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MIDSTREAM PARTNERS

BEAR DEN PHASE 2 PROJECT

Plan of Development

APPENDIX C
Construction Typical Drawings

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BEAR DEN PHASE 2 PROJECT

Plan of Development

Construction Typical Drawings

Prepared for:

BUREAU OF LAND MANAGEMENT

MAY 2014

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1. Survey and Staking
2. Clearing
3. Front-End Grading
4. ROW Topsoil Stripping
5. Restaking Centerline of Trench
6. Stringing Pipe
7. Field Bending Pipe
8. Line-Up, Initial Weld
9. Fill & Cap, Final Weld
10. As-Built Footage
11. X-Ray Inspection, Weld Repair
12. Coating Field Welds
13a. Trenching (wheel ditcher)
13b. Trenching (backhoe)
13c. Trenching (rock)
14. Inspection & Repair of Coating
15. Lowering Pipe into Trench
16. As-Built Survey
17. Pad, Backfill, Rough Grade
18. Hydrostatic Testing, Final Tie-in
19. Replace Topsoil, Final Clean-Up, Full Restoration

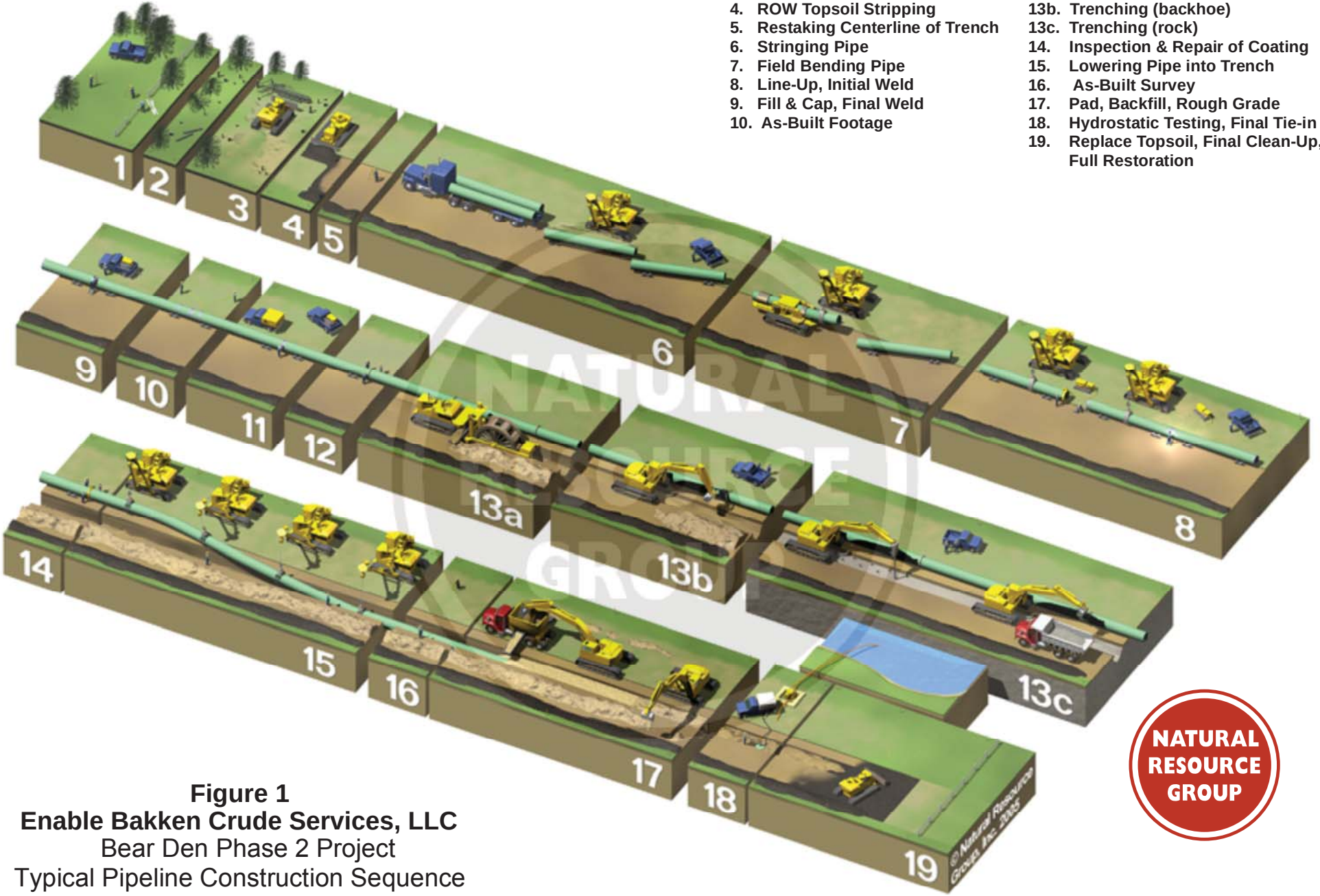

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Figure 1
Enable Bakken Crude Services, LLC
Bear Den Phase 2 Project
Typical Pipeline Construction Sequence

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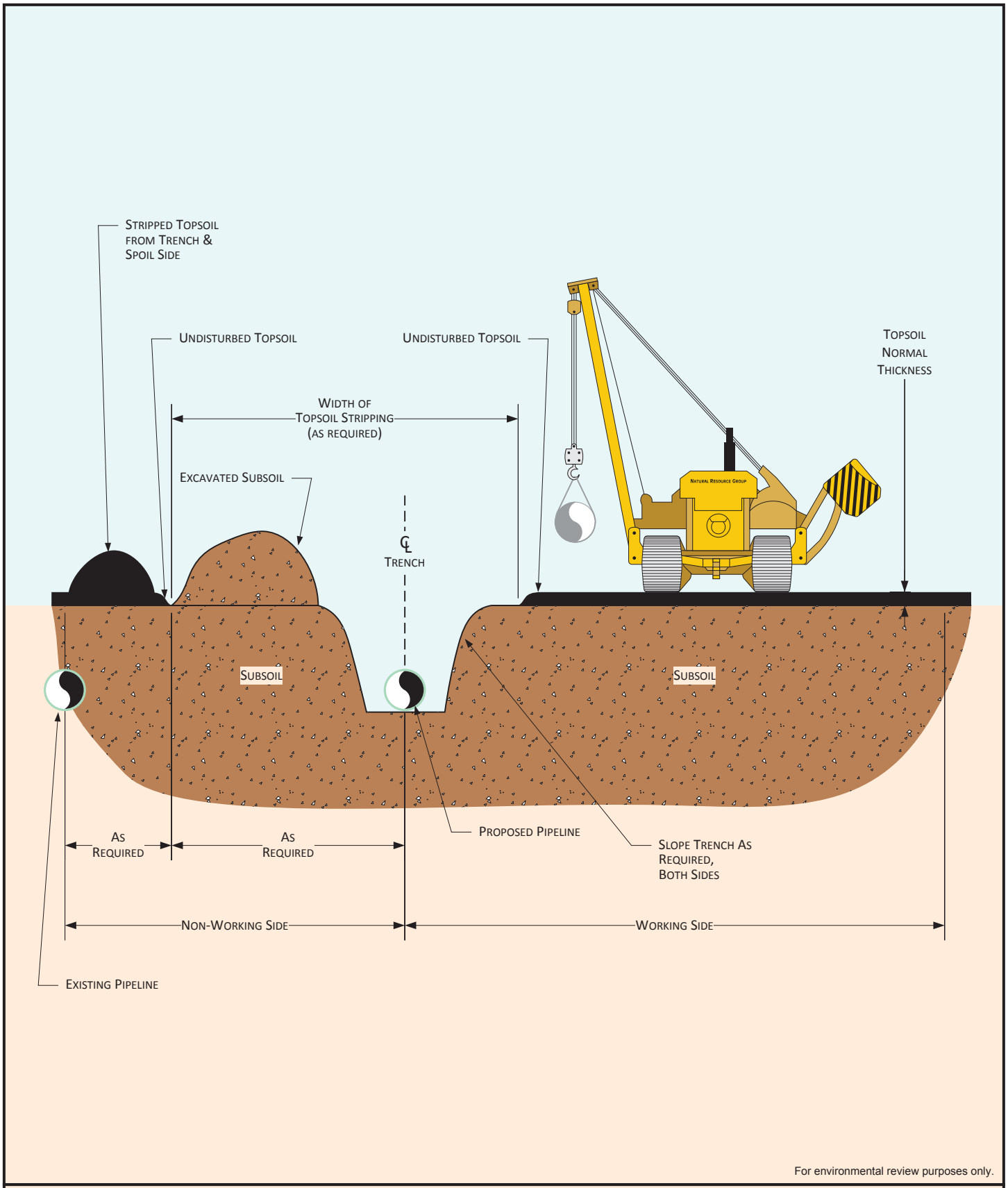

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Figure 2
Bear Den Phase 2 Project
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Topsoil Segregation: Typical Ditch Line Plus Spoil Side

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K:_CLIENT_PROJECTS\A-C\CEG\BEARDEN\DEVELOPMENTPLAN\FIG_2_AND_3_SOIL_SEG.VSD	SCALE: NTS		REVISED: 2/27/2013	DRAWN BY: KMKENDALL

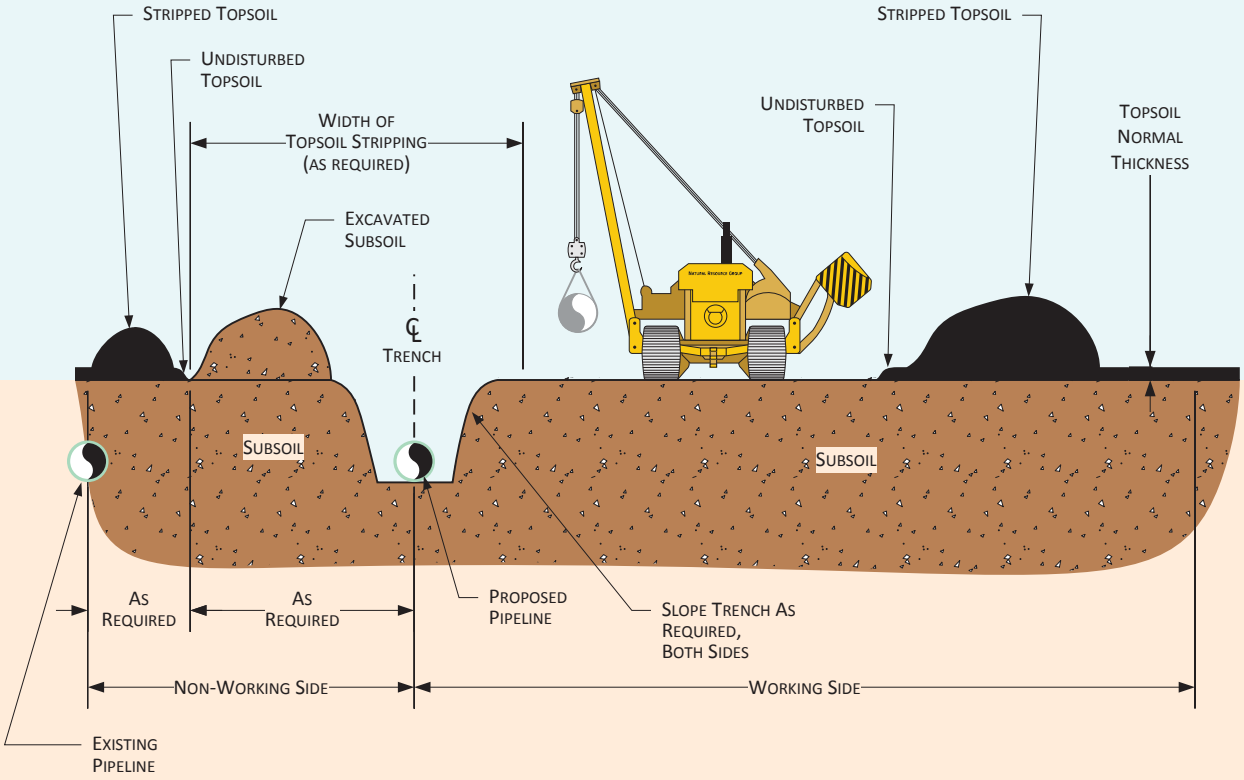

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Figure 3
Bear Den Phase 2 Project
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Topsoil Segregation: Typical Full ROW Topsoil Stripping

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K:_CLIENT_PROJECTS\A-C\CEG\BEARDEN\DEVELOPMENTPLAN\FIG_2_AND_3_SOIL_SEG.VSD	SCALE: NTS	REVISED: 2/27/2013	DRAWN BY: KMKENDALL

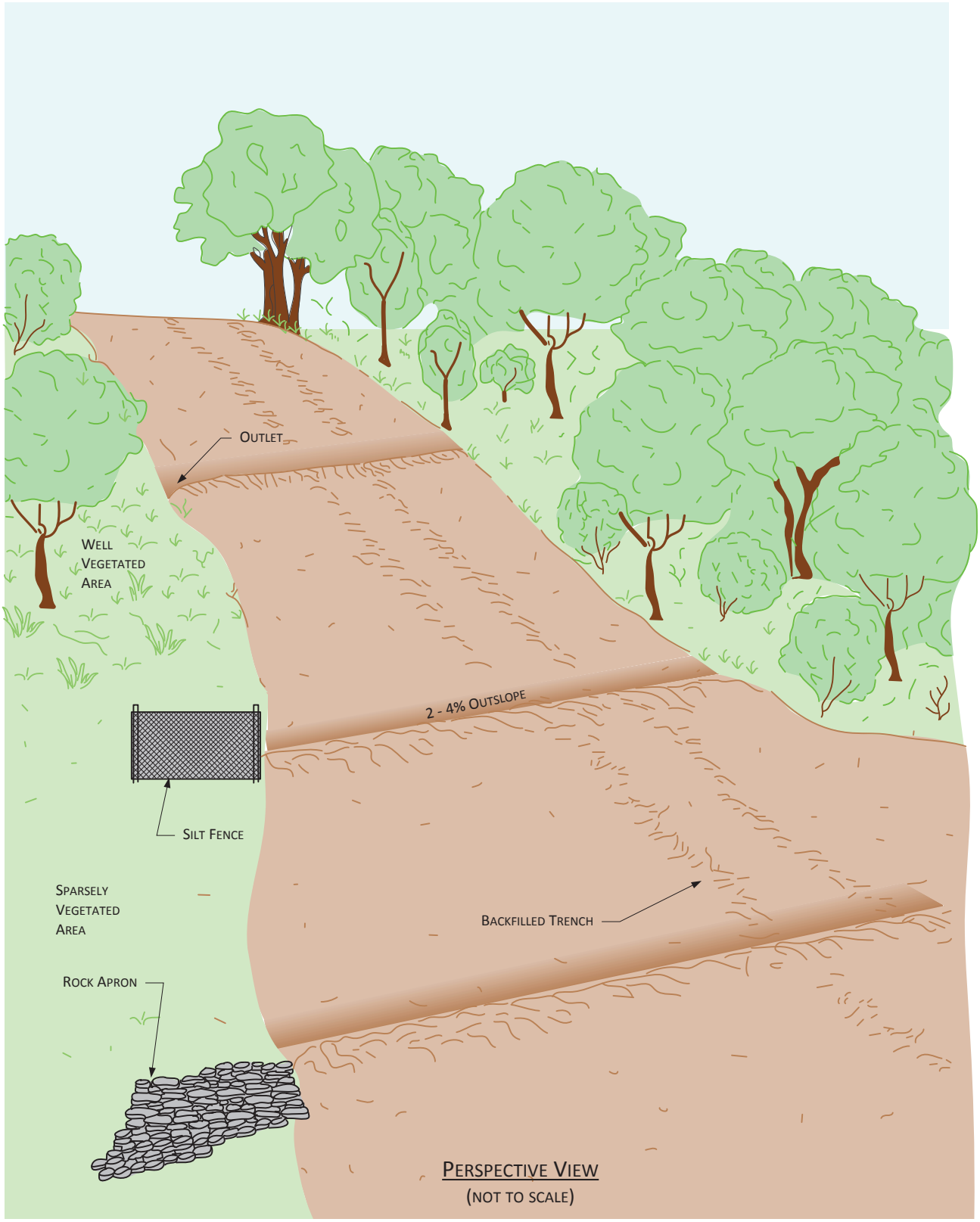

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Figure 4
Bear Den Phase 2 Project
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Temporary Slope Breakers Perspective

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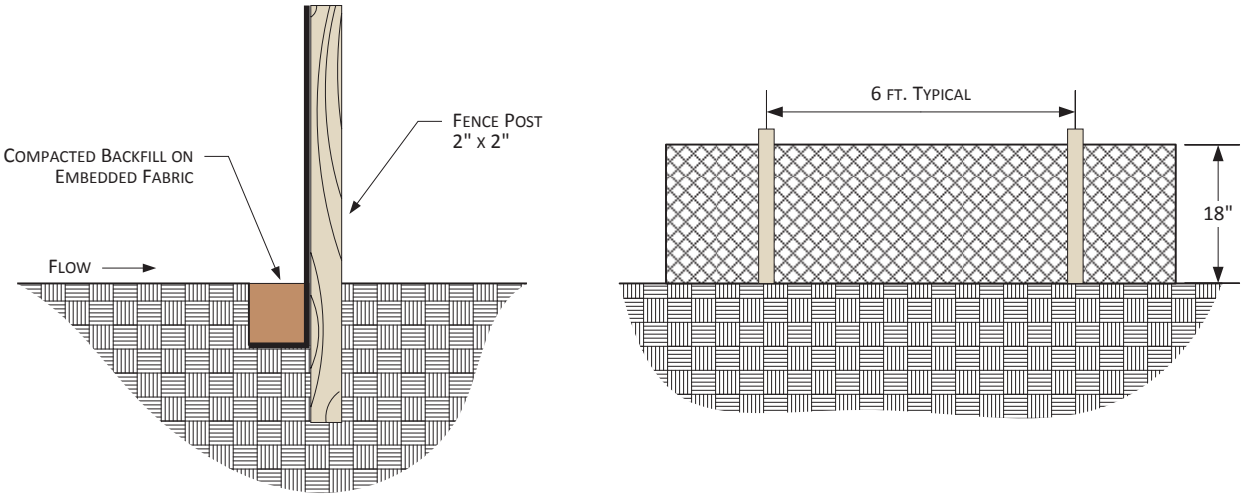
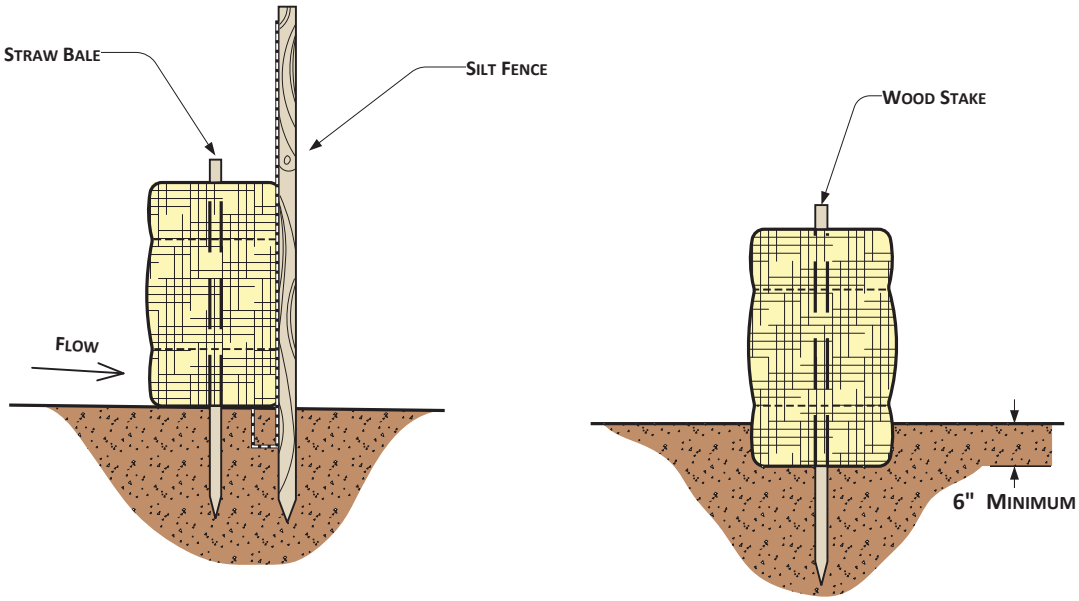
K:_CLIENT_PROJECTS\A-C\CEG\BEARDEN\DEVELOPMENTPLAN\FIG_4_SLOPE_BREAKERS.VSD	SCALE: NTS	REVISED: 2/27/2013	DRAWN BY: KMKENDALL

TYPICAL SILT FENCE INSTALLATION



TYPICAL STRAW/HAY BALE INSTALLATION



STRAW/HAY BALES & SILT FENCE

STRAW/HAY BALES ONLY

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Figure 5
Bear Den Phase 2 Project
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Control Measures: Typical Soil Erosion

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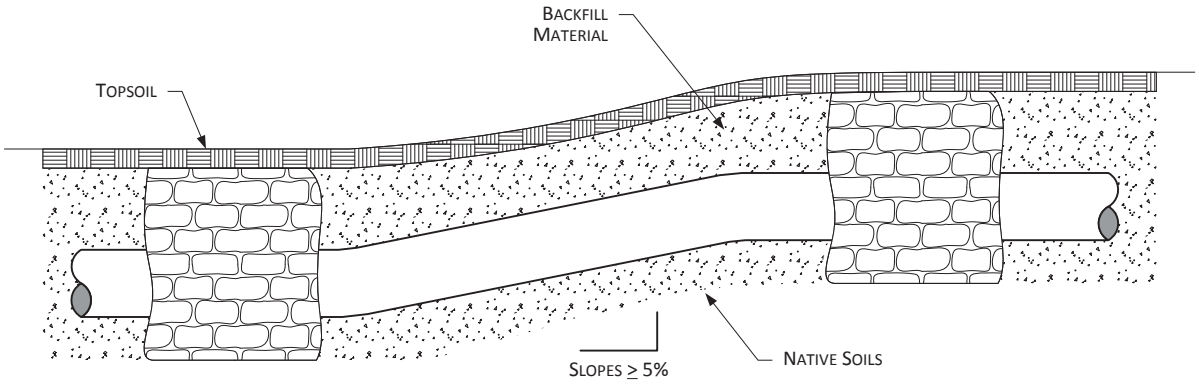
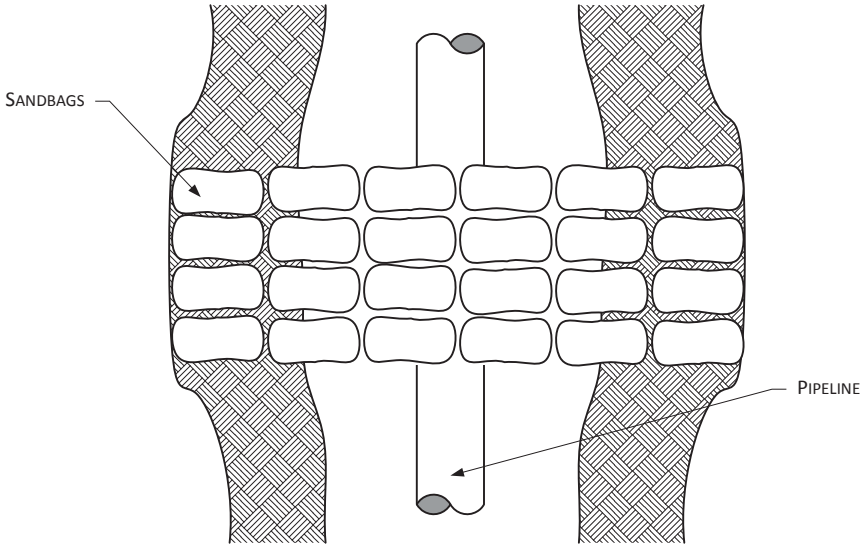
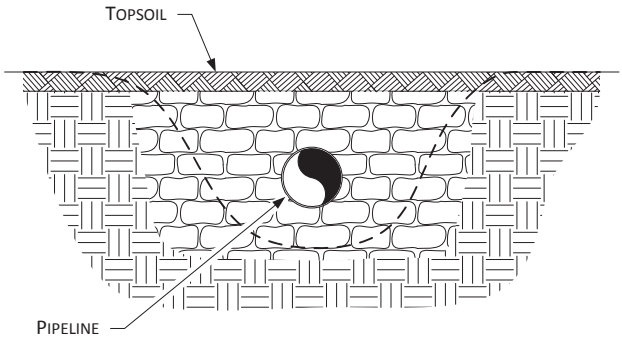


PROFILE VIEW



PLAN VIEW



FACE VIEW

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Figure 6
Bear Den Phase 2 Project
Enable Bakken Crude Services, LLC
Trench Breaker Installation

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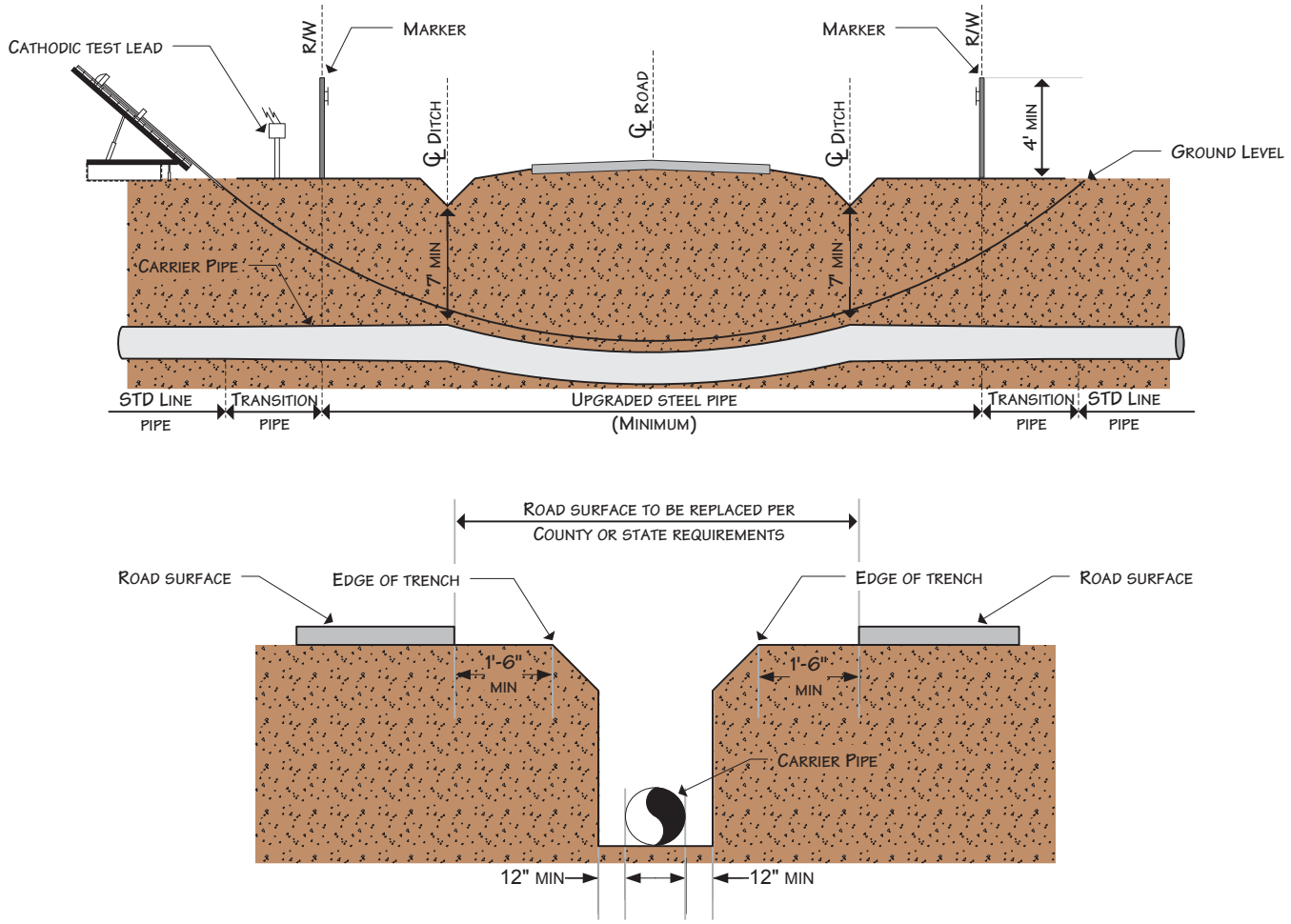

Notes

1. All carrier & casing pipe shall be carbon steel pipe.
2. All girth welds shall be 100% radiographically inspected and coated with tape coat or shrink sleeve per owner specifications.
3. Work shall be performed in accordance with permit requirements, restrictions and company's specifications.
4. Backfill across road right-of-way shall be of select, non-organic and moist backfill material, placed in layers and thoroughly compacted per specifications as required by the permit under which the work is being performed. All other backfill across road right-of-way shall be compacted as well. In lieu of specification requirements, backfill will be water-packed in no less than three (3) lifts.
5. Contractor shall install weld caps on each end of transition pipe and hydrostatic test road crossing segment to 98% of SMYS prior to installation.

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Figure 7
Bear Den Phase 2 Project
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Typical Road Crossing: Bore Method and Open Cut Method

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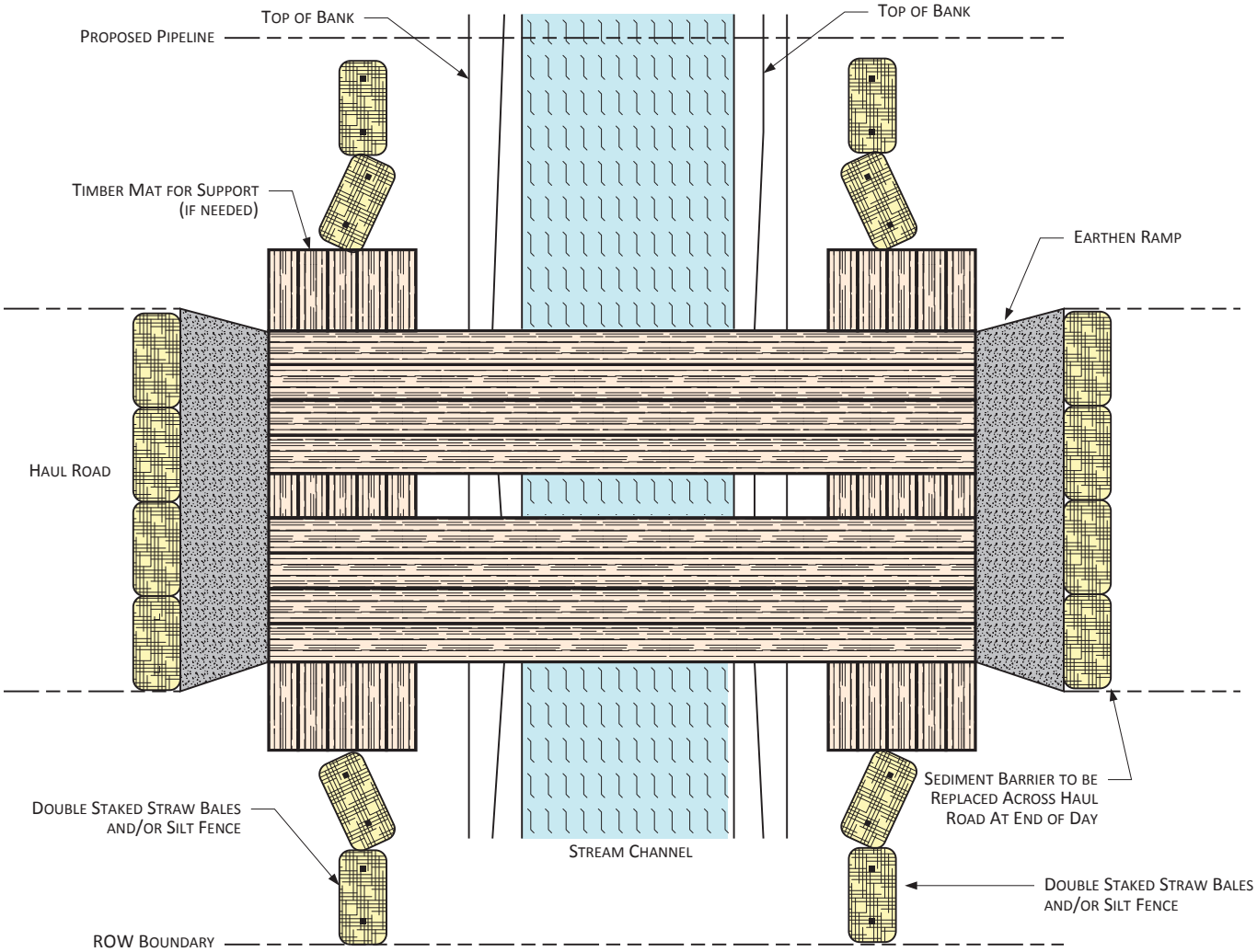
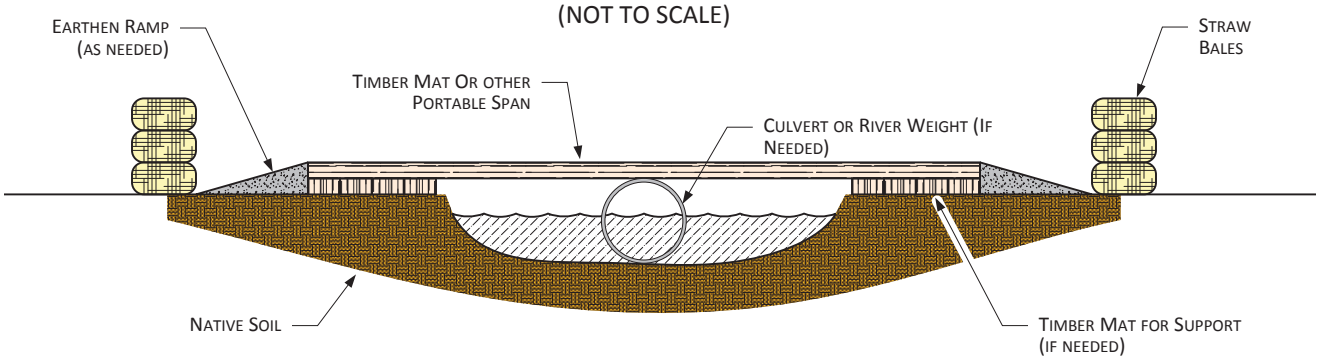
K:_CLIENT_PROJECTS\A-C\CEG\BEARDEN\DEVELOPMENTPLAN_ROAD_CROSSING.VSD	SCALE: NTS		REVISED: 2/27/2013	DRAWN BY: AKR0344

PLAN VIEW
(NOT TO SCALE)



PROFILE VIEW
(NOT TO SCALE)



NOTE:
Staw bales shall be placed across bridge entrance every night.

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Figure 8
Bear Den Phase 2 Project
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Timber Mat Bridge

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K:_CLIENT_PROJECTS\A-C\CEG\BEARDEN\DEVELOPMENTPLAN\FIG_11_TIMBER_MAT_BRIDGE.VSD	SCALE: NTS	REVISED: 2/27/2013	DRAWN BY: KMKENDALL

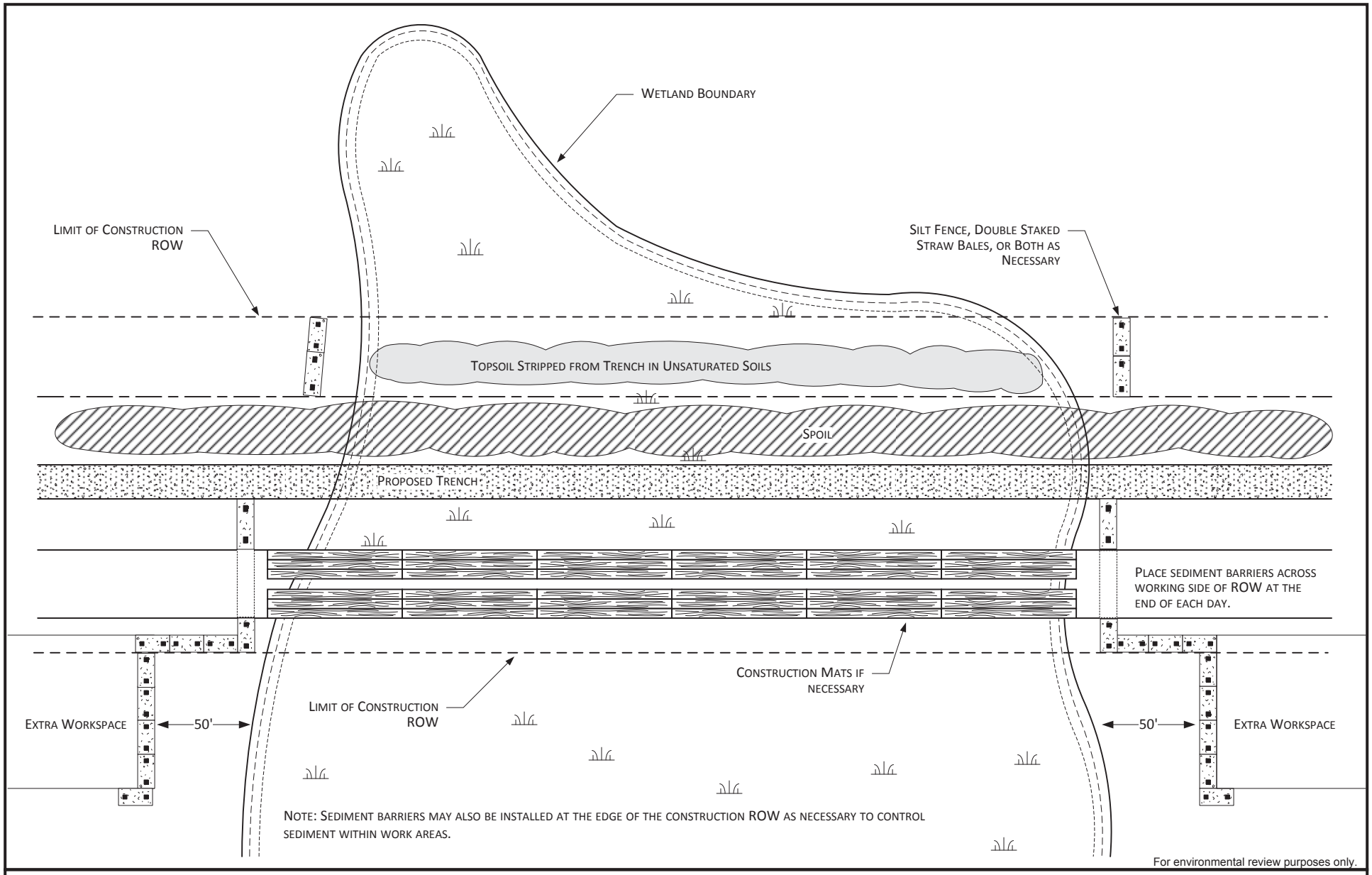

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Figure 9
Bear Den Phase 2 Project
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Typical Open-Cut Wetland Crossing

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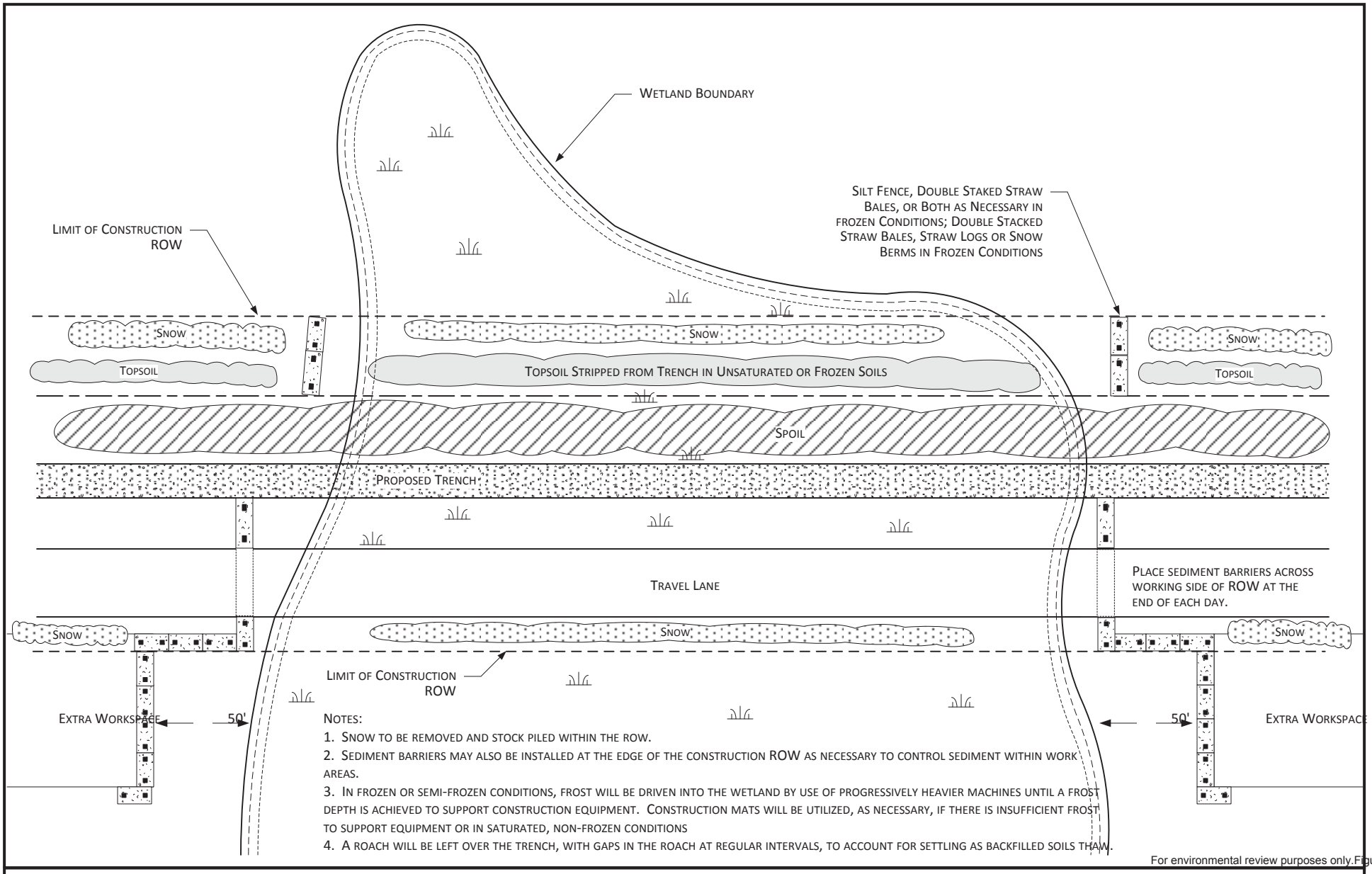

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Figure 10
Bear Den Phase 2 Project
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Typical Construction for Work in Frozen Conditions in Wetlands

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