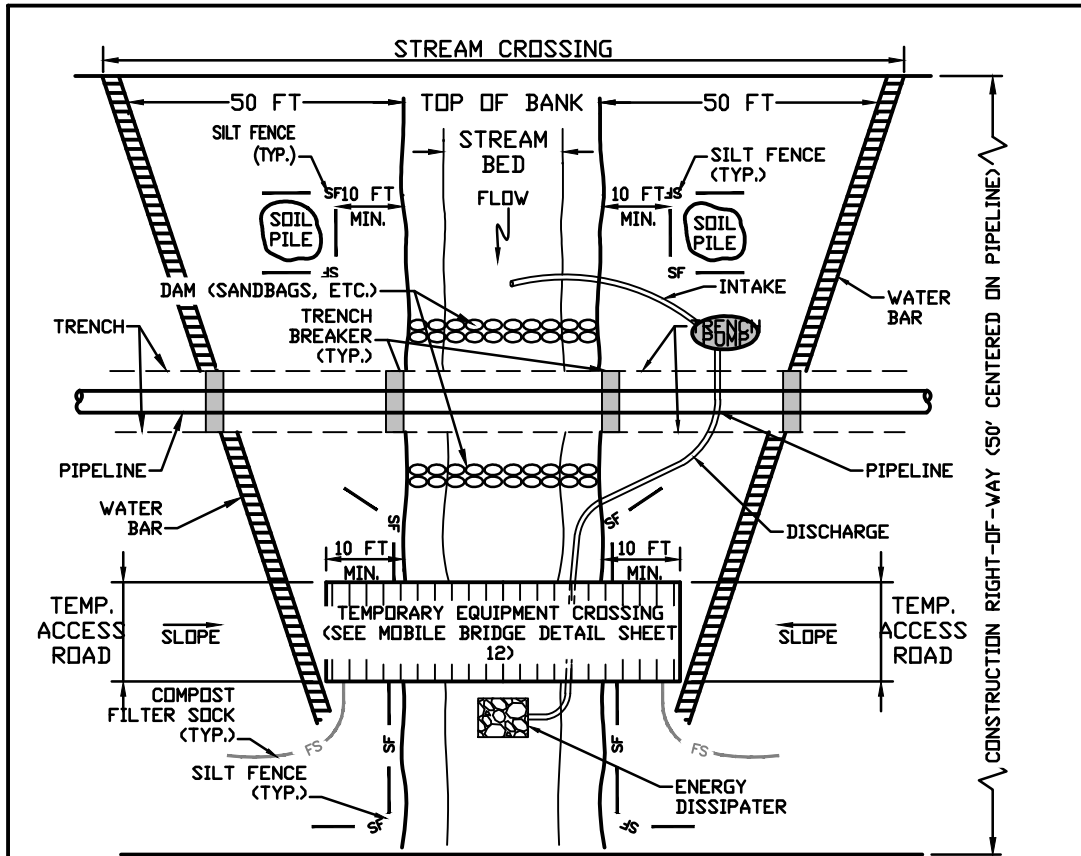


Mountain Valley Pipeline Project
Docket No. CP16-10-000
Attachment DR5 Water Resources 6




PLAN VIEW

NOTES:

1. INSTALL COMPOST FILTER SOCKS, TRENCH BREAKERS, PUMP, ENERGY DISSIPATER, AND DAMS BEFORE TRENCHING STREAM.
2. PUMP MUST BE OF SUFFICIENT CAPACITY TO CONVEY NORMAL AND/OR EXISTING STREAM FLOW OVER TRENCH. A BACK-UP PUMP OF EQUAL CAPACITY MUST BE AVAILABLE ON-SITE DURING CONSTRUCTION OF THE PIPELINE CROSSING.
3. PLACE SOIL PILES A MINIMUM OF 10 FEET FROM TOP OF BANK.
4. INSTALL WATER BARS AT APPROACHES TO STREAM CROSSING AND COMPOST FILTER SOCKS, SILT FENCE, OR SUPER SILT FENCE (AS INDICATED ON PLAN SHEETS).
5. MAINTAIN SURFACE OF TEMPORARY EQUIPMENT CROSSING TO PREVENT SOIL DISCHARGES TO STREAM.
6. APPROACHES TO CROSSINGS ARE NOT TO EXCEED A DEPTH OF 6 INCHES ABOVE ORIGINAL GRADE.
7. RESTORE AREA TO APPROXIMATE ORIGINAL CONTOURS.

DRAWN	DATE
CHECKED	DATE
APP'D	DATE
SCALE N.T.S.	SHEET 1 OF 1
JOB NO.	
PROJECT ID:	PXXXX



DESIGN ENGINEERING

ENVIRONMENTAL DETAIL	
STREAM CROSSING PUMP STATION	
DRAWING NO.	REV.
MVP-ES8	0

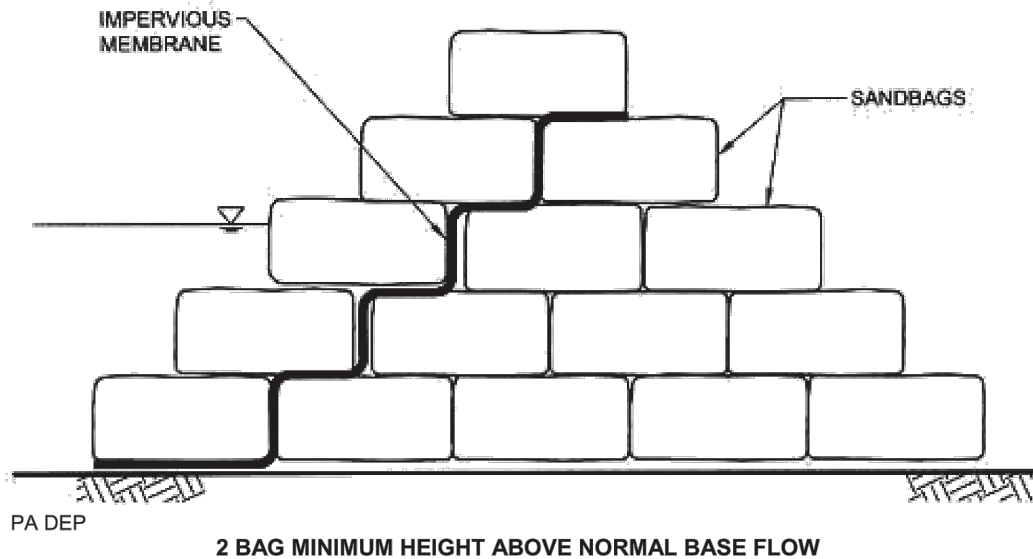
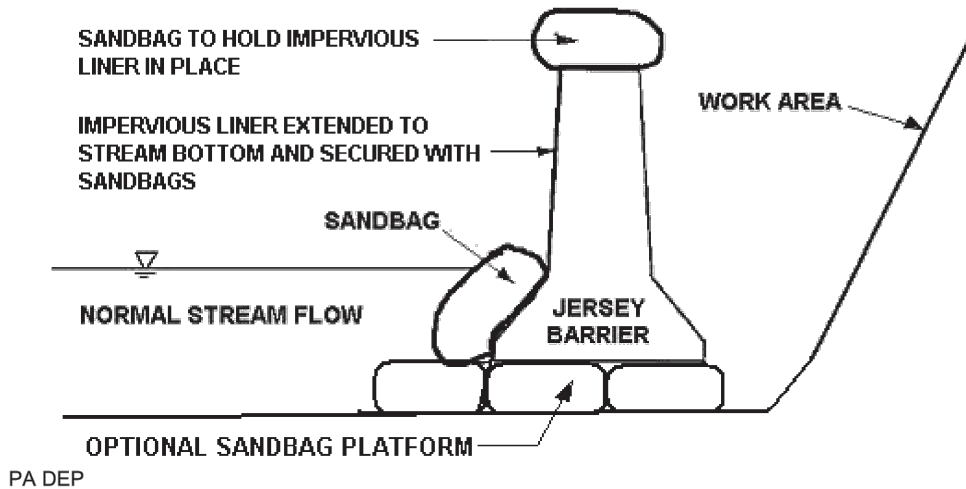


FIGURE 3.13
Jersey Barrier Cofferdam – End View



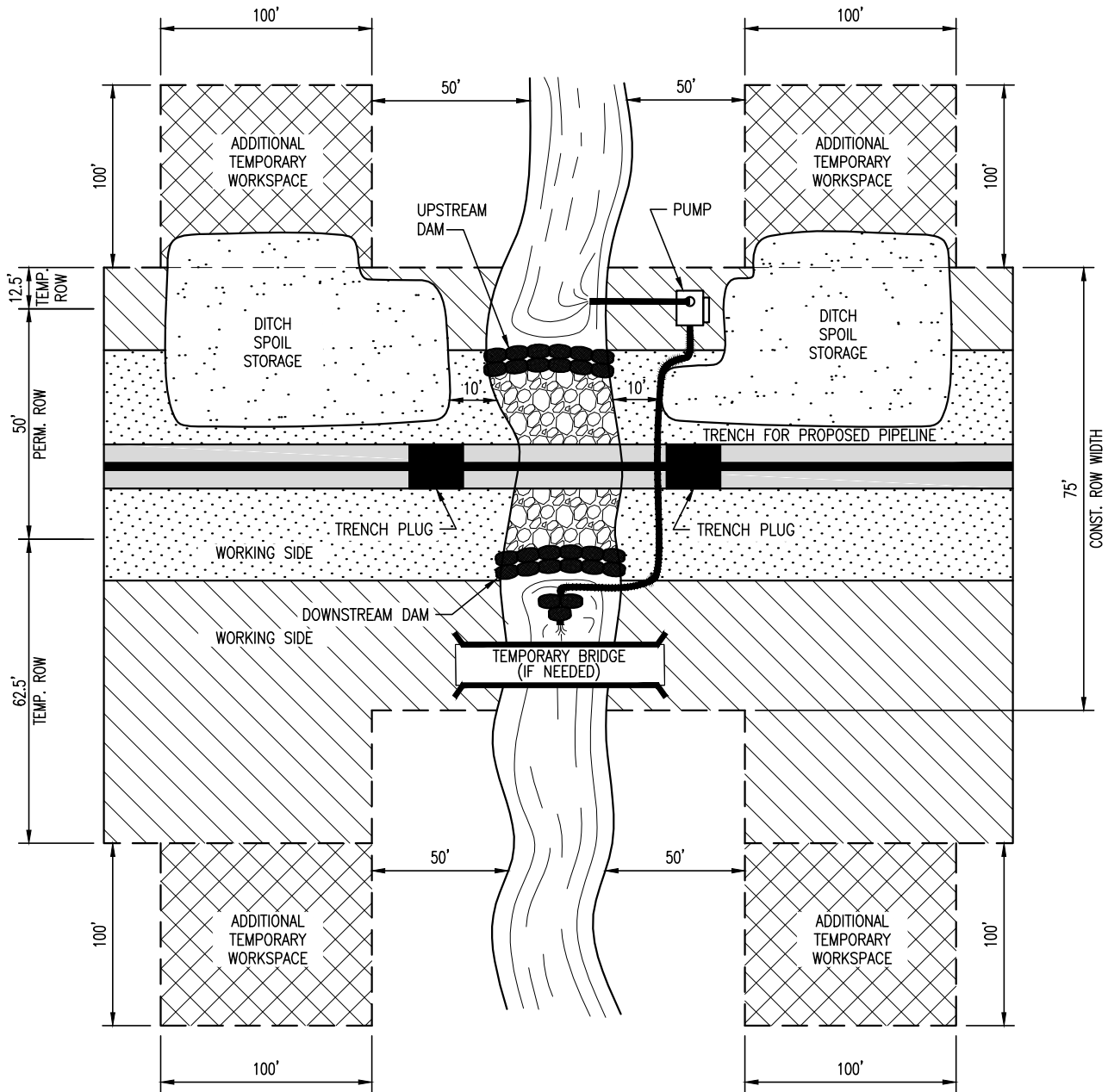
NOTES: AT NO TIME, SHOULD MORE THE 60% OF THE STREAM CHANNEL WIDTH BE DIVERTED DURING PIPELINE INSTALLATION.

GRUBBING SHALL NOT TAKE PLACE WITHIN 50 FEET OF TOP-OF-BANK UNTIL ALL MATERIALS REQUIRED TO COMPLETE CROSSING ARE ON SITE AND PIPE IS READY FOR INSTALLATION. TRENCH BREAKERS SHALL BE INSTALLED WITHIN THE TRENCH ON BOTH SIDES OF THE STREAM CHANNEL (MVP TYPICAL DETAIL MVP-20). WATER ACCUMULATING WITHIN THE WORK AREA SHALL BE PUMPED TO A PUMPED WATER FILTER BAG OR SEDIMENT TRAP PRIOR TO DISCHARGING INTO ANY RECEIVING SURFACE WATER. HAZARDOUS OR POLLUTANT MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 100 FEET BACK FROM THE TOP OF STREAMBANK. ALL EXCESS EXCAVATED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE STREAM CROSSING AREA. ALL DISTURBED AREAS WITHIN 50 FEET OF TOP-OF-BANK SHALL BE BLANKETED OR MATTED WITHIN 24 HOURS OF INITIAL DISTURBANCE FOR MINOR STREAMS OR 48 HOURS OF INITIAL DISTURBANCE FOR MAJOR STREAMS UNLESS OTHERWISE AUTHORIZED.

DRAWN	DATE
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SCALE N.T.S.	SHEET 1 OF 1
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PROJECT ID:	PXXXX

DESIGN ENGINEERING

ENVIRONMENTAL DETAIL	
COFFERDAM STREAM CROSSING METHOD	
DRAWING NO.	REV.
MVP-ES13.2	P



THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN	JDM	DATE	08/20/15
CHECKED	RRR	DATE	10/01/15
APP'D	RLM	DATE	10/01/15
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID:			
PXXXX			



DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

MAINLINE CONSTRUCTION
WATERBODY CROSSING
OPEN CUT – DRY/DAM AND PUMP
RIGHT-OF-WAY

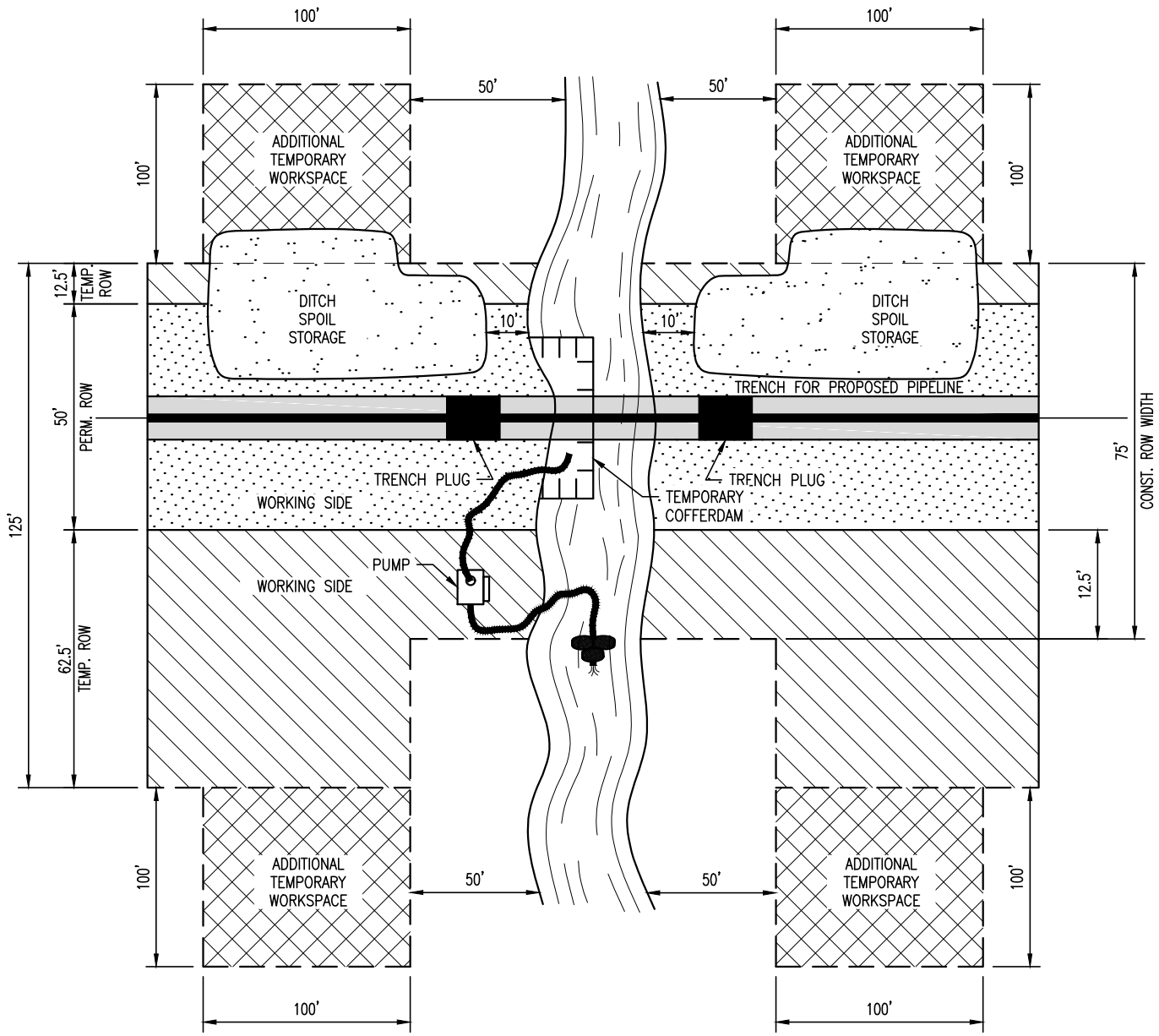
DRAWING NO.

MVP-15

REV.

0

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.



DRAWN	EPG	DATE	09/27/16
CHECKED	-	DATE	-
APP'D	-	DATE	-
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JOB NO.			
PROJECT ID: PXXXX			

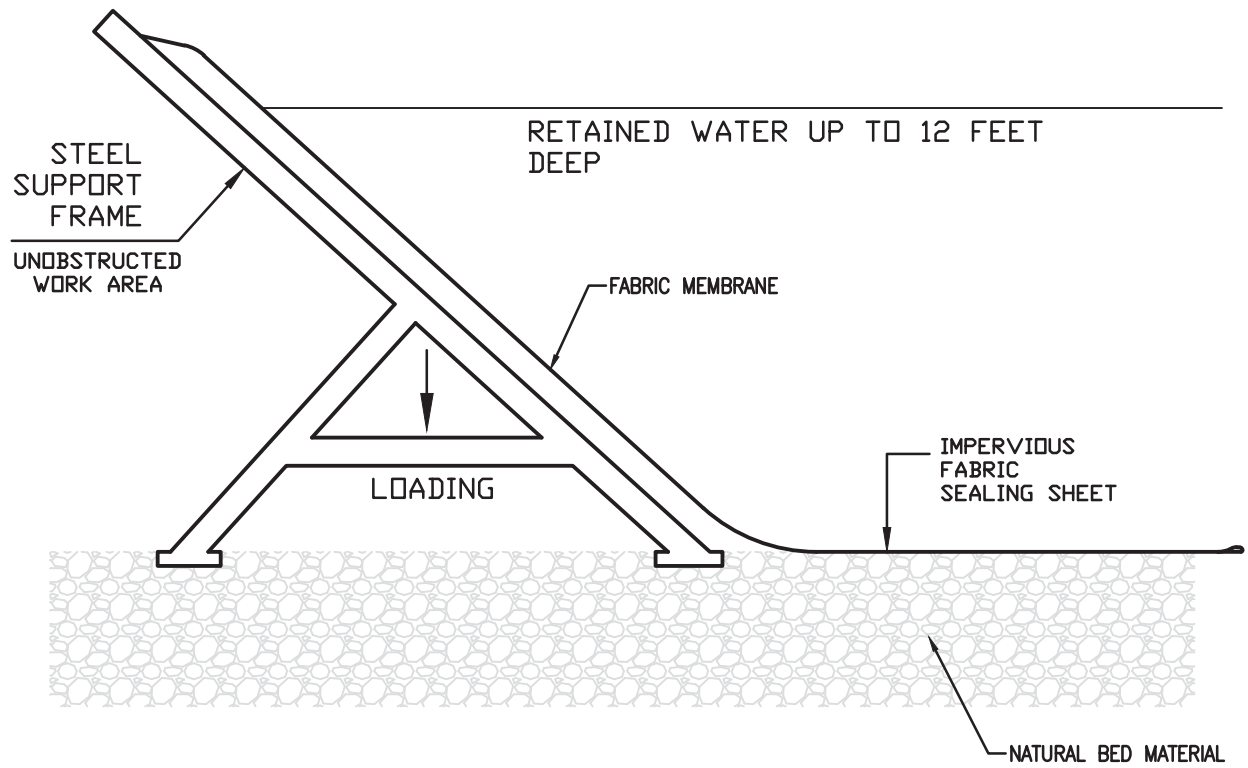


DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

MAINLINE CONSTRUCTION
WATERBODY CROSSING
OPEN CUT – DIVERTED DRY-DITCH
RIGHT-OF-WAY

DRAWING NO. MVP-47	REV. 0
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JOB NO.	
PROJECT ID: PXXXX	



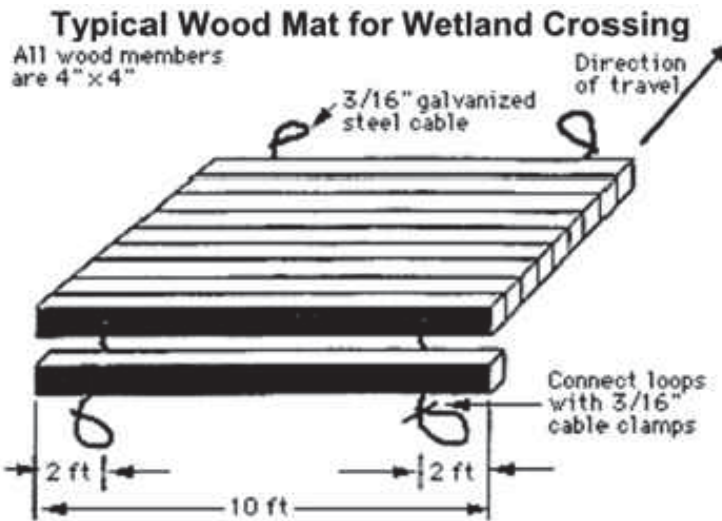
DESIGN ENGINEERING

ENVIRONMENTAL DETAIL

PORTADAM DETAIL

DRAWING NO.
MVP-ES36

REV.
P



University of Minnesota FS 07009
A geotextile underlayment shall be used under the wood mat.

Source: PaDEP, E&S Pollution Control Manual, March 2012

NOTE:
 CULVERTS MAY BE SUBSTITUTED WHEN
 REQUIRED BY FIELD VERIFIED CONDITIONS.

DRAWN	DATE
CHECKED	DATE
APP'D	DATE
SCALE N.T.S.	SHEET 1 OF 1
JOB NO.	
PROJECT ID:	PXXXX



Mountain Valley
 PIPELINE
 DESIGN ENGINEERING

ENVIRONMENTAL DETAIL	
TIMBER MAT/WETLAND CROSSING	
DRAWING NO.	REV.
MVP-ES37	P