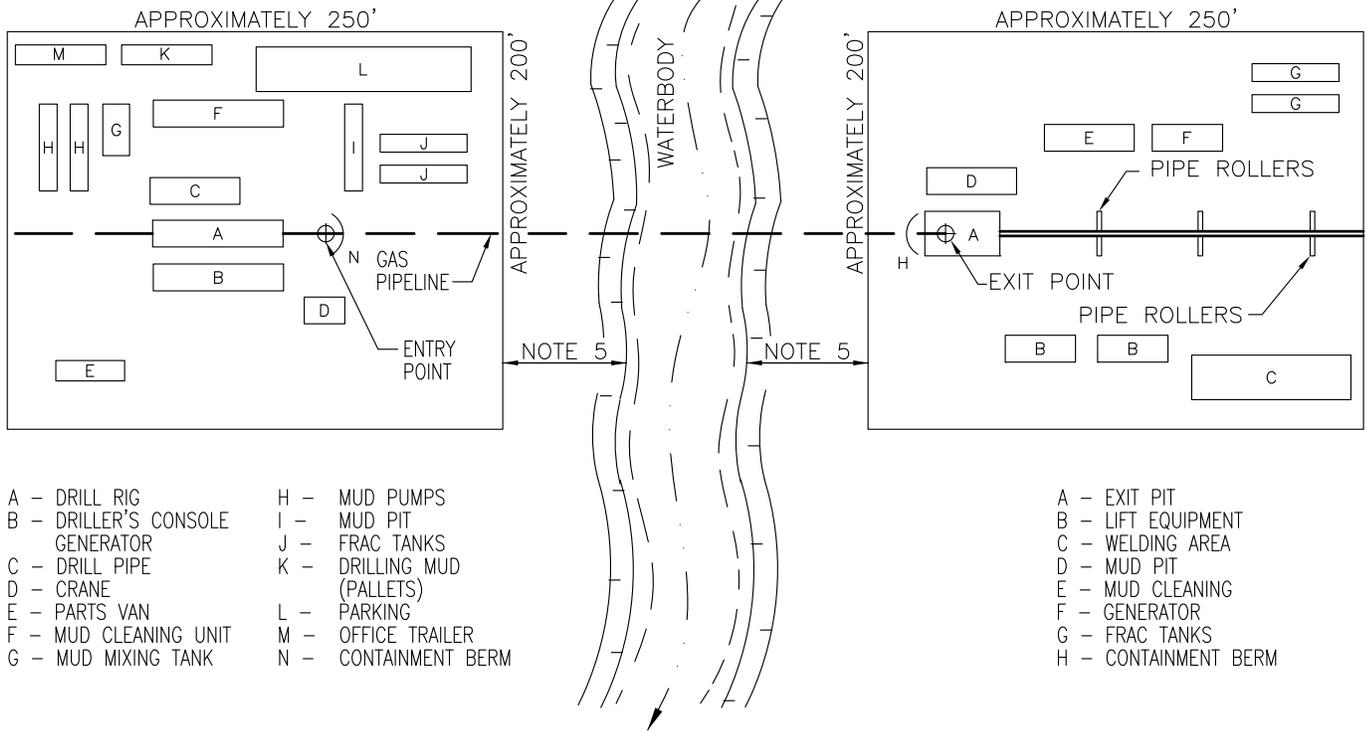


Appendix B

Typical Drawings

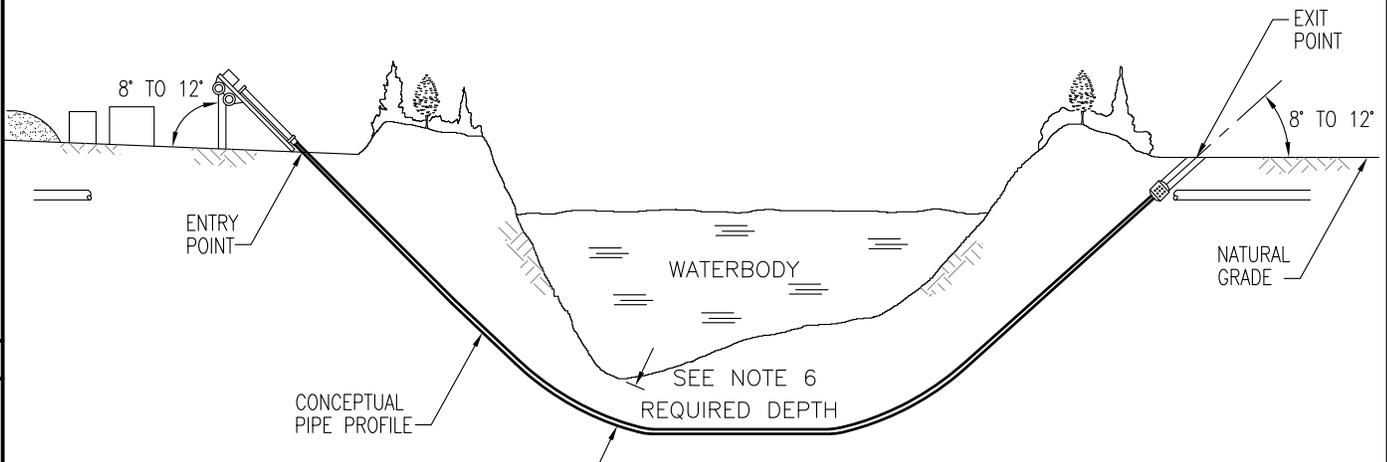
(Typical Rights-of-Way Configurations, Typical Temporary Use Area and Construction Drawings, Typical Pipeline Design, Typical Erosion Control Measures)



- A - DRILL RIG
- B - DRILLER'S CONSOLE
- C - DRILL PIPE
- D - CRANE
- E - PARTS VAN
- F - MUD CLEANING UNIT
- G - MUD MIXING TANK
- H - MUD PUMPS
- I - MUD PIT
- J - FRAC TANKS
- K - DRILLING MUD (PALLETS)
- L - PARKING
- M - OFFICE TRAILER
- N - CONTAINMENT BERM

- A - EXIT PIT
- B - LIFT EQUIPMENT
- C - WELDING AREA
- D - MUD PIT
- E - MUD CLEANING
- F - GENERATOR
- G - FRAC TANKS
- H - CONTAINMENT BERM

PLAN



PROFILE

NOTES:

1. ONLY BENTONITE BASED DRILLING MUD MAY BE USED. USE OF ADDITIVES TO THE DRILLING MUD IS PROHIBITED WITHOUT PRIOR APPROVAL OF COMPANY'S INSPECTOR.
2. INSTALL SUITABLE DRILLING MUD TANKS OR SUMPS TO PREVENT CONTAMINATION OF WATERCOURSE.
3. INSTALL BERMS DOWN SLOPE FROM THE DRILL ENTRY AND ANTICIPATED EXIT POINTS TO CONTAIN ANY RELEASE OF DRILLING MUD.
4. DISPOSE OF DRILLING MUD IN ACCORDANCE WITH THE APPROPRIATE REGULATORY AUTHORITY REQUIREMENTS.
5. DISTANCE BACK FROM EDGE OF WATERBODY VARIES WITH BENDING RADIUS OF PIPE. FOR 30" O.D. PIPE THE MINIMUM HDD LENGTH IS 1300' TO ACHIEVE 60' DEPTH BELOW NATURAL GRADE.
6. REQUIRED DEPTH TO BE DETERMINED AFTER SITE SPECIFIC GEOTECHNICAL INVESTIGATION.

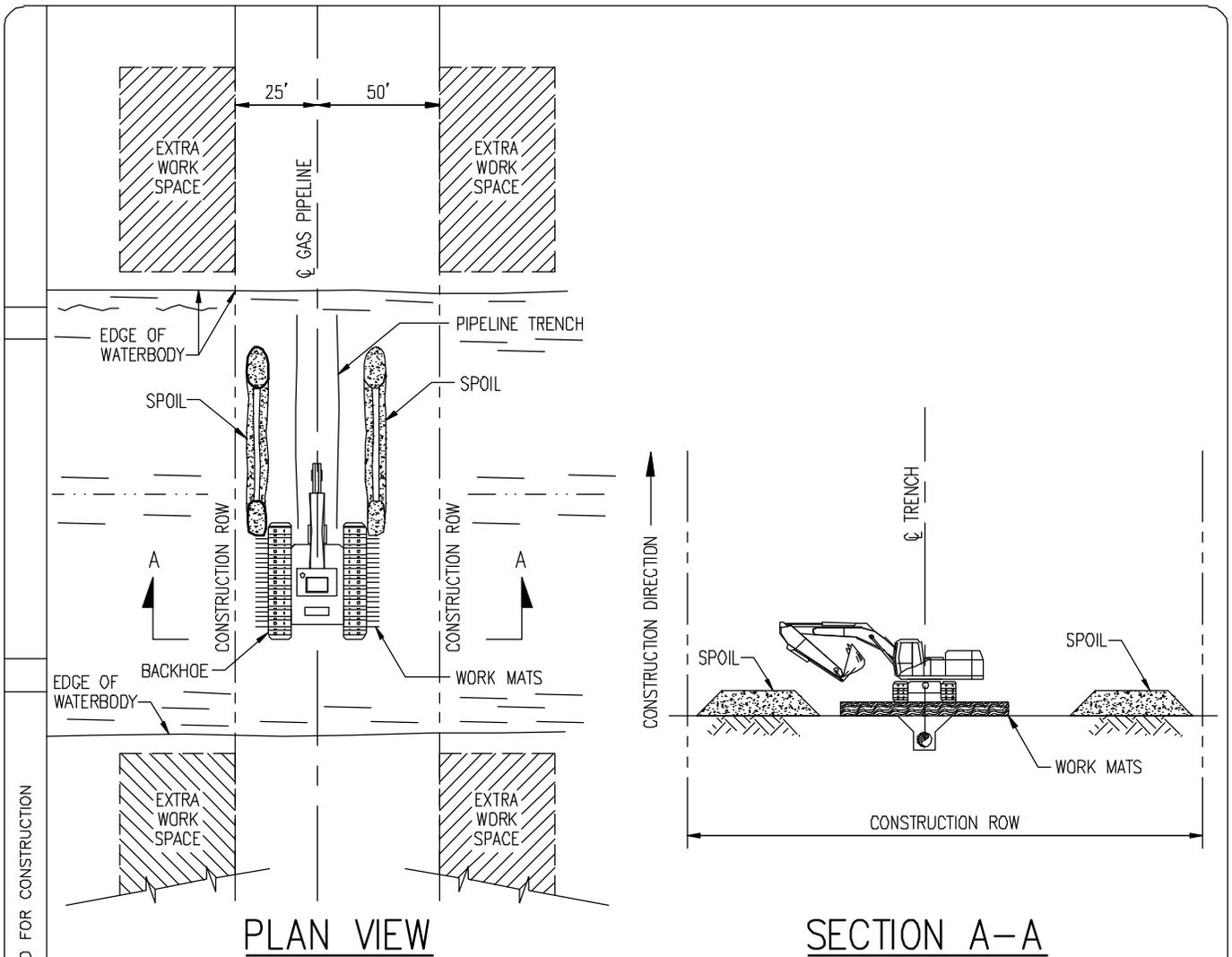
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RG	DWA

TITLE		BISON PIPELINE PROJECT	
		BISON PIPELINE LLC	
		TYPICAL WATERBODY CROSSING METHOD	
		HORIZONTAL DIRECTIONAL DRILL	
SCALE	DWG No	REV	
N.T.S.	4489-03-ML-03-002	0	



PLAN VIEW

SECTION A-A

CONSTRUCTION PROCEDURES:

1. THE CONSTRUCTION ROW FOR THIS TYPE OF CONSTRUCTION SHALL BE 75' FEET.
2. NO REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN APPROXIMATELY 100 FEET OF WATERBODY. PLACE "NO FUELING" SIGN POSTS 100 FEET BACK FROM WATERBODY BOUNDARY. REFUEL STATIONARY, OR WITHIN 500 FEET OF THE WATERBODY ON BLM LANDS EQUIPMENT AS PER THE PROJECT'S SPILL PREVENTION PROCEDURES, OR 500 FEET FROM THE WATERBODY ON BLM LANDS.
3. INSTALL TEMPORARY SLOPE BREAKER UPSLOPE WITHIN 100 FEET OF WATERBODY BOUNDARY AS DIRECTED BY THE PROJECT.
4. RESTRICT ROOT GRUBBING TO ONLY THE AREA OVER THE DITCHLINE.
5. TOPSOIL STRIPPING SHALL NOT BE REQUIRED IN SATURATED SOIL CONDITIONS.
6. UTILIZE AMPHIBIOUS EXCAVATORS (PONTON MOUNTED BACKHOES) OR TRACKED BACKHOES SUPPORTED BY FABRICATED TIMBER MATS OR FLOATS TO EXCAVATE TRENCH. IF FABRICATED TIMBER MATS ARE USED FOR STABILIZATION, THE BACKHOE SHALL GRADUALLY MOVE ACROSS THE WATERBODY BY MOVING THE MAT FROM IMMEDIATELY BEHIND TO IMMEDIATELY IN FRONT OF THE BACKHOE'S PATH.
7. AVOID ADJACENT WETLANDS.
8. FABRICATE PIPE IN STAGING AREA OUTSIDE THE WATERBODY IN THE EXTRA WORK SPACE AS INDICATED ON THE CONSTRUCTION DRAWINGS.
9. LEAVE HARD PLUGS AT THE EDGE OF THE WATERBODY UNTIL JUST PRIOR TO PIPE PLACEMENT.
10. FLOAT PIPE IN PLACE, LOWER-IN INSTALL TRENCH PLUGS AT WATERBODY EDGES WHERE REQUIRED AND BACKFILL IMMEDIATELY.
11. REMOVE TIMBER MATS OR PRE-FABRICATED MATS OF NON-NATIVE MATERIAL FROM WATERBODY UPON COMPLETION.
12. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY AND INSTALL PERMANENT EROSION CONTROL.
13. FLAG WATERBODY BOUNDARIES PRIOR TO CLEARING.

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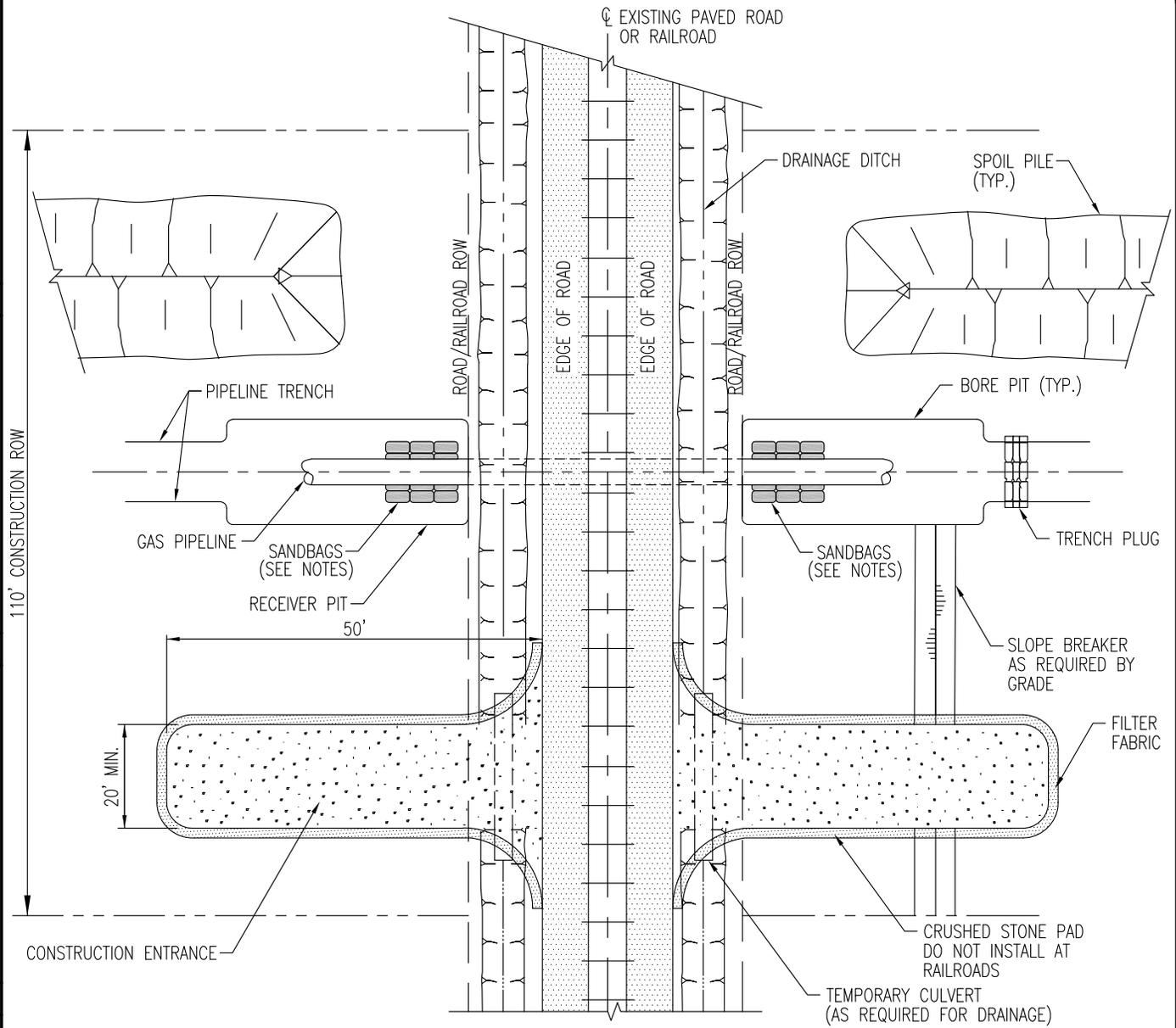
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BISON PIPELINE LLC
TYPICAL PUSH PULL WATERBODY CROSSING METHOD
CROSSING METHOD 3

SCALE: N.T.S. DWG No: **4489-03-ML-03-003**

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BORED ROAD/RAILROAD CROSSING & PIPE END SUPPORTS

NOTES:

1. CROSSING SHALL BE IN ACCORDANCE WITH APPLICABLE PERMIT.
2. AT A MINIMUM, ROAD CROSSING PIPE SHALL EXTEND TO THE RIGHT OF WAY LINE UNLESS OTHERWISE SPECIFIED.
3. THE TYPE AND MINIMUM REQUIRED LENGTH OF THE PIPE FOR CROSSINGS SHALL BE AS SPECIFIED ALIGNMENT SHEETS.
4. PIPE FOR BORED CROSSINGS TO INCLUDE ABRASION-RESISTANT OVERCOAT (ARO)
5. PIPELINE MARKER AND TEST STATIONS TO BE INSTALLED ON right of way LINE NEXT TO THE FENCE IF POSSIBLE.
6. THE CROSSING SHALL BE STRAIGHT WITH NO HORIZONTAL OR VERTICAL BENDS WITHIN ROAD/RAILROAD right of way.
7. MINIMUM PIPELINE COVER IS 60 INCHES; 36 INCHES IN CONSOLIDATED ROCK.
8. BORE ANNULUS TO BE NO LARGER THAN 1" GREATER THAN COATED LINE PIPE.
9. TO AVOID UNDUE STRESS ON THE BORED PIPE SEGMENT DURING TIE-IN, EACH PIPE END IS TO BE FULLY SUPPORTED BY SANDBAGS IMMEDIATELY AFTER BORING IS COMPLETED.
10. SANDBAGS SHALL BE INSTALLED TO SUPPORT THE MAIN PIPELINE AT ONE OR MORE POINTS SO THAT THE WELDED PIPELINE DOES NOT SAG BEFORE OR DURING THE BACKFILLING OF THE BORING MACHINE PIT.
11. SANDBAG SUPPORTS ARE TO BE LEFT SUPPORTING THE PIPELINE AS A PERMANENT SUPPORT SYSTEM DURING BACKFILLING, SOIL SETTLING AND COMPACTION.



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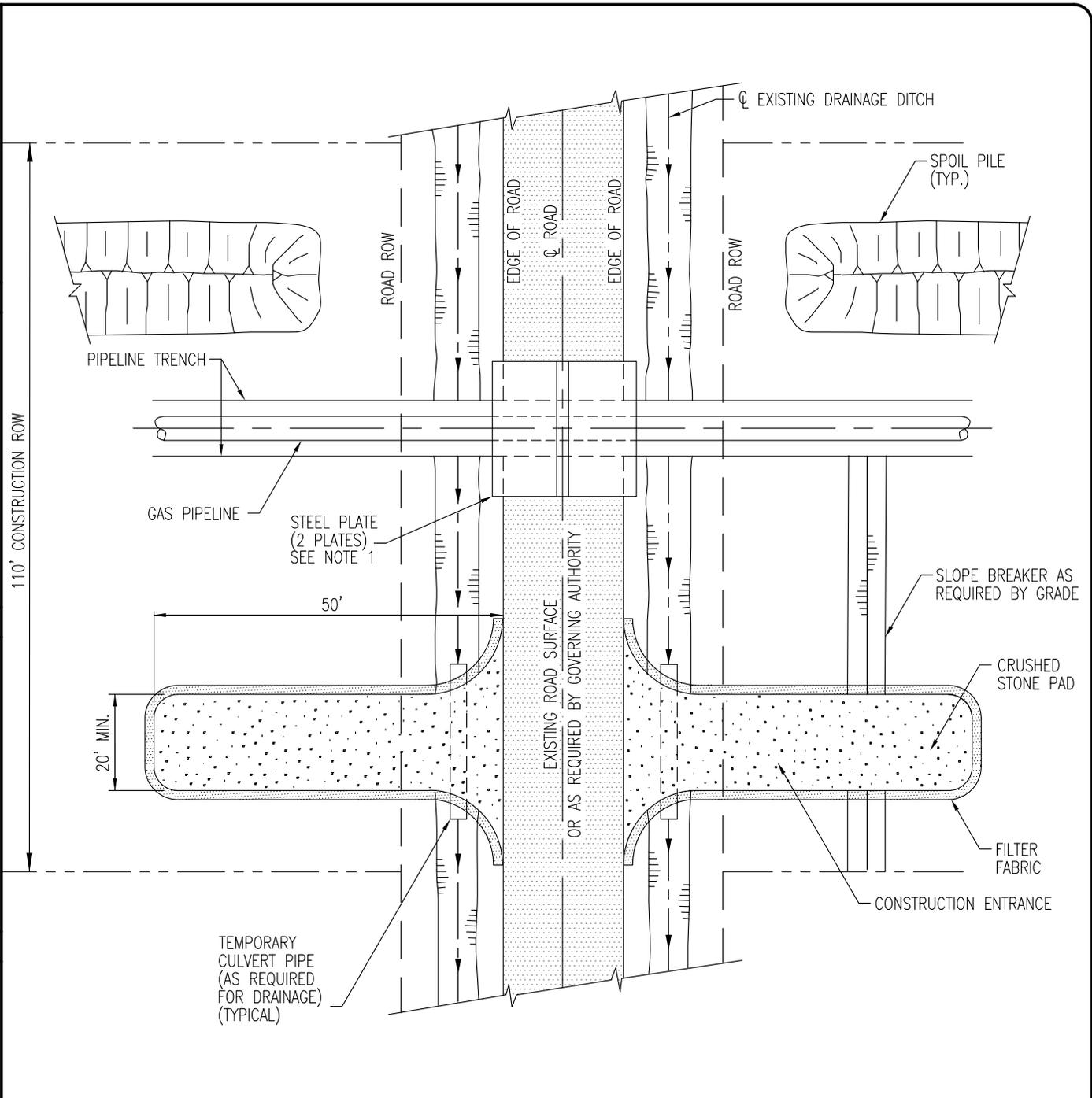
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 BISON PIPELINE LLC
 TYPICAL BORED ROAD/RAILROAD CROSSING & PIPE END SUPPORTS

SCALE: N.T.S. DWG No: 4489-03-ML-03-102

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TRENCHED ROAD CROSSING

NOTES:

1. STEEL PLATES AS REQUIRED BY ROAD AUTHORITY.
2. CROSSING SHALL BE IN ACCORDANCE WITH APPLICABLE PERMIT.
3. THE TYPE AND MINIMUM REQUIRED LENGTH SHALL BE SPECIFIED ON THE ALIGNMENT SHEETS.
4. THE CROSSING SHALL BE STRAIGHT WITH NO HORIZONTAL OR VERTICAL BENDS WITHIN ROAD right of way.



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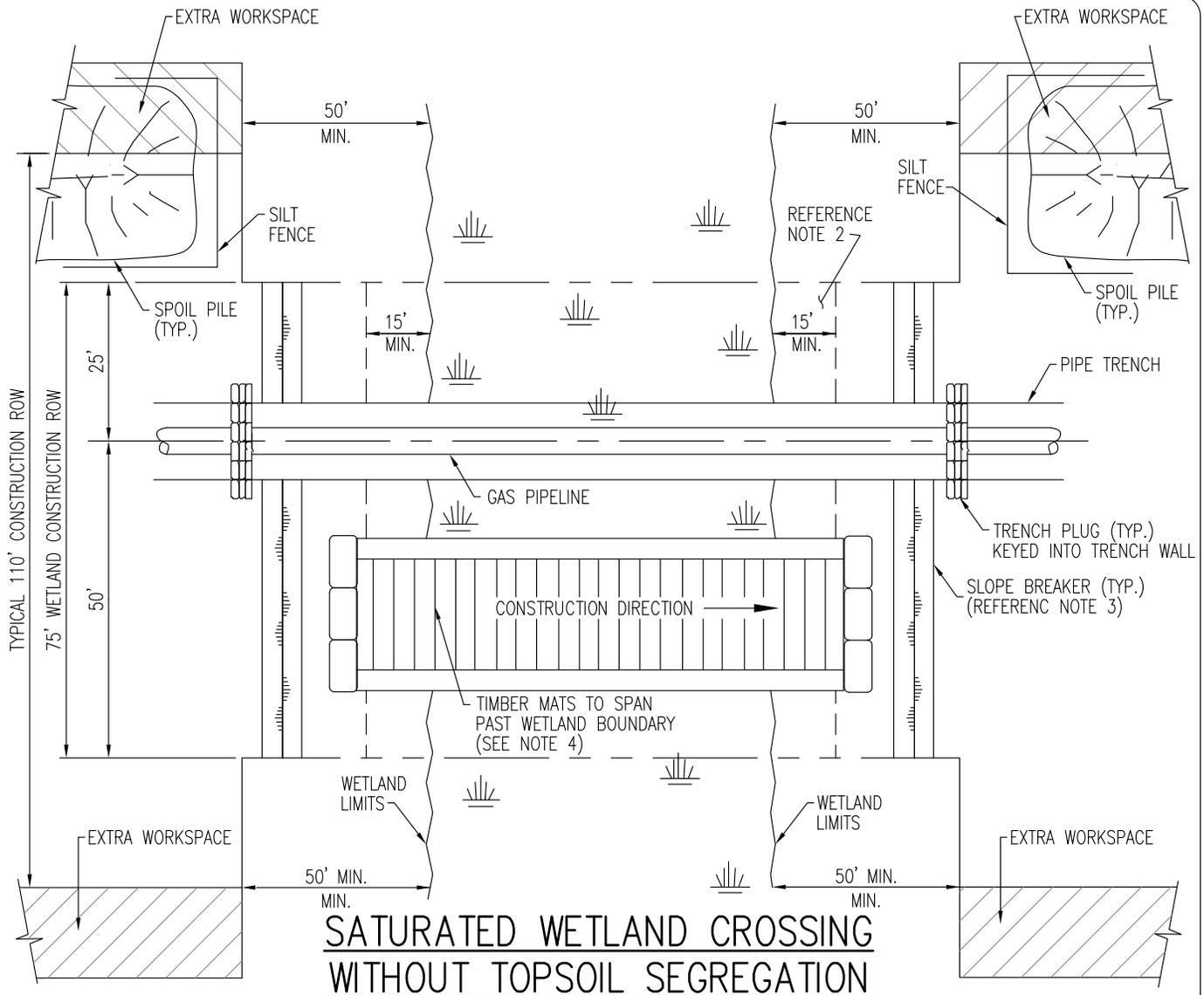
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 BISON PIPELINE LLC
 TYPICAL TRENCHED ROAD CROSSING

SCALE: N.T.S. DWG No: 4489-03-ML-03-103

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NOTES:

1. FLAG WETLAND BOUNDARY AND VEGETATIVE BUFFER ZONES PRIOR TO CLEARING. EXCEPT FOR THE GRADED DRIVE LANE CONTRACTOR SHALL POSTPONE CLEARING IN THE BUFFER AREA ADJACENT TO WETLAND UNTIL THE STAGING AREA IS PREPARED AND WORK IN THE WETLAND IS READY TO COMMENCE. BUFFER IS A MINIMUM OF 15 FEET AND EXTENDS 15 FEET BEYOND THE EDGE OF THE RIPARIAN AREA TO A MAXIMUM OF 50 FEET.
2. NO REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET OF WETLAND BOUNDARY. OR WITHIN 500 FEET OF THE WETLAND ON BLM LANDS PLACE "NO FUELING" SIGN POSTS 100 FEET BACK FROM WETLAND BOUNDARY. OR 500 FEET FROM THE WETLAND ON BLM LANDS, REFUEL STATIONARY EQUIPMENT AS PER THE PROJECTS SPILL PREVENTION PROCEDURES.
3. INSTALL SLOPE BREAKER AT THE BASE OF ALL SLOPES ADJACENT TO THE WETLANDS OR AS DIRECTED BY THE PROJECT.
4. INSTALL TIMBER MATS/RIPRAP THROUGH ENTIRE WETLAND AREA. EQUIPMENT NECESSARY FOR RIGHT OF WAY CLEARING MAY MAKE ONE (1) PASS THROUGH THE WETLAND BEFORE MATS ARE INSTALLED. USE ADDITIONAL TIMBER MAT LAYERS TO RAISE CROSSING ABOVE GRADE WHERE POOR SOIL CONDITIONS EXIST.
5. AVOID ADJACENT WETLANDS INSTALL SEDIMENT BARRIERS (STRAW BALES AND/ OR SILT FENCE) AT DOWN SLOPE EDGE OF right of way AND ALONG WETLAND EDGE AS REQUIRED.
6. RESTRICT ROOT GRUBBING TO THAT ARE OVER THE DITCH LINE AND REMOVE STUMPS FROM WETLAND FOR DISPOSAL.
7. TOPSOIL STRIPPING SHALL NOT BE REQUIRED IN SATURATED SOIL CONDITIONS.
8. LEAVE HARD PLUGS AT EDGE OF WETLANDS UNTIL JUST PRIOR TO TRENCHING.
9. PIPE SECTION MAY BE FABRICATED WITHIN WETLAND AND ADJACENT TO ALIGNMENT OR IN EXTRA WORKSPACE OUTSIDE THE WETLAND AND WALKED IN.
10. TRENCH THROUGH WETLANDS.
11. LOWER-IN PIPE. INSTALL TRENCH PLUGS AT WETLAND EDGES AS REQUIRED AND BACKFILL IMMEDIATELY.
12. REMOVE TIMBER MATS OR PRE-FABRICATED MATS FROM WETLAND UPON COMPLETION.
13. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY. REPLACE TOPSOIL AND INSTALL PERMANENT EROSION CONTROL.

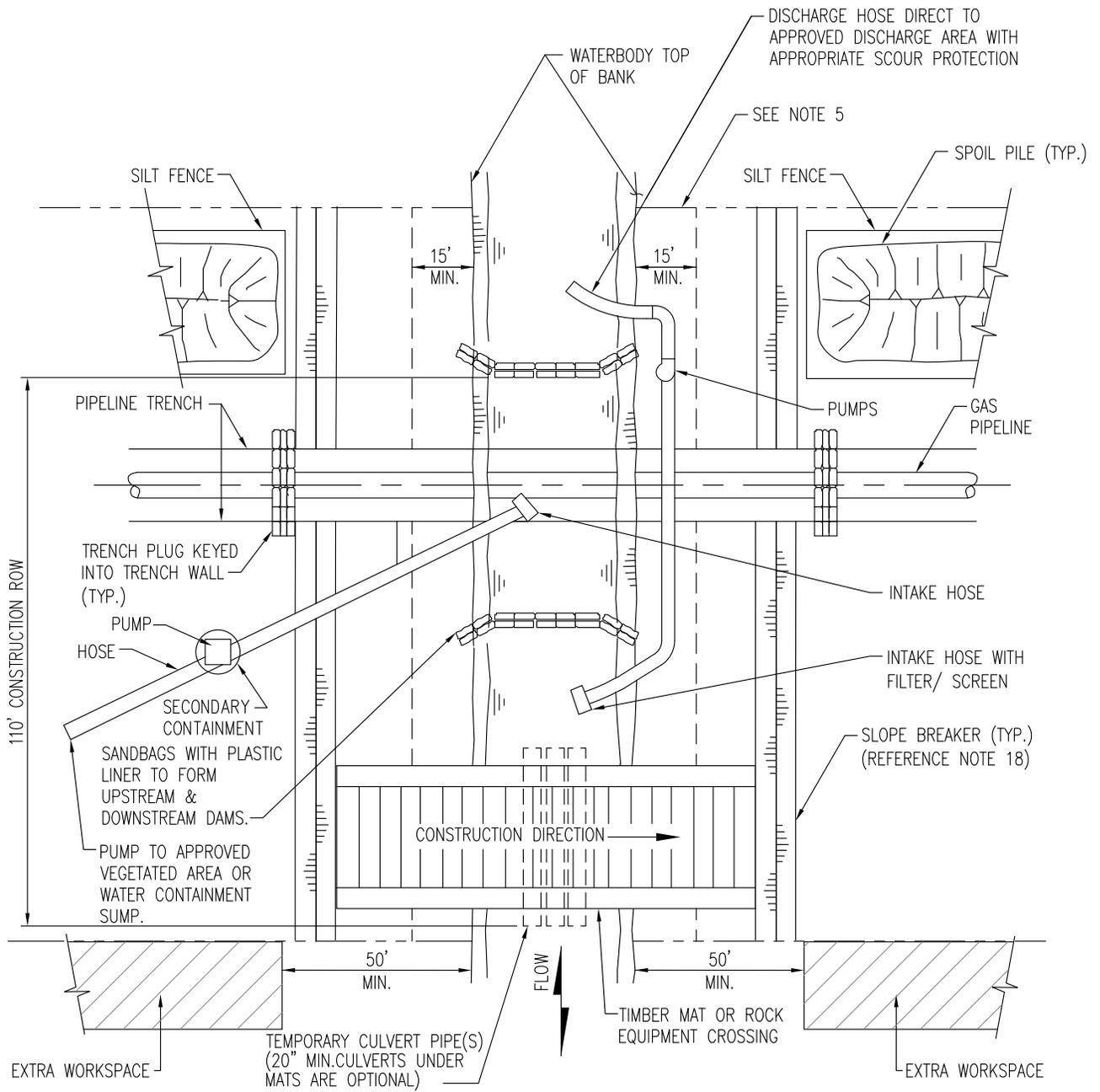


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RG	DWA	N.T.S.	4489-03-ML-05-003

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UPLAND WATERBODY CROSSING DAM & PUMP METHOD

NOTES:
SEE PAGE 2 FOR CONSTRUCTION PROCEDURES.



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BISON PIPELINE LLC TYPICAL WATERBODY CROSSING DAM & PUMP METHOD		PAGE 1 OF 2	
		SCALE N.T.S.	DWG No 4489-03-ML-05-004
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CONSTRUCTION PROCEDURES:

1. WHERE NECESSARY, OBTAIN PRIOR APPROVAL BEFORE USING THE DAM AND PUMP METHOD. CONSTRUCTION METHOD SHOWN ON DWG. 4489-03-ML-05-005 IS AN OPTION AS CONDITIONS NECESSITATE.
2. IF THERE IS ANY FLOW IN THE WATERCOURSE, INSTALL PUMPS TO MAINTAIN STREAMFLOW AROUND THE BLOCKED OFF SECTIONS OF CHANNEL. THE PUMP IS TO HAVE 1.5 TIMES THE PUMPING CAPACITY OF ANTICIPATED FLOW. A SECOND STANDBY PUMP OF EQUAL CAPACITY IS TO BE READILY AVAILABLE AT ALL TIMES. AN ENERGY DISSIPATER IS TO BE BUILT TO ACCEPT PUMP DISCHARGE WITHOUT STREAMBED OR STREAMBANK EROSION. IF THE CROSSING IS PROLONGED BEYOND ONE DAY THE OPERATION NEEDS TO BE MONITORED OVERNIGHT.
3. SCHEDULE INSTREAM ACTIVITY FOR LOW FLOW PERIODS IF POSSIBLE.
4. MARK OUT AND MAINTAIN LIMITS OF AUTHORIZED WORK AREAS WITH FENCING OR FLAGGING TAPE TO AVOID UNNECESSARY DISTURBANCE OF VEGETATION. ENSURE EQUIPMENT OPERATORS WORKING ON THE CROSSING HAVE BEEN BRIEFED ABOUT THIS PLAN AND THE MEASURES NEEDED TO PROTECT WATER QUALITY. INSTALL PRE-WORK SEDIMENT CONTROL MEASURES AS SPECIFIED IN THE PLAN. ALL NECESSARY EQUIPMENT AND MATERIALS TO BUILD THE DAMS AND TO PUMP WATER MUST BE ON SITE OR READILY AVAILABLE PRIOR TO COMMENCING IN-WATER CONSTRUCTION. PIPE SHOULD BE STRUNG, WELDED AND COATED AND READY FOR INSTALLATION PRIOR TO WATERCOURSE TRENCHING.
5. EXCEPT FOR THE GRADE DRIVE LANE, CONTRACTOR SHALL POSTPONE CLEARING IN THE BUFFER AREA ADJACENT TO WATERBODY UNTIL THE STAGING AREA IS PREPARED AND WORK IN THE WATERBODY IS READY TO COMMENCE. BUFFER IS A MINIMUM OF 15 FEET AND EXTENDS 15 FEET BEYOND THE EDGE OF THE RIPARIAN AREA, TO A MAXIMUM OF 50 FEET.
6. LIMIT BANK GRADING IN BUFFER AREA (SEE NOTE 5) TO 75 FEET WIDE ACROSS CONSTRUCTION ROW, UNLESS TOPOGRAPHICAL FEATURES DICTATE OTHERWISE, IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.
7. CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES, AS DEPICTED AND ALONG DOWN GRADIENT SIDES OF WORK AREAS AND STAGING AREAS SUCH THAT NO HEAVILY SILT LADEN WATER ENTERS STREAM
 - a. NO HEAVILY SILT LADEN WATER SHALL BE DISCHARGED DIRECTLY INTO THE STREAM.
 - b. EROSION AND SEDIMENT CONTROL STRUCTURE LOCATIONS AS DEPICTED ARE APPROXIMATE AND MAY BE ADJUSTED AS DIRECTED BY THE COMPANY INSPECTOR TO ACTUAL SITE CONDITIONS.
 - c. SILT FENCE OR STRAW BALE INSTALLATIONS SHALL INCLUDE REMOVABLE SECTIONS TO FACILITATE ACCESS DURING CONSTRUCTION. UTILIZE STRAW BALE BARRIERS ONLY IN LIEU OF A SILT FENCE WHERE FREQUENT ACCESS IS REQUIRED.
 - d. SEDIMENT LADEN WATER FROM TRENCH DEWATERING SHALL BE DISCHARGED TO A WELL VEGETATED UPLAND AREA INTO A STRAW BALE DEWATERING STRUCTURE OR GEOTEXTILE FILTER BAG.
 - e. SEDIMENT CONTROL STRUCTURES MUST BE IN PLACE AT ALL TIMES ACROSS THE DISTURBED PORTIONS OF THE right-of-way EXCEPT DURING EXCAVATION/INSTALLATION OF THE CROSSING PIPE.
 - f. SOFT DITCH PLUGS MUST REMAIN IN PLACE AT CONVENIENT LOCATIONS TO SEPARATE MAINLINE DITCH FROM THE WATERBODY CROSSING UNTIL THE WATERBODY CROSSING IS INSTALLED AND BACKFILLED.
8. TO THE EXTENT POSSIBLE, MAINTAIN A MINIMUM 15 FEET VEGETATIVE BUFFER STRIP BETWEEN DISTURBED AREAS AND THE WATERCOURSE. INSTALL AND MAINTAIN A SILT FENCE UPSLOPE OF THE BUFFER STRIP ON EACH SIDE OF THE WATERCOURSE. THE SILT FENCE SHOULD INCORPORATE REMOVAL "GATES" AS REQUIRED TO ALLOW ACCESS WHILE MAINTAINING EASE OF REPLACEMENT FOR OVERNIGHT OR DURING PERIODS OF RAINFALL.
9. CONSTRUCT A TEMPORARY SUMP UPSTREAM OF THE DAM AND LINE WITH A ROCKFILL IF A NATURAL POOL DOES NOT EXIST. INSTALL THE PUMP OR PUMP INTAKE IN THE POOL OR SUMP. DISCHARGE WATER ONTO AN ENERGY DISSIPATER DOWNSTREAM OF THE WORK AREA.
10. EXCAVATED MATERIAL MUST NOT BE STOCKPILED WITHIN 15 FEET OF THE WATERCOURSE. THIS MATERIAL MUST BE CONTAINED WITHIN BERM CONTAINMENT, WITH SECONDARY SILT FENCE PROTECTION TO PREVENT SATURATED SOIL FROM FLOWING BACK INTO THE WATERCOURSE.
11. CHEMICALS, FUELS, LUBRICATING OILS SHALL NOT BE STORED AND EQUIPMENT REFUELED WITHIN 100 FEET OF THE TO WETLAND/WATERBODY BOUNDARY, OR WITHIN 500 FEET OF THE WETLAND/WATERBODY ON BLM LANDS PUMPS ARE TO BE REFUELED AS PER THE SPCC PLANS.
12. STAGING AREAS ARE TO BE LOCATED AT LEAST 50 FEET FROM THE TOP OF BANK (WHERE TOPOGRAPHIC CONDITIONS PERMIT) AND SHALL BE THE MINIMUM SIZE NEEDED.
13. DAMS ARE TO BE MADE OF STEEL PLATE, INFLATABLE PLASTIC DAM, SAND BAGS, COBBLES, WELL GRADED COARSE GRAVEL FILL, OR ROCK FILL. DAMS MAY NEED KEYING INTO THE BANKS AND STREAMBED. ENSURE THAT THE DAM AND VEHICLE CROSSING ARE LOCATED FAR ENOUGH APART TO ALLOW FOR A WIDE EXCAVATION. CAP FLUMES USED UNDER VEHICLE CROSSING DURING DRY CROSSING.
14. DEWATER AREA BETWEEN DAMS IF POSSIBLE. DEWATERING SHOULD OCCUR IN A STABLE VEGETATIVE AREA A MINIMUM OF 50 FEET FROM ANY WATERBODY. THE PUMP DISCHARGE SHOULD BE DISCHARGED ONTO A STABLE SPILL PAD CONSTRUCTED OF ROCKFILL SAND BAGS, OR TIMBERS TO PREVENT LOCALIZED EROSION. THE DISCHARGE WATER SHOULD ALSO BE FORCED INTO SHEET FLOW IMMEDIATELY BEYOND THE SPILL PAD BY USING STRAW BALES AND THE NATURAL TOPOGRAPHY DISCHARGED WATER SHALL NOT BE ALLOWED TO FLOW INTO ANY WATERCOURSE OR WETLAND. IF IT IS NOT POSSIBLE TO DEWATER THE EXCAVATION DUE TO SOILS WITH A HIGH HYDRAULIC CONDUCTIVITY, THE EXCAVATION AND PIPE PLACEMENT IS TO BE CARRIED OUT IN THE STANDING WATER. PUMP ANY DISPLACED WATER AS DESCRIBED ABOVE TO PREVENT OVERTOPPING OF DAMS.
15. EXCAVATE TRENCH THROUGH PLUGS AND STREAMBED FROM BOTH SIDES, RE-POSITIONING DISCHARGE HOSE AS NECESSARY. LOWER THE PIPE IN THE TRENCH AND BACKFILL IMMEDIATELY. DURING THIS OPERATION WORK IS TO BE COMPLETED AS QUICKLY AS POSSIBLE.
16. CONTRACTOR SHALL RESTORE THE STREAMBED AND BANKS TO APPROXIMATE PRE-CONSTRUCTION CONTOURS, BUT NOT TO EXCEED 2 HORIZONTAL TO 1 VERTICAL.
 - a. CONTRACTOR SHALL INSTALL PERMANENT EROSION AND SEDIMENT CONTROL STRUCTURES AS INDICATED ON A SITE SPECIFIC BASIS. IN THE ABSENCE OF SITE SPECIFIC INFORMATION. A FLEXIBLE CHANNEL LINER SUCH AS NAG C125 OR C350 WHICH IS CAPABLE OF WITHSTANDING ANTICIPATED FLOW SHALL BE INSTALLED. ALTERNATIVELY, ROCK RIP-RAP SHALL BE INSTALLED.
 - b. ANY MATERIALS PLACED IN THE STREAM TO FACILITATE CONSTRUCTION SHALL BE REMOVED DURING RESTORATION. BANKS SHALL BE STABILIZED AND TEMPORARY SEDIMENT BARRIERS INSTALLED AS SOON AS POSSIBLE AFTER CROSSING, BUT WITHIN 24 HOURS OF COMPLETING THE CROSSING.
 - c. MAINTAIN A SILT FENCE OR STRAW BALE BARRIER ALONG THE WATER COURSE UNTIL VEGETATION IS ESTABLISHED IN ADJACENT DISTURBED AREAS.
17. WHEN THE STREAMBED HAS BEEN RESTORED, THE CREEK BANKS ARE TO BE CONTOURED TO A STABLE ANGLE AND PROTECTED WITH EROSION RESISTANT MATERIAL COMPATIBLE WITH FLOW VELOCITY BETWEEN DAMS (E.G., EROSION CONTROL BLANKETS, CRIBBING, ROCK RIP-RAP, ETC.). THE DAMS ARE TO BE REMOVED DOWNSTREAM FIRST. KEEP PUMP RUNNING UNTIL NORMAL FLOW IS RESUMED. COMPLETE BANK TRIMMING AND EROSION PROTECTION. IF SAND BAGS ARE USED FOR THE DAMS, PLACED AND REMOVE BY HAND TO AVOID EQUIPMENT BREAKING BAGS.
18. INSTALL SLOPE BREAKER AT THE BASE OF ALL SLOPES ADJACENT TO THE WATERBODY.

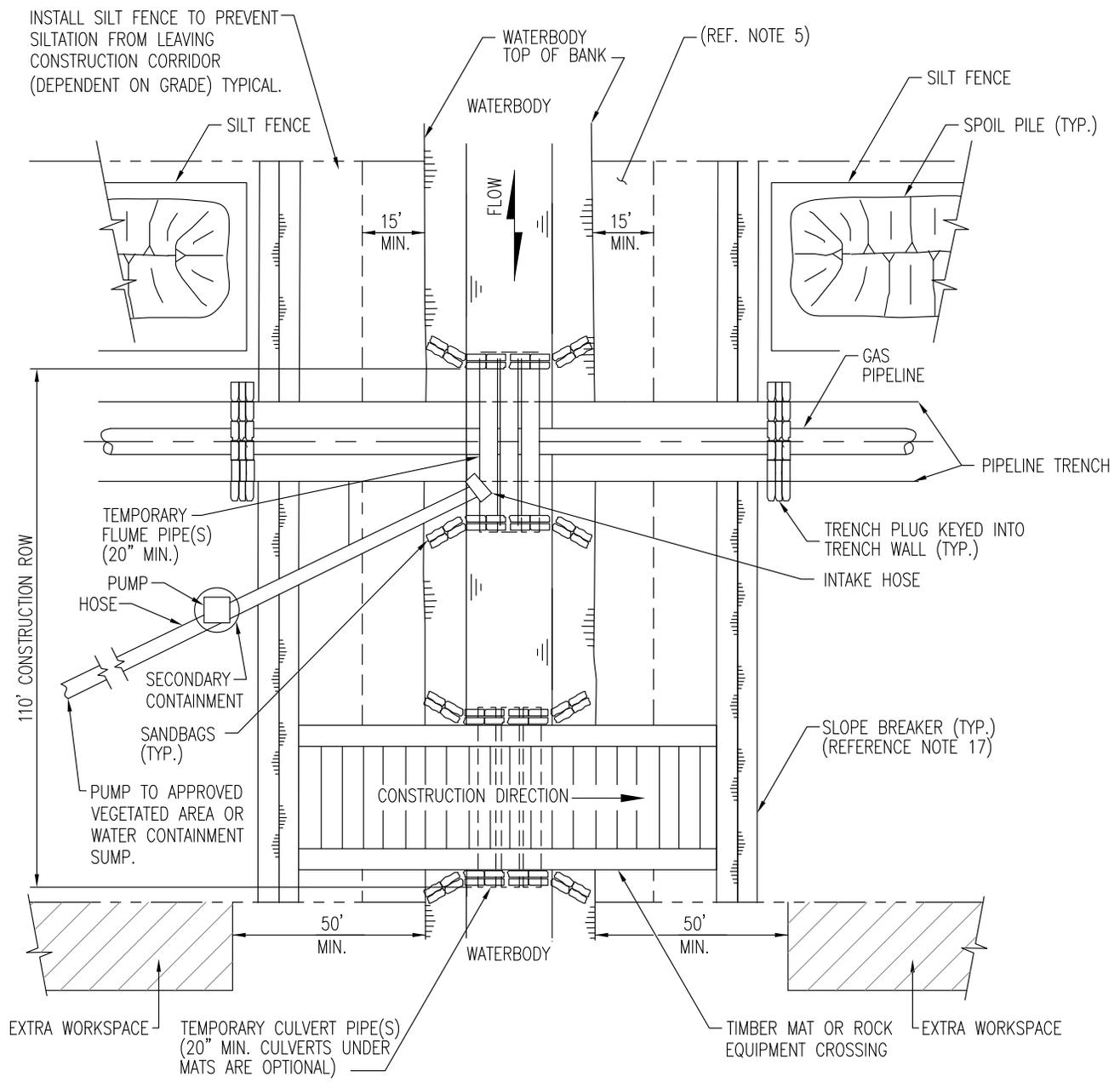
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		BISON PIPELINE LLC	
		TYPICAL WATERBODY CROSSING	
		DAM & PUMP METHOD	
SCALE	DWG No	PAGE 2 OF 2	
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UPLAND WATERBODY FLUMED CROSSING

(APPLIES TO WATERBODIES GREATER THAN 10' WIDE NOT GREATER THAN 100' WIDE)

NOTES:
SEE PAGE 2 FOR CONSTRUCTION PROCEDURES.

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		BISON PIPELINE LLC	
		TYPICAL WATERBODY CROSSING	
		METHOD FLUMED	
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CONSTRUCTION PROCEDURES:

1. CONSTRUCTION METHOD SHOWN ON DWG. 4489-03-ML-05-004 IS AN OPTION AS CONDITIONS NECESSITATE.
2. MARK OUT AND MAINTAIN LIMITS OF AUTHORIZED WORK AREAS WITH FENCING OR FLAGGING TAPE TO AVOID UNNECESSARY DISTURBANCE OF VEGETATION. ENSURE EQUIPMENT OPERATORS WORKING ON THE CROSSING HAVE BEEN BRIEFED ABOUT THIS PLAN AND THE MEASURE NEEDED TO PROTECT WATER QUALITY.
3. ALL NECESSARY EQUIPMENT AND MATERIALS TO BUILD THE FLUME MUST BE ON-SITE OR READILY AVAILABLE PRIOR TO COMMENCING IN-WATER WORK.
4. TO THE EXTENT POSSIBLE, MAINTAIN A MINIMUM 15 FEET VEGETATIVE BUFFER STRIP BETWEEN DISTURBED AREAS AND THE WATERCOURSE. INSTALL AND MAINTAIN A SILT FENCE OR STRAW BALE BARRIER UPSLOPE OF THE BUFFER STRIP ON EACH SIDE OF THE WATERCOURSE.
5. EXCEPT FOR THE GRADED DRIVE LANE, CONTRACTOR SHALL POSTPONE CLEARING IN THE BUFFER AREA ADJACENT TO WATERBODY UNTIL THE STAGING AREA IS PREPARED AND WORK IN AND THE WATERBODY IS READY TO COMMENCE. BUFFER IS A MINIMUM OF 15 FEET AND EXTENDS 15 FEET BEYOND THE EDGE OF THE RIPARIAN AREA, TO A MAXIMUM OF 50 FEET.
6. LIMIT BANK GRADING IN BUFFER AREA (SEE NOTE 5) TO 75 FEET WIDE ACROSS CONSTRUCTION right-of-way, UNLESS TOPOGRAPHICAL FEATURES DICTATE OTHERWISE, IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.
7. CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES, AS DEPICTED OR ALONG DOWN GRADIENTS SIDES OF WORK AREAS AND STAGING AREAS SUCH THAT NO HEAVILY SILT LADEN WATER ENTERS STREAM.
 - a. NO HEAVILY SILT LADEN WATER SHALL BE DISCHARGED DIRECTLY INTO STREAM.
 - b. EROSION AND SEDIMENT CONTROL STRUCTURE LOCATION AS DEPICTED ARE APPROXIMATE AND MAY BE ADJUSTED AS DIRECTED BY THE COMPANY INSPECTOR TO ACTUAL SITE CONDITIONS.
 - c. SILT FENCE OR STRAW BALE INSTALLATIONS SHALL INCLUDE REMOVABLE SECTIONS TO FACILITATE ACCESS DURING CONSTRUCTION. UTILIZE STRAW BALE BARRIERS ONLY IN LIEU OF A SILT FENCE WHERE FREQUENT ACCESS IS REQUIRED.
 - d. SEDIMENT LADEN WATER FROM TRENCH DEWATERING SHALL BE DISCHARGE TO A WELL VEGETATED UPLAND AREA INTO A STRAW BALE DEWATERING STRUCTURE OR GEOTEXTILE FILTER BAG.
 - e. SEDIMENT CONTROL STRUCTURES MUST BE IN PLACE AT ALL TIMES ACROSS THE DISTURBED PORTIONS OF THE right-of-way EXCEPT DURING EXCAVATION/INSTALLATION OF THE CROSSING PIPE.
 - f. SOFT DITCH PLUGS MUST REMAIN IN PLACE AT CONVENIENT LOCATIONS TO SEPARATE MAINLINE DITCH FROM THE WATERBODY CROSSING UNTIL THE WATERBODY CROSSING IS INSTALLED AND BACKFILLED.
8. PIPE SHALL BE STRUNG AND WELDED FOR READY INSTALLATION PRIOR TO WATERCOURSE TRENCHING.
9. FLUME CAPACITY DURING DRY CROSSING SHALL BE SUFFICIENT TO ACCOMMODATE 1.5 TIMES THE FLOW MEASURED AT THE TIME OF CONSTRUCTION PROVIDED THAT THE FLUMES WILL BE IN PLACE NOT MORE THAN 96 HOURS AND NO PRECIPITATION IS FORECAST. FLUME CAPACITY FOR VEHICLE ACCESS SHALL BE SUFFICIENT TO PASS THE 2 YEAR DESIGN FLOW OR THE FLOW REASONABLY EXPECTED TO OCCUR DURING THE INSTALLATION. EXCESS FLUMES REQUIRED FOR LONGER TERM ACCESS SHALL BE CAPPED DURING DRY CROSSING PROCEDURES.
10. ENSURE THAT DAMS AND VEHICLE CROSSING ARE LOCATED FAR ENOUGH APART TO ALLOW FOR FOR A WIDE EXCAVATION.
11. FLUMES ARE TO BE SET WITH 10 PERCENT OF THEIR DIAMETER BELOW STREAMED LEVEL WHERE SOIL CONDITIONS PERMIT (OTHERWISE INSTALLED AT STREAM GRADE AND SLOPE.) CHEMICALS, FUELS, LUBRICATING OILS SHALL NOT BE STORED AND EQUIPMENT REFUELED WITHIN 100 FEET OF THE TO WETLAND/WATERBODY BOUNDARY, OR WITHIN 500 FEET OF THE WETLAND/WATERBODY ON BLM LANDS PUMPS ARE TO BE REFUELED AS PER THE SPCC PLANS.
12. PLACE IMPERVIOUS DAMS AT EACH END OF THE FLUME, UPSTREAM FIRST, THEN DOWNSTREAM, ACCEPTABLE ALTERNATIVES INCLUDE GRAVEL WITH RIP-RAP PROTECTION, SAND BAGS, STEEL PLATE AND ROCKFILL. DURING INSTALLATION, INSTALL AN IMPERVIOUS MEMBRANE, IF NECESSARY, TO LIMIT LEAKAGE. DAMS MAY NEED KEYING INTO THE BANK AND STREAMBED. EXCAVATE TRENCH THROUGH PLUGS AND UNDER FLUME FROM BOTH SIDES. WORK IS TO BE COMPLETED AS QUICKLY AS POSSIBLE.
 - a. LOWER-IN PIPE BY PASSING UNDER FLUME AND BACKFILL IMMEDIATELY WITH SPOIL MATERIAL.
 - b. IT IS NOT NECESSARY TO DEWATER THE IN-STREAM TRENCH, HOWEVER, DISPLACED WATER SHALL BE PUMPED TO A STABLE UPLAND AREA TO AVOID OVERTOPPING OF DAMS DURING PIPE PLACEMENT.
 - c. IF THE SPOIL MATERIAL IS NOT SUITABLE, USE IMPORTED CLEAN GRANULAR MATERIAL.
 - d. IF BLASTING IS REQUIRED, USE CONTROLLED BLASTING TECHNIQUES TO PREVENT DAMAGE TO THE FLOW CONVEYANCE SYSTEM. ALTERNATIVELY, BLASTING MAY BE ACCOMPLISHED PRIOR TO THE FLUME INSTALLATION BY DRILLING THROUGH THE OVERBURDEN.
13. EXCAVATED MATERIAL MUST NOT BE STOCKPILED WITHIN 15 FEET OF THE WATERCOURSE. THIS MATERIAL SHALL BE CONTAINED TO PREVENT SATURATED SOIL FROM FLOWING BACK INTO THE WATERCOURSE.
14. DEWATERING OF THE ONLAND TRENCH SHOULD OCCUR IN A STABLE VEGETATED AREA A MINIMUM OF 50 FEET FROM ANY WATERBODY. THE PUMP DISCHARGE SHOULD BE DIRECTED ONTO A STABLE SPILL PAD CONSTRUCTED OF ROCKFILL OR TIMBERS TO PREVENT LOCALIZED EROSION. THE DISCHARGE WATER SHOULD ALSO BE FORCED INTO SHEET FLOW IMMEDIATELY BEYOND THE SPILL PAD BY USING STRAW BALES AND THE NATURAL TOPOGRAPHY.
15. FLUMES SHOULD BE REMOVED AS SOON AS POSSIBLE, WHEN NO LONGER REQUIRED FOR PIPE LAYING OR FOR ROAD ACCESS, IN THE FOLLOWING MANNER:
 - a. REMOVE THE VEHICLE CROSSING RAMP. BANKS ARE TO BE RESTORED TO A STABLE ANGLE AND PROTECTED WITH EROSION RESISTANT MATERIAL COMPATIBLE WITH THE FLOW CONDITION (E.G., EROSION CONTROL BLANKETS, CRIBBING, ROCK RIP-RAP, ECT.) TO THE MAXIMUM EXTENT POSSIBLE BEFORE REMOVING THE DAMS.
 - b. REMOVE DOWNSTREAM DAM.
 - c. REMOVE UPSTREAM DAM.
 - d. REMOVE FLUME.
 - e. COMPLETE BANK TRIMMING AND EROSION PROTECTION. IF SANDBAGS ARE USED FOR THE DAMS. PLACE AND REMOVED BY HAND BY HAND TO AVOID EQUIPMENT BREAKING BAGS.
16. RESTORE THE STREAMBED AND BANKS TO APPROXIMATE PRE-CONSTRUCTION CONTOURS, BUT NOT TO EXCEED 2 HORIZONTAL TO 1 VERTICAL.
 - a. INSTALL PERMANENT EROSION AND SEDIMENT CONTROL STRUCTURE AS INDICATED ON A SITE SPECIFIC BASIS. IN THE ABSENCE OF SITE SPECIFIC INFORMATION, A FLEXIBLE CHANNEL LINER SUCH AS NAG C125 OR C350 WHICH IS CAPABLE OF WITHSTANDING ANTICIPATED FLOW SHALL BE INSTALLED. ALTERNATIVELY, ROCK RIP-ROCK SHALL BE INSTALLED.
 - b. ANY MATERIALS PLACED IN THE STREAM TO FACILITATE CONSTRUCTION SHALL BE REMOVED DURING RESTORATION. BANKS SHALL BE STABILIZED AND TEMPORARY SEDIMENT BARRIER INSTALLED AS SOON AS POSSIBLE AFTER CROSSING, BUT WITHIN 24 HOURS OF COMPLETING THE CROSSING.
 - c. MAINTAIN A SILT FENCE OR STRAW BALE BARRIER ALONG THE WATER COURSE UNTIL VEGETATION IS ESTABLISHED IN ADJACENT DISTURBED AREAS.
17. INSTALL SLOPE BREAKERS AT THE BASE OF ALL SLOPES ADJACENT TO WATERBODY.

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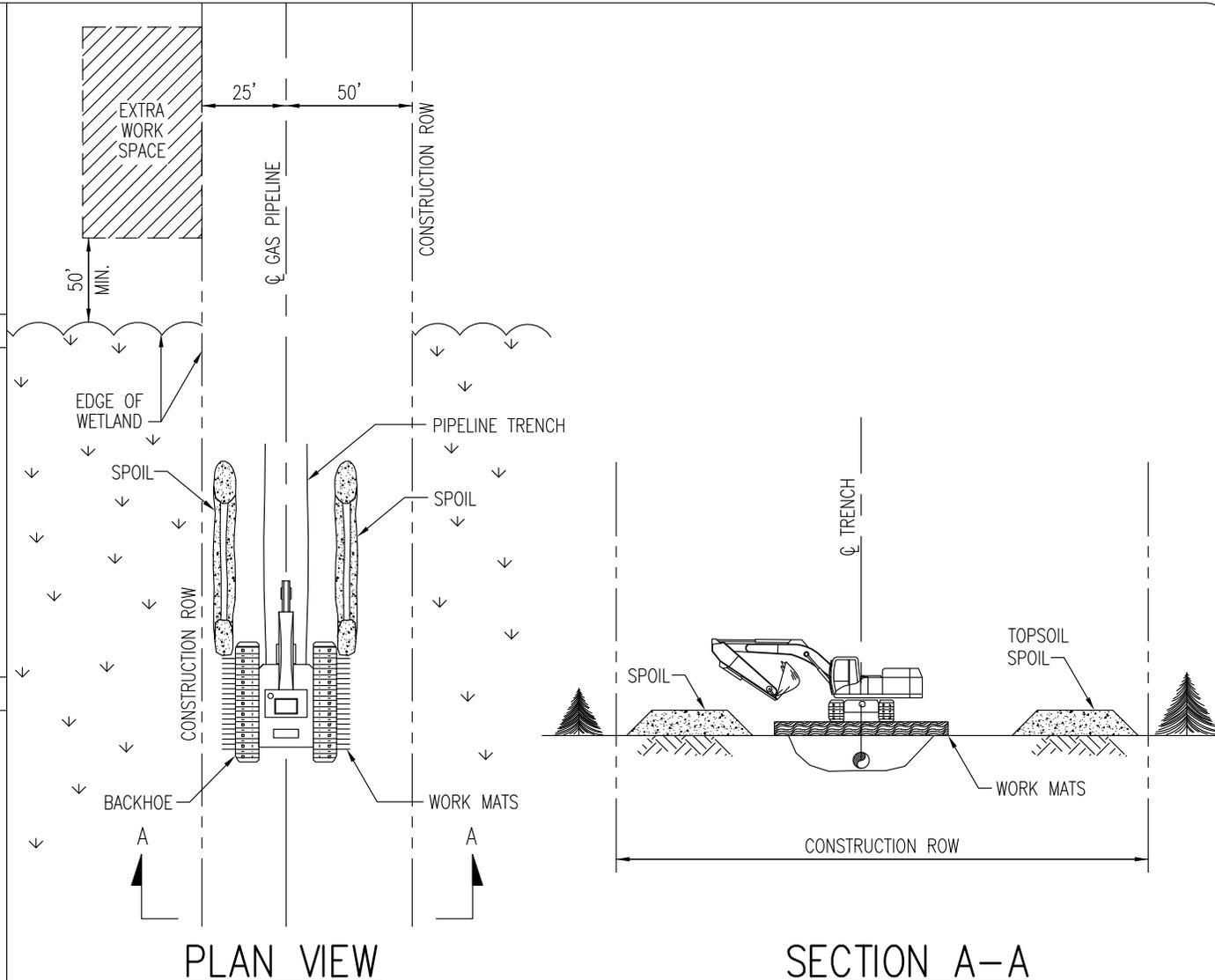


ORIGINATOR:	
UEI NAME	03/30/10 DATE
CHECKED BY:	APPROVED BY:
RG	DWA

TITLE		BISON PIPELINE PROJECT	
		BISON PIPELINE LLC	
		TYPICAL WATERBODY CROSSING	
		METHOD FLUMED	
		PAGE 2 OF 2	
SCALE	DWG No		REV
N.T.S.	4489-03-ML-05-005		0

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CONSTRUCTION PROCEDURES:

1. THE CONSTRUCTION ROW FOR THIS TYPE OF CONSTRUCTION SHALL BE 75 FEET.
2. NO REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET OF WETLAND. OR WITHIN 500 FEET OF THE WETLAND ON BLM LANDS. PLACE "NO FUELING" SIGN POSTS 100 FEET BACK FROM WETLAND BOUNDARY, OR 500 FEET FROM THE WETLAND ON BLM LANDS. REFUEL STATIONARY EQUIPMENT AS PER THE PROJECT'S SPILL PREVENTION PROCEDURES.
3. INSTALL TEMPORARY SLOPE BREAKER UPSLOPE WITHIN 100 FEET OF WETLAND BOUNDARY AS DIRECTED BY THE PROJECT.
4. RESTRICT ROOT GRUBBING TO ONLY THE AREA OVER THE DITCHLINE.
5. TOPSOIL STRIPPING SHALL NOT BE REQUIRED IN SATURATED SOIL CONDITIONS.
6. UTILIZE AMPHIBIOUS EXCAVATORS (PONTOON MOUNTED BACKHOES) OR TRACKED BACKHOES SUPPORTED BY FABRICATED TIMBER MATS OR FLOATS TO EXCAVATE TRENCH. IF FABRICATED TIMBER MATS ARE USED FOR STABILIZATION, THE BACKHOE SHALL GRADUALLY MOVE ACROSS THE WETLAND BY MOVING THE MAT FROM IMMEDIATELY BEHIND TO IMMEDIATELY IN FRONT OF THE BACKHOE'S PATH.
7. AVOID ADJACENT WETLANDS.
8. FABRICATE PIPE IN STAGING AREA OUTSIDE THE WETLAND IN THE EXTRA WORK SPACE AS INDICATED ON THE CONSTRUCTION DRAWINGS.
9. LEAVE HARD PLUGS AT THE EDGE OF THE WETLAND UNTIL JUST PRIOR TO PIPE PLACEMENT.
10. FLOAT PIPE IN PLACE, LOWER-IN INSTALL TRENCH PLUGS AT WETLAND EDGES WHERE REQUIRED AND BACKFILL IMMEDIATELY.
11. REMOVE TIMBER MATS OR PRE-FABRICATED MATS OF NON-NATIVE MATERIAL FROM WETLANDS UPON COMPLETION.
12. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY AND INSTALL PERMANENT EROSION CONTROL.
13. FLAG WETLAND BOUNDARY AND VEGETATIVE BUFFER ZONE.

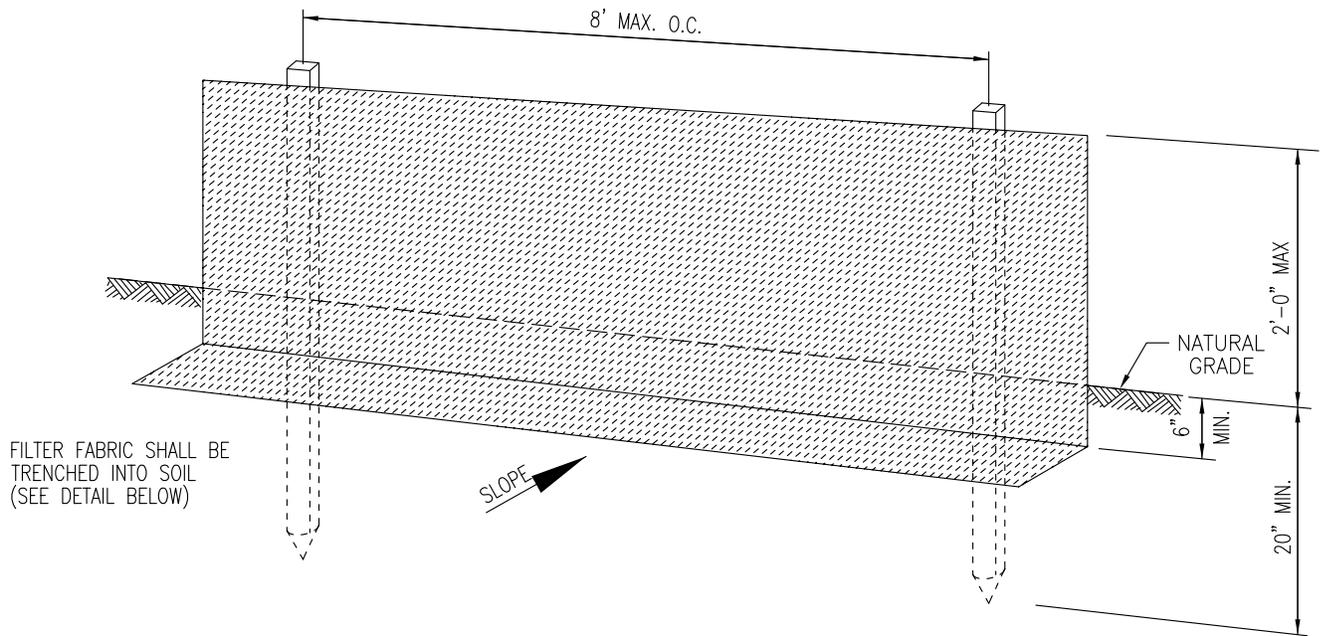


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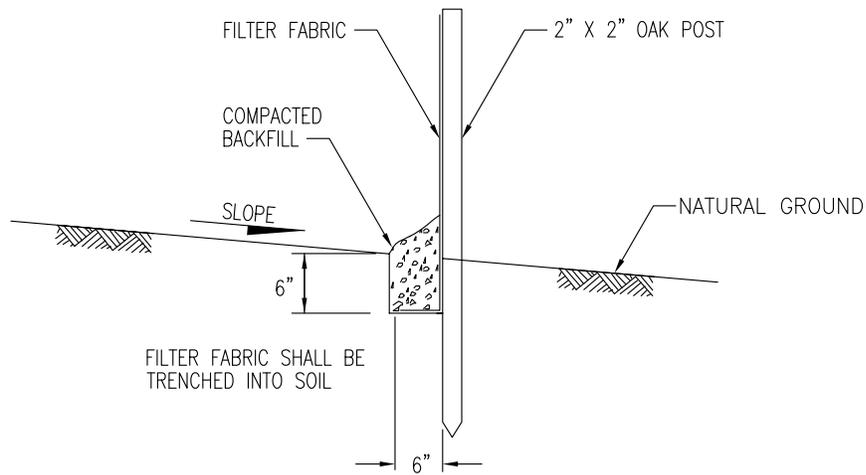
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SCALE N.T.S.	DWG No 4489-03-ML-05-006
REV 0	

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SILT FENCE



SILT FENCE DETAIL



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UEI NAME	03/30/10 DATE
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RG	DWA

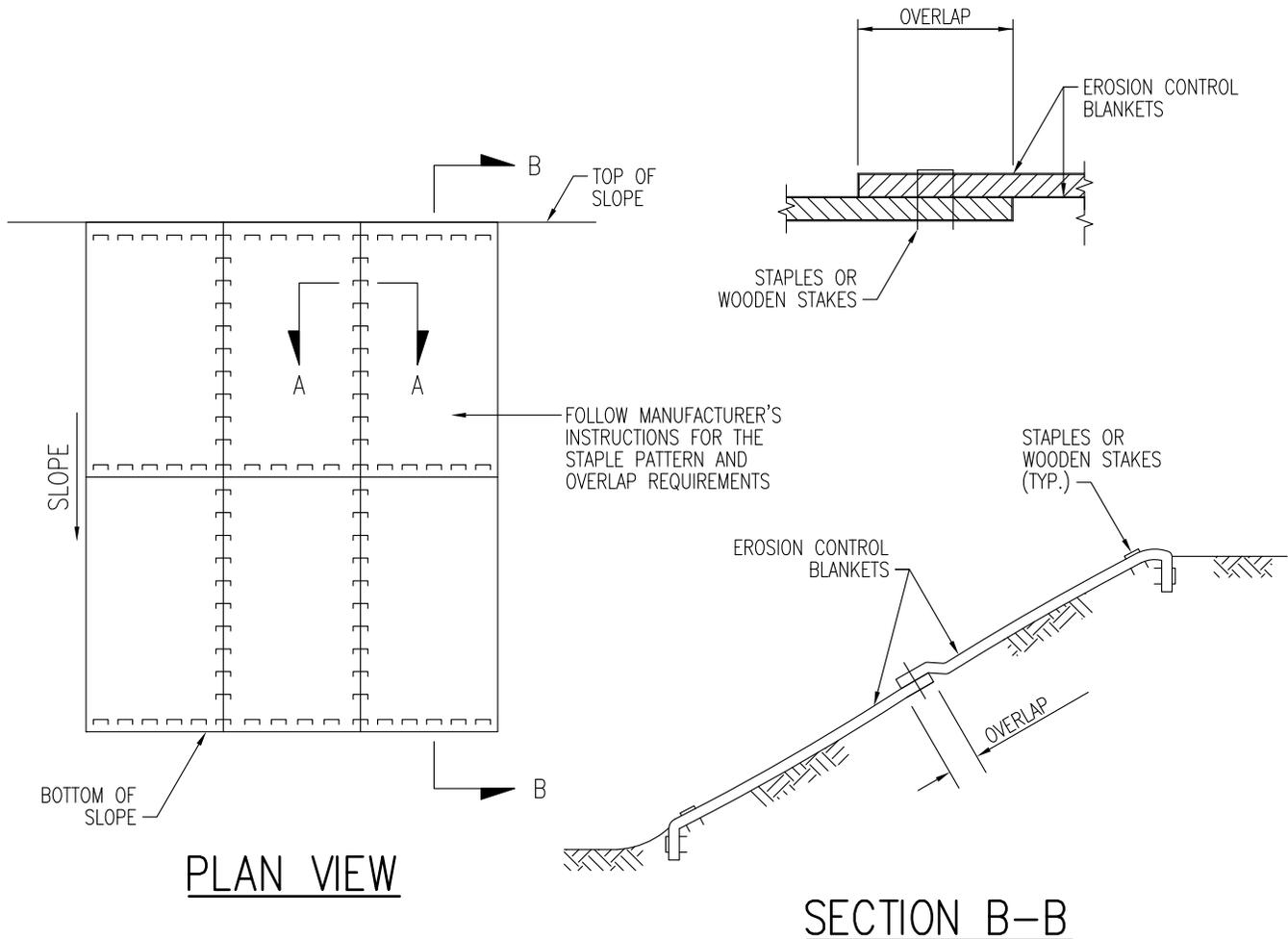
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SCALE	DWG No	4489-03-ML-05-007
N.T.S.		

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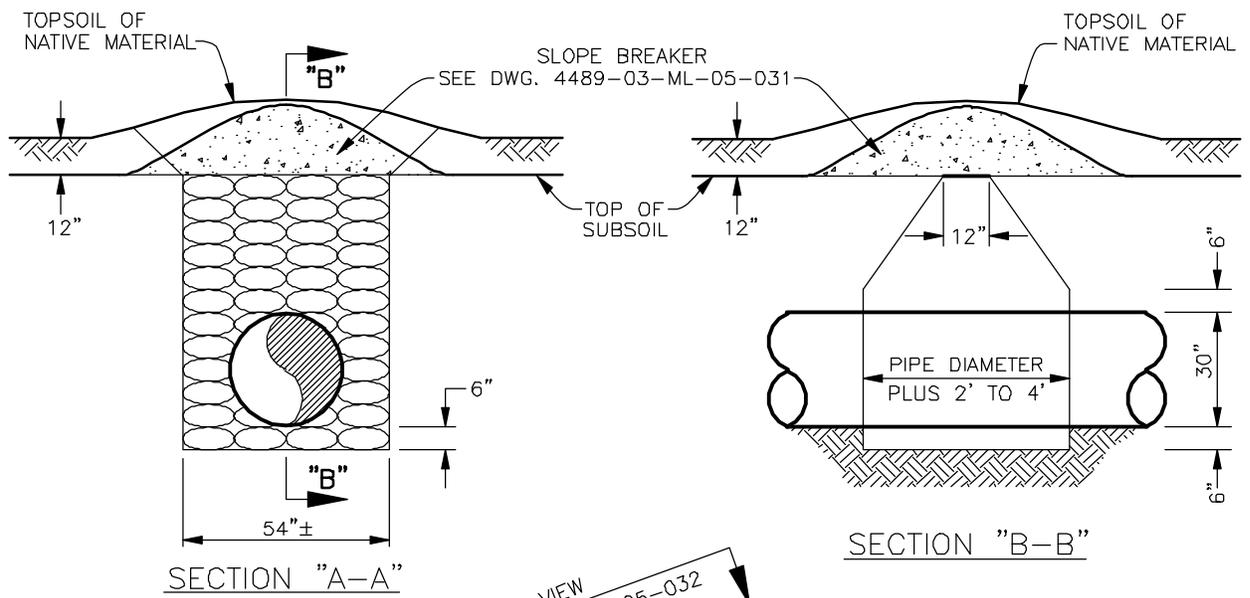
NOTES:

1. INSTALL MATTING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. PREPARE SOIL BEFORE INSTALLING MATTING, INCLUDING GRADING, REMOVAL OF LARGE ROCKS, DEBRIS, THE APPLICATION OF SEED AND FERTILIZER IF NOT USING PRE-SEEDED MATTING.
3. EROSION CONTROL MATTING SHALL EXTEND COMPLETELY ACROSS DISTURBED AREAS TO PROTECT ERODEABLE SURFACES.
4. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE MATTING IN A TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
5. ROLL THE MATTING DOWN THE SLOPE IN THE DIRECTION OF THE WATER FLOW.
6. AS AN ALTERNATIVE TO STAPLES, WOODEN STAKES CAN BE USED.
7. ENSURE COMPLETE CONTACT BETWEEN THE MATTING AND THE SLOPE FACE. ADDITIONAL STAPLES CAN BE USE TO ELIMINATE GAPS.
8. INSTALLATION SPECIFICATIONS TO BE MODIFIED BY THE PROJECT AS NECESSARY TO SUIT ACTUAL SITE CONDITIONS.

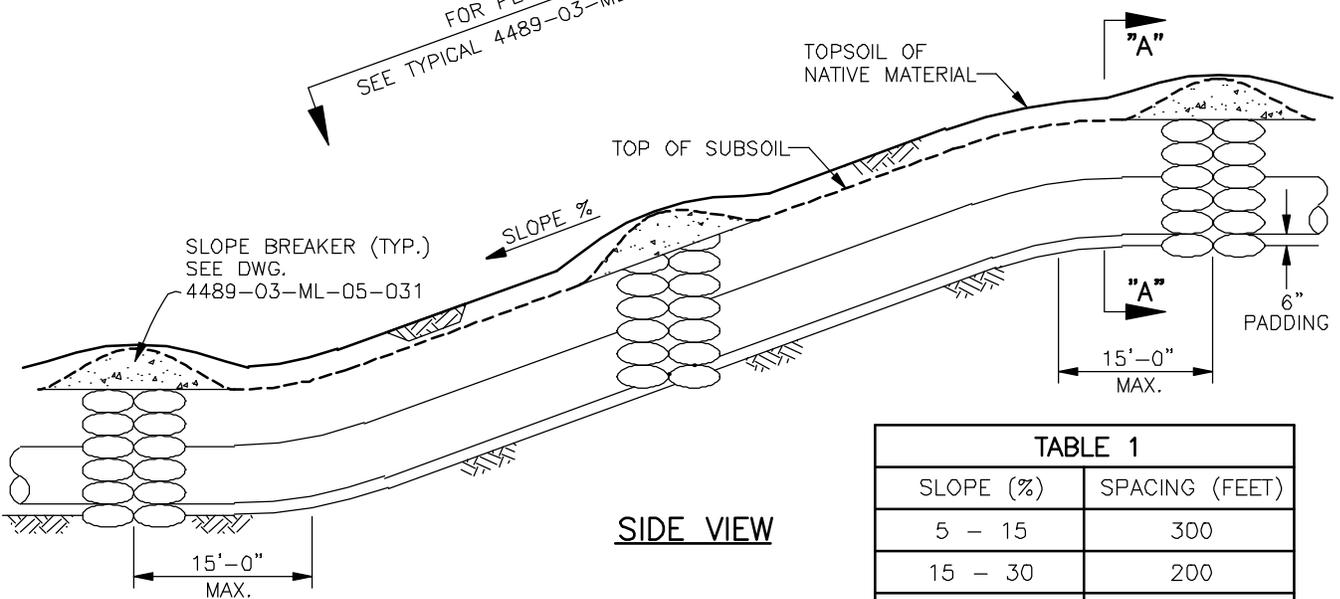


ORIGINATOR:	
UEI NAME	03/30/10 DATE
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RG	DWA

TITLE		BISON PIPELINE PROJECT	
		BISON PIPELINE LLC	
		TYPICAL EROSION CONTROL	
		GEOTEXTILE INSTALLATION	
SCALE	DWG No	REV	
N.T.S.	4489-03-ML-05-009	0	



FOR PLAN VIEW
SEE TYPICAL 4489-03-ML-05-032



SLOPE (%)	SPACING (FEET)
5 - 15	300
15 - 30	200
>30	100

NOTES

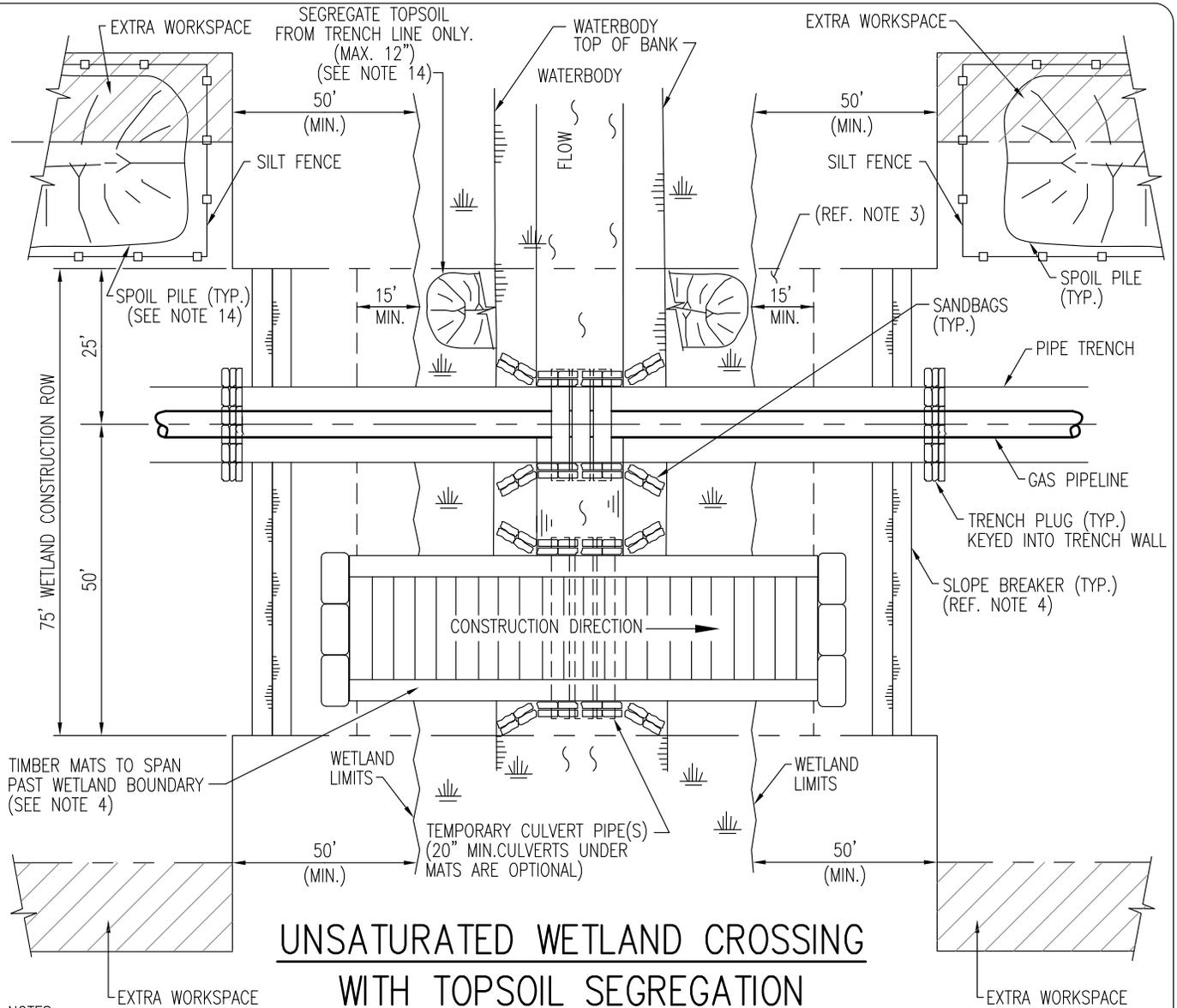
1. TRENCH PLUGS SHALL BE INSTALLED AT SHARP CHANGES OF SLOPE ALONG TRENCH LINE AND AT LOCATIONS WHERE THE NATURAL DRAINAGE PATTERN, PROFILE AND TYPE OF BACKFILL MATERIALS MAY RESULT IN THE LOSS OF BACKFILL MATERIAL OR ALTERATION OF THE NATURAL DRAINAGE PATTERN. LOCATION AND SPACING OF TRENCH PLUGS SHALL BE AS DIRECTED BY THE COMPANY.
2. CONSTRUCT TRENCH PLUGS WITH SAND BAGS OR SAKRETE. DO NOT USE TOP SOIL FOR FILLING SAND BAGS.
3. INSTALL TRENCH PLUGS AT THE BASE OF SLOPES ADJACENT TO IMPROVED ROADS, WATERBODIES AND WETLANDS.
4. TRENCH PLUGS SHALL BE INSTALLED IN PIPELINE TRENCH ON SLOPED GRADES ACCORDING TO THE SPACING SHOWN IN "TABLE 1", EXCEPT FOR BLM LANDS IN WYOMING AND MONTANA.
5. REFER TO BISON'S RECLAMATION PLAN FOR SLOPE BREAKER/TRENCH PLUG SPACING ON BLM LANDS IN WYOMING AND MONTANA.
6. PLUGS SHALL BE KEYED INTO TRENCH WALL.
7. A SLOPE BREAKER IS TO BE PLACED TO COINCIDE WITH THE TOP OF EACH PERMANENT TRENCH PLUG.

REVISIONS 0 ISSUED FOR CONSTRUCTION

	ORIGINATOR: WHH 03/30/10 <small>NAME DATE</small>	TITLE Bison Pipeline Project BISON PIPELINE LLC TYPICAL ENVIRONMENTAL DETAIL TRENCH PLUG		
	CHECKED BY: DWA	APPROVED BY: DWA	SCALE N.T.S.	DWG No 4489-03-ML-05-008
				REV 0

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UNSATURATED WETLAND CROSSING WITH TOPSOIL SEGREGATION

NOTES:

1. THIS METHOD IS TO USED IN WETLANDS WITHOUT STANDING WATER OR SATURATED SOILS. IF A WETLAND IS BEING CULTIVATED AND BEING FARMED, NO WETLAND CONSTRUCTION PROCEDURES ARE REQUIRED.
2. FLAG WETLAND/WATERBODY BOUNDARY AND VEGETATIVE BUFFER ZONES PRIOR TO CLEARING.
3. NO FUELING OR MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET FROM WETLAND BOUNDARY, OR WITHIN 500 FT OF THE WETLAND ON BLM LANDS. PLACE "NO FUELING" SIGN POSTS APPROXIMATELY 100 FEET BACK FROM WETLAND BOUNDARY, OR 500 FT FROM THE WETLAND ON BLM LANDS. REFUEL STATIONARY EQUIPMENT AS PER THE PROJECTS SPILL PREVENTION PROCEDURES.
4. INSTALL SLOPE BREAKER AT THE BASE OF ALL SLOPES ADJACENT TO THE WETLANDS OR AS DIRECTED BY THE PROJECT.
5. CONSTRUCT WHEN DRY IF POSSIBLE. IF SITE BECOMES WET AT TRENCHING, AVOID SOIL COMPACTION BY UTILIZING TIMBER RIP-RAP OR PRE-FABRICATED EQUIPMENT MATS. USE ADDITIONAL TIMBER MAT LAYERS TO RAISE CROSSING ABOVE GRADE WHERE POOR SOIL CONDITIONS EXIST AND CONDITIONS REQUIRE.
6. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS (STRAW BALES AND/OR SILT FENCE) AT DOWN SLOPE EDGE OF right-of-way WETLAND EDGE IF EVIDENT, OTHERWISE INSTALL BARRIER ON BOTH EDGES.
7. EXCEPT FOR THE GRADED DRIVE LANE CONTRACTOR SHALL POSTPONE CLEARING IN THE BUFFER AREA ADJACENT TO WETLAND UNTIL THE STAGING AREA IS PREPARED AND WORK IN THE WETLAND IS READY TO COMMENCE. BUFFER IS A MINIMUM OF 15 FEET AND EXTENDS 15 FEET BEYOND THE EDGE OF THE RIPARIAN AREA TO A MAXIMUM OF 50 FEET.
8. RESTRICT ROOT GRUBBING TO ONLY THAT AREA OVER THE DITCH LINE AND REMOVE STUMPS FROM WETLANDS FOR DISPOSAL.
9. TRENCH THROUGH WETLANDS.
10. PIPE SECTION TO BE FABRICATED WITHIN THE WETLAND AND ADJACENT TO ALIGNMENT, OR IN EXTRA WORKSPACE OUTSIDE THE WETLAND AND WALKED IN.
11. LOWER-IN PIPE, BACKFILL TRENCH.
12. RESTORE GRADE TO PRE-CONSTRUCTION TOPOGRAPHY. REPLACE TOPSOIL AND INSTALL PERMANENT EROSION CONTROL.
13. IF UTILIZED, REMOVED TIMBER MATS OR PRE-FABRICATED MAT UPON COMPLETION.
14. SPOIL PILE STORAGE WITHIN WETLAND CONSTRUCTION ROW OVER GEOTEXTILE IS ALLOWED.



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 RG DWA

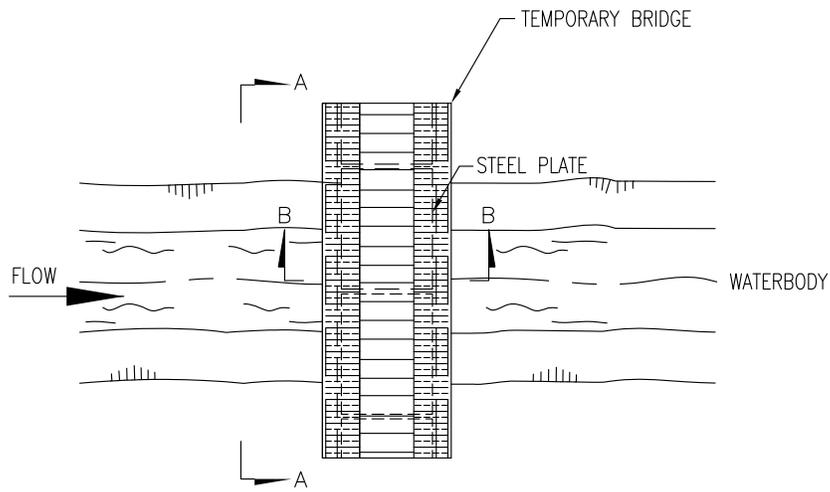
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BISON PIPELINE LLC
TYPICAL UNSATURATED WETLAND/WATERBODY CROSSING
WITH TOPSOIL SEGREGATION
CROSSING METHOD 1

SCALE: N.T.S. DWG No: **4489-03-ML-05-013**

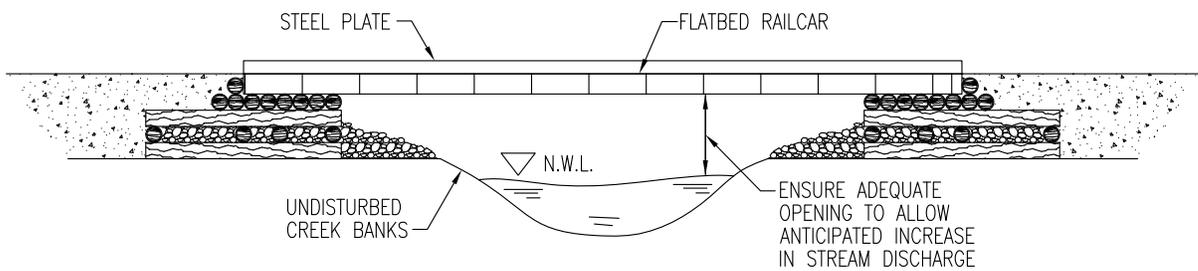
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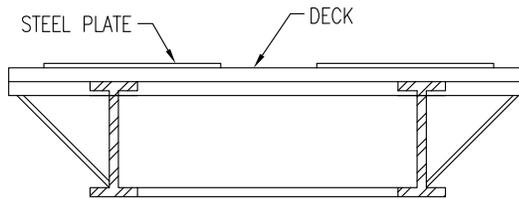
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PLAN VIEW



SECTION A-A



SECTION B-B

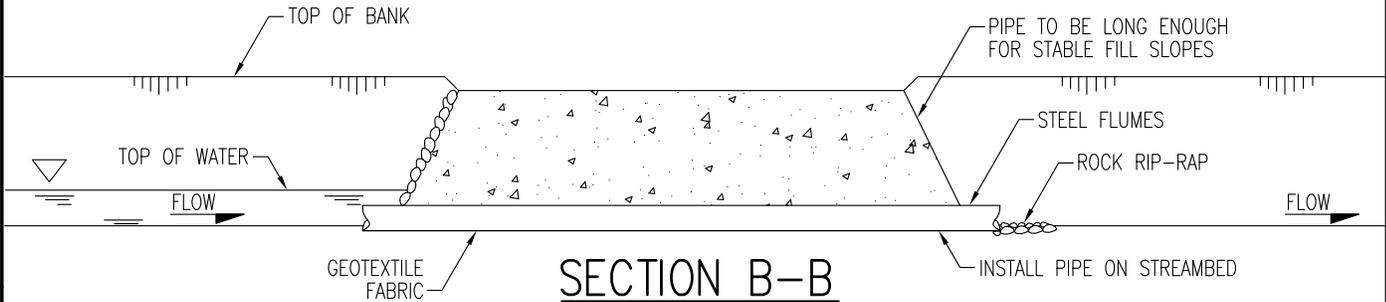
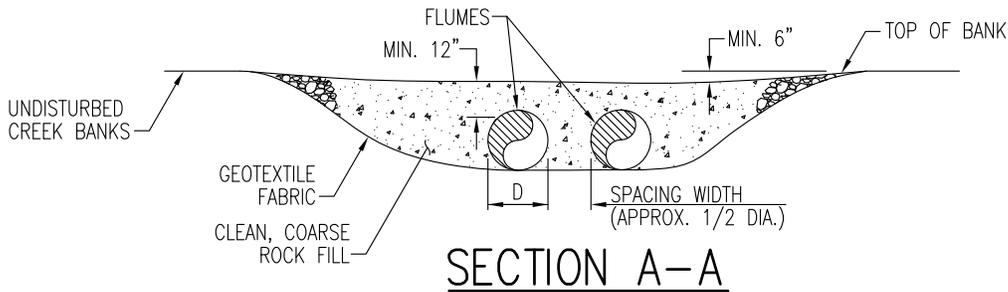
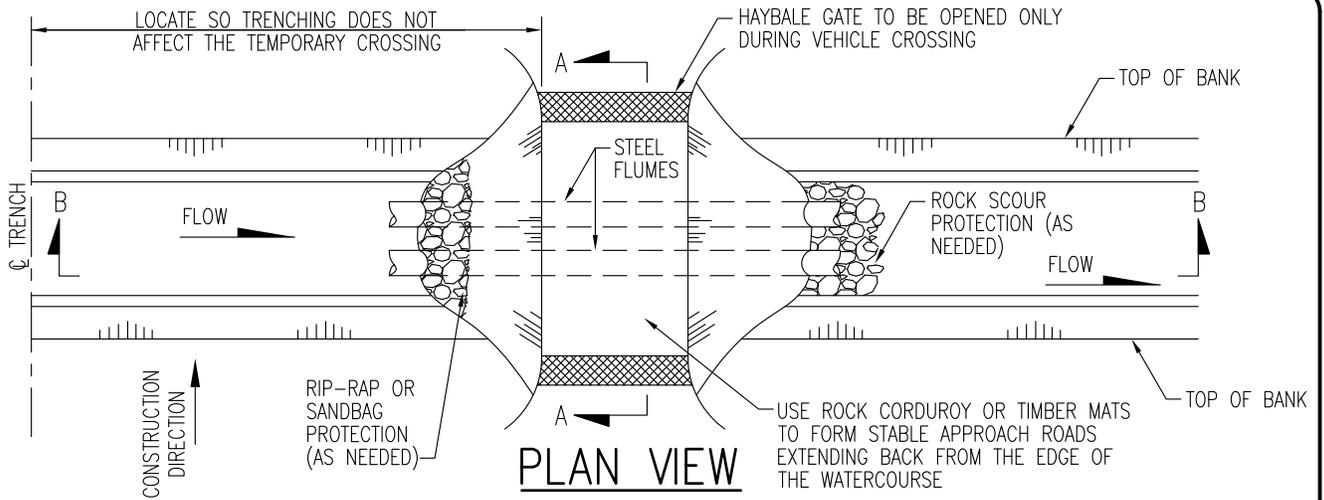


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 UEI NAME: _____ DATE: 03/30/10
 CHECKED BY: _____ APPROVED BY: _____
 RG DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 TYPICAL RAILCAR BRIDGE CROSSING

SCALE: N.T.S. DWG No: 4489-03-ML-05-017

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CONSTRUCTION PROCEDURES:

THE FOLLOWING IS A SEQUENCE OF CONSTRUCTION AND PROCEDURES TO BE FOLLOWED AT ALL TEMPORARY FLUME VEHICLE CROSSINGS.

1. TEMPORARY BRIDGE MAY BE SUBSTITUTED FOR THE TEMPORARY FLUME CROSSING.
2. THE LENGTH OF THE FLUME SHALL BE SUFFICIENT TO SPAN THE ENTIRE AREA REQUIRED FOR VEHICULAR ACCESS, EXTENDING 2 FEET MINIMUM BEYOND THE TOE OF FILL MATERIAL. A LONGER PIPE IS TO BE USED, IF NEEDED, TO MAINTAIN STABLE SIDE SLOPES, FLUME CAPACITY TO BE BASED ON THE MAXIMUM FLOW ANTICIPATED TO OCCUR DURING INSTALLATION, AS SPECIFIED IN CONSTRUCTION DOCUMENTS.
3. WHERE PRACTICAL, BACKFILL AROUND THE PIPES AT THE ROAD WITH CLEAN, COARSE ROCK FILL MATERIAL. IF SCOUR IS POSSIBLE, RIP-RAP IS TO BE PLACED ON THE WATERBODY BED DOWNSTREAM OF THE PIPE OUTLET EXTENDING A MINIMUM OF TWO PIPE DIAMETERS. ALTERNATIVELY, TIMBER EQUIPMENT MATS, SAND BAGS OR TIMBER CORDUROY MAY BE USED TO FORM THE TRAVEL SURFACE.
4. TO REDUCE DEBRIS ENTERING THE WATERBODY FROM EQUIPMENT TRACKS, THE APPROACH ROAD LEADING TO THE CULVERT CROSSING MUST BE RAISED AND STABILIZED SO EQUIPMENT LOADS ARE SUPPORTED A SUFFICIENT DISTANCE BACK FROM THE WATER. IF CUTS ARE NEEDED TO OBTAIN A SATISFACTORY GRADE, THEY ARE TO BE DUG WITH SIDE DITCHES AND STABLE SLOPES. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED TO LIMIT THE POTENTIAL FOR SEDIMENT TO ENTER THE WATERBODY (i.e. CHECK DAMS, RIP-RAP, SEED AND MULCH, SEDIMENT TRAPS, ETC.).
5. PERIODICALLY CHECK THE TEMPORARY CROSSING INSTALLATION AND REMOVE ANY BUILD-UP OF SEDIMENT OR DEBRIS ON THE BRIDGE, DISPOSE OF THIS MATERIAL AT LEAST 100 FEET FROM THE WATERBODY AND ABOVE THE HIGH WATER LEVEL.
6. FOLLOWING COMPLETION OF THE CROSSING, REMOVE ROCK FILL IN/OR AROUND FLUME PIPES FROM THE WATERBODY OR WETLAND.
7. RESTORE STREAM BANKS AND WATERBODY BOTTOM.
8. IF WATER IS PRESENT (FLOWING) GEOTEXTILE FABRIC CAN BE PLACED OVER THE FLUMES TO KEEP IT IN PLACE PRIOR TO INSTALLING BRIDGE MATERIAL.

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ORIGINATOR:
 UEI NAME: _____ 03/30/10 DATE
 CHECKED BY: _____ APPROVED BY: _____
 RG DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 TYPICAL FLUME BRIDGE CROSSING
 SCALE: N.T.S. DWG No: 4489-03-ML-05-019
 REV: 0

SLOPE BREAKER OUTLET SHALL BE PLACED WHERE RUNOFF WILL BE RELEASED ON TO EXISTING WELL-VEGETATED GROUND AWAY FROM WETLANDS, WATERBODIES, OR OTHER SENSITIVE RESOURCES

INSTALL SILT FENCE OR HAY BALES IN THE ABSENCE OF WELL VEGETATED AREA. TO BE REMOVED WHEN AREA IS VEGETATED AFTER CONSTRUCTION

GRAVEL/ROCK/
GEOTEXTILE

DIRECTION OF SLOPE

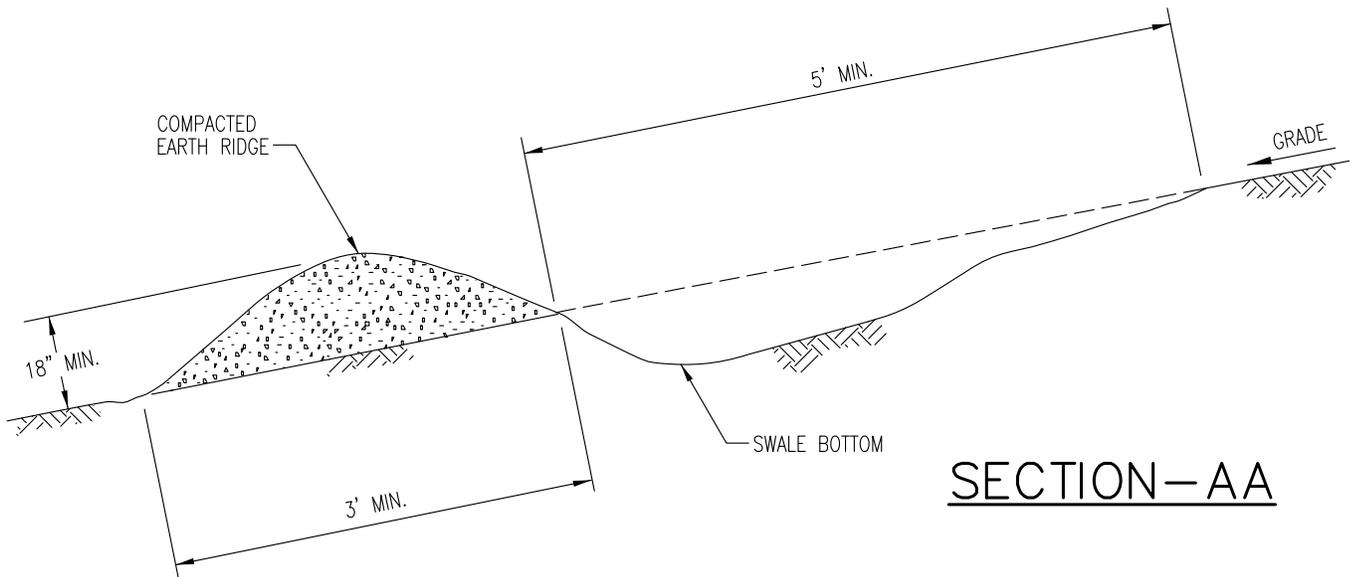
SWALE BOTTOM

2% - 5% OUTSLOPE

COMPACTED EARTH RIDGE

CONSTRUCTION ROW

PLAN



SECTION-AA

TYPICAL SLOPE BREAKER

NOTES:

1. PERMANENT SLOPE BREAKER SHALL BE INSTALLED AT THE BASE OF SLOPES ADJACENT TO WATERBODIES AND WETLANDS DURING FINAL GRADING.
2. PERMANENT SLOPE BREAKER SHALL BE INSTALLED PER THE SPACING REQUIREMENTS IN "TABLE 1" AND AS PART OF FINAL GRADING, EXCEPT FOR BLM LANDS IN WYOMING AND MONTANA
3. REFER TO BISON'S RECLAMATION PLAN FOR SLOPE BREAKER/TRENCH PLUG SPACING FOR BLM LANDS IN WYOMING AND MONTANA.
4. PERMANENT SLOPE BREAKER SHALL BE INSTALLED AT ALL TRENCH PLUG LOCATIONS.

TABLE 1

SLOPE (%)	SPACING (FEET)
5 - 15	300
>15 - 30	200
>30	100

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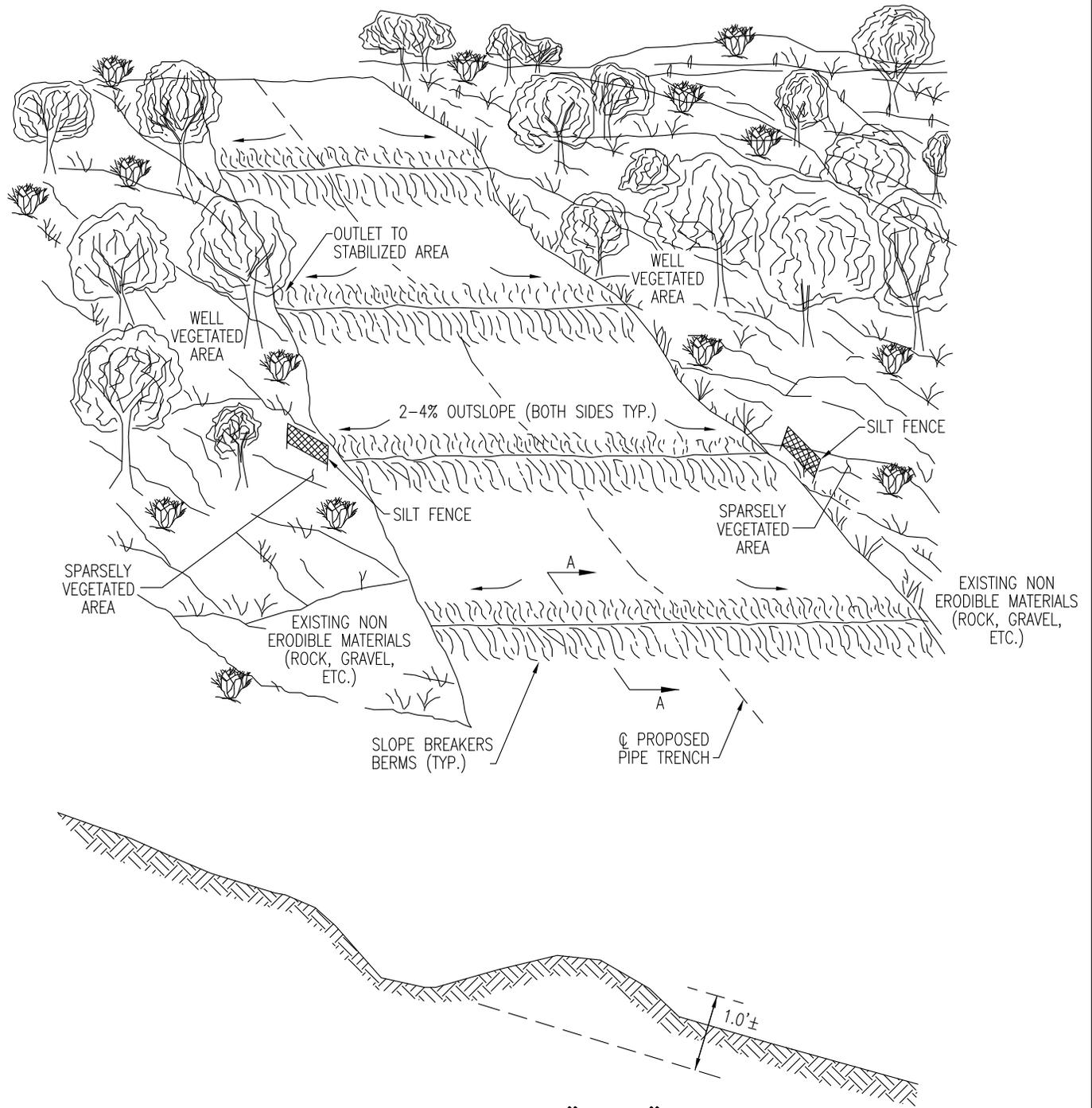
TITLE
 Bison Pipeline Project
 BISON PIPELINE LLC
 PERMANENT SLOPE BREAKER

SCALE N.T.S. DWG No 4489-03-ML-05-031 REV 0

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SECTION "A-A"



ORIGINATOR:
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 CHECKED BY: RG APPROVED BY: DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 TYPICAL SLOPE BREAKERS
 TEMPORARY
 SCALE: N.T.S. DWG No: 4489-03-ML-05-032
 REV 0

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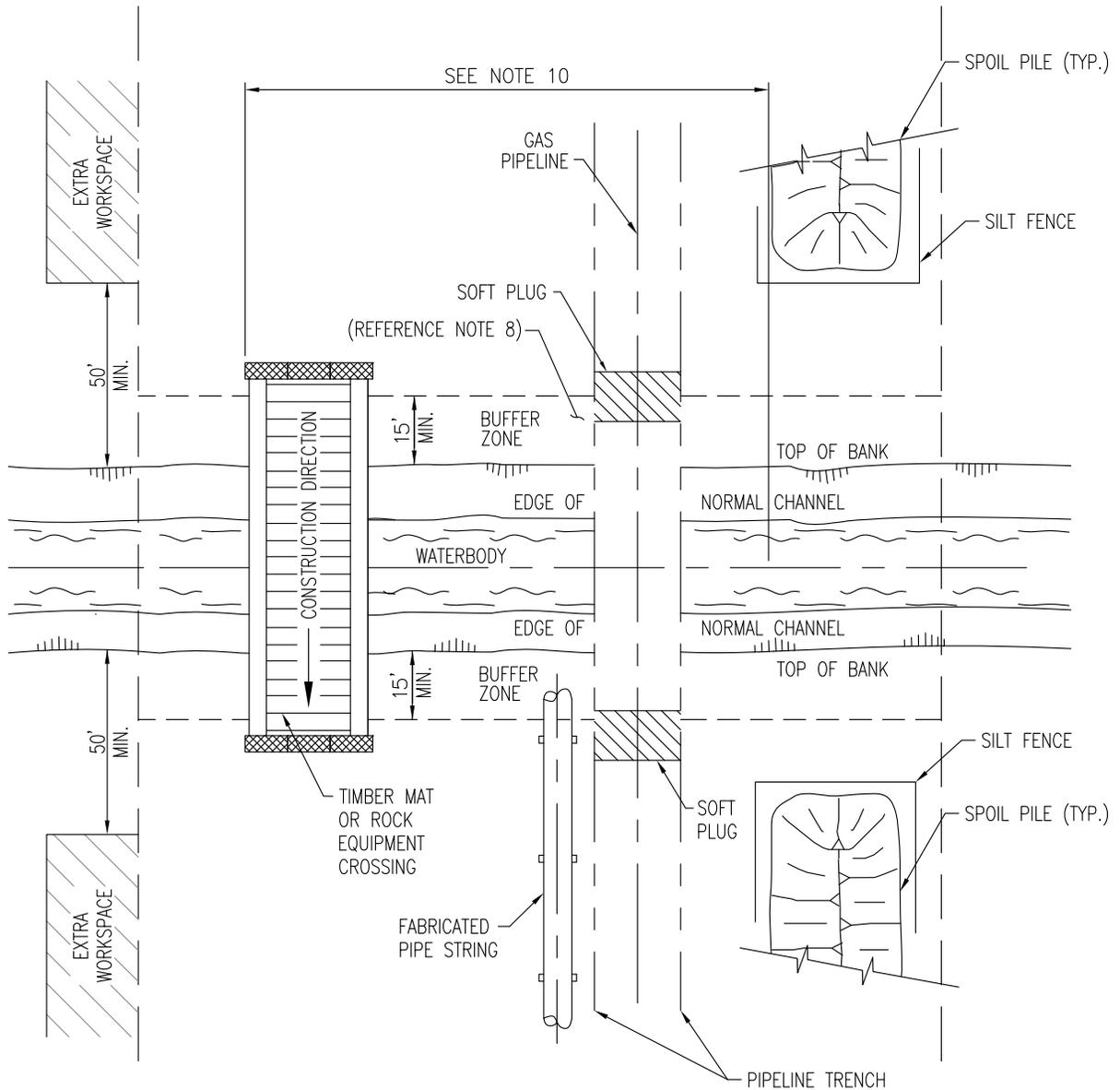
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REVISIONS



PLAN VIEW

NOTE:

1. FLAG THE BUFFER ZONES BOUNDARIES PRIOR TO CLEARING.
2. NO REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET OF THE WATERBODY BOUNDARY, OR WITHIN 500 FEET OF THE WATERBODY ON BLM LANDS. PLACE "NO FUELING" SIGN POSTS 100 FEET BACK FROM THE WATERBODY BOUNDARY, OR 500 FT FROM THE WATERBODY ON BLM LANDS. REFUEL STATIONARY EQUIPMENT AS PER THE PROJECTS SPILL PREVENTION PROCEDURES.
3. INSTALL TEMPORARY SLOPE BREAKER UPSLOPE WITHIN 100 FEET OF WATERBODY BOUNDARY.
4. RESTRICT ROOT GRUBBING TO ONLY THAT AREA OVER THE DITCHLINE AND DITCH SPOIL AREAS AND REMOVE FROM WATERBODY.
5. TOPSOIL STRIPPING SHALL NOT BE REQUIRED IN SATURATED SOIL CONDITIONS.
6. LOWER-IN PIPE, INSTALL TRENCH PLUGS AT WATERBODY EDGES AS REQUIRED AND BACKFILL IMMEDIATELY.
7. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY, REPLACE TOPSOIL AND INSTALL PERMANENT EROSION CONTROL.
8. EXCEPT FOR THE GRADED DRIVE LANE, CONTRACTOR SHALL POSTPONE CLEARING IN THE BUFFER AREA ADJACENT TO WATERBODY UNTIL THE STAGING AREA IS PREPARED AND WORK IN THE WATERBODY IS READY TO COMMENCE. BUFFER IS A MINIMUM OF 15 FEET AND EXTENDS 15 FEET BEYOND THE EDGE OF THE RIPARIAN AREA, TO A MAXIMUM OF 50 FEET.
9. USE SILT FENCE IF WATER IS PRESENT IN THE WATERBODY AT THE TIME OF CROSSING TO CONTAIN SATURATED SOILS.
10. LIMIT BANK GRADING IN BUFFER AREA (SEE NOTE 8) TO 75 FEET WIDE ACROSS CONSTRUCTION ROW, UNLESS TOPOGRAPHICAL FEATURES DICTATE OTHERWISE, IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.



ORIGINATOR:

UEI NAME: 03/31/10 DATE

CHECKED BY: RG

APPROVED BY: DWA

TITLE

BISON PIPELINE PROJECT
BISON PIPELINE LLC
TYPICAL OPEN CUT WATERBODY CROSSING METHOD
(NON-FLOWING WATERBODY)

SCALE: N.T.S.

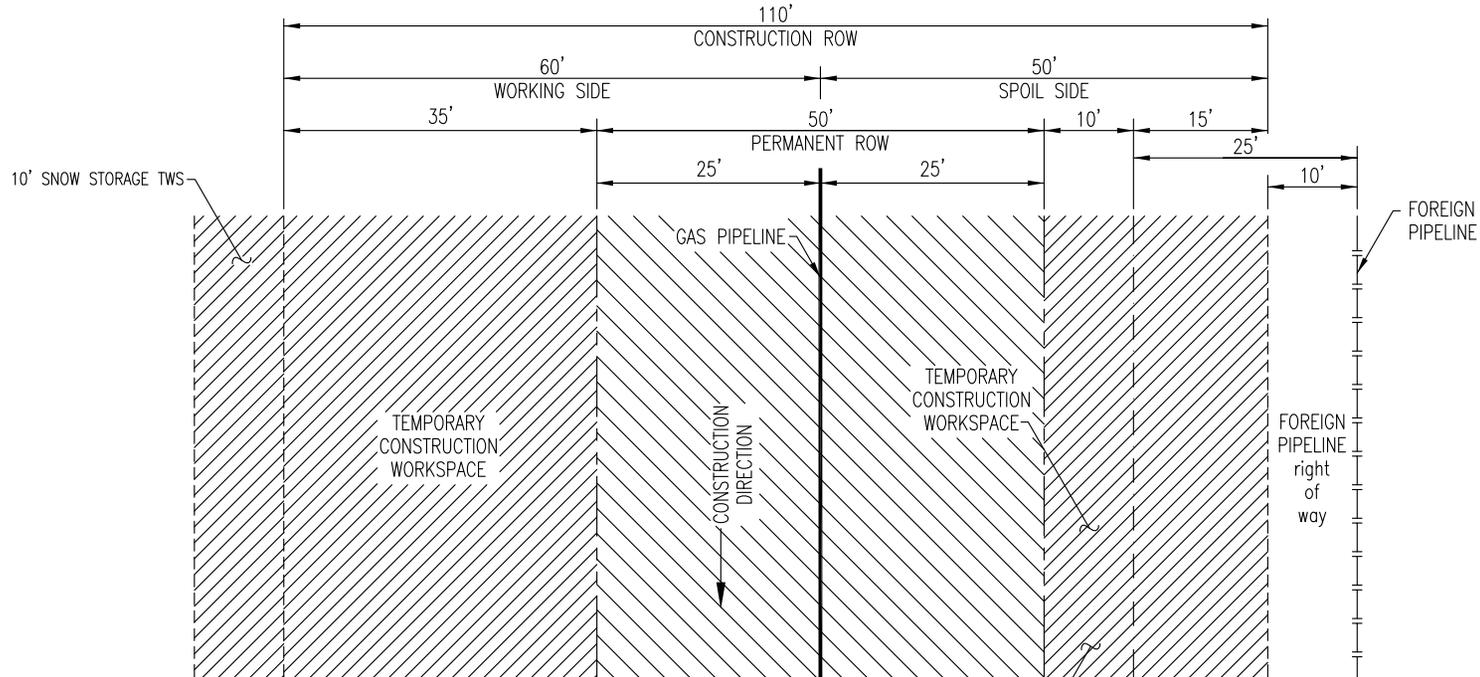
DWG No

4489-03-ML-05-034

REV 0

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PLAN VIEW



LEGEND

	FOREIGN PIPELINE
	TEMPORARY WORKSPACE LIMITS
	ROW LIMITS
	GAS PIPELINE
	FOREIGN PIPELINE right of way LIMITS
	TEMPORARY CONSTRUCTION WORKSPACE
	PERMANENT RIGHT OF WAY

10' LAND GAP BETWEEN FOREIGN PIPELINE right of way & PIPELINE ROW

EDGE OF FOREIGN PIPELINE right of way

NOTE:

1. ASSUME 50' PERMANENT right of way FOR EACH EXISTING FOREIGN PIPELINE.
2. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
3. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAILS K & AE

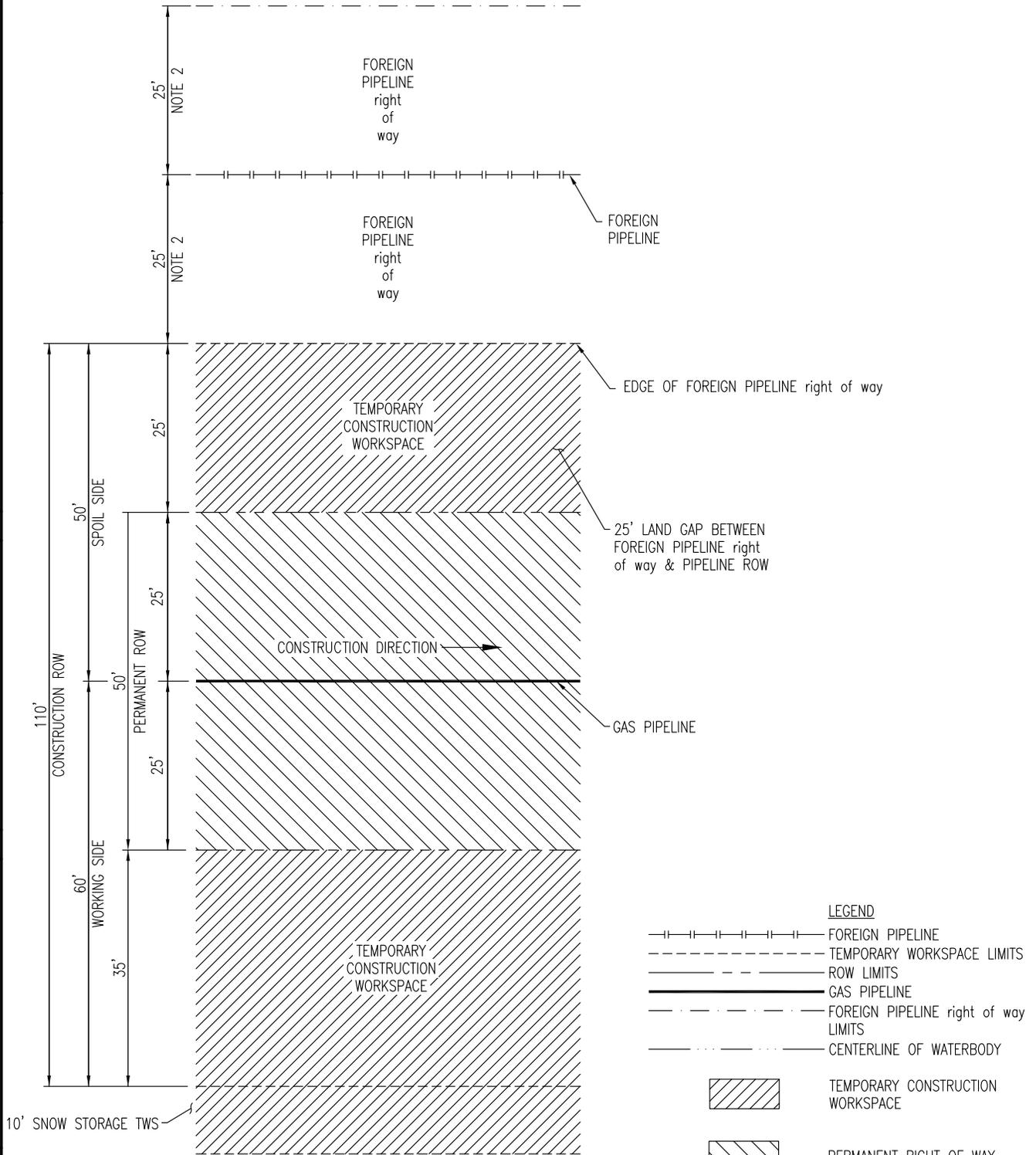
REFERENCE DRAWINGS										
DRAWING No	TITLE									
-										
REV No	DATE	REVISION	PROJECT CODE	DRAFT BY	DRAFT CHK	DESIGN BY	DESIGN CHK	PROJ MGR		
0	03/31/10	ISSUED FOR CONSTRUCTION		UEI	RG	RG	DWA	DWA		

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

TransCanada <i>In business to deliver</i>	 UniversalPegasus <small>INTERNATIONAL</small>
BISON PIPELINE PROJECT	
BISON PIPELINE LLC PLAN VIEW ADJACENT TO BIG HORN GAS GATHERING PIPELINE	
SCALE N.T.S.	DRAWING No 4489-03-ML-09-001
REV 0	

TIME-DESIGNFILE

PLAN VIEW



LEGEND

	FOREIGN PIPELINE
	TEMPORARY WORKSPACE LIMITS
	ROW LIMITS
	GAS PIPELINE
	FOREIGN PIPELINE right of way LIMITS
	CENTERLINE OF WATERBODY
	TEMPORARY CONSTRUCTION WORKSPACE
	PERMANENT RIGHT OF WAY

- NOTE:**
1. ASSUME 50' PERMANENT right of way FOR EACH EXISTING FOREIGN PIPELINE.
 2. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
 3. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL Y

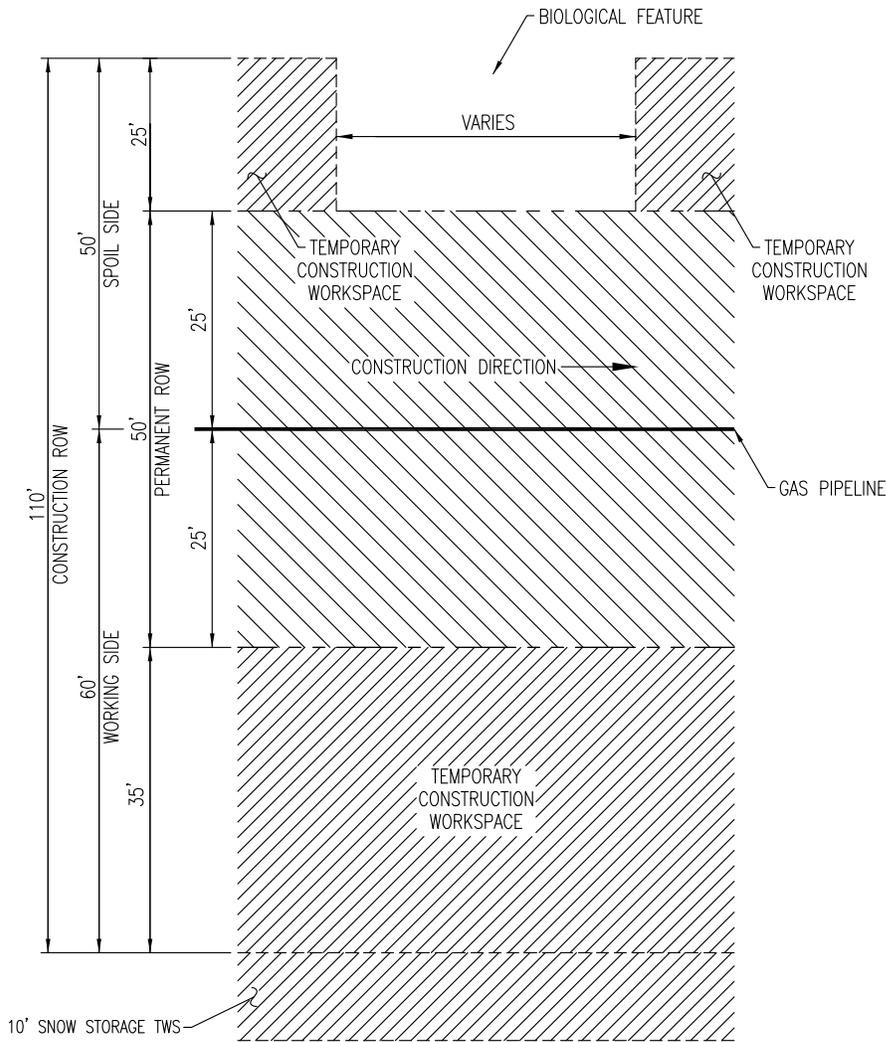
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REVISIONS	0	ISSUED FOR CONSTRUCTION
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 	ORIGINATOR: UEI NAME: _____ DATE: 04/02/10	TITLE BISON PIPELINE PROJECT BISON PIPELINE LLC CO-LOCATION WITH UNKNOWN FOREIGN PIPELINE	
	CHECKED BY: _____ RG	APPROVED BY: _____ DWA	SCALE N.T.S.
TB_BOR_A4			CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

REV 0

PLAN VIEW



LEGEND	
	FOREIGN PIPELINE
	TEMPORARY WORKSPACE LIMITS
	ROW LIMITS
	GAS PIPELINE
	FOREIGN PIPELINE right of way LIMITS
	TEMPORARY CONSTRUCTION WORKSPACE
	PERMANENT RIGHT OF WAY

NOTE:
1. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL AD

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REVISIONS 0 ISSUED FOR CONSTRUCTION



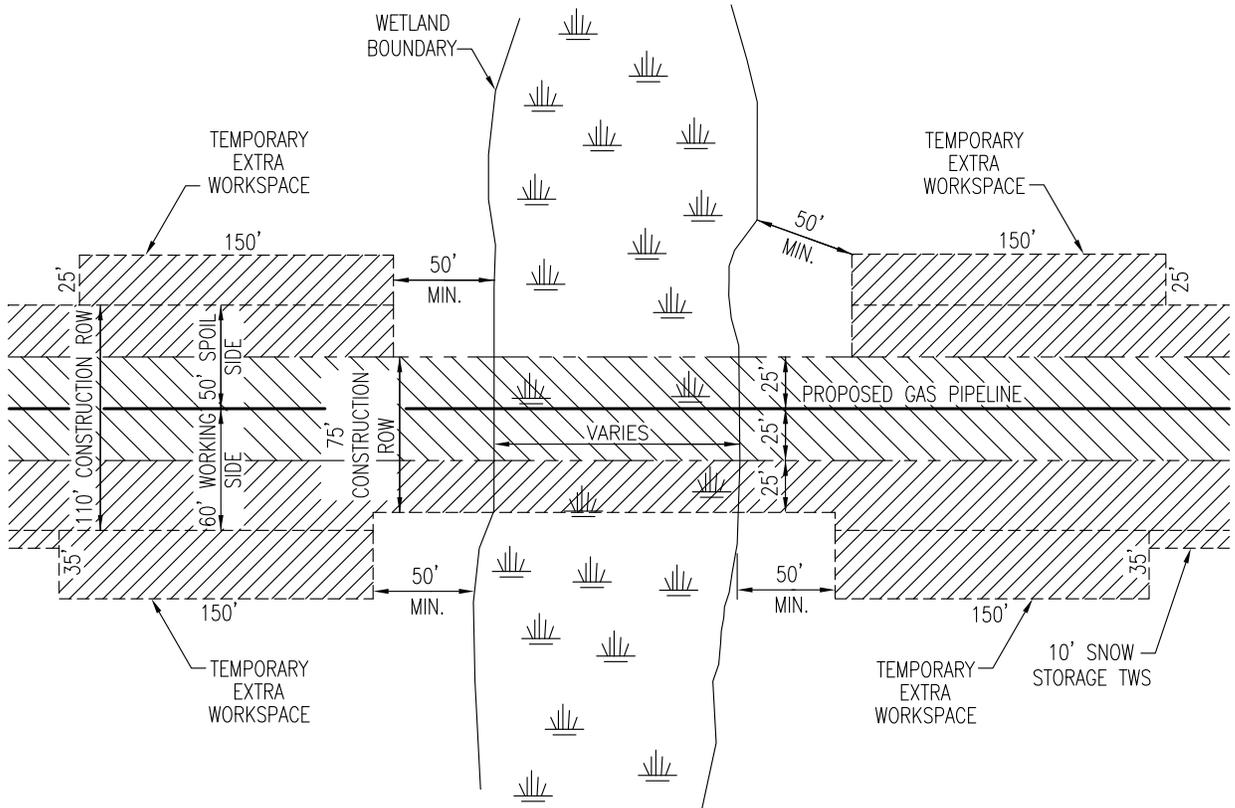
ORIGINATOR:	
UEI NAME	03/31/10 DATE
CHECKED BY: RG	APPROVED BY: DWA

TITLE	Bison Pipeline Project BISON PIPELINE LLC NECKDOWN ON SPOIL SIDE OF CONSTRUCTION ROW FOR BIOLOGICAL FEATURE
SCALE	N.T.S.
DWG No	4489-03-ML-09-006
REV	0

TIME DESIGNFILE

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REVISIONS 0 ISSUED FOR CONSTRUCTION



TEMPORARY EXTRA WORKSPACE AT WETLAND CROSSING

- LEGEND**
- |—|—|—|—|—|— FOREIGN PIPELINE
 - - - - - TEMPORARY WORKSPACE LIMITS
 - — — — — ROW LIMITS
 - GAS PIPELINE
 - - - - - FOREIGN PIPELINE right of way LIMITS
 - TEMPORARY CONSTRUCTION WORKSPACE
 - PERMANENT RIGHT OF WAY

NOTE:
 1. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL B

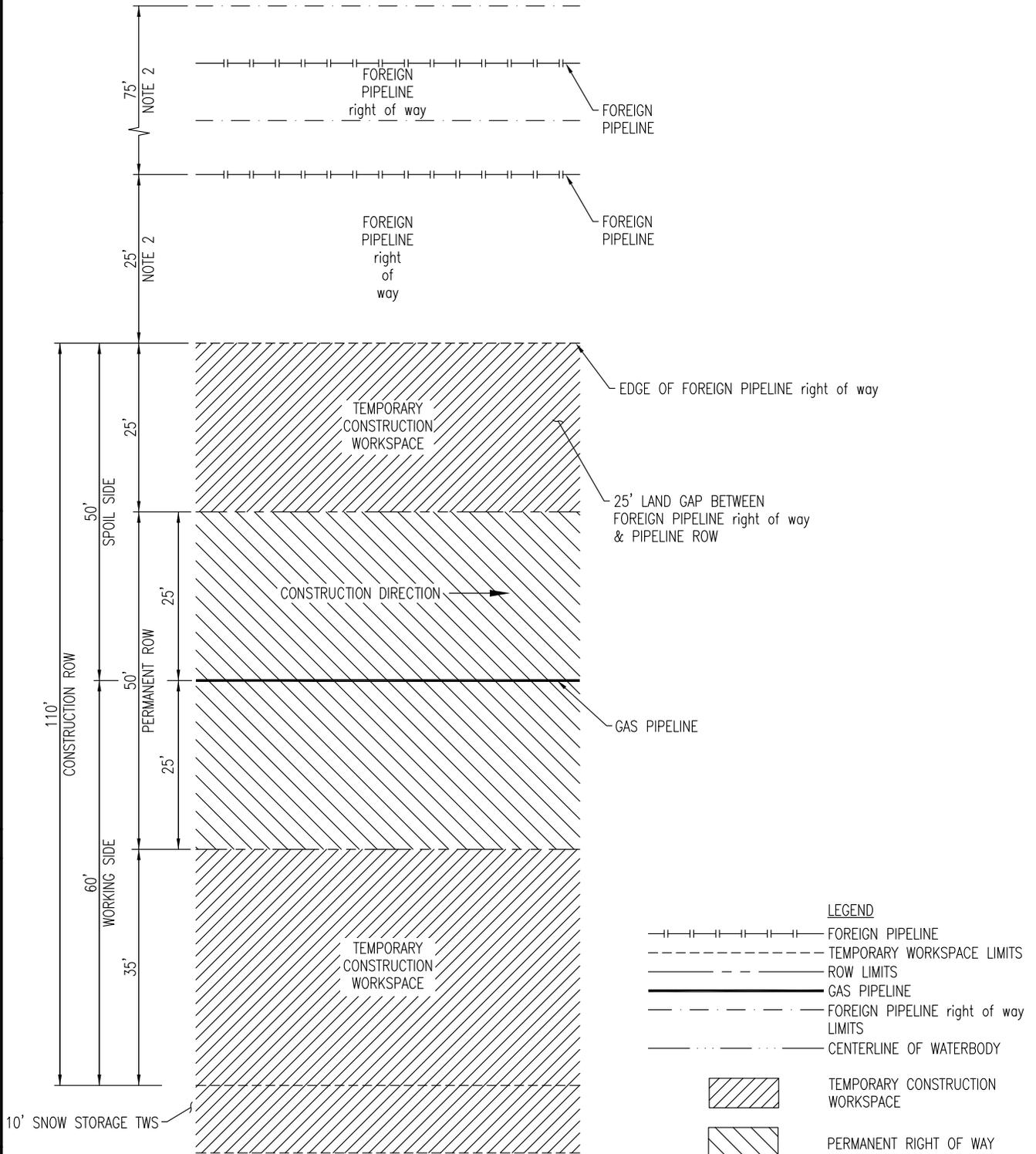


ORIGINATOR:	
UEI NAME	04/05/10 DATE
CHECKED BY: RG	APPROVED BY: DWA

TITLE Bison Pipeline Project BISON PIPELINE LLC TYPICAL TEMPORARY EXTRA WORKSPACE AT WETLAND CROSSING	
SCALE N.T.S.	DWG No 4489-03-ML-09-016
REV 0	

TIME DESIGN/FI F

PLAN VIEW



LEGEND

	FOREIGN PIPELINE
	TEMPORARY WORKSPACE LIMITS
	ROW LIMITS
	GAS PIPELINE
	FOREIGN PIPELINE right of way LIMITS
	CENTERLINE OF WATERBODY
	TEMPORARY CONSTRUCTION WORKSPACE
	PERMANENT RIGHT OF WAY

- NOTE:**
1. ASSUME 50' PERMANENT right of way FOR EACH EXISTING FOREIGN PIPELINE.
 2. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
 3. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL E

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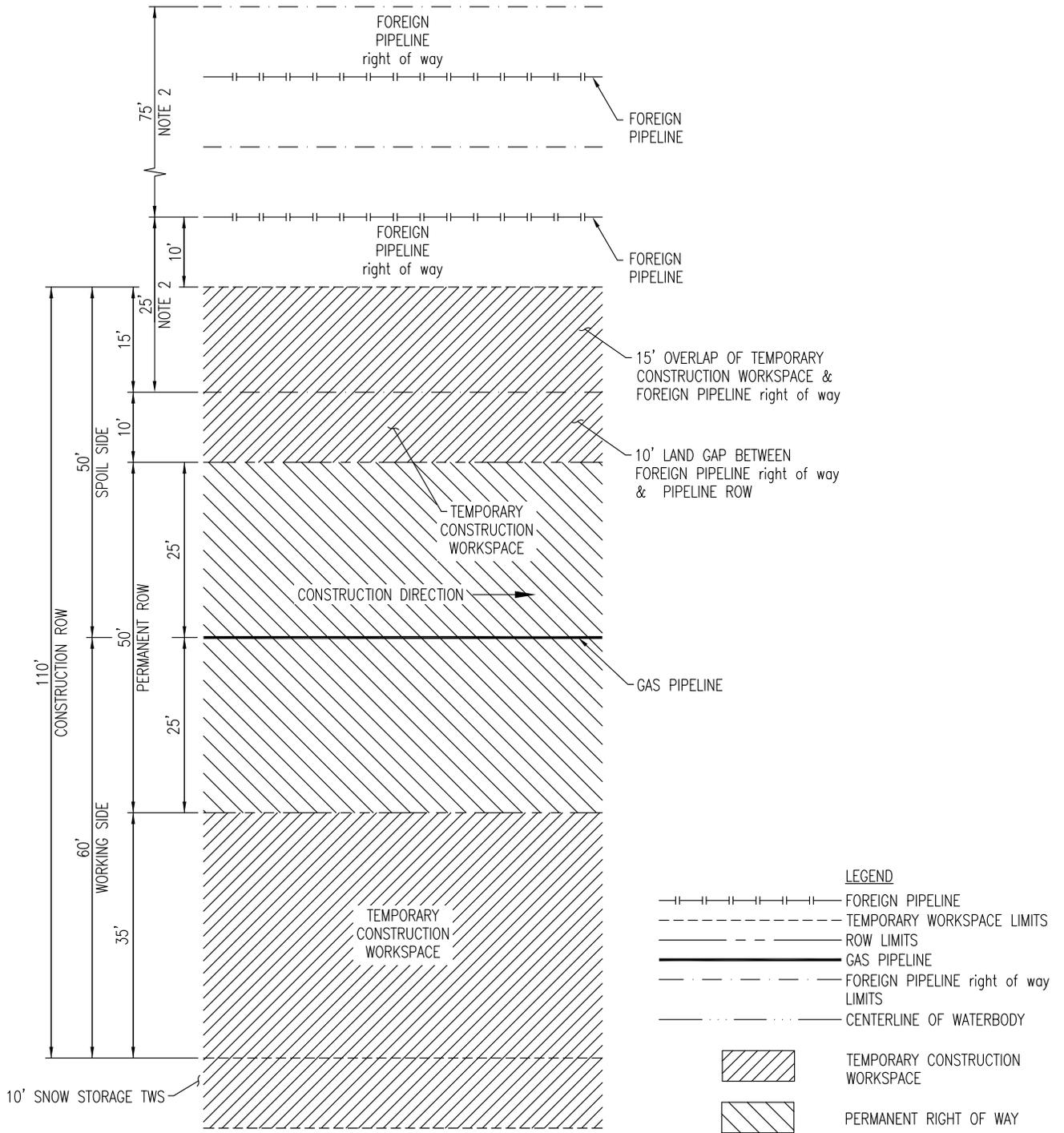
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ORIGINATOR:	
UEI NAME	04/02/10 DATE
CHECKED BY:	APPROVED BY:
RG	DWA

TITLE	
BISON PIPELINE PROJECT BISON PIPELINE LLC CO-LOCATION WITH FORT UNION PIPELINE	
SCALE	DWG No
N.T.S.	4489-03-ML-09-017
REV	0

PLAN VIEW



NOTE:

1. ASSUME 50' PERMANENT right of way FOR EACH EXISTING FOREIGN PIPELINE.
2. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
3. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL F

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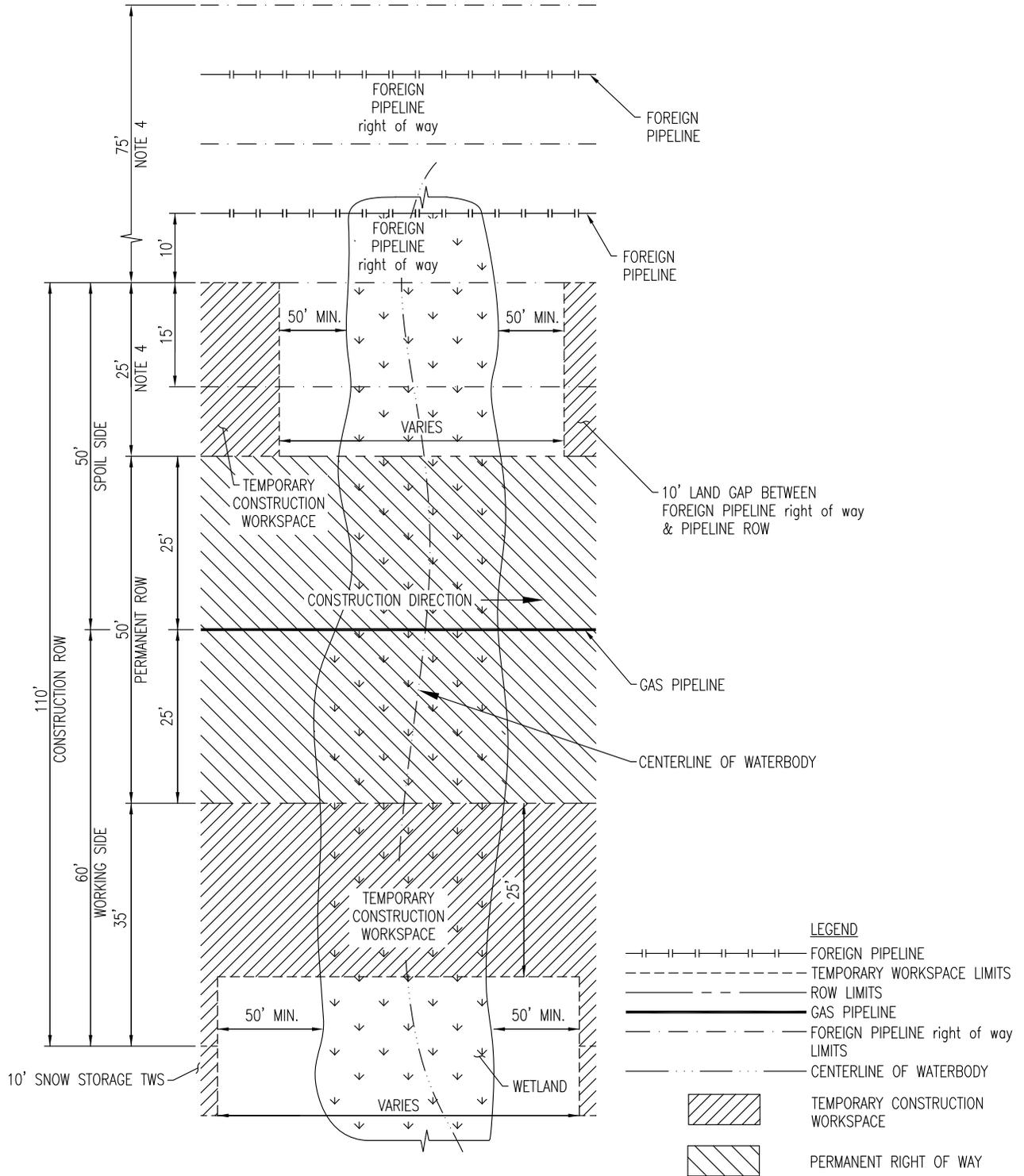


ORIGINATOR:
 UEI NAME: _____ DATE: 04/02/10
 CHECKED BY: _____ APPROVED BY: _____
 RG DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 TYPICAL BIG HORN PIPELINE
 CO-LOCATION

SCALE: N.T.S. DWG No: 4489-03-ML-09-018 REV: 0

PLAN VIEW



NOTE:

1. THE ROW REDUCTION MAY OCCUR FOR A WATERBODY AND/OR WETLAND.
2. FOR A WATERBODY, THE NECKDOWN WILL BEGIN/END 50' FROM THE EDGE OF WATER.
3. ASSUME 50' PERMANENT right of way FOR EXISTING FOREIGN PIPELINE.
4. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
5. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL G

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ORIGINATOR:
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 CHECKED BY: UEI APPROVED BY: DWA

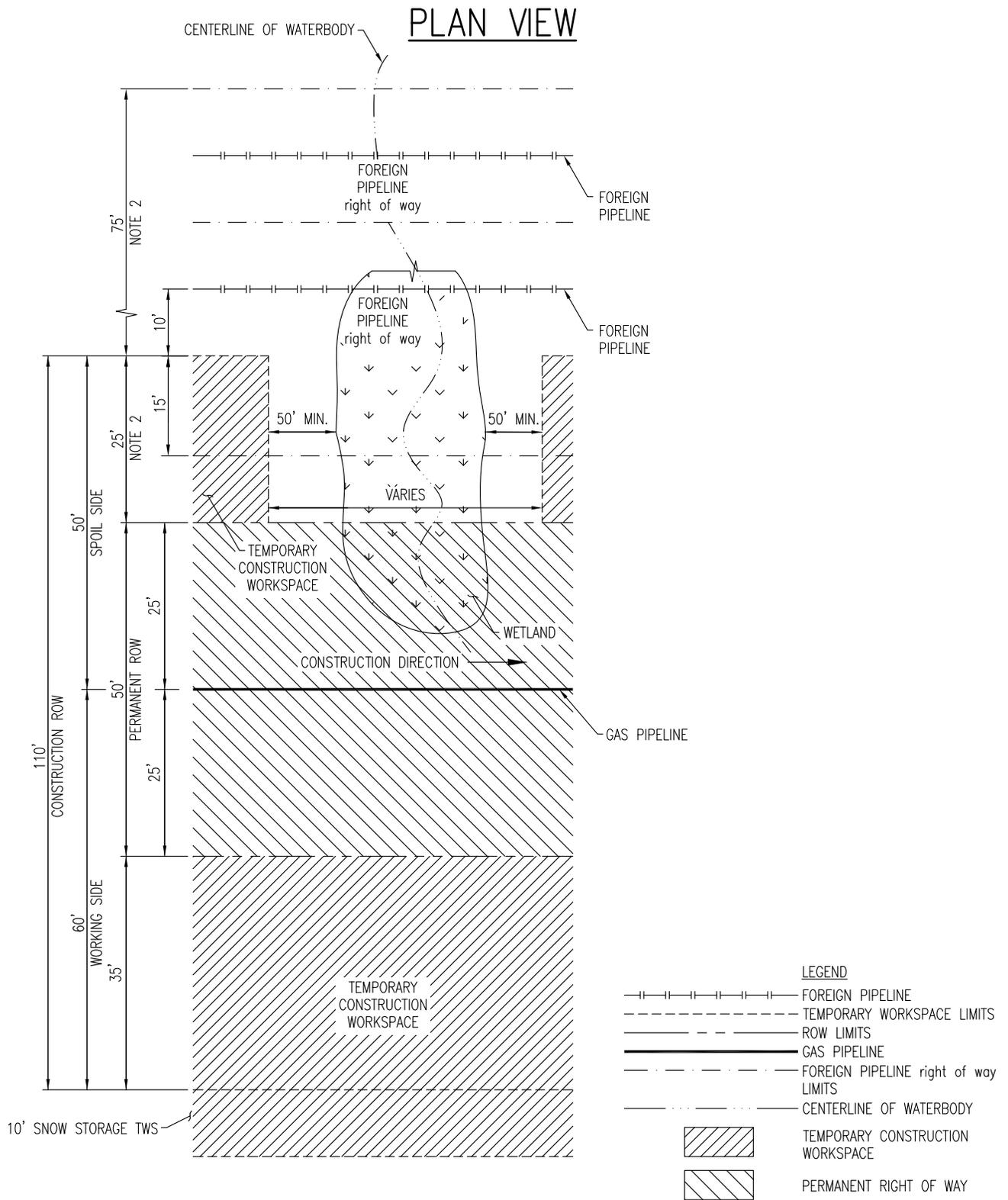
TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 PLAN VIEW ADJACENT TO
 BIG HORN GAS GATHERING PIPELINES (2)
 NECKDOWN ON WORKING & SPOIL SIDES OF ROW

SCALE: N.T.S. DWG No: 4489-03-ML-09-019

REV 0

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REVISIONS A OLD DWG No. (A9029-00-03-BI-SK-031) 0 ISSUED FOR CONSTRUCTION



NOTE:

1. ASSUME 50' PERMANENT right of way FOR EACH EXISTING FOREIGN PIPELINE.
2. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
3. A NECKDOWN MAY OCCUR FOR A WETLAND AND/OR WATERBODY.
4. NECKDOWNS FOR WATERBODIES WILL BEGIN/END 50' MIN FROM THE EDGE OF WATER.
5. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL H

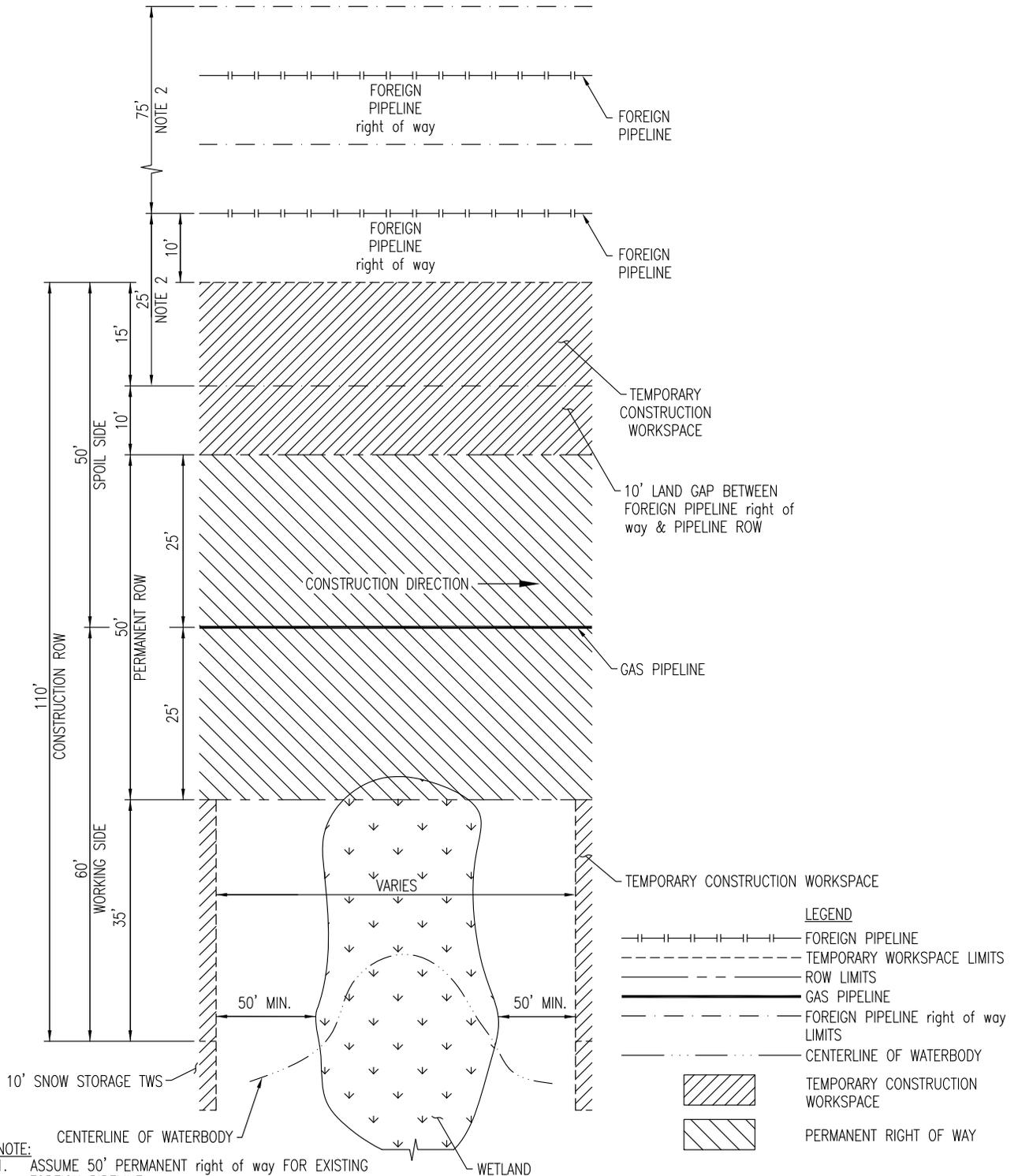


ORIGINATOR:
 RG NAME: _____ DATE: 03/25/10
 CHECKED BY: UEI APPROVED BY: DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 PLAN VIEW ADJACENT TO
 BIG HORN GAS GATHERING PIPELINES (2)
 NECKDOWN ON SPOIL SIDE OF ROW

SCALE: N.T.S. DWG No: 4489-03-ML-09-020 REV 0

PLAN VIEW



- NOTE:**
- ASSUME 50' PERMANENT right of way FOR EXISTING FOREIGN PIPELINE.
 - LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
 - A NECKDOWN MAY OCCUR FOR A WETLAND AND/OR WATERBODY.
 - NECKDOWNS FOR WATERBODIES WILL BEGIN/END 50' MIN. FROM THE EDGE OF WATER.
 - 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL J

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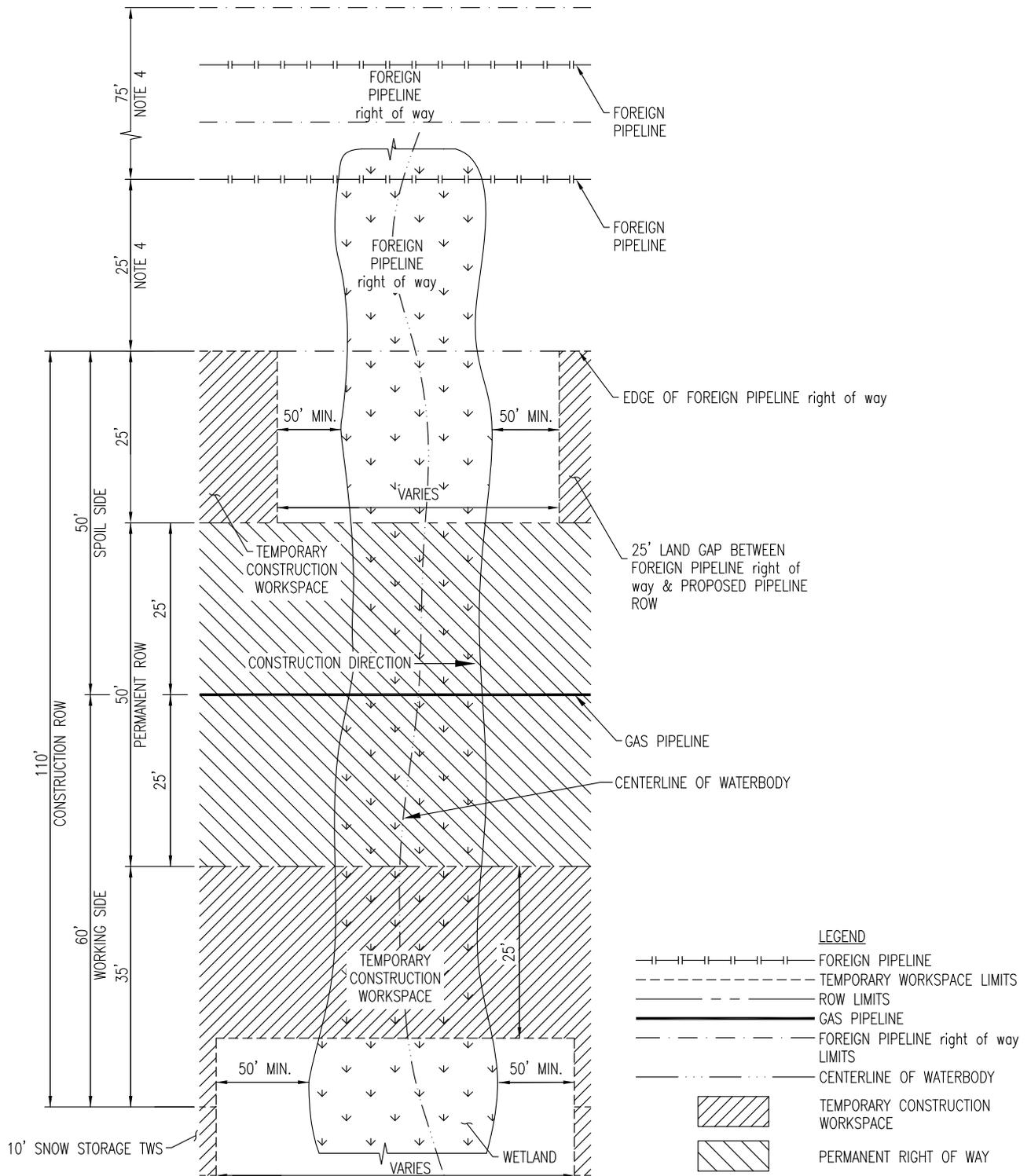
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ORIGINATOR:
 RG NAME: _____ DATE: 03/25/10
 CHECKED BY: UEI APPROVED BY: DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 PLAN VIEW ADJACENT TO
 BIG HORN GAS GATHERING PIPELINES (2)
 NECKDOWN ON WORKING SIDE OF ROW
 SCALE: N.T.S. DWG No: 4489-03-ML-09-021 REV 0

PLAN VIEW



NOTE:

1. THE ROW REDUCTION MAY OCCUR FOR A WATERBODY AND/OR WETLAND.
2. FOR A WATERBODY, THE NECKDOWN WILL BEGIN/END 50' FROM THE EDGE OF WATER.
3. ASSUME 50' PERMANENT right of way FOR EXISTING FOREIGN PIPELINE.
4. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
5. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL P

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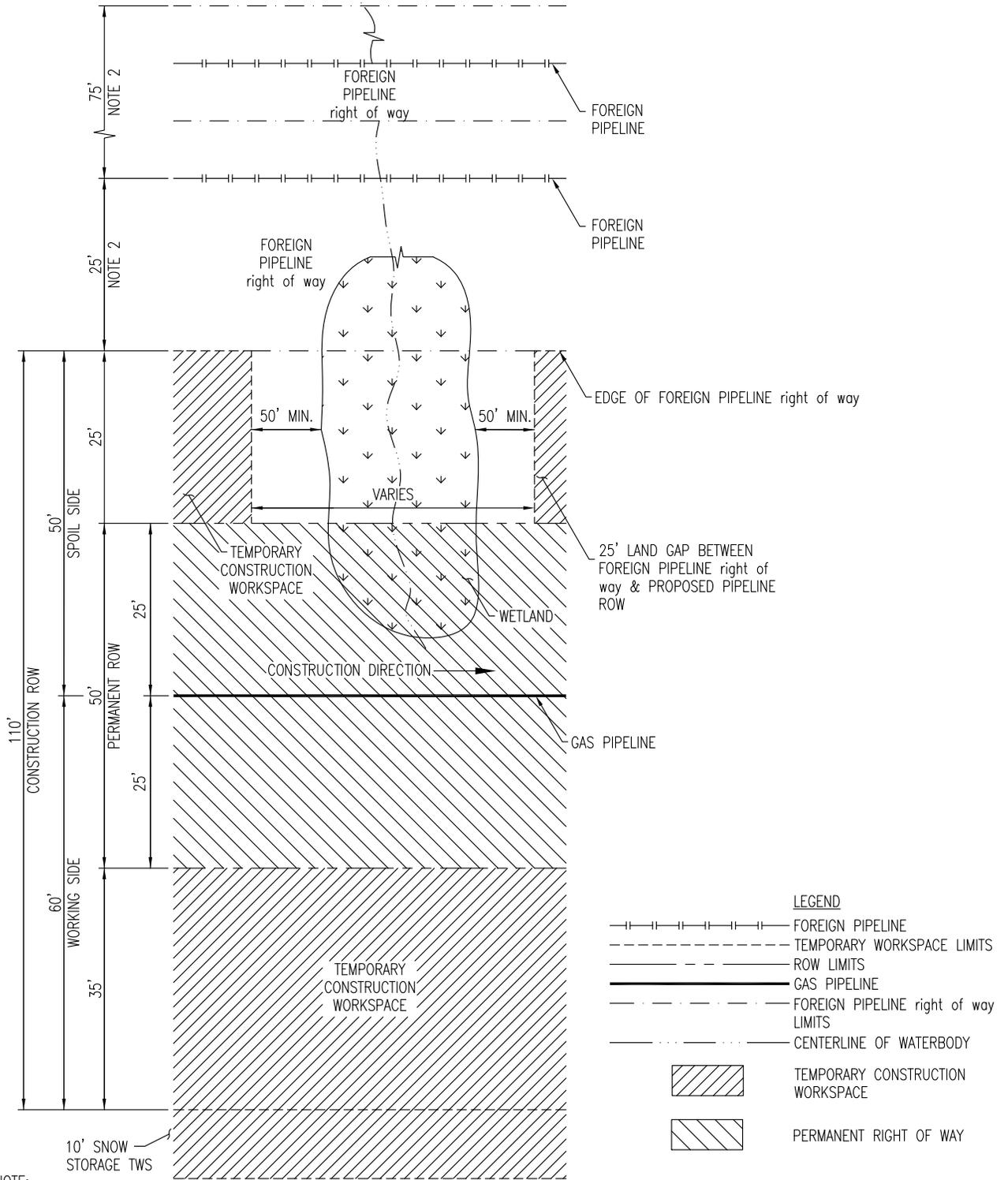
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ORIGINATOR:
 RG NAME: _____ DATE: 03/25/10
 CHECKED BY: UEI APPROVED BY: DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 PLAN VIEW ADJACENT TO
 WILLISTON BASIN INTERSTATE PIPELINES (2)
 NECKDOWN ON WORKING & SPOIL SIDES OF ROW
 SCALE: N.T.S. DWG No: 4489-03-ML-09-022 REV: 0

PLAN VIEW



NOTE:

1. ASSUME 50' PERMANENT right of way FOR EACH EXISTING FOREIGN PIPELINE.
2. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
3. A NECKDOWN MAY OCCUR FOR A WETLAND AND/OR WATERBODY.
4. NECKDOWNS FOR WATERBODIES WILL BEGIN/END 50' MIN FROM THE EDGE OF WATER.
5. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL Q

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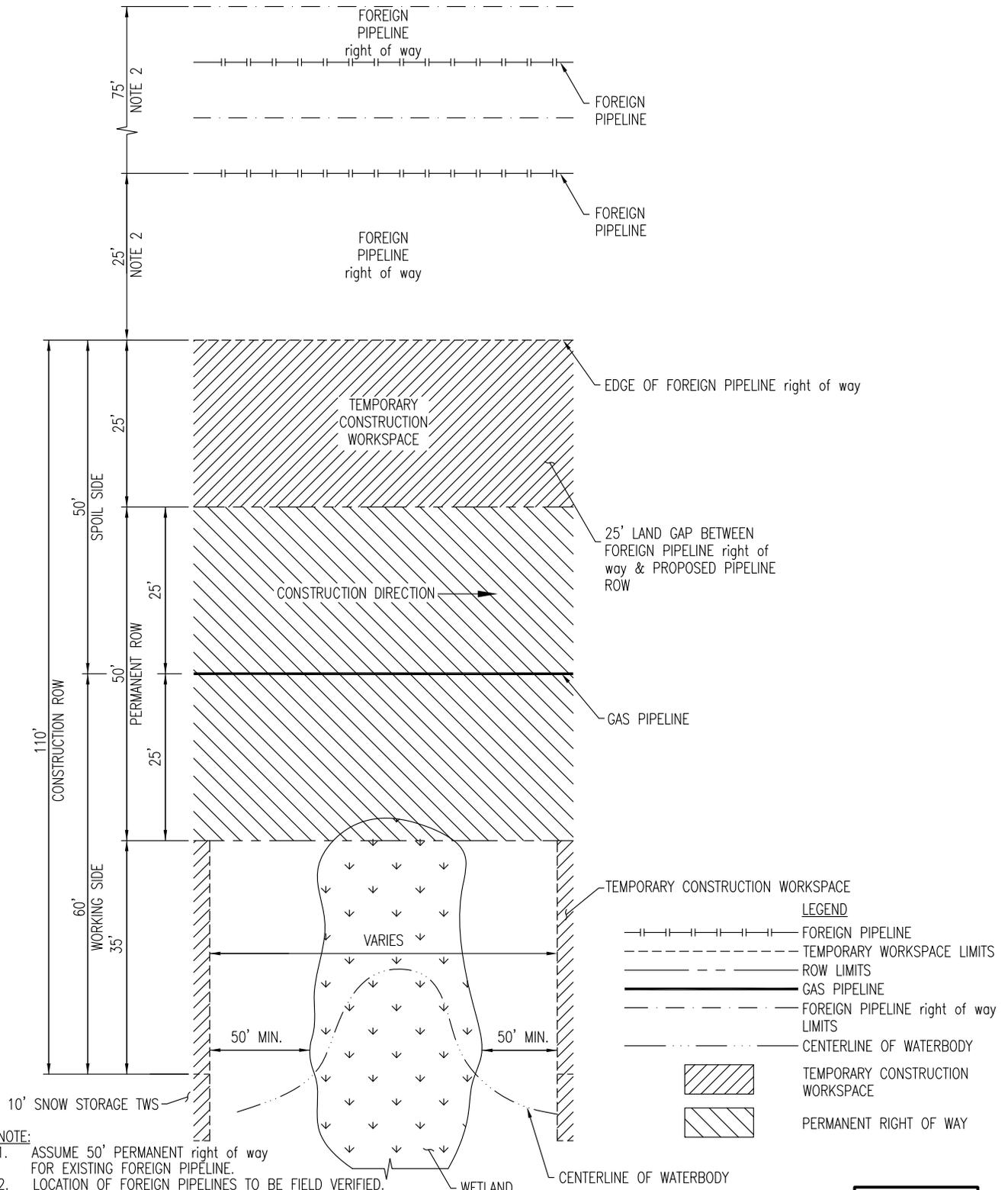
REVISIONS	A	OLD DWG No. (A9029-00-03-BI-SK-039)	0	ISSUED FOR CONSTRUCTION
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ORIGINATOR:		TITLE	
UEI NAME	04/12/10 DATE	BISON PIPELINE PROJECT BISON PIPELINE LLC PLAN VIEW ADJACENT TO WILLISTON BASIN INTERSTATE PIPELINES (2) NECKDOWN ON SPOIL SIDE OF ROW	
CHECKED BY:	APPROVED BY:	SCALE	DWG No
RG	DWA	N.T.S.	4489-03-ML-09-023

REV	0
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PLAN VIEW



NOTE:

1. ASSUME 50' PERMANENT right of way FOR EXISTING FOREIGN PIPELINE.
2. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
3. A NECKDOWN MAY OCCUR FOR A WETLAND AND/OR WATERBODY.
4. NECKDOWNS FOR A WATERBODIES WILL BEGIN/END 50' MIN. FROM THE EDGE OF WATER.
5. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL R

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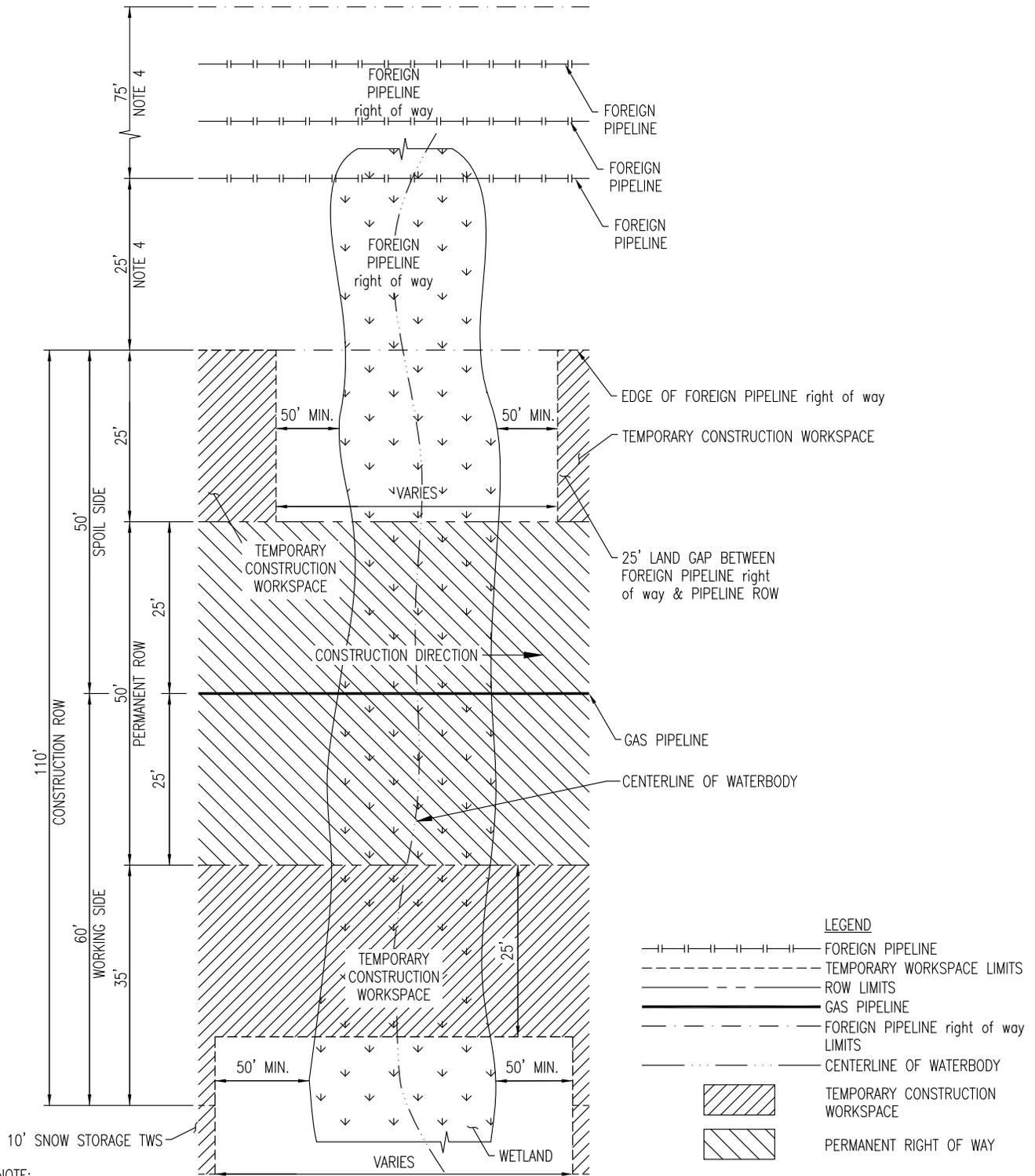
ISSUED FOR CONSTRUCTION



ORIGINATOR:
 RG NAME: _____ DATE: 03/25/10
 CHECKED BY: UEI APPROVED BY: DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 PLAN VIEW ADJACENT TO
 WILLISTON BASIN INTERSTATE PIPELINES (2)
 NECKDOWN ON WORKING SIDE OF ROW
 SCALE: N.T.S. DWG No: 4489-03-ML-09-024
 REV 0

PLAN VIEW



NOTE:

1. THE ROW REDUCTION MAY OCCUR FOR A WATERBODY AND/OR WETLAND.
2. FOR A WATERBODY, THE NECKDOWN WILL BEGIN/END 50' FROM THE EDGE OF WATER.
3. ASSUME 50' PERMANENT right of way FOR EXISTING FOREIGN PIPELINE.
4. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
5. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL T

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REVISIONS A OLD DWG No. (A9029-00-03-BI-SK-042) 0 ISSUED FOR CONSTRUCTION

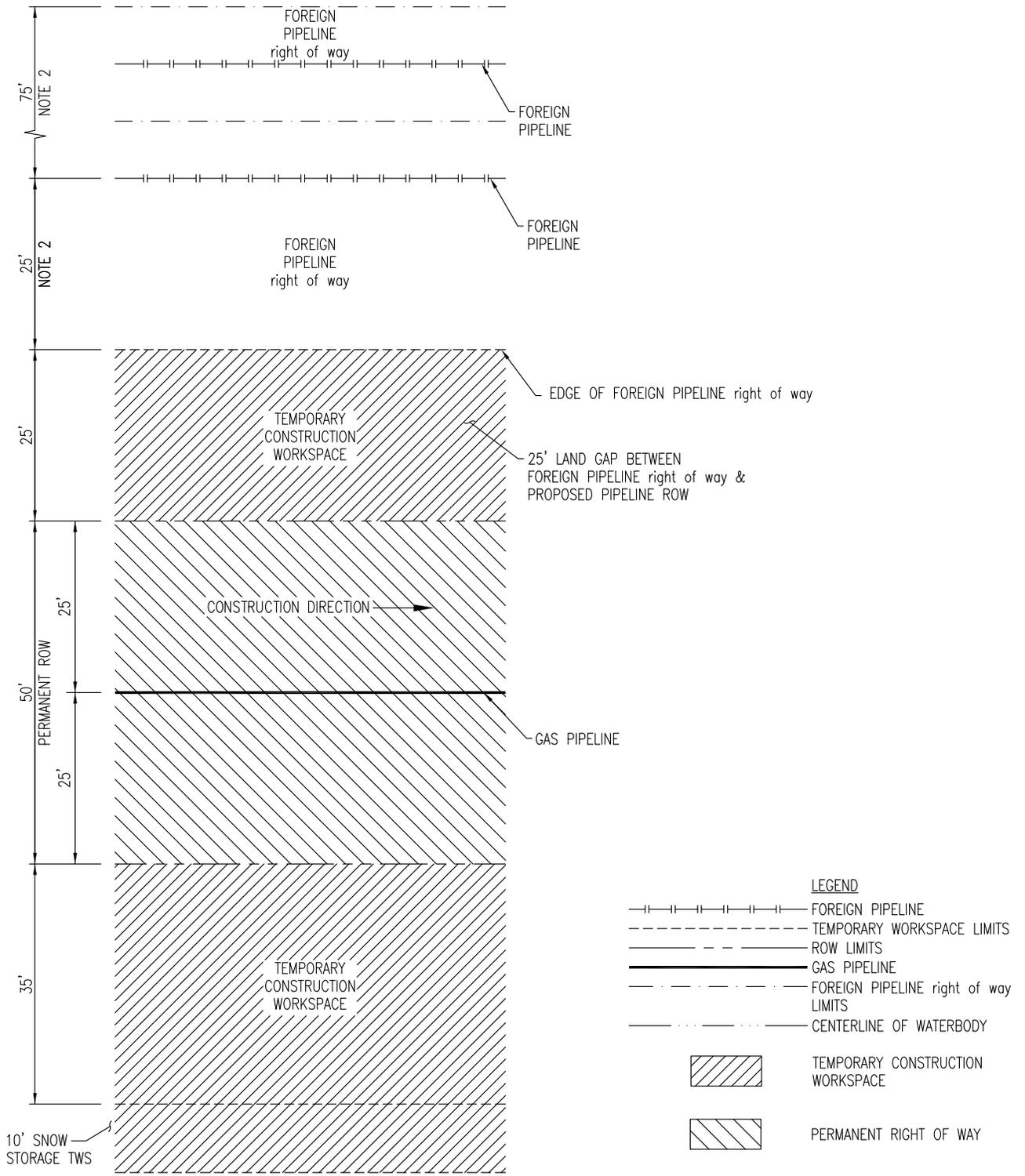


ORIGINATOR:
 RG _____ 03/25/10
 NAME DATE
 CHECKED BY: UEI APPROVED BY: DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 PLAN VIEW ADJACENT TO
 WILLISTON BASIN INTERSTATE & BELLE FOURCHE P/L'S
 NECKDOWN ON WORKING & SPOIL SIDES OF ROW
 SCALE: N.T.S. DWG No: 4489-03-ML-09-025

REV 0

PLAN VIEW



NOTE:

1. ASSUME 50' PERMANENT right of way FOR EACH EXISTING FOREIGN PIPELINE.
2. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
3. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL Z

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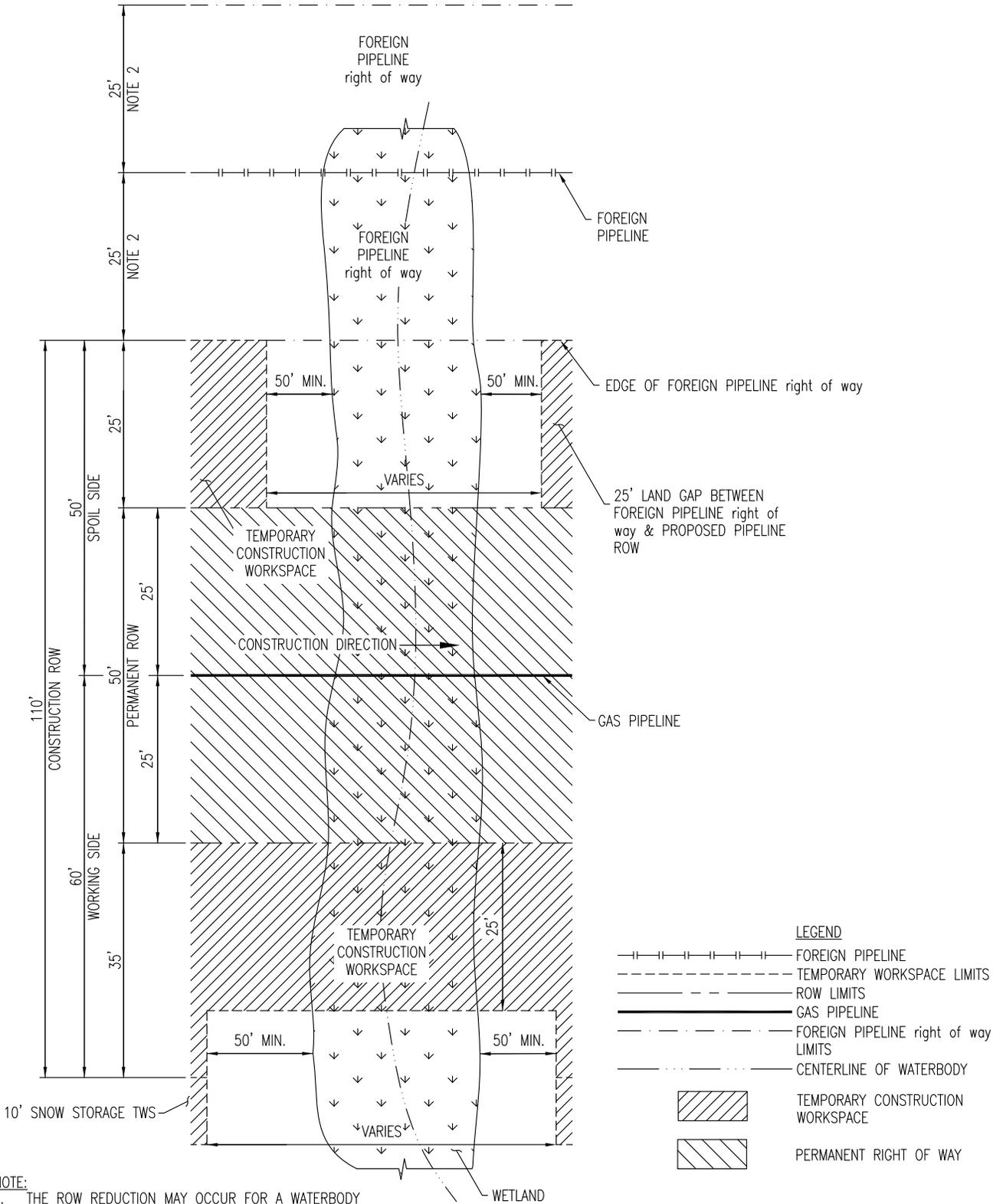
ISSUED FOR CONSTRUCTION
 OLD DWG No. (A9029-00-03-BI-SK-105)
 REVISIONS A



ORIGINATOR:
 UEI NAME: _____ DATE: 04/06/10
 CHECKED BY: _____ APPROVED BY: _____
 RG DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 CO-LOCATION WITH WILLISTON BASIN
 INTERSTATE PIPELINES (2)
 50' PERMANENT ROW (HDD)
 SCALE: N.T.S. DWG No: 4489-03-ML-09-027
 REV 0

PLAN VIEW



- NOTE:**
1. THE ROW REDUCTION MAY OCCUR FOR A WATERBODY AND/OR WETLAND.
 2. FOR A WATERBODY, THE NECKDOWN WILL BEGIN/END 50' FROM THE TOP OF BANK.
 3. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL AB

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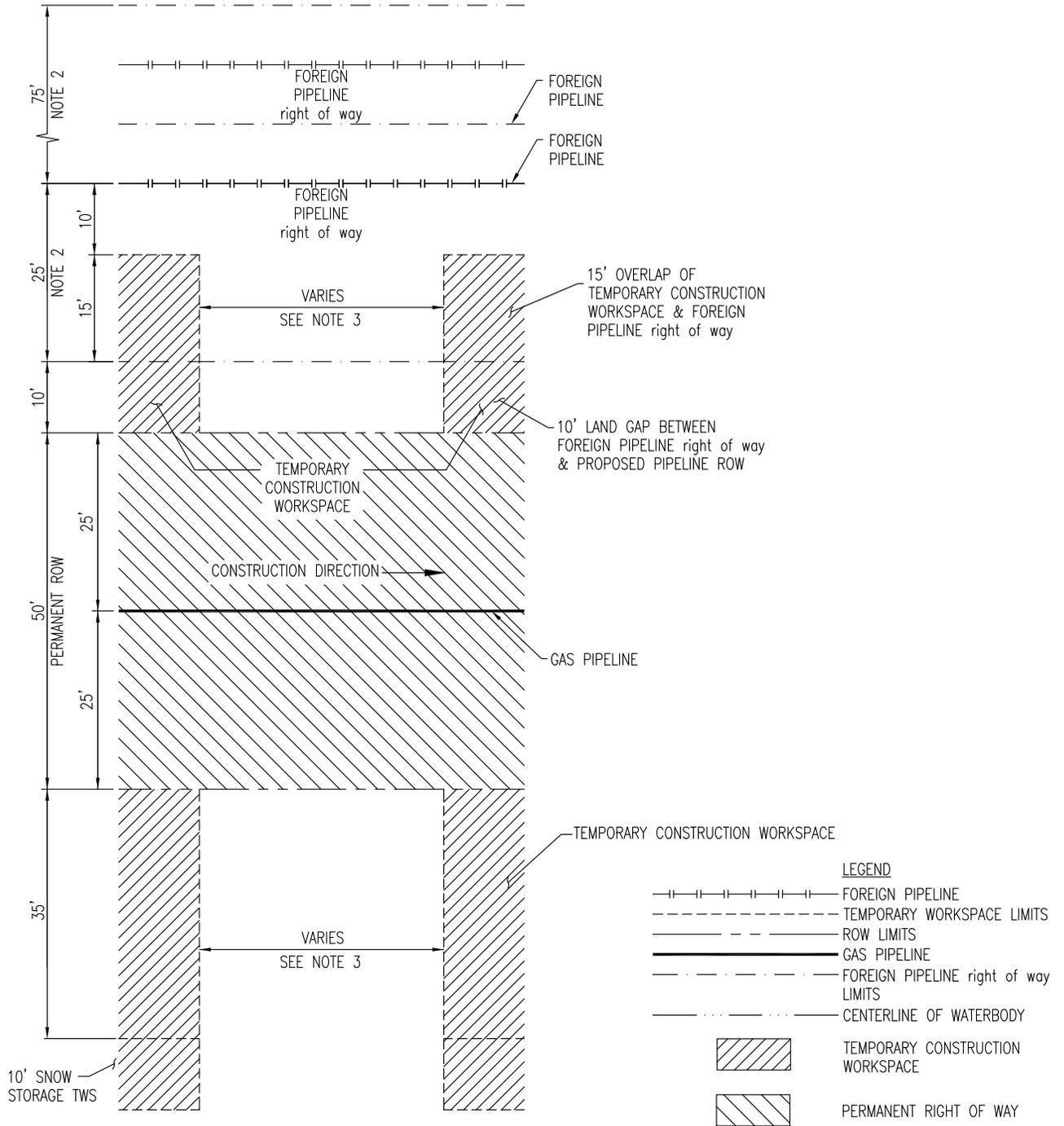
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 UEI NAME: _____ DATE: 04/06/10
 CHECKED BY: _____ APPROVED BY: _____
 RG DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 PLAN VIEW ADJACENT TO
 WILLISTON BASIN INTERSTATE PIPELINE (1)
 WETLAND ACROSS ROW

SCALE: N.T.S. DWG No: 4489-03-ML-09-028

REV 0

PLAN VIEW



NOTE:

1. ASSUME 50' PERMANENT right of way FOR EACH EXISTING FOREIGN PIPELINE.
2. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
3. NO WORKSPACE ACROSS I-90 WILL BE USED DUE TO TRENCHLESS CROSSING METHOD.
4. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL AE

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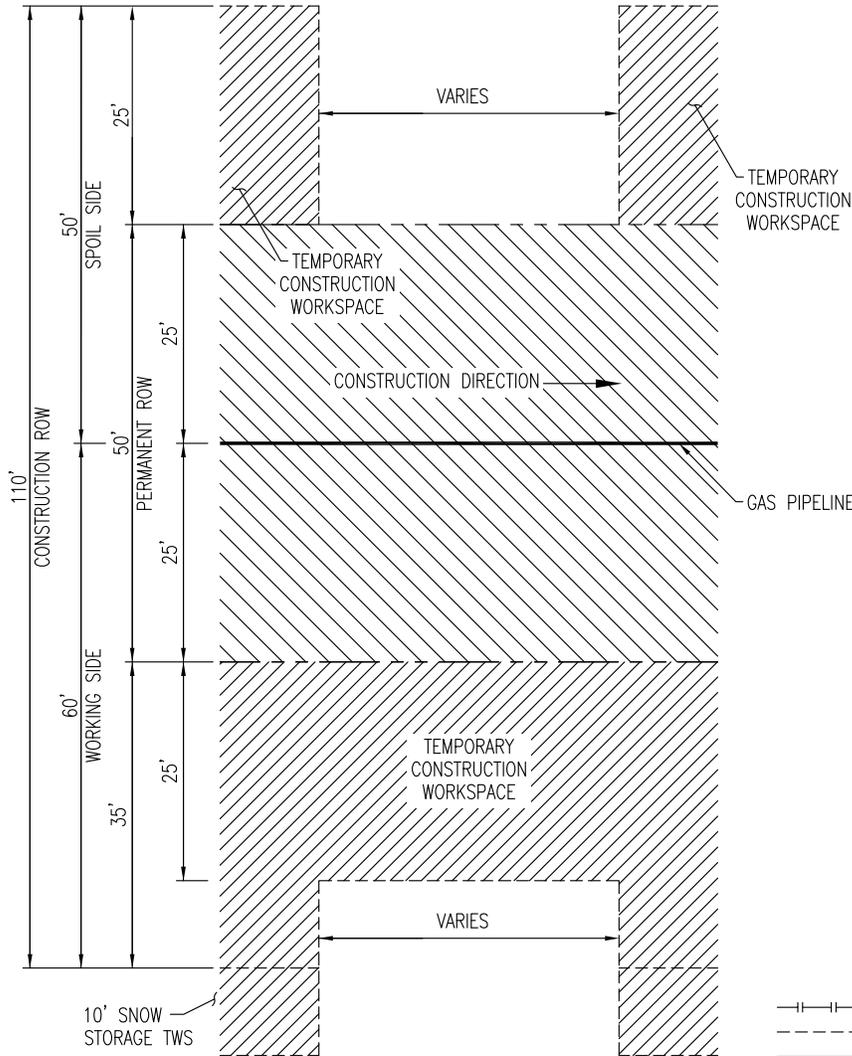
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OLD DWG No. (A9029-00-03-BI-SK-109)
REVISIONS A



ORIGINATOR:
UEI NAME: _____ DATE: 04/07/10
CHECKED BY: _____ APPROVED BY: _____
RG DWA

TITLE: BISON PIPELINE PROJECT
BISON PIPELINE LLC
PLAN VIEW ADJACENT TO
BIG HORN GAS GATHERING PIPELINES (2)
50' PERMANENT ROW (I-90 X-ING)
SCALE: N.T.S. DWG No: 4489-03-ML-09-029
REV 0

PLAN VIEW



LEGEND	
	FOREIGN PIPELINE
	TEMPORARY WORKSPACE LIMITS
	ROW LIMITS
	GAS PIPELINE
	FOREIGN PIPELINE right of way LIMITS
	CENTERLINE OF WATERBODY
	TEMPORARY CONSTRUCTION WORKSPACE
	PERMANENT RIGHT OF WAY

NOTE:
1. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL AF

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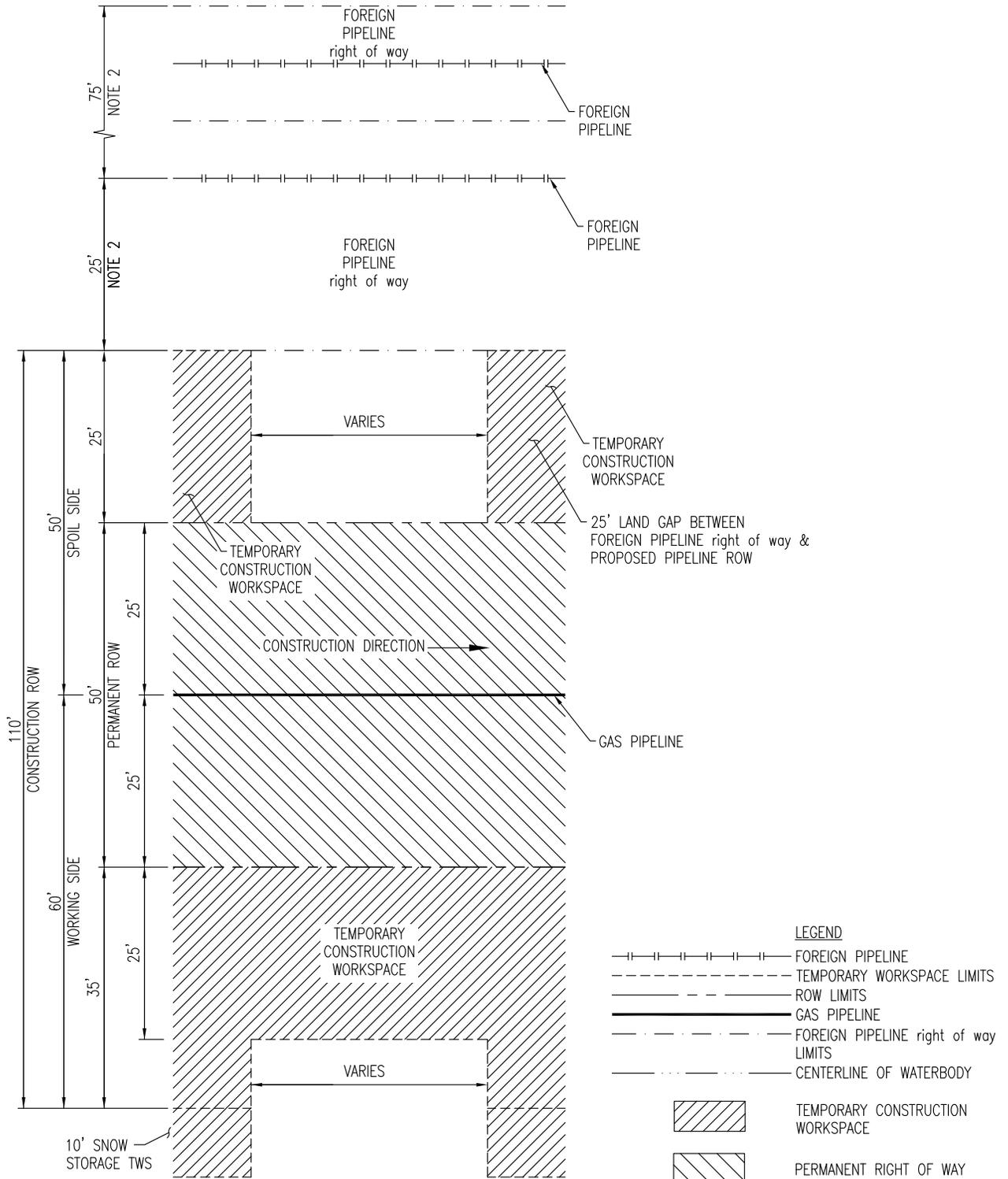
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A OLD DWG No. (A9029-00-03-BI-SK-134) 0



ORIGINATOR:	
UEI NAME	04/07/10 DATE
CHECKED BY:	APPROVED BY:
RG	DWA

TITLE		BISON PIPELINE PROJECT	
		BISON PIPELINE LLC	
		NECKDOWN ON SPOIL & WORKING	
		SIDE OF CONSTRUCTION ROW	
		FOR BIOLOGICAL FEATURE	
SCALE	DWG No	REV	
N.T.S.	4489-03-ML-09-030	0	

PLAN VIEW



NOTE:

1. ASSUME 50' PERMANENT right of way FOR EACH EXISTING FOREIGN PIPELINE.
2. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
3. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL AG

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ISSUED FOR CONSTRUCTION

OLD DWG No. (A9029-00-03-BI-SK-135)

REVISIONS



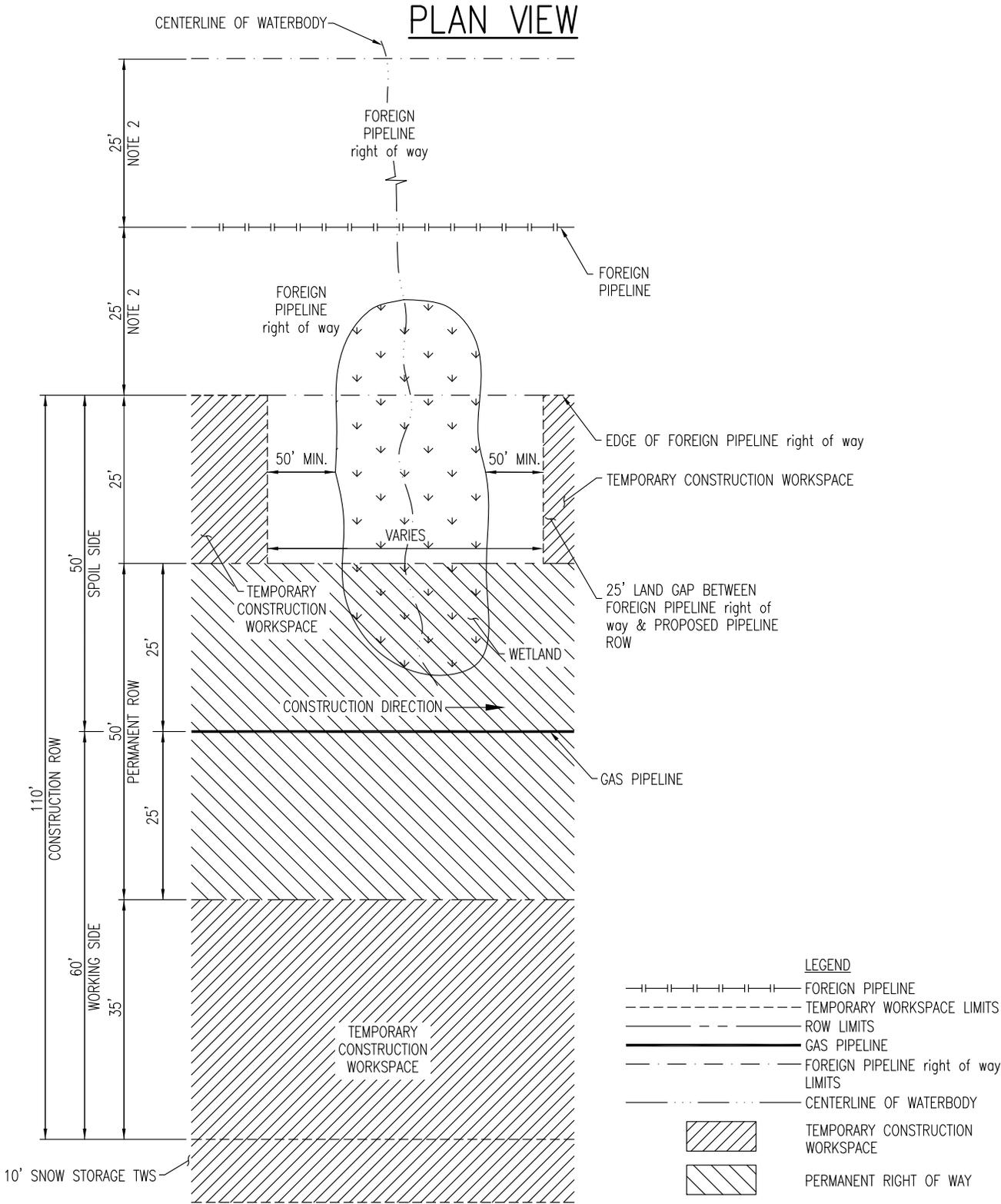
ORIGINATOR:
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 CHECKED BY: RG APPROVED BY: DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 CO-LOCATION WITH WILLISTON BASIN INTERSTATE PIPELINES (2) – NECKDOWN ON SPOIL & WORKING SIDE OF CONSTRUCTION ROW FOR BIOLOGICAL FEATURE
 SCALE: N.T.S. DWG No: 4489-03-ML-09-031

REV 0

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REVISIONS A OLD DWG No. (4489-03-ML-09-XXA) 0 ISSUED FOR CONSTRUCTION



- NOTE:**
1. ASSUME 50' PERMANENT right of way FOR EACH EXISTING FOREIGN PIPELINE.
 2. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
 3. A NECKDOWN MAY OCCUR FOR A WETLAND AND/OR WTERBODY.
 4. NECKDOWNS FOR WATERBODIES WILL BEGIN/END 50' MIN FROM THE TOP OF BANK.
 5. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL AH & AK



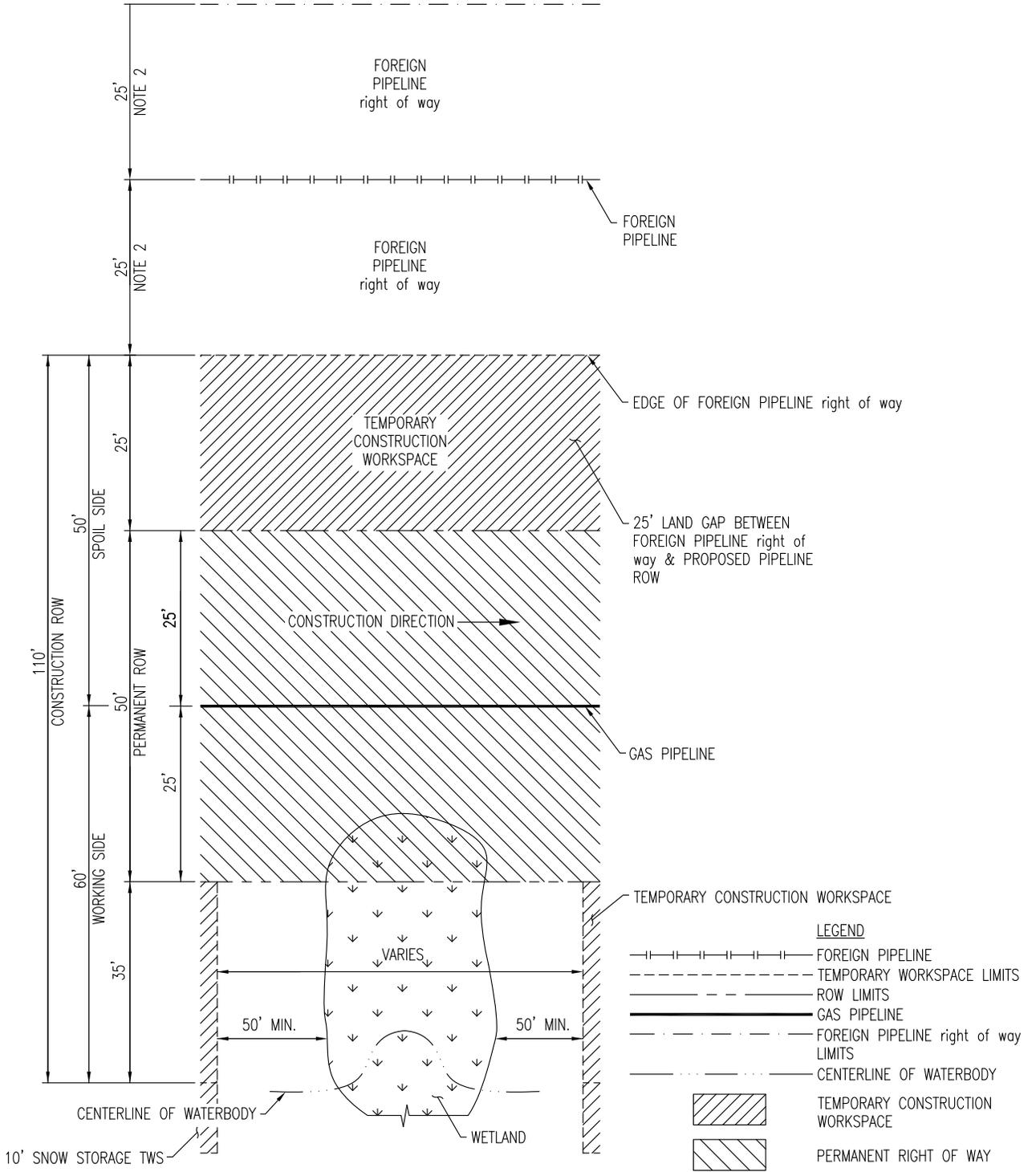
ORIGINATOR:
 RG NAME: _____ DATE: 03/25/10
 CHECKED BY: UEI APPROVED BY: DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 PLAN VIEW ADJACENT TO
 WILLISTON BASIN INTERSTATE PIPELINES (1)
 NECKDOWN ON SPOIL SIDE OF ROW

SCALE: N.T.S. DWG No: 4489-03-ML-09-032

REV 0

PLAN VIEW



LEGEND

	FOREIGN PIPELINE
	TEMPORARY WORKSPACE LIMITS
	ROW LIMITS
	GAS PIPELINE
	FOREIGN PIPELINE right of way LIMITS
	CENTERLINE OF WATERBODY
	TEMPORARY CONSTRUCTION WORKSPACE
	PERMANENT RIGHT OF WAY

NOTE:

1. ASSUME 50' PERMANENT right of way FOR EACH EXISTING FOREIGN PIPELINE.
2. LOCATION OF FOREIGN PIPELINES TO BE FIELD VERIFIED.
3. THE ROW REDUCTION MAY OCCUR FOR A WATERBODY AND/OR WETLAND.
4. FOR A WATERBODY, THE NECKDOWN WILL BEGIN/END 50' FROM THE TOP OF BANK.
5. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL AJ

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ISSUED FOR CONSTRUCTION

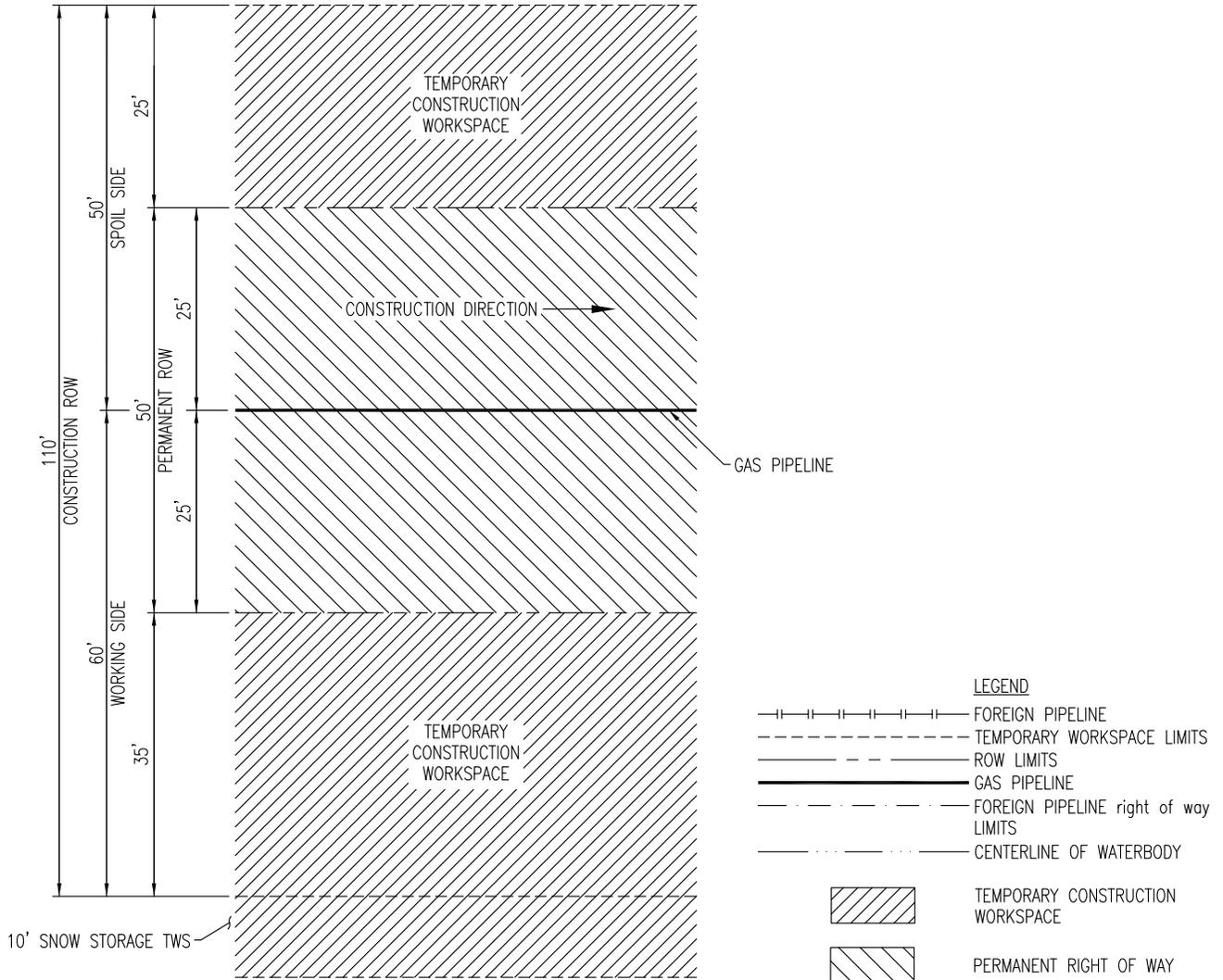
OLD DWG No. (4489-03-ML-09-XXB)



ORIGINATOR:	
RG NAME	03/25/10 DATE
CHECKED BY:	APPROVED BY:
UEI	DWA

TITLE		BISON PIPELINE PROJECT	
		BISON PIPELINE LLC	
		PLAN VIEW ADJACENT TO	
		WILLISTON BASIN INTERSTATE PIPELINES (1)	
		NECKDOWN ON WORKING SIDE OF ROW	
SCALE	DWG No		
N.T.S.	4489-03-ML-09-033		
	REV		
	0		

PLAN VIEW



NOTE:
1. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL A

I:\15304\Mapping\Workspace\JFC\New TC #s\4489-03-ML-09-034.dwg, 4/29/2010 10:14:44 AM

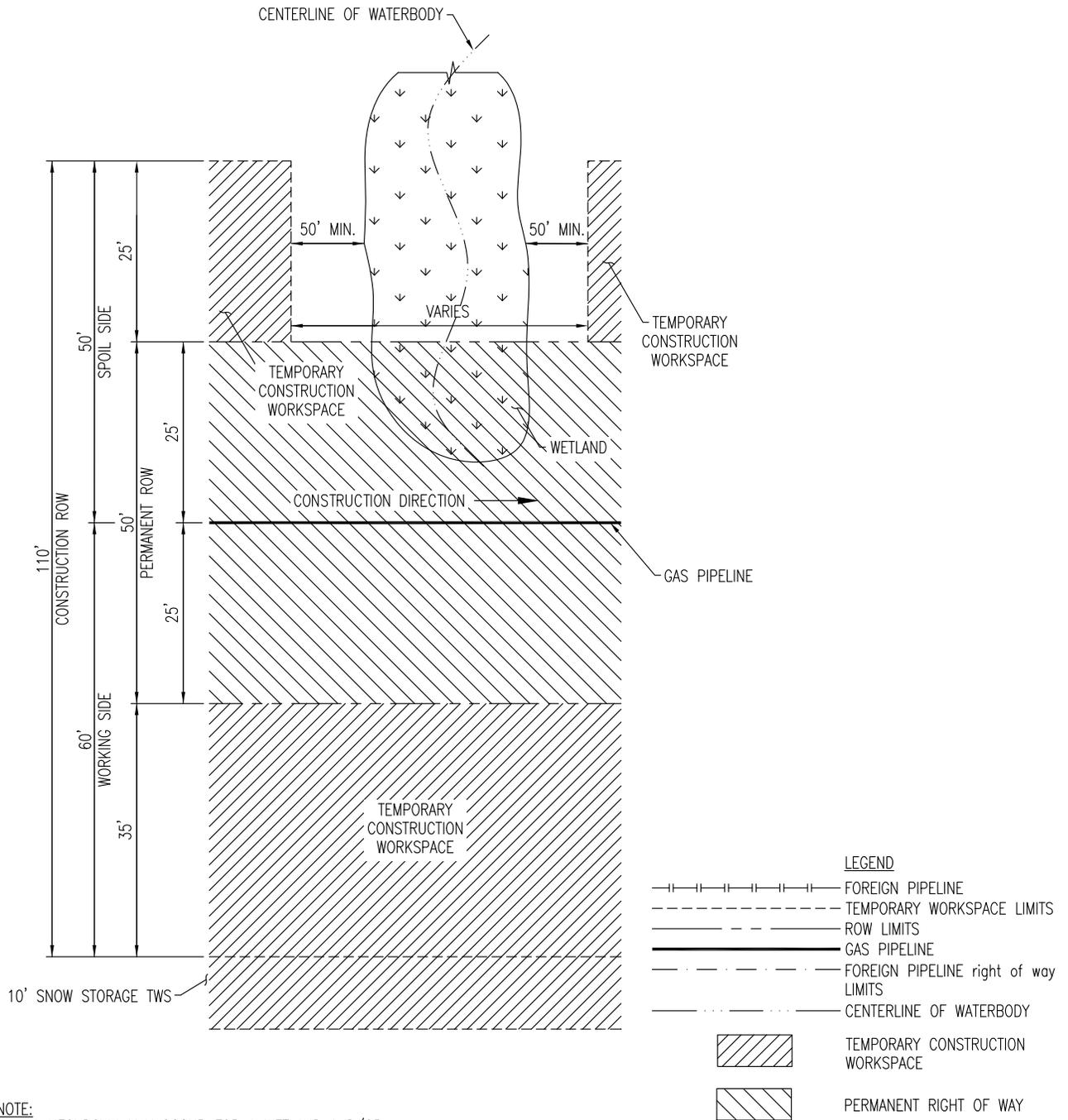
REVISIONS A OLD DWG No. (A9029-00-03-BI-SK-024) 0 ISSUED FOR CONSTRUCTION



ORIGINATOR:		TITLE	
UEI NAME	04/06/10 DATE	BISON PIPELINE PROJECT BISON PIPELINE LLC TYPICAL CONSTRUCTION ROW	
CHECKED BY:	APPROVED BY:	SCALE	DWG No
RG	DWA	N.T.S.	4489-03-ML-09-034

REV 0

PLAN VIEW



NOTE:

1. A NECKDOWN MAY OCCUR FOR A WETLAND AND/OR WATERBODY.
2. NECKDOWNS FOR WATERBODIES WILL BEGIN/END 50' MIN FROM THE EDGE OF WATER.
3. 10' SNOW STORAGE TWS NOT FOR CONSTRUCTION.

DETAIL C

I:\15304\Mapping\Workspace\IFC\New TC #s\4489-03-ML-09-035.dwg, 4/29/2010 10:15:56 AM

REVISIONS A OLD DWG No. (A9029-00-03-BI-SK-026) 0 ISSUED FOR CONSTRUCTION



ORIGINATOR:
 UEI NAME: _____ DATE: 04/01/10
 CHECKED BY: _____ RG
 APPROVED BY: _____ DWA

TITLE: BISON PIPELINE PROJECT
 BISON PIPELINE LLC
 NECKDOWN ON SPOIL
 SIDE OF CONSTRUCTION ROW

SCALE: N.T.S.
 DWG No: 4489-03-ML-09-035
 REV: 0

