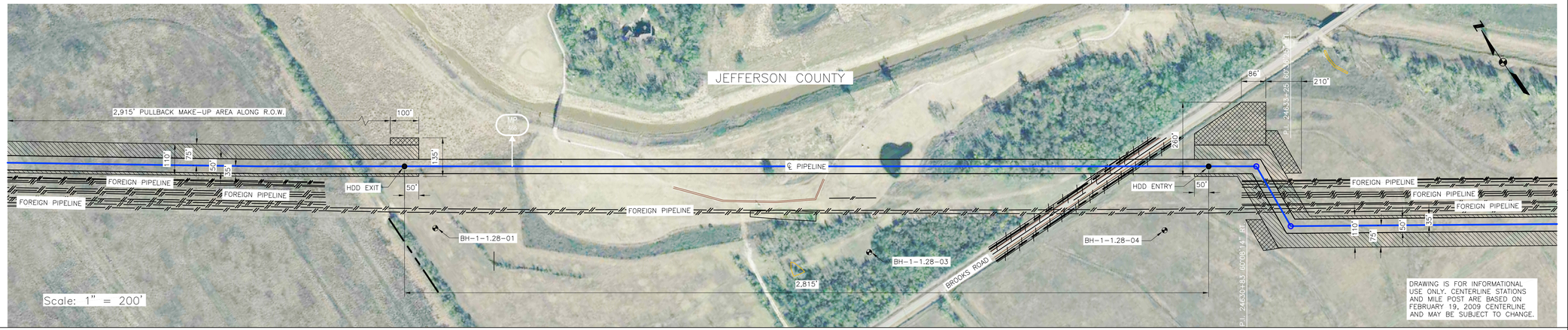
SCALE AS SHOWN | DRAWING No 4387-03-ML-03-104 | REV 2

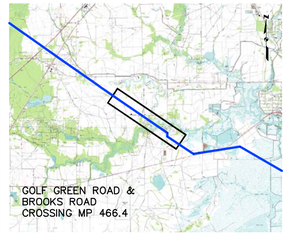
ID — TC_UD_BR.DWG 22X34

TIME — DESIGNFILE

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)





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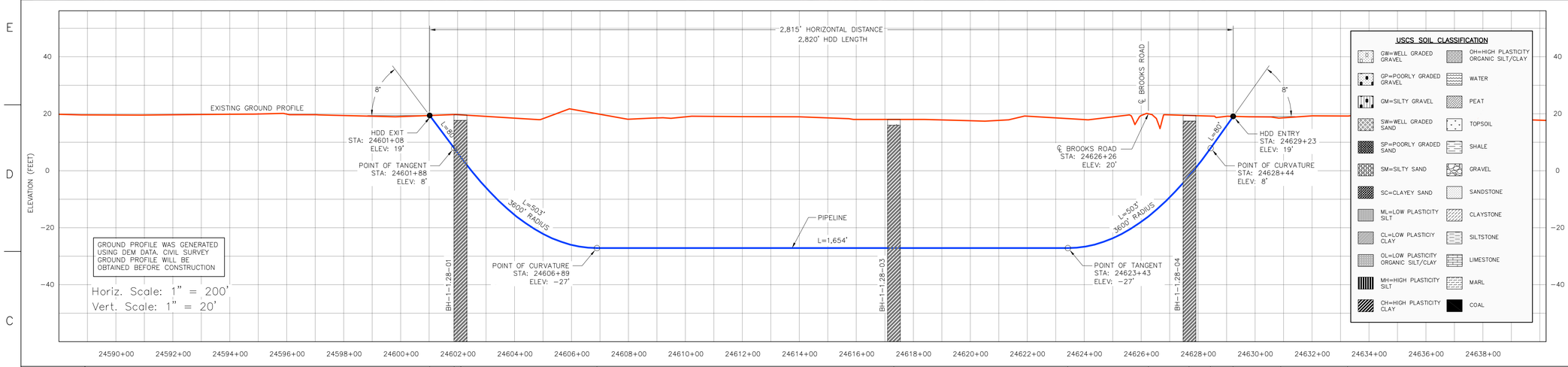

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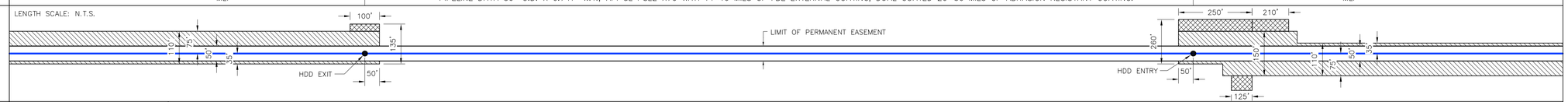
- MARL
- COAL

CROSSING INFORMATION (ESTIMATED STATIONING)	24601+08 HDD EXIT	24601+88 PT OF TANGENT	24602+10 BH-1-1.28-01	24606+89 PT OF CURVATURE	24617+32 BH-1-1.28-03	24623+43 PT OF TANGENT	24626+26 ℄ BROOKS ROAD	24627+69 BH-1-1.28-04	24628+44 PT OF CURVATURE	24629+23 HDD ENTRY	24630+83 P.I. 60°08'14" RT.	24633+25 P.I. 60°36'25" 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



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
11042 HDD XREF_15	11042 HDD XREF-15.dwg
TC_UD_BR_UEI	TC_UD_BR_UEI.dwg
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 — DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

UNIVERSAL ENSCO, INC. | ConocoPhillips | TransCanada — In business to deliver

FIA # 4387 | CHAINAGE: M.P. 466.4 | DISCIPLINE # 03

GOLF GREEN & BROOKS RD. HDD INSTALLATION
KEYSTONE XL PROJECT
JEFFERSON COUNTY, TEXAS

SCALE AS SHOWN | DRAWING No 4387-03-ML-03-105 | REV 2

ID — TC_UD_BR.DWG 22X34

TIME — DESIGNFILE

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)

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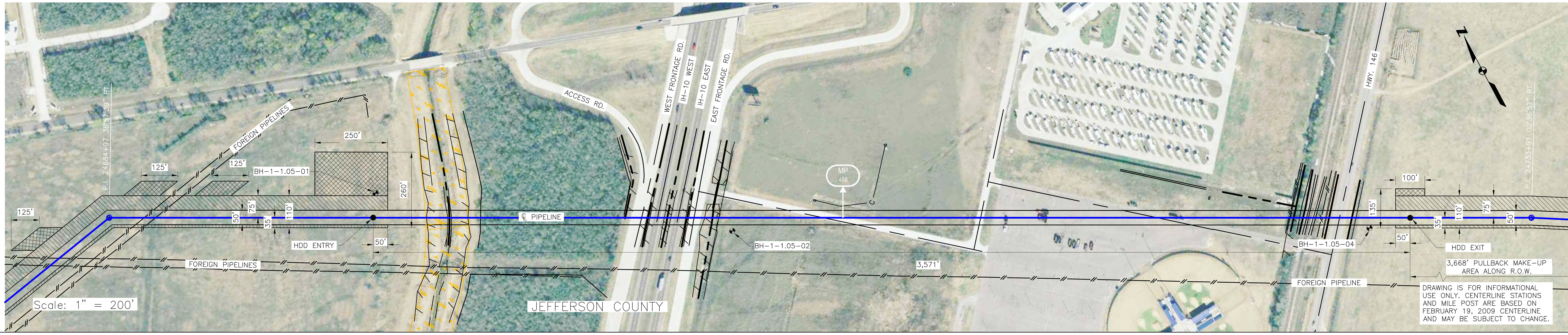
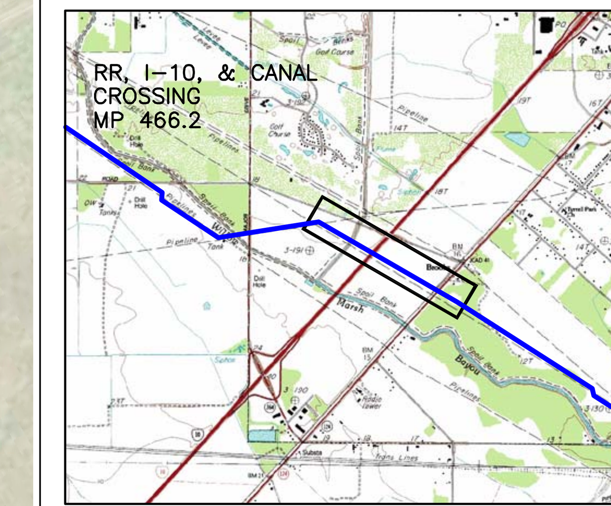




INSTALLATION NOTES

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.

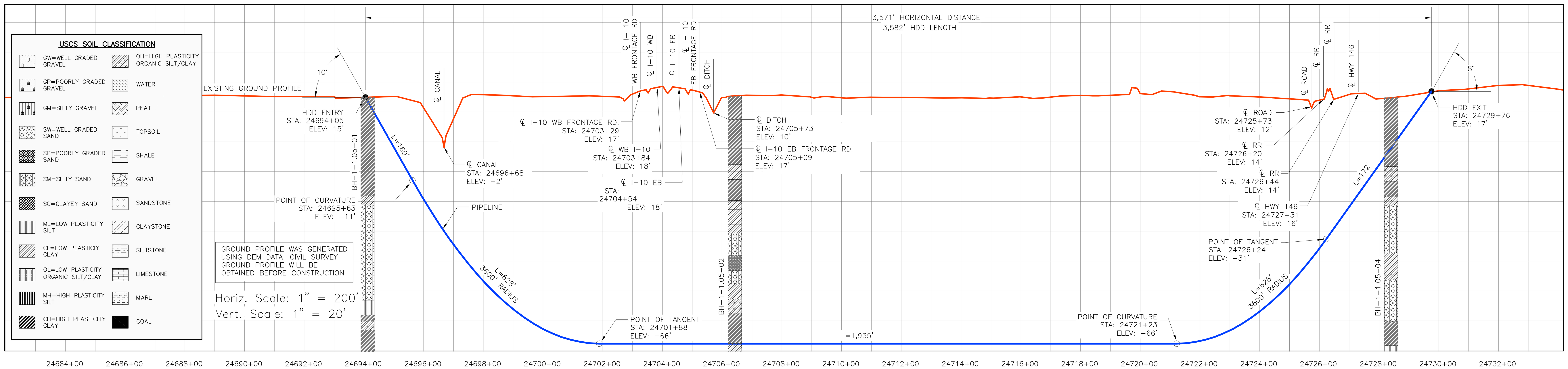
9) PRIOR TO PIPE PULLBACK, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO KEYSTONE FOR APPROVAL.

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.

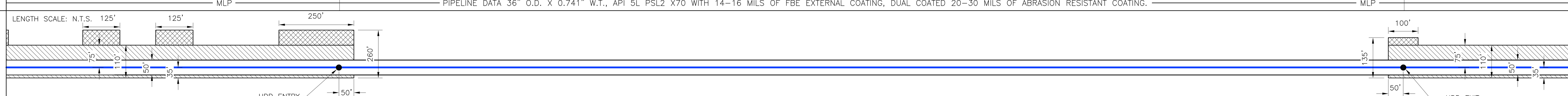


CROSSING INFORMATION (ESTIMATED STATIONING)

- 24684+97 P.I. 38°57'39" RT.
- 24694+05 HDD ENTRY
- 24694+12 BH-1-1.05-01
- 24695+63 PT OF CURVATURE
- 24696+68 ℄ CANAL
- 24701+88 PT OF TANGENT
- 24703+29 ℄ WB FRONTAGE RD.
- 24703+84 ℄ I-10 WB
- 24704+54 ℄ I-10 EB
- 24705+09 ℄ EB FRONTAGE RD.
- 24705+73 ℄ DITCH
- 24706+43 BH-1-1.05-02
- 24721+23 PT OF CURVATURE
- 24725+73 ℄ ROAD
- 24726+20 ℄ RAILROAD
- 24726+24 PT OF TANGENT
- 24726+44 ℄ RAILROAD
- 24727+31 ℄ HWY 146
- 24728+40 BH-1-1.05-04
- 24729+76 HDD EXIT
- 24733+91 P.I. 02°36'57" 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



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
11042 HDD XREF_15	11042 HDD XREF_15.dwg
TC_UD_BR_UEI	TC_UD_BR_UEI.dwg
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 | DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

UNIVERSAL ENSCO, INC. | ConocoPhillips | TransCanada In business to deliver

FIA # 4387 | CHAINAGE: M.P. 467.8 | DISCIPLINE # 03

RR, I-10, & CANAL HDD INSTALLATION
KEYSTONE XL PROJECT
JEFFERSON COUNTY, TEXAS

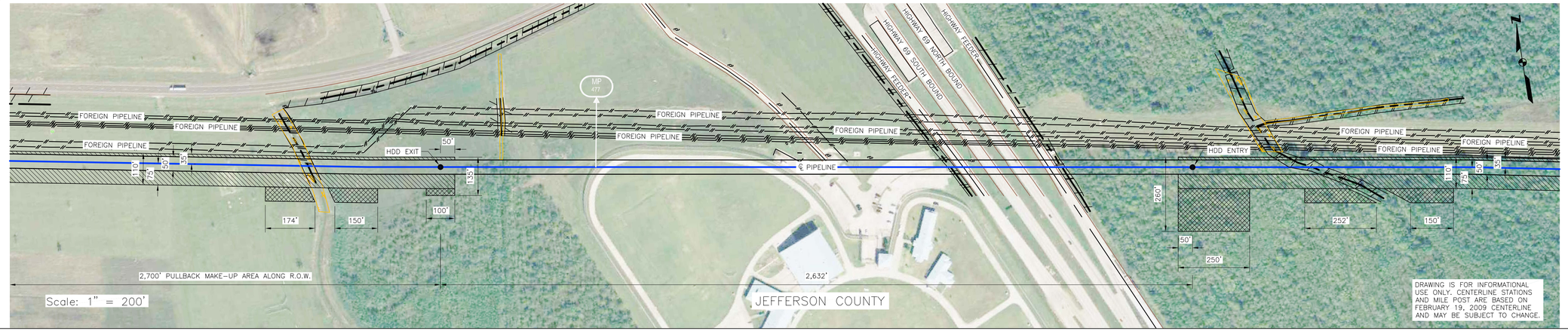
SCALE AS SHOWN | DRAWING No 4387-03-ML-03-106 | REV 2

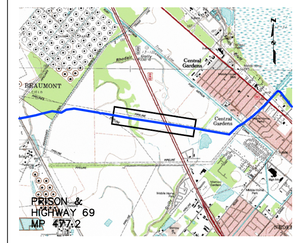
TC_UD_BR.DWG 22X34

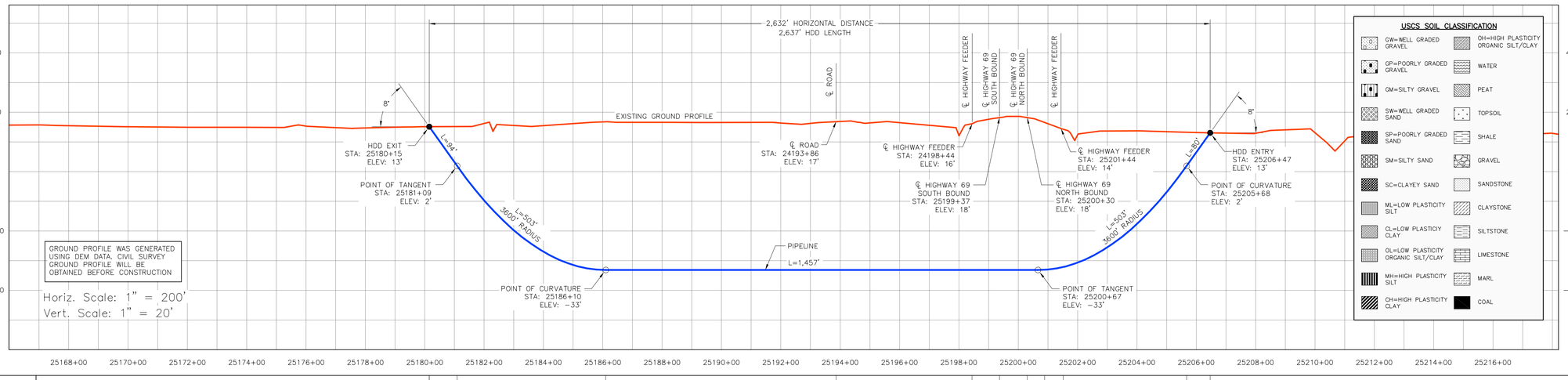
CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI D (22x34)

TIME DESIGNFILE ID



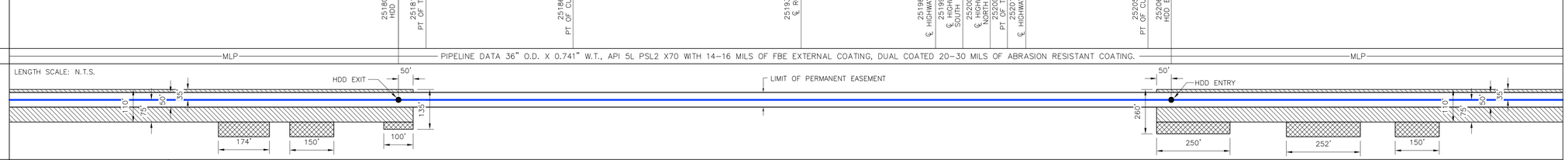




USCS SOIL CLASSIFICATION

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

CROSSING INFORMATION (ESTIMATED STATIONING)	25180+15 HDD EXIT; 25181+09 PT OF TANGENT; 25186+10 PT OF CURVATURE; 25193+86 ℄ ROAD; 25198+44 ℄ HIGHWAY FEEDER; 25199+37 ℄ HIGHWAY 69 SOUTH BOUND; 25200+30 ℄ HIGHWAY 69 NORTH BOUND; 25200+67 PT OF TANGENT; 25201+44 ℄ HIGHWAY FEEDER; 25205+68 PT OF CURVATURE; 25206+47 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
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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LEGEND

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REFERENCE DRAWINGS

DRAWING No	TITLE
11042 HDD XREF_15	11042 HDD XREF_15.dwg
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
11042	UEI	UEI	BM	JW	JH	UEI
11042	UEI	UEI	DW	JW	JH	UEI
11042	UEI	UEI	RB	JW	JH	UEI

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

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

UNIVERSAL ENSCO, INC. | ConocoPhillips | TransCanada In business to deliver

FIA #	CHAINAGE:	DISCIPLINE #
4387	477.2	03

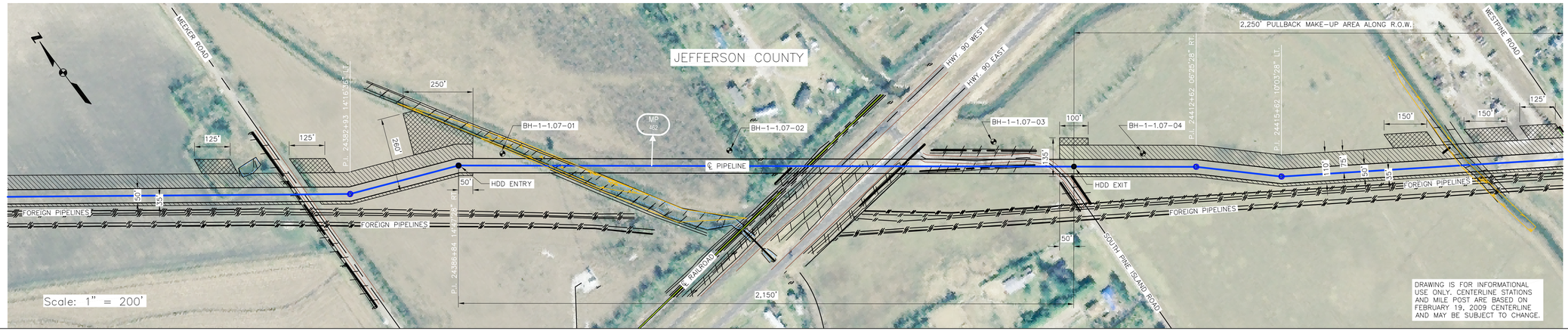
PRISON & HIGHWAY 69 HDD INSTALLATION
KEYSTONE XL PROJECT
JEFFERSON COUNTY, TEXAS

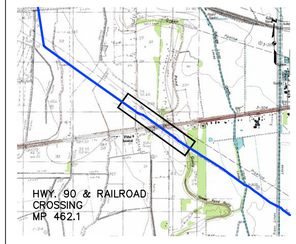
SCALE	DRAWING No	REV
AS SHOWN	4387-03-ML-03-109	2

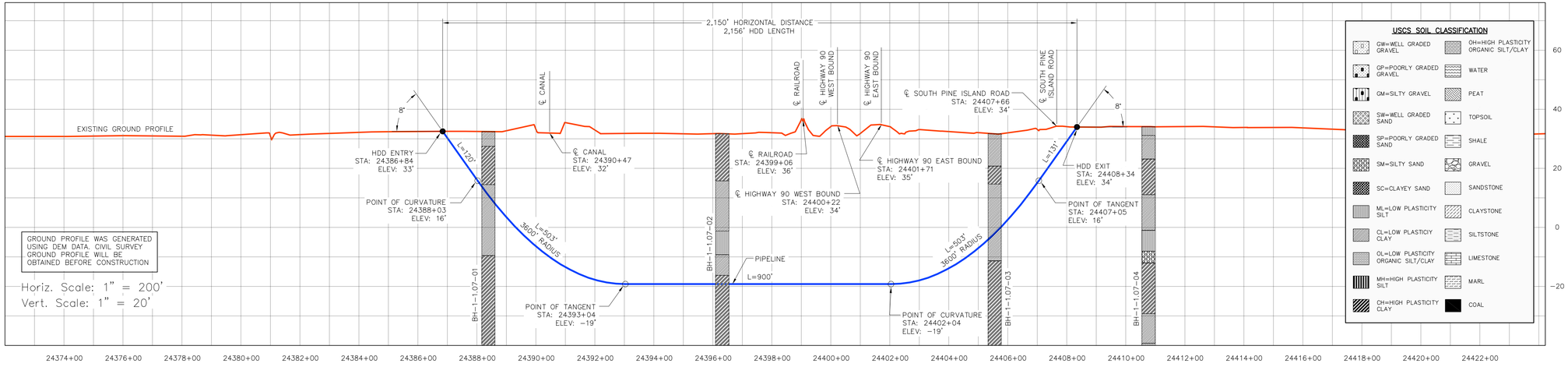
TC_UD_BR.DWG 22X34

PLOTTED SIZE: ANSI D (22x34)

TIME — DESIGNFILE







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- 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
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- SILTSTONE
- LIMESTONE
- MARL
- COAL

INSTALLATION NOTES

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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.
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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.
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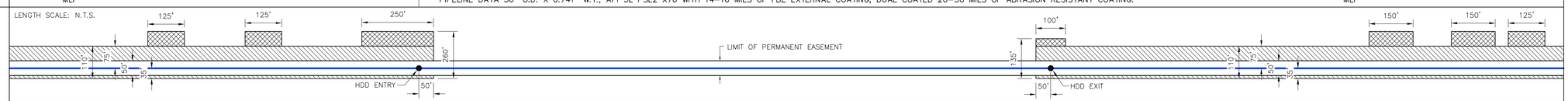
12) CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE RETURNED TO THE ORIGINAL CONTOURS. DISTURBED AREAS SHALL BE SEEDED AS SPECIFIED IN PROJECT DOCUMENTS.
13) NOMINAL WORKING SPACE DIMENSIONS ARE SHOWN. LARGER AREAS MAY BE REQUIRED IN IRREGULAR TERRAIN. UPDATED DIMENSIONS MAY BE PROVIDED AFTER LOCAL TOPOGRAPHICAL SURVEYS ARE PERFORMED.

CROSSING INFORMATION (ESTIMATED STATIONING)

24382+93 P.I. 14°16'36" LT.	24386+84 HDD ENTRY P.I. 14°47'28" RT.	24388+03 PT OF CURVATURE	24388+39 BH-1-1.07-01	24390+47 ℄ CANAL	24393+04 PT OF CURVATURE	24396+32 BH-1-1.07-02	24399+06 ℄ RAILROAD	24400+22 ℄ HIGHWAY 90 WEST BOUND	24401+71 ℄ HIGHWAY 90 EAST BOUND	24402+04 PT OF CURVATURE	24405+56 BH-1-1.07-03	24407+05 PT OF TANGENT	24407+66 ℄ SOUTH PINE ISLAND ROAD	24408+34 HDD EXIT	24410+77 BH-1-1.07-04	24412+62 P.I. 06°25'28" RT.	24415+62 P.I. 10°03'28" 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



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
11042 HDD XREF_15	11042 HDD XREF_15.dwg
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
11042	UEI	UEI	BM	JW	JH	UEI
11042	UEI	UEI	DW	JW	JH	UEI
11042	UEI	UEI	RB	JW	JH	UEI

PROFESSIONAL ENGINEER/RPT

PERMIT/ ENG. APPROVAL — DATE

PRELIMINARY

REV. NO.	DATE	PERMIT NUMBER:

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

UNIVERSAL ENSCO, INC. | ConocoPhillips | TransCanada — In business to deliver

FIA #	CHAINAGE:	DISCIPLINE #
4387	M.P. 462.1	03

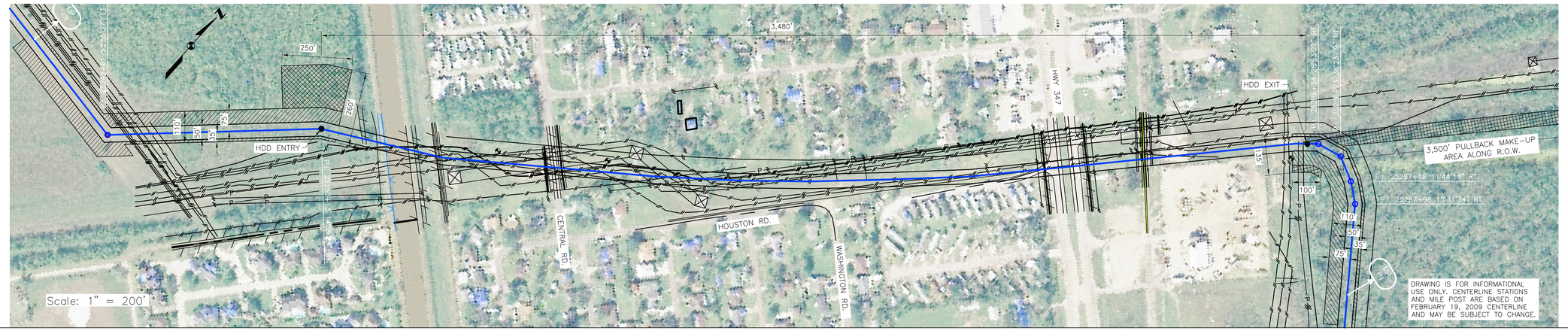
HWY. 90 & RAILROAD HDD INSTALLATION
KEYSTONE XL PROJECT
JEFFERSON COUNTY, TEXAS

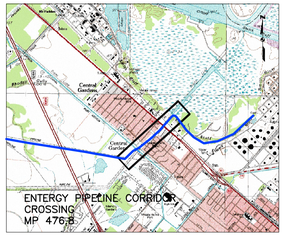
SCALE	DRAWING No	REV
AS SHOWN	4387-03-ML-03-202	2

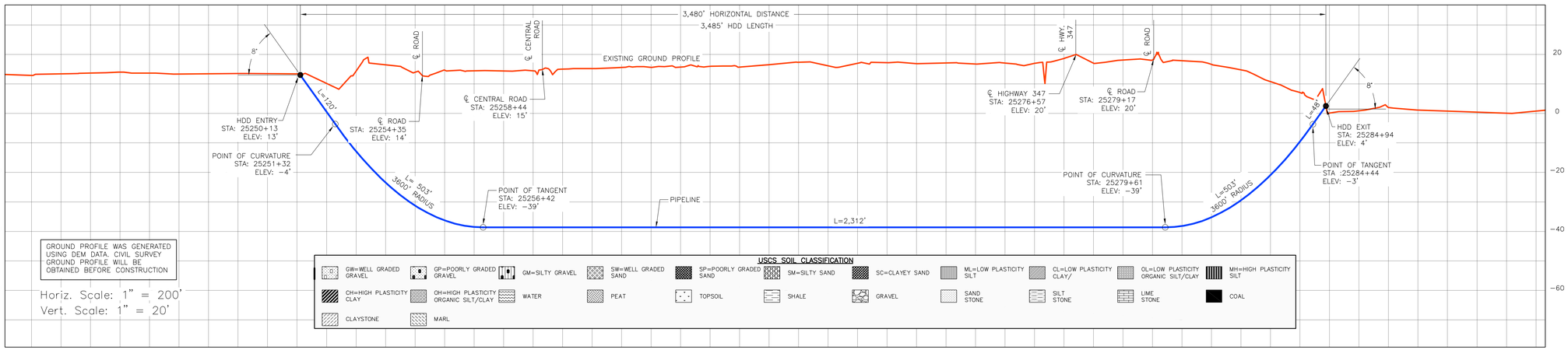
PLOTTED SIZE: ANSI D (22x34)

ID — TC_UD_BR.DWG 22X34

TIME — DESIGNFILE







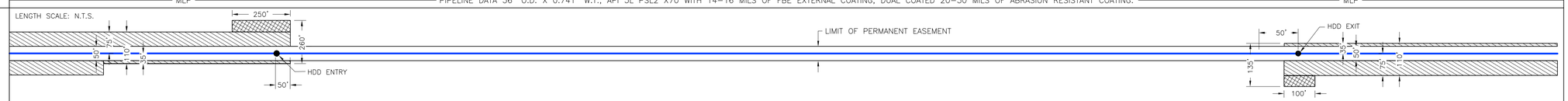
CROSSING INFORMATION (ESTIMATED STATIONING)

25242+61 P.I. 53°55'37" LT.	25250+13 HDD ENTRY	25251+32 PT OF CURVATURE	25254+35 ℄ ROAD	25256+42 PT OF TANGENT	25258+44 ℄ CENTRAL ROAD	25276+57 ℄ HWY 347	25279+17 ℄ ROAD	25279+61 PT OF CURVATURE	25284+44 PT OF TANGENT	25284+94 HDD EXIT	25285+34 P.I. 28°53'27" RT.	25286+23 P.I. 38°23'09" RT.	25287+18 P.I. 11°44'14" RT.	25287+98 P.I. 15°31'34" 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



ENVIRONMENTAL MITIGATION/RECLAMATION

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

TO BE DETERMINED

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.
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REFERENCE DRAWINGS

DRAWING No	TITLE
11042 HDD XREF_15	11042 HDD XREF_15.dwg
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
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PROFESSIONAL ENGINEER/RPT | PERMIT/ ENG. APPROVAL — DATE

PRELIMINARY

REV. NO. | DATE | PERMIT NUMBER:

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

UNIVERSAL ENSCO, INC. | ConocoPhillips | TransCanada In business to deliver

FIA # 4387	CHAINAGE: M.P. 476.8	DISCIPLINE # 03

ENTERGY PIPELINE CORRIDOR HDD INSTALLATION
KEYSTONE XL PROJECT
JEFFERSON COUNTY, TEXAS

SCALE AS SHOWN	DRAWING No 4387-03-ML-03-601	REV 2

PLOTTED SIZE: ANSI D (22x34)

ID — TC_UD_BR.DWG 22X34 — TIME — DESIGNFILE